Liberia

Demographic and Health Survey

2013

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**Liberia Institute of Statistics and
Geo-Information Services (LISGIS)
Monrovia, Liberia**

**Ministry of Health and Social Welfare
Monrovia, Liberia**

**National AIDS Control Program
Monrovia, Liberia**

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Rockville, Maryland, USA**

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FOREWORD

Prior to the civil crisis, the Government of Liberia conducted three censuses and several demographic surveys. The censuses were the 1962 Population Census and the 1974 and 1984 Population and Housing Censuses, and the surveys were the 1978 National Demographic Survey (NDS) and the 1986 Liberia Demographic and Health Survey (1986 LDHS). With the exception of a few hard copies of the 1984 Population and Housing Census summary results, most other census and survey results stored on computer tapes and diskettes or printed as reports were extensively damaged or looted during the civil crisis.

The economic and demographic situation of Liberia was adversely affected by the civil crisis to an extent still to be determined. This state of affairs affected policy decision-making and program development because the precise order of magnitude of population structures and processes was unknown. It was difficult to assess the extent of the large-scale displacement of rural and urban populations. There was a massive loss of lives caused by the civil crisis and destruction of social and physical infrastructure. The only recourse was secondary analysis of defective data collected by non-statistical professionals during the crisis. Information on the demographic processes of mortality and fertility and the associated aspects of reproductive health and primary health care were based on projections that used unreliable data and relied on dubious manipulation of those data.

There has been therefore a dire need for accurate socio-demographic statistics to help others understand the dynamics of the Liberian population within the context of the recommendations of international conferences, such as the Africa Population Conference in Dakar, Senegal, in 1992, the International Conference on Population and Development in Cairo, Egypt, in 1994, and the Fourth World Conference on Women in Beijing, China, in 1995.

Within this context, the Government of Liberia, in collaboration with its development partners, decided to separate the Department of Statistics (DOS) from the Ministry of Planning and Economic Affairs to create an autonomous statistical agency. The Liberia Institute of Statistics and Geo-Information Services (LISGIS) was established by an act of the National Transitional Legislative Assembly (NTLA) and approved by the chairman of the National Transitional Government of Liberia (NTGL) on July 22, 2004. The full title of the act is *"The Liberian Code of Laws Revised, As Amended, By Adding Thereto A New Chapter 50A."* As indicated in Section 50A.1, its short title is known and cited as the "National Statistics and Geo-Information Act." The goals and objectives are as follows:

Goals:

1. Establish, develop, and maintain a holistic National Statistical and Spatial Data System (NSSDS) and an integrated National Statistical and Spatial Database (NSSD)

2. Coordinate, monitor, and supervise the NSSDS and NSSD to allow for the provision of holistic gender and geographically sensitive analysis for timely, relevant, and acceptable standards of information to institutions of government, business, and national and international communities

Objectives:

1. Serve as the prime, authoritative agency of government responsible for collecting, managing, coordinating, supervising, evaluating, analyzing, disseminating, and setting quality standards for statistical and associated geo-information for overall national socio-economic reconstruction and development

2. More specifically, formulate and implement national strategies, programs, and policies for the development and management of a National Statistical and Geo-Information System and an integrated gender-sensitive and environmentally sensitive National Statistical and Spatial Database in Liberia

The agency did not open its doors to the public immediately because it lacked budgetary support until 2006 when Her Excellency Ellen Johnson-Sirleaf, President of the Republic of Liberia, instructed the director of the Bureau of the Budget to include LISGIS in the national budget for Fiscal Year 2006/2007. Hence, for the first time an amount of US$450,000 was appropriated in the national budget for LISGIS to open its doors and commence its activities.

Since 2006, LISGIS, with the support of the Government of Liberia and its development partners, and in collaboration with other ministries and agencies, has produced the following:

- Comprehensive Food Security and Nutrition Survey (CFSNS) - 2006, 2008, 2010, 2012, and 2014

- 2007 Liberia Demographic and Health Survey (LDHS) for the provision of demographic, education, and health indicators for the monitoring of the Poverty Reduction Strategy I, (PRS-I), the County Development Agenda (CDA), and the Millennium Development Goals (MDGs) Programmes/Projects

- 2007 Core Welfare Indicators Questionnaire Survey (CWIQ) and the 2007 Poverty Participatory Perception Survey (PPPS) to produce poverty line and indicators for the preparation and development of the Poverty Reduction Strategy I

- 2008 PRS I Monitoring and Evaluation Framework

- 2008 National Strategy for the Development of Statistics (NSDS)

- 2008 National Population and Housing Census (NPHS)

- The Agriculture Crops Survey (ACS) - 2008, 2009, 2010, 2011, 2012, and 2013

- 2010 Core Welfare Indicators Questionnaire Survey (CWIQ)

- 2010 Labor Force Survey (LFS)

- 2010 Human Right Survey (HRS)

- National Accounts Annual Survey (NAAS) - 2008 and 2012

- National Establishment Census (NEC) - 2011 and 2013

- 2011 Social Cash Transfer Survey (SCTS)

- 2012 School-to-Work Transitional Survey (SWTS)

- 2012 Most-at-Risk Youth and Adolescent Survey (MRYAS)

- Liberia Malaria Indicator Survey (LMIS) –2009 and 2011

- Monrovia Consumer Price Index 2006, 2007, 2008, 2009, 2010, 2011, 2012 and 2013

- External/Foreign Trade – 2007, 2008, 2009, 2010, 2011, 2012, and 2013

The 2013 Liberia Demographic and Health Survey (2013 LDHS) constitutes the second post-war, and fourth overall, LDHS in the Republic of Liberia. The first LDHS was conducted in 1986 as part of the worldwide DHS program; Liberia was the second country in the world and the first in Africa to conduct a DHS under this program. Liberia undertook the second LDHS in 1999/2000 outside the purview of the international DHS program and with no outside technical assistance. Liberia undertook a third LDHS in 2007, this time as part of the MEASURE DHS program.

The 2013 LDHS covered the entire country. The main objectives of the 2013 LDHS were to provide reliable and detailed information on socio-demographic characteristics of the general population, the health and nutritional status of children, maternal and reproductive health, and HIV prevalence among adults. The information will enable the government of Liberia and the international community to develop, monitor, and evaluate policies and programs related to population, reproductive health, child health, and HIV/AIDS. The survey will also provide data for assessing progress in the achievements of a number of targets set for the Poverty Reduction Strategy (PRS) and the Millennium Development Goals (MDGs). Finally, the data will contribute to construction of a population database on reproductive health, gender, and attitudes towards violence against women, and will also provide institutional capacity-building at LISGIS.

The four main survey outcomes will be:

1. Availability and accessibility of accurate, timely, and reliable indicators of socio-demographic characteristics of the population for use in policy formulation, national development planning, monitoring, and evaluation

2. Enhanced capacity in government, especially within LISGIS, to plan and conduct sample surveys

3. Increased knowledge of stakeholders at all levels on survey findings

4. Increased utilization of data for designing, monitoring, and evaluating development programs

The planning of the LDHS began in 2012 with the establishment of the management team comprised of personnel from the Liberia Institute of Statistics and Geo-Information Services (LISGIS). The secretariat of the management team, which sits in the LISGIS, managed the day-to-day affairs of the project. The Project Steering Committee (PSC) and the Project Technical Committee (PTC) were established to assist LISGIS in mobilizing resources and managing the project.

The PSC consisted of representatives from government ministries/agencies, the University of Liberia, UN agencies, and bilateral and multilateral donors. The PTC, which consisted of representatives from government ministries and agencies, the University of Liberia, and local non-government organizations, provided technical advice to the project. The PTC assisted LISGIS in reviewing the sampling coverage,

questionnaire development, and tabulation plan. MEASURE DHS via ICF International provided technical backstopping during the project's implementation.

The activities of the 2013 LDHS commenced in September 2012 with the identification of selected enumeration areas (EAs) and the household listing, which lasted about one month. The preparation and finalization of the household and individual questionnaires and supervisor's and interviewer's manuals were completed with the assistance of MEASURE DHS, a program of ICF International. Following the recruitment of field staff candidates from across Liberia, the training of prospective field staff was carried out by ICF and LISGIS staff from February 11 to March 8, 2013, at the Catholic Retreat Center in the city of Gbarnga, Bong County. Upon selection of field teams, the survey was launched on March 9, 2013, starting with a parade in the main streets of Gbarnga, Bong County, and ending with an indoor program in the City Hall of Gbarnga. The field interview exercise started on March 10, 2013, and lasted four months. Sixteen teams of seven members each (one supervisor, one field editor, four interviewers, and a driver) deployed to collect the data from the field. The data were electronically processed and edited from April 2013 to August 2013.

It is our hope that this report will be useful for advocacy, research, policy formulation and decision-making, program development, service delivery, and socio-economic development planning. There is more information available in the dataset, which is available from both LISGIS and the DHS Program.

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Director General/LISGIS

ACKNOWLEDGMENTS

MILLENNIUM DEVELOPMENT GOAL INDICATORS

Millennium Development Goal Indicators

Liberia 2013

	Sex		
Indicator	Female	Male	Total
1. Eradicate extreme poverty and hunger			
1.8 Prevalence of underweight children under age 5	13.2	16.6	15.0
2. Achieve universal primary education			
2.1 Net attendance ratio in primary education[1]	40.0	37.7	38.8
2.3 Literacy rate of 15-24 year-olds[2]	64.2	79.0[a]	71.6[b]
3. Promote gender equality and empower women			
3.1 Ratio of girls to boys in primary, secondary, and tertiary education			
3.1a Ratio of girls to boys in primary education[3]	na	na	1.1
3.1b Ratio of girls to boys in secondary education[3]	na	na	0.9
3.1c Ratio of girls to boys in tertiary education[3]	na	na	1.0
4. Reduce child mortality			
4.1 Under 5 mortality rate[4]	111	115	94
4.2 Infant mortality rate[4]	67	72	54
4.3 Proportion of 1 year-old children immunized against measles	74.6	73.8	74.2
5. Improve maternal health			
5.1 Maternal mortality ratio[5]	na	na	1,072
5.2 Percentage of births attended by skilled health personnel[6]	na	na	61.1
5.3 Contraceptive prevalence rate[7]	20.2	na	na
5.4 Adolescent birth rate[8]	149.3	na	na
5.5 Antenatal care coverage			
5.5a Antenatal care coverage: at least one visit[9]	95.9	na	na
5.5b Antenatal care coverage: four or more visits[10]	78.1	na	na
5.6 Unmet need for family planning	31.1	na	na
6. Combat HIV/AIDS, malaria and other diseases			
6.1 HIV prevalence among the population age 15-24	1.4	0.5	1.0
6.2 Condom use at last high-risk sex[11]	22.1	45.1	33.6
6.3 Percentage of the population age 15-24 years with comprehensive correct knowledge of HIV/AIDS[12]	35.7	28.5	32.1
6.4 Ratio of school attendance of orphans to school attendance of non-orphans age 10-14 years	*	*	*
6.7 Percentage of children under 5 sleeping under insecticide-treated bednets	37.4	38.7	38.1
6.8 Percentage of children under 5 with fever who are treated with appropriate antimalarial drugs[13]	54.3	56.9	55.7

	Urban	Rural	Total
7. Ensure environmental sustainability			
7.8 Percentage of population using an improved drinking water source[14]	85.8	56.6	73.0
7.9 Percentage of population with access to improved sanitation[15]	26.1	5.0	16.9

na = Not applicable

* There are too few cases of orphans age 10-14 to present the data for this indicator.

[1] The ratio is based on reported attendance, not enrollment, in primary education among primary school age children (6-11 year-olds). The rate also includes children of primary school age enrolled in secondary education. This is a proxy for MDG indicator 2.1, Net enrollment ratio.

[2] Refers to respondents who attended secondary school or higher or who could read a whole sentence or part of a sentence

[3] Based on reported net attendance, not gross enrollment, among 6-11 year-olds for primary, 12-17 year-olds for secondary and 18-22 year-olds for tertiary education

[4] Expressed in terms of deaths per 1,000 live births. Mortality by sex refers to a 10-year reference period preceding the survey. Mortality rates for males and females combined refer to the 5-year period preceding the survey.

[5] Expressed in terms of maternal deaths per 100,000 live births in the 7-year period preceding the survey

[6] Among births in the five years preceding the survey

[7] Percentage of currently married women age 15-49 using any method of contraception

[8] Equivalent to the age-specific fertility rate for women age 15-19 for the 3-year preceding the survey, expressed in terms of births per 1,000 women age 15-19

[9] With a skill provider

[10] With any healthcare provider

[11] Higher-risk sex refers to sexual intercourse with a non-marital, non-cohabitating partner. Expressed as a percentage of men and women age 15-24 who had higher-risk sex in the past 12 months.

[12] Comprehensive knowledge means knowing that consistent use of a condom during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about transmission or prevention of HIV.

[13] Measured as the percentage of children age 0-59 months who were ill with a fever in the two weeks preceding the interview and received any anti-malarial drug

[14] Percentage of de jure population whose main source of drinking water is a household connection (piped), public tap or standpipe, tubewell or borehole, protected dug well/hand pump, protected spring, rainwater collection, or bottled water.

[15] Percentage of de jure population whose household has a flush toilet, ventilated improved pit latrine, pit latrine with a slab, or composting toilet and does not share this facility with other households

[a] Restricted to men in sub-sample of households selected for the male interview

[b] The total is calculated as the simple arithmetic mean of the percentages in the columns for male and females

LIBERIA

SIERRA LEONE

GUINEA

COTE D'IVOIRE

Lofa

Gbarpolu

NORTH WESTERN

Grand Cape Mount

NORTH CENTRAL

Bomi

Bong

Nimba

Margibi

SOUTH CENTRAL

Montserrado

Grand Bassa

Grand Gedeh

River Cess

SOUTH EASTERN A

Sinoe

River Gee

SOUTH EASTERN B

Grand Kru

Maryland

0 25 50 100
Kilometers

INTRODUCTION

<div style="text-align: right">1</div>

1.1   HISTORY, GEOGRAPHY, AND ECONOMY

L iberia is located on the west coast of Africa, with a land area of 110,080 sq km and a coastline of 560 km that stretches along the Atlantic Ocean. The country is bordered by Sierra Leone to the west, Guinea to the northwest, and Côte d'Ivoire to the northeast and the east (see map). The country is divided into 15 counties that are further subdivided into districts and clans, with a population of approximately 3.5 million people (LISGIS, 2009; Table 1.1).

Most of the country lies below 500 m in altitude, and rain forest and swamp are common geographic features. During the main rainy season—July through September—temperatures average 24.5°C and rise to 26.5°C in December and January when it is predominantly dry. Rainfall in the coastal areas where the capital of Monrovia lies, is over 5,000 mm a year; however, this decreases as one moves inland to as little as 2,000 mm. Average humidity is about 72 percent (MOH, 2001).

Driven by iron-ore and rubber exports, construction, and the service sector, Liberia's economy grew an estimated 8.9 percent in 2012, and is projected to expand by 7.7 percent in 2013 and 5.4 percent in 2014 (African Economic Outlook, 2014). Despite the economic growth of the country, more than half of the population (56 percent) lives below the poverty line on less than US$1.25 per day (World Bank, 2012). Liberia's 2012 Human Development Index (HDI), a composite score of the population's general well-being as measured by the United Nations Development Program (UNDP), is 0.388 (UNDP, 2013). The HDI compiles indicators that measure life expectancy, health, education, and standard of living to generate a composite score ranging from a low of zero to a high of 1.0. The HDI score for Liberia ranks the country 174 out of 187 countries with comparable data. The HDI of Sub-Saharan Africa, as a region, has increased from 0.365 in 1980 to 0.475 in 2012, which places Liberia's score below the regional average.

Liberia, which means land of the free, was founded by the American Colonization Society (ACS) in 1820 in a drive to resettle free slaves from America back to Africa. The capital, Monrovia, was named after the U. S. President, James Monroe. Liberia became an independent state in 1847, and Joseph Jenkins Roberts, one of the freed African-Americans, was its first elected president. Until 1904, the indigenous Africans resisted the settlers. As a result, they were refused citizenship in the new republic. To this day, descendants of the American freed slaves are referred to as Americo-Liberians, highlighting Liberia's longstanding connection with the United States of America (Guannu, 2010).

Table 1.1 Basic demographic indicators

Demographic indicators from selected sources, Liberia

Indicators	Census 1984	Census 2008
Population (millions)	2.1	3.5
Intercensal growth rate (percent)	3.4	2.1
Density (population/km^2)	145.0	240.9
Percent urban		47.0
Life expectancy (years)		
Male		51.6
Female		53.9

Source: LISGIS, Population and Housing Census 2008

1.2 OBJECTIVES OF THE SURVEY

The primary objective of the 2013 Liberia Demographic and Health Survey (2013 LDHS) is to provide up-to-date estimates of basic demographic and health indicators. Specifically, the 2013 LDHS collected information on fertility levels, marriage, sexual activity, fertility preferences, family planning methods, breastfeeding practices, nutrition, childhood and maternal mortality, maternal and child health, and HIV/AIDS and other sexually transmitted infections (STIs). In addition, the 2013 LDHS provides estimates on HIV prevalence among adult Liberians.

The 2013 LDHS is a follow-up to the 2007 LDHS, the 1999/2000 LDHS[1], and the 1986 LDHS. A subset of the indicators presented in the 2013 LDHS overlap with indicators produced as part of the 2009 and 2011 Liberia Malaria Indicator Surveys (LMIS).

1.3 ORGANIZATION OF THE SURVEY

The 2013 LDHS was implemented by the Liberia Institute of Statistics and Geo-Information Services (LISGIS). Data collection took place from 10 March to 19 July 2013. The survey was conducted under the aegis of the country's Ministry of Health and Social Welfare (MOHSW). ICF International provided technical assistance through the United States Agency for International Development (USAID)-funded MEASURE DHS project, which provides support and technical assistance for population and health surveys in countries worldwide. USAID also provided material support directly to Government of Liberia for the survey. Other agencies and organizations that facilitated the successful implementation of the survey through technical or financial support were the National AIDS Control Program (NACP), the National Malaria Control Program (NMCP), the Global Fund, the United Nations Children's Fund (UNICEF), the United Nations Population Fund (UNFPA), the United Nations Development Fund (UNDP), the World Health Organization (WHO), the Montserrado Regional Blood Bank, the National Reference Laboratory, and the Government of Liberia.

1.4 SURVEY IMPLEMENTATION

1.4.1 Sample Design

The sampling frame for the 2013 LDHS was developed by the Liberia Institute of Statistics and Geo-Information Services (LISGIS) after the 2008 National Population and Housing Census (NPHC). The sampling frame is similar to that used for the 2009 and 2011 Liberia Malaria Indicator Surveys (LMIS), except that the classification of localities as urban or rural was updated through the application of standardized definitions. The sampling frame excluded nomadic and institutional populations such as residents of hotels, barracks, and prisons. Notably, the sampling frame for the 2013 LDHS differs markedly from that used for the 2007 LDHS, which was based on the 1984 NPHC. Taken together, these differences may complicate data comparisons between surveys.

The 2013 LDHS followed a two-stage sample design that allowed estimates of key indicators for the country as a whole, for urban and rural areas separately, for Greater Monrovia and other urban areas separately, and for each of 15 counties. To facilitate estimates of geographical differentials for certain demographic indicators, the 15 counties were collapsed into five regions as follows:

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[1] The 1999/2000 LDHS was undertaken by the Ministry of Planning and Economic Affairs (MPEA) and the University of Liberia outside the purview of MEASURE DHS.

North Western: Bomi, Grand Cape Mount, and Gbarpolu
South Central: Montserrado, Margibi, and Grand Bassa
South Eastern A: River Cess, Sinoe, and Grand Gedeh
South Eastern B: River Gee, Grand Kru, and Maryland
North Central: Bong, Nimba, and Lofa

Regional data were presented in the 2007 LDHS, the 2009 LMIS, and the 2011 LMIS. However, in contrast with these past surveys, the South Central region now includes Monrovia. Thus, data presented for the South Central region in this report is not directly comparable to that presented in the 2007 LDHS, the 2009 LMIS, or the 2011 LMIS.

The first stage of sample selection involved selecting sample points (clusters) consisting of enumeration areas (EAs) delineated for the 2008 NPHC. Overall, the sample included 322 sample points, 119 in urban areas and 203 in rural areas. To allow for separate estimates of Greater Monrovia and Montserrado as a whole, 44 sample points were selected in Montserrado; 16 to 26 sample points were selected in each of the other 14 counties.

The second stage of selection involved the systemic sampling of households. A household listing operation was undertaken in all the selected EAs from mid-September to mid-October 2012. From these lists, households to be included in the survey were selected. Approximately 30 households were selected from each sample point for a total sample size of 9,677 households. During the listing, geographic coordinates (latitude and longitude) were taken in the center of the populated area of each EA using global positioning system (GPS) units.

Because of the approximately equal sample sizes in each region, the sample is not self-weighting at the national level, and weighting factors have been added to the data file so that the results will be proportional at the national level.

All women age 15-49 who were either permanent residents of the selected households or visitors who stayed in the household the night before the survey were eligible to be interviewed. In half of the households, all men age 15-49 who were either permanent residents of the selected households or visitors who stayed in the household the night before the survey were eligible to be interviewed. In the subsample of households selected for the male survey, blood samples were collected for laboratory testing to detect HIV from eligible women and men who consented; in this same subsample of households, height and weight information was collected from eligible women, men, and children 0-59 months.

1.4.2 Questionnaires

Three questionnaires were used for the 2013 LDHS: the Household Questionnaire, the Woman's Questionnaire, and the Man's Questionnaire. These questionnaires are based on MEASURE DHS standard survey questionnaires and were adapted to reflect the population and health issues relevant to Liberia. Input was solicited from various stakeholders representing government ministries and agencies, nongovernmental organizations, and international donors.

Given that there are dozens of local languages in Liberia, most of which have no accepted written script and are not taught in the schools, and given that English is widely spoken, it was decided not to attempt to translate the questionnaires into vernaculars. However, many of the questions were broken down into a simpler form of Liberian English that interviewers could use with respondents.

The Household Questionnaire was used to list all the usual members of and visitors to selected households. Some basic demographic information was collected on the characteristics of each person listed, including his or her age, sex, education, and relationship to the head of the household. For children under age 18, survival status of the parents was determined. The data on age and sex of household members obtained in the Household Questionnaire were used to identify women and men who were eligible for individual interview and HIV testing. The Household Questionnaire also collected information on characteristics of the household's dwelling unit, such as the source of water, type of toilet facility, materials used for the floor of the house, ownership of various durable goods, ownership and use of mosquito nets, and information on household out-of-pocket health-related expenditures. The Household Questionnaire was also used to record height and weight measurements of children 0-59 months and eligible adults. Also recorded was whether or not eligible adults consented to HIV testing.

The Woman's Questionnaire was used to collect information from all eligible women age 15-49. Eligible women who consented to being interviewed were asked questions on the following topics:

- Background characteristics (age, education, religion, etc.)
- Birth history and child mortality
- Knowledge and use of family planning methods
- Fertility preferences
- Prenatal, delivery, and postnatal care
- Breastfeeding and infant feeding practices
- Vaccinations and childhood illnesses
- Marriage and sexual activity
- Women's work and husband's background characteristics
- Malaria prevention and treatment
- Knowledge, awareness, and behavior regarding AIDS and other sexually transmitted infections (STIs)
- Adult mortality, including maternal mortality

The Man's Questionnaire was administered to all men age 15-49 in the subsample of households selected for the male survey in the 2013 LDHS sample. The Man's Questionnaire collected much of the same information as the Woman's Questionnaire, but was shorter because it did not contain a detailed reproductive history or questions on maternal and child health.

1.4.3 HIV Testing

The 2013 LDHS incorporated HIV testing, which required taking finger prick blood from adults age 15-49. Blood specimens were collected in the field and tested in the laboratory. Verbal consent for blood collection for HIV testing for adults was requested from each respondent following completion of the individual interview. The protocol for HIV testing was approved by the Liberia Institute for Biomedical Research, the Institutional Review Board of ICF International, and the U.S. Centers for Disease Control and Prevention in Atlanta, Georgia.

Interviewers collected blood specimens from all women and men who consented. The protocol for the blood specimen collection and analysis was based on the anonymous linked protocol developed by MEASURE DHS. This protocol allows for the merging of the HIV test results with the socio-demographic data collected in the individual questionnaires after all information that could potentially identify an individual is destroyed.

Interviewers explained the procedure, the confidentiality of the data, and the fact that the test results would not be made available to the respondent. If a respondent consented to HIV testing, three to five blood spots from a finger prick were collected on a filter paper card to which a barcode label unique to the respondent was affixed. Respondents were asked for consent to having the laboratory store their blood sample for future unspecified testing. If the respondent did not consent to additional testing using their sample, it was indicated on the Household Questionnaire that the respondent refused additional tests using their specimen, and the words 'No additional testing' were written on the filter paper card. Each respondent, whether consenting or not, was given an informational brochure on HIV/AIDS and a list of nearby sites providing voluntary counselling and testing (VCT) services.

A barcode label identical to that placed on the filter paper card was attached to the Household Questionnaire. A third copy of the same barcode was affixed to the Dried Blood Spot (DBS) Transmittal Form to track the blood samples from the field to the laboratory. Blood samples were dried overnight and packaged for storage the following morning. Samples were periodically collected from the field, along with the completed questionnaires, and transported to LISGIS in Monrovia to be logged in and checked; blood samples were then transported to the Montserrado Regional Blood Bank in Monrovia.

At the Montserrado Regional Blood Bank, each blood sample was logged into the CSPro HIV Test Tracking System (CHTTS) database, given a laboratory number, and stored at -20°C. The Blood Bank served as a convenient, but temporary, repository for the blood samples. Prior to the start of HIV testing, all samples were transferred to a -80°C freezer at the National Reference Laboratory (NRL). The NRL is housed at the Liberia Institute for Biomedical Research (LIBR), and is where HIV testing took place. The HIV testing protocol stipulates that testing of blood can only be conducted after the questionnaire data entry is completed, verified, and cleaned, all paper questionnaires are destroyed, and all unique identifiers are removed from the questionnaire data file except the anonymous barcode number.

The testing algorithm called for testing all samples with the first assay test, an ELISA, the Vironostika® HIV Ag/Ab (Biomérieux). A negative result was recorded as negative. All positives and 10 percent of the negatives were subjected to a second ELISA, the Enzygnost® HIV Integral II assay (Siemens). Positive samples on both tests were recorded as positive. If the first and second tests were discordant, the two ELISAs were repeated. If the results remained discordant, a third confirmatory test, the Inno-Lia HIV I/II line immunoassay (Innogenetics), was administered. The final result was recorded as positive if the line immunoassay confirmed the result to be positive and negative if the line immunoassay confirmed it to be negative. If the line immunoassay results were indeterminate, the sample was rendered indeterminate. The line immunoassay was also used to determine the HIV type of all positive samples.

Upon finishing HIV testing, the HIV test results were entered into a spreadsheet with a barcode as the unique identifier to the result. The barcode linked the HIV test results with the individual interview data.

1.4.4 Training of Field Staff

Six women and nine men participated in a training to pretest the LDHS survey protocol from 20 August to 7 September 2012. Most participants had worked on various LDHS survey activities previously, including the 2007 LDHS, or were employed by LISGIS. Trainers were staff from LISGIS and MEASURE DHS. Ten days of classroom instruction were provided. Additionally, pretest field practice took place over four days in both rural and urban locations. Following field practice, a debriefing session was held with the pretest field staff, and modifications to the questionnaires were made based on lessons drawn from the exercise.

The recruitment of the LDHS field staff began in October 2012. The positions were advertised via announcements on bulletin boards in LISGIS headquarters and all LISGIS county offices. Minimum

requirements of applicants included a high school diploma, fluency in English, and familiarity with one or more local dialects. A total of 3,662 applications were received from all counties. Vetting of all applications was done over a two-week period; 1,339 candidates were short-listed to sit for aptitude testing. Two aptitude tests were arranged. The first occurred in November 2013; those who passed were eligible for a second aptitude test, which was administered in January 2013. One thousand and sixty-four candidates sat for the first test, and 564 candidates sat for the second test. Based on the outcome of the second test combined with prior survey experience and other intangibles, a total of 128 persons (82 females and 46 males) were invited to the main training.

The field staff main training took place over four weeks (11 February to 8 March 2013). The training was conducted following MEASURE DHS training procedures, which included class presentations, mock interviews, tests, and field practice. Trainers included LISGIS staff who participated in the LDHS pretest; staff from MOHSW, WHO, and Planned Parenthood Association of Liberia; and staff from ICF International.

Out of those persons who were recruited and attended the main training, 65 women and 31 men were selected to carry out field work. Among this group, 16 persons were selected as team supervisors and 16 persons were selected as field editors; all others served as interviewers. Team supervisors and field editors were provided with additional training in methods of field editing, data quality control procedures, and fieldwork coordination.

1.4.5 Fieldwork

Data collection was carried out by 16 field teams, each consisting of one team supervisor, one field editor, three female interviewers, one male interviewer, and one driver. On each team, one of the female interviewers and the male interviewer were also tasked with biomarker collection (conducting height and weight measurements and blood collection for HIV testing from eligible respondents). Five senior staff members from LISGIS and a senior staff member from NACP coordinated and supervised the fieldwork activities. Participants in fieldwork monitoring also included a resident advisor, a survey technical specialist, and a senior data processing specialist, all of whom worked directly for the MEASURE DHS project.

Data collection took place over a four-month period from 10 March to 19 July 2013. For logistical reasons, including the difficulty in reaching the clusters located in the Southeast during the rainy season, fieldwork was divided into three phases:

- Phase I: Maryland, Grand Kru, Sinoe, River Gee, Grand Gedeh
- Phase II: Lofa, Bong, Nimba, Grand Bassa, River Cess
- Phase III: Margibi, Montserrado, Greater Monrovia, Bomi, Gbarpolu, Grand Cape Mount

At least three teams were assigned to each county.

1.4.6 Data Processing

All questionnaires were returned to the LISGIS central office in Monrovia for data processing, which consisted of office editing, coding of open-ended questions, data entry, and editing computer-identified errors. The data were processed by a team of 12 data entry clerks, two data editors, one data entry supervisor, and two administrators of questionnaires; the latter checked that the clusters were completed according to the sample selection and that all members of the household eligible for individual interview were identified. Secondary editing was led by an LDHS coordinator. Several LISGIS staff took on the responsibility of receiving the blood samples from the field and checking them before sending them to the Montserrado Regional Blood Bank

for storage. Data entry and editing using CSPro software was initiated in April 2013 and completed in late-August 2013.

1.5 RESPONSE RATES

Table 1.2 shows response rates for the 2013 LDHS. A total of 9,677 households were selected for the sample, of which 9,386 were occupied. Of the occupied households, 9,333 were successfully interviewed, yielding a response rate of 99 percent.

In the interviewed households, 9,462 eligible women were identified for individual interview; of these, complete interviews were conducted with 9,239 women, yielding a response rate of 98 percent. In the subsample of households selected for the male survey, 4,318 eligible men were identified and 4,118 were successfully interviewed, yielding a response rate of 95 percent. The lower response rate for men was likely due to their more frequent and longer absences from the household.

Table 1.2 Results of the household and individual interviews

Number of households, number of interviews, and response rates, according to residence (unweighted), Liberia 2013

Result	Residence		Total
	Urban	Rural	
Household interviews			
Households selected	3,576	6,101	9,677
Households occupied	3,468	5,918	9,386
Households interviewed	3,450	5,883	9,333
Household response rate[1]	99.5	99.4	99.4
Interviews with women age 15-49			
Number of eligible women	3,808	5,654	9,462
Number of eligible women interviewed	3,723	5,516	9,239
Eligible women response rate[2]	97.8	97.6	97.6
Interviews with men age 15-49			
Number of eligible men	1,680	2,638	4,318
Number of eligible men interviewed	1,591	2,527	4,118
Eligible men response rate[2]	94.7	95.8	95.4

[1] Households interviewed/households occupied
[2] Respondents interviewed/eligible respondents

HOUSING CHARACTERISTICS AND HOUSEHOLD POPULATION

2

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Key Findings

- Seventy-three percent of Liberian households use an improved source of drinking water.
- Only 14 percent of households in Liberia use improved toilet facilities that are not shared with other households; 45 percent of households have no toilet facility at all.
- Ten percent of households have access to electricity.
- Ninety-eight percent of households use solid fuel for cooking.
- Ownership of mobile phones has risen dramatically. Although 29 percent of households owned a mobile phone in 2007, 65 percent of households reported owning a mobile phone in the current survey.
- One in four children under 5 has a birth certificate.
- Approximately 7 percent of children under age 18 are orphaned (that is, one or both parents are not living).
- Forty-seven percent of females and 33 percent of males age 6 and older have never attended school.

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This chapter presents information on demographic and socioeconomic characteristics of the household population such as age, sex, education, and place of residence. The environmental profile of households in the 2013 LDHS sample is also examined. Taken together, these descriptive data provide context for the interpretation of demographic and health indices and can furnish an approximate indication of the representativeness of the survey.

In the 2013 LDHS, a household was defined as a person or group of related and unrelated persons who lived together in the same dwelling unit(s), who acknowledged one adult male or female as the head of the household, who shared the same housekeeping arrangements, and who were considered a single unit. Information was collected from all the usual residents of each selected household and visitors who had stayed in the selected household the night before the interview. Those persons who stayed in the selected household the night before the interview (whether usual residents or visitors) represent the de facto population; usual residents alone constitute the de jure population. To maintain comparability with other surveys, all tables in this report refer to the de facto population unless otherwise specified.

2.1 HOUSEHOLD CHARACTERISTICS

The physical characteristics of households and the availability and accessibility of basic household facilities are important in assessing the general welfare and socioeconomic condition of the population. The 2013 LDHS collected information on a range of housing characteristics, including source of drinking water, time taken to fetch water, type of sanitation facility, access to electricity, type of flooring, and number of rooms used for sleeping. Questions asked about sources of energy for cooking fuel and lighting and the distance to the nearest health facility. These data are presented for households and are further disaggregated by residence.

2.1.1 Drinking Water

Increasing access to improved drinking water is one of the Millennium Development Goals that Liberia along with other nations worldwide has adopted (United Nations General Assembly, 2002). Table 2.1 includes a number of indicators that are useful in monitoring household access to improved drinking water (WHO and UNICEF, 2012a). The source of the drinking water is an indicator of suitability for drinking. Sources that are more likely to provide water suitable for drinking are identified in Table 2.1 as improved sources. These include a piped source within the dwelling, yard, or plot; a public tap, tube well, or borehole; a hand pump/protected well or protected spring; and rainwater or bottled water.[1] Lack of ready access to a water source may limit the quantity of suitable drinking water that is available to a household. Even if the water is obtained from an improved source, if it is fetched from a source that is not immediately accessible to the household, it may be contaminated during transport or storage. Finally, home water treatment can be effective in improving the quality of household drinking water.

The source of drinking water is important because waterborne diseases, including diarrhea and dysentery, are prevalent in Liberia. Sources of water expected to be relatively free of the agents responsible for these diseases are piped water, hand pumps/protected wells, and protected springs. Other sources such as unprotected wells, rivers or streams, and ponds, lakes, or dams are more likely to carry disease-causing agents. Table 2.1 indicates that a majority of Liberian households (73 percent) have access to improved water sources: 3 percent from piped water (including public tap or standpipe), 1 percent from tube well or borehole, 64 percent from a hand pump or protected dug well, 1 percent from a protected spring, 4 percent from bottled water, and less than 1 percent from rainwater. Households in urban areas (86 percent) are more likely than those in rural areas (56 percent) to have access to an improved source of water. According to the 2007 LDHS, 82 percent of urban households and 56 percent of rural households used improved sources of water. Thus, there has been little change in access to improved sources of drinking water since 2007.

For 8 percent of households in Liberia, the source of drinking water is on their premises; 10 percent of urban households and 5 percent of rural households have water on their premises. Eighty-nine percent of Liberian households obtain water from a source not on the premises; 71 percent of households take less than 30 minutes to obtain drinking water, and 18 percent take 30 minutes or longer to obtain drinking water.

Fourteen percent of households appropriately treat their drinking water. Ten percent use bleach or chlorine, 4 percent use WaterGuard[TM], and less than one percent uses other methods of treatment. The findings are comparable to those reported in the 2007 LDHS, in which 16 percent of households used an appropriate method to treat their drinking water.

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[1] The categorization into improved and non-improved categories follows that proposed by the WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation (WHO and UNICEF, 2012b).

Table 2.1 Household drinking water

Percent distribution of households and de jure population by source of drinking water, time to obtain drinking water, and treatment of drinking water, according to residence, Liberia 2013

	Households			Population		
Characteristic	Urban	Rural	Total	Urban	Rural	Total
Source of drinking water						
Improved source	85.8	55.5	72.6	85.8	56.6	73.0
Piped water into dwelling/yard/						
plot	1.9	0.0	1.1	1.9	0.0	1.1
Public tap/standpipe	3.2	0.0	1.8	3.0	0.0	1.7
Tube well/borehole	1.5	0.8	1.2	1.8	0.8	1.4
Hand pump/protected dug well	71.5	53.7	63.8	72.9	54.8	65.0
Protected spring	1.2	0.7	1.0	1.1	0.8	1.0
Rain water	0.2	0.1	0.1	0.1	0.1	0.1
Bottled/sack water	6.3	0.1	3.6	4.8	0.1	2.8
Non-improved source	14.1	44.4	27.3	14.1	43.2	26.9
Unprotected dug well	6.2	9.2	7.5	6.5	9.4	7.8
Unprotected spring	0.5	2.8	1.5	0.5	2.7	1.5
Tanker truck/cart with small tank	4.8	0.3	2.8	4.4	0.3	2.6
Surface water	2.6	32.1	15.4	2.7	30.8	15.0
Total[1]	100.0	100.0	100.0	100.0	100.0	100.0
Time to obtain drinking water (round trip)						
Water on premises	9.7	4.8	7.6	10.6	5.6	8.4
Less than 30 minutes	66.6	76.7	71.0	64.4	75.5	69.3
30 minutes or longer	19.0	16.7	18.0	20.4	17.1	19.0
Don't know/missing	4.6	1.8	3.4	4.6	1.8	3.4
Total	100.0	100.0	100.0	100.0	100.0	100.0
Water treatment prior to drinking[2]						
Boiled	0.2	0.2	0.2	0.4	0.2	0.3
Bleach/chlorine added	12.9	7.0	10.4	13.7	7.5	11.0
PUR™	0.2	0.1	0.2	0.2	0.1	0.2
WaterGuard™	5.4	1.9	3.9	5.9	2.1	4.2
Strained through cloth	0.0	0.2	0.1	0.0	0.2	0.1
Ceramic, sand or other filter	0.1	0.1	0.1	0.0	0.1	0.1
Let stand and settle	0.1	0.2	0.1	0.0	0.2	0.1
Other	0.2	0.2	0.2	0.3	0.2	0.3
No treatment	80.5	90.2	84.7	79.4	89.4	83.8
Percentage using an appropriate treatment method[3]	18.0	9.0	14.1	19.3	9.6	15.0
Number	5,289	4,044	9,333	25,982	20,234	46,216

[1] Total includes 8 households for which information on source of drinking water is missing.
[2] Respondents may report multiple treatment methods, so the sum of treatment may exceed 100 percent.
[3] Appropriate water treatment methods include boiling, bleaching, PUR™, WaterGuard™, filtering, and solar disinfecting.

2.1.2 Sanitation Facilities and Waste Disposal

Ensuring adequate sanitation facilities is another Millennium Development Goal that Liberia shares with other countries. A household is classified as having an improved toilet if the toilet is used only by members of one household (i.e., it is not shared) and if the facility used by the household separates the waste from human contact (WHO and UNICEF, 2012a). The types of facilities considered improved are toilets that flush or pour flush into a piped sewer system, septic tank, or pit latrine; ventilated improved pit (VIP) latrines; and pit latrines with a slab.

Table 2.2 shows that only 14 percent of households in Liberia use improved toilet facilities that are not shared with other households, and 28 percent of households use facilities that would be considered improved if they were not shared. Twenty-two percent of households in urban areas have improved toilet facilities that are not shared compared with 4 percent in rural areas.

A majority of Liberian households (58 percent) have non-improved toilet facilities. Six percent of households use pit latrines without slabs or open pits, and another 6 percent use hanging toilets. Forty-five percent of households have no toilet facility at all, a lower proportion than that reported in the 2007 LDHS (55 percent). Still, 24 percent of households in urban areas and 73 percent of households in rural areas lack any toilet facility.

Table 2.2 Household sanitation facilities

Percent distribution of households and de jure population by type of toilet/latrine facilities, according to residence, Liberia 2013

Type of toilet/latrine facility	Households			Population		
	Urban	Rural	Total	Urban	Rural	Total
Improved, not shared facility	21.9	4.1	14.2	26.1	5.0	16.9
Flush/pour flush to piped sewer system	1.0	0.0	0.6	1.2	0.0	0.7
Flush/pour flush to septic tank	16.4	0.9	9.7	19.1	1.2	11.3
Flush/pour flush to pit latrine	0.6	0.2	0.4	0.7	0.2	0.5
Ventilated improved pit (VIP) latrine	3.4	2.1	2.8	4.6	2.5	3.7
Pit latrine with a slab	0.5	0.9	0.7	0.6	1.0	0.8
Shared facility[1]	36.2	16.2	27.5	32.0	16.5	25.2
Flush/pour flush to piped sewer system	0.8	0.0	0.4	0.6	0.0	0.3
Flush/pour flush to septic tank	8.2	0.6	4.9	6.3	0.7	3.8
Flush/pour flush to a pit latrine	2.0	0.1	1.2	1.7	0.1	1.0
Ventilated improved pit (VIP) latrine	19.2	12.3	16.2	17.1	12.4	15.0
Pit latrine with a slab	6.0	3.1	4.7	6.3	3.2	5.0
Non-improved facility	41.9	79.7	58.3	41.8	78.5	57.9
Flush/pour flush not to sewer/septic tank/pit latrine	1.0	0.1	0.6	0.9	0.1	0.5
Pit latrine without slab/open pit	6.2	5.3	5.8	6.6	5.8	6.3
Bucket	0.4	0.0	0.2	0.4	0.0	0.2
Hanging toilet/hanging latrine	9.7	1.7	6.2	8.4	1.7	5.5
No facility/bush/field	24.2	72.6	45.2	24.8	70.9	45.0
Other	0.5	0.0	0.3	0.6	0.0	0.3
Total	100.0	100.0	100.0	99.9	100.0	99.9
Number	5,289	4,044	9,333	25,982	20,234	46,216

Note: Total includes 2 households using composting toilets that are shared, and 3 households for which information on the type of toilet facility is missing.
[1] Facilities that would be considered improved if they were not shared by two or more households.

2.1.3 Housing Characteristics

Table 2.3 presents information on characteristics of the dwelling in which households live. In addition to reflecting the household's socioeconomic situation, these characteristics show environmental conditions in which the household lives. For example, use of biomass fuels exposes the household members to indoor pollution, which has a direct bearing on their health and welfare.

Use of electricity usually goes hand in hand with improved housing structures and a better standard of living. In Liberia, only 10 percent of households have electricity that is connected. There is a large difference in access to electricity between urban and rural households (16 percent in urban areas compared with 1 percent in rural areas). The percentage of households with electricity has risen since 2007, when only 3 percent of households had electricity. This gain, however, has been in urban households, in which those having electricity rose from 7 percent to 16 percent; the percentage of rural households with electricity is unchanged since 2007.

The type of material used for flooring is also an indicator of socioeconomic status and to some extent determines the household's vulnerability to disease-causing agents. Forty-seven percent of Liberian households have earthen floors (made of earth, sand, or mud), and 45 percent have concrete or cement floors.

Large differences exist between rural and urban households; earth flooring is most common in rural areas (80 percent of households), while concrete or cement is most common in urban areas (64 percent of households).

The number of rooms used for sleeping indicates the extent of crowding. Overcrowding increases the risk of contracting diseases. Overall, 40 percent of Liberian households use one room for sleeping, 27 percent use two rooms, and 33 percent use three or more rooms for sleeping.

Cooking and heating with solid fuels can lead to high levels of indoor smoke, a complex mix of health-damaging pollutants that could increase the risk of contracting diseases (WHO, 2011a). Solid fuels include fire coal/charcoal and wood. In the 2013 LDHS, households were asked about their primary source of fuel for cooking. The results show that 98 percent of households use solid fuel for cooking, with wood being the top source of solid fuel (54 percent of households). There are large differentials in cooking fuel between urban and rural areas. Although 90 percent of households in the rural areas use wood for cooking, the main source of cooking fuel in the urban areas is fire coal/charcoal (70 percent). In addition to having health effects on the household population, both fuels have a negative impact on the environment because they involve cutting down trees.

The potential for exposure to harmful effects of smoke from using solid fuels for cooking increases if cooking occurs within the home itself rather than outdoors or in a separate building. Seventeen percent of households in Liberia cook in the house, 27 percent cook in a separate building, 17 percent cook on a porch, and 37 percent cook outdoors. Twenty-two percent of urban households cook in the house, compared with 11 percent of rural households.

Nearly half of Liberian households use plastic, battery-powered Chinese lamps as their major source of lighting. Other common lighting energy sources were battery (16 percent), flashlight/torch (15 percent), electricity (10 percent), and oil lamp/jack-o'-lantern (6 percent).

Table 2.3 Household characteristics

Percent distribution of households by housing characteristics, percentage using solid fuel for cooking, and percent distribution by frequency of smoking in the home, according to residence, Liberia 2013

Housing characteristic	Residence		
	Urban	Rural	Total
Electricity			
Yes	16.4	1.2	9.8
No	83.6	98.7	90.1
Total	100.0	100.0	100.0
Flooring material			
Earth/sand/mud	21.4	79.6	46.6
Wood planks	0.6	0.1	0.4
Parquet or polished wood	0.2	0.0	0.1
Floormat/linoleum/vinyl	6.6	0.6	4.0
Ceramic tiles/terrazzo	6.6	0.6	4.0
Concrete/cement	64.3	19.1	44.7
Carpet	0.4	0.1	0.3
Total	100.0	100.0	100.0
Rooms used for sleeping			
One	44.1	34.7	40.0
Two	25.1	29.2	26.9
Three or more	30.5	36.0	32.9
Total	100.0	100.0	100.0
Cooking fuel			
Electricity	0.1	0.0	0.0
Gas cylinder	0.0	0.0	0.0
Kerosene stove	0.3	0.0	0.2
Fire coal/charcoal	70.3	9.1	43.8
Wood	26.5	90.2	54.1
No food cooked in household	2.7	0.7	1.8
Total	100.0	100.0	100.0
Percentage using solid fuel for cooking[1]	96.8	99.3	97.9
Place for cooking			
In the house	22.2	10.9	17.3
In a separate building	14.9	42.9	27.1
On a porch	23.0	8.9	16.9
Outdoors	37.2	36.6	36.9
No food cooked in household	2.7	0.7	1.8
Total	100.0	100.0	100.0
Lighting energy			
Electricity	16.3	0.9	9.6
Battery	11.2	22.7	16.2
Solar	0.1	0.1	0.1
Kerosene	0.3	0.3	0.3
Oil lamp/Jack-o'-lantern	2.5	9.4	5.5
Chinese lamp	53.1	43.7	49.0
Gas	1.5	0.3	1.0
Candles	4.1	1.6	3.1
Firewood	0.0	0.5	0.2
Flashlight/Torch	10.6	20.3	14.8
No lighting in household	0.1	0.3	0.2
Other	0.1	0.1	0.1
Total	100.0	100.0	100.0
Frequency of smoking in the home			
Daily	8.8	17.8	12.7
Weekly	0.5	1.4	0.9
Monthly	0.0	0.1	0.1
Less than monthly	0.1	0.1	0.1
Never	90.6	80.6	86.2
Total	100.0	100.0	100.0
Number	5,289	4,044	9,333

Note: Totals include 5 households for which information on electricity is missing, 1 case for which information on flooring material is "other," 24 households for which information on rooms used for sleeping is missing, 2 households for which information on cooking fuel is missing, 1 household for which place for cooking is "other," and 3 households for which information on frequency of smoking in the home is missing.
[1] Includes fire coal, charcoal, and wood.

Information on frequency of smoking inside the home was obtained to assess the percentage of households in which there is exposure to second-hand smoke, which causes health risks in children and adults who do not smoke. Pregnant women who are exposed to secondhand smoke have a higher risk of delivering a low birth weight baby (Windham et al., 1999), and children exposed to second-hand smoke are at increased risk for respiratory and ear infections and poor lung development (U.S. Department of Health and Human Services, 2006). Thirteen percent of Liberian households report that someone smokes at the home daily, one percent report that someone smokes at least once a week, and less than one percent report that someone smokes monthly or less frequently than once a month. In 86 percent of households, smoking never occurs in the home. Overall, smoking inside the home is less frequent in urban areas than in rural areas; smoking never occurs in 91 percent of urban households, compared with 81 percent of rural households.

2.1.4 Household Possessions

The availability of durable goods is an indicator of a household's socioeconomic status. Moreover, each particular item has specific benefits. For instance, having access to a radio or a television exposes household members to innovative ideas; a refrigerator prolongs the wholesomeness of foods; and a means of transport allows greater access to services away from the local area. Table 2.4 shows the ownership of selected household possessions by residence.

The most commonly owned items by households are a mattress (81 percent of households), table (72 percent), chairs (67 percent), a mobile telephone (65 percent), and a radio (59 percent). Additionally, 34 percent of households own a watch, 20 percent own a cupboard, 14 percent own a television, 13 percent own a generator, 5 percent own a computer, and 4 percent own a refrigerator. All of these figures except for a watch are higher than those recorded in the 2007 LDHS. Most notably, household ownership of mobile phones has risen from 29 percent to 65 percent. Urban households are more likely than rural households to own each of the items.

With regard to means of transportation, 8 percent of households own a motorcycle or scooter, 4 percent own a car or truck, 4 percent own a bicycle, and 1 percent owns a boat or canoe. Ownership of each of these items has either increased or remained unchanged since 2007.

Farming of agricultural land and ownership of farm animals are common in Liberia, with about 4 in 10 households farming land and 35 percent of households owning farm animals. Not surprisingly, the proportion of households in rural areas that farm agricultural land (63 percent) and own farm animals (50 percent) is higher than the proportion of households in urban areas that farm agricultural land (19 percent) and own farm animals (23 percent).

Table 2.4 Household possessions

Percentage of households possessing various household effects, means of transportation, agricultural land and livestock/farm animals, by residence, Liberia 2013

| | Residence | | |
Possession	Urban	Rural	Total
Household effects			
Generator	20.4	4.1	13.4
Solar panel	0.8	0.4	0.6
Radio	66.7	48.8	58.9
Television	23.2	2.3	14.1
Mobile telephone	81.7	42.4	64.6
Refrigerator (ice box)	6.5	1.1	4.1
Computer	8.5	0.6	5.1
Table	82.0	57.9	71.6
Chairs	77.9	52.3	66.8
Cupboard	31.6	4.3	19.7
Mattress	92.0	66.3	80.9
Sewing machine	3.5	1.1	2.5
Watch	42.8	23.0	34.2
Means of transport			
Bicycle	5.5	1.3	3.7
Motorcycle/scooter	10.0	5.7	8.1
Car/truck	6.7	0.5	4.0
Boat or canoe	0.8	1.4	1.0
Farming of agricultural land[1]	19.3	63.1	38.3
Ownership of farm animals[2]	23.3	49.7	34.7
Ownership of a bank account	28.5	4.3	18.0
Number	5,289	4,044	9,333

[1] Households were asked if any member of the household farmed agricultural land. Such land need not be owned by the household.
[2] Cows, pigs, goats, sheep, or chickens/ducks/guinea fowl.

Only 18 percent of households in Liberia have at least one member who has a bank account. Possession of a bank account is much more common in urban areas (29 percent) than in rural areas (4 percent).

2.1.5 Distance to a Health Facility

In the 2013 LDHS, households were asked how far they lived from the nearest health facility. They were also asked the means of transportation they would use to get to the nearest health facility and how long it would take to get there by this means of transportation. Few respondents knew the actual distance in miles to the health facility, but nearly all knew the time it would take by a given means of transportation. The results have therefore been tabulated by transport type and by time.

As shown in Table 2.5, walking is the major means of transport to health facilities (cited by 65 percent of household respondents), followed by public transport (30 percent) and cars or motorcycles (4 percent). Rural households are more likely than urban households to walk (75 percent versus 56 percent), whereas urban households are more likely to use public transport than rural households (37 percent versus 21 percent). One third of all Liberian households are within 20 minutes of the nearest health facility, regardless of means of transportation.

Table 2.5 Method of travel and travel time to nearest health facility

Percent distribution of households by transportation method to nearest health facility, and time required to get to nearest health facility by usual means of transportation, according to residence, Liberia 2013

Characteristic	Residence		Total
	Urban	Rural	
Transportation method to nearest health facility			
Car/motorcycle	5.6	2.4	4.2
Public transport	36.9	20.6	29.8
Walking	56.4	75.3	64.6
Bicycle	0.8	0.7	0.8
Wheelbarrow	0.0	0.1	0.0
Other	0.1	0.3	0.2
Total	100.0	100.0	100.0
Time to get to nearest health facility by usual means of transportation			
<20 min	45.0	15.8	32.4
20-40 min	32.1	16.5	25.3
41-60 min	11.0	15.4	12.9
61-120 min	5.0	24.1	13.3
>120 min	3.9	25.8	13.4
Don't know	2.9	2.3	2.6
Total	100.0	100.0	100.0
Number of households	5,289	4,044	9,333

Note: Totals include 33 households for which the transportation method to the nearest health facility is missing, and 2 households for which the time to get to the nearest health facility is missing.

As shown in Table 2.6, among households that travel to health facilities by walking, 30 percent require less than 20 minutes to get to the nearest health facility. As expected, urban households are much more likely to be located within a 20-minute walking distance to a health facility than rural households (45 percent and 15 percent, respectively). In contrast, the percentage of rural households that require greater than 120 minutes to walk to a health facility is far larger than the percentage of urban households (31 percent and 7 percent, respectively).

Table 2.6 Travel time to health facility by walking

Among households that travel to the nearest health facility by walking, the percent distribution of the time required to walk to the nearest health facility, according to residence, Liberia 2013

	Residence		
Characteristic	Urban	Rural	Total
Time to get to nearest health facility by walking			
<20 min	45.2	14.8	29.8
20-40 min	27.4	10.8	19.0
41-60 min	11.0	14.2	12.6
61-120 min	7.5	26.9	17.3
>120 min	6.5	31.3	19.0
Don't know	2.4	2.2	2.3
Total	100.0	100.0	100.0
Number of households that travel to health facility by walking	2,982	3,046	6,028

2.2 HOUSEHOLD WEALTH

Information on household assets was used to create an index that is used throughout this report to represent the wealth of the households interviewed in the 2013 LDHS. This method for calculating a country-specific wealth index was developed and tested in a large number of countries in relation to inequalities in household income, use of health services, and health outcomes (Rutstein and Johnson, 2004). It has been shown to be consistent with expenditure and income measures.

The wealth index is constructed using household asset data, including ownership of consumer items ranging from a television to a bicycle or car, as well as dwelling characteristics, such as source of drinking water, sanitation facilities, and type of flooring material. In its current form, which takes account of urban-rural differences in these items and characteristics, the wealth index is created in three steps. In the first step, a subset of indicators common to urban and rural areas is used to create wealth scores for households in both areas. For purposes of creating scores, categorical variables are transformed into separate dichotomous (0-1) indicators. These indicators and those that are continuous are then examined using principal components analysis to produce a common factor score for each household. In the second step, separate factor scores are produced for households in urban and rural areas using area-specific indicators (Rutstein, 2008). The third step combines the separate area-specific factor scores to produce a nationally applicable combined wealth index by adjusting area-specific scores through a regression on the common factor scores. The resulting combined wealth index has a mean of zero and a standard deviation of one. Once the index is computed, national-level wealth quintiles (from lowest to highest) are formed by assigning the household score to each de jure household member, ranking each person in the population by that score, and then dividing the ranking into five equal categories, each comprising 20 percent of the population. Thus, throughout this report, wealth quintiles are expressed in terms of quintiles of individuals in the overall population rather than quintiles of individuals at risk for any one health or population indicator. For example, quintile rates for infant mortality refer to infant mortality rates per 1,000 live births among all people in the population quintile concerned, as distinct from quintiles of live births or newly born infants, who constitute the only members of the population at risk of mortality during infancy.

Table 2.7 presents wealth quintiles by residence, region, and county. Also included in the table is the Gini Coefficient, which indicates the level of concentration of wealth, with 0 being an equal distribution and 1 a totally unequal distribution.

Table 2.7 Wealth quintiles

Percent distribution of the de jure population by wealth quintiles, and the Gini Coefficient, according to residence and region, Liberia 2013

Residence/region	Wealth quintile					Total	Number of persons	Gini coefficient
	Lowest	Second	Middle	Fourth	Highest			
Residence								
Urban	4.6	8.7	21.1	31.6	34.0	100.0	25,982	0.20
Greater Monrovia	0.0	0.1	8.4	37.9	53.6	100.0	14,159	0.06
Other urban	10.1	19.0	36.3	24.0	10.6	100.0	11,823	0.24
Rural	39.8	34.5	18.6	5.2	2.0	100.0	20,234	0.31
Region								
North Western	30.9	31.8	24.8	9.2	3.4	100.0	4,505	0.32
South Central	8.4	6.9	13.6	31.7	39.4	100.0	21,857	0.20
South Eastern A	47.3	29.2	14.8	6.1	2.7	100.0	2,940	0.38
South Eastern B	36.9	31.7	20.2	8.6	2.6	100.0	3,291	0.29
North Central	25.1	32.3	29.8	10.6	2.3	100.0	13,622	0.24
County								
Bomi	27.8	23.6	28.4	15.6	4.6	100.0	1,335	0.33
Bong	34.1	35.6	21.8	7.2	1.3	100.0	4,974	0.27
Gbarpolu	41.1	37.1	16.0	3.7	2.1	100.0	992	0.33
Grand Bassa	43.0	17.5	14.9	15.2	9.5	100.0	2,453	0.41
Grand Cape Mount	28.1	34.4	26.5	7.7	3.2	100.0	2,179	0.31
Grand Gedeh	35.7	28.7	24.4	7.7	3.6	100.0	999	0.31
Grand Kru	53.3	32.0	11.3	2.6	0.7	100.0	1,260	0.22
Lofa	33.3	39.4	19.9	6.4	1.0	100.0	2,493	0.36
Margibi	13.6	17.9	25.2	26.2	17.1	100.0	3,627	0.28
Maryland	21.6	30.7	28.6	15.0	4.1	100.0	1,439	0.32
Montserrado	1.8	2.7	10.7	35.6	49.2	100.0	15,777	0.13
Nimba	14.5	26.8	40.2	14.9	3.6	100.0	6,154	0.27
River Cess	71.3	20.8	3.5	3.3	1.1	100.0	769	0.40
River Gee	39.3	33.4	18.7	5.6	3.0	100.0	592	0.37
Sinoe	41.3	35.1	14.0	6.5	3.0	100.0	1,171	0.39
Total	20.0	20.0	20.0	20.0	20.0	100.0	46,216	0.32

Two-thirds of the urban population is represented in the fourth and highest quintiles (66 percent), while nearly three-quarters of the population (74 percent) in rural areas is in the lowest and second wealth quintiles. The distribution of the population by wealth quintile among counties shows large variations. As expected, Montserrado has the largest proportion in the highest wealth quintile (49 percent). Grand Kru has the largest proportion in the lowest wealth quintile (53 percent).

2.3 HAND WASHING

Hand washing with soap and water is ideal. However, hand washing with a non-soap cleansing agent such as ash or sand is an improvement over not using any cleansing agent.

To obtain hand-washing information, interviewers asked to see the place where members of the household most often washed their hands; information on the availability of water, cleansing agents, or both was recorded only for households where the hand washing place was observed. Interviewers observed the place most often used for hand washing in only 2 percent of households (data not shown). The most common reason interviewers were not able to observe the place where members of the household washed their hands was that there was no specific place designated for hand washing (data not shown).

Among those few households where the hand washing place was observed, 47 percent had soap and water, 2 percent had water and a cleansing agent other than soap, 19 percent had only water, 5 percent had soap but no water, and 27 percent had no water, soap, or any other cleansing agent at the hand washing place (data not shown).

2.4 HOUSEHOLD POPULATION BY AGE, SEX, AND RESIDENCE

Age and sex are important demographic variables that are the primary basis for demographic classification in vital statistics, censuses, and surveys. They are also very important variables in the study of mortality, fertility, and marriage. The distribution of the de facto household population in the 2013 LDHS is shown in Table 2.8 by five-year age groups, according to sex and residence. A total of 45,042 individuals resided in the 9,333 households successfully interviewed; the population was nearly evenly distributed between females (22,725) and males (22,317).

Table 2.8 Household population by age, sex, and residence

Percent distribution of the de facto household population by five-year age groups, according to sex and residence, Liberia 2013

| | Residence | | | | | | Total | | |
| | Urban | | | Rural | | | | | |
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total
<5	15.2	13.3	14.2	18.9	18.1	18.5	16.8	15.3	16.1
5-9	16.6	15.0	15.8	18.4	16.9	17.7	17.4	15.8	16.6
10-14	12.9	14.6	13.8	13.7	10.8	12.3	13.3	13.0	13.1
15-19	11.5	11.8	11.7	7.4	7.6	7.5	9.7	10.0	9.8
20-24	8.7	8.9	8.8	5.5	6.7	6.1	7.2	8.0	7.6
25-29	7.5	8.3	7.9	6.0	6.9	6.4	6.8	7.7	7.3
30-34	5.8	5.7	5.8	5.5	5.8	5.7	5.7	5.7	5.7
35-39	4.9	5.9	5.4	5.3	5.4	5.3	5.1	5.7	5.4
40-44	4.4	3.7	4.0	4.5	4.2	4.3	4.4	3.9	4.2
45-49	3.7	2.5	3.1	3.7	3.8	3.8	3.7	3.1	3.4
50-54	2.6	3.2	2.9	3.1	4.5	3.8	2.8	3.8	3.3
55-59	2.1	2.2	2.2	2.3	2.4	2.4	2.2	2.3	2.2
60-64	1.4	1.7	1.5	1.8	2.1	2.0	1.6	1.9	1.7
65-69	1.1	1.1	1.1	1.5	1.7	1.6	1.3	1.4	1.3
70-74	0.7	0.7	0.7	1.0	1.3	1.1	0.8	0.9	0.9
75-79	0.5	0.5	0.5	0.8	0.8	0.8	0.6	0.6	0.6
80 +	0.4	0.8	0.6	0.8	1.0	0.9	0.6	0.9	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	12,395	13,042	25,438	9,922	9,683	19,604	22,317	22,725	45,042

Note: Total includes 6 cases for which age is unknown or missing.

The age-sex structure of the population is shown in the population pyramid in Figure 2.1. The broad base of the pyramid indicates that Liberia's population is young, a scenario typical of countries with high fertility rates. The proportion of persons under age 15 was about 46 percent in 2013, while the proportion of individuals age 65 and older was about 4 percent. This pattern is similar to the ones observed in the 2011 LMIS, the 2009 LMIS, and the 2007 LDHS. Nevertheless, the observation that the population of those age 5-9 (17 percent) is greater than those less than age 5 (16 percent) is unlikely, and is indicative of either age displacement or omission of children under 5 from households. Presumably this was done to reduce interviewers' workloads since women were asked questions about their children under age 5, and in half of the households, children under 5 were eligible for height and weight measurements. In addition, there appears to be age displacement between women age 50-54 and age 45-49. Interviewers may have intentionally overestimated the respondents' ages as older than the age cut-off of 49 so as to make them ineligible for the individual interview.

Figure 2.1 Population pyramid
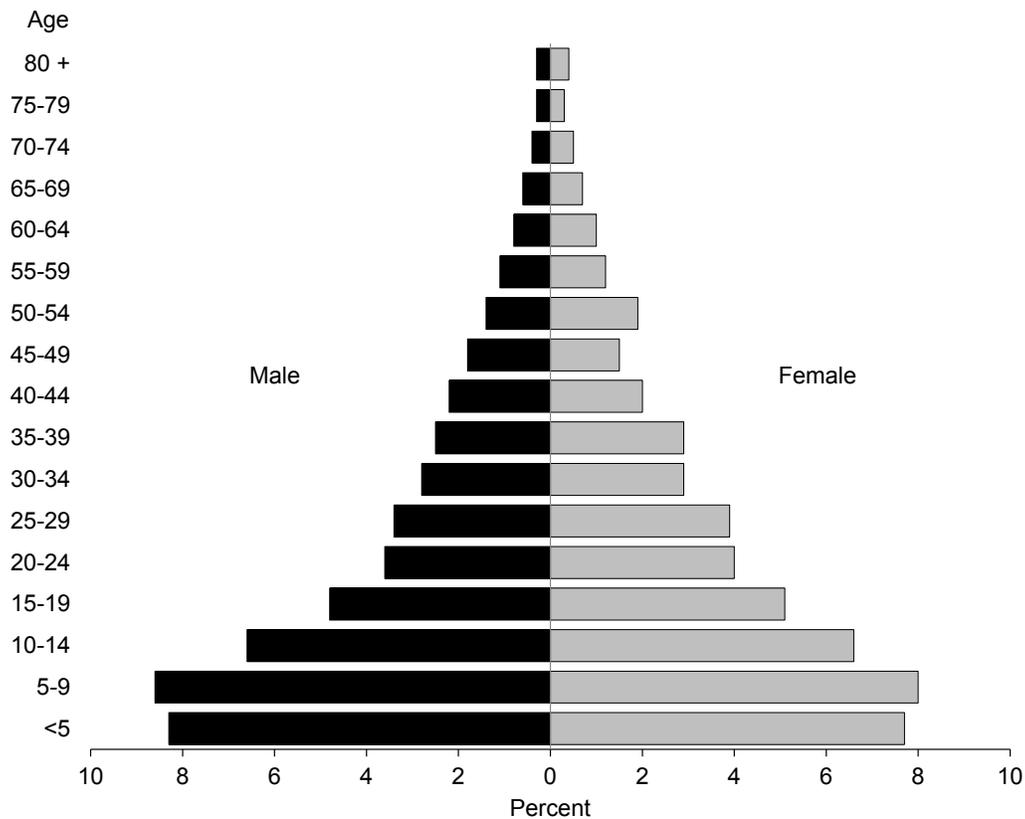
LDHS 2013

2.5   HOUSEHOLD COMPOSITION

Information on the composition of households, including the sex of the head of the household and the size of the household, is presented in Table 2.9. These characteristics are important because they are associated with the welfare of the household. Female-headed households are, for example, typically poorer than male-headed households. In larger households, economic resources are often more limited. Moreover, where the household size is large, crowding can lead to health problems.

Table 2.9 shows that 65 percent of the households in Liberia are headed by men. This proportion is slightly lower than that found in the 2007 LDHS (69 percent). Households with one member or two members constitute 10 and 11 percent of all households, respectively. The four-person households account for the largest proportion (15 percent) of all households. The overall average household size of 5.0 is identical to that reported in the 2007 LDHS. Variation in household size by residence is small. The mean size of households in urban areas is 4.9, which compares with 5.0 in rural areas.

Information was also collected on the living arrangements of all children under age 18 residing in households and on the survival status of their parents. These data can be used to assess the extent to which households face a need to care for orphaned or foster children. Orphans include children whose mother or father has died (single orphans) as well as children who have lost both parents (double orphans). In the case of foster children, both parents are alive but the children are living in a household where neither their natural mother nor their natural father resides. Overall, 37 percent of households in Liberia are caring for foster or orphaned children, or both.

Table 2.9 Household composition

Percent distribution of households by sex of head of household and by household size; mean size of household, and percentage of households with orphans and foster children under age 18, according to residence, Liberia 2013

Characteristic	Residence		Total
	Urban	Rural	
Household headship			
Male	61.5	69.2	64.8
Female	38.5	30.8	35.2
Total	100.0	100.0	100.0
Number of usual members			
0	0.0	0.1	0.0
1	11.5	8.2	10.0
2	10.7	10.7	10.7
3	14.0	12.4	13.3
4	14.7	16.0	15.3
5	12.9	15.2	13.9
6	11.8	11.9	11.9
7	8.1	9.0	8.5
8	5.4	6.0	5.6
9+	10.9	10.5	10.7
Total	100.0	100.0	100.0
Mean size of households	4.9	5.0	5.0
Percentage of households with orphans and foster children under age 18			
Foster children[1]	36.3	30.6	33.8
Double orphans	0.8	1.2	1.0
Single orphans[2]	11.6	10.1	10.9
Foster and/or orphan children	39.2	33.9	36.9
Number of households	5,289	4,044	9,333

Note: Table is based on de jure household members, i.e., usual residents.
[1] Foster children are those under age 18 living in households with neither their mother nor their father present.
[2] Includes children with one dead parent and an unknown survival status of the other parent.

2.6 BIRTH REGISTRATION

The registration of births is the inscription of the facts of each birth into an official log kept at the registrar's office. A birth certificate is issued at the time of registration, or later, as proof of the registration of the birth. Birth registration is basic to ensuring a child's legal status and, thus, basic rights and services (UNICEF, 2006; United Nations General Assembly, 2002).

Information on the registration of births was collected in the household interview. Respondents were asked whether children under 5 residing in the household had a birth certificate. Table 2.10 shows the percentage of de jure children under 5 who had a birth certificate at the time of the survey.

The proportion of de jure children who have a birth certificate is 25 percent. There is little variation by age or sex in the proportion of children registered. Children in urban households are more likely to have a birth certificate than children in rural households (29 percent and 20 percent, respectively). By county, the proportion of children with birth certificates was highest in Bomi (42 percent) and lowest in Grand Bassa (9 percent). The percentage of children with birth certificates correlated positively with wealth, ranging from 16 percent of children in the lowest wealth quintile to 31 percent of children in the highest wealth quintile. A comparison of the 2013 LDHS with the 2007 LDHS reveals that the percentage of children under 5 with birth certificates has increased (25 percent versus 4 percent).

It is noteworthy that in the process of collecting data on birth registration, interviewers were not instructed to observe the birth certificates of those children under 5 who were reported to have them. Nevertheless, some interviewers took it upon themselves to request to see the birth certificate for those children who were reported to have them, and there were anecdotal reports from such interviewers that some respondents confused birth certificates with health cards. These respondents indicated that certain children under 5 had birth certificates when in reality they had only health cards. If this problem was widespread, it is possible that the data presented in Table 2.10 do not portray an accurate picture of birth registration in Liberia.

Table 2.10 Birth registration of children under 5

Percentage of de jure children under 5 who have a birth certificate, according to background characteristics, Liberia 2013

Background characteristic	Percentage who have a birth certificate	Number of children
Age		
<2	24.0	2,885
2-4	25.0	4,458
Sex		
Male	24.8	3,801
Female	24.4	3,542
Residence		
Urban	29.2	3,666
Greater Monrovia	29.1	1,785
Other urban	29.2	1,881
Rural	20.1	3,677
Region		
North Western	29.7	813
South Central	22.6	2,990
South Eastern A	17.4	526
South Eastern B	14.3	548
North Central	29.2	2,466
County		
Bomi	41.9	210
Bong	20.6	894
Gbarpolu	31.2	177
Grand Bassa	9.2	407
Grand Cape Mount	23.1	427
Grand Gedeh	21.9	171
Grand Kru	11.0	220
Lofa	32.7	390
Margibi	11.7	558
Maryland	14.0	222
Montserrado	28.3	2,025
Nimba	34.6	1,182
River Cess	13.1	154
River Gee	21.9	106
Sinoe	17.0	201
Wealth quintile		
Lowest	16.2	1,776
Second	23.7	1,636
Middle	27.3	1,552
Fourth	28.8	1,354
Highest	31.1	1,025
Total	24.6	7,343

2.7   CHILDREN'S LIVING ARRANGEMENTS AND PARENTAL SURVIVAL

Information was collected on the living arrangements and survival status of parents of all children under age 18 residing in the LDHS sample households to assess the potential burden on households of the need to provide for orphaned or foster children. These data were also used to assess the situation from the

perspective of the children themselves. Table 2.11 presents the proportion of children under age 18 who are not living with one or both parents, either because the parent(s) died or for other reasons.

Over half of Liberian children under 18 are not living with both parents (56 percent). One-quarter of children are not living with either parent. Twenty-two percent of children are not living with either parent although both are alive. Seven percent of children under age 18 are orphaned, that is, one or both parents are dead.

Table 2.11 Children's living arrangements and orphanhood

Percent distribution of de jure children under age 18 by living arrangements and survival status of parents, the percentage of children not living with a biological parent, and the percentage of children with one or both parents dead, according to background characteristics, Liberia 2013

Background characteristic	Living with both parents	Living with mother but not with father		Living with father but not with mother		Not living with either parent					Total	Percent-age not living with a bio-logical parent	Percent-age with one or both parents dead[1]	Number of children
		Father alive	Father dead	Mother alive	Mother dead	Both alive	Only father alive	Only mother alive	Both dead	Missing infor-mation on father/ mother				
Age														
0-4	54.4	27.2	1.5	3.8	0.2	11.9	0.3	0.5	0.1	0.1	100.0	12.8	2.6	7,343
<2	58.7	34.6	1.0	1.0	0.0	4.2	0.1	0.1	0.0	0.2	100.0	4.4	1.2	2,885
2-4	51.5	22.4	1.9	5.6	0.2	16.9	0.5	0.7	0.2	0.1	100.0	18.2	3.5	4,458
5-9	45.2	18.4	2.6	7.7	0.4	22.4	0.8	1.7	0.5	0.2	100.0	25.4	6.1	7,580
10-14	36.1	15.5	4.8	9.2	0.8	28.2	1.3	3.0	0.8	0.3	100.0	33.3	10.7	6,011
15-17	28.3	15.0	6.1	10.3	1.2	29.9	2.1	4.7	0.9	1.5	100.0	37.6	15.1	2,796
Sex														
Male	44.6	20.4	3.4	8.1	0.6	19.4	1.0	1.9	0.4	0.3	100.0	22.6	7.2	12,146
Female	42.8	19.6	3.1	6.2	0.5	23.7	0.9	2.1	0.6	0.4	100.0	27.4	7.3	11,583
Residence														
Urban	38.9	21.5	3.3	7.2	0.5	24.6	0.9	2.3	0.4	0.4	100.0	28.2	7.5	13,109
Greater Monrovia	35.6	23.0	3.2	7.5	0.3	26.3	0.8	2.5	0.4	0.4	100.0	30.0	7.2	6,898
Other Urban	42.5	19.9	3.5	6.9	0.7	22.6	1.0	2.1	0.5	0.4	100.0	26.3	7.8	6,210
Rural	49.7	18.1	3.2	7.2	0.6	17.7	1.0	1.6	0.6	0.4	100.0	20.9	6.9	10,620
Region														
North Western	44.0	18.6	3.9	8.3	0.4	20.5	1.0	2.5	0.6	0.2	100.0	24.5	8.4	2,434
South Central	38.7	21.4	3.3	8.0	0.4	24.1	1.0	2.2	0.4	0.5	100.0	27.7	7.4	10,988
South Eastern A	52.1	16.0	2.2	8.2	0.3	17.6	0.7	1.8	0.4	0.6	100.0	20.4	5.5	1,531
South Eastern B	47.5	17.4	3.8	7.9	0.8	17.0	1.2	2.3	1.4	0.6	100.0	21.9	9.6	1,733
North Central	48.8	19.7	3.0	5.1	0.7	19.8	0.8	1.5	0.3	0.2	100.0	22.5	6.4	7,042
County														
Bomi	35.3	20.6	5.9	9.9	0.2	22.3	0.8	3.8	0.9	0.5	100.0	27.7	11.6	736
Bong	50.8	20.4	2.0	4.4	0.5	19.3	0.9	1.2	0.4	0.1	100.0	21.8	5.0	2,557
Gbarpolu	44.1	21.0	4.1	8.6	0.0	16.9	1.6	2.8	0.6	0.1	100.0	22.0	9.2	519
Grand Bassa	54.1	17.2	2.6	7.8	0.1	16.2	1.1	0.6	0.2	0.2	100.0	18.0	4.5	1,239
Grand Cape Mount	49.3	16.4	2.6	7.2	0.8	20.9	0.9	1.5	0.3	0.1	100.0	23.7	6.1	1,180
Grand Gedeh	47.0	18.0	2.9	7.0	0.3	20.3	0.5	2.8	0.5	0.9	100.0	24.0	7.4	501
Grand Kru	49.4	18.7	3.2	9.4	0.2	15.4	0.5	1.5	0.5	1.0	100.0	18.0	6.0	656
Lofa	44.0	20.1	3.6	7.3	0.5	19.7	1.3	1.9	1.0	0.5	100.0	23.9	8.3	1,266
Margibi	41.1	19.1	3.7	9.4	1.1	21.8	1.0	1.8	0.3	0.6	100.0	24.9	8.1	1,951
Maryland	44.7	16.0	4.2	6.8	1.4	19.3	1.9	2.9	2.6	0.2	100.0	26.7	13.0	783
Montserrado	35.6	22.7	3.4	7.7	0.3	25.9	1.0	2.6	0.5	0.5	100.0	30.0	7.7	7,798
Nimba	49.1	19.0	3.5	4.8	1.0	20.2	0.6	1.6	0.1	0.1	100.0	22.4	6.8	3,220
River Cess	56.0	16.4	1.7	8.3	0.1	15.0	0.7	1.1	0.4	0.4	100.0	17.2	3.9	419
River Gee	50.6	18.3	4.1	7.5	0.8	14.6	1.0	2.2	0.2	0.7	100.0	18.1	8.5	294
Sinoe	53.7	14.2	2.0	9.0	0.6	17.3	0.8	1.3	0.3	0.6	100.0	19.8	5.1	612
Wealth quintile														
Lowest	51.9	18.9	3.7	6.3	0.4	15.6	0.8	1.4	0.6	0.3	100.0	18.3	6.9	4,774
Second	49.7	18.6	3.2	6.3	0.8	17.9	1.1	1.5	0.5	0.4	100.0	20.9	7.1	4,822
Middle	44.0	20.1	3.7	6.3	0.6	21.7	0.9	1.9	0.4	0.4	100.0	25.0	7.7	4,970
Fourth	38.9	23.1	2.4	8.4	0.3	22.9	0.7	2.6	0.4	0.3	100.0	26.6	6.4	4,649
Highest	33.3	19.3	3.0	8.8	0.5	29.9	1.3	2.7	0.5	0.5	100.0	34.5	8.1	4,513
Total <15	45.8	20.7	2.9	6.8	0.4	20.4	0.8	1.6	0.4	0.2	100.0	23.2	6.2	20,934
Total <18	43.7	20.0	3.2	7.2	0.5	21.5	0.9	2.0	0.5	0.4	100.0	24.9	7.2	23,729

Note: Table is based on de jure members, i.e., usual residents.
[1] Includes children with father dead, mother dead, both dead, and one parent dead but missing information on survival status of the other parent.

The percentage of orphaned children increases rapidly with age, from 3 percent of children under 5 to 15 percent of children age 15-17. Urban children are about as likely to be orphaned as rural children (8 percent and 7 percent, respectively). River Cess (4 percent) had the lowest proportion of children orphaned, and Maryland had the highest (13 percent). The percentage of children with one or both parents dead varies little by wealth. In contrast, the percentage of children not living with a biological parent increases rapidly by wealth; whereas 18 percent of children living in households in the lowest wealth quintile are not living with a biological parent, 35 percent of children in households in the highest wealth quintile are not living with a biological parent.

2.8   EDUCATION OF THE HOUSEHOLD POPULATION

The educational level of household members is among the most important characteristics of the household because it is associated with many factors that have a significant impact on health-seeking behavior, reproductive behavior, use of contraception, and the health of children.

Liberia's education system has been unstable for more than 20 years because of the civil crisis; however, a major restructuring of the infrastructure and expansion of the program is being undertaken by the government. At present, the government of Liberia has adopted a free primary education policy in all government schools, with a special program for female education. For the analysis presented below, age 6 is used as the age for entry into the primary level of schooling. Because of the war, however, many children did not start school when they reached school-going age. Officially, primary school consists of six years of education, and junior high school and senior high school each consist of three years.

2.8.1   Educational Attainment

Tables 2.12.1 and 2.12.2 show the distribution of female and male household members age 6 and above by the highest level of schooling ever attended (even if they did not complete that level) and the median number of years of education completed according to age, residence, region, county, and wealth quintile. A comparison of the two tables reveals that there is a substantial gap in educational attainment between females and males. Although the majority of the household population age 6 and older has some education, 47 percent of females have never attended school; this compares with 33 percent of males. The median number of years of schooling for females is 0.0 years, which is 2.5 years less than that for males (2.5 years).

Educational attainment also differs markedly among counties. For example, the largest proportion of the household population over age 6 that has never been to school is found in Bong (68 percent) and Grand Bassa (66 percent) for females, and Bong (50 percent), and Grand Cape Mount (48 percent) for males. The county with the lowest proportion of household members who have never attended school is Montserrado (30 percent for females and 21 percent for males). The percentage of males and females who have at least some secondary education rises with wealth quintile, peaking in the highest wealth quintile for both sexes.

Comparison of data from the 2013 LDHS with the 2007 LDHS shows some improvement in educational attainment. For example, between 2007 and 2013 the proportion of those ages 15-19 that completed primary school increased from 31 to 41 percent for females and from 36 to 46 percent for males. Among those ages 20-24, the proportions that completed primary school increased from 40 to 53 percent among women and from 64 to 76 percent among men.

Table 2.12.1 Educational attainment of the female household population

Percent distribution of the de facto female household population age six and over by highest level of schooling attended or completed and median years completed, according to background characteristics, Liberia 2013

Background characteristic	No education	Some primary	Completed primary[1]	Some secondary	Completed secondary[2]	More than secondary	Total	Number	Median years completed
Age									
6-9	78.4	21.4	0.0	0.0	0.0	0.0	100.0	2,911	0.0
10-14	28.1	66.7	0.3	4.8	0.0	0.1	100.0	2,952	0.6
15-19	8.2	51.2	2.2	37.4	0.5	0.5	100.0	2,279	4.3
20-24	22.7	24.8	4.0	38.1	5.2	5.2	100.0	1,810	5.3
25-29	33.9	19.7	3.7	22.7	11.2	8.7	100.0	1,747	4.3
30-34	49.0	18.8	2.7	15.3	10.7	3.6	100.0	1,305	0.1
35-39	50.9	18.4	3.6	17.0	5.2	5.0	100.0	1,293	0.0
40-44	53.6	18.8	3.0	14.2	6.5	3.9	100.0	889	0.0
45-49	64.5	14.1	1.6	11.2	5.0	3.5	100.0	696	0.0
50-54	74.7	7.6	1.5	7.2	6.3	2.6	100.0	854	0.0
55-59	75.1	8.6	0.7	7.6	7.3	0.6	100.0	523	0.0
60-64	87.9	4.9	0.0	3.3	3.0	0.8	100.0	430	0.0
65+	93.4	2.1	0.4	2.5	1.3	0.0	100.0	865	0.0
Residence									
Urban	36.1	30.9	2.0	21.0	5.9	4.0	100.0	10,935	1.9
Greater Monrovia	28.1	30.3	2.0	24.9	8.4	6.3	100.0	6,248	3.5
Other urban	46.7	31.7	2.0	15.8	2.7	1.1	100.0	4,687	0.0
Rural	63.0	27.1	1.5	7.1	0.9	0.2	100.0	7,626	0.0
Region									
North Western	60.8	27.6	1.6	8.7	1.0	0.1	100.0	1,702	0.0
South Central	37.6	29.4	1.8	20.2	6.3	4.7	100.0	9,338	1.6
South Eastern A	55.7	31.8	1.1	9.7	1.3	0.2	100.0	1,083	0.0
South Eastern B	50.3	33.3	2.1	11.7	1.7	0.6	100.0	1,211	0.0
North Central	57.2	28.5	1.9	10.8	1.4	0.1	100.0	5,225	0.0
County									
Bomi	56.6	24.2	2.7	14.6	1.8	0.0	100.0	535	0.0
Bong	68.1	23.4	0.9	6.6	0.7	0.3	100.0	1,883	0.0
Gbarpolu	59.6	32.2	1.0	5.6	1.0	0.6	100.0	370	0.0
Grand Bassa	66.2	22.5	1.2	8.1	1.5	0.5	100.0	932	0.0
Grand Cape Mount	64.1	27.7	1.2	6.2	0.4	0.0	100.0	797	0.0
Grand Gedeh	49.5	32.5	1.6	13.7	2.1	0.5	100.0	375	0.0
Grand Kru	56.4	32.1	2.0	7.7	1.1	0.1	100.0	461	0.0
Lofa	65.3	24.1	1.7	7.6	1.1	0.1	100.0	1,026	0.0
Margibi	53.4	29.5	1.5	10.5	2.9	2.1	100.0	1,503	0.0
Maryland	43.7	34.3	2.1	16.0	2.5	1.3	100.0	536	0.3
Montserrado	30.3	30.3	2.0	23.9	7.7	5.9	100.0	6,903	3.0
Nimba	44.7	34.5	2.9	15.6	2.2	0.1	100.0	2,316	0.3
River Cess	61.1	32.3	0.3	5.7	0.0	0.1	100.0	275	0.0
River Gee	53.7	33.1	2.3	9.4	1.3	0.1	100.0	215	0.0
Sinoe	57.7	31.0	1.1	8.7	1.3	0.0	100.0	433	0.0
Wealth quintile									
Lowest	70.8	23.6	1.0	4.2	0.3	0.0	100.0	3,412	0.0
Second	61.9	27.8	1.9	7.6	0.5	0.1	100.0	3,488	0.0
Middle	51.1	31.3	2.1	13.5	1.6	0.3	100.0	3,676	0.0
Fourth	36.3	33.0	2.1	21.4	5.3	1.9	100.0	3,878	1.6
Highest	21.5	30.2	2.0	27.0	10.3	9.0	100.0	4,108	4.7
Total	47.1	29.3	1.8	15.3	3.9	2.5	100.0	18,561	0.0

Note: Total includes 5 cases for which age is missing and 22 cases for which education level is missing.
[1] Completed grade 6 at the primary level
[2] Completed grade 12 at the secondary level

Table 2.12.2 Educational attainment of the male household population

Percent distribution of the de facto male household population age six and over by highest level of schooling attended or completed and median years completed, according to background characteristics, Liberia 2013

Background characteristic	No education	Some primary	Completed primary[1]	Some secondary	Completed secondary[2]	More than secondary	Total	Number	Median years completed
Age									
6-9	79.9	19.8	0.0	0.0	0.0	0.0	100.0	3,193	0.0
10-14	29.1	66.4	0.7	3.7	0.0	0.0	100.0	2,961	0.3
15-19	6.9	47.1	1.6	43.1	0.7	0.5	100.0	2,155	4.7
20-24	9.3	15.1	1.7	53.3	14.0	6.7	100.0	1,616	8.0
25-29	14.7	16.1	2.9	31.9	21.4	13.1	100.0	1,526	8.3
30-34	22.6	17.0	4.0	26.1	17.7	12.6	100.0	1,273	7.1
35-39	20.9	19.4	3.8	21.5	23.0	11.4	100.0	1,129	7.1
40-44	24.5	15.0	4.7	23.0	23.5	9.2	100.0	986	7.1
45-49	23.1	13.3	3.3	23.6	22.1	14.6	100.0	829	7.8
50-54	27.9	9.3	2.3	23.5	25.3	11.5	100.0	624	7.9
55-59	34.5	10.6	3.7	16.4	22.5	12.1	100.0	487	5.9
60-64	43.5	8.2	3.2	16.6	18.5	9.9	100.0	348	4.5
65+	61.7	11.3	2.3	10.3	9.8	4.7	100.0	732	0.0
Residence									
Urban	24.9	26.6	1.9	23.6	13.6	9.3	100.0	10,160	4.7
Greater Monrovia	19.2	23.6	2.2	24.3	16.7	13.9	100.0	5,573	6.5
Other urban	31.7	30.3	1.6	22.7	9.9	3.8	100.0	4,587	2.5
Rural	43.0	30.0	2.1	17.5	6.3	0.9	100.0	7,701	0.3
Region									
North Western	43.4	29.5	1.8	17.5	6.6	1.1	100.0	1,721	0.4
South Central	25.9	25.2	2.0	22.6	13.7	10.4	100.0	8,593	4.7
South Eastern A	32.6	34.5	2.1	22.7	6.5	1.4	100.0	1,131	2.1
South Eastern B	30.5	32.4	2.2	23.5	9.4	1.7	100.0	1,296	2.5
North Central	41.1	29.9	1.9	18.4	7.5	1.3	100.0	5,120	0.6
County									
Bomi	38.7	29.8	1.7	19.8	8.3	1.6	100.0	527	1.4
Bong	49.9	25.6	1.8	14.9	6.6	1.1	100.0	1,894	0.0
Gbarpolu	39.9	33.1	1.2	18.0	5.6	2.0	100.0	385	0.8
Grand Bassa	46.3	27.0	1.7	16.6	6.1	2.0	100.0	979	0.0
Grand Cape Mount	48.1	27.6	2.2	15.7	5.9	0.3	100.0	809	0.0
Grand Gedeh	28.3	33.3	2.5	25.7	7.0	3.1	100.0	376	2.7
Grand Kru	33.2	31.6	1.2	21.7	11.1	0.3	100.0	495	2.0
Lofa	41.2	29.0	2.4	18.8	7.4	1.1	100.0	939	0.9
Margibi	32.6	29.2	1.2	21.3	10.0	5.5	100.0	1,405	2.2
Maryland	28.0	32.5	2.3	25.3	8.8	3.1	100.0	580	2.9
Montserrado	21.2	24.0	2.3	23.8	15.8	12.9	100.0	6,209	5.9
Nimba	33.7	33.9	1.7	21.0	8.2	1.5	100.0	2,287	1.7
River Cess	39.6	37.5	1.3	16.1	4.9	0.6	100.0	297	0.9
River Gee	31.0	33.8	4.0	23.0	6.9	1.3	100.0	222	2.7
Sinoe	31.6	33.6	2.2	24.5	7.2	0.7	100.0	458	2.2
Wealth quintile									
Lowest	50.1	29.4	2.3	14.5	3.3	0.3	100.0	3,437	0.0
Second	42.5	30.7	2.2	18.3	5.6	0.6	100.0	3,507	0.4
Middle	33.9	31.2	1.7	21.3	9.9	1.9	100.0	3,495	1.7
Fourth	24.7	25.7	1.4	24.6	16.4	7.2	100.0	3,664	4.9
Highest	14.3	23.8	2.4	25.6	16.4	17.5	100.0	3,759	7.6
Total	32.7	28.1	2.0	21.0	10.5	5.7	100.0	17,862	2.5

Note: Total includes 1 case for which age is missing and 29 cases for which education level is missing.
[1] Completed grade 6 at the primary level
[2] Completed grade 12 at the secondary level

2.8.2 School Attendance Ratios

In Table 2.13, school attendance ratios for the 2012-13 academic year are presented by level of schooling and sex, residence, region, county, and wealth quintile. The net attendance ratio (NAR) is an

indicator of participation in schooling among children of official school age—age 6-11 for primary school and age 12-17 for secondary school—and the gross attendance ratio (GAR) indicates participation at each level of schooling among those of any age between 5 and 24. The GAR is nearly always higher than the NAR for the same level because the GAR includes participation by those who may be older or younger than the official age range for that level.[2] Finally, the Gender Parity Index (GPI), which is the ratio of female to male attendance rates at the primary and secondary levels, indicates the magnitude of the gender gap in school attendance. A GPI less than one indicates that a smaller proportion of females than males attends school. Individuals are considered to be attending school currently if they attended formal academic school at any point during the given school year.

The results in Table 2.13 show that 38 percent of children age 6 to 11 attend primary school and 23 percent of youth age 12 to 17 attend secondary school. There are only small differences in the NARs for males and females at either the primary or secondary level. At both levels, however, the NAR in urban areas is much higher than in rural areas (48 percent and 26 percent, respectively, at the primary school level and 31 percent and 9 percent, respectively, at the secondary school level). By county, large differences in NAR are also observed at both primary and secondary school levels. For example, at the primary level, Montserrado has the highest NAR (54 percent) and Bong has the lowest (19 percent). At the secondary level, Montserrado again has the highest NAR (37 percent), but River Cess and Grand Kru have the lowest (4 percent each). School attendance as measured by the NAR is higher among children of wealthy households than children of poorer households at both the primary and secondary levels. For example, 21 percent of children age 6 to 11 in the lowest wealth quintile attend primary school, compared with 61 percent in the highest wealth quintile.

The primary school level GAR is 82 percent. This figure exceeds the primary school NAR (38 percent) by 44 percentage points, indicating that a large number of children outside the official school age population are attending primary school. At the secondary level, the GAR (49 percent) is somewhat closer to the NAR (23 percent), indicating that fewer youth outside of the official school age population are attending secondary school than is the case for primary school.

The GPIs for both the NAR and GAR are just over 1 at the primary school levels, but are only 0.88 and 0.78, respectively, at the secondary school level. This means that there is gender parity in primary school but gender disparity in favor of males at the secondary school level. This disparity is especially pronounced in rural areas. The GPI associated with the NAR for secondary school for rural areas is 0.67 compared with 0.84 in urban areas; the GPI associated with the GAR for secondary school is 0.65 and 0.74 in rural areas and urban areas, respectively. Large differences in GPI are also observed by county.

Age-specific attendance rates (ASARs) for the population age 5 to 24—i.e., the percentage of a given age cohort that attends school, regardless of the level attended (primary, secondary, or higher)—are shown in Figure 2.2. From age 5 through 12, trends are similar for males and females. Attendance rates peak at 83 percent for girls age 14 and at 88 percent for boys age 15. Whereas the percentage of girls in school is modestly higher than boys at ages 13 and 14, from ages 15 upward, the percentage of boys in school exceeds girls at every age.

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[2] Students who are overage for a given level of schooling may have started school overage, may have repeated one or more grades, or may have dropped out of school and later returned.

Table 2.13 School attendance ratios

Net attendance ratios (NAR) and gross attendance ratios (GAR) for the de facto household population by sex and level of schooling; and the Gender Parity Index (GPI), according to background characteristics, Liberia 2013

Background characteristic	Net attendance ratio[1]				Gross attendance ratio[2]			
	Male	Female	Total	Gender Parity Index[3]	Male	Female	Total	Gender Parity Index[3]
PRIMARY SCHOOL								
Residence								
Urban	46.9	48.6	47.8	1.04	93.5	97.5	95.6	1.04
Greater Monrovia	56.4	57.6	57.0	1.02	98.6	106.9	103.2	1.08
Other urban	37.9	37.3	37.6	0.98	88.7	85.4	87.1	0.96
Rural	26.0	26.8	26.4	1.03	67.2	63.5	65.5	0.94
Region								
North Western	29.0	31.8	30.3	1.10	66.7	65.3	66.0	0.98
South Central	46.0	47.4	46.7	1.03	89.8	93.3	91.7	1.04
South Eastern A	34.5	32.1	33.3	0.93	83.8	71.1	77.5	0.85
South Eastern B	36.2	35.6	35.9	0.98	85.6	92.0	88.4	1.07
North Central	28.8	29.5	29.1	1.02	73.0	71.0	72.1	0.97
County								
Bomi	32.7	30.0	31.4	0.92	73.9	61.6	68.0	0.83
Bong	17.0	22.2	19.3	1.30	52.3	52.6	52.4	1.01
Gbarpolu	27.3	25.2	26.3	0.92	70.5	71.4	70.9	1.01
Grand Bassa	24.7	22.7	23.8	0.92	62.6	55.7	59.5	0.89
Grand Cape Mount	27.3	36.1	31.3	1.32	60.4	65.2	62.6	1.08
Grand Gedeh	46.3	34.5	40.4	0.74	97.4	81.9	89.7	0.84
Grand Kru	29.4	32.8	30.8	1.12	81.8	90.7	85.6	1.11
Lofa	38.6	33.6	36.2	0.87	91.4	77.6	84.8	0.85
Margibi	35.8	33.7	34.6	0.94	86.8	75.8	80.6	0.87
Maryland	41.5	36.9	39.5	0.89	87.8	98.2	92.3	1.12
Montserrado	52.6	54.4	53.5	1.03	95.7	103.0	99.6	1.08
Nimba	34.8	33.8	34.4	0.97	83.3	83.7	83.5	1.00
River Cess	23.7	25.1	24.4	1.06	72.2	56.2	64.7	0.78
River Gee	37.8	38.0	37.9	1.00	89.0	77.7	83.7	0.87
Sinoe	32.7	34.4	33.6	1.05	81.2	71.6	76.4	0.88
Wealth quintile								
Lowest	20.8	21.1	21.0	1.01	60.0	50.9	55.8	0.85
Second	27.1	27.0	27.1	0.99	67.4	66.8	67.2	0.99
Middle	36.3	32.5	34.5	0.90	83.6	76.8	80.3	0.92
Fourth	47.8	50.5	49.2	1.06	96.5	93.5	94.9	0.97
Highest	58.9	62.4	60.7	1.06	104.7	122.0	113.9	1.16
Total	37.2	39.5	38.3	1.06	81.2	83.2	82.2	1.02

Continued…

Table 2.13 School attendance ratios—*Continued*

Background characteristic	Net attendance ratio[1]				Gross attendance ratio[2]			
	Male	Female	Total	Gender Parity Index[3]	Male	Female	Total	Gender Parity Index[3]
	SECONDARY SCHOOL							
Residence								
Urban	33.5	28.2	30.7	0.84	73.7	54.6	63.5	0.74
Greater Monrovia	44.4	35.4	39.2	0.80	90.3	63.9	75.3	0.71
Other urban	20.7	16.2	18.6	0.78	54.1	38.9	46.8	0.72
Rural	10.3	6.9	8.8	0.67	26.5	17.2	22.3	0.65
Region								
North Western	17.7	12.9	15.5	0.73	34.4	27.4	31.2	0.80
South Central	35.0	29.3	31.9	0.84	73.5	54.1	63.0	0.74
South Eastern A	10.2	8.5	9.4	0.83	31.0	21.4	26.8	0.69
South Eastern B	16.0	8.5	12.5	0.53	46.0	25.9	36.5	0.56
North Central	12.0	10.1	11.1	0.84	35.2	27.0	31.4	0.77
County								
Bomi	28.4	25.5	27.1	0.90	49.4	55.1	51.9	1.12
Bong	11.6	9.0	10.5	0.77	27.3	16.6	22.7	0.61
Gbarpolu	12.1	5.3	8.8	0.43	31.4	9.1	20.4	0.29
Grand Bassa	14.3	12.4	13.4	0.86	32.2	25.1	29.0	0.78
Grand Cape Mount	12.0	7.1	9.8	0.60	24.0	15.6	20.2	0.65
Grand Gedeh	14.5	8.4	11.9	0.58	44.0	32.8	39.1	0.74
Grand Kru	5.5	2.8	4.3	0.51	29.5	15.1	23.3	0.51
Lofa	18.2	15.2	16.8	0.84	50.7	27.2	39.5	0.54
Margibi	19.6	13.9	16.7	0.71	54.6	27.4	40.4	0.50
Maryland	26.2	12.8	19.5	0.49	64.7	35.9	50.3	0.56
Montserrado	41.1	33.6	36.9	0.82	83.1	61.7	71.2	0.74
Nimba	9.6	8.5	9.1	0.88	34.8	34.1	34.4	0.98
River Cess	3.4	5.3	4.2	1.56	12.4	11.3	11.9	0.92
River Gee	7.2	3.7	5.6	0.52	22.8	9.0	16.4	0.39
Sinoe	11.2	10.4	10.8	0.93	32.7	18.3	26.1	0.56
Wealth quintile								
Lowest	5.3	4.5	5.0	0.86	16.8	9.5	13.6	0.57
Second	10.8	6.0	8.6	0.56	30.4	16.1	23.9	0.53
Middle	15.9	11.8	13.9	0.74	44.5	29.5	37.1	0.66
Fourth	26.7	24.8	25.7	0.93	70.1	60.9	65.4	0.87
Highest	51.9	38.5	44.2	0.74	94.3	63.2	76.6	0.67
Total	24.3	21.4	22.8	0.88	55.0	42.7	48.7	0.78

[1] The NAR for primary school is the percentage of the primary-school age (6-11 years) population that is attending primary school. The NAR for secondary school is the percentage of the secondary-school age (12-17 years) population that is attending secondary school. By definition the NAR cannot exceed 100 percent.
[2] The GAR for primary school is the total number of primary school students, expressed as a percentage of the official primary-school-age population. The GAR for secondary school is the total number of secondary school students, expressed as a percentage of the official secondary-school-age population. If there are significant numbers of overage and underage students at a given level of schooling, the GAR can exceed 100 percent.
[3] The Gender Parity Index for primary school is the ratio of the primary school NAR(GAR) for females to the NAR(GAR) for males. The Gender Parity Index for secondary school is the ratio of the secondary school NAR(GAR) for females to the NAR(GAR) for males.

Figure 2.2 Age-specific attendance rates of the de-facto population 5 to 24 years

Percent

LDHS 2013
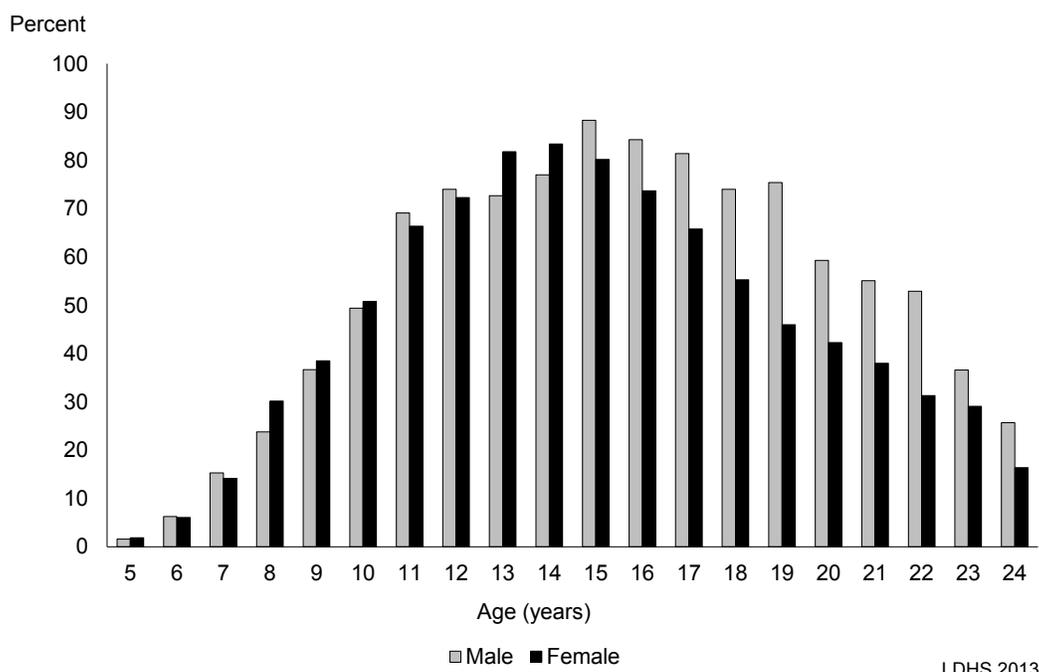
2.9   UTILIZATION OF HEALTH SERVICES AND OUT-OF-POCKET EXPENDITURES FOR HEALTH CARE

The 2013 LDHS collected data on the utilization of health services by household members. Information on outpatient visits by each household member to a health care facility, provider, pharmacy, or traditional healer in the four weeks preceding the interview and information on inpatient admissions in the 6 months preceding the interview was collected. The survey also collected out-of-pocket expenditures for visits and admissions during those reference periods. For inpatient admissions, expenditures were collected for all household members who had had an admission in the reference time period. For outpatient visits, expenditures were collected for a single, randomly selected household member who paid money the last time they received care; findings were then extrapolated to other members of the household. Utilization of health services was assessed in the Household Questionnaire, and questions were asked of all households in the sample.

An analysis was carried out to estimate the number of annual outpatient visits (per capita) and inpatient admissions (per 1,000 population), with separate data for women and men. Table 2.14 shows that in Liberia the number of annual outpatient visits in 2013 is 2.0 visits per capita for women and 1.8 visits per capita for men. Among women, the number of visits is highest among children under 5 (5.0 visits) and among the elderly age 65 and older (2.4 visits). Among men, the number of outpatient visits is highest for children under 5 (4.8 annual visits). In both populations, the number of visits is higher in Greater Monrovia than other urban areas or in rural areas.

Table 2.14 Annual outpatient visits and inpatient admissions

Average number of annual outpatient visits and inpatient admissions to health facilities for women and men by background characteristics, Liberia 2013

Background characteristic	Women			Men		
	Outpatient visits (per capita)	Inpatient admissions (per 1,000 population)	Total population	Outpatient visits (per capita)	Inpatient admissions (per 1,000 population)	Total population
Age						
<5	5.0	245	3,760	4.8	236	3,488
5-14	1.6	85	6,850	1.9	98	6,539
15-24	1.6	80	3,772	1.1	55	4,090
25-34	1.4	109	2,799	0.6	18	3,052
35-44	0.8	49	2,115	0.3	20	2,182
45-54	0.6	51	1,454	0.6	22	1,550
55-64	0.8	32	836	1.3	70	954
65+	2.4	62	732	1.6	122	865
Residence						
Urban	2.1	110	12,395	1.8	90	13,042
Greater Monrovia	2.6	99	6,666	2.2	94	7,294
Other urban	1.5	123	5,729	1.5	85	5,749
Rural	1.9	100	9,922	1.6	85	9,683
Region						
North Western	1.7	77	2,213	1.4	75	2,176
South Central	2.1	102	10,434	2.0	95	11,053
South Eastern A	2.5	119	1,433	2.1	102	1,387
South Eastern B	2.5	142	1,623	1.6	116	1,520
North Central	1.7	109	6,614	1.4	71	6,589
County						
Bomi	1.6	84	660	1.5	86	650
Bong	2.0	119	2,445	1.2	79	2,393
Gbarpolu	2.9	121	488	3.3	98	475
Grand Bassa	1.5	102	1,209	1.6	115	1,171
Grand Cape Mount	1.1	53	1,064	0.5	57	1,051
Grand Gedeh	2.8	118	467	2.3	127	476
Grand Kru	3.9	174	632	2.4	176	575
Lofa	1.1	87	1,189	1.4	73	1,237
Margibi	1.2	110	1,764	1.6	86	1,803
Maryland	1.5	114	706	1.2	85	668
Montserrado	2.4	100	7,461	2.2	94	8,080
Nimba	1.8	110	2,980	1.6	64	2,958
River Cess	2.4	74	392	1.3	72	359
River Gee	2.1	144	286	1.2	65	277
Sinoe	2.3	150	574	2.4	100	552
Wealth quintile						
Lowest	2.2	89	4,509	1.7	82	4,400
Second	1.8	113	4,514	1.5	82	4,409
Middle	1.8	113	4,387	1.6	89	4,575
Fourth	2.0	107	4,492	1.8	82	4,623
Highest	2.3	107	4,416	2.1	102	4,717
Total	2.0	106	22,317	1.8	88	22,725

Note: Total includes 6 cases for which age is unknown or missing.

On average, the annual number of inpatient admissions is 106 admissions (per 1,000 population) for women and 88 admissions (per 1,000 population) for men. Among women, the number of annual admissions peaks among two age groups: those under 5 and those age 25-34 with 245 admissions and 109 admissions, respectively, per 1,000 population. For men, the number of annual admissions is highest among the youngest and oldest age groups: those under 5 have 236 admissions per 1,000 population and those over age 65 have 122 admissions per 1,000 population. Small differences in annual outpatient and inpatient visits are observed by region, county, and wealth quintile.

Table 2.15 indicates that the total annual out-of-pocket expenditure for the female population is LD$2,227 per capita; that includes LD$2,003 in outpatient expenditure and LD$225 in inpatient expenditure. For the male population, the total annual out-of-pocket expenditure is LD$1,891 per capita; that includes LD$1,719 in outpatient expenditure and LD$172 in inpatient expenditure.

Table 2.15 Annual per capita expenditure (in Liberian dollars) on outpatient visits and inpatient admissions

Average annual per capita expenditure for outpatient visits and inpatient admissions for women and men, by background characteristics, Liberia 2013

Background characteristic	Women				Men			
	Per capita expenditure for outpatient	Per capita expenditure for inpatient	Total per capita expenditure	Total population	Per capita expenditure for outpatient	Per capita expenditure for inpatient	Total per capita expenditure	Total population
Age								
<5	4,735	403	5,138	3,760	5,195	358	5,552	3,488
5-14	2,054	169	2,223	6,850	1,707	228	1,935	6,539
15-24	1,438	148	1,586	3,772	842	133	975	4,090
25-34	1,344	456	1,800	2,799	648	45	693	3,052
35-44	683	80	763	2,115	273	38	311	2,182
45-54	600	111	711	1,454	658	36	694	1,550
55-64	461	17	478	836	1,836	80	1,916	954
65+	1,279	221	1,500	732	1,143	314	1,457	865
Residence								
Urban	2,081	268	2,349	12,395	1,891	194	2,085	13,042
Greater Monrovia	3,085	239	3,324	6,666	2,191	246	2,437	7,294
Other urban	913	300	1,213	5,729	1,510	128	1,638	5,749
Rural	1,905	171	2,076	9,922	1,487	142	1,629	9,683
Region								
North Western	1,211	73	1,284	2,213	850	68	918	2,176
South Central	2,307	237	2,544	10,434	2,139	226	2,364	11,053
South Eastern A	1,764	173	1,936	1,433	1,786	133	1,919	1,387
South Eastern B	3,949	154	4,103	1,623	1,580	143	1,723	1,520
North Central	1,361	285	1,646	6,614	1,319	131	1,450	6,589
County								
Bomi	828	106	934	660	631	60	691	650
Bong	1,787	252	2,039	2,445	858	119	977	2,393
Gbarpolu	2,023	64	2,086	488	2,176	95	2,271	475
Grand Bassa	1,024	138	1,161	1,209	1,044	169	1,212	1,171
Grand Cape Mount	1,077	57	1,134	1,064	387	61	448	1,051
Grand Gedeh	2,366	94	2,460	467	2,209	159	2,367	476
Grand Kru	8,335	260	8,595	632	2,622	239	2,862	575
Lofa	900	100	999	1,189	1,362	127	1,489	1,237
Margibi	706	313	1,019	1,764	2,745	157	2,902	1,803
Maryland	1,032	71	1,103	706	1,116	88	1,204	668
Montserrado	2,894	235	3,129	7,461	2,162	249	2,411	8,080
Nimba	1,195	386	1,581	2,980	1,674	142	1,816	2,958
River Cess	892	178	1,070	392	628	121	749	359
River Gee	1,459	122	1,581	286	536	77	612	277
Sinoe	1,869	234	2,102	574	2,175	119	2,294	552
Wealth quintile								
Lowest	2,309	166	2,474	4,509	1,134	124	1,258	4,400
Second	1,294	229	1,522	4,514	1,262	126	1,387	4,409
Middle	1,404	159	1,563	4,387	1,221	153	1,375	4,575
Fourth	2,098	238	2,336	4,492	2,634	153	2,787	4,623
Highest	2,913	333	3,246	4,416	2,276	297	2,573	4,717
Total	2,003	225	2,227	22,317	1,719	172	1,891	22,725

Note: Total includes 6 cases for which age is unknown or missing.

In the female population, annual expenditure is highest among children under 5 at LD$5,138. Annual expenditure decreases with age reaching a low of LD$478 among women age 55-64 before increasing to LD$1,500 among women over age 65. In the male population, annual expenditure is also highest among children under 5 at LD$5,552. Annual expenditure decreases with age reaching a low of LD$311among those in the 35-44 age group before increasing to LD$1,916 among those age 55-64 and LD$1,457 among those over age 65.

The total per capita out-of-pocket expenditure is higher in Greater Monrovia than in other urban areas or rural areas. Large differences are observed by region, county, and wealth quintile. Among women, the total annual out-of-pocket expenditure is highest for those in the lowest wealth quintile (LD$2,474) and highest wealth quintile (LD$3,246). Among men, total annual out-of-pocket expenditure is greatest for those in the fourth wealth quintile (LD$2,787).

In addition to the information collected on outpatient and inpatient expenditures, all households were asked about any expenses on health related items they incurred during the four weeks preceding the interview (for example, purchases of vitamins, bandages, etc.). These data were annualized and then combined with the annual inpatient and outpatient expenditures for each household to produce an annual total health expenditure estimate.

As shown in Table 2.16, the total annual health-related expenditure per household was LD$13,094. The total annual health-related expenditure was higher for households in Greater Monrovia (LD$15,750) than either other urban areas (LD$10,739) or rural areas (LD$12,382). Sizeable differences are also observed by region, county, and wealth quintile.

Table 2.16 Annual total health expenditures (in Liberian dollars) per household

Annual total expenditures on any health-related items for members of the household, by background characteristics, Liberia 2013

Background characteristic	Total health-related expenditures	Total households
Residence		
Urban	13,638	5,289
Greater Monrovia	15,750	3,060
Other urban	10,739	2,229
Rural	12,382	4,044
Region		
North Western	8,705	909
South Central	14,099	4,645
South Eastern A	12,710	573
South Eastern B	20,387	571
North Central	11,337	2,634
County		
Bomi	6,753	280
Bong	9,765	1,118
Gbarpolu	14,361	212
Grand Bassa	7,151	588
Grand Cape Mount	7,140	417
Grand Gedeh	15,158	196
Grand Kru	39,818	206
Lofa	7,895	498
Margibi	13,693	694
Maryland	10,311	249
Montserrado	15,398	3,363
Nimba	14,750	1,018
River Cess	6,080	152
River Gee	7,546	116
Sinoe	15,061	225
Wealth quintile		
Lowest	11,672	2,008
Second	11,032	1,785
Middle	10,718	1,738
Fourth	14,208	2,024
Highest	17,826	1,777
Total	13,094	9,333

CHARACTERISTICS OF RESPONDENTS

3

Key Findings

- A total of 9,239 women and 4,118 men age 15-49 were interviewed as part of the 2013 LDHS.
- Thirty-three percent of women and 13 percent of men age 15-49 have no education.
- Thirty-six percent of women and 58 percent of men have at least some secondary school education.
- Literacy rates are low in Liberia: 48 percent of women and 71 percent of men are literate.
- Only 6 percent of women and 13 percent of men access three media (read a newspaper, watch television, and listen to the radio) at least once a week.
- Fifty-three percent of women and 74 percent of men age 15-49 are currently employed.
- Among women who were employed in the past 12 months, 49 percent worked in sales and services and 42 percent in agriculture. Among men who were employed in the past 12 months, 40 percent worked in agriculture, 15 percent in unskilled manual labor, 14 percent in skilled manual labor, 14 percent in sales and services, and 10 percent in professional, technical, or managerial occupations.
- Ninety-six percent of women and 93 percent of men age 15-49 lack health Insurance coverage.
- Ten percent of men report that they smoke cigarettes, while less than 1 percent of women report using any form of tobacco.
- Twenty-seven percent of women and 50 percent of men drank alcohol in the month before the survey.

T his chapter presents information on demographic and socioeconomic characteristics of the survey respondents such as age, education, place of residence, marital status, employment, and wealth status. This information is useful for understanding the factors that affect use of reproductive health services, contraceptive use, and other health behaviors, as they provide a context for the interpretation of demographic and health indices.

3.1 CHARACTERISTICS OF SURVEY RESPONDENTS

Background characteristics of the 9,239 women and 4,118 men age 15-49 interviewed in the 2013 LDHS are presented in Table 3.1. The distribution of respondents according to age shows a similar pattern for men and women. The proportion of respondents in each age group declines with increasing age for both sexes. Forty percent of women and 39 percent of men are in the 15-24 age groups, and 30 percent of both sexes are in the 25-34 age group.

Table 3.1 Background characteristics of respondents

Percent distribution of women and men age 15-49, by selected background characteristics, Liberia 2013

Background characteristic	Women			Men		
	Weighted percent	Weighted number	Unweighted number	Weighted percent	Weighted number	Unweighted number
Age						
15-19	22.5	2,080	1,915	21.6	890	847
20-24	17.8	1,642	1,584	16.9	696	645
25-29	17.4	1,611	1,585	16.3	673	640
30-34	13.0	1,199	1,244	14.0	575	603
35-39	12.8	1,179	1,203	11.4	469	544
40-44	8.8	812	901	11.7	482	490
45-49	7.7	716	807	8.1	332	349
Religion						
Christian	86.0	7,945	7,851	82.3	3,387	3,359
Muslim	10.8	1,001	1,095	12.9	529	545
Traditional religion	0.5	42	36	1.3	54	71
No religion	2.5	227	238	3.2	130	127
Other	0.0	1	1	0.0	0	0
Missing	0.3	23	18	0.4	16	15
Marital status						
Never married	31.0	2,867	2,405	42.5	1,749	1,591
Married	27.9	2,579	3,062	30.2	1,245	1,428
Living together	30.4	2,806	2,813	23.6	973	934
Divorced/separated	7.9	734	719	3.1	126	148
Widowed	2.7	253	240	0.6	25	17
Residence						
Urban	61.0	5,633	3,723	58.6	2,413	1,591
Greater Monrovia	36.4	3,361	1,154	34.8	1,433	463
Other urban	24.6	2,272	2,569	23.8	980	1,128
Rural	39.0	3,606	5,516	41.4	1,705	2,527
Region						
North Western	9.1	837	1,553	8.9	367	667
South Central	52.5	4,854	2,759	52.2	2,149	1,193
South Eastern A	5.2	483	1,367	6.2	254	697
South Eastern B	6.2	577	1,432	7.0	288	663
North Central	26.9	2,488	2,128	25.7	1,060	898
County						
Bomi	2.6	244	456	2.4	97	163
Bong	9.7	894	630	9.5	389	271
Gbarpolu	2.0	182	482	2.3	94	240
Grand Bassa	4.7	434	505	4.9	204	227
Grand Cape Mount	4.5	412	615	4.3	176	264
Grand Gedeh	1.8	167	448	2.0	82	214
Grand Kru	2.3	217	450	2.7	110	227
Lofa	4.8	447	629	5.3	219	294
Margibi	8.1	744	720	8.8	364	338
Maryland	2.8	257	559	3.0	123	251
Montserrado	39.8	3,675	1,534	38.4	1,582	628
Nimba	12.4	1,147	869	11.0	451	333
River Cess	1.5	135	459	1.6	64	214
River Gee	1.1	103	423	1.3	55	185
Sinoe	2.0	182	460	2.6	108	269
Education						
No education	33.2	3,066	3,679	12.9	533	599
Primary	31.1	2,875	3,195	29.2	1,202	1,404
Secondary and higher	35.7	3,298	2,365	57.9	2,383	2,115
Wealth quintile						
Lowest	17.1	1,581	2,589	18.2	749	1,172
Second	17.6	1,624	2,279	18.3	753	1,049
Middle	19.3	1,779	1,998	17.7	728	803
Fourth	22.2	2,047	1,305	21.0	864	568
Highest	23.9	2,207	1,068	24.9	1,024	526
Total	100.0	9,239	9,239	100.0	4,118	4,118

Note: Education categories refer to the highest level of education attended, whether or not that level was completed.

The overwhelming majority of the respondents (86 percent of women and 82 percent of men) are Christian. Eleven percent of women and 13 percent of men are Muslim, and one percent of women and men practice traditional religion. Three percent of women and men report no religious affiliation.

Twenty-eight percent of women and 30 percent of men are married, while 30 percent of women and 24 percent of men are living together in informal unions. Male respondents are much more likely than female respondents to have never married (43 percent versus 31 percent). Three percent of female respondents and 1 percent of male respondents are widowed. Men are less likely to be divorced or separated than women (3 percent versus 8 percent).

The majority of respondents live in urban areas (61 percent of female respondents and 59 percent of male respondents). By contrast, according to the 2007 LDHS, only 42 percent of female respondents and 40 percent of male respondents resided in urban areas. Thus, there has been an apparent shift in population from rural areas to urban areas between the 2007 and 2013 LDHS. This change likely reflects a true shift in residence between the two surveys, as well as differences in the sampling frames used in the 2007 LDHS and 2013 LDHS (see Section 1.4.1 of Chapter 1).

The largest proportions of both female and male respondents live in the South Central region (composed of Montserrado, Margibi, and Grand Bassa counties); the smallest proportions live in South Eastern A region (River Cess, Sinoe, and Grand Gedeh). In agreement with the regional distribution of respondents, by county, the largest proportion of respondents lives in Montserrado (40 percent of female respondents and 38 percent of male respondents), while the smallest proportion of respondents lives in River Gee (1 percent of both female and male respondents).

Education influences an individual's attitude and outlook on life. Generally, educational attainment in Liberia is low; only 36 percent of women and 58 percent of men have attended at least some secondary school. Thirty-one percent of women and 29 percent of men have attended only primary school. Thirty-three percent of women and 13 percent of men have no education.

3.2 EDUCATIONAL ATTAINMENT BY BACKGROUND CHARACTERISTICS

Tables 3.2.1 and 3.2.2 present an overview of female and male respondents' educational attainment, according to background demographic characteristics. Overall, the results show a low level of education in Liberia among both female and male respondents. Nevertheless, men have a huge advantage in average educational attainment, having completed a median of 6.5 years of schooling compared with 3.4 years among women. The difference in median years of schooling is partially explained by the huge differential observed in the total proportion of females with no education compared with males (33 percent and 13 percent, respectively). The proportions of women who have completed primary or secondary school, or who have attained schooling beyond secondary school, lags behind men. For example, only 39 percent of women have completed primary school compared with 62 percent of men; likewise, 10 percent of women have completed secondary school compared with 23 percent of men.

Rural respondents generally have attained less education than their urban counterparts. For example, 50 percent of rural women have no education compared with 23 percent of urban women. Among men, 19 percent of rural men have no education compared with 9 percent of rural men.

Of the 15 counties in Liberia, attainment of more than secondary education is concentrated in two counties: Montserrado, where Monrovia, the nation's capital, is located, and Margibi, just to the east of Montserrado. In Montserrado, 10 percent of women and 20 percent of men have attained more than a

secondary school education. In Margibi, 9 percent of men have more than secondary education; the proportion of women in Margibi with more than secondary education, however, is only 3 percent.

Table 3.2.1 Educational attainment: Women

Percent distribution of women age 15-49 by highest level of schooling attended or completed, and median years completed, according to background characteristics, Liberia 2013

| Background characteristic | Highest level of schooling | | | | | | Total | Median years completed | Number of women |
	No education	Some primary	Completed primary[1]	Some secondary	Completed secondary[2]	More than secondary			
Age									
15-24	13.3	39.9	4.2	37.0	3.0	2.7	100.0	4.7	3,722
15-19	6.9	51.6	3.9	36.3	0.7	0.6	100.0	4.4	2,080
20-24	21.4	25.0	4.6	37.9	5.9	5.3	100.0	5.4	1,642
25-29	32.4	20.4	4.0	23.2	11.2	8.9	100.0	4.5	1,611
30-34	47.0	20.5	2.6	15.7	10.5	3.7	100.0	0.3	1,199
35-39	50.8	18.7	2.5	17.5	5.4	5.1	100.0	0.0	1,179
40-44	53.5	20.1	3.2	14.7	5.0	3.4	100.0	0.0	812
45-49	63.1	16.1	1.4	10.9	4.9	3.6	100.0	0.0	716
Residence									
Urban	22.5	24.5	3.7	33.4	9.0	6.8	100.0	5.4	5,633
Greater Monrovia	17.2	19.5	3.1	37.5	12.5	10.2	100.0	6.8	3,361
Other urban	30.5	31.9	4.6	27.3	3.9	1.8	100.0	3.5	2,272
Rural	49.8	32.7	3.0	12.8	1.3	0.4	100.0	0.0	3,606
Region									
North Western	49.3	30.7	3.4	14.8	1.6	0.2	100.0	0.0	837
South Central	25.2	22.6	3.0	31.7	9.7	7.9	100.0	5.3	4,854
South Eastern A	40.7	36.2	2.8	17.6	2.0	0.6	100.0	1.2	483
South Eastern B	38.8	32.5	4.1	20.9	2.6	1.1	100.0	2.2	577
North Central	40.7	33.8	4.3	19.1	2.0	0.2	100.0	1.8	2,488
County									
Bomi	42.0	22.3	7.1	26.1	2.6	0.0	100.0	2.4	244
Bong	55.3	30.0	1.4	11.9	1.0	0.3	100.0	0.0	894
Gbarpolu	43.2	41.6	2.0	10.1	1.9	1.2	100.0	0.1	182
Grand Bassa	53.3	25.6	2.1	15.5	2.2	1.3	100.0	0.0	434
Grand Cape Mount	56.2	30.9	1.9	10.1	0.8	0.0	100.0	0.0	412
Grand Gedeh	33.3	33.0	3.5	25.7	2.9	1.6	100.0	3.1	167
Grand Kru	47.3	33.0	4.3	13.5	1.8	0.1	100.0	0.7	217
Lofa	56.5	23.4	4.2	14.2	1.6	0.2	100.0	0.0	447
Margibi	40.7	30.6	3.6	17.8	4.3	3.1	100.0	1.4	744
Maryland	30.7	31.1	3.9	28.5	3.4	2.4	100.0	3.6	257
Montserrado	18.7	20.6	3.0	36.4	11.6	9.6	100.0	6.5	3,675
Nimba	23.0	40.7	6.6	26.5	2.9	0.2	100.0	3.6	1,147
River Cess	47.9	41.0	1.3	9.5	0.2	0.2	100.0	0.0	135
River Gee	41.1	35.1	4.0	17.5	2.2	0.2	100.0	1.5	103
Sinoe	42.3	35.6	3.2	16.2	2.6	0.1	100.0	0.6	182
Wealth quintile									
Lowest	59.2	30.8	1.9	7.5	0.5	0.1	100.0	0.0	1,581
Second	47.6	34.0	3.8	13.4	0.8	0.2	100.0	0.0	1,624
Middle	34.5	34.1	4.5	24.2	2.4	0.4	100.0	2.6	1,779
Fourth	24.7	26.6	3.5	34.2	7.4	3.6	100.0	4.8	2,047
Highest	10.7	16.6	3.4	39.7	15.5	14.2	100.0	8.0	2,207
Total	33.2	27.7	3.4	25.4	6.0	4.3	100.0	3.4	9,239

[1] Completed grade 6 at the primary level
[2] Completed grade 12 at the secondary level

Wealth status is associated with educational attainment. The proportion of women in the lowest wealth quintile with no education is over five times higher than those in the highest wealth quintile (59 percent and 11 percent, respectively), and the proportion of women who have attended more than secondary school varies from less than 1 percent in the lowest three wealth quintiles to 14 percent in the highest quintile. Similar patterns are observed for men.

Table 3.2.2 Educational attainment: Men

Percent distribution of men age 15-49 by highest level of schooling attended or completed, and median years completed, according to background characteristics, Liberia 2013

Background characteristic	Highest level of schooling						Total	Median years completed	Number of men
	No education	Some primary	Completed primary[1]	Some secondary	Completed secondary[2]	More than secondary			
Age									
15-24	5.4	33.3	3.5	48.5	5.5	3.8	100.0	6.1	1,587
15-19	4.8	46.8	4.0	43.2	1.0	0.2	100.0	4.9	890
20-24	6.2	16.0	3.0	55.2	11.2	8.4	100.0	8.1	696
25-29	12.6	17.4	3.2	29.2	22.9	14.7	100.0	8.4	673
30-34	21.1	24.8	2.5	24.4	16.4	10.9	100.0	5.8	575
35-39	20.3	23.2	4.4	22.6	15.2	14.2	100.0	6.1	469
40-44	17.3	22.0	5.5	27.5	18.3	9.3	100.0	6.8	482
45-49	18.9	13.1	4.5	24.6	24.1	14.7	100.0	8.5	332
Residence									
Urban	8.7	17.8	3.6	37.9	17.0	15.1	100.0	8.2	2,413
Greater Monrovia	7.1	11.4	3.3	38.2	18.4	21.6	100.0	9.1	1,433
Other urban	10.9	27.1	4.1	37.5	14.8	5.5	100.0	6.3	980
Rural	19.0	36.3	4.0	30.0	9.7	1.1	100.0	4.4	1,705
Region									
North Western	21.6	33.1	2.8	28.0	13.1	1.3	100.0	4.5	367
South Central	9.6	18.7	3.1	36.0	16.2	16.5	100.0	8.0	2,149
South Eastern A	9.7	37.0	3.1	39.2	9.5	1.6	100.0	5.4	254
South Eastern B	8.8	28.8	4.5	42.3	14.1	1.5	100.0	6.3	288
North Central	18.7	32.8	5.3	31.1	10.7	1.4	100.0	4.8	1,060
County									
Bomi	15.0	25.9	5.3	35.6	16.5	1.7	100.0	6.2	97
Bong	24.3	33.2	4.4	25.8	10.6	1.7	100.0	3.7	389
Gbarpolu	17.1	42.1	1.5	24.8	12.3	2.1	100.0	4.0	94
Grand Bassa	20.4	37.0	2.9	29.1	9.3	1.3	100.0	3.8	204
Grand Cape Mount	27.7	32.2	2.2	25.5	11.6	0.7	100.0	4.2	176
Grand Gedeh	7.1	26.9	3.2	48.5	10.2	4.1	100.0	6.4	82
Grand Kru	6.1	28.1	4.3	42.0	18.4	1.1	100.0	6.6	110
Lofa	24.8	22.3	9.5	31.3	10.3	1.8	100.0	5.3	219
Margibi	10.5	32.5	2.7	32.1	13.6	8.5	100.0	5.8	364
Maryland	9.0	28.3	3.9	44.0	12.9	1.9	100.0	6.4	123
Montserrado	8.0	13.1	3.2	37.7	17.7	20.2	100.0	8.8	1,582
Nimba	10.8	37.6	4.1	35.5	10.9	1.0	100.0	5.1	451
River Cess	7.3	50.5	2.3	32.5	7.5	0.0	100.0	4.4	64
River Gee	13.8	31.5	6.6	39.0	8.0	1.1	100.0	5.5	55
Sinoe	13.1	36.6	3.6	36.0	10.2	0.6	100.0	5.1	108
Wealth quintile									
Lowest	25.8	38.5	4.3	26.1	4.8	0.5	100.0	3.1	749
Second	17.0	37.0	4.8	32.2	8.6	0.5	100.0	4.6	753
Middle	13.7	29.2	3.4	35.6	16.8	1.4	100.0	5.9	728
Fourth	8.8	18.0	3.0	38.9	19.8	11.5	100.0	8.0	864
Highest	3.5	11.1	3.5	38.5	17.6	25.9	100.0	9.8	1,024
Total	12.9	25.4	3.7	34.6	14.0	9.3	100.0	6.5	4,118

[1] Completed grade 6 at the primary level
[2] Completed grade 12 at the secondary level

3.3 LITERACY

The ability to read and write is an important personal asset, allowing individuals increased opportunities in life. Knowing the distribution of the literate population can help program managers, especially for health and family planning, know how to reach women and men with their messages. In the 2013 LDHS, the literacy status of respondents who had not attended school or had attended only primary school was determined by their ability to read all or part of a sentence. Those with secondary education or higher were assumed to be literate.

Tables 3.3.1 and 3.3.2 show the percent distributions of women and men by level of schooling attended and level of literacy, along with the percentage of respondents who are literate, according to background characteristics. Literacy rates in Liberia are low; overall, 48 percent of women and 71 percent of men are literate. Among women, literacy correlates inversely with age; 69 percent of women age 15-19 are literate compared with only 23 percent of women age 45-49. For men, in contrast, a clear correlation between age and literacy is not observed. Rather, younger men age 15-29 (74-85 percent) and older men age 40-49 (67-71 percent) have higher rates of literacy than men age 30-39 (60-61 percent).

Table 3.3.1 Literacy: Women

Percent distribution of women age 15-49 by level of schooling attended and level of literacy, and percentage literate, according to background characteristics, Liberia 2013

| Background characteristic | Secondary school or higher | No schooling or primary school | | | | | Total | Percentage literate[1] | Number of women |
		Can read a whole sentence	Can read part of a sentence	Cannot read at all	No card with required language	Blind/ visually impaired			
Age									
15-24	42.6	7.6	14.0	35.5	0.2	0.0	100.0	64.2	3,722
15-19	37.6	12.0	19.0	31.2	0.2	0.0	100.0	68.5	2,080
20-24	49.0	2.1	7.7	41.0	0.1	0.0	100.0	58.9	1,642
25-29	43.2	1.0	5.7	49.5	0.3	0.0	100.0	49.9	1,611
30-34	29.9	0.8	5.7	63.5	0.0	0.0	100.0	36.4	1,199
35-39	28.0	2.0	3.9	66.1	0.0	0.0	100.0	33.8	1,179
40-44	23.1	1.4	4.0	71.3	0.0	0.0	100.0	28.6	812
45-49	19.4	0.3	2.9	77.1	0.1	0.1	100.0	22.5	716
Residence									
Urban	49.2	4.6	8.2	37.7	0.2	0.0	100.0	62.1	5,633
Greater Monrovia	60.2	5.3	8.4	25.8	0.2	0.0	100.0	73.9	3,361
Other urban	33.0	3.6	8.0	55.2	0.1	0.0	100.0	44.6	2,272
Rural	14.6	2.4	8.8	74.0	0.1	0.0	100.0	25.8	3,606
Region									
North Western	16.6	2.5	10.6	69.9	0.0	0.0	100.0	29.7	837
South Central	49.3	4.9	8.6	37.0	0.2	0.0	100.0	62.7	4,854
South Eastern A	20.3	2.1	9.9	67.1	0.5	0.0	100.0	32.3	483
South Eastern B	24.6	3.0	11.6	60.4	0.2	0.1	100.0	39.2	577
North Central	21.3	2.4	6.4	69.8	0.1	0.0	100.0	30.1	2,488
County									
Bomi	28.7	2.0	11.7	57.6	0.0	0.0	100.0	42.4	244
Bong	13.2	2.1	4.7	80.0	0.0	0.0	100.0	20.0	894
Gbarpolu	13.2	2.2	12.8	71.5	0.0	0.0	100.0	28.1	182
Grand Bassa	19.0	1.2	9.5	69.8	0.2	0.0	100.0	29.7	434
Grand Cape Mount	10.9	3.0	8.9	76.6	0.0	0.0	100.0	22.8	412
Grand Gedeh	30.2	2.2	12.0	54.4	1.0	0.0	100.0	44.5	167
Grand Kru	15.3	2.1	15.9	66.7	0.0	0.0	100.0	33.3	217
Lofa	15.9	0.5	9.1	74.5	0.0	0.0	100.0	25.5	447
Margibi	25.2	4.7	10.1	59.9	0.0	0.0	100.0	40.0	744
Maryland	34.4	3.7	8.7	52.4	0.5	0.3	100.0	46.8	257
Montserrado	57.7	5.4	8.2	28.5	0.2	0.0	100.0	71.3	3,675
Nimba	29.6	3.4	6.7	60.0	0.2	0.0	100.0	39.7	1,147
River Cess	9.9	2.0	11.6	76.4	0.0	0.0	100.0	23.6	135
River Gee	19.9	3.1	9.9	66.9	0.0	0.0	100.0	32.8	103
Sinoe	18.9	1.9	6.7	71.8	0.4	0.1	100.0	27.6	182
Wealth quintile									
Lowest	8.0	1.3	6.7	83.8	0.1	0.0	100.0	16.0	1,581
Second	14.5	1.9	8.6	74.7	0.2	0.0	100.0	24.9	1,624
Middle	27.0	3.7	10.0	59.1	0.2	0.0	100.0	40.7	1,779
Fourth	45.2	4.3	10.2	40.2	0.1	0.0	100.0	59.6	2,047
Highest	69.4	6.4	6.7	17.2	0.2	0.0	100.0	82.5	2,207
Total	35.7	3.7	8.4	51.8	0.1	0.0	100.0	47.9	9,239

Note: Total includes 10 cases for which information on literacy is missing.
[1] Refers to women who attended secondary school or higher and women who can read a whole sentence or part of a sentence

Women and men in urban areas have much higher literacy rates (62 percent and 81 percent, respectively) than their rural counterparts (26 percent and 58 percent, respectively). For women, Montserrado and Maryland have the highest literacy rates (71 percent and 47 percent). For men, Montserrado and Grand Kru have the highest literacy rates (84 percent and 77 percent, respectively). Bong has the lowest literacy rate for both women and men (20 percent and 53 percent). Literacy closely correlates with increasing wealth quintile for both women and men.

Table 3.3.2 Literacy: Men

Percent distribution of men age 15-49 by level of schooling attended and level of literacy, and percentage literate, according to background characteristics, Liberia 2013

| Background characteristic | Secondary school or higher | No schooling or primary school | | | | Total | Percentage literate[1] | Number of men |
		Can read a whole sentence	Can read part of a sentence	Cannot read at all	No card with required language			
Age								
15-24	57.7	9.9	11.4	20.8	0.0	100.0	79.0	1,587
15-19	44.4	14.2	16.1	25.1	0.1	100.0	74.6	890
20-24	74.8	4.5	5.4	15.3	0.0	100.0	84.6	696
25-29	66.8	1.5	5.8	25.6	0.2	100.0	74.2	673
30-34	51.7	2.5	6.0	39.6	0.2	100.0	60.2	575
35-39	52.1	2.7	5.8	39.5	0.0	100.0	60.5	469
40-44	55.1	4.4	7.8	31.5	0.3	100.0	67.3	482
45-49	63.4	1.4	5.8	29.1	0.0	100.0	70.7	332
Residence								
Urban	70.0	5.4	5.4	18.8	0.1	100.0	80.9	2,413
Greater Monrovia	78.3	5.2	2.7	13.5	0.0	100.0	86.2	1,433
Other urban	57.9	5.8	9.4	26.6	0.3	100.0	73.1	980
Rural	40.7	5.2	12.1	41.7	0.1	100.0	58.1	1,705
Region								
North Western	42.4	6.7	11.5	38.6	0.3	100.0	60.6	367
South Central	68.7	5.6	5.5	19.9	0.1	100.0	79.8	2,149
South Eastern A	50.2	7.1	11.8	30.0	0.5	100.0	69.1	254
South Eastern B	57.8	3.5	12.7	25.6	0.2	100.0	74.1	288
North Central	43.2	4.4	10.6	41.9	0.0	100.0	58.1	1,060
County								
Bomi	53.8	2.8	12.9	28.8	1.1	100.0	69.5	97
Bong	38.1	4.8	10.5	46.6	0.0	100.0	53.4	389
Gbarpolu	39.3	4.7	11.7	44.0	0.0	100.0	55.8	94
Grand Bassa	39.7	6.8	10.9	42.1	0.5	100.0	57.4	204
Grand Cape Mount	37.8	9.9	10.5	41.0	0.0	100.0	58.3	176
Grand Gedeh	62.8	3.1	7.2	25.0	1.7	100.0	73.1	82
Grand Kru	61.5	2.4	13.4	22.5	0.0	100.0	77.3	110
Lofa	43.4	0.6	10.5	45.5	0.0	100.0	54.5	219
Margibi	54.2	6.5	12.2	27.0	0.0	100.0	73.0	364
Maryland	58.9	5.2	10.7	24.7	0.5	100.0	74.8	123
Montserrado	75.7	5.3	3.2	15.5	0.0	100.0	84.2	1,582
Nimba	47.4	5.8	10.7	36.1	0.0	100.0	63.9	451
River Cess	39.9	12.9	13.1	34.0	0.0	100.0	66.0	64
River Gee	48.1	2.1	15.9	34.0	0.0	100.0	66.0	55
Sinoe	46.8	6.6	14.6	31.4	0.0	100.0	68.0	108
Wealth quintile								
Lowest	31.4	4.9	11.1	52.3	0.2	100.0	47.4	749
Second	41.2	6.5	11.7	40.4	0.0	100.0	59.4	753
Middle	53.8	4.7	9.8	31.6	0.0	100.0	68.3	728
Fourth	70.2	6.6	6.0	16.9	0.2	100.0	82.8	864
Highest	82.0	4.2	4.2	9.0	0.1	100.0	90.4	1,024
Total	57.9	5.4	8.2	28.3	0.1	100.0	71.4	4,118

Note: Total includes 8 cases for which information on literacy is missing.
[1] Refers to men who attended secondary school or higher and men who can read a whole sentence or part of a sentence

3.4 EXPOSURE TO MASS MEDIA

The 2013 LDHS collected information on respondents' exposure to common print and electronic media. Respondents were asked how often they read a newspaper, listened to the radio, or watched television. This information indicates the extent to which Liberians are regularly exposed to mass media, often used to convey messages on family planning, malaria, HIV/AIDS awareness, and other health topics.

Tables 3.4.1 and 3.4.2 show the percentages of female and male respondents who were exposed to different types of mass media by age, residence, region, county, level of education, and wealth quintile. Nine percent of women and 30 percent of men read newspapers at least once a week, 19 percent of women and 24 percent of men watch television at least once a week, and 39 percent of women and 60 percent of men listen to the radio at least once a week. Overall, only 6 percent of women and 13 percent of men are exposed to all three media at least once per week. More than half of women (56 percent) and a third of men (33 percent) are not exposed to any of the three media on a regular basis.

Table 3.4.1 Exposure to mass media: Women

Percentage of women age 15-49 who are exposed to specific media on a weekly basis, by background characteristics, Liberia 2013

Background characteristic	Reads a newspaper at least once a week	Watches television at least once a week	Listens to the radio at least once a week	Accesses all three media at least once a week	Accesses none of the three media at least once a week	Number of women
Age						
15-19	10.2	24.3	39.6	6.3	52.7	2,080
20-24	11.1	20.8	40.7	6.4	53.7	1,642
25-29	11.7	20.9	41.5	7.8	52.9	1,611
30-34	8.6	16.8	39.8	5.9	56.6	1,199
35-39	5.4	17.0	40.2	3.5	55.5	1,179
40-44	6.7	11.7	35.4	3.2	62.7	812
45-49	5.5	10.9	33.8	3.1	63.8	716
Residence						
Urban	13.3	27.6	45.6	8.8	47.6	5,633
Greater Monrovia	17.7	39.7	52.1	13.0	39.5	3,361
Other urban	6.9	9.8	36.1	2.5	59.4	2,272
Rural	2.6	5.6	29.6	0.8	68.0	3,606
Region						
North Western	1.3	5.5	30.0	0.2	68.0	837
South Central	15.3	31.3	47.5	10.3	45.1	4,854
South Eastern A	2.7	8.0	29.7	0.7	67.1	483
South Eastern B	4.2	10.4	38.2	1.3	57.5	577
North Central	2.2	3.7	28.7	0.5	69.0	2,488
County						
Bomi	2.4	7.6	30.5	0.3	66.8	244
Bong	1.8	3.0	28.8	0.4	70.0	894
Gbarpolu	1.6	3.3	26.5	0.4	71.3	182
Grand Bassa	10.7	13.0	36.5	6.3	60.3	434
Grand Cape Mount	0.4	5.2	31.4	0.0	67.2	412
Grand Gedeh	4.0	7.5	29.9	1.0	66.7	167
Grand Kru	3.0	9.4	33.6	1.1	62.4	217
Lofa	4.1	6.7	20.2	1.3	76.3	447
Margibi	7.5	10.7	28.2	1.5	64.6	744
Maryland	5.2	8.5	40.6	1.4	56.5	257
Montserrado	17.4	37.7	52.8	12.5	39.3	3,675
Nimba	1.7	3.2	32.0	0.3	65.4	1,147
River Cess	0.7	1.6	30.1	0.0	69.0	135
River Gee	4.1	17.2	42.2	1.4	49.6	103
Sinoe	3.1	13.2	29.3	0.9	66.1	182
Education						
No education	0.0	7.9	27.2	0.0	70.2	3,066
Primary	3.0	14.0	33.3	1.5	61.7	2,875
Secondary and higher	22.9	33.8	56.0	14.6	36.5	3,298
Wealth quintile						
Lowest	1.2	3.1	21.6	0.3	76.9	1,581
Second	2.3	4.6	29.8	0.6	68.1	1,624
Middle	3.3	7.6	33.4	1.0	63.0	1,779
Fourth	10.7	20.3	45.1	6.5	50.4	2,047
Highest	23.1	49.1	58.7	16.3	29.7	2,207
Total	9.1	19.0	39.4	5.7	55.5	9,239

The proportions of respondents who are not exposed to any media on at least a weekly basis are highest among women age 45-49 and among men age 15-19 (64 percent and 41 percent, respectively). Urban residents are more likely to be exposed to all forms of mass media than rural residents. Overall, 68 percent of rural women and 47 percent of rural men reported having no exposure to any form of mass media at least once a week, compared with 48 percent of urban women and 24 percent of urban men. Montserrado residents generally are more likely to read newspapers, watch television, and listen to the radio than people living in other counties. Women in Lofa and men in Bong are most likely to report having no exposure to any of the three media (76 percent and 74 percent, respectively).

Table 3.4.2 Exposure to mass media: Men

Percentage of men age 15-49 who are exposed to specific media on a weekly basis, by background characteristics, Liberia 2013

Background characteristic	Reads a newspaper at least once a week	Watches television at least once a week	Listens to the radio at least once a week	Accesses all three media at least once a week	Accesses none of the three media at least once a week	Number of men
Age						
15-19	22.3	30.7	48.0	12.7	41.4	890
20-24	41.2	29.6	62.2	17.9	29.5	696
25-29	35.3	25.3	62.7	15.0	30.1	673
30-34	25.8	15.6	60.2	8.7	35.3	575
35-39	27.1	16.6	65.8	11.2	31.6	469
40-44	29.5	22.5	68.4	13.8	26.9	482
45-49	28.8	14.7	61.3	10.2	33.8	332
Residence						
Urban	41.8	35.3	67.5	20.3	23.5	2,413
Greater Monrovia	53.7	44.6	71.9	28.3	18.0	1,433
Other urban	24.3	21.9	61.2	8.8	31.5	980
Rural	13.4	7.1	49.3	2.9	47.1	1,705
Region						
North Western	21.5	9.0	61.7	4.0	34.8	367
South Central	41.3	34.9	68.0	20.7	23.7	2,149
South Eastern A	19.1	9.4	46.4	2.6	44.3	254
South Eastern B	20.0	20.2	62.2	9.1	32.8	288
North Central	15.4	10.3	45.8	4.7	49.6	1,060
County						
Bomi	30.0	4.0	50.1	2.2	44.0	97
Bong	5.8	2.4	20.7	0.0	74.0	389
Gbarpolu	12.4	0.9	50.6	0.0	48.6	94
Grand Bassa	10.5	9.3	53.4	1.3	41.8	204
Grand Cape Mount	21.7	16.1	74.1	7.2	22.3	176
Grand Gedeh	20.0	10.3	64.3	2.0	29.4	82
Grand Kru	36.5	30.4	61.1	19.0	31.9	110
Lofa	24.3	5.3	48.5	1.5	46.7	219
Margibi	21.3	19.6	62.6	8.4	32.6	364
Maryland	7.9	11.1	68.2	0.9	29.1	123
Montserrado	49.9	41.7	71.1	26.0	19.4	1,582
Nimba	19.4	19.5	66.0	10.2	29.9	451
River Cess	25.8	1.2	46.3	0.4	42.0	64
River Gee	14.1	20.1	50.9	7.7	43.1	55
Sinoe	14.5	13.6	32.9	4.4	56.9	108
Education						
No education	0.0	4.7	39.1	0.0	59.7	533
Primary	5.6	13.6	46.8	2.7	48.3	1,202
Secondary and higher	49.0	33.0	71.3	21.3	19.8	2,383
Wealth quintile						
Lowest	12.2	4.9	41.9	3.2	54.7	749
Second	13.9	6.7	49.3	1.9	46.2	753
Middle	19.5	13.3	58.6	6.5	37.9	728
Fourth	35.8	24.5	65.4	12.3	25.9	864
Highest	57.5	56.5	77.5	34.1	11.0	1,024
Total	30.0	23.7	60.0	13.1	33.3	4,118

Not surprisingly, media exposure is related to education among both women and men. For example, 70 percent of women with no education report that they are not exposed to any media on at least a weekly basis, compared with 37 percent of women with at least some secondary education. Similarly, 60 percent of men who never attended school have no exposure to any media at least once a week, as compared with 20 percent of men with at least some secondary education.

Media exposure among women and men also relates to wealth status. For example, 23 percent of women in the highest wealth quintile read a newspaper at least once a week, compared with 1 percent of women in the lowest wealth quintile. Among men, 58 percent in the highest wealth quintile and 12 percent in the lowest quintile read a newspaper at least once a week. Forty-nine percent of women and 57 percent of men in the highest wealth quintile watch television at least once a week, in contrast with 3 percent of women and 5 percent of men in the lowest wealth quintile. Fifty-nine percent of women and 78 percent of men in the highest wealth quintile listen to the radio at least once a week, compared with 22 percent of women and 42 percent of men in the lowest wealth quintile.

3.5   EMPLOYMENT STATUS

The 2013 LDHS asked respondents several questions about their current employment status and continuity of employment in the 12 months prior to the survey. Figure 3.1 and Table 3.5.1 present the proportion of women who were currently employed (i.e., who were working in the seven days preceding the survey), the proportion who were not currently employed but had been employed at some time during the 12 months before the survey, and the proportion who had not been employed at any time during the 12-month period. Table 3.5.2 presents employment status data for men. Overall, 53 percent of women reported that they were currently employed. An additional 2 percent of women were not currently employed but had worked in the 12 months preceding the survey. Seventy-four percent of men were currently employed, and an additional 2 percent had worked in the year prior to the survey.

Figure 3.1 Women's employment status in the past 12 months

Did not work in last 12 months
44%

Currently employed
53%

Not currently employed, but worked in last 12 months
2%

LDHS 2013
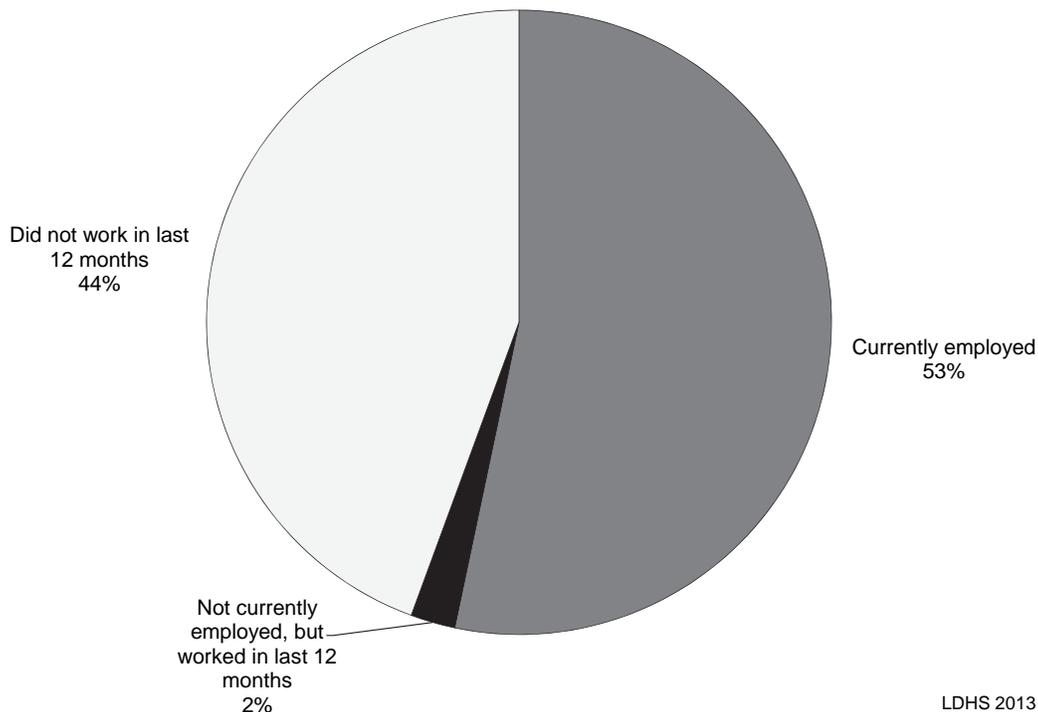
Table 3.5.1 Employment status: Women

Percent distribution of women age 15-49 by employment status, according to background characteristics, Liberia 2013

| Background characteristic | Employed in the 12 months preceding the survey | | Not employed in the 12 months preceding the survey | Total | Number of women |
	Currently employed[1]	Not currently employed			
Age					
15-19	25.2	1.1	73.8	100.0	2,080
20-24	42.9	2.3	54.7	100.0	1,642
25-29	57.8	2.8	39.4	100.0	1,611
30-34	64.7	2.5	32.8	100.0	1,199
35-39	71.4	3.0	25.6	100.0	1,179
40-44	75.8	2.4	21.8	100.0	812
45-49	74.4	3.0	22.6	100.0	716
Marital status					
Never married	29.9	1.3	68.8	100.0	2,867
Married or living together	63.3	2.5	34.2	100.0	5,386
Divorced/separated /widowed	67.0	4.0	29.0	100.0	987
Number of living children					
0	27.5	1.6	71.0	100.0	2,185
1-2	53.3	2.0	44.7	100.0	3,294
3-4	66.4	3.5	30.1	100.0	2,084
5+	70.7	2.3	27.0	100.0	1,676
Residence					
Urban	49.9	2.5	47.6	100.0	5,633
Greater Monrovia	48.9	2.9	48.2	100.0	3,361
Other urban	51.5	1.8	46.7	100.0	2,272
Rural	58.6	2.0	39.4	100.0	3,606
Region					
North Western	58.8	1.2	40.0	100.0	837
South Central	48.6	2.9	48.5	100.0	4,854
South Eastern A	46.5	2.2	51.3	100.0	483
South Eastern B	48.8	3.1	48.1	100.0	577
North Central	63.1	1.3	35.6	100.0	2,488
County					
Bomi	41.8	0.8	57.4	100.0	244
Bong	71.9	1.3	26.8	100.0	894
Gbarpolu	78.1	0.9	21.0	100.0	182
Grand Bassa	50.8	6.8	42.4	100.0	434
Grand Cape Mount	60.3	1.5	38.1	100.0	412
Grand Gedeh	48.2	0.7	51.2	100.0	167
Grand Kru	47.0	3.9	49.1	100.0	217
Lofa	53.6	2.6	43.8	100.0	447
Margibi	41.1	0.6	58.3	100.0	744
Maryland	46.6	2.7	50.7	100.0	257
Montserrado	49.8	2.9	47.3	100.0	3,675
Nimba	59.9	0.8	39.3	100.0	1,147
River Cess	52.9	2.4	44.7	100.0	135
River Gee	57.8	2.7	39.5	100.0	103
Sinoe	40.2	3.5	56.3	100.0	182
Education					
No education	64.9	2.9	32.2	100.0	3,066
Primary	49.6	1.4	49.0	100.0	2,875
Secondary and higher	45.8	2.5	51.7	100.0	3,298
Wealth quintile					
Lowest	63.1	2.4	34.5	100.0	1,581
Second	60.8	1.4	37.8	100.0	1,624
Middle	53.6	1.5	45.0	100.0	1,779
Fourth	47.9	4.1	48.0	100.0	2,047
Highest	45.6	1.9	52.5	100.0	2,207
Total	53.3	2.3	44.4	100.0	9,239

[1] "Currently employed" is defined as having done work in the past seven days. Includes persons who did not work in the past seven days but who are regularly employed and were absent from work for leave, illness, vacation, or any other such reason.

Table 3.5.2 Employment status: Men

Percent distribution of men age 15-49 by employment status, according to background characteristics, Liberia 2013

| Background characteristic | Employed in the 12 months preceding the survey | | Not employed in the 12 months preceding the survey | Total | Number of men |
	Currently employed[1]	Not currently employed			
Age					
15-19	32.3	2.3	65.3	100.0	890
20-24	63.2	4.1	32.6	100.0	696
25-29	82.6	2.8	14.6	100.0	673
30-34	93.2	1.4	5.4	100.0	575
35-39	96.3	1.9	1.8	100.0	469
40-44	92.1	2.1	5.8	100.0	482
45-49	95.5	1.3	3.3	100.0	332
Marital status					
Never married	48.6	3.2	48.2	100.0	1,749
Married or living together	91.9	1.8	6.3	100.0	2,218
Divorced/separated/widowed	95.9	2.3	1.8	100.0	151
Number of living children					
0	47.5	3.3	49.1	100.0	1,634
1-2	86.1	2.2	11.7	100.0	1,083
3-4	95.7	1.3	3.0	100.0	728
5+	93.0	1.8	5.2	100.0	673
Residence					
Urban	67.9	2.3	29.7	100.0	2,413
Greater Monrovia	66.8	2.0	31.2	100.0	1,433
Other urban	69.6	2.8	27.6	100.0	980
Rural	81.7	2.5	15.7	100.0	1,705
Region					
North Western	87.3	1.1	11.4	100.0	367
South Central	69.7	2.0	28.3	100.0	2,149
South Eastern A	84.6	3.4	12.0	100.0	254
South Eastern B	71.7	3.2	25.0	100.0	288
North Central	74.9	3.1	22.0	100.0	1,060
County					
Bomi	71.2	0.6	27.7	100.0	97
Bong	87.2	0.8	11.9	100.0	389
Gbarpolu	93.7	0.9	5.4	100.0	94
Grand Bassa	83.1	3.7	13.2	100.0	204
Grand Cape Mount	92.8	1.5	5.7	100.0	176
Grand Gedeh	77.8	4.5	17.7	100.0	82
Grand Kru	80.0	4.6	15.5	100.0	110
Lofa	58.8	3.9	37.3	100.0	219
Margibi	69.1	2.0	29.0	100.0	364
Maryland	57.6	1.8	40.7	100.0	123
Montserrado	68.1	1.8	30.1	100.0	1,582
Nimba	72.1	4.8	23.2	100.0	451
River Cess	93.6	2.9	3.4	100.0	64
River Gee	87.2	4.0	8.8	100.0	55
Sinoe	84.3	2.9	12.7	100.0	108
Education					
No education	91.2	1.6	7.1	100.0	533
Primary	67.5	1.7	30.8	100.0	1,202
Secondary and higher	72.8	2.9	24.3	100.0	2,383
Wealth quintile					
Lowest	85.8	2.2	11.9	100.0	749
Second	79.3	2.2	18.5	100.0	753
Middle	76.7	2.4	21.0	100.0	728
Fourth	65.0	2.7	32.3	100.0	864
Highest	65.7	2.5	31.8	100.0	1,024
Total	73.6	2.4	23.9	100.0	4,118

Note: Total includes 1 case for which information on employment is missing.
[1] "Currently employed" is defined as having done work in the past seven days. Includes persons who did not work in the past seven days but who are regularly employed and were absent from work for leave, illness, vacation, or any other such reason.

The proportion of women and men in the 15-19 age groups who are currently employed is lower than those in older age groups, a finding that is partially due to the fact that many in this age cohort are students. Women and men who are divorced, separated, or widowed are more likely to be currently employed (67 percent and 96 percent, respectively) than other women and men, especially those who have never been married.

Women and men with no children are less likely to be currently employed than those who have children. This finding may be linked to the fact that the former are typically younger than those with children. A higher percentage of rural women and men (59 percent and 82 percent, respectively) are currently employed than their urban counterparts (50 percent and 68 percent, respectively).

By county, there are substantial differentials in women's and men's employment status. Women in Gbarpolu and Bong (78 and 72 percent, respectively) are more likely to be currently employed than women in other counties (40-60 percent); men in Gbarpolu, River Cess, and Grand Cape Mount (94 percent, 94 percent, and 93 percent, respectively) are more likely than men in other counties to be currently employed (58-87 percent).

Women and men with no education were more likely to be currently employed (65 percent and 91 percent, respectively) than women and men who have attended school (46-50 percent and 68-73 percent, respectively).

The proportion of women who were currently employed decreased with increasing wealth quintile. Among men, a similar trend was observed. Sixty-three percent of women in the lowest wealth quintile were currently employed compared with 46 percent in the highest wealth quintile. For men, the proportion currently employed ranged from 86 percent in the lowest wealth quintile to 65-66 percent in the highest two wealth quintiles.

3.6   OCCUPATION

Respondents who were currently employed or who had worked in the 12 months preceding the survey were asked to specify their occupation. Information on the current occupation of employed women and men is shown in Tables 3.6.1 and 3.6.2. Women are most likely to be employed in sales and services (49 percent), followed by agriculture (42 percent). Men are most commonly employed in agriculture (40 percent), unskilled manual labour (15 percent), sales and services (14 percent), and skilled manual labor (14 percent). Four percent of women and 10 percent of men had professional, technical, or managerial occupations.

Urban women are most often employed in sales and services (66 percent). Among urban men, the most common occupations are agriculture and sales and services (22 percent each). In rural areas, the majority of women (69 percent) and men (62 percent) are employed in agriculture. By county, Lofa has the highest percentage of women in agricultural occupations (84 percent), while Bong has the highest percentage of men working in agriculture (74 percent). Montserrado has the highest percentage of both women and men in sales and services (80 percent and 25 percent, respectively). Additionally, Montserrado has the highest percentages of women and men employed in skilled manual labor (5 percent and 24 percent, respectively). Montserrado, Maryland, and Margibi have the highest proportion of women in professional, technical, and managerial occupations (6 percent); Montserrado has the highest proportion of men in those occupations (18 percent).

Occupation also varies with level of education. Eleven percent of women and 17 percent of men with at least some secondary education are employed in the professional, technical, and managerial sector. Women and men with no education or only a primary education most commonly work in the agricultural sector.

Employed women and men in the lowest wealth quintile are concentrated in agricultural occupations (80 percent and 74 percent, respectively). Sales and services are the most common occupations among women in the highest two wealth quintiles (76 to 85 percent). Men in the highest wealth quintile are most commonly employed in professional, technical, or managerial positions (26 percent).

Table 3.6.1 Occupation: Women

Percent distribution of women age 15-49 employed in the 12 months preceding the survey by occupation, according to background characteristics, Liberia 2013

Background characteristic	Professional/ technical/ managerial	Clerical	Sales and services	Skilled manual	Unskilled manual	Domestic service	Agriculture	Other	Total	Number of women
Age										
15-19	1.4	0.6	45.7	3.4	1.7	0.6	45.7	0.9	100.0	546
20-24	1.4	1.4	52.6	1.8	2.1	1.2	39.4	0.2	100.0	743
25-29	2.8	1.3	56.4	2.7	0.7	0.2	35.9	0.0	100.0	975
30-34	4.8	0.3	49.5	2.7	2.4	0.4	39.9	0.0	100.0	806
35-39	3.3	1.4	53.2	1.8	1.7	0.7	37.7	0.2	100.0	877
40-44	4.8	1.2	42.6	2.1	2.1	0.4	46.7	0.1	100.0	635
45-49	8.5	0.0	34.6	0.6	1.2	0.2	54.5	0.1	100.0	554
Marital status										
Never married	4.3	2.4	55.6	3.5	2.0	1.1	30.6	0.5	100.0	895
Married or living together	3.4	0.4	46.0	1.8	1.5	0.5	46.3	0.1	100.0	3,542
Divorced/separated/ widowed	4.6	1.9	55.7	2.4	2.0	0.3	32.9	0.2	100.0	701
Number of living children										
0	4.4	1.5	52.3	6.0	1.8	0.2	33.2	0.6	100.0	634
1-2	4.6	1.6	56.8	2.1	1.6	0.7	32.5	0.2	100.0	1,823
3-4	3.7	0.6	49.9	1.4	1.9	0.3	42.0	0.1	100.0	1,456
5+	2.0	0.1	34.7	1.3	1.4	0.8	59.6	0.0	100.0	1,223
Residence										
Urban	5.6	1.5	66.1	3.4	1.0	0.8	21.4	0.2	100.0	2,952
Greater Monrovia	6.9	2.1	83.0	5.0	0.4	0.6	1.8	0.1	100.0	1,742
Other urban	3.7	0.5	41.8	1.0	1.9	1.2	49.6	0.3	100.0	1,210
Rural	1.1	0.2	25.9	0.6	2.6	0.2	69.2	0.2	100.0	2,185
Region										
North Western	1.4	0.1	38.2	0.9	3.0	0.2	55.9	0.2	100.0	502
South Central	5.7	1.8	70.4	3.9	1.7	0.6	15.8	0.1	100.0	2,499
South Eastern A	2.6	0.6	43.7	1.5	1.3	0.7	48.9	0.7	100.0	235
South Eastern B	2.9	0.8	40.3	0.6	2.5	0.7	51.5	0.8	100.0	299
North Central	1.6	0.0	21.5	0.4	1.1	0.6	74.8	0.1	100.0	1,602
County										
Bomi	0.8	0.4	47.9	2.8	4.9	0.6	42.2	0.0	100.0	104
Bong	0.7	0.0	18.4	0.3	1.1	0.3	79.3	0.0	100.0	654
Gbarpolu	2.7	0.0	23.5	0.5	1.3	0.3	70.9	0.8	100.0	143
Grand Bassa	1.1	0.4	32.7	1.3	2.4	1.4	60.6	0.0	100.0	250
Grand Cape Mount	0.9	0.0	42.5	0.4	3.2	0.0	53.0	0.0	100.0	255
Grand Gedeh	5.0	0.4	42.6	3.3	1.4	0.4	46.4	0.6	100.0	81
Grand Kru	0.1	0.0	49.7	0.0	0.1	0.0	50.1	0.0	100.0	110
Lofa	0.9	0.0	12.9	0.3	0.9	0.0	84.3	0.4	100.0	251
Margibi	6.0	1.5	42.8	1.5	8.5	0.0	39.5	0.2	100.0	311
Maryland	6.0	1.8	37.0	0.8	4.4	1.4	46.9	1.6	100.0	126
Montserrado	6.3	2.0	79.7	4.6	0.5	0.5	6.3	0.1	100.0	1,938
Nimba	2.7	0.0	27.5	0.4	1.1	1.1	67.2	0.0	100.0	696
River Cess	0.8	0.0	33.1	0.4	0.8	0.1	64.8	0.0	100.0	74
River Gee	1.3	0.0	30.3	1.3	2.6	0.4	63.5	0.7	100.0	62
Sinoe	1.9	1.5	54.9	0.5	1.8	1.5	36.6	1.3	100.0	79
Education										
No education	0.3	0.0	35.3	1.0	2.1	0.4	60.6	0.1	100.0	2,079
Primary	1.1	0.1	47.0	1.6	1.6	0.7	47.7	0.2	100.0	1,466
Secondary and higher	10.6	2.9	68.8	4.2	1.1	0.5	11.6	0.3	100.0	1,592
Wealth quintile										
Lowest	0.7	0.1	16.7	0.7	1.8	0.1	79.9	0.0	100.0	1,036
Second	1.1	0.1	23.9	0.3	1.6	0.2	72.6	0.3	100.0	1,010
Middle	2.7	0.0	41.1	0.6	3.0	0.7	51.5	0.3	100.0	979
Fourth	3.8	0.4	84.5	3.5	1.5	0.3	5.9	0.1	100.0	1,064
Highest	10.1	4.0	76.4	5.7	0.5	1.4	1.6	0.3	100.0	1,048
Total	3.7	0.9	49.0	2.2	1.7	0.5	41.7	0.2	100.0	5,137

Note: Total includes 2 women for whom information on occupation is missing.

Table 3.6.2 Occupation: Men

Percent distribution of men age 15-49 employed in the 12 months preceding the survey by occupation, according to background characteristics, Liberia 2013

Background characteristic	Profes-sional/ technical/ managerial	Clerical	Sales and services	Skilled manual	Unskilled manual	Domestic service	Agriculture	Other	Missing	Total	Number of men
Age											
15-19	1.7	2.2	8.5	14.2	17.2	2.5	39.6	0.1	14.0	100.0	308
20-24	10.3	2.6	16.5	14.4	13.6	2.1	35.1	0.9	4.7	100.0	469
25-29	9.4	1.2	16.3	16.2	17.4	0.5	37.1	0.8	1.2	100.0	575
30-34	8.2	1.3	14.3	13.1	17.5	0.5	44.7	0.5	0.0	100.0	544
35-39	9.9	4.8	13.2	11.4	16.1	0.6	43.6	0.3	0.1	100.0	461
40-44	16.6	0.8	15.1	11.7	13.9	0.9	40.3	0.6	0.1	100.0	454
45-49	16.3	2.9	11.5	13.7	10.8	0.1	43.4	1.4	0.0	100.0	321
Marital status											
Never married	9.5	2.8	13.8	14.7	15.7	2.8	33.0	0.4	7.2	100.0	906
Married or living together	10.6	2.0	14.1	13.0	14.8	0.2	44.1	0.8	0.3	100.0	2,077
Divorced/ separated/ widowed	12.7	0.2	15.4	14.8	22.0	0.1	34.1	0.0	0.6	100.0	149
Number of living children											
0	7.7	3.1	13.6	14.5	16.3	2.4	34.0	0.5	7.8	100.0	830
1-2	12.7	2.1	17.3	15.7	17.2	0.6	33.4	0.4	0.8	100.0	957
3-4	9.8	1.0	13.8	13.5	13.6	0.1	46.5	1.7	0.0	100.0	706
5+	11.1	2.4	10.0	9.3	13.6	0.7	52.7	0.2	0.0	100.0	638
Residence											
Urban	14.8	3.6	22.3	19.8	12.8	1.5	21.8	0.9	2.4	100.0	1,696
Greater Monrovia	19.8	5.1	26.2	25.5	11.7	1.7	6.0	0.8	3.1	100.0	986
Other uUrban	7.8	1.6	17.0	11.9	14.3	1.3	43.7	1.1	1.4	100.0	709
Rural	5.2	0.5	4.3	6.2	18.5	0.3	62.4	0.3	2.2	100.0	1,436
Region											
North Western	7.2	0.7	7.1	11.2	22.6	0.4	46.6	0.4	3.8	100.0	325
South Central	15.4	3.9	21.2	20.5	13.8	1.2	20.1	0.9	3.1	100.0	1,541
South Eastern A	6.6	0.9	7.9	7.7	26.6	0.6	46.4	0.1	3.3	100.0	223
South Eastern B	6.2	0.9	7.6	6.5	26.3	1.2	49.6	0.5	1.2	100.0	216
North Central	4.4	0.2	6.8	5.1	9.7	0.7	71.9	0.5	0.4	100.0	827
County											
Bomi	13.7	0.7	11.2	15.6	22.7	0.5	33.1	0.0	2.6	100.0	69
Bong	3.2	0.5	7.4	5.4	9.2	0.0	73.7	0.5	0.0	100.0	343
Gbarpolu	7.3	0.9	8.8	9.8	14.2	0.0	58.7	0.0	0.2	100.0	89
Grand Bassa	1.3	1.3	10.6	12.6	23.0	0.0	50.2	1.0	0.0	100.0	177
Grand Cape Mount	4.5	0.7	4.5	10.0	27.0	0.6	45.7	0.8	6.2	100.0	166
Grand Gedeh	9.0	1.4	7.3	8.6	28.5	0.9	41.3	0.3	2.6	100.0	67
Grand Kru	7.6	1.5	5.0	4.7	32.0	2.8	45.4	0.0	0.9	100.0	93
Lofa	12.6	0.0	3.6	6.7	2.7	0.0	71.1	1.9	1.5	100.0	137
Margibi	13.4	2.6	13.5	11.2	11.5	0.7	39.2	1.6	6.3	100.0	258
Maryland	7.1	0.8	10.2	7.5	13.9	0.0	58.3	1.6	0.5	100.0	73
Montserrado	18.1	4.6	24.7	23.9	12.9	1.5	10.8	0.7	2.8	100.0	1,106
Nimba	2.4	0.0	7.5	4.3	13.0	1.8	70.5	0.0	0.5	100.0	347
River Cess	4.4	0.4	4.4	6.9	20.7	0.0	56.4	0.0	6.9	100.0	62
River Gee	2.2	0.0	8.4	8.4	33.9	0.0	44.5	0.0	2.7	100.0	50
Sinoe	6.4	0.9	10.5	7.6	29.1	0.7	43.4	0.0	1.4	100.0	94
Education											
No education	0.7	0.0	7.2	13.8	14.5	0.4	63.0	0.4	0.0	100.0	495
Primary	1.5	0.2	9.1	9.4	15.9	0.2	59.4	0.6	3.7	100.0	832
Secondary and higher	17.2	3.7	18.2	15.5	15.5	1.5	25.5	0.7	2.3	100.0	1,805
Wealth quintile											
Lowest	2.0	0.0	1.8	2.8	17.4	0.1	73.8	0.3	1.6	100.0	659
Second	4.5	0.4	3.6	5.9	16.7	0.6	65.6	0.4	2.2	100.0	613
Middle	6.3	1.1	16.0	14.6	15.0	0.7	42.8	1.5	2.0	100.0	575
Fourth	11.9	1.9	27.1	23.9	13.6	2.2	15.4	0.9	3.2	100.0	585
Highest	25.6	6.8	22.3	20.9	14.3	1.3	5.8	0.3	2.6	100.0	699
Total	10.4	2.2	14.1	13.6	15.4	1.0	40.4	0.7	2.3	100.0	3,132

3.7 TYPE OF EMPLOYMENT

Table 3.7 shows the percent distribution of women employed in the 12 months preceding the survey by type of earnings, type of employer, and continuity of employment, according to type of employment (agricultural or nonagricultural). Thirty percent of women engaged in agricultural work and 78 percent of women engaged in nonagricultural work are paid in cash only. Most of the remaining women in these occupational categories are not paid (46 percent for agriculture workers and 15 percent for nonagricultural workers). However, 19 percent of women working in agriculture and 5 percent of women in nonagricultural occupations received cash and in-kind earnings. Eighty percent of women engaged in agricultural work and 75 percent of women engaged in nonagricultural work are self-employed. Women in agricultural work are more likely than those employed in nonagricultural work to be employed by a family member (17 percent and 10 percent, respectively). Fifty-seven percent of women engaged in agricultural work are employed all year, compared with 81 percent of women engaged in nonagricultural work. Forty percent of women engaged in agricultural activities work seasonally, while 11 percent of those who are nonagricultural workers are seasonally employed.

Table 3.7 Type of employment: Women

Percent distribution of women age 15-49 employed in the 12 months preceding the survey by type of earnings, type of employer, and continuity of employment, according to type of employment (agricultural or nonagricultural), Liberia 2013

Employment characteristic	Agricultural work	Nonagricultural work	Total
Type of earnings			
Cash only	30.3	78.3	58.3
Cash and in-kind	18.9	5.4	11.0
In-kind only	4.3	1.0	2.3
Not paid	46.4	15.2	28.2
Missing	0.2	0.1	0.1
Total	100.0	100.0	100.0
Type of employer			
Employed by family member	16.7	10.3	13.0
Employed by nonfamily member	3.6	14.7	10.0
Self-employed	79.6	74.7	76.8
Missing	0.1	0.3	0.2
Total	100.0	100.0	100.0
Continuity of employment			
All year	56.5	81.4	71.0
Seasonal	39.8	11.2	23.1
Occasional	3.7	7.4	5.8
Total	100.0	100.0	100.0
Number of women employed during the last 12 months	2,144	2,992	5,137

Note: Total includes 2 women with missing information on type of employment who are not shown separately.

3.8 HEALTH INSURANCE COVERAGE

The 2013 LDHS collected data on respondents' health insurance coverage (Tables 3.8.1 and 3.8.2). The majority of women (96 percent) and men (93 percent) report that they do not have health insurance. Four percent of women have employer-based insurance, and less than 1 percent is covered by other mechanisms. Six percent of men have employer-based insurance, 1 percent through social security, and less than 1 percent by other mechanisms. For both women and men, differences in insurance coverage by background characteristics are

minimal, with the exception that 20 percent of women and 26 percent of men in Margibi, and 23 percent of men in Bomi, have health insurance through employer-based plans.

Table 3.8.1 Health insurance coverage: Women

Percentage of women age 15-49 with specific types of health insurance coverage, according to background characteristics, Liberia 2013

Background characteristic	Social security	Employer-based insurance	Mutual health organization/ community-based insurance	Privately purchased commercial insurance	Other	None	Number of women
Age							
15-19	0.6	4.6	0.0	0.2	0.0	94.6	2,080
20-24	0.1	2.0	0.0	0.2	0.0	97.7	1,642
25-29	0.0	1.8	0.0	0.0	0.0	98.2	1,611
30-34	0.2	4.0	0.0	0.1	0.0	95.8	1,199
35-39	1.3	5.1	0.2	0.1	0.0	93.4	1,179
40-44	0.4	3.9	0.0	0.4	0.0	95.3	812
45-49	0.6	5.2	0.8	0.4	0.0	93.1	716
Residence							
Urban	0.7	3.9	0.2	0.2	0.0	95.1	5,633
Greater Monrovia	0.3	3.1	0.2	0.2	0.0	96.2	3,361
Other urban	1.2	5.3	0.1	0.2	0.0	93.4	2,272
Rural	0.1	3.1	0.0	0.1	0.0	96.7	3,606
Region							
North Western	0.1	2.1	0.0	0.2	0.0	97.6	837
South Central	0.4	6.0	0.2	0.2	0.0	93.3	4,854
South Eastern A	0.0	1.6	0.1	0.4	0.1	97.9	483
South Eastern B	0.4	2.4	0.0	0.0	0.0	97.2	577
North Central	0.7	0.0	0.0	0.1	0.0	99.1	2,488
County							
Bomi	0.0	6.0	0.0	0.2	0.0	93.8	244
Bong	0.0	0.0	0.0	0.2	0.0	99.8	894
Gbarpolu	0.0	0.8	0.0	0.4	0.0	98.8	182
Grand Bassa	0.0	7.2	0.0	0.0	0.0	92.8	434
Grand Cape Mount	0.2	0.5	0.0	0.0	0.0	99.3	412
Grand Gedeh	0.0	1.1	0.0	0.0	0.0	98.9	167
Grand Kru	0.5	3.2	0.0	0.1	0.0	96.3	217
Lofa	0.0	0.2	0.0	0.0	0.0	99.8	447
Margibi	0.9	19.8	0.1	0.0	0.0	79.3	744
Maryland	0.5	2.6	0.0	0.0	0.0	96.9	257
Montserrado	0.3	3.1	0.2	0.2	0.0	96.2	3,675
Nimba	1.6	0.0	0.0	0.1	0.0	98.2	1,147
River Cess	0.0	0.3	0.0	0.0	0.2	99.5	135
River Gee	0.0	0.2	0.0	0.0	0.0	99.8	103
Sinoe	0.0	3.1	0.2	1.0	0.0	95.7	182
Education							
No education	0.1	2.1	0.0	0.1	0.0	97.7	3,066
Primary	0.5	3.4	0.0	0.0	0.0	96.0	2,875
Secondary and higher	0.7	5.2	0.2	0.3	0.0	93.6	3,298
Wealth quintile							
Lowest	0.0	0.3	0.0	0.0	0.0	99.7	1,581
Second	0.1	0.9	0.0	0.1	0.0	98.8	1,624
Middle	0.0	4.2	0.0	0.1	0.0	95.6	1,779
Fourth	0.7	4.5	0.0	0.1	0.0	94.8	2,047
Highest	1.0	6.7	0.4	0.4	0.0	91.6	2,207
Total	0.4	3.6	0.1	0.2	0.0	95.7	9,239

Table 3.8.2 Health insurance coverage: Men

Percentage of men age 15-49 with specific types of health insurance coverage, according to background characteristics, Liberia 2013

Background characteristic	Social security	Employer based insurance	Mutual health organization/ community based insurance	Privately purchased commercial insurance	Other	None	Number of men
Age							
15-19	0.4	5.5	0.0	0.0	0.0	94.1	890
20-24	1.1	4.1	0.0	0.6	0.3	94.6	696
25-29	0.7	6.1	0.9	0.1	0.2	92.7	673
30-34	0.3	4.5	0.0	0.7	0.0	94.5	575
35-39	0.6	7.3	0.0	0.0	0.0	92.2	469
40-44	0.5	9.5	0.2	1.1	0.0	88.9	482
45-49	3.1	7.9	0.0	1.0	0.0	88.3	332
Residence							
Urban	0.9	6.7	0.3	0.7	0.1	91.6	2,413
Greater Monrovia	0.9	5.6	0.4	1.1	0.1	92.4	1,433
Other urban	0.9	8.4	0.1	0.0	0.2	90.6	980
Rural	0.7	5.2	0.0	0.1	0.0	94.3	1,705
Region							
North Western	1.1	7.7	0.0	0.0	0.0	92.1	367
South Central	0.9	9.3	0.3	0.7	0.2	89.0	2,149
South Eastern A	0.6	3.7	0.0	0.3	0.0	95.4	254
South Eastern B	0.6	2.7	0.0	0.2	0.0	96.5	288
North Central	0.5	0.6	0.0	0.0	0.0	98.8	1,060
County							
Bomi	0.0	23.4	0.0	0.0	0.0	76.6	97
Bong	1.0	1.4	0.0	0.0	0.0	97.7	389
Gbarpolu	0.8	0.2	0.0	0.0	0.0	98.9	94
Grand Bassa	0.9	9.7	0.0	0.0	0.0	89.7	204
Grand Cape Mount	1.9	3.0	0.0	0.0	0.0	97.0	176
Grand Gedeh	0.8	1.5	0.0	0.7	0.0	97.0	82
Grand Kru	1.0	0.3	0.0	0.4	0.0	98.3	110
Lofa	0.0	0.6	0.0	0.0	0.0	99.4	219
Margibi	1.1	26.3	0.3	0.0	0.6	72.0	364
Maryland	0.6	5.3	0.0	0.2	0.0	94.0	123
Montserrado	0.9	5.3	0.4	1.0	0.1	92.8	1,582
Nimba	0.4	0.0	0.0	0.1	0.0	99.5	451
River Cess	0.4	1.7	0.0	0.2	0.0	97.7	64
River Gee	0.0	1.5	0.0	0.0	0.0	98.5	55
Sinoe	0.7	6.5	0.0	0.0	0.0	92.8	108
Education							
No education	0.0	1.1	0.0	0.0	0.0	98.9	533
Primary	0.7	4.7	0.0	0.0	0.2	94.9	1,202
Secondary and higher	1.0	7.9	0.3	0.7	0.1	90.3	2,383
Wealth quintile							
Lowest	0.1	0.8	0.0	0.0	0.0	99.1	749
Second	0.1	1.3	0.0	0.1	0.0	98.5	753
Middle	1.4	6.6	0.0	0.0	0.0	92.5	728
Fourth	1.6	9.6	0.3	0.1	0.0	89.4	864
Highest	0.8	10.2	0.4	1.5	0.3	86.8	1,024
Total	0.8	6.1	0.2	0.4	0.1	92.7	4,118

3.9 USE OF TOBACCO

The 2013 LDHS collected information on women's and men's tobacco use. Tobacco use has been shown to adversely affect both the health of users and those around them and is considered by the World Health Organization to be the primary cause of preventable deaths worldwide (WHO, 2011b).

Tables 3.9.1 and 3.9.2 present the percentages of women and men who smoke cigarettes or a pipe or use other tobacco products (e.g., snuff). Table 3.9.2 also includes information obtained from male cigarette smokers on number of cigarettes smoked in the 24 hours before the interview.

Almost all women (99 percent) and a large majority of men (90 percent) age 15-49 reported that they do not use tobacco. Given the small number of women who report using tobacco, it is not informative to examine the pattern of tobacco use among women by background characteristics.

Table 3.9.1 Use of tobacco: Women

Percentage of women age 15-49 who smoke cigarettes or a pipe or use other tobacco products, according to background characteristics and maternity status, Liberia 2013

| | Uses tobacco | | Does not | |
Background characteristic	Cigarettes	Other tobacco	use tobacco	Number of women
Age				
15-19	0.2	0.0	99.8	2,080
20-24	0.2	0.1	99.8	1,642
25-29	0.0	0.1	99.9	1,611
30-34	0.5	0.2	99.3	1,199
35-39	0.1	0.6	99.3	1,179
40-44	0.3	1.6	98.1	812
45-49	2.2	2.6	95.3	716
Maternity status				
Pregnant	0.1	0.1	99.8	765
Breastfeeding (not pregnant)	0.1	0.3	99.6	2,170
Neither	0.4	0.6	99.0	6,303
Residence				
Urban	0.3	0.2	99.5	5,633
Greater Monrovia	0.5	0.1	99.5	3,361
Other urban	0.0	0.3	99.7	2,272
Rural	0.4	0.9	98.6	3,606
Region				
North Western	0.4	1.3	98.3	837
South Central	0.4	0.2	99.4	4,854
South Eastern A	0.6	0.6	98.9	483
South Eastern B	0.5	1.7	97.8	577
North Central	0.2	0.4	99.5	2,488
Education				
No education	0.5	1.2	98.3	3,066
Primary	0.3	0.2	99.5	2,875
Secondary and higher	0.2	0.1	99.7	3,298
Wealth quintile				
Lowest	0.7	1.2	98.1	1,581
Second	0.2	0.8	99.1	1,624
Middle	0.2	0.4	99.4	1,779
Fourth	0.7	0.1	99.2	2,047
Highest	0.0	0.1	99.9	2,207
Total	0.3	0.5	99.2	9,239

Among men, cigarettes are the most common form of tobacco use. Tobacco use generally increases with age and is more common among men living in rural areas than urban areas. Tobacco use among men decreases with increasing education and wealth quintile.

Table 3.9.2 Use of tobacco: Men

Percentage of men age 15-49 who smoke cigarettes or a pipe or use other tobacco products and the percent distribution of cigarette smokers by number of cigarettes smoked in preceding 24 hours, according to background characteristics, Liberia 2013

| | Uses tobacco | | | | | | | | Percent distribution of men who smoke cigarettes by number of cigarettes smoked in the past 24 hours | | | | | | | |
Background characteristic	Cigarettes	Pipe	Chewing tobacco	Snuff	Cigar	Other tobacco	Does not use tobacco	Number of men	0	1-2	3-5	6-9	10+	Don't know/ missing	Total	Number of cigarette smokers
Age																
15-19	0.6	0.0	0.1	0.0	0.0	0.0	99.4	890	*	*	*	*	*	*	100.0	5
20-24	1.6	0.3	0.1	0.0	0.1	0.5	97.7	696	*	*	*	*	*	*	100.0	11
25-29	6.1	0.0	0.4	0.1	0.2	0.3	93.6	673	0.0	33.4	44.8	10.8	11.1	0.0	100.0	41
30-34	13.4	0.0	0.8	1.0	0.4	1.6	85.0	575	0.0	17.1	33.3	10.4	38.0	1.2	100.0	77
35-39	20.8	0.0	0.5	0.5	0.4	0.7	78.6	469	0.0	14.9	44.9	18.9	19.5	1.8	100.0	98
40-44	18.2	0.0	0.4	0.5	0.3	0.7	80.9	482	0.0	17.1	34.1	25.5	22.6	0.6	100.0	88
45-49	22.8	0.0	1.5	0.0	0.3	0.7	77.0	332	0.0	9.4	49.3	18.4	22.9	0.0	100.0	76
Residence																
Urban	5.9	0.1	0.1	0.3	0.1	0.3	93.3	2,413	0.0	20.6	41.9	18.2	18.9	0.4	100.0	143
Greater Monrovia	4.5	0.0	0.0	0.5	0.0	0.4	94.5	1,433	*	*	*	*	*	*	100.0	65
Other urban	7.9	0.2	0.2	0.0	0.3	0.3	91.6	980	0.0	21.4	43.3	15.4	19.2	0.7	100.0	78
Rural	14.8	0.0	0.9	0.2	0.3	0.9	84.8	1,705	0.4	16.3	39.1	17.3	25.5	1.4	100.0	253
Region																
North Western	15.7	0.0	1.7	0.2	0.3	0.4	83.9	367	0.0	12.7	30.1	19.2	33.4	4.6	100.0	58
South Central	6.6	0.0	0.1	0.4	0.0	0.5	92.6	2,149	0.8	19.9	39.4	18.3	20.5	1.1	100.0	143
South Eastern A	16.2	0.0	0.8	0.2	1.7	2.3	82.4	254	0.0	16.3	41.7	15.1	27.0	0.0	100.0	41
South Eastern B	15.8	0.0	0.5	0.1	0.3	1.3	83.9	288	0.0	17.3	45.0	13.1	24.6	0.0	100.0	45
North Central	10.2	0.2	0.5	0.2	0.1	0.2	89.5	1,060	0.0	18.7	43.5	18.7	19.1	0.0	100.0	109
Education																
No education	20.0	0.0	0.6	1.2	0.0	1.3	78.5	533	1.1	15.5	45.0	17.4	19.3	1.6	100.0	106
Primary	12.6	0.0	0.6	0.0	0.4	0.5	87.1	1,202	0.0	18.8	38.5	20.3	21.2	1.2	100.0	152
Secondary and higher	5.8	0.1	0.3	0.2	0.2	0.4	93.7	2,383	0.0	18.6	38.0	14.8	28.2	0.4	100.0	137
Wealth quintile																
Lowest	16.6	0.0	0.8	0.2	0.3	1.1	83.0	749	0.0	14.7	43.6	17.5	24.2	0.0	100.0	124
Second	14.2	0.0	1.1	0.0	0.3	0.8	85.4	753	1.0	18.9	33.4	18.0	25.9	2.8	100.0	107
Middle	13.0	0.0	0.5	0.1	0.5	0.1	86.7	728	0.0	19.4	44.4	12.3	23.3	0.6	100.0	95
Fourth	3.7	0.2	0.0	0.7	0.0	0.8	94.9	864	(0.0)	(26.2)	(46.2)	(16.5)	(9.4)	(1.7)	100.0	32
Highest	3.6	0.0	0.0	0.3	0.0	0.2	96.0	1,024	*	*	*	*	*	*	100.0	37
Total	9.6	0.0	0.4	0.3	0.2	0.6	89.8	4,118	0.3	17.9	40.1	17.6	23.1	1.0	100.0	395

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

3.10 USE OF ALCOHOL

The 2013 LDHS collected information on women's and men's alcohol use. Tables 3.10.1 and 3.10.2 present the percentages of women and men age 15-49 that drank alcohol in the month preceding the survey, according to background characteristics.

Table 3.10.1 Use of alcohol: Women

Percentage of women age 15-49 who drank alcohol in the past month, and among those who drank alcohol in the past month, the frequency of consumption and the average number of alcoholic drinks consumed each day, by background characteristics, Liberia 2013

| Background characteristic | Percentage of women who drank alcohol in the past month | Number of women | Among women who drank alcohol in the past month, the percentage who drank: | | | | | Average number of drinks per day[1] | Number of women who drank alcohol in past month |
			Every day	Almost every day	1-2 times per week	2-3 times per month	Once a month		
Age									
15-19	22.3	2,080	0.8	6.4	16.8	18.9	56.7	1.8	464
20-24	28.5	1,642	3.1	12.2	17.5	23.4	43.8	2.2	467
25-29	28.4	1,611	4.4	8.8	18.9	18.0	49.6	2.1	458
30-34	26.6	1,199	3.9	11.2	23.5	24.3	37.1	2.3	319
35-39	26.5	1,179	6.6	7.9	27.2	22.6	35.3	2.1	312
40-44	27.8	812	6.7	16.6	22.4	19.8	34.4	2.1	226
45-49	32.4	716	10.6	16.1	26.2	19.0	28.0	1.8	232
Maternity status									
Pregnant	21.5	765	0.9	13.5	17.2	18.7	49.7	2.0	164
Breastfeeding (not pregnant)	22.6	2,170	6.1	7.5	20.7	23.7	41.9	1.6	490
Neither	28.9	6,303	4.3	11.2	21.3	20.3	42.7	2.2	1,824
Residence									
Urban	29.3	5,633	3.2	11.3	21.2	20.9	43.3	2.3	1,649
Greater Monrovia	31.4	3,361	2.7	7.6	20.8	22.0	46.7	2.6	1,055
Other urban	26.1	2,272	3.9	18.1	21.8	18.9	37.2	1.9	594
Rural	23.0	3,606	7.1	9.1	20.3	20.7	42.5	1.6	829
Region									
North Western	12.7	837	2.9	8.8	22.4	16.8	48.7	1.5	106
South Central	27.9	4,854	2.7	7.5	19.1	21.8	48.6	2.4	1,355
South Eastern A	20.1	483	2.6	3.5	28.8	26.0	37.9	1.5	97
South Eastern B	30.8	577	3.7	7.2	21.9	15.4	51.7	1.7	178
North Central	29.8	2,488	8.4	18.2	22.6	20.2	30.6	1.7	742
County									
Bomi	15.9	244	2.5	8.1	12.1	15.7	61.6	1.6	39
Bong	38.3	894	11.1	8.6	16.7	16.7	47.0	1.5	343
Gbarpolu	23.7	182	4.9	9.9	32.0	23.8	28.3	1.6	43
Grand Bassa	15.7	434	1.4	9.0	16.3	25.2	48.0	1.5	68
Grand Cape Mount	5.9	412	(0.0)	(7.8)	(21.8)	(6.1)	64.3)	(1.4)	24
Grand Gedeh	26.9	167	4.8	3.4	50.2	23.0	18.6	1.5	45
Grand Kru	34.7	217	1.9	6.3	31.2	20.0	40.5	1.8	75
Lofa	9.0	447	3.0	30.6	36.5	18.0	11.9	2.0	40
Margibi	17.6	744	3.2	6.2	10.7	16.9	62.4	2.1	131
Maryland	29.2	257	5.3	10.0	13.5	12.1	59.1	1.6	75
Montserrado	31.5	3,675	2.7	7.6	20.3	22.2	47.1	2.5	1,156
Nimba	31.3	1,147	6.5	26.1	26.6	23.8	17.0	1.8	359
River Cess	14.8	135	0.0	4.3	16.0	27.5	52.1	1.4	20
River Gee	26.6	103	4.1	2.0	19.3	12.1	62.4	1.4	27
Sinoe	17.8	182	1.1	3.3	6.9	29.3	55.9	1.6	32
Education									
No education	24.6	3,066	9.5	14.8	22.9	19.8	32.8	1.7	754
Primary	23.4	2,875	3.0	11.8	19.5	17.5	48.1	1.8	672
Secondary and higher	31.9	3,298	1.8	6.8	20.3	23.7	47.1	2.5	1,052
Wealth quintile									
Lowest	26.3	1,581	9.7	10.6	20.5	20.5	38.6	1.5	416
Second	23.3	1,624	4.7	12.6	25.3	19.6	37.3	1.6	378
Middle	23.9	1,779	4.9	14.8	22.0	18.9	39.5	1.7	425
Fourth	26.2	2,047	3.6	13.3	19.1	19.6	44.4	2.3	537
Highest	32.7	2,207	1.7	5.1	19.5	23.8	49.6	2.7	722
Total	26.8	9,239	4.5	10.6	20.9	20.8	43.0	2.1	2,478

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] The average number of drinks is based on the number of drinks consumed on the days that the woman drank alcohol, for women who had a drink in the past month.

Table 3.10.2 Use of alcohol: Men

Percentage of men age 15-49 who drank alcohol in the past month, and among those who drank alcohol in the past month, the frequency of consumption and the average number of alcoholic drinks consumed each day, by background characteristics, Liberia 2013

Background characteristic	Percentage of men who drank alcohol in the past month	Number of men	Among men who drank alcohol in the past month, the percentage who drank:					Average number of drinks per day[1]	Number of men who drank alcohol in past month
			Every day	Almost every day	1-2 times per week	2-3 times per month	Once a month		
Age									
15-19	27.1	890	2.1	7.2	27.6	26.3	36.6	5.1	241
20-24	54.2	696	4.8	7.5	33.8	26.5	27.4	3.8	378
25-29	57.0	673	10.8	8.1	45.2	15.7	20.1	4.0	384
30-34	60.1	575	12.4	15.5	37.9	20.4	13.7	4.0	346
35-39	52.9	469	14.4	14.3	35.5	23.8	12.1	4.4	248
40-44	57.1	482	12.2	10.6	46.3	18.8	12.1	3.9	275
45-49	60.9	332	11.9	11.1	42.4	14.4	19.8	3.8	202
Residence									
Urban	48.2	2,413	6.6	8.8	36.9	22.1	25.6	4.3	1,163
Greater Monrovia	47.6	1,433	3.4	7.4	35.3	22.4	31.5	4.4	683
Other urban	49.0	980	11.2	10.6	39.1	21.8	17.2	4.1	480
Rural	53.5	1,705	13.6	12.7	40.7	19.4	13.4	3.9	911
Region									
North Western	35.9	367	15.7	15.0	30.5	21.3	17.2	5.2	132
South Central	50.7	2,149	4.6	7.4	37.1	23.6	27.3	4.1	1,091
South Eastern A	50.3	254	9.3	9.9	40.1	14.3	25.4	3.8	128
South Eastern B	52.0	288	8.3	11.7	50.7	14.2	15.0	3.7	150
North Central	54.2	1,060	18.5	15.1	39.6	19.1	7.7	4.1	574
County									
Bomi	31.2	97	(7.9)	(7.8)	(33.8)	(32.1)	(18.4)	(4.7)	30
Bong	56.0	389	23.6	14.1	37.0	20.0	5.3	4.3	218
Gbarpolu	50.2	94	14.6	22.0	36.3	20.8	5.6	4.0	47
Grand Bassa	57.7	204	6.2	9.0	51.9	17.8	15.1	3.3	118
Grand Cape Mount	30.8	176	20.9	12.8	23.7	15.8	26.8	6.5	54
Grand Gedeh	49.9	82	13.4	11.0	45.7	13.0	16.9	3.7	41
Grand Kru	56.2	110	11.6	13.0	55.0	7.1	13.3	3.8	62
Lofa	43.1	219	8.1	8.9	54.8	18.0	10.2	3.8	94
Margibi	57.2	364	4.5	3.9	36.3	31.8	23.5	3.2	208
Maryland	47.6	123	4.6	9.0	48.7	20.3	17.4	3.6	59
Montserrado	48.3	1,582	4.3	8.1	35.1	22.2	30.3	4.4	765
Nimba	58.1	451	18.0	18.1	36.4	18.7	8.8	4.0	262
River Cess	50.7	64	8.6	6.1	33.7	16.5	34.7	3.6	33
River Gee	53.4	55	8.8	14.5	45.6	17.0	14.0	3.9	29
Sinoe	50.4	108	6.6	11.4	39.7	13.9	26.2	4.0	54
Education									
No education	52.9	533	18.9	15.4	42.6	13.5	9.6	4.1	282
Primary	45.7	1,202	10.7	13.2	37.9	21.8	16.2	4.0	549
Secondary and higher	52.2	2,383	7.1	8.2	38.0	22.2	24.5	4.1	1,243
Wealth quintile									
Lowest	55.1	749	17.4	12.5	42.6	15.4	12.2	3.8	413
Second	58.2	753	12.2	13.4	39.2	22.6	12.4	3.8	438
Middle	51.0	728	9.6	13.9	42.2	17.9	16.1	3.9	371
Fourth	44.0	864	6.5	8.5	39.4	19.2	26.3	4.3	380
Highest	46.0	1,024	3.2	4.9	31.0	28.0	32.9	4.6	471
Total	50.4	4,118	9.7	10.5	38.6	20.9	20.2	4.1	2,074

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] The average number of drinks is based on the number of drinks consumed on the days that the man drank alcohol, for men who had a drink in the past month.

Twenty-seven percent of women and 50 percent of men reported drinking alcohol during the month preceding the survey. Among respondents who drank alcohol in the past month, the percentage of men who

drank alcohol every day is twice that of the women (10 percent versus 5 percent). The average number of drinks consumed per day for men is also twice that of women (4.1 drinks versus 2.1 drinks).

Although the overall proportion of women who consumed alcohol in the past month is low, it is informative to look at the demographic characteristics of this group. By age, the percentage of women who drank alcohol during the month preceding the survey was highest among those age 45-49 (32 percent) and lowest among those age 15-19 (22 percent). A potential cause for concern is the prevalence of drinking among pregnant and breastfeeding women (22 percent and 23 percent, respectively); moreover, among pregnant and breastfeeding women who drank alcohol in the month preceding the interview, 14 and 8 percent, respectively, drank almost every day.

By age, the percentage of men who drank alcohol during the month preceding the survey was highest among those age 45-49 (61 percent) and lowest among those age 15-19 (27 percent). The percentage that drank alcohol during the month preceding the survey was slightly higher among rural men than urban men (54 percent and 48 percent, respectively). Among those who drank alcohol in the month preceding the survey, drinking every day was more common for rural men (14 percent) than urban men (7 percent), for men with no education (19 percent) than men with at least some secondary education (7 percent), and for men in the lowest wealth quintile (17 percent) than men in the highest wealth quintile (3 percent).

MARRIAGE AND SEXUAL ACTIVITY

4

> **Key Findings**
>
> - Fifty-eight percent of women age 15-49 and 54 percent of men age 15-49 are in union; that is, they are currently married or living with a partner as if married.
> - Among women age 25-49, the median age at first marriage is 18.8 years; among men age 25-49, the median age at first marriage exceeds 25 years.
> - Thirteen percent of currently married women are married to men who are in a polygynous union; 6 percent of currently married men are in a polygynous union.
> - Women and men typically initiate sexual activity before marriage. The median age at first sexual intercourse is 16.2 years for women age 25-49 and 18.3 years for men age 25-49.
> - About six in ten women and men age 15-49 have had sexual intercourse in the past four weeks.

M arriage is a primary indication of the exposure of women to the risk of pregnancy and therefore is important to the understanding of fertility. Populations in which women marry at a young age tend to initiate childbearing early and have high fertility. More direct measures of the beginning of exposure to pregnancy are age at first intercourse and frequency of intercourse.

4.1 MARITAL STATUS

Table 4.1 presents the percent distribution of women and men age 15-49 by current marital status. The proportion of women who have never married (or lived with a man) declines sharply with age, from 84 percent of women age 15-19 to 1 percent of women age 45-49. Marriage is thus nearly universal in Liberia. Although nearly all men eventually marry, men tend to marry later than women, and thus a higher percentage of men than women age 15-49 have never married (43 percent versus 31 percent).

Fifty-eight percent of women and 54 percent of men age 15-49 are currently in union (i.e., married or living together with a partner as though married). Eight percent of women and 3 percent of men age 15-49 are separated or divorced. Three percent of women and 1 percent of men age 15-49 are widowed.

Table 4.1 Current marital status

Percent distribution of women and men age 15-49 by current marital status, according to age, Liberia 2013

	Marital status							Percentage of respondents currently in union	Number of respondents
Age	Never married	Married	Living together	Divorced	Separated	Widowed	Total		
WOMEN									
15-19	84.2	3.4	10.9	0.0	1.4	0.0	100.0	14.4	2,080
20-24	41.1	13.5	38.9	0.5	5.4	0.5	100.0	52.5	1,642
25-29	17.6	28.4	44.2	0.4	8.7	0.8	100.0	72.5	1,611
30-34	8.1	37.9	41.9	1.3	8.6	2.2	100.0	79.8	1,199
35-39	3.6	43.5	34.9	2.6	10.1	5.3	100.0	78.4	1,179
40-44	1.5	51.5	24.7	4.8	9.2	8.4	100.0	76.1	812
45-49	0.7	61.9	16.0	2.2	8.7	10.5	100.0	77.9	716
Total	31.0	27.9	30.4	1.3	6.7	2.7	100.0	58.3	9,239
MEN									
15-19	98.5	0.3	1.2	0.0	0.0	0.0	100.0	1.5	890
20-24	76.2	6.7	15.1	0.5	1.3	0.3	100.0	21.8	696
25-29	31.5	23.0	41.5	0.6	3.2	0.1	100.0	64.5	673
30-34	12.8	39.9	42.6	0.7	3.7	0.4	100.0	82.5	575
35-39	6.2	58.3	31.3	2.4	1.4	0.3	100.0	89.7	469
40-44	5.2	62.6	24.9	2.3	1.9	3.1	100.0	87.4	482
45-49	0.4	71.1	19.7	3.7	4.0	1.0	100.0	90.9	332
Total	42.5	30.2	23.6	1.1	1.9	0.6	100.0	53.9	4,118

4.2 POLYGYNY

Polygyny (the practice of having more than one wife) has implications for the frequency of exposure to sexual activity and, therefore, fertility. The extent of polygyny in Liberia was measured by asking all women currently married or living with a man the question: "Does your husband/partner have other wives, or does he live with other women as if married?" If the answer is yes, the woman is asked: "Including yourself, in total, how many wives or live-in partners does he have?" Currently married men or men living with a woman are asked: "Do you have other wives, or do you live with other women as if married?" If the answer is yes, the man is asked: "Altogether, how many wives or live-in partners do you have?"

Table 4.2.1 shows the distribution of currently married women by the number of co-wives, according to selected background characteristics. The majority of married women report their husband or partner has no other wives (86 percent). Thirteen percent of women report their husbands have more than one wife, while 1 percent report that they don't know if their husbands have other wives. The percentage of currently married women who report that their husband has no other wives is higher than the figure reported in the 2007 LDHS (86 percent versus 78 percent, respectively).

The proportion of women with co-wives increases with age, ranging from 6 percent among women age 15-19 to 19 percent among women age 45-49. The proportions of women who report having no co-wives are lowest in Lofa (69 percent), Grand Kru (73 percent), Grand Cape Mount (76 percent), and River Gee (77 percent).

There is an inverse relationship between education and polygyny. Women with no education are less likely to report having no co-wives (82 percent) compared with women with at least some secondary education (91 percent). There is also an inverse relationship between wealth and polygyny. Although 83 percent of currently married women in the lowest two wealth quintiles report that they have no co-wives, 90 percent of women in the highest wealth quintile report no co-wives.

Table 4.2.1 Number of women's co-wives

Percent distribution of currently married women age 15-49 by number of co-wives, according to background characteristics, Liberia 2013

Background characteristic	Number of co-wives				Total	Number of women
	0	1	2+	Don't know		
Age						
15-19	92.4	5.8	0.0	1.4	100.0	299
20-24	89.0	9.1	0.6	1.0	100.0	862
25-29	89.6	8.5	0.4	1.4	100.0	1,168
30-34	84.9	12.3	1.3	1.3	100.0	957
35-39	82.4	13.1	2.7	1.2	100.0	924
40-44	83.8	12.2	2.4	1.6	100.0	619
45-49	80.5	14.2	4.4	1.0	100.0	557
Residence						
Urban	88.9	8.3	1.0	1.6	100.0	2,898
Greater Monrovia	90.7	6.7	0.8	1.5	100.0	1,614
Other urban	86.5	10.4	1.2	1.9	100.0	1,283
Rural	82.6	14.0	2.3	0.8	100.0	2,488
Region						
North Western	80.6	15.1	3.1	1.2	100.0	580
South Central	90.3	7.5	0.7	1.4	100.0	2,481
South Eastern A	84.9	12.6	1.0	1.5	100.0	348
South Eastern B	78.4	17.5	2.5	1.2	100.0	358
North Central	83.2	13.0	2.4	1.1	100.0	1,619
County						
Bomi	86.8	10.2	1.8	1.1	100.0	145
Bong	84.9	12.0	2.0	0.7	100.0	635
Gbarpolu	86.2	11.9	0.9	1.0	100.0	123
Grand Bassa	90.3	9.3	0.3	0.1	100.0	294
Grand Cape Mount	75.5	18.5	4.6	1.2	100.0	312
Grand Gedeh	83.4	13.7	1.0	1.9	100.0	113
Grand Kru	73.1	19.9	4.7	1.9	100.0	135
Lofa	69.0	22.5	8.2	0.3	100.0	291
Margibi	88.0	10.2	0.0	1.5	100.0	407
Maryland	83.8	14.4	0.5	0.8	100.0	148
Montserrado	90.8	6.5	0.9	1.5	100.0	1,780
Nimba	87.7	9.9	0.5	1.8	100.0	694
River Cess	90.0	8.7	0.7	0.7	100.0	100
River Gee	77.4	19.2	2.4	0.7	100.0	74
Sinoe	82.3	14.7	1.1	1.8	100.0	135
Education						
No education	81.8	14.3	2.7	1.1	100.0	2,417
Primary	87.3	10.4	0.9	1.2	100.0	1,446
Secondary and higher	91.4	6.1	0.5	1.6	100.0	1,523
Wealth quintile						
Lowest	83.0	13.8	2.1	0.8	100.0	1,133
Second	83.0	13.7	2.1	1.1	100.0	1,094
Middle	86.0	10.8	1.7	1.0	100.0	1,082
Fourth	88.4	9.6	0.7	1.4	100.0	1,108
Highest	90.2	6.3	1.4	2.1	100.0	968
Total	86.0	10.9	1.6	1.3	100.0	5,386

Note: Total includes 12 women for which information on number of co-wives is missing.

Six percent of men age 15-49 report having more than one wife, and the percentage of men in this category generally increases with age (Table 4.2.2). Counties in which 10 percent or more of the men report having more than one wife are Grand Gedeh (10 percent), Lofa (11 percent), River Cess (11 percent), and River Gee (13 percent). The percentage of men who report being in a polygynous union declines with increasing education and wealth.

Table 4.2.2 Number of men's wives

Percent distribution of currently married men age 15-49, by number of wives, according to background characteristics, Liberia 2013

Background characteristic	Number of wives		Total	Number of men
	1	2+		
Age				
15-19	*	*	100.0	13
20-24	97.2	2.8	100.0	152
25-29	97.4	2.6	100.0	434
30-34	95.8	4.2	100.0	475
35-39	93.2	6.8	100.0	421
40-44	90.8	9.2	100.0	422
45-49	92.4	7.6	100.0	302
Residence				
Urban	95.5	4.5	100.0	1,150
Greater Monrovia	96.2	3.8	100.0	623
Other urban	94.7	5.3	100.0	526
Rural	93.0	7.0	100.0	1,068
Region				
North Western	93.1	6.9	100.0	236
South Central	95.8	4.2	100.0	1,033
South Eastern A	90.5	9.5	100.0	147
South Eastern B	90.4	9.6	100.0	158
North Central	94.2	5.8	100.0	644
County				
Bomi	94.3	5.7	100.0	55
Bong	96.6	3.4	100.0	247
Gbarpolu	94.8	5.2	100.0	63
Grand Bassa	95.1	4.9	100.0	140
Grand Cape Mount	91.6	8.4	100.0	118
Grand Gedeh	90.2	9.8	100.0	44
Grand Kru	91.6	8.4	100.0	65
Lofa	88.6	11.4	100.0	124
Margibi	94.1	5.9	100.0	194
Maryland	90.7	9.3	100.0	58
Montserrado	96.4	3.6	100.0	699
Nimba	94.6	5.4	100.0	273
River Cess	89.4	10.6	100.0	41
River Gee	87.5	12.5	100.0	35
Sinoe	91.3	8.7	100.0	62
Education				
No education	87.7	12.3	100.0	375
Primary	95.3	4.7	100.0	569
Secondary and higher	95.8	4.2	100.0	1,274
Wealth quintile				
Lowest	93.0	7.0	100.0	489
Second	93.3	6.7	100.0	463
Middle	94.1	5.9	100.0	433
Fourth	94.8	5.2	100.0	447
Highest	96.9	3.1	100.0	387
Total	94.3	5.7	100.0	2,218

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

4.3   AGE AT FIRST MARRIAGE

For most societies, marriage marks the point in a woman's life when childbearing first becomes socially acceptable. Women who marry early will, on average, have longer exposure to pregnancy and a greater number of lifetime births. Information on age at first marriage was obtained by asking all ever-married respondents the month and year they started living together with their first spouse.

Table 4.3 presents the percentages of both women and men age 15-49 who first married by specific exact ages and their median age at first marriage. The median age at marriage among women has risen by about one year and a half, from 18.4 years among women age 45-49 to 19.9 years among women age 20-24. The proportion of women married by age 15 declined from 17 percent among those age 45-49 to 4 percent among women age 15-19. Overall, four in ten women age 25-49 married by the time they were 18, and six in ten married by age 20.

Men tend to enter into marriage at a later age than women. The median age at first marriage among men age 25-49 exceeds age 25, and is therefore at least six years older than women. Only 1 in 6 men age 20-49 marries by age 20, compared with 6 in 10 women in the same age group.

Table 4.3 Age at first marriage

Percentage of women and men age 15-49 who were first married by specific exact ages and median age at first marriage, according to current age, Liberia 2013

Current age	Percentage first married by exact age:					Percentage never married	Number of respondents	Median age at first marriage
	15	18	20	22	25			
WOMEN								
15-19	3.8	na	na	na	na	84.2	2,080	a
20-24	8.8	35.9	50.9	na	na	41.1	1,642	19.9
25-29	10.3	35.2	55.4	66.7	76.4	17.6	1,611	19.3
30-34	12.5	42.1	60.1	72.5	81.8	8.1	1,199	18.8
35-39	14.0	46.5	61.6	72.9	83.1	3.6	1,179	18.4
40-44	14.8	46.0	64.0	74.3	84.3	1.5	812	18.5
45-49	16.7	47.2	62.5	74.0	84.9	0.7	716	18.4
20-49	12.1	40.8	57.9	na	na	15.6	7,159	19.0
25-49	13.1	42.2	59.9	71.3	81.3	8.0	5,517	18.8
MEN								
15-19	0.1	na	na	na	na	98.5	890	a
20-24	0.7	4.7	12.2	na	na	76.2	696	a
25-29	1.1	7.8	17.8	31.1	50.7	31.5	673	24.9
30-34	1.2	8.2	18.3	31.1	49.8	12.8	575	25.0
35-39	0.8	8.6	19.4	30.2	49.1	6.2	469	25.2
40-44	0.9	4.8	16.9	28.7	44.5	5.2	482	26.6
45-49	0.7	5.5	12.2	23.7	47.2	0.4	332	25.6
20-49	0.9	6.6	16.2	na	na	27.0	3,228	a
25-49	1.0	7.2	17.3	29.5	48.6	13.5	2,531	a

Note: The age at first marriage is defined as the age at which the respondent began living with her/his first spouse/partner
na = Not applicable due to censoring
a = Omitted because less than 50 percent of the women or men began living with their spouse or partner for the first time before reaching the beginning of the age group

Table 4.4 presents the median age at first marriage among women, by background characteristics. Among women age 25-49, median age at marriage is nearly two years older among urban women (19.6) than among rural women (17.8). The lowest median age at marriage is observed in Lofa (17.0 years), while the highest is seen in Montserrrado (20.5 years).

There is a marked relationship among women's level of education and median age at marriage. The median age at first marriage among women age 25-49 with no formal education is 17.8 years, and it rises to 21.6 years among those with at least some secondary education. There is a positive correlation between wealth and age at marriage. The median age at marriage among women age 25-49 in the lowest quintile is four years younger than women in the highest wealth quintile (17.6 and 21.7 years of age, respectively).

Median age at first marriage among women has risen modestly since 2007: from 18.6 to 19.0 among women age 20-49 and from 18.4 to 18.8 among women age 25-49.

Table 4.4 Median age at first marriage by background characteristics: Women

Median age at first marriage among women age 20-49 and age 25-49, according to background characteristics, Liberia 2013

	Women age	
Background characteristic	20-49	25-49
Residence		
Urban	19.9	19.6
Greater Monrovia	a	20.7
Other urban	18.9	18.6
Rural	17.9	17.8
Region		
North Western	17.9	17.8
South Central	a	20.0
South Eastern A	18.3	18.0
South Eastern B	18.8	18.5
North Central	17.9	17.8
County		
Bomi	17.6	17.3
Bong	17.5	17.5
Gbarpolu	18.6	18.5
Grand Bassa	18.2	18.0
Grand Cape Mount	17.8	18.0
Grand Gedeh	18.0	17.7
Grand Kru	19.1	18.7
Lofa	17.0	17.0
Margibi	19.4	19.2
Maryland	19.0	18.7
Montserrado	a	20.5
Nimba	18.6	18.2
River Cess	17.5	17.3
River Gee	18.2	17.9
Sinoe	19.1	19.0
Education		
No education	17.8	17.8
Primary	18.5	18.3
Secondary and higher	a	21.6
Wealth quintile		
Lowest	17.7	17.6
Second	17.8	17.7
Middle	18.6	18.4
Fourth	19.5	19.0
Highest	a	21.7
Total	19.0	18.8

Note: The age at first marriage is defined as the age at which the respondent began living with her/his first spouse/partner
a = Omitted because less than 50 percent of the respondents began living with their spouse/partners for the first time before reaching the beginning of the age group

4.4   AGE AT FIRST SEXUAL INTERCOURSE

Age at first marriage can be used as a proxy for the beginning of exposure to the risk of pregnancy. However, because some women are sexually active before marriage, the age at which women initiate sexual intercourse more precisely marks the beginning of their exposure to reproductive risks.

The percentages of women and men who had first sexual intercourse by specific exact ages are presented in Table 4.5. The median age at first intercourse among women age 25-49 is 16.2 years. Twenty-four

percent of women age 25-49 have had sexual intercourse by age 15 and 78 percent by age 18. By age 20, about nine in ten Liberian women have had sexual intercourse.

Liberian men exhibit a slightly older median age at first intercourse compared with women. Among men age 25-49, the median age at first intercourse is 18.3 years. Eight percent of men age 25-49 have had sexual intercourse by age 15 and 45 percent by age 18. By age 20, about three in four men have initiated sexual intercourse.

Table 4.5 Age at first sexual intercourse

Percentage of women and men age 15-49 who had first sexual intercourse by specific exact ages, percentage who never had sexual intercourse, and median age at first sexual intercourse, according to current age, Liberia 2013

| Current age | Percentage who had first sexual intercourse by exact age: | | | | | Percentage who never had sexual intercourse | Number | Median age at first sexual intercourse |
	15	18	20	22	25			
WOMEN								
15-19	23.3	na	na	na	na	30.0	2,080	a
20-24	22.9	82.8	96.3	na	na	0.7	1,642	16.2
25-29	21.2	76.5	91.5	96.3	97.3	0.0	1,611	16.4
30-34	25.4	78.4	92.3	95.5	96.6	0.0	1,199	16.1
35-39	22.6	79.0	91.1	94.2	95.3	0.0	1,179	16.1
40-44	27.1	78.6	88.6	93.0	93.6	0.0	812	16.1
45-49	27.9	77.2	90.9	93.0	93.6	0.0	716	16.0
20-49	23.9	79.0	92.3	na	na	0.2	7,159	16.2
25-49	24.2	77.9	91.1	94.8	95.7	0.0	5,517	16.2
15-24	23.1	na	na	na	na	17.1	3,722	a
MEN								
15-19	8.9	na	na	na	na	58.9	890	a
20-24	9.4	55.4	86.2	na	na	6.3	696	17.7
25-29	8.6	46.7	79.1	94.5	98.8	0.4	673	18.2
30-34	7.4	46.2	77.0	91.3	96.4	0.4	575	18.2
35-39	8.6	46.3	76.0	89.2	96.2	0.0	469	18.2
40-44	7.2	42.7	72.2	87.2	93.4	0.9	482	18.4
45-49	4.8	39.3	68.4	88.2	94.0	0.0	332	18.7
20-49	8.0	47.0	77.7	na	na	1.7	3,228	18.2
25-49	7.6	44.8	75.3	90.6	96.1	0.4	2,531	18.3
15-24	9.1	na	na	na	na	35.8	1,587	a

na = Not applicable due to censoring
a = Omitted because less than 50 percent of the respondents had sexual intercourse for the first time before reaching the beginning of the age group

Table 4.6 presents the median age at first sexual intercourse among women and men, by background characteristics. The most notable observation is how little variation is observed by background characteristics. Among women, there are small increases in median age of first sexual intercourse with increasing education and wealth. For example, among women age 25-49, the median age rises from 15.8 among women with no education to 16.7 among women with at least some secondary education, an increase of less than one year. For men age 25-49, on the other hand, the median age of first sexual intercourse is 18.3 irrespective of education level.

Table 4.6 Median age at first sexual intercourse by background characteristics

Median age at first sexual intercourse among women age 20-49 and age 25-49, and median age at first sexual intercourse among men age 20-49 and age 25-49, according to background characteristics, Liberia 2013

Background characteristic	Women age		Men age	
	20-49	25-49	20-49	25-49
Residence				
Urban	16.4	16.4	18.1	18.3
Greater Monrovia	16.5	16.5	18.2	18.5
Other urban	16.2	16.1	18.0	18.1
Rural	15.9	15.9	18.2	18.3
Region				
North Western	15.9	16.0	18.4	18.4
South Central	16.4	16.4	18.1	18.3
South Eastern A	15.8	15.8	17.6	17.9
South Eastern B	16.1	16.2	18.0	18.1
North Central	16.0	16.0	18.3	18.4
County				
Bomi	15.9	15.9	18.6	18.8
Bong	15.8	15.8	18.3	18.4
Gbarpolu	16.1	16.2	18.4	18.5
Grand Bassa	15.9	15.9	18.0	18.0
Grand Cape Mount	15.8	16.0	18.3	18.2
Grand Gedeh	15.8	15.8	17.4	17.3
Grand Kru	16.7	16.9	18.4	18.5
Lofa	16.1	16.1	18.6	18.7
Margibi	16.2	16.2	17.8	17.9
Maryland	15.8	15.8	17.2	17.0
Montserrado	16.5	16.5	18.2	18.4
Nimba	16.2	16.2	18.1	18.1
River Cess	15.5	15.5	17.5	18.1
River Gee	16.0	16.0	18.2	18.3
Sinoe	16.2	16.1	17.8	18.1
Education				
No education	15.8	15.8	18.3	18.3
Primary	16.1	16.2	18.3	18.3
Secondary and higher	16.7	16.7	18.1	18.3
Wealth quintile				
Lowest	15.9	16.0	18.1	18.2
Second	15.8	15.8	18.2	18.3
Middle	16.1	16.0	18.1	18.1
Fourth	16.4	16.4	18.1	18.4
Highest	16.7	16.7	18.2	18.5
Total	16.2	16.2	18.2	18.3

4.5   RECENT SEXUAL ACTIVITY

In the absence of effective contraception, the probability of becoming pregnant depends highly upon the frequency of intercourse. Information on sexual activity, therefore, can be used to refine measures of exposure to pregnancy. Women and men who have had sex were asked how long ago they most recently had sexual intercourse. Tables 4.7.1 and 4.7.2 show the distribution of women and men by recent sexual activity, according to background characteristics.

Table 4.7.1 Recent sexual activity: Women

Percent distribution of women age 15-49 by timing of last sexual intercourse, according to background characteristics, Liberia 2013

| Background characteristic | Timing of last sexual intercourse | | | Never had sexual intercourse | Total | Number of women |
	Within the past 4 weeks	Within 1 year[1]	One or more years			
Age						
15-19	38.0	27.0	4.8	30.0	100.0	2,080
20-24	59.0	31.4	8.7	0.7	100.0	1,642
25-29	63.2	28.5	8.2	0.0	100.0	1,611
30-34	63.5	27.3	8.9	0.0	100.0	1,199
35-39	63.5	26.3	10.1	0.0	100.0	1,179
40-44	61.2	26.6	12.3	0.0	100.0	812
45-49	64.8	20.6	14.6	0.0	100.0	716
Marital status						
Never married	42.3	28.2	7.1	22.2	100.0	2,867
Married or living together	68.7	25.6	5.6	0.0	100.0	5,386
Divorced/separated/widowed	34.0	35.7	30.3	0.0	100.0	987
Marital duration[2]						
0-4 years	61.3	31.4	7.1	0.0	100.0	949
5-9 years	66.2	28.8	5.0	0.0	100.0	862
10-14 years	67.1	24.6	8.0	0.0	100.0	747
15-19 years	69.9	25.8	4.1	0.0	100.0	455
20-24 years	76.2	19.5	4.3	0.0	100.0	439
25+ years	75.1	21.0	4.0	0.0	100.0	330
Married more than once	71.5	23.4	5.1	0.0	100.0	1,604
Residence						
Urban	57.5	26.5	7.5	8.3	100.0	5,633
Greater Monrovia	59.2	25.0	6.4	9.3	100.0	3,361
Other urban	55.1	28.7	9.2	6.8	100.0	2,272
Rural	55.7	29.0	10.6	4.7	100.0	3,606
Region						
North Western	54.5	30.6	8.5	6.4	100.0	837
South Central	57.4	26.2	7.3	9.0	100.0	4,854
South Eastern A	54.1	34.5	9.2	2.1	100.0	483
South Eastern B	59.4	28.5	7.3	4.7	100.0	577
North Central	56.3	27.3	11.9	4.3	100.0	2,488
County						
Bomi	54.4	28.0	10.7	7.0	100.0	244
Bong	57.3	26.4	13.1	3.2	100.0	894
Gbarpolu	54.6	29.1	10.6	5.7	100.0	182
Grand Bassa	68.3	23.2	4.4	4.1	100.0	434
Grand Cape Mount	54.5	32.9	6.2	6.4	100.0	412
Grand Gedeh	51.6	33.4	13.5	1.5	100.0	167
Grand Kru	61.9	30.1	5.5	2.4	100.0	217
Lofa	48.0	26.9	18.3	6.5	100.0	447
Margibi	45.4	31.1	11.9	11.6	100.0	744
Maryland	56.6	27.8	8.4	7.2	100.0	257
Montserrado	58.6	25.5	6.7	9.1	100.0	3,675
Nimba	58.8	28.2	8.4	4.3	100.0	1,147
River Cess	60.7	31.0	6.1	2.0	100.0	135
River Gee	61.3	26.9	8.5	3.3	100.0	103
Sinoe	51.6	38.1	7.6	2.7	100.0	182
Education						
No education	60.7	25.9	12.4	1.0	100.0	3,066
Primary	50.5	27.0	7.9	14.3	100.0	2,875
Secondary and higher	58.7	29.3	6.1	5.9	100.0	3,298
Wealth quintile						
Lowest	56.5	27.9	12.1	3.4	100.0	1,581
Second	55.0	28.2	12.0	4.6	100.0	1,624
Middle	55.4	30.3	7.8	6.2	100.0	1,779
Fourth	59.7	25.8	7.1	7.3	100.0	2,047
Highest	56.7	25.9	6.1	11.3	100.0	2,207
Total	56.8	27.5	8.7	6.9	100.0	9,239

Note: Total includes 10 women for whom information on last sexual intercourse is missing.
[1] Excludes women who had sexual intercourse within the last 4 weeks
[2] Excludes women who are not currently married

Although about nine in ten women age 15-49 have ever had sexual intercourse (Table 4.7.1), only about six in ten women age 15-49 are currently sexually active – that is, they have had sexual intercourse in the four weeks preceding the survey. Twenty-eight percent of women had been sexually active within the 12-month period prior to the survey, although not in the month prior to the interview. Nine percent of women had had sexual intercourse, but not for one or more years. Seven percent of women age 15-49 have never had sexual intercourse. A higher percentage of women between the ages of 20 and 49 is currently sexually active than women age 15-19. Women in union are much more likely to report recent sexual activity than women who are divorced, separated, widowed, or never married; 69 percent of currently married women report being recently sexually active compared with 34 percent of those who are divorced, separated, or widowed and 42 percent of those who never married.

Six in ten men age 15-49 report having had sexual intercourse within the four weeks preceding the interview. Twenty-five percent of men had been sexually active within the 12-month period prior to the survey, but not in the month prior to the interview, and 3 percent had not been sexually active for one or more years. Fourteen percent of men age 15-49 had never had sexual intercourse. Although the overall percentage of men who have had sexual intercourse within the past four weeks is comparable to women (59 percent and 57 percent, respectively), the age breakdown differs. Among younger ages (15-24) a higher percentage of women are recently sexually active, as compared with men; among older ages (25-49) a higher percentage of men are recently sexually active, as compared with women. Divorced, separated, or widowed men are also more likely than women to report being recently sexually active (64 percent and 34 percent, respectively).

Table 4.7.2 Recent sexual activity: Men

Percent distribution of men age 15-49 by timing of last sexual intercourse, according to background characteristics, Liberia 2013

Background characteristic	Timing of last sexual intercourse			Never had sexual intercourse	Total	Number of men
	Within the past 4 weeks	Within 1 year[1]	One or more years			
Age						
15-19	19.4	18.7	3.0	58.9	100.0	890
20-24	55.7	35.0	3.0	6.3	100.0	696
25-29	71.4	25.5	2.6	0.4	100.0	673
30-34	73.8	24.1	1.5	0.4	100.0	575
35-39	71.4	26.8	1.8	0.0	100.0	469
40-44	77.4	18.4	3.1	0.9	100.0	482
45-49	73.9	22.6	3.5	0.0	100.0	332
Marital status						
Never married	36.1	26.6	4.3	33.1	100.0	1,749
Married or living together	76.2	22.6	1.1	0.0	100.0	2,218
Divorced/separated/widowed	64.3	28.8	6.9	0.0	100.0	151
Marital duration[2]						
0-4 years	74.1	24.9	0.9	0.0	100.0	510
5-9 years	72.9	25.9	0.9	0.0	100.0	458
10-14 years	70.6	28.6	0.7	0.0	100.0	293
15-19 years	76.6	20.8	2.6	0.0	100.0	158
20-24 years	74.8	24.3	0.8	0.0	100.0	150
25+ years	81.8	11.6	6.6	0.0	100.0	50
Married more than once	83.1	16.2	0.6	0.0	100.0	597
Residence						
Urban	57.5	24.7	2.6	15.1	100.0	2,413
Greater Monrovia	56.7	26.7	2.6	14.1	100.0	1,433
Other urban	58.7	21.8	2.6	16.7	100.0	980
Rural	60.5	24.3	2.7	12.5	100.0	1,705
Region						
North Western	61.2	26.0	1.6	11.2	100.0	367
South Central	56.8	25.5	2.8	14.9	100.0	2,149
South Eastern A	62.5	24.8	1.6	10.8	100.0	254
South Eastern B	64.2	21.6	4.3	9.9	100.0	288
North Central	59.5	22.8	2.5	15.2	100.0	1,060
County						
Bomi	58.5	26.0	3.6	11.9	100.0	97
Bong	60.6	26.0	2.0	11.4	100.0	389
Gbarpolu	61.6	27.3	1.5	9.6	100.0	94
Grand Bassa	68.1	19.1	1.5	11.3	100.0	204
Grand Cape Mount	62.5	25.3	0.6	11.6	100.0	176
Grand Gedeh	54.1	32.7	2.0	10.8	100.0	82
Grand Kru	69.0	20.7	1.2	9.0	100.0	110
Lofa	44.8	31.3	2.9	20.7	100.0	219
Margibi	51.6	25.9	3.6	18.6	100.0	364
Maryland	59.5	24.2	5.7	10.5	100.0	123
Montserrado	56.5	26.2	2.8	14.5	100.0	1,582
Nimba	65.6	15.8	2.6	15.9	100.0	451
River Cess	70.0	18.8	2.5	8.8	100.0	64
River Gee	65.2	17.2	7.1	10.4	100.0	55
Sinoe	64.5	22.4	0.9	12.0	100.0	108
Education						
No education	61.8	26.7	4.3	7.0	100.0	533
Primary	48.0	20.6	2.4	29.0	100.0	1,202
Secondary and higher	63.5	26.0	2.4	8.1	100.0	2,383
Wealth quintile						
Lowest	62.5	24.6	2.7	10.1	100.0	749
Second	61.3	24.0	2.7	12.0	100.0	753
Middle	60.1	21.2	2.0	16.8	100.0	728
Fourth	55.5	27.3	0.8	16.4	100.0	864
Highest	55.9	25.0	4.6	14.5	100.0	1,024
Total	58.7	24.5	2.6	14.0	100.0	4,118

Note: Total includes 2 men for whom information on last sexual intercourse is missing.
[1] Excludes men who had sexual intercourse within the last 4 weeks
[2] Excludes men who are not currently married

FERTILITY

> **Key Findings**
>
> - The total fertility rate for Liberia is 4.7 children per woman. This represents a decrease since the 2007 LDHS, which reported 5.2 children per woman.
> - Fertility among urban women (3.8 children per woman) is markedly lower than among rural women (6.1 children per woman).
> - The median age at first birth among women 20-49 is 18.9 years.
> - Among women who had a live birth in the three years preceding the survey, the median duration of postpartum insusceptibility to pregnancy is 13.1 months.
> - Thirteen percent of women age 30-49 are menopausal.
> - The median age at first birth among women age 25-49 is 18.9.

I n the 2013 LDHS, data were collected on current and completed fertility. The birth histories of women interviewed in the survey contributed in this chapter to a description of levels and differentials in current fertility. Trends in fertility are explored, including examination of age-specific fertility rates in periods going back 15 to 20 years. Measures of several proximate determinants of fertility that influence exposure to the risk of pregnancy are also presented, including duration of postpartum amenorrhea, postpartum abstinence, and menopause. The chapter also gives information on the age of women at their first birth and on patterns of teenage childbearing.

The fertility indicators presented in this chapter are based on reports of reproductive histories provided by women age 15-49. As in the previous LDHS surveys, each woman was asked to provide information on the total number of sons and daughters to whom she had given birth and who were living with her, the number living elsewhere, and the number who had died, in order to obtain the total number of live births. In the birth history, women reported the details of each live birth separately, including such information as name, and month and year of birth in addition to sex and survival status. For children who had died, age at death was recorded.

5.1 CURRENT FERTILITY

Measures of current fertility include age-specific fertility rates (ASFRs), the total fertility rate (TFR), the general fertility rate (GFR), and the crude birth rate (CBR). These rates are presented for the three-year period preceding the survey, a period that covers a portion of calendar years 2010 through 2013. The three-year period (rather than a longer or a shorter period) was chosen to calculate rates as a balance among providing the most current information, reducing sampling error, and avoiding problems of the displacement of births.

Age-specific fertility rates are useful in understanding the age pattern of fertility. Numerators of ASFRs are calculated by identifying live births that occurred in the period 1 to 36 months preceding the survey (determined from the date of interview and date of birth of the child); they are then classified by the age of the mother (in five-year groups) at the time of the child's birth. The denominators of these rates are the number of woman-years lived by the survey respondents in each of the five-year age groups during the specified period.

The TFR is a common measure of current fertility and is defined as the number of children a woman would have by the end of her childbearing years if she were to pass through those years bearing children at the current age-specific fertility rates. The GFR represents the number of live births per 1,000 women of reproductive age. The CBR is the number of live births per 1,000 population. The latter two measures are based on birth history data for the three-year period before the survey and on the age-sex distribution of the household population.

Table 5.1 shows the age-specific and aggregate fertility measures calculated from the 2013 LDHS. The total fertility rate for Liberia is 4.7 children per woman. Childbearing peaks during age 20-24 and drops sharply after age 39. Fertility among urban women is markedly lower (3.8 children per woman) than among rural women (6.1 children per woman). This pattern of lower fertility in urban areas is evident in every age group.

5.2 FERTILITY BY BACKGROUND CHARACTERISTICS

Table 5.2 shows differentials in fertility by residence, region, level of education, and wealth quintile. Among urban areas, Greater Monrovia has a distinctly lower TFR (3.2) than other urban areas (4.8). Rural areas have a notably higher TFR (6.1) on average, with geographic variation across regions (3.8-6.5).

Table 5.1 Current fertility

Age-specific and total fertility rates, the general fertility rate, and the crude birth rate for the three years preceding the survey, by residence, Liberia 2013

| Age group | Residence | | Total |
	Urban	Rural	
15-19	121	206	149
20-24	188	285	222
25-29	164	253	200
30-34	140	230	177
35-39	109	165	133
40-44	36	66	50
45-49	11	17	14
TFR(15-49)	3.8	6.1	4.7
GFR	139	214	168
CBR	31.1	38.5	34.4

Notes: Age-specific fertility rates are per 1,000 women. Rates for age group 45-49 may be slightly biased due to truncation. Rates are for the period 1-36 months prior to interview.
TFR: Total fertility rate expressed per woman
GFR: General fertility rate expressed per 1,000 women age 15-44
CBR: Crude birth rate, expressed per 1,000 population

Table 5.2 Fertility by background characteristics

Total fertility rate for the three years preceding the survey, percentage of women age 15-49 currently pregnant, and mean number of children ever born to women age 40-49 years, by background characteristics, Liberia 2013

Background characteristic	Total fertility rate	Percentage of women age 15-49 currently pregnant	Mean number of children ever born to women age 40-49
Residence			
Urban	3.8	7.0	5.7
Greater Monrovia	3.2	6.5	5.3
Other urban	4.8	7.7	6.1
Rural	6.1	10.3	6.7
Region			
North Western	5.8	10.3	7.1
South Central	3.8	6.7	5.8
South Eastern A	6.5	9.6	6.7
South Eastern B	5.9	9.2	7.1
North Central	5.6	10.2	6.2
Education			
No education	5.9	9.3	6.7
Primary	5.1	9.5	6.2
Secondary and higher	3.4	6.3	4.9
Wealth quintile			
Lowest	6.6	10.3	6.7
Second	5.9	10.7	6.8
Middle	5.2	9.7	6.4
Fourth	3.9	5.9	5.7
Highest	2.8	6.2	4.9
Total	4.7	8.3	6.2

Note: Total fertility rates are for the period 1-36 months prior to interview.

Education and wealth are closely linked to a woman's fertility. The TFRs for women with no formal education and women who have attended only primary school are 5.9 and 5.1 children per woman, respectively, while the TFR for women with at least some secondary education is 3.4. The TFR decreases with each increase in wealth quintile, ranging from 6.6 children per woman in the lowest wealth quintile to 2.8 children per woman in the highest wealth quintile.

Table 5.2 also allows for a general assessment of differential trends in fertility over time among population subgroups. The mean number of children ever born to women age 40-49 is a measure of past fertility. The mean number of children ever born to older women who are nearing the end of their reproductive period is an indicator of average completed fertility of women who began childbearing during the three decades preceding the survey. If fertility were to remain constant over time, and the reported data on children ever born and births during the three years preceding the survey were reasonably accurate, the TFR and the mean number of children ever born for women age 40-49 would be similar. If fertility levels have fallen, the TFR will be substantially lower than the mean number of children ever born among women age 40-49. Overall, a comparison of past (completed) and current (TFR) fertility indicators suggests a decline from 6.2 to 4.7 children per woman. There have been substantial but variable declines in both urban and rural areas, and across education levels and wealth quintiles. The largest declines have occurred among women in urban areas, women with at least some secondary education, and women in the highest wealth quintile.

At the time of the survey, 8 percent of interviewed women reported that they were pregnant. This percentage is an underestimate because many women will not yet know for sure that they are pregnant, and other women may not want to declare that they are pregnant.

5.3 FERTILITY TRENDS

The data in Table 5.3.1 provide evidence of fluctuations in fertility in Liberia over the past 20 years. The table uses information from the retrospective birth histories obtained from LDHS respondents to examine trends in age-specific fertility rates for successive five-year periods before the survey. To calculate these rates, births were classified according to the period of time in which the birth occurred and the mother's age at the time of birth. Because women age 50 and above were not interviewed in the survey, the rates are successively truncated for periods more distant from the survey date. For example, rates cannot be calculated for women age 35-39 for the period 15 to 19 years before the survey because these women would have been over the age of 50 at the time of the 2013 LDHS and not interviewed.

Table 5.3.1 Trends in age-specific fertility rates

Age-specific fertility rates for five-year periods preceding the survey, by mother's age at the time of the birth, Liberia 2013

Mother's age at birth	Number of years preceding survey			
	0-4	5-9	10-14	15-19
15-19	147	166	153	170
20-24	219	257	241	256
25-29	201	256	254	260
30-34	174	236	227	[248]
35-39	132	175	[186]	
40-44	62	[124]		
45-49	[23]			

Note: Age-specific fertility rates are per 1,000 women. Estimates in brackets are truncated. Rates exclude the month of interview.

Fertility has fallen among women in all age groups over the past two decades. Substantial declines in age-specific fertility rates were observed from the period 15 to 19 years before the survey to the period 0 to 4 years before the survey. Fertility decline is steepest among women age 25-29 and age 30-34.

Table 5.3.2 and Figure 5.1 show trends in current fertility rates based on successive LDHS surveys. Overall, the TFR declined by 2.0 births between the 1986 and 2013 surveys. The decline in TFR has been consistent across LDHS surveys: 6.7 children per woman in 1986, 6.2 children per woman in 1999/2000, 5.2 children per woman in 2007, and 4.7 children per woman in 2013.

The decline in national TFR between the 2007 and 2013 LDHS bears closer inspection. Whereas, the overall TFR declined from 5.2 children per woman in 2007 to 4.7 children per woman in 2013, there was little, if any, change in TFR by urban-rural residence. Specifically, the TFR for urban women reported in the 2007 LDHS was 3.8, which is identical to that reported in the 2013 LDHS. The TFR for rural women reported in the 2007 LDHS was 6.2 compared with 6.1 in the 2013 LDHS. A key difference between the 2007 LDHS and 2013 LDHS is the sampling frame (see Chapter 1). The percentage of the population living in urban areas is markedly higher in the 2013 LDHS sample than the 2007 LDHS sample. Accordingly, the contribution of urban women to the total TFR is higher in the 2013 LDHS than the 2007 LDHS, and this shift explains much of the decline in total TFR.

Table 5.3.2 Trends in age-specific and total fertility rates

Age-specific and total fertility rates (TFR) for the three-year period preceding several surveys, Liberia 1983-2013

Mother's age at birth	1986 LDHS	1999/2000 LDHS	2007 LDHS	2013 LDHS
15-19	188	135	141	149
20-24	287	279	243	222
25-29	282	241	226	200
30-34	229	211	187	177
35-39	177	171	142	133
40-44	107	112	72	50
45-49	61	83	29	14
TFR 15-49	6.7	6.2	5.2	4.7

Note: Age-specific fertility rates are per 1,000 women.

Figure 5.1 Trends in fertility

Births per 1,000 women

- - - 1986 LDHS   - · - 1999/2000 LDHS   ------ 2007 LDHS   —— 2013 LDHS
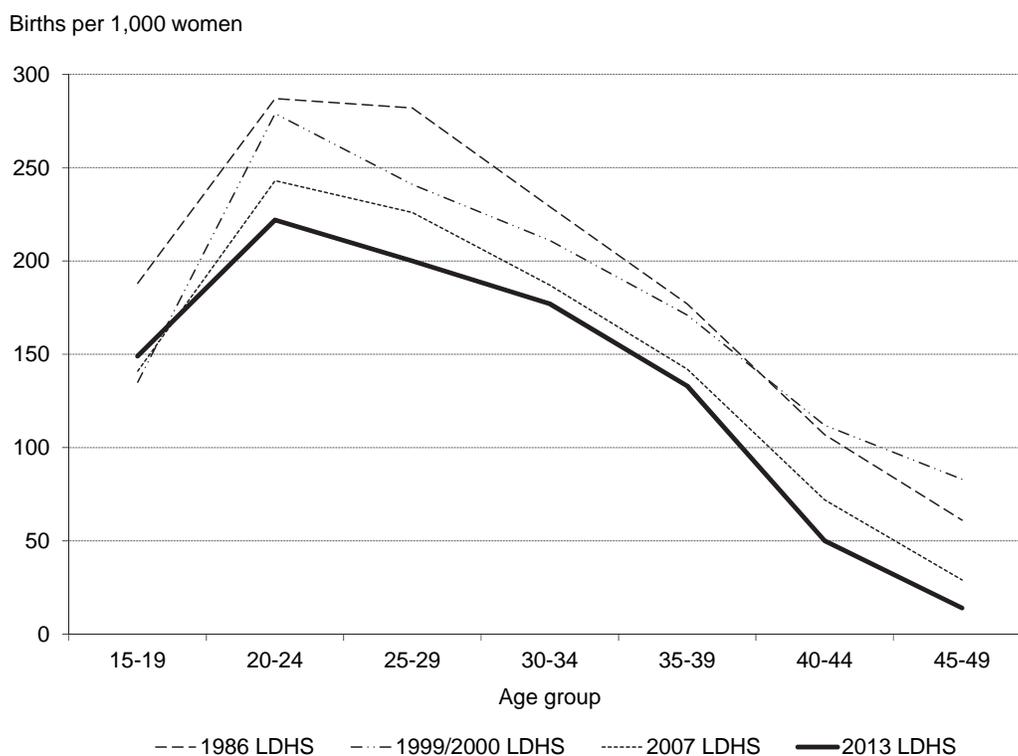
5.4 CHILDREN EVER BORN AND LIVING

The distribution of women by the number of children ever born is presented in Table 5.4 for all women and for currently married women. The table also shows the mean number of children ever born to women in each five-year age group. These distributions reflect the accumulation of births among LDHS respondents over the past 30 years and, therefore, their relevance to the current situation is limited. However, the information on children ever born is useful for observing how average family size varies across age groups and for observing the level of primary infertility. On average, women in their early twenties have given birth to

more than one child, women in their early thirties have had close to four children, and women at the end of their childbearing years have had almost seven children. Of the 6.6 children ever born to women age 45-49, 5.0 survived to the time of the survey.

Results at younger ages for currently married women differ from those for all women because of the large number of unmarried women with minimal fertility. Differences at older ages generally reflect the impact of marital dissolution (either divorce or widowhood). Less than 1 percent of currently married women age 45-49 have never had a child. If the desire for children is universal in Liberia, this percentage represents a rough measure of primary infertility or the inability to bear children.

Table 5.4 Children ever born and living

Percent distribution of all women and currently married women age 15-49 by number of children ever born, mean number of children ever born, and mean number of living children, according to age group, Liberia 2013

| Age | \multicolumn{11}{c}{Number of children ever born} | Total | Number of women | Mean number of children ever born | Mean number of living children |
	0	1	2	3	4	5	6	7	8	9	10+				
ALL WOMEN
15-19	74.2	22.3	3.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	2,080	0.29	0.28
20-24	20.3	36.6	29.1	11.3	2.3	0.5	0.1	0.0	0.0	0.0	0.0	100.0	1,642	1.40	1.26
25-29	6.3	19.8	25.8	22.7	15.5	6.6	2.4	0.7	0.1	0.0	0.0	100.0	1,611	2.55	2.25
30-34	2.5	8.2	18.3	17.2	19.0	16.5	9.0	6.9	1.1	1.1	0.4	100.0	1,199	3.79	3.22
35-39	2.3	4.0	11.1	14.6	14.5	15.2	16.7	9.1	6.1	3.5	3.0	100.0	1,179	4.78	3.95
40-44	1.8	2.3	6.9	9.5	11.6	13.3	16.2	12.2	9.3	9.4	7.5	100.0	812	5.79	4.64
45-49	0.5	2.0	4.0	8.7	10.2	13.3	11.2	12.4	10.1	9.5	17.9	100.0	716	6.64	5.02
Total	22.2	16.9	15.1	11.6	9.2	7.5	6.0	4.2	2.5	2.2	2.5	100.0	9,239	2.89	2.40
CURRENTLY MARRIED WOMEN
15-19	30.6	55.1	13.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	299	0.84	0.80
20-24	8.4	33.5	37.8	16.2	3.3	0.6	0.2	0.0	0.0	0.0	0.0	100.0	862	1.75	1.58
25-29	2.9	14.6	26.2	26.2	17.5	8.5	3.0	0.9	0.1	0.0	0.0	100.0	1,168	2.84	2.50
30-34	0.9	7.2	15.2	17.2	20.0	18.6	10.1	7.8	1.3	1.3	0.5	100.0	957	4.04	3.45
35-39	1.9	2.9	10.4	12.7	13.3	15.3	19.6	10.0	6.6	3.9	3.4	100.0	924	5.03	4.13
40-44	1.7	1.4	5.9	7.5	11.3	13.7	17.1	11.7	10.6	10.3	8.7	100.0	619	6.05	4.85
45-49	0.7	1.9	2.7	8.0	10.4	13.6	11.3	11.9	9.1	10.6	19.7	100.0	557	6.82	5.16
Total	4.4	13.7	18.0	15.2	12.5	10.8	9.0	5.9	3.5	3.2	3.7	100.0	5,386	3.92	3.25

5.5   BIRTH INTERVALS

Information on the length of birth intervals provides insight into birth spacing patterns, which affect fertility as well as infant and child mortality. Research has shown that children born too soon after a previous birth are at increased risk of poor health, particularly when the interval is less than 24 months. Table 5.5 shows the distribution of births in the five years before the survey by the interval since the preceding birth, according to various background and demographic characteristics.

The median birth interval in Liberia is 37.4 months. About 16 percent of all children are born after too short an interval (less than 24 months). The median interval is shorter among births to women under age 30 than among births to older mothers.

The median birth interval in urban areas (40.9 months) is slightly higher than in rural areas (35.6 months). Among urban areas, the median birth interval is higher in Greater Monrovia (44.2 months) than in other urban areas (37.7 months). Women with at least some secondary education have a longer median birth interval (43.1 months) than women with no education (36.9 months) or women with at least some primary

school (36.0 months). Median birth interval increases with each wealth quintile, ranging from 35.1 months in the lowest quintile to 47.6 months in the highest quintile.

Percent distribution of non-first births in the five years preceding the survey by number of months since preceding birth, and median number of months since preceding birth, according to background characteristics, Liberia 2013

Background characteristic	Months since preceding birth						Total	Number of non-first births	Median number of months since preceding birth
	7-17	18-23	24-35	36-47	48-59	60+			
Age									
15-19	3.5	31.3	49.9	11.0	1.2	3.0	100.0	73	26.0
20-29	5.0	12.6	36.3	21.3	10.2	14.6	100.0	2,313	34.7
30-39	5.2	8.0	25.6	23.1	12.7	25.5	100.0	1,970	40.9
40-49	3.5	8.6	24.1	16.3	15.8	31.7	100.0	533	45.2
Sex of preceding birth									
Male	5.0	10.5	30.2	21.5	11.9	21.0	100.0	2,479	37.8
Female	4.8	10.6	31.5	21.2	11.5	20.4	100.0	2,411	37.1
Survival of preceding birth									
Living	4.2	10.0	31.5	21.7	11.8	20.7	100.0	4,376	37.6
Dead	10.5	14.9	25.2	18.2	10.7	20.5	100.0	514	35.7
Birth order									
2-3	3.9	10.5	31.6	19.7	11.0	23.3	100.0	2,310	37.8
4-6	5.3	10.2	29.7	23.0	12.0	19.8	100.0	1,843	37.9
7+	6.7	11.7	31.4	22.3	13.2	14.7	100.0	737	36.0
Residence									
Urban	3.6	8.9	27.9	21.2	11.8	26.7	100.0	2,211	40.9
Greater Monrovia	2.8	7.0	26.4	20.8	11.6	31.5	100.0	1,047	44.2
Other urban	4.3	10.7	29.2	21.6	11.9	22.4	100.0	1,164	37.7
Rural	6.0	11.9	33.3	21.4	11.6	15.7	100.0	2,679	35.6
Region									
North Western	5.3	11.4	33.1	22.4	12.5	15.3	100.0	605	36.1
South Central	4.1	8.8	28.2	20.1	11.5	27.4	100.0	1,848	41.1
South Eastern A	6.7	13.2	35.5	17.5	12.0	15.1	100.0	400	34.3
South Eastern B	9.0	11.8	36.0	21.0	9.9	12.4	100.0	419	33.5
North Central	4.2	11.3	30.5	23.4	12.0	18.6	100.0	1,617	37.1
County									
Bomi	4.5	10.6	27.2	27.4	12.6	17.6	100.0	141	39.3
Bong	4.4	10.4	29.7	22.9	14.3	18.3	100.0	644	38.3
Gbarpolu	8.5	11.6	29.2	20.1	12.4	18.1	100.0	130	36.3
Grand Bassa	6.8	10.9	26.6	20.2	10.5	25.0	100.0	291	38.5
Grand Cape Mount	4.4	11.7	37.1	21.1	12.5	13.2	100.0	334	35.1
Grand Gedeh	7.2	6.8	31.6	19.0	13.9	21.5	100.0	120	37.8
Grand Kru	10.7	11.1	39.7	19.3	11.1	8.2	100.0	188	32.4
Lofa	3.5	10.6	25.9	20.8	13.8	25.3	100.0	263	41.3
Margibi	4.9	11.8	35.9	15.7	13.0	18.6	100.0	356	35.2
Maryland	7.9	12.0	30.3	23.2	9.1	17.4	100.0	149	35.9
Montserrado	3.1	7.4	26.4	21.3	11.3	30.6	100.0	1,201	43.5
Nimba	4.2	12.3	33.0	24.8	9.3	16.4	100.0	710	36.1
River Cess	6.4	15.4	37.2	16.6	10.9	13.4	100.0	123	32.5
River Gee	7.1	12.9	37.8	21.2	8.3	12.8	100.0	83	32.5
Sinoe	6.4	16.3	37.2	17.1	11.5	11.5	100.0	157	33.2
Education									
No education	5.7	10.9	31.0	23.1	12.4	16.9	100.0	2,426	36.9
Primary	5.2	10.4	34.3	19.8	10.5	19.8	100.0	1,392	36.0
Secondary and higher	2.7	9.9	26.1	19.3	11.6	30.3	100.0	1,073	43.1
Wealth quintile									
Lowest	6.0	13.5	33.1	21.7	11.6	14.1	100.0	1,314	35.1
Second	6.4	11.3	33.7	21.4	11.7	15.5	100.0	1,176	35.4
Middle	4.0	9.6	32.1	22.3	11.9	20.1	100.0	1,034	37.4
Fourth	3.3	10.0	26.5	20.3	11.3	28.6	100.0	816	41.6
Highest	3.0	4.5	23.6	20.0	12.3	36.7	100.0	550	47.6
Total	4.9	10.6	30.9	21.3	11.7	20.7	100.0	4,890	37.4

Note: First-order births are excluded. The interval for multiple births is the number of months since the preceding pregnancy that ended in a live birth.

5.6 POSTPARTUM AMENORRHEA, ABSTINENCE, AND INSUSCEPTIBILITY

Postpartum amenorrhea refers to the interval between childbirth and the return of menstruation. During this period, the risk of pregnancy is greatly reduced. The duration of this protection from conception after childbirth depends on the duration and intensity of breastfeeding and the length of time before the resumption of sexual intercourse. Women who gave birth during the three years prior to the survey were asked about their breastfeeding practices, the duration of amenorrhea, and sexual abstinence. Women are considered insusceptible if they are not exposed to the risk of pregnancy, either because they are amenorrheic or are still abstaining from sex after birth. The results are shown in Table 5.6.

Table 5.6 Postpartum amenorrhea, abstinence, and insusceptibility

Percentage of births in the three years preceding the survey for which mothers are postpartum amenorrheic, abstaining, and insusceptible, by number of months since birth, and median and mean durations, Liberia 2013

| | Percentage of births for which the mother is: | | | |
Months since birth	Amenorrheic	Abstaining	Insusceptible[1]	Number of births
< 2	95.6	99.3	99.8	179
2-3	80.1	96.8	97.6	218
4-5	68.4	87.6	92.6	220
6-7	54.8	75.8	82.7	247
8-9	50.3	65.9	74.7	234
10-11	42.3	61.0	70.3	265
12-13	35.4	45.5	58.1	221
14-15	22.8	23.1	33.0	230
16-17	13.4	27.1	30.3	218
18-19	11.5	10.2	17.9	226
20-21	11.5	14.0	21.3	190
22-23	2.1	7.0	8.6	244
24-25	2.2	3.0	5.0	234
26-27	1.0	2.8	3.6	163
28-29	0.5	1.1	1.5	165
30-31	1.2	1.6	2.8	165
32-33	0.5	0.9	1.2	212
34-35	0.2	0.9	1.0	237
Total	28.1	35.8	40.4	3,867
Median	8.3	11.6	13.1	na
Mean	10.1	12.7	14.3	na

Note: Estimates are based on status at the time of the survey.
na = Not applicable
[1] Includes births for which mothers are either still amenorrheic or still abstaining (or both) following birth

The period of postpartum abstinence is longer than the period of postpartum amenorrhea, suggesting that the former is a stronger determinant of the length of postpartum insusceptibility in Liberia. The median duration of amenorrhea is 8.3 months, women abstain for a median of 11.6 months, and they are insusceptible to pregnancy for a median of 13.1 months. Almost all women are virtually insusceptible to pregnancy during the first two months after a birth, and both amenorrhea and abstinence are important factors in their insusceptibility. However, abstinence declines more slowly over time than amenorrhea, with the percentage of abstaining mothers higher than the percentage of amenorrheic mothers at almost all time intervals evaluated.

5.7 MEDIAN DURATION OF POSTPARTUM INSUSCEPTIBILITY BY BACKGROUND CHARACTERISTICS

In the absence of contraception, variations in postpartum amenorrhea and abstinence are the most important determinants of the interval between births and ultimately the completion of fertility.

Table 5.7 shows the median durations of postpartum amenorrhea, abstinence, and insusceptibility by selected background characteristics. Although the median duration of postpartum amenorrhea for women age 30-49 is slightly longer than that for women age 15-29 (9.9 months and 7.4 months, respectively), postpartum abstinence among women age 30-49 (11.6 months) and women age 15-29 (11.7 months) is essentially equivalent. Median duration of postpartum insusceptibility is similar for older women and younger women (12.9 and 13.3 months, respectively). Women in rural areas have a longer median duration of amenorrhea than women in urban areas (9.7 versus 6.8 months), but they differ from women in urban areas in median duration of postpartum abstinence by less than one month (12.1 versus 11.3 months). Median duration of postpartum insusceptibility is slightly longer among women in rural areas (13.6 months) than women in urban areas (12.4 months). In urban areas, postpartum insusceptibility is shorter in median duration in Greater Monrovia (11.8 months) than in other urban areas (13.7 months).

Table 5.7 Median duration of amenorrhea, postpartum abstinence, and postpartum insusceptibility

Median number of months of postpartum amenorrhea, postpartum abstinence, and postpartum insusceptibility following births in the three years preceding the survey, by background characteristics, Liberia 2013

Background characteristic	Postpartum amenorrhea	Postpartum abstinence	Postpartum insusceptibility[1]
Mother's age			
15-29	7.4	11.7	13.3
30-49	9.9	11.6	12.9
Residence			
Urban	6.8	11.3	12.4
Greater Monrovia	4.5	10.7	11.8
Other urban	10.1	12.2	13.7
Rural	9.7	12.1	13.6
Region			
North Western	7.4	11.9	13.7
South Central	6.0	10.6	12.2
South Eastern A	8.2	11.3	13.1
South Eastern B	9.2	9.1	12.0
North Central	11.4	13.6	14.4
County			
Bomi	(4.9)	(12.8)	(13.1)
Bong	10.7	13.6	14.0
Gbarpolu	(8.8)	11.9	(13.2)
Grand Bassa	8.2	7.7	10.3
Grand Cape Mount	7.7	11.2	14.3
Grand Gedeh	7.9	(14.9)	(15.1)
Grand Kru	(9.6)	(9.5)	(12.7)
Lofa	7.8	15.5	(19.3)
Margibi	9.5	12.6	13.8
Maryland	8.0	9.0	10.5
Montserrado	4.7	11.0	12.1
Nimba	11.9	13.0	14.2
River Cess	9.6	6.8	11.9
River Gee	(11.9)	(8.3)	(12.4)
Sinoe	(6.4)	11.7	(12.6)
Education			
No education	11.2	12.5	13.9
Primary	7.7	11.7	13.6
Secondary and higher	6.1	11.0	11.9
Wealth quintile			
Lowest	11.8	12.2	14.1
Second	9.9	12.6	13.5
Middle	7.5	10.8	13.1
Fourth	6.8	11.6	12.3
Highest	(4.3)	9.8	11.5
Total	8.3	11.6	13.1

Note: Medians are based on the status at the time of the survey (current status). Figures in parentheses are based on 25-49 unweighted cases.
[1] Includes births for which mothers are either still amenorrheic or still abstaining (or both) following birth

Postpartum insusceptibility decreases with increasing educational level and wealth quintile. Median duration of postpartum insusceptibility is 13.9 months for women with no education and decreases to 11.9 months for women with at least some secondary education. Among women in the lowest wealth quintile, median duration of postpartum insusceptibility is 14.1 months, compared with 11.5 months among women in the highest wealth quintile.

5.8 MENOPAUSE

Fecundity refers to the ability to have children. The risk of pregnancy declines with age as increasing proportions of women become infecund. Although the onset of infecundity is difficult to determine for an individual woman, there are ways of estimating it for a population. Table 5.8 presents data on menopause, an indicator of decreasing exposure to the risk of pregnancy for women age 30 and older.

The percentage of women who have reached menopause refers to the population of women who are neither pregnant nor postpartum amenorrheic and have not had a menstrual period in the six months preceding the survey, or women who report being menopausal. Table 5.8

Table 5.8 Menopause

Percentage of women age 30-49 who are menopausal, by age, Liberia 2013

Age	Percentage menopausal[1]	Number of women
30-34	4.0	1,199
35-39	3.6	1,179
40-41	9.9	380
42-43	13.3	282
44-45	24.0	311
46-47	36.8	229
48-49	55.7	326
Total	12.9	3,906

[1] Percentage of all women who are not pregnant and not postpartum amenorrheic whose last menstrual period occurred six or more months preceding the survey

shows that overall, 13 percent of women age 30-49 are menopausal. The proportion of menopausal women increases with age, from 4 percent among women age 30-34 to 56 percent among women age 48-49.

5.9 AGE AT FIRST BIRTH

The age at which childbearing begins has an impact on the health and welfare of a mother and her children. In many countries, the postponement of first births has contributed to an overall fertility decline. Table 5.9 shows the distribution of women by age at first birth, according to their current age. The median age at first birth in Liberia is around 19 for most age groups, which is similar to results from the 2007 LDHS. However, more detailed analysis of trends in age at first birth does reveal a decline in early childbearing. For example, whereas 45 percent of women currently age 45-49 gave birth by age 18, only 37 percent of women currently age 20-24 had their first birth by age 18.

Table 5.9 Age at first birth

Percentage of women age 15-49 who gave birth by exact ages, percentage who have never given birth, and median age at first birth, according to current age, Liberia 2013

	Percentage who gave birth by exact age					Percentage who have never given birth	Number of women	Median age at first birth
Current age	15	18	20	22	25			
15-19	2.5	na	na	na	na	74.2	2,080	a
20-24	5.9	37.0	62.6	na	na	20.3	1,642	19.0
25-29	6.4	34.1	60.6	79.4	89.6	6.3	1,611	19.2
30-34	7.2	38.7	62.2	79.0	89.6	2.5	1,199	18.9
35-39	8.9	43.2	62.1	75.2	85.7	2.3	1,179	18.8
40-44	12.0	47.4	65.7	79.4	89.6	1.8	812	18.3
45-49	9.1	45.2	66.2	78.8	87.1	0.5	716	18.4
20-49	7.8	39.6	62.7	na	na	7.1	7,159	18.9
25-49	8.3	40.4	62.8	78.4	88.4	3.2	5,517	18.9

na = Not applicable due to censoring
a = Omitted because less than 50 percent of women had a birth before reaching the beginning of the age group

5.10 MEDIAN AGE AT FIRST BIRTH BY BACKGROUND CHARACTERISTICS

Table 5.10 summarizes the median age at first birth for different age cohorts across residential, educational, and wealth status subgroups. For women age 25-49, the median age at first birth is higher in urban areas than in rural areas (19.2 versus 18.4 years). For this same cohort, age at first birth increases slightly with increasing levels of education and wealth. Women with no education or at least some primary school have their first birth about one year earlier than women with secondary or higher education (18.5 versus 19.6). Women in the lowest wealth quintile have their first birth 1.4 years earlier than women in the highest wealth quintile (18.4 versus 19.8 years).

Table 5.10 Median age at first birth

Median age at first birth among women age 20-49 and age 25-49, according to background characteristics, Liberia 2013

Background characteristic	Women age	
	20-49	25-49
Residence		
Urban	19.3	19.2
Greater Monrovia	19.6	19.5
Other urban	18.9	18.9
Rural	18.3	18.4
Region		
North Western	18.3	18.4
South Central	19.3	19.3
South Eastern A	18.2	18.2
South Eastern B	18.5	18.5
North Central	18.6	18.5
County		
Bomi	18.2	18.2
Bong	18.2	18.2
Gbarpolu	18.5	18.5
Grand Bassa	18.2	18.1
Grand Cape Mount	18.3	18.5
Grand Gedeh	18.0	18.0
Grand Kru	18.8	19.0
Lofa	18.3	18.4
Margibi	19.4	19.5
Maryland	18.4	18.4
Montserrado	19.5	19.4
Nimba	18.9	18.9
River Cess	17.8	17.7
River Gee	17.9	17.9
Sinoe	18.6	18.7
Education		
No education	18.4	18.5
Primary	18.4	18.5
Secondary and higher	19.8	19.6
Wealth quintile		
Lowest	18.3	18.4
Second	18.1	18.2
Middle	18.8	18.9
Fourth	19.1	19.1
Highest	a	19.8
Total	18.9	18.9

a = Omitted because less than 50 percent of the women had a birth before reaching the beginning of the age group

5.11 TEENAGE PREGNANCY AND MOTHERHOOD

The issue of adolescent fertility is important for both health and social reasons. Children born to very young mothers are at increased risk of sickness and death. Teenage mothers are more likely to experience adverse pregnancy outcomes and are also more constrained in their ability to pursue educational opportunities than young women who delay childbearing.

Table 5.11 shows the percentage of women age 15-19 who have given birth or were pregnant with their first child at the time of the survey, according to selected background characteristics. Overall, 31 percent of women age 15-19 have begun childbearing. The proportion of teenagers who have had a live birth rises rapidly with age, increasing from 2 percent at age 15 to 54 percent at age 19. Rural teenagers, those with no education, and those in the lower wealth quintiles tend to start childbearing earlier than their urban, better educated, and wealthier peers.

Table 5.11 Teenage pregnancy and motherhood

Percentage of women age 15-19 who have had a live birth or who are pregnant with their first child, and percentage who have begun childbearing, by background characteristics, Liberia 2013

Background characteristic	Percentage of women age 15-19 who:		Percentage who have begun childbearing	Number of women
	Have had a live birth	Are pregnant with first child		
Age				
15	2.0	1.8	3.8	517
16	11.4	7.4	18.7	457
17	27.3	7.0	34.3	336
18	45.7	6.3	52.0	380
19	53.7	6.2	59.9	390
Residence				
Urban	21.2	5.1	26.3	1,400
Greater Monrovia	15.7	5.2	20.9	858
Other urban	30.0	4.9	35.0	542
Rural	35.2	6.4	41.6	680
Region				
North Western	26.7	7.4	34.1	168
South Central	19.1	4.8	23.9	1,228
South Eastern A	48.2	7.4	55.6	82
South Eastern B	35.6	7.4	43.0	116
North Central	36.3	6.0	42.3	486
County				
Bomi	20.9	11.2	32.1	52
Bong	41.5	6.4	47.9	147
Gbarpolu	31.2	7.1	38.3	37
Grand Bassa	38.8	6.7	45.5	88
Grand Cape Mount	28.5	5.0	33.5	79
Grand Gedeh	52.2	5.7	57.9	29
Grand Kru	41.0	5.3	46.3	37
Lofa	34.4	4.0	38.5	85
Margibi	19.5	2.5	22.0	200
Maryland	31.8	8.1	39.9	64
Montserrado	17.2	5.1	22.3	940
Nimba	33.9	6.4	40.3	253
River Cess	47.3	9.9	57.2	22
River Gee	38.4	9.7	48.1	15
Sinoe	45.1	7.1	52.2	31
Education				
No education	41.3	7.5	48.9	144
Primary	24.8	5.9	30.7	1,155
Secondary and higher	24.5	4.5	29.1	781
Wealth quintile				
Lowest	39.9	7.1	47.0	247
Second	38.4	6.1	44.5	296
Middle	33.3	6.2	39.6	399
Fourth	23.9	3.4	27.3	489
Highest	11.5	5.8	17.3	650
Total	25.8	5.5	31.3	2,080

FERTILITY PREFERENCES

6

Key Findings

- More than three in five married women (63 percent) and men (62 percent) would like to have another child.
- Approximately three in ten married women and men want no more children.
- The ideal number of children is 4.8 for all women and 5.0 for all men.
- Overall, 69 percent of all births were wanted at the time of conception, 26 percent were reported as mistimed (wanted later), and 5 percent were unwanted.
- The total wanted fertility rate is 4.0 children per woman, compared with the actual fertility rate of 4.7 children per woman.

I nformation on fertility preferences is of considerable importance to family planning program planners because it allows an assessment of the need for contraception, whether for spacing or limiting births, and of the extent of unwanted and mistimed pregnancies. Data on fertility preferences can also be useful as an indicator of the direction that future fertility patterns may take.

In the 2013 LDHS, respondents were asked whether they wanted more children and, if so, how long they would prefer to wait before the next child. They were also asked, if they could start afresh, how many children they would want.

6.1 FERTILITY PREFERENCES BY NUMBER OF LIVING CHILDREN

Table 6.1 presents fertility preferences among currently married women and men, by number of living children. When classifying people according to their fertility preferences, the desired timing of the next birth is taken into account. Sixty-three percent of currently married women in Liberia would like to have another child. Among those who want another child, about one-third want a child within the coming two years, while most (about two-thirds) would prefer to wait two or more years before having their next birth. Three in ten married women want no more children. Thus, the majority of women (69 percent) want either to delay their next birth (for two or more years into the future) or end childbearing altogether. The preferences of currently married men generally mirror those of currently married women.

As expected, the desire to have children depends on the number of living children a woman or man already has. Seven in ten married women with no children want to have a child soon (within two years). In contrast, the desire to have more children decreases dramatically among women who already have several living children. The proportion reporting that they do not want another child increases from 21 percent among women with three children to 67 percent among women with six or more children. Here too, the preferences of currently married men generally agree with those of currently married women.

Table 6.1 Fertility preferences by number of living children

Percent distribution of currently married women and currently married men age 15-49 by desire for children, according to number of living children, Liberia 2013

Desire for children	Number of living children							Total
	0	1	2	3	4	5	6+	
WOMEN[1]								
Have another soon[2]	70.7	30.5	24.2	18.7	14.4	9.3	10.0	20.5
Have another later[3]	18.1	57.0	54.5	49.0	32.4	23.9	13.6	39.2
Have another, undecided when	5.1	7.1	6.0	3.4	2.5	0.4	0.4	3.6
Undecided	0.6	3.1	3.4	5.1	4.6	4.5	4.0	4.0
Want no more	0.1	1.4	11.0	20.5	41.9	58.1	66.5	29.6
Sterilized[4]	0.0	0.0	0.0	0.0	1.1	0.0	0.6	0.3
Declared infecund	5.4	0.9	0.7	3.3	3.0	3.8	4.5	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	207	836	1,100	969	787	634	851	5,386
MEN[5]								
Have another soon[2]	57.5	23.2	25.7	25.7	17.3	15.7	11.8	21.3
Have another later[3]	37.3	60.7	50.0	40.4	31.2	23.7	21.5	38.6
Have another, undecided when	0.6	4.0	3.9	2.1	2.3	1.8	1.4	2.5
Undecided	3.3	5.2	6.3	12.4	11.2	12.3	8.8	9.0
Want no more	0.6	6.3	13.8	19.1	37.9	46.5	55.2	28.1
Sterilized[4]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Declared infecund	0.0	0.0	0.1	0.3	0.0	0.0	1.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of men	68	359	414	394	303	258	423	2,218

Note: Totals include 7 women and 4 men with information missing on the desire for children.
[1] The number of living children includes the current pregnancy.
[2] Wants next birth within 2 years
[3] Wants to delay next birth for 2 or more years
[4] Includes both female and male sterilization
[5] The number of living children includes one additional child if respondent's wife is pregnant (or if any wife is pregnant for men with more than one current wife).

6.2   DESIRE TO LIMIT CHILDBEARING BY BACKGROUND CHARACTERISTICS

Tables 6.2.1 and 6.2.2 present the percentages of currently married women and men who want no more children, by number of living children and selected background characteristics. Overall, three in ten married women want no more children. The desire to limit childbearing is slightly higher among rural women (35 percent) than among urban women (26 percent).

The association between education and the desire to limit childbearing is most evident when women weigh whether or not to have a fifth or sixth child. By the time they have four children, for example, about one-third of women who have no education or primary education only, compared with two-thirds of women who have at least some secondary education, want no more children. Similarly, the association between wealth and the desire to limit childbearing is most evident when women weigh whether or not to have a fifth or sixth child. For example, 35 percent of women in the lowest wealth quintile, compared with 60 percent of women in the highest wealth quintile, want no more children by the time they have four children.

For currently married men, Table 6.2.2 suggests that residence, education, and wealth are not strongly associated with the desire to limit childbearing. However, there are too few cases to make comparisons by number of children.

Table 6.2.1 Desire to limit childbearing: Women

Percentage of currently married women age 15-49 who want no more children, by number of living children, according to background characteristics, Liberia 2013

Background characteristic	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Residence								
Urban	0.2	0.6	11.2	19.2	47.3	64.1	64.0	25.9
Greater Monrovia	(0.0)	0.4	14.1	16.2	57.2	73.8	(68.1)	25.1
Other urban	0.6	0.9	6.5	23.5	37.2	52.0	62.3	26.9
Rural	0.0	3.4	10.6	21.8	38.8	52.9	69.0	34.5
Region								
North Western	(1.4)	1.8	8.3	18.7	42.0	58.8	73.4	33.9
South Central	0.0	1.1	13.3	21.8	48.5	66.2	69.8	28.2
South Eastern A	(0.0)	4.8	12.4	19.8	27.5	50.6	68.3	33.4
South Eastern B	(0.0)	2.8	17.6	28.7	49.7	54.2	68.8	39.7
North Central	(0.0)	1.2	6.1	17.3	38.2	48.0	62.2	28.1
County								
Bomi	*	(4.1)	5.3	11.8	46.2	(58.9)	(63.1)	29.9
Bong	*	(2.6)	7.3	15.4	34.0	44.3	57.7	28.3
Gbarpolu	*	(0.0)	7.3	24.8	(29.6)	46.1	71.5	28.8
Grand Bassa	*	(2.2)	9.0	26.7	42.7	58.0	61.1	35.3
Grand Cape Mount	*	(1.8)	10.2	19.9	44.2	63.9	77.6	37.8
Grand Gedeh	*	1.8	6.6	15.8	(18.9)	(46.8)	69.3	27.1
Grand Kru	*	*	(22.1)	37.1	(45.8)	(51.9)	59.6	41.3
Lofa	*	0.8	4.8	19.7	52.1	(51.2)	(65.4)	28.3
Margibi	*	5.0	12.2	40.7	26.4	55.1	83.4	34.4
Maryland	*	(5.6)	13.3	22.0	(54.8)	(55.8)	79.4	40.0
Montserrado	(0.0)	0.4	13.8	16.1	55.1	72.0	68.3	25.7
Nimba	*	0.5	5.9	18.2	36.3	51.6	65.2	27.9
River Cess	*	(0.0)	(10.7)	20.4	(36.6)	60.5	68.4	38.2
River Gee	*	(0.0)	(19.5)	(22.0)	(44.9)	(55.0)	70.0	36.1
Sinoe	*	11.5)	18.8	23.1	29.2	44.9	67.3	35.2
Education								
No education	0.5	3.3	9.9	21.0	37.2	55.3	67.0	36.4
Primary	0.0	1.2	10.5	16.3	36.0	59.4	66.3	25.7
Secondary and higher	0.0	0.6	12.0	23.5	67.3	68.2	69.7	23.6
Wealth quintile								
Lowest	0.0	3.7	9.0	20.2	34.6	44.4	68.4	32.0
Second	(0.9)	2.6	10.4	22.2	38.4	55.9	67.0	35.5
Middle	(0.0)	0.1	7.0	20.1	46.3	60.3	65.1	29.8
Fourth	(0.0)	1.0	13.4	16.6	39.1	64.2	67.5	24.6
Highest	(0.0)	1.0	13.1	24.2	60.0	(74.7)	(69.0)	27.4
Total	0.1	1.4	11.0	20.5	43.0	58.1	67.2	29.9

Note: Women who have been sterilized are considered to want no more children. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] The number of living children includes the current pregnancy

Table 6.2.2 Desire to limit childbearing: Men

Percentage of currently married men age 15-49 who want no more children, by number of living children, according to background characteristics, Liberia 2013

Background characteristic	Number of living children[1]							Total
	0	1	2	3	4	5	6+	
Residence								
Urban	(0.0)	8.3	16.3	19.6	43.8	47.5	58.4	28.1
Greater Monrovia	*	(7.5)	(20.9	(15.3)	*	*	*	27.4
Other urban	*	9.8	8.2	24.6	46.3	28.5	55.5	28.8
Rural	(1.1)	3.1	10.1	18.7	32.5	45.4	53.0	28.2
Region								
North Western	*	3.9	10.4	25.1	44.3	57.0	57.0	32.2
South Central	*	5.5	17.2	17.5	42.9	55.2	65.1	28.1
South Eastern A	*	1.0	5.4	12.6	17.7	(31.2)	49.8	23.2
South Eastern B	*	(7.7)	19.6	14.8	(29.1)	(48.3)	53.7	32.7
North Central	*	9.9	6.5	21.1	34.4	35.5	47.2	26.7
County								
Bomi	*	*	*	(40.2)	*	*	*	43.4
Bong	*	*	(10.3)	(31.7)	(39.4)	*	(48.5)	31.4
Gbarpolu	*	*	*	(23.1)	*	(47.5)	(57.6)	26.8
Grand Bassa	*	*	(0.0)	*	*	*	(58.4)	28.0
Grand Cape Mount	*	*	(11.6)	(16.8)	(45.4)	*	(47.5)	29.8
Grand Gedeh	*	*	*	*	*	*	(34.8)	13.0
Grand Kru	*	*	*	(22.3)	*	*	(45.3)	33.5
Lofa	*	(7.4)	(11.7)	(11.1)	*	(46.9)	(40.1)	24.0
Margibi	*	(0.0)	(16.8)	(23.2)	(48.1)	*	(69.1)	30.2
Maryland	*	*	*	*	*	*	59.7	36.4
Montserrado	*	7.1	19.8	(15.6)	(41.7)	(66.7)	(66.6)	27.5
Nimba	*	(18.6)	(0.0)	(9.7)	(35.4)	(16.6)	48.9	23.8
River Cess	*	*	*	*	*	*	(55.3)	32.1
River Gee	*	*	*	*	*	*	(59.9)	25.4
Sinoe	*	*	*	*	*	*	54.1	24.4
Education								
No education	*	(0.6)	(12.5)	14.7	31.9	38.6	57.9	30.2
Primary	*	7.9	7.0	14.3	33.5	33.4	50.4	24.0
Secondary and higher	(0.9)	6.6	16.2	23.9	43.7	54.8	56.4	29.4
Wealth quintile								
Lowest	*	0.7	15.2	14.2	24.0	42.7	47.2	24.5
Second	*	7.2	3.1	18.0	31.6	34.6	61.9	28.7
Middle	*	4.7	23.5	22.9	53.9	41.8	50.3	32.7
Fourth	*	15.5	22.4	20.4	(34.7)	(55.6)	47.9	27.8
Highest	*	2.7	(3.8)	(21.4)	*	*	(71.6)	27.4
Total	0.6	6.3	13.8	19.1	37.9	46.5	55.2	28.1

Note: Men who have been sterilized or who state in response to the question about desire for children that their wife has been sterilized are considered to want no more children. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] The number of living children includes one additional child if respondent's wife is pregnant (or if any wife is pregnant for men with more than one current wife).

6.3 IDEAL NUMBER OF CHILDREN

Women and men, regardless of marital status, were asked what number of children they would choose to have if they could start afresh. Respondents who had no children were asked, "If you could choose exactly the number of children to have in your whole life, how many would that be?" For respondents who had children, the question was rephrased as follows: "If you could go back to the time when you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?" Responses to these questions are summarized in Table 6.3 for both women and men age 15-49.

The data in the top portion of each panel in Table 6.3 indicate that the vast majority of women and men were able to give a numeric answer to this hypothetical question. Only 4 percent of women and 2 percent

of men gave a non-numeric answer such as "It is up to God," "any number," or "I do not know." Among all women and men, the mean ideal number of children is 4.8 for women and 5.0 for men. Among currently married women and men, the mean ideal number of children is 5.3 for women and 5.6 for men. Overall, 73 percent of women and 70 percent of men ideally would want four or more children.

When interpreting the findings in Table 6.3, it is important to remember that the actual and stated ideal number of children tend to be related. There are several reasons for this. First, to the extent that women are able to fulfil their fertility desires, women who want large families will achieve large families. Second, because women with large families are, on average, older women, they may prefer a greater number of children because of the attitudes towards childbearing to which they were exposed during the early stages of their reproductive lives. Finally, some women may have difficulty admitting that they would prefer fewer children than they currently have if they could begin childbearing again. Such women are likely to report their actual number as their preferred number. Indeed, women who have fewer children do report a smaller ideal number of children than women with more children. The mean ideal number of children among all women with one child is 4.2, compared with 6.9 among all women with six or more children.

The relationship between the actual and ideal number of children is also presented for men in Table 6.3. Men who have fewer children report a smaller ideal number of children than men with more children. For example, the average ideal number of children is 3.9 among all men with one child, compared with 7.9 among all men with six or more children.

Table 6.3 Ideal number of children by number of living children

Percent distribution of women and men 15-49 by ideal number of children, and mean ideal number of children for all respondents and for currently married respondents, according to the number of living children, Liberia 2013

Ideal number of children	Number of living children							Total
	0	1	2	3	4	5	6+	
WOMEN[1]								
0	0.2	0.0	0.2	0.2	0.7	0.2	0.6	0.3
1	1.0	0.7	0.7	0.4	0.1	0.0	0.0	0.5
2	15.3	9.1	5.6	1.9	3.1	3.1	1.4	6.9
3	21.1	24.9	15.7	9.6	7.5	6.6	5.8	15.2
4	38.8	37.2	40.6	31.5	28.4	16.3	12.5	32.1
5	11.0	12.4	15.3	17.6	13.7	13.8	11.6	13.5
6+	10.4	14.1	19.1	34.3	39.9	50.8	59.9	27.3
Non-numeric responses	2.4	1.7	2.8	4.5	6.8	9.2	8.2	4.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	1,987	1,755	1,591	1,222	945	744	995	9,239
Mean ideal number of children for:[2]								
All women	3.9	4.2	4.4	5.2	5.4	6.1	6.9	4.8
Number of women	1,940	1,725	1,546	1,167	881	675	913	8,849
Currently married women	4.5	4.4	4.5	5.3	5.5	6.2	7.0	5.3
Number of currently married women	199	820	1,067	920	730	573	780	5,089
MEN[3]								
0	1.9	0.4	0.0	0.0	1.0	0.0	0.7	0.9
1	0.9	1.9	0.0	0.0	0.3	0.0	0.4	0.7
2	17.7	13.3	6.7	2.2	6.0	2.8	1.7	10.5
3	17.9	28.1	13.7	16.0	5.2	6.9	3.5	15.3
4	31.0	32.2	41.2	30.1	25.5	15.8	15.9	29.3
5	10.9	10.9	16.5	20.1	16.1	28.8	10.0	14.1
6+	17.8	11.8	18.7	30.4	43.8	44.3	63.8	27.0
Non-numeric responses	1.9	1.5	3.2	1.1	2.0	1.5	4.0	2.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	1,572	563	518	443	312	276	433	4,118
Mean ideal number of children for:[2]								
All men	4.3	3.9	4.6	5.2	5.6	6.2	7.9	5.0
Number of men	1,542	555	501	438	306	272	416	4,030
Currently married men	4.3	3.9	4.6	5.3	5.6	6.3	7.9	5.6
Number of currently married men	62	353	403	389	297	254	406	2,164

[1] The number of living children includes current pregnancy for women.
[2] Means are calculated excluding respondents who gave non-numeric responses.
[3] The number of living children includes one additional child if respondent's wife is pregnant (or if any wife is pregnant for men with more than one current wife).

6.4 MEAN IDEAL NUMBER OF CHILDREN BY BACKGROUND CHARACTERISTICS

Table 6.4 shows the mean ideal number of children among all women age 15-49, by background characteristics. The mean ideal number of children increases consistently with age, from 4.0 among women age 15-19 to 6.4 among women age 45-49. Women in rural areas have higher family size norms than those in urban areas (5.4 and 4.5 children, respectively). Among urban areas, women in Greater Monrovia have lower family size norms than those in other urban areas (4.2 and 4.9 children, respectively).

The mean ideal number of children consistently decreases with increasing education, differing by almost two children between the lowest and highest education categories. The mean ideal number of children also decreases with increasing wealth quintile, also differing by almost two children between the lowest and highest wealth quintiles (5.8 and 4.0, respectively).

6.5 FERTILITY PLANNING STATUS

The issue of unplanned and unwanted fertility was investigated in the 2013 LDHS by asking women who had births during the five years before the survey whether the births were wanted at the time (planned), wanted at a later time (mistimed), or not wanted at all (unwanted). The responses to those questions provide a measure of the degree to which Liberian couples have been successful in controlling childbearing. In addition, the information can be used to estimate the effect on fertility if unwanted pregnancies had been prevented.

Questions pertaining to the planning status of recent births required the female respondent to recall accurately her wishes at one or more points in the past five years and report them honestly. These questions are subject to recall and accuracy bias in remembering how she felt about a particular pregnancy. She also may not be willing to admit that she had not wanted a child at its conception. Conversely, if the child has become an economic or health burden, she may now claim that it was unwanted. Despite these potential problems of comprehension, recall, and truthfulness, results from previous surveys have yielded plausible responses, with the most probable effect of biases in the answers being net underestimation of the level of unwanted fertility.

Table 6.4 Mean ideal number of children by background characteristics

Mean ideal number of children for all women age 15-49 by background characteristics, Liberia 2013

Background characteristic	Mean	Number of women[1]
Age		
15-19	4.0	2,032
20-24	4.3	1,592
25-29	4.7	1,573
30-34	5.2	1,141
35-39	5.4	1,118
40-44	6.0	755
45-49	6.4	638
Residence		
Urban	4.5	5,439
Greater Monrovia	4.2	3,243
Other urban	4.9	2,197
Rural	5.4	3,410
Region		
North Western	5.1	806
South Central	4.4	4,665
South Eastern A	5.9	458
South Eastern B	4.9	554
North Central	5.4	2,366
County		
Bomi	4.8	240
Bong	5.3	786
Gbarpolu	5.0	173
Grand Bassa	5.8	419
Grand Cape Mount	5.4	393
Grand Gedeh	6.1	166
Grand Kru	5.1	209
Lofa	5.3	440
Margibi	4.4	711
Maryland	4.7	249
Montserrado	4.2	3,536
Nimba	5.5	1,140
River Cess	5.5	123
River Gee	5.1	96
Sinoe	6.0	169
Education		
No education	5.8	2,856
Primary	4.8	2,768
Secondary and higher	4.0	3,224
Wealth quintile		
Lowest	5.8	1,479
Second	5.4	1,547
Middle	4.9	1,726
Fourth	4.5	1,974
Highest	4.0	2,123
Total	4.8	8,849

[1] Number of women who gave a numeric response

Table 6.5 shows the distribution of births in the five years before the survey by whether a birth was wanted then, wanted later, or not wanted. Overall, 69 percent of all births were wanted at the time of conception, 26 percent were reported as mistimed (wanted later), and 5 percent were unwanted. The proportion of unwanted births is greater for births that are fourth order or more (10 percent) than for first births (less than 1 percent). Similarly, a much larger proportion of births to older women are unwanted than are those to younger women. Whereas only 1 percent of births to women age 20-24 are unwanted, 35 percent of births to women age 45-49 are unwanted.

Table 6.5 Fertility planning status

Percent distribution of births to women age 15-49 in the five years preceding the survey (including current pregnancies), by planning status of the birth, according to birth order and mother's age at birth, Liberia 2013

Birth order and mother's age at birth	Planning status of birth			Total	Number of births
	Wanted then	Wanted later	Wanted no more		
Birth order					
1	60.1	39.7	0.2	100.0	1,786
2	71.5	27.3	1.1	100.0	1,467
3	75.3	22.8	1.7	100.0	1,118
4+	71.8	17.8	10.2	100.0	2,896
Mother's age at birth					
<20	54.3	45.1	0.4	100.0	1,507
20-24	70.6	28.3	1.0	100.0	1,940
25-29	76.0	20.3	3.5	100.0	1,628
30-34	75.4	17.1	7.4	100.0	1,144
35-39	74.3	12.3	12.8	100.0	743
40-44	68.3	10.5	21.3	100.0	260
45-49	55.8	9.5	34.6	100.0	45
Total	69.4	25.9	4.6	100.0	7,267

Note: Total includes 10 women for whom information on planning status of the birth is missing.

6.6   WANTED FERTILITY RATES

Responses to the question on the ideal number of children are used to calculate a total "wanted" fertility rate. This measure is calculated in the same manner as the conventional total fertility rate, except that unwanted births are excluded from the numerator. A birth is considered wanted if the number of living children at the time of conception is less than the ideal number of children currently reported by the respondent. Wanted fertility rates express the level of fertility that theoretically would result if all unwanted births were prevented. Comparison of the actual fertility rate with the wanted rate indicates the potential demographic impact of eliminating unwanted births.

Table 6.6 shows that the wanted fertility rate is 4.0 children, compared with the actual fertility rate of 4.7 children (rates calculated over the three years prior to the survey). In other words, Liberian women are currently having an average of 0.7 children more than they actually want. The table also shows that regardless of place of residence, level of education, and wealth quintile, the wanted fertility rate is lower than the actual total fertility rate.

Women in rural areas have a larger gap between their actual and wanted fertility (1.0) than do women in urban areas (0.5). Women with higher levels of education as well as those in the higher wealth quintiles seem to be the most successful in achieving their fertility goals; that is, the gap between wanted and actual fertility narrows as education and wealth quintile increase.

Table 6.6 Wanted fertility rates

Total wanted fertility rates and total fertility rates for the three years preceding the survey, by background characteristics, Liberia 2013

Background characteristic	Total wanted fertility rates	Total fertility rate
Residence		
Urban	3.3	3.8
Greater Monrovia	2.7	3.2
Other urban	4.1	4.8
Rural	5.1	6.1
Region		
North Western	4.8	5.8
South Central	3.2	3.8
South Eastern A	5.6	6.5
South Eastern B	4.5	5.9
North Central	4.8	5.6
Education		
No education	4.9	5.9
Primary	4.3	5.1
Secondary and higher	2.9	3.4
Wealth quintile		
Lowest	5.6	6.6
Second	5.1	5.9
Middle	4.4	5.2
Fourth	3.3	3.9
Highest	2.4	2.8
Total	4.0	4.7

Note: Rates are calculated based on births to women age 15-49 in the period 1-36 months preceding the survey. The total fertility rates are the same as those presented in Table 5.2.

FAMILY PLANNING

<div style="text-align: right">**7**</div>

> **Key Findings**
>
> - Knowledge of at least one method of contraception is nearly universal in Liberia: 98 percent of women and 95 percent of men have heard of at least one method.
> - The contraceptive prevalence rate has increased to 20 percent among currently married women. In 2007, this rate was only 11 percent.
> - Among currently married women, the contraceptive method most commonly used is injectables (11 percent).
> - A majority of modern contraceptive users obtain their contraceptives from the public sector (64 percent). Government hospitals are the most common public source (30 percent), followed by government health clinics (27 percent).
> - Seventy-five percent of modern contraceptive users were informed of side effects or health problems associated with the method they used; 73 percent knew what to do if they experienced side effects, and 72 percent had been told of other methods available.
> - Only 13 percent of women know that they are most fertile midway between two menstrual periods.
> - Thirty-one percent of currently married women have an unmet need for family planning services (22 percent for spacing and 9 percent for limiting births).
> - Among currently married women, only 39 percent of the demand for family planning has been satisfied.

F amily planning refers to a conscious effort by a couple to limit or space the number of children they want to have through the use of contraceptives. This chapter presents results from the 2013 LDHS on a number of aspects of contraception: knowledge of specific contraceptive methods, attitudes and behavior towards contraceptive use, current use, and sources of current contraceptive methods. This focus is on women who are sexually active because these women have the greatest risk of exposure to pregnancy and therefore the greatest need for regulating their fertility. The results of interviews with men are presented along with those of women because men and women play an equally important role in making decisions about reproductive health and family planning.

7.1 KNOWLEDGE OF CONTRACEPTIVE METHODS

Information about contraceptive methods was collected by asking respondents if they had heard of various methods that a couple can use to delay or avoid a pregnancy. Specifically, the interviewer named a method, described it, and then asked whether the respondent had heard of it. In all, the interviewer asked about thirteen different contraceptive methods. Provision was also made in the questionnaire to record any additional methods the respondent had heard of but was not asked about by the interviewer.

Contraceptive methods are classified into two broad categories, namely modern methods and traditional methods. Modern methods include female sterilization, male sterilization, the pill, the intrauterine

device (IUD), injectables, implants, the male condom, the female condom, the lactational amenorrhea method (LAM), emergency contraception, and the CycleBeads® or standard days method. Traditional methods include rhythm (periodic abstinence), withdrawal, and various folk methods such as use of strings and herbs.

Table 7.1 shows that knowledge of contraceptive methods is almost universal in Liberia, with 98 percent of all women and 95 percent of all men knowing at least one method of contraception. Modern methods are more widely known than traditional methods; 98 percent of all women know of a modern method, while 55 percent know of a traditional method. Similarly, 95 percent of all men know of a modern method, while 58 percent know of a traditional method.

Table 7.1 Knowledge of contraceptive methods

Percentage of all respondents, currently married respondents and sexually active unmarried respondents age 15-49 who know any contraceptive method, by specific method, Liberia 2013

	Women			Men		
Method	All women	Currently married women	Sexually active unmarried women[1]	All men	Currently married men	Sexually active unmarried men[1]
Any method	98.2	98.6	99.2	94.8	97.9	98.4
Any modern method	98.2	98.6	99.2	94.8	97.9	98.3
Female sterilization	42.1	44.3	42.8	39.7	45.3	46.3
Male sterilization	19.9	19.9	23.1	20.0	23.9	24.1
Pill	97.1	97.7	98.6	77.6	83.6	85.0
IUD	43.5	45.4	48.8	25.2	28.7	31.6
Injectables	94.0	94.6	96.6	66.8	72.9	75.7
Implants	86.5	87.0	91.3	50.4	55.3	61.5
Male condom	94.9	95.2	97.9	94.2	97.4	98.2
Female condom	69.3	69.7	78.6	56.1	62.7	64.8
Lactational amenorrhea (LAM)	7.8	8.2	9.7	8.8	9.2	13.1
Emergency contraception	28.7	28.8	35.6	25.3	28.5	33.4
Cyclebeads/Standard Days	20.1	20.4	24.4	12.3	15.6	12.5
Any traditional method	55.4	57.7	60.1	58.0	66.5	69.7
Rhythm	39.9	40.9	46.0	36.9	41.4	47.5
Withdrawal	48.1	50.0	54.2	55.9	64.1	68.3
Other	2.9	3.4	1.3	2.9	3.7	2.3
Mean number of methods known by respondents	6.9	7.1	7.5	5.7	6.3	6.6
Number of respondents	9,239	5,386	1,548	4,118	2,218	729

[1] Had last sexual intercourse within 30 days preceding the survey

Women in Liberia have heard of an average of seven contraceptive methods, and men have heard of an average of six methods. Both figures are an increase from those reported in the 2007 LDHS (four methods each for women and men). The pill, male condoms, and injectables are the contraceptive methods most widely known by women in Liberia. Among all women age 15-49, 97 percent have heard of the pill, 95 percent have heard of the male condom, and 94 percent have heard of injectables. Each of these figures is markedly higher than those reported in the 2007 LDHS (82 percent, 79 percent, and 74 percent, respectively). Knowledge of several other modern methods has also dramatically increased. For example, according to the 2013 LDHS, 87 percent of women have heard of implants, 69 percent know of the female condom, and 44 percent are familiar with the IUD. By comparison, according to the 2007 LDHS, only 6 percent of women had heard of implants, 24 percent had heard of the female condom, and 30 percent had heard of the IUD.

The most well-known methods of contraception among all men age 15-49 are the male condom (94 percent), the pill (78 percent), and injectables (67 percent). The proportion of men who have heard of each of these methods as well as implants, female condoms, and the IUD is higher than in the 2007 LDHS, just as it is

for women. The lactational amenorrhea method (LAM) is the least-known modern contraceptive method among both men (9 percent) and women (8 percent).

Knowledge of at least one contraceptive method is higher among currently married women and men than among all women and all men, but varies only minimally by background characteristics (data not shown). For example, for all age groups of currently married women and men, the percentage who know at least one modern family planning method exceeds 95 percent (data not shown).

7.2 CURRENT USE OF CONTRACEPTION

Prevalence of contraceptive use among women in Liberia at the time of the survey is one of the principal determinants of their fertility. Changes in prevalence that have occurred over time can indicate the overall success of family planning programs in Liberia.

Contraceptive use among all women, currently married women, and sexually active unmarried women, age 15-49, is presented in Table 7.2 The contraceptive prevalence rate (CPR), or the percentage of currently married women in Liberia who use a contraceptive method, is 20 percent, while the CPR for modern contraceptive methods in the country is 19 percent. Among currently married women, the contraceptive method most commonly used is injectables (11 percent). The other modern methods used by currently married women are the pill (5 percent) and implants (2 percent). Less than 1 percent of currently married women use female sterilization, the male condom, or other modern methods.

The use of modern contraceptive methods among currently married women increases with age, from 13 percent of those age 15-19 to 23 percent of those ages 20-24, 25-29, and 30-34. Later, use gradually falls to a low of 6 percent among women age 45-49. A similar pattern emerges in the use of injectables, which increase from 11 percent to 15 percent among currently married women age 15-19, 20-24, and 25-29 before declining to a low of 2 percent among women age 45-49.

A comparison between CPRs for modern contraceptive methods in the 2007 LDHS and 2013 LDHS shows increases in current use of any modern method (from 10 percent to 19 percent) among currently married women. These increases between the two surveys are seen for all age groups.

The overall level of use of modern family planning methods is higher for sexually active unmarried women (35 percent) than for currently married women (19 percent). The most notable difference is that, while only 11 percent of currently married women use injectables, 22 percent of sexually active unmarried women use them. Use of modern contraceptive methods by sexually active unmarried women has increased strikingly up to 35 percent from 23 percent reported in the 2007 LDHS.

Table 7.2 Current use of contraception by age

Percent distribution of all women, currently married women, and sexually active unmarried women, age 15-49, by contraceptive method currently used, according to age, Liberia 2013

Age	Any method	Any modern method	Modern method						Any traditional method	Traditional method			Not currently using	Total	Number of women
			Female sterilization	Pill	Inject-ables	Im-plants	Male condom	Other modern method		Rhythm	With-drawal	Other			
ALL WOMEN															
15-19	17.2	16.4	0.0	2.6	9.8	2.4	1.5	0.0	0.8	0.8	0.0	0.0	82.8	100.0	2,080
20-24	28.6	27.3	0.0	5.5	17.8	2.7	1.2	0.1	1.2	1.2	0.1	0.0	71.4	100.0	1,642
25-29	26.8	24.6	0.0	4.0	16.2	2.9	1.4	0.0	2.1	2.0	0.1	0.0	73.2	100.0	1,611
30-34	25.2	24.9	0.0	6.7	14.2	2.5	0.9	0.5	0.3	0.3	0.0	0.0	74.8	100.0	1,199
35-39	21.6	20.7	0.4	6.0	11.1	2.2	0.6	0.4	0.9	0.9	0.0	0.0	78.4	100.0	1,179
40-44	17.2	15.1	0.5	4.6	8.7	1.1	0.1	0.1	2.1	2.0	0.0	0.1	82.8	100.0	812
45-49	7.3	6.2	1.0	0.9	3.2	0.6	0.2	0.2	1.2	1.2	0.0	0.0	92.7	100.0	716
Total	21.7	20.5	0.2	4.4	12.5	2.3	1.0	0.2	1.2	1.2	0.0	0.0	78.3	100.0	9,239
CURRENTLY MARRIED WOMEN															
15-19	13.2	13.2	0.0	2.0	10.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	86.8	100.0	299
20-24	23.1	22.5	0.0	5.9	14.6	1.8	0.2	0.0	0.6	0.6	0.0	0.0	76.9	100.0	862
25-29	24.9	22.9	0.1	4.3	14.5	3.1	0.9	0.1	2.0	1.8	0.2	0.0	75.1	100.0	1,168
30-34	22.8	22.5	0.0	6.8	12.6	2.2	0.8	0.1	0.3	0.3	0.0	0.0	77.2	100.0	957
35-39	21.2	20.3	0.4	6.5	10.1	2.6	0.2	0.5	0.9	0.9	0.0	0.0	78.8	100.0	924
40-44	16.8	14.7	0.6	4.9	7.8	1.2	0.1	0.1	2.1	2.0	0.0	0.1	83.2	100.0	619
45-49	7.6	6.2	1.2	1.2	2.4	0.8	0.3	0.2	1.5	1.5	0.0	0.0	92.4	100.0	557
Total	20.2	19.1	0.3	5.0	11.2	2.1	0.4	0.2	1.1	1.1	0.0	0.0	79.8	100.0	5,386
SEXUALLY ACTIVE UNMARRIED WOMEN[1]															
15-19	32.9	31.0	0.0	5.4	16.4	4.8	4.4	0.0	1.9	1.8	0.0	0.1	67.1	100.0	623
20-24	42.7	40.3	0.0	5.9	27.4	4.4	2.4	0.2	2.3	2.1	0.2	0.0	57.3	100.0	425
25-29	41.8	37.6	0.0	4.3	25.6	2.3	5.3	0.1	4.2	4.2	0.0	0.0	58.2	100.0	215
30-34	44.1	43.1	0.0	9.6	23.3	3.0	2.0	5.2	1.0	1.0	0.0	0.0	55.9	100.0	110
35-39	32.3	29.9	0.0	7.0	22.4	0.5	0.0	0.0	2.4	2.4	0.0	0.0	67.7	100.0	94
40-44	(26.7)	(22.8)	(0.0)	(3.7)	(19.1)	(0.0)	(0.0)	(0.0)	(4.0)	(4.0)	(0.0)	(0.0)	(73.3)	100.0	40
45-49	(13.8)	(13.8)	(0.0)	(0.0)	(13.8)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)	(86.2)	100.0	41
Total	36.9	34.6	0.0	5.6	21.6	3.7	3.3	0.4	2.3	2.2	0.1	0.0	63.1	100.0	1,548

Note: If more than one method is used, only the most effective method is considered in this tabulation. Users of IUD, Cyclebeads/Standard Days, and lactational amenorrhea method (LAM) are included in any method, any modern method, and other modern method categories. Figures in parentheses are based on 25-49 unweighted cases.
[1] Women who have had sexual intercourse within the 30 days preceding the survey

7. 3   CURRENT USE OF CONTRACEPTION BY BACKGROUND CHARACTERISTICS

Table 7.3.1 presents information on current use of contraceptives among currently married women age 15-49. Current use of any method of contraception varies by number of living children, residence, region, county, education, and wealth quintile. Few married women without children use any contraceptive method (6 percent), while 21 percent of married women with any living children use a contraceptive method.

Women in rural areas are less likely to use contraceptive methods than their counterparts in urban areas (17 percent compared with 23 percent). Among regions, use of contraceptive methods is highest in the South Central (24 percent) and lowest in the North Central (14 percent). By county, contraceptive use is highest in River Gee (31 percent) and Montserrado (28 percent) and lowest in Grand Bassa (8 percent) and Nimba (9 percent).

Table 7.3.1 Current use of contraception by background characteristics

Percent distribution of currently married women age 15-49 by contraceptive method currently used, according to background characteristics, Liberia 2013

Background characteristic	Any method	Any modern method	Modern method						Any tradi-tional method	Traditional method			Not currently using	Total	Number of women
			Female sterili-zation	Pill	Inject-ables	Implants	Male condom	Other modern method		Rhythm	With-drawal	Other			
Number of living children															
0	6.4	5.5	0.0	1.4	4.0	0.1	0.0	0.0	0.9	0.9	0.0	0.0	93.6	100.0	300
1-2	21.0	19.8	0.0	4.6	12.5	2.0	0.7	0.0	1.2	1.1	0.0	0.0	79.0	100.0	1,973
3-4	21.3	20.2	0.6	4.9	11.5	2.7	0.4	0.1	1.1	0.9	0.1	0.0	78.7	100.0	1,688
5+	20.9	19.7	0.4	6.4	10.5	1.7	0.2	0.5	1.2	1.1	0.0	0.0	79.1	100.0	1,424
Residence															
Urban	23.2	21.6	0.2	4.9	12.8	2.8	0.6	0.2	1.6	1.6	0.0	0.0	76.8	100.0	2,898
Greater Monrovia	27.5	25.1	0.2	5.1	15.4	3.4	0.8	0.3	2.4	2.4	0.0	0.0	72.5	100.0	1,614
Other urban	17.7	17.1	0.3	4.7	9.5	2.1	0.4	0.1	0.7	0.7	0.0	0.0	82.3	100.0	1,283
Rural	16.8	16.3	0.3	5.1	9.4	1.1	0.2	0.1	0.5	0.4	0.1	0.1	83.2	100.0	2,488
Region															
North Western	20.6	20.0	0.0	6.2	12.7	0.8	0.1	0.2	0.6	0.3	0.1	0.2	79.4	100.0	580
South Central	24.2	22.4	0.2	4.7	13.7	2.8	0.6	0.3	1.8	1.8	0.0	0.0	75.8	100.0	2,481
South Eastern A	20.5	20.5	0.2	5.9	12.7	1.4	0.2	0.1	0.0	0.0	0.0	0.0	79.5	100.0	348
South Eastern B	22.4	22.3	0.0	7.1	12.9	1.8	0.5	0.1	0.1	0.1	0.0	0.0	77.6	100.0	358
North Central	13.6	12.8	0.5	4.4	6.1	1.5	0.3	0.0	0.8	0.6	0.1	0.0	86.4	100.0	1,619
County															
Bomi	19.1	18.0	0.0	2.7	13.8	1.3	0.2	0.0	1.1	1.1	0.0	0.0	80.9	100.0	145
Bong	19.9	18.3	1.1	7.0	7.9	1.9	0.4	0.0	1.6	1.3	0.3	0.0	80.1	100.0	635
Gbarpolu	25.2	23.8	0.0	8.3	13.4	1.2	0.0	0.8	1.4	0.0	0.3	1.1	74.8	100.0	123
Grand Bassa	8.4	8.2	0.0	1.3	6.5	0.5	0.0	0.0	0.2	0.2	0.0	0.0	91.6	100.0	294
Grand Cape Mount	19.4	19.4	0.0	7.0	11.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	80.6	100.0	312
Grand Gedeh	17.9	17.9	0.2	4.5	10.4	2.0	0.6	0.3	0.0	0.0	0.0	0.0	82.1	100.0	113
Grand Kru	17.6	17.6	0.0	3.8	12.2	1.6	0.0	0.0	0.0	0.0	0.0	0.0	82.4	100.0	135
Lofa	10.0	9.4	0.0	5.4	3.5	0.6	0.0	0.0	0.5	0.5	0.0	0.0	90.0	100.0	291
Margibi	19.5	18.8	0.4	5.5	11.0	1.1	0.5	0.3	0.6	0.6	0.0	0.0	80.5	100.0	407
Maryland	22.7	22.7	0.0	9.6	10.8	1.2	1.2	0.0	0.0	0.0	0.0	0.0	77.3	100.0	148
Montserrado	27.8	25.5	0.2	5.1	15.6	3.6	0.8	0.3	2.3	2.3	0.0	0.0	72.2	100.0	1,780
Nimba	9.3	9.2	0.2	1.7	5.5	1.5	0.3	0.0	0.1	0.1	0.0	0.0	90.7	100.0	694
River Cess	20.0	20.0	0.4	6.3	13.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	80.0	100.0	100
River Gee	30.6	29.9	0.0	8.0	18.4	3.2	0.0	0.3	0.7	0.7	0.0	0.0	69.4	100.0	74
Sinoe	23.0	23.0	0.0	6.8	14.4	1.8	0.0	0.0	0.0	0.0	0.0	0.0	77.0	100.0	135
Education															
No education	15.3	14.7	0.1	4.7	8.6	0.9	0.1	0.3	0.6	0.5	0.1	0.0	84.7	100.0	2,417
Primary	19.7	18.1	0.5	6.0	9.8	1.5	0.2	0.1	1.6	1.5	0.0	0.0	80.3	100.0	1,446
Secondary and higher	28.6	27.1	0.3	4.5	16.7	4.4	1.1	0.0	1.6	1.6	0.0	0.0	71.4	100.0	1,523
Wealth quintile															
Lowest	13.5	13.2	0.1	4.2	7.8	0.9	0.0	0.1	0.3	0.3	0.0	0.0	86.5	100.0	1,133
Second	17.1	16.5	0.3	5.9	8.7	1.2	0.3	0.1	0.6	0.3	0.2	0.1	82.9	100.0	1,094
Middle	21.6	21.1	0.4	6.8	10.9	2.7	0.2	0.0	0.6	0.5	0.0	0.1	78.4	100.0	1,082
Fourth	26.2	24.5	0.2	3.4	17.1	2.7	0.5	0.6	1.7	1.7	0.0	0.0	73.8	100.0	1,108
Highest	23.3	20.7	0.3	4.7	11.6	2.9	1.2	0.0	2.6	2.6	0.0	0.0	76.7	100.0	968
Total	20.2	19.1	0.3	5.0	11.2	2.1	0.4	0.2	1.1	1.1	0.0	0.0	79.8	100.0	5,386

Note: If more than one method is used, only the most effective method is considered in this tabulation. Users of IUD, Cyclebeads/Standard Days, and the lactational amenorrhea method (LAM) are included in other modern methods.

Contraceptive use is positively associated with women's level of education and wealth. Fifteen percent of currently married women with no education use contraceptives compared with 29 percent of those with secondary and higher education. Similarly, only 14 percent of women in the lowest wealth quintile use contraceptives compared with 23 to 26 percent of women in the top two wealth quintiles.

Table 7.3.2 and Figure 7.1 show trends in contraceptive use among currently married women over the past 27 years, as measured by the 1986, 1999/2000, 2007, and 2013 LDHS. Over this time period, use of contraception has risen from 6 percent in 1986 to 20 percent in 2013.

Table 7.3.2 Trends in the current use of contraception

Percent distribution of currently married women age 15-49 by contraceptive method currently used, Liberia 1986-2013

Method	1986 LDHS	1999/2000 LDHS[a]	2007 LDHS	2013 LDHS
Any method	6.4	10.0	11.4	20.2
Any modern method	5.5	8.1	10.3	19.1
Female sterilization	1.1	0.6	0.6	0.3
Male sterilization	0.0	0.5	0.0	0.0
Pill	3.3	6.1	3.8	5.0
IUD	0.6	0.8	0.2	0.0
Injectables	0.3	1.0	4.1	11.2
Vaginal methods	0.2	0.5	0.0	0.0
Male condom	0.0	1.3	1.6	0.4
Implants	na	n/a	0.0	2.1
Other modern method	0.0	n/a	0.0	0.2
Any traditional method	0.9	2.6	1.2	1.1
Rhythm/periodic abstinence	0.6	n/a	1.0	1.1
Withdrawal	0.1	n/a	0.2	0.0
Other traditional method	0.2	n/a	0.0	0.0
Not currently using	93.6	90.0	88.6	79.8
Total	100.0	100.7[b]	100.0	100.0
Number of women	3,538	9,248	4,540	5,386

[a]Refers to women age 13-49; however, the number of married women age 13-14 is so small that it has no effect on the distribution (8 out of 9,248 women).
[b]The total exceeds 100 percent because women could report use of more than one method in the 1999/2000 survey. The question was also phrased differently in the 1999/2000 LDHS relative to the other LDHS.
n/a = not available

Figure 7.1 Trends in contraceptive use among currently married women

Percentage of currently married women
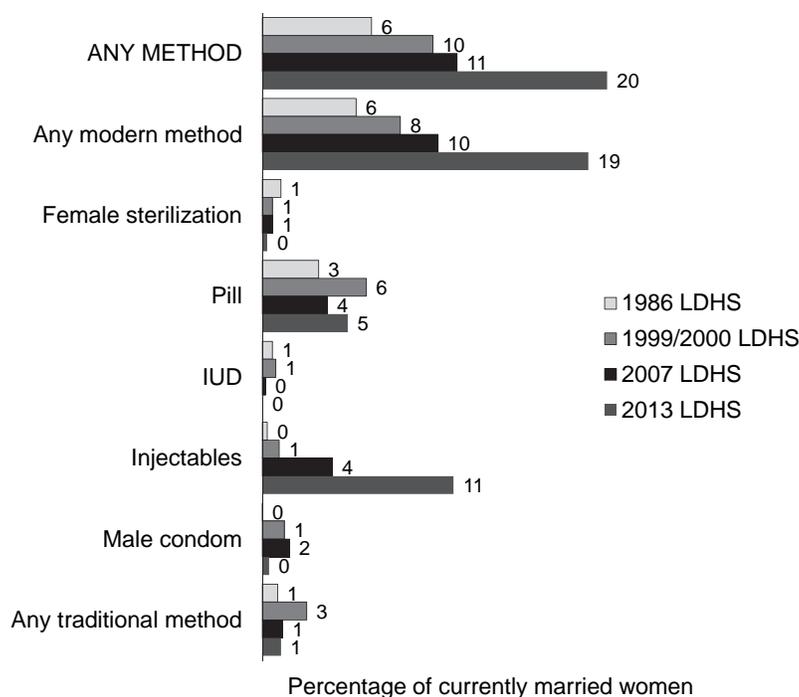
LDHS 2013

7.4   SOURCE OF MODERN CONTRACEPTIVE METHODS

Where women obtain the contraceptive methods they use is useful information for family planning program managers and others who plan the distribution of contraceptives. In the 2013 LDHS, all women who reported that they were currently using any modern contraceptive method at the time of the survey were asked where they obtained the method the last time they acquired it. Because women may know the name of the facility but not exactly in which category the source falls (e.g., government or private, health center or clinic), in such cases, the interviewers were instructed to note the full name of the source or facility. Furthermore, supervisors were trained to verify the name and type of source to maintain consistency and improve the accuracy of the information.

Table 7.4 shows that 64 percent of users obtain their contraceptives from public sector sources. Government hospitals are the most common public source (30 percent), followed by government health clinics (27 percent). Three in ten women (30 percent) use the private medical sector to obtain contraceptives. Private hospitals and clinics (14 percent) and pharmacies (10 percent) account for the largest proportion of providers from the private medical sector. Five percent of women obtain methods of contraception from other sources, such as shops (3 percent), and friends or relatives (2 percent).

The source from which a woman obtains her contraceptive method differs based on the method she uses. For example, 82 percent of implant users obtain this method from a public sector source, typically a government hospital (43 percent) or government clinic (33 percent). In contrast, only 24 percent of condom users obtain male condoms from the public sector. Fifty-two percent of condom users obtain male condoms from the private sector, typically a pharmacy (42 percent). An additional 23 percent of condom users get male condoms from friends or relatives.

Table 7.4 Source of modern contraception methods

Percent distribution of users of modern contraceptive methods age 15-49 by most recent source of method, according to method, Liberia 2013

Source	Pill	Injectables	Implants	Male condom	Total
Public sector	62.3	64.9	81.7	24.2	64.0
Government hospital	25.8	30.0	42.8	8.2	29.6
Government health center	5.4	5.7	5.9	3.8	5.6
Government clinic	30.4	27.3	33.1	12.2	27.4
Community health volunteer	0.6	1.9	0.0	0.0	1.3
Other public sector	0.1	0.0	0.0	0.0	0.0
Private medical sector	30.5	31.2	17.3	51.9	30.3
Private hospital/clinic	7.2	16.6	14.7	7.1	13.9
Pharmacy	19.3	6.9	0.0	41.5	10.4
Private doctor	1.5	2.8	0.0	0.0	2.0
Planned Parenthood Association of Liberia	1.7	4.1	2.6	0.0	3.1
Mobile clinic	0.8	0.2	0.0	1.6	0.4
Other private medical sector	0.0	0.5	0.0	1.6	0.4
Other source	5.9	3.2	0.8	23.9	4.5
Shop	4.2	2.4	0.8	0.6	2.5
Friend/relatives	1.7	0.8	0.0	23.3	2.0
Other	0.8	0.4	0.2	0.0	0.4
Total	100.0	100.0	100.0	100.0	100.0
Number of women	404	1,151	211	95	1,892

Note: Total includes female sterilization, IUD, and other modern methods but excludes Cyclebeads/Standard Days and the lactational amenorrhea method (LAM). The total also includes 16 cases for which information on the source of contraceptive method is missing.

7.5   USE OF SOCIAL MARKETING BRAND PILLS

Evidence suggests that social franchising, which is similar to social marketing, can equitably improve access to and quality of care in family planning (Bishai et al, 2008), a priority area of focus for the Government of Liberia under the Accelerated Action Plan to Reduce Maternal and Neonatal Mortality (Government of Liberia, 2012). Given that unmet need for family planning is high in Liberia (see section 7.10) and there is as yet no discrete national budget for family planning, social franchising offers a cost-effective opportunity to create greater access to affordable contraceptives. Social franchising also presents a mechanism through which youth-friendly sites and services can be fostered and promoted. Through franchise agreements that stipulate provider commitments to youth-friendly approaches and monitoring of adherence to those approaches, social franchising can create greater health care access and uptake of contraceptive use among youth.

Women who were currently using oral contraceptives were asked for the brand name of the pills they last used. This information is useful in monitoring the success of social marketing programs that promote a specific brand.

Table 7.5 presents the percentages of pill users age 15-49 using various social marketing brands. Overall, 76 percent of pill users use Microgynon and 17 percent use Microlut. Less than 1 percent of pill users use other known brands. The percentage of pill users who use Microgynon is higher than those who use Microlut across all background characteristics.

Table 7.5 Use of social marketing brand pills

Percentage of pill users age 15-49 using a social marketing brand, by background characteristics, Liberia 2013

Background characteristic	Among pill users					Number of women using the pill
	Percentage using Microlut	Percentage using Microgynon	Percentage using other known brands	Don't know	Missing	
Age						
15-19	(20.8)	(77.2)	(0.0)	(2.0)	(0.0)	54
20-24	15.1	78.3	0.3	5.1	1.2	90
25-29	21.7	66.8	1.2	4.7	5.6	64
30-34	17.6	73.5	0.5	2.3	6.0	81
35-39	21.0	74.0	0.0	5.0	0.0	71
40-44	(4.0)	(91.7)	(0.0)	(4.3)	(0.0)	38
45-49	*	*	*	*	*	7
Residence						
Urban	14.9	78.0	0.5	2.8	3.8	235
Greater Monrovia	(18.7)	(73.0)	(0.0)	(2.5)	(5.7)	131
Other urban	10.0	84.2	1.1	3.2	1.4	104
Rural	20.4	72.6	0.2	6.5	0.4	169
Region						
North Western	16.5	78.1	0.9	2.2	2.4	44
South Central	19.1	74.4	0.0	2.0	4.5	190
South Eastern A	14.7	64.2	1.1	20.0	0.0	25
South Eastern B	15.4	78.9	0.0	5.8	0.0	34
North Central	15.3	78.7	0.7	5.3	0.0	111
Education						
No education	15.2	77.5	0.5	6.0	0.7	138
Primary	17.4	73.6	0.6	4.1	4.3	127
Secondary and higher	18.9	75.9	0.0	3.0	2.2	139
Wealth quintile						
Lowest	20.4	72.4	0.5	5.6	1.0	60
Second	19.2	76.2	0.0	4.6	0.0	84
Middle	19.2	70.5	1.1	4.2	5.0	106
Fourth	11.8	84.4	0.0	3.8	0.0	67
Highest	(14.6)	(77.2)	(0.0)	(4.0)	(4.2)	87
Total	17.2	75.7	0.4	4.4	2.4	404

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

7.6 INFORMED CHOICE

Women age 15-49 who are currently using a modern contraceptive method and who started the last episode of use within five years of the survey were asked whether they had been informed about possible side effects or problems of their chosen method, what to do if they experienced side effects, and other methods that they could also use. Their responses give a measure of the quality of family planning service provision. Table 7.6 shows the results from the 2013 LDHS, by method and by source of the current episode of use.

Seventy-five percent of users of modern contraceptives were informed about side effects or health problems associated with the method they used, 73 percent were informed about what to do if they experienced side effects, and 72 percent were told of other methods available. Women using implants were the most likely to be informed of side effects, what to do if they experienced side effects, and other methods that they could use. They were followed by users of injectables and users of the pill. Women who got their contraceptive from the public sector were more likely than those who got their contraceptive from another source to be informed of side effects, what to do if they experienced side effects, and other methods that they could use.

Table 7.6 Informed choice

Among current users of modern methods age 15-49 who started the last episode of use within the five years preceding the survey, the percentage who were informed about possible side effects or problems of that method, the percentage who were informed about what to do if they experienced side effects, and the percentage who were informed about other methods they could use, by method and initial source, Liberia 2013

Method/source	Among women who started last episode of use of modern contraceptive method within five years preceding the survey:			
	Percentage who were informed about side effects or problems of method used	Percentage who were informed about what to do if experienced side effects	Percentage who were informed by a health or family planning worker of other methods that could be used	Number of women
Method				
Female sterilization	*	*	*	9
Pill	63.6	61.6	64.2	377
Injectables	76.0	73.9	72.9	1,098
Implants	90.2	88.1	81.3	207
Initial source of method[1]				
Public sector	80.6	77.5	74.9	1,162
Government hospital	85.3	83.7	76.7	521
Government health center	74.8	66.0	69.3	106
Government health clinic	77.5	74.5	75.0	508
Community health worker	*	*	*	27
Private sector	64.8	65.1	67.1	486
Private hospital/clinic	76.3	79.0	77.1	230
Pharmacy	43.1	43.3	45.9	147
Private doctor	(42.5)	(38.3)	(59.7)	34
Planned Parenthood Association of Liberia	(89.0)	(83.0)	(87.2)	64
Mobile clinic	*	*	*	5
Other private sector	*	*	*	7
Shop	(42.2)	(36.5)	(59.5)	32
Total	74.9	72.7	71.9	1,691

Note: Table includes users of only the methods listed individually. Users who got their method from friends/relatives, black baggers/drug peddlers, or other sources that could not be categorized are excluded from this table. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Source at start of current episode of use

7.7 RATES OF DISCONTINUING CONTRACEPTIVE METHODS

Couples can realize their reproductive goals only when they consistently use reliable methods of contraception. Of particular concern to family planning programs is the rate at which users discontinue contraceptive methods and the reasons for such discontinuation. Armed with this information, family planning providers are able to better advise potential users of the advantages and disadvantages of each contraceptive method, allowing women to make a more informed decision about the method that best suits their needs.

Women age 15-49 who started an episode of contraceptive use within the five years preceding the survey and discontinued it within 12 months were asked the reason for the discontinuation. Table 7.7 presents discontinuation rates, by contraceptive type and by reason for discontinuation. Among all methods, 25 percent of episodes of use were discontinued within 12 months. The pill was most often discontinued (35 percent), followed by injectables (25 percent). The reason for discontinuation varied by method. For example, whereas 5 percent of episodes of pill use were discontinued because of method failure, only 1 percent of episodes of injectable use were discontinued for this reason.

Table 7.7 Twelve-month contraceptive discontinuation rates

Among women age 15-49 who started an episode of contraceptive use within the five years preceding the survey, the percentage of episodes discontinued within 12 months, by reason for discontinuation and specific method, Liberia 2013

Method	Method failure	Desire to become pregnant	Other fertility related reasons[2]	Side effects/ health concerns	Wanted more effective method	Other method related reasons[3]	Other reasons	Any reason[4]	Switched to another method[5]	Number of episodes of use[6]
Pill	5.0	3.6	0.0	12.8	1.0	5.7	6.6	34.8	2.2	639
Injectables	1.0	2.5	0.8	16.5	0.7	2.1	1.5	25.0	1.1	1,445
Implants	(0.0)	(5.8)	(0.0)	(2.7)	(0.0)	(0.0)	(0.0)	(8.5)	(0.0)	185
All methods[1]	2.1	2.7	0.4	13.0	0.7	3.0	2.9	24.9	1.2	2,506

Note: Figures are based on life table calculations using information on episodes of use that began 3-62 months preceding the survey.
[1] Includes IUD, male condom, lactational amenorrhea method (LAM), rhythm method, and withdrawal
[2] Includes infrequent sex/husband away, difficult to get pregnant/menopausal, and marital dissolution/separation
[3] Includes lack of access/too far, costs too much, and inconvenient to use
[4] Reasons for discontinuation are mutually exclusive and add to the total given in this column
[5] The episodes of use included in this column are a subset of the discontinued episodes included in the discontinuation rate. A woman is considered to have switched to another method if she used a different method in the month following discontinuation or if she gave "wanted a more effective method" as the reason for discontinuation and started another method within two months of discontinuation.
[6] Number of episodes of use includes both episodes of use that were discontinued during the period of observation and episodes of use that were not discontinued during the period of observation

7.8 REASONS FOR DISCONTINUING CONTRACEPTIVE METHODS

Table 7.8 shows the percent distribution of discontinuations of contraceptive methods in the five years preceding the survey by main reason stated for the discontinuation, according to specific method. In total, 1,173 discontinuations occurred within this time period. Across all contraceptive methods, the most common reason for discontinuation was health concerns/side effects (44 percent), followed by wanted to become pregnant (17 percent), and became pregnant while using (11 percent).

Across specific contraceptive methods, the reasons for discontinuation vary widely. For example, among pill users, 34 percent of discontinuations were because of health concerns/side effects and 16 percent because the user became pregnant while using. Among injectable users, side effects/health concerns were a more common reason for discontinuation (56 percent), while method failure (i.e., becoming pregnant while using the method) was only mentioned by 5 percent. For pill users and injectable users, the percentage who discontinued use because they wanted to become pregnant was similar (15 percent and 17 percent, respectively).

Table 7.8 Reasons for discontinuation

Percent distribution of discontinuations of contraceptive methods in the five years preceding the survey by main reason stated for discontinuation, according to specific method, Liberia 2013

Reason	Pill	Injectables	Other[1]	All methods
Became pregnant while using	16.3	4.5	37.2	11.4
Wanted to become pregnant	15.3	17.4	19.3	16.9
Husband/partner disapproved	5.6	3.1	8.5	4.4
Wanted more effective method	3.7	3.5	11.8	4.2
Health concerns/side effects	34.0	56.1	11.3	44.4
Lack of access/too far	3.5	4.2	2.2	3.8
Cost too much	0.3	0.7	0.0	0.5
Inconvenient to use	7.7	2.5	5.5	4.7
Up to God/fatalistic	2.2	0.0	0.0	0.8
Difficult to get pregnant/menopausal	0.0	0.3	0.0	0.2
Infrequent sex/husband away	0.3	1.9	0.9	1.2
Marital dissolution/separation	0.0	0.9	0.0	0.5
Other	4.0	1.5	1.6	2.5
Don't know	0.4	0.1	0.0	0.2
Missing	6.7	3.2	1.8	4.4
Total	100.0	100.0	100.0	100.0
Number of discontinuations	440	643	89	1,173

Note: Total includes 2 cases for which information on contraceptive method is missing.
[1] IUD, implants, male condom, lactational amenorrhea method (LAM), rhythm method, and withdrawal are included in the discontinuation rate for other methods.

7.9   KNOWLEDGE OF THE FERTILE PERIOD

An elementary knowledge of reproductive physiology provides a useful background for successful practice of coitus-associated methods such as withdrawal and condom use. Such knowledge is particularly critical in the use of the rhythm method. The 2013 LDHS included a question designed to obtain information on the respondent's understanding of when a woman is most likely to become pregnant during the menstrual cycle. Respondents were asked, "From one menstrual period to the next, are there certain days when a woman is more likely to get pregnant if she has sexual relations?" If the reply was yes, the respondent was further asked whether that time was just before a woman's period begins, during her period, right after her period has ended, or halfway between two periods.

Table 7.9 shows that knowledge of the fertile period is minimal among women age 15-49 in Liberia. Only 13 percent of women correctly reported when the fertile period occurs (a woman is most likely to conceive halfway between two periods). The percentage of women who correctly reported the fertile period was higher among users of the rhythm method (32 percent) than nonusers (13 percent), but was still low.

Table 7.9 Knowledge of fertile period

Percent distribution of women age 15-49 by knowledge of the fertile period during the ovulatory cycle, according to current use of the rhythm method, Liberia 2013

Perceived fertile period	Users of rhythm method	Nonusers of rhythm method	All women
Just before her menstrual period begins	0.0	1.2	1.2
During her menstrual period	0.8	1.7	1.7
Right after her menstrual period has ended	52.8	42.7	42.8
Halfway between two menstrual periods	31.9	13.1	13.3
Other	0.0	0.0	0.0
No specific time	12.4	24.2	24.1
Don't know	2.1	17.0	16.9
Total	100.0	100.0	100.0
Number of women	107	9,132	9,239

Note: Total includes 4 cases for which information on knowledge of fertile period is missing.

7.10 NEED AND DEMAND FOR FAMILY PLANNING

The proportion of women who want to stop childbearing or who want to space their next birth is a crude measure of the extent of the need for family planning, given that not all of these women are exposed to the risk of pregnancy and some of them may already be using contraception. This section discusses the extent of need and the potential demand for family planning services. Women who want to postpone their next birth for two or more years or who want to stop childbearing altogether but are not using a contraceptive method are said to have an unmet need for family planning. Pregnant women are considered to have an unmet need for spacing or limiting if their pregnancy was mistimed or unwanted. Similarly, amenorrheic women are categorized as having unmet need if their last birth was mistimed or unwanted. Women who are currently using a family planning method are said to have a met need for family planning. The total demand for family planning services comprises those who fall in the met need and unmet need categories.

Tables 7.10.1 and 7.10.2 and Figure 7.2 present data on unmet need, met need, and total demand for family planning for currently married women, all women, and women who are not currently married. These indicators help to evaluate the extent to which the family planning program in Liberia meets the demand for services. The definition of unmet need for family planning has been revised to make levels of unmet need comparable over time and across surveys. The unmet need estimate in Figure 7.2 for the 2007 LDHS has been recalculated using the revised definition of unmet need but differs only slightly from the number published in the 2007 final reports.

Table 7.10.1 shows that 31 percent of currently married women have an unmet need for family planning services (22 percent for spacing and 9 percent for limiting births). Twenty percent of married women are currently using a contraceptive method. About half of currently married women (51 percent) have a demand for family planning. At present, 39 percent of the potential demand for family planning is being met. Thus, if all married women who said they want to space or limit their children were to use family planning methods, the contraceptive prevalence rate would increase from 20 percent to 51 percent.

As shown in Table 7.10.1, as expected, unmet need for spacing is high among younger women, while unmet need for limiting childbearing is higher among older women. There is only a minor difference in unmet need between rural and urban areas, with urban areas at 30 percent and rural areas at 33 percent. Regional differences in unmet need are also relatively small. By county, larger differences are observed. For example, unmet need ranges from a low of 23 percent in River Gee to a high of 41 percent in Maryland.

Unmet need varies slightly by woman's education; it is higher among women with primary education (35 percent) than women with secondary and higher education (32 percent) and those with no education (29 percent). Unmet need is inversely associated with a woman's wealth status. Among women in the lowest wealth quintile, unmet need is 35 percent, while it is 27 percent among those in the highest wealth quintile.

Table 7.10.1 Need and demand for family planning among currently married women

Percentage of currently married women age 15-49 with unmet need for family planning, percentage with met need for family planning, the total demand for family planning, and the percentage of the demand for contraception that is satisfied, by background characteristics, Liberia 2013

Background characteristic	Unmet need for family planning			Met need for family planning (currently using)			Total demand for family planning[1]			Percentage of demand satisfied[2]	Percentage of demand satisfied by modern methods[3]	Number of women
	For spacing	For limiting	Total	For spacing	For limiting	Total	For spacing	For limiting	Total			
Age												
15-19	46.4	0.2	46.6	13.2	0.0	13.2	59.6	0.2	59.8	22.1	22.1	299
20-24	36.5	2.1	38.6	22.7	0.5	23.1	59.2	2.5	61.7	37.4	36.5	862
25-29	28.0	5.5	33.5	20.4	4.5	24.9	48.4	10.0	58.4	42.6	39.2	1,168
30-34	21.7	8.6	30.2	15.4	7.4	22.8	37.1	15.9	53.0	43.0	42.5	957
35-39	15.6	15.8	31.4	7.9	13.2	21.2	23.5	29.1	52.6	40.2	38.5	924
40-44	7.0	20.2	27.2	2.1	14.6	16.8	9.2	34.9	44.0	38.1	33.5	619
45-49	1.9	9.5	11.4	0.5	7.2	7.6	2.3	16.7	19.0	40.2	32.4	557
Residence												
Urban	22.0	7.5	29.5	15.6	7.6	23.2	37.5	15.1	52.7	44.0	40.9	2,898
Greater Monrovia	20.1	6.5	26.6	18.6	8.9	27.5	38.7	15.4	54.1	50.9	46.4	1,614
Other urban	24.4	8.7	33.1	11.7	6.0	17.7	36.1	14.7	50.8	34.9	33.6	1,283
Rural	22.1	10.9	33.0	10.4	6.4	16.8	32.5	17.3	49.8	33.7	32.7	2,488
Region												
North Western	23.3	9.5	32.8	12.6	7.9	20.6	35.9	17.4	53.3	38.5	37.5	580
South Central	20.0	7.8	27.9	16.0	8.2	24.2	36.0	16.1	52.0	46.4	43.0	2,481
South Eastern A	22.0	11.5	33.5	13.3	7.1	20.5	35.3	18.6	54.0	37.9	37.9	348
South Eastern B	21.7	11.7	33.4	11.9	10.5	22.4	33.7	22.2	55.8	40.1	39.9	358
North Central	24.7	9.7	34.4	9.3	4.2	13.6	34.1	13.9	48.0	28.3	26.7	1,619
County												
Bomi	25.2	7.7	32.8	12.3	6.8	19.1	37.5	14.5	51.9	36.8	34.7	145
Bong	23.5	10.0	33.6	13.9	6.0	19.9	37.4	16.0	53.5	37.2	34.2	635
Gbarpolu	26.7	8.9	35.7	17.0	8.2	25.2	43.7	17.1	60.8	41.4	39.2	123
Grand Bassa	20.5	12.7	33.3	4.6	3.8	8.4	25.1	16.5	41.7	20.2	19.6	294
Grand Cape Mount	21.0	10.6	31.6	11.1	8.3	19.4	32.1	18.9	51.0	38.0	38.0	312
Grand Gedeh	20.1	8.5	28.6	12.3	5.6	17.9	32.4	14.1	46.5	38.4	38.4	113
Grand Kru	19.0	12.0	31.1	9.1	8.5	17.6	28.1	20.5	48.7	36.2	36.2	135
Lofa	27.9	8.2	36.1	8.0	1.9	10.0	35.9	10.1	46.1	21.6	20.5	291
Margibi	19.9	8.9	28.8	11.8	7.7	19.5	31.7	16.6	48.3	40.3	39.0	407
Maryland	27.2	13.8	41.0	11.6	11.1	22.7	38.8	24.9	63.7	35.6	35.6	148
Montserrado	20.0	6.8	26.8	18.8	9.1	27.8	38.7	15.9	54.6	51.0	46.8	1,780
Nimba	24.5	10.1	34.6	5.7	3.6	9.3	30.2	13.6	43.8	21.1	21.0	694
River Cess	23.4	13.6	37.0	12.2	7.8	20.0	35.6	21.4	57.0	35.1	35.1	100
River Gee	15.9	6.8	22.6	17.6	13.0	30.6	33.5	19.8	53.2	57.5	56.2	74
Sinoe	22.5	12.5	34.9	15.1	7.9	23.0	37.6	20.4	57.9	39.7	39.7	135
Education												
No education	18.3	10.4	28.7	7.9	7.4	15.3	26.2	17.8	44.0	34.7	33.4	2,417
Primary	26.0	8.5	34.5	13.7	6.0	19.7	39.6	14.5	54.2	36.3	33.4	1,446
Secondary and higher	24.2	7.4	31.6	21.1	7.6	28.6	45.2	15.0	60.2	47.5	44.9	1,523
Wealth quintile												
Lowest	23.2	11.9	35.1	8.5	5.0	13.5	31.7	16.9	48.6	27.8	27.1	1,133
Second	22.5	9.6	32.1	9.9	7.1	17.1	32.4	16.7	49.1	34.7	33.6	1,094
Middle	23.5	8.4	31.9	14.1	7.5	21.6	37.6	15.9	53.5	40.4	39.4	1,082
Fourth	21.1	8.1	29.2	19.9	6.3	26.2	41.0	14.4	55.4	47.3	44.2	1,108
Highest	19.6	7.1	26.6	13.5	9.8	23.3	33.1	16.8	49.9	46.6	41.5	968
Total	22.0	9.1	31.1	13.2	7.1	20.2	35.2	16.1	51.3	39.4	37.2	5,386

Note: Numbers in this table correspond to the revised definition of unmet need described in Bradley et al., 2012.
[1] Total demand is the sum of unmet need and met need.
[2] Percentage of demand satisfied is met need divided by total demand.
[3] Modern methods include female sterilization, the pill, IUD, injectables, implants, male condom, female condom, and the lactational amenorrhea method (LAM).

Figure 7.2 compares unmet need for family planning among currently married women in the 2007 LDHS and the 2013 LDHS. Unmet need has decreased slightly, from 36 percent in 2007 to 31 percent in 2013.

Figure 7.2 Trends in unmet need for family planning

Percent
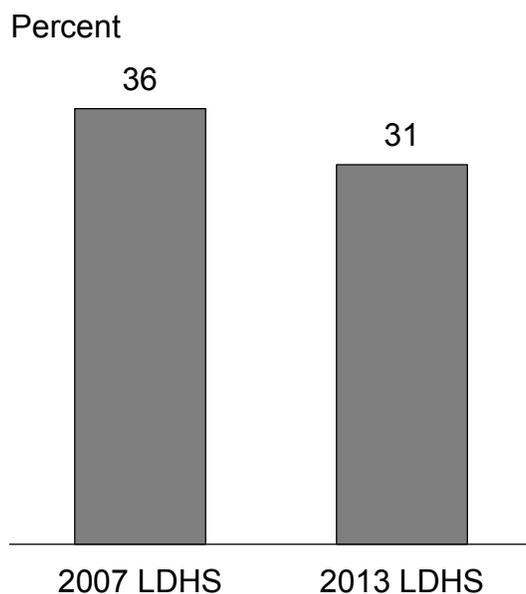
Note: Estimates for all years are based on
the revised definition of unmet need

The need for family planning services for all women and women not currently married is presented in Table 7.10.2. The panel on all women follows the trends of currently married women. Overall, the total family planning demand for all women is high (50 percent), especially for those women age 20-24 (63 percent). Total demand is even higher for sexually active, unmarried women (83 percent), although demand drops with increasing age.

Percentage of all women and women not currently married age 15-49 with unmet need for family planning, percentage with met need for family planning, the total demand for family planning and the percentage of the demand for contraception that is satisfied, by background characteristics, Liberia 2013

Background characteristic	Unmet need for family planning			Met need for family planning (currently using)			Total demand for family planning[1]			Percentage of demand satisfied[2]	Percentage of demand satisfied by modern methods[3]	Number of women
	For spacing	For limiting	Total	For spacing	For limiting	Total	For spacing	For limiting	Total			
ALL WOMEN												
Age												
15-19	28.0	0.1	28.1	17.0	0.2	17.2	44.9	0.3	45.3	37.9	36.1	2,080
20-24	33.2	1.3	34.5	27.8	0.8	28.6	61.0	2.1	63.1	45.3	43.3	1,642
25-29	25.6	4.3	30.0	22.5	4.3	26.8	48.1	8.6	56.7	47.2	43.4	1,611
30-34	19.9	7.4	27.3	18.3	7.0	25.2	38.1	14.4	52.5	48.0	47.4	1,199
35-39	14.8	14.0	28.9	8.7	12.9	21.6	23.6	26.9	50.5	42.8	41.1	1,179
40-44	6.0	16.3	22.3	2.8	14.4	17.2	8.8	30.7	39.5	43.6	38.2	812
45-49	2.5	8.6	11.1	0.7	6.6	7.3	3.3	15.1	18.4	39.7	33.5	716
Residence												
Urban	21.8	4.4	26.2	19.4	5.2	24.6	41.2	9.6	50.8	48.4	45.0	5,633
Greater Monrovia	20.5	3.5	24.0	23.0	5.5	28.5	43.5	9.0	52.5	54.2	50.0	3,361
Other urban	23.9	5.7	29.5	14.1	4.7	18.8	37.9	10.4	48.3	38.9	36.9	2,272
Rural	21.9	8.2	30.1	11.9	5.4	17.3	33.8	13.5	47.3	36.5	35.6	3,606
Region												
North Western	21.9	6.8	28.7	15.2	6.6	21.8	37.1	13.4	50.5	43.2	42.3	837
South Central	20.2	4.5	24.7	20.1	5.6	25.6	40.3	10.1	50.4	50.9	47.3	4,854
South Eastern A	22.0	8.8	30.9	15.7	6.2	21.9	37.7	15.1	52.8	41.5	41.3	483
South Eastern B	22.8	8.1	30.9	14.2	7.5	21.7	37.1	15.6	52.6	41.3	41.1	577
North Central	24.8	7.1	32.0	10.5	3.5	14.0	35.3	10.6	46.0	30.5	28.8	2,488
County												
Bomi	21.7	4.9	26.6	18.2	5.0	23.2	39.9	9.9	49.8	46.7	45.4	244
Bong	22.9	8.2	31.1	15.5	4.5	20.0	38.4	12.7	51.1	39.2	35.7	894
Gbarpolu	23.3	6.0	29.4	19.9	7.4	27.3	43.3	13.4	56.7	48.2	46.3	182
Grand Bassa	21.9	9.4	31.3	8.0	4.4	12.4	29.9	13.8	43.7	28.4	27.1	434
Grand Cape Mount	21.4	8.3	29.7	11.3	7.2	18.5	32.7	15.5	48.2	38.4	38.4	412
Grand Gedeh	19.3	6.1	25.4	18.6	4.2	22.8	37.9	10.3	48.2	47.3	46.6	167
Grand Kru	21.4	7.7	29.1	14.8	5.9	20.7	36.2	13.6	49.8	41.6	41.6	217
Lofa	24.0	5.5	29.5	10.0	2.0	12.0	33.9	7.6	41.5	28.9	27.0	447
Margibi	18.6	5.5	24.1	12.1	5.5	17.6	30.7	11.0	41.7	42.1	40.6	744
Maryland	26.0	9.4	35.4	12.9	7.3	20.2	38.9	16.7	55.6	36.4	36.4	257
Montserrado	20.3	3.7	24.1	23.1	5.7	28.8	43.5	9.4	52.9	54.5	50.4	3,675
Nimba	26.7	6.9	33.6	6.9	3.3	10.1	33.5	10.2	43.7	23.1	23.0	1,147
River Cess	23.9	10.9	34.8	12.0	6.4	18.4	35.9	17.3	53.2	34.6	34.6	135
River Gee	17.9	5.7	23.6	16.5	11.1	27.5	34.4	16.8	51.2	53.8	52.8	103
Sinoe	23.1	9.8	32.9	15.7	8.0	23.7	38.8	17.8	56.7	41.9	41.9	182
Education												
No education	17.5	9.2	26.6	8.5	6.8	15.4	26.0	16.0	42.0	36.6	35.5	3,066
Primary	24.4	4.8	29.3	14.1	3.8	17.9	38.6	8.7	47.2	38.0	35.3	2,875
Secondary and higher	23.7	3.7	27.4	25.9	5.0	30.9	49.6	8.8	58.3	53.0	49.8	3,298
Wealth quintile												
Lowest	22.7	9.0	31.7	9.6	4.3	13.9	32.3	13.4	45.6	30.5	29.6	1,581
Second	22.5	7.0	29.5	11.2	5.8	17.0	33.7	12.8	46.5	36.5	35.5	1,624
Middle	22.7	6.0	28.6	16.2	6.1	22.3	38.9	12.0	50.9	43.8	42.8	1,779
Fourth	21.7	4.8	26.5	21.9	4.8	26.7	43.6	9.6	53.2	50.3	47.7	2,047
Highest	20.3	3.7	24.0	20.5	5.3	25.7	40.8	8.9	49.7	51.7	46.1	2,207
Total	21.9	5.9	27.7	16.5	5.3	21.7	38.3	11.1	49.5	43.9	41.5	9,239
SEXUALLY ACTIVE UNMARRIED WOMEN[4]												
Age												
15-19	59.1	0.4	59.5	32.4	0.5	32.9	91.5	0.9	92.4	35.6	33.6	623
20-24	44.3	0.8	45.1	41.3	1.4	42.7	85.6	2.2	87.8	48.6	46.0	425
25-29	29.6	1.4	31.0	38.7	3.1	41.8	68.3	4.5	72.8	57.4	51.6	215
30-34	20.5	4.9	25.5	36.5	7.6	44.1	57.0	12.6	69.5	63.4	62.0	110
35-39	22.8	15.9	38.7	20.0	12.3	32.3	42.7	28.2	71.0	45.5	42.1	94
40-44	(7.5)	(16.0)	(23.5)	(15.4)	(11.4)	(26.7)	(22.9)	(27.4)	(50.3)	(53.2)	(45.3)	40
45-49	(16.4)	(17.5)	(33.9)	(6.9)	(6.9)	(13.8)	(23.3)	(24.4)	(47.7)	(28.9)	(28.9)	41
Residence												
Urban	42.8	2.1	44.9	36.0	2.6	38.6	78.8	4.7	83.5	46.2	42.8	1,184
Greater Monrovia	41.1	1.2	42.3	40.5	2.9	43.4	81.6	4.1	85.7	50.6	46.8	798
Other urban	46.3	4.0	50.3	26.7	1.9	28.6	73.0	5.9	78.9	36.3	33.7	386
Rural	46.1	4.8	50.9	28.0	3.4	31.5	74.2	8.2	82.4	38.2	37.7	364

Background characteristic	Unmet need for family planning			Met need for family planning (currently using)			Total demand for family planning[1]			Percentage of demand satisfied[2]	Percentage of demand satisfied by modern methods[3]	Number of women
	For spacing	For limiting	Total	For spacing	For limiting	Total	For spacing	For limiting	Total			
Region												
North Western	44.3	1.6	45.9	36.3	3.9	40.1	80.6	5.4	86.0	46.7	46.2	82
South Central	41.8	1.9	43.8	37.9	3.5	41.4	79.7	5.4	85.1	48.6	45.1	991
South Eastern A	40.8	2.9	43.7	35.1	3.5	38.6	75.9	6.4	82.3	46.9	46.9	52
South Eastern B	39.7	4.7	44.4	27.4	3.5	30.9	67.1	8.2	75.3	41.1	41.1	91
North Central	50.1	4.9	55.0	23.9	0.3	24.1	74.0	5.1	79.2	30.5	28.3	332
County												
Bomi	37.7	2.7	40.4	49.3	3.6	52.8	86.9	6.3	93.2	56.7	56.7	31
Bong	34.6	5.9	40.5	41.2	0.0	41.2	75.8	5.9	81.7	50.4	45.7	96
Gbarpolu	(36.8)	(0.0)	(36.8)	(40.8)	(2.6)	(43.4)	(77.6)	(2.6)	(80.2)	(54.1)	(52.1)	20
Grand Bassa	47.6	2.5	50.1	22.5	8.1	30.6	70.1	10.6	80.7	37.9	36.2	62
Grand Cape Mount	55.6	1.4	57.0	20.5	4.9	25.5	76.1	6.4	82.5	30.9	30.9	31
Grand Gedeh	33.8	2.6	36.3	43.5	0.8	44.3	77.3	3.3	80.6	54.9	54.9	23
Grand Kru	36.5	0.9	37.4	28.0	3.6	31.6	64.5	4.5	69.0	45.8	45.8	38
Lofa	49.9	2.5	52.4	25.0	2.0	27.1	75.0	4.5	79.5	34.0	27.9	41
Margibi	56.3	6.2	62.4	20.3	3.7	24.0	76.6	9.9	86.5	27.8	26.3	77
Maryland	44.0	7.3	51.4	27.4	3.2	30.6	71.4	10.5	81.9	37.3	37.3	43
Montserrado	40.1	1.5	41.6	40.6	3.1	43.7	80.7	4.6	85.3	51.2	47.4	853
Nimba	57.8	4.8	62.6	15.2	0.0	15.2	73.0	4.8	77.8	19.5	19.5	195
River Cess	(36.8)	(5.8)	(42.6)	(25.2)	(2.7)	(27.9)	(62.0)	(8.5)	(70.4)	(39.6)	(39.6)	12
River Gee	(33.6)	(7.7)	(41.4)	(25.6)	(4.5)	(30.1)	(59.2)	(12.2)	(71.5)	(42.1)	(42.1)	11
Sinoe	(52.5)	(1.3)	(53.8)	(30.8)	(7.6)	(38.5)	(83.3)	(8.9)	(92.3)	(41.7)	(41.7)	18
Education												
No education	31.9	9.7	41.7	20.0	6.2	26.2	51.9	15.9	67.8	38.6	38.6	204
Primary	51.7	2.9	54.6	26.5	2.1	28.6	78.2	5.0	83.2	34.4	31.5	501
Secondary and higher	41.6	1.0	42.5	42.0	2.4	44.4	83.6	3.3	86.9	51.1	47.9	843
Wealth quintile												
Lowest	46.9	3.1	50.0	22.3	3.4	25.7	69.3	6.4	75.7	33.9	33.6	147
Second	47.5	3.9	51.4	25.2	2.5	27.6	72.6	6.4	79.1	34.9	34.0	176
Middle	40.9	5.4	46.3	33.9	2.9	36.8	74.8	8.3	83.1	44.3	44.3	264
Fourth	43.1	1.3	44.4	35.9	4.9	40.8	79.0	6.2	85.2	47.9	46.2	418
Highest	43.1	2.1	45.1	38.9	1.1	40.0	82.0	3.2	85.1	47.0	40.9	544
Total	43.6	2.7	46.3	34.1	2.8	36.9	77.7	5.5	83.2	44.3	41.6	1,548

Note: Numbers in this table correspond to the revised definition of unmet need described in Bradley et al., 2012. Figures in parentheses are based on 25-49 unweighted cases.
[1] Total demand is the sum of unmet need and met need.
[2] Percentage of demand satisfied is met need divided by total demand.
[3] Modern methods include female sterilization, the pill, IUD, injectables, implants, male condom, female condom, and the lactational amenorrhea method (LAM)
[4] Women who have had sexual intercourse within 30 days preceding the survey.

7.11 FUTURE USE OF CONTRACEPTION

An important indicator of the changing demand for family planning is the extent to which nonusers plan to use contraceptive methods in the future, as this is a forecast of potential demand for services.

Currently married women age 15-49 who were not using contraceptives at the time of the survey were asked about their intention to use family planning in the future. Table 7.11 shows that 46 percent of the currently married nonusers indicated that they intend to use family planning methods in the future, while almost half (49 percent) said that they do not intend to use a method in the future. The proportion of women who intend to use a method is highest among women with one to two children and lowest among those with no children and those with at least four children.

Table 7.11 Future use of contraception

Percent distribution of currently married women age 15-49 who are not using a contraceptive method by intention to use in the future, according to number of living children, Liberia 2013

Intention to use in the future	Number of living children[1]					Total
	0	1	2	3	4+	
Intends to use	42.5	49.6	51.7	43.8	43.1	45.9
Unsure	5.5	6.0	5.8	5.6	4.1	5.1
Does not intend to use	52.0	43.7	41.5	50.3	52.5	48.5
Missing	0.0	0.7	1.0	0.3	0.3	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	187	678	844	777	1,809	4,296

[1] Includes current pregnancy

7.12 EXPOSURE TO FAMILY PLANNING MESSAGES IN THE MEDIA

Radio, television, and newspapers and/or magazines are the major sources of information about family planning in the media in Liberia. Information on the level of public exposure to a particular type of media allows policymakers to ensure the use of the most effective media for the various target groups. To assess the effectiveness of such media on the dissemination of family planning information, women and men in the 2013 LDHS were asked whether they had heard messages about family planning on the radio or seen them on television or in newspapers/magazines during the last few months preceding the survey (Table 7.12).

Overall, 77 percent of women reported that they had recently heard a family planning message on the radio, 9 percent had seen a message on television, and 7 percent saw messages in newspapers or magazines. These proportions vary little by the woman's age. However, differences in access to media messages are observed by residence, region, and county. For example, women in urban areas are more likely than those in rural areas to have access to family planning messages on the radio (83 percent and 67 percent, respectively), on television (14 percent and 2 percent respectively), or in newspapers or magazines (10 percent and 1 percent, respectively). Exposure to family planning messages increases as the respondent's education level and wealth status increases.

In general, men had exposure to family planning messages similar to that of women; differentials by background characteristics follow patterns similar to those observed for women.

Table 7.12 Exposure to family planning messages

Percentage of women and men age 15-49 who heard or saw a family planning message on radio, on television, or in a newspaper or magazine in the past few months, according to background characteristics, Liberia 2013

Background characteristic	Women					Men				
	Radio	Television	News-paper/ magazine	None of these three media sources	Number of women	Radio	Television	News-paper/ magazine	None of these three media sources	Number of men
Age										
15-19	74.0	9.7	6.9	25.5	2,080	57.3	5.2	6.5	42.0	890
20-24	79.2	10.2	6.6	20.5	1,642	76.9	8.1	12.5	22.6	696
25-29	80.7	8.8	8.4	19.3	1,611	80.8	11.2	18.5	18.5	673
30-34	79.7	9.6	8.4	20.1	1,199	73.4	5.7	11.7	26.5	575
35-39	75.7	10.0	5.3	24.2	1,179	79.7	10.2	15.0	20.3	469
40-44	73.7	7.8	6.7	26.2	812	85.4	8.7	18.3	14.5	482
45-49	71.2	7.9	4.2	28.8	716	86.0	8.0	14.1	13.9	332
Residence										
Urban	83.2	14.0	10.4	16.5	5,633	78.9	10.8	17.2	20.6	2,413
Greater Monrovia	88.8	21.0	15.8	11.0	3,361	83.0	16.1	21.7	16.3	1,433
Other urban	75.0	3.7	2.4	24.6	2,272	73.0	3.1	10.5	26.9	980
Rural	66.8	2.0	1.4	33.1	3,606	69.1	3.8	7.5	30.6	1,705
Region										
North Western	78.0	1.6	1.4	22.0	837	82.0	5.1	10.2	17.6	367
South Central	84.6	16.1	11.9	15.2	4,854	82.3	13.0	18.7	17.1	2,149
South Eastern A	56.9	2.3	2.3	42.8	483	59.5	3.4	7.0	40.2	254
South Eastern B	52.2	3.3	1.8	47.6	577	60.0	2.7	15.2	39.9	288
North Central	70.8	1.5	1.1	29.0	2,488	65.0	1.0	3.9	34.9	1,060
County										
Bomi	86.8	1.8	0.6	13.2	244	82.8	0.0	10.3	17.2	97
Bong	68.1	0.7	0.7	31.9	894	68.0	1.7	2.5	32.0	389
Gbarpolu	73.8	0.6	1.6	26.2	182	90.5	0.3	1.6	9.1	94
Grand Bassa	57.8	5.6	2.4	41.8	434	77.0	3.7	12.5	22.4	204
Grand Cape Mount	74.6	1.9	1.8	25.4	412	77.1	10.5	14.8	22.4	176
Grand Gedeh	59.6	1.5	1.1	40.2	167	67.2	3.1	5.5	32.6	82
Grand Kru	41.9	2.0	1.1	57.5	217	60.6	3.2	24.2	39.2	110
Lofa	50.6	0.6	0.9	49.4	447	60.5	0.2	2.4	39.5	219
Margibi	81.4	3.7	2.7	18.2	744	86.3	6.7	12.3	13.4	364
Maryland	61.2	5.1	2.8	38.6	257	66.3	3.3	12.6	33.7	123
Montserrado	88.4	19.9	14.8	11.4	3,675	82.1	15.7	21.0	17.3	1,582
Nimba	80.8	2.5	1.4	18.8	1,147	64.6	0.9	5.7	35.2	451
River Cess	64.8	1.2	1.0	35.2	135	61.6	3.8	5.0	37.8	64
River Gee	51.1	1.4	1.0	48.9	103	44.5	0.5	2.9	55.4	55
Sinoe	48.7	3.8	4.3	50.8	182	52.4	3.4	9.4	47.4	108
Education										
No education	65.7	2.8	0.7	34.3	3,066	62.2	1.1	0.7	37.8	533
Primary	75.4	6.6	2.6	24.3	2,875	62.4	3.0	2.3	37.6	1,202
Secondary and higher	88.4	17.8	16.3	11.3	3,298	83.9	12.0	21.4	15.4	2,383
Wealth quintile										
Lowest	55.6	0.9	0.8	44.3	1,581	63.3	2.5	4.9	36.6	749
Second	68.6	1.4	0.8	31.3	1,624	71.3	2.9	6.5	28.5	753
Middle	77.5	3.8	2.5	22.5	1,779	71.4	4.4	9.8	28.5	728
Fourth	86.4	9.3	7.1	13.3	2,047	80.4	7.7	15.5	19.5	864
Highest	88.7	25.8	19.0	11.0	2,207	83.7	18.4	24.5	15.1	1,024
Total	76.8	9.4	6.9	23.0	9,239	74.9	7.9	13.2	24.8	4,118

7.13 CONTACT OF NONUSERS WITH FAMILY PLANNING PROVIDERS

In the 2013 LDHS, women who were not using any contraceptive method were asked whether a fieldworker talked with them about family planning in the 12 months preceding the survey. This information is especially useful for determining whether family planning outreach programs reach nonusers. Nonusers were also asked if they had visited a health facility in the preceding 12 months for any reason, and if so, whether any

staff member at the facility had spoken to them about family planning. These questions help to assess the level of missed opportunities to inform women about contraception.

The results shown in Table 7.13 indicate that 15 percent of nonusers reported discussing family planning when a fieldworker visited them. Forty-four percent of nonusers visited a health facility and discussed family planning, while 17 percent of the nonusers had visited a facility but did not discuss family planning.

Table 7.13 Contact of nonusers with family planning providers

Among women age 15-49 who are not using contraception, the percentage who during the past 12 months were visited by a fieldworker who discussed family planning, the percentage who visited a health facility and discussed family planning, the percentage who visited a health facility but did not discuss family planning, and the percentage who did not discuss family planning either with a fieldworker or at a health facility, by background characteristics, Liberia 2013

Background characteristic	Percentage of women who were visited by fieldworker who discussed family planning	Percentage of women who visited a health facility in the past 12 months and who:		Percentage of women who did not discuss family planning either with fieldworker or at a health facility	Number of women
		Discussed family planning	Did not discuss family planning		
Age					
15-19	11.5	31.3	15.2	64.0	1,723
20-24	17.1	49.7	16.5	43.8	1,173
25-29	15.6	53.1	18.6	43.6	1,180
30-34	17.4	51.0	18.9	44.2	897
35-39	14.9	46.2	19.2	49.5	924
40-44	14.9	42.6	14.9	53.1	673
45-49	11.9	37.7	16.2	57.2	663
Residence					
Urban	15.2	44.4	17.1	50.6	4,249
Greater Monrovia	12.0	40.2	19.6	55.1	2,404
Other urban	19.3	50.0	13.8	44.7	1,845
Rural	13.8	43.0	16.9	52.7	2,983
Region					
North Western	16.0	47.0	12.5	49.0	654
South Central	12.2	43.3	19.6	52.1	3,609
South Eastern A	16.9	36.2	17.2	58.1	377
South Eastern B	7.1	25.6	25.8	71.0	451
North Central	19.5	48.9	12.2	45.7	2,140
County					
Bomi	20.7	44.4	18.3	47.7	187
Bong	14.8	54.7	14.9	41.3	715
Gbarpolu	11.7	40.2	19.1	56.5	132
Grand Bassa	8.5	30.2	31.0	66.0	381
Grand Cape Mount	15.0	51.1	6.7	46.8	335
Grand Gedeh	26.5	37.1	15.0	55.7	129
Grand Kru	7.8	15.6	21.4	79.4	172
Lofa	9.1	39.0	16.7	59.3	394
Margibi	12.8	56.1	13.8	38.6	613
Maryland	5.4	26.9	30.5	71.0	205
Montserrado	12.5	42.2	19.2	53.3	2,615
Nimba	26.7	48.7	8.6	43.6	1,031
River Cess	10.3	50.9	15.1	46.7	110
River Gee	9.8	45.3	23.1	51.5	75
Sinoe	13.2	23.7	20.8	69.4	139
Education					
No education	13.4	45.8	16.3	50.4	2,595
Primary	14.5	40.9	14.3	54.1	2,359
Secondary and higher	16.1	44.6	20.6	49.8	2,278
Wealth quintile					
Lowest	12.1	39.0	18.2	56.8	1,361
Second	15.8	43.5	14.6	50.8	1,349
Middle	17.2	49.4	14.2	45.6	1,383
Fourth	16.4	47.2	13.9	47.9	1,500
Highest	11.9	40.2	23.3	55.7	1,639
Total	14.6	43.8	17.0	51.4	7,232

Variations in the percentage of nonusers who discussed family planning with either a fieldworker or at a health facility were greatest by county. For example, more than one in four nonusers in Grand Gedeh and Nimba (27 percent) discussed family planning with a field worker compared with one in 20 (5 percent) of nonusers in Maryland. Among nonusers, over half of those in Margibi (56 percent), Bong (55 percent), Grand Cape Mount (51 percent), and River Cess (51 percent) visited a health facility in the past 12 months and discussed family planning; in contrast, only one in six nonusers in Grand Kru (16 percent) visited a facility and discussed family planning.

Overall, 51 percent of nonusers did not discuss family planning with a fieldworker or a staff member at a health facility. This represents a significant pool of potential users of family planning who could be targeted for family planning counseling. A more vigorous outreach program will be needed to reach these women.

INFANT AND CHILD MORTALITY

8

Key Findings

- The under-5 mortality rate in Liberia is 94 deaths per 1,000 live births. That is, about 1 in 11 Liberian children dies before they reach age 5.
- The infant mortality rate, or deaths before the first birthday, is 54 deaths per 1,000 live births. About half of these occur in the first month of life.
- Under-5 mortality has been cut in half over the 15 years prior to the 2013 LDHS; neonatal, postneonatal, infant, and child mortality all declined as well over this 15-year span.
- Under-5 mortality is highest in South Eastern B and North Western regions and lowest in North Central region.
- Survey data show that spacing births farther apart could have an enormous impact on reducing under-5 mortality in Liberia.

I nformation on levels, trends, and differentials in neonatal, infant, and child mortality is important in the demographic assessment of the population and the evaluation of health policies and programs. Estimates of infant and child mortality are used for population projections, particularly if the level of adult mortality is known from another source or can be inferred with reasonable confidence. Information on mortality of children serves the needs of agencies providing health services by identifying subgroups of the population at high risk of mortality.

8.1 BACKGROUND AND ASSESSMENT OF DATA QUALITY

The rates of childhood mortality presented in this chapter are defined as follows:

- **Neonatal mortality:** the probability of dying within the first month of life

- **Postneonatal mortality:** the arithmetic difference between infant and neonatal mortality

- **Infant mortality:** the probability of dying between birth and the first birthday

- **Child mortality:** the probability of dying between the first and the fifth birthday

- **Under-5 mortality:** the probability of dying between birth and the fifth birthday

All rates are expressed as deaths per 1,000 live births, except child mortality, which is expressed as deaths per 1,000 children surviving to the first birthday.

Information drawn from the questions asked in the birth history section of the Woman's Questionnaire is used to calculate the mortality rates presented in this chapter. First, the respondents were asked a series of questions about their childbearing experience. In particular, they were asked to report the number of sons and daughters living with them, the number living elsewhere, and the number who have died. In the birth history, for each live birth, information was collected on sex; month and year of birth; survivorship status; and current age or, if the child has died, age at death.

The quality of mortality estimates calculated from retrospective birth histories depends on the mother's ability to recall all of the children she has given birth to, as well as their birth dates and ages at death. Potentially the most serious data quality problem is the selective omission from the birth histories of those births that did not survive. If the problem of omission is serious, it can result in underestimation of childhood mortality. If selective omission of childhood deaths occurs, it is usually most severe for deaths early in infancy. Generally, if deaths are substantially underreported, the result is a low ratio of early neonatal deaths (deaths within the first week of life) to all neonatal deaths and a low ratio of neonatal deaths to infant deaths.

An examination of the proportion of early neonatal deaths to all neonatal deaths (Appendix Table C.5) shows that early neonatal deaths represented 75 percent of all neonatal deaths for the five-year period prior to the 2013 LDHS.[1] The percentage of early neonatal deaths was essentially equivalent during the period 5-19 years preceding the survey. In comparison, the proportion of early neonatal deaths for the five-year period prior to the 2007 LDHS was 79 percent.

An examination of the proportion of neonatal deaths to infant deaths (Appendix Table C.6) shows that neonatal deaths represented 53 percent of infant deaths for the five-year period prior to the 2013 LDHS. This is higher than the proportion reported in the period 5-19 years before the survey, which ranged between 37 percent and 51 percent, and higher than the proportion reported for the five-year period prior to the 2007 LDHS (48 percent).

Another potential data quality problem involves the displacement of birth dates, which may distort mortality trends. This can occur if an interviewer knowingly records a birth as occurring in a different year, which could happen if an interviewer were trying to cut down on his or her overall work load, because live births occurring during the five years preceding the interview are the subject of a lengthy set of additional questions. In the 2013 LDHS questionnaire, the cut-off year for these questions was 2008. Appendix Table C.4 shows evidence of clear transference of children from 2008 to earlier years. For example, there were 1,558 children born in 2007 compared with 1,155 born in 2008, a 35 percent increase.

A third factor that affects childhood mortality estimates is the quality of reporting of age at death. Misreporting of the child's age at death may distort the age pattern of mortality, especially if the net effect of the age misreporting is to transfer deaths from one age bracket to another. For example, a net transfer of deaths from under 1 month to a higher age will affect the estimates of neonatal and postneonatal mortality. To minimize errors in reporting age at death, LDHS interviewers were instructed to record age at death in days if the death took place in the month following the birth, in months if the child died before age 2, and in years if the child was at least age 2. They also were asked to probe for deaths reported at age 1 to determine a more precise age at death in terms of months.

Appendix Table C.6 shows that, for the five years preceding the survey, the number of reported deaths at age 12 months is comparable to the number of deaths reported at 11 months and at 13 months, but is much greater than the number reported at 10 months, indicating distortion of the infant mortality rate. There were also a number of deaths reported to have occurred at age "1 year," despite the instructions given to interviewers. It is likely that at least some of these deaths may have occurred before the child's first birthday and thus should be classified as infant deaths.

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[1] There are no models for mortality patterns during the neonatal period. However, one review of data from several developing countries concluded that, at neonatal mortality levels of 20 per 1,000 or higher, approximately 70 percent of neonatal deaths occur within the first six days of life (Boerma, 1988).

Finally, any method of measuring childhood mortality that relies on mothers' reports (e.g., birth histories) assumes that female adult mortality is not high, or if it is high, that there is little or no correlation between the mortality risks of the mothers and those of their children. In countries like Liberia that have low rates of female adult mortality due to HIV (see Chapter 14), these assumptions are likely valid.

8.2 INFANT AND CHILD MORTALITY LEVELS AND TRENDS

Table 8.1 presents childhood mortality rates for the three five-year periods before the 2013 LDHS. The data show that, for the five-year period immediately prior to the survey, under-5 mortality was 94 per 1,000 live births; that is, around 1 of every 11 Liberian children died before reaching their fifth birthday during the five-year period. The infant mortality rate was 54 deaths per 1,000 live births, and the neonatal mortality rate was 26 per 1,000 births. That is, nearly 60 percent of under-5 deaths occurred during infancy, with more than one-quarter taking place during the first month of life.

Table 8.1 Early childhood mortality rates

Neonatal, postneonatal, infant, child, and under 5 mortality rates for five-year periods preceding the survey, Liberia 2013

Years preceding the survey	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)
0-4	26	28	54	42	94
5-9	41	44	84	52	132
10-14	43	70	113	81	185

[1] Computed as the difference between the infant and neonatal mortality rates

An examination of the mortality levels across the three successive five-year periods shown in Table 8.1 suggests that under-5 mortality has progressively declined over the 15 years prior to the 2013 LDHS: from 185 deaths per 1,000 live births during the period circa 1998 to 2002, to 132 deaths per 1,000 live births during the period circa 2003 to 2007, to 94 deaths per 1,000 live births during the period circa 2008 to 2012. Neonatal, postneonatal, infant, and child mortality all declined during this 15-year span.

Trends in mortality in early childhood can also be explored by examining the mortality results from successive rounds of DHS surveys in Liberia. Figure 8.1 shows neonatal, postneonatal, infant, child, and under-5 mortality rates for the five-year periods preceding the 1986, 2007, and 2013 LDHS surveys. The overall pattern suggests that mortality levels have continued to decline over the past three decades.[2]

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[2] Data from the 1999/2000 LDHS are not shown due to methodological differences between that survey and other LDHS surveys. In the 1999/2000 LDHS, infant mortality was 117 deaths per 1,000 live births, child mortality was 90 deaths per 1,000 live births, and under-5 mortality was 194 deaths per 1,000 live births. Data for neonatal and postneonatal mortality were not reported in the 1999/2000 LDHS.

Figure 8.1 Trends in childhood mortality 1981-2012

Deaths per
1,000 live births

	1986 LDHS (1981-1985)	2007 LDHS (2002-2006)	2013 LDHS (2008-2012)
Neonatal mortality	68	32	26
Post-neonatal mortality	76	39	28
Infant mortality	144	71	54
Child mortality	91	41	42
Under-5 mortality	222	110	94
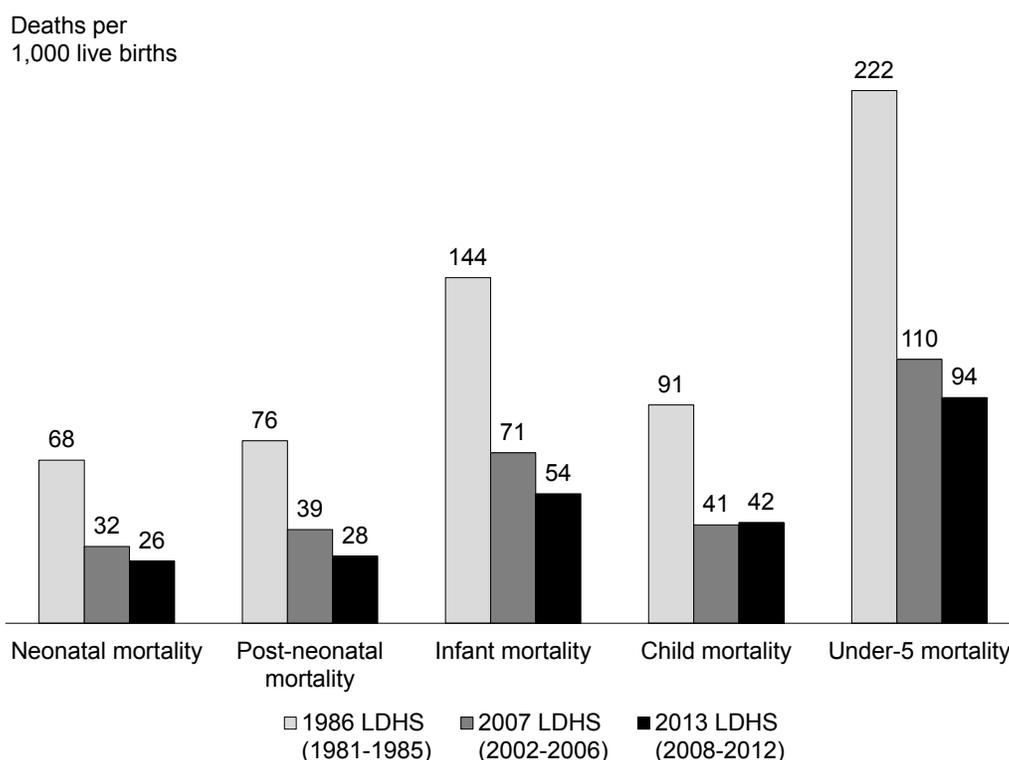
8.3   SOCIOECONOMIC DIFFERENTIALS IN EARLY CHILDHOOD MORTALITY

Table 8.2 shows differentials in infant and child mortality by residence, region, mother's education, and wealth quintile. The mortality estimates are calculated for the 10-year period before the survey so that the rates are based on a sufficient number of cases in each category to ensure statistically reliable estimates.

Under-5 mortality is higher in rural areas (120 deaths per 1,000 live births) than in urban areas (106 deaths per 1,000 live births). Child, infant, and postneonatal mortality are also higher in rural areas than in urban areas. However, neonatal mortality is higher in urban areas (37 deaths per 1,000 live births), especially in Greater Monrovia (41 deaths per 1,000 live births), than in rural areas (31 deaths per 1,000 live births).

A mother's education and the wealth quintile into which a child is born also relate to survival. The under-5 mortality rate is lower for children born to mothers with secondary and higher education (97 deaths per 1,000 live births) than for children with mothers with only primary education (111 deaths per 1,000 live births) or no education (122 deaths per 1,000 live births). The under-5 mortality rate is substantially lower in the highest wealth quintile (99 deaths per 1,000 live births) than in the lowest quintile (130 deaths per 1,000 live births).

Table 8.2 Early childhood mortality rates by socioeconomic characteristics

Neonatal, postneonatal, infant, child, and under-5 mortality rates for the 10-year period preceding the survey, by background characteristics, Liberia 2013

Background characteristic	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)
Residence					
Urban	37	29	66	42	106
Greater Monrovia	41	29	70	42	109
Other urban	33	29	62	43	102
Rural	31	42	73	51	120
Region					
North Western	39	54	93	53	141
South Central	39	34	73	42	112
South Eastern A	26	44	70	47	113
South Eastern B	50	36	86	62	143
North Central	22	30	52	47	97
Mother's education					
No education	34	41	75	50	122
Primary	35	33	68	46	111
Secondary and higher	32	28	60	40	97
Wealth quintile					
Lowest	38	41	79	55	130
Second	26	39	65	50	112
Middle	32	35	67	41	105
Fourth	41	30	71	44	112
Highest	32	30	62	40	99

[1] Computed as the difference between the infant and neonatal mortality rates

8.4   DEMOGRAPHIC DIFFERENTIALS IN EARLY CHILDHOOD MORTALITY

The relationship between early childhood mortality and various demographic variables is examined in Table 8.3. Mortality rates for male and female children are generally similar. The largest difference is in the neonatal mortality rate, with higher mortality for males (37 deaths per 1,000 live births) than for females (30 deaths per 1,000 live births).

Studies have shown that a longer birth interval seems to increase a child's chance of survival. Data from the 2013 LDHS support this observation. For example, under-5 mortality decreases from 190 deaths per 1,000 live births for children born less than two years after a preceding sibling to 60 deaths per 1,000 live births for children born four years or more after a preceding sibling. Child, infant, postneonatal, and neonatal mortality rates also generally decline as the interval between births increases. These findings point out the potential for mortality reduction that could result from successful efforts to promote birth spacing in Liberia.

A child's size at birth is an indicator of the risk of dying during infancy, particularly during the first months of life. In the 2013 LDHS, in addition to recording the actual birth weight, interviewers asked mothers whether each of their children born in the last five years were very small, small, average size, large, or very large at birth. This type of subjective assessment has been shown to correlate closely with actual birth weight. Survey results indicate that newborns perceived by their mothers to be very small or small were more likely to die in their first year than those perceived as average or larger in size; the differential is especially great during the neonatal period.

Table 8.3 Early childhood mortality rates by demographic characteristics

Neonatal, postneonatal, infant, child, and under-5 mortality rates for the 10-year period preceding the survey, by demographic characteristics, Liberia 2013

Demographic characteristic	Neonatal mortality (NN)	Postneonatal mortality (PNN)[1]	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under-5 mortality ($_5q_0$)
Child's sex					
Male	37	35	72	46	115
Female	30	37	67	48	111
Mother's age at birth					
<20	36	39	75	59	129
20-29	35	34	69	44	110
30-39	30	37	67	41	105
40-49	30	33	63	(59)	(118)
Birth order					
1	35	35	70	50	117
2-3	28	28	57	42	97
4-6	33	43	75	43	115
7+	48	42	90	63	148
Previous birth interval[2]					
<2 years	64	70	134	65	190
2 years	31	37	67	50	114
3 years	19	28	46	45	89
4+ years	22	14	36	25	60
Birth size[3]					
Small/very small	56	39	94	na	na
Average or larger	18	23	41	na	na

Note: Figures in parentheses are based on 250-499 unweighted person-years of exposure to the risk of death.
na = Not applicable
[1] Computed as the difference between the infant and neonatal mortality rates
[2] Excludes first-order births
[3] Rates for the five-year period before the survey

8.5 PERINATAL MORTALITY

Pregnancy losses occurring after seven completed months of gestation (stillbirths) plus deaths of live births within the first seven days of life (early neonatal deaths) constitute perinatal deaths. The distinction between a stillbirth and an early neonatal death is recognized as a fine one, often depending on observing and then remembering sometimes faint signs of life after delivery. Furthermore, the causes of stillbirths and early neonatal deaths are closely linked, and examining just one or the other can understate the true level of mortality around delivery. For this reason, deaths around time of delivery are combined into the perinatal mortality rate. Information on stillbirths is available for the five years preceding the survey and was collected using the calendar at the end of the Woman's Questionnaire.

Table 8.4 indicates that the perinatal mortality for the country as a whole is 30 deaths per 1,000 pregnancies of seven or more months in duration. Differentials in perinatal mortality across selected background characteristics of the mothers vary widely. For example, perinatal mortality is particularly high in South Eastern B (53 deaths per 1,000 pregnancies) relative to other regions (21 to 37 deaths per 1,000 pregnancies). Perinatal mortality generally declines with age and the length of the preceding pregnancy interval.

Table 8.4 Perinatal mortality

Number of stillbirths and early neonatal deaths, and the perinatal mortality rate for the five-year period preceding the survey, by background characteristics, Liberia 2013

Background characteristic	Number of stillbirths[1]	Number of early neonatal deaths[2]	Perinatal mortality rate[3]	Number of pregnancies of 7+ months duration
Mother's age at birth				
<20	17	28	33	1,375
20-29	32	75	33	3,229
30-39	18	23	24	1,697
40-49	3	3	21	270
Previous pregnancy interval in months[4]				
First pregnancy	19	38	37	1,536
<15	6	22	40	698
15-26	8	27	27	1,327
27-38	10	18	25	1,101
39+	27	24	26	1,910
Residence				
Urban	38	67	32	3,278
Greater Monrovia	14	28	26	1,635
Other urban	23	39	38	1,644
Rural	32	62	29	3,293
Region				
North Western	6	21	37	737
South Central	28	49	29	2,697
South Eastern A	2	8	21	495
South Eastern B	5	23	53	534
North Central	28	28	26	2,110
Mother's education				
No education	17	45	23	2,729
Primary	28	51	39	2,011
Secondary and higher	25	32	31	1,832
Wealth quintile				
Lowest	17	39	35	1,596
Second	13	14	19	1,466
Middle	17	27	32	1,384
Fourth	15	36	41	1,248
Highest	8	13	23	877
Total	70	129	30	6,572

[1] Stillbirths are fetal deaths in pregnancies lasting seven or more months.
[2] Early neonatal deaths are deaths at age 0-6 days among live-born children.
[3] The sum of the number of stillbirths and early neonatal deaths divided by the number of pregnancies of seven or more months' duration, expressed per 1,000.
[4] Categories correspond to birth intervals of <24 months, 24-35 months, 36-47 months, and 48+ months.

8.6   HIGH-RISK FERTILITY BEHAVIOR

Typically, infants and young children have a higher risk of dying if they are born to very young mothers or older mothers, if they are born after a short birth interval, or if their mothers have already had many children. In the following analysis, mothers are classified as at risk if they are younger than age 18 or older than age 35 at the time of childbirth. A short birth interval is defined as less than 24 months, and a high-order birth is defined as occurring after three or more previous births (i.e., birth order 4 or higher). A child may be at an elevated risk of dying due to a combination of factors.

The first column of Table 8.5 shows the percentage of births in the five years before the survey classified by various risk categories. Overall, 55 percent of births involved at least one avoidable risk factor, with 37 percent involving a single risk factor and 19 percent involving multiple risk factors.

The second column in Table 8.5 presents risk ratios, which represent the increased risk of mortality among births in various high-risk categories relative to births not having any high-risk characteristics. Among births involving a single risk factor, a birth interval less than 24 months (risk ratio = 1.48) and mother's age less than 18 (risk ratio = 1.34) are the single factors most associated with increased risk of under-5 mortality in Liberia. Overall, the risk ratio for single risk factor births was 1.18. Multiple risk factor births were generally associated with higher risk ratios than single risk factor births, with an overall risk ratio of 1.31.

The third column of Table 8.5 shows the distribution of currently married women by the risk category into which a birth conceived at the time of the survey would fall. The data in the table show that 20 percent of women are not in any high-risk category, and 3 percent are only at risk of having their first birth between ages 18 and 34, which is considered to be an unavoidable risk. Seventy-seven percent of currently married women in the 2013 LDHS have at least one avoidable risk factor, with 30 percent having a single risk factor and 47 percent having multiple risk factors.

Table 8.5 High-risk fertility behavior

Percent distribution of children born in the five years preceding the survey by category of elevated risk of mortality and risk ratio, and percent distribution of currently married women by category of risk if they were to conceive a child at the time of the survey, Liberia 2013

Risk category	Births in the 5 years preceding the survey		Percentage of currently married women[1]
	Percentage of births	Risk ratio	
Not in any high-risk category	28.7	1.00	19.7[a]
Unavoidable risk category			
First-order births between ages 18 and 34 years	15.9	1.29	3.4
Single high-risk category			
Mother's age <18	9.5	1.34	0.5
Mother's age >34	1.1	0.00	4.5
Birth interval <24 months	4.6	1.48	7.7
Birth order >3	21.6	1.11	17.6
Subtotal	36.8	1.18	30.3
Multiple high-risk category			
Age <18 and birth interval <24 months[2]	0.5	(1.42)	0.3
Age >34 and birth interval <24 months	0.0	*	0.2
Age >34 and birth order >3	11.6	0.92	31.8
Age >34 and birth interval <24 months and birth order >3	1.5	2.26	4.7
Birth interval <24 months and birth order >3	5.0	1.92	9.6
Subtotal	18.6	1.31	46.6
In any avoidable high-risk category	55.4	1.23	76.8
Total	100.0	na	100.0
Number of births/women	6,502	na	5,386

Note: Risk ratio is the ratio of the proportion dead among births in a specific high-risk category to the proportion dead among births not in any high-risk category. Ratios in parentheses are based on 25-49 unweighted births. An asterisk indicates that a ratio is based on fewer than 25 unweighted births and has been suppressed.
na = Not applicable
[1] Women are assigned to risk categories according to the status they would have at the birth of a child if they were to conceive at the time of the survey: current age less than 17 years and 3 months or older than 34 years and 2 months, latest birth less than 15 months ago, or latest birth being of order 3 or higher.
[2] Includes the category age <18 and birth order >3
[a] Includes sterilized women

MATERNAL HEALTH CARE

9

> **Key Findings**
>
> - Ninety-six percent of women age 15-49 who gave birth in the five years preceding the survey received prenatal care from a skilled provider during pregnancy for their most recent birth. Two-thirds of women received prenatal care during their first trimester.
> - Eighty-four percent of the women who gave birth in the five years preceding the survey received two or more tetanus toxoid injections during pregnancy, ensuring that their most recent live birth was protected against neonatal tetanus.
> - Fifty-six percent of live births in the five years preceding the survey took place in a health facility, and 61 percent of live births were delivered by a skilled provider.
> - Among women who gave birth in the two years preceding the survey, 71 percent received a postnatal checkup within the first two days after birth, and 57 percent received the checkup from a skilled provider.
> - Among women who had a birth in the two years preceding the survey, 35 percent of their newborns received a postnatal check-up in the first two days after birth, and 30 percent received a check-up from a skilled provider.
> - Forty-seven percent of women report that getting money for treatment is a problem in accessing health care when they are sick; 40 percent of women indicate that distance to a health facility is a problem.

The health care services that a mother receives during pregnancy, childbirth, and the immediate postnatal period are important for the survival and wellbeing of both the mother and the infant. The 2013 LDHS obtained information on the extent to which women in Liberia receive care during each of these stages. These results are important to those who design policy and implement programs to improve maternal and child health care services.

9.1 PRENATAL CARE

Prenatal care from a skilled provider is important to monitor pregnancy and reduce the risks for both mother and child during pregnancy, at delivery and within the postnatal period (within 42 days after delivery). Prenatal care enables (1) screening and/or early detection of complications and prompt treatment (e.g., of sexually transmitted infections or anemia); (2) prevention of diseases through immunization and micronutrient supplementation; (3) birth preparedness and complication readiness; (4) health promotion and disease prevention through health messages; and (5) advice and counseling of pregnant women, including place of delivery and referral of mothers with complications.

Collecting information on prenatal care is relevant for identifying subgroups of women who do not use such services and is useful in planning improvements in services provided. In the 2013 LDHS, women who had given birth in the five years preceding the survey were asked whether they had received prenatal care for their last live birth. If the respondent had received prenatal care for her last birth, she was then asked a series of questions

about the care she received, such as the type of provider, number of visits made, stage of pregnancy at the time of the first visit, and services and information provided during these visits. For women with two or more live births during the five-year period preceding the survey, data refer to the most recent birth.

Table 9.1 presents information about the type of provider from whom prenatal care services were received for the most recent birth, according to background characteristics. For women who reported more than one source of prenatal services, only the provider with the highest qualifications is presented in the table. Ninety-six percent of women age 15-49 who had a live birth in the five years preceding the survey received prenatal care from a skilled provider (doctor, nurse, midwife, or physician's assistant) during their last pregnancy. This figure is markedly higher than that reported in the 2007 LDHS (79 percent). Eighteen percent of women received care from a doctor, 76 percent from a nurse or midwife, and 2 percent from a physician's assistant. Only 2 percent of women received care from a traditional midwife or other unskilled provider, as compared with 17 percent of women in the 2007 LDHS. Two percent of women received no prenatal care, as compared with 4 percent in the 2007 LDHS. These improvements in the provision of prenatal care by skilled providers may be attributed to the increased number of, and geographic access to, health facilities and increased numbers of skilled providers across Liberia in recent years (MOHSW, 2011a).

There are modest differences in the percentage of women who receive prenatal care from a skilled provider by place of residence. In urban areas, 98 percent of pregnant women age 15–49 receive prenatal care from skilled providers, while in rural areas, the corresponding percentage is 93 percent. Women in Greater Monrovia (25 percent) are more likely than either women from other urban areas (15 percent) or rural women (15 percent) to receive prenatal care from a doctor. By county, prenatal care coverage by a skilled provider is highest in Montserrado (99 percent) and lowest in Grand Kru (86 percent) and Sinoe (87 percent).

There are modest educational and wealth status variations in the percentages of women who receive prenatal care from a skilled provider. For example, women with secondary and higher education are more likely to receive prenatal care services from a doctor (22 percent) than women with primary or no education (16 percent each). Women's economic status also correlates with prenatal care provider type. Women in the highest wealth quintile (26 percent) are more likely to receive prenatal care from a doctor compared with those in the lower wealth quintiles (16 to 18 percent).

Table 9.1 Prenatal care

Percent distribution of women age 15-49 who had a live birth in the five years preceding the survey by prenatal care provider during pregnancy for the most recent birth and the percentage receiving prenatal care from a skilled provider for the most recent birth, according to background characteristics, Liberia 2013

| Background characteristic | Prenatal care provider | | | | | No prenatal care | Total | Percentage receiving prenatal care from a skilled provider[1] | Number of women |
	Doctor	Nurse/ midwife	Physician's Assistant	Traditional midwife	Other				
Mother's age at birth									
<20	20.0	74.5	2.2	1.3	0.0	2.0	100.0	96.7	971
20-34	16.6	77.7	1.7	1.6	0.1	2.3	100.0	96.0	3,031
35-49	20.0	73.8	0.8	1.9	0.2	3.2	100.0	94.6	768
Birth order									
1	21.2	74.7	1.7	1.2	0.0	1.2	100.0	97.6	1,161
2-3	17.2	76.9	1.8	1.9	0.0	2.2	100.0	95.9	1,700
4-5	17.4	76.3	1.2	1.5	0.1	3.2	100.0	94.9	998
6+	15.2	77.7	1.8	1.6	0.2	3.3	100.0	94.8	911
Residence									
Urban	20.1	76.9	1.1	0.6	0.0	1.2	100.0	98.0	2,555
Greater Monrovia	25.2	72.7	1.0	0.7	0.0	0.4	100.0	98.9	1,332
Other Urban	14.6	81.4	1.1	0.6	0.0	2.1	100.0	97.1	1,223
Rural	15.2	75.8	2.3	2.7	0.1	3.7	100.0	93.4	2,215
Region									
North Western	11.7	81.6	1.4	2.6	0.4	2.3	100.0	94.8	496
South Central	20.0	76.5	1.2	0.7	0.0	1.5	100.0	97.7	2,103
South Eastern A	17.6	72.5	2.6	2.7	0.1	4.3	100.0	92.7	328
South Eastern B	20.4	66.1	3.6	2.3	0.1	7.1	100.0	90.1	352
North Central	16.3	77.8	1.7	2.1	0.0	2.0	100.0	95.8	1,491
County									
Bomi	30.2	61.1	0.0	7.6	0.0	1.1	100.0	91.3	128
Bong	10.1	84.0	1.2	1.1	0.0	3.5	100.0	95.3	559
Gbarpolu	8.3	85.2	1.5	0.3	0.8	4.0	100.0	94.9	112
Grand Bassa	20.8	69.7	2.0	1.5	0.3	5.7	100.0	92.4	267
Grand Cape Mount	4.0	90.4	2.1	1.0	0.3	2.1	100.0	96.4	256
Grand Gedeh	22.8	70.5	2.1	1.3	0.2	2.3	100.0	95.3	112
Grand Kru	30.1	50.6	5.6	4.7	0.0	8.4	100.0	86.3	147
Lofa	41.6	45.8	3.4	8.3	0.0	0.7	100.0	90.8	262
Margibi	3.0	92.8	1.7	0.2	0.0	2.3	100.0	97.4	349
Maryland	10.6	80.0	1.5	0.3	0.2	7.4	100.0	92.1	141
Montserrado	23.9	73.9	0.9	0.7	0.0	0.6	100.0	98.7	1,487
Nimba	11.6	85.1	1.6	0.4	0.0	1.3	100.0	98.3	670
River Cess	5.3	87.8	3.7	0.9	0.0	2.3	100.0	96.8	92
River Gee	19.8	71.5	3.5	1.2	0.4	3.4	100.0	94.8	63
Sinoe	21.9	63.0	2.2	5.4	0.0	7.5	100.0	87.2	124
Education									
No education	16.3	75.1	1.9	2.0	0.1	4.4	100.0	93.3	1,862
Primary	15.7	79.5	1.7	1.4	0.1	1.6	100.0	96.8	1,428
Secondary and higher	21.9	75.1	1.3	1.2	0.0	0.5	100.0	98.3	1,479
Wealth quintile									
Lowest	16.5	72.6	2.6	2.9	0.3	5.2	100.0	91.6	1,052
Second	15.7	77.3	1.6	2.4	0.0	2.8	100.0	94.5	995
Middle	15.5	79.8	1.9	1.1	0.0	1.7	100.0	97.1	1,014
Fourth	18.2	78.6	1.4	0.7	0.0	1.0	100.0	98.2	972
Highest	25.6	73.0	0.5	0.4	0.0	0.4	100.0	99.1	736
Total	17.9	76.4	1.7	1.6	0.1	2.4	100.0	95.9	4,769

Note: If more than one source of prenatal care was mentioned, only the provider with the highest qualifications is considered in this tabulation. Total includes 4 cases for which information on prenatal care provider is missing.
[1] Skilled provider includes doctor, nurse, midwife, and physician's assistant.

9.2 NUMBER AND TIMING OF PRENATAL VISITS

Prenatal care is more effective in preventing adverse pregnancy outcomes when sought early in the pregnancy and continued through to delivery. Health professionals recommend that the first prenatal visit occur within 12 to 16 weeks of pregnancy. The second visit should occur at 28 weeks, the third visit at 32 weeks, and the fourth visit at 36 weeks. Under normal circumstances, WHO recommends that a woman without complications should have at least four visits. Women with complications, special needs, or conditions beyond the scope of basic care may require additional visits.

In the 2013 LDHS, respondents were asked how many prenatal care visits they made during the pregnancy preceding their last live birth in the five years before the survey and how many months pregnant they were at the time of the first visit. Table 9.2 shows that among women who had a live birth in the five years preceding the survey, 78 percent had four or more prenatal care visits, 15 percent had two to three visits, and 2 percent had one visit only. Only 2 percent of women received no prenatal care, down from 4 percent in the 2007 LDHS. Urban women are more likely to receive four or more visits (83 percent) than rural women (72 percent).

Table 9.2 also shows that the majority of women (67 percent) had their first visit at less than four months of pregnancy, as recommended. Twenty-four percent of women had their first visit in the fourth to the fifth month of pregnancy, 6 percent had their first visit in the sixth to the seventh month of pregnancy, and 1 percent had their first visit from the eighth month onwards. The median duration of pregnancy at the first visit was 3.3 months, down from 3.5 months in the 2007 LDHS. This is within the recommended period for the first prenatal care visit.

Table 9.2 Number of prenatal care visits and timing of first visit

Percent distribution of women age 15-49 who had a live birth in the five years preceding the survey by number of prenatal care visits for the most recent live birth, and by the timing of the first visit, and among women with prenatal care, median months pregnant at first visit, according to residence, Liberia 2013

Number and timing of prenatal visits	Residence		Total
	Urban	Rural	
Number of prenatal care visits			
None	1.3	3.7	2.4
1	0.5	2.9	1.6
2-3	11.7	17.6	14.5
4+	83.4	72.0	78.1
Don't know/missing	3.1	3.8	3.4
Total	100.0	100.0	100.0
Number of months pregnant at time of first prenatal care visit			
No prenatal care	1.3	3.7	2.4
<4	68.6	64.3	66.6
4-5	24.7	23.3	24.1
6-7	4.8	6.9	5.8
8+	0.3	1.0	0.7
Don't know/missing	0.3	0.7	0.5
Total	100.0	100.0	100.0
Number of women	2,555	2,215	4,769
Median months pregnant at first visit (for those with prenatal care)	3.3	3.3	3.3
Number of women with prenatal care	2,523	2,132	4,655

9.3 COMPONENTS OF PRENATAL CARE

The content of prenatal care is an essential component of the quality of services. Apart from receiving basic care, every pregnant woman should be monitored for complications. Ensuring that pregnant women receive information on and undergo screening for complications should be a routine part of all prenatal care visits. To assess prenatal care services, respondents were asked whether they had been advised of complications or received certain screening tests during at least one of the prenatal care visits.

Table 9.3 presents information on the content of prenatal services, including the percentages of women who took iron supplements, took drugs for intestinal parasites, were informed of the signs of pregnancy complications, and received selected routine services during prenatal care visits for their most recent birth in the past five years.

Table 9.3 Components of prenatal care

Among women age 15-49 with a live birth in the five years preceding the survey, the percentage who took iron tablets and drugs for intestinal worms during the pregnancy of the most recent birth, and among women receiving prenatal care for the most recent live birth in the five years preceding the survey, the percentage receiving specific prenatal services, according to background characteristics, Liberia 2013

| Background characteristic | Among women with a live birth in the past five years, the percentage who during the pregnancy of their last birth | | Number of women with a live birth in the past five years | Among women who received prenatal care for their most recent birth in the past five years, the percentage with selected services | | | | Number of women with prenatal care for their most recent birth |
	Took iron tablets	Took drugs for intestinal worms		Informed of signs of pregnancy complications	Blood pressure measured	Urine sample taken	Blood sample taken	
Mother's age at birth								
<20	97.5	53.9	971	67.9	97.6	87.8	93.9	952
20-34	96.3	58.3	3,031	70.7	97.2	84.6	92.8	2,960
35-49	96.2	61.3	768	70.1	97.7	85.1	92.8	743
Birth order								
1	97.5	55.0	1,161	71.0	97.9	89.0	94.8	1,147
2-3	97.1	60.5	1,700	70.5	97.1	86.3	93.9	1,663
4-5	95.4	57.3	998	68.9	97.2	85.4	92.0	965
6+	95.4	57.3	911	69.2	97.2	78.8	90.1	879
Residence								
Urban	98.0	59.8	2,555	74.3	98.4	91.9	96.4	2,523
Greater Monrovia	99.3	60.4	1,332	81.6	100.0	97.3	98.3	1,327
Other urban	96.6	59.2	1,223	66.2	96.6	85.9	94.3	1,195
Rural	94.8	55.7	2,215	65.0	96.1	77.6	89.0	2,132
Region								
North Western	97.3	59.5	496	75.4	97.6	79.7	85.4	485
South Central	98.2	58.5	2,103	75.4	98.8	92.1	95.6	2,071
South Eastern A	92.8	56.6	328	66.4	94.9	83.5	92.6	314
South Eastern B	88.9	52.6	352	57.1	95.5	79.4	89.8	326
North Central	96.6	58.2	1,491	64.3	96.2	79.3	92.6	1,459
County								
Bomi	98.2	66.4	128	71.2	99.0	88.1	88.3	127
Bong	95.4	53.7	559	67.1	93.6	60.9	87.5	539
Gbarpolu	96.0	43.6	112	68.7	94.5	60.3	76.2	108
Grand Bassa	94.1	40.6	267	58.1	93.9	79.1	88.0	252
Grand Cape Mount	97.4	63.0	256	80.4	98.3	83.7	88.0	250
Grand Gedeh	96.2	62.0	112	73.6	96.3	92.2	97.3	109
Grand Kru	86.8	58.6	147	57.4	93.9	83.3	88.2	135
Lofa	96.5	59.5	262	49.4	97.9	84.3	94.3	259
Margibi	97.0	65.1	349	66.8	97.9	91.1	94.6	341
Maryland	91.2	44.0	141	53.9	96.3	79.8	90.4	131
Montserrado	99.2	60.1	1,487	80.4	99.8	94.6	97.2	1,478
Nimba	97.5	61.4	670	67.9	97.6	92.3	96.2	661
River Cess	96.8	58.3	92	69.7	98.2	80.7	94.1	90
River Gee	88.8	58.0	63	63.2	97.2	69.7	91.8	61
Sinoe	86.6	50.5	124	56.9	91.0	77.3	87.0	115
Education								
No education	94.2	57.1	1,862	66.9	96.2	79.2	89.9	1,778
Primary	96.9	57.3	1,428	69.3	96.9	84.1	93.2	1,405
Secondary and higher	99.0	59.6	1,479	74.7	99.2	94.0	96.6	1,472
Wealth quintile								
Lowest	93.1	52.5	1,052	65.5	94.7	75.1	87.3	997
Second	95.6	56.3	995	61.1	96.0	76.9	89.0	966
Middle	97.5	59.9	1,014	70.1	97.4	87.2	94.4	996
Fourth	98.7	59.8	972	76.1	99.4	93.7	97.6	962
Highest	98.5	62.8	736	80.1	100.0	96.9	98.2	733
Total	96.5	57.9	4,769	70.1	97.3	85.3	93.0	4,655

Overall, 97 percent of women took iron tablets during the pregnancy of their last birth. Variations by background characteristics are generally minor.

As a component of prenatal care, the administration of drugs to treat intestinal worms is much less common than the administration of iron supplements. Overall, only 58 percent of women took drugs to treat intestinal worms during their last pregnancy. Women age 35-49 were more likely than women under age 20 to have taken drugs for intestinal parasites (61 percent and 54 percent, respectively). By county, prevalence of having taken drugs for intestinal parasites ranged from a low of 41 percent in Grand Bassa to a high of 66 percent in Bomi. Women in the lowest wealth quintile were less likely than women in the highest quintile to have taken drugs for intestinal parasites (53 percent and 63 percent, respectively).

Seventy percent of the women who received prenatal care for their most recent live birth in the five years preceding the survey were informed of the signs of pregnancy complications. Women in Greater Monrovia (82 percent) were more likely to receive information than those in other urban areas (66 percent) or rural areas (65 percent). Differences are also reported by county; 80 percent of women in both Grand Cape Mount and Montserrado were informed of pregnancy complications compared to 49 percent of women in Lofa.

Education and wealth quintile have a positive association with being informed of the signs of pregnancy complications. Seventy-five percent of women with at least some secondary education and 80 percent in the highest wealth quintile were informed of the signs of pregnancy complications compared with 67 percent of women with no education and 66 percent in the lowest quintile.

Among the various other prenatal care services, overall, 97 percent of women who received prenatal care had their blood pressure measured, 85 percent had a urine sample taken, and 93 percent had a blood sample taken. By background characteristics, the likelihood of women receiving each of these prenatal care services increases with education level and wealth. In addition, women in urban areas were more likely than those in rural areas to receive each prenatal care service.

9.4 TETANUS TOXOID

Tetanus toxoid injections are given during pregnancy to prevent neonatal tetanus, a leading cause of early infant death in many developing countries that is often due to poor hygiene during delivery. For full protection of her newborn baby, a pregnant woman should receive at least two injections of the vaccine during the pregnancy. If a woman has been vaccinated during a previous pregnancy, however, she may only require one or no doses for the current pregnancy. Five doses are considered to provide lifetime protection. Among women age 15-49 with a live birth in the five years preceding the survey, Table 9.4 presents the percentage whose last birth was protected against neonatal tetanus.

Eighty-four percent of women received two or more tetanus toxoid injections during the pregnancy of their last live birth. This represents an increase from that reported in the 2007 LDHS (75 percent). Women in urban areas are more likely to have received two or more tetanus toxoid injections during the last pregnancy than women in rural areas (89 percent and 79 percent, respectively). By county, Grand Cape Mount, Lofa, and Montserrado have the highest proportion of women who received two or more tetanus toxoid injections during their last pregnancy (90 percent), while Grand Kru has the lowest proportion (52 percent).

The proportion of women who received two or more tetanus toxoid injections during pregnancy varies by level of education and wealth. Eighty-eight percent of women with secondary and higher education received two or more tetanus toxoid injections during the last pregnancy compared with 81 percent of women with no education. Women in the highest wealth quintile were more likely than women in lowest wealth quintile to receive two or more tetanus toxoid injections (91 percent and 73 percent, respectively).

Overall, 88 percent of women's last births were protected against neonatal tetanus. Differences by background characteristics follow similar patterns to those reported for women who received two or more

tetanus toxoid injections during the last pregnancy. The proportion of births protected against neonatal tetanus has increased since 2007 (88 percent compared with 78 percent).

Table 9.4 Tetanus toxoid injections

Among mothers age 15-49 with a live birth in the five years preceding the survey, the percentage receiving two or more tetanus toxoid injections during the pregnancy for the last live birth and the percentage whose last live birth was protected against neonatal tetanus, according to background characteristics, Liberia 2013

Background characteristic	Percentage receiving two or more injections during last pregnancy	Percentage whose last birth was protected against neonatal tetanus[1]	Number of mothers
Mother's age at birth			
<20	81.5	85.9	971
20-34	85.3	89.1	3,031
35-49	83.0	85.5	768
Birth order			
1	83.8	88.0	1,161
2-3	85.8	89.6	1,700
4-5	85.1	88.1	998
6+	80.5	84.1	911
Residence			
Urban	89.0	92.3	2,555
Greater Monrovia	90.4	93.8	1,332
Other urban	87.4	90.8	1,223
Rural	78.6	82.7	2,215
Region			
North Western	85.6	87.8	496
South Central	87.0	90.6	2,103
South Eastern A	73.7	79.0	328
South Eastern B	63.1	69.4	352
North Central	86.9	90.2	1,491
County			
Bomi	89.3	91.3	128
Bong	82.3	86.4	559
Gbarpolu	71.8	76.8	112
Grand Bassa	67.5	73.5	267
Grand Cape Mount	89.8	90.9	256
Grand Gedeh	80.2	84.8	112
Grand Kru	51.5	58.7	147
Lofa	90.4	92.3	262
Margibi	87.9	91.1	349
Maryland	74.9	79.5	141
Montserrado	90.4	93.6	1,487
Nimba	89.3	92.7	670
River Cess	84.6	89.1	92
River Gee	63.8	71.5	63
Sinoe	59.8	66.3	124
Education			
No education	80.6	84.0	1,862
Primary	84.4	88.3	1,428
Secondary and higher	88.4	92.3	1,479
Wealth quintile			
Lowest	73.3	78.2	1,052
Second	81.4	85.5	995
Middle	88.3	90.9	1,014
Fourth	89.1	92.6	972
Highest	91.2	94.3	736
Total	84.2	87.8	4,769

[1] Includes mothers with two injections during the pregnancy of her last birth, or two or more injections (the last within 3 years of the last live birth), or three or more injections (the last within 5 years of the last birth), or four or more injections (the last within 10 years of the last live birth), or five or more injections at any time prior to the last birth.

9.5 PLACE OF DELIVERY

Increasing the proportion of women who deliver in health facilities is an important factor in reducing health risks to the mother and the newborn. Proper medical attention and hygienic conditions during delivery can reduce the risks of complications and infections that can cause morbidity and mortality to either the mother or the infant. Table 9.5 presents the percent distribution of live births in the five years preceding the survey by place of delivery, according to background characteristics.

Table 9.5 Place of delivery

Percent distribution of live births in the five years preceding the survey by place of delivery and percentage delivered in a health facility, according to background characteristics, Liberia 2013

| Background characteristic | Health facility | | Home | Other | Missing | Total | Percentage delivered in a health facility | Number of births |
	Public sector	Private sector						
Mother's age at birth								
<20	47.8	12.2	39.2	0.6	0.1	100.0	60.1	1,358
20-34	42.6	11.8	45.1	0.4	0.1	100.0	54.3	4,217
35-49	40.4	16.0	43.1	0.3	0.2	100.0	56.4	927
Birth order								
1	49.1	15.5	35.0	0.3	0.1	100.0	64.6	1,612
2-3	44.3	12.2	43.0	0.4	0.2	100.0	56.5	2,310
4-5	40.2	11.2	47.8	0.7	0.1	100.0	51.4	1,369
6+	37.6	10.3	51.4	0.4	0.2	100.0	47.9	1,211
Prenatal care visits[1]								
None	9.8	2.5	86.5	0.5	0.7	100.0	12.3	115
1-3	33.9	6.9	59.0	0.2	0.0	100.0	40.8	766
4+	50.3	15.5	33.7	0.4	0.0	100.0	65.8	3,726
Don't know/missing	44.1	15.5	39.8	0.5	0.0	100.0	59.7	163
Residence								
Urban	47.5	18.7	33.6	0.2	0.0	100.0	66.2	3,241
Greater Monrovia	49.5	26.6	23.9	0.0	0.0	100.0	76.1	1,621
Other urban	45.4	10.9	43.4	0.3	0.1	100.0	56.2	1,620
Rural	39.3	6.2	53.5	0.7	0.2	100.0	45.5	3,261
Region								
North Western	42.8	4.1	51.0	1.9	0.2	100.0	47.0	731
South Central	41.5	23.3	34.9	0.1	0.1	100.0	64.8	2,668
South Eastern A	55.5	3.8	39.0	1.3	0.4	100.0	59.2	492
South Eastern B	48.4	4.2	47.0	0.1	0.3	100.0	52.6	529
North Central	41.8	5.6	52.3	0.3	0.0	100.0	47.4	2,082
County								
Bomi	56.4	7.7	35.3	0.6	0.0	100.0	64.1	177
Bong	32.5	2.1	65.2	0.2	0.0	100.0	34.6	792
Gbarpolu	46.5	1.2	52.0	0.3	0.0	100.0	47.7	161
Grand Bassa	26.2	14.0	59.1	0.7	0.0	100.0	40.2	366
Grand Cape Mount	35.2	3.8	57.7	3.1	0.3	100.0	39.0	392
Grand Gedeh	66.7	2.5	28.1	1.3	1.4	100.0	69.2	157
Grand Kru	47.8	3.3	48.5	0.0	0.4	100.0	51.1	235
Lofa	72.9	2.7	23.1	1.1	0.2	100.0	75.6	342
Margibi	24.5	26.8	47.9	0.2	0.6	100.0	51.3	478
Maryland	48.9	5.4	45.6	0.1	0.0	100.0	54.3	196
Montserrado	49.1	24.3	26.7	0.0	0.0	100.0	73.3	1,824
Nimba	38.4	9.7	52.0	0.0	0.0	100.0	48.0	949
River Cess	54.8	4.0	39.7	1.5	0.0	100.0	58.8	147
River Gee	49.0	3.7	46.4	0.4	0.5	100.0	52.7	97
Sinoe	46.7	4.6	47.5	1.1	0.0	100.0	51.3	189
Mother's education								
No education	37.4	7.9	54.0	0.5	0.2	100.0	45.3	2,713
Primary	44.4	11.3	43.5	0.7	0.0	100.0	55.7	1,983
Secondary and higher	51.2	20.5	28.0	0.1	0.1	100.0	71.7	1,807
Wealth quintile								
Lowest	37.4	3.2	58.6	0.7	0.2	100.0	40.6	1,580
Second	41.9	3.8	53.5	0.6	0.2	100.0	45.7	1,452
Middle	44.5	12.0	42.7	0.6	0.1	100.0	56.5	1,367
Fourth	47.9	22.1	30.0	0.0	0.1	100.0	70.0	1,234
Highest	48.4	30.9	20.5	0.1	0.0	100.0	79.3	870
Total	43.4	12.5	43.6	0.4	0.1	100.0	55.8	6,502

[1] Includes only the most recent birth in the five years preceding the survey

Table 9.5 shows that 56 percent of births occurred in health facilities. This figure is higher than that recorded in the 2007 LDHS (37 percent). Forty-three percent of births took place in public health facilities and 13 percent happened in private health facilities. Forty-four percent of live births in the five years preceding the survey occurred at home, compared with 61 percent in the 2007 LDHS.

Women less than age 20 are slightly more likely to deliver in a health facility (60 percent) compared with women age 20-34 (54 percent) or age 35-49 (56 percent). There is a strong relationship between uptake of prenatal care and place of delivery. Only 12 percent of live births to women who received no prenatal care services took place in a health facility compared with 66 percent of live births to women who received four or more prenatal care visits.

Place of delivery differs greatly by residence; 66 percent of births in urban areas were delivered in a health facility compared with 46 percent of births in rural areas. Among urban areas, the proportion of births that occurred in a health facility was larger in Greater Monrovia than other urban areas (76 percent and 56 percent, respectively). By county, the percentage of births delivered in a health facility ranges from a low of 35 percent in Bong to a high of 76 percent in Lofa. Conversely, home deliveries are most common in Bong (65 percent) and least common in Lofa (23 percent).

There is a strong correlation between a mother's education and place of delivery, and between household wealth and place of delivery. Births to mothers with secondary and higher education are much more likely to take place in a health facility than births to mothers with no education (72 percent compared with 45 percent). Likewise, births to women in the highest wealth quintile are nearly twice as likely to take place in a health facility as births to women in the lowest wealth quintile (79 percent and 41 percent, respectively).

9.6 ASSISTANCE DURING DELIVERY

Obstetric care from a skilled provider (doctor, nurse, midwife, or physician's assistant) during delivery is recognized as a critical element in the reduction of maternal and neonatal mortality. Births delivered at home are usually more likely to be delivered without assistance from a skilled provider, whereas births delivered at a health facility are more likely to be delivered by a trained health professional. Table 9.6 shows the percent distribution of live births in the five years preceding the survey by person providing assistance at delivery and the percentage of births delivered by Caesarean section (C-section), according to background characteristics.

Sixty-one percent of live births in the five years preceding the survey were delivered by a skilled provider, with 8 percent of the deliveries assisted by a doctor, 52 percent by a nurse or midwife, and 1 percent by a physician's assistant. Thirty-five percent of births were assisted by a traditional midwife, and 4 percent by relatives or others. Overall, the percentage of live births delivered by a skilled provider observed in the 2013 LDHS (61 percent) represents an increase from the figure reported in the 2007 LDHS (46 percent).

The percentage of live births delivered by a skilled provider does not differ greatly by mother's age at birth. In contrast, large variations occur by birth order, number of prenatal care visits, place of delivery, residence, region, county, education, and wealth quintile. First-order births are more likely to receive assistance from a skilled provider (70 percent) compared with higher-order births (54-61 percent). Births to mothers who had four or more prenatal care visits (71 percent) were much more likely than those with fewer visits (47 percent) or no prenatal care (16 percent) to be delivered by a skilled provider. Almost all births delivered in a health facility were delivered by a skilled provider (98 percent) compared with 15 percent of births that occurred elsewhere. Among births that occurred outside a health facility, 76 percent were assisted by a traditional midwife and 9 percent by relatives or others.

Table 9.6 Assistance during delivery

Percent distribution of live births in the five years preceding the survey by person providing assistance during delivery, percentage of births assisted by a skilled provider and percentage delivered by caesarean-section, according to background characteristics, Liberia 2013

Background characteristic	Person providing assistance during delivery								Percentage delivered by a skilled provider[1]	Percentage delivered by C-section	Number of births
	Doctor	Nurse/ midwife	Physician's assistant	Traditional midwife	Relative/ friend/other	No one	Don't know/ missing	Total			
Mother's age at birth											
<20	9.0	55.5	0.5	30.8	4.0	0.1	0.1	100.0	65.0	3.7	1,358
20-34	7.8	51.3	0.7	36.0	3.8	0.3	0.1	100.0	59.8	4.0	4,217
35-49	8.6	52.5	0.1	33.9	4.3	0.4	0.2	100.0	61.3	3.3	927
Birth order											
1	9.5	60.1	0.4	26.6	3.3	0.1	0.0	100.0	70.0	5.4	1,612
2-3	8.9	51.5	0.8	35.1	3.5	0.1	0.2	100.0	61.1	3.7	2,310
4-5	7.3	48.8	0.5	38.8	4.1	0.3	0.1	100.0	56.6	3.5	1,369
6+	6.2	47.8	0.5	39.5	5.2	0.6	0.2	100.0	54.4	2.6	1,211
Prenatal care visits[2]											
None	1.9	12.8	1.1	62.5	18.8	1.4	1.5	100.0	15.8	3.4	115
1-3	7.9	38.3	1.2	44.2	7.8	0.6	0.0	100.0	47.4	3.1	766
4+	9.6	60.6	0.4	26.5	2.7	0.1	0.0	100.0	70.7	4.6	3,726
Don't know/missing	8.9	51.8	0.3	37.9	1.1	0.0	0.0	100.0	61.0	3.8	163
Place of delivery											
Health facility	14.5	83.0	0.6	1.9	0.0	0.0	0.0	100.0	98.0	6.9	3,630
Elsewhere	0.3	13.7	0.5	76.2	8.8	0.6	0.0	100.0	14.5	0.0	2,863
Residence											
Urban	9.0	63.4	0.3	24.3	2.7	0.2	0.1	100.0	72.7	5.1	3,241
Greater Monrovia	10.6	72.7	0.6	13.2	2.8	0.1	0.0	100.0	83.9	5.9	1,621
Other urban	7.5	54.0	0.1	35.5	2.6	0.2	0.2	100.0	61.5	4.2	1,620
Rural	7.4	41.4	0.8	44.8	5.1	0.4	0.2	100.0	49.6	2.7	3,261
Region											
North Western	4.1	47.5	0.2	46.9	1.2	0.0	0.0	100.0	51.9	2.2	731
South Central	8.2	62.6	0.5	23.6	4.8	0.2	0.1	100.0	71.3	5.0	2,668
South Eastern A	8.3	56.2	0.9	29.3	4.4	0.5	0.4	100.0	65.3	2.5	492
South Eastern B	11.6	43.1	2.0	30.3	11.3	1.6	0.2	100.0	56.7	4.2	529
North Central	8.8	42.4	0.3	46.8	1.7	0.0	0.1	100.0	51.4	3.2	2,082
County											
Bomi	13.1	55.4	0.6	28.4	2.6	0.0	0.0	100.0	69.0	4.3	177
Bong	2.9	41.3	0.3	53.4	1.9	0.0	0.2	100.0	44.5	2.3	792
Gbarpolu	2.1	49.7	0.1	46.9	1.2	0.0	0.0	100.0	51.9	3.1	161
Grand Bassa	4.5	37.1	0.3	44.7	12.5	0.9	0.0	100.0	41.9	2.7	366
Grand Cape Mount	1.0	43.1	0.1	55.3	0.5	0.0	0.0	100.0	44.2	0.9	392
Grand Gedeh	12.3	59.9	1.1	22.8	2.5	0.0	1.4	100.0	73.4	4.1	157
Grand Kru	19.0	34.9	4.1	24.2	15.2	2.4	0.2	100.0	57.9	4.3	235
Lofa	31.4	39.6	0.8	24.9	3.1	0.0	0.2	100.0	71.8	5.9	342
Margibi	4.5	52.0	0.4	37.1	5.4	0.0	0.6	100.0	56.9	4.4	478
Maryland	5.9	49.0	0.0	35.7	8.8	0.7	0.0	100.0	54.8	5.1	196
Montserrado	9.9	70.5	0.6	15.8	3.1	0.1	0.0	100.0	81.0	5.6	1,824
Nimba	5.5	44.2	0.1	49.1	1.0	0.1	0.0	100.0	49.8	3.1	949
River Cess	2.7	60.3	0.4	35.2	1.4	0.0	0.0	100.0	63.4	2.2	147
River Gee	5.4	50.9	1.1	34.0	6.7	1.3	0.5	100.0	57.5	1.8	97
Sinoe	9.2	49.9	1.0	30.1	8.3	1.4	0.0	100.0	60.2	1.4	189
Mother's education											
No education	6.6	42.2	0.6	45.1	5.0	0.4	0.2	100.0	49.3	2.2	2,713
Primary	7.5	53.6	0.8	34.0	3.8	0.3	0.1	100.0	61.8	3.9	1,983
Secondary and higher	11.4	66.3	0.3	19.6	2.2	0.0	0.1	100.0	78.1	6.3	1,807
Wealth quintile											
Lowest	5.9	36.6	0.7	49.9	6.2	0.6	0.2	100.0	43.2	2.2	1,580
Second	8.2	41.7	0.6	44.9	4.3	0.1	0.2	100.0	50.5	3.1	1,452
Middle	8.2	53.6	0.3	34.8	2.8	0.2	0.1	100.0	62.2	3.3	1,367
Fourth	6.3	68.5	1.0	20.6	3.4	0.1	0.1	100.0	75.8	3.4	1,234
Highest	14.9	74.1	0.0	9.2	1.4	0.4	0.0	100.0	89.0	9.6	870
Total	8.2	52.4	0.6	34.6	3.9	0.3	0.1	100.0	61.1	3.9	6,502

Note: If the respondent mentioned more than one person attending during delivery, only the most qualified person is considered in this tabulation. Total includes 8 cases for which information on place of delivery is missing.
[1] Skilled provider includes doctor, nurse, midwife, and physician's assistant.
[2] Includes only the most recent birth in the five years preceding the survey

In urban areas, 73 percent of births were assisted by a skilled provider compared with 50 percent in rural areas. By county, more than eight in ten deliveries in Montserrado (81 percent) were assisted by a skilled provider compared with four in 10 deliveries in Grand Bassa (42 percent), Grand Cape Mount (44 percent), and Bong (45 percent). Grand Cape Mount has the highest percentage of deliveries by traditional midwives (55 percent), and Montserrado has the lowest percentage (16 percent). Fifteen percent of live births in Grand Kru and 13 percent of live births in Grand Bassa were assisted during delivery by a relative, friend, or other unskilled person.

Mother's education is strongly related to the type of assistance at delivery. Births to women with secondary and higher education were much more likely to receive assistance from a skilled provider during delivery compared with births to women with no education (78 percent and 49 percent, respectively). Forty-five percent of births to women with no education and 34 percent of births to women with primary education only were assisted by a traditional midwife compared with 20 percent of births to women with secondary and higher education. Five percent of births to women with no education were assisted by a relative or friend compared with 2 percent of births to women with secondary and higher education.

As with education, wealth quintile is strongly associated with type of assistance at delivery. Births to women in the highest wealth quintile were more likely to get assistance at delivery from a skilled provider (89 percent) compared with births to women in the lowest wealth quintile (43 percent). Furthermore, births to women in the highest wealth quintile were more than two times as likely as births to women in the lowest wealth quintile to be assisted by a doctor (15 percent and 6 percent, respectively).

Respondents were also asked whether each of their live births in the five years preceding the survey were delivered by Caesarean (C-section). Four percent of births were delivered by C-section; this figure is unchanged from the one reported in the 2007 LDHS (4 percent). C-sections are most common among first births (5 percent), births in Greater Monrovia (6 percent) and in Lofa and Montserrado (6 percent each), births to women with secondary education and higher (6 percent), and births to women in the highest wealth quintile (10 percent).

Figure 9.1 presents mother's duration of stay in the health facility after giving birth. Approximately half (48 percent) of women that had a vaginal delivery spent one to two days at the health facility, but 22 percent stayed for less than six hours. For those mothers who had a Caesarean delivery, nearly nine in ten (87 percent) spent over three days at the health facility.

Figure 9.1 Mother's duration of stay in the health facility after giving birth

Percent

Legend: <6 hours · 6-11 hours · 12-23 hours · 1-2 days · 3+ days

Vaginal birth: 22, 15, 4, 48, 10
Caesarean birth: 4, 1, 0, 7, 87
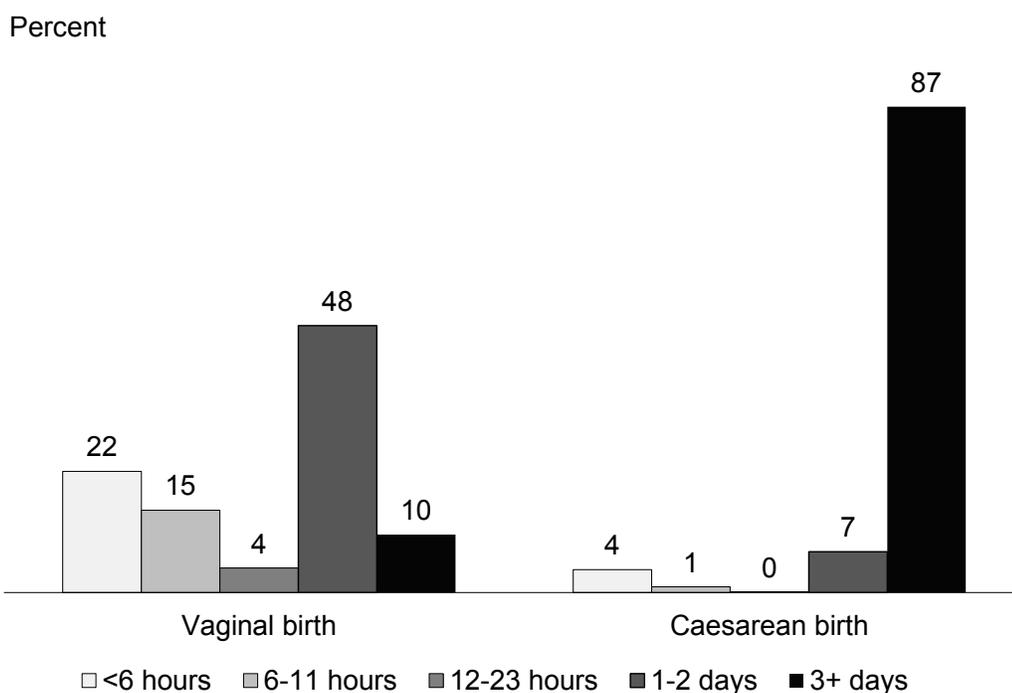
LDHS 2013

9.7 POSTNATAL CARE FOR THE MOTHER

A large proportion of maternal and neonatal deaths occur during the first 48 hours after delivery. Thus, prompt postnatal care (PNC) for both the mother and the child is important to treat any complications arising from the delivery, as well as to provide the mother with important information on how to care for herself and her child. Safe motherhood programs recommend that all women receive a check of their health within two days after delivery. Women who deliver at home should go to a health facility for postnatal care services within 24 hours, and subsequent visits (including those by women who deliver in a health facility) should be made at three days, seven days, and six weeks after delivery. It is also recommended that women who deliver in a health facility should be kept for at least 48 hours (up to 72 hours depending on the capacity of the institution) so the mothers and infants may be monitored by skilled personnel.

To assess the extent of postnatal care utilization, respondents were asked, for the last birth in the two years preceding the survey, whether they had received a checkup after delivery, the timing of the first check-up, and the type of health provider performing the postnatal check-up. This information is presented according to background characteristics in Tables 9.7 and 9.8.

Table 9.7 Timing of first postnatal checkup

Among women age 15-49 giving birth in the two years preceding the survey, the percent distribution of the mother's first postnatal check-up for the last live birth by time after delivery, and the percentage of women with a live birth in the two years preceding the survey who received a postnatal checkup in the first two days after giving birth, according to background characteristics, Liberia 2013

| Background characteristic | Time after delivery of mother's first postnatal checkup | | | | | | No postnatal checkup[1] | Total | Percentage of women with a postnatal checkup in the first two days after birth | Number of women |
	Less than 4 hours	4-23 hours	1-2 days	3-6 days	7-41 days	Don't know/ missing				
Mother's age at birth										
<20	58.5	6.0	7.9	1.5	1.0	3.3	21.8	100.0	72.5	574
20-34	55.1	6.7	8.2	1.5	1.6	1.5	25.4	100.0	70.0	1,704
35-49	56.6	9.0	6.3	1.0	0.7	1.9	24.5	100.0	71.9	372
Birth order										
1	61.0	7.0	7.9	0.9	1.1	2.8	19.3	100.0	75.9	682
2-3	57.1	6.7	9.2	1.6	0.8	1.3	23.5	100.0	72.9	976
4-5	52.0	6.0	7.7	1.9	3.2	2.3	26.9	100.0	65.7	527
6+	51.2	8.0	5.4	1.4	0.8	1.7	31.4	100.0	64.6	464
Place of delivery										
Health facility	69.6	9.5	8.2	0.7	0.4	2.9	8.8	100.0	87.3	1,622
Elsewhere	34.6	2.7	7.5	2.7	2.9	0.4	49.2	100.0	44.8	1,027
Residence										
Urban	62.0	6.3	8.5	1.4	1.1	2.0	18.6	100.0	76.9	1,351
Greater Monrovia	63.4	6.9	8.6	1.7	2.0	2.8	14.5	100.0	78.9	667
Other urban	60.7	5.8	8.4	1.1	0.2	1.2	22.6	100.0	74.9	684
Rural	49.8	7.4	7.2	1.5	1.6	1.9	30.6	100.0	64.5	1,299
Region										
North Western	51.1	9.9	9.0	1.8	1.6	3.1	23.5	100.0	70.0	288
South Central	58.2	6.0	7.5	1.4	2.1	1.9	22.8	100.0	71.7	1,109
South Eastern A	54.0	10.2	6.3	1.9	2.1	1.9	23.6	100.0	70.5	196
South Eastern B	42.3	8.8	6.2	1.9	1.8	2.1	36.9	100.0	57.3	197
North Central	58.5	5.7	8.7	1.1	0.0	1.6	24.2	100.0	73.0	860
County										
Bomi	59.6	8.1	5.0	0.0	0.9	8.3	18.1	100.0	72.7	68
Bong	44.4	7.2	6.6	1.5	0.1	1.1	39.1	100.0	58.1	318
Gbarpolu	33.9	13.3	14.9	1.3	1.3	4.7	30.4	100.0	62.2	64
Grand Bassa	19.5	6.0	6.8	1.3	5.2	0.6	60.7	100.0	32.3	149
Grand Cape Mount	54.6	9.2	8.3	2.8	2.0	0.2	23.0	100.0	72.1	155
Grand Gedeh	65.7	11.6	3.7	0.8	1.1	0.0	17.1	100.0	81.0	66
Grand Kru	34.0	14.5	7.8	1.8	0.4	3.5	38.0	100.0	56.3	80
Lofa	53.7	14.1	13.2	2.5	0.0	6.0	10.5	100.0	81.0	144
Margibi	74.7	0.8	4.7	1.2	0.8	0.4	17.5	100.0	80.1	214
Maryland	47.4	3.8	4.8	2.7	2.2	1.0	38.3	100.0	55.9	81
Montserrado	61.1	7.5	8.5	1.6	1.9	2.6	16.8	100.0	77.2	746
Nimba	71.7	1.5	8.9	0.3	0.0	0.4	17.3	100.0	82.0	398
River Cess	59.6	11.7	7.0	0.6	0.5	2.4	18.2	100.0	78.3	58
River Gee	49.0	7.6	6.1	0.5	3.8	1.6	31.3	100.0	62.7	36
Sinoe	39.0	7.8	7.9	3.8	4.2	3.3	33.8	100.0	54.8	73
Education										
No education	51.5	5.3	7.6	1.5	1.8	1.7	30.7	100.0	64.4	1,000
Primary	56.4	6.6	7.1	1.0	1.1	2.2	25.5	100.0	70.2	858
Secondary and higher	61.3	9.1	9.1	1.8	1.0	2.1	15.5	100.0	79.5	792
Wealth quintile										
Lowest	44.8	7.6	7.3	1.7	1.3	2.0	35.3	100.0	59.7	636
Second	51.1	5.6	8.2	1.1	1.7	1.4	30.9	100.0	64.9	567
Middle	59.9	7.1	8.0	0.9	1.8	1.6	20.7	100.0	75.1	551
Fourth	69.0	2.8	5.7	2.3	1.0	1.4	17.7	100.0	77.6	509
Highest	59.1	12.5	11.0	1.1	0.8	4.0	11.5	100.0	82.5	386
Total	56.0	6.9	7.9	1.4	1.4	2.0	24.5	100.0	70.8	2,650

[1] Includes women who received a checkup after 41 days

Table 9.8 Type of provider of first postnatal checkup for the mother

Among women age 15-49 giving birth in the two years preceding the survey, the percent distribution by type of provider of the mother's first postnatal health check in the two days after the last live birth, according to background characteristics, Liberia 2013

Background characteristic	Type of health provider of mother's first postnatal checkup				No postnatal checkup in the first two days after birth	Total	Number of women
	Doctor/ nurse/ midwife	Physician's assistant	Traditional midwife	Other			
Mother's age at birth							
<20	56.4	2.3	12.8	1.0	27.5	100.0	574
20-34	54.2	2.0	13.6	0.1	30.0	100.0	1,704
35-49	54.6	2.5	14.2	0.6	28.1	100.0	372
Birth order							
1	62.6	2.5	9.9	0.9	24.1	100.0	682
2-3	55.0	1.6	16.2	0.1	27.1	100.0	976
4-5	51.2	2.9	11.6	0.1	34.3	100.0	527
6+	46.4	2.1	15.5	0.6	35.4	100.0	464
Place of delivery							
Health facility	83.1	3.0	1.1	0.1	12.7	100.0	1,622
Elsewhere	10.0	0.9	33.2	0.7	55.2	100.0	1,027
Residence							
Urban	63.0	2.1	11.4	0.3	23.1	100.0	1,351
Greater Monrovia	71.1	1.1	6.7	0.0	21.1	100.0	667
Other urban	55.2	3.1	15.9	0.6	25.1	100.0	684
Rural	46.1	2.2	15.8	0.4	35.5	100.0	1,299
Region							
North Western	50.6	2.3	16.5	0.5	30.0	100.0	288
South Central	59.3	1.1	10.7	0.6	28.3	100.0	1,109
South Eastern A	58.9	3.0	8.4	0.3	29.5	100.0	196
South Eastern B	46.5	2.0	8.3	0.6	42.7	100.0	197
North Central	51.1	3.4	18.6	0.0	27.0	100.0	860
County							
Bomi	60.9	0.0	11.8	0.0	27.3	100.0	68
Bong	43.2	1.3	13.6	0.0	41.9	100.0	318
Gbarpolu	45.7	2.8	11.3	2.4	37.8	100.0	64
Grand Bassa	26.3	0.0	6.0	0.0	67.7	100.0	149
Grand Cape Mount	48.1	3.2	20.8	0.0	27.9	100.0	155
Grand Gedeh	70.7	2.5	7.1	0.7	19.0	100.0	66
Grand Kru	48.1	0.8	6.7	0.7	43.7	100.0	80
Lofa	62.8	7.2	10.9	0.0	19.0	100.0	144
Margibi	48.2	2.1	26.8	3.1	19.9	100.0	214
Maryland	43.4	2.5	9.5	0.7	44.1	100.0	81
Montserrado	69.1	1.0	7.0	0.0	22.8	100.0	746
Nimba	53.1	3.6	25.3	0.0	18.0	100.0	398
River Cess	61.6	3.7	13.1	0.0	21.7	100.0	58
River Gee	50.0	3.7	9.0	0.0	37.3	100.0	36
Sinoe	46.0	2.8	6.0	0.0	45.2	100.0	73
Education							
No education	45.6	2.0	16.4	0.3	35.6	100.0	1,000
Primary	54.5	1.4	13.6	0.7	29.8	100.0	858
Secondary and higher	66.4	3.1	9.9	0.1	20.5	100.0	792
Wealth quintile							
Lowest	40.8	2.0	16.6	0.4	40.3	100.0	636
Second	48.0	1.7	15.0	0.2	35.1	100.0	567
Middle	53.2	4.3	17.5	0.1	24.9	100.0	551
Fourth	64.0	1.8	10.8	1.0	22.4	100.0	509
Highest	77.4	0.6	4.2	0.4	17.5	100.0	386
Total	54.7	2.2	13.5	0.4	29.2	100.0	2,650

Overall, 74 percent of mothers received a postnatal checkup within 41 days for the most recent birth in the two years preceding the survey. Fifty-six percent of mothers received a postnatal checkup within less than 4 hours after delivery, 7 percent within 4 to 23 hours, 8 percent within 1 to 2 days, 1 percent within 3 to 6 days, and 1 percent within 7 to 41 days after delivery. Twenty-five percent of the mothers had no postnatal checkup. In total, only 71 percent of women received a postnatal checkup within the first two days after delivery, the

recommended time period. Nevertheless, this shows improvement from the 60 percent of women who received a postnatal checkup within the recommended interval reported in the 2007 LDHS.

Although differences by mother's age at birth were minor, women with six or more births were less likely to have a postnatal checkup within two days after delivery compared with women with one birth (65 percent compared with 76 percent).

Women who delivered in a health facility, who resided in urban areas, who had higher levels of education, and who were in the highest wealth quintile were much more likely to receive a postnatal checkup within two days of delivery compared with other women. For instance, 87 percent of women who delivered at a health facility received a postnatal check-up within two days after birth compared with 45 percent who delivered elsewhere. Similarly, 77 percent of women living in urban areas had a postnatal checkup within two days compared with 65 percent of women living in rural areas. The postnatal care coverage for women who received a checkup within two days of delivery ranges from a low of 32 percent in Grand Bassa to a high of 82 percent in Nimba.

Mothers with secondary education and higher are more likely to have had a postnatal checkup within two days of delivery than those with no education (80 percent and 64 percent, respectively). Also, mothers in the highest wealth quintile are more likely to have had a checkup within two days of delivery than those within the lowest wealth quintile (83 percent and 60 percent, respectively).

Table 9.8 shows the type of provider of the mother's first postnatal checkup that took place within two days after the last live birth: 57 percent of women received a postnatal checkup from a skilled provider (doctor, nurse, midwife, or physician's assistant). Fourteen percent received a checkup from a traditional midwife. Differentials by background characteristics are similar to those observed for women who received a postnatal checkup within two days after delivery (Table 9.7).

9.8 POSTNATAL CARE FOR THE NEWBORN

As mentioned, a significant proportion of neonatal deaths occur during the first few hours of life (48 hours) after delivery. The provision of postnatal care services for newborns should therefore start as soon as possible after the child is born. The timing of the postnatal checkup for the newborn is similar to that of the mother in that it should occur within two days after birth.

Table 9.9 shows that 42 percent of last births in the two years preceding the survey received a postnatal checkup. Four percent of the newborns received a postnatal checkup less than 1 hour after birth, 16 percent within 1 to 3 hours, 3 percent within 4 to 23 hours, 12 percent within 1 to 2 days, and 7 percent within 3 to 6 days. Over half of newborns (57 percent) did not receive a postnatal checkup. Overall, 35 percent of births received a checkup in the first two days after birth.

Place of delivery, residence, mother's education level, and wealth quintile are closely linked to the timing of the first postnatal checkup for the newborn. Newborns whose mothers deliver in a health facility, live in urban areas, have at least some secondary education, and are in the highest wealth quintile have a greater chance of receiving a postnatal checkup within two days after birth when compared with those newborns whose mothers delivered elsewhere, reside in rural areas, are less educated, and are members of households in the lower wealth quintiles. For instance, 42 percent of newborns whose mothers delivered in a health facility received a checkup within 2 days compared with 23 percent whose mothers delivered elsewhere. Forty-five percent of newborns whose mothers reside in Greater Monrovia had a postnatal checkup within two days after birth compared with 33 percent of newborns whose mothers live in other urban areas and 30 percent whose mothers live in rural areas. Newborns whose mothers reside in Bomi (51 percent) were most likely to have a

postnatal checkup within two days after birth, whereas those whose mothers live in Grand Bassa were the least likely (8 percent).

Table 9.9 Timing of first postnatal checkup for the newborn

Percent distribution of last births in the two years preceding the survey by time after birth of first postnatal checkup, and the percentage of births with a postnatal checkup in the first two days after birth, according to background characteristics, Liberia 2013

| Background characteristic | Time after birth of newborn's first postnatal checkup | | | | | | No postnatal checkup[1] | Total | Percentage of births with a postnatal checkup in the first two days after birth | Number of births |
	Less than 1 hour	1-3 hours	4-23 hours	1-2 days	3-6 days	Don't know/ missing				
Mother's age at birth										
<20	2.2	17.7	2.4	12.8	6.2	0.5	58.2	100.0	35.1	574
20-34	4.0	16.2	3.2	11.9	7.9	0.6	56.2	100.0	35.3	1,704
35-49	3.1	13.0	3.1	11.2	7.1	1.3	61.2	100.0	30.7	372
Birth order										
1	1.2	19.4	3.6	13.0	6.6	1.2	55.1	100.0	37.1	682
2-3	5.0	15.9	2.8	12.7	7.2	0.4	56.1	100.0	36.4	976
4-5	3.7	14.2	2.5	10.5	7.8	0.1	61.2	100.0	31.0	527
6+	3.6	13.5	3.2	10.7	8.7	1.1	59.1	100.0	31.3	464
Place of delivery										
Health facility	4.3	21.8	3.6	12.0	5.8	0.9	51.6	100.0	41.8	1,622
Elsewhere	2.3	6.9	2.1	11.9	9.9	0.3	66.5	100.0	23.3	1,027
Residence										
Urban	3.8	18.7	2.9	13.2	7.8	0.6	52.9	100.0	38.7	1,351
Greater Monrovia	4.9	21.6	4.0	14.5	8.8	1.2	45.0	100.0	45.1	667
Other urban	2.8	15.8	1.9	12.0	6.7	0.1	60.7	100.0	32.5	684
Rural	3.2	13.3	3.1	10.7	7.1	0.7	62.0	100.0	30.3	1,299
Region										
North Western	0.7	17.5	4.0	15.6	10.1	0.6	51.5	100.0	37.8	288
South Central	4.0	15.3	3.1	11.5	7.9	0.8	57.4	100.0	33.9	1,109
South Eastern A	0.4	16.8	1.6	10.0	9.0	0.4	61.8	100.0	28.9	196
South Eastern B	4.1	9.4	4.2	6.4	4.8	1.8	69.4	100.0	24.0	197
North Central	4.4	17.9	2.6	13.1	6.1	0.4	55.5	100.0	38.2	860
County										
Bomi	0.6	38.4	4.1	7.6	7.1	2.4	39.9	100.0	50.7	68
Bong	10.4	17.7	3.6	6.2	4.4	0.2	57.5	100.0	37.8	318
Gbarpolu	1.3	17.3	2.5	10.4	3.5	0.0	65.0	100.0	31.5	64
Grand Bassa	0.0	4.2	0.8	3.3	4.1	0.5	87.1	100.0	8.3	149
Grand Cape Mount	0.5	8.4	4.6	21.3	14.2	0.0	51.0	100.0	34.8	155
Grand Gedeh	0.0	29.6	2.4	10.8	6.0	0.0	51.2	100.0	42.8	66
Grand Kru	0.0	6.0	8.1	5.4	3.5	3.5	73.6	100.0	19.4	80
Lofa	0.7	8.5	3.9	15.1	7.1	1.1	63.5	100.0	28.3	144
Margibi	2.0	5.2	0.0	7.4	6.9	0.0	78.5	100.0	14.6	214
Maryland	9.8	9.1	0.9	6.0	5.6	0.7	67.9	100.0	25.8	81
Montserrado	5.3	20.4	4.5	14.3	9.0	1.0	45.5	100.0	44.5	746
Nimba	1.0	21.5	1.4	17.9	7.1	0.3	51.0	100.0	42.0	398
River Cess	0.7	12.0	0.9	9.1	8.3	1.2	67.9	100.0	22.7	58
River Gee	0.0	17.3	3.0	9.8	5.9	0.4	63.5	100.0	30.1	36
Sinoe	0.7	9.0	1.5	10.0	12.3	0.0	66.5	100.0	21.2	73
Mother's education										
No education	3.5	13.5	2.3	9.9	8.0	0.4	62.4	100.0	29.2	1,000
Primary	3.9	12.7	3.5	12.7	6.4	0.7	60.2	100.0	32.9	858
Secondary and higher	3.1	22.8	3.4	13.8	7.8	1.0	48.0	100.0	43.2	792
Wealth quintile										
Lowest	3.7	13.6	2.7	8.8	5.3	0.8	65.1	100.0	28.8	636
Second	3.9	12.5	2.5	12.1	6.5	0.6	61.8	100.0	31.3	567
Middle	1.8	17.0	2.9	13.2	10.4	0.1	54.6	100.0	34.9	551
Fourth	1.6	18.4	2.2	12.4	8.2	1.5	55.7	100.0	34.6	509
Highest	7.7	20.8	5.5	14.7	7.0	0.3	44.1	100.0	48.7	386
Total	3.5	16.0	3.0	12.0	7.4	0.7	57.4	100.0	34.6	2,650

[1] Includes newborns who received a checkup after the first week

Newborns whose mothers have at least some secondary education are more likely to have a postnatal checkup within two days after birth when compared with their counterparts whose mothers have no education (43 percent and 29 percent, respectively). Newborns of mothers in the highest wealth quintile have a better chance of a checkup within two days after birth than those newborns whose mothers are part of the lowest wealth quintile (49 percent and 29 percent, respectively).

Table 9.10 shows the type of provider of the newborn's first postnatal checkup that took place within two days after birth: 30 percent of newborns received a postnatal checkup from a skilled provider (doctor, nurse, midwife, or physician's assistant). Five percent of newborns received a postnatal checkup from a traditional midwife. Sixty-five percent of newborns did not receive a postnatal checkup within the first two days after birth. Differentials by background characteristics are similar to those observed for last births in the two years preceding the survey by time of newborn's first postnatal checkup (Table 9.9).

Table 9.10 Type of provider of first postnatal checkup for the newborn

Percent distribution of last births in the two years preceding the survey by type of provider of the newborn's first postnatal health check during the two days after the last live birth, according to background characteristics, Liberia 2013

Background characteristic	Type of health provider of newborn's first postnatal checkup				No postnatal checkup in the first two days after birth	Total	Number of births
	Doctor/ nurse/ midwife	Physician's assistant	Traditional midwife	Other			
Mother's age at birth							
<20	29.8	1.4	3.8	0.1	64.9	100.0	574
20-34	29.2	1.0	5.0	0.1	64.7	100.0	1,704
35-49	25.7	0.6	4.4	0.0	69.3	100.0	372
Birth order							
1	32.1	1.8	3.2	0.1	62.9	100.0	682
2-3	31.2	0.4	4.7	0.1	63.6	100.0	976
4-5	24.9	1.1	5.0	0.0	69.0	100.0	527
6+	23.5	1.2	6.5	0.1	68.7	100.0	464
Place of delivery							
Health facility	39.5	1.5	0.8	0.0	58.2	100.0	1,622
Elsewhere	12.0	0.3	10.8	0.1	76.7	100.0	1,027
Residence							
Urban	34.8	0.8	3.0	0.0	61.3	100.0	1,351
Greater Monrovia	42.5	1.0	1.6	0.0	54.9	100.0	667
Other urban	27.3	0.6	4.5	0.0	67.5	100.0	684
Rural	22.5	1.3	6.3	0.1	69.7	100.0	1,299
Region							
North Western	31.2	2.7	3.9	0.1	62.2	100.0	288
South Central	31.3	0.7	1.8	0.0	66.1	100.0	1,109
South Eastern A	24.7	1.5	2.1	0.6	71.1	100.0	196
South Eastern B	18.9	0.8	4.2	0.1	76.0	100.0	197
North Central	27.9	0.9	9.4	0.0	61.8	100.0	860
County							
Bomi	42.9	0.0	7.8	0.0	49.3	100.0	68
Bong	27.7	0.0	10.1	0.0	62.2	100.0	318
Gbarpolu	24.5	0.7	5.8	0.5	68.5	100.0	64
Grand Bassa	5.9	0.0	2.4	0.0	91.7	100.0	149
Grand Cape Mount	28.8	4.6	1.4	0.0	65.2	100.0	155
Grand Gedeh	34.3	3.4	4.0	1.2	57.2	100.0	66
Grand Kru	15.2	0.0	4.2	0.0	80.6	100.0	80
Lofa	20.8	0.8	6.7	0.0	71.7	100.0	144
Margibi	12.1	0.8	1.7	0.0	85.4	100.0	214
Maryland	18.8	0.7	5.9	0.4	74.2	100.0	81
Montserrado	41.9	0.9	1.7	0.0	55.5	100.0	746
Nimba	30.7	1.5	9.7	0.0	58.0	100.0	398
River Cess	21.0	0.2	0.9	0.6	77.3	100.0	58
River Gee	27.4	2.8	0.0	0.0	69.9	100.0	36
Sinoe	19.1	0.8	1.3	0.0	78.8	100.0	73
Mother's education							
No education	21.5	1.2	6.5	0.1	70.8	100.0	1,000
Primary	28.3	0.8	3.8	0.1	67.1	100.0	858
Secondary and higher	38.6	1.2	3.3	0.1	56.8	100.0	792
Wealth quintile							
Lowest	19.8	1.1	7.7	0.1	71.2	100.0	636
Second	25.2	0.5	5.5	0.1	68.7	100.0	567
Middle	28.5	1.8	4.3	0.2	65.1	100.0	551
Fourth	29.9	0.9	3.7	0.0	65.4	100.0	509
Highest	47.9	0.8	0.0	0.0	51.3	100.0	386
Total	28.8	1.0	4.7	0.1	65.4	100.0	2,650

9.9   PROBLEMS IN ACCESSING HEALTH CARE

Many factors can prevent women from accessing medical advice or treatment for themselves when they are sick. Information on such factors is particularly important in understanding and addressing the barriers women may face when seeking care during pregnancy, delivery, and the postnatal period.

In the 2013 LDHS, women were asked whether each of the following factors would be an impediment (or not) in seeking medical care: getting permission to go for treatment, getting money for treatment, distance to a health facility, and not wanting to go alone. Table 9.11 shows that 62 percent of women reported at least one of these concerns as a hindrance when it came to accessing health care.

The most common factor impeding women from accessing health care for themselves is getting money to pay for treatment; 47 percent of the women highlighted this concern. Distance to a health facility was cited by four in ten women as a big problem in accessing health care (40 percent). As expected, women residing in rural areas were more likely than those in urban areas to report distance as a big problem (63 percent compared with 26 percent). Eight percent of women reported getting permission to go and 25 percent reported not wanting to go alone as big problems in accessing health care. The percentage of women who reported each of these factors as big problems in seeking medical care generally decreased with increasing educational attainment and wealth quintile.

To accomplish Millennium Development Goal (MDG) 5, intended to improve maternal health, the Ministry of Health and Social Welfare developed the Essential Package of Health Services (EPHS) with defined maternal health interventions at both the community and health facility levels. The EPHS is an assortment of health services that the Ministry is committed to providing at every health facility. Health interventions undertaken to improve maternal health in Liberia include prenatal care, delivery, postnatal services, intermittent preventive treatment of malaria during pregnancy, family planning, and tetanus toxoid immunization. Other support interventions include the construction of maternal waiting homes to facilitate institutional and skilled delivery, procurement of ambulances for referrals, and provision of insecticide-treated nets and a "mama and baby kit" to stimulate institutional delivery and prenatal care visits. The mama and baby starter kit is a package of assorted items such as a baby towel, soap, baby powder, and blanket provided to mothers upon delivery to encourage institutional delivery.

Table 9.11 Problems in accessing health care

Percentage of women age 15-49 who reported that they have serious problems in accessing health care for themselves when they are sick, by type of problem, according to background characteristics, Liberia 2013

	Problems in accessing health care					
Background characteristic	Getting permission to go for treatment	Getting money for treatment	Distance to health facility	Not wanting to go alone	At least one problem accessing health care	Number of women
Age						
15-19	8.6	45.6	33.8	23.7	58.0	2,080
20-34	7.8	47.3	40.9	25.1	63.2	4,452
35-49	7.3	47.3	43.7	24.0	64.3	2,707
Number of living children						
0	7.7	42.0	30.3	21.9	54.2	2,185
1-2	7.8	49.0	37.7	22.6	62.4	3,294
3-4	8.5	46.4	44.5	25.7	64.2	2,084
5+	7.1	49.9	52.3	29.8	70.4	1,676
Marital status						
Never married	8.0	44.9	30.6	21.1	57.1	2,867
Married or living together	7.6	47.4	45.2	26.6	64.8	5,386
Divorced/separated/widowed	8.6	50.2	40.1	22.4	64.1	987
Employed past 12 months						
Not employed	8.5	46.9	35.3	20.4	60.2	3,944
Employed for cash	6.0	47.8	39.4	25.1	62.9	3,564
Employed not for cash	10.1	45.1	52.5	32.4	66.1	1,721
Residence						
Urban	6.9	45.7	25.5	16.3	54.8	5,633
Greater Monrovia	4.9	44.5	17.6	11.9	49.9	3,361
Other urban	9.9	47.6	37.1	22.9	61.9	2,272
Rural	9.2	48.7	63.0	37.1	74.2	3,606
Region						
North Western	8.3	40.8	57.1	34.2	67.5	837
South Central	6.1	44.2	25.5	16.0	53.4	4,854
South Eastern A	8.0	33.7	50.9	29.7	62.2	483
South Eastern B	10.2	47.2	49.1	34.1	68.4	577
North Central	10.5	56.7	58.8	34.3	76.6	2,488
County						
Bomi	5.5	47.8	51.9	20.4	64.2	244
Bong	5.7	51.3	59.9	37.9	73.6	894
Gbarpolu	8.4	33.9	45.6	24.4	54.8	182
Grand Bassa	6.3	52.6	60.2	44.1	73.0	434
Grand Cape Mount	10.0	39.7	65.4	46.7	75.0	412
Grand Gedeh	7.3	37.3	49.2	28.4	59.2	167
Grand Kru	8.2	52.1	50.6	35.9	70.1	217
Lofa	6.3	57.1	66.5	18.6	80.0	447
Margibi	13.4	42.4	38.1	17.7	59.3	744
Maryland	11.8	47.0	43.2	32.4	66.3	257
Montserrado	4.6	43.6	18.8	12.4	49.9	3,675
Nimba	15.9	60.7	55.0	37.6	77.7	1,147
River Cess	5.8	30.0	73.7	51.0	78.7	135
River Gee	10.3	37.7	60.3	34.6	70.3	103
Sinoe	10.2	33.2	35.6	15.3	52.7	182
Education						
No education	8.0	50.6	56.3	34.3	71.9	3,066
Primary	9.3	49.7	41.7	26.4	65.4	2,875
Secondary and higher	6.4	41.1	23.7	13.6	50.8	3,298
Wealth quintile						
Lowest	8.6	54.4	75.3	46.4	83.7	1,581
Second	9.6	49.3	59.0	34.4	70.7	1,624
Middle	9.3	49.9	44.1	24.9	66.0	1,779
Fourth	7.3	50.5	21.8	15.6	57.3	2,047
Highest	5.3	34.0	14.8	9.2	42.6	2,207
Total	7.8	46.9	40.1	24.5	62.3	9,239

Note: Total includes 9 cases for which information on employment status in past 12 months is missing.

CHILD HEALTH

10

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Key Findings

- By mothers' estimates, 20 percent of all infants born alive in the five years preceding the survey were very small or smaller than average at birth. Among infants with a birth weight, 10 percent weighed less than 2.5 kg.
- Fifty-five percent of children ages 12-23 months were fully vaccinated at the time of the survey; 48 percent of this age group had received all basic vaccinations by age 12 months.
- Seven percent of children under 5 experienced symptoms of an acute respiratory infection (ARI) in the two weeks preceding the survey. Among those with symptoms, advice or treatment from a health facility or provider was sought for half (51 percent), and slightly more than half (56 percent) received antibiotics.
- Twenty-nine percent of children under 5 had a fever within the two weeks preceding the survey. Among those with a fever, 58 percent were taken to a health facility or provider for advice or treatment, 56 percent received antimalarial drugs, and 39 percent received antibiotics.
- Twenty-two percent of children under 5 had diarrhea in the two weeks preceding the survey. Nearly one-half of the children with diarrhea (47 percent) were taken to a health facility or provider. Three in four (76 percent) of the children with diarrhea were treated with oral rehydration therapy (ORT) or increased fluids. Eight percent of children with diarrhea did not receive any type of treatment.

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This chapter presents findings about child health and survival, including characteristics of the neonate (birth weight and size), the vaccination status of young children, and treatment practices—particularly contact with health services—among children suffering from three childhood illnesses: acute respiratory infection (ARI), fever, and diarrhea. Because appropriate sanitary practices can help prevent and reduce the severity of diarrheal disease, information is also provided on how children's fecal matter is disposed of. These results from the 2013 LDHS are expected to assist policymakers and program managers as they formulate appropriate strategies and interventions to improve the health of children in Liberia. In particular, the results will be used to assess coverage of current strategies such as Integrated Management of Childhood Illness (IMCI), which seeks to prevent deaths from pneumonia, malaria, and diarrhea, and to plan for improvements in these initiatives.

10.1 CHILD'S WEIGHT AND SIZE AT BIRTH

Birth weight is an important indicator when assessing a child's health in terms of early exposure to childhood morbidity and mortality. Children who weigh less than 2.5 kilograms, or are reported to be "very small" or "smaller than average," are considered to have a higher-than-average risk of early childhood death. In the 2013 LDHS, for births in the five years preceding the survey, birth weight was recorded in the Woman's Questionnaire based on either a written record or the mother's report. The mother's estimate of the infant's size at birth was also obtained because birth weight may be unknown for many infants. Although the mother's estimate of size is subjective, it can be a useful proxy for the child's weight.

Table 10.1 shows that birth weight is reported for 23 percent of the live births that occurred in the five years preceding the survey; 10 percent of these infants had low birth weights (less than 2.5 kg). Older mothers, age 35-49 (8 percent), are slightly less likely to have infants with low birth weight than mothers age 20-34 (10 percent) and mothers less than age 20 (11 percent). By birth order, women who have had six or more births (6 percent) are less likely than mothers with fewer births (9-12 percent) to have had a low birth weight baby. Birth weights in rural areas are slightly more likely than those in urban areas to be less than 2.5 kg (11 and 9 percent, respectively). There is no clear relationship between low birth weight and mother's education or wealth quintile.

Table 10.1 Child's size and weight at birth

Percent distribution of live births in the five years preceding the survey by mother's estimate of baby's size at birth, percentage of live births in the five years preceding the survey that have a reported birth weight, and among live births in the five years preceding the survey with a reported birth weight, percentage less than 2.5 kg, according to background characteristics, Liberia 2013

Background characteristic	Percent distribution of all live births by size of child at birth					Percentage of all births that have a reported birth weight[1]	Number of births	Births with a reported birth weight[1]	
	Very small	Smaller than average	Average or larger	Don't know/ missing	Total			Percentage less than 2.5 kg	Number of births
Mother's age at birth									
<20	9.9	12.0	78.0	0.1	100.0	21.5	1,358	10.5	292
20-34	7.2	11.5	80.8	0.4	100.0	23.4	4,217	9.9	988
35-49	9.0	12.2	78.3	0.5	100.0	24.8	927	7.8	230
Birth order									
1	9.3	11.5	79.1	0.1	100.0	27.2	1,612	12.2	438
2-3	7.6	11.1	80.9	0.4	100.0	23.1	2,310	9.3	533
4-5	6.4	12.9	80.0	0.7	100.0	21.8	1,369	9.9	299
6+	8.9	11.9	78.8	0.3	100.0	19.7	1,211	5.8	239
Residence									
Urban	7.4	11.3	81.2	0.1	100.0	29.6	3,241	9.1	959
Greater Monrovia	6.1	10.9	83.0	0.0	100.0	35.2	1,621	9.7	571
Other urban	8.7	11.7	79.3	0.2	100.0	24.0	1,620	8.3	388
Rural	8.6	12.2	78.6	0.6	100.0	16.9	3,261	10.7	550
Region									
North Western	7.6	13.4	78.9	0.1	100.0	16.2	731	8.9	118
South Central	8.1	10.6	81.1	0.2	100.0	29.3	2,668	10.1	783
South Eastern A	10.7	14.0	74.8	0.5	100.0	17.8	492	7.2	88
South Eastern B	10.0	16.6	71.6	1.8	100.0	19.2	529	10.5	102
North Central	6.9	10.8	81.9	0.3	100.0	20.1	2,082	9.5	419
County									
Bomi	3.6	10.9	85.5	0.0	100.0	25.5	177	13.8	45
Bong	8.2	10.6	80.6	0.5	100.0	9.1	792	6.3	72
Gbarpolu	11.6	16.3	71.8	0.3	100.0	19.9	161	6.3	32
Grand Bassa	13.3	13.3	73.3	0.1	100.0	12.1	366	(14.2)	44
Grand Cape Mount	7.8	13.4	78.8	0.0	100.0	10.4	392	5.4	41
Grand Gedeh	10.1	10.9	77.6	1.4	100.0	32.8	157	7.5	51
Grand Kru	10.7	18.6	67.2	3.4	100.0	10.6	235	9.6	25
Lofa	7.1	8.1	84.2	0.5	100.0	46.3	342	12.2	158
Margibi	11.3	7.0	80.8	0.8	100.0	20.7	478	9.1	99
Maryland	10.8	16.2	72.7	0.3	100.0	27.1	196	9.0	53
Montserrado	6.3	10.9	82.8	0.0	100.0	35.1	1,824	10.0	640
Nimba	5.7	12.0	82.2	0.1	100.0	19.9	949	8.4	189
River Cess	12.8	9.4	77.8	0.0	100.0	16.7	147	8.7	25
River Gee	6.7	12.6	80.0	0.7	100.0	24.1	97	14.8	23
Sinoe	9.6	20.0	70.2	0.2	100.0	6.2	189	(2.7)	12
Mother's education									
No education	9.3	11.9	78.2	0.6	100.0	16.8	2,713	9.1	457
Primary	8.1	11.5	80.1	0.3	100.0	22.3	1,983	10.6	442
Secondary and higher	6.0	11.6	82.2	0.2	100.0	33.8	1,807	9.6	611
Wealth quintile									
Lowest	11.2	12.1	75.8	0.9	100.0	13.1	1,580	10.8	207
Second	6.7	11.0	82.0	0.3	100.0	18.9	1,452	11.7	275
Middle	8.5	12.8	78.5	0.2	100.0	24.7	1,367	7.7	338
Fourth	6.3	11.6	82.1	0.1	100.0	28.2	1,234	12.0	347
Highest	6.2	10.8	82.8	0.2	100.0	39.3	870	7.0	342
Total	8.0	11.7	79.9	0.4	100.0	23.2	6,502	9.7	1,509

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] Based on either a written record or the mother's recall

Table 10.1 also includes information on a mother's estimate of her infant's size at birth. Eight percent of births are reported as very small, 12 percent as smaller than average, and 80 percent as average or larger than average. Mothers with at least some secondary education report having had fewer very small babies than mothers with no education (6 percent and 9 percent, respectively). Mothers in the highest and fourth wealth quintiles report having had fewer very small babies than mothers in the lowest wealth quintile (6 percent, 6 percent, and 11 percent, respectively).

10.2 VACCINATION OF CHILDREN

The induction of an immune response through vaccination is a widely accepted public health strategy for the prevention of vaccine-preventable infectious diseases. To enable evaluation of the Liberia Expanded Program of Immunization (LEPI), the 2013 LDHS collected information on vaccine coverage for all children born since January 2008. To be fully vaccinated, a child should have received one dose of BCG vaccine, three doses each of DPT and polio vaccines, and one dose of measles vaccine. BCG protects against tuberculosis, and DPT protects against diphtheria, pertussis (whooping cough), and tetanus. Since 2008, DPT has not been given to infants in Liberia as a stand-alone vaccine. Instead, it has been combined with other antigens that protect against hepatitis B and *Haemophilus influenza* type b (DPT-HB-Hib vaccine, also known as pentavalent vaccine). Thus, the 2013 LDHS report on DPT coverage includes coverage by DPT or pentavalent vaccines.

Liberia has defined a schedule for the administration of all basic childhood vaccines. BCG should be given shortly after birth. DPT/pentavalent and polio vaccines require three vaccinations to be given at approximately age 3, 4, and 5 months, and measles vaccine should be given at or soon after reaching age 9 months. In addition, although not defined as a basic childhood vaccine, Liberian children should receive a yellow fever vaccine at age 9 months.

Sources of Information

In the survey, information on vaccination coverage was obtained in two ways – from child health cards and from mothers' verbal reports. All mothers were asked to show the interviewer the child health cards in which immunization dates were recorded for all children born since January 2008. If a card was available, the interviewer recorded onto the questionnaire the dates of each vaccination received by the child. If a card indicated that the child was not fully vaccinated, the mother was then asked whether the child had received other vaccinations that were not recorded on the card, and they too were noted on the questionnaire. If a child never received a health card or if the mother was unable to show the card to the interviewer, the vaccination information for the child was based on the mother's report.

Questions were asked for each vaccine type. Mothers were asked to recall whether the child had received BCG, polio, DPT/pentavalent, measles, and yellow fever vaccinations. If the mother indicated that the child had received the polio or DPT/pentavalent vaccines, she was asked about the number of doses that the child received. The results presented here are based on both health card information and, for children without a card, information provided by the mother.

Vaccination Coverage

Table 10.2 shows vaccination coverage by source of information for children age 12-23 months, the age by which they should have received all vaccinations. Fifty-eight percent of mothers showed children's vaccination cards to interviewers, while the remainder provided a self-report of children's vaccination histories. Overall, 55 percent of children ages 12-23 months were fully vaccinated at the time of the survey. Ninety-four percent had received the BCG vaccination at any time before the survey. For DPT/pentavalent vaccine, 91 percent had received the first dose, 82 percent had received the second dose, and 71 percent had

received the third dose. For polio vaccine, 96 percent had received the first dose, 87 percent had received the second dose, and 70 percent had received the third dose. Coverage for measles and yellow fever vaccines was 74 percent and 73 percent, respectively. Only 2 percent of children age 12-23 months had not received any vaccinations, compared with 12 percent in the 2007 LDHS.

Table 10.2 Vaccinations by source of information

Percentage of children age 12-23 months who received specific vaccines at any time before the survey, by source of information (vaccination card or mother's report), and percentage vaccinated 12 months of age, Liberia 2013

Source of information	BCG	DPT/ penta- valent 1	DPT/ penta- valent 2	DPT/ penta- valent 3	Polio 0[1]	Polio 1	Polio 2	Polio 3	Measles	Yellow Fever	All basic vaccina- tions[2]	No vaccina- tions	Number of children
Vaccinated at any time before survey													
Vaccination card	57.5	56.9	53.2	49.9	53.3	57.5	53.5	50.7	44.5	43.4	43.0	0.0	743
Mother's report	36.4	34.4	28.9	21.5	27.1	38.4	33.2	19.2	29.7	29.4	11.8	1.5	529
Either source	93.9	91.3	82.1	71.4	80.4	95.9	86.7	69.9	74.2	72.8	54.8	1.5	1,272
Vaccinated by 12 months of age[3]	93.3	90.6	81.2	68.0	79.9	95.1	85.7	66.7	64.7	63.4	48.1	2.0	1,272

[1] Polio 0 is the polio vaccination given at birth.
[2] BCG, measles, and three doses each of DPT or pentavalent vaccine and polio vaccine (excluding polio vaccine given at birth and yellow fever vaccine)
[3] For children whose information is based on the mother's report, the proportion of vaccinations given during the first year of life is assumed to be the same as for children with a written record of vaccination.

Table 10.2 also shows vaccination coverage by age 12 months. The rates for each vaccination by the time the child reaches age 12 months is a measure of children that receive vaccines on time. Overall, 48 percent of children are fully immunized by 12 months, compared with 34 percent in the 2007 LDHS.

Table 10.3 presents information on vaccine coverage among children age 12-23 months from vaccination cards and mothers' reports, by background characteristics. Female children were slightly more likely to be fully immunized than male children (57 percent and 53 percent, respectively). Children in urban areas are more likely than rural children to have received all basic vaccinations (60 percent compared with 49 percent, respectively). At the regional level, full vaccination coverage ranges from a high of 68 percent in North Western, to a low of 38 percent in South Eastern A. Similarly, basic vaccination coverage varied widely at the county level; although 74 percent of children in Grand Cape Mount had received all basic vaccinations, only 33 percent of children in River Cess had basic vaccination coverage. The percentage of children who received no vaccinations also varies markedly at the county level: from 0 percent in Gbarpolu, Grand Cape Mount, Lofa, and Montserrado, to 10 percent in River Gee. A mother's level of education relates to vaccination coverage; 66 percent of children whose mothers have at least some secondary education are fully vaccinated, compared with 48-51 percent of children whose mothers have only primary education or no education. Children in the highest wealth quintile are more likely to be fully vaccinated than those in the lowest (70 percent and 44 percent, respectively).

Table 10.3 Vaccinations by background characteristics

Percentage of children age 12-23 months who received specific vaccines at any time before the survey (according to a vaccination card or the mother's report), and percentage with a vaccination card, by background characteristics, Liberia 2013

Background characteristic	BCG	DPT/ penta- valent 1	DPT/ penta- valent 2	DPT/ penta- valent 3	Polio 0[1]	Polio 1	Polio 2	Polio 3	Measles	Yellow Fever	All basic vaccina- tions[2]	No vaccina- tions	Percen- tage with a vaccina- tion card seen	Number of children
Sex														
Male	93.1	90.1	82.9	69.2	79.2	94.9	85.9	68.8	73.8	72.4	52.9	2.2	55.6	658
Female	94.7	92.7	81.2	73.8	81.7	96.9	87.5	71.1	74.6	73.2	56.8	0.8	61.3	614
Birth order														
1	97.6	95.0	89.4	79.9	85.8	97.7	90.9	75.6	82.8	81.8	64.0	0.8	58.3	309
2-3	95.7	93.3	81.2	71.9	84.5	96.0	84.8	67.8	73.1	71.9	52.0	1.2	57.9	484
4-5	90.8	88.7	79.1	65.8	75.0	95.6	87.2	69.0	70.8	69.8	50.2	2.7	56.7	263
6+	88.2	84.9	77.1	65.1	69.8	93.2	84.2	67.6	68.4	65.3	53.6	2.0	61.6	216
Residence														
Urban	96.7	94.8	85.6	75.7	85.3	97.8	88.5	71.4	77.6	76.7	59.7	0.8	56.3	675
Greater Monrovia	100.0	98.8	86.2	80.0	89.0	99.3	87.8	71.5	78.8	78.6	60.2	0.0	51.1	337
Other urban	93.4	90.9	85.1	71.3	81.6	96.3	89.2	71.4	76.3	74.9	59.1	1.7	61.6	338
Rural	90.7	87.4	78.1	66.6	74.9	93.7	84.6	68.2	70.4	68.3	49.4	2.3	60.7	597
Region														
North Western	94.5	93.5	89.5	81.5	85.5	99.6	94.7	84.4	81.5	78.4	68.3	0.4	74.4	135
South Central	97.9	95.0	83.6	76.8	83.4	97.2	86.9	71.1	77.2	76.5	58.1	0.6	52.3	543
South Eastern A	89.4	88.0	77.9	58.6	72.4	93.9	83.6	60.0	66.7	67.3	37.6	2.8	49.6	85
South Eastern B	78.9	74.9	59.7	52.0	64.0	88.3	75.4	56.7	60.0	57.5	39.7	6.7	45.7	92
North Central	92.6	90.2	83.5	68.1	80.0	95.0	86.9	68.6	72.6	70.6	53.0	1.7	65.8	417
County														
Bomi	98.4	98.4	98.4	90.6	93.9	98.4	96.5	84.5	85.3	83.5	72.7	1.6	63.4	31
Bong	88.9	84.9	72.9	62.1	77.0	90.0	80.0	67.2	68.6	64.5	50.4	3.2	65.3	158
Gbarpolu	86.0	86.7	74.5	62.9	67.7	100.0	91.7	75.9	74.2	71.5	52.2	0.0	63.1	32
Grand Bassa	91.7	80.8	57.9	53.2	63.2	92.5	74.8	58.5	66.4	59.7	38.9	2.0	45.6	64
Grand Cape Mount	96.5	94.4	92.3	85.8	89.8	100.0	95.2	88.1	83.1	79.3	73.6	0.0	84.3	71
Grand Gedeh	92.4	93.4	87.1	62.0	85.7	96.4	85.8	61.2	79.0	81.3	44.0	2.1	44.8	26
Grand Kru	74.8	69.0	47.5	42.2	60.4	84.0	65.6	49.1	56.4	52.4	37.5	8.4	37.2	35
Lofa	98.9	96.4	94.6	80.9	92.9	98.5	92.1	77.1	80.0	77.2	63.7	0.0	76.0	67
Margibi	94.8	92.2	88.4	79.3	78.8	94.3	91.3	75.4	76.8	79.5	60.0	2.0	52.4	98
Maryland	83.5	79.0	66.5	58.4	62.8	92.8	81.2	62.2	62.7	59.8	40.3	3.7	46.4	40
Montserrado	99.8	98.1	86.7	80.1	88.0	98.8	87.8	72.2	79.1	78.5	60.9	0.0	53.3	380
Nimba	93.4	92.5	88.4	68.5	77.9	97.9	90.9	66.8	73.3	73.3	51.5	1.1	62.6	192
River Cess	92.4	95.2	80.9	60.6	70.7	98.6	91.7	64.9	57.4	58.0	33.1	1.0	60.2	27
River Gee	76.7	77.3	68.2	56.7	73.8	86.8	81.6	59.5	60.8	62.4	42.5	10.2	60.7	18
Sinoe	84.7	77.6	68.1	54.1	63.2	88.0	75.2	55.1	64.5	63.9	36.3	4.9	44.5	32
Mother's education														
No education	89.5	88.0	77.9	67.9	73.7	93.0	83.3	69.8	66.6	65.3	51.2	2.8	60.9	470
Primary	94.2	89.8	77.6	65.5	79.0	96.6	85.5	63.8	71.1	68.1	47.6	1.4	56.3	403
Secondary and higher	98.7	96.8	91.6	81.5	89.6	98.5	91.8	76.2	86.1	86.2	66.3	0.2	57.5	399
Wealth quintile														
Lowest	86.8	84.0	72.1	57.9	71.3	91.6	82.8	64.7	65.0	63.6	44.0	3.5	56.7	299
Second	92.6	89.7	81.5	71.7	74.7	96.1	86.2	74.4	74.1	71.1	56.6	1.6	68.3	268
Middle	95.9	93.4	87.4	73.6	80.7	96.0	87.9	71.1	73.0	71.2	53.6	1.9	61.2	240
Fourth	97.5	95.9	87.9	78.3	88.1	98.2	87.9	66.4	78.1	77.7	55.2	0.2	50.0	263
Highest	98.9	96.1	83.8	79.4	90.8	98.7	90.0	74.9	84.1	84.0	69.6	0.0	55.4	203
Total	93.9	91.3	82.1	71.4	80.4	95.9	86.7	69.9	74.2	72.8	54.8	1.5	58.4	1,272

[1] Polio 0 is the polio vaccination given at birth.
[2] BCG, measles, and three doses each of DPT/pentavalent and polio vaccine (excluding polio vaccine given at birth and yellow fever vaccine)

Trends in Vaccination Coverage

Figure 10.1 compares vaccination coverage from the 2007 and 2013 LDHS surveys for the first year of life among children age 12-23 months. Encouragingly, there has been marked improvement in vaccination coverage between the two surveys. Although only 34 percent of children ages 12-23 months were fully

vaccinated by age 12 months in 2007, 48 percent were fully vaccinated in 2013. Between the 2007 and 2013 LDHS, vaccine coverage by age 12 months improved for BCG (from 77 percent to 93 percent), for three doses of DPT (from 47 percent to 68 percent), for three doses of polio (from 47 percent to 67 percent), and for measles (from 53 percent to 65 percent).

Figure 10.1 Trends in vaccination coverage during the first year of life among children 12-23 months

Percentage of children with specific vaccines

□ 2007 LDHS   ■ 2013 LDHS
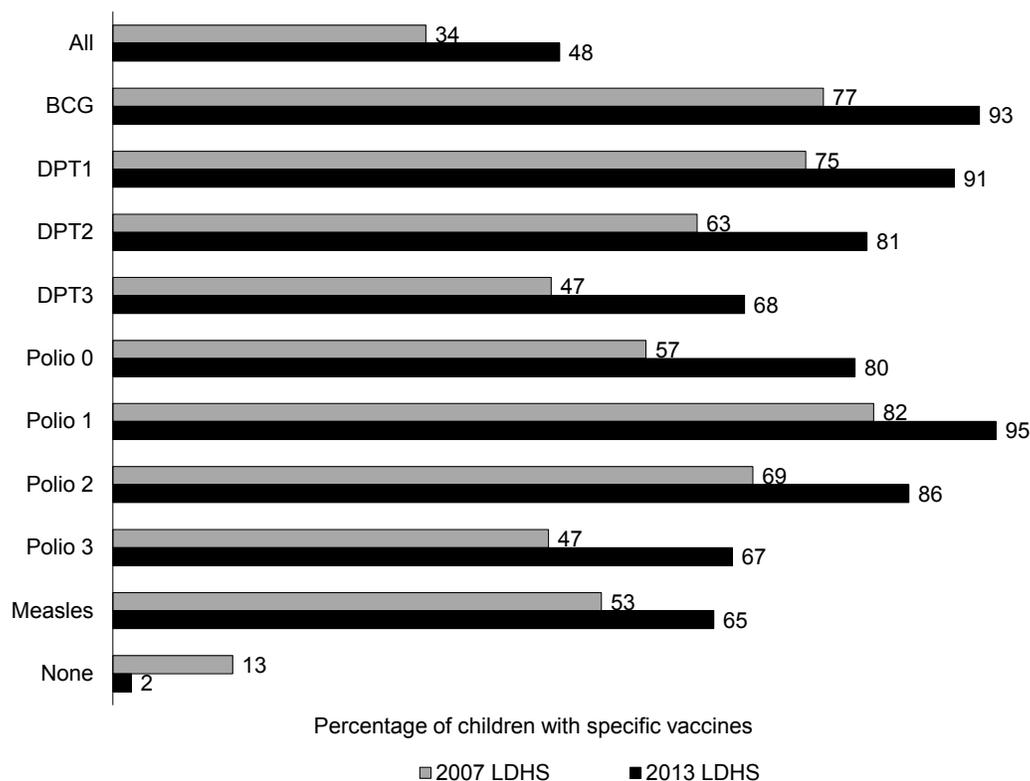
Table 10.4 shows the percentage of children age 12-59 months who received specific vaccinations during the first year of life, according to age cohort. The data indicate that the proportion of children fully vaccinated by age 12 months has increased over the last several years from 32 percent of children 48-59 months to 48 percent 12-23 months. Thus, these data agree with the increase in coverage shown in Figure 10.1.

Table 10.4 Vaccinations in first year of life

Percentage of children age 12-59 months at the time of the survey who received specific vaccines by 12 months of age, and percentage with a vaccination card, by current age of child, Liberia 2013

Age in months	BCG	DPT/ penta-valent 1	DPT/ penta-valent 2	DPT/ penta-valent 3	Polio 0[1]	Polio 1	Polio 2	Polio 3	Measles	Yellow Fever	All basic vaccina-tions[2]	No vaccina-tions	Percentage with a vaccina-tion card seen	Number of children
12-23	93.3	90.6	81.2	68.0	79.9	95.1	85.7	66.7	64.7	63.4	48.1	2.0	58.4	1,272
24-35	88.4	87.4	80.4	64.0	73.0	91.7	83.8	64.3	61.0	59.5	42.2	5.9	41.5	1,085
36-47	87.1	83.4	74.8	57.6	67.3	85.3	76.5	54.7	60.8	61.4	33.6	7.5	32.0	1,198
48-59	88.1	81.3	74.1	55.9	64.5	85.9	77.8	54.6	53.9	50.7	31.6	8.4	23.8	1,159
Total	89.7	86.2	78.2	61.8	71.6	90.1	81.5	60.5	61.6	60.4	39.6	5.5	39.3	4,714

Note: Information was obtained from the vaccination card or if there was no written record, from the mother. For children whose information is based on the mother's report, the proportion of vaccinations given during the first year of life is assumed to be the same as for children with a written record of vaccinations.
[1] Polio 0 is the polio vaccination given at birth.
[2] BCG, measles, and three doses each of DPT/pentavalent and polio vaccine (excluding polio vaccine given at birth and yellow fever vaccine)

10.3   PREVALENCE AND TREATMENT OF ACUTE RESPIRATORY INFECTION

Acute respiratory infection (ARI) is among the leading causes of childhood morbidity and mortality throughout the world. Among acute respiratory diseases, pneumonia is the most serious for young children. Early diagnosis and treatment with antibiotics can prevent a large number of deaths caused by ARIs. In the 2013 LDHS, ARI prevalence was estimated by asking mothers whether their children under 5 had been ill with a cough accompanied by short, rapid breathing, which was chest-related, and/or by difficult breathing, which was chest-related, in the two weeks preceding the survey. It should be noted that these data collected are subjective in the sense that they are based on the mother's perception of illness without validation by medical personnel.

Table 10.5 shows the prevalence of ARI symptoms among children under 5 during the two-week period preceding the interview and the actions that mothers took in response to their children's illness. Overall, 7 percent of children are reported to have had ARI symptoms in the two weeks preceding the survey.

Mothers who reported that their children had had ARI symptoms were asked about the actions they had taken to treat the illness. Among children with ARI symptoms, advice or treatment was sought from a health facility or a health provider for 51 percent, and 56 percent received antibiotics. Differences are observed by background characteristics. Among the most striking finding is that whereas the percentages of male and female children that had symptoms of ARI was nearly identical (7 percent and 6 percent, respectively), as was the percentage of males and females with symptoms of ARI who received antibiotics (56 percent and 57 percent, respectively), male children were much more likely than female children to have had advice or treatment sought from a health facility or provider (57 percent and 44 percent, respectively).

Table 10.5 Prevalence and treatment of symptoms of ARI

Among children under 5, the percentage who had symptoms of acute respiratory infection (ARI) in the two weeks preceding the survey and among children with symptoms of ARI, the percentage for whom advice or treatment was sought from a health facility or provider and the percentage who received antibiotics as treatment, according to background characteristics, Liberia 2013

	Among children under 5:		Among children under 5 with symptoms of ARI:		
Background characteristic	Percentage with symptoms of ARI[1]	Number of children	Percentage for whom advice or treatment was sought from a health facility or provider[2]	Percentage who received antibiotics	Number of children
Age in months					
<6	5.6	603	(76.0)	(75.9)	34
6-11	10.4	730	54.2	61.7	76
12-23	8.2	1,272	50.9	60.5	104
24-35	5.6	1,085	46.5	45.2	61
36-47	5.4	1,198	53.0	46.9	65
48-59	4.8	1,159	32.2	52.4	56
Sex					
Male	6.8	3,089	56.5	55.5	211
Female	6.2	2,957	44.0	57.2	184
Cooking fuel					
Electricity	*	1	nc	nc	0
Firecoal/charcoal	6.6	2,229	50.2	67.0	148
Wood	6.5	3,814	51.0	50.0	248
No food cooked in household	*	2	nc	nc	0
Residence					
Urban	5.4	3,013	49.4	62.3	164
Greater Monrovia	6.0	1,503	(38.2)	(71.1)	91
Other Urban	4.8	1,510	63.2	51.4	73
Rural	7.6	3,034	51.7	52.1	232
Region					
North Western	7.6	663	53.0	69.8	50
South Central	6.6	2,485	47.8	64.6	165
South Eastern A	9.8	463	55.5	44.7	45
South Eastern B	8.9	466	52.6	35.9	42
North Central	4.7	1,970	51.4	49.0	93
County					
Bomi	5.7	160	*	*	9
Bong	6.7	739	(58.2)	(57.8)	50
Gbarpolu	6.0	149	(30.0)	(42.2)	9
Grand Bassa	5.6	345	*	*	19
Grand Cape Mount	9.1	355	(56.0)	(71.9)	32
Grand Gedeh	7.4	146	(69.4)	(43.9)	11
Grand Kru	11.5	203	(41.6)	(30.4)	23
Lofa	4.2	323	*	*	14
Margibi	8.7	448	(49.6)	(57.5)	39
Maryland	5.2	175	*	*	9
Montserrado	6.3	1,692	(46.5)	(73.4)	107
Nimba	3.3	908	(38.7)	(34.5)	30
River Cess	12.2	139	58.0	50.3	17
River Gee	10.4	88	(73.2)	(52.3)	9
Sinoe	9.8	178	(44.5)	(39.9)	17
Mother's education					
No education	6.9	2,508	46.6	53.4	172
Primary	6.5	1,846	53.8	53.8	120
Secondary and higher	6.1	1,693	53.9	64.2	103
Wealth quintile					
Lowest	7.8	1,469	48.3	37.0	115
Second	6.6	1,350	56.4	60.8	89
Middle	5.2	1,268	59.7	55.0	66
Fourth	5.7	1,132	(44.3)	(58.4)	64
Highest	7.3	828	(44.0)	(85.4)	61
Total	6.5	6,047	50.7	56.3	396

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. Total includes 1 case for which information on type of cooking fuel used in household is missing.
nc = no cases
[1] Symptoms of ARI (cough accompanied by short, rapid breathing which was chest-related and/or by difficult breathing which was chest-related) is considered a proxy for pneumonia
[2] Excludes pharmacy, shop, traditional practitioner, and black bagger/drug peddler

10.4 PREVALENCE AND TREATMENT OF FEVER

Fever is a symptom of malaria, but it may also accompany other illnesses including pneumonia, common colds, and influenza. Because malaria is a major cause of death in infancy and childhood in many developing countries, prior to 2010 the presumptive treatment of fever with antimalarial medication was advocated in many countries where malaria is endemic (WHO, 2010a). In Liberia, ideally all suspected malaria cases should be confirmed diagnostically before treatment; however, when parasitological diagnosis is not accessible, treatment may be based on clinical diagnosis (NMCP 2011 and PMI, 2013). Information relating to the prevention and treatment of malaria is discussed in detail in Chapter 12.

In the 2013 LDHS, fever prevalence was estimated by asking mothers whether their children under 5 had been ill with fever in the two weeks preceding the survey. For children with fever, mothers were also asked about the actions they took to treat fever, including whether or not the child had been given any drug to treat the fever, and, if so, what drug the child was given.

Table 10.6 shows that the percentage of children under 5 with fever during the two weeks preceding the survey was 29 percent. The prevalence of fever varies with children's ages. Children age 6-11 months are more likely to be sick with fever (38 percent) than children in other age groups. Children in urban areas are slightly less likely than those in rural areas (26 percent and 31 percent, respectively) to have had fever. Among counties, 41 percent of children in River Gee had fever in the two weeks preceding the survey compared with 20 percent of children in Lofa.

Advice or treatment was sought from a health facility or provider for 58 percent of the children with fever. Children with fever were more likely to have received an antimalarial drug than an antibiotic drug during the episode of the fever (56 percent versus 39 percent, respectively). Advice or treatment for fever was nearly as commonly sought for male children and female children (59 and 56 percent, respectively), but was more common for children in urban areas (62 percent) than for children in rural areas (54 percent). The percentages of children who took antimalarial and antibiotic drugs also varied by background characteristics. Most notably, antimalarial use generally increased with age, while antibiotic use generally decreased with age.

Table 10.6 Prevalence and treatment of fever

Among children under 5, the percentage who had a fever in the two weeks preceding the survey; and among children with fever, the percentage for whom advice or treatment was sought from a health facility or provider, the percentage who took antimalarial drugs, and the percentage who received antibiotics as treatment, by background characteristics, Liberia 2013

Background characteristic	Among children under 5:		Among children under 5 with fever:			
	Percentage with fever	Number of children	Percentage for whom advice or treatment was sought from a health facility or provider[1]	Percentage who took antimalarial drugs	Percentage who took antibiotic drugs	Number of children
Age in months						
<6	18.7	603	67.2	27.9	48.9	113
6-11	38.1	730	58.7	48.2	54.5	278
12-23	33.7	1,272	61.9	60.3	42.1	429
24-35	28.5	1,085	52.0	53.8	33.3	309
36-47	27.3	1,198	56.1	61.8	34.1	327
48-59	23.6	1,159	53.3	62.4	28.6	273
Sex						
Male	30.4	3,089	58.8	56.9	39.8	938
Female	26.7	2,957	56.0	54.3	38.7	790
Residence						
Urban	26.3	3,013	61.7	57.3	41.4	793
Greater Monrovia	26.4	1,503	63.4	51.7	47.7	396
Other urban	26.2	1,510	59.9	62.9	35.1	396
Rural	30.8	3,034	54.0	54.4	37.6	935
Region						
North Western	36.1	663	54.8	63.9	50.7	240
South Central	28.4	2,485	60.6	52.8	44.7	706
South Eastern A	31.1	463	58.7	46.8	29.7	144
South Eastern B	36.7	466	58.3	53.2	32.6	171
North Central	23.7	1,970	53.7	59.5	30.8	467
County						
Bomi	30.9	160	68.1	71.2	61.6	49
Bong	28.1	739	57.1	57.4	38.0	208
Gbarpolu	40.2	149	49.8	55.7	21.1	60
Grand Bassa	35.1	345	45.5	43.1	22.9	121
Grand Cape Mount	36.8	355	52.1	64.9	60.2	131
Grand Gedeh	28.7	146	62.8	49.8	40.7	42
Grand Kru	33.7	203	49.1	47.2	23.3	68
Lofa	20.3	323	59.6	52.8	33.5	65
Margibi	22.8	448	56.4	62.1	48.5	102
Maryland	37.9	175	60.4	52.5	37.2	66
Montserrado	28.5	1,692	65.3	53.3	49.4	483
Nimba	21.4	908	48.1	64.2	22.2	194
River Cess	31.9	139	49.0	41.8	28.6	44
River Gee	41.3	88	71.6	65.8	41.7	36
Sinoe	32.4	178	63.2	48.5	22.5	58
Mother's education						
No education	26.7	2,508	56.5	53.2	35.9	670
Primary	29.2	1,846	54.2	58.2	41.2	540
Secondary and higher	30.6	1,693	62.3	56.4	41.8	518
Wealth quintile						
Lowest	31.4	1,469	50.6	51.8	33.3	460
Second	29.4	1,350	57.2	59.1	33.9	397
Middle	27.2	1,268	60.9	56.0	39.1	345
Fourth	27.0	1,132	61.2	55.6	47.0	306
Highest	26.6	828	62.2	57.5	51.4	220
Total	28.6	6,047	57.5	55.7	39.3	1,728

[1] Excludes pharmacy, shop, traditional practitioner, and black bagger/drug peddler

10.5 Diarrheal Disease

Dehydration caused by severe diarrhea is a major cause of morbidity and mortality among young children. Exposure to diarrhea-causing agents frequently relates to the use of contaminated water and to unhygienic practices in food preparation and disposal of excreta.

The 2013 LDHS obtained information on the prevalence of diarrhea among young children by asking mothers whether their children under 5 had had diarrhea during the two weeks preceding the survey. When a child was identified as having had diarrhea, information was collected on treatment and feeding practices during the diarrheal episode. The mother was also asked whether there was blood in the child's stools. Diarrhea with blood in the stools indicates an infection that needs to be treated differently than diarrhea in which there is no blood in the stools.

10.5.1 Prevalence of Diarrhea

Table 10.7 shows that 22 percent of children under 5 had a diarrheal episode in the two weeks preceding the survey and 4 percent had blood in the stool. The prevalence of diarrhea jumped from 10 percent among children less than age 6 months to 29 percent among children age 6-11 months, and peaked at 32 percent among children age 12-23 months. This observation is expected because children age 6 months and older are typically introduced to liquids in addition to breast milk and complementary foods. Diarrhea is somewhat more prevalent among children whose households do not have an improved source of drinking water (26 percent) compared with children from households that do (20 percent). Similarly, the prevalence of diarrhea is slightly higher among children whose households do not have an improved toilet facility (23 percent) or who share a facility with other households (22 percent) compared with households that have an improved, unshared toilet facility (19 percent). Rural children were slightly more likely to have had diarrhea than urban children (24 versus 20 percent, respectively.) The prevalence of diarrhea varies at the county level: it was highest in River Cess and River Gee (32 percent each) and lowest in Bomi and Lofa (12 percent and 14 percent, respectively).

Table 10.7 Prevalence of diarrhea

Percentage of children under 5 who had diarrhea in the two weeks preceding the survey, by background characteristics, Liberia 2013

Background characteristic	Diarrhea in the two weeks preceding the survey		Number of children
	All diarrhea	Diarrhea with blood	
Age in months			
<6	9.8	0.3	603
6-11	28.7	3.0	730
12-23	32.0	5.7	1,272
24-35	24.7	5.5	1,085
36-47	19.3	3.8	1,198
48-59	13.5	3.2	1,159
Sex			
Male	22.1	3.9	3,089
Female	21.9	4.0	2,957
Source of drinking water[1]			
Improved	20.3	3.3	4,084
Not improved	26.2	5.3	1,844
Toilet facility[2]			
Improved, not shared	18.6	3.7	702
Shared[3]	21.6	3.3	1,522
Non-improved	22.8	4.2	3,821
Residence			
Urban	20.1	3.2	3,013
Greater Monrovia	19.5	2.3	1,503
Other urban	20.8	4.1	1,510
Rural	23.8	4.7	3,034
Region			
North Western	17.1	3.1	663
South Central	21.3	3.1	2,485
South Eastern A	27.5	5.1	463
South Eastern B	27.7	6.9	466
North Central	22.0	4.3	1,970
County			
Bomi	11.9	1.7	160
Bong	28.5	5.2	739
Gbarpolu	21.6	4.1	149
Grand Bassa	30.0	3.8	345
Grand Cape Mount	17.5	3.4	355
Grand Gedeh	22.2	4.6	146
Grand Kru	27.4	9.1	203
Lofa	13.7	2.6	323
Margibi	20.1	4.1	448
Maryland	25.6	4.2	175
Montserrado	19.8	2.7	1,692
Nimba	19.5	4.3	908
River Cess	32.1	6.5	139
River Gee	32.3	7.0	88
Sinoe	28.2	4.5	178
Mother's education			
No education	21.5	4.2	2,508
Primary	23.2	4.1	1,846
Secondary and higher	21.4	3.5	1,693
Wealth quintile			
Lowest	25.2	4.5	1,469
Second	22.8	5.1	1,350
Middle	19.4	3.9	1,268
Fourth	22.1	3.4	1,132
Highest	18.9	2.1	828
Total	22.0	3.9	6,047

Note: Total includes 119 cases for which information on source of drinking water is other/missing and 2 cases for which information on toilet facility type is missing.
[1] See Table 2.1 for definition of categories
[2] See Table 2.2 for definition of categories
[3] Facilities that would be considered improved if they were not shared by two or more households

10.5.2 Treatment of Diarrhea

A simple and effective response to dehydration caused by diarrhea is oral rehydration therapy (ORT). Oral rehydration salt (ORS) packets are one source of rehydration therapy available in Liberia.

Table 10.8 shows that advice or treatment was sought from a health facility or provider for 47 percent of children suffering from diarrhea. Advice and treatment were sought more often for children with bloody diarrhea than for those with non-bloody diarrhea (60 and 44 percent, respectively). Some form of ORT, either fluid from ORS packets or recommended home fluids (RHF), was used to treat the diarrhea in the majority of children (62 percent). Three percent of children suffering from diarrhea in the two weeks preceding the survey were given RHF, and 60 percent were given fluid from ORS packets. Thirty-nine percent of the children were given increased amounts of other fluids. Three out of four children (76 percent) were given either ORT or increased fluids. Other treatments given to children with diarrhea were principally antibiotics (13 percent) and anti-motility drugs (55 percent). Home remedies were used to treat 23 percent of children. Eight percent of children with diarrhea did not receive any treatment.

Table 10.8 Diarrhea treatment

Among children under 5 who had diarrhea in the two weeks preceding the survey, the percentage for whom advice or treatment was sought from a health facility or provider, the percentage given oral rehydration therapy (ORT), the percentage given increased fluids, the percentage given ORT or increased fluids, and the percentage who were given other treatments, by background characteristics, Liberia 2013

Background characteristic	Percentage of children with diarrhea for whom advice or treatment was sought from a health facility or provider[1]	Oral rehydration therapy (ORT)			In-creased fluids	ORT or in-creased fluids	Other treatments					Missing	No treat-ment	Number of children with diarrhea
		Fluid from ORS packets	Recom-mended home fluids (RHF)	Either ORS or RHF			Antibiotic drugs	Anti-motility drugs	Zinc supple-ments	Intra-venus solution	Home remedy/ other			
Age in months														
<6	55.2	16.8	1.6	18.1	26.1	40.1	22.1	21.2	0.0	0.0	25.6	0.0	19.3	59
6-11	54.1	59.1	0.7	59.8	40.9	76.1	18.8	51.6	3.2	0.0	28.4	0.4	4.2	209
12-23	45.5	62.3	1.9	62.8	38.7	79.3	13.4	53.8	4.3	0.2	23.6	1.1	9.6	407
24-35	43.4	63.7	4.7	65.8	39.8	75.3	9.8	59.0	4.4	0.0	24.1	0.0	7.3	267
36-47	46.7	60.8	5.0	62.9	36.9	75.1	11.7	60.9	2.3	0.0	13.5	0.4	8.6	231
48-59	43.5	67.7	3.0	68.3	47.4	79.2	8.7	63.2	0.0	0.0	23.4	2.9	4.5	157
Sex														
Male	47.0	58.2	3.3	59.6	39.9	74.4	12.9	58.1	3.6	0.0	21.6	0.7	7.6	682
Female	46.7	62.8	2.6	63.7	38.9	76.7	13.2	52.5	2.6	0.1	23.9	1.0	8.3	648
Type of diarrhea														
Non-bloody	43.7	56.6	2.8	58.0	39.0	73.3	11.8	53.7	2.8	0.0	21.6	0.9	8.8	1,034
Bloody	60.1	74.9	3.7	75.6	42.7	84.8	18.4	60.6	3.3	0.3	24.0	0.0	3.7	239
Missing	48.8	68.2	1.7	68.2	32.7	75.9	12.8	64.0	7.3	0.0	37.4	1.9	10.5	58
Residence														
Urban	47.7	57.2	1.4	57.9	37.5	73.0	16.2	58.6	2.3	0.0	18.6	1.4	7.1	607
Greater Monrovia	48.1	51.1	0.0	51.1	33.6	69.3	18.5	56.8	2.1	0.0	13.0	2.8	7.6	293
Other urban	47.3	62.9	2.7	64.1	41.1	76.5	14.1	60.3	2.6	0.0	23.7	0.0	6.6	314
Rural	46.1	63.1	4.2	64.8	41.0	77.6	10.4	52.7	3.7	0.1	26.2	0.4	8.6	724
Region														
North Western	50.8	79.6	1.3	80.2	40.3	87.0	7.9	69.3	4.4	0.0	29.4	0.0	2.5	113
South Central	45.3	53.3	1.8	54.4	38.2	71.7	17.7	58.9	2.4	0.0	21.1	1.7	8.5	528
South Eastern A	46.2	54.1	3.4	55.4	44.5	75.0	10.3	46.4	1.8	0.1	18.7	1.2	11.5	127
South Eastern B	55.6	66.7	10.6	69.8	35.7	78.8	9.4	47.5	0.6	0.4	17.6	0.1	10.5	129
North Central	45.3	64.1	2.4	64.9	40.3	76.4	10.7	52.5	4.8	0.1	25.8	0.0	6.9	433
County														
Bomi	(69.4)	(69.9)	(0.0)	(69.9)	(37.0)	(81.5)	(16.3)	(84.5)	(0.0)	(0.0)	(22.5)	(0.0)	(3.7)	19
Bong	42.0	62.1	1.1	62.1	36.1	73.9	13.0	46.2	8.9	0.0	34.9	0.0	7.8	211
Gbarpolu	44.2	70.6	4.5	72.7	44.8	80.5	0.6	59.9	0.6	0.0	34.1	0.0	6.6	32
Grand Bassa	33.5	48.2	5.1	50.4	38.1	72.2	16.9	53.8	0.0	0.0	35.1	0.0	7.8	104
Grand Cape Mount	48.5	87.2	0.0	87.2	39.0	92.1	9.2	69.5	7.6	0.0	29.2	0.0	0.0	62
Grand Gedeh	46.4	55.3	0.0	55.3	30.7	70.0	13.2	43.0	0.0	0.4	9.5	0.0	14.5	32
Grand Kru	52.7	64.9	11.0	65.7	30.0	72.5	10.1	44.0	0.0	0.0	16.2	0.2	10.0	56
Lofa	54.0	73.4	6.4	75.6	35.5	84.3	10.0	56.0	0.0	0.7	13.1	0.0	6.8	44
Margibi	41.5	59.4	2.5	61.9	53.5	74.6	17.0	64.9	4.7	0.0	22.8	0.9	13.6	90
Maryland	55.1	70.4	8.7	73.9	35.8	84.9	6.6	51.9	1.1	0.7	16.0	0.0	11.2	45
Montserrado	50.0	53.2	0.5	53.7	34.1	70.7	18.1	58.8	2.5	0.0	16.2	2.5	7.3	335
Nimba	47.0	64.3	2.9	65.6	46.4	77.3	8.1	59.2	1.0	0.0	18.0	0.0	5.9	177
River Cess	44.9	51.3	1.2	51.9	51.8	73.0	11.1	53.6	5.2	0.0	32.2	2.9	11.2	45
River Gee	62.4	64.2	12.7	71.6	46.9	81.6	12.6	47.3	1.0	0.5	22.8	0.0	10.4	28
Sinoe	47.3	55.9	7.6	58.6	47.0	80.0	7.7	42.3	0.0	0.0	12.5	0.6	9.9	50
Mother's education														
No education	44.9	59.9	3.6	61.4	40.3	74.0	12.6	53.2	3.9	0.2	26.9	0.4	10.1	539
Primary	44.1	64.5	2.5	65.1	41.4	80.0	11.0	54.9	2.3	0.0	22.2	0.1	6.2	428
Secondary and higher	52.9	56.4	2.5	57.7	35.7	72.4	16.1	59.2	2.9	0.0	17.3	2.3	6.7	363
Wealth quintile														
Lowest	43.2	56.8	3.1	58.5	39.7	73.5	10.5	45.3	3.7	0.2	26.2	0.7	10.9	370
Second	46.8	66.1	6.0	68.1	41.6	78.6	9.9	58.5	3.5	0.1	27.4	0.0	7.2	307
Middle	53.6	70.4	2.6	71.4	37.4	80.2	11.6	60.3	3.0	0.0	20.1	0.0	4.1	246
Fourth	44.2	59.3	0.9	59.5	39.7	77.5	19.1	58.3	3.1	0.0	18.0	0.0	9.1	251
Highest	49.2	44.1	0.2	44.3	37.4	63.7	17.9	60.8	0.9	0.0	17.1	5.3	6.8	157
Total	46.8	60.4	2.9	61.6	39.4	75.5	13.1	55.4	3.1	0.1	22.7	0.8	7.9	1,330

Note: ORT includes fluid prepared from oral rehydration salt (ORS) packets and recommended home fluids (RHF). Figures in parentheses are based on 25-49 unweighted cases.
[1] Excludes pharmacy, shop, traditional practitioner, and black bagger/drug peddler

10.5.3 Feeding Practices during Diarrhea

When a child has diarrhea, mothers are encouraged to continue feeding their child the same amount of food as they would if the child did not have diarrhea, and they are also encouraged to increase the child's fluid intake. These practices help to reduce dehydration and minimize the adverse consequences of diarrhea on the child's nutritional status. In the 2013 LDHS, mothers were asked whether they gave their child with diarrhea less, the same amount of, or more fluids and food than usual.

Table 10.9 shows, by feeding practices, the percent distribution of children under 5 who had diarrhea in the two weeks preceding the survey, according to background characteristics. Twenty-six percent of the children with diarrhea were given the same amount of liquids as usual, and 39 percent were given more. It is of concern that 15 percent of the children were given somewhat less and 18 percent were given much less to drink during the diarrhea episode. Thirty-one percent of children were given the same amount of food as usual, 10 percent were given more food, 21 percent were given somewhat less food, and 24 percent were given much less food. Seven percent of children were not given any food during the diarrhea episode. Overall, only 23 percent of children had increased fluid intake and continued feeding. Forty-six percent of children were given ORT and/or increased fluids, and continued feeding.

Table 10.9 Feeding practices during diarrhea

Percent distribution of children under 5 who had diarrhea in the two weeks preceding the survey, by amount of liquids and food offered compared with normal practice, the percentage of children given increased fluids and continued feeding during the diarrhea episode, and the percentage of children who continued feeding and were given ORT and/or increased fluids during the episode of diarrhea, by background characteristics, Liberia 2013

Background characteristic	Amount of liquids given							Amount of food given								Percentage given increased fluids and continued feeding[1]	Percentage who continued feeding and were given ORT and/or increased fluids[1]	Number of children with diarrhea
	More	Same as usual	Some-what less	Much less	None	Don't know/ mis-sing	Total	More	Same as usual	Some-what less	Much less	None	Never gave food	Don't know/ mis-sing	Total			
Age in months																		
<6	26.1	33.4	17.5	16.2	6.8	0.0	100.0	1.9	39.6	6.6	6.4	6.0	39.4	0.0	100.0	9.0	17.7	59
6-11	40.9	22.5	13.4	20.7	2.2	0.4	100.0	4.5	22.5	20.2	25.1	9.0	18.3	0.4	100.0	19.1	35.4	209
12-23	38.7	25.9	14.3	18.8	1.2	1.1	100.0	11.1	31.8	18.1	25.0	8.1	4.6	1.2	100.0	21.9	47.7	407
24-35	39.8	29.8	11.0	16.3	2.8	0.3	100.0	10.4	36.5	21.7	25.9	4.4	0.5	0.6	100.0	27.1	51.3	267
36-47	36.9	23.3	17.5	21.6	0.6	0.2	100.0	12.9	26.5	28.2	26.6	5.3	0.4	0.1	100.0	24.4	51.6	231
48-59	47.4	21.0	18.1	10.4	0.1	3.0	100.0	12.7	30.0	22.6	22.6	8.8	0.1	3.0	100.0	30.7	52.7	157
Sex																		
Male	39.9	26.3	12.8	18.4	1.7	0.9	100.0	10.6	32.3	19.6	25.7	5.2	5.7	0.9	100.0	25.2	46.9	682
Female	38.9	24.6	16.5	17.5	1.6	0.8	100.0	9.4	28.6	22.4	23.0	8.8	6.8	1.0	100.0	21.5	46.0	648
Type of diarrhea																		
Non-bloody	39.0	27.3	14.0	16.7	2.0	1.0	100.0	10.3	33.0	19.7	23.0	6.1	6.9	1.0	100.0	23.5	46.3	1,034
Bloody	42.7	16.8	18.6	21.1	0.7	0.0	100.0	9.9	21.5	28.0	28.0	8.9	3.2	0.5	100.0	25.1	50.3	239
Missing	32.7	27.8	9.5	27.9	0.7	1.4	100.0	5.4	23.6	14.4	33.1	15.5	6.4	1.4	100.0	14.4	32.9	58
Residence																		
Urban	37.5	22.8	17.0	20.0	1.3	1.4	100.0	11.5	29.8	26.2	23.3	4.8	3.1	1.4	100.0	27.4	51.8	607
Greater Monrovia	33.6	21.0	21.5	21.1	0.0	2.8	100.0	15.9	27.1	35.7	11.6	5.8	0.9	2.8	100.0	30.1	59.5	293
Other Urban	41.1	24.6	12.8	18.9	2.5	0.1	100.0	7.4	32.2	17.3	34.2	3.8	5.1	0.0	100.0	24.8	44.6	314
Rural	41.0	27.7	12.6	16.3	2.0	0.4	100.0	8.8	31.1	16.5	25.2	8.9	8.9	0.6	100.0	20.1	41.9	724
Region																		
North Western	40.3	25.4	19.0	13.8	1.0	0.5	100.0	4.9	34.3	23.2	22.6	10.0	4.6	0.5	100.0	19.5	53.0	113
South Central	38.2	21.2	18.1	19.5	1.4	1.6	100.0	13.0	26.3	28.6	20.6	6.2	3.6	1.6	100.0	26.3	50.7	528
South Eastern A	44.5	25.0	12.3	17.2	0.7	0.2	100.0	11.2	24.9	19.1	20.3	16.2	8.1	0.2	100.0	21.6	38.9	127
South Eastern B	35.7	28.9	15.4	15.4	2.8	1.8	100.0	16.0	30.5	12.7	26.9	5.2	6.3	2.5	100.0	21.2	46.3	129
North Central	40.3	29.8	9.7	18.1	2.1	0.0	100.0	5.6	36.3	14.0	29.8	5.0	9.4	0.0	100.0	22.2	41.7	433
County																		
Bomi	(37.0)	(47.7)	(4.3)	(11.1)	(0.0)	(0.0)	100.0	(0.0)	(49.6)	(8.7)	(30.6)	(2.3)	(8.8)	(0.0)	100.0	(15.0)	(45.4)	19
Bong	36.1	38.7	13.3	11.4	0.6	0.0	100.0	4.1	44.3	14.3	14.6	7.1	15.5	0.0	100.0	19.6	43.4	211
Gbarpolu	44.8	24.5	18.2	9.7	1.1	1.7	100.0	12.0	23.7	48.2	8.7	1.9	3.8	1.7	100.0	38.3	67.0	32
Grand Bassa	38.1	25.4	17.1	18.6	0.9	0.0	100.0	9.8	29.1	20.3	29.4	5.3	6.1	0.0	100.0	16.7	39.2	104
Grand Cape Mount	39.0	19.0	24.0	16.7	1.3	0.0	100.0	2.7	35.2	14.6	27.3	16.5	3.7	0.0	100.0	11.2	48.0	62
Grand Gedeh	30.7	25.8	21.3	22.2	0.0	0.0	100.0	3.8	32.6	18.1	35.9	5.4	4.3	0.0	100.0	13.6	37.6	32
Grand Kru	30.0	26.5	21.9	14.2	3.9	3.6	100.0	12.7	28.5	16.9	25.6	7.5	3.1	5.7	100.0	12.7	39.5	56
Lofa	35.5	33.1	13.9	15.6	1.9	0.0	100.0	7.9	48.3	13.9	18.2	7.9	3.7	0.0	100.0	25.2	58.4	44
Margibi	53.5	18.5	5.4	17.0	5.6	0.0	100.0	6.0	21.0	22.3	34.2	9.8	6.6	0.0	100.0	27.0	37.7	90
Maryland	35.8	31.8	13.6	17.0	1.3	0.6	100.0	26.6	33.3	9.3	21.8	0.0	9.1	0.0	100.0	29.5	61.0	45
Montserrado	34.1	20.6	21.8	20.5	0.4	2.5	100.0	15.9	26.9	32.9	14.2	5.6	2.0	2.5	100.0	29.0	57.8	335
Nimba	46.4	18.5	4.3	26.7	4.0	0.0	100.0	6.7	23.7	13.7	50.7	1.8	3.4	0.0	100.0	24.5	35.5	177
River Cess	51.8	18.7	9.8	19.3	0.5	0.0	100.0	13.1	19.2	17.6	11.8	25.4	12.8	0.0	100.0	21.2	31.6	45
River Gee	46.9	29.0	5.6	15.2	3.3	0.0	100.0	5.9	30.0	9.8	37.6	8.7	8.0	0.0	100.0	24.6	36.4	28
Sinoe	47.0	30.1	8.8	12.2	1.4	0.6	100.0	14.1	25.0	21.1	17.9	15.0	6.3	0.6	100.0	27.1	46.3	50
Mother's education																		
No education	40.3	26.0	16.1	14.9	2.4	0.3	100.0	8.1	30.5	20.4	22.2	10.5	7.8	0.4	100.0	22.1	42.8	539
Primary	41.4	26.2	12.3	18.7	1.2	0.2	100.0	8.6	34.3	17.3	27.0	6.5	6.1	0.3	100.0	25.2	49.6	428
Secondary and higher	35.7	23.8	15.2	21.7	1.1	2.4	100.0	14.6	26.0	26.2	24.4	2.4	4.0	2.4	100.0	23.3	48.1	363
Wealth quintile																		
Lowest	39.7	29.1	13.2	16.4	1.0	0.6	100.0	9.1	32.1	16.2	22.1	9.2	10.4	0.9	100.0	19.6	40.9	370
Second	41.6	26.2	14.3	16.5	1.6	0.0	100.0	10.6	31.1	19.1	26.8	6.2	6.2	0.0	100.0	23.9	46.1	307
Middle	37.4	25.3	8.7	24.9	3.4	0.3	100.0	6.5	29.3	15.1	38.0	5.9	4.9	0.3	100.0	20.2	40.2	246
Fourth	39.7	23.3	21.5	14.0	1.5	0.0	100.0	9.0	34.1	28.2	21.0	3.4	4.3	0.0	100.0	26.5	56.4	251
Highest	37.4	19.2	17.1	20.0	0.9	5.5	100.0	18.1	21.7	33.5	8.7	11.0	1.7	5.3	100.0	31.6	53.9	157
Total	39.4	25.5	14.6	18.0	1.7	0.9	100.0	10.0	30.5	21.0	24.4	7.0	6.2	0.9	100.0	23.4	46.4	1,330

Note: It is recommended that children should be given more liquids to drink during diarrhea and that food should not be reduced. Figures in parentheses are based on 25-49 unweighted cases.
[1] Continued feeding practices include children who were given more, the same as usual, or somewhat less food during the diarrhea episode.

10.6   Knowledge of ORS Packets

To ascertain respondents' knowledge of ORS in Liberia, women were asked whether they had heard of a special product called an ORS packet that can be used to treat diarrhea. Table 10.10 presents information on the percentage of mothers with a birth in the five years preceding the survey who had heard of ORS packets. Knowledge was nearly universal (96 percent). Variations in knowledge of ORS packets according to background characteristics were generally minor.

Table 10.10 Knowledge of ORS packets

Percentage of women age 15-49 with a live birth in the five years preceding the survey who know about ORS packets for treatment of diarrhea by background characteristics, Liberia 2013

Background characteristic	Percentage of women who know about ORS packets	Number of women
Age		
15-19	96.2	532
20-24	96.3	1,182
25-34	95.5	1,987
35-49	96.2	1,069
Residence		
Urban	97.7	2,555
Greater Monrovia	99.4	1,332
Other Urban	95.8	1,223
Rural	93.9	2,215
Region		
North Western	98.6	496
South Central	99.1	2,103
South Eastern A	90.1	328
South Eastern B	92.2	352
North Central	92.8	1,491
County		
Bomi	100.0	128
Bong	94.6	559
Gbarpolu	96.6	112
Grand Bassa	98.1	267
Grand Cape Mount	98.8	256
Grand Gedeh	88.9	112
Grand Kru	85.0	147
Lofa	97.4	262
Margibi	98.3	349
Maryland	98.5	141
Montserrado	99.4	1,487
Nimba	89.4	670
River Cess	92.1	92
River Gee	94.9	63
Sinoe	89.7	124
Education		
No education	95.1	1,862
Primary	94.7	1,428
Secondary and higher	98.2	1,479
Wealth quintile		
Lowest	92.5	1,052
Second	94.1	995
Middle	97.2	1,014
Fourth	97.7	972
Highest	99.4	736
Total	95.9	4,769

ORS = Oral rehydration salts

10.7 DISPOSAL OF CHILDREN'S STOOLS

The proper disposal of children's feces is important in preventing the spread of disease. If feces are left uncontained, disease may spread by direct contact or through animal contact. The safe disposal of children's feces is of particular importance because they are more likely to be the cause of fecal contamination in the household environment than adult feces. This occurs because they are often not disposed of properly and may be mistakenly considered less harmful than adult feces. Children's stools are considered to be safely disposed of if the child uses a toilet or latrine, the child's stool is put or rinsed into a toilet or latrine, or the stool is buried.

Table 10.11 presents information on the disposal of fecal matter of children under 5, according to background characteristics. Overall, 32 percent of children had their last stool disposed of safely. Access to an improved toilet or latrine is clearly a factor in determining whether or not fecal matter was safely disposed of. For example, 53 percent of children who had access to an improved, non-shared toilet facility had their last stool disposed of safely compared with 21 percent of children who did not have such access. Children in urban areas were more likely than those in rural areas to have had their last stool safely disposed of (40 and 23 percent, respectively).

At the county level, the proportion of children whose last stool was properly disposed of ranged broadly: 59 percent of children in Maryland had their stools disposed of safely, making it the county with best stool disposal practices. In contrast, only 7 percent of children from Bong had their stools disposed of safely, ranking it last among all counties. The proportion of children whose last stool was disposed of safely rose with the mother's education and the wealth quintile.

Table 10.11 Disposal of children's stools

Percent distribution of youngest children under 5 living with the mother by the manner of disposal of the child's last fecal matter, and percentage of children whose stools are disposed of safely, according to background characteristics, Liberia 2013

Background characteristic	Child used toilet or latrine	Put/rinsed into toilet or latrine	Buried	Put/rinsed into drain or ditch	Thrown into garbage	Left in the open/ bush/field	Other	Missing	Total	Percentage of children whose stools are disposed of safely[1]	Number of children
Age in months											
<6	0.6	25.3	0.5	40.8	15.1	16.9	0.5	0.4	100.0	26.4	590
6-11	0.3	19.0	1.5	37.2	18.7	22.7	0.4	0.1	100.0	20.8	699
12-23	0.8	23.3	4.2	22.9	24.7	23.5	0.0	0.5	100.0	28.3	1,184
24-35	1.0	21.8	13.2	8.3	28.2	27.3	0.2	0.1	100.0	35.9	769
36-47	6.9	19.5	14.5	3.9	23.0	31.8	0.0	0.3	100.0	40.9	615
48-59	10.5	18.7	15.4	1.6	18.2	35.0	0.3	0.4	100.0	44.6	451
Toilet facility[2]											
Improved, not shared	12.1	35.7	4.9	14.0	26.2	6.4	0.4	0.2	100.0	52.8	541
Shared[3]	1.8	35.8	8.5	18.7	19.1	15.6	0.0	0.5	100.0	46.1	1,102
Non-improved	1.1	12.8	7.6	22.0	22.5	33.6	0.2	0.3	100.0	21.4	2,663
Residence											
Urban	3.8	28.6	7.6	18.6	23.0	18.0	0.1	0.3	100.0	40.0	2,269
Greater Monrovia	6.2	32.6	7.9	21.4	20.4	11.6	0.0	0.0	100.0	46.6	1,171
Other urban	1.1	24.4	7.4	15.7	25.8	24.8	0.2	0.6	100.0	32.9	1,097
Rural	1.4	13.7	7.4	21.8	21.1	33.9	0.3	0.3	100.0	22.5	2,040
Region											
North Western	0.1	11.5	4.3	35.5	22.3	25.9	0.2	0.1	100.0	15.9	443
South Central	4.8	30.3	9.1	19.4	18.9	17.3	0.2	0.0	100.0	44.2	1,877
South Eastern A	2.0	10.9	10.0	25.6	21.9	28.1	0.9	0.6	100.0	23.0	291
South Eastern B	3.6	23.2	9.1	12.2	23.8	27.4	0.0	0.6	100.0	35.9	308
North Central	0.4	14.8	5.5	16.9	26.0	35.7	0.0	0.7	100.0	20.7	1,389
County											
Bomi	0.4	9.0	1.8	35.0	34.0	19.9	0.0	0.0	100.0	11.1	113
Bong	0.5	5.3	0.6	12.7	32.1	47.5	0.0	1.2	100.0	6.5	519
Gbarpolu	0.0	19.1	2.8	26.4	11.1	40.4	0.2	0.0	100.0	22.0	102
Grand Bassa	2.6	25.0	15.8	16.4	3.7	36.2	0.3	0.0	100.0	43.4	243
Grand Cape Mount	0.0	9.3	6.3	39.8	21.5	22.4	0.3	0.2	100.0	15.6	228
Grand Gedeh	3.2	17.6	7.8	20.3	24.6	26.0	0.3	0.4	100.0	28.6	97
Grand Kru	0.0	5.4	15.9	9.7	19.7	48.4	0.0	0.9	100.0	21.3	127
Lofa	0.3	13.5	0.6	10.9	23.9	50.2	0.0	0.7	100.0	14.4	240
Margibi	3.3	32.8	6.8	16.7	28.2	11.1	1.0	0.0	100.0	43.0	324
Maryland	6.5	46.1	6.1	11.7	21.8	7.6	0.1	0.2	100.0	58.7	126
Montserrado	5.6	30.7	8.4	20.6	19.5	15.3	0.0	0.0	100.0	44.7	1,309
Nimba	0.4	23.1	11.5	22.6	21.7	20.3	0.1	0.3	100.0	34.9	630
River Cess	1.7	0.4	16.4	41.0	20.0	20.0	0.0	0.4	100.0	18.5	85
River Gee	5.0	12.2	0.6	19.2	37.9	24.3	0.0	0.9	100.0	17.8	56
Sinoe	1.2	13.3	7.0	18.1	20.9	36.4	2.1	0.9	100.0	21.6	108
Mother's education											
No education	1.5	17.3	7.4	18.6	21.2	33.4	0.3	0.4	100.0	26.2	1,731
Primary	1.1	20.8	7.1	21.2	20.6	28.6	0.2	0.3	100.0	29.0	1,296
Secondary and higher	5.7	28.1	8.1	21.2	24.9	11.9	0.1	0.1	100.0	41.9	1,281
Wealth quintile											
Lowest	0.6	8.5	6.8	21.9	19.8	41.9	0.2	0.3	100.0	15.9	972
Second	1.2	17.5	6.9	19.1	21.1	33.4	0.2	0.5	100.0	25.6	918
Middle	1.7	21.3	7.4	20.1	23.1	25.9	0.4	0.1	100.0	30.4	920
Fourth	1.7	32.7	11.4	21.2	21.9	10.4	0.1	0.5	100.0	45.8	849
Highest	10.1	32.6	4.5	17.6	25.8	9.2	0.0	0.1	100.0	47.3	650
Total	2.6	21.6	7.5	20.1	22.1	25.5	0.2	0.3	100.0	31.7	4,308

Note: Total includes 2 cases for which information on toilet facility type is missing.
[1] Children's stools are considered to be disposed of safely if the child used a toilet or latrine, if the fecal matter was put or rinsed into a toilet or latrine, or if it was buried.
[2] See Table 2.2 for definition of categories.
[3] Facilities that would be considered improved if they were not shared by two or more households

NUTRITION OF CHILDREN AND ADULTS

11

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Key Findings

- Among Liberian children under age 5 at the time of the survey, 32 percent were stunted (short for their age), 6 percent were wasted (thin for their height), and 15 percent were underweight (thin for their age). Only 3 percent of children were overweight (heavy for their height).

- Almost all children (98 percent) are breastfed at some point in their life. Fifty-five percent of children under 6 months are exclusively breastfed. Less than half (44 percent) of children age 6-8 months are breastfeeding and consuming complementary foods.

- The median duration for breastfeeding is 19.6 months. Exclusive breastfeeding, in contrast, is relatively short, with a median duration of 2.7 months.

- Feeding practices of only 4 percent of children age 6-23 months meet the minimum standards set by three core infant and young child feeding (IYCF) practices.

- Sixty percent of Liberian children age 6-59 months received vitamin A supplements in the 6 months prior to the survey, 27 percent received iron supplements in the 7 days beforehand, 56 percent received deworming medication in the preceding 6 months, and 99 percent live in households with iodized salt.

- Overall, 66 percent of women and 80 percent of men have a body mass index (BMI) in the normal range. One in four women and fewer than 1 in 10 men are overweight or obese.

- Among women age 15-49 with a child born in the past five years, 62 percent received a vitamin A dose postpartum; during the pregnancy of their last birth, 21 percent of women took iron tablets for the recommended period of time, and 58 percent took deworming medication.

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This chapter, which focuses on the nutritional status of children and adults, complements other recent surveys on nutrition that have been conducted in Liberia (LISGIS, 2011b). The chapter describes the nutritional status of children under 5; infant and young child feeding practices, including breastfeeding and feeding with solid/semisolid foods; diversity of foods fed and frequency of feeding; and micronutrient status, supplementation, and fortification. The discussion also covers the nutritional status of women and men age 15-49.

11.1 NUTRITIONAL STATUS OF CHILDREN

The anthropometric data on height and weight collected in the 2013 LDHS permit the measurement and evaluation of the nutritional status of young children in Liberia. This evaluation allows identification of subgroups of the child population that are at increased risk of faltered growth, disease, impaired mental development, and death. Marked differences, especially with regard to height-for-age, weight-for-height, and weight-for-age, are often seen among subgroups of children within the country.

11.1.1 Measurement of Nutritional Status among Young Children

The 2013 LDHS collected data on the nutritional status of children by measuring the height and weight of children under 5. Data came from the subsample of households selected for the male survey and biomarker collection, regardless of whether the children's mothers were interviewed in the survey. Data were collected to calculate three indices: height-for-age, weight-for-height, and weight-for-age. Weight measurements were obtained using a SECA 874 digital scale, designed for weighing children and adults. Height measurements were carried out using a Shorr Productions measuring board. Children younger than 24 months were measured lying down on the board (recumbent length), and standing height was measured for older children.

For the 2013 LDHS, the nutritional status of children was calculated using growth standards published by WHO in 2006. These standards were generated through data collected in the WHO Multicentre Growth Reference Study (WHO, 2006). That study, which involved a sample of 8,440 children drawn from six countries across the world, was designed to describe how children should grow under optimal conditions. The WHO child growth standards can therefore be used to assess children all over the world, regardless of ethnicity, social and economic influences, and feeding practices. Each of the three nutritional status indicators described below is expressed in standard deviation units from the median of the Multicentre Growth Reference Study sample.

Each of these indices—height-for-age, weight-for-height, and weight-for-age—provides different information about growth and body composition that can be used to assess nutritional status. The height-for-age index is an indicator of linear growth retardation and cumulative growth deficits. Children whose height-for-age Z-score is below minus two standard deviations (-2 SD) from the median of the reference population are considered short for their age (stunted), or chronically malnourished. Children who are below minus three standard deviations (-3 SD) are considered severely stunted. Stunting reflects failure to receive adequate nutrition over a long period and is also affected by recurrent and chronic illness. Height-for age, therefore, represents the long-term effects of malnutrition (specifically, undernutrition) in a population and is not sensitive to recent, short-term changes in dietary intake.

The weight-for-height index measures body mass in relation to body height or length and describes current nutritional status. Children whose Z-scores are below -2 SD from the median of the reference population are considered thin (wasted), or acutely malnourished. Wasting represents the failure to receive adequate nutrition in the period immediately preceding the survey. It may result from inadequate food intake or a recent episode of illness causing loss of weight and the onset of malnutrition. Children whose weight-for-height is below -3 SD are considered severely wasted.

Overweight and obesity are other forms of malnutrition that are becoming concerns for some children in developing countries. Children whose Z-score values are +2 SD above the median for weight-for-height are considered overweight.

Weight-for-age is a composite index of height-for-age and weight-for-height. It takes into account both acute and chronic malnutrition. Children whose weight-for-age is below -2 SD from the median of the reference population are classified as underweight. Children whose weight-for-age is below -3 SD from the median are considered severely underweight.

Z-score means are also calculated as summary statistics representing the nutritional status of children in a population. These mean scores describe the nutritional status of the entire population without the use of a cutoff. A mean Z-score of less than 0 (i.e., a negative value for stunting, wasting, or underweight) suggests that the distribution of an index has shifted downward and, on average, children in the population are less well-nourished than children in the WHO Multicentre Growth Reference Study.

11.1.2 Data Collection

Height and weight measurements were obtained for 3,706 children under age 5 who were present in the LDHS sample households at the time of the survey. The following analysis focuses on the 3,520 children (95 percent) for whom complete and credible anthropometric and age data were collected.

11.1.3 Levels of Child Malnutrition

Table 11.1 and Figure 11.1 show the percentage of children under 5 classified as malnourished according to the three anthropometric indices of nutritional status (height-for-age, weight-for-height, and weight-for-age). Overall, at the time of the 2013 LDHS, 32 percent of children were stunted, 6 percent were wasted, 15 percent were underweight, and 3 percent were overweight.

The percentage of stunting initially increases with a child's age, with prevalence peaking in the age range of 36-47 months (42 percent), before declining somewhat as children approach their fifth birthday (35 percent of children age 48-59 months are stunted). Seventeen percent of Liberian children age 24-35 months are severely stunted. The prevalence of wasting is highest among children age 6-8 months (15 percent), and children age 9-11 months are most likely to be underweight (23 percent).

Table 11.1 Nutritional status of children

Percentage of children under age 5 classified as malnourished according to three anthropometric indices of nutritional status: height-for-age, weight-for-height, and weight-for-age, by background characteristics, Liberia 2013

Background characteristic	Height-for-age[1]			Weight-for-height				Weight-for-age				Number of children
	Percentage below -3 SD	Percentage below -2 SD[2]	Mean Z-score (SD)	Percentage below -3 SD	Percentage below -2 SD[2]	Percentage above +2 SD	Mean Z-score (SD)	Percentage below -3 SD	Percentage below -2 SD[2]	Percentage above +2 SD	Mean Z-score (SD)	
Age in months												
<6	1.3	8.6	0.0	2.4	6.7	6.3	-0.1	0.6	5.7	2.6	-0.2	282
6-8	5.1	17.5	-0.1	3.6	15.3	2.4	-0.8	5.7	16.9	2.3	-0.8	208
9-11	7.0	19.6	-0.5	5.0	13.7	4.2	-0.6	5.8	22.9	3.3	-0.8	213
12-17	5.9	24.4	-0.9	4.2	10.4	1.8	-0.6	4.8	14.5	1.4	-0.9	362
18-23	15.1	34.6	-1.4	2.8	7.5	2.4	-0.3	4.8	19.4	1.7	-0.9	360
24-35	17.4	36.7	-1.6	1.5	4.6	1.0	0.0	6.5	16.1	0.5	-0.9	651
36-47	16.1	42.2	-1.7	0.8	2.5	2.3	0.1	4.1	15.0	0.3	-0.9	731
48-59	13.9	35.0	-1.5	0.9	2.6	4.3	0.0	3.0	12.9	0.0	-0.9	713
Sex												
Male	13.7	34.0	-1.3	2.4	6.4	2.6	-0.2	5.0	16.6	1.2	-0.9	1,886
Female	10.8	28.8	-1.1	1.6	5.6	3.2	-0.2	3.7	13.2	0.8	-0.8	1,634
Birth interval in months[3]												
First birth[4]	11.2	28.4	-1.1	3.1	7.0	2.2	-0.3	3.9	16.6	0.8	-0.8	677
<24	15.0	39.5	-1.5	1.5	5.2	2.0	-0.2	4.9	15.1	0.6	-1.0	315
24-47	13.5	32.7	-1.3	2.1	6.3	2.7	-0.2	5.5	17.4	0.7	-0.9	1,186
48+	9.0	23.4	-0.9	1.8	6.7	4.2	-0.1	2.6	9.4	1.9	-0.6	731
Size at birth[3]												
Very small	23.7	36.7	-1.6	5.6	16.9	2.6	-0.7	10.1	28.4	0.5	-1.4	219
Small	14.9	38.0	-1.6	2.6	10.5	1.8	-0.5	7.0	23.5	0.5	-1.2	313
Average or larger	10.5	28.5	-1.1	1.8	4.9	3.1	-0.1	3.4	12.6	1.2	-0.7	2,373
Mother's interview status												
Interviewed	12.0	30.1	-1.2	2.2	6.4	2.9	-0.2	4.3	15.0	1.0	-0.8	2,910
Not interviewed but in household	13.6	43.0	-1.4	0.0	3.5	3.8	-0.1	6.2	17.8	0.4	-0.8	68
Not interviewed and not in the household[5]	14.1	38.2	-1.3	1.3	4.1	2.7	0.0	4.5	15.1	0.9	-0.8	543

…Continued

Table 11.1 Nutritional status of children—*Continued*

Background characteristic	Height-for-age[1]			Weight-for-height				Weight-for-age				Number of children
	Per-centage below -3 SD	Per-centage below -2 SD[2]	Mean Z-score (SD)	Per-centage below -3 SD	Per-centage below -2 SD[2]	Per-centage above +2 SD	Mean Z-score (SD)	Per-centage below -3 SD	Per-centage below -2 SD[2]	Per-centage above +2 SD	Mean Z-score (SD)	
Mother's nutritional status[6]												
Thin -BMI<18.5	23.6	43.1	-1.9	7.0	14.3	4.5	-0.7	12.8	36.4	0.0	-1.5	157
Normal -BMI 18.5-24.9	12.1	31.1	-1.2	2.4	6.7	2.5	-0.3	4.5	15.0	1.2	-0.9	1,778
Overweight/ obese –BMI ≥ 25	8.0	21.9	-0.9	1.1	5.1	2.8	0.0	1.9	8.1	0.7	-0.5	620
Residence												
Urban	10.5	30.0	-1.1	2.0	5.9	3.0	-0.2	4.3	13.4	1.3	-0.8	1,791
Greater Monrovia	6.8	27.0	-0.9	1.0	5.5	3.7	-0.2	2.0	8.5	1.5	-0.6	885
Other urban	14.2	32.9	-1.3	2.9	6.3	2.3	-0.2	6.5	18.2	1.2	-0.9	906
Rural	14.2	33.3	-1.4	2.1	6.1	2.8	-0.2	4.5	16.7	0.7	-0.9	1,729
Region												
North Western	10.8	29.0	-1.3	2.2	5.9	3.8	-0.1	2.7	13.3	0.4	-0.8	406
South Central	9.3	29.4	-1.0	2.3	6.6	3.0	-0.2	3.5	11.7	1.4	-0.7	1,447
South Eastern A	14.0	32.6	-1.3	1.7	7.1	2.5	-0.2	4.5	16.8	0.6	-0.9	237
South Eastern B	14.9	34.1	-1.3	1.9	4.2	3.1	-0.1	4.0	19.1	1.1	-0.8	248
North Central	15.7	34.5	-1.4	1.7	5.5	2.5	-0.2	6.2	18.6	0.8	-1.0	1,182
County												
Bomi	15.3	33.1	-1.4	3.4	8.8	6.5	-0.2	4.0	19.7	0.0	-0.9	110
Bong	14.6	34.7	-1.3	2.9	7.2	2.8	-0.2	6.2	17.4	1.2	-0.9	434
Gbarpolu	6.9	25.1	-1.0	4.8	6.5	1.7	-0.2	1.8	10.8	0.4	-0.8	92
Grand Bassa	17.5	38.1	-1.6	4.6	8.6	2.1	-0.3	8.4	19.7	1.3	-1.1	197
Grand Cape Mount	10.2	28.5	-1.3	0.4	4.1	3.2	0.0	2.4	11.0	0.7	-0.8	204
Grand Gedeh	13.4	31.4	-1.3	0.9	5.9	2.4	-0.0	5.3	15.5	0.4	-0.8	80
Grand Kru	11.2	31.4	-1.2	1.7	3.7	2.0	-0.1	3.5	18.6	0.9	-0.8	100
Lofa	8.8	28.5	-1.1	2.4	6.8	4.6	-0.1	3.8	14.8	0.5	-0.8	189
Margibi	10.5	31.4	-1.2	2.8	5.4	1.8	-0.2	3.5	14.6	1.2	-0.8	259
Maryland	15.9	33.4	-1.3	1.9	3.3	3.3	0.0	3.9	17.3	1.1	-0.8	105
Montserrado	7.4	27.1	-0.9	1.8	6.5	3.4	-0.2	2.5	9.3	1.4	-0.6	992
Nimba	18.9	36.4	-1.6	0.5	3.9	1.6	-0.1	6.9	20.7	0.6	-1.1	559
River Cess	15.5	35.4	-1.5	2.0	8.6	1.5	-0.4	6.7	21.0	0.5	-1.1	69
River Gee	21.1	42.6	-1.7	2.2	7.8	5.0	-0.1	5.6	25.0	1.7	-1.0	43
Sinoe	13.4	31.5	-1.2	2.1	7.0	3.4	-0.2	1.9	14.6	0.9	-0.8	88
Mother's education[7]												
No education	14.1	32.9	-1.3	2.0	6.4	3.1	-0.2	5.0	16.0	1.0	-0.9	1,268
Primary	12.3	28.3	-1.2	1.7	5.9	2.6	-0.2	3.8	14.6	1.3	-0.8	881
Secondary and higher	8.6	28.8	-1.0	2.9	6.8	3.0	-0.2	4.1	14.0	0.9	-0.8	828
Wealth quintile												
Lowest	15.9	35.3	-1.4	2.6	6.1	3.1	-0.1	5.4	18.3	0.6	-0.9	838
Second	16.3	35.2	-1.4	2.1	6.2	2.2	-0.2	5.7	18.8	0.7	-1.0	813
Middle	12.7	35.3	-1.3	2.0	6.4	3.0	-0.1	4.3	15.1	1.4	-0.8	683
Fourth	7.7	27.7	-1.0	1.6	6.8	2.1	-0.2	2.0	11.3	1.7	-0.7	681
Highest	5.9	19.9	-0.7	1.7	3.9	4.4	-0.2	3.8	8.5	0.6	-0.6	506
Total	12.3	31.6	-1.2	2.0	6.0	2.9	-0.2	4.4	15.0	1.0	-0.8	3,520

Note: Table is based on children who stayed in the household on the night before the interview. Each of the indices is expressed in standard deviation units (SD from the median of the WHO Child Growth Standards adopted in 2006. Table is based on children with valid dates of birth (month and year) and valid measurement of both height and weight. Total includes 5 cases for which information on size at birth is missing.
[1] Recumbent length is measured for children under age 2, or in the few cases when the age of the child is unknown and the child is less than 85 cm; standing height is measured for all other children.
[2] Includes children who are below -3 standard deviations (SD) from the WHO Child Growth standards population median
[3] Excludes children whose mothers were not interviewed
[4] First-born twins (triplets, etc.) are counted as first births because they do not have a previous birth interval.
[5] Includes children whose mothers are deceased
[6] Excludes children whose mothers were not weighed and measured, children whose mothers were not interviewed, and children whose mothers are pregnant or gave birth within the preceding 2 months. Mother's nutritional status in terms of BMI (body mass index) is presented in Table 11.9.1.
[7] For women who are not interviewed, information is taken from the Household Questionnaire. Excludes children whose mothers are not listed in the Household Questionnaire.

As can be seen in Table 11.1, boys are more likely to be malnourished than girls across all indices. Proportions of stunting, wasting, and underweight are higher among children reported as very small and small

at birth than among children reported as average or larger at birth. In addition, the prevalence of stunting, wasting, and underweight is higher among children born to underweight mothers than among those born to normal-weight or overweight mothers. Malnutrition levels vary little by residence; by county, River Gee has the highest prevalence of stunting (43 percent) and underweight (25 percent), while Bomi, Grand Bassa, and River Cess have the highest prevalence of wasting (9 percent).

The prevalence of stunting, wasting, and underweight is inversely correlated with wealth quintile. Children in the highest wealth quintile are less likely to suffer from malnutrition than those in lower wealth quintiles. The prevalence of overweight children varies little by background characteristics.

The mean stunting, wasting, and underweight Z-scores for children under 5 are -1.2, -0.2, and -0.8, respectively. Scores of less than zero on these indices suggest that nutritional status is poorer on average than that of the reference population.

Figure 11.1 Nutritional status of children by age
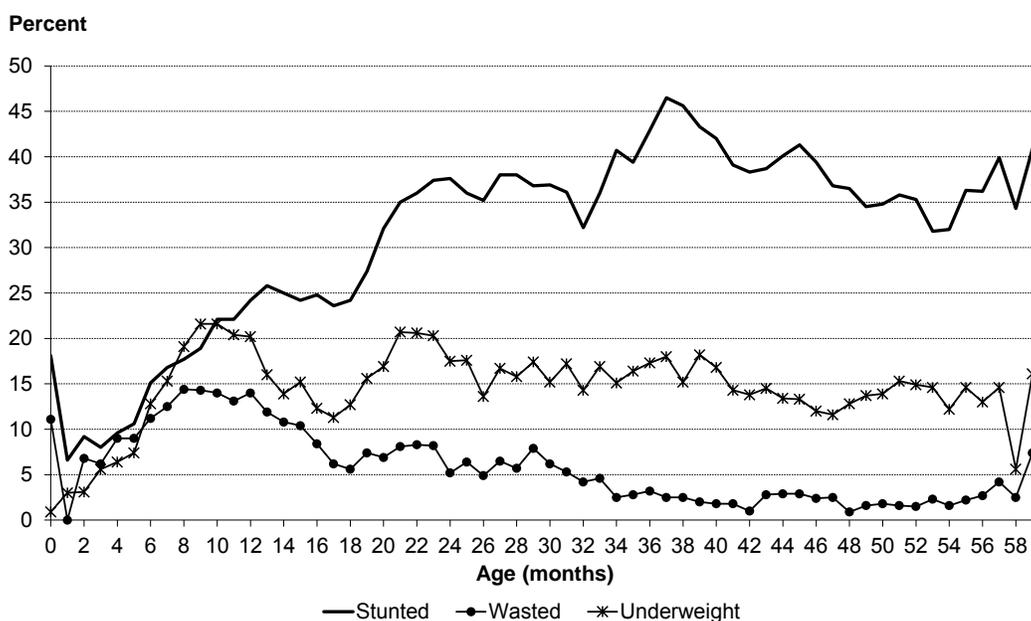
Note: *Stunting* reflects chronic malnutrition; *wasting* reflects acute malnutrition; *underweight* reflects chronic or acute malnutrition or a combination of both. Plotted values are smoothed by a five-month moving average.

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11.1.4 Trends in Child Malnutrition

Figure 11.2 shows trends in the nutritional status of children in Liberia using anthropometric measurements from the 2007 LDHS and 2013 LDHS. The results show that stunting, wasting, underweight, and overweight decreased in Liberia between 2007 and 2013.

Figure 11.2 Trends in nutritional status of children under 5

Percent
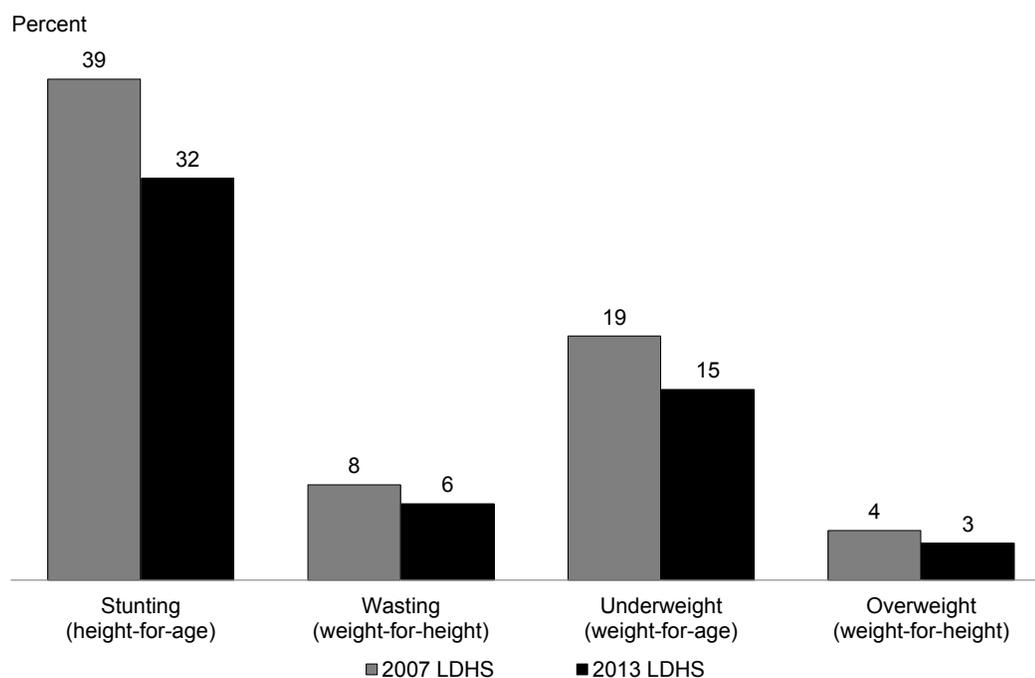
Note: The data for both surveys are based on the WHO child growth standards adopted in 2006.

11.2 BREASTFEEDING

LDHS data can be used to evaluate infant feeding practices, including breastfeeding duration, introduction of complementary weaning foods, and use of feeding bottles. The pattern of infant feeding has important influences on both the child and the mother. Feeding practices are the principal determinants of a child's nutritional status. Poor nutritional status in young children exposes them to greater risks of morbidity. Biologically, breastfeeding suppresses the mother's return to fertile status and affects the length of the birth interval as well as the level of fertility. These effects are influenced by both the duration and frequency of breastfeeding and the age at which the child receives foods and liquids to complement breast milk.

11.2.1 Initiation of Breastfeeding

Early breastfeeding practices determine the successful establishment and duration of breastfeeding. Moreover, during the first three days after delivery, colostrum, an important source of nutrition and protection for the newborn, is produced and should be given to the newborn while awaiting the letdown of regular breast milk. Thus, it is recommended that children be put to the breast immediately or within one hour after birth and that prelacteal feeding (i.e., feeding newborns anything other than breast milk before breast milk is regularly given) be discouraged.

Table 11.2 shows that 98 percent of last-born children who were born in the two years preceding the survey were breastfed at some point in their life. Differences by background characteristics were small.

Sixty-one percent of infants were breastfed within one hour of birth, and 87 percent began breastfeeding within one day of birth. The proportion of children breastfed within one hour of birth was no higher among those delivered in a health facility (61 percent) than among those born at home (62 percent). The likelihood of an infant breastfeeding within one hour of birth varied markedly by county, ranging from a low of 24 percent in Grand Kru to a high of 80 percent in Bong.

The practice of giving prelacteal feeds limits the frequency of suckling by the infant and exposes the baby to the risk of infection. Table 11.2 shows that 10 percent of newborns received prelacteal feeds, with the practice being most common among infants whose delivery was assisted by someone other than a health professional or traditional birth attendant (22 percent). Infants of mothers with secondary and higher education and those in the highest wealth quintile were more likely to receive a prelacteal feed than other infants.

Table 11.2 Initial breastfeeding

Among last-born children who were born in the two years preceding the survey, the percentage who were ever breastfed and the percentages who started breastfeeding within one hour and within one day of birth; and among last-born children born in the two years preceding the survey who were ever breastfed, the percentage who received a prelacteal feed, by background characteristics, Liberia 2013

Background characteristic	Among last-born children born in the past two years:				Among last-born children born in the past two years who were ever breastfed:	
	Percentage ever breastfed	Percentage who started breastfeeding within 1 hour of birth	Percentage who started breastfeeding within 1 day of birth[1]	Number of last-born children	Percentage who received a prelacteal feed[2]	Number of last-born children ever breastfed
Sex						
Male	97.8	58.8	85.6	1,394	9.8	1,364
Female	98.3	64.0	89.2	1,255	10.7	1,233
Assistance at delivery						
Health professional[3]	97.9	61.2	87.0	1,736	11.0	1,700
Traditional birth attendant	98.3	62.0	89.1	807	7.0	793
Other	97.6	57.9	78.6	101	22.2	99
No one	*	*	*	5	*	5
Place of delivery						
Health facility	97.8	61.0	86.9	1,622	11.4	1,587
At home	98.4	61.9	88.1	1,012	8.4	996
Other	*	*	*	15	*	14
Residence						
Urban	98.0	62.9	89.1	1,351	11.8	1,323
Greater Monrovia	97.5	61.3	87.8	667	16.3	650
Other urban	98.4	64.6	90.4	684	7.4	673
Rural	98.1	59.5	85.4	1,299	8.6	1,274
Region						
North Western	96.3	60.0	88.9	288	7.3	277
South Central	97.7	61.3	86.3	1,109	14.7	1,084
South Eastern A	98.7	47.8	80.6	196	16.1	194
South Eastern B	96.6	41.1	72.8	197	10.6	190
North Central	99.1	69.3	92.8	860	3.9	852
County						
Bomi	94.7	72.2	91.8	68	6.2	64
Bong	98.5	79.8	92.5	318	2.1	314
Gbarpolu	98.1	67.6	91.6	64	6.1	63
Grand Bassa	98.3	61.1	80.4	149	15.0	146
Grand Cape Mount	96.3	51.5	86.6	155	8.4	150
Grand Gedeh	98.3	42.2	84.8	66	18.7	65
Grand Kru	96.7	23.6	62.5	80	8.2	77
Lofa	100.0	74.7	91.7	144	2.8	144
Margibi	98.7	57.8	86.6	214	7.3	211
Maryland	95.8	56.2	80.5	81	14.1	78
Montserrado	97.4	62.4	87.4	746	16.8	726
Nimba	99.3	58.9	93.4	398	5.8	395
River Cess	99.3	50.5	77.9	58	10.0	58
River Gee	98.4	45.4	78.2	36	8.4	36
Sinoe	98.7	50.7	78.9	73	18.7	72
Mother's education						
No education	98.5	64.1	88.6	1,000	8.7	985
Primary	98.2	62.4	87.6	858	8.4	842
Secondary and higher	97.3	56.4	85.3	792	14.1	770
Wealth quintile						
Lowest	98.1	58.6	84.2	636	9.3	624
Second	98.8	66.2	89.5	567	5.3	560
Middle	98.2	61.0	89.2	551	7.1	541
Fourth	97.7	61.3	88.8	509	12.0	497
Highest	97.1	58.7	84.4	386	21.3	375
Total	98.0	61.2	87.3	2,650	10.2	2,597

Note: Total includes 1 case for which information about assistance during delivery is missing. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Includes children who started breastfeeding within one hour of birth
[2] Children given something other than breast milk during the first three days of life
[3] Doctor, nurse/midwife, or physician's assistant

11.2.2 Breastfeeding Status by Age

Breast milk contains all of the nutrients needed by children in the first six months of life and is an uncontaminated nutritional source. Therefore, complementing breast milk before age 6 months is discouraged as the likelihood of contamination and resulting risk of diarrheal disease are high. Early initiation of complementary feeding also reduces breast milk output because the production and release of breast milk is modulated by the frequency and intensity of suckling.

Table 11.3 shows breastfeeding practices by child's age.[1] Fifty-five percent of infants under 6 months are exclusively breastfed, which is a 26 percentage point increase from the figure reported in the 2007 LDHS (29 percent). Contrary to the recommendation that children under 6 months be exclusively breastfed, 28 percent of infants consume plain water, 3 percent consume non-milk liquids, 6 percent consume other milk, and 7 percent consume complementary foods in addition to breast milk. Forty-four percent of children age 6-8 months receive timely complementary foods, and half of children age 18-23 months have been weaned.

Feeding children using a bottle with a nipple is discouraged and remains a relatively uncommon practice in Liberia; 17 percent of children below age 6 months are fed using a bottle with a nipple. The prevalence of bottle-feeding is highest among children age 4-5 months (21 percent). These figures are somewhat higher than those reported in the 2007 LDHS when 13 percent of children below 6 months were bottle-fed and the prevalence of bottle-feeding was highest among children 2-3 months (15 percent).

Table 11.3 Breastfeeding status by age

Percent distribution of youngest children under age 2 who are living with their mother, by breastfeeding status, the percentage currently breastfeeding; and the percentage of all children under age 2 using a bottle with a nipple, according to age in months, Liberia 2013

| Age in months | Not breast-feeding | Breastfeeding status | | | | | Total | Percentage currently breast-feeding | Number of youngest child under two years living with their mother | Percentage using a bottle with a nipple | Number of all children under age 2 |
		Exclusively breastfed	Breast-feeding and consuming plain water only	Breast-feeding and consuming non-milk liquids[1]	Breast-feeding and consuming other milk	Breast-feeding and consuming comple-mentary foods					
0-1	0.9	76.4	16.2	2.3	2.8	1.4	100.0	99.1	173	13.9	175
2-3	1.6	59.8	27.5	5.3	3.7	2.1	100.0	98.4	211	15.6	213
4-5	2.5	32.6	37.1	1.5	9.7	16.5	100.0	97.5	206	21.2	215
6-8	3.5	9.7	38.8	1.4	3.2	43.5	100.0	96.5	349	12.6	361
9-11	3.0	2.4	16.3	2.6	2.1	73.6	100.0	97.0	351	9.9	369
12-17	14.6	0.3	5.4	1.0	0.1	78.5	100.0	85.4	627	8.1	655
18-23	48.5	0.0	4.8	0.0	0.0	46.6	100.0	51.5	556	3.1	617
0-3	1.3	67.3	22.4	3.9	3.3	1.8	100.0	98.7	384	14.9	388
0-5	1.7	55.2	27.5	3.1	5.5	6.9	100.0	98.3	590	17.1	603
6-9	3.6	9.1	34.6	2.0	2.5	48.3	100.0	96.4	449	11.3	467
12-15	12.5	0.5	6.9	1.3	0.1	78.6	100.0	87.5	427	9.3	442
12-23	30.5	0.2	5.2	0.5	0.0	63.5	100.0	69.5	1,184	5.6	1,272
20-23	55.8	0.1	2.7	0.0	0.0	41.5	100.0	44.2	366	3.8	408

Note: Breastfeeding status refers to a "24-hour" period (yesterday and last night). Children who are classified as breastfeeding and consuming plain water only consumed no liquid or solid supplements. The categories of not breastfeeding, exclusively breastfed, breastfeeding and consuming plain water, non-milk liquids, other milk, and complementary foods (solids and semi-solids) are hierarchical and mutually exclusive, and their percentages add to 100 percent. Thus children who receive breast milk and non-milk liquids and who do not receive other milk and who do not receive complementary foods are classified in the non-milk liquid category even though they may also get plain water. Any children who get complementary food are classified in that category as long as they are breastfeeding as well.
[1] Non-milk liquids include juice, juice drinks, clear broth, or other liquids

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[1] When comparing the results of the 2013 LDHS with previous LDHS surveys, note that the 2013 table on breastfeeding status by age is restricted to the youngest children and all children under age 2 living with their mothers, instead of the youngest children and all children under age 3 living with their mothers (as in the 2007 LDHS and 1999/2000 LDHS).

Figure 11.3 depicts the transition of feeding practices among children up to age 2. The rapid drop in exclusive breastfeeding from 76 percent among infants under 2 months to 33 percent among children age 4-5 months demands attention.

Figure 11.3 Infant feeding practices by age
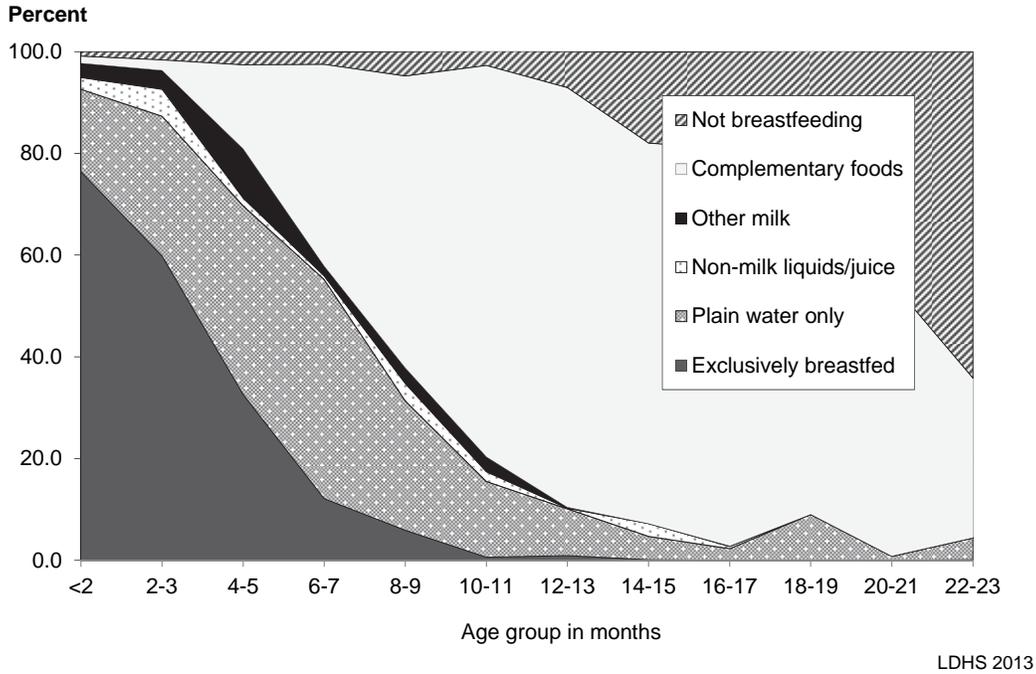
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Figure 11.4 presents 2013 LDHS results on infant and young child feeding (IYCF) indicators related to breastfeeding status. Detailed descriptions of these indicators can be found in WHO publications (WHO, 2008, and WHO, 2010b).

Figure 11.4 IYCF Indicators on breastfeeding status

	Percentage of children
Exclusive breastfeeding under age 6 months	55
Exclusive breastfeeding at age 4-5 months	33
Continued breastfeeding at 1 year	88
Introduction of solid, semi-solid, or soft foods (6-8 months)	46
Continued breastfeeding at 2 years	44
Age-appropriate breastfeeding (0-23 months)	60
Predominant breastfeeding (0-5 months)	86
Bottle feeding (0-23 months)	10
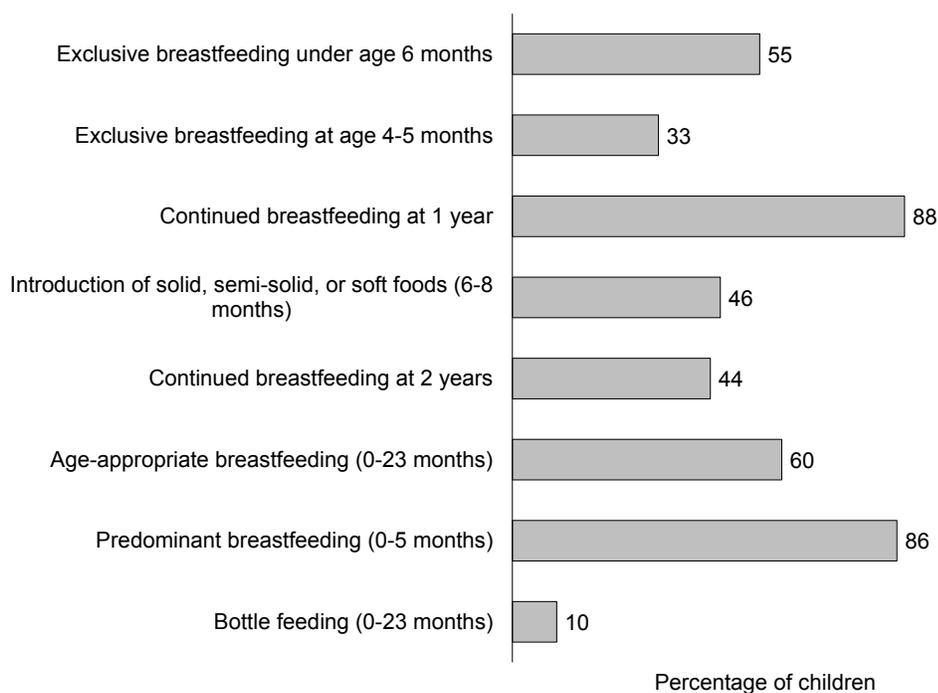
11.2.3 Median Duration of Breastfeeding

Table 11.4 shows that the median duration of any breastfeeding (i.e., the length of time in months for which half of children are breastfed) is 19.6 months. Children are breastfed one and a half months longer on average in rural areas (20.6 months) than in urban areas (18.9 months). Median durations of any breastfeeding are shorter for children with mothers who have at least some secondary education (19.0 months) than for children of mothers with no education (20.8). Large differences are observed by region, with median duration of any breastfeeding being highest in North Central region (21.4 months) and lowest in South Central (16.9 months). The median duration of breastfeeding generally declines by mother's wealth quintile.

Overall, the median duration of exclusive breastfeeding for Liberian children is 2.7 months, whereas the median duration of predominant breastfeeding (i.e., the period in which an infant receives only water or other non-milk liquids in addition to breast milk) is just over six months (6.4 months). Comparisons of duration of exclusive breastfeeding by background characteristics are not possible because in several categories there are too few children. Differences in median duration of predominant breastfeeding are generally small; the median duration of predominant breastfeeding decreases with rising education level of the mother and wealth quintile. Median durations of exclusive and predominant breastfeeding have increased from those reported in 2007; according to the 2007 LDHS, the median duration of exclusive breastfeeding was 0.6 months and the median duration of predominant breastfeeding was 4.8 months.

Table 11.4 Median duration of breastfeeding

Median duration of any breastfeeding, exclusive breastfeeding, and predominant breastfeeding among children born in the three years preceding the survey, by background characteristics, Liberia 2013

	Median duration (months) of breastfeeding among children born in the past three years[1]		
Background characteristic	Any breastfeeding	Exclusive breast-feeding	Predominant breastfeeding[2]
Sex			
Male	19.3	2.5	6.4
Female	20.1	2.9	6.4
Residence			
Urban	18.9	(2.1)	5.8
Greater Monrovia	(16.1)	*	(3.6)
Other urban	20.2	2.9	7.4
Rural	20.6	3.2	7.0
Region			
North Western	20.5	3.4	6.8
South Central	16.9	(2.0)	4.9
South Eastern A	19.7	(1.5)	7.9
South Eastern B	19.1	2.8	6.5
North Central	21.4	3.8	7.3
Mother's education			
No education	20.8	3.2	7.0
Primary	19.1	2.8	6.5
Secondary and higher	19.0	(1.6)	5.1
Wealth quintile			
Lowest	20.1	3.2	7.3
Second	21.1	3.6	7.4
Middle	20.8	3.1	6.4
Fourth	(18.9)	*	5.8
Highest	(15.9)	*	(3.6)
Total	19.6	2.7	6.4
Mean for all children	19.3	4.8	8.6

Note: Median and mean durations are based on the distributions at the time of the survey of the proportion of births by months since birth. Includes children living and deceased at the time of the survey. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] It is assumed that non-last-born children and last-born children not currently living with the mother are not currently breastfeeding.
[2] Either exclusively breastfed or received breast milk and plain water, and/or non-milk liquids only

11.3 DIETARY DIVERSITY AMONG YOUNG CHILDREN

In the 2013 LDHS, women who had at least one child living with them who was born in 2011 or later were asked questions about the types of liquids and foods the child had consumed during the day or night preceding the interview. Mothers who had more than one child born in 2011 or later were asked questions about the youngest child living with them. Mothers were also asked about the number of times the child had eaten solid or semi-solid food during the period.

The results from these data are subject to a number of limitations. For example, they do not apply to the full universe of young children. Unlike previous LDHS surveys, the information in Table 11.5 is restricted to the youngest children under age 2[2] living with their mother at the time of the survey. The dietary data on children are subject to recall errors on the mother's part. In addition, the mother may not be able to report fully

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[2] In earlier surveys, the table comparable to Table 11.5 was restricted to the youngest children under age 3 who were living with their mothers at the time of the survey.

on the child's intake of food and liquids if the child was fed by other individuals during the period. Despite these problems, the information collected in the 2013 LDHS on the types of foods and liquids consumed by young children is useful in assessing the diversity of children's diets.

Table 11.5 Foods and liquids consumed by children in the day or night preceding the interview

Percentage of youngest children under age 2 who are living with the mother by type of foods consumed in the day or night preceding the interview, according to breastfeeding status and age, Liberia 2013

Age in months	Liquids			Solid or semi-solid foods										Number of children
	Infant formula	Other milk[1]	Other liquids[2]	Fortified baby foods	Food made from grains[3]	Fruits and vege-tables rich in vitamin A[4]	Other fruits and vege-tables	Food made from roots and tubers	Food made from legumes and nuts	Meat, fish, poultry	Eggs	Cheese, yogurt, other milk product	Any solid or semi-solid food	
BREASTFEEDING CHILDREN														
0-1	3.0	1.0	2.3	1.1	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.0	1.5	171
2-3	2.7	3.0	5.4	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.1	2.1	208
4-5	6.6	9.0	5.8	8.2	7.0	2.8	0.0	3.1	0.8	1.3	0.0	1.2	17.0	201
6-8	12.7	13.6	7.8	16.2	27.4	15.5	1.8	6.9	0.9	11.8	2.0	3.4	45.2	337
9-11	6.5	6.0	13.6	9.6	67.9	53.5	3.3	17.7	4.1	39.1	8.4	4.4	76.1	340
12-17	1.8	5.7	19.4	7.0	86.5	73.0	6.8	27.8	5.9	45.7	9.5	4.1	92.1	536
18-23	0.5	3.9	17.6	3.4	84.0	74.5	6.4	31.5	4.2	55.6	13.0	4.9	90.8	287
6-23	5.0	7.2	15.1	8.9	68.5	56.0	4.8	21.5	4.0	38.5	8.3	4.2	77.7	1,499
Total	4.8	6.5	12.2	7.5	50.1	40.6	3.5	15.8	3.0	27.9	6.0	3.2	58.0	2,079
NONBREASTFEEDING CHILDREN														
0-11	(57.3)	(33.7)	(41.4)	(51.8)	(37.0)	(30.2)	(0.0)	(1.5)	(2.4)	(20.0)	(1.5)	(0.0)	(60.4)	33
12-17	17.2	18.8	29.5	12.0	82.7	65.3	9.3	19.0	1.2	54.5	13.6	6.2	88.7	92
18-23	1.3	6.6	25.6	4.4	95.9	85.9	9.0	41.6	7.7	55.3	15.8	7.2	98.7	270
6-23	8.4	11.6	27.7	9.7	90.2	78.4	8.5	33.8	5.9	53.5	14.4	6.5	94.9	385
Total	9.7	11.7	27.8	10.2	87.9	76.4	8.3	33.0	5.8	52.2	14.1	6.4	93.2	395

Note: Breastfeeding status and food consumed refer to a 24-hour period (yesterday and last night). Figures in parentheses are based on 25-49 unweighted cases.
[1] Other milk includes fresh, tinned, and powdered cow or other animal milk
[2] Doesn't include plain water
[3] Includes fortified baby food
[4] Includes pumpkin, squash, carrots, yellow or orange sweet potatoes, potato greens, bitter leaf, or any dark green leafy vegetables, mangoes, pawpaws, and red palm soup.

11.3.1 Foods and Liquids Consumed by Infants and Young Children

Appropriate nutrition includes feeding children a variety of foods to ensure that nutrient requirements are met. Fruits and vegetables rich in vitamin A should be consumed daily. Although eating a range of fruits and vegetables, especially those rich in vitamin A, is important, studies have shown that plant-based complementary foods by themselves are insufficient to meet the needs for certain micronutrients. Therefore, it has been recommended that meat, poultry, fish, or eggs be eaten daily or as often as possible (WHO, 1998).

Table 11.5 is based on information from mothers about the foods and liquids consumed by their youngest child during the day or night preceding the interview. As expected, the proportions of children consuming foods or liquids included in the various food groups generally increase with age. Children who are still breastfed are less likely than children who are not being breastfed to consume other types of liquids and solid/semi-solid foods. For example, 90 percent of nonbreastfeeding children age 6-23 months consumed foods made from grains the day or night preceding the interview, compared with 69 percent of breastfeeding children in that age group. Similarly, 78 percent of nonbreastfeeding children age 6-23 months consumed foods rich in vitamin A, as compared with 56 percent of breastfeeding children in the same age group. Half of nonbreastfeeding children (54 percent) and 39 percent of breastfeeding children age 6-23 months consumed

meat, fish, and poultry. Differences between nonbreastfeeding and breastfeeding children age 6-23 months in the consumption of eggs, foods made from legumes and nuts, or cheese, yogurt, and other milk products were smaller, although the proportion of nonbreastfeeding children consuming each food group was higher than breastfeeding children.

11.3.2 Infant and Young Child Feeding (IYCF) Practices

Appropriate IYCF practices include breastfeeding through age 2, introduction of solid and semisolid foods at age 6 months, and gradual increases in the amount of food given and frequency of feeding as the child gets older. The minimum frequencies for feeding children in developing countries are based on the energy output of complementary foods. The energy needs of children are based on age-specific total daily energy requirements plus 2 SD (to cover almost all children), minus the average energy intake from breast milk. Infants with low breast milk intake need to be fed more frequently than those with high breast milk intake. However, care should be taken that feeding frequencies do not exceed the recommended input from complementary foods because excessive feeding can result in displacement of breast milk (PAHO/WHO, 2003).

According to recommendations, breastfed children age 6-23 months should receive animal-source foods and vitamin A-rich fruits and vegetables daily (PAHO/WHO, 2003). Because first foods almost always include a grain- or tuber-based staple, it is unlikely that young children who eat food from less than three groups will receive both an animal-source food and a vitamin A-rich fruit or vegetable. Therefore, three food groups are considered the minimum number appropriate for breastfed children (Arimond and Ruel, 2004). Breastfed infants age 6-8 months should receive complementary foods two to three times a day, with one or two snacks; breastfed children age 9-23 months should receive meals three to four times a day, with one or two snacks (PAHO/WHO, 2003; WHO, 2008; and WHO, 2010b).

Nonbreastfed children age 6-23 months should receive milk or milk products two or more times a day to ensure that their calcium needs are met. In addition, they need animal-source foods and vitamin A-rich fruits and vegetables. Four food groups are considered the minimum number appropriate for nonbreastfed young children. Nonbreastfed children age 12-23 months should be fed meals four to five times each day, with one or two snacks (WHO, 2005; WHO, 2008; and WHO, 2010b).

The results presented in Table 11.6 indicate that 83 percent of Liberian children age 6-23 months living with their mother received breast milk or breast milk substitutes during the day or night preceding the interview. Eleven percent of children had an adequately diverse diet—that is, they had been given foods from the appropriate number of food groups—and 30 percent had been fed the minimum number of times appropriate for their age. The feeding practices of only 4 percent of Liberian children age 6-23 months meet the minimum standards with respect to all three IYCF practices. The IYCF indicators for minimum acceptable diet by breastfeeding status among Liberian children age 6-23 months are summarized in Figure 11.5.

Children in Greater Monrovia (8 percent) are more likely to be fed according to the recommended IYCF guidelines than children in other urban areas (3 percent) or in rural areas (3 percent). Variation in the percentage of children fed according to the recommended IYCF feeding practices is also observed at the county level, but these results should be interpreted with caution because of the small number of children reported on in the different counties. As expected, children in the highest two wealth quintiles (7-8 percent) are more likely to be fed according to the recommended three IYCF practices than children in lower wealth quintiles (2-3 percent).

Table 11.6 Infant and young child feeding (IYCF) practices

Percentage of youngest children age 6-23 months living with their mother who are fed according to three IYCF feeding practices based on breastfeeding status, number of food groups, and times they are fed during the day or night preceding the survey, by background characteristics, Liberia 2013

Background characteristic	Among breastfed children 6-23 months, percentage fed:				Among non-breastfed children 6-23 months, percentage fed:					Among all children 6-23 months, percentage fed:				
	4+ food groups[1]	Minimum meal fre-quency[2]	Both 4+ food groups and minimum meal frequency	Number of breastfed children 6-23 months	Milk or milk products[3]	4+ food groups[1]	Minimum meal fre-quency[4]	With 3 IYCF practices[5]	Number of non-breastfed children 6-23 months	Breast milk, milk, or milk products[6]	4+ food groups[1]	Minimum meal fre-quency[7]	With 3 IYCF practices	Number of all children 6-23 months
Age in months														
6-8	0.8	32.3	0.5	337	*	*	*	*	12	99.2	2.2	34.0	0.5	349
9-11	11.1	23.8	5.3	340	*	*	*	*	11	97.9	10.7	24.0	5.2	351
12-17	11.5	36.7	6.5	536	33.1	19.3	32.5	3.3	92	90.2	12.6	36.1	6.0	627
18-23	13.7	28.5	4.7	287	5.4	18.5	21.2	2.6	270	54.1	16.0	25.0	3.7	556
Sex														
Male	9.8	28.2	4.2	761	14.2	18.7	24.2	1.0	221	80.7	11.8	27.3	3.5	982
Female	9.0	34.4	4.9	738	16.2	19.0	28.4	4.8	163	84.8	10.8	33.3	4.9	901
Residence														
Urban	10.4	36.1	6.2	725	20.1	24.4	31.7	2.8	246	79.8	14.0	35.0	5.3	971
Greater Monrovia	14.5	44.2	10.0	303	29.7	31.9	35.9	4.0	162	75.5	20.6	41.3	7.9	465
Other urban	7.5	30.3	3.5	422	1.5	10.0	23.7	0.4	84	83.7	7.9	29.2	3.0	506
Rural	8.5	26.7	3.0	774	6.1	8.9	15.9	2.4	139	85.7	8.5	25.1	2.9	913
Region														
North Western	6.5	25.6	4.3	165	0.0	11.8	11.5	0.0	33	83.4	7.4	23.2	3.5	198
South Central	11.6	35.5	6.6	562	23.4	27.3	29.6	2.9	221	78.4	16.0	33.9	5.6	783
South Eastern A	8.5	17.9	2.9	108	3.4	6.2	14.9	1.5	23	83.0	8.1	17.3	2.7	131
South Eastern B	10.5	34.4	1.9	107	12.4	10.3	18.4	8.4	27	82.5	10.5	31.2	3.2	134
North Central	8.1	30.6	3.4	556	2.7	4.8	27.7	1.3	81	87.7	7.7	30.2	3.1	637
County														
Bomi	3.2	19.4	0.0	34	*	*	*	*	10	77.8	3.7	19.3	0.0	44
Bong	8.6	29.4	1.9	201	*	*	*	*	34	85.9	7.3	30.0	1.7	235
Gbarpolu	7.4	40.2	4.8	37	*	*	*	*	5	87.6	6.5	37.7	4.2	42
Grand Bassa	5.3	24.0	0.0	90	*	*	*	*	17	84.0	4.5	22.0	0.0	107
Grand Cape Mount	7.3	22.0	5.6	93	*	*	*	*	18	84.0	9.2	19.3	4.7	111
Grand Gedeh	8.6	22.1	5.0	31	*	*	*	*	8	79.2	8.3	21.8	4.0	39
Grand Kru	18.9	29.5	2.6	38	*	*	*	*	14	78.8	18.4	26.2	6.2	52
Lofa	9.5	31.9	4.3	83	*	*	*	*	13	86.3	8.9	27.5	3.7	96
Margibi	10.4	23.1	3.0	123	(9.9)	(21.9)	(14.6)	(0.0)	30	82.5	12.7	21.4	2.4	153
Maryland	5.0	43.1	1.3	45	*	*	*	*	11	81.6	4.1	38.9	1.0	55
Montserrado	13.6	42.9	9.6	350	27.9	30.9	34.0	3.7	174	76.0	19.3	39.9	7.6	524
Nimba	7.3	31.0	4.1	273	(3.1)	(9.5)	(33.0)	(3.1)	33	89.5	7.5	31.2	4.0	306
River Cess	6.8	13.8	0.9	38	*	*	*	*	6	87.8	5.9	14.1	0.7	43
River Gee	7.5	26.3	2.0	24	*	*	*	*	2	91.6	8.4	25.2	1.8	26
Sinoe	10.0	18.4	3.3	39	(5.7)	(9.0)	(9.6)	(3.6)	10	81.7	9.8	16.7	3.4	49
Mother's education														
No education	9.2	28.3	3.9	587	5.1	4.5	16.7	0.0	112	84.8	8.4	26.4	3.2	699
Primary	9.7	33.9	4.6	496	10.3	19.2	21.1	2.3	111	83.6	11.4	31.5	4.2	607
Secondary and higher	9.4	32.3	5.4	415	25.2	28.4	35.8	4.6	162	79.0	14.8	33.3	5.2	577
Wealth quintile														
Lowest	8.3	24.9	2.9	390	4.5	4.9	10.9	3.3	68	85.8	7.8	22.9	3.0	458
Second	5.4	30.5	2.0	344	5.2	6.8	22.8	0.0	61	85.7	5.6	29.4	1.7	406
Middle	9.3	29.7	3.8	323	10.5	13.1	29.4	0.6	62	85.6	9.9	29.7	3.3	385
Fourth	15.3	34.8	8.6	259	16.4	28.3	20.2	4.6	96	77.3	18.8	30.8	7.5	355
Highest	11.1	43.6	8.3	183	(30.4)	(30.5)	(42.3)	(3.1)	97	76.0	17.8	43.2	6.5	280
Total	9.4	31.2	4.5	1,499	15.1	18.8	26.0	2.6	385	82.7	11.3	30.2	4.1	1,883

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

[1] Food groups: a. infant formula, milk other than breast milk, cheese or yogurt or other milk products; b. foods made from grains, roots, and tubers, including porridge and fortified baby food from grains; c. vitamin A-rich fruits and vegetables (and red palm oil); d. other fruits and vegetables; e. eggs; f. meat, poultry, fish, and shellfish (and organ meats); g. legumes and nuts.

[2] For breastfed children, minimum meal frequency is receiving solid or semi-solid food at least twice a day for infants 6-8 months and at least three times a day for children 9-23 months

[3] Includes two or more feedings of commercial infant formula; fresh, tinned, and powdered animal milk; and yogurt

[4] For non-breastfed children age 6-23 months, minimum meal frequency is receiving solid or semi-solid food or milk feeds at least four times a day

[5] Non-breastfed children age 6-23 months are considered to be fed with a minimum standard of three Infant and Young Child Feeding Practices if they receive other milk or milk products at least twice a day, receive the minimum meal frequency, and receive solid or semi-solid foods from at least four food groups, not including the milk or milk products food group.

[6] Breastfeeding, or not breastfeeding and receiving two or more feedings of commercial infant formula; fresh, tinned, and powdered animal milk; and yogurt

[7] Children are fed the minimum recommended number of times per day according to their age and breastfeeding status as described in footnotes 2 and 4.

In the period between the 2007 LDHS and the 2013 LDHS, the definition of standard IYCF indicators changed to reflect more restrictive requirements. In order to compare the IYCF results presented here with results from the 2007 LDHS, the 2013 data were recalculated according to the definitions used in 2007. This comparison indicates that the percentage of children age 6-23 months fed with an adequate diet (i.e., with all three IYCF practices) has declined from 25 percent in 2007 to 12 percent in 2013 (data not shown). However, this result should be interpreted with caution because the difference could be mostly due to methodological differences in data collection between the two surveys.

Figure 11.5 IYCF indicators on minimum acceptable diet
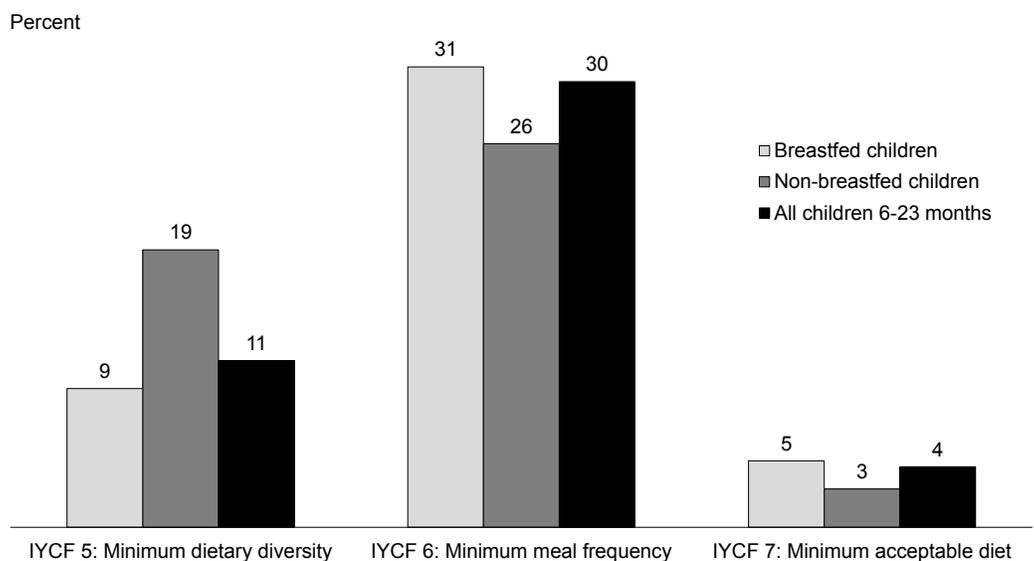
LDHS 2013

11.4 MICRONUTRIENT INTAKE AND SUPPLEMENTATION AMONG CHILDREN

Micronutrient deficiency is a major contributor to childhood morbidity and mortality. Micronutrients are available in foods and can also be provided through direct supplementation. Breastfeeding children benefit from supplements given to the mother.

Iron deficiency is one of the primary causes of anemia, which has serious health consequences for both women and children. Vitamin A is an essential micronutrient for the immune system and plays an important role in maintaining the epithelial tissue in the body. Severe vitamin A deficiency (VAD) can cause eye damage and is the leading cause of childhood blindness. VAD also increases the severity of infections such as measles and diarrheal disease in children and slows recovery from illness. VAD is common in dry environments where fresh fruits and vegetables are not readily available. Vitamin A supplementation is an important tool in preventing VAD among young children.

Information was collected on food consumption during the day and night preceding the interview among the youngest children under age 2 living with their mothers; these data are useful in assessing the extent to which children are consuming food groups rich in two key micronutrients—vitamin A and iron—in their daily diet. In addition, the LDHS included questions designed to ascertain whether young children had received vitamin A supplements or deworming medication in the six months preceding the survey or iron supplements in the seven days preceding the survey.

Table 11.7 shows the intake of foods rich in vitamin A and iron by the youngest children age 6-23 months living with their mother and recent vitamin A supplementation among all children age 6-59 months. Sixty-seven percent of children consumed vitamin A-rich foods in the 24 hours preceding the interview, and 45 percent consumed iron-rich foods. As expected, intake of both vitamin A-rich and iron-rich foods increases as children are weaned. Non-breastfeeding children are more likely to consume foods rich in vitamin A and iron than breastfeeding children. Intake of these two micronutrients varies considerably by county.

Sixty percent of children age 6-59 months received a vitamin A supplement in the six months preceding the survey. The likelihood of a child being given a vitamin A dose rose with a mother's education and with wealth quintile. Over one in four children (27 percent) received iron supplements in the previous seven days. Fifty-six percent of children age 6-59 months received deworming medication in the six months preceding the survey. Ninety-nine percent of children age 6-59 months live in households using iodized salt.

The overall proportion of children who were reported to have received micronutrient supplements or deworming medication was higher in the 2013 LDHS than the 2007 LDHS. For example, vitamin A supplementation increased from 43 percent to 60 percent, iron supplementation increased from 17 percent to 27 percent, and deworming medication increased from 45 percent to 56 percent.

Table 11.7 Micronutrient intake among children

Among youngest children age 6-23 months who are living with their mother, the percentages who consumed vitamin A-rich and iron-rich foods in the day or night preceding the survey, and among all children 6-59 months, the percentages who were given vitamin A supplements in the six months preceding the survey, who were given iron supplements in the past seven days, and who were given deworming medication in the six months preceding the survey, and among all children age 6-59 months who live in households that were tested for iodized salt, the percentage who live in households with iodized salt, by background characteristics, Liberia 2013

Background characteristic	Among youngest children age 6-23 months living with the mother:			Among all children age 6-59 months:				Among children age 6-59 months living in house-holds tested for iodized salt	
	Percentage who consumed foods rich in vitamin A in past 24 hours[1]	Percentage who con-sumed foods rich in iron in past 24 hours[2]	Number of children	Percentage given vitamin A supplements in past 6 months	Percentage given iron supplements in past 7 days	Percentage given deworming medication in past 6 months[3]	Number of children	Percentage living in households with iodized salt[4]	Number of children
Age in months									
6-8	20.3	14.5	349	55.5	23.5	20.2	361	97.0	349
9-11	58.8	41.2	351	62.9	37.6	40.1	369	98.2	351
12-17	78.6	50.6	627	64.4	31.4	57.4	655	99.4	629
18-23	86.7	59.7	556	64.4	34.3	61.7	617	98.7	581
24-35	na	na	na	59.5	26.0	60.6	1,085	98.2	1,042
36-47	na	na	na	61.1	23.0	60.0	1,198	98.7	1,139
48-59	na	na	na	55.9	21.9	60.2	1,159	99.4	1,110
Sex									
Male	66.6	43.7	982	60.2	26.9	55.0	2,773	98.6	2,646
Female	66.4	46.1	901	60.2	26.5	57.1	2,671	98.7	2,556
Breastfeeding status									
Breastfeeding	61.7	41.3	1,499	62.0	30.9	46.1	1,614	98.4	1,556
Not breastfeeding	85.0	58.6	385	59.7	25.0	60.6	3,803	98.8	3,619
Mother's age at birth									
15-19	64.3	47.2	259	56.9	29.9	46.7	446	98.4	431
20-29	66.5	42.4	961	60.8	27.6	55.4	2,780	98.2	2,639
30-39	65.1	44.2	571	61.2	25.9	59.3	1,745	99.3	1,677
40-49	80.5	68.5	92	56.6	21.1	57.1	473	99.3	453
Residence									
Urban	65.8	45.4	971	65.5	31.4	59.3	2,723	98.6	2,597
Greater Monrovia	64.0	42.9	465	72.5	35.9	66.4	1,356	98.8	1,302
Other urban	67.4	47.6	506	58.6	27.0	52.3	1,367	98.4	1,294
Rural	67.3	44.3	913	54.9	21.9	52.8	2,721	98.8	2,605
Region									
North Western	64.1	41.6	198	67.9	30.7	66.4	598	99.9	566
South Central	61.5	42.0	783	67.2	30.9	62.3	2,236	99.2	2,151
South Eastern A	64.8	39.8	131	49.2	18.0	46.0	410	98.4	387
South Eastern B	64.8	42.5	134	35.0	18.7	47.4	424	98.5	406
North Central	74.0	50.9	637	57.4	23.8	49.1	1,777	97.7	1,692
County									
Bomi	48.9	29.4	44	63.6	29.7	67.1	144	100.0	137
Bong	75.6	52.5	235	64.5	19.1	54.3	667	99.5	647
Gbarpolu	74.6	42.5	42	71.2	20.9	64.7	131	99.7	118
Grand Bassa	53.5	34.5	107	36.5	18.2	50.6	314	99.7	308
Grand Cape Mount	66.1	46.0	111	68.4	35.2	66.7	322	100.0	311
Grand Gedeh	63.2	37.7	39	50.4	22.0	46.1	125	96.0	115
Grand Kru	66.0	55.7	52	28.6	22.4	47.4	185	98.7	176
Lofa	68.3	33.8	96	41.9	22.2	42.5	281	98.6	270
Margibi	60.1	44.8	153	67.8	20.5	52.6	393	100.0	373
Maryland	64.0	30.6	55	33.4	13.7	44.4	158	98.9	153
Montserrado	63.6	42.7	524	73.4	36.2	67.2	1,528	98.9	1,471
Nimba	74.6	55.1	306	57.0	28.2	47.2	828	95.8	774
River Cess	66.3	40.1	43	51.1	15.5	47.8	125	100.0	118
River Gee	64.2	41.5	26	52.7	20.1	53.3	81	97.2	77
Sinoe	64.6	41.2	49	46.9	16.8	44.4	160	98.9	154
Mother's education									
No education	68.2	44.5	699	57.0	23.2	54.6	2,264	98.6	2,179
Primary	68.5	47.3	607	61.5	26.2	56.0	1,652	98.3	1,572
Secondary and higher	62.2	42.6	577	63.7	32.3	58.3	1,528	99.2	1,450
Wealth quintile									
Lowest	68.1	42.2	458	50.8	19.4	48.7	1,321	98.3	1,243
Second	69.5	46.3	406	58.0	23.1	53.5	1,217	99.1	1,162
Middle	66.1	45.1	385	61.2	31.4	57.1	1,136	98.0	1,100
Fourth	69.7	48.2	355	67.4	30.0	62.2	1,026	98.5	982
Highest	55.9	42.5	280	69.2	33.4	63.4	745	100.0	714
Total	66.5	44.8	1,883	60.2	26.7	56.1	5,444	98.7	5,201

Note: Information on vitamin A is based on both mother's recall and the immunization card (where available). Information on iron supplements and deworming medication is based on the mother's recall. Totals for children 6-59 months include 26 cases for which information on breastfeeding status is missing.
na = Not applicable
[1] Includes meat (and organ meat), fish, poultry, eggs, pumpkin, squash, carrots, yellow or orange sweet potatoes, dark green leafy vegetables, mango, pawpaw, red palm soup, red palm oil, or palm butter.
[2] Includes meat (including organ meat), fish, poultry, and eggs
[3] Deworming for intestinal parasites is commonly done for helminths and for schistosomiasis.
[4] Excludes children in households in which salt was not tested.

11.5   Presence of Iodized Salt in Households

Salt is used for several purposes in a household. It plays a role in cooking and food preservation. In line with food and drug regulations, household salt should be fortified with iodine sufficient to ensure concentration is at least 15 parts per million (ppm) when consumed. Iodine is an essential micronutrient, and iodized salt prevents goiter among children and adults. The 2013 LDHS tested household salt for iodine in 92 percent of households (Table 11.8). Among households in which salt was tested, 99 percent were consuming iodized salt, which is indicative of universal salt iodization. There were only small variations in the percentages of households with iodized salt by residence, region, county, and wealth quintile. It should be noted that household salt was tested for the presence or absence of iodine only; the iodine level in the salt was not measured.

Table 11.8 Presence of iodized salt in household

Among all households, the percentage with salt tested for iodine content and the percentage with no salt in the household; and among households with salt tested, the percentage with iodized salt, according to background characteristics, Liberia 2013

| Background characteristic | Among all households, the percentage | | | Among households with tested salt: | |
	With salt tested	With no salt in the household	Number of households	Percentage with iodized salt	Number of households
Residence					
Urban	91.5	8.5	5,289	98.2	4,839
Greater Monrovia	91.6	8.4	3,060	99.0	2,804
Other urban	91.3	8.7	2,229	97.1	2,036
Rural	92.7	7.3	4,044	98.9	3,750
Region					
North Western	92.4	7.6	909	99.9	839
South Central	92.3	7.7	4,645	99.3	4,288
South Eastern A	91.7	8.3	573	97.6	526
South Eastern B	94.2	5.8	571	97.9	538
North Central	91.0	9.0	2,634	97.0	2,398
County					
Bomi	92.4	7.6	295	99.7	273
Bong	91.8	8.2	1,118	99.5	1,026
Gbarpolu	89.9	10.1	216	99.6	194
Grand Bassa	94.5	5.5	584	99.8	552
Grand Cape Mount	94.0	6.0	420	99.9	395
Grand Gedeh	91.7	8.3	198	95.4	182
Grand Kru	93.3	6.7	201	97.2	188
Lofa	89.8	10.2	501	99.3	450
Margibi	91.6	8.4	699	99.9	640
Maryland	95.4	4.6	261	98.6	249
Montserrado	92.0	8.0	3,329	99.1	3,062
Nimba	90.6	9.4	1,019	93.2	923
River Cess	88.5	11.5	150	98.8	133
River Gee	94.6	5.4	118	98.3	112
Sinoe	94.3	5.7	223	98.8	211
Wealth quintile					
Lowest	91.1	8.9	2,008	98.7	1,830
Second	92.0	8.0	1,785	98.7	1,642
Middle	94.1	5.9	1,738	96.8	1,636
Fourth	91.0	9.0	2,024	98.8	1,843
Highest	92.2	7.8	1,777	99.7	1,638
Total	92.0	8.0	9,333	98.5	8,589

11.6 ADULT NUTRITIONAL STATUS

11.6.1 Nutritional Status of Women

The 2013 LDHS collected anthropometric data on height and weight for 99 percent of the women age 15-49 who were interviewed in the survey and were eligible for biomarker collection. These data were used to assess low maternal height and body mass index (BMI).

Maternal height is an outcome of genetics combined with the effects of nutrition during childhood and adolescence. It helps to predict a risk of difficult delivery because small stature is frequently associated with small pelvic size. The risk of low birth weight babies is also higher for short women. The cutoff point—that is, the height below which a woman is considered to be at risk for poor birth outcomes and obstetric complications—is defined as 145 centimeters. Table 11.9.1 shows that 2 percent of Liberian women age 15-49 measure below this height.

Information on BMI is also presented in Table 11.9.1. BMI is calculated by dividing weight in kilograms by height in meters squared (kg/m^2). Pregnant women and women who had a birth in the two months preceding the survey were excluded from the calculation of BMI. A BMI cutoff point of 18.5 has been recommended for assessing chronic energy deficiency among nonpregnant women. At the other end of the BMI scale, women are considered overweight if their BMI falls between 25.0 and 29.9 and obese if their BMI is 30.0 or greater.

Overall, 66 percent of women have a BMI in the normal range, 7 percent are thin, and 26 percent are overweight or obese. Six percent of women are classified as mildly thin and 2 percent are moderately or severely thin. Nine percent of women in Liberia are classified as obese. Hence, among women of reproductive age, overweight and obesity may be more of a concern than underweight in Liberia. Women in the 15-19 age group are more likely than other women to be thin (BMI below 18.5). The proportion of women who are overweight or obese increases with age and wealth quintile. For example, only 7 percent of women age 15-19 are overweight or obese compared with 45 percent of women age 40-49. Thirty percent of urban Liberian women are overweight or obese, compared with 22 percent of rural women. Montserrado (33 percent) has the highest proportion of overweight or obese women and Lofa (16 percent) the lowest.

Table 11.9.1 Nutritional status of women

Among women age 15-49, the percentage with height under 145 cm, the mean BMI, and the percentages with specific BMI levels (normal, thin, and overweight), by background characteristics, Liberia 2013

Background characteristic	Height Percent-age below 145 cm	Height Number of women	Mean Body Mass Index (BMI)	Normal 18.5-24.9 (total normal)	Thin <18.5 (total thin)	Thin 17.0-18.4 (mildly thin)	Thin <17 (moderately and severely thin)	Overweight/obese ≥25.0 (total overweight or obese)	Overweight/obese 25.0-29.9 (over-weight)	Overweight/obese ≥30.0 (obese)	Number of women
Age											
15-19	3.8	1,000	21.0	77.9	15.0	9.9	5.2	7.1	6.8	0.3	892
20-29	1.8	1,653	22.8	74.4	4.8	4.4	0.5	20.8	15.9	4.9	1,438
30-39	1.6	1,146	24.5	58.0	4.5	3.3	1.2	37.5	25.2	12.3	1,034
40-49	1.9	769	25.5	47.8	7.1	5.8	1.4	45.1	24.8	20.3	746
Residence											
Urban	2.0	2,737	23.7	63.5	6.9	5.1	1.9	29.6	19.0	10.6	2,487
Greater Monrovia	1.6	1,646	24.1	60.6	6.7	4.6	2.1	32.7	20.2	12.6	1,514
Other urban	2.7	1,091	23.1	68.0	7.3	5.7	1.6	24.7	17.1	7.6	973
Rural	2.4	1,832	22.8	70.3	8.1	6.3	1.8	21.6	16.2	5.4	1,623
Region											
North Western	2.0	420	23.7	63.0	6.2	5.7	0.5	30.9	21.8	9.1	372
South Central	2.1	2,364	23.8	62.0	7.4	5.1	2.3	30.7	19.8	10.9	2,164
South Eastern A	2.4	241	23.2	69.5	6.7	4.7	1.9	23.8	17.0	6.8	213
South Eastern B	3.1	296	23.2	68.9	5.0	3.4	1.5	26.1	20.1	6.0	259
North Central	2.1	1,247	22.4	74.3	8.6	7.1	1.4	17.2	12.4	4.7	1,102
County											
Bomi	3.1	121	23.5	60.9	6.9	5.9	1.1	32.2	23.1	9.1	106
Bong	1.8	447	22.3	71.9	10.6	9.5	1.1	17.5	13.0	4.5	394
Gbarpolu	2.2	98	23.1	63.0	10.9	10.1	0.8	26.1	17.4	8.7	88
Grand Bassa	4.3	213	22.6	69.8	9.4	7.3	2.1	20.8	15.0	5.8	193
Grand Cape Mount	1.3	201	24.1	64.1	3.4	3.4	0.0	32.5	23.2	9.3	178
Grand Gedeh	4.4	81	23.3	70.1	5.9	4.8	1.1	24.0	17.3	6.7	74
Grand Kru	2.3	118	23.4	67.7	3.9	3.3	0.6	28.5	22.5	6.0	101
Lofa	1.6	230	22.3	75.6	8.3	6.8	1.5	16.2	11.2	4.9	205
Margibi	1.9	355	23.0	65.2	9.5	6.0	3.5	25.4	18.1	7.2	321
Maryland	3.8	131	23.0	69.8	5.4	2.8	2.6	24.8	18.4	6.4	115
Montserrado	1.9	1,796	24.1	60.4	6.7	4.6	2.1	32.9	20.7	12.2	1,650
Nimba	2.4	571	22.5	75.6	7.1	5.4	1.7	17.3	12.5	4.9	503
River Cess	2.9	69	22.1	75.7	7.7	5.3	2.4	16.5	11.0	5.5	61
River Gee	2.9	47	23.1	69.4	6.4	5.3	1.1	24.3	19.0	5.2	43
Sinoe	0.3	92	23.8	64.1	6.6	4.2	2.4	29.4	21.4	7.9	77
Education											
No education	3.0	1,528	23.7	63.4	7.1	5.8	1.3	29.5	19.5	10.0	1,357
Primary	2.8	1,372	22.5	69.6	10.7	7.3	3.4	19.7	14.0	5.7	1,210
Secondary and higher	0.9	1,668	23.7	65.9	5.0	4.0	1.1	29.0	19.4	9.6	1,543
Wealth quintile											
Lowest	3.1	818	22.3	72.1	10.0	7.9	2.1	17.9	14.6	3.4	718
Second	1.9	836	22.6	70.2	9.1	6.9	2.2	20.7	15.0	5.7	739
Middle	2.7	838	23.0	70.5	6.1	4.5	1.5	23.4	16.6	6.8	727
Fourth	2.2	1,036	23.9	64.3	5.1	4.0	1.2	30.5	20.5	10.0	973
Highest	1.2	1,041	24.4	57.2	7.4	5.1	2.3	35.4	20.8	14.6	954
Total	2.2	4,569	23.3	66.2	7.4	5.5	1.8	26.4	17.9	8.6	4,110

Note: The body mass index (BMI) is expressed as the ratio of weight in kilograms to the square of height in meters (kg/m^2).
[1] Excludes pregnant women and women with a birth in the preceding two months

Figure 11.6 compares the nutritional status among women age 15-49 in 2007 and 2013. The percentage of women who are thin has declined in the last five years from 10 percent to 7 percent. In contrast, the proportion of women who are overweight or obese has increased in the past five years from 21 percent to 26 percent.

Figure 11.6: Trends in nutritional status of women age 15-49

Percent

■ 2007 LDHS   ■ 2013 LDHS
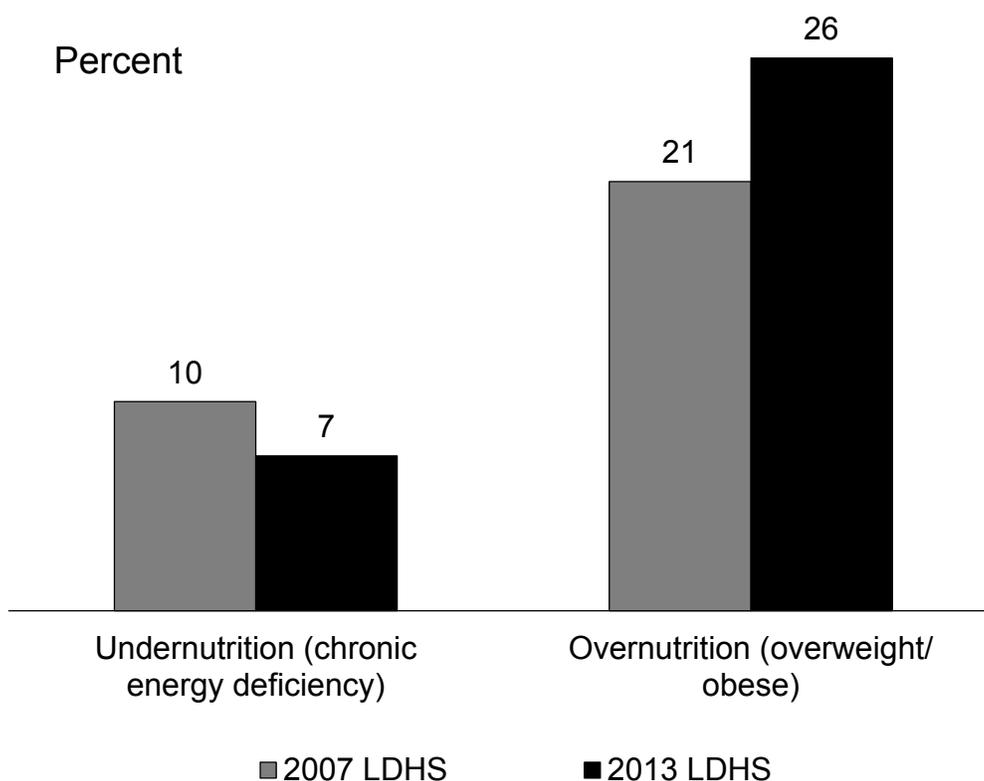
11.6.2 Nutritional Status of Men

For the first time in an LDHS, anthropometric data on height and weight were collected for men age 15-49. Overall, this information was successfully collected for 99 percent of the men interviewed during the survey. These data are useful in the calculation of BMI, which can be used as a measure of chronic energy deficiency among men (BMI calculations and cutoff points are the same for men and women). In addition, BMI can be used to measure overweight and obesity, risk factors for nutrition-related chronic diseases such as diabetes mellitus and cardiovascular disease.

Table 11.9.2 shows BMI information for Liberian men. Overall, 80 percent of men age 15-49 have a BMI in the normal range, 11 percent are thin, and 9 percent are overweight or obese. Men age 40-49 (15 percent) are more likely to be thin than younger men (9-11 percent), and men with primary education are more likely than all other men to be thin (18 percent versus 7-9 percent). The prevalence of overweight or obesity is higher among urban (12 percent) than rural (6 percent) men, and is higher among men in Grand Kru (16 percent) and Montserrado (14 percent) than among men in the other counties (3-9 percent). Overweight and obesity among men increase with wealth. Overall, however, the prevalence of overweight or obesity among men is strikingly lower than the prevalence among women (9 percent versus 26 percent, respectively).

Table 11.9.2 Nutritional status of men

Among men age 15-49, mean body mass index (BMI), and the percentages with specific BMI levels (normal, thin, and overweight), by background characteristics, Liberia 2013

| | | Body Mass Index | | | | | | | |
| | | Normal | Thin | | | Overweight/obese | | | |
Background characteristic	Mean Body Mass Index (BMI)	18.5-24.9 (total normal)	<18.5 (total thin)	17.0-18.4 (mildly thin)	<17 (moderately and severely thin)	≥25.0 (total overweight or obese)	25.0-29.9 (over- weight)	≥30.0 (obese)	Number of men
Age									
15-19	21.4	79.0	11.2	7.4	3.8	9.8	8.4	1.4	1,013
20-29	21.8	80.2	8.6	6.8	1.7	11.2	10.5	0.8	1,566
30-39	21.4	81.7	11.0	8.5	2.5	7.3	5.7	1.6	1,031
40-49	21.1	77.8	15.3	11.0	4.3	6.9	5.5	1.4	439
Residence									
Urban	21.7	76.9	11.0	8.3	2.7	12.1	10.4	1.8	2,357
Greater Monrovia	22.0	74.9	10.2	8.8	1.4	14.9	12.7	2.2	1,393
Other urban	21.3	79.6	12.2	7.4	4.7	8.2	7.0	1.1	964
Rural	21.3	84.5	9.9	7.3	2.6	5.6	5.2	0.4	1,692
Region									
North Western	21.5	81.9	10.9	7.5	3.5	7.2	6.5	0.6	363
South Central	21.7	76.6	11.0	8.9	2.1	12.3	10.5	1.8	2,106
South Eastern A	21.4	87.3	7.9	6.2	1.6	4.8	4.5	0.3	250
South Eastern B	21.9	83.1	7.2	5.6	1.7	9.6	8.3	1.3	284
North Central	21.1	83.6	11.0	6.8	4.2	5.3	5.0	0.3	1,046
County									
Bomi	21.3	79.3	13.7	10.8	2.9	6.9	5.9	1.1	95
Bong	21.4	87.2	7.0	6.0	1.0	5.8	5.4	0.4	384
Gbarpolu	21.6	84.7	8.5	6.4	2.1	6.8	5.5	1.4	94
Grand Bassa	20.6	80.2	15.9	12.1	3.9	3.9	3.9	0.0	201
Grand Cape Mount	21.5	81.9	10.6	6.2	4.4	7.5	7.5	0.0	175
Grand Gedeh	21.3	82.5	10.7	9.2	1.5	6.8	6.8	0.0	80
Grand Kru	22.5	78.1	6.1	5.4	0.6	15.8	12.5	3.3	108
Lofa	21.1	84.3	10.5	7.7	2.7	5.2	4.3	0.9	211
Margibi	21.3	77.8	12.9	9.2	3.7	9.3	7.5	1.8	364
Maryland	21.4	84.9	8.7	6.2	2.4	6.5	6.3	0.1	122
Montserrado	22.0	75.9	9.9	8.5	1.5	14.2	12.1	2.1	1,541
Nimba	20.8	80.3	14.7	7.1	7.6	5.0	5.0	0.0	451
River Cess	21.1	87.9	8.9	7.5	1.4	3.2	3.2	0.0	63
River Gee	21.6	89.3	6.4	4.4	2.0	4.3	4.3	0.0	54
Sinoe	21.8	90.6	5.1	3.3	1.9	4.3	3.6	0.7	107
Education									
No education	21.6	81.2	9.4	8.0	1.4	9.4	8.9	0.5	527
Primary	20.7	76.7	18.4	11.7	6.6	4.9	4.2	0.7	1,188
Secondary and higher	21.9	81.4	6.8	5.8	1.0	11.7	10.1	1.6	2,334
Wealth quintile									
Lowest	21.3	85.4	10.1	6.6	3.5	4.5	3.8	0.7	741
Second	21.3	84.7	9.7	7.4	2.3	5.6	5.2	0.4	748
Middle	21.2	81.4	10.8	7.9	2.9	7.8	7.7	0.2	718
Fourth	21.7	75.2	12.4	9.4	3.0	12.4	11.3	1.1	850
Highest	22.0	75.7	9.8	7.7	2.1	14.5	11.5	3.0	992
Total	21.5	80.0	10.6	7.9	2.7	9.4	8.2	1.2	4,049

Note: The body mass index (BMI) is expressed as the ratio of weight in kilograms to the square of height in meters (kg/m^2).

11.7 MICRONUTRIENT INTAKE AMONG MOTHERS

Adequate micronutrient intake by women has important benefits for both women and their children. Table 11.10 includes a number of measures that are useful in assessing women's intake of vitamin A and iron.

Breastfeeding children benefit from the micronutrient supplementation that mothers receive, especially vitamin A. The LDHS included questions to ascertain whether mothers had received iron supplements during pregnancy and vitamin A supplements within two months postpartum. Table 11.10 includes measures of vitamin A and iron supplementation among mothers of young children and also presents the proportion of women who took deworming medication while pregnant and who live in households with iodized salt.

Table 11.10 Micronutrient intake among mothers

Among women age 15-49 with a child born in the past five years, the percentage who received a vitamin A dose in the first two months after the birth of the last child, the percent distribution by number of days they took iron tablets during the pregnancy of the last child, and the percentage who took deworming medication during the pregnancy of the last child; and among women age 15-49 with a child born in the past five years and who live in households that were tested for iodized salt, the percentage who live in households with iodized salt, by background characteristics, Liberia 2013

Background characteristic	Percentage who received vitamin A dose postpartum[1]	Number of days women took iron tablets during pregnancy of last birth						Percentage of women who took deworming medication during pregnancy of last birth	Number of women	Percentage living in households with iodized salt[2]	Number of women
		None	<60	60-89	90+	Don't know/ missing	Total				
Age											
15-19	60.8	2.7	51.8	15.4	17.2	12.9	100.0	52.0	532	97.7	514
20-29	62.6	3.5	43.2	14.6	22.0	16.8	100.0	58.2	2,350	98.1	2,225
30-39	62.4	3.2	44.1	16.9	19.8	16.0	100.0	59.3	1,466	99.4	1,410
40-49	62.6	4.7	45.8	10.8	26.8	11.9	100.0	58.9	421	99.4	406
Residence											
Urban	67.1	1.9	40.8	16.0	23.8	17.5	100.0	59.8	2,555	98.4	2,436
Greater Monrovia	69.4	0.7	33.6	16.0	29.1	20.6	100.0	60.4	1,332	99.2	1,279
Other urban	64.6	3.3	48.7	15.9	18.0	14.1	100.0	59.2	1,223	97.6	1,157
Rural	56.8	5.1	49.1	14.0	18.2	13.6	100.0	55.7	2,215	98.8	2,119
Region											
North Western	64.5	2.7	45.1	19.3	26.5	6.4	100.0	59.5	496	99.9	469
South Central	64.4	1.8	37.8	15.4	25.2	19.7	100.0	58.5	2,103	99.4	2,025
South Eastern A	57.5	6.9	50.4	8.2	21.5	13.1	100.0	56.6	328	97.4	309
South Eastern B	45.5	10.9	47.9	9.9	12.9	18.4	100.0	52.6	352	98.5	338
North Central	63.8	3.3	52.1	15.7	15.8	13.0	100.0	58.2	1,491	97.2	1,414
County											
Bomi	72.6	1.8	24.0	14.8	46.4	13.0	100.0	66.4	128	100.0	122
Bong	65.1	4.4	46.5	10.5	15.4	23.2	100.0	53.7	559	99.7	538
Gbarpolu	49.1	4.0	59.0	6.2	26.3	4.5	100.0	43.6	112	99.7	101
Grand Bassa	57.2	5.9	58.5	4.9	6.9	23.7	100.0	40.6	267	99.6	260
Grand Cape Mount	67.2	2.6	49.5	27.4	16.5	4.0	100.0	63.0	256	100.0	246
Grand Gedeh	68.2	3.5	63.8	12.9	16.6	3.2	100.0	62.0	112	94.4	105
Grand Kru	40.0	13.2	56.1	5.7	13.8	11.2	100.0	58.6	147	98.4	140
Lofa	48.8	3.3	65.8	10.7	11.2	9.0	100.0	59.5	262	98.8	251
Margibi	47.5	3.0	34.6	22.5	31.7	8.1	100.0	65.1	349	100.0	336
Maryland	48.9	8.8	37.9	14.3	9.7	29.3	100.0	44.0	141	99.0	137
Montserrado	69.6	0.8	34.8	15.7	26.9	21.7	100.0	60.1	1,487	99.3	1,429
Nimba	68.5	2.5	51.5	22.1	17.8	6.1	100.0	61.4	670	94.4	624
River Cess	67.5	3.1	40.7	9.4	29.4	17.5	100.0	58.3	92	99.5	85
River Gee	50.4	10.4	51.5	9.9	17.7	10.6	100.0	58.0	63	97.9	61
Sinoe	40.4	12.7	45.4	3.0	20.1	18.8	100.0	50.5	124	98.6	119
Education											
No education	56.9	5.6	47.7	15.3	17.0	14.4	100.0	57.1	1,862	98.8	1,794
Primary	63.5	3.0	47.7	13.4	20.5	15.3	100.0	57.3	1,428	98.0	1,359
Secondary and higher	68.0	1.0	37.9	16.2	27.2	17.7	100.0	59.6	1,479	98.8	1,402
Wealth quintile											
Lowest	54.6	6.9	49.5	9.7	16.7	17.2	100.0	52.5	1,052	98.6	990
Second	58.1	4.2	52.8	16.0	14.9	12.1	100.0	56.3	995	98.9	946
Middle	68.1	2.4	48.1	17.4	20.8	11.4	100.0	59.9	1,014	96.9	980
Fourth	64.3	1.3	37.6	18.8	28.3	13.9	100.0	59.8	972	98.9	938
Highest	68.7	1.5	31.4	13.2	27.3	26.6	100.0	62.8	736	100.0	701
Total	62.3	3.4	44.6	15.0	21.2	15.7	100.0	57.9	4,769	98.6	4,555

[1] In the first two months after delivery of last birth
[2] Excludes women in households where salt was not tested

Table 11.10 shows that 62 percent of women with a child born in the five years before the survey received a vitamin A dose in the first two months after the birth of their last child. Supplementation rates were highest among urban women (67 percent), women living in Bomi (73 percent), women with secondary education and higher (68 percent), and women in the highest wealth quintile (69 percent).

As mentioned earlier, pregnant women are more likely to be anemic than other women. Iron status among pregnant women can be improved by means of iron supplements as well as by increased consumption of iron-rich foods and control of parasites and malaria. Table 11.10 shows the percent distribution of women who gave birth during the five years prior to the survey by the number of days they took iron tablets during the pregnancy for their last-born child. Only 3 percent of women did not take iron supplements at all. The majority of women who took supplements took them for less than 60 days (45 percent). One in five women (21 percent) took iron supplements for the recommended period of time (90 days or more). Women living in Grand Bassa were least likely to have taken iron tablets during their last pregnancy for the recommended period of time (7 percent), and women in Bomi were most likely to have done so (46 percent).

Nearly six in 10 of women (58 percent) took deworming medication during their last pregnancy. Ninety-nine percent of women with a child born in the past five years live in households using iodized salt.

MALARIA   12

Key Findings

- Over half (55 percent) of Liberian households own at least one insecticide-treated net (ITN). Only 40 percent of households in Greater Monrovia own at least one ITN compared with 64 percent of other urban households and 61 percent of rural households.
- Fifty-four percent of households own at least one long-lasting insecticidal net (LLIN).
- Sixty-one percent of households in Grand Bassa, 34 percent in Bong, and 21 percent in Margibi reported that they had received indoor residual spraying during the past 12 months.
- Thirty-seven percent of Liberians have access to ITNs; this means that over one-third of the household population could sleep under an ITN if each ITN in the household were used by up to two people.
- Overall, 32 percent of the household population slept under an ITN the night before the survey. Among households that owned at least one ITN, 56 percent slept under an ITN the night before the survey.
- Among children under age 5 and pregnant women, 38 percent and 37 percent, respectively, slept under an ITN the night before the survey.
- Forty-eight percent of women who had their last birth in the two years preceding the survey received intermittent preventive treatment during their pregnancy, that is, they took two or more doses of SP/Fansidar and received at least one during a prenatal care visit.
- Among children with fever in the two weeks before the survey, advice and treatment were sought for 71 percent; one in four children (24 percent) was given an artemisinin-combination therapy (ACT), the first-line treatment for uncomplicated malaria in Liberia.

Malaria is one of the leading causes of death in sub-Saharan Africa. Although preventable and curable, the disease remains a major public health problem in Liberia, where it takes its greatest toll on young children and pregnant women. Hospital records suggest that at least 33 percent of all inpatient deaths and 41 percent of inpatient deaths among children under 5 are attributable to malaria (NMCP, 2009).

The 2013 LDHS obtained data on a number of topics related to the prevention and treatment of malaria. These include the percentage of households that owned mosquito nets by net type, the percentage of households that received indoor residual spraying (IRS), and the percentages of children under 5 and pregnant women who slept under a net the night before the survey. For women who gave birth in the two years preceding the survey, data also show the percentage who took any SP/Fansidar during pregnancy as part of prenatal care, and the percentage who took two or more doses of SP/Fansidar and received at least one dose from a prenatal care visit. Additionally, for children under 5 who experienced an episode of fever in the two weeks preceding the survey, information is provided on whether they received timely treatment with recommended antimalarial drugs (the same day or the day following onset of fever). According to Liberia's National Malaria Strategic Plan 2010-15, the current target is for at least 80 percent of patients with uncomplicated malaria to receive early diagnosis and prompt, effective treatment (NMCP, 2011).

12.1 OWNERSHIP OF MOSQUITO NETS

The use of insecticide-treated mosquito nets (ITNs) is a primary health intervention designed to reduce malaria transmission in Liberia. An insecticide-treated net (ITN) is (1) a factory-treated net that does not require any further treatment, or (2) a net that has been soaked with insecticide within the past 12 months. Long-lasting insecticidal nets (LLINs) are a subset of ITNs. An LLIN is a factory-treated mosquito net made with netting material that has insecticide incorporated within or bound around the fibers. The current generation of LLINs lasts three to five years, after which the net should be replaced.

All households in the 2013 LDHS were asked whether they owned mosquito nets, and if so, how many. Table 12.1 shows the household ownership of nets by type (any, ITN, and LLIN) and the average number of nets per household, by background characteristics. Among all households in Liberia, 58 percent possess at least one mosquito net, 55 percent own at least one ITN, and 54 percent own at least one LLIN.

Table 12.1 Household possession of mosquito nets

Percentage of households with at least one mosquito net (treated or untreated), insecticide-treated net (ITN), and long-lasting insecticidal net (LLIN); average number of nets, ITNs, and LLINs per household; and percentage of households with at least one net, ITN, and LLIN per two persons who stayed in the household last night, by background characteristics, Liberia 2013

| Background characteristic | Percentage of households with at least one mosquito net | | | Average number of nets per household | | | | Percentage of households with at least one net for every two persons who stayed in the household last night[1] | | | Number of households with at least one person who stayed in the household last night |
	Any mosquito net	Insecticide-treated mosquito net (ITN)[2]	Long-lasting insecticidal net (LLIN)	Any mosquito net	Insecticide-treated mosquito net (ITN)[2]	Long-lasting insecticidal net (LLIN)	Number of households	Any mosquito net	Insecticide-treated mosquito net (ITN)[2]	Long-lasting insecticidal net (LLIN)	
Residence											
Urban	53.1	49.7	49.4	1.0	0.9	0.9	5,289	21.1	19.6	19.6	5,268
Greater Monrovia	42.5	39.5	39.1	0.7	0.6	0.6	3,060	16.3	15.2	15.2	3,051
Other urban	67.6	63.7	63.5	1.3	1.3	1.3	2,229	27.7	25.6	25.5	2,217
Rural	63.8	61.1	60.8	1.2	1.2	1.2	4,044	26.8	25.4	25.3	4,028
Region											
North Western	71.0	69.3	69.3	1.4	1.3	1.3	909	28.2	27.3	27.3	906
South Central	50.2	47.5	47.2	0.9	0.8	0.8	4,645	20.2	19.2	19.2	4,630
South Eastern A	48.4	45.2	44.9	0.8	0.8	0.8	573	18.1	16.7	16.5	571
South Eastern B	47.9	45.6	45.4	0.9	0.8	0.8	571	15.6	14.7	14.5	568
North Central	70.6	66.1	65.7	1.4	1.3	1.3	2,634	30.9	28.4	28.1	2,620
County											
Bomi	74.0	70.7	70.7	1.5	1.4	1.4	280	33.5	31.8	31.8	279
Bong	69.4	66.0	66.0	1.4	1.3	1.3	1,118	34.7	32.4	32.4	1,116
Gbarpolu	66.0	64.8	64.7	1.2	1.1	1.1	212	26.7	26.2	26.1	212
Grand Bassa	64.1	60.8	60.6	1.1	1.0	1.0	588	28.9	27.4	27.4	585
Grand Cape Mount	71.5	70.7	70.7	1.4	1.4	1.4	417	25.4	24.8	24.8	415
Grand Gedeh	55.9	54.0	53.7	1.0	1.0	1.0	196	22.2	21.1	20.8	195
Grand Kru	41.1	39.5	39.2	0.8	0.7	0.7	206	10.8	9.9	9.5	206
Lofa	78.2	74.6	74.5	1.7	1.6	1.6	498	36.3	33.5	33.5	495
Margibi	55.7	55.3	55.3	1.0	1.0	1.0	694	20.7	20.2	20.2	691
Maryland	46.9	44.1	44.0	0.8	0.8	0.8	249	14.4	13.8	13.6	248
Montserrado	46.7	43.6	43.2	0.8	0.7	0.7	3,363	18.6	17.5	17.5	3,354
Nimba	68.1	62.1	61.2	1.4	1.3	1.3	1,018	24.2	21.5	20.8	1,009
River Cess	51.7	50.4	50.3	0.9	0.8	0.8	152	14.5	13.9	13.8	151
River Gee	62.2	59.4	59.4	1.2	1.2	1.2	116	26.9	25.5	25.5	114
Sinoe	39.6	34.1	33.6	0.7	0.6	0.6	225	17.1	14.7	14.5	225
Wealth quintile											
Lowest	55.7	53.1	52.9	1.0	0.9	0.9	2,008	23.7	22.7	22.6	2,000
Second	67.1	64.2	64.0	1.3	1.3	1.3	1,785	28.0	26.3	26.2	1,778
Middle	65.9	61.2	61.0	1.3	1.2	1.2	1,738	26.9	24.5	24.4	1,727
Fourth	54.0	51.8	51.6	0.9	0.8	0.8	2,024	19.6	18.8	18.8	2,015
Highest	47.0	43.4	42.9	0.9	0.9	0.8	1,777	20.3	18.7	18.6	1,776
Total	57.7	54.6	54.3	1.1	1.0	1.0	9,333	23.6	22.1	22.0	9,295

[1] De facto household members
[2] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment (LLIN) or a net that has been soaked with insecticide within the past 12 months.

Ownership of nets differs markedly by residence, with 50 percent of urban households owning at least one ITN compared with 61 percent of rural households. Households in Greater Monrovia were much less likely to own an ITN compared with other urban regions (40 percent and 64 percent, respectively). Large differences in the percentage of households that own at least one ITN are observed by region and county.

Coverage of mosquito nets in Liberia has improved modestly in the last several years. For example, between the 2009 LMIS and the 2013 LDHS, ownership of at least one ITN increased from 47 to 55 percent (Figure 12.1).

Figure 12.1 Trends in ITN ownership
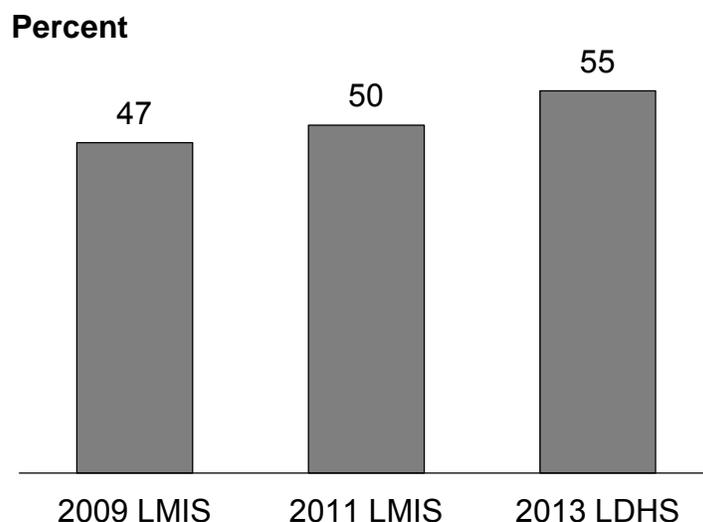
Although mosquito net ownership is a key indicator of the success of malaria control measures, it is also important to determine if a household has a sufficient number of nets for those sleeping within the home. Households in Liberia own, on average, 1.0 ITNs, nearly all of which are LLINs (1.0 LLIN per household). By assuming that each net is shared by two people in the household, universal net coverage within the population can be measured. Table 12.1 also shows the percentage of households with at least one mosquito net for every two persons who stayed in the household the night before interview.

One in five Liberian households has reached universal ITN coverage; that is, 22 percent of households have at least one ITN for every two people who slept in the household the previous night. Rural households (25 percent) are more likely than urban households (20 percent) to own at least one ITN for every two persons who stayed in the household the night before the survey. Differences are also observed by region, county, and wealth quintile.

12.2 INDOOR RESIDUAL SPRAYING

Indoor residual spraying (IRS) is part of the National Malaria Control Program's strategy for Integrated Vector Management (IVM). IRS is the spraying of the interior walls and ceilings of a dwelling with long-lasting insecticide. It reduces the transmission of malaria by killing adult female mosquitoes when they rest on the walls of the dwelling after feeding.

In Liberia, IRS implementation started in 2009 and has been incrementally rolled out into select areas. IRS target areas include Mamba-Kaba district in Margibi County; all districts in Grand Bassa except Buchanan City; Careysburg district in Montserrado County; Fuamah, Kokoyah, and Panta-Kpaai districts in Bong

County; and the Arcelor Mittal concession area in Yekepa, Nimba County. To obtain information on the prevalence of indoor residual spraying, all households interviewed in the 2013 LDHS were asked whether the interior walls of their dwelling had been sprayed during the 12-month period before the survey and, if so, who had sprayed the dwelling.

Nationally, 11 percent of households reported receiving IRS in the 12 months before the survey (Table 12.2) compared with 9 percent of Liberian households in the 2011 LMIS. Among all households, 59 percent have received IRS in the past 12 months and/or had at least one ITN.

Table 12.2 Indoor residual spraying against mosquitoes

Percentage of households in which someone has come into the dwelling to spray the interior walls against mosquitoes (IRS) in the past 12 months, the percentage of households with at least one ITN and/or IRS in the past 12 months, and the percentage of households with at least one ITN for every two persons and/or IRS in the past 12 months, by background characteristics, Liberia 2013

Background characteristic	Percentage of households with IRS[1] in the past 12 months	Percentage of households with at least one ITN[2] and/or IRS in the past 12 months	Percentage of households with at least one ITN[2] for every two persons and/or IRS in the past 12 months	Number of households
Residence				
Urban	8.2	53.0	25.6	5,289
Greater Monrovia	1.8	40.5	16.6	3,060
Other urban	17.1	70.2	37.9	2,229
Rural	13.9	66.3	35.6	4,044
Region				
North Western	0.1	69.3	27.2	909
South Central	12.8	52.4	28.8	4,645
South Eastern A	0.6	45.4	17.0	573
South Eastern B	0.2	45.6	14.7	571
North Central	15.0	72.1	39.0	2,634
County				
Bomi	0.0	70.7	31.7	280
Bong	34.4	79.8	56.9	1,118
Gbarpolu	0.5	64.8	26.2	212
Grand Bassa	60.6	81.7	70.9	588
Grand Cape Mount	0.0	70.7	24.7	417
Grand Gedeh	0.9	54.0	21.5	196
Grand Kru	0.4	39.6	9.9	206
Lofa	0.1	74.6	33.2	498
Margibi	21.0	65.9	37.0	694
Maryland	0.1	44.1	13.7	249
Montserrado	2.8	44.6	19.7	3,363
Nimba	1.0	62.3	22.2	1,018
River Cess	1.2	50.9	14.6	152
River Gee	0.0	59.4	25.1	116
Sinoe	0.0	34.1	14.7	225
Wealth quintile				
Lowest	16.9	60.5	35.3	2,008
Second	13.4	68.6	36.0	1,785
Middle	11.6	65.5	32.6	1,738
Fourth	6.5	54.0	23.4	2,024
Highest	4.9	45.8	22.6	1,777
Total	10.7	58.8	29.9	9,333

[1] Indoor residual spraying (IRS) is limited to spraying conducted by a government, private, or nongovernmental organization.
[2] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment (LLIN) or a net that has been soaked with insecticide within the past 12 months.

The prevalence of IRS varies by residence. Rural households were more likely than urban households to report receiving IRS (14 percent and 8 percent, respectively). However, among urban households, a further

distinction emerges: households in Greater Monrovia are far less likely to receive IRS than those in other urban areas (2 percent and 17 percent, respectively). IRS is inversely correlated with wealth quintile: households in the lowest wealth quintile (17 percent) were more likely to have been sprayed than households in the highest wealth quintile (5 percent).

An examination of the prevalence of IRS by geographical areas confirms that the recent IRS campaigns in Liberia reached the targeted areas. By region, the prevalence of IRS was highest in South Central (13 percent) and North Central (15 percent). By county, households in Grand Bassa (61 percent) have the highest IRS coverage, followed by Bong (34 percent) and Margibi (21 percent). Among households that received IRS, spraying was conducted principally by government workers (56 percent) and nongovernmental organizations (26 percent) (data not shown).

12.3 ACCESS TO MOSQUITO NETS

The 2013 LDHS presents the proportion of the population that could sleep under an ITN if each ITN in the household were used by up to two people. This population is referred to as having access to an ITN. Coupled with mosquito net usage, ITN access can provide useful information on the magnitude of the behavioral gap between ITN ownership and use, or, in other words, the population with access to an ITN but not using it. If the difference between these indicators is substantial, the program may need to focus on behavior change and how to identify the main drivers/barriers to ITN use in order to design an appropriate intervention. This analysis helps ITN programs determine whether they need to achieve higher ITN coverage, promote ITN use, or both. Table 12.3 shows the percent distribution of the de facto household population by the number of ITNs that the household owns, according to the number of persons who stayed in the household the night before the survey.

Table 12.3 Access to an insecticide-treated net (ITN)

Percent distribution of the de facto household population by number of ITNs that the household owns, according to number of persons who stayed in the household the night before the survey, Liberia 2013

Number of ITNs	Number of persons who stayed in the household the night before the survey								Total
	1	2	3	4	5	6	7	8+	
0	55.3	49.9	46.5	45.3	41.9	41.0	44.7	41.1	43.3
1	35.5	35.0	33.2	28.0	22.1	19.6	14.3	10.7	19.7
2	7.4	11.9	13.9	17.8	22.4	20.8	19.4	16.1	17.6
3	1.7	3.0	6.1	7.7	12.2	17.2	18.9	22.8	15.3
4	0.0	0.1	0.2	0.8	0.9	0.9	2.0	4.1	1.9
5	0.0	0.1	0.0	0.1	0.3	0.3	0.6	2.7	1.0
6	0.0	0.0	0.1	0.3	0.2	0.2	0.2	2.3	0.9
7+	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	1,006	2,108	3,876	5,638	6,315	6,257	5,358	14,485	45,042
Percent with access to an ITN[1]	44.7	50.1	42.5	40.8	40.4	39.0	34.1	30.4	37.0

[1] Percentage of the de facto household population who could sleep under an ITN if each ITN in the household were used by up to two people

Nationally, 37 percent of the Liberian population has access to ITNs. In general, ITN access tends to decrease as household size increases. For example, 50 percent of persons who stayed in households where two people stayed the night before the survey had access to an ITN, whereas 30 percent of persons who stayed in households where eight or more people stayed the night before the survey had access to an ITN.

Figure 12.2 presents the percentage of the population with access to an ITN in the household, by select background characteristics. The percentage of the urban population with access to an ITN in the household is

lower than the percentage of the rural population (33 percent and 42 percent, respectively). Among regions, the percentage of the population with access to an ITN is highest in North Western (49 percent) and lowest in South Eastern B (27 percent). The percentage of the population with access to ITNs also varies by wealth quintile, with those in the highest wealth quintile having the least access to an ITN (29 percent).

Figure 12.2 Percentage of the de facto population with access to an ITN in the household

TOTAL 37

RESIDENCE

Urban 33

Greater Monrovia 24

Other urban 43

Rural 42

REGION

North Western 49

South Central 31

South Eastern A 28

South Eastern B 27

North Central 47

WEALTH QUINTILE

Lowest 36

Second 44

Middle 42

Fourth 34

Highest 29

Percent
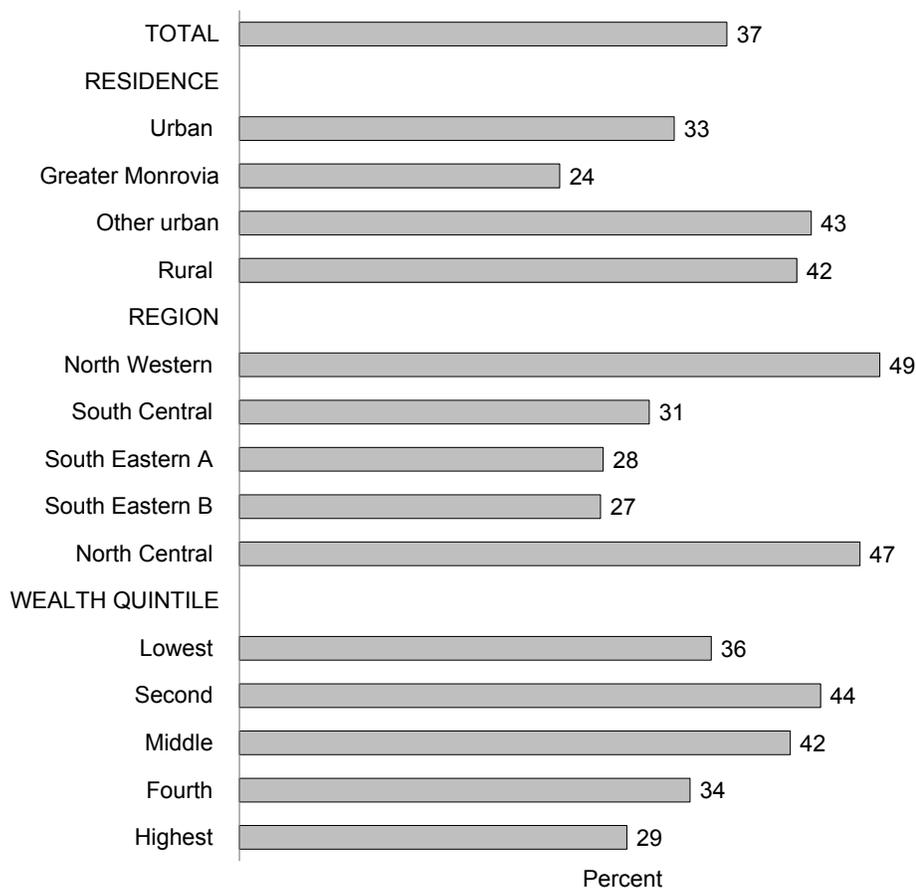
LDHS 2013

12.4   USE OF MOSQUITO NETS

Community level protection against malaria helps reduce the spread of the disease and offers an additional level of protection against malaria for those most vulnerable: children under 5 and pregnant women. This section describes use of mosquito nets among all persons in the household, among children under age 5, and among pregnant women.

12.4.1 Use of Mosquito Nets by Persons in the Household

Mosquito net coverage of the entire population is necessary to accomplish large reductions in the malaria burden. Although vulnerable groups, such as children under 5 and pregnant women, should still be prioritized, the communal benefits of wide-scale ITN use by older children and adults should be promoted and evaluated by national malaria control programs (Killeen et al., 2007).

As shown in Table 12.4, overall, 34 percent of the household population slept under a mosquito net the night before the survey; 32 percent slept under an ITN and 32 percent slept under an LLIN. Those age 35 and older report the highest use of ITNs (39 percent), followed by children under 5 (38 percent). Differences by sex are small (33 percent of females slept under an ITN compared with 31 percent of males). More substantial differences are observed by residence, region, and county. For example, although 55 percent of the household population in Lofa slept under an ITN the night before the survey, only 17 percent of the household population in Sinoe and 18 percent of the household population in Grand Kru and Maryland did likewise.

Table 12.4 Use of mosquito nets by persons in the household

Percentage of the de facto household population who slept the night before the survey under a mosquito net (treated or untreated), under an insecticide-treated net (ITN), under a long-lasting insecticidal net (LLIN), and under an ITN or in a dwelling in which the interior walls have been sprayed against mosquitoes (IRS) in the past 12 months; and among the de facto household population in households with at least one ITN, the percentage who slept under an ITN the night before the survey, by background characteristics, Liberia 2013

Background characteristic	Household population					Household population in households with at least one ITN[1]	
	Percentage who slept under any net last night	Percentage who slept under an ITN[1] last night	Percentage who slept under an LLIN last night	Percentage who slept under an ITN[1] last night or in a dwelling sprayed with IRS[2] in the past 12 months	Number	Percentage who slept under an ITN[1] last night	Number
Age (in years)							
<5	40.3	38.1	37.7	44.0	7,261	63.2	4,375
5-14	25.6	24.0	23.9	31.6	13,375	43.0	7,475
15-34	31.9	30.4	29.9	35.6	13,630	55.5	7,454
35-49	41.5	38.6	38.4	45.1	5,905	68.4	3,333
50+	41.0	39.0	38.8	45.5	4,865	66.0	2,879
Sex							
Male	32.4	30.7	30.5	37.6	22,317	53.8	12,757
Female	34.8	32.7	32.5	38.7	22,725	58.3	12,760
Residence							
Urban	30.3	28.1	27.8	33.3	25,438	54.4	13,153
Greater Monrovia	23.2	21.3	20.7	22.9	13,960	53.5	5,555
Other urban	39.1	36.4	36.4	45.8	11,478	55.0	7,598
Rural	37.9	36.4	36.2	44.4	19,604	57.8	12,364
Region							
North Western	44.2	43.1	43.1	43.2	4,388	60.1	3,150
South Central	27.7	26.2	25.7	34.6	21,487	53.5	10,510
South Eastern A	26.3	24.5	24.4	24.9	2,820	53.0	1,305
South Eastern B	21.7	21.1	21.0	21.1	3,144	44.3	1,495
North Central	44.1	41.1	40.9	49.0	13,203	59.9	9,058
County							
Bomi	45.5	43.9	43.9	43.9	1,341	61.2	961
Bong	44.6	42.9	42.9	63.4	4,845	61.6	3,374
Gbarpolu	42.1	41.2	41.2	41.2	980	64.3	628
Grand Bassa	33.8	31.8	31.4	71.7	2,371	50.0	1,506
Grand Cape Mount	44.0	43.5	43.5	43.7	2,128	58.4	1,584
Grand Gedeh	37.0	35.2	35.0	36.8	952	63.6	527
Grand Kru	17.9	17.5	17.4	17.6	1,183	40.7	510
Lofa	56.8	54.8	54.8	55.0	2,426	70.0	1,900
Margibi	31.2	31.1	31.1	44.1	3,582	53.9	2,068
Maryland	18.5	18.0	18.0	18.0	1,399	39.8	632
Montserrado	26.0	24.1	23.6	26.7	15,462	54.0	6,911
Nimba	38.1	33.8	33.4	34.5	5,942	53.2	3,778
River Cess	23.7	23.3	23.3	23.9	746	43.5	400
River Gee	38.4	36.7	36.7	36.7	563	58.7	352
Sinoe	19.4	16.6	16.6	16.6	1,121	48.3	386
Wealth quintile							
Lowest	32.5	31.1	31.0	41.6	8,909	57.2	4,841
Second	40.2	38.5	38.3	45.4	8,923	59.5	5,775
Middle	41.2	38.1	38.0	44.4	8,962	59.6	5,725
Fourth	30.6	29.6	29.5	33.9	9,115	53.2	5,070
Highest	23.9	21.7	20.8	25.7	9,133	48.2	4,106
Total	33.6	31.7	31.5	38.1	45,042	56.0	25,517

Note: Total includes several cases for which information on the age of a household member is missing.
[1] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment (LLIN) or a net that has been soaked with insecticide within the past 12 months.
[2] Indoor residual spraying (IRS) is limited to spraying conducted by a government, private, or nongovernmental organization

Among households with at least one ITN, more than half of the household population (56 percent) slept under the ITN the previous night. Net usage among the population that owns at least one ITN is markedly higher than that of the general population (56 percent and 32 percent, respectively), indicating that ITN ownership increases the likelihood of net usage. Variations in ITN use among those households that own at least one ITN are generally similar to those within the general population.

Figure 12.3 presents ownership of, coverage with, access to, and use of ITNs in Liberia. As shown in column 1, 55 percent of households own at least one ITN. However, only 22 percent of households have enough ITNs to cover their entire household population, assuming one ITN is used by two persons (column 2). Among the household population, 37 percent of individuals have access to an ITN (column 3), and 32 percent slept under a mosquito net the night before the survey (column 4). A comparison of columns 1 and 2 indicates that Liberian households do not have a sufficient number of ITNs to cover the population sleeping in the household. A comparison of columns 3 and 4, on the other hand, suggests that ITN access is generally similar to usage.

Figure 12.3 Ownership of, access to, and use of ITNs

Percent

55 — Percentage of households with at least one ITN

22 — Percentage of households with at least one ITNs for every two persons who stayed in the household last night*

37 — Percentage of the household population with access to an ITN within their household*

32 — Percentage of the household population who slept under an ITN

LDHS 2013
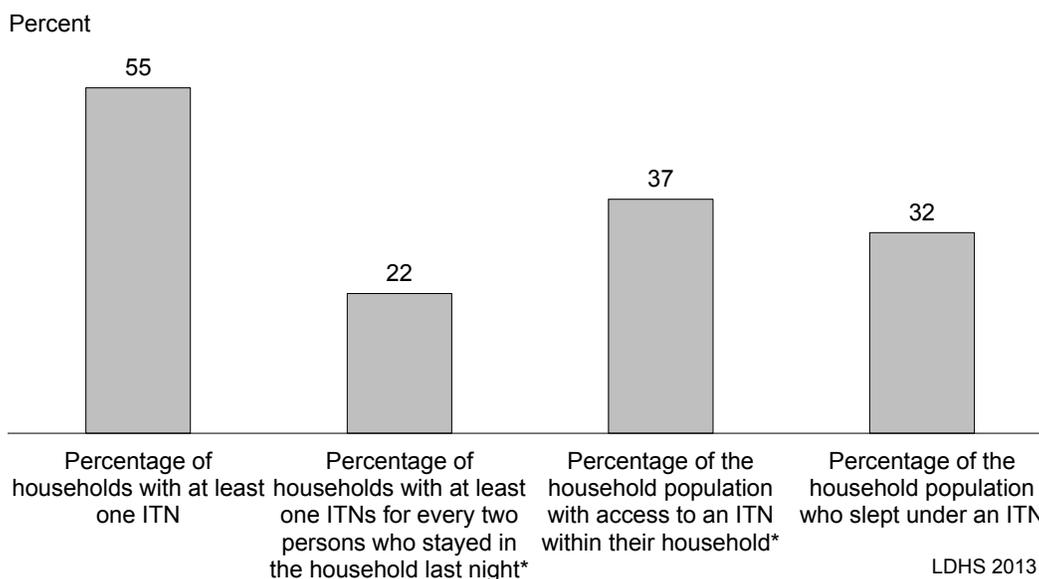
* Assuming one ITN covers two persons

12.4.2 Use of Existing Mosquito Nets

Table 12.5 shows use of existing ITNs. Of all ITNs distributed to households in Liberia, 67 percent were used the night prior to the survey. Variations by background characteristics were generally minor.

Table 12.5 Use of existing ITNs

Percentage of insecticide-treated nets (ITNs) that were used by anyone the night before the survey, by background characteristics, Liberia 2013

Background characteristic	Percentage of existing ITNs[1] used the night before the survey	Number of ITNs[1]
Residence		
Urban	67.9	4,695
Greater Monrovia	70.8	1,893
Other urban	65.9	2,803
Rural	66.9	4,769
Region		
North Western	67.0	1,220
South Central	66.9	3,789
South Eastern A	68.0	444
South Eastern B	63.1	478
North Central	68.6	3,534
County		
Bomi	64.8	406
Bong	63.6	1,458
Gbarpolu	75.6	234
Grand Bassa	57.9	590
Grand Cape Mount	65.5	590
Grand Gedeh	80.3	193
Grand Kru	64.7	149
Lofa	81.8	777
Margibi	70.9	690
Maryland	59.3	192
Montserrado	67.7	2,498
Nimba	66.3	1,295
River Cess	55.0	123
River Gee	67.1	137
Sinoe	63.1	132
Wealth quintile		
Lowest	67.0	1,856
Second	68.5	2,251
Middle	68.5	2,135
Fourth	69.3	1,711
Highest	62.6	1,512
Total	67.4	9,464

[1] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment (LLIN) or a net that has been soaked with insecticide within the past 12 months.

12.4.3 Use of Mosquito Nets by Children Under 5

Malaria is endemic in Liberia. Those living in areas of high malaria transmission acquire immunity to the disease over time (Doolan et al., 2009). Acquired immunity is not the same as sterile immunity—that is, acquired immunity does not prevent infection but rather protects against severe disease and death. Age is an important factor in determining levels of acquired immunity to malaria. For about six months following birth, antibodies acquired from the mother during pregnancy protect children born in areas of endemic malaria. This immunity gradually disappears, and children start to develop their own immunity to malaria. The pace at which immunity develops depends on the exposure to malarial infection, and in high malaria-endemic areas, children are thought to attain a high level of immunity by their fifth birthday. Such children may experience episodes of illness but usually do not suffer from severe, life-threatening malaria. Immunity in areas of low malaria transmission is acquired more slowly. Malaria affects all age groups of the population.

According to the 2011 LMIS, the prevalence of malaria in children 6-59 months is 45 percent as measured by rapid diagnostic test (RDT) or 28 percent as measured by analysis of blood smears by microscopy. Prevalence among children by county was not estimated in the 2011 LMIS but, by region, prevalence was much lower in Greater Monrovia than elsewhere. The region with the highest prevalence of malaria was South Eastern B (71 percent as measured by RDT and 49 percent as measured by blood smears). These findings imply that the highest malaria transmission areas are in the most rural regions of the country. The National Malaria Control Strategic Plan recognizes that children under 5 and pregnant women are high-risk groups and recommends that they be protected by sleeping under insecticide-treated nets.

Table 12.6 shows that overall, only 40 percent of children under 5 slept under a mosquito net the night before the survey, and 38 percent slept under an ITN. Among those in households owning at least one ITN, 63 percent of children under 5 slept under an ITN the night before the survey.

The percentage of children who slept under an ITN gradually decreased with increasing age; for example, 48 percent of children under age 1 slept under an ITN compared with 35 percent of children age 4. Differences in the percentages of children who slept under an ITN were observed by residence, region, and county. Notably, only 23 percent of children under 5 residing in South Eastern B region slept under an ITN the night before the survey. Among counties, the percentage of children under 5 who slept under an ITN ranged from a high of 55 percent in Lofa to a low of 16 percent in Sinoe.

Table 12.6 Use of mosquito nets by children

Percentage of children under 5 who, the night before the survey, slept under a mosquito net (treated or untreated), under an insecticide-treated net (ITN), under a long-lasting insecticidal net (LLIN), and under an ITN or in a dwelling in which the interior walls have been sprayed against mosquitoes (IRS) in the past 12 months; and among children under 5 in households with at least one ITN, the percentage who slept under an ITN the night before the survey, by background characteristics, Liberia 2013

| Background characteristic | Children under 5 in all households | | | | | Children under 5 in households with at least one ITN[1] | |
	Percentage who slept under any net last night	Percentage who slept under an ITN[1] last night	Percentage who slept under an LLIN last night	Percentage who slept under an ITN[1] last night or in a dwelling sprayed with IRS[2] in the past 12 months	Number of children	Percentage who slept under an ITN[1] last night	Number of children
Age (in years)							
<1	50.7	48.4	48.2	54.0	1,448	74.9	935
1	39.7	37.6	37.5	42.8	1,445	65.8	826
2	39.3	36.6	36.3	43.3	1,296	62.6	758
3	36.0	33.6	33.0	40.0	1,531	57.3	898
4	35.9	34.5	34.1	40.4	1,541	55.5	958
Sex							
Male	41.1	38.7	38.2	44.5	3,767	63.3	2,305
Female	39.3	37.4	37.2	43.6	3,494	63.0	2,070
Residence							
Urban	39.7	36.7	36.2	41.0	3,617	64.0	2,072
Greater Monrovia	31.0	28.3	27.5	29.8	1,769	62.5	802
Other urban	48.0	44.6	44.6	51.7	1,847	64.9	1,270
Rural	40.8	39.5	39.2	47.1	3,645	62.5	2,302
Region							
North Western	52.2	51.2	51.2	51.2	813	70.1	594
South Central	36.0	33.8	33.2	42.5	2,950	62.6	1,595
South Eastern A	29.2	27.5	27.3	27.9	516	56.1	253
South Eastern B	23.3	23.1	23.1	23.1	546	45.8	275
North Central	47.6	44.4	44.2	51.6	2,436	65.3	1,657
County							
Bomi	51.3	49.5	49.5	49.5	213	69.3	153
Bong	48.3	47.1	47.1	66.2	899	68.3	620
Gbarpolu	49.5	48.0	48.0	48.0	177	74.4	114
Grand Bassa	41.5	38.8	37.8	74.5	401	59.8	260
Grand Cape Mount	53.9	53.4	53.4	53.4	423	69.1	327
Grand Gedeh	43.5	42.3	41.9	42.8	166	70.3	100
Grand Kru	18.0	17.9	17.9	18.0	227	39.0	104
Lofa	57.9	55.3	55.3	55.3	389	72.3	298
Margibi	38.5	38.5	38.5	50.4	541	64.3	324
Maryland	22.3	22.2	22.2	22.2	213	45.3	105
Montserrado	34.2	31.6	30.8	34.0	2,009	62.7	1,011
Nimba	43.4	38.5	38.0	38.8	1,147	59.7	738
River Cess	27.4	26.7	26.6	27.5	153	50.3	81
River Gee	37.4	36.7	36.7	36.7	104	57.3	67
Sinoe	19.3	16.4	16.4	16.4	198	44.5	73
Wealth quintile							
Lowest	35.6	33.8	33.7	43.5	1,752	61.7	961
Second	43.6	42.0	41.6	48.4	1,626	63.6	1,074
Middle	49.5	46.7	46.6	52.0	1,514	70.2	1,007
Fourth	38.7	37.0	37.0	40.7	1,330	60.9	807
Highest	31.3	27.8	26.4	30.8	1,040	55.1	525
Total	40.3	38.1	37.7	44.0	7,261	63.2	4,375

Note: Table is based on children who stayed in the household the night before the interview.
[1] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment (LLIN) or a net that has been soaked with insecticide within the past 12 months.
[2] Indoor residual spraying (IRS) is limited to spraying conducted by a government, private, or nongovernmental organization.

12.4.4 Use of Mosquito Nets by Pregnant Women

In malaria-endemic areas, adults usually have acquired some degree of immunity to severe, life-threatening malaria. However, pregnancy leads to a depression of the immune system so that pregnant women, especially those in their first pregnancy, have a higher risk of malarial infection. Moreover, malaria among pregnant women may be asymptomatic. Malaria during pregnancy is a major contributor to low birth weight, maternal anemia, infant mortality, spontaneous abortion, and stillbirth. Pregnant women can reduce the risk of these adverse effects of malaria by sleeping under insecticide-treated mosquito nets.

Table 12.7 shows the use of mosquito nets by pregnant women, by background characteristics. Overall, 40 percent of pregnant women age 15-49 slept under a mosquito net the night before the survey, and 37 percent slept under an ITN. Among pregnant women in households owning at least one ITN, 63 percent slept under an ITN the night before the survey.

Differentials in the percentage of pregnant women who slept under an ITN the night before the survey are similar to those described for children under 5. Use of an ITN by pregnant women does not correlate with either education level or wealth quintile.

Table 12.7 Use of mosquito nets by pregnant women

Percentages of pregnant women age 15-49 who, the night before the survey, slept under a mosquito net (treated or untreated), under an insecticide-treated net (ITN), under a long-lasting insecticidal net (LLIN), and under an ITN or in a dwelling in which the interior walls had been sprayed against mosquitoes (IRS) in the past 12 months; and among pregnant women age 15-49 in households with at least one ITN, the percentage who slept under an ITN the night before the survey, by background characteristics, Liberia 2013

| | Among pregnant women age 15-49 in all households: | | | | | Among pregnant women age 15-49 in households with at least one ITN[1]: | |
Background characteristic	Percentage who slept under any net last night	Percentage who slept under an ITN[1] last night	Percentage who slept under a LLIN last night	Percentage who slept under an ITN[1] last night or in a dwelling sprayed with IRS[2] in the past 12 months	Number of pregnant women	Percentage who slept under an ITN[1] last night	Number of pregnant women
Residence							
Urban	37.5	34.0	34.0	38.6	422	62.5	230
Greater Monrovia	31.6	30.5	30.5	30.5	235	(68.4)	105
Other urban	45.0	38.5	38.5	48.9	187	57.6	125
Rural	42.1	40.3	40.2	48.5	394	63.8	249
Region							
North Western	45.7	45.2	45.2	45.2	93	61.5	68
South Central	36.6	35.2	35.2	41.5	350	65.5	188
South Eastern A	32.5	30.6	30.6	30.6	48	67.7	22
South Eastern B	25.6	24.1	22.8	24.1	55	47.9	28
North Central	45.9	40.5	40.5	51.4	270	63.2	173
County							
Bomi	34.7	34.7	34.7	34.7	31	(48.9)	22
Bong	50.3	47.0	47.0	72.2	113	(78.4)	68
Gbarpolu	(64.0)	(64.0)	(64.0)	(64.0)	15	(75.3)	13
Grand Bassa	42.7	39.0	39.0	77.3	46	(55.2)	32
Grand Cape Mount	47.2	46.2	46.2	46.2	47	(64.6)	33
Grand Gedeh	(26.6)	(25.2)	(25.2)	(25.2)	13	*	7
Grand Kru	(17.3)	(17.3)	(14.5)	(17.3)	23	*	9
Lofa	61.8	57.1	57.1	57.1	43	68.6	36
Margibi	(36.0)	(36.0)	(36.0)	(42.7)	45	(55.1)	29
Maryland	25.5	25.5	25.5	25.5	22	(48.3)	12
Montserrado	35.6	34.4	34.4	35.0	260	70.4	127
Nimba	35.6	27.8	27.8	28.7	114	45.6	70
River Cess	(34.5)	(34.5)	(34.5)	(34.5)	15	*	8
River Gee	(47.2)	(37.6)	(37.6)	(37.6)	9	*	6
Sinoe	35.0	31.2	31.2	31.2	19	*	7
Education							
No education	39.7	38.4	38.4	48.6	304	66.8	175
Primary	40.0	35.7	35.7	40.7	290	59.3	175
Secondary and higher	39.4	37.0	36.7	39.7	222	63.6	129
Wealth quintile							
Lowest	35.8	32.0	32.0	45.2	173	64.7	86
Second	47.0	45.9	45.6	52.1	185	70.7	120
Middle	43.8	38.7	38.7	44.7	184	57.9	123
Fourth	52.3	52.1	52.1	54.1	128	71.3	94
Highest	19.2	16.5	16.5	19.0	146	(42.7)	56
Total	39.7	37.1	37.0	43.4	816	63.2	479

Note: Table is based on women who stayed in the household the night before the interview. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] An insecticide-treated net (ITN) is a factory-treated net that does not require any further treatment (LLIN) or a net that has been soaked with insecticide within the past 12 months.
[2] Indoor residual spraying (IRS) is limited to spraying conducted by a government, private, or nongovernmental organization

12.5 INTERMITTENT PREVENTIVE TREATMENT OF MALARIA IN PREGNANCY

As explained, in areas of high malaria transmission, by the time an individual reaches adulthood, she or he has acquired immunity that protects against severe disease. However, pregnant women—especially those pregnant for the first time—frequently regain their susceptibility to malaria. Although malaria in pregnant

women may not manifest itself as either febrile illness or severe disease, it is frequently the cause of mild to severe anemia. In addition, malaria during pregnancy can interfere with the maternal-fetal exchange that occurs at the placenta, leading to the delivery of low birth weight infants.

In Liberia, NMCP Malaria in Pregnancy policy and guidelines require that pregnant women receive intermittent preventive treatment for malaria in pregnancy (IPTp). Specifically, IPTp is preventive treatment with the antimalarial combination drug SP/Fansidar given once at the beginning of the second trimester of pregnancy and once at the beginning of the third trimester. It is preferable that women receive IPTp during routine prenatal care. Pregnant women who take medicine only to treat an existing case of malaria are not considered to have received IPTp. The NMCP National Malaria Strategic Plan for 2010-2015 highlights the Roll Back Malaria (RBM) goal of achieving IPTp among 80 percent of all pregnant Liberian women by 2010 (NMCP, 2011).

Women in the 2013 LDHS who had a live birth in the two years preceding the survey were asked whether they took any antimalarial medications during the pregnancy leading to their most recent birth, and if so, which ones. Women were also asked whether the drugs they took were received during a prenatal care visit. It should be noted that obtaining information about drugs can be difficult because some respondents may not know or remember the name or the type of drug that they received.

Table 12.8 shows that 65 percent of women with a live birth in the two years preceding the survey reported taking at least one dose of SP/Fansidar during a prenatal care visit, and 48 percent reported taking two or more doses of SP/Fansidar at least one of which was received during a prenatal care visit. A higher proportion of women in urban areas received two doses of SP/Fansidar, with at least one dose received during a prenatal care visit, when compared with women in rural areas (50 percent and 45 percent, respectively). Differences in IPTp coverage were observed by region and county also.

Although the percentage of women who received at least one dose of SP/Fansidar during a prenatal care visit increased with either increasing level of educational attainment (from 61 percent to 67 percent) or increasing wealth quintile (from 58 percent to 71 percent), patterns of coverage were less distinct with two or more doses.

There is little difference between the percentage of women who took two or more doses of SP/Fansidar, at least one of which was received during a prenatal care visit, in the 2013 LDHS (48 percent) and the 2011 LMIS (50 percent).

Table 12.8 Use of intermittent preventive treatment (IPTp) by women during pregnancy

Percentage of women age 15-49 with a live birth in the two years preceding the survey who, during the pregnancy preceding the last birth, received any SP/Fansidar during a prenatal care visit, and who took at least two doses of SP/Fansidar and received at least one dose during a prenatal care visit, by background characteristics, Liberia 2013

Background characteristic	Percentage who received any SP/Fansidar during a prenatal care visit	Percentage who took 2+ doses of SP/Fansidar and received at least one during a prenatal care visit	Number of women with a live birth in the two years preceding the survey
Residence			
Urban	67.0	49.9	1,351
Greater Monrovia	68.3	49.1	667
Other urban	65.7	50.7	684
Rural	62.5	45.2	1,299
Region			
North Western	66.0	50.9	288
South Central	67.4	46.9	1,109
South Eastern A	47.9	35.9	196
South Eastern B	59.5	41.2	197
North Central	66.1	51.5	860
County			
Bomi	70.1	52.4	68
Bong	68.0	52.1	318
Gbarpolu	47.9	33.5	64
Grand Bassa	58.1	35.6	149
Grand Cape Mount	71.6	57.5	155
Grand Gedeh	49.8	35.1	66
Grand Kru	55.6	32.9	80
Lofa	53.2	39.7	144
Margibi	68.8	45.0	214
Maryland	56.9	45.5	81
Montserrado	68.9	49.7	746
Nimba	69.3	55.3	398
River Cess	47.6	37.3	58
River Gee	74.0	49.9	36
Sinoe	46.4	35.5	73
Education			
No education	61.4	45.6	1,000
Primary	66.4	49.6	858
Secondary and higher	67.4	48.0	792
Wealth quintile			
Lowest	58.1	42.1	636
Second	64.9	47.7	567
Middle	67.7	52.8	551
Fourth	65.3	46.5	509
Highest	71.0	50.8	386
Total	64.8	47.6	2,650

12.6 PREVALENCE, DIAGNOSIS, AND PROMPT TREATMENT OF FEVER AMONG CHILDREN

In moderate to high-endemic areas of malaria in sub-Saharan Africa, acute clinical disease is almost always confined to young children who suffer high parasite densities. If untreated, this condition can progress very rapidly to severe malaria, which can result in death. The diagnosis of malaria is based on clinical criteria (clinical diagnosis) and supplemented by the detection of parasites in the blood (parasitological or confirmatory diagnosis). Fever is a major manifestation of malaria in young children, although it also accompanies other illnesses. In Liberia, the artemisinin-based combination therapy (ACT) artesunate plus amodiaquine (ASAQ) is the recommended first-line antimalarial drug for uncomplicated malaria.

In the 2013 LDHS, for each child under 5, mothers were asked if the child had experienced an episode of fever in the two weeks preceding the survey, and if so, whether treatment and advice was sought. Information was also collected about the type and timing of the treatment given.

Table 12.9 shows the percentage of children under 5 who had fever in the two weeks preceding the survey. Also shown, among those children under 5 with fever, are the percentage for whom advice or treatment was sought from a health facility, provider, or pharmacy; the percentage of such children who had a drop of blood taken from a finger- or heel-prick (presumably for a malaria test); the percentage who took ACT or any antimalarial drugs; and the percentage who took drugs on the same or next day.

Twenty-nine percent of children under 5 had a fever during the two weeks preceding the survey. Prevalence of fever differed little by sex and residence. Children age 6-11 months (38 percent) and those residing in South Eastern B and North Western (37 percent and 36 percent, respectively) are more likely than other children to have had recent fever.

Among children with fever, advice or treatment was sought for 71 percent, 42 percent had blood taken from a finger or heel for testing, 24 percent took ACT, 17 percent took ACT the same or next day after the start of the fever, 56 percent took any antimalarial, and 43 percent took an antimalarial the same or next day after the start of the fever. In general, younger children were more likely than older children to be taken to a health facility, provider, or pharmacy for treatment or advice. The percentage of children in urban areas for whom advice or treatment was sought was much higher than the percentage in rural areas (79 percent compared with 64 percent). Treatment-seeking behavior increased with mother's education level and wealth. With the exception of children under age 6 months, the proportion of children who had blood taken for testing did not vary greatly by age; in contrast, the percentage of children who took ACT increased with age. For example, only 17 percent of children 6-11months took ACT compared with 30 percent of children 36-59 months in age. There is no formulation of ACT made for children under age 6 months; instead, children under 6 months of age (or 5.0 kg) should receive quinine (NMCP, 2011). Accordingly, the proportion of children less than 6 months with fever who took ACT is low (8 percent).

Table 12.9 Prevalence, diagnosis, and prompt treatment of children with fever

Percentage of children under 5 with fever in the two weeks preceding the survey; and among children under 5 with fever, the percentage for whom advice or treatment was sought, the percentage who had blood taken from a finger or heel, the percentage who took any artemisinin-based combination therapy (ACT), the percentage who took ACT the same or next day following the onset of fever, the percentage who took antimalarial drugs, and the percentage who took the drugs the same or next day following the onset of fever, by background characteristics, Liberia 2013

Background characteristic	Among children under 5:		Among children under 5 with fever:						
	Percentage with fever in the two weeks preceding the survey	Number of children	Percentage for whom advice or treatment was sought[1]	Percentage who had blood taken from a finger or heel for testing	Percentage who took any ACT	Percentage who took any ACT the same or next day	Percentage who took antimalarial drugs	Percentage who took antimalarial drugs the same or next day	Number of children
Age (in months)									
<6	18.7	603	76.4	23.9	8.3	6.2	27.9	21.0	113
6-11	38.1	730	72.6	48.4	17.2	10.5	48.2	38.2	278
12-23	33.7	1,272	74.5	46.5	23.4	17.2	60.3	46.1	429
24-35	28.5	1,085	67.1	36.6	24.0	14.4	53.8	39.3	309
36-47	27.3	1,198	71.5	38.5	30.3	20.8	61.8	44.9	327
48-59	23.6	1,159	65.3	45.9	30.1	24.2	62.4	52.1	273
Sex									
Male	30.4	3,089	72.0	43.0	25.9	18.2	56.9	43.1	938
Female	26.7	2,957	69.8	40.8	21.5	14.9	54.3	42.2	790
Residence									
Urban	26.3	3,013	79.0	47.1	20.6	14.9	57.3	45.9	793
Greater Monrovia	26.4	1,503	83.0	46.7	15.7	10.7	51.7	39.2	396
Other urban	26.2	1,510	74.9	47.5	25.5	19.1	62.9	52.6	396
Rural	30.8	3,034	64.2	37.6	26.7	18.2	54.4	39.9	935
Region									
North Western	36.1	663	69.9	32.5	41.1	23.9	63.9	41.8	240
South Central	28.4	2,485	75.3	45.6	16.8	11.9	52.8	41.8	706
South Eastern A	31.1	463	65.2	48.4	23.5	16.1	46.8	32.5	144
South Eastern B	36.7	466	68.8	46.8	30.1	22.8	53.2	41.2	171
North Central	23.7	1,970	67.7	37.5	23.6	18.2	59.5	48.2	467
County									
Bomi	30.9	160	82.0	40.7	53.2	47.3	71.2	61.4	49
Bong	28.1	739	66.9	36.9	26.4	24.2	57.4	52.5	208
Gbarpolu	40.2	149	57.6	35.3	8.1	3.2	55.7	38.6	60
Grand Bassa	35.1	345	52.2	35.4	12.7	9.4	43.1	33.7	121
Grand Cape Mount	36.8	355	70.9	28.0	51.6	24.5	64.9	35.8	131
Grand Gedeh	28.7	146	66.4	53.4	22.4	11.1	49.8	31.1	42
Grand Kru	33.7	203	61.0	45.4	15.9	12.3	47.2	35.6	68
Lofa	20.3	323	68.0	33.5	29.4	14.5	52.8	33.9	65
Margibi	22.8	448	66.8	42.5	21.8	11.8	62.1	47.8	102
Maryland	37.9	175	71.4	37.4	34.7	24.6	52.5	38.8	66
Montserrado	28.5	1,692	82.9	48.8	16.8	12.6	53.3	42.5	483
Nimba	21.4	908	68.4	39.6	18.6	13.0	64.2	48.3	194
River Cess	31.9	139	58.4	43.2	25.1	17.6	41.8	27.3	44
River Gee	41.3	88	78.6	66.7	48.2	39.3	65.8	56.4	36
Sinoe	32.4	178	69.5	48.8	23.2	18.5	48.5	37.5	58
Mother's education									
No education	26.7	2,508	65.8	39.0	24.0	16.6	53.2	41.7	670
Primary	29.2	1,846	71.0	41.7	27.4	18.5	58.2	43.3	540
Secondary and higher	30.6	1,693	77.6	46.1	20.1	14.9	56.4	43.2	518
Wealth quintile									
Lowest	31.4	1,469	59.9	35.2	25.7	18.8	51.8	38.5	460
Second	29.4	1,350	67.7	42.9	28.1	17.8	59.1	44.4	397
Middle	27.2	1,268	72.9	45.6	23.8	15.0	56.0	39.4	345
Fourth	27.0	1,132	83.2	47.3	18.3	13.1	55.6	44.2	306
Highest	26.6	828	80.1	41.3	20.4	18.0	57.5	51.3	220
Total	28.6	6,047	71.0	41.9	23.9	16.7	55.7	42.7	1,728

[1] Excludes traditional practitioner and drug peddler/black bagger.

Table 12.10 shows the sources of advice or treatment for children under 5 with fever in the two weeks preceding the survey. The public sector was the principal source for advice or treatment (41 percent), followed by the private sector (29 percent) and other sources (12 percent). Government health clinics (26 percent) and government hospitals (12 percent) were the primary public sources of advice or treatment. Private hospitals and clinics (14 percent) and pharmacies (13 percent) were the primary private sources of advice or treatment. Drug peddlers/black baggers were the primary other source of advice or treatment (7 percent).

Table 12.10 Source of advice or treatment for children with fever

Percentage of children under 5 with fever in the two weeks preceding the survey for whom advice or treatment was sought from specific sources; and among children under 5 with fever in the two weeks preceding the survey for whom advice or treatment was sought, the percentage for whom advice or treatment was sought from specific sources, Liberia 2013

Source	Percentage for whom advice or treatment was sought from each source:	
	Among children with fever	Among children with fever for whom advice or treatment was sought
Any public sector source	41.0	51.8
Government hospital	11.5	14.5
Government health center	3.0	3.8
Government health clinic	26.4	33.3
Government community health volunteer	0.1	0.1
Other	0.1	0.2
Any private sector source	28.9	36.5
Private hospital/clinic	14.4	18.2
Pharmacy	12.5	15.7
Private doctor	1.6	2.0
Mobile clinic	0.6	0.7
Other private medical sector	0.1	0.1
Any other source	11.5	14.5
Shop	2.2	2.8
Traditional practitioner	1.7	2.1
Drug peddler/Black bagger	7.4	9.4
Other	0.4	0.5
Number of children	1,728	1,368

As mentioned above, ACT is the first line treatment for uncomplicated malaria. Not all children with fever should necessarily take an ACT because not all have malaria. However, among children with fever who do take an antimalarial, the antimalarial they should receive is ACT. Table 12.11 shows how effectively this policy is being implemented.

Among children under 5 with fever in the two weeks preceding the survey who took antimalarial medication, 43 percent took an ACT. Use of ACT generally increased with age, ranging from about one-third of children 6-11 months (36 percent) to about half of children age 36-47 months and age 48-59 months (49 percent and 48 percent, respectively). Males (46 percent) were more likely to receive ACT, as compared with females (40 percent); rural children (49 percent) were more likely than their urban counterparts (36 percent) to receive ACT. By county, ACT usage among children under 5 with fever in the two weeks preceding the survey who took antimalarial medication varied substantially, ranging from 15 percent in Gbarpolu to 80 percent in Grand Cape Mount.

Table 12.11 Type of antimalarial drugs used

Among children under 5 with fever in the two weeks preceding the survey who took any antimalarial medication, the percentages who took specific antimalarial drugs, by background characteristics, Liberia 2013

Background characteristic	Percentage of children who took drug:						Number of children with fever who took anti-malarial drug
	Any ACT	Quinine	SP/ Fansidar	Chloroquine	Amodiaquine	Other anti-malarial	
Age (in months)							
<6	(29.7)	(24.0)	(21.0)	(27.6)	(30.5)	(0.0)	31
6-11	35.7	12.4	5.9	11.4	41.1	0.5	134
12-23	38.8	7.2	6.0	10.8	46.1	0.1	258
24-35	44.6	4.9	2.1	11.4	40.5	1.0	166
36-47	49.0	2.6	6.7	6.2	40.5	0.4	202
48-59	48.3	3.6	3.4	9.0	42.6	0.3	170
Sex							
Male	45.5	6.9	5.5	8.7	40.6	0.3	534
Female	39.7	6.0	5.5	12.1	44.1	0.4	429
Residence							
Urban	36.0	6.4	5.6	10.1	47.6	0.0	454
Greater Monrovia	30.4	6.1	7.0	9.7	50.6	0.0	205
Other urban	40.6	6.6	4.4	10.4	45.2	0.1	249
Rural	49.0	6.6	5.4	10.4	37.3	0.7	508
Region							
North Western	64.3	4.0	3.3	5.4	29.0	0.0	153
South Central	31.9	7.5	6.8	13.5	50.8	0.4	373
South Eastern A	50.3	8.2	4.7	11.1	30.9	2.2	67
South Eastern B	56.5	9.1	5.6	11.0	26.0	0.7	91
North Central	39.6	5.3	5.1	8.2	45.8	0.0	278
County							
Bomi	74.8	7.3	1.2	1.2	15.5	0.0	35
Bong	46.1	4.4	10.8	5.1	42.8	0.0	119
Gbarpolu	14.5	6.4	13.8	19.2	72.0	0.0	33
Grand Bassa	29.5	20.1	20.0	38.5	50.0	0.0	52
Grand Cape Mount	79.5	1.7	0.0	1.7	17.7	0.0	85
Grand Gedeh	44.9	5.2	0.0	14.9	36.3	0.8	21
Grand Kru	33.8	20.7	15.9	14.7	37.7	2.0	32
Lofa	(55.7)	(3.1)	(0.0)	(6.3)	(34.9)	(0.0)	35
Margibi	35.1	4.5	0.9	13.9	46.7	2.5	63
Maryland	66.2	4.6	0.0	7.5	22.2	0.0	35
Montserrado	31.6	5.6	5.6	8.2	52.0	0.0	257
Nimba	29.0	6.7	1.1	11.6	51.6	0.0	125
River Cess	60.0	6.3	0.0	6.8	26.9	7.0	19
River Gee	73.2	0.0	0.0	10.8	15.9	0.0	24
Sinoe	47.9	11.6	11.4	11.2	29.5	0.0	28
Mother's education							
No education	45.2	7.0	6.8	10.2	40.6	0.6	356
Primary	47.0	4.9	3.2	10.0	42.8	0.4	314
Secondary and higher	35.6	7.5	6.4	10.6	43.4	0.1	292
Wealth quintile							
Lowest	49.6	9.1	6.0	11.5	33.9	0.8	239
Second	47.5	4.9	6.1	9.5	40.5	0.7	235
Middle	42.5	2.6	3.4	7.7	47.4	0.1	193
Fourth	32.9	7.4	4.0	11.2	53.9	0.0	170
Highest	35.5	9.2	8.7	11.7	37.0	0.0	127
Total	42.9	6.5	5.5	10.2	42.2	0.4	963

Note: Figures in parentheses are based on 25-49 unweighted cases.
ACT = Artemisinin-based combination therapy

It is noteworthy that 42 percent of children under 5 with fever in the two weeks preceding the survey who took antimalarial medication reportedly received the antimalarial amodiaquine. In Liberia, ASAQ is colloquially referred to as amodiaquine, making it difficult to distinguish use of the single drug and the combination therapy. Thus, it is possible that many of the children who reportedly received amodiaquine

actually received ASAQ. If so, this would affect the estimate of children with fever who received ACT. Indeed, if all of the children who were reported to have received amodiaquine actually received ASAQ, among children with fever who took an antimalarial, the proportion who took an ACT would double from 43 percent to 85 percent.

HIV/AIDS-RELATED KNOWLEDGE, ATTITUDES, AND BEHAVIOR

13

> **Key Findings**
>
> - Knowledge of AIDS is nearly universal in Liberia. Ninety-seven percent of women and 96 percent of men age 15-49 have heard of AIDS.
> - Comprehensive knowledge about AIDS is low in Liberia: 37 percent of women and 34 percent of men know that use of condoms and having just one uninfected faithful partner can reduce the chances of getting HIV, know that a healthy-looking person can have HIV, and reject the two most common local misconceptions about HIV transmission or prevention.
> - Seventy-one percent of women and 52 percent of men age 15-49 know that HIV can be transmitted by breastfeeding. In addition, 58 percent of women and 35 percent of men know that the risk of mother-to-child transmission can be reduced by a mother taking special drugs during pregnancy.
> - Seven percent of women and 18 percent of men had two or more sexual partners during the 12 months preceding the survey. Among respondents who had two or more partners in the past 12 months, 20 percent of women and 24 percent of men reported using a condom during their most recent sexual intercourse.
> - The mean number of sexual partners in the lifetime of Liberian women and men age 15 – 49 is 4.3 and 13.1, respectively.
> - Point prevalence and cumulative prevalence of concurrent sexual partners among women were 3 percent and 6 percent respectively; among men, point prevalence was 8 percent and cumulative prevalence was 15 percent.
> - Five percent of men had paid for sexual intercourse in the past 12 months; among these men, 61 percent reported using a condom during their most recent paid sexual intercourse.
> - Seventy-six percent of women and 62 percent of men know where to get an HIV test. Forty-five percent of women and 23 percent of men have ever been tested for HIV and received the results of their last test.
> - Fifty percent of women and 17 percent of men reported having a sexually transmitted infection (STI) or symptoms of an STI in the 12 months preceding the survey.

Liberia has a generalized HIV epidemic with a low prevalence of infection among the adult population. Results from the Estimates and Projection Package and the Spectrum (EPP/Spectrum) model indicate that as of July 2013 an estimated 20,120 Liberians (adults and children), out of a total population of about 3.5 million, are living with the virus. Of these, 68 percent (13,740 persons) are estimated to require antiretroviral therapy (MOHSW and NACP, unpublished results).

In Liberia, the main routes of HIV transmission are heterosexual contact and transmission from mother to child during pregnancy, childbirth, and breastfeeding. The prevention of mother-to-child transmission (PMTCT) is a priority in the fight against HIV/AIDS in children. The program seeks primary prevention among childbearing women, including prevention of unintended pregnancies, prevention in children through a single-dose nevirapine regimen, and provision of care and follow-up psychosocial support of women. Tracked through prenatal care HIV sentinel surveillance surveys, the HIV prevalence among pregnant women peaked at 5.6 percent in 2006 and declined to 2.6 percent in 2011 (NAC, 2012).

The future course of Liberia's AIDS epidemic depends on many variables: levels of HIV/AIDS-related knowledge among the general population, social stigmatization, risk behavior modification, access to high-quality services for sexually transmitted infections (STIs), provision and uptake of HIV counseling and testing, and access to care and antiretroviral therapy (ART), including prevention and treatment of opportunistic infections. The principal objective of this chapter is to establish the prevalence of relevant knowledge, perceptions, and behaviors at the national level and also within geographic and socioeconomic subpopulations. In so doing, the National AIDS Control Program in Liberia will be able to better target those groups of individuals most in need of information and most at risk of HIV infection.

This chapter begins by focusing on the 15-49 age group; it concludes with a discussion of findings about young people age 15-24.

13.1   HIV/AIDS KNOWLEDGE, TRANSMISSION, AND PREVENTION METHODS

The 2013 LDHS included a series of questions that addressed respondents' knowledge about HIV and AIDS, their awareness of modes of HIV transmission, and their behaviors to prevent the spread of HIV.

Table 13.1 provides information on overall AIDS knowledge in Liberia. The table shows that AIDS awareness is nearly universal in Liberia: 97 percent of women and 96 percent of men have heard of AIDS. This represents an increase in the proportion of adults who have heard of AIDS; according to the 2007 LDHS, slightly lower percentages (89 percent of women and 93 percent of men) had heard of AIDS.

Awareness of AIDS varies only modestly by background characteristics such as residence, region, county, education, and wealth quintile. For example, whereas 99 percent of women and 98 percent of men living in urban areas have heard of AIDS, 95 percent of women and 94 percent of men living in rural areas have heard of AIDS. In addition, women and men from Grand Kru (85 percent and 82 percent, respectively) and Lofa (84 percent and 77 percent, respectively) are less likely than those from other counties to have heard of AIDS. The percentages increase with a rising level of education and wealth.

HIV/AIDS prevention programs in Liberia focus their messages and efforts on three important aspects of behavior: use of condoms, limiting the number of sexual partners or staying faithful to one partner, and preventing maternal transmission and delaying onset of sexual debut among young people (i.e., abstinence). Table 13.2 shows that 75 percent of both women and men age 15-49 know that consistent use of condoms is a means of preventing the spread of HIV. Seventy-nine percent of women and 78 percent of men know that limiting sexual intercourse to one faithful and uninfected partner can reduce the chances of contracting HIV. The proportion knowing that both those using condoms and limiting sexual intercourse to one uninfected partner reduces risk is 68 percent among both women and men.

Table 13.1 Knowledge of AIDS

Percentage of women and men age 15-49 who have heard of AIDS, by background characteristics, Liberia 2013

Background characteristic	Women		Men	
	Has heard of AIDS	Number of women	Has heard of AIDS	Number of men
Age				
15-24	97.1	3,722	92.8	1,587
15-19	96.8	2,080	89.3	890
20-24	97.4	1,642	97.4	696
25-29	97.9	1,611	97.0	673
30-39	97.5	2,378	98.8	1,044
40-49	96.9	1,528	98.6	814
Marital status				
Never married	97.6	2,867	92.7	1,749
Ever had sex	98.3	2,230	97.3	1,171
Never had sex	95.3	637	83.4	578
Married/Living together	97.0	5,386	98.7	2,218
Divorced/Separated/Widowed	97.9	987	98.5	151
Residence				
Urban	99.1	5,633	97.5	2,413
Greater Monrovia	99.7	3,361	99.0	1,433
Other urban	98.1	2,272	95.4	980
Rural	94.6	3,606	94.3	1,705
Region				
North Western	98.2	837	98.7	367
South Central	99.3	4,854	98.8	2,149
South Eastern A	94.0	483	94.2	254
South Eastern B	91.3	577	91.7	288
North Central	95.2	2,488	91.5	1,060
County				
Bomi	97.5	244	97.7	97
Bong	98.2	894	96.7	389
Gbarpolu	97.9	182	100.0	94
Grand Bassa	95.0	434	97.9	204
Grand Cape Mount	98.8	412	98.5	176
Grand Gedeh	97.3	167	97.4	82
Grand Kru	85.4	217	81.9	110
Lofa	83.9	447	76.9	219
Margibi	99.9	744	98.9	364
Maryland	96.8	257	97.6	123
Montserrado	99.7	3,675	99.0	1,582
Nimba	97.2	1,147	94.2	451
River Cess	93.5	135	97.2	64
River Gee	90.0	103	98.1	55
Sinoe	91.2	182	89.9	108
Education				
No education	94.9	3,066	92.1	533
Primary	97.0	2,875	92.3	1,202
Secondary and higher	99.9	3,298	99.0	2,383
Wealth quintile				
Lowest	92.5	1,581	93.0	749
Second	94.8	1,624	93.6	753
Middle	98.2	1,779	95.1	728
Fourth	99.7	2,047	99.1	864
Highest	99.7	2,207	98.7	1,024
Total	97.3	9,239	96.2	4,118

Table 13.2 also presents differences in the levels of knowledge of prevention methods by background characteristics. Differences in knowledge by age among women are minor; however young men age 15-19 have markedly lower levels of knowledge than those in older age groups. By marital status, women who have never been married and have never had sex are least likely to know that using condoms and limiting sexual intercourse to one uninfected partner reduces the risk of HIV transmission (55 percent); women who have never been married but have had sex are the most likely to know that using condoms and limiting sexual

intercourse to one uninfected partner reduces the risk of HIV transmission (72 percent). Among men, those who have never been married and never had sex are least likely to be aware that using condoms and limiting sexually intercourse to one uninfected partner reduces the risk of HIV transmission (36 percent); men who have been married previously are most likely to be aware of HIV prevention methods (84 percent).

Table 13.2 Knowledge of HIV prevention methods

Percentage of women and men age 15-49 who, in response to prompted questions, say that people can reduce the risk of getting HIV by using condoms every time they have sexual intercourse, and by having one sex partner who is not infected and has no other partners, by background characteristics, Liberia 2013

	Women				Men			
Background characteristic	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Number of women	Using condoms[1]	Limiting sexual intercourse to one uninfected partner[2]	Using condoms and limiting sexual intercourse to one uninfected partner[1,2]	Number of men
Age								
15-24	73.2	77.7	66.6	3,722	66.9	70.7	59.3	1,587
15-19	70.6	77.3	64.7	2,080	57.3	62.6	49.1	890
20-24	76.4	78.3	69.1	1,642	79.2	81.1	72.4	696
25-29	80.3	82.5	73.0	1,611	81.1	84.3	75.5	673
30-39	76.0	79.1	68.1	2,378	79.3	80.7	71.9	1,044
40-49	72.7	78.3	65.7	1,528	80.4	85.4	75.8	814
Marital status								
Never married	74.7	79.1	68.3	2,867	69.1	72.4	61.5	1,749
Ever had sex	77.9	81.9	72.2	2,230	82.2	81.6	74.0	1,171
Never had sex	63.6	69.3	54.5	637	42.8	53.7	36.3	578
Married/Living together	74.9	78.8	67.6	5,386	78.6	82.6	72.8	2,218
Divorced/Separated/ Widowed	77.2	79.9	69.1	987	91.4	85.1	84.3	151
Residence								
Urban	78.7	82.2	72.0	5,633	78.1	82.1	71.9	2,413
Greater Monrovia	81.4	84.5	75.0	3,361	80.6	86.1	75.5	1,433
Other urban	74.7	78.8	67.4	2,272	74.3	76.3	66.5	980
Rural	69.4	74.1	61.7	3,606	70.8	73.0	63.5	1,705
Region								
North Western	72.5	72.7	61.7	837	87.5	87.3	82.7	367
South Central	79.1	82.6	72.8	4,854	77.1	81.4	70.7	2,149
South Eastern A	70.6	71.2	60.8	483	78.3	79.0	71.5	254
South Eastern B	64.9	73.2	59.1	577	66.0	68.6	58.4	288
North Central	71.2	77.0	64.2	2,488	68.2	71.5	60.7	1,060
County								
Bomi	80.0	90.9	78.8	244	85.7	83.4	77.3	97
Bong	78.5	86.5	72.2	894	69.8	72.0	62.4	389
Gbarpolu	69.8	72.6	59.1	182	86.9	89.6	84.4	94
Grand Bassa	52.6	56.7	42.0	434	58.2	63.3	49.0	204
Grand Cape Mount	69.2	61.9	52.8	412	88.8	88.1	84.7	176
Grand Gedeh	70.5	66.4	57.5	167	77.0	79.5	67.4	82
Grand Kru	56.3	69.1	50.9	217	49.2	55.8	44.7	110
Lofa	65.1	76.2	63.5	447	48.8	55.4	40.9	219
Margibi	85.8	91.6	81.7	744	83.7	84.6	75.6	364
Maryland	70.3	76.6	66.0	257	73.3	74.5	62.4	123
Montserrado	80.9	83.9	74.6	3,675	78.0	83.0	72.4	1,582
Nimba	67.9	70.0	58.1	1,147	76.2	78.8	68.8	451
River Cess	77.7	81.0	71.6	135	89.6	92.3	87.6	64
River Gee	69.4	73.3	59.2	103	83.2	80.9	76.9	55
Sinoe	65.3	68.3	56.0	182	72.5	70.6	65.0	108
Education								
No education	67.5	73.3	60.1	3,066	62.0	62.6	52.6	533
Primary	73.2	77.2	66.1	2,875	64.9	69.6	56.9	1,202
Secondary and higher	83.7	86.0	76.9	3,298	83.1	86.3	77.7	2,383
Wealth quintile								
Lowest	64.4	69.7	56.2	1,581	66.5	69.6	59.8	749
Second	71.2	75.7	63.4	1,624	72.9	75.3	65.6	753
Middle	73.4	78.2	66.0	1,779	72.6	75.0	63.5	728
Fourth	78.8	80.9	71.3	2,047	79.0	81.1	72.2	864
Highest	83.4	87.1	78.2	2,207	81.2	87.1	77.1	1,024
Total	75.1	79.0	68.0	9,239	75.0	78.3	68.4	4,118

[1] Using condoms every time they have sexual intercourse
[2] Partner who has no other partners

By residence, women living in Greater Monrovia are more likely to be knowledgeable about HIV prevention methods than their counterparts residing in either other urban areas or rural areas. The same pattern is true for men. Knowledge that using condoms and limiting sexual intercourse to one uninfected partner are both HIV prevention methods varies across counties, with the lowest percentages in Grand Bassa for women (42 percent) and Lofa for men (41 percent). Better educated and wealthier respondents are generally more knowledgeable of HIV prevention methods than other respondents.

Knowledge of HIV prevention methods among women has increased since 2007. According to the 2007 LDHS, 44 percent of women knew that HIV could be prevented by using a condom and by limiting sexual partners; this compares with 68 percent in 2013. Among men, the percentage has remained stable (66 percent in 2007 compared with 68 percent in 2013).

As part of the effort to assess HIV/AIDS knowledge, the 2013 LDHS also obtained information on several common misconceptions about HIV transmission. Respondents were asked whether they think it is possible for a healthy-looking person to have HIV and whether people can get HIV from mosquito bites, by supernatural means, or from sharing food with a person who has AIDS. The latter question is especially important because in a recent study among persons living with HIV/AIDS in Liberia, many respondents who had experienced stigma or discrimination believed this occurred because people feared getting infected through casual contact and/or because they do not know the modes of HIV transmission (NAC, 2014).

Tables 13.3.1 and 13.3.2 show the proportions of women and men who know that a healthy-looking person can have HIV and who reject common misconceptions about HIV/AIDS transmission. Seventy-three percent of women and 75 percent of men agreed that a healthy-looking person can have HIV. Regarding misconceptions about avenues of infection, only 66 percent of women and 58 percent of men said that HIV cannot be transmitted by mosquito bites. Seventy-nine percent of women and men knew that HIV cannot be transmitted by supernatural means. Also, 75 percent of women and 73 percent of men said a person cannot become infected by sharing food with a person who has AIDS.

Two composite measures of HIV/AIDS knowledge are included in Tables 13.3.1 and 13.3.2. The first measure indicates that under half of women (46 percent) and men (43 percent) know that the two most common misconceptions about HIV/AIDS (i.e., HIV can be transmitted by mosquito bites or by sharing food with a person who has AIDS) are incorrect and also are aware that a healthy-looking person can have HIV. The second measure shows that about a third of Liberian women (37 percent) and men (34 percent) have what can be considered comprehensive knowledge of HIV/AIDS prevention and transmission; that is, they know that both condom use and limiting sexual intercourse to one uninfected partner can prevent HIV, they are aware that a healthy-looking person can have HIV, and they reject the two most common local misconceptions (that HIV can be transmitted through mosquitoes and that a person can become infected with HIV by sharing food with a person who has AIDS).

Table 13.3.1 Comprehensive knowledge about AIDS: Women

Percentage of women age 15-49 who say that a healthy-looking person can have HIV and who, in response to prompted questions, correctly reject local misconceptions about transmission or prevention of HIV, and the percentage with a comprehensive knowledge about AIDS, by background characteristics, Liberia 2013

Background characteristic	Percentage of women who say that:				Percentage who say that a healthy looking person can have HIV and who reject the two most common local misconceptions[1]	Percentage with a comprehensive knowledge about AIDS[2]	Number of women
	A healthy-looking person can have HIV	HIV cannot be transmitted by mosquito bites	HIV cannot be transmitted by supernatural means	A person cannot become infected by sharing food with a person who has AIDS			
Age							
15-24	72.1	66.6	79.8	74.2	45.2	35.7	3,722
15-19	68.0	67.4	78.4	70.8	43.3	34.6	2,080
20-24	77.4	65.7	81.5	78.5	47.5	37.1	1,642
25-29	77.4	69.0	80.9	80.4	51.0	41.5	1,611
30-39	73.2	65.5	78.2	74.6	45.2	36.6	2,378
40-49	67.1	63.3	74.9	69.6	41.1	33.6	1,528
Marital status							
Never married	73.6	69.4	81.5	75.6	48.2	39.2	2,867
Ever had sex	77.4	71.6	84.2	78.4	51.4	42.4	2,230
Never had sex	60.4	61.9	72.1	65.8	37.1	27.9	637
Married/Living together	71.2	64.4	77.6	74.1	43.9	34.9	5,386
Divorced/Separated/ Widowed	75.8	66.3	76.9	74.7	46.7	38.3	987
Residence							
Urban	80.4	71.3	82.1	80.6	53.5	43.1	5,633
Greater Monrovia	85.4	74.0	84.4	85.5	60.9	50.0	3,361
Other urban	72.8	67.3	78.6	73.4	42.7	32.8	2,272
Rural	60.1	58.3	73.6	65.3	33.1	26.5	3,606
Region							
North Western	68.5	57.5	74.2	68.0	38.9	29.6	837
South Central	78.9	71.9	83.0	80.7	54.3	45.1	4,854
South Eastern A	63.4	61.8	76.9	72.1	39.5	29.3	483
South Eastern B	60.2	63.8	75.7	67.8	37.2	29.8	577
North Central	65.8	59.5	73.1	67.1	33.8	25.3	2,488
County							
Bomi	83.9	70.2	83.4	79.0	57.3	49.7	244
Bong	62.0	62.7	73.9	70.5	34.3	25.7	894
Gbarpolu	57.5	57.9	69.8	65.2	31.5	21.9	182
Grand Bassa	45.9	63.8	71.7	64.7	28.3	20.3	434
Grand Cape Mount	64.2	49.8	70.7	62.8	31.3	21.0	412
Grand Gedeh	68.9	71.5	83.3	76.7	46.0	30.1	167
Grand Kru	55.1	63.6	71.0	59.1	34.7	27.9	217
Lofa	60.1	56.0	74.7	64.8	38.8	35.2	447
Margibi	71.0	67.6	83.0	68.3	41.0	38.3	744
Maryland	62.8	67.7	82.0	77.0	41.8	34.9	257
Montserrado	84.4	73.7	84.3	85.1	60.0	49.4	3,675
Nimba	71.0	58.3	71.9	65.3	31.5	21.2	1,147
River Cess	61.2	54.7	76.4	74.3	35.7	32.2	135
River Gee	64.5	54.5	69.7	63.0	30.8	21.2	103
Sinoe	60.0	58.3	71.3	66.2	36.5	26.4	182
Education							
No education	59.7	57.5	70.4	63.2	32.4	24.6	3,066
Primary	68.7	62.7	77.8	71.3	38.7	30.5	2,875
Secondary and higher	87.6	77.4	87.3	88.1	63.8	53.0	3,298
Wealth quintile							
Lowest	52.3	54.8	68.9	60.2	27.2	21.2	1,581
Second	62.6	61.6	74.1	68.2	34.6	27.5	1,624
Middle	74.0	65.1	77.5	73.5	43.6	33.0	1,779
Fourth	78.6	70.8	84.1	79.6	52.7	41.7	2,047
Highest	87.2	74.4	85.3	85.9	61.7	52.4	2,207
Total	72.5	66.2	78.8	74.6	45.5	36.6	9,239

[1] Two most common local misconceptions: HIV can be transmitted by mosquito bites and by sharing food with a person who has AIDS.
[2] Comprehensive knowledge means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about AIDS transmission or prevention.

Table 13.3.2 Comprehensive knowledge about AIDS: Men

Percentage of men age 15-49 who say that a healthy-looking person can have HIV and who, in response to prompted questions, correctly reject local misconceptions about transmission or prevention of HIV, and the percentage with a comprehensive knowledge about AIDS, by background characteristics, Liberia 2013

| Background characteristic | Percentage of men who say that: | | | | Percentage who say that a healthy looking person can have HIV and who reject the two most common local misconceptions[1] | Percentage with a comprehensive knowledge about AIDS[2] | Number of men |
	A healthy-looking person can have HIV	HIV cannot be transmitted by mosquito bites	HIV cannot be transmitted by supernatural means	A person cannot become infected by sharing food with a person who has AIDS			
Age							
15-24	70.3	58.7	77.3	70.0	40.8	28.5	1,587
15-19	61.2	53.2	70.2	61.5	32.2	19.0	890
20-24	81.9	65.6	86.4	80.9	51.8	40.6	696
25-29	79.6	61.9	84.7	78.3	49.0	41.9	673
30-39	77.0	55.9	78.9	75.3	42.4	35.5	1,044
40-49	77.6	57.8	78.9	72.5	42.8	36.4	814
Marital status							
Never married	70.6	58.9	78.2	71.4	42.7	31.3	1,749
Ever had sex	78.8	63.2	87.0	81.5	49.8	40.0	1,171
Never had sex	54.1	50.1	60.2	50.9	28.5	13.5	578
Married/Living together	77.7	57.5	79.7	74.2	42.6	35.4	2,218
Divorced/Separated/ Widowed	85.7	63.3	84.2	78.5	50.5	45.1	151
Residence							
Urban	81.1	67.8	83.0	79.6	52.8	41.8	2,413
Greater Monrovia	85.3	75.9	86.6	81.4	60.6	49.6	1,433
Other urban	74.9	56.0	77.7	77.1	41.3	30.5	980
Rural	66.3	44.9	74.0	64.1	29.0	22.9	1,705
Region							
North Western	74.1	57.0	80.7	71.1	42.4	38.5	367
South Central	82.8	67.2	84.4	78.5	52.2	40.9	2,149
South Eastern A	67.1	54.5	81.5	71.8	37.6	31.0	254
South Eastern B	65.9	43.1	71.1	59.9	29.2	22.7	288
North Central	63.8	45.8	70.0	67.1	29.3	22.3	1,060
County							
Bomi	81.9	54.7	78.5	76.8	43.9	38.8	97
Bong	70.2	40.8	65.3	65.4	28.3	22.8	389
Gbarpolu	76.6	63.3	77.3	72.1	46.7	42.3	94
Grand Bassa	70.1	42.8	77.8	68.5	27.4	13.9	204
Grand Cape Mount	68.5	54.9	83.7	67.5	39.4	36.3	176
Grand Gedeh	74.5	66.4	89.4	82.5	46.8	34.3	82
Grand Kru	52.1	32.6	61.2	48.8	19.7	13.4	110
Lofa	49.7	31.8	64.8	53.1	19.7	12.5	219
Margibi	79.2	50.1	79.1	71.8	35.8	29.9	364
Maryland	76.2	50.5	74.4	63.9	34.4	26.6	123
Montserrado	85.2	74.3	86.5	81.3	59.2	46.9	1,582
Nimba	65.1	56.9	76.5	75.3	34.9	26.8	451
River Cess	69.5	55.7	86.7	76.9	36.3	34.9	64
River Gee	70.0	47.5	83.6	73.3	36.4	32.4	55
Sinoe	60.0	44.7	72.4	60.6	31.3	26.2	108
Education							
No education	57.9	38.6	58.8	52.4	22.7	16.5	533
Primary	62.6	45.8	66.9	59.0	25.6	18.8	1,202
Secondary and higher	85.0	69.1	90.0	85.0	56.2	45.6	2,383
Wealth quintile							
Lowest	60.1	40.9	69.8	59.6	24.7	18.9	749
Second	69.0	45.1	75.6	65.4	29.5	24.0	753
Middle	73.6	55.3	77.8	75.5	40.2	30.1	728
Fourth	81.9	70.0	82.1	80.9	54.0	41.9	864
Highest	85.4	73.0	87.5	80.7	58.8	48.6	1,024
Total	75.0	58.3	79.2	73.2	42.9	34.0	4,118

[1] Two most common local misconceptions: HIV can be transmitted by mosquito bites and by sharing food with a person who has AIDS.
[2] Comprehensive knowledge means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about AIDS transmission or prevention.

Male respondents age 15-19 and female and male respondents who have never been married and never had sex are less likely to have comprehensive knowledge of HIV/AIDS than older male respondents, never-married women and men who have had sex, and those who have been married. Women and men in Greater Monrovia are more likely than those in other urban areas or rural areas to have comprehensive knowledge. By county, comprehensive knowledge is highest among women in Bomi (50 percent) and Montserrado (49 percent) and among men in Montserrado (47 percent). Conversely, comprehensive knowledge is particularly low among women in Gbarpolu, Grand Bassa, Grand Cape Mount, Nimba, and River Gee (20-22 percent) and men residing in Lofa (13 percent), Grand Kru (13 percent), and Grand Bassa (14 percent). Among both women and men, comprehensive knowledge of HIV/AIDS rises steadily with increasing education level and wealth quintile.

Although comprehensive knowledge of HIV/AIDS is relatively low in Liberia, a comparison with the 2007 LDHS reveals a slight improvement. According to the 2007 LDHS, comprehensive knowledge among women and men was 19 percent and 32 percent, compared with 37 and 34 percent in 2013, respectively.

13.2 KNOWLEDGE ABOUT MOTHER-TO-CHILD TRANSMISSION

In Liberia, a program aimed at preventing mother-to-child-transmission of HIV (PMTCT) has been in place since 2004. With support from the Global Fund and other partners, efforts to strengthen the program kicked off in 2008. The National AIDS Control Program (NACP) dramatically increased the number of sites offering PMTCT services, from 29 in 2008 to 335 in September 2012. Now nearly half of all health facilities providing prenatal care services offer PMTCT services. With these interventions in place, the recent PMTCT impact study estimated the maternal transmission rate among a cohort of HIV/AIDS positive mothers at below 14 percent. In the absence of these interventions, the transmission rate was estimated at 31 percent (NACP and MOHSW, 2013).

In accordance with the increase in the availability of PMTCT services, increasing the level of general knowledge about HIV transmission and reducing the risk of transmission using antiretroviral drugs are critical in reducing mother-to-child transmission of HIV (MTCT). To assess knowledge, respondents were asked whether HIV can be transmitted from a mother to a child through breastfeeding and whether a mother with HIV can reduce the risk of transmission to her baby by taking certain drugs during pregnancy.

Table 13.4 shows that women are more aware than men that HIV can be transmitted through breastfeeding (71 percent versus 52 percent) and that the risk of MTCT can be reduced by taking special drugs (58 percent versus 35 percent). Overall, 51 percent of women and 27 percent of men are aware both that HIV can be transmitted through breastfeeding and that this risk can be reduced by taking special drugs. According to the 2007 LDHS, only 12 percent of women and 14 percent of men were aware both that HIV can be transmitted through breastfeeding and that this risk can be reduced by taking special drugs; thus, there has been a substantial increase in knowledge about MTCT in Liberia since 2007.

By age, MTCT knowledge levels are highest among women age 20-24 and men age 25-29. Although knowledge levels are higher among women and men who have ever had sex or were ever married than those who never had sex, little difference in knowledge is seen among women who are currently pregnant versus women who are not pregnant. MTCT knowledge is higher among both women and men who live in urban areas compared with those who live in rural areas. Knowledge also varies widely by county, and generally increases with educational attainment and wealth quintile.

Percentage of women and men age 15-49 who know that HIV can be transmitted from mother to child by breastfeeding and that the risk of mother-to-child transmission (MTCT) of HIV can be reduced by the mother taking special drugs during pregnancy, by background characteristics, Liberia 2013

	Women				Men			
	Percentage who know that:				Percentage who know that:			
Background characteristic	HIV can be transmitted by breastfeeding	Risk of MTCT can be reduced by mother taking special drugs during pregnancy	HIV can be transmitted by breastfeeding and risk of MTCT can be reduced by mother taking special drugs during pregnancy	Number of women	HIV can be transmitted by breastfeeding	Risk of MTCT can be reduced by mother taking special drugs during pregnancy	HIV can be transmitted by breastfeeding and risk of MTCT can be reduced by mother taking special drugs during pregnancy	Number of men
Age								
15-24	69.3	56.1	50.7	3,722	46.5	29.1	23.6	1,587
15-19	62.9	47.8	42.4	2,080	40.4	20.4	17.3	890
20-24	77.4	66.6	61.2	1,642	54.3	40.1	31.6	696
25-29	74.1	64.9	56.6	1,611	57.9	44.4	34.4	673
30-39	73.1	58.4	51.8	2,378	54.4	36.0	27.0	1,044
40-49	68.2	53.8	46.5	1,528	56.2	34.9	27.0	814
Marital status								
Never married	66.8	56.4	49.3	2,867	47.2	32.5	25.9	1,749
Ever had sex	70.3	62.4	54.3	2,230	56.6	42.1	33.0	1,171
Never had sex	54.8	35.3	32.0	637	28.2	12.9	11.4	578
Married/Living together	72.7	58.1	52.2	5,386	56.0	35.6	27.4	2,218
Divorced/Separated/ Widowed	73.3	60.9	52.6	987	56.8	42.2	31.0	151
Currently pregnant								
Pregnant	73.0	58.9	51.8	765	na	na	na	na
Not pregnant or not sure	70.8	57.7	51.3	8,474	na	na	na	na
Residence								
Urban	75.1	65.2	57.8	5,633	54.6	41.0	31.6	2,413
Greater Monrovia	76.7	68.4	59.4	3,361	54.1	44.5	34.7	1,433
Other urban	72.6	60.3	55.3	2,272	55.2	36.0	27.0	980
Rural	64.5	46.4	41.3	3,606	49.0	25.2	20.3	1,705
Region								
North Western	67.6	45.1	40.5	837	53.7	29.5	24.5	367
South Central	75.3	64.6	57.6	4,854	54.2	39.5	31.3	2,149
South Eastern A	67.0	46.5	41.0	483	48.2	35.3	25.7	254
South Eastern B	60.3	48.1	40.4	577	51.5	31.6	26.5	288
North Central	66.7	53.5	47.4	2,488	49.1	26.6	19.1	1,060
County								
Bomi	68.8	57.5	50.0	244	56.0	26.2	21.1	97
Bong	64.1	44.7	39.8	894	52.5	27.3	22.9	389
Gbarpolu	61.8	34.4	31.9	182	59.6	51.2	39.4	94
Grand Bassa	64.7	37.1	35.4	434	63.8	29.7	23.2	204
Grand Cape Mount	69.6	42.4	38.8	412	49.3	19.7	18.3	176
Grand Gedeh	72.5	58.7	52.6	167	51.7	51.0	33.5	82
Grand Kru	41.5	41.1	25.8	217	48.6	28.7	26.2	110
Lofa	49.4	47.9	34.4	447	37.4	12.7	10.8	219
Margibi	75.2	65.0	62.0	744	47.7	27.5	23.9	364
Maryland	72.5	55.5	51.9	257	56.2	39.6	30.6	123
Montserrado	76.6	67.7	59.3	3,675	54.5	43.5	34.1	1,582
Nimba	75.5	62.5	58.3	1,147	51.7	32.8	19.9	451
River Cess	66.1	30.6	27.7	135	56.3	19.4	17.3	64
River Gee	69.8	44.3	42.4	103	47.0	19.1	17.6	55
Sinoe	62.7	47.2	40.1	182	40.7	32.9	24.8	108
Education								
No education	65.4	48.7	43.6	3,066	41.1	18.3	12.5	533
Primary	66.6	52.0	45.7	2,875	46.2	22.4	18.6	1,202
Secondary and higher	79.8	71.4	63.4	3,298	57.8	44.2	34.3	2,383
Wealth quintile								
Lowest	58.2	38.8	33.3	1,581	48.9	23.5	19.0	749
Second	64.9	48.2	43.5	1,624	50.8	28.1	21.0	753
Middle	73.4	59.5	54.0	1,779	53.2	31.2	25.1	728
Fourth	79.2	69.2	62.7	2,047	48.5	34.9	27.5	864
Highest	74.8	66.7	57.3	2,207	58.3	49.2	37.8	1,024
Total	70.9	57.8	51.3	9,239	52.3	34.5	26.9	4,118

na = Not applicable

13.3   ATTITUDES TOWARD PEOPLE LIVING WITH HIV/AIDS

Widespread stigma and discrimination against people living with HIV/AIDS can adversely affect both people's willingness to be tested for HIV and their adherence to antiretroviral therapy (ART). Indeed, HIV/AIDS-related stigma and discrimination undermine HIV prevention efforts by making people afraid to seek out information about how to reduce their risk of exposure to HIV and to adapt safer behavior, in case the inquiry itself raises suspicion about their HIV status. Since 2005, a number of organizations in Liberia have campaigned against stigma and discrimination and fought for improved rights for people living with HIV (NAC, 2014). The reduction of stigma and discrimination in the population is thus an important indicator of the success of programs targeting HIV/AIDS prevention and control.

In the 2013 LDHS, respondents who had heard of AIDS were asked a number of questions to assess the level of stigma associated with HIV/AIDS. Respondents were asked about their willingness or unwillingness to buy vegetables from an infected shopkeeper or vendor, to let others know the HIV status of family members, and to take care of a member of their family with AIDS in their own household. They were also asked whether an HIV-positive female teacher who is not sick should be allowed to continue teaching. Tables 13.5.1 and 13.5.2 present results for women and men, respectively.

Women and especially men tend to express more accepting attitudes toward HIV-infected relatives than toward shopkeepers or teachers. Sixty-nine percent of women and 74 percent of men would be willing to care for a relative with AIDS in their home. In contrast, only 44 percent of women and 50 percent of men indicate they would buy vegetables from a shopkeeper with HIV, and 49 percent of women and 52 percent of men agreed that a female teacher with HIV should be allowed to continue teaching. Four in ten women (43 percent) and six in ten men (57 percent) indicated that they would not want to keep secret that a family member was infected with HIV. Overall, only 7 percent of women and 14 percent of men expressed accepting attitudes with regard to all four situations (i.e., they would care for a family member with AIDS in their own home, would buy fresh vegetables from a shopkeeper with HIV, would allow an HIV-positive female teacher to continue teaching, and would not want to keep the HIV-positive status of a family member a secret). In contrast, according to the 2007 LDHS, 13 percent of women and 22 percent of men expressed accepting attitudes regarding these same four situations. Thus, since 2007, there has been no measurable improvement, and stigma associated with HIV has perhaps increased. This is of concern because, as previously discussed, stigma prevents or delays persons getting tested for HIV and, among those living with HIV, stigma prevents them from seeking care and treatment services (NACP and MOHSW, 2014).

There were associations between stigma levels and most of the background characteristics shown in Tables 13.5.1 and 13.5.2. Accepting attitudes were more common among urban than rural residents. There were marked differences by region and county in the proportions of women and men expressing accepting attitudes. Accepting attitudes on three indicators (i.e., they would care for a family member with AIDS in their own home, would buy fresh food from a shopkeeper with HIV, and would allow an HIV-positive female teacher to continue teaching) generally increased with increasing education level and wealth quintile. The exception was in the percentages of women and men who would not want to keep the HIV-positive status of a family member a secret, which generally was highest among those with no education and those in the lowest two wealth quintiles.

Table 13.5.1 Accepting attitudes toward those living with HIV/AIDS: Women

Among women age 15-49 who have heard of AIDS, percentage expressing specific accepting attitudes toward people with HIV/AIDS, by background characteristics, Liberia 2013

| Background characteristic | Percentage of women who: | | | | | |
	Are willing to care for a family member with AIDS in the respondent's home	Would buy fresh vegetables from shopkeeper who has HIV	Say that a female teacher who has HIV but is not sick should be allowed to continue teaching	Would not want to keep secret that a family member got infected with HIV	Percentage expressing acceptance attitudes on all four indicators	Number of respondents who have heard of AIDS
Age						
15-24	69.7	43.4	51.3	41.4	6.5	3,614
15-19	67.0	41.0	49.4	40.9	6.2	2,014
20-24	73.1	46.6	53.7	41.9	6.9	1,599
25-29	70.9	48.5	48.4	40.4	6.6	1,577
30-39	68.0	44.5	49.4	43.3	7.7	2,320
40-49	65.7	41.4	42.0	46.0	4.8	1,480
Marital status						
Never married	69.4	46.3	53.1	39.8	7.6	2,799
Ever had sex	70.9	49.3	54.1	39.6	7.8	2,192
Never had sex	64.0	35.6	49.5	40.9	6.8	607
Married/Living together	68.0	42.5	46.4	44.6	6.3	5,226
Divorced/Separated/Widowed	71.5	47.7	49.0	38.7	5.1	966
Residence						
Urban	74.0	49.5	55.3	37.7	6.8	5,580
Greater Monrovia	78.4	54.8	60.8	30.9	7.0	3,351
Other urban	67.3	41.7	47.0	47.9	6.5	2,229
Rural	60.4	35.6	38.2	50.2	6.1	3,411
Region						
North Western	59.9	38.8	41.2	52.3	7.1	822
South Central	76.2	51.7	57.7	33.4	7.1	4,820
South Eastern A	72.2	42.9	51.9	35.1	4.0	454
South Eastern B	71.6	38.1	43.4	46.5	7.7	526
North Central	55.6	32.7	33.9	58.1	5.4	2,368
County						
Bomi	68.9	60.6	62.9	47.4	11.7	238
Bong	56.4	35.8	31.7	49.8	5.2	878
Gbarpolu	63.7	36.6	37.8	53.2	7.0	178
Grand Bassa	79.5	40.3	34.2	31.1	4.1	412
Grand Cape Mount	52.9	27.1	29.9	54.7	4.4	407
Grand Gedeh	72.1	51.2	60.9	35.2	6.2	162
Grand Kru	59.2	27.4	28.6	61.2	6.6	185
Lofa	50.4	37.4	38.0	61.3	7.4	375
Margibi	64.4	44.9	60.1	44.3	9.2	743
Maryland	79.0	42.8	52.1	38.4	8.4	248
Montserrado	78.3	54.3	59.9	31.4	7.1	3,664
Nimba	56.7	28.7	34.2	63.5	4.9	1,115
River Cess	76.3	41.3	49.0	24.7	0.4	126
River Gee	76.7	47.0	49.5	38.5	8.1	93
Sinoe	69.3	36.0	45.4	42.8	4.6	166
Education						
No education	59.7	31.4	33.2	51.1	4.5	2,908
Primary	62.9	37.5	42.6	47.0	5.4	2,789
Secondary and higher	81.9	61.4	67.8	31.0	9.4	3,294
Wealth quintile						
Lowest	60.2	33.5	34.2	49.1	4.5	1,462
Second	60.0	33.5	36.0	53.9	5.8	1,539
Middle	62.3	39.0	42.3	48.1	6.2	1,747
Fourth	73.8	49.7	56.8	38.8	7.0	2,042
Highest	81.2	58.1	65.1	28.9	8.3	2,201
Total	68.8	44.3	48.8	42.5	6.6	8,991

Table 13.5.2 Accepting attitudes toward those living with HIV/AIDS: Men

Among men age 15-49 who have heard of HIV/AIDS, percentage expressing specific accepting attitudes toward people with HIV/AIDS, by background characteristics, Liberia 2013

| | Percentage of men who: | | | | | |
Background characteristic	Are willing to care for a family member with AIDS in the respondent's home	Would buy fresh vegetables from shopkeeper who has HIV	Say that a female teacher who has HIV but is not sick should be allowed to continue teaching	Would not want to keep secret that a family member got infected with HIV	Percentage expressing acceptance attitudes on all four indicators	Number of respondents who have heard of AIDS
Age						
15-24	72.3	43.8	47.0	54.1	10.3	1,473
15-19	68.7	37.7	40.6	54.6	8.2	795
20-24	76.5	51.1	54.5	53.6	12.8	679
25-29	76.8	55.5	64.1	55.3	18.7	652
30-39	72.6	49.3	50.9	61.3	15.5	1,032
40-49	77.8	55.1	54.5	55.6	16.8	803
Marital status						
Never married	73.4	45.6	50.7	51.9	10.5	1,622
Ever had sex	78.5	51.9	58.2	49.4	11.8	1,139
Never had sex	61.3	30.9	33.1	57.8	7.7	482
Married/Living together	74.4	51.7	53.0	59.9	17.0	2,189
Divorced/Separated/Widowed	80.7	59.0	61.0	56.0	17.2	149
Residence						
Urban	79.6	54.5	60.0	50.7	15.0	2,353
Greater Monrovia	82.1	56.4	67.6	46.8	16.3	1,418
Other urban	75.9	51.5	48.6	56.6	13.1	935
Rural	66.4	42.1	41.2	64.9	13.4	1,607
Region						
North Western	69.4	45.4	48.2	74.8	21.3	362
South Central	78.0	57.0	63.4	48.9	16.0	2,125
South Eastern A	80.6	53.6	55.6	57.3	17.6	239
South Eastern B	77.1	42.3	44.3	52.7	8.8	264
North Central	65.4	35.4	31.2	67.0	8.9	970
County						
Bomi	78.0	39.1	57.0	79.9	22.8	95
Bong	50.7	30.7	24.1	65.6	7.1	376
Gbarpolu	81.1	49.1	47.8	59.8	18.6	94
Grand Bassa	68.7	51.7	46.8	62.5	15.1	199
Grand Cape Mount	58.3	46.8	43.6	80.1	22.0	174
Grand Gedeh	81.5	65.1	62.3	51.6	18.4	80
Grand Kru	83.9	30.1	36.1	52.2	7.7	90
Lofa	80.4	36.7	53.9	63.2	11.8	169
Margibi	67.7	58.2	58.2	53.2	17.5	360
Maryland	79.0	53.0	54.1	47.6	10.1	121
Montserrado	81.6	57.4	66.7	46.2	15.8	1,566
Nimba	72.5	39.0	28.4	69.7	9.4	425
River Cess	72.0	54.6	61.8	62.4	22.0	62
River Gee	61.2	38.7	36.2	64.8	8.0	54
Sinoe	85.4	43.5	46.0	58.8	14.2	97
Education						
No education	54.6	27.6	30.4	68.5	7.6	491
Primary	64.3	34.5	34.3	63.7	10.1	1,110
Secondary and higher	83.0	61.1	65.4	50.6	17.8	2,360
Wealth quintile						
Lowest	63.4	36.2	36.6	71.5	12.6	697
Second	69.9	40.2	36.6	63.1	11.7	704
Middle	71.7	49.0	49.1	58.7	14.7	692
Fourth	76.4	58.1	60.3	48.2	13.9	856
Highest	84.5	58.2	69.8	47.0	17.6	1,011
Total	74.2	49.5	52.4	56.5	14.4	3,960

13.4 ATTITUDES TOWARD NEGOTIATING FOR SAFER SEXUAL RELATIONS WITH HUSBANDS

Knowledge about HIV transmission and ways to prevent it is of little use if people feel powerless to negotiate safer sex practices with their partners. The high levels of sexual transmission of HIV make negotiating for safer sex indispensable, especially in marital unions where women's status is compromised by societal expectations, thereby increasing their vulnerability to HIV transmission. Therefore, in the 2013 LDHS, women and men were asked if they thought that a wife is justified in refusing to have sexual intercourse with her husband if she knows he has sex with other women or in asking that he use condoms if she knows that he has a sexually transmitted infection (STI).

Table 13.6 shows that three in four women (75 percent) and men (74 percent) believe that a wife is justified in refusing to have sexual intercourse with her husband if she knows he has sex with women other than his wives. Eighty-three percent of both women and men believe a woman has a right to ask her husband to use a condom if she knows he has an STI. Differences by background characteristics are generally small. Program designers should therefore take advantage of this acceptance of women as negotiators of safer sex with their husbands. It affords an opportunity to expand and further strengthen messages and interventions that promote preventive practices such as the use of male and female condoms.

Table 13.6 Attitudes toward negotiating safer sexual relations with husband

Percentage of women and men age 15-49 who believe that a woman is justified in refusing to have sexual intercourse with her husband if she knows that he has sexual intercourse with other women, and percentage who believe that a woman is justified in asking that they use a condom if she knows that her husband has a sexually transmitted infection (STI), by background characteristics, Liberia 2013

	Women			Men		
	Woman is justified in:			Woman is justified in:		
Background characteristic	Refusing to have sexual intercourse with her husband if she knows he has sex with other women	Asking that they use a condom if she knows that her husband has an STI	Number of women	Refusing to have sexual intercourse with her husband if she knows he has sex with other women	Asking that they use a condom if she knows that her husband has an STI	Number of men
Age						
15-24	73.8	81.8	3,722	64.8	73.8	1,587
15-19	72.1	79.2	2,080	57.9	65.1	890
20-24	75.8	85.2	1,642	73.7	84.8	696
25-29	76.5	85.9	1,611	80.8	89.7	673
30-39	74.9	82.8	2,378	79.4	87.3	1,044
40-49	75.0	81.0	1,528	77.7	87.1	814
Marital status						
Never married	74.8	82.1	2,867	65.4	75.4	1,749
Ever had sex	78.2	87.3	2,230	74.8	87.0	1,171
Never had sex	62.7	63.9	637	46.2	52.1	578
Married/Living together	74.6	83.1	5,386	79.6	87.4	2,218
Divorced/Separated/Widowed	75.3	82.0	987	83.3	90.5	151
Residence						
Urban	75.8	84.4	5,633	74.2	83.3	2,413
Greater Monrovia	75.1	85.8	3,361	75.5	84.0	1,433
Other Urban	76.9	82.3	2,272	72.3	82.3	980
Rural	73.1	80.0	3,606	73.0	81.2	1,705
Region						
North Western	67.0	79.6	837	82.1	89.8	367
South Central	78.6	87.0	4,854	77.8	86.2	2,149
South Eastern A	71.6	84.3	483	77.8	88.3	254
South Eastern B	73.4	74.5	577	68.3	79.4	288
North Central	70.8	76.9	2,488	62.9	71.6	1,060

…Continued

Table 13.6 Attitudes toward negotiating safer sexual relations with husband—*Continued*

	Women			Men		
	Woman is justified in:			Man is justified in:		
Background characteristic	Refusing to have sexual intercourse with her husband if she knows he has sex with other women	Asking that they use a condom if she knows that her husband has an STI	Number of women	Refusing to have sexual intercourse with her husband if she knows he has sex with other women	Asking that they use a condom if she knows that her husband has an STI	Number of men
County						
Bomi	60.6	73.1	244	75.2	83.3	97
Bong	75.0	83.0	894	62.3	72.8	389
Gbarpolu	72.2	80.7	182	89.1	95.2	94
Grand Bassa	79.6	80.0	434	84.5	90.2	204
Grand Cape Mount	68.5	83.0	412	82.1	90.5	176
Grand Gedeh	69.0	83.7	167	78.3	90.0	82
Grand Kru	69.3	61.3	217	70.6	82.5	110
Lofa	64.2	69.6	447	49.4	53.8	219
Margibi	88.2	94.0	744	84.8	93.5	364
Maryland	76.5	80.4	257	69.0	79.1	123
Montserrado	76.5	86.4	3,675	75.3	84.1	1,582
Nimba	70.1	75.0	1,147	70.0	79.3	451
River Cess	78.8	94.6	135	84.3	95.6	64
River Gee	74.3	87.4	103	62.0	74.0	55
Sinoe	68.7	77.3	182	73.6	82.6	108
Education						
No education	71.0	77.3	3,066	65.3	70.0	533
Primary	74.3	80.2	2,875	64.5	74.3	1,202
Secondary and higher	78.6	89.8	3,298	80.2	89.3	2,383
Wealth quintile						
Lowest	72.5	77.3	1,581	70.0	76.7	749
Second	72.7	78.8	1,624	71.8	82.9	753
Middle	73.3	80.0	1,779	72.3	82.4	728
Fourth	77.2	87.0	2,047	75.1	81.3	864
Highest	76.7	87.6	2,207	77.6	87.3	1,024
Total	74.7	82.7	9,239	73.7	82.5	4,118

13.5 ATTITUDES TOWARD CONDOM EDUCATION FOR YOUNG PEOPLE

Condom use is one of the main strategies for combating the spread of HIV. However, educating young people about condoms is sometimes controversial, with some saying it promotes early sexual experimentation. To gauge attitudes toward condom education, 2013 LDHS respondents were asked whether they thought that children age 12-14 should be taught about using a condom to avoid getting AIDS. Because the focus is on adults' opinions, results are tabulated for respondents age 18-49.

As shown in Table 13.7, 74 percent of women and 62 percent of men support teaching children age 12-14 about condoms. Among women but not men, younger respondents age 18-24 are more likely than older respondents to support education about condom use. Support for teaching children about condoms is higher in urban areas than rural areas, and varies widely by region and county. Support generally increases with level of education and wealth status. For example, 61 percent of women and 43 percent of men with no education support education of children about condoms; this compares with 86 percent of women and 70 percent of men with secondary education and higher. The level of support for teaching children about condoms has increased from that reported in the 2007 LDHS (60 percent among women age 18-49 and 57 percent among men age 18-49).

Table 13.7 Adult support of education about condom use to prevent AIDS

Percentage of women and men age 18-49 who agree that children age 12-14 years should be taught about using a condom to avoid AIDS, by background characteristics, Liberia 2013

	Women		Men	
Background characteristic	Percentage who agree	Number of women	Percentage who agree	Number of men
Age				
18-24	78.1	2,411	60.0	1,000
18-19	77.2	769	52.6	304
20-24	78.5	1,642	63.2	696
25-29	74.3	1,611	64.2	673
30-39	71.8	2,378	64.2	1,044
40-49	69.0	1,528	61.6	814
Marital status				
Never married	81.8	1,649	61.7	1,164
Married or living together	70.7	5,306	62.5	2,216
Divorced/separated/widowed	76.2	974	66.5	151
Residence				
Urban	81.2	4,737	66.2	2,049
Greater Monrovia	84.0	2,788	69.2	1,221
Other urban	77.3	1,949	61.9	828
Rural	62.5	3,191	57.0	1,483
Region				
North Western	69.2	721	60.0	315
South Central	81.4	4,030	67.8	1,811
South Eastern A	66.2	439	65.0	226
South Eastern B	55.5	514	61.3	261
North Central	66.9	2,225	52.2	919
County				
Bomi	72.3	207	62.9	80
Bong	60.4	817	56.0	354
Gbarpolu	66.6	157	62.2	85
Grand Bassa	52.8	385	68.1	183
Grand Cape Mount	68.6	357	57.2	150
Grand Gedeh	74.9	152	54.6	72
Grand Kru	35.7	202	59.7	101
Lofa	54.6	402	47.0	186
Margibi	86.3	592	61.1	292
Maryland	71.5	219	69.3	108
Montserrado	84.0	3,053	69.2	1,336
Nimba	77.0	1,006	51.1	379
River Cess	72.0	122	73.2	59
River Gee	60.8	94	47.5	51
Sinoe	53.8	165	67.8	95
Education				
No education	61.4	2,999	42.6	514
Primary	73.7	2,036	54.8	838
Secondary and higher	86.4	2,893	70.0	2,180
Wealth quintile				
Lowest	56.5	1,440	53.3	675
Second	65.2	1,437	55.5	662
Middle	74.2	1,538	62.5	621
Fourth	82.8	1,762	70.2	726
Highest	85.1	1,752	68.2	847
Total 18-49	73.7	7,928	62.4	3,531

13.6 MULTIPLE SEXUAL PARTNERS

Given that most HIV infections in Liberia are contracted through heterosexual contact, information on sexual behavior is important in designing and monitoring intervention programs to control the spread of the epidemic. The 2013 LDHS included questions on respondents' sexual partners during their lifetimes and over the 12 months preceding the survey. Men were also asked whether they paid for sex during the 12 months

preceding the interview. In addition, information was collected on women's and men's use of condoms during their most recent sexual intercourse with each type of partner. These questions are sensitive, and it is recognized that some respondents may have been reluctant to provide information on recent sexual behavior.

Tables 13.8.1 and 13.8.2 show the percentages of women and men, respectively, who had two or more partners in the 12 months preceding the survey. Among those with two or more partners in the past 12 months, the tables also show the percentage that used a condom during their last sexual intercourse. Finally, the tables provide information on the mean number of lifetime sexual partners among those who have ever had sexual intercourse.

Seven percent of women had two or more partners in the 12 months before the survey. The proportion of women who had two or more partners is inversely correlated with age: 9 percent of women age 15-24 had two or more partners compared with 3 percent of women age 40-49. Those who were never married (10 percent) or divorced, separated, or widowed (8 percent) were more likely to have multiple partners in the past 12 months than those who were married (5 percent). By residence, women in urban areas, those in South Central, and women in Montserrado, were more likely than their counterparts to have multiple partners. The proportion of women with two or more partners increases with level of educational attainment and generally with wealth.

A larger proportion of men than women reported having had more than one sexual partner (18 percent and 7 percent, respectively) at some time in the past 12 months. Men age 20-39, those divorced, separated, and widowed, and those with secondary education and higher were more likely than their counterparts to have had more than one sexual partner in the past 12 months. As would be expected, the proportion of men with multiple sexual partners in the past 12 months was exceptionally high among those in polygynous unions (70 percent). By residence, men in rural areas, those in South Eastern A and B regions, and those in Grand Bassa, River Cess, and River Gee were more likely to have had more than one sexual partner than men living in other areas. Although the likelihood of having more than one sexual partner generally decreased with wealth quintile, the pattern was not uniform.

Among respondents who had more than one sexual partner in the past 12 months, men were slightly more likely to report using a condom during their last sexual intercourse than women (24 percent and 20 percent, respectively). On average, men had had 13.1 sexual partners over their lifetimes, and women had had 4.3 partners.

Among those with more than one sexual partner in the past 12 months, never-married men were much more likely to report condom use during their most recent sexual intercourse than those who were married (41 percent and 16 percent, respectively). Urban men (30 percent) were also more likely to report using a condom during their last sexual intercourse than rural men (17 percent). Condom use among men during last sexual intercourse varied by region and county, and generally increased with education level and wealth.

The mean number of lifetime sexual partners increases with age, with men age 40-49 reporting an average of 17.0 lifetime partners. Among men, those in a polygynous union (19.1 partners), those living in South Eastern A region (19.4), and those living in Grand Gedeh (22.9) had the highest average numbers of lifetime sexual partners.

Among women, mean number of lifetime sexual partners also increases with age, with women age 25-39 reporting an average of 5.0 partners. Among women, those divorced, separated, or widowed and those living in Nimba had the most lifetime partners (5.7 and 6.4, respectively).

Table 13.8.1 Multiple sexual partners: Women

Among all women age 15-49, the percentage who had sexual intercourse with more than one sexual partner in the past 12 months; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and the mean number of sexual partners during their lifetime for women who ever had sexual intercourse, by background characteristics, Liberia 2013

Background characteristic	All women		Among women who had 2+ partners in the past 12 months:		Among women who ever had sexual intercourse[1]:	
	Percentage who had 2+ partners in the past 12 months	Number of women	Percentage who reported using a condom during last sexual intercourse	Number of women	Mean number of sexual partners in lifetime	Number of women
Age						
15-24	8.6	3,722	25.6	320	3.3	3,063
15-19	8.6	2,080	27.1	179	2.6	1,449
20-24	8.6	1,642	23.6	142	4.0	1,614
25-29	7.2	1,611	14.2	116	5.0	1,580
30-39	5.1	2,378	14.8	121	5.0	2,321
40-49	2.6	1,528	(2.1)	39	4.7	1,467
Marital status						
Never married	9.7	2,867	27.3	279	3.8	2,198
Married or living together	4.5	5,386	6.0	241	4.3	5,280
Divorced/separated/widowed	7.8	987	34.6	77	5.7	954
Residence						
Urban	8.1	5,633	22.9	459	4.8	5,060
Greater Monrovia	9.3	3,361	27.5	313	4.8	2,982
Other urban	6.4	2,272	13.2	146	4.7	2,079
Rural	3.8	3,606	8.6	138	3.7	3,372
Region						
North Western	3.6	837	10.9	30	3.7	761
South Central	7.9	4,854	26.2	383	4.5	4,317
South Eastern A	2.9	483	(16.5)	14	4.3	468
South Eastern B	3.9	577	16.6	23	3.0	539
North Central	5.9	2,488	5.2	148	4.5	2,347
County						
Bomi	2.9	244	*	7	2.8	227
Bong	6.0	894	(3.0)	54	3.2	846
Gbarpolu	5.4	182	(23.6)	10	5.6	167
Grand Bassa	3.9	434	*	17	3.7	413
Grand Cape Mount	3.2	412	*	13	3.4	367
Grand Gedeh	4.6	167	*	8	5.8	163
Grand Kru	2.6	217	*	6	3.0	207
Lofa	1.4	447	*	6	2.2	415
Margibi	3.5	744	(15.0)	26	3.7	637
Maryland	4.2	257	(26.8)	11	2.7	234
Montserrado	9.2	3,675	(27.5)	340	4.8	3,267
Nimba	7.6	1,147	6.1	87	6.4	1,086
River Cess	2.1	135	*	3	3.7	130
River Gee	6.0	103	*	6	3.6	98
Sinoe	1.9	182	*	3	3.5	175
Education						
No education	3.8	3,066	9.1	116	3.9	2,961
Primary	6.3	2,875	12.6	182	4.3	2,420
Secondary and higher	9.1	3,298	28.0	299	4.7	3,050
Wealth quintile						
Lowest	3.2	1,581	3.2	50	3.9	1,502
Second	4.1	1,624	5.8	67	4.0	1,527
Middle	6.1	1,779	11.3	109	4.6	1,641
Fourth	8.9	2,047	17.3	182	4.7	1,858
Highest	8.5	2,207	36.1	188	4.3	1,904
Total	6.5	9,239	19.6	597	4.3	8,432

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Means are calculated excluding respondents who gave non-numeric responses.

Table 13.8.2 Multiple sexual partners: Men

Among all men age 15-49, the percentage who had sexual intercourse with more than one sexual partner in the past 12 months; among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse; and the mean number of sexual partners during their lifetime for men who ever had sexual intercourse, by background characteristics, Liberia 2013

Background characteristic	All men		Among men who had 2+ partners in the past 12 months:		Among men who ever had sexual intercourse[1]:	
	Percentage who had 2+ partners in the past 12 months	Number of men	Percentage who reported using a condom during last sexual intercourse	Number of men	Mean number of sexual partners in lifetime	Number of men
Age						
15-24	12.1	1,587	32.4	193	6.8	967
15-19	4.4	890	(21.6)	39	3.6	359
20-24	22.1	696	35.2	154	8.7	608
25-29	23.5	673	31.4	158	13.1	598
30-39	22.6	1,044	15.6	236	16.7	908
40-49	17.1	814	16.0	139	17.0	687
Marital status						
Never married	11.6	1,749	41.1	203	8.2	1,102
Married or living together	21.3	2,218	15.9	472	15.5	1,918
Divorced/separated/widowed	33.7	151	(25.6)	51	17.8	139
Type of union						
In polygynous union	69.7	126	5.9	88	19.1	106
In non-polygynous union	18.4	2,092	18.2	385	15.3	1,813
Not currently in union	13.4	1,900	38.0	254	9.2	1,241
Residence						
Urban	15.7	2,413	29.7	379	11.8	1,811
Greater Monrovia	13.2	1,433	30.6	189	9.6	1,083
Other urban	19.4	980	28.8	190	15.1	728
Rural	20.4	1,705	16.9	347	14.7	1,349
Region						
North Western	16.1	367	16.3	59	13.6	284
South Central	16.6	2,149	27.6	357	11.6	1,664
South Eastern A	21.8	254	21.8	55	19.4	203
South Eastern B	20.9	288	21.2	60	11.5	229
North Central	18.4	1,060	19.8	195	14.8	780
County						
Bomi	12.3	97	*	12	5.9	63
Bong	23.2	389	22.4	90	16.4	255
Gbarpolu	10.5	94	(11.4)	10	11.8	71
Grand Bassa	27.4	204	23.9	56	16.0	176
Grand Cape Mount	21.1	176	15.4	37	17.7	150
Grand Gedeh	15.6	82	(27.6)	13	22.9	70
Grand Kru	21.5	110	19.3	24	8.4	79
Lofa	6.6	219	*	14	6.6	149
Margibi	18.7	364	24.3	68	15.7	284
Maryland	17.6	123	(27.4)	22	11.9	107
Montserrado	14.8	1,582	29.4	233	10.0	1,203
Nimba	19.9	451	15.6	90	17.0	376
River Cess	29.5	64	21.1	19	16.0	55
River Gee	27.4	55	15.1	15	15.9	43
Sinoe	21.8	108	19.3	24	18.5	78
Education						
No education	17.7	533	11.8	95	13.6	433
Primary	14.1	1,202	16.2	170	12.9	771
Secondary and higher	19.4	2,383	28.7	462	13.0	1,955
Wealth quintile						
Lowest	20.7	749	17.6	155	15.1	614
Second	17.7	753	17.6	133	14.8	584
Middle	18.8	728	14.6	137	12.7	541
Fourth	17.4	864	31.8	150	13.5	626
Highest	14.7	1,024	35.1	151	10.0	795
Total	17.6	4,118	23.6	726	13.1	3,160

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] Means are calculated excluding respondents who gave non-numeric responses.

Point prevalence and cumulative prevalence of concurrent sexual partners are new concepts that were incorporated for the first time in the 2013 LDHS. The point prevalence of concurrent sexual partners is defined as the percentage of respondents who had two (or more) sexual partners concurrently at the point in time six months before the survey. The cumulative prevalence of concurrent sexual partners is defined as the percentage of respondents who had two (or more) sexual partners concurrently at any time during the 12 months preceding the survey.

Table 13.9 shows the point prevalence and cumulative prevalence of concurrent sexual partners among all respondents during the 12 months before the survey. It also shows the percentage of respondents who had concurrent sexual partners among those who had multiple sexual partners during the 12 months before the survey.

Among women, point prevalence and cumulative prevalence were 3 and 6 percent respectively; among men, point prevalence was 8 percent and cumulative prevalence was 15 percent. Among female respondents, point prevalence and cumulative prevalence were higher in urban areas than rural areas; in contrast, among male respondents point prevalence and cumulative prevalence were higher in rural areas than urban areas. Men in polygynous unions had the highest cumulative prevalence (66 percent), and those not currently in a union had the lowest (10 percent). Not surprisingly, cumulative prevalence rates were much higher among respondents who reported having multiple partners during the 12 months before the survey than those who did not report multiple partners (86 percent versus 6 percent among women and 83 percent versus 15 percent among men).

Table 13.9 Point prevalence and cumulative prevalence of concurrent sexual partners

Percentage of all women and men age 15-49 who had concurrent sexual partners six months before the survey (point prevalence[1]), and percentage of all women and all men age 15-49 who had any concurrent sexual partners during the 12 months before the survey (cumulative prevalence[2]), and among women and men age 15-49 who had multiple sexual partners during the 12 months before the survey, percentage who had concurrent sexual partners, by background characteristics, Liberia 2013

	Among all respondents:			Among all respondents who had multiple partners during the 12 months before the survey:	
Background characteristic	Point prevalence of concurrent sexual partners[1]	Cumulative prevalence of concurrent sexual partners[2]	Number of respondents	Percentage who had concurrent sexual partners[2]	Number of respondents
WOMEN					
Age					
15-24	3.3	6.8	3,722	79.5	320
15-19	2.7	6.5	2,080	75.8	179
20-24	4.2	7.2	1,642	84.1	142
25-29	4.8	6.9	1,611	96.7	116
30-39	3.6	4.7	2,378	91.1	121
40-49	1.6	2.4	1,528	(92.5)	39
Marital status					
Never married	4.4	8.1	2,867	83.0	279
Married or living together	2.6	4.2	5,386	92.9	241
Divorced/separated/widowed	4.5	5.9	987	75.7	77
Residence					
Urban	4.6	7.1	5,633	87.7	459
Greater Monrovia	5.7	8.4	3,361	90.6	313
Other urban	3.0	5.2	2,272	81.3	146
Rural	1.5	3.1	3,606	80.7	138
Total	3.4	5.6	9,239	86.0	597
MEN					
Age					
15-24	3.8	9.0	1,587	74.2	193
15-19	0.7	3.2	890	(72.4)	39
20-24	7.7	16.5	696	74.7	154
25-29	9.0	18.9	673	80.5	158
30-39	11.8	19.3	1,044	85.1	236
40-49	10.6	15.9	814	93.2	139
Marital status					
Never married	3.7	8.7	1,749	75.5	203
Married or living together	11.5	18.7	2,218	87.7	472
Divorced/separated/widowed	7.2	22.5	151	(66.5)	51
Type of union					
In polygynous union	58.4	65.8	126	94.4	88
In non-polygynous union	8.6	15.8	2,092	86.2	385
Not currently in union	4.0	9.8	1,900	73.7	254
Residence					
Urban	6.4	12.8	2,413	81.4	379
Greater Monrovia	5.4	10.6	1,433	80.3	189
Other urban	7.9	16.0	980	82.4	190
Rural	10.3	17.2	1,705	84.4	347
Total	8.0	14.6	4,118	82.8	726

Note: Two sexual partners are considered to be concurrent if the date of the most recent sexual intercourse with the earlier partner is after the date of the first sexual intercourse with the later partner. Figures in parentheses are based on 25-49 unweighted cases.
[1] The percentage of respondents who had two (or more) sexual partners that were concurrent at the point in time 6 months before the survey
[2] The percentage of respondents who had two (or more) sexual partners that were concurrent anytime during the 12 months preceding the survey

13.7 PAID SEX

The act of paying for sex introduces an uneven negotiating ground for safer sexual intercourse. Condom use is an important indicator in efforts to ascertain the level of risk associated with sexual intercourse involving payments. Table 13.10 presents information on the extent to which men ever engaged in paid sex,

engaged in paid sex in the 12-month period before the survey, and used a condom during the last paid sexual intercourse in the 12-month period before the survey.

Table 13.10 Payment for sexual intercourse and condom use at last paid sexual intercourse

Percentage of men age 15-49 who ever paid for sexual intercourse and percentage reporting payment for sexual intercourse in the past 12 months, and among them, the percentage reporting that a condom was used the last time they paid for sexual intercourse, by background characteristics, Liberia 2013

| Background characteristic | Among all men: | | | Among men who paid for sex in the past 12 months: | |
	Percentage who ever paid for sexual intercourse	Percentage who paid for sexual intercourse in the past 12 months	Number of men	Percentage reporting condom use at last paid sexual intercourse	Number of men
Age					
15-24	7.1	4.6	1,587	63.2	73
15-19	2.6	1.7	890	*	15
20-24	12.8	8.3	696	69.4	58
25-29	13.9	7.2	673	(58.8)	48
30-39	11.9	4.7	1,044	67.7	49
40-49	8.3	3.0	814	(46.3)	24
Marital status					
Never married	7.9	5.2	1,749	68.1	91
Married or living together	10.4	4.3	2,218	54.8	94
Divorced/separated/widowed	18.5	6.1	151	*	9
Residence					
Urban	10.3	4.6	2,413	69.7	112
Greater Monrovia	10.2	4.0	1,433	*	58
Other urban	10.5	5.5	980	57.8	54
Rural	8.7	4.9	1,705	49.7	83
Region					
North Western	9.5	4.8	367	(51.5)	18
South Central	10.5	4.1	2,149	75.3	88
South Eastern A	11.6	8.9	254	55.6	23
South Eastern B	11.0	6.3	288	(40.1)	18
North Central	7.2	4.6	1,060	(49.5)	48
County					
Bomi	10.9	6.0	97	*	6
Bong	4.2	3.2	389	*	12
Gbarpolu	7.4	5.2	94	*	5
Grand Bassa	13.1	5.4	204	*	11
Grand Cape Mount	9.9	4.0	176	*	7
Grand Gedeh	10.0	8.9	82	*	7
Grand Kru	12.2	9.9	110	*	11
Lofa	1.7	0.9	219	*	2
Margibi	9.3	3.1	364	*	11
Maryland	9.6	4.1	123	*	5
Montserrado	10.4	4.1	1,582	(78.4)	66
Nimba	12.5	7.5	451	*	34
River Cess	10.6	7.1	64	*	5
River Gee	11.5	3.9	55	*	2
Sinoe	13.5	9.9	108	(60.8)	11
Education					
No education	7.0	4.3	533	(51.1)	23
Primary	6.8	3.3	1,202	47.4	40
Secondary and higher	11.7	5.5	2,383	67.1	131
Wealth quintile					
Lowest	8.5	5.0	749	41.4	38
Second	8.5	5.2	753	48.2	39
Middle	8.0	4.5	728	(48.7)	33
Fourth	11.0	4.1	864	(83.9)	36
Highest	11.3	4.8	1,024	(78.4)	49
Total	9.6	4.7	4,118	61.2	195

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

Ten percent of men reported ever paying for sex; 5 percent reported paying for sex at least once during the 12 months preceding the survey. Men age 25-29 (14 percent), divorced/separated/widowed men (19 percent), and men living in Sinoe (14 percent) were most likely to have ever paid for sex. Payment for sexual intercourse was higher among men with secondary and higher education and men in the fourth and highest wealth quintiles relative to men with no education or primary education and those in lower wealth quintiles, although differences are small.

Men from Sinoe (10 percent) had the highest rate of paid sex during the 12 months preceding the survey. Sixty-one percent of men who had engaged in paid sex in the past 12 months used a condom the last time they paid for sex.

A comparison of the 2007 and 2013 LDHS results suggests that while there has been a minor increase in the percentage of men who paid for sex in the 12 months preceding the interview, those who did engage in paid sex were more likely to use a condom. Specifically, in 2007, 3 percent of men had paid for sex in the preceding 12 months and 48 percent of them reported condom use, whereas in 2013, 5 percent of men paid for sex in the last 12 months and 61 percent used a condom the last time they paid for sex. Although the number of men paying for sex has increased, the increase in condom use among them is encouraging.

13.8 COVERAGE OF HIV TESTING SERVICES

Knowledge of HIV status helps HIV-negative individuals make specific decisions to reduce risk and increase safer sex practices so that they can remain disease-free. Among those who are HIV infected, knowledge of their status allows them to take action to protect their sexual partners, to access treatment, and to plan for the future.

To assess awareness and coverage of HIV testing services, 2013 LDHS respondents were asked whether they had ever been tested for HIV. If they said that they had been tested, they were asked whether they had received the results of their last test and where they had been tested. If they had never been tested, they were asked whether they knew a place where they could go to be tested.

Tables 13.11.1 and 13.11.2 show that the majority of respondents (76 percent of women and 62 percent of men) knew of a place where they could get an HIV test. Younger respondents (age 15-19) were less likely than those age 20-49 to know a place where they could go to be tested. Never-married respondents who had never had sex were less likely than others to know a place to get an HIV test. Knowledge of a place to get an HIV test increased with both increasing education and wealth quintile and was more common among urban than rural residents. Differences among regions and counties are also observed.

Tables 13.11.1 and 13.11.2 also show the coverage of HIV testing services. A larger proportion of men (74 percent) than women (49 percent) had never been tested. Most of those who had been tested said that they had received the results of the last test they took. Overall, 45 percent of women and 23 percent of men had been tested and had received the results of the last test. Among women, the likelihood of having ever had an HIV test and receiving the results was highest in the 25-29 age group (60 percent); among men rates were highest among those age 40-49 (32 percent). Not surprisingly, the percentages of women and men who had ever had an HIV test and received the results was much lower among those who were never married and never had sex (4 percent of women and 1 percent of men) than among those who were ever married or were never married but ever had sex.

Table 13.11.1 Coverage of prior HIV testing: Women

Percentage of women age 15-49 who know where to get an HIV test, percent distribution of women age 15-49 by testing status and by whether they received the results of the last test, the percentage of women ever tested, and the percentage of women age 15-49 who were tested in the past 12 months and received the results of the last test, according to background characteristics, Liberia 2013

Background characteristic	Percentage who know where to get an HIV test	Percent distribution of women by testing status and by whether they received the results of the last test				Percentage ever tested	Percentage who have been tested for HIV in the past 12 months and received the results of the last test	Number of women
		Ever tested and received results	Ever tested, did not receive results	Never tested[1]	Total			
Age								
15-24	71.3	37.6	4.0	58.4	100.0	41.6	18.3	3,722
15-19	62.2	24.0	2.9	73.1	100.0	26.9	13.1	2,080
20-24	82.8	54.9	5.3	39.8	100.0	60.2	24.9	1,642
25-29	86.2	59.5	7.8	32.6	100.0	67.4	26.0	1,611
30-39	80.6	52.4	7.5	40.1	100.0	59.9	19.8	2,378
40-49	70.6	36.7	5.0	58.3	100.0	41.7	12.6	1,528
Marital status								
Never married	69.9	31.3	3.3	65.4	100.0	34.6	15.2	2,867
Ever had sex	77.7	39.2	4.2	56.6	100.0	43.4	18.7	2,230
Never had sex	42.8	3.5	0.3	96.2	100.0	3.8	3.1	637
Married/Living together	78.9	52.0	6.9	41.2	100.0	58.8	21.6	5,386
Divorced/Separated/Widowed	79.2	47.7	6.6	45.7	100.0	54.3	16.7	987
Residence								
Urban	82.4	49.1	4.8	46.1	100.0	53.9	19.9	5,633
Greater Monrovia	85.3	50.8	4.3	44.9	100.0	55.1	19.7	3,361
Other urban	78.1	46.5	5.4	48.0	100.0	52.0	20.2	2,272
Rural	66.4	38.8	7.3	53.9	100.0	46.1	17.9	3,606
Region								
North Western	72.7	44.2	6.9	48.9	100.0	51.1	22.6	837
South Central	80.9	47.5	4.4	48.1	100.0	51.9	19.0	4,854
South Eastern A	75.0	49.6	7.7	42.8	100.0	57.2	24.6	483
South Eastern B	55.3	29.9	8.4	61.7	100.0	38.3	16.1	577
North Central	73.1	43.2	7.0	49.8	100.0	50.2	17.7	2,488
County								
Bomi	76.7	52.4	4.9	42.7	100.0	57.3	27.1	244
Bong	70.0	41.8	9.6	48.6	100.0	51.4	14.3	894
Gbarpolu	66.2	32.4	8.2	59.4	100.0	40.6	14.9	182
Grand Bassa	55.2	30.4	6.3	63.3	100.0	36.7	14.3	434
Grand Cape Mount	73.2	44.5	7.4	48.0	100.0	52.0	23.5	412
Grand Gedeh	82.6	60.0	5.6	34.4	100.0	65.6	31.5	167
Grand Kru	45.7	27.0	5.1	67.9	100.0	32.1	13.2	217
Lofa	57.8	30.8	7.6	61.6	100.0	38.4	18.5	447
Margibi	78.0	46.3	3.2	50.5	100.0	49.5	20.3	744
Maryland	63.5	32.5	11.6	55.9	100.0	44.1	19.3	257
Montserrado	84.5	49.8	4.4	45.8	100.0	54.2	19.3	3,675
Nimba	81.6	49.2	4.7	46.1	100.0	53.9	20.0	1,147
River Cess	76.5	50.8	9.1	40.1	100.0	59.9	23.1	135
River Gee	55.1	29.7	7.4	63.0	100.0	37.0	14.3	103
Sinoe	67.0	39.1	8.6	52.4	100.0	47.6	19.3	182
Education								
No education	67.4	38.5	7.4	54.1	100.0	45.9	15.8	3,066
Primary	70.9	41.5	5.3	53.2	100.0	46.8	17.4	2,875
Secondary and higher	88.9	54.4	4.5	41.1	100.0	58.9	23.7	3,298
Wealth quintile								
Lowest	60.0	35.1	7.5	57.5	100.0	42.5	15.9	1,581
Second	69.0	38.0	8.4	53.6	100.0	46.4	15.8	1,624
Middle	76.6	47.1	5.9	47.1	100.0	52.9	23.0	1,779
Fourth	84.4	51.3	4.2	44.5	100.0	55.5	20.4	2,047
Highest	84.9	50.1	3.9	46.1	100.0	53.9	19.5	2,207
Total	76.2	45.1	5.7	49.2	100.0	50.8	19.1	9,239

[1] Includes "don't know/missing"

Table 13.11.2 Coverage of prior HIV testing: Men

Percentage of men age 15-49 who know where to get an HIV test, percent distribution of men age 15-49 by testing status and by whether they received the results of the last test, the percentage of men ever tested, and the percentage of men age 15-49 who were tested in the past 12 months and received the results of the last test, according to background characteristics, Liberia 2013

Background characteristic	Percentage who know where to get an HIV test	Percent distribution of men by testing status and by whether they received the results of the last test				Percentage ever tested	Percentage who have been tested for HIV in the past 12 months and received the results of the last test	Number of men
		Ever tested and received results	Ever tested, did not receive results	Never tested[1]	Total			
Age								
15-24	50.8	11.1	1.6	87.3	100.0	12.7	6.2	1,587
15-19	37.1	4.3	1.2	94.5	100.0	5.5	3.6	890
20-24	68.3	19.7	2.1	78.2	100.0	21.8	9.6	696
25-29	73.1	28.0	5.2	66.8	100.0	33.2	15.9	673
30-39	66.2	31.3	4.0	64.8	100.0	35.2	17.3	1,044
40-49	67.3	31.8	3.0	65.2	100.0	34.8	15.3	814
Marital status								
Never married	53.6	14.1	1.5	84.4	100.0	15.6	7.9	1,749
Ever had sex	67.1	20.6	2.0	77.4	100.0	22.6	11.4	1,171
Never had sex	26.5	1.0	0.6	98.5	100.0	1.5	0.8	578
Married/Living together	66.9	29.3	4.2	66.5	100.0	33.5	15.4	2,218
Divorced/Separated/Widowed	75.5	35.6	3.8	60.6	100.0	39.4	20.8	151
Residence								
Urban	68.5	27.4	2.3	70.3	100.0	29.7	15.9	2,413
Greater Monrovia	71.4	29.4	1.7	68.9	100.0	31.1	15.9	1,433
Other urban	64.3	24.5	3.1	72.4	100.0	27.6	15.8	980
Rural	51.8	16.9	4.2	78.9	100.0	21.1	7.6	1,705
Region								
North Western	62.4	18.1	4.0	77.9	100.0	22.1	9.6	367
South Central	67.8	27.6	2.2	70.2	100.0	29.8	14.8	2,149
South Eastern A	60.0	22.2	4.4	73.3	100.0	26.7	11.5	254
South Eastern B	48.6	14.5	4.5	80.9	100.0	19.1	7.9	288
North Central	52.7	18.0	3.7	78.3	100.0	21.7	10.0	1,060
County								
Bomi	58.3	19.8	5.3	74.9	100.0	25.1	12.3	97
Bong	46.7	19.0	2.4	78.6	100.0	21.4	8.8	389
Gbarpolu	66.3	15.3	4.7	79.9	100.0	20.1	8.2	94
Grand Bassa	56.0	25.9	2.3	71.8	100.0	28.2	17.1	204
Grand Cape Mount	62.6	18.6	3.0	78.4	100.0	21.6	8.8	176
Grand Gedeh	75.1	31.3	4.5	64.1	100.0	35.9	16.7	82
Grand Kru	36.8	17.7	3.6	78.8	100.0	21.2	10.3	110
Lofa	41.2	13.3	3.8	82.9	100.0	17.1	4.8	219
Margibi	64.0	23.7	3.8	72.5	100.0	27.5	11.9	364
Maryland	57.8	11.9	6.3	81.9	100.0	18.1	6.1	123
Montserrado	70.2	28.7	1.8	69.4	100.0	30.6	15.2	1,582
Nimba	63.4	19.4	4.9	75.7	100.0	24.3	13.6	451
River Cess	62.1	23.3	3.7	73.0	100.0	27.0	8.3	64
River Gee	51.2	14.3	2.6	83.1	100.0	16.9	7.3	55
Sinoe	47.3	14.7	4.8	80.5	100.0	19.5	9.5	108
Education								
No education	38.3	12.8	2.7	84.5	100.0	15.5	6.3	533
Primary	41.8	10.9	2.4	86.8	100.0	13.2	5.6	1,202
Secondary and higher	76.8	31.5	3.5	65.0	100.0	35.0	17.3	2,383
Wealth quintile								
Lowest	44.0	14.9	3.3	81.9	100.0	18.1	7.6	749
Second	52.2	14.7	4.2	81.2	100.0	18.8	6.8	753
Middle	59.6	21.4	3.5	75.1	100.0	24.9	11.7	728
Fourth	68.8	28.2	2.9	68.9	100.0	31.1	17.3	864
Highest	76.7	32.1	1.9	66.0	100.0	34.0	16.5	1,024
Total	61.6	23.1	3.1	73.9	100.0	26.1	12.4	4,118

[1] Includes "don't know/missing"

By residence, those living in urban areas (49 percent of women and 27 percent of men) were more likely than those living in rural areas (39 percent of women and 17 percent of men) to have been tested for HIV

and to have received the results of the last test. By county, the percentage of women who were tested for HIV and received the results of the last test varied from a low of 30 percent in Grand Bassa and River Gee to a high of 60 percent in Grand Gedeh, while the percentage among men ranged from a low of 12 percent in Maryland to a high of 31 percent in Grand Gedeh. Among women, testing coverage also increased with increasing educational attainment, from 39 percent among those with no education to 54 percent among those with secondary and higher education. Testing coverage among women also generally increased by wealth quintile. Results by education level and wealth quintile were generally similar among men.

Nineteen percent of women and 12 percent of men had been tested in the 12 month period preceding the survey and had received the results of the last test.

Overall, relative to the data reported in the 2007 LDHS, the proportion of respondents who know where to get an HIV test and the proportion who have ever been tested and received results have increased dramatically. For instance, the proportion of respondents who know where to get an HIV test increased from 24 percent to 76 percent among women and from 33 percent to 62 percent among men. Likewise, the proportion of respondents who have ever been tested for HIV and have received their test results has increased from 3 percent to 45 percent among women and from 5 to 23 percent among men.

Screening for HIV in pregnant women is a key intervention in reducing transmission of HIV from a mother to her child. The Ministry of Health and Social Welfare (MOHSW) through the National AIDS Control Program (NACP) has expanded the number of facilities offering Prevention of Mother-To-Child Transmission (PMTCT) services from 29 in 2008 to 335 in September 2012 (NACP and MOHSW, 2013).

Table 13.12 shows that 66 percent of women who gave birth during the two years preceding the survey received HIV counseling during prenatal care. Forty-five percent of women who gave birth during the two years preceding the survey were tested for HIV, received the test results, and received post-test counseling, while 18 percent of women were tested and received the test results but did not receive post-test counseling. Fifty-three percent of women reported that they had both received counseling about HIV and had been offered, accepted, and received the results of an HIV test during prenatal care. Sixty-four percent of women had an HIV test either during prenatal care or during labor and received their test results.

Women were more likely to have been both counseled about HIV and tested for HIV during prenatal care, and to have received the results of their test, if they lived in an urban area (64 percent), particularly Greater Monrovia (72 percent), had at least some secondary education (71 percent), or were in the highest wealth quintile (74 percent). Women were least likely to report receiving the full range of voluntary counseling and testing services during prenatal care if they lived in rural areas (41 percent), had no education (40 percent), or were in the lowest wealth quintile (38 percent).

Table 13.12 Pregnant women counseled and tested for HIV

Among all women age 15-49 who gave birth in the two years preceding the survey, the percentage who received counseling on HIV during prenatal care, the percentage who received an HIV test during prenatal care for their most recent birth by whether they received their results and post-test counseling, and the percentage who received an HIV test during prenatal care or labor for their most recent birth by whether they received their test results, according to background characteristics, Liberia 2013

Background characteristic	Percentage who received counseling on HIV during prenatal care[1]	Percentage who were tested for HIV during prenatal care and who:			Percentage who received counseling on HIV and an HIV test during prenatal care, and the results	Percentage who had an HIV test during prenatal care or labor and who:[2]		Number of women who gave birth in the past two years[3]
		Received results and:		Did not receive results		Received results	Did not receive results	
		Received post-test counseling	Did not receive post-test counseling					
Age								
15-24	67.6	44.3	19.4	6.8	53.9	64.4	7.1	1,147
15-19	63.0	42.9	20.2	7.4	49.8	63.6	7.7	422
20-24	70.3	45.2	18.9	6.4	56.3	64.8	6.7	725
25-29	66.6	49.3	18.3	7.3	55.6	68.0	7.5	627
30-39	63.0	43.6	16.3	8.4	49.8	60.8	8.6	750
40-49	55.8	36.3	15.6	9.1	44.6	52.5	9.3	126
Marital status								
Never married	70.7	43.4	24.0	8.6	57.0	67.4	9.0	558
Married or living together	64.1	44.9	17.2	7.0	51.8	62.8	7.2	1,893
Divorced/separated/widowed	64.3	49.6	10.2	8.6	48.9	61.6	8.6	199
Residence								
Urban	75.6	53.0	20.1	6.1	64.0	73.7	6.3	1,351
Greater Monrovia	83.3	60.9	18.7	5.5	72.2	79.6	5.5	667
Other urban	68.1	45.2	21.6	6.6	56.1	67.9	7.0	684
Rural	55.0	36.5	15.9	8.9	40.9	53.3	9.2	1,299
Region								
North Western	65.3	43.6	14.3	10.4	49.8	58.4	11.1	288
South Central	76.6	53.9	17.8	5.5	63.4	72.3	5.6	1,109
South Eastern A	59.2	47.8	12.9	9.1	48.0	61.6	9.3	196
South Eastern B	46.7	28.7	13.4	8.9	31.2	43.5	9.5	197
North Central	56.9	36.9	21.9	8.4	45.9	59.4	8.5	860
County								
Bomi	72.9	67.2	4.6	5.3	64.4	71.8	5.3	68
Bong	55.1	38.9	14.0	14.4	41.9	53.8	14.4	318
Gbarpolu	49.1	23.8	17.1	14.3	34.9	41.6	15.3	64
Grand Bassa	52.8	27.2	11.9	6.1	30.9	41.9	6.7	149
Grand Cape Mount	68.7	41.6	17.4	11.0	49.6	59.5	11.9	155
Grand Gedeh	70.9	64.2	11.8	3.8	63.6	77.3	4.5	66
Grand Kru	36.6	26.8	17.9	2.2	29.3	45.7	3.3	80
Lofa	37.9	43.5	4.4	7.2	26.6	47.9	7.2	144
Margibi	76.9	57.6	19.5	3.4	65.4	77.1	3.4	214
Maryland	56.5	29.4	12.2	13.5	34.8	43.1	13.7	81
Montserrado	81.2	58.1	18.5	6.0	69.3	76.9	6.0	746
Nimba	65.3	32.8	34.6	4.0	56.1	68.1	4.3	398
River Cess	62.6	47.8	9.2	12.1	49.1	57.5	12.3	58
River Gee	47.0	31.6	6.4	13.4	27.5	39.7	13.9	36
Sinoe	45.9	32.9	16.9	11.4	32.9	50.7	11.4	73
Education								
No education	55.4	35.2	14.9	9.1	40.2	51.0	9.4	1,000
Primary	62.3	43.4	19.0	7.1	50.6	62.9	7.2	858
Secondary and higher	81.7	58.9	21.1	5.9	70.7	80.4	6.1	792
Wealth quintile								
Lowest	51.7	36.5	11.2	9.0	37.7	48.3	9.3	636
Second	53.3	35.7	16.9	11.2	38.2	53.5	11.3	567
Middle	67.3	42.9	21.2	6.1	56.1	65.0	6.5	551
Fourth	78.1	52.0	26.1	4.5	68.2	78.6	4.7	509
Highest	86.7	65.9	16.3	5.4	73.6	82.4	5.6	386
Total	65.5	44.9	18.1	7.5	52.7	63.7	7.7	2,650

[1] In this context, "counseling on HIV" means that someone talked with the respondent about all three of the following topics: 1) babies getting HIV from their mother, 2) preventing the virus, and 3) getting tested for the virus
[2] Women are asked whether they received an HIV test during labor only if they were not tested for HIV during prenatal care
[3] Denominator for percentages includes women who did not receive prenatal care for their last birth in the past two years

13.9 MALE CIRCUMCISION

Circumcision is a common practice in many parts of sub-Saharan Africa for traditional, health, and other reasons. Male circumcision has been associated with a lower risk of HIV transmission from women to men (Williams et al., 2006; WHO and UNAIDS, 2007). To examine the practice of circumcision at the national level, men interviewed in the 2013 LDHS were asked whether they had been circumcised and when they were circumcised. The results are presented in Table 13.13.

Male circumcision is universal in Liberia (99 percent).The proportion of men who have been circumcised is high across all background characteristics.

Table 13.13 Male circumcision

Percentage of men age 15-49 who report having been circumcised, by background characteristics, Liberia 2013

Background characteristic	Percentage circumcised	Number of men
Age		
15-24	98.6	1,587
15-19	97.8	890
20-24	99.5	696
25-29	99.2	673
30-39	99.6	1,044
40-49	99.8	814
Residence		
Urban	99.3	2,413
Greater Monrovia	99.2	1,433
Other urban	99.4	980
Rural	99.0	1,705
Region		
North Western	99.2	367
South Central	99.4	2,149
South Eastern A	99.1	254
South Eastern B	98.3	288
North Central	98.8	1,060
Religion		
Christian	99.3	3,387
Muslim	98.8	529
Traditional religion	96.8	54
No religion	99.2	130
Total	99.2	4,118

Note: Total includes 16 men for whom information on religion is missing.

13.10 SELF-REPORTING OF SEXUALLY TRANSMITTED INFECTIONS

In the 2013 LDHS, respondents who had ever had sex were asked whether they had had a sexually transmitted infection or symptoms of an STI (a bad-smelling, abnormal discharge from the vagina/penis or a genital sore or ulcer) in the 12 months preceding the survey. Table 13.14 shows the self-reported prevalence of STIs and STI symptoms among both men and women. Women were much more likely than men to report having had an STI or having experienced STI symptoms. Among women, in the 12 months preceding the survey, 30 percent reported that they had an STI; 38 percent had a bad-smelling, abnormal discharge; and 34 percent had a genital sore or ulcer. Among men, 13 percent reported that they had an STI; 12 percent had a bad-smelling, abnormal discharge; and 8 percent had a genital sore or ulcer. In total, 50 percent of women and 17 percent of men reported having an STI or STI symptoms.

Table 13.14 Self-reported prevalence of sexually-transmitted infections (STIs) and STI symptoms

Among women and men age 15-49 who ever had sexual intercourse, the percentage reporting having an STI and/or symptoms of an STI in the past 12 months, by background characteristics, Liberia 2013

	Women					Men				
	Percentage of women who reported having in the past 12 months:					Percentage of men who reported having in the past 12 months:				
Background characteristic	STI	Bad smelling/ abnormal genital discharge	Genital sore/ulcer	STI/genital discharge/ sore or ulcer	Number of women who ever had sexual intercourse	STI	Bad smelling/ abnormal discharge from penis	Genital sore/ulcer	STI/ abnormal discharge from penis/ sore or ulcer	Number of men who ever had sexual intercourse
Age										
15-24	30.9	42.7	37.1	53.7	3,085	13.8	14.1	8.4	19.0	1,019
15-19	25.6	38.3	33.2	49.6	1,456	8.9	10.5	7.3	14.2	366
20-24	35.6	46.6	40.7	57.4	1,630	16.6	16.0	8.9	21.6	652
25-29	33.2	41.8	36.1	54.9	1,611	21.0	16.3	12.2	23.4	670
30-39	29.8	37.1	31.3	48.9	2,376	11.7	10.6	7.9	15.0	1,042
40-49	26.5	28.0	26.7	40.2	1,528	6.4	7.8	4.5	10.6	809
Marital status										
Never married	30.9	42.4	35.4	53.0	2,230	14.5	13.9	9.3	18.8	1,171
Married or living together	30.6	37.0	32.7	49.5	5,384	12.1	11.2	7.6	15.7	2,217
Divorced/separated/ widowed	26.9	36.6	33.4	47.5	987	11.3	9.7	6.4	15.2	151
Residence										
Urban	33.0	42.9	37.6	55.2	5,165	13.5	12.9	8.2	17.0	2,047
Greater Monrovia	33.1	46.3	40.1	56.8	3,048	12.4	11.4	7.5	14.9	1,232
Other urban	32.8	37.9	34.1	53.0	2,117	15.1	15.1	9.1	20.1	816
Rural	26.0	31.6	27.2	42.6	3,436	12.0	10.9	8.0	16.4	1,492
Region										
North Western	25.8	30.6	25.0	42.8	783	11.9	11.1	7.4	13.9	326
South Central	33.3	44.1	39.1	55.5	4,415	12.4	10.6	7.4	15.3	1,830
South Eastern A	24.0	28.3	26.1	41.4	473	16.2	18.8	12.7	25.4	226
South Eastern B	16.2	25.3	20.5	33.3	548	9.0	9.3	8.3	14.8	259
North Central	30.5	35.2	30.2	48.4	2,381	14.4	14.5	8.4	19.0	898
County										
Bomi	26.0	31.2	20.6	40.3	227	17.8	18.5	13.8	22.6	85
Bong	27.0	33.6	24.3	42.8	865	14.3	11.3	7.3	15.1	345
Gbarpolu	19.2	33.2	28.8	42.6	171	9.1	8.8	6.9	10.8	85
Grand Bassa	41.8	46.6	42.0	59.6	417	11.9	8.8	8.6	15.2	181
Grand Cape Mount	28.7	29.0	25.9	44.4	385	10.3	8.3	4.1	10.8	156
Grand Gedeh	31.3	32.9	29.5	45.7	164	29.9	29.3	21.0	36.2	73
Grand Kru	13.4	19.2	14.6	30.0	211	11.3	12.8	10.5	20.6	100
Lofa	14.4	19.3	8.5	24.0	418	10.4	14.4	9.3	18.9	174
Margibi	25.1	28.6	27.5	43.0	658	11.5	6.5	5.4	15.1	296
Maryland	20.0	34.6	27.9	40.0	238	8.6	8.0	9.3	13.4	110
Montserrado	33.8	46.9	41.1	57.5	3,340	12.7	11.7	7.7	15.3	1,353
Nimba	39.4	42.6	43.2	62.1	1,098	16.4	17.4	9.1	22.7	379
River Cess	28.3	31.6	28.5	49.3	132	10.7	8.0	9.4	15.8	59
River Gee	12.9	16.0	15.4	24.2	100	5.3	4.8	1.9	6.2	49
Sinoe	14.0	21.5	21.1	31.4	177	9.0	17.4	8.5	23.0	95
Education										
No education	27.6	33.9	29.0	44.3	3,036	8.7	9.0	7.0	11.8	495
Primary	30.1	38.1	33.1	50.6	2,463	13.0	12.8	8.8	17.0	853
Secondary and higher	32.8	42.9	38.2	55.7	3,102	13.7	12.4	8.1	17.7	2,191
Wealth quintile										
Lowest	24.1	31.6	25.1	41.3	1,527	11.9	10.8	8.7	15.2	673
Second	25.4	31.1	27.4	42.0	1,549	13.4	13.6	8.0	17.9	662
Middle	29.8	37.2	36.4	49.7	1,669	15.5	13.3	8.1	18.8	606
Fourth	38.4	48.7	40.8	60.4	1,898	15.4	13.8	8.7	19.6	723
Highest	31.3	40.3	35.2	54.2	1,958	9.2	9.4	7.1	13.1	876
Total	30.2	38.4	33.5	50.2	8,601	12.9	12.0	8.1	16.7	3,539

Variations in the self-reported prevalence of STIs or STI symptoms by background characteristics are also presented in Table 13.14. The prevalence of STIs or STI symptoms was slightly higher among never-married women and men compared with ever-married women and men. Prevalence of STIs or STI symptoms

was also higher among women living in urban areas (55 percent) than among women in rural areas (43 percent); similarly large differences were not observed for men. Differences are also seen by region and county. For example, the proportion of women reporting an STI or STI symptoms ranged from a high of 62 percent in Nimba to a low of 24 percent in both Lofa and River Gee. For men, the proportion reporting an STI or STI symptoms ranged from 36 percent in Grand Gedeh to 6 percent in River Gee. For women and men, the prevalence of STIs or STI symptoms increases with educational attainment and wealth, although for the latter, prevalence peaks among those in the fourth wealth quintile.

As shown in Figure 13.1, more than eight in ten women (86 percent) and men (81 percent) who had an STI or STI symptoms sought advice or treatment from a clinic, hospital, private doctor, or other health professional. Few women or men sought advice or treatment from either a shop or pharmacy (1 percent of women and 4 percent of men) or any other source (5 percent of women and 4 percent of men). One in ten women (10 percent) and men (11 percent) did not seek any treatment when they had an STI or STI symptoms.

Figure 13.1 Women and men seeking treatment for STIs

Percentage
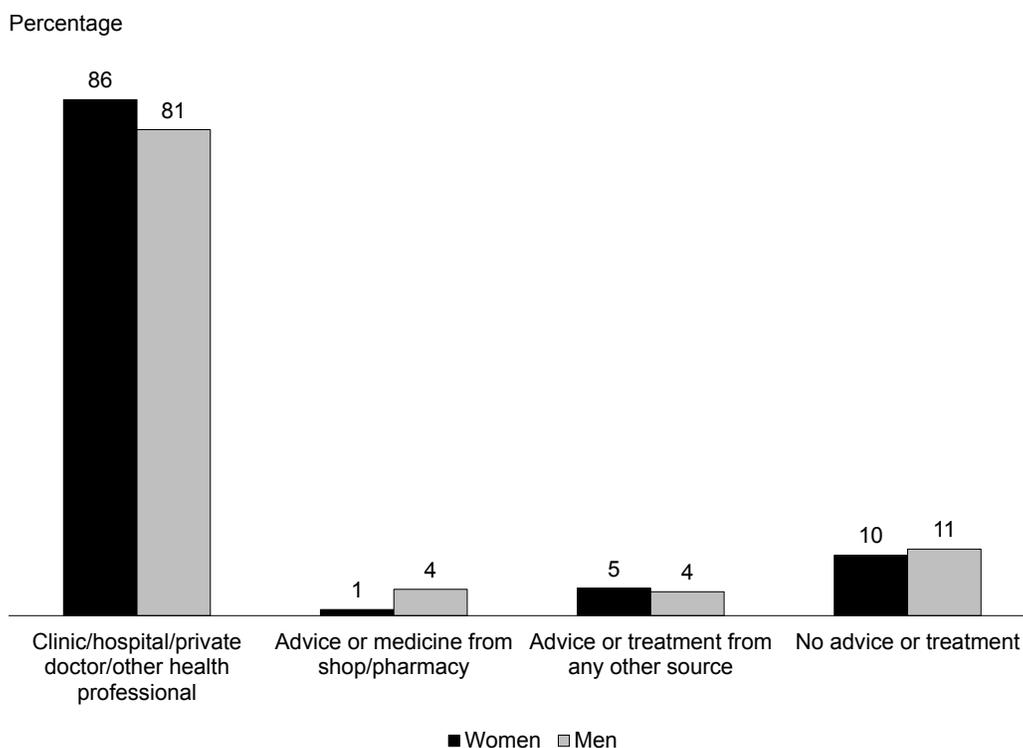
LDHS 2013

13.11 INJECTIONS

Injection overuse in a health care setting can contribute to the transmission of blood-borne pathogens because it amplifies the effect of unsafe practices such as reuse of injection equipment. To measure the potential risk of transmission of HIV associated with medical injections, LDHS respondents were asked whether they had received any injections from a health worker in the 12 months preceding the survey and, if so, whether their last injection was administered with a syringe from a new, unopened package. It should be noted that self-administered medical injections (e.g., insulin injections for diabetes) were not included in the calculations.

Table 13.15 shows the reported prevalence of injections and of safe injection practices. Forty percent of women and 41 percent of men report receiving an injection from a health worker during the 12 months preceding the survey. Among women and men, the prevalence of injections was lowest in those age 15-19 (31 and 34 percent, respectively) and those who were never married and never had sex (23 and 30 percent, respectively) compared with those in other age groups and those who have ever had sex. Women and men in rural areas were less likely than those in urban areas to have reported receiving an injection, although the difference was greater for women (35 and 43 percent, respectively) than men (39 and 43 percent, respectively). Considerable variation was reported by county of residence; among women, injection prevalence was highest in Grand Gedeh and Nimba (51 percent, each) and lowest in Lofa (23 percent). Among men, injection prevalence was highest in Grand Kru (63 percent) and lowest in River Gee (22 percent). For both women and men, the reported prevalence of injections in the past 12 months is highest among those with at least some secondary education; on the other hand, variations by wealth quintile do not follow a clear pattern.

In the past 12 months, the average number of medical injections per woman or man was less than two. Ninety-eight percent of recent injections among both women and men were administered with a syringe taken from a newly opened package.

Table 13.15 Prevalence of medical injections

Percentage of women and men age 15-49 who received at least one medical injection in the past 12 months, the average number of medical injections per person in the past 12 months, and among those who received a medical injection, the percentage of last medical injections for which the syringe and needle were taken from a new, unopened package, by background characteristics, Liberia 2013

Background characteristic	Women					Men				
	Percentage who received a medical injection in the past 12 months	Average number of medical injections per person in the past 12 months	Number of women	For last injection, syringe and needle taken from a new, unopened package	Number of women receiving medical injections in the past 12 months	Percentage who received a medical injection in the past 12 months	Average number of medical injections per person in the past 12 months	Number of men	For last injection, syringe and needle taken from a new, unopened package	Number of men receiving medical injections in the past 12 months
Age										
15-24	39.0	1.3	3,722	98.1	1,451	36.9	1.4	1,587	98.1	586
15-19	31.4	1.0	2,080	97.1	652	34.1	1.2	890	98.7	303
20-24	48.6	1.7	1,642	99.0	798	40.6	1.6	696	97.5	283
25-29	44.5	1.8	1,611	98.8	717	46.4	2.1	673	97.0	312
30-39	40.9	1.7	2,378	97.9	973	43.2	1.8	1,044	96.8	451
40-49	34.9	1.6	1,528	99.4	533	42.8	1.8	814	98.9	349
Marital status										
Never married	37.8	1.4	2,867	98.0	1,084	38.3	1.4	1,749	97.6	669
Ever had sex	42.0	1.5	2,230	98.6	938	42.3	1.6	1,171	98.3	495
Never had sex	23.0	0.7	637	94.1	147	30.1	1.0	578	95.7	174
Married or living together	40.7	1.6	5,386	98.5	2,192	44.0	1.9	2,218	97.9	976
Divorced/separated/ widowed	40.3	1.9	987	98.8	398	35.2	1.7	151	96.4	53
Residence										
Urban	42.6	1.8	5,633	98.3	2,402	42.8	1.7	2,413	98.9	1,033
Greater Monrovia	44.4	1.8	3,361	98.5	1,491	44.5	1.9	1,433	99.4	638
Other urban	40.1	1.7	2,272	98.0	910	40.3	1.5	980	97.9	395
Rural	35.3	1.2	3,606	98.5	1,272	39.0	1.6	1,705	96.0	665
Region										
North Western	36.8	1.2	837	99.5	308	41.3	1.7	367	97.5	152
South Central	41.3	1.7	4,854	98.2	2,003	42.5	1.8	2,149	98.5	914
South Eastern A	42.9	1.6	483	98.9	207	45.6	2.0	254	97.9	116
South Eastern B	33.1	1.1	577	96.9	191	41.9	1.5	288	98.6	120
North Central	38.8	1.5	2,488	98.7	965	37.4	1.4	1,060	95.8	396

…Continued

Table 13.15 Prevalence of medical injections—*Continued*

Background characteristic	Women					Men				
	Percentage who received a medical injection in the past 12 months	Average number of medical injections per person in the past 12 months	Number of women	For last injection, syringe and needle taken from a new, unopened package	Number of women receiving medical injections in the past 12 months	Percentage who received a medical injection in the past 12 months	Average number of medical injections per person in the past 12 months	Number of men	For last injection, syringe and needle taken from a new, unopened package	Number of men receiving medical injections in the past 12 months
County										
Bomi	34.7	1.2	244	100.0	85	47.7	1.8	97	100.0	46
Bong	31.2	1.1	894	97.3	279	36.3	1.3	389	95.6	141
Gbarpolu	36.5	1.2	182	99.0	66	39.1	1.4	94	98.6	37
Grand Bassa	35.4	1.1	434	96.2	154	50.4	1.8	204	97.0	103
Grand Cape Mount	38.2	1.3	412	99.4	157	38.9	1.8	176	95.3	69
Grand Gedeh	51.4	2.3	167	100.0	86	52.4	1.8	82	97.1	43
Grand Kru	30.1	1.0	217	97.9	65	62.6	2.3	110	100.0	69
Lofa	23.2	0.9	447	100.0	104	41.2	1.7	219	98.8	90
Margibi	28.9	1.2	744	97.1	215	27.9	1.1	364	94.6	101
Maryland	33.3	1.1	257	96.2	85	32.2	1.2	123	97.6	40
Montserrado	44.5	1.9	3,675	98.5	1,634	44.9	1.9	1,582	99.3	710
Nimba	50.7	2.0	1,147	99.0	582	36.4	1.4	451	94.3	164
River Cess	36.3	1.2	135	97.3	49	27.9	1.0	64	100.0	18
River Gee	39.0	1.2	103	96.6	40	22.2	0.8	55	93.6)	12
Sinoe	39.9	1.3	182	98.7	73	51.0	2.7	108	97.8	55
Education										
No education	32.6	1.2	3,066	98.1	1,000	38.1	1.6	533	96.0	203
Primary	36.3	1.3	2,875	98.2	1,043	35.6	1.3	1,202	96.5	428
Secondary and higher	49.5	2.1	3,298	98.7	1,631	44.8	1.9	2,383	98.6	1,067
Wealth quintile										
Lowest	32.0	1.2	1,581	96.9	505	40.2	1.5	749	96.2	301
Second	33.7	1.3	1,624	98.9	548	38.7	1.5	753	94.7	291
Middle	41.0	1.5	1,779	98.7	730	41.9	1.8	728	98.6	305
Fourth	46.5	1.8	2,047	99.2	952	43.2	1.8	864	99.0	373
Highest	42.6	1.9	2,207	97.8	940	41.7	1.7	1,024	99.2	427
Total	39.8	1.6	9,239	98.4	3,674	41.2	1.7	4,118	97.7	1,698

Note: Medical injections are those given by a doctor, nurse, pharmacist, dentist, or other health worker

13.12 HIV/AIDS-RELATED KNOWLEDGE AND BEHAVIOR AMONG YOUNG PEOPLE

This section addresses HIV/AIDS-related knowledge among Liberian young people age 15-24 and also assesses the extent to which Liberian young people are engaged in behaviors that may place them at risk of contracting HIV.

13.12.1 Knowledge about HIV/AIDS and Source for Condoms

Knowledge of how HIV is transmitted is crucial to enabling people to avoid HIV infection, and this is especially true for young people, who are often at greater risk because they may have shorter relationships with more partners or engage in other risky behaviors. Table 13.16 shows the level of comprehensive knowledge of HIV/AIDS among young people and the percentage of young people who know a source for condoms. As discussed earlier in the chapter, comprehensive knowledge of HIV/AIDS is defined as knowing that both condom use and limiting sexual intercourse to one uninfected partner are HIV prevention methods, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about HIV transmission.

Table 13.16 shows that 36 percent of young women and 29 percent of young men have comprehensive knowledge of HIV/AIDS. The proportion of young women and men age 15-19 with comprehensive knowledge of AIDS is lower than the proportion of young women and men age 20-24. Urban young people, especially

those living in Greater Monrovia, are more likely than rural young people to have comprehensive knowledge of HIV/AIDS. Among both sexes, the proportion with comprehensive knowledge increases with educational attainment.

Table 13.16 Comprehensive knowledge about AIDS and of a source of condoms among youth

Percentage of young women and young men age 15-24 with comprehensive knowledge about AIDS and percentage with knowledge of a source of condoms, by background characteristics, Liberia 2013

Background characteristic	Women age 15-24			Men age 15-24		
	Percentage with comprehensive knowledge of AIDS[1]	Percentage who know a condom source[1]	Number of women	Percentage with comprehensive knowledge of AIDS[1]	Percentage who know a condom source[1]	Number of men
Age						
15-19	34.6	63.6	2,080	19.0	53.8	890
15-17	31.7	55.7	1,311	17.5	45.4	587
18-19	39.5	77.1	769	21.9	70.1	304
20-24	37.1	81.1	1,642	40.6	86.8	696
20-22	37.0	79.0	998	41.9	86.3	466
23-24	37.2	84.4	644	38.0	87.7	231
Marital status						
Never married	36.2	68.4	2,426	28.3	65.7	1,407
Ever had sex	39.1	79.2	1,790	38.1	86.6	839
Never had sex	27.9	37.8	636	13.8	34.9	568
Ever married	34.8	76.8	1,295	30.0	88.6	179
Residence						
Urban	39.9	74.3	2,467	34.4	74.4	1,030
Greater Monrovia	45.6	76.7	1,504	40.9	80.7	631
Other urban	31.2	70.6	962	24.0	64.4	399
Rural	27.3	65.4	1,255	17.6	57.0	556
Education						
No education	21.5	65.2	495	5.3	42.3	86
Primary	26.8	59.3	1,640	14.9	44.6	585
Secondary and higher	49.4	85.7	1,586	39.3	85.9	916
Total 15-24	35.7	71.3	3,722	28.5	68.3	1,587

[1] Comprehensive knowledge means knowing that consistent use of condoms during sexual intercourse and having just one uninfected faithful partner can reduce the chance of getting HIV, knowing that a healthy-looking person can have HIV, and rejecting the two most common local misconceptions about AIDS transmission or prevention of HIV. The components of comprehensive knowledge are presented in Tables 13.2, 13.3.1 and 13.3.2.
[2] For this table, the following responses are not considered a source for condoms: friends, family members, and home.

Although only a minority of young women and men have a comprehensive knowledge of HIV/AIDS, knowledge of a source for condoms is relatively common. Seventy-one percent of young women and 68 percent of young men know a place where they can obtain a condom.

13.12.2 First Sex

Age at first sex is an important indicator of exposure to risk of pregnancy and sexually transmitted infections. Young people who initiate sex at an early age are typically at higher risk of becoming pregnant or contracting an STI than young people who delay the onset of sexual activity. Consistent condom use can reduce such risks.

In Liberia, 23 percent of young women and 9 percent of young men in the 15-24 age group report having sex before age 15 (Table 13.17). Among those age 18-24, 85 percent of young women and 58 percent of young men report having had sex before age 18.

Table 13.17 Age at first sexual intercourse among young people

Percentage of young women and young men age 15-24 who had sexual intercourse before age 15 and percentage of young women and young men age 18-24 who had sexual intercourse before age 18, by background characteristics, Liberia 2013

Background characteristic	Women age 15-24		Women age 18-24		Men age 15-24		Men age 18-24	
	Percentage who had sexual intercourse before age 15	Number of women	Percentage who had sexual intercourse before age 18	Number of women	Percentage who had sexual intercourse before age 15	Number of men	Percentage who had sexual intercourse before age 18	Number of men
Age								
15-19	23.3	2,080	na	na	8.9	890	na	na
15-17	24.5	1,311	na	na	8.1	587	na	na
18-19	21.3	769	88.9	769	10.5	304	63.3	304
20-24	22.9	1,642	82.8	1,642	9.4	696	55.4	696
20-22	23.5	998	81.6	998	9.8	466	58.8	466
23-24	21.8	644	84.7	644	8.7	231	48.4	231
Marital status								
Never married	18.0	2,426	80.3	1,208	9.0	1,407	57.0	822
Ever married	32.7	1,295	89.3	1,203	10.2	179	61.3	178
Knows condom source[1]								
Yes	24.0	2,654	85.2	1,925	11.3	1,084	62.8	817
No	20.9	1,067	83.0	487	4.5	503	35.2	183
Residence								
Urban	19.8	2,467	82.9	1,571	7.9	1,030	59.8	666
Greater Monrovia	17.5	1,504	81.5	932	6.7	631	62.1	419
Other urban	23.6	962	85.0	640	9.9	399	55.8	247
Rural	29.6	1,255	88.2	840	11.3	556	53.8	335
Education								
No education	35.9	495	88.9	428	9.6	86	46.0	67
Primary	27.5	1,640	85.5	801	8.2	585	50.5	221
Secondary and higher	14.6	1,586	82.8	1,181	9.7	916	61.1	713
Total	23.1	3,722	84.8	2,411	9.1	1,587	57.8	1,000

na = Not applicable
[1] For this table, the following responses are not considered a source for condoms: friends, family members, and home.

As expected, the proportion of young women initiating sexual intercourse by age 15 is higher among those who have ever been married than among those who were not yet married at the time of the survey. Rural young women are more likely than their urban counterparts to have initiated sex before age 15 (30 percent and 20 percent, respectively). Initiation of sexual intercourse before age 15 varies slightly according to knowledge of a condom source. Differences by education level are much more marked: among young women with no education, 36 percent have had sex before age 15 compared to 15 percent of those with secondary and higher education.

There are several notable differences between the age of initiation of sexual intercourse between young men and young women. First, the proportion of young men age 15-24 and 18-24 who had sex before age 15 or age 18 was much higher among men who knew a condom source than those who did not, whereas differences were minimal among young women. For example, among young men age 18-24, 63 percent who knew a source of condoms initiated sex before age 18, compared with 35 percent of men who did not know a condom source. Second, the proportion of young men age 15-24 who initiated sexual intercourse by age 15 showed no correlation by educational status whereas among young women, those with more education were less likely to have initiated sexual intercourse by age 15. Among young men age 18-24, those with no education (46 percent) were less likely than those with primary education (51 percent) or at least some secondary education (61 percent) to have had sexual intercourse before age 18; among women age 18-24, the

correlation was in the opposite direction, although overall differences in the proportion of women who had sex by age 18 were small.

Figure 13.2 examines trends in age at first sexual intercourse among young people. The percentage of young women age 15-19 who have had sex by age 15 has increased slightly since 2007 (from 19 percent to 23 percent). In contrast, no change is observed in the proportion of young men age 15-19 who had sex by age 15 (9 percent in both the 2007 and 2013 LDHS). The percentage of women 18-19 and men 18-19 who had sex before age 18 has also held steady between the two surveys: 88 percent of young women and 63 percent of young men had sex before age 18 according to the 2007 LDHS compared with 89 percent of young women and 63 percent of young men according to the 2013 LDHS.

Figure 13.2 Trends in age of first sexual intercourse

Percent

Percentage of women 15-19 who had sexual intercourse before exact age 15	Percentage of men 15-19 who had sexual intercourse before exact age 15	Percentage of women 18-19 who had sexual intercourse before exact age 18	Percentage of men 18-19 who had sexual intercourse before exact age 18
19 / 23	9 / 9	88 / 89	63 / 63

□ 2007 LDHS   ■ 2013 LDHS

13.12.3 Premarital Sex

The period between first sex and marriage is often a time of sexual experimentation. Table 13.18 presents information on the patterns of sexual activity among never-married young people age 15-24 in Liberia, including the percentage who have never had sexual intercourse, the percentage who engaged in sexual intercourse in the 12 months before the survey, and, among those who had sexual intercourse in the past 12 months, the percentage who used a condom during their most recent sexual encounter.

Table 13.18 Premarital sexual intercourse and condom use during premarital sexual intercourse among youth

Among never-married women and men age 15-24, the percentage who have never had sexual intercourse, the percentage who had sexual intercourse in the past 12 months, and, among those who had premarital sexual intercourse in the past 12 months, the percentage who used a condom at the last sexual intercourse, by background characteristics, Liberia 2013

| | Never-married women age 15-24 | | | | | Never-married men age 15-24 | | | | |
| | | | | Women who had sexual intercourse in the past 12 months | | | | | Men who had sexual intercourse in the past 12 months | |
Background characteristic	Percentage who have never had sexual intercourse	Percentage who had sexual intercourse in the past 12 months	Number of never married women	Percentage who used a condom at last sexual intercourse	Number of women	Percentage who have never had sexual intercourse	Percentage who had sexual intercourse in the past 12 months	Number of never married men	Percentage who used a condom at last sexual intercourse	Number of men
Age										
15-19	35.6	60.2	1,752	23.6	1,055	59.8	37.2	877	36.6	326
15-17	48.0	49.3	1,218	24.2	601	75.4	21.9	585	33.2	128
18-19	7.3	85.0	534	22.8	454	28.5	67.9	292	38.8	198
20-24	1.8	88.6	674	20.2	598	8.3	88.2	531	51.3	468
20-22	2.2	89.9	436	21.5	392	10.6	86.4	377	49.7	326
23-24	1.2	86.2	238	17.8	205	2.8	92.7	154	54.9	142
Knows condom source[1]										
Yes	14.5	79.7	1,659	23.9	1,323	21.5	74.3	925	48.9	688
No	51.6	43.0	767	16.0	330	76.6	22.2	483	21.4	107
Residence										
Urban	26.7	68.6	1,753	26.1	1,203	37.7	58.8	954	53.1	561
Greater Monrovia	28.1	68.8	1,113	33.2	766	33.9	61.5	595	59.3	366
Other urban	24.2	68.4	639	13.6	438	44.2	54.2	358	41.5	194
Rural	25.1	66.7	674	12.4	449	45.9	51.5	454	26.3	234
Education										
No education	18.2	67.1	158	4.8	106	46.1	53.9	72	(29.0)	39
Primary	37.0	57.8	1,111	16.2	642	64.7	33.4	532	20.4	178
Secondary and higher	17.0	78.1	1,157	28.8	904	23.7	71.9	804	54.0	578
Total 15-24	26.2	68.1	2,426	22.3	1,652	40.4	56.4	1,407	45.2	794

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] For this table, the following responses are not considered a source for condoms: friends, family members, and home.

Never-married young women age 15-24 are much less likely than never-married young men age 15-24 to report that they have never engaged in sexual intercourse (26 percent and 40 percent, respectively). The percentage of never-married young people who have never had sex declines rapidly with age; 48 percent of young women and 75 percent of young men age 15-17 report that they have not yet had sexual intercourse compared with 1 percent of women age 23-24 and 3 percent of men age 23-24.

Never-married young women and men who know a condom source are considerably more likely than those who do not to have ever had sexual intercourse: 15 percent of young women who know a condom source have never had sexual intercourse compared with 52 percent of young women who do not know a condom source. Similarly, 22 percent of young men who know a condom source have never had sexual intercourse, compared with 77 percent of young men who do not know a condom source. Variations in the percentages of young people who had sexual intercourse in the past 12 months by knowledge of a condom source are even more striking: 80 percent of young women and 74 percent of young men who know of a condom source had sexual intercourse in the past 12 months, compared with only 43 percent of young women and 22 percent of young men who do not know of a condom source.

Overall, 56 percent of never-married young men reported that they had sexual intercourse during the 12 months preceding the survey, compared with 68 percent of never-married young women. Among never-married young people who had intercourse in the past 12 months, condom use at last sexual intercourse was more common among young men than young women (45 percent and 22 percent, respectively).

There are large differentials by background characteristics in the percentages of never-married young people using condoms during their most recent sexual intercourse in the past 12 months. Condom use at last sexual intercourse increases with education and, not surprisingly, is more common among those who know a condom source. Condom use at last sexual intercourse is also more common among never-married young women and young men in Greater Monrovia (33 percent and 59 percent, respectively) than among those in other urban areas (14 percent and 42 percent, respectively) or rural areas (12 percent and 26 percent, respectively).

13.12.4 Multiple Sexual Partners

The most common means of transmission of HIV in Liberia is through unprotected sex with an infected person. To prevent HIV transmission, it is important that young people practice safe sex. Tables 13.19.1 and 13.19.2 present data on the percentage of young people who had engaged in sexual intercourse with more than one partner in the 12 months before the survey and the rate of condom use at last sex.

Table 13.19.1 Multiple sexual partners in the past 12 months among young people: Women

Among all young women age 15-24, the percentage who had sexual intercourse with more than one sexual partner in the past 12 months, and among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse, by background characteristics, Liberia 2013

| Background characteristic | Women age 15-24 | | Women age 15-24 who had 2+ partners in the past 12 months | |
	Percentage who had 2+ partners in the past 12 months	Number of women	Percentage who reported using a condom at last intercourse	Number of women
Age				
15-19	8.6	2,080	27.1	179
15-17	6.1	1,311	17.6	80
18-19	12.9	769	34.8	99
20-24	8.6	1,642	23.6	142
20-22	9.1	998	22.6	91
23-24	7.9	644	(25.4)	51
Marital status				
Never married	9.5	2,426	29.0	229
Ever married	7.0	1,295	16.8	91
Knows condom source[1]				
Yes	10.4	2,654	28.5	277
No	4.1	1,067	(6.6)	43
Residence				
Urban	10.3	2,467	29.2	255
Greater Monrovia	10.8	1,504	37.4	163
Other urban	9.5	962	14.6	92
Rural	5.2	1,255	11.6	65
Education				
No education	5.7	495	(24.3)	28
Primary	7.0	1,640	17.4	115
Secondary and higher	11.1	1,586	31.1	177
Total 15-24	8.6	3,722	25.6	320

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] For this table, the following responses are not considered a source for condoms: friends, family members, and home.

Among all young men age 15-24, the percentage who had sexual intercourse with more than one sexual partner in the past 12 months, and among those having more than one partner in the past 12 months, the percentage reporting that a condom was used at last intercourse, by background characteristics, Liberia 2013

Background characteristic	Men age 15-24		Men age 15-24 who had 2+ partners in the past 12 months	
	Percentage who had 2+ partners in the past 12 months	Number of men	Percentage who reported using a condom at last intercourse	Number of men
Age				
15-19	4.4	890	(21.6)	39
15-17	1.8	587	*	10
18-19	9.3	304	(25.3)	28
20-24	22.1	696	35.2	154
20-22	21.2	466	40.7	99
23-24	23.9	231	25.4	55
Marital status				
Never married	9.6	1,407	37.4	135
Ever married	32.2	179	20.8	58
Knows condom source[1]				
Yes	16.8	1,084	34.4	182
No	2.2	503	*	11
Residence				
Urban	11.7	1,030	38.5	121
Greater Monrovia	8.6	631	*	54
Other urban	16.7	399	33.0	67
Rural	12.9	556	22.2	72
Education				
No education	13.6	86	*	12
Primary	6.6	585	29.9	39
Secondary and higher	15.5	916	33.8	142
Total 15-24	12.1	1,587	32.4	193

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] For this table, the following responses are not considered a source for condoms: friends, family members, and home.

Young men were somewhat more likely than young women to report having multiple sexual partners in the 12 months preceding the survey (12 percent and 9 percent, respectively). Among young people who had ever been married, only 7 percent of young women reported having had sexual intercourse with more than one partner in the previous 12 months, compared with 32 percent of young men. The percentage of young men, but not young women, who reported having sexual intercourse with more than one partner in the past 12 months increased with increasing age.

Among young men who had multiple partners in the past 12 months, 32 percent reported that they used a condom during their most recent sexual intercourse. The proportion of young women who had multiple partners in the last 12 months and who used a condom during their last sexual intercourse was 26 percent.

13.12.5 Age-mixing in Sexual Relationships

In many societies, young women have sexual relationships with men who are considerably older than they are. This practice can contribute to the spread of HIV and other STIs because if a younger, uninfected partner has sex with an older, infected partner, this can introduce the virus into a younger, uninfected cohort. To investigate this practice, women age 15-19 who had a sexual partner in the 12 months preceding the survey were asked the age of the partner. Table 13.20 shows that in the year preceding the survey, 11 percent of young women age 15-19 who had sexual intercourse had sex with a man 10 or more years older.

Similarly, young men age 15-19 who reported that they had a sexual partner in the past 12 months were asked the age of the partner. Less than 1 percent reported having a partner 10 or more years older.

Table 13.20 Age-mixing in sexual relationships among women and men age 15-19

Among women and men age 15-19 who had sexual intercourse in the past 12 months, percentage who had sexual intercourse with a partner who was 10 or more years older than themselves, by background characteristics, Liberia 2013

| Background characteristic | Women age 15-19 who had sexual intercourse in the past 12 months | | Men age 15-19 who had sexual intercourse in the past 12 months | |
	Percentage who had sexual intercourse with a man 10+ years older	Number of women	Percentage who had sexual intercourse with a woman 10+ years older	Number of men
Age				
15-17	10.0	681	0.0	129
18-19	11.5	671	0.6	210
Marital status				
Never married	8.2	1,055	0.4	326
Ever married	19.6	298	*	13
Knows condom source[1]				
Yes	11.4	1,024	0.5	272
No	8.8	328	0.0	68
Residence				
Urban	10.4	882	0.6	212
Greater Monrovia	11.3	527	(0.0)	127
Other urban	9.0	355	1.5	85
Rural	11.4	470	0.0	128
Education				
No education	17.4	103	*	17
Primary	9.6	689	0.3	124
Secondary and higher	10.9	561	0.5	199
Total 15-19	10.7	1,352	0.4	340

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] For this table, the following responses are not considered a source for condoms: friends, family members, and home.

13.12.6 Coverage of HIV Testing Services

Seeking an HIV test may be more difficult for young people than adults because many young people lack experience in accessing health services for themselves and because there are often barriers to young people obtaining services. Table 13.21 presents data on the percentage of sexually active young people being tested and receiving the results within the past year.

Overall, young women are much more likely than young men to have been tested for HIV and to have received the results of the test (21 percent and 10 percent, respectively). Coverage of HIV testing services among young people has improved dramatically over the last six years. In the 2007 LDHS, only 2 percent of young women and men were tested for HIV and received their results in the 12 months preceding the survey.

Table 13.21 Recent HIV tests among youth

Among young women and young men age 15-24 who have had sexual intercourse in the past 12 months, the percentage who were tested for HIV in the past 12 months and received the results of the last test, by background characteristics, Liberia 2013

| | Women age 15-24 who have had sexual intercourse in the past 12 months: | | Men age 15-24 who have had sexual intercourse in the past 12 months: | |
| | Percentage who have been tested for HIV in the past 12 months and received the results of the last test | Number of women | Percentage who have been tested for HIV in the past 12 months and received the results of the last test | Number of men |
Background characteristic				
Age				
15-19	17.0	1,352	8.1	340
15-17	12.4	681	6.8	129
18-19	21.8	671	8.8	210
20-24	24.8	1,485	10.5	632
20-22	23.3	898	10.9	413
23-24	27.0	586	9.8	218
Marital status				
Never married	17.0	1,652	10.0	794
Ever married	26.8	1,185	7.9	177
Knows condom source[1]				
Yes	23.0	2,243	10.5	844
No	14.0	595	4.3	127
Residence				
Urban	20.7	1,862	12.2	637
Greater Monrovia	19.9	1,135	11.6	403
Other urban	21.9	727	13.2	235
Rural	21.8	975	4.8	334
Education				
No education	19.4	409	0.5	52
Primary	19.8	1,121	3.2	230
Secondary and higher	22.7	1,307	12.5	689
Total 15-24	21.1	2,837	9.7	971

[1] For this table, the following responses are not considered a source for condoms: friends, family members, and home.

HIV PREVALENCE

14

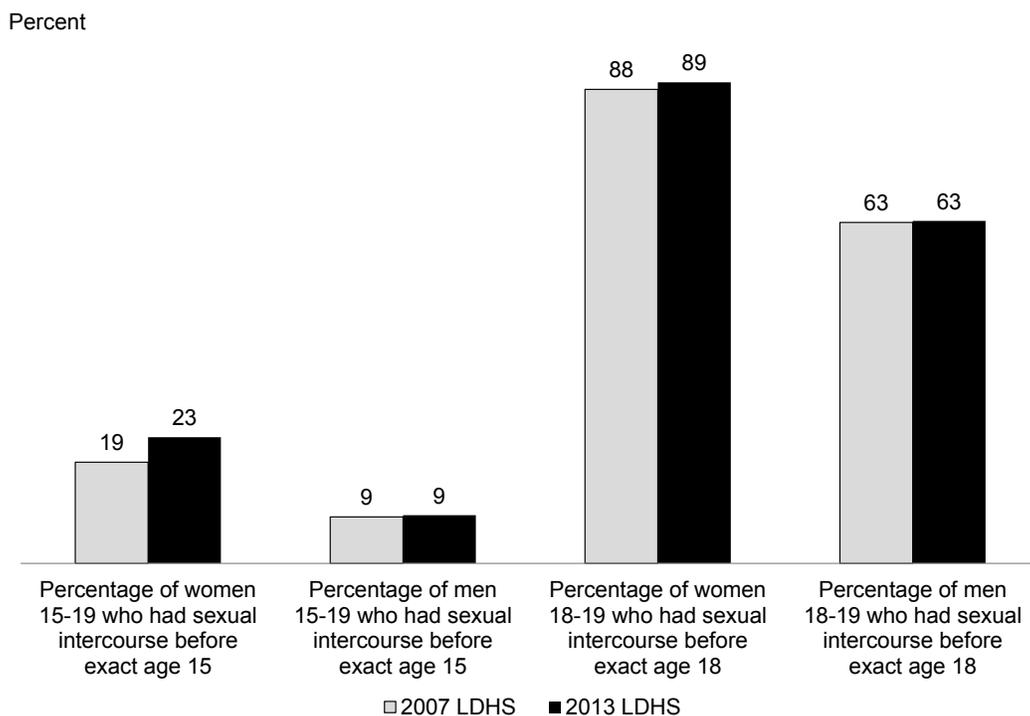| Key Findings |
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| **Key Findings** |

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Key Findings

- Only 1.9 percent of Liberian adults age 15-49 are infected with HIV. In the 2007 LDHS, the HIV prevalence rate for adults was 1.5 percent. However, the difference in the estimates of HIV prevalence between the two surveys is not statistically significant.

- The HIV prevalence rate among women age 15-49 is 2.0 percent and among men age 15-49 is 1.7 percent. Among women, HIV prevalence peaks at 3.6 percent in the 25-29 age group; among men, HIV prevalence peaks at 3.6 percent in the 40-44 age group.

- Among women and men combined, HIV prevalence is higher in urban areas (2.6 percent) than in rural areas (0.8 percent). And among urban dwellers, HIV prevalence is higher in Greater Monrovia (3.2 percent) than in other urban areas (1.7 percent).

- HIV prevalence is higher among women age 15-49 who are pregnant (4.6 percent) than among those who are not pregnant or are not sure (1.8 percent).

- One percent of young people age 15-24 are infected with HIV. HIV prevalence among women age 15-24 is 1.4 percent; HIV prevalence among men age 15-24 is 0.5 percent.

- Over half (55 percent) of women and men who are infected with HIV have not previously been tested or have been tested but have not received the result.

- Nearly 1,600 cohabiting couples were tested for HIV in the 2013 LDHS, and in 96.8 percent, both partners were HIV negative. In 0.5 percent of couples, both partners were HIV positive. Just under 3 percent (2.8 percent) of couples were discordant, that is, one partner was infected with HIV and the other was not.

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Information on national HIV prevalence in Liberia typically comes from sentinel surveillance of HIV among pregnant women attending prenatal clinics. Other sources of information derive from routine hospital-based surveys and focused surveillance of special populations, such as the recently completed Integrated Bio-Behavioral Surveillance Survey (IBBSS) carried out among Liberia's most at-risk population by the National AIDS Control Program (NACP) of the Ministry of Health and Social Welfare in collaboration with the National AIDS Commission (MOHSW and NAC, 2014). Together, these surveys provide information on HIV prevalence among special groups. However, such surveillance data do not provide an estimate of the HIV prevalence among the general Liberian population.

As part of the 2007 LDHS, it was therefore decided to test a representative sample of women and men age 15-49 for HIV. The 2007 LDHS provided, for the first time, direct estimates of HIV prevalence among the general adult female and male populations in Liberia. Also available were details of HIV prevalence by age, residence, region, and other socioeconomic characteristics. In addition, HIV prevalence was analyzed according to demographic characteristics and sexual behavior to identify factors associated with the epidemic.

Given that large population-based surveys such as the LDHS cannot be repeated each year, the 2007 results were used to calibrate estimates based on the sentinel surveillance system in order to monitor the epidemic over time on a regular basis.

To obtain a new estimate of HIV prevalence among the general population and provide updated information on the characteristics of the epidemic, it was decided to repeat HIV testing in the 2013 LDHS. Test results will be used to refine HIV prevalence estimates based on the sentinel surveillance system and allow better monitoring of the epidemic. The 2013 LDHS HIV prevalence estimates will also be used to project the future path of the HIV epidemic in Liberia, and to identify interventions to stall its spread.

The methodology for HIV testing is described in detail in the first chapter. This chapter addresses the results of the testing and provides information on HIV testing coverage rates among eligible survey respondents. It also compares HIV prevalence estimates from the 2007 LDHS and 2013 LDHS and discusses levels and differentials in HIV prevalence among those tested.

14.1 COVERAGE RATES FOR HIV TESTING

Table 14.1 shows the distribution of women and men age 15-49 eligible for HIV testing by testing outcome. Overall, 90 percent of LDHS respondents who were eligible for testing were both interviewed and tested. Testing coverage rates were higher among women than among men (92 percent and 88 percent, respectively). Among all respondents eligible for testing, 7 percent refused to provide blood and 2 percent were absent at the time of blood collection. Among both women and men, refusal was a larger component of nonresponse than absence. A comparison of the 2007 LDHS and 2013 LDHS indicates that HIV coverage rates have improved, from 87 percent to 92 percent among women and from 80 percent to 88 percent among men.

By residence, coverage of HIV testing among all eligible respondents was higher in rural areas (92 percent) than in urban areas (88 percent). Among urban areas, coverage was lower in Greater Monrovia (86 percent) than other urban areas (89 percent). Among the regions, coverage rates were generally high and ranged from a low of 86 percent in South Eastern A and South Eastern B to a high of 95 percent in North Western.

Table 14.1 Coverage of HIV testing by residence and region

Percent distribution of women and men age 15-49 eligible for HIV testing by testing status, according to residence and region (unweighted), Liberia 2013

Residence and region	DBS tested[1] Inter-viewed	DBS tested[1] Not inter-viewed	Refused to provide blood Inter-viewed	Refused to provide blood Not inter-viewed	Absent at the time of blood collection Inter-viewed	Absent at the time of blood collection Not inter-viewed	Other/missing[2] Inter-viewed	Other/missing[2] Not inter-viewed	Total	Number
WOMEN										
Residence										
Urban	89.8	0.3	7.4	0.9	0.2	1.1	0.1	0.2	100.0	1,870
Greater Monrovia	87.9	0.0	10.4	1.0	0.3	0.2	0.0	0.2	100.0	577
Other urban	90.6	0.5	6.1	0.8	0.2	1.5	0.2	0.2	100.0	1,293
Rural	93.1	0.4	4.2	0.7	0.2	1.1	0.1	0.1	100.0	2,897
Region										
North Western	96.1	0.1	3.3	0.1	0.0	0.4	0.0	0.0	100.0	800
South Central	90.5	0.0	8.2	0.5	0.1	0.4	0.0	0.2	100.0	1,374
South Eastern A	88.0	0.6	6.8	1.4	0.4	2.3	0.1	0.4	100.0	725
South Eastern B	88.2	0.9	6.3	1.2	0.5	2.4	0.5	0.0	100.0	765
North Central	95.3	0.5	2.3	0.7	0.2	0.9	0.0	0.1	100.0	1,103
Total	91.8	0.4	5.5	0.7	0.2	1.1	0.1	0.1	100.0	4,767
MEN										
Residence										
Urban	85.6	0.4	8.5	1.8	0.2	2.9	0.5	0.2	100.0	1,680
Greater Monrovia	84.4	0.4	9.0	3.7	0.4	0.6	1.2	0.2	100.0	487
Other urban	86.1	0.4	8.2	1.0	0.1	3.9	0.2	0.2	100.0	1,193
Rural	89.7	0.4	5.5	1.3	0.1	2.2	0.5	0.3	100.0	2,638
Region										
North Western	94.5	0.0	3.7	0.3	0.0	1.0	0.3	0.1	100.0	677
South Central	87.8	0.2	8.3	1.8	0.2	0.8	0.6	0.3	100.0	1,231
South Eastern A	83.8	0.4	7.6	1.9	0.3	4.7	1.3	0.0	100.0	749
South Eastern B	82.7	1.1	8.0	2.1	0.1	5.5	0.1	0.4	100.0	729
North Central	91.5	0.5	4.8	1.2	0.0	1.6	0.0	0.3	100.0	932
Total	88.1	0.4	6.6	1.5	0.1	2.5	0.5	0.3	100.0	4,318
TOTAL										
Residence										
Urban	87.8	0.4	7.9	1.3	0.2	2.0	0.3	0.2	100.0	3,550
Greater Monrovia	86.3	0.2	9.8	2.3	0.4	0.4	0.6	0.2	100.0	1,064
Other urban	88.5	0.4	7.1	0.9	0.1	2.7	0.2	0.2	100.0	2,486
Rural	91.5	0.4	4.8	1.0	0.2	1.6	0.3	0.2	100.0	5,535
Region										
North Western	95.4	0.1	3.5	0.2	0.0	0.7	0.1	0.1	100.0	1,477
South Central	89.3	0.1	8.3	1.1	0.2	0.6	0.3	0.3	100.0	2,605
South Eastern A	85.9	0.5	7.2	1.6	0.3	3.5	0.7	0.2	100.0	1,474
South Eastern B	85.5	1.0	7.1	1.6	0.3	3.9	0.3	0.2	100.0	1,494
North Central	93.6	0.5	3.4	0.9	0.1	1.2	0.0	0.2	100.0	2,035
Total	90.1	0.4	6.0	1.1	0.2	1.8	0.3	0.2	100.0	9,085

[1] Includes all dried blood samples (DBS) tested at the lab and for which there is a result, i.e., positive, negative, or indeterminate. Indeterminate means that the sample went through the entire algorithm, but the final result was inconclusive.
[2] Includes (1) other results of blood collection (e.g., technical problem in the field), (2) lost specimens, (3) noncorresponding bar codes, and (4) lab results such as blood not tested for a technical reason, not enough blood to complete the algorithm, etc.

Table 14.2 shows coverage of HIV testing by background characteristics. Coverage rates for HIV testing among women were 91 percent or above across all age groups with the exception of the age group 40-44 with an 88 percent rate. Among men, coverage rates for HIV testing were similarly high across all age groups (87-91 percent).

Table 14.2 Coverage of HIV testing by selected background characteristics

Percent distribution of women age 15-49 and men age 15-49 eligible for HIV testing by testing status, according to selected background characteristics (unweighted), Liberia 2013

| Background characteristic | Testing status | | | | | | | | Total | Number |
| | DBS tested[1] | | Refused to provide blood | | Absent at the time of blood collection | | Other/missing[2] | | | |
	Inter-viewed	Not inter-viewed	Inter-viewed	Not inter-viewed	Inter-viewed	Not inter-viewed	Inter-viewed	Not inter-viewed		
WOMEN										
Age										
15-19	92.9	0.2	3.8	0.8	0.2	1.8	0.0	0.2	100.0	963
20-24	93.0	0.2	4.9	0.7	0.5	0.6	0.0	0.1	100.0	824
25-29	92.0	0.2	6.4	0.1	0.0	1.0	0.1	0.1	100.0	830
30-34	91.4	0.2	6.2	1.3	0.0	0.8	0.2	0.0	100.0	627
35-39	91.0	0.5	6.1	0.6	0.2	1.3	0.0	0.3	100.0	624
40-44	88.3	1.0	7.6	1.0	0.6	1.0	0.4	0.0	100.0	489
45-49	92.4	0.7	4.1	0.7	0.2	1.2	0.2	0.2	100.0	410
Education										
No education	91.5	0.6	5.2	1.1	0.2	1.0	0.2	0.2	100.0	1,931
Primary	93.8	0.1	4.3	0.5	0.1	1.1	0.1	0.0	100.0	1,617
Secondary and higher	90.7	0.4	6.8	0.3	0.4	1.3	0.0	0.3	100.0	1,135
Wealth quintile										
Lowest	92.0	0.6	4.5	1.1	0.3	1.2	0.1	0.1	100.0	1,394
Second	94.6	0.3	3.4	0.2	0.2	1.1	0.2	0.0	100.0	1,209
Middle	92.3	0.4	4.9	0.7	0.2	1.3	0.1	0.1	100.0	960
Fourth	91.0	0.1	7.2	0.6	0.0	0.7	0.1	0.1	100.0	670
Highest	85.0	0.2	11.6	1.1	0.4	1.1	0.0	0.6	100.0	534
Total	91.8	0.4	5.5	0.7	0.2	1.1	0.1	0.1	100.0	4,767
MEN										
Age										
15-19	87.9	0.8	6.2	1.5	0.2	2.8	0.4	0.2	100.0	894
20-24	87.2	0.6	6.9	1.2	0.1	3.2	0.3	0.4	100.0	682
25-29	87.6	0.1	7.2	1.6	0.0	2.7	0.6	0.1	100.0	671
30-34	87.9	0.2	7.5	1.3	0.2	2.2	0.6	0.2	100.0	627
35-39	87.5	0.7	7.4	1.6	0.2	2.1	0.4	0.2	100.0	570
40-44	89.5	0.0	5.7	2.0	0.0	2.0	0.6	0.4	100.0	512
45-49	90.6	0.3	5.2	1.4	0.3	1.7	0.3	0.3	100.0	362
Education										
No education	86.9	0.8	5.4	2.5	0.0	3.4	0.3	0.8	100.0	647
Primary	90.0	0.4	5.9	1.3	0.1	1.9	0.3	0.1	100.0	1,458
Secondary and higher	87.6	0.3	6.9	1.3	0.2	2.8	0.6	0.2	100.0	2,012
Wealth quintile										
Lowest	90.2	0.3	4.7	1.5	0.2	2.3	0.5	0.3	100.0	1,226
Second	89.9	0.4	4.6	1.4	0.1	3.0	0.5	0.2	100.0	1,103
Middle	88.3	0.9	6.1	0.8	0.0	3.3	0.1	0.4	100.0	849
Fourth	84.7	0.0	11.9	1.0	0.2	1.4	0.9	0.0	100.0	582
Highest	83.2	0.4	10.2	3.2	0.4	1.8	0.5	0.4	100.0	558
Total	88.1	0.4	6.6	1.5	0.1	2.5	0.5	0.3	100.0	4,318

[1] Includes all dried blood samples (IDBS) tested at the lab for which there is a result, i.e. positive, negative, or indeterminate. Indeterminate means that the sample went through the entire algorithm, but the final result was inconclusive.
[2] Includes (1) other results of blood collection (e.g. technical problem in the field), (2) lost specimens, (3) noncorresponding bar codes, and (4) other lab results such as blood not tested for technical reason, not enough blood to complete the algorithm, etc.

By education level, testing coverage levels were higher for women and men with only primary education than for those who had no education or some secondary education. Women in the highest wealth quintile and men in the two highest wealth quintiles had lower coverage rates than those in lower wealth quintiles.

Additional tables describing the relationship between participation in HIV testing and characteristics related to HIV risk are presented in Appendix A (see Tables A.7-A.10). Overall, the results in Tables A.7-A.10 do not show a systematic relationship between participation in testing and variables associated with a higher risk of HIV infection.

14.2   HIV PREVALENCE

14.2.1 HIV Prevalence by Age and Sex

The HIV-1 prevalence observed in the 2013 LDHS among adults age 15-49 is 1.9 percent (Table 14.3). HIV-1 prevalence is comparable between women and men age 15-49 (2.0 and 1.7 percent, respectively). Among women, peak prevalence occurs in the 25-29 age group (3.6 percent); among men, prevalence is highest among those age 40-44 (3.6 percent). There is no consistent pattern of HIV-1 prevalence by age among either women or men; rather, the prevalence fluctuates by age group.

Table 14.3 HIV prevalence by age

Among the de facto women age 15-49 and men age 15-49 who were interviewed and tested, the percentage HIV positive, by age, Liberia 2013

	Women				Men				Total			
Age	Percent-age HIV-1 positive	Percent-age HIV-2 positive	Percent-age HIV-1 or HIV-2 positive	Number	Percent-age HIV-1 positive	Percent-age HIV-2 positive	Percent-age HIV-1 or HIV-2 positive	Number	Percent-age HIV-1 positive	Percent-age HIV-2 positive	Percent-age HIV-1 or HIV-2 positive	Number
15-19	0.2	0.0	0.2	996	0.6	0.4	1.0	825	0.4	0.2	0.6	1,820
20-24	2.9	0.0	2.9	822	0.5	0.0	0.5	642	1.8	0.0	1.8	1,464
25-29	3.6	0.3	4.0	765	2.2	0.0	2.2	620	3.0	0.2	3.2	1,386
30-34	1.8	0.0	1.8	545	2.8	0.0	2.8	505	2.3	0.0	2.3	1,050
35-39	2.6	0.2	2.8	551	2.1	0.0	2.1	429	2.4	0.1	2.5	979
40-44	0.2	3.3	3.5	391	3.6	0.0	3.6	452	2.0	1.5	3.6	843
45-49	3.1	0.0	3.1	328	1.5	0.1	1.6	312	2.3	0.0	2.3	640
Total	2.0	0.4	2.4	4,397	1.7	0.1	1.8	3,785	1.9	0.3	2.1	8,182

Only a tiny fraction of women and men age 15-49 are infected with HIV-2 (0.3 percent). No women or men were observed to be infected with both HIV-1 and HIV-2 (data not shown). In the remainder of this chapter, results are presented only for HIV-1 infection. Consequently, in Tables 14.4-14.11 and in the rest of the text of this chapter, HIV infection refers only to those individuals infected with HIV-1.

Liberia is characterized by the UNAIDS classification scheme as having a low-level generalized HIV epidemic with an HIV prevalence that consistently exceeds 1 percent among pregnant women (NAC, 2010). The 2013 LDHS HIV prevalence estimates are consistent with this classification, and are also in line with other recent estimates. For example, based on data collected from the prenatal clinic surveillance system in 2011, the HIV prevalence was estimated to be 2.6 percent among prenatal clinic attendees[1] (MOHSW and NACP, 2011).

A comparison of the 2007 LDHS and 2013 LDHS HIV prevalence estimates indicates that HIV prevalence for all adults age 15-49 increased from 1.5 percent to 1.9 percent. Prevalence among women age 15-49 shifted from 1.8 to 2.0 percent, and prevalence among men age 15-49 increased from 1.2 percent to 1.7

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[1] Prevalence estimates by HIV type were as follows: 1.4 percent HIV-1 only, 0.1 percent HIV-2 only, and 1.1 percent both HIV-1 and HIV-2. Prevalence estimates ranged from 0.3 percent to 6.3 percent, depending on the sentinel site analyzed.

percent. Note, however, that the differences between the 2007 and 2013 estimates of HIV prevalence are not statistically significant. As shown in Figure 14.1, the confidence intervals (CIs) for the 2007 and 2013 HIV prevalence estimates for all adults age 15-49 overlap (1.3-1.8 and 1.3-2.5, respectively). Similarly, by sex, there are no statistically significant changes in HIV prevalence among women or men between the two surveys. For women, the confidence interval is 1.4-2.7 compared with 1.4-2.2 reported in 2007. For men, the confidence interval is 1.0-2.5 compared with 0.8-1.5 reported in 2007 LDHS. Thus, the small differences in HIV prevalence observed between the two surveys are not large enough to be statistically significant with the sample sizes of the surveys.

Figure 14.1 HIV prevalence among all adults age 15-49, and by sex, Liberia 2007 and 2013
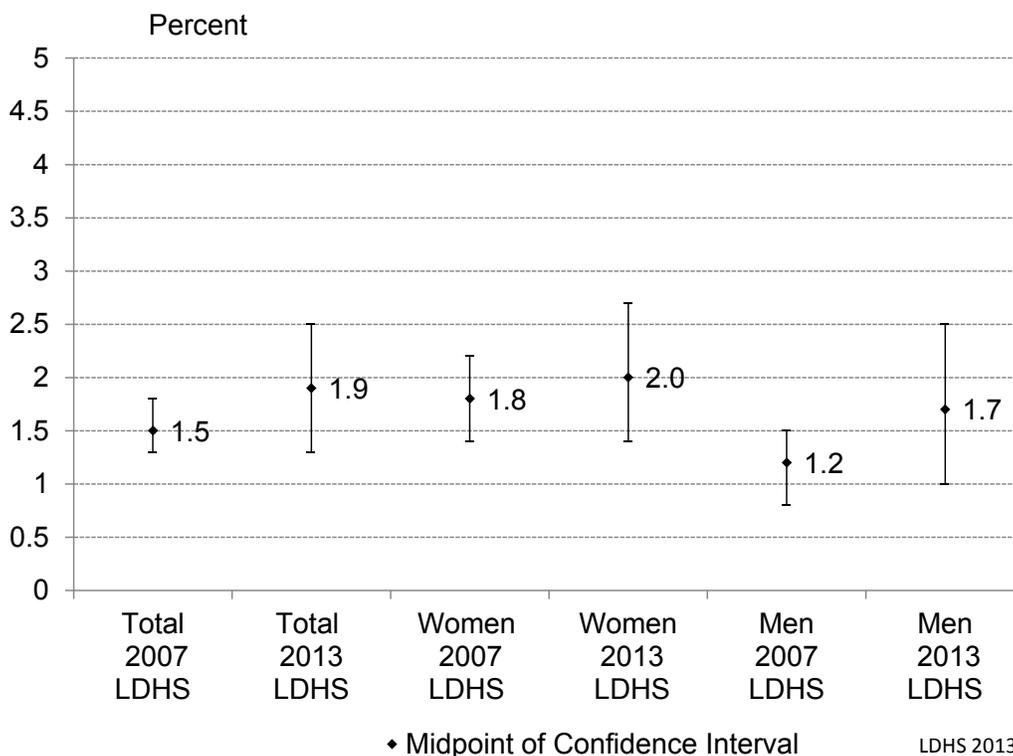
The HIV prevalence estimate for the 15-19 age group is assumed to represent new infections and therefore serves as a proxy for HIV incidence among young people. A comparison of HIV prevalence estimates in the 15-19 age group between the 2007 LDHS (0.9 percent) and the 2013 LDHS (0.4 percent) reveals prevalence has remained stable or slightly declined among this age group. This is an encouraging finding in terms of the prospects of achieving the Millennium Development Goal (MDG) 6, which calls for halting and beginning to reverse the spread of HIV/AIDS by 2015.

14.2.2 HIV Prevalence by Socioeconomic Characteristics

Table 14.4 shows the variation in HIV prevalence among women and men age 15-49 by socioeconomic characteristics. Differences by socioeconomic characteristic are small. Nevertheless, several observations warrant attention. Among women and men combined, HIV prevalence is higher in urban areas (2.6 percent) than in rural areas (0.8 percent). Among urban areas, prevalence is higher in Greater Monrovia (3.2 percent) than in other urban areas (1.7 percent). The higher prevalence in Greater Monrovia relative to other geographic areas may reflect the fact that Monrovia is the largest city in Liberia; because of the diverse opportunities it affords, Monrovia continues to attract migrants, both those displaced as a result of the civil

conflict and those seeking new economic opportunities. Such persons may be separated from their spouses or regular sexual partners, putting them at increased risk of engaging in transactional sex, finding new sexual partners, or both, which may increase their risk of contracting HIV.

Table 14.4 HIV prevalence by socioeconomic characteristics

Percentage HIV positive among women and men age 15-49 who were tested, by socioeconomic characteristics, Liberia 2013

Socioeconomic characteristic	Women		Men		Total	
	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number
Religion						
Christian	2.2	3,748	1.8	3,097	2.0	6,845
Muslim	1.4	512	2.2	498	1.8	1,010
Traditional religion	*	23	0.0	51	0.0	75
No religion	0.0	107	0.0	123	0.0	230
Other	*	1	nc	0	*	1
Employment (past 12 months)						
Not employed	2.6	1,954	1.5	981	2.3	2,935
Employed	1.5	2,443	1.8	2,803	1.7	5,247
Residence						
Urban	2.7	2,653	2.5	2,218	2.6	4,871
Greater Monrovia	3.0	1,605	3.4	1,311	3.2	2,917
Other urban	2.3	1,048	1.1	907	1.7	1,955
Rural	1.0	1,744	0.7	1,567	0.8	3,311
Region						
North Western	1.2	396	0.4	338	0.9	734
South Central	2.6	2,293	2.9	1,975	2.7	4,268
South Eastern A	1.1	231	1.5	233	1.3	465
South Eastern B	2.7	283	0.8	264	1.8	547
North Central	1.2	1,194	0.2	974	0.7	2,168
Education						
No education	2.3	1,461	2.1	487	2.3	1,947
Primary	1.5	1,335	1.4	1,119	1.5	2,454
Secondary and higher	2.2	1,602	1.8	2,179	2.0	3,781
Wealth quintile						
Lowest	0.7	780	0.8	702	0.8	1,482
Second	0.8	810	0.5	703	0.7	1,513
Middle	1.5	815	0.9	673	1.2	1,488
Fourth	3.5	1,010	2.3	768	3.0	1,778
Highest	3.0	982	3.5	939	3.3	1,921
Total	2.0	4,397	1.7	3,785	1.9	8,182

Note: For women, the total includes 8 cases for which information on religion is missing. For men, the total includes 13 cases for which information on religion is missing and 1 case for which information on employment is missing. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
nc = No cases
[1] HIV positive refers only to individuals infected with HIV-1. Individuals infected with HIV-2 only are not counted as HIV positive when calculating the numerator of the percentages.

There is no clear correlation between education level and HIV prevalence; however, prevalence generally increases with increasing wealth quintile. For women, HIV prevalence increases from 0.7 percent among those in the lowest wealth quintile to 3.5 and 3.0 percent among those in the highest two wealth quintiles, respectively. For men, HIV prevalence increases from 0.8 percent among those in the lowest wealth quintile to 3.5 percent among those in the highest.

14.2.3 HIV Prevalence by Other Sociodemographic and Health Characteristics

Table 14.5 shows HIV prevalence by demographic characteristics. Marital status and HIV prevalence are related, with the highest infection rates among widowed women (9.0 percent) and divorced or separated men (5.1

percent). Those who have never been married have a lower HIV prevalence than those who are married (1.1 percent and 2.1 percent, respectively). HIV prevalence among men and women in non-polygynous unions differed little (2.3 percent and 2.1 percent, respectively). However, women in polygynous unions were more likely than men in polygynous unions to be infected with HIV (2.6 percent and 0.0 percent, respectively).

Table 14.5 HIV prevalence by demographic characteristics

Percentage HIV positive among women and men age 15-49 who were tested, by demographic characteristics, Liberia 2013

Demographic characteristic	Women		Men		Total	
	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number
Marital status						
Never married	1.3	1,434	1.0	1,617	1.1	3,051
Ever had sexual intercourse	1.6	1,143	1.5	1,089	1.5	2,232
Never had sexual intercourse	0.0	291	0.1	528	0.1	819
Married/living together	2.1	2,541	2.1	2,025	2.1	4,566
Divorced or separated	2.3	315	5.1	121	3.1	436
Widowed	9.0	107	*	22	7.4	129
Type of union						
In polygynous union	2.6	338	0.0	238	1.5	576
In non-polygynous union	2.1	2,149	2.3	1,966	2.2	4,115
Not currently in union	1.9	1,856	1.3	1,544	1.6	3,401
In union, polygyny status unknown or missing	0.0	54	(0.0)	35	0.0	89
Currently pregnant						
Pregnant	4.6	372	na	na	na	na
Not pregnant or not sure	1.8	4,026	na	na	na	na
Prenatal care for last birth in the last 3 years						
Prenatal care provided by the public sector	1.6	1,436	na	na	na	na
Prenatal care provided by other than the public sector	3.1	313	na	na	na	na
No prenatal care/No birth in last 3 years	2.1	2,645	na	na	na	na
Male circumcision						
Circumcised	na	na	1.8	3,754	na	na
Not circumcised	na	na	(0.0)	25	na	na
Total	2.0	4,397	1.7	3,785	1.9	8,182

Note: For women, total includes 3 cases for which information on prenatal care is missing. For men, total includes 5 cases for which information on circumcision is missing. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
na = not applicable
[1] HIV positive refers only to individuals infected with HIV-1. Individuals infected with HIV-2 only are not counted as HIV positive when calculating the numerator of the percentages.

Women who were pregnant at the time of the survey had a higher HIV prevalence rate than those who were not pregnant or who were unsure of their pregnancy status (4.6 percent and 1.8 percent, respectively). This correlates with the three previous ANC survey results that show higher HIV prevalence among pregnant women than other women (MOHSW and NACP, 2011). HIV prevalence varied little by whether or not women received prenatal care for their last birth in the three-year period preceding the survey or by source of prenatal care (public sector or another source) among those who received it.

Male circumcision is assumed to reduce the risk of HIV infection, in part because of physiological differences that decrease the susceptibility to HIV infection among circumcised men. Several recent studies in

sub-Saharan Africa, including clinical trials conducted in South Africa, Kenya, and Uganda (Auvert et al., 2005; NIAID, 2006), have documented that the protective effect of male circumcision is significant.

Table 14.5 also presents data on the relationship between HIV prevalence and male circumcision among men age 15-49 who were tested for HIV in the survey and who responded to the question about their circumcision status. However, as male circumcision in Liberia is nearly universal (see Table 13.13), there are too few cases of uncircumcised men to allow for a robust comparison of circumcision status on HIV prevalence.

14.2.4 HIV Prevalence by Sexual Risk Behavior

Chapter 13 of the 2013 LDHS has shown that HIV knowledge in the general population is relatively high, yet risky behaviors, including high numbers of sexual partners and a lack of condom use, are common and therefore remain a significant public health concern. Table 14.6 presents HIV prevalence rates by sexual behavior characteristics among respondents who have ever had sexual intercourse. In reviewing these results, it is important to remember that responses about sexual risk behaviors may be subject to reporting bias. Also, sexual behavior in the 12 months preceding the survey may not adequately reflect lifetime sexual risk. Nor is it possible to know the sequence of events (e.g., whether any reported condom use occurred before or after HIV transmission).

Table 14.6 shows no clear relationship between HIV prevalence with increasing age at sexual debut among women or men who ever had sex. The association of HIV prevalence with multiple sexual partners and partner concurrency was also examined in the 2013 LDHS. A respondent was considered to have had concurrent partners if he or she had overlapping sexual partnerships with two or more people during the 12 months before the survey. Among men, this included those who had overlapping sexual partnerships with two or more, or polygynous, wives.

Among women, HIV prevalence was higher among those who had no sexual partners (3.1 percent) or two or more sexual partners (2.9 percent) in the past 12 months than among those who had only one partner in the past 12 months (2.0 percent). Women who had concurrent partners were less likely than those who had no concurrent partners to be infected with HIV (1.9 percent and 3.8 percent, respectively). Among men, there was no difference in prevalence among those who had no partners in the past 12 months compared with those who had one or more. However, as with women, prevalence was lower among men who had concurrent partners (0.9 percent) than among those who did not (2.3 percent).

Among both women and men, there is no clear correlation between HIV prevalence and number of lifetime partners. For example, only 0.7 percent of women who had one partner were HIV positive compared with 2.8 percent who had three to nine partners and 1.9 percent who had 10 or more. For men, prevalence is lower among those who have had three to four or five to nine partners than among those who have had fewer or more lifetime partners.

Table 14.6 also shows no clear correlation between condom use at last sexual intercourse and HIV status among women or men. The HIV prevalence among women who used a condom during their most recent sexual intercourse in the 12-month period before the survey varied little from those who did not use a condom during their last sexual intercourse (2.3 percent and 2.0 percent, respectively). In contrast, men who used a condom during their most recent sexual intercourse in the 12-month period before the survey were slightly less likely to be infected than men who did not use a condom (1.3 percent and 2.2 percent, respectively).

Table 14.6 HIV prevalence by sexual behavior

Percentage HIV positive among women and men age 15-49 who ever had sex and were tested for HIV, by sexual behavior characteristics, Liberia 2013

Sexual behavior characteristic	Women		Men		Total	
	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number
Age at first sexual intercourse						
<16	2.5	2,001	2.0	756	2.4	2,757
16-17	1.1	1,362	2.0	943	1.5	2,305
18-19	4.0	480	1.6	945	2.4	1,425
20+	1.6	125	2.8	594	2.6	719
Missing	1.4	138	(0.0)	19	1.2	156
Multiple sexual partners and partner concurrency in past 12 months						
0	3.1	395	2.0	93	2.9	488
1	2.0	3,402	2.1	2,489	2.0	5,890
2+	2.9	308	1.6	673	2.0	981
Had concurrent partners[2]	1.9	142	0.9	309	1.2	451
None of the partners were concurrent	3.8	165	2.3	365	2.7	530
Condom use at last sexual intercourse in past 12 months						
Used condom	2.3	363	1.3	659	1.7	1,023
Did not use condom	2.0	3,345	2.2	2,503	2.1	5,848
No sexual intercourse in last 12 months	3.1	396	2.0	95	2.9	491
Number of lifetime partners						
1	0.7	640	2.0	159	0.9	798
2	2.0	986	2.6	297	2.1	1,283
3-4	2.8	1,382	1.1	485	2.3	1,868
5-9	2.8	737	1.4	752	2.1	1,489
10+	1.9	259	2.0	1,209	2.0	1,468
Don't know/Missing	1.9	101	4.0	355	3.5	456
Paid for sexual intercourse in past 12 months						
Yes	na	na	2.6	183	na	na
Used condom	na	na	0.6	111	na	na
Did not use condom	na	na	5.6	72	na	na
No (No paid sexual intercourse/no sexual intercourse in last 12 months)	na	na	2.0	3,073	na	na
Total	2.2	4,105	2.0	3,257	2.1	7,362

Note: Figures in parentheses are based on 25-49 unweighted cases. Total includes 2 women and 1 man for whom information on multiple sexual partners and partner concurrency is missing.
na = Not applicable
[1] HIV positive refers only to individuals infected with HIV-1. Individuals infected with HIV-2 only are not counted as HIV positive when calculating the numerator of the percentages.
[2] A respondent is considered to have had concurrent partners if he or she had overlapping sexual partnerships with two or more people during the 12 months before the survey. (Respondents with concurrent partners include polygynous men who had overlapping sexual partnerships with two or more wives).

The HIV prevalence estimate among men involved in a paid sexual encounter during the 12 months before the survey is 2.6 percent. The prevalence among men who paid for sex and did not use a condom is higher than for those who did use a condom (5.6 percent and 0.6 percent, respectively).

In summary, the results presented in Table 14.6 do not demonstrate a consistent relationship between sexual risk behavior and HIV prevalence. Additional analysis may be necessary to understand these relationships because they are often confounded by other factors that are associated with both behavioral

measures and HIV prevalence such as age, marital status, and residence. In addition, because HIV prevalence rates are low overall, even when differences in prevalence are linked with behavior, they may not be possible to parse.

14.3 HIV PREVALENCE AMONG YOUNG PEOPLE

Young people in the 15-24 age range are an important group to monitor for reduction of HIV incidence in the population. This was specified in the United Nations General Assembly Special Session (UNGASS) on HIV and AIDS.

Table 14.7 shows that HIV prevalence among those age 15-24 is low (1.0 percent); 1.4 percent of young women and 0.5 percent of young men are HIV positive. Young people living in Greater Monrovia (1.8 percent) are somewhat more likely to be infected than those in other urban areas (0.6 percent) or rural areas (0.4 percent). Although the overall HIV prevalence among young women and men is similar, comparison by background characteristics reveals some important distinctions. HIV prevalence is higher among young women who are married (2.7 percent) or divorced, separated, or widowed (4.6 percent) than among those who have never married (0.7 percent). These distinctions are not observed among young men. Although the overall differences are small, there does appear to be an inverse correlation between education level and HIV prevalence – young adults with at least some education have lower HIV prevalence than those with no education.

Young women who are currently pregnant are more likely to be HIV positive than those who are not (5.3 percent and 1.0 percent, respectively), and this relatively high prevalence is of great concern. Combined with the evidence of high teen sexuality (see Chapter 13) and childbearing (see Chapter 5), and low levels of HIV testing (Chapter 13), young women are at repeated risk of exposure to HIV. This is an issue not only for themselves, but also for the children born to them.

Table 14.7 HIV prevalence among young people by background characteristics

Percentage HIV-positive among women and men age 15-24 who were tested for HIV, by background characteristics, Liberia 2013

Background characteristic	Women		Men		Total	
	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number
Age						
15-19	0.2	996	0.6	825	0.4	1,820
15-17	0.1	613	0.4	534	0.2	1,147
18-19	0.5	382	1.0	291	0.7	673
20-24	2.9	822	0.5	642	1.8	1,464
20-22	3.3	510	0.5	428	2.0	938
23-24	2.2	312	0.4	214	1.5	526
Marital status						
Never married	0.7	1,204	0.5	1,298	0.6	2,503
Ever had sex	0.9	914	0.8	779	0.9	1,693
Never had sex	0.0	290	0.1	520	0.1	810
Married/Living together	2.7	541	0.8	154	2.3	695
Divorced/Separated/Widowed	4.6	72	*	14	3.8	86
Currently pregnant						
Pregnant	5.3	169	na	na	na	na
Not pregnant or not sure	1.0	1,649	na	na	na	na
Residence						
Urban	1.9	1,219	0.7	958	1.3	2,177
Greater Monrovia	2.3	777	1.0	582	1.8	1,360
Other urban	1.1	441	0.1	376	0.6	817
Rural	0.5	599	0.3	508	0.4	1,108
Region						
North Western	0.9	141	0.3	93	0.6	234
South Central	2.0	1,052	0.8	835	1.5	1,887
South Eastern A	0.2	81	0.3	86	0.2	167
South Eastern B	1.5	104	0.3	98	0.9	202
North Central	0.5	440	0.1	354	0.3	794
Education						
No education	3.2	230	0.0	77	2.4	307
Primary	1.5	782	0.0	539	0.9	1,320
Secondary and higher	0.9	807	0.9	851	0.9	1,658
Wealth quintile						
Lowest	0.7	236	0.4	201	0.6	437
Second	0.5	287	0.3	234	0.4	521
Middle	0.8	331	0.2	244	0.5	574
Fourth	1.5	469	0.0	325	0.9	794
Highest	2.7	495	1.3	463	2.0	959
Total 15-24	1.4	1,818	0.5	1,467	1.0	3,285

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
na = Not applicable
[1] HIV positive refers only to individuals infected with HIV-1. Individuals infected with HIV-2 only are not counted as HIV positive when calculating the numerator of the percentages.

Table 14.8 shows HIV prevalence among young people by sexual behavior. As was the case for women and men age 15-49 who had ever had sex, the variations in HIV prevalence according to the measures of sexual behavior included in Table 14.8 are difficult to interpret. Among young women who had ever had sex, those who had no concurrent partners in the past 12 months were more likely to be HIV positive than those who had concurrent partners, although the latter value was based on a small number of cases. The opposite was true for young men. Condom use also has an inconsistent relationship with HIV prevalence among young people.

Table 14.8 HIV prevalence among young people by sexual behavior

Percentage HIV-positive among women and men age 15-24 who have ever had sex and were tested for HIV, by sexual behavior characteristics, Liberia 2013

Sexual behavior characteristic	Women		Men		Total	
	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number
Multiple sexual partners and partner concurrency in past 12 months						
0	2.3	132	(0.0)	40	1.7	172
1	1.4	1,236	0.9	725	1.2	1,961
2+	3.5	159	0.6	182	2.0	341
Had concurrent partners[2]	(0.0)	45	2.0	57	1.1	102
None of the partners were concurrent	4.8	115	0.0	125	2.3	239
Condom use at last sexual intercourse in past 12 months						
Used condom	2.6	257	0.4	349	1.4	606
Did not use condom	1.4	1,139	1.1	558	1.3	1,696
No sexual intercourse in last 12 months	2.3	132	(0.0)	40	1.7	172
Total 15-24	1.7	1,527	0.8	947	1.4	2,474

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] HIV positive refers only to individuals infected with HIV-1. Individuals infected with HIV-2 only are not counted as HIV positive when calculating the numerator of the percentages.
[2] A respondent is considered to have had concurrent partners if he or she had overlapping sexual partnerships with two or more people during the 12 months before the survey. (Respondents with concurrent partners include polygynous men who had overlapping sexual partnerships with two or more wives).

14.4 HIV PREVALENCE BY OTHER CHARACTERISTICS RELATED TO HIV RISK

Table 14.9 presents HIV prevalence by other characteristics related to HIV risk among women and men age 15-49 who have ever had sex. The table shows that women and men with a history of a sexually transmitted infection (STI) or STI symptoms differ little with regard to HIV prevalence when compared with those with no history or symptoms.

Table 14.9 HIV prevalence by other characteristics

Percentage HIV positive among women and men age 15-49 who ever had sex and were tested for HIV, by whether had an STI in the past 12 months and by prior testing for HIV, Liberia 2013

Characteristic	Women		Men		Total	
	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number	Percentage HIV positive[1]	Number
Sexually transmitted infection in past 12 months						
Had STI or STI symptoms	2.3	2,006	1.9	567	2.2	2,574
No STI, no symptoms	2.0	2,089	2.0	2,675	2.0	4,765
Don't know/missing	*	9	*	14	(1.2)	23
Prior HIV testing						
Ever tested	2.6	2,177	3.0	961	2.7	3,138
Received results	2.2	1,949	3.1	841	2.5	2,790
Did not receive results	5.3	228	2.5	121	4.3	348
Never tested	1.7	1,920	1.6	2,295	1.6	4,216
Total	2.2	4,105	2.0	3,257	2.1	7,362

Note: Total includes 8 women for whom information on prior HIV testing is missing. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
[1] HIV positive refers only to individuals infected with HIV-1. Individuals infected with HIV-2 only are not counted as HIV positive when calculating the numerator of the percentages.

The table also shows that individuals who had been tested for HIV previously were more likely to be HIV positive than those who had never been tested (2.7 percent and 1.6 percent, respectively). Among women but not men who had been tested previously, the HIV infection rate was higher among those who reported that they had not received the result from their last test than among those who reported that they had received the result.

Table 14.10 provides further information about the relationship between prior HIV testing and the actual HIV status of respondents. The results show that less than half (45 percent) of individuals who are HIV positive have been tested previously and received the result of their last test. This represents a vast increase from the 2007 LDHS, in which only 9 percent of respondents who had been previously tested reported that they had received the result of their last test. However, a majority of HIV-positive respondents have either never been tested (45 percent) or have not received the results of their last test (10 percent) and therefore do not know that they can transmit HIV if they have unprotected sex.

Table 14.10 Prior HIV testing by current HIV status

Percent distribution of women and men age 15-49 who tested HIV positive and who tested HIV negative by HIV testing status prior to the survey, Liberia 2013

	Women		Men		Total	
HIV testing prior to the survey	HIV positive[1]	HIV negative	HIV positive[1]	HIV negative	HIV positive[1]	HIV negative
Previously tested						
Received result of last test	49.2	44.2	(39.7)	22.1	45.1	33.9
Did not receive result of last test	13.6	5.3	(4.5)	3.2	9.7	4.3
Not previously tested	37.3	50.3	(55.8)	74.7	45.2	61.6
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number	89	4,308	66	3,719	155	8,027

Note: Figures in parentheses are based on 25-49 unweighted cases.
[1] HIV positive refers only to individuals infected with HIV-1. Individuals infected with HIV-2 only are not counted as HIV positive when calculating the numerator of the percentages.

14.5   HIV PREVALENCE AMONG COUPLES

A total of 1,593 cohabiting couples were tested for HIV in the 2013 LDHS. The results shown in Table 14.11 indicate that, among 96.8 percent of cohabiting couples, both partners tested negative for HIV. Both partners were HIV positive in 0.5 percent of cohabiting couples, while 2.8 percent of couples were discordant, that is, one partner was infected and the other was not. In 1.7 percent of couples, the male partner was infected and the woman was not, while in 1.1 percent of couples, the woman was infected and the man was not. Differences in HIV prevalence among couples were small with one exception: in only 86.1 percent of cohabitating couples in which the man was 15 or more years older than his partner were both partners HIV negative. Both partners were HIV positive in 7.0 percent of these intergenerational couples; the man was positive and woman was HIV negative in 5.2 percent of these couples, and the woman was positive and the man negative in 1.6 percent of these couples.

Table 14.11 HIV prevalence among couples

Percent distribution of couples living in the same household, both of whom were tested for HIV, by HIV status, according to background characteristics, Liberia 2013

Background characteristic	Both HIV positive[1]	Man HIV positive, woman HIV negative[1]	Woman HIV positive, man HIV negative[1]	Both HIV negative[1]	Total	Number
Woman's age						
15-19	0.0	1.6	2.0	96.4	100.0	110
20-29	1.1	2.4	1.6	94.9	100.0	689
30-39	0.0	1.4	0.5	98.0	100.0	579
40-49	0.0	0.2	0.3	99.6	100.0	215

…Continued

Table 14.11 HIV prevalence among couples—*Continued*

Background characteristic	Both HIV positive[1]	Man HIV positive, woman HIV negative[1]	Woman HIV positive, man HIV negative[1]	Both HIV negative[1]	Total	Number
Man's age						
15-19	*	*	*	*	100.0	10
20-29	0.0	1.8	0.9	97.3	100.0	441
30-39	0.4	2.4	0.5	96.7	100.0	618
40-49	1.0	0.8	1.9	96.3	100.0	524
Age difference between partners						
Woman older	0.0	0.2	0.2	99.6	100.0	168
Same age/man older by 0-4 years	0.0	1.3	0.4	98.2	100.0	630
Man older by 5-9 years	0.4	2.8	1.3	95.5	100.0	515
Man older by 10-14 years	0.0	0.0	3.0	97.0	100.0	203
Man older by 15+ years	7.0	5.2	1.6	86.1	100.0	76
Type of union						
Non-polygynous	0.5	1.8	1.2	96.5	100.0	1,417
Polygynous	0.0	0.3	0.4	99.3	100.0	154
Don't know/missing	*	*	*	*	100.0	21
Multiple partners in past 12 months[2]						
Both no	0.5	1.6	1.0	96.9	100.0	1,182
Man yes, woman no	0.4	2.3	1.1	96.2	100.0	333
Woman yes, man no	0.0	0.0	2.3	97.7	100.0	73
Both yes	*	*	*	*	100.0	3
Either missing	*	*	*	*	100.0	2
Concurrent sexual partners in past 12 months[3]						
Both no	0.5	1.9	1.0	96.6	100.0	1,350
Man yes, woman no	0.8	0.5	1.9	96.8	100.0	197
Woman yes, man no	(0.0)	(0.0)	(0.0)	(100.0)	100.0	45
Both yes	*	*	*	*	100.0	1
Residence						
Urban	0.9	2.4	1.2	95.5	100.0	826
Greater Monrovia	1.2	3.6	1.5	93.7	100.0	465
Other urban	0.7	1.0	0.7	97.7	100.0	361
Rural	0.0	0.9	1.0	98.2	100.0	767
Region						
North Western	0.0	0.5	1.3	98.2	100.0	167
South Central	0.9	2.9	1.5	94.7	100.0	739
South Eastern A	0.1	3.1	1.2	95.6	100.0	94
South Eastern B	0.8	0.3	1.9	97.1	100.0	105
North Central	0.0	0.4	0.2	99.5	100.0	488
Woman's education						
No education	0.8	1.9	0.6	96.7	100.0	705
Primary	0.3	1.9	0.4	97.4	100.0	482
Secondary and higher	0.2	1.0	2.6	96.2	100.0	405
Man's education						
No education	0.0	0.5	0.7	98.8	100.0	295
Primary	1.4	2.0	0.9	95.7	100.0	427
Secondary and higher	0.2	2.0	1.3	96.6	100.0	872
Wealth quintile						
Lowest	0.0	1.0	0.7	98.3	100.0	376
Second	0.0	0.9	0.6	98.5	100.0	348
Middle	0.5	0.4	0.4	98.7	100.0	315
Fourth	0.3	4.9	2.4	92.4	100.0	297
Highest	2.1	1.6	1.5	94.8	100.0	258
Total	0.5	1.7	1.1	96.8	100.0	1,593

Note: The table is based on couples for which a valid test result (positive or negative) is available for both partners. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. Total includes two cases for which information on multiple partners in the past 12 months is missing.

[1] HIV positive refers only to individuals infected with HIV-1. Individuals infected with HIV-2 only are not counted as HIV positive when calculating the numerator of the percentages.

[2] A respondent is considered to have had multiple sexual partners in the past 12 months if he or she had sexual intercourse with two or more people during this time period. (Respondents with multiple partners include polygynous men who had sexual intercourse with two or more wives.)

[3] A respondent is considered to have had concurrent partners if he or she had overlapping sexual partnerships with two or more people during the 12 months before the survey. (Respondents with concurrent partners include polygynous men who had overlapping sexual partnerships with two or more wives).

WOMEN'S EMPOWERMENT AND DEMOGRAPHIC AND HEALTH OUTCOMES

15

Key Findings

- Sixty-six percent of currently married women and 94 percent of currently married men were employed at some point in time in the 12 months preceding the survey.
- Fifty-four percent of married women who receive cash earnings report jointly deciding with their husbands how their own earnings will be used; 30 percent say they decide on their own how to use their earnings.
- The majority of women report that they do not own a house (70 percent). Nineteen percent of women say that they own a house jointly with someone else, 8 percent own their house alone, and 3 percent own a house both jointly and alone.
- The majority of currently married women (58-61 percent) report that each of three household decisions is made jointly with their husbands. Sixteen percent of women report that they alone make decisions about their own health care; 19 percent make their own decisions to visit their families and relatives, and 24 percent make their own decisions about major household purchases.
- Forty-three percent of women believe that a husband is justified in beating his wife for at least one of five specified reasons (if she burns the food, if she goes out without telling him, if she neglects the children, if she argues with him, or if she refuses to have sexual intercourse with him). Conversely, only 24 percent of men believe that a husband is justified in beating his wife for at least one of these same five specified reasons.
- Half of all women who have heard of the Sande society are members. Among members of the Sande society, 39 percent think it should disband.

T his chapter explores women's empowerment in terms of earnings, control over earnings, and magnitude of earnings relative to those of their partners. In addition, responses to specific questions are used to define two different indicators of women's empowerment: women's participation in household decision making and women's attitudes towards wife beating. The extent to which women's empowerment influences maternal health, contraceptive use, and child mortality is also examined.

15.1 WOMEN'S AND MEN'S EMPLOYMENT

Table 15.1 shows, by type of earnings received, the percent distribution of currently married women and men age 15-49 who were employed in the 12 months preceding the survey. Employment is assumed to go hand-in-hand with payment for work. However, not all women and men receive earnings for the work they do, and among those who do receive earnings, not all receive cash.

Sixty-six percent of currently married women reported being employed at any time in the 12 months preceding the survey. Of the employed women, 57 percent received cash earnings only, 11 percent received

both cash and in-kind earnings, and 2 percent received in-kind earnings only. Thirty percent did not receive any form of earnings for their work. The percentage of currently married women who are employed increases with age, from 42 percent of those ages 15-19 to a peak of 78 percent in the age groups 40-44 and 45-49.

Ninety-four percent of currently married men age 15-49 were employed during the 12 months preceding the survey. Among the men employed, 66 percent received cash only, 13 percent received a combination of cash and in-kind earnings, and 1 percent received in-kind earnings only for the work they did. Twenty-one percent of men did not get paid for their work.

Table 15.1 Employment and cash earnings of currently married women and men

Percentage of currently married women and men age 15-49 who were employed at any time in the past 12 months and the percent distribution of currently married women and men employed in the past 12 months by type of earnings, according to age, Liberia 2013

| | Among currently married respondents: | | Percent distribution of currently married respondents employed in the past 12 months, by type of earnings | | | | | |
Age	Percentage employed in past 12 months	Number of respondents	Cash only	Cash and in-kind	In-kind only	Not paid	Total	Number of respondents
			WOMEN					
15-19	42.4	299	46.3	13.6	8.1	32.0	100.0	127
20-24	53.3	862	56.1	12.7	2.5	28.7	100.0	459
25-29	62.2	1,168	60.6	8.1	1.6	29.6	100.0	727
30-34	68.2	957	59.5	10.5	2.1	27.7	100.0	652
35-39	73.4	924	55.8	14.2	1.7	28.2	100.0	679
40-44	77.6	619	53.5	11.8	2.5	32.2	100.0	480
45-49	78.4	557	53.9	11.7	2.4	31.9	100.0	437
Total	66.1	5,386	56.6	11.4	2.3	29.6	100.0	3,560
			MEN					
15-19	56.6	13	*	*	*	*	*	8
20-24	86.5	152	60.7	10.7	1.4	27.2	100.0	131
25-29	89.5	434	70.7	9.6	0.4	19.2	100.0	388
30-34	94.5	475	64.4	12.9	1.4	21.3	100.0	449
35-39	98.1	421	61.4	16.0	0.2	22.4	100.0	413
40-44	94.6	422	64.5	15.6	0.4	19.5	100.0	399
45-49	96.5	302	71.7	9.3	0.8	18.1	100.0	291
Total	93.7	2,218	65.7	12.8	0.7	20.7	100.0	2,079

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed. Totals include 9 women and 2 men for whom information on type of earnings is missing.

15.2 WOMEN'S CONTROL OVER THEIR OWN EARNINGS AND RELATIVE MAGNITUDE OF WOMEN'S EARNINGS

To assess women's autonomy, currently married women who earned cash for their work in the 12 months preceding the survey were asked who the main decision maker is with regard to the use of their earnings. This information allows the assessment of women's control over their own earnings. Women who earned cash for their work were also asked the relative magnitude of their earnings compared with those of their husband. It is probable that employment and earnings are more likely to empower women if women themselves control their own earnings and perceive them as significant relative to those of their husband.

Table 15.2.1 shows the degree of control women have over the use of their earnings, and their perception of the magnitude of their earnings relative to those of their husband, by background characteristics. Thirty percent of currently married women who receive cash earnings report that they alone mainly decide how their earnings are used, while 54 percent say they decide jointly with their husband. Only 15 percent of women report that their husband mainly decides how their earnings will be used.

Table 15.2.1 Control over women's cash earnings and relative magnitude of women's cash earnings

Percent distribution of currently married women age 15-49 who received cash earnings for employment in the 12 months preceding the survey by person who decides how wife's cash earnings are used and by whether she earned more or less than her husband, according to background characteristics, Liberia 2013

| Background characteristic | Person who decides how the wife's cash earnings are used: | | | | | | Wife's cash earnings compared with husband's cash earnings: | | | | | | Number of women |
	Mainly wife	Wife and husband jointly	Mainly husband	Other	Missing	Total	More	Less	About the same	Husband has no earnings	Don't know/ missing	Total	
Age													
15-19	37.3	44.4	17.5	0.0	0.8	100.0	8.8	65.8	24.6	0.0	0.8	100.0	76
20-24	33.1	50.0	15.4	0.0	1.5	100.0	7.9	71.3	17.0	1.9	1.9	100.0	316
25-29	31.4	49.6	17.3	0.0	1.6	100.0	12.3	65.0	15.0	4.8	2.9	100.0	499
30-34	25.7	58.5	14.8	0.7	0.3	100.0	11.6	65.7	18.7	3.2	0.8	100.0	456
35-39	32.5	51.0	13.7	0.3	2.4	100.0	13.0	56.9	19.6	4.3	6.2	100.0	476
40-44	26.5	62.3	10.7	0.4	0.0	100.0	17.8	59.4	17.4	3.4	1.9	100.0	313
45-49	26.8	57.0	14.9	0.2	1.0	100.0	21.9	48.1	19.9	7.0	3.1	100.0	287
Number of living children													
0	30.9	53.2	14.4	0.0	1.4	100.0	7.2	73.8	14.2	0.4	4.3	100.0	107
1-2	28.7	56.9	12.9	0.1	1.5	100.0	12.6	65.6	15.7	3.4	2.7	100.0	875
3-4	34.3	48.0	16.0	0.6	1.1	100.0	16.0	59.4	18.0	4.5	2.0	100.0	819
5+	25.2	57.8	15.8	0.2	1.0	100.0	12.4	57.0	22.1	4.6	3.9	100.0	622
Residence													
Urban	32.3	53.6	12.7	0.3	1.2	100.0	14.4	63.1	14.6	4.6	3.4	100.0	1,521
Greater Monrovia	37.1	51.5	9.2	0.5	1.6	100.0	14.6	65.1	11.1	5.1	4.1	100.0	964
Other urban	23.9	57.1	18.6	0.0	0.5	100.0	14.0	59.6	20.6	3.7	2.0	100.0	557
Rural	25.6	54.7	18.3	0.2	1.2	100.0	12.0	59.3	23.9	2.9	2.0	100.0	902
Region													
North Western	25.4	47.6	26.5	0.0	0.6	100.0	8.8	62.9	22.9	3.8	1.6	100.0	275
South Central	33.3	56.3	8.8	0.4	1.2	100.0	15.4	62.2	14.9	4.1	3.4	100.0	1,362
South Eastern A	18.5	61.8	14.8	0.5	4.3	100.0	16.9	47.7	22.6	5.2	7.6	100.0	69
South Eastern B	29.5	51.0	17.7	0.0	1.8	100.0	19.9	58.5	14.7	3.5	3.4	100.0	84
North Central	25.4	51.4	22.0	0.2	1.0	100.0	10.2	61.9	22.6	3.7	1.6	100.0	633
County													
Bomi	40.3	49.3	10.4	0.0	0.0	100.0	12.7	45.3	32.3	9.7	0.0	100.0	47
Bong	25.9	56.3	17.2	0.5	0.0	100.0	6.6	71.7	17.9	3.0	0.8	100.0	188
Gbarpolu	29.7	48.7	21.0	0.0	0.6	100.0	9.7	70.5	14.0	2.3	3.5	100.0	66
Grand Bassa	34.6	53.1	11.8	0.6	0.0	100.0	24.1	53.1	18.0	2.3	2.5	100.0	126
Grand Cape Mount	19.2	46.6	33.4	0.0	0.8	100.0	7.3	65.0	23.8	2.7	1.3	100.0	161
Grand Gedeh	20.5	57.7	10.7	0.0	11.1	100.0	16.5	44.8	24.3	4.5	9.8	100.0	27
Grand Kru	24.2	54.2	16.9	0.0	4.7	100.0	11.1	64.6	16.4	0.3	7.6	100.0	32
Lofa	34.4	54.2	11.4	0.0	0.0	100.0	12.2	55.9	28.2	2.2	1.5	100.0	111
Margibi	12.7	81.8	4.6	0.0	0.9	100.0	13.5	55.7	27.3	2.3	1.2	100.0	159
Maryland	33.3	43.4	23.2	0.0	0.0	100.0	27.9	54.2	13.2	4.7	0.0	100.0	37
Montserrado	36.1	52.8	9.1	0.5	1.4	100.0	14.6	64.2	12.7	4.6	3.8	100.0	1,077
Nimba	22.1	47.7	28.3	0.0	1.9	100.0	11.6	58.4	23.4	4.5	2.1	100.0	335
River Cess	16.9	70.2	12.9	0.0	0.0	100.0	16.2	47.4	24.4	7.9	4.2	100.0	21
River Gee	31.8	62.9	5.3	0.0	0.0	100.0	19.4	56.1	14.6	7.2	2.7	100.0	15
Sinoe	17.5	58.7	22.1	1.8	0.0	100.0	18.0	51.6	18.7	3.4	8.2	100.0	21
Education													
No education	28.4	52.7	17.7	0.4	0.8	100.0	12.2	59.4	22.9	3.1	2.3	100.0	1,029
Primary	25.8	59.0	14.2	0.2	0.8	100.0	14.6	61.6	18.5	3.3	2.0	100.0	619
Secondary and higher	34.8	51.6	11.4	0.2	2.0	100.0	14.3	64.7	11.3	5.6	4.2	100.0	775
Wealth quintile													
Lowest	27.6	50.2	20.5	0.3	1.4	100.0	8.8	57.4	27.6	3.7	2.5	100.0	399
Second	24.3	55.0	19.5	0.0	1.2	100.0	13.8	56.9	25.5	2.1	1.8	100.0	400
Middle	24.1	53.0	20.6	0.9	1.5	100.0	13.0	59.9	19.6	4.4	3.1	100.0	480
Fourth	37.7	55.1	6.4	0.0	0.8	100.0	14.7	66.0	11.8	5.3	2.2	100.0	585
Highest	31.8	55.5	11.0	0.3	1.4	100.0	15.7	65.2	11.2	3.7	4.3	100.0	559
Total	29.8	54.0	14.8	0.3	1.2	100.0	13.5	61.7	18.1	4.0	2.8	100.0	2,423

Younger women are generally more likely than older women to make independent decisions on their earnings. There is a modest difference in control over women's cash earnings by residence: 32 percent of urban and 26 percent of rural, currently married women report that they mainly decide how to spend their

earnings. However, the county data vary greatly in the way decisions are made on how women's earnings are used. The percentage of women who mainly decide for themselves how their earnings will be spent ranges from a low of 13 percent in Margibi to a high of 40 percent in Bomi.

Twenty-eight percent of women with no education decide independently how to spend their earnings compared with 35 percent of women with secondary and higher education. Only 11 percent of women with secondary and higher education report that their husband mainly makes decisions about how their cash earnings will be spent; in contrast, 18 percent of women with no education report that their husband mainly decides how their earnings will be used. Only trifling differences are observed between the lowest, second, and middle wealth quintiles (20-21 percent); however, substantially lower proportions of married women in the fourth (6 percent) and fifth (11 percent) wealth quintiles reported that their husbands mainly control their earnings.

Regarding the comparative magnitude of women's earnings with those of their husbands, 14 percent report that they earn more than their husband, 62 percent earn less than their husband, and 18 percent earn about the same as their husband. Four percent of women report that their husband has no earnings. Older women, women with 3-4 children, women who live in Maryland, and women in the highest wealth quintile are more likely than other women to report that they earn more than their husbands.

Table 15.2.2 shows who decides how a husband's cash earnings are used, as reported independently by currently married men and women age 15-49. Among men, 10 percent report that their wife mainly decides how their earnings are used, 67 percent say that they and their wife jointly make the decision, and 24 percent report they mainly make the decision on their own. In comparison, 10 percent of women report that they mainly decide how their husband's earnings are used, 65 percent say that they and their husband jointly make the decision, and 25 percent report that their husband mainly decides. Overall, there is remarkable agreement among men and women regarding who decides how a husband's cash earnings are used.

Cross-tabulations by the person in the household who decides how the wife's cash earnings are used and how the husband's cash earnings are used, by the woman's earnings relative to her husband's are presented in Table 15.3; they provide some insight into a woman's empowerment in the family and the extent of her control over decision making in the household.

Table 15.2.2 Control over men's cash earnings

Percent distributions of currently married men age 15-49 who receive cash earnings and of currently married women age 15-49 whose husbands receive cash earnings, by person who decides how husband's cash earnings are used, according to background characteristics, Liberia 2013

	Men							Women						
	Person who decides how husband's cash earnings are used:							Person who decides how husband's cash earnings are used:						
Background characteristic	Mainly wife	Husband and wife jointly	Mainly husband	Other	Missing	Total	Number of men	Mainly wife	Husband and wife jointly	Mainly husband	Other	Missing	Total	Number of women
Age														
15-19	*	*	*	*	*	100.0	5	11.2	57.1	31.1	0.2	0.4	100.0	284
20-24	8.5	62.7	27.8	0.0	1.0	100.0	94	10.5	60.2	28.9	0.0	0.4	100.0	839
25-29	8.5	58.5	32.8	0.2	0.0	100.0	312	9.1	63.8	27.0	0.0	0.2	100.0	1,130
30-34	5.9	68.9	24.5	0.4	0.3	100.0	347	10.6	66.2	23.2	0.0	0.0	100.0	926
35-39	11.1	71.1	17.8	0.0	0.0	100.0	319	9.0	69.0	21.2	0.2	0.6	100.0	893
40-44	12.2	69.1	18.6	0.1	0.0	100.0	320	9.0	67.4	22.2	0.0	1.4	100.0	598
45-49	10.8	66.4	22.8	0.0	0.0	100.0	236	10.3	67.9	21.2	0.5	0.1	100.0	527
Number of living children														
0	13.5	52.7	33.3	0.0	0.5	100.0	89	10.6	60.0	29.3	0.0	0.1	100.0	290
1-2	7.4	64.0	28.0	0.3	0.3	100.0	585	9.3	62.7	27.7	0.0	0.3	100.0	1,907
3-4	8.0	70.0	21.9	0.2	0.0	100.0	499	10.6	64.7	23.6	0.2	0.9	100.0	1,629
5+	13.0	69.0	18.0	0.0	0.0	100.0	461	9.2	69.7	20.9	0.1	0.1	100.0	1,370
Residence														
Urban	7.7	70.0	22.1	0.1	0.0	100.0	953	9.0	65.0	25.4	0.1	0.4	100.0	2,794
Greater Monrovia	7.7	68.6	23.7	0.0	0.0	100.0	541	7.5	64.7	27.3	0.3	0.3	100.0	1,547
Other urban	7.7	72.0	19.9	0.3	0.1	100.0	411	11.0	65.4	23.1	0.0	0.5	100.0	1,246
Rural	12.1	61.9	25.7	0.1	0.2	100.0	680	10.7	65.0	23.9	0.0	0.4	100.0	2,403
Region														
North Western	15.4	61.9	22.3	0.1	0.3	100.0	184	7.4	67.1	25.5	0.1	0.0	100.0	551
South Central	6.8	71.4	21.5	0.1	0.1	100.0	853	7.8	67.5	24.3	0.2	0.3	100.0	2,397
South Eastern A	15.7	64.6	19.7	0.0	0.0	100.0	93	14.1	62.5	22.7	0.2	0.5	100.0	335
South Eastern B	11.6	54.2	34.2	0.0	0.0	100.0	91	12.3	52.7	33.7	0.0	1.2	100.0	348
North Central	10.6	62.0	26.9	0.3	0.1	100.0	412	12.2	63.8	23.5	0.0	0.5	100.0	1,565
County														
Bomi	8.4	75.0	16.6	0.0	0.0	100.0	39	5.2	74.9	20.0	0.0	0.0	100.0	140
Bong	13.8	37.0	49.2	0.0	0.0	100.0	126	13.9	66.0	19.8	0.0	0.3	100.0	613
Gbarpolu	37.5	53.4	8.0	0.3	0.8	100.0	56	17.1	44.5	38.1	0.3	0.0	100.0	120
Grand Bassa	4.6	77.1	16.2	0.8	1.2	100.0	91	10.0	65.6	24.5	0.0	0.0	100.0	285
Grand Cape Mount	4.5	61.7	33.8	0.0	0.0	100.0	89	4.5	72.6	22.9	0.0	0.0	100.0	291
Grand Gedeh	8.3	81.2	10.5	0.0	0.0	100.0	32	17.1	58.2	24.3	0.2	0.2	100.0	110
Grand Kru	18.9	45.4	35.6	0.0	0.0	100.0	44	17.0	33.9	46.4	0.0	2.8	100.0	133
Lofa	30.8	44.9	24.3	0.0	0.0	100.0	69	4.3	64.5	31.2	0.0	0.0	100.0	288
Margibi	5.3	77.8	16.9	0.0	0.0	100.0	156	5.6	77.0	16.8	0.0	0.6	100.0	400
Maryland	4.5	59.0	36.5	0.0	0.0	100.0	31	11.6	60.9	27.0	0.0	0.5	100.0	142
Montserrado	7.5	68.9	23.6	0.0	0.0	100.0	606	7.9	65.5	26.0	0.2	0.3	100.0	1,712
Nimba	2.3	81.9	14.9	0.7	0.2	100.0	217	14.1	61.3	23.6	0.0	0.9	100.0	664
River Cess	8.5	65.0	26.5	0.0	0.0	100.0	17	7.6	75.4	17.0	0.0	0.0	100.0	95
River Gee	(5.4)	(69.4)	(25.2)	(0.0)	(0.0)	100.0	16	5.4	71.2	23.4	0.0	0.0	100.0	73
Sinoe	24.1	52.1	23.8	0.0	0.0	100.0	43	16.1	56.7	25.6	0.4	1.2	100.0	131
Education														
No education	14.6	54.4	30.7	0.1	0.2	100.0	261	10.4	64.9	24.1	0.1	0.5	100.0	2,337
Primary	9.7	66.0	23.6	0.2	0.4	100.0	354	9.6	63.4	26.6	0.1	0.3	100.0	1,394
Secondary and higher	8.1	70.0	21.8	0.1	0.0	100.0	1,018	8.9	66.7	23.8	0.2	0.5	100.0	1,466
Wealth quintile														
Lowest	13.5	60.1	25.8	0.1	0.6	100.0	279	12.6	60.9	25.8	0.1	0.6	100.0	1,079
Second	13.6	64.3	21.9	0.0	0.2	100.0	275	11.4	64.1	24.1	0.0	0.3	100.0	1,065
Middle	8.9	69.9	20.5	0.6	0.0	100.0	356	8.7	67.1	23.7	0.0	0.5	100.0	1,047
Fourth	5.0	67.9	27.0	0.0	0.0	100.0	371	8.3	66.4	24.6	0.1	0.5	100.0	1,063
Highest	8.4	69.0	22.6	0.0	0.0	100.0	352	7.6	66.7	25.4	0.3	0.0	100.0	942
Total	9.5	66.6	23.6	0.1	0.1	100.0	1,633	9.8	65.0	24.7	0.1	0.4	100.0	5,197

Note: Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

Table 15.3 shows that currently married women who earn more than their husband are more likely to decide by themselves how their own earnings are used (38 percent) than those who earn less (31 percent) or the same as their husband (15 percent). Currently married women who earn more than their husbands are also more likely to decide for themselves how their husband's cash earnings are used (19 percent) than those women who earn less than their husband (10 percent) or the same as their husband (5 percent). Women who earn the same as their husband are most likely to make joint decisions on how their earnings (72 percent) and their husband's earnings (82 percent) are used.

Table 15.3 Women's control over their own earnings and over those of their husbands

Percent distribution of currently married women age 15-49 with cash earnings in the last 12 months by person who decides how the wife's cash earnings are used and percent distribution of currently married women age 15-49 whose husbands have cash earnings by person who decides how the husband's cash earnings are used, according to the relation between wife's and husband's cash earnings, Liberia 2013

Women's earnings relative to husband's earnings	Person who decides how the wife's cash earnings are used:							Person who decides how husband's cash earnings are used:						
	Mainly wife	Wife and husband jointly	Mainly husband	Other	Missing	Total	Number	Mainly wife	Wife and husband jointly	Mainly husband	Other	Missing	Total	Number of women
More than husband	37.7	49.4	12.9	0.0	0.0	100.0	327	19.0	58.3	21.4	1.3	0.0	100.0	327
Less than husband	31.1	51.8	16.7	0.4	0.0	100.0	1,494	9.9	62.4	27.7	0.0	0.0	100.0	1,494
Same as husband	14.9	72.2	12.9	0.0	0.0	100.0	437	4.5	81.5	13.9	0.0	0.0	100.0	437
Husband has no cash earnings or did not work	38.8	51.4	8.7	0.7	0.3	100.0	96	na	na	na	na	na	na	0
Woman worked but has no cash earnings	na	na	na	na	na	na	0	12.1	67.1	20.4	0.0	0.3	100.0	1,085
Woman did not work	na	na	na	na	na	na	0	7.8	63.9	27.6	0.0	0.7	100.0	1,785
Total	29.8	54.0	14.8	0.3	1.2	100.0	2,423	9.8	65.0	24.7	0.1	0.4	100.0	5,197

Note: Total includes 30 cases where information on whether a woman earned more or less than her husband is missing, and 39 cases where a woman does not know whether she earned more or less than her husband.
na = Not applicable

15.3 WOMEN'S OWNERSHIP OF ASSETS

The 2013 LDHS asked respondents questions regarding the ownership of houses. Ownership of a house is considered a measure of women's empowerment, and to this effect, the government of Liberia gives equal opportunity of owning property to everyone regardless of sex.

Table 15.4.1 shows the percentages of women age 15-49 who reported owning a house alone, jointly, both alone and jointly, and the percentage who do not own a house, according to background characteristics. Overall, 8 percent of women own a house alone. Nineteen percent of women report that they own a house jointly with someone. Three percent of women own a house both alone and jointly. Seventy percent of women report that they do not own a house.

Ownership of a home alone or jointly increases with age, with younger women much less likely to own a house, either alone or jointly, compared with older women. Rural women in Liberia are twice as likely as urban women to own a house alone (12 percent and 6 percent, respectively) or jointly (28 percent and 14 percent, respectively). By county, the percentage of women who do not own a house is highest in Montserrado (81 percent) and lowest in Grand Gedeh (48 percent). Interestingly, home ownership among women is inversely correlated with education level and wealth quintile. Whereas 80 percent of women with at least some secondary education do not own a house, only 53 percent of women with no education do not own a house.

And while 80-83 percent of women in the highest two wealth quintiles do not own a house, only 49 percent of women in the lowest wealth quintile do not own a house.

Table 15.4.1 Ownership of assets: Women

Percent distribution of women age 15-49 by ownership of housing, according to background characteristics, Liberia 2013

Background characteristic	Percentage who own a house:				Total	Number
	Alone	Jointly	Alone and jointly	Percentage who do not own a house		
Age						
15-19	1.2	2.3	1.0	95.5	100.0	2,080
20-24	3.7	10.2	2.1	84.0	100.0	1,642
25-29	6.9	17.7	3.1	72.2	100.0	1,611
30-34	9.7	26.1	3.3	60.9	100.0	1,199
35-39	14.6	29.9	4.6	50.9	100.0	1,179
40-44	15.2	38.8	4.3	41.7	100.0	812
45-49	24.0	38.7	3.5	33.8	100.0	716
Residence						
Urban	6.0	13.5	2.4	78.1	100.0	5,633
Greater Monrovia	5.4	10.2	2.2	82.2	100.0	3,361
Other urban	7.0	18.4	2.6	71.9	100.0	2,272
Rural	12.2	27.7	3.4	56.6	100.0	3,606
Region						
North Western	15.3	22.7	1.7	60.2	100.0	837
South Central	6.1	12.5	2.5	78.9	100.0	4,854
South Eastern A	15.7	29.7	1.8	52.6	100.0	483
South Eastern B	10.7	24.8	3.5	61.0	100.0	577
North Central	8.7	27.2	3.7	60.4	100.0	2,488
County						
Bomi	4.3	20.1	4.3	71.3	100.0	244
Bong	5.1	27.8	3.3	63.8	100.0	894
Gbarpolu	6.1	29.4	0.9	63.6	100.0	182
Grand Bassa	9.9	27.0	2.6	60.4	100.0	434
Grand Cape Mount	25.8	21.4	0.6	52.2	100.0	412
Grand Gedeh	16.0	32.9	2.9	48.2	100.0	167
Grand Kru	13.4	34.3	3.3	49.1	100.0	217
Lofa	10.3	30.2	10.4	49.0	100.0	447
Margibi	6.2	10.3	3.8	79.6	100.0	744
Maryland	5.4	20.1	3.3	71.2	100.0	257
Montserrado	5.6	11.2	2.2	80.9	100.0	3,675
Nimba	10.9	25.5	1.4	62.2	100.0	1,147
River Cess	22.3	23.3	0.4	53.4	100.0	135
River Gee	18.5	16.4	4.3	60.7	100.0	103
Sinoe	10.5	31.6	1.9	55.9	100.0	182
Education						
No education	12.8	30.5	4.1	52.6	100.0	3,066
Primary	6.0	15.3	2.3	76.4	100.0	2,875
Secondary and higher	6.6	11.7	2.0	79.7	100.0	3,298
Wealth quintile						
Lowest	14.6	32.8	4.0	48.6	100.0	1,581
Second	11.0	27.0	3.2	58.8	100.0	1,624
Middle	7.7	19.0	2.8	70.4	100.0	1,779
Fourth	5.1	10.2	1.8	82.8	100.0	2,047
Highest	5.9	11.5	2.5	80.1	100.0	2,207
Total	8.4	19.0	2.8	69.7	100.0	9,239

Note: Total includes 1 case for which information on housing ownership is missing.

Table 15.4.2 shows ownership of housing by men age 15-49, according to background characteristics. Seventy-four percent of men do not own a house, which is comparable to the proportion of women who do not own a house (70 percent). Seventeen percent own a house alone, 8 percent jointly own a house, and 1 percent own a house alone and jointly. Ownership of a home alone or jointly increases with age, with younger men

much less likely to own a house, either alone or jointly, compared with older men. Rural men in Liberia are more than twice as likely as urban men to own a house on their own (26 percent and 11 percent, respectively) or jointly with someone else (12 percent and 5 percent, respectively). By county, the percentage of men who do not own a house is highest in Montserrado (89 percent) and lowest in Grand Kru (47 percent). Like women, home ownership among men is inversely correlated with education level and wealth quintile. Whereas 78 percent of men with at least some secondary education do not own a house, only 60 percent of men with no education do not own a house. And while 90 percent of men in the highest wealth quintile do not own a house, only 49 percent of men in the lowest wealth quintile do not own a house.

Table 15.4.2 Ownership of assets: Men

Percent distribution of men age 15-49 by ownership of housing, according to background characteristics, Liberia 2013

Background characteristic	Percentage who own a house:			Percentage who do not own a house	Total	Number
	Alone	Jointly	Alone and jointly			
Age						
15-19	0.4	0.1	0.0	99.4	100.0	890
20-24	5.6	2.1	0.4	91.8	100.0	696
25-29	15.2	6.4	0.2	78.2	100.0	673
30-34	20.3	10.7	1.0	67.8	100.0	575
35-39	27.2	17.0	1.1	54.7	100.0	469
40-44	36.9	14.6	1.6	47.0	100.0	482
45-49	40.8	17.5	0.8	40.9	100.0	332
Residence						
Urban	10.9	5.0	0.3	83.9	100.0	2,413
Greater Monrovia	6.6	3.5	0.0	89.9	100.0	1,433
Other urban	17.2	7.1	0.6	75.1	100.0	980
Rural	25.8	12.2	1.1	60.8	100.0	1,705
Region						
North Western	22.7	10.5	2.3	64.3	100.0	367
South Central	10.6	5.0	0.1	84.2	100.0	2,149
South Eastern A	26.6	12.3	0.8	60.3	100.0	254
South Eastern B	26.2	12.6	0.7	60.5	100.0	288
North Central	23.5	10.8	1.0	64.8	100.0	1,060
County						
Bomi	18.2	3.7	2.4	75.1	100.0	97
Bong	20.6	11.8	0.7	66.9	100.0	389
Gbarpolu	16.5	18.8	0.4	64.3	100.0	94
Grand Bassa	16.5	18.9	0.4	64.1	100.0	204
Grand Cape Mount	28.4	9.8	3.3	58.5	100.0	176
Grand Gedeh	30.0	13.2	0.3	56.5	100.0	82
Grand Kru	32.0	19.4	1.2	47.4	100.0	110
Lofa	39.6	3.7	0.0	56.7	100.0	219
Margibi	20.0	2.6	0.4	76.6	100.0	364
Maryland	22.0	2.3	0.2	75.5	100.0	123
Montserrado	7.6	3.8	0.0	88.6	100.0	1,582
Nimba	18.2	13.3	1.7	66.8	100.0	451
River Cess	33.3	3.4	0.8	62.5	100.0	64
River Gee	24.1	22.1	0.9	52.9	100.0	55
Sinoe	20.1	16.9	1.2	61.8	100.0	108
Education						
No education	26.5	12.9	0.7	59.6	100.0	533
Primary	17.5	7.0	1.0	74.5	100.0	1,202
Secondary and higher	14.7	7.3	0.4	77.5	100.0	2,383
Wealth quintile						
Lowest	32.4	17.2	0.9	49.3	100.0	749
Second	24.4	10.0	1.2	64.2	100.0	753
Middle	17.3	6.6	0.7	75.3	100.0	728
Fourth	9.8	4.7	0.4	85.1	100.0	864
Highest	6.3	3.4	0.0	90.2	100.0	1,024
Total	17.1	8.0	0.6	74.3	100.0	4,118

Note: Total includes 2 cases for which information on housing ownership is missing.

15.4 WOMEN'S AND MEN'S PARTICIPATION IN DECISION MAKING

Decision making can be a complex process, and the ability of women and men to make decisions that affect the circumstances of their own lives is essential to their status in the household and in society. The number of decisions in which a woman either alone or jointly with her husband has the final say is assumed to be directly related to the woman's empowerment and reflects the degree of decision making control the woman is able to exercise in areas that affect her life and environment.

To assess women's decision making autonomy, the 2013 LDHS sought information on women's participation in three types of household decisions: the respondent's own health care; making major household purchases; and visits to family or relatives. Similarly, men were asked about their participation in two types of household decisions: the respondent's health care and making major household purchases. Table 15.5 shows the percent distribution of currently married women and men according to the person in the household who usually makes decisions concerning these matters. Women and men are considered to participate in decision making if they make decisions alone or jointly with their spouse.

Table 15.5 Participation in decision making

Percent distribution of currently married women and currently married men age 15-49 by person who usually makes decisions about various issues, Liberia 2013

Decision	Mainly wife	Wife and husband jointly	Mainly husband	Someone else	Other	Missing	Total	Number of women
			WOMEN					
Own health care	16.2	61.0	22.1	0.3	0.0	0.3	100.0	5,386
Major household purchases	24.3	57.9	17.1	0.2	0.0	0.4	100.0	5,386
Visits to her family or relatives	18.6	60.3	20.6	0.0	0.1	0.3	100.0	5,386
			MEN					
Man's own health care	12.7	57.2	29.3	0.5	0.2	0.0	100.0	2,218
Major household purchases	16.8	58.2	24.6	0.3	0.0	0.0	100.0	2,218

The strength of the role of women in decision making varies with the type of decision. In Liberia, the majority of currently married women (58-61 percent) report that each of three household decisions is made jointly by husband and wife. Sixteen percent of currently married women report that they alone make the decisions about their own health care, 24 percent say that they mainly make decisions about major household purchases, and 19 percent say that they mainly decide on visiting their families and relatives. Nearly six in 10 men report that they make decisions jointly with their wives with regard to their own health care (57 percent) and on major household purchases (58 percent). Approximately 13 percent of men stated that decisions about their own health care are made mainly by their wife. Seventeen percent of men indicated that it is mainly the responsibility of their wife to make decisions on major household purchases.

Table 15.6.1 shows the percentage of currently married women who report that they usually make specific household decisions either by themselves or jointly with their husbands, according to background characteristics. The majority of Liberian women make decisions either by themselves or jointly with their husbands for matters pertaining to their own health care (77 percent), making major household purchases (82 percent), and visiting their family or relatives (79 percent). Variations by background characteristics are generally relatively minor.

Percentage of currently married women age 15-49 who usually make specific decisions either by themselves or jointly with their husband, by background characteristics, Liberia 2013

	Specific decisions					
Background characteristic	Woman's own health care	Making major household purchases	Visits to her family or relatives	All three decisions	None of the three decisions	Number of women
Age						
15-19	67.3	74.6	73.5	53.4	11.4	299
20-24	72.1	79.3	80.6	63.3	11.1	862
25-29	77.3	81.9	77.0	64.1	8.6	1,168
30-34	80.3	82.4	79.5	66.8	8.0	957
35-39	79.3	85.4	80.9	71.1	8.9	924
40-44	75.6	83.9	78.0	66.4	8.7	619
45-49	83.3	84.6	80.1	70.0	7.5	557
Employment (past 12 months)						
Not employed	72.9	78.3	76.5	62.5	11.9	1,825
Employed for cash	79.9	85.2	80.9	69.3	7.3	2,423
Employed not for cash	78.3	82.5	78.5	64.1	7.9	1,134
Number of living children						
0	69.3	78.4	76.3	56.2	10.9	300
1-2	76.7	81.1	79.5	65.4	9.0	1,973
3-4	75.6	81.0	77.6	64.4	9.7	1,688
5+	81.5	86.1	80.3	70.6	7.9	1,424
Residence						
Urban	77.3	83.3	79.1	65.8	8.1	2,898
Greater Monrovia	78.9	84.7	80.9	67.4	7.0	1,614
Other urban	75.4	81.4	76.7	63.7	9.6	1,283
Rural	77.0	81.1	78.8	66.1	10.0	2,488
Region						
North Western	77.8	80.7	76.3	65.0	10.6	580
South Central	80.7	86.0	82.9	70.4	6.1	2,481
South Eastern A	78.6	83.2	78.3	64.7	6.8	348
South Eastern B	69.1	72.7	73.0	57.2	16.1	358
North Central	73.1	79.0	75.3	61.6	11.8	1,619
County						
Bomi	80.7	83.1	75.3	70.2	13.0	145
Bong	76.4	83.7	84.1	69.3	7.6	635
Gbarpolu	67.7	74.7	70.9	52.8	11.9	123
Grand Bassa	83.5	88.3	85.4	74.4	3.5	294
Grand Cape Mount	80.4	82.0	79.0	67.4	8.9	312
Grand Gedeh	78.9	87.3	76.4	65.5	5.3	113
Grand Kru	55.1	59.8	62.9	41.9	25.5	135
Lofa	71.3	69.5	71.0	62.8	22.3	291
Margibi	84.8	87.7	86.0	77.8	6.5	407
Maryland	74.6	77.2	75.9	63.4	13.1	148
Montserrado	79.3	85.2	81.7	68.1	6.5	1,780
Nimba	70.9	78.8	69.1	53.9	11.2	694
River Cess	87.8	86.7	89.7	78.4	4.4	100
River Gee	83.3	87.0	85.8	72.8	5.1	74
Sinoe	71.4	77.1	71.3	53.8	9.9	135
Education						
No education	77.3	81.0	78.6	67.3	10.5	2,417
Primary	74.0	81.4	76.3	60.8	9.3	1,446
Secondary and higher	80.0	85.1	81.9	68.7	6.4	1,523
Wealth quintile						
Lowest	77.5	81.9	78.5	65.8	9.2	1,133
Second	75.4	80.1	77.6	64.4	10.6	1,094
Middle	75.4	81.2	77.4	64.8	11.1	1,082
Fourth	79.1	82.9	79.9	68.7	8.2	1,108
Highest	78.7	85.5	81.5	66.0	5.6	968
Total	77.2	82.3	78.9	65.9	9.0	5,386

Note: Total includes 3 cases for which information on employment for cash or not for cash is missing.

The total number of decisions in which a woman participates is one simple measure of her empowerment. Figure 15.1 shows the distribution of currently married women according to the number of decisions in which they participate either alone or jointly with their husband. Sixty-six percent of currently married women participate in all three household decisions, and 16 percent participate in two decisions. Ten percent of women participate in one decision, and 9 percent do not participate in any decisions.

Figure 15.1 Number of decisions in which currently married women participate

Percent of women

			66
9	10	16	
0	1	2	3

Number of decisions

LDHS 2013
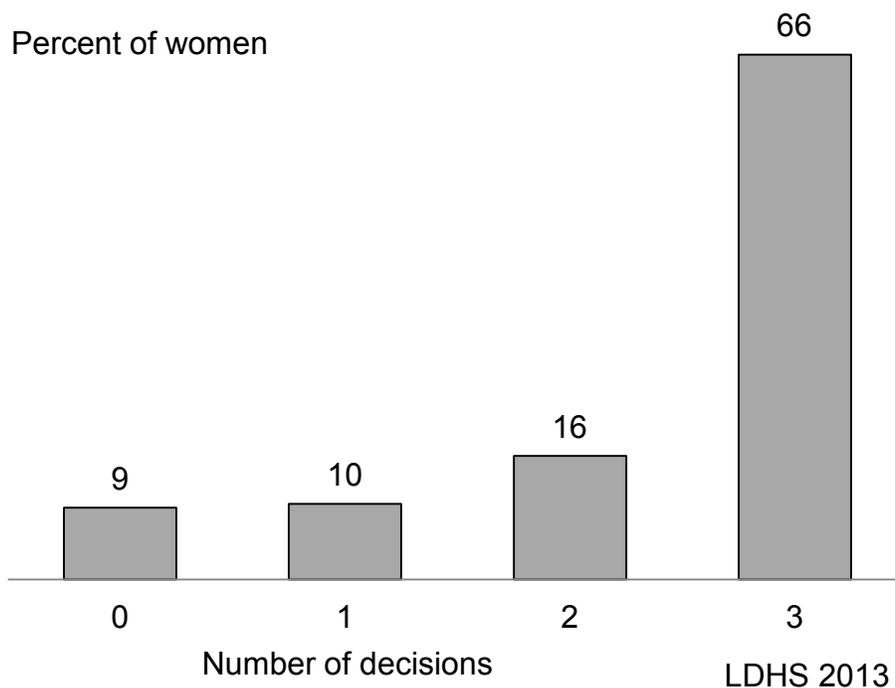
Table 15.6.2 shows the percentage of currently married men who report that they alone or jointly with their wives participate in specific household decisions, according to background characteristics. The majority of Liberian men make decisions either by themselves or jointly with their wives for matters pertaining to their own health care (87 percent) and making major household purchases (83 percent). Eighty percent of men make both types of decisions either by themselves or jointly with their wives, while 10 percent do not participate in either type of decision.

Table 15.6.2 Men's participation in decision making by background characteristics

Percentage of currently married men age 15-49 who usually make specific decisions either alone or jointly with their wife, by background characteristics, Liberia 2013

Background characteristic	Specific decisions		Both decisions	Neither of the two decisions	Number of men
	Man's own health	Making major household purchases			
Age					
15-19	*	*	*	*	13
20-24	92.1	89.5	89.2	7.6	152
25-29	85.3	86.7	82.1	10.1	434
30-34	87.8	84.8	81.1	8.5	475
35-39	86.5	78.5	75.1	10.1	421
40-44	84.3	79.2	76.4	12.8	422
45-49	88.1	83.1	81.0	9.8	302
Employment (past 12 months)					
Not employed	74.1	72.8	72.8	25.9	139
Employed for cash	88.9	84.0	81.0	8.1	1,633
Employed not for cash	81.8	81.8	76.8	13.2	445
Number of living children					
0	82.0	75.5	72.8	15.4	129
1-2	86.7	85.1	82.0	10.3	774
3-4	88.7	83.0	80.0	8.2	670
5+	84.9	81.5	77.7	11.3	644
Residence					
Urban	86.3	82.3	78.8	10.2	1,150
Greater Monrovia	88.2	82.3	80.9	10.4	623
Other urban	84.0	82.3	76.3	9.9	526
Rural	86.7	83.4	80.5	10.3	1,068
Region					
North Western	82.5	83.5	80.8	14.9	236
South Central	90.5	85.0	82.8	7.3	1,033
South Eastern A	86.1	78.5	75.2	10.6	147
South Eastern B	88.7	82.0	78.9	8.3	158
North Central	81.1	80.4	75.2	13.7	644
County					
Bomi	86.5	89.1	85.4	9.9	55
Bong	67.0	67.8	58.1	23.3	247
Gbarpolu	60.7	58.2	56.7	37.8	63
Grand Bassa	94.0	82.5	80.1	3.6	140
Grand Cape Mount	92.2	94.3	91.5	5.0	118
Grand Gedeh	95.0	78.1	76.6	3.6	44
Grand Kru	81.8	70.6	69.7	17.2	65
Lofa	78.9	78.6	77.8	20.2	124
Margibi	94.5	94.1	90.2	1.5	194
Maryland	91.4	86.3	79.8	2.1	58
Montserrado	88.7	82.9	81.3	9.7	699
Nimba	94.8	92.6	89.4	2.0	273
River Cess	93.6	87.4	85.9	4.9	41
River Gee	97.0	95.8	94.6	1.8	35
Sinoe	75.0	72.9	67.1	19.2	62
Education					
No education	85.2	81.9	78.1	11.1	375
Primary	84.0	84.0	79.3	11.2	569
Secondary and higher	88.0	82.6	80.2	9.6	1,274
Wealth quintile					
Lowest	86.6	81.8	80.0	11.5	489
Second	82.1	81.6	76.2	12.5	463
Middle	84.9	82.7	78.3	10.8	433
Fourth	89.2	82.7	80.1	8.3	447
Highest	90.4	86.0	84.2	7.8	387
Total	86.5	82.8	79.6	10.3	2,218

Note: An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.

15.5 ATTITUDES TOWARD WIFE BEATING

The critical problems that women face are many and diverse. One of these, and among the most serious, is the issue of violence against women. It is described as the most serious because it concerns the personal security of women, and the right of personal security is fundamental to all other rights. If violence against women is tolerated and accepted in a society, its eradication is made more difficult.

To assess women's and men's attitudes towards wife beating, respondents were asked whether a husband is justified in hitting or beating his wife in each of the following five situations: if she burns the food; if she argues with him; if she goes out without telling him; if she neglects the children; and if she refuses to have sexual intercourse with him. A woman's responses to these five situations are used to generate the women's empowerment indicator; "Number of reasons wife beating is justified," described below (see section 15.6). The results of this series of questions for women and men are summarized in Tables 15.7.1 and 15.7.2, respectively.

Table 15.7.1 shows attitudes toward wife beating by the percentage of all women age 15-49 who agree that a husband is justified in hitting or beating his wife for specific reasons, according to background characteristics. Seven percent of women report that a husband is justified in hitting or beating his wife if she burns the food, 33 percent if she argues with him, 29 percent if she goes out without telling him, 32 percent if she neglects the children, and 11 percent if she refuses to have sexual intercourse with him. Forty-three percent of women believe that a husband is justified in hitting or beating his wife for at least one of the five specified reasons. Rural women were more likely than urban women (49 percent and 39 percent, respectively), women with no education were more likely than women with at least some secondary education, (46 percent and 35 percent, respectively), and women in the lowest three wealth quintiles were more likely than women in the highest wealth quintile (48-49 percent and 29 percent, respectively) to agree with at least one specified reason that a husband is justified in hitting or beating his wife.

Table 15.7.2 shows attitudes toward wife beating by the percentage of all men age 15-49 who agree that a husband is justified in hitting or beating his wife for specific reasons, according to background characteristics. Three percent of men report that a husband is justified in hitting or beating his wife if she burns the food, 18 percent if she argues with him, 14 percent if she goes out without telling him, 15 percent if she neglects the children, and 4 percent if she refuses to have sexual intercourse with him. Twenty-four percent of men believe that a husband is justified in hitting or beating his wife for at least one of the five specified reasons. Younger men were more likely than older men to agree with at least one specified reason that a husband is justified in hitting or beating his wife, decreasing from 29 percent among men age 15-19 to 17 percent among men age 45-49. Rural men were more likely than urban men (30 percent and 21 percent, respectively), men with no education were more likely than men with at least some secondary education, (28 percent and 21 percent, respectively), and men in the lowest wealth quintile were more likely than men in the highest wealth quintile (33 percent and 17 percent, respectively) to agree with at least one specified reason that a husband is justified in hitting or beating his wife.

Table 15.7.1 Attitude toward wife beating: Women

Percentage of all women age 15-49 who agree that a husband is justified in hitting or beating his wife for specific reasons, by background characteristics, Liberia 2013

Background characteristic	Husband is justified in hitting or beating his wife if she:					Percentage who agree with at least one specified reason	Number of women
	Burns the food	Argues with him	Goes out without telling him	Neglects the children	Refuses to have sexual intercourse with him		
Age							
15-19	9.2	35.2	28.8	35.2	8.8	45.1	2,080
20-24	6.1	32.9	29.8	33.7	12.1	43.2	1,642
25-29	6.5	31.8	27.9	30.5	10.4	41.4	1,611
30-34	8.6	33.9	28.7	31.9	11.8	42.2	1,199
35-39	6.6	31.4	26.5	28.1	10.1	38.8	1,179
40-44	6.7	32.7	28.5	33.2	11.0	41.8	812
45-49	7.4	32.7	28.7	30.5	12.7	42.9	716
Employment (past 12 months)							
Not employed	8.0	34.3	29.6	33.3	12.3	43.4	3,944
Employed for cash	6.8	31.1	28.2	31.3	9.9	39.7	3,564
Employed not for cash	7.4	34.6	26.4	31.9	8.8	46.4	1,721
Number of living children							
0	7.4	32.2	27.0	32.3	8.1	41.9	2,185
1-2	7.0	32.8	29.1	32.0	11.3	42.2	3,294
3-4	7.3	33.7	28.2	32.0	12.5	42.2	2,084
5+	8.3	34.3	29.6	32.9	10.9	44.2	1,676
Marital status							
Never married	7.6	32.4	26.5	31.3	8.7	41.6	2,867
Married or living together	7.6	34.0	30.0	33.5	11.8	43.5	5,386
Divorced/separated/widowed	5.8	30.6	25.7	27.9	10.9	39.5	987
Residence							
Urban	6.1	30.4	26.8	29.9	9.4	38.6	5,633
Greater Monrovia	4.1	23.1	21.8	23.6	8.0	30.1	3,361
Other urban	9.0	41.2	34.1	39.3	11.4	51.2	2,272
Rural	9.5	37.3	31.1	35.8	12.8	48.5	3,606
Region							
North Western	5.5	25.3	21.3	24.7	9.5	32.8	837
South Central	4.8	27.3	24.9	27.2	8.0	35.6	4,854
South Eastern A	11.2	40.3	32.8	36.1	10.6	53.2	483
South Eastern B	12.9	38.9	28.3	35.6	16.2	53.5	577
North Central	11.2	44.4	37.0	43.1	15.1	54.6	2,488
County							
Bomi	9.2	29.5	22.3	24.8	16.5	35.6	244
Bong	7.7	27.5	17.7	26.2	5.0	37.4	894
Gbarpolu	6.1	33.3	26.8	32.5	11.9	43.7	182
Grand Bassa	7.6	38.0	32.8	33.5	15.0	47.3	434
Grand Cape Mount	3.1	19.3	18.4	21.2	4.2	26.2	412
Grand Gedeh	10.4	46.2	34.0	35.5	10.3	60.0	167
Grand Kru	13.0	40.2	29.3	31.6	25.5	53.6	217
Lofa	12.0	38.9	33.8	35.2	25.3	45.9	447
Margibi	5.7	44.3	37.2	41.6	5.9	55.4	744
Maryland	12.1	34.0	23.8	35.4	10.6	49.1	257
Montserrado	4.2	22.6	21.5	23.5	7.6	30.2	3,675
Nimba	13.6	59.8	53.4	59.4	19.0	71.3	1,147
River Cess	4.8	37.1	39.7	41.4	5.1	51.2	135
River Gee	14.7	48.6	37.7	44.2	10.9	64.0	103
Sinoe	16.5	37.1	26.8	32.7	15.0	48.3	182
Education							
No education	8.6	35.0	30.7	34.5	13.4	45.8	3,066
Primary	8.4	38.8	31.5	37.1	11.6	47.8	2,875
Secondary and higher	5.4	26.4	23.7	25.9	7.4	34.8	3,298
Wealth quintile							
Lowest	10.4	37.2	29.9	35.5	12.7	48.3	1,581
Second	8.7	38.3	30.6	35.8	12.8	48.9	1,624
Middle	10.2	39.6	34.8	38.9	12.8	49.0	1,779
Fourth	5.4	32.0	28.6	31.9	8.7	41.3	2,047
Highest	4.0	22.3	20.7	22.2	7.9	29.4	2,207
Total	7.4	33.1	28.5	32.2	10.7	42.5	9,239

Note: Total includes 9 cases for which information on employment for cash or not for cash is missing.

Table 15.7.2 Attitude toward wife beating: Men

Percentage of all men age 15-49 who agree that a husband is justified in hitting or beating his wife for specific reasons, by background characteristics, Liberia 2013

Background characteristic	Burns the food	Argues with him	Goes out without telling him	Neglects the children	Refuses to have sexual intercourse with him	Percentage who agree with at least one specified reason	Number of men
Age							
15-19	5.7	22.2	16.7	19.4	6.0	29.2	890
20-24	2.0	19.8	15.9	16.3	4.4	26.8	696
25-29	2.5	22.3	16.6	14.9	3.8	28.7	673
30-34	2.4	15.7	11.6	11.1	3.2	22.6	575
35-39	0.7	13.4	9.8	11.9	3.0	18.3	469
40-44	1.1	12.8	10.5	12.2	3.3	18.1	482
45-49	1.3	13.3	12.9	10.9	3.1	16.7	332
Employment (past 12 months)							
Not employed	3.7	15.4	11.4	11.0	4.1	19.3	958
Employed for cash	1.4	16.9	14.5	14.8	4.2	23.2	2,396
Employed not for cash	5.2	25.2	15.9	18.5	3.8	33.8	761
Number of living children							
0	4.1	21.0	15.8	17.2	5.4	27.5	1,634
1-2	1.8	17.7	13.3	13.7	3.2	23.4	1,083
3-4	1.0	14.4	12.2	12.4	3.0	21.1	728
5+	2.2	15.7	12.8	12.2	3.3	21.1	673
Marital status							
Never married	4.0	21.5	16.6	17.5	5.5	28.0	1,749
Married or living together	1.5	15.3	11.9	12.1	3.2	21.1	2,218
Divorced/separated/widowed	3.2	19.5	14.7	17.3	0.9	26.5	151
Residence							
Urban	2.0	16.3	12.3	12.4	3.0	20.5	2,413
Greater Monrovia	1.5	13.7	11.8	12.1	1.9	17.2	1,433
Other urban	2.7	20.1	13.1	13.0	4.5	25.3	980
Rural	3.5	20.7	16.4	17.6	5.6	29.5	1,705
Region							
North Western	0.6	13.2	11.4	12.0	2.1	19.2	367
South Central	2.4	17.2	13.3	13.9	2.4	22.1	2,149
South Eastern A	1.9	17.2	12.3	14.2	2.9	27.2	254
South Eastern B	11.7	26.2	20.4	23.4	13.7	42.5	288
North Central	1.5	19.6	15.2	14.6	5.7	24.6	1,060
County							
Bomi	0.0	9.2	4.4	7.0	1.1	9.6	97
Bong	2.4	31.3	27.4	28.1	11.5	37.3	389
Gbarpolu	2.5	21.0	17.8	19.9	2.8	27.7	94
Grand Bassa	5.6	27.9	22.0	28.5	5.3	40.1	204
Grand Cape Mount	0.0	11.2	11.7	10.6	2.4	20.0	176
Grand Gedeh	1.0	12.6	9.0	12.4	4.3	24.1	82
Grand Kru	13.9	20.6	22.5	25.1	8.2	37.1	110
Lofa	2.2	9.2	6.2	6.2	1.9	13.2	219
Margibi	2.9	22.7	11.2	10.1	1.7	25.9	364
Maryland	14.4	36.5	22.5	26.0	22.0	54.8	123
Montserrado	1.9	14.6	12.6	12.9	2.2	19.0	1,582
Nimba	0.4	14.6	9.0	7.2	2.6	19.0	451
River Cess	2.3	26.1	21.9	22.4	4.3	39.1	64
River Gee	1.2	14.3	11.6	14.1	5.8	25.5	55
Sinoe	2.4	15.4	9.2	10.7	1.0	22.4	108
Education							
No education	1.9	21.2	17.8	18.7	8.7	28.0	533
Primary	3.9	23.4	16.2	18.1	5.3	30.0	1,202
Secondary and higher	2.1	14.7	12.1	11.9	2.4	20.5	2,383
Wealth quintile							
Lowest	3.8	23.2	18.9	20.4	7.7	32.7	749
Second	3.2	21.1	15.6	16.0	5.9	29.1	753
Middle	2.3	17.4	13.5	13.6	4.9	24.0	728
Fourth	1.4	17.4	14.1	14.2	1.3	21.2	864
Highest	2.6	13.2	9.7	10.3	1.7	17.2	1,024
Total	2.6	18.1	14.0	14.6	4.1	24.2	4,118

Note: Total includes 2 cases for which information on employment for cash or not for cash is missing.

15.6 WOMEN'S EMPOWERMENT INDICATORS

Two sets of empowerment indicators, namely, women's participation in making household decisions and women's attitudes towards wife beating can be summarized in two indices.

The first index shows the number of decisions (see Table 15.6.1 for the list of decisions) in which women participate either alone or jointly with their husbands. This index ranges from 0 to 3 and reflects the degree of decision-making control that women are able to exercise in areas that affect their own lives and the level of women's empowerment in a society.

The second index, which ranges from 0 to 5, is the number of reasons (see Table 15.7.1 for a list of reasons) for which a woman thinks that a husband is justified in beating his wife. A low score on this indicator is interpreted as reflecting a higher status of women in the household and society.

Table 15.8 shows how the two indices relate to each other. The findings indicate that women who participate in all three household decisions asked about are slightly more likely to disagree with all five reasons justifying wife beating than women who participate in fewer or no household decisions. Similarly, women who do not believe that wife beating is justified for any reason are somewhat more likely to participate in all household decision making than women who believe there are reasons for which wife beating is justified.

Table 15.8 Indicators of women's empowerment

Percentage of currently married women age 15-49 who participate in all decision making and the percentage who disagree with all of the reasons justifying wife beating, by value on each of the indicators of women's empowerment, Liberia 2013

Empowerment indicator	Percentage who participate in all decision making	Percentage who disagree with all the reasons justifying wife-beating	Number of women
Number of decisions in which women participate[1]			
0	na	54.2	485
1-2	na	50.9	1,350
3	na	59.0	3,551
Number of reasons for which wife-beating is justified[2]			
0	68.8	na	3,043
1-2	62.3	na	982
3-4	62.1	na	1,192
5	62.6	na	168

na = Not applicable
[1] See Table 15.6.1 for the list of decisions.
[2] See Table 15.7.1 for the list of reasons.

15.7 CURRENT USE OF CONTRACEPTION BY WOMEN'S EMPOWERMENT

A woman's desire and ability to control her fertility and her choice of contraceptive method are in part affected by her status in the household and her own sense of empowerment. A woman who feels that she is unable to control her life may be less likely to feel she can make and carry out decisions about her fertility. Table 15.9 presents the distribution of currently married women by contraceptive method use, according to the two empowerment indicators.

There is generally a positive relationship between women's empowerment and use of contraception, although differences are not great. Women who participate in one or more household decisions are more likely

to use any method of contraception than women who do not participate in any household decisions (19-22 percent and 11 percent, respectively). Likewise, women who believe that wife beating is not justified for any reason are more likely than other women to use any method of contraception (23 percent and 9-17 percent, respectively). Conversely, the percentage of women not currently using any method is highest among those women who justified all five reasons for wife beating (92 percent) and those women who do not take part in any decision making (89 percent).

Table 15.9 Current use of contraception by women's empowerment

Percent distribution of currently married women age 15-49 by current contraceptive method, according to selected indicators of women's status, Liberia 2013

| Empowerment indicator | Any method | Modern methods | | | | Any traditional method | Not currently using | Total | Number of women |
		Any modern method	Female sterilization	Temporary modern female methods[1]	Male condom				
Number of decisions in which women participate[2]									
0	11.3	11.2	0.4	10.4	0.4	0.1	88.7	100.0	485
1-2	19.2	18.7	0.4	17.7	0.6	0.5	80.8	100.0	1,350
3	21.9	20.4	0.2	19.8	0.4	1.5	78.1	100.0	3,551
Number of reasons for which wife-beating is justified[3]									
0	23.2	21.5	0.4	20.5	0.6	1.7	76.8	100.0	3,043
1-2	17.0	16.4	0.1	16.0	0.3	0.7	83.0	100.0	982
3-4	17.0	16.8	0.3	16.5	0.0	0.2	83.0	100.0	1,192
5	8.5	8.5	0.0	8.5	0.0	0.0	91.5	100.0	168
Total	20.2	19.1	0.3	18.4	0.4	1.1	79.8	100.0	5,386

Note: If more than one method is used, only the most effective method is considered in this tabulation.
[1] Pill, IUD, injectables, implants, female condom, diaphragm, foam/jelly, and lactational amenorrhea method
[2] See Table 15.6.1 for the list of decisions.
[3] See Table 15.7.1 for the list of reasons.

15.8   IDEAL FAMILY SIZE AND UNMET NEED BY WOMEN'S EMPOWERMENT

A woman's fertility preference—for example, her preference for an ideal number of children—is typically lower than that of her husband (see Chapter 6, Table 6.3). As a woman becomes more empowered to negotiate fertility decision making, she has more control over her ability to access and use contraceptives to space and limit her family size. Women who have a desire to space or limit their births but who are not using family planning are defined as having an unmet need for family planning. Table 15.10 shows how women's ideal family size and their unmet need for family planning vary by the two empowerment indicators.

Currently married women who participate in none of the empowerment indicator-specified household decisions have a higher ideal number of children than women who participate in one to three decisions (5.6 children versus 5.3 children). The unmet need for family planning is only slightly lower among women who participate in all three decisions (30 percent) compared to women who participate in zero to two decisions (31-35 percent).

Desired family size increases with the number of reasons a woman thinks that wife beating is justified, increasing from 4.7 children among women who do not agree with any of the reasons justifying wife beating to 5.3 children among women who agree with all five reasons justifying wife beating. The unmet need for family planning is lower among women who do not agree with any of the reasons justifying wife beating (30 percent) compared to women who agree with all five reasons justifying wife beating (38 percent).

Table 15.10 Ideal number of children and unmet need for family planning by women's empowerment

Mean ideal number of children for women 15-49 and the percentage of currently married women age 15-49 with an unmet need for family planning, by indicators of women's empowerment, Liberia 2013

| Empowerment indicator | Mean ideal number of children[1] | Number of women | Percentage of currently married women with an unmet need for family planning[2] | | | Number of women |
			For spacing	For limiting	Total	
Number of decisions in which women participate[3]						
0	5.6	458	22.9	8.1	31.0	485
1-2	5.3	1,301	25.9	9.3	35.2	1,350
3	5.3	3,329	20.4	9.1	29.6	3,551
Number of reasons for which wife-beating is justified[4]						
0	4.7	5,075	21.3	9.0	30.3	3,043
1-2	4.9	1,634	24.8	8.0	32.8	982
3-4	5.1	1,881	21.0	9.9	30.9	1,192
5	5.3	260	26.7	11.1	37.8	168
Total	4.8	8,849	22.0	9.1	31.1	5,386

[1] Mean excludes respondents who gave non-numeric responses.
[2] See Chapter 7 and Bradley et al., 2012 for the definition of unmet need for family planning.
[3] Restricted to currently married women. See Table 15.6.1 for the list of decisions.
[4] See Table 15.7.1 for the list of reasons.

15.9 WOMEN'S EMPOWERMENT AND REPRODUCTIVE HEALTH CARE

Table 15.11 shows women's use of prenatal, delivery, and postnatal care services from health care workers by level of empowerment, as measured by the two empowerment indicators. Theoretically, increased empowerment of women is likely to increase their ability to seek out and use health services, enabling them to better meet their reproductive health goals, including safe motherhood. However, the results in Table 15.11 show that, overall, in Liberia there is no correlation between women's empowerment and reproductive health care. That is, no differences are seen in the proportions of women who received prenatal care, delivery assistance, or postnatal care from health personnel, with respect to the levels of either of the empowerment indicators.

Table 15.11 Reproductive health care by women's empowerment

Percentage of women age 15-49 with a live birth in the five years preceding the survey who received prenatal care, delivery assistance, and postnatal care from health personnel for the most recent birth, by indicators of women's empowerment, Liberia 2013

Empowerment indicator	Percentage receiving prenatal care from a skilled provider[1]	Percentage receiving delivery care from a skilled provider[1]	Received postnatal care from health personnel within the first two days since delivery[2]	Number of women with a child born in the last five years
Number of decisions in which women participate[3]				
0	95.4	62.3	70.3	320
1-2	96.5	64.9	66.7	869
3	95.3	61.9	70.8	2,294
Number of reasons for which wife-beating is justified[4]				
0	96.4	66.8	71.3	2,628
1-2	96.1	62.9	67.5	916
3-4	94.6	63.3	72.6	1,077
5	96.0	67.8	74.3	149
Total	95.9	65.3	70.9	4,769

[1] "Skilled provider" includes doctor, nurse, midwife, or physician's assistant
[2] Includes women who received a postnatal checkup from a doctor, nurse, midwife, physician's assistant, community health worker, or traditional birth attendant (TBA) in the first two days after the birth. Includes women who gave birth in a health facility and those who did not give birth in a health facility.
[3] Restricted to currently married women. See Table 15.6.1 for the list of decisions.
[4] See Table 15.7.1 for the list of reasons.

15.10 Differentials in Infant and Child Mortality by Women's Empowerment

The abilities of women to access information, make decisions, and act effectively in their own interest, or in the interest of those who depend on them, are essential aspects of the empowerment of women. If women, the primary caretakers of children, are empowered, the health and survival of their infants will be enhanced. In fact, maternal empowerment fits into Mosley and Chen's framework on child survival as an individual-level variable that affects child survival through proximate determinants (Mosley, W.H., and L.C. Chen, 1984). However, Table 15.12 suggests that in Liberia there is no clear correlation between women's empowerment and infant, child, or under-5 mortality rates. For example, infant mortality is similar for women who participate in three household decisions and women who participate in no household decisions, and is actually lowest among women who participate in one to two household decisions. Moreover, infant mortality is highest among women who do not agree with any of the reasons justifying wife beating and is lowest among women who agree with five reasons justifying wife beating. Child and under-5 mortality also show unremarkable or unclear differences with respect to empowerment indicator categories.

Table 15.12 Early childhood mortality rates by women's status

Infant, child, and under 5 mortality rates for the 10-year period preceding the survey, by indicators of women's empowerment, Liberia 2013

Empowerment indicator	Infant mortality ($_1q_0$)	Child mortality ($_4q_1$)	Under 5 mortality ($_5q_0$)
Number of decisions in which women participate[1]			
0	71	48	116
1-2	57	46	101
3	70	47	114
Number of reasons for which wife-beating is justified[2]			
0	74	45	116
1-2	69	55	120
3-4	60	45	103
5	49	(34)	(82)

Note: Figures in parentheses are based on 250-499 unweighted person-years of exposure to the risk of death.
[1] Restricted to currently married women. See Table 15.6.1 for the list of decisions.
[2] See Table 15.7.1 for the list of reasons.

15.11 Female Genital Cutting

Female genital cutting (FGC)—also called female circumcision and female genital mutilation—involves cutting some part of the clitoris or labia, usually as part of a traditional ceremony or rite of passage into adolescence. In Liberia, FGC is usually implemented through bush societies or the Sande society, which refer to bush schools for young girls. Girls are taken to the bush where they are taught local customs, sex education, feminine hygiene, and housekeeping skills. They also undergo FGC, which in Liberia usually consists of removing some of or the entire clitoris. Because of the secretive nature of the bush society and the sensitivity of direct questions about FGC, women interviewed in the 2013 LDHS were asked if they had ever heard of a bush society like the Sande society and, if so, whether they were a member of the Sande society or a woman's bush society. They were further asked whether they thought that this society should continue or should stop.

As shown in Table 15.13, 89 percent of women said they had heard of a bush society like the Sande society. Among those who had heard of bush societies, 50 percent said they were members of the Sande society or a woman's bush society. Among women who are members, 39 percent think that the society should stop.

Table 15.13 Female genital cutting

Percentage of women age 15-49 who have heard of the Sande bush society, and among those, the percentage who are members of the society, and among those, the percentage who think the society should stop, according to background characteristics, Liberia 2013

Background characteristic	All women		Women who have heard of Sande society		Women who are members of Sande society	
	Percentage who have heard of Sande society	Number of women	Percentage who are members	Number of women	Percentage who think Sande society should stop	Number of women
Age						
15-19	85.0	2,080	31.1	1,768	41.4	550
20-24	89.9	1,642	39.8	1,476	38.4	588
25-29	89.4	1,611	50.1	1,439	38.4	721
30-34	89.4	1,199	60.3	1,072	38.3	646
35-39	92.1	1,179	60.3	1,085	40.9	654
40-44	91.8	812	63.3	746	37.3	473
45-49	91.3	716	72.4	654	40.1	473
Residence						
Urban	91.4	5,633	40.8	5,146	36.0	2,099
Greater Monrovia	91.5	3,361	31.9	3,075	30.0	982
Other urban	91.2	2,272	53.9	2,071	41.3	1,117
Rural	85.8	3,606	64.8	3,095	42.7	2,006
Region						
North Western	94.3	837	72.0	789	48.7	568
South Central	92.6	4,854	39.1	4,497	30.3	1,757
South Eastern A	60.7	483	22.7	293	25.6	67
South Eastern B	58.7	577	5.4	339	31.4	18
North Central	93.3	2,488	73.0	2,323	46.1	1,695
County						
Bomi	96.3	244	67.2	235	53.1	158
Bong	94.7	894	82.3	847	40.0	697
Gbarpolu	95.5	182	73.2	174	38.7	127
Grand Bassa	94.5	434	65.3	410	19.1	268
Grand Cape Mount	92.5	412	74.3	381	50.7	283
Grand Gedeh	55.1	167	15.4	92	(40.9)	14
Grand Kru	50.9	217	7.5	111	*	8
Lofa	91.7	447	80.8	410	69.2	332
Margibi	94.5	744	50.4	703	40.1	355
Maryland	70.1	257	2.7	180	*	5
Montserrado	92.1	3,675	33.5	3,383	29.8	1,134
Nimba	92.9	1,147	62.6	1,065	40.9	667
River Cess	76.4	135	40.5	103	17.1	42
River Gee	46.9	103	10.9	48	*	5
Sinoe	54.3	182	10.9	99	(38.3)	11
Religion						
Christian	89.5	7,945	46.9	7,109	35.1	3,333
Muslim	87.5	1,001	68.6	876	55.8	600
Traditional religion	(86.1)	42	(89.2)	36	*	32
No religion	87.3	227	67.8	198	65.9	134
Other	*	1	nc	0	nc	0
Education						
No education	88.6	3,066	71.2	2,715	45.6	1,934
Primary	86.6	2,875	48.9	2,489	40.5	1,217
Secondary and higher	92.1	3,298	31.4	3,037	24.8	954
Wealth quintile						
Lowest	84.0	1,581	69.5	1,328	43.2	924
Second	86.1	1,624	65.2	1,398	44.0	912
Middle	90.3	1,779	56.8	1,606	45.1	912
Fourth	93.5	2,047	40.6	1,914	33.1	777
Highest	90.3	2,207	29.1	1,994	24.7	580
Total	89.2	9,239	49.8	8,241	39.3	4,105

Note: Membership in the Sande society is a proxy for female genital cutting. Total includes a small number of women with information missing on religion. Figures in parentheses are based on 25-49 unweighted cases. An asterisk indicates that a figure is based on fewer than 25 unweighted cases and has been suppressed.
nc = no cases

The prevalence of membership in the Sande society is higher among older women, increasing from 31 percent among women age 15-19 to 72 percent among women age 45-49. Membership is also more common among rural women (65 percent) than urban women (41 percent). Society membership is more common among women in the North Central (73 percent) and North Western (72 percent) regions, as compared with the South Central (39 percent), South Eastern A (23 percent), and South Eastern B (5 percent) regions. Membership in the society is inversely correlated with both level of education and wealth quintile, ranging from 71 percent of women with no education to 31 percent of women with a secondary and higher education, and from 70 percent of women in the lowest wealth quintile to 29 percent of women in the highest.

Among women who are members of the Sande society, differences in the percentages who think the society should stop generally do not vary substantially by age or residence, but members do show differences by county, religion, education, and wealth.

15.12 ATTITUDES TOWARD CHILD BEATING

Child beating is a common practice in Liberia that is passed from generation to generation. As Liberians learn more about life outside the country, opportunities arise to adapt behavior. For example, behaviour change education provides information to children and parents alike about prevailing human rights issues, including child beating.

Respondents in the 2013 LDHS were asked questions about whether or not parents are justified in hitting or beating their children for five specific reasons. Tables 15.14.1 and 15.14.2 show results for women and men, respectively, age 15-49.

Fifty-six percent of women and 35 percent of men agree that parents are justified in hitting or beating their children if they go out without telling them. Similarly, 56 percent of women and 35 percent of men report that parents are justified in hitting or beating their children if they do not want to do housework. If children speak when grown-ups are talking, 61 percent of women and 31 percent of men believe that parents are justified in hitting or beating their children; and if children do not study well at school, 51 percent of women and 35 percent of men agree that parents are justified in hitting or beating their children. Only 2 percent of women and 1 percent of men report that parents are justified in hitting or beating their children if they ask for clothes or toys.

Overall, 73 percent of women and 51 percent of men agree that at least one of the specified reasons is justification for parents to hit or beat their children.

Table 15.14.1 Attitude toward child beating: Women

Percentage of all women age 15-49 who agree that parents are justified in hitting or beating their children for specific reasons, according to background characteristics, Liberia 2013

Background characteristic	Parents are justified in hitting or beating their children if:					Percentage who agree with at least one specified reason	Number of women
	They go out without telling them	They do not want to do housework	They speak when grown-ups are talking	They do not study well at school	They ask for clothes or toys		
Age							
15-19	57.2	58.4	62.1	54.1	3.4	74.9	2,080
20-24	53.6	55.4	58.0	51.8	1.7	72.4	1,642
25-29	55.0	55.3	61.1	52.5	1.9	73.9	1,611
30-34	58.1	55.7	61.1	49.2	1.2	71.8	1,199
35-39	52.4	53.0	58.0	47.8	1.5	70.6	1,179
40-44	61.2	58.1	62.5	52.5	2.3	75.2	812
45-49	54.9	51.1	62.0	46.8	2.2	74.5	716
Employment (past 12 months)							
Not employed	56.9	56.8	59.6	53.0	3.0	73.6	3,944
Employed for cash	53.8	53.5	58.7	48.5	1.2	70.4	3,564
Employed not for cash	57.8	57.8	66.8	53.1	1.8	78.9	1,721
Number of living children							
0	53.8	55.5	59.2	50.3	3.0	72.0	2,185
1-2	55.4	54.5	58.7	51.8	1.5	72.1	3,294
3-4	56.6	56.3	62.5	51.0	1.7	74.6	2,084
5+	58.5	57.5	63.4	51.9	2.6	75.9	1,676
Marital status							
Never married	55.2	56.5	60.3	52.3	2.7	73.0	2,867
Married or living together	56.6	55.8	60.8	50.6	1.9	73.7	5,386
Divorced/separated/widowed	53.5	53.0	59.8	51.9	1.5	72.3	987
Residence							
Urban	55.9	56.0	60.4	49.5	1.6	72.3	5,633
Greater Monrovia	51.9	51.8	55.8	47.0	0.5	68.0	3,361
Other urban	61.9	62.1	67.2	53.3	3.2	78.6	2,272
Rural	55.7	55.2	60.8	54.0	2.9	74.9	3,606
Region							
North Western	45.8	43.4	50.9	42.7	2.2	63.6	837
South Central	54.6	54.2	59.7	49.8	0.7	71.2	4,854
South Eastern A	59.2	57.4	66.1	54.8	2.8	78.1	483
South Eastern B	56.9	62.0	59.8	64.1	3.3	82.2	577
North Central	60.7	61.0	64.6	53.3	4.4	77.8	2,488
County							
Bomi	40.3	36.0	43.5	48.8	1.7	60.6	244
Bong	55.5	52.8	60.8	53.1	2.4	76.7	894
Gbarpolu	58.4	58.9	67.6	56.6	1.6	77.7	182
Grand Bassa	65.6	64.5	69.7	66.0	2.9	82.3	434
Grand Cape Mount	43.6	40.8	47.9	33.0	2.8	59.1	412
Grand Gedeh	62.1	60.0	67.6	50.5	0.3	78.8	167
Grand Kru	49.2	59.0	48.3	65.0	4.3	80.2	217
Lofa	43.4	48.0	43.6	47.0	1.5	63.8	447
Margibi	64.6	63.7	69.9	52.3	0.6	78.5	744
Maryland	62.3	66.0	66.5	61.8	2.0	83.4	257
Montserrado	51.3	51.0	56.4	47.4	0.5	68.4	3,675
Nimba	71.4	72.5	75.8	55.9	7.0	84.0	1,147
River Cess	60.8	57.7	65.1	51.3	0.8	76.9	135
River Gee	59.3	58.6	67.6	67.6	4.7	83.4	103
Sinoe	55.3	54.9	65.5	61.2	6.5	78.3	182
Education							
No education	58.2	57.6	62.5	50.1	1.9	75.9	3,066
Primary	57.4	58.1	63.0	54.9	3.2	75.0	2,875
Secondary and higher	52.3	51.8	56.6	49.2	1.4	69.5	3,298
Wealth quintile							
Lowest	57.0	56.4	59.6	52.9	2.5	75.5	1,581
Second	55.7	58.1	62.2	52.5	2.6	75.5	1,624
Middle	62.0	60.9	66.3	57.4	3.2	78.4	1,779
Fourth	57.5	57.6	62.4	49.2	1.5	74.1	2,047
Highest	48.7	47.4	53.7	46.1	1.1	65.4	2,207
Total	55.8	55.7	60.6	51.3	2.1	73.3	9,239

Note: Total includes 9 cases for which information on employment for cash or not for cash is missing.

Table 15.14.2 Attitude toward child beating: Men

Percentage of all men age 15-49 who agree that parents are justified in hitting or beating their children for specific reasons, according to background characteristics, Liberia 2013

Background characteristic	Parents are justified in hitting or beating their children if:					Percentage who agree with at least one specified reason	Number of men
	They go out without telling them	They do not want to do housework	They speak when grown-ups are talking	They do not study well at school	They ask for clothes or toys		
Age							
15-19	35.8	39.7	32.6	38.1	1.9	53.1	890
20-24	31.9	33.0	28.0	36.0	0.5	50.4	696
25-29	37.6	33.7	29.3	30.6	0.9	50.8	673
30-34	35.5	35.9	31.3	34.4	1.0	50.8	575
35-39	31.3	34.2	32.9	35.7	0.6	49.9	469
40-44	34.7	32.7	28.3	35.2	0.3	48.7	482
45-49	38.8	35.7	32.7	32.7	0.6	51.9	332
Employment (past 12 months)							
Not employed	26.6	31.0	23.7	30.8	1.3	43.9	958
Employed for cash	35.6	34.5	29.6	32.3	0.8	49.9	2,396
Employed not for cash	43.6	43.2	42.6	48.8	0.9	63.4	761
Number of living children							
0	35.5	36.8	31.0	36.1	1.3	51.3	1,634
1-2	33.8	32.0	28.2	31.7	0.5	49.9	1,083
3-4	31.5	32.0	30.4	33.0	1.1	46.3	728
5+	39.4	40.4	34.2	39.5	0.5	57.1	673
Marital status							
Never married	35.7	37.0	30.9	36.2	1.3	52.0	1,749
Married or living together	34.1	34.0	30.6	34.0	0.6	50.0	2,218
Divorced/separated/widowed	39.1	35.0	29.0	35.0	1.0	53.3	151
Residence							
Urban	33.4	32.8	28.3	31.0	0.8	47.6	2,413
Greater Monrovia	31.0	27.6	21.9	25.7	0.5	40.0	1,433
Other urban	37.1	40.3	37.8	38.8	1.4	58.7	980
Rural	37.2	38.8	33.9	40.5	1.0	55.8	1,705
Region							
North Western	30.7	32.1	22.8	32.0	0.0	40.5	367
South Central	36.0	33.2	28.5	29.8	1.0	48.4	2,149
South Eastern A	34.7	37.2	31.1	41.5	0.5	56.1	254
South Eastern B	39.9	42.4	41.1	53.2	3.0	66.2	288
North Central	33.2	38.2	34.8	39.9	0.6	54.4	1,060
County							
Bomi	11.6	15.2	11.6	16.8	0.0	20.9	97
Bong	50.5	54.4	52.2	48.6	1.2	65.3	389
Gbarpolu	45.0	40.7	38.2	35.5	0.0	51.9	94
Grand Bassa	43.8	38.5	41.6	42.2	1.2	63.4	204
Grand Cape Mount	33.7	36.7	20.8	38.4	0.0	45.2	176
Grand Gedeh	19.3	20.4	21.0	30.9	0.0	45.0	82
Grand Kru	38.8	38.9	47.9	54.6	1.1	64.4	110
Lofa	20.1	21.5	25.7	21.3	0.2	35.3	219
Margibi	45.1	48.3	42.5	33.4	2.8	66.5	364
Maryland	44.9	51.6	35.2	59.7	5.9	74.5	123
Montserrado	32.8	29.1	23.6	27.4	0.6	42.3	1,582
Nimba	24.8	32.3	24.2	41.3	0.3	54.3	451
River Cess	47.9	48.7	44.4	52.8	0.9	68.2	64
River Gee	30.8	28.6	40.7	35.8	0.5	51.1	55
Sinoe	38.4	43.0	30.8	42.9	0.8	57.4	108
Education							
No education	36.7	37.7	32.6	34.2	0.8	50.8	533
Primary	36.9	40.3	33.5	40.0	1.7	56.1	1,202
Secondary and higher	33.6	32.2	28.8	32.6	0.5	48.4	2,383
Wealth quintile							
Lowest	38.5	39.8	37.1	40.5	0.7	56.0	749
Second	39.9	43.5	36.5	47.6	1.0	60.2	753
Middle	34.5	37.0	28.5	35.3	1.1	52.4	728
Fourth	33.9	33.1	29.7	31.5	1.2	49.4	864
Highest	30.1	26.6	24.0	24.3	0.7	40.8	1,024
Total	35.0	35.3	30.7	35.0	0.9	51.0	4,118

Note: Total includes 2 cases for which information on employment for cash or not for cash is missing.

ADULT AND MATERNAL MORTALITY

16

> **Key Findings**
>
> - Adult mortality is slightly higher among women than men (4.9 female deaths and 4.1 male deaths per 1,000 population, respectively).
> - Between age 15 and age 50, approximately 176 women per 1,000 and 151 men per 1,000 are likely to die.
> - Maternal deaths account for 38 percent of all deaths to women age 15-49. The maternal mortality rate for the seven-year period preceding the survey was 1.7 maternal deaths per 1,000 woman-years of exposure.
> - The maternal mortality ratio was 1,072 maternal deaths per 100,000 live births for the seven-year period preceding the survey. Although this ratio is higher than the ratio reported in the 2007 LDHS (994), the difference is not statistically significant.

Adult and maternal mortality rates are key indicators of the health status of a population. In Liberia, maternal mortality is a core indicator of national health performance. Estimation of mortality rates requires comprehensive and accurate reporting of adult deaths, including maternal deaths. The maternal mortality module included in the 2013 LDHS gathers the valuable information that is needed to determine maternal mortality.

This chapter includes results based on collection of sibling history data in the Sibling Survival Module (commonly referred to as the "Maternal Mortality Module") of the 2013 LDHS Woman's Questionnaire. In addition to adult mortality rates for five-year age groups, this chapter includes a summary measure ($_{35}q_{15}$) that represents the probability of dying between exact ages 15 and 50. In order to compare this measure with the 2007 LDHS, the adult mortality probabilities ($_{35}q_{15}$) for the 2007 LDHS have been calculated and presented in Table 16.2.

The term *maternal mortality,* used in this chapter and in previous LDHS surveys, corresponds to the term *pregnancy-related mortality,* as defined in the latest version of the International Classification of Diseases (ICD-10). The ICD-10 definition of a pregnancy-related death is "the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death" (WHO, 2011c). In keeping with this definition, the Sibling Survival Module used in the DHS surveys measures only the timing of deaths and not the cause of death. The data collected in the LDHS questionnaire are based on information about deaths that occur during the two months following a birth rather than the 42 days following a birth.

16.1 ASSESSMENT OF DATA QUALITY

To obtain a sibling history, the 2013 LDHS first asked each female respondent to list all children born to her biological mother, starting with the firstborn. The survey then asked the respondent whether each of these siblings was still alive. For living siblings, the interviewer asked the current age of each sibling. For deceased siblings, the age at death and the number of years since death were recorded. When a respondent could not provide precise information on age at death or years since death, approximate but quantitative answers were accepted. For sisters who died at age 12 or older, the LDHS asked three questions to determine

whether the death was maternal: "Was [NAME] pregnant when she died?" and, if the response was negative, "Did she die during childbirth?" and, if negative again, "Did she die within two months after the end of a pregnancy or childbirth?"

Table C.7 in Appendix C shows that in the 2013 LDHS, a total of 48,190 siblings were recorded in the sibling histories, with nearly 40,000 reported as living and over 8,000 reported as deceased. Survival status was not reported for 14 siblings. Among surviving siblings, current age was not reported for less than 1 percent. Among deceased siblings, both age at death (AD) and years since death (YSD) were reported for more than 99 percent. The sex ratio of the enumerated siblings (the ratio of brothers to sisters x 100) is 98.3 (see Table C.8), which is lower than the expected value of 100.2 (LISGIS, 2009), a difference that suggests sisters may be over-reported.

16.2 ESTIMATES OF ADULT MORTALITY

One way to assess the quality of data used to estimate maternal mortality is to evaluate the plausibility and stability of adult mortality estimates. If the overall estimated rates of adult mortality are implausible, rates based on a subset of deaths—maternal mortality, in particular—are likely to have serious problems. Moreover, levels and trends in overall adult mortality have important implications for health and social welfare programs in Liberia, especially with regard to the potential impact of limited access to health care services, an inadequately qualified and skilled health work force, and the emergence of infectious and non-communicable diseases.

The direct estimation of adult mortality uses the reported ages at death and years since the death of the respondents' brothers and sisters. Mortality rates are calculated by dividing the number of deaths in each age group of women and men by the total person-years of exposure to the risk of dying in that age group during a specified period prior to the survey. To have a sufficiently large number of adult deaths to generate a robust estimate, the rates are calculated for the seven-year period preceding the survey (approximately 2006 to 2013). Nevertheless, the age-specific mortality rates obtained in this manner are subject to considerable sampling variation.

Table 16.1 and Figure 16.1 show age-specific mortality rates (ASMR) for women and men age 15-49 for the seven-year period preceding the survey. Overall, the level of adult mortality is slightly higher among women (4.9 deaths per 1,000 population) than among men (4.1 deaths per 1,000 population). Age-specific mortality rates appear to be higher for women than for men in most age groups. Generally, ASMRs show the expected increases with age, for both women and men. The confidence intervals for many of the five-year mortality rates overlap and can be found in Appendix Table B.27.

Relative to the 2013 LDHS, adult mortality rates for both males and females were distinctly different in the 2007 LDHS. Overall, mortality was higher among men than women in the 2007 LDHS (5.4 deaths per 1,000 population

Table 16.1 Adult mortality rates

Direct estimates of female and male mortality rates for the seven years preceding the survey, by five-year age groups, Liberia 2013

Age	Deaths	Exposure years	Mortality rates[1]
FEMALE			
15-19	54	18,616	2.92
20-24	82	21,948	3.72
25-29	103	21,254	4.83
30-34	79	17,638	4.47
35-39	72	12,880	5.56
40-44	69	8,184	8.41
45-49	42	4,753	8.73
15-49	500	105,273	4.87[a]
MALE			
15-19	56	18,322	3.06
20-24	69	19,961	3.46
25-29	55	20,226	2.71
30-34	72	16,161	4.44
35-39	56	11,983	4.64
40-44	56	7,349	7.69
45-49	30	4,446	6.68
15-49	393	98,447	4.14[a]

[1] Expressed per 1,000 population
[a] Age-adjusted rate

for men versus 4.9 deaths per 1,000 population for women), whereas mortality was lower among men than women in the 2013 LDHS (4.1 deaths per 1,000 population for men and 4.9 deaths per 1,000 population for

women). Female mortality rates exceed male rates at all ages except for age 15-19 in the 2013 LDHS, but differences in age-specific mortality between women and men were more variable in the 2007 LDHS.

Figure 16.1 Age specific mortality rates by sex
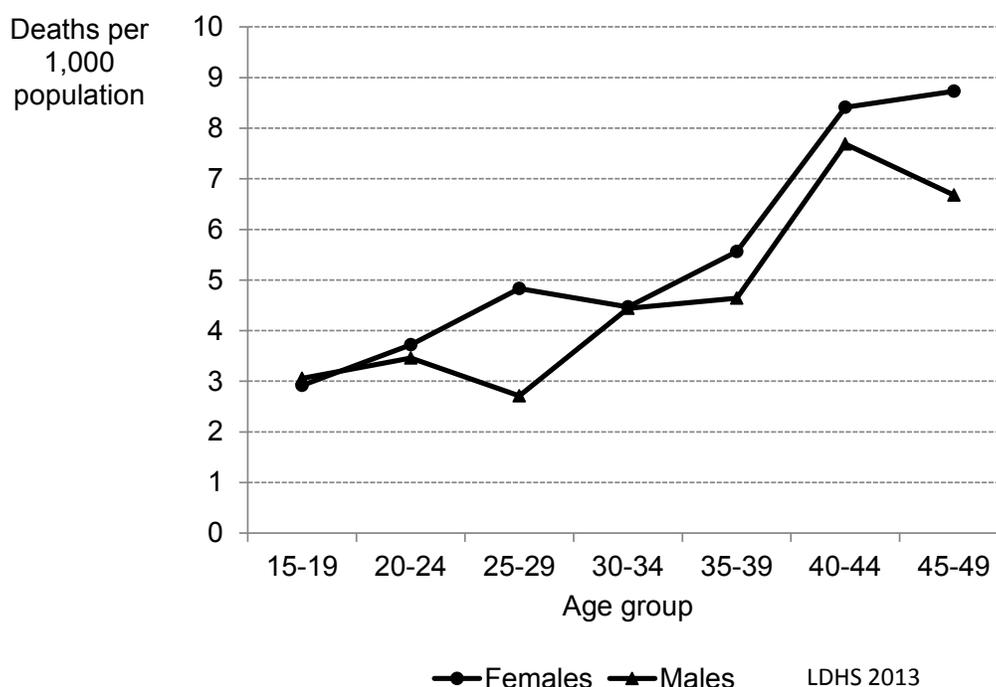
Table 16.2 shows a summary measure of the risk of dying between the exact ages of 15 and 50 ($_{35}q_{15}$). That is, $_{35}q_{15}$ represents the risk of a 15-year-old man or woman dying before age 50. According to the 2013 LDHS, 176 of 1,000 Liberian women age 15, and 151 of 1,000 Liberian men age 15, are likely to die before reaching age 50. In the 2007 LDHS, the probability of dying between the ages of 15 and 50 ($_{35}q_{15}$) was lower for women (164 deaths per 1,000 persons who reached age 15) and higher for men (186 deaths per 1,000 persons who reached age 15), as compared with the 2013 LDHS. The confidence limits for the $_{35}q_{15}$ estimates for the 2013 LDHS can be found in Appendix Table B.27.

Table 16.2 Adult mortality probabilities

The probability of dying between the ages of 15 and 50 for women and men for the seven years preceding the survey, Liberia 2013

Survey	Female $_{35}q_{15}$[1]	Male $_{35}q_{15}$[1]
2013 LDHS	176	151
2007 LDHS	164	186

[1] The probability of dying between exact ages 15 and 50, expressed per 1,000 persons who reached age 15

16.3 ESTIMATES OF MATERNAL MORTALITY

In this survey, maternal deaths are defined as any deaths that occur during pregnancy, childbirth, or within two months after the birth or termination of a pregnancy. Estimates of maternal mortality are therefore

based solely on the timing of the death in relationship to the pregnancy[1]. Maternal mortality in Liberia and other developing countries can be estimated using two procedures: the indirect sisterhood method (Graham et al., 1989) or a direct estimation variant of the sisterhood method (Rutenberg and Sullivan, 1991). In this report, the direct estimation variant is used to estimate maternal mortality.

Table 16.3 presents direct estimates of maternal mortality for the seven-year period preceding the survey. The maternal mortality rate among women age 15-49 is 1.7 maternal deaths per 1,000 woman-years of exposure, which is essentially unchanged since the 2007 LDHS. By five-year age groups, the maternal mortality rate is highest among women 40-44 (3.1), followed by those age 25-29 (2.2) and 30-34 (2.1). The confidence limits for the maternal mortality rates can be found in Appendix Table B.27.

Table 16.3 Maternal mortality

Direct estimates of maternal mortality rates for the seven years preceding the survey, by five-year age groups, Liberia 2013

Age	Percentage of female deaths that are maternal	Maternal deaths	Exposure years	Maternal mortality rate[1]
15-19	31.6	17	18,616	0.92
20-24	39.2	32	21,948	1.46
25-29	45.3	47	21,254	2.19
30-34	47.8	38	17,638	2.14
35-39	28.2	20	12,880	1.56
40-44	37.1	26	8,184	3.12
45-49	20.2	8	4,753	1.77
Total 15-49	37.5	188	105,273	1.74

General fertility rate (GFR)[2]	162[a]
Maternal mortality ratio (MMR)[3]	1,072 CI: (776-1,368)
Lifetime risk of maternal death[4]	0.053

2007 LDHS	
Maternal mortality ratio (MMR)[3]	994 CI: (678-1,310)

CI: Confidence interval
[1] Expressed per 1,000 woman-years of exposure
[2] Expressed per 1,000 women age 15-49
[3] Expressed per 100,000 live births; calculated as the age-adjusted maternal mortality rate times 100 divided by the age-adjusted general fertility rate
[4] Calculated as $1-(1-MMR)^{TFR}$ where TFR represents the total fertility rate for the seven years preceding the survey
[a] Age-adjusted rate

In the 2013 LDHS, maternal deaths represent 38 percent of all deaths to women age 15-49, compared with 35 percent in the 2007 LDHS. Also, the percentage of female deaths that are maternal varies by age and ranges from 20 percent of all deaths among women 45-49 to 48 percent of all deaths among women 30-34 years.

The maternal mortality rate can be converted to a maternal mortality ratio (expressed as deaths per 100,000 live births) by dividing the total maternal mortality rate (1.7) by the general fertility rate (GFR) of 162 that prevailed during the same time period, and multiplying the result by 100,000. This procedure produces a

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[1] This time-dependent definition includes all deaths that occurred during pregnancy and two months after pregnancy, even if the death was due to non-maternal causes. However, this definition is unlikely to result in over-reporting of maternal deaths because most deaths to women during the two-month period are due to maternal causes.

maternal mortality ratio (MMR) of 1,072 deaths per 100,000 live births during the seven-year period preceding the survey. In other words, for every 1,000 live births in Liberia during the seven years preceding the 2013 LDHS, about 11 women died during pregnancy, or during childbirth, or within two months of childbirth. The lifetime risk of maternal death (0.053) indicates that about 5 percent of women die during pregnancy, during childbirth, or within two months of childbirth. These figures should be viewed with caution because the number of female deaths occurring during pregnancy, at delivery, or within two months of delivery is small (188). As a result, the maternal mortality estimates are subject to larger sampling errors than the adult mortality estimates. Confidence limits are presented in Appendix Table B.27.

The 2013 MMR estimate (1,072) is higher than the 2007 LDHS (994) by 8 percent. Important to note, however, is that the difference between the 2013 and 2007 estimates of the MMR is not statistically significant. As shown in Table 16.3 and Figure 16.2, the confidence interval for the 2013 MMR estimate spans the point estimate of the MMR in the 2007 DHS and vice versa. The confidence interval for the 2007 MMR of 994 deaths per 100,000 live births is 678-1,310 deaths, while the confidence interval for the 2013 LDHS MMR of 1,072 is 776-1,368. Any change that may have occurred between the two surveys was not large enough to be significant with the sample sizes of the surveys.

Figure 16.2 Maternal mortality ratio (MMR) with confidence intervals for the seven years preceding the 2007 Liberia DHS and the 2013 Liberia DHS

LDHS 2013
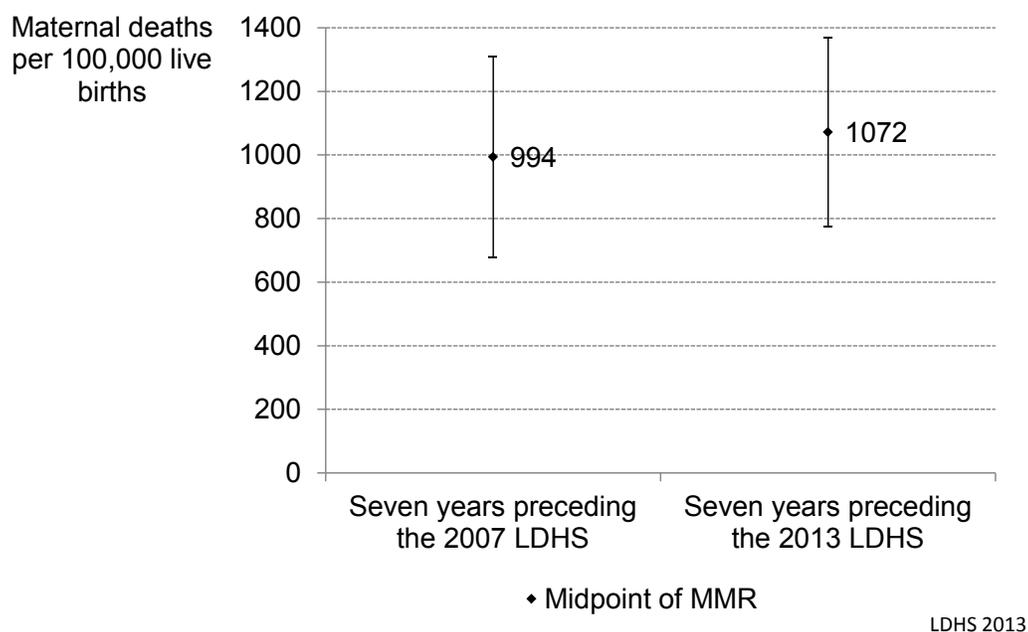
An MMR was also estimated as part of the 1999/2000 LDHS (578 maternal deaths per 100,000 live births). The 1999/2000 LDHS included questions similar to those asked of respondents in the 2007 and 2013 LDHS. However, there were several key methodological differences that complicate the comparison of the 1999/2000 LDHS estimate with either the 2007 or 2013 LDHS estimate. First, the 2000 survey asked questions related to sibling mortality of both male and female respondents, and responses from both were used to produce the estimate. However, the 2007 and 2013 LDHS surveys included questions on siblings for female respondents only. Second, maternal deaths were defined as any deaths that occurred during pregnancy, childbirth, or within six weeks after the birth or termination of a pregnancy rather than deaths that occurred during pregnancy, childbirth, or within two months after the birth or termination of a pregnancy. Third, the

MMR reported in the 1999/2000 LDHS was based on the indirect estimation procedure rather than the direct estimation method used in the 2007 and 2013 LDHS. Finally, the 1999/2000 LDHS estimate was based on the 12 to 13 years preceding the survey (roughly 1987-2000) rather than the seven-year period preceding the 2007 survey (roughly 2000-2007) or the seven-year period preceding the 2013 survey (roughly 2006-2013). Differences between the three surveys could be due to variations in estimation, differences in analysis, and large sampling errors. Thus, although the absolute difference in the MMR for the 1999/2000 LDHS and either the 2007 or 2013 LDHS suggests an increase in maternal mortality in the last 25 years, validating this conclusion will require additional analysis.

It is important to remember that the sample sizes implemented in these three surveys do not allow for precise estimates of maternal mortality. The sampling errors around these estimates are large and, consequently, differences need to be interpreted with caution. A large increase in the maternal mortality ratio is not supported by the trends in related indicators, such as prenatal care coverage, delivery in health facilities, and medical assistance at delivery, all of which have improved over the last seven years.

The main health factors contributing to the high level of maternal mortality include the acute shortage of skilled health workers, inadequate emergency obstetric care facilities, inefficient and limited referral systems, poor nutritional status of pregnant women, high fertility rates, and extremely high number of teenage pregnancies, coupled with low access to family planning services. Moreover, four in ten births are delivered by traditional midwives or other unskilled attendants.

The health and social welfare sector is determined to reduce the MMR in Liberia. In an effort to reduce maternal and newborn deaths and achieve the Millennium Development Goals 4 and 5[2], the Government of Liberia has developed a roadmap for maternal mortality reduction, adopted the Reach Every Pregnant Woman (REP) Strategy, and made compulsory the reporting of maternal deaths by health workers to keep up surveillance on maternal deaths. The National Roadmap has a resource mobilization tool highlighting simple, cost-effective interventions that would accelerate the reduction of maternal and newborn mortality over the next ten years beginning in 2011. The Roadmap has been costed for the first five years (2011-2015), during which period the MOHSW plans to reduce the maternal mortality rate by at least 25 percent from a baseline of 994/100,000, and 50 percent by 2021 (497/100,000). The five-year rough cost estimate of implementing maternal mortality reduction interventions is approximately 145 million USD (MOHSW, 2011b; MOHSW, 2012).

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[2] MDG 4 is to reduce child mortality; target 4A is to reduce by two-thirds, between 1990 and 2015, the under-5 mortality rate. MDG 5 is to improve maternal health; target 5A is to reduce by three-quarters, between 1990 and 2015, the maternal mortality ratio.

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SAMPLE DESIGN
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Appendix **A**

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A.1   INTRODUCTION

T he 2013 Liberia Demographic and Health Survey (2013 LDHS), which is the fourth DHS to be conducted in Liberia, follows other surveys carried out in 1986, 1999/2000, and 2007. The 2013 LDHS was designed to provide up-to-date information on key indicators needed to track progress in Liberia's population and health programs. These indicators include fertility, fertility preferences, and contraceptive use; child and maternal mortality, utilization of maternal and child health services, women's and children's nutrition status; and knowledge, attitudes and behaviors relating to HIV/AIDS and other sexually transmitted diseases. In addition, the 2013 LDHS includes two biomarkers: anthropometry and HIV testing.

To obtain these data, a nationally representative sample of households was selected. All women age 15-49 who were usual residents of the sampled households or who slept in the households on the night before the interview were eligible for interviewing. In addition, in every second household, all men age 15-49 who were usual residents of the household or slept in the household on the night before the interview were eligible for interviewing. In the subsample of households selected for the male survey, blood specimens for HIV testing were collected from all eligible women and men age 15-49 who voluntarily consented to the testing. Height and weight measurements were recorded for children age 0-59 months and women and men age 15-49.

In Liberia, there are 15 counties, grouped to form five geographical regions (with each region consisting of three counties). The survey estimates are reported for the country as a whole, for all urban areas, for the capital city of Greater Monrovia, for the other urban areas, for all the rural areas, and for each of the five geographical regions. In total, there are nine report domains, with domain composition as follows:

- All urban areas of Liberia

- The urban capital city of Greater Monrovia

- Urban areas of Liberia other than Greater Monrovia

- The rural areas of Liberia

- North Western: Bomi, Grand Cape Mount, Gbarpolu

- South Central: Montserrado, Margibi, Grand Bassa

- North Central: Bong, Nimba, Lofa

- South Eastern A: River Cess, Sinoe, Grand Gedeh

- South Eastern B: River Gee, Grand Kru, Maryland

The survey will also produce separate representative results for most key indicators of the 15 counties.

A.2   SAMPLE FRAME

The 2013 LDHS sample was selected using a stratified, two-stage cluster design. The frame used for the first stage of the selection of the 2013 LDHS sample was based on an updated version of the 2008 Liberia National Population and Housing Census (2008 LPHC) in which the classification of localities as urban or rural was updated

through the application of standardized definitions. Administratively, Liberia is divided into 15 counties; each county is sub-divided into a number of districts, and each district into clans. There are 138 districts and 854 clans. For the 2008 LPHC, each of the clans was subdivided into smaller enumeration areas (EAs), typically including about 100 households. The small size of the EAs and the availability of sketch maps and other materials to delimit their geographic boundaries made the census EA ideal for use as the first-stage sampling unit of the LDHS sample. Households were the units for second-stage sampling.

Table A.1 shows the distribution of households and population as described in the updated 2008 census frame, by the geographic domains of interest for the LDHS, i.e., county by urban-rural residence. Table A.2 presents the distribution of enumeration areas and their average size in number of households in the sample frame by county and residence.

Table A.1 Households and population

Distribution of residential households and population in the sampling frame, by county and by type of residence, Liberia 2013

County	Household distribution			Population distribution		
	Urban	Rural	County	Urban	Rural	County
Bomi	0.172	0.828	0.031	0.172	0.828	0.024
Bong	0.374	0.626	0.104	0.388	0.612	0.096
Gbarpolu	0.155	0.845	0.022	0.149	0.851	0.023
Grand Bassa	0.312	0.688	0.071	0.321	0.679	0.063
Grand Cape Mount	0.064	0.936	0.036	0.073	0.927	0.037
Grand Gedeh	0.446	0.554	0.027	0.416	0.584	0.036
Grand Kru	0.057	0.943	0.013	0.053	0.947	0.017
Lofa	0.363	0.637	0.074	0.359	0.641	0.080
Margibi	0.465	0.535	0.067	0.497	0.503	0.060
Maryland	0.487	0.513	0.029	0.457	0.543	0.039
Montserrado	0.936	0.064	0.347	0.943	0.057	0.323
Nimba	0.593	0.407	0.120	0.599	0.401	0.133
River Gee	0.291	0.709	0.015	0.302	0.698	0.019
River Cess	0.035	0.965	0.021	0.032	0.968	0.020
Sinoe	0.164	0.836	0.024	0.131	0.869	0.029
Liberia	0.562	0.438	1.000	0.554	0.446	1.000

Table A.2 Enumeration areas and households

Number of enumeration areas and average number of households per EA in the sampling frame, by county and type of residence, Liberia 2013

County	Number of EAs			Average EA size		
	Urban	Rural	County	Urban	Rural	County
Bomi	46	227	273	77	75	75
Bong	326	601	927	80	73	75
Gbarpolu	21	127	148	107	97	98
Grand Bassa	152	316	468	97	103	101
Grand Cape Mount	17	261	278	90	86	87
Grand Gedeh	83	93	176	97	108	103
Grand Kru	7	123	130	72	69	69
Lofa	170	331	501	106	95	99
Margibi	168	263	431	125	92	105
Maryland	73	98	171	129	101	113
Montserrado	2,101	149	2,250	104	101	104
Nimba	434	347	781	110	95	103
River Gee	29	79	108	99	88	91
River Cess	5	147	152	97	92	92
Sinoe	23	195	218	113	68	73
Liberia	3,655	3,357	7,012	103	88	96

A.3 SAMPLE DESIGN AND IMPLEMENTATION

The sample for LDHS 2013 was a stratified sample selected in two stages. In the first stage, 322 EAs were selected with a stratified probability proportional to size selection from the sampling frame. The EA size is the number of households residing in the EA recorded in the updated 2008 LPHC frame. Stratification was achieved by separating every county into urban and rural areas. The urban area in each county mainly consisted of the county's capital. Therefore the 15 counties were stratified into 30 sampling strata: 15 rural strata and 15 urban strata. Samples were selected independently in each stratum, with a predetermined number of EAs to be selected. Implicit stratification was achieved at each of the lower administrative unit levels by sorting the sampling frame according to districts and clans within each sampling stratum and by using a probability-proportional-to-size selection procedure.

After the selection of EAs and before the main survey, a household listing operation was carried out in all selected EAs. The resulting lists of households served as the sampling frame for the selection of households in the second stage. If an EA was too large to be a DHS cluster (>200 households), the EA was segmented into smaller segments following specified guidelines, and one of the resulting segments was selected with probability proportional to size. The household listing was conducted only in the selected segment, and the listing of the segment was then used to help select the final household sample. So, an LDHS 2013 cluster was either an EA or a segment of an EA. In the second stage of selection, a fixed number of 30 households were selected in every urban and rural cluster, by an equal probability systematic sampling. A spreadsheet indicating the selected household numbers for each cluster was prepared. The survey interviewers were asked to interview only the pre-selected households. To prevent bias, replacements and changes of the pre-selected households were not allowed.

Table A.3 shows the sample allocation of clusters and households by report domain and by type of residence. The number of interviews with women and men that were expected to be completed based on the sample design is shown by county and residence in Table A.4. The sample allocation was a power allocation with a small adjustment, which took into account the county population and their urban-rural distribution. A proportional allocation was not applied because of the great disparity among the county sizes. Among the 322 clusters selected, 119 clusters were in urban areas, and 203 clusters were in rural areas. The total number of households selected in the 2013 LDHS was 9,660; 3,570 exist in urban areas and 6,090 are from rural areas. Because many of the counties are rural and have small populations, rural areas were oversampled relative to urban areas.

Table A.3 Sample allocation of clusters and households

Sample allocation of clusters and households by region, according to residence, Liberia 2013

County	Allocation of clusters			Allocation of households		
	Urban	Rural	Total	Urban	Rural	Total
Bomi	5	12	17	150	360	510
Bong	9	16	25	270	480	750
Gbarpolu	4	14	18	120	420	540
Grand Bassa	7	15	22	210	450	660
Grand Cape Mount	4	16	20	120	480	600
Grand Gedeh	7	12	19	210	360	570
Grand Kru	3	13	16	90	390	480
Lofa	8	15	23	240	450	690
Margibi	9	12	21	270	360	630
Maryland	7	12	19	210	360	570
Montserrado	36	8	44	1,080	240	1,320
Nimba	8	18	26	240	540	780
River Gee	5	11	16	150	330	480
River Cess	2	15	17	60	450	510
Sinoe	5	14	19	150	420	570
Liberia	119	203	322	3,570	6,090	9,660

Table A.4 Sample allocation of completed interviews with women and men

Sample allocation of expected number of completed interviews with women and men, by county, according to residence, Liberia 2013

	Women 15-49			Men 15-49		
Region	Urban	Rural	Total	Urban	Rural	Total
Bomi	154	308	462	65	134	199
Bong	277	410	687	118	178	296
Gbarpolu	124	359	483	53	156	209
Grand Bassa	216	385	601	92	168	260
Grand Cape Mount	124	410	534	53	178	231
Grand Gedeh	216	308	524	92	134	226
Grand Kru	92	333	425	39	145	184
Lofa	246	385	631	105	168	273
Margibi	277	308	585	118	134	252
Maryland	216	308	524	92	134	226
Montserrado	1,108	205	1,313	473	89	562
Nimba	246	462	708	105	201	306
River Gee	154	282	436	65	123	188
River Cess	62	385	447	26	168	194
Sinoe	154	359	513	65	156	221
Liberia	3,666	5,207	8,873	1,561	2,266	3,827

The allocations presented in Table A.4 were based on the results obtained from LDHS 2007, in which the overall household gross response rate was 91 percent. There were 1.20 women age 15-49 per household in urban areas and 1.00 woman age 15-49 per household in rural areas; the response rate for women was 95 percent for urban areas and 96 percent for rural areas. There were 1.07 men age 15-49 per household in urban areas and 0.87 men age 15-49 per household in rural areas; the response rate for men was 90 percent in urban areas and 95 percent in rural areas.

An examination of response rates for the 2013 LDHS indicates that the survey was successfully implemented. Table A.5 and Table A.6 present the interview response rates in the 2013 LDHS for women and men, respectively, by urban and rural area and region. Overall, the number of completed interviews is similar to the expected number for both women and men. The coverage of HIV testing was slightly higher in the 2013 LDHS relative to the 2007 survey. Tables A.7-A.10 present response rates for the HIV testing by background characteristics.

A.4   SAMPLE PROBABILITIES AND SAMPLING WEIGHTS

Due to the nonproportional allocation of the sample across domains and urban-rural areas, and the differential response rates, sampling weights must be calculated using all analyses of the LDHS results to ensure that survey results are representative at both the national and domain level. Since the LDHS sample is a two-stage stratified cluster sample, sampling weights are based on sampling probabilities calculated separately for each sampling stage and for each cluster where:

P_{1hi}:   first-stage sampling probability of the ith cluster in stratum h

P_{2hi}:   second-stage sampling probability within the ith cluster (households)

The following describes the calculation of these probabilities:

Let a_h be the number of clusters selected in stratum h, M_{hi} the number of households according to the sampling frame in the ith cluster, and $\sum M_{hi}$ the total number of households in the stratum. The probability of selecting the ith cluster in the 2013 LDHS sample is calculated as follows:

$$\frac{a_h \, M_{hi}}{\Sigma \, M_{hi}}$$

Let b_{hi} be the proportion of households in the selected cluster compared with the total number of households in cluster i in stratum h if the cluster is segmented, otherwise $b_{hi} = 1$. Then the probability of selecting cluster i in the sample is:

$$P_{1hi} = \frac{a_h \, M_{hi}}{\Sigma \, M_{hi}} \times b_{hi}$$

Let L_{hi} be the number of households listed in the household listing operation in cluster i in stratum h, and let g_{hi} be the number of households selected in the cluster. The second stage's selection probability for each household in the cluster is calculated as follows:

$$P_{2hi} = \frac{g_{hi}}{L_{hi}}$$

The overall selection probability of each household in cluster i of stratum h is therefore the product of the two stages of selection probabilities:

$$P_{hi} = P_{1hi} \times P_{2hi}$$

The design weight for each household in cluster i of stratum h is the inverse of its overall selection probability:

$$W_{hi} = 1 / P_{hi}$$

Next, the design weight is adjusted for household non-response and individual non-response to get the sampling weights for households and for women and men, respectively. Non-response is adjusted at the sampling stratum level. For the household sampling weight, the household design weight is multiplied by the inverse of the household response rate, by stratum. For the women's individual sampling weight, the household sampling weight is multiplied by the inverse of the women's individual response rate, by stratum. For the men's individual sampling weight, the household sampling weight for the male sub-sample is multiplied by the inverse of the men's individual response rate, by stratum. After adjusting for non-response, the sampling weights are normalized to get the final standard weights that appear in the data files. The normalization process is done to obtain a total number of un-weighted cases equal to the total number of weighted cases at the national level, for the total number of households, women, and men. Normalization is done by multiplying the sampling weight by the estimated sampling fraction obtained from the survey for the household weight, the individual woman's weight, and the individual man's weight. The normalized weights are relative weights that are valid for estimating means, proportions, ratios, and rates, but they are not valid for estimating population totals or pooled data. The sampling weights for HIV testing are calculated in a similar way, but the normalization of the HIV weights is different. The individual HIV testing

weights are normalized at the national level for women and men together so that HIV prevalence estimates calculated for women and men together are valid.

Table A.5 Sample implementation: Women

Percent distribution of households and eligible women by results of the household and individual interviews, and household, eligible women and overall women response rates, according to urban-rural residence and region (unweighted), Liberia 2013

| | Residence | | | | Region | | | | | |
| | | Urban | | | | | | | | |
Result	Total urban	Greater Monrovia	Other urban	Rural	North Western	South Central	South Eastern A	South Eastern B	North Central	Total
Selected households										
Completed (C)	96.5	98.2	95.8	96.4	97.8	98.2	94.1	93.8	96.9	96.4
Household present but no competent respondent at home (HP)	0.1	0.1	0.2	0.2	0.0	0.1	0.4	0.5	0.2	0.2
Refused (R)	0.2	0.2	0.2	0.1	0.0	0.2	0.5	0.1	0.0	0.2
Dwelling not found (DNF)	0.2	0.0	0.3	0.2	0.0	0.0	0.4	0.5	0.2	0.2
Household absent (HA)	1.3	0.4	1.7	1.5	0.7	0.6	3.0	2.4	1.2	1.4
Dwelling vacant/address not a dwelling (DV)	1.1	1.1	1.1	0.8	0.8	0.7	0.6	1.8	0.9	0.9
Dwelling destroyed (DD)	0.5	0.0	0.7	0.7	0.7	0.2	1.0	0.9	0.5	0.6
Other (O)	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of sampled households	3,576	990	2,586	6,101	1,658	2,609	1,651	1,531	2,228	9,677
Household response rate (HRR)[1]	99.5	99.7	99.4	99.4	100.0	99.7	98.7	98.9	99.5	99.4
Eligible women										
Completed (EWC)	97.8	99.0	97.2	97.6	99.2	99.0	95.0	95.7	97.9	97.6
Not at home (EWNH)	1.2	0.2	1.6	1.3	0.3	0.3	3.1	2.5	1.0	1.2
Postponed (EWP)	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Refused (EWR)	0.6	0.8	0.5	0.4	0.1	0.4	1.0	0.5	0.3	0.5
Partly completed (EWPC)	0.1	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.1	0.1
Incapacitated (EWI)	0.3	0.0	0.5	0.3	0.1	0.3	0.3	0.7	0.4	0.3
Other (EWO)	0.1	0.0	0.1	0.4	0.1	0.0	0.5	0.4	0.4	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of women	3,808	1,166	2,642	5,654	1,565	2,788	1,439	1,496	2,174	9,462
Eligible women response rate (EWRR)[2]	97.8	99.0	97.2	97.6	99.2	99.0	95.0	95.7	97.9	97.6
Overall women response rate (ORR)[3]	97.3	98.7	96.7	97.0	99.2	98.7	93.8	94.7	97.4	97.1

[1] Using the number of households falling into specific response categories, the household response rate (HRR) is calculated as:

$$\frac{100 * C}{C + HP + P + R + DNF}$$

[2] The eligible women response rate (EWRR) is equivalent to the percentage of interviews completed (EWC)
[3] The overall women response rate (OWRR) is calculated as:
OWRR = HRR * EWRR/100

Table A.6 Sample implementation: Men

Percent distribution of households and eligible men by results of the household and individual interviews, and household, eligible men and overall men response rates, according to urban-rural residence and region (unweighted), Liberia 2013

	Residence				Region					
		Urban								
Result	Total urban	Greater Monrovia	Other urban	Rural	North Western	South Central	South Eastern A	South Eastern B	North Central	Total
Selected households										
Completed (C)	96.5	98.4	95.8	96.6	98.0	98.1	94.5	93.5	97.4	96.6
Household present but no competent respondent at home (HP)	0.2	0.2	0.2	0.3	0.0	0.2	0.2	0.5	0.4	0.2
Refused (R)	0.2	0.2	0.2	0.1	0.0	0.2	0.5	0.1	0.0	0.1
Dwelling not found (DNF)	0.2	0.0	0.2	0.2	0.0	0.1	0.4	0.3	0.2	0.2
Household absent (HA)	1.3	0.4	1.6	1.5	1.0	0.6	2.9	2.7	0.8	1.4
Dwelling vacant/address not a dwelling (DV)	0.9	0.8	0.9	0.7	0.5	0.7	0.5	1.7	0.5	0.7
Dwelling destroyed (DD)	0.7	0.0	0.9	0.6	0.6	0.2	0.8	1.2	0.6	0.6
Other (O)	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of sampled households	1,790	495	1,295	3,053	830	1,306	825	765	1,117	4,843
Household response rate (HRR)[1]	99.4	99.6	99.4	99.4	100.0	99.6	98.9	99.0	99.5	99.4
Eligible men										
Completed (EMC)	94.7	95.1	94.6	95.8	98.5	96.9	93.1	90.9	96.4	95.4
Not at home (EMNH)	3.6	2.1	4.2	2.5	1.0	1.5	4.8	5.8	2.4	2.9
Postponed (EMP)	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Refused (EMR)	1.4	2.5	0.9	1.3	0.1	1.1	1.9	2.7	1.0	1.3
Incapacitated (EMI)	0.3	0.4	0.3	0.3	0.1	0.4	0.3	0.3	0.3	0.3
Other (EMO)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of men	1,680	487	1,193	2,638	677	1,231	749	729	932	4,318
Eligible men response rate (EMRR)[2]	94.7	95.1	94.6	95.8	98.5	96.9	93.1	90.9	96.4	95.4
Overall men response rate (ORR)[3]	94.2	94.7	93.9	95.2	98.5	96.5	92.0	90.1	95.8	94.8

[1] Using the number of households falling into specific response categories, the household response rate (HRR) is calculated as:

$$\frac{100 * C}{C + HP + P + R + DNF}$$

[2] The eligible men response rate (EMRR) is equivalent to the percentage of interviews completed (EMC)
[3] The overall men response rate (OMRR) is calculated as:
OMRR = HRR * EMRR/100

Table A.7 Coverage of HIV testing by social and demographic characteristics: Women

Percent distribution of interviewed women age 15-49 by HIV testing status, according to social and demographic characteristics (unweighted), Liberia 2013

| Characteristic | Testing status | | | | | |
	DBS tested[1]	Refused to provide blood	Absent at the time of blood collection	Other/ missing[2]	Total	Number
Marital status						
Never married	94.8	4.9	0.2	0.0	100.0	1,203
Ever had sexual intercourse	95.4	4.4	0.2	0.0	100.0	936
Never had sexual intercourse	92.9	6.7	0.4	0.0	100.0	267
Married/living together	94.3	5.4	0.1	0.1	100.0	2,963
Divorced or separated	90.1	9.1	0.8	0.0	100.0	372
Widowed	91.4	6.0	1.7	0.9	100.0	116
Type of union						
In polygynous union	95.4	4.2	0.2	0.2	100.0	475
In non-polygynous union	94.1	5.7	0.1	0.1	100.0	2,436
Not currently in union	93.6	5.9	0.5	0.1	100.0	1,691
In union, polygyny status unknown or missing	96.2	3.8	0.0	0.0	100.0	52
Ever had sexual intercourse						
Yes	94.1	5.5	0.2	0.1	100.0	4,385
No	92.9	6.7	0.4	0.0	100.0	267
Missing	100.0	0.0	0.0	0.0	100.0	2
Currently pregnant						
Pregnant	94.3	5.7	0.0	0.0	100.0	421
Not pregnant or not sure	94.0	5.6	0.3	0.1	100.0	4,233
Religion						
Christian	93.6	6.0	0.3	0.1	100.0	3,933
Muslim	97.2	2.8	0.0	0.0	100.0	576
Traditional religion	100.0	0.0	0.0	0.0	100.0	17
No religion	92.5	5.8	0.8	0.8	100.0	120
Other	100.0	0.0	0.0	0.0	100.0	1
Missing	85.7	14.3	0.0	0.0	100.0	7
Total	94.0	5.6	0.2	0.1	100.0	4,654

Table A.8 Coverage of HIV testing by social and demographic characteristics: Men

Percent distribution of interviewed men 15-49 by HIV testing status, according to social and demographic characteristics (unweighted), Liberia 2013

Characteristic	DBS tested[1]	Refused to provide blood	Absent at the time of blood collection	Other/ missing[2]	Total	Number
Marital status						
Never married	92.1	7.2	0.2	0.6	100.0	1,591
Ever had sexual intercourse	92.4	6.8	0.1	0.8	100.0	1,049
Never had sexual intercourse	91.5	7.9	0.4	0.2	100.0	542
Married/living together	92.5	7.0	0.1	0.4	100.0	2,362
Divorced or separated	94.6	4.7	0.0	0.7	100.0	148
Widowed	94.1	5.9	0.0	0.0	100.0	17
Type of union						
In polygynous union	93.7	6.3	0.0	0.0	100.0	174
In non-polygynous union	92.4	7.0	0.1	0.5	100.0	2,188
Not currently in union	92.3	6.9	0.2	0.6	100.0	1,756
Ever had sexual intercourse						
Yes	92.6	6.8	0.1	0.5	100.0	3,574
No	91.5	7.9	0.4	0.2	100.0	542
Missing	0.0	100.0	0.0	0.0	100.0	2
Male circumcision						
Circumcised	92.4	6.9	0.1	0.5	100.0	4,075
Not circumcised	88.9	11.1	0.0	0.0	100.0	36
Missing	85.7	14.3	0.0	0.0	100.0	7
Religion						
Christian	92.1	7.1	0.2	0.6	100.0	3,359
Muslim	93.8	6.1	0.0	0.2	100.0	545
Traditional religion	94.4	5.6	0.0	0.0	100.0	71
No religion	95.3	4.7	0.0	0.0	100.0	127
Missing	73.3	26.7	0.0	0.0	100.0	15
Total	92.4	7.0	0.1	0.5	100.0	4,118

Table A.9 Coverage of HIV testing by sexual behavior characteristics: Women

Percent distribution of interviewed women age 15-49 who ever had sexual intercourse by HIV test status, according to sexual behavior characteristics (unweighted), Liberia 2013

Sexual behavior characteristic	Testing status				Total	Number
	DBS tested[1]	Refused to provide blood	Absent at the time of blood collection	Other/ missing[2]		
Age at first sexual intercourse						
<16	94.2	5.4	0.2	0.1	100.0	2,285
16-17	94.5	5.2	0.2	0.1	100.0	1,329
18-19	92.6	7.2	0.2	0.0	100.0	461
20+	93.4	5.7	0.8	0.0	100.0	122
Missing	94.1	5.3	0.0	0.5	100.0	188
Multiple sexual partners and partner concurrency in past 12 months						
0	94.7	4.7	0.4	0.2	100.0	471
1	94.0	5.8	0.2	0.1	100.0	3,676
2+	95.3	3.4	0.4	0.8	100.0	236
Had concurrent partners[2]	94.2	4.9	1.0	0.0	100.0	103
None of the partners were concurrent	96.2	2.3	0.0	1.5	100.0	133
Missing	100.0	0.0	0.0	0.0	100.0	2
Condom use at last sexual intercourse in past 12 months						
Used condom	93.1	6.6	0.3	0.0	100.0	289
Did not use condom	94.1	5.6	0.2	0.1	100.0	3,622
No sexual intercourse in last 12 months	94.7	4.7	0.4	0.2	100.0	473
Don't know/Missing	100.0	0.0	0.0	0.0	100.0	1
Number of lifetime partners						
1	95.9	4.0	0.1	0.0	100.0	783
2	95.3	4.0	0.4	0.3	100.0	1,149
3-4	93.1	6.7	0.1	0.1	100.0	1,470
5-9	92.6	7.1	0.3	0.0	100.0	652
10+	94.9	5.1	0.0	0.0	100.0	235
Don't know/Missing	88.5	10.4	0.0	1.0	100.0	96
Prior HIV testing						
Ever tested	93.7	6.0	0.2	0.0	100.0	2,190
Received results	93.7	6.1	0.2	0.1	100.0	1,892
Did not received results	94.3	5.7	0.0	0.0	100.0	298
Never tested	94.5	5.0	0.3	0.2	100.0	2,185
Missing	90.0	10.0	0.0	0.0	100.0	10
Total	94.1	5.5	0.2	0.1	100.0	4,385

Table A.10 Coverage of HIV testing by sexual behavior characteristics: Men

Percent distribution of interviewed men age 15-49 who ever had sexual intercourse by HIV test status, according to sexual behavior characteristics (unweighted), Liberia 2013

Sexual behavior characteristic	Testing status					
	DBS tested[1]	Refused to provide blood	Absent at the time of blood collection	Other/ missing[2]	Total	Number
Age at first sexual intercourse						
<16	92.3	7.0	0.1	0.6	100.0	899
16-17	93.6	5.9	0.1	0.4	100.0	979
18-19	92.8	6.7	0.0	0.5	100.0	987
20+	91.5	7.7	0.3	0.4	100.0	672
Missing	86.5	8.1	0.0	5.4	100.0	37
Multiple sexual partners and partner concurrency in past 12 months						
0	91.0	9.0	0.0	0.0	100.0	122
1	92.3	6.8	0.2	0.7	100.0	2,649
2+	93.8	6.1	0.0	0.1	100.0	800
Had concurrent partners[2]	94.1	5.9	0.0	0.0	100.0	373
None of the partners were concurrent	93.4	6.3	0.0	0.2	100.0	427
Missing	66.7	33.3	0.0	0.0	100.0	3
Condom use at last sexual intercourse in past 12 months						
Used condom	91.0	8.2	0.2	0.6	100.0	625
Did not use condom	93.0	6.3	0.1	0.5	100.0	2,824
No sexual intercourse in last 12 months	90.4	9.6	0.0	0.0	100.0	125
Paid for sexual intercourse in past 12 months						
Yes	95.0	5.0	0.0	0.0	100.0	222
Used condom	93.2	6.8	0.0	0.0	100.0	132
Did not use condom	97.8	2.2	0.0	0.0	100.0	90
No (No paid sexual intercourse/no sexual intercourse in last 12 months)	92.4	6.9	0.1	0.6	100.0	3,352
Number of lifetime partners						
1	87.8	10.7	0.5	1.0	100.0	196
2	93.4	6.2	0.0	0.3	100.0	290
3-4	92.9	6.1	0.4	0.6	100.0	539
5-9	92.7	7.0	0.0	0.3	100.0	795
10+	93.7	5.6	0.1	0.6	100.0	1,402
Don't know/Missing	89.2	10.2	0.0	0.6	100.0	352
Prior HIV testing						
Ever tested	91.2	8.2	0.0	0.6	100.0	990
Received results	89.9	9.5	0.0	0.6	100.0	832
Did not received results	98.1	1.3	0.0	0.6	100.0	158
Never tested	93.1	6.2	0.2	0.5	100.0	2,584
Total	92.6	6.8	0.1	0.5	100.0	3,574

ESTIMATES OF SAMPLING ERRORS

Appendix **B**

The estimates from a sample survey are affected by two types of errors: nonsampling errors and sampling errors. Nonsampling errors are the results of mistakes made in implementing data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. Although numerous efforts were made during the implementation of the 2013 Liberia Demographic and Health Survey to minimize this type of error, nonsampling errors are impossible to avoid and difficult to evaluate statistically.

Sampling errors, on the other hand, can be evaluated statistically. The sample of respondents selected in the 2013 LDHS is only one of many samples that could have been selected from the same population, using the same design and expected size. Each of these samples would yield results that differ somewhat from the results of the actual sample selected. Sampling errors are a measure of the variability between all possible samples. Although the degree of variability is not known exactly, it can be estimated from the survey results.

Sampling error is usually measured in terms of the *standard error* for a particular statistic (mean, percentage, etc.), which is the square root of the variance. The standard error can be used to calculate confidence intervals within which the true value for the population can reasonably be assumed to fall. For example, for any given statistic calculated from a sample survey, the value of that statistic will fall within a range of plus or minus two times the standard error of that statistic in 95 percent of all possible samples of identical size and design.

If the sample of respondents had been selected as a simple random sample, it would have been possible to use straightforward formulas for calculating sampling errors. However, the 2013 LDHS sample is the result of a multi-stage stratified design, and, consequently, it was necessary to use more complex formulas. Sampling errors are computed in either ISSA or SAS, using programs developed by ICF International. These programs use the Taylor linearization method of variance estimation for survey estimates that are means, proportions, or ratios. The Jackknife repeated replication method is used for variance estimation of more complex statistics such as fertility and mortality rates.

The Taylor linearization method treats any percentage or average as a ratio estimate, $r = y/x$, where y represents the total sample value for variable y, and x represents the total number of cases in the group or subgroup under consideration. The variance of r is computed using the formula given below, with the standard error being the square root of the variance:

$$SE^2(r) = var(r) = \frac{1-f}{x^2} \sum_{h=1}^{H} \left[\frac{m_h}{m_h - 1} \left(\sum_{i=1}^{m_h} z_{hi}^2 - \frac{z_h^2}{m_h} \right) \right]$$

in which

$$z_{hi} = y_{hi} - rx_{hi} \text{ , and } z_h = y_h - rx_h$$

where h represents the stratum which varies from 1 to H,

   m_h is the total number of clusters selected in the hth stratum,

   y_{hi} is the sum of the weighted values of variable y in the ith cluster in the hth stratum,

   x_{hi} is the sum of the weighted number of cases in the ith cluster in the hth stratum, and

   f is the overall sampling fraction, which is so small that it is ignored.

The Jackknife repeated replication method derives estimates of complex rates from each of several replications of the parent sample, and calculates standard errors for these estimates using simple formulas. Each replication considers *all but one* cluster in the calculation of the estimates. Pseudo-independent replications are thus created. In the 2013 LDHS, there were 322 non-empty clusters. Hence, 322 replications were created. The variance of a rate r is calculated as follows:

$$ SE^2(r) = var(r) = \frac{1}{k(k-1)} \sum_{i=1}^{k} (r_i - r)^2 $$

in which

$$ r_i = kr - (k-1)r_{(i)} $$

where r is the estimate computed from the full sample of 322 clusters,

   $r_{(i)}$ is the estimate computed from the reduced sample of 321 clusters (i^{th} cluster excluded), and

   k is the total number of clusters.

In addition to the standard error, the design effect (DEFT) for each estimate is also calculated The design effect is defined as the ratio between the standard error using the given sample design and the standard error that would result if a simple random sample had been used. A DEFT value of 1.0 indicates that the sample design is as efficient as a simple random sample, while a value greater than 1.0 indicates the increase in the sampling error due to the use of a more complex and less statistically efficient design. Relative standard errors and confidence limits for the estimates are also calculated.

Sampling errors for the 2013 LDHS are calculated for selected variables considered to be of primary interest. The results are presented in this appendix for the country as a whole, for urban and rural areas, for Greater Monrovia, for other urban areas, for each of the five geographic regions, and for each of the 15 counties. For each variable, the type of statistic (mean, proportion, or rate) and the base population are given in Table B.1. Tables B.2 through B.27 present the value of the statistic (R), its standard error (SE), the number of unweighted (N) and weighted (WN) cases, the design effect (DEFT), the relative standard error (SE/R), and the 95 percent confidence limits (R±2SE), for each variable. The sampling errors for mortality rates are presented for the five year period preceding the survey for the whole country and for the ten year period preceding the survey by residence and region. The DEFT is considered undefined when the standard error considering a simple random sample is zero (when the estimate is close to 0 or 1). In the case of the total

fertility rate, the number of unweighted cases is not relevant, as there is no known unweighted value for woman-years of exposure to childbearing.

The confidence interval (e.g., as calculated for *children ever born to women age 40-49*) can be interpreted as follows: the overall average from the national sample is 6.186 and its standard error is 0.126. Therefore, to obtain the 95 percent confidence limits, one adds and subtracts twice the standard error to the sample estimate, i.e., 6.186 ±2×0.126. There is a high probability (95 percent) that the *true* average number of children ever born to all women aged 40 to 49 is between 5.935 and 6.438.

For the total sample, the value of the DEFT, averaged over all variables, is 1.80. This means that, due to multi-stage clustering of the sample, the average standard error is increased by a factor of 1.80 over that in an equivalent simple random sample.

Table B.1 List of selected variables for sampling errors, Liberia 2013

Variable	Estimate	Base population
WOMEN		
Ownership of at least 1 insecticide treated net (ITN)	Proportion	Households
Urban residence	Proportion	All women 15-49
Literacy	Proportion	All women 15-49
No education	Proportion	All women 15-49
Secondary education or higher	Proportion	All women 15-49
Never married/in union	Proportion	All women 15-49
Currently married/in union	Proportion	All women 15-49
Married before age 20	Proportion	All women 20-49
Had sexual intercourse before age 18	Proportion	All women 20-49
Currently pregnant	Proportion	All women 15-49
Children ever born	Mean	All women 15-49
Children surviving	Mean	All women 15-49
Children ever born to women age 40-49	Mean	All women 40-49
Know any contraceptive method	Proportion	Currently married women 15-49
Know a modern method	Proportion	Currently married women 15-49
Currently using any method	Proportion	Currently married women 15-49
Currently using a modern method	Proportion	Currently married women 15-49
Currently using a traditional method	Proportion	Currently married women 15-49
Currently using pill	Proportion	Currently married women 15-49
Currently using male condoms	Proportion	Currently married women 15-49
Currently using injectables	Proportion	Currently married women 15-49
Currently using implants	Proportion	Currently married women 15-49
Currently using rhythm	Proportion	Currently married women 15-49
Used public sector source	Proportion	Current users of modern method
Want no more children	Proportion	Currently married women 15-49
Want to delay next birth at least 2 years	Proportion	Currently married women 15-49
Ideal number of children	Mean	All women 15-49
Mothers received prenatal care for last birth	Proportion	Women with a live birth in last five years
Mothers protected against tetanus for last birth	Proportion	Women with a live birth in last five years
Births with skilled attendant at delivery	Proportion	Births occurring 1-59 months before survey
Had diarrhea in the past 2 weeks	Proportion	Children under 5
Treated with ORS	Proportion	Children under 5 with diarrhea in past 2 weeks
Sought medical treatment for diarrhea	Proportion	Children under 5 with diarrhea in past 2 weeks
Vaccination card seen	Proportion	Children 12-23 months
Received BCG vaccination	Proportion	Children 12-23 months
Received Pentavalent vaccination (3 doses)	Proportion	Children 12-23 months
Received polio vaccination (3 doses)	Proportion	Children 12-23 months
Received measles vaccination	Proportion	Children 12-23 months
Received all vaccinations	Proportion	Children 12-23 months
Height-for-age (-2SD)	Proportion	Children under 5 who are measured
Weight-for-height (-2SD)	Proportion	Children under 5 who are measured
Weight-for-age (-2SD)	Proportion	Children under 5 who are measured
Body Mass Index (BMI) <18.5	Proportion	All women 15-49 who were measured
Had 2+ sexual partners in past 12 months	Proportion	All women 15-49
Condom use at last sex	Proportion	Women 15-49 with 2+ partners in past 12 months
Abstinence among youth (never had sex)	Proportion	Never-married women 15-24
Sexually active in past 12 months among never-married youth	Proportion	Never-married women 15-24
Had an HIV test and received results in past 12 months	Proportion	All women 15-49
Accepting attitudes towards people with HIV	Proportion	All women who have heard of HIV/AIDS
Total fertility rate (3 years)	Rate	Women-years of exposure to childbearing
Neonatal mortality rate[1]	Rate	Children exposed to the risk of mortality
Post-neonatal mortality rate[1]	Rate	Children exposed to the risk of mortality
Infant mortality rate[1]	Rate	Children exposed to the risk of mortality
Child mortality rate[1]	Rate	Children exposed to the risk of mortality
Under-five mortality rate[1]	Rate	Children exposed to the risk of mortality
HIV prevalence among all women 15-49	Proportion	All interviewed women with DBS tested at the lab
HIV prevalence among young women 15-24	Proportion	All interviewed women age 15-24 with DBS tested at the lab
MEN		
Urban residence	Proportion	All men 15-49
Literacy	Proportion	All men 15-49
No education	Proportion	All men 15-49
Secondary education or higher	Proportion	All men 15-49
Never married/in union	Proportion	All men 15-49
Currently married/in union	Proportion	All men 15-49
Had sexual intercourse before age 18	Proportion	All men 20-49
Know any contraceptive method	Proportion	Currently married men 15-49
Know a modern method	Proportion	Currently married men 15-49
Want no more children	Proportion	Currently married men 15-49
Want to delay next birth at least 2 years	Proportion	Currently married men 15-49
Ideal number of children	Mean	All men 15-49
Had 2+ sexual partners in past 12 months	Proportion	All men 15-49
Condom use at last sex	Proportion	Men 15-49 with 2+ partners in past 12 months
Abstinence among youth (never had sex)	Proportion	Never-married men 15-24
Sexually active in past 12 months among never-married youth	Proportion	Never-married men 15-24
Paid for sexual intercourse in past 12 months	Proportion	All men 15-49
Had an HIV test and received results in past 12 months	Proportion	All men 15-49
Accepting attitudes towards people with HIV	Proportion	All men who have heard of HIV/AIDS
HIV prevalence among all men 15-49	Proportion	All interviewed men with DBS tested at the lab
HIV prevalence among young men 15-24	Proportion	All interviewed men age 15-24 with DBS tested at the lab
WOMEN AND MEN		
HIV prevalence among all women and men 15-49	Proportion	All interviewed women and men with DBS tested at the lab
HIV prevalence among young women and men 15-24	Proportion	All interviewed women and men age 15-24 with DBS tested at the lab

[1] The mortality rates are calculated for 5 years and 10 years before the survey for the national sample and regional samples, respectively

Variable	Value (R)	Standard Error (SE)	Number of cases Unweighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.546	0.014	9333	9333	2.801	0.026	0.517	0.575
Urban residence	0.610	0.017	9239	9239	3.295	0.027	0.576	0.643
Literacy	0.479	0.013	9239	9239	2.547	0.028	0.452	0.505
No education	0.332	0.012	9239	9239	2.482	0.037	0.308	0.356
Secondary or higher education	0.357	0.012	9239	9239	2.425	0.034	0.333	0.381
Never married/in union	0.310	0.008	9239	9239	1.759	0.027	0.293	0.327
Currently married/in union	0.583	0.008	9239	9239	1.603	0.014	0.566	0.599
Married before age 20	0.579	0.009	7324	7159	1.511	0.015	0.561	0.596
Had sexual intercourse before age 18	0.790	0.008	7324	7159	1.751	0.011	0.773	0.807
Currently pregnant	0.083	0.004	9239	9239	1.468	0.051	0.074	0.091
Children ever born	2.886	0.054	9239	9239	1.912	0.019	2.778	2.994
Children surviving	2.398	0.040	9239	9239	1.755	0.017	2.319	2.478
Children ever born to women age 40-49	6.186	0.126	1708	1528	1.849	0.020	5.935	6.438
Know any contraceptive method	0.986	0.003	5875	5386	1.819	0.003	0.980	0.991
Know a modern method	0.986	0.003	5875	5386	1.819	0.003	0.980	0.991
Currently using any method	0.202	0.015	5875	5386	2.811	0.073	0.173	0.232
Currently using a modern method	0.191	0.013	5875	5386	2.478	0.067	0.166	0.217
Currently using a traditional method	0.011	0.005	5875	5386	3.285	0.403	0.002	0.020
Currently using pill	0.050	0.005	5875	5386	1.656	0.094	0.041	0.059
Currently using male condoms	0.004	0.001	5875	5386	1.329	0.266	0.002	0.006
Currently using injectables	0.112	0.009	5875	5386	2.280	0.084	0.093	0.131
Currently using implants	0.021	0.004	5875	5386	1.926	0.173	0.013	0.028
Currently using rhythm	0.011	0.005	5875	5386	3.380	0.428	0.002	0.020
Used public sector source	0.640	0.034	1800	1892	3.010	0.053	0.572	0.708
Want no more children	0.299	0.010	5875	5386	1.596	0.032	0.280	0.318
Want to delay next birth at least 2 years	0.392	0.012	5875	5386	1.916	0.031	0.368	0.416
Ideal number of children	4.834	0.052	8831	8849	2.217	0.011	4.730	4.939
Mothers received prenatal care for last birth	0.959	0.004	5348	4769	1.572	0.005	0.950	0.968
Mothers protected against tetanus for last birth	0.878	0.008	5348	4769	1.698	0.009	0.863	0.894
Births with skilled attendant at delivery	0.611	0.015	7606	6502	2.200	0.025	0.581	0.642
Had diarrhea in the past 2 weeks	0.220	0.008	7058	6047	1.515	0.037	0.204	0.236
Treated with ORS	0.604	0.019	1675	1330	1.394	0.032	0.566	0.643
Sought medical treatment for diarrhea	0.468	0.021	1675	1330	1.503	0.045	0.426	0.511
Vaccination card seen	0.584	0.021	1433	1272	1.575	0.037	0.541	0.627
Received BCG vaccination	0.939	0.009	1433	1272	1.304	0.009	0.921	0.956
Received Pentavalent vaccination (3 doses)	0.714	0.019	1433	1272	1.560	0.027	0.675	0.753
Received polio vaccination (3 doses)	0.699	0.020	1433	1272	1.590	0.029	0.659	0.739
Received measles vaccination	0.742	0.018	1433	1272	1.467	0.024	0.707	0.777
Received all vaccinations	0.548	0.020	1433	1272	1.458	0.036	0.508	0.588
Height-for-age (-2SD)	0.316	0.012	3817	3520	1.540	0.038	0.292	0.340
Weight-for-height (-2SD)	0.060	0.006	3817	3520	1.446	0.096	0.049	0.072
Weight-for-age (-2SD)	0.150	0.008	3817	3520	1.279	0.053	0.134	0.166
Body Mass Index (BMI) < 18.5	0.074	0.006	4087	4110	1.388	0.077	0.063	0.085
Had 2+ sexual partners in past 12 months	0.065	0.005	9239	9239	2.076	0.082	0.054	0.075
Condom use at last sex	0.196	0.025	460	597	1.330	0.126	0.147	0.246
Abstinence among youth (never had sex)	0.262	0.014	2090	2426	1.471	0.054	0.234	0.291
Sexually active in past 12 months among never-married youth	0.681	0.015	2090	2426	1.500	0.022	0.650	0.712
Had an HIV test and received results in past 12 months	0.191	0.007	9239	9239	1.782	0.038	0.176	0.206
Accepting attitudes towards people with HIV	0.066	0.005	8813	8991	2.045	0.082	0.055	0.076
Total fertility rate (3 years)	4.729	0.140	25744	25534	1.376	0.030	4.450	5.008
Neonatal mortality rate (last 0-4 years)	26.241	2.789	7652	6541	1.237	0.106	20.663	31.818
Post-neonatal mortality rate (last 0-4 years)	27.531	2.626	7632	6529	1.302	0.095	22.279	32.782
Infant mortality rate (last 0-4 years)	53.771	3.715	7679	6564	1.210	0.069	46.341	61.202
Child mortality rate (last 0-4 years)	42.329	3.310	7547	6466	1.269	0.078	35.709	48.948
Under-five mortality rate (last 0-4 years)	93.824	5.006	7807	6672	1.290	0.053	83.812	103.836
HIV prevalence among women 15-49	0.020	0.003	4377	4397	1.565	0.165	0.014	0.027
HIV prevalence among young women 15-24	0.014	0.004	1661	1818	1.506	0.306	0.006	0.023
MEN								
Urban residence	0.586	0.019	4118	4118	2.468	0.032	0.548	0.624
Literacy	0.714	0.013	4118	4118	1.841	0.018	0.688	0.740
No education	0.129	0.009	4118	4118	1.639	0.066	0.112	0.147
Secondary or higher education	0.579	0.014	4118	4118	1.756	0.023	0.552	0.606
Never married/in union	0.425	0.014	4118	4118	1.800	0.033	0.397	0.452
Currently married/in union	0.539	0.014	4118	4118	1.790	0.026	0.511	0.566
Had sexual intercourse before age 18	0.470	0.013	3271	3228	1.499	0.028	0.444	0.497
Know any contraceptive method	0.979	0.005	2362	2218	1.550	0.005	0.969	0.988
Know a modern method	0.979	0.005	2362	2218	1.547	0.005	0.969	0.988
Want no more children	0.281	0.015	2362	2218	1.597	0.053	0.252	0.311
Want to delay next birth at least 2 years	0.386	0.018	2362	2218	1.845	0.048	0.349	0.423
Ideal number of children	4.985	0.088	4035	4030	1.785	0.018	4.808	5.162
Had 2+ sexual partners in past 12 months	0.176	0.012	4118	4118	1.961	0.066	0.153	0.200
Condom use at last sex	0.236	0.022	800	726	1.449	0.092	0.192	0.280
Abstinence among youth (never had sex)	0.404	0.018	1284	1407	1.319	0.045	0.368	0.440
Sexually active in past 12 months among never-married youth	0.564	0.018	1284	1407	1.266	0.031	0.529	0.599
Paid for sexual intercourse in past 12 months	0.047	0.005	4118	4118	1.538	0.108	0.037	0.057
Had an HIV test and received results in past 12 months	0.124	0.009	4118	4118	1.685	0.070	0.107	0.142
Accepting attitudes towards people with HIV	0.144	0.012	3912	3960	2.188	0.085	0.119	0.168
HIV prevalence among men 15-49	0.017	0.004	3805	3785	1.781	0.217	0.010	0.025
HIV prevalence among young men 15-24	0.005	0.003	1381	1467	1.278	0.468	0.000	0.010
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.019	0.003	8182	8182	1.866	0.149	0.013	0.025
HIV prevalence among young women and men 15-24	0.010	0.003	3042	3285	1.417	0.251	0.005	0.016

Table B.3 Sampling errors: Urban sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.497	0.022	3450	5289	2.577	0.044	0.453	0.541
Literacy	0.621	0.017	3723	5633	2.165	0.028	0.586	0.655
No education	0.225	0.015	3723	5633	2.225	0.068	0.195	0.256
Secondary or higher education	0.492	0.016	3723	5633	1.960	0.033	0.460	0.524
Currently pregnant	0.070	0.006	3723	5633	1.474	0.088	0.058	0.082
Children ever born to women age 40-49	5.677	0.182	563	767	1.640	0.032	5.312	6.041
Currently using any method	0.232	0.025	2012	2898	2.694	0.109	0.181	0.283
Currently using a modern method	0.216	0.022	2012	2898	2.357	0.100	0.172	0.259
Currently using a traditional method	0.016	0.008	2012	2898	2.904	0.503	0.000	0.033
Currently using pill	0.049	0.008	2012	2898	1.600	0.157	0.033	0.064
Currently using male condoms	0.006	0.002	2012	2898	1.127	0.328	0.002	0.010
Currently using injectables	0.128	0.016	2012	2898	2.167	0.126	0.096	0.160
Currently using implants	0.028	0.006	2012	2898	1.656	0.216	0.016	0.041
Currently using rhythm	0.016	0.008	2012	2898	2.904	0.503	0.000	0.033
Want no more children	0.259	0.014	2012	2898	1.473	0.056	0.230	0.288
Ideal number of children	4.475	0.064	3584	5439	1.964	0.014	4.347	4.604
Mothers received prenatal care for last birth	0.980	0.004	1855	2555	1.174	0.004	0.973	0.988
Mothers protected against tetanus for last birth	0.923	0.007	1855	2555	1.149	0.008	0.909	0.938
Births with skilled attendant at delivery	0.727	0.024	2410	3241	2.222	0.033	0.679	0.775
Had diarrhea in the past 2 weeks	0.201	0.012	2222	3013	1.378	0.062	0.177	0.226
Treated with ORS	0.572	0.034	489	607	1.370	0.059	0.504	0.640
Sought medical treatment for diarrhea	0.477	0.033	489	607	1.311	0.069	0.411	0.543
Vaccination card seen	0.563	0.034	472	675	1.466	0.060	0.496	0.631
Received BCG vaccination	0.967	0.010	472	675	1.197	0.010	0.947	0.987
Received Pentavalent vaccination (3 doses)	0.757	0.028	472	675	1.424	0.037	0.700	0.813
Received polio vaccination (3 doses)	0.714	0.032	472	675	1.535	0.045	0.650	0.779
Received measles vaccination	0.776	0.027	472	675	1.412	0.035	0.721	0.830
Received all vaccinations	0.597	0.028	472	675	1.241	0.047	0.540	0.653
Height-for-age (-2SD)	0.300	0.021	1217	1791	1.594	0.069	0.259	0.341
Weight-for-height (-2SD)	0.059	0.010	1217	1791	1.412	0.166	0.039	0.079
Weight-for-age (-2SD)	0.134	0.013	1217	1791	1.246	0.095	0.108	0.159
Body Mass Index (BMI) < 18.5	0.069	0.008	1619	2487	1.320	0.119	0.053	0.086
Had 2+ sexual partners in past 12 months	0.081	0.008	3723	5633	1.843	0.101	0.065	0.098
Condom use at last sex	0.229	0.032	255	459	1.213	0.140	0.165	0.294
Abstinence among youth (never had sex)	0.267	0.018	1093	1753	1.364	0.068	0.230	0.303
Sexually active in past 12 months among never-married youth	0.686	0.020	1093	1753	1.402	0.029	0.647	0.726
Had an HIV test and received results in past 12 months	0.199	0.011	3723	5633	1.672	0.055	0.177	0.221
Accepting attitudes towards people with HIV	0.068	0.008	3651	5580	1.920	0.118	0.052	0.084
Total fertility rate (3 years)	3.844	0.153	10225	15413	1.238	0.040	3.537	4.150
Neonatal mortality rate (last 0-9 years)	36.856	5.002	4934	6677	1.480	0.136	26.853	46.859
Post-neonatal mortality rate (last 0-9 years)	29.229	3.136	4938	6682	1.126	0.107	22.957	35.500
Infant mortality rate (last 0-9 years)	66.085	6.059	4950	6701	1.339	0.092	53.967	78.202
Child mortality rate (last 0-9 years)	42.402	5.331	4854	6556	1.483	0.126	31.740	53.064
Under-five mortality rate (last 0-9 years)	105.684	9.335	4988	6748	1.609	0.088	87.014	124.355
HIV prevalence among women 15-49	0.027	0.005	1679	2653	1.337	0.195	0.017	0.038
HIV prevalence among young women 15-24	0.019	0.007	737	1219	1.306	0.348	0.006	0.032
MEN								
Literacy	0.809	0.017	1591	2413	1.714	0.021	0.775	0.842
No education	0.087	0.011	1591	2413	1.529	0.125	0.065	0.108
Secondary or higher education	0.700	0.018	1591	2413	1.578	0.026	0.664	0.736
Want no more children	0.281	0.024	749	1150	1.474	0.086	0.232	0.329
Had 2+ sexual partners in past 12 months	0.157	0.017	1591	2413	1.822	0.106	0.124	0.190
Condom use at last sex	0.297	0.039	264	379	1.373	0.130	0.220	0.375
Abstinence among youth (never had sex)	0.377	0.024	628	954	1.241	0.064	0.329	0.425
Sexually active in past 12 months among never-married youth	0.588	0.023	628	954	1.177	0.039	0.542	0.634
Paid for sexual intercourse in past 12 months	0.046	0.008	1591	2413	1.489	0.170	0.031	0.062
Had an HIV test and received results in past 12 months	0.159	0.014	1591	2413	1.529	0.088	0.131	0.187
Accepting attitudes towards people with HIV	0.150	0.019	1524	2353	2.092	0.128	0.112	0.189
HIV prevalence among men 15-49	0.025	0.006	1438	2218	1.528	0.252	0.012	0.038
HIV prevalence among young men 15-24	0.007	0.004	634	958	1.152	0.559	0.000	0.014
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.026	0.005	3117	4871	1.613	0.176	0.017	0.035
HIV prevalence among young women and men 15-24	0.013	0.004	1371	2177	1.255	0.290	0.006	0.021

Variable	Value (R)	Standard Error (SE)	Un-weighted (N)	Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	R+2SE
			Number of cases				Confidence limits	
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.395	0.026	972	3060	1.679	0.067	0.342	0.447
Literacy	0.739	0.022	1154	3361	1.684	0.030	0.695	0.782
No education	0.172	0.018	1154	3361	1.580	0.102	0.136	0.207
Secondary or higher education	0.602	0.022	1154	3361	1.491	0.036	0.559	0.645
Currently pregnant	0.065	0.008	1154	3361	1.132	0.126	0.049	0.082
Children ever born to women age 40-49	5.326	0.223	143	401	1.062	0.042	4.879	5.772
Currently using any method	0.275	0.042	543	1614	2.206	0.154	0.190	0.360
Currently using a modern method	0.251	0.036	543	1614	1.923	0.143	0.179	0.323
Currently using a traditional method	0.024	0.014	543	1614	2.182	0.599	0.000	0.053
Currently using pill	0.051	0.013	543	1614	1.340	0.250	0.025	0.076
Currently using male condoms	0.008	0.003	543	1614	0.876	0.431	0.001	0.014
Currently using injectables	0.154	0.027	543	1614	1.734	0.175	0.100	0.208
Currently using implants	0.034	0.010	543	1614	1.303	0.298	0.014	0.054
Currently using rhythm	0.024	0.014	543	1614	2.182	0.599	0.000	0.053
Want no more children	0.251	0.022	543	1614	1.202	0.089	0.207	0.296
Ideal number of children	4.192	0.085	1114	3243	1.684	0.020	4.022	4.363
Mothers received prenatal care for last birth	0.989	0.006	452	1332	1.156	0.006	0.978	1.000
Mothers protected against tetanus for last birth	0.938	0.010	452	1332	0.895	0.011	0.917	0.958
Births with skilled attendant at delivery	0.839	0.035	549	1621	1.947	0.042	0.769	0.909
Had diarrhea in the past 2 weeks	0.195	0.019	507	1503	1.067	0.097	0.157	0.233
Treated with ORS	0.511	0.055	97	293	1.108	0.108	0.401	0.622
Sought medical treatment for diarrhea	0.481	0.061	97	293	1.190	0.127	0.359	0.604
Vaccination card seen	0.511	0.054	113	337	1.166	0.106	0.402	0.619
Received BCG vaccination	1.000	0.000	113	337	na	0.000	1.000	1.000
Received Pentavalent vaccination (3 doses)	0.800	0.045	113	337	1.206	0.056	0.710	0.890
Received polio vaccination (3 doses)	0.715	0.053	113	337	1.267	0.075	0.608	0.821
Received measles vaccination	0.788	0.044	113	337	1.145	0.055	0.701	0.875
Received all vaccinations	0.602	0.045	113	337	0.985	0.075	0.512	0.692
Height-for-age (-2SD)	0.270	0.036	272	885	1.457	0.134	0.198	0.342
Weight-for-height (-2SD)	0.055	0.016	272	885	1.195	0.297	0.022	0.087
Weight-for-age (-2SD)	0.085	0.019	272	885	1.135	0.228	0.046	0.123
Body Mass Index (BMI) < 18.5	0.067	0.012	511	1514	1.119	0.184	0.042	0.091
Had 2+ sexual partners in past 12 months	0.093	0.012	1154	3361	1.412	0.130	0.069	0.117
Condom use at last sex	0.275	0.039	113	313	0.923	0.142	0.197	0.353
Abstinence among youth (never had sex)	0.281	0.025	389	1113	1.107	0.090	0.230	0.332
Sexually active in past 12 months among never-married youth	0.688	0.028	389	1113	1.182	0.040	0.632	0.743
Had an HIV test and received results in past 12 months	0.197	0.016	1154	3361	1.330	0.079	0.165	0.228
Accepting attitudes towards people with HIV	0.070	0.012	1151	3351	1.529	0.165	0.047	0.093
Total fertility rate (3 years)	3.208	0.167	3140	9142	1.015	0.052	2.874	3.543
Neonatal mortality rate (last 0-9 years)	40.942	8.820	1146	3404	1.251	0.215	23.302	58.583
Post-neonatal mortality rate (last 0-9 years)	29.219	4.862	1145	3415	0.950	0.166	19.495	38.944
Infant mortality rate (last 0-9 years)	70.162	10.140	1152	3423	1.144	0.145	49.882	90.441
Child mortality rate (last 0-9 years)	42.200	8.322	1132	3381	1.191	0.197	25.557	58.844
Under-five mortality rate (last 0-9 years)	109.402	15.469	1163	3454	1.336	0.141	78.463	140.340
HIV prevalence among women 15-49	0.030	0.008	507	1605	1.071	0.271	0.014	0.046
HIV prevalence among young women 15-24	0.023	0.010	241	777	0.995	0.414	0.004	0.043
MEN								
Literacy	0.862	0.021	463	1433	1.292	0.024	0.820	0.903
No education	0.071	0.014	463	1433	1.208	0.203	0.042	0.100
Secondary or higher education	0.783	0.023	463	1433	1.206	0.030	0.736	0.829
Want no more children	0.274	0.039	191	623	1.204	0.142	0.196	0.352
Had 2+ sexual partners in past 12 months	0.132	0.023	463	1433	1.454	0.174	0.086	0.178
Condom use at last sex	0.306	0.065	67	189	1.135	0.211	0.177	0.435
Abstinence among youth (never had sex)	0.339	0.032	196	595	0.956	0.096	0.274	0.403
Sexually active in past 12 months among never-married youth	0.615	0.031	196	595	0.880	0.050	0.554	0.677
Paid for sexual intercourse in past 12 months	0.040	0.012	463	1433	1.256	0.285	0.017	0.063
Had an HIV test and received results in past 12 months	0.159	0.019	463	1433	1.117	0.120	0.121	0.197
Accepting attitudes towards people with HIV	0.163	0.030	460	1418	1.764	0.187	0.102	0.224
HIV prevalence among men 15-49	0.034	0.010	411	1311	1.155	0.302	0.014	0.055
HIV prevalence among young men 15-24	0.010	0.006	187	582	0.849	0.618	0.000	0.022
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.032	0.007	918	2917	1.282	0.233	0.017	0.047
HIV prevalence among young women and men 15-24	0.018	0.006	428	1360	0.944	0.340	0.006	0.030

na = Not applicable

Table B.5 Sampling errors: Other urban sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.637	0.026	2478	2229	2.701	0.041	0.584	0.689
Literacy	0.446	0.030	2569	2272	3.034	0.067	0.386	0.505
No education	0.305	0.031	2569	2272	3.369	0.101	0.244	0.366
Secondary or higher education	0.330	0.030	2569	2272	3.175	0.090	0.271	0.389
Currently pregnant	0.077	0.010	2569	2272	1.834	0.125	0.058	0.097
Children ever born to women age 40-49	6.060	0.295	420	367	2.215	0.049	5.470	6.650
Currently using a traditional method	0.007	0.003	1469	1283	1.203	0.383	0.002	0.012
Currently using pill	0.047	0.007	1469	1283	1.264	0.149	0.033	0.061
Currently using male condoms	0.004	0.002	1469	1283	1.042	0.448	0.000	0.007
Currently using injectables	0.095	0.012	1469	1283	1.514	0.122	0.071	0.118
Currently using implants	0.021	0.005	1469	1283	1.242	0.221	0.012	0.030
Currently using rhythm	0.007	0.003	1469	1283	1.203	0.383	0.002	0.012
Want no more children	0.269	0.017	1469	1283	1.433	0.062	0.236	0.302
Ideal number of children	4.893	0.089	2470	2197	1.981	0.018	4.715	5.071
Mothers received prenatal care for last birth	0.971	0.005	1403	1223	1.175	0.005	0.960	0.981
Mothers protected against tetanus for last birth	0.908	0.010	1403	1223	1.328	0.011	0.887	0.929
Births with skilled attendant at delivery	0.615	0.027	1861	1620	2.145	0.044	0.561	0.670
Had diarrhea in the past 2 weeks	0.208	0.016	1715	1510	1.624	0.079	0.175	0.241
Treated with ORS	0.629	0.040	392	314	1.496	0.063	0.549	0.709
Sought medical treatment for diarrhea	0.473	0.029	392	314	1.040	0.060	0.416	0.530
Vaccination card seen	0.616	0.036	359	338	1.451	0.059	0.544	0.688
Received BCG vaccination	0.934	0.017	359	338	1.365	0.019	0.899	0.969
Received Pentavalent vaccination (3 doses)	0.713	0.034	359	338	1.469	0.048	0.645	0.781
Received polio vaccination (3 doses)	0.714	0.036	359	338	1.565	0.051	0.642	0.786
Received measles vaccination	0.763	0.033	359	338	1.539	0.044	0.696	0.830
Received all vaccinations	0.591	0.034	359	338	1.361	0.058	0.523	0.660
Height-for-age (-2SD)	0.329	0.022	945	906	1.531	0.068	0.284	0.373
Weight-for-height (-2SD)	0.063	0.011	945	906	1.481	0.182	0.040	0.086
Weight-for-age (-2SD)	0.182	0.014	945	906	1.132	0.076	0.154	0.209
Body Mass Index (BMI) < 18.5	0.073	0.009	1108	973	1.195	0.128	0.054	0.092
Had 2+ sexual partners in past 12 months	0.064	0.011	2569	2272	2.355	0.178	0.041	0.087
Condom use at last sex	0.132	0.040	142	146	1.413	0.306	0.051	0.213
Abstinence among youth (never had sex)	0.242	0.023	704	639	1.404	0.094	0.196	0.287
Sexually active in past 12 months among never-married youth	0.684	0.024	704	639	1.383	0.035	0.636	0.733
Had an HIV test and received results in past 12 months	0.202	0.014	2569	2272	1.798	0.070	0.174	0.231
Accepting attitudes towards people with HIV	0.065	0.010	2500	2229	2.090	0.158	0.045	0.086
Total fertility rate (3 years)	4.792	0.167	7085	6272	1.174	0.035	4.458	5.125
Neonatal mortality rate (last 0-9 years)	32.604	4.444	3788	3273	1.268	0.136	23.715	41.493
Post-neonatal mortality rate (last 0-9 years)	29.244	3.992	3793	3267	1.165	0.136	21.261	37.228
Infant mortality rate (last 0-9 years)	61.848	6.414	3798	3278	1.227	0.104	49.021	74.675
Child mortality rate (last 0-9 years)	42.561	6.799	3722	3175	1.679	0.160	28.962	56.159
Under-five mortality rate (last 0-9 years)	101.777	10.342	3825	3295	1.592	0.102	81.092	122.461
HIV prevalence among women 15-49	0.023	0.006	1172	1048	1.266	0.242	0.012	0.034
HIV prevalence among young women 15-24	0.011	0.007	496	441	1.463	0.635	0.000	0.024
MEN								
Literacy	0.731	0.029	1128	980	2.208	0.040	0.672	0.789
No education	0.109	0.016	1128	980	1.731	0.147	0.077	0.142
Secondary or higher education	0.579	0.030	1128	980	2.048	0.052	0.519	0.639
Want no more children	0.288	0.026	558	526	1.365	0.091	0.236	0.341
Had 2+ sexual partners in past 12 months	0.194	0.020	1128	980	1.689	0.103	0.154	0.234
Condom use at last sex	0.288	0.046	197	190	1.416	0.159	0.196	0.380
Abstinence among youth (never had sex)	0.442	0.034	432	358	1.412	0.077	0.374	0.509
Sexually active in past 12 months among never-married youth	0.542	0.033	432	358	1.391	0.062	0.475	0.609
Paid for sexual intercourse in past 12 months	0.055	0.009	1128	980	1.323	0.164	0.037	0.073
Had an HIV test and received results in past 12 months	0.158	0.021	1128	980	1.911	0.131	0.117	0.200
Accepting attitudes towards people with HIV	0.131	0.016	1064	935	1.519	0.120	0.099	0.162
HIV prevalence among men 15-49	0.011	0.003	1027	907	0.999	0.293	0.005	0.018
HIV prevalence among young men 15-24	0.001	0.001	447	376	0.588	0.724	0.000	0.004
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.017	0.004	2199	1955	1.265	0.203	0.010	0.025
HIV prevalence among young women and men 15-24	0.006	0.004	943	817	1.448	0.588	0.000	0.014

Table B.6 Sampling errors: Rural sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.611	0.016	5883	4044	2.527	0.026	0.579	0.643
Literacy	0.258	0.012	5516	3606	1.990	0.046	0.234	0.281
No education	0.498	0.014	5516	3606	2.096	0.028	0.470	0.526
Secondary or higher education	0.146	0.009	5516	3606	1.928	0.063	0.127	0.164
Currently pregnant	0.103	0.004	5516	3606	1.065	0.042	0.094	0.112
Children ever born to women age 40-49	6.700	0.144	1145	761	1.682	0.021	6.412	6.988
Currently using any method	0.168	0.010	3863	2488	1.680	0.060	0.148	0.188
Currently using a modern method	0.163	0.010	3863	2488	1.656	0.060	0.143	0.182
Currently using a traditional method	0.005	0.001	3863	2488	1.213	0.269	0.002	0.008
Currently using pill	0.051	0.005	3863	2488	1.369	0.095	0.042	0.061
Currently using male condoms	0.002	0.001	3863	2488	1.369	0.452	0.000	0.005
Currently using injectables	0.094	0.007	3863	2488	1.473	0.074	0.080	0.107
Currently using implants	0.011	0.002	3863	2488	1.398	0.209	0.007	0.016
Currently using rhythm	0.004	0.001	3863	2488	1.201	0.313	0.001	0.006
Want no more children	0.345	0.011	3863	2488	1.455	0.032	0.323	0.368
Ideal number of children	5.407	0.076	5247	3410	2.206	0.014	5.256	5.558
Mothers received prenatal care for last birth	0.934	0.008	3493	2215	1.854	0.008	0.919	0.950
Mothers protected against tetanus for last birth	0.827	0.013	3493	2215	2.053	0.016	0.800	0.853
Births with skilled attendant at delivery	0.496	0.019	5196	3261	2.276	0.038	0.458	0.534
Had diarrhea in the past 2 weeks	0.238	0.010	4836	3034	1.575	0.043	0.218	0.259
Treated with ORS	0.631	0.021	1186	724	1.330	0.033	0.590	0.673
Sought medical treatment for diarrhea	0.461	0.027	1186	724	1.691	0.059	0.407	0.516
Vaccination card seen	0.607	0.025	961	597	1.514	0.041	0.558	0.656
Received BCG vaccination	0.907	0.015	961	597	1.525	0.016	0.877	0.936
Received Pentavalent vaccination (3 doses)	0.666	0.026	961	597	1.671	0.039	0.613	0.718
Received polio vaccination (3 doses)	0.682	0.023	961	597	1.457	0.033	0.637	0.727
Received measles vaccination	0.704	0.021	961	597	1.386	0.030	0.662	0.746
Received all vaccinations	0.494	0.028	961	597	1.653	0.056	0.438	0.549
Height-for-age (-2SD)	0.333	0.013	2600	1729	1.294	0.038	0.308	0.358
Weight-for-height (-2SD)	0.061	0.006	2600	1729	1.257	0.097	0.050	0.073
Weight-for-age (-2SD)	0.167	0.009	2600	1729	1.206	0.056	0.149	0.186
Body Mass Index (BMI) < 18.5	0.081	0.007	2468	1623	1.248	0.084	0.067	0.095
Had 2+ sexual partners in past 12 months	0.038	0.004	5516	3606	1.424	0.096	0.031	0.046
Condom use at last sex	0.086	0.022	205	138	1.128	0.258	0.042	0.130
Abstinence among youth (never had sex)	0.251	0.018	997	674	1.330	0.073	0.214	0.287
Sexually active in past 12 months among never-married youth	0.667	0.020	997	674	1.370	0.031	0.626	0.708
Had an HIV test and received results in past 12 months	0.179	0.008	5516	3606	1.455	0.042	0.164	0.194
Accepting attitudes towards people with HIV	0.061	0.006	5162	3411	1.691	0.092	0.050	0.073
Total fertility rate (3 years)	6.114	0.130	15519	10121	1.378	0.021	5.854	6.373
Neonatal mortality rate (last 0-9 years)	30.603	2.494	10587	6685	1.258	0.081	25.615	35.590
Post-neonatal mortality rate (last 0-9 years)	42.228	2.485	10589	6685	1.167	0.059	37.258	47.198
Infant mortality rate (last 0-9 years)	72.830	3.725	10609	6699	1.280	0.051	65.379	80.281
Child mortality rate (last 0-9 years)	51.025	3.320	10371	6581	1.326	0.065	44.385	57.665
Under-five mortality rate (last 0-9 years)	120.139	5.056	10691	6754	1.387	0.042	110.027	130.251
HIV prevalence among women 15-49	0.010	0.002	2698	1744	1.106	0.215	0.006	0.014
HIV prevalence among young women 15-24	0.005	0.002	924	599	0.958	0.424	0.001	0.010
MEN								
Literacy	0.581	0.018	2527	1705	1.816	0.031	0.545	0.617
No education	0.190	0.013	2527	1705	1.703	0.070	0.163	0.216
Secondary or higher education	0.407	0.015	2527	1705	1.536	0.037	0.377	0.437
Want no more children	0.282	0.016	1613	1068	1.443	0.057	0.250	0.315
Had 2+ sexual partners in past 12 months	0.204	0.014	2527	1705	1.809	0.071	0.175	0.233
Condom use at last sex	0.169	0.020	536	347	1.261	0.121	0.128	0.210
Abstinence among youth (never had sex)	0.459	0.025	656	454	1.308	0.055	0.408	0.510
Sexually active in past 12 months among never-married youth	0.515	0.025	656	454	1.292	0.049	0.465	0.566
Paid for sexual intercourse in past 12 months	0.049	0.005	2527	1705	1.217	0.107	0.038	0.059
Had an HIV test and received results in past 12 months	0.076	0.006	2527	1705	1.215	0.084	0.063	0.088
Accepting attitudes towards people with HIV	0.134	0.011	2388	1607	1.634	0.085	0.111	0.157
HIV prevalence among men 15-49	0.007	0.002	2367	1567	1.135	0.286	0.003	0.010
HIV prevalence among young men 15-24	0.003	0.002	747	508	0.989	0.668	0.000	0.007
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.008	0.001	5065	3311	1.034	0.159	0.006	0.011
HIV prevalence among young women and men 15-24	0.004	0.002	1671	1108	0.971	0.361	0.001	0.007

Table B.7 Sampling errors: North Western sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.693	0.027	1622	909	2.349	0.039	0.639	0.747
Literacy	0.297	0.023	1553	837	1.987	0.078	0.251	0.343
No education	0.493	0.020	1553	837	1.560	0.040	0.453	0.532
Secondary or higher education	0.166	0.018	1553	837	1.954	0.111	0.129	0.203
Currently pregnant	0.103	0.007	1553	837	0.858	0.064	0.089	0.116
Children ever born to women age 40-49	7.103	0.286	274	151	1.602	0.040	6.530	7.675
Currently using any method	0.206	0.015	1047	580	1.239	0.075	0.175	0.237
Currently using a modern method	0.200	0.015	1047	580	1.207	0.075	0.170	0.230
Currently using a traditional method	0.006	0.003	1047	580	1.148	0.474	0.000	0.011
Currently using pill	0.062	0.008	1047	580	1.124	0.135	0.045	0.079
Currently using male condoms	0.001	0.001	1047	580	0.800	1.004	0.000	0.002
Currently using injectables	0.127	0.014	1047	580	1.338	0.108	0.100	0.155
Currently using implants	0.008	0.003	1047	580	0.926	0.312	0.003	0.014
Currently using rhythm	0.003	0.002	1047	580	1.151	0.683	0.000	0.006
Want no more children	0.339	0.027	1047	580	1.842	0.080	0.285	0.393
Ideal number of children	5.115	0.117	1499	806	1.980	0.023	4.880	5.349
Mothers received prenatal care for last birth	0.948	0.013	927	496	1.816	0.014	0.921	0.974
Mothers protected against tetanus for last birth	0.878	0.031	927	496	2.894	0.036	0.816	0.941
Births with skilled attendant at delivery	0.519	0.030	1347	731	1.871	0.058	0.459	0.579
Had diarrhea in the past 2 weeks	0.171	0.020	1221	663	1.837	0.118	0.130	0.211
Treated with ORS	0.796	0.037	201	113	1.281	0.047	0.721	0.870
Sought medical treatment for diarrhea	0.508	0.085	201	113	2.342	0.167	0.338	0.677
Vaccination card seen	0.744	0.032	246	135	1.142	0.043	0.680	0.809
Received BCG vaccination	0.945	0.017	246	135	1.183	0.018	0.910	0.979
Received Pentavalent vaccination (3 doses)	0.815	0.031	246	135	1.250	0.038	0.752	0.877
Received polio vaccination (3 doses)	0.844	0.027	246	135	1.179	0.032	0.789	0.898
Received measles vaccination	0.815	0.031	246	135	1.243	0.038	0.753	0.877
Received all vaccinations	0.683	0.038	246	135	1.262	0.055	0.608	0.758
Height-for-age (-2SD)	0.290	0.024	716	406	1.348	0.083	0.241	0.338
Weight-for-height (-2SD)	0.059	0.012	716	406	1.348	0.196	0.036	0.082
Weight-for-age (-2SD)	0.133	0.016	716	406	1.244	0.124	0.100	0.166
Body Mass Index (BMI) < 18.5	0.062	0.011	702	372	1.169	0.174	0.040	0.083
Had 2+ sexual partners in past 12 months	0.036	0.006	1553	837	1.234	0.162	0.024	0.047
Condom use at last sex	0.109	0.034	59	30	0.833	0.312	0.041	0.177
Had an HIV test and received results in past 12 months	0.226	0.016	1553	837	1.471	0.069	0.195	0.258
Accepting attitudes towards people with HIV	0.071	0.009	1521	822	1.333	0.124	0.053	0.088
Total fertility rate (3 years)	5.844	0.243	4286	2300	1.308	0.042	5.358	6.330
Neonatal mortality rate (last 0-9 years)	38.784	5.112	2772	1505	1.332	0.132	28.561	49.008
Post-neonatal mortality rate (last 0-9 years)	54.211	5.250	2781	1514	1.177	0.097	43.712	64.710
Infant mortality rate (last 0-9 years)	92.996	8.424	2784	1513	1.461	0.091	76.147	109.844
Child mortality rate (last 0-9 years)	52.593	5.573	2746	1502	1.086	0.106	41.446	63.740
Under-five mortality rate (last 0-9 years)	140.697	9.748	2812	1530	1.381	0.069	121.201	160.194
HIV prevalence among women 15-49	0.012	0.004	769	396	1.032	0.335	0.004	0.020
HIV prevalence among young women 15-24	0.009	0.005	283	141	0.913	0.579	0.000	0.019
MEN								
Literacy	0.606	0.033	667	367	1.723	0.054	0.541	0.672
No education	0.216	0.025	667	367	1.540	0.114	0.167	0.266
Secondary or higher education	0.424	0.025	667	367	1.279	0.058	0.375	0.473
Want no more children	0.322	0.033	425	236	1.440	0.102	0.256	0.387
Had 2+ sexual partners in past 12 months	0.161	0.023	667	367	1.623	0.144	0.114	0.207
Condom use at last sex	0.163	0.040	101	59	1.075	0.244	0.084	0.243
Paid for sexual intercourse in past 12 months	0.048	0.009	667	367	1.035	0.178	0.031	0.066
Had an HIV test and received results in past 12 months	0.096	0.014	667	367	1.219	0.145	0.068	0.124
Accepting attitudes towards people with HIV	0.213	0.033	657	362	2.070	0.156	0.147	0.280
HIV prevalence among men 15-49	0.004	0.002	640	338	0.870	0.513	0.000	0.009
HIV prevalence among young men 15-24	0.003	0.003	183	93	0.721	1.007	0.000	0.008
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.009	0.003	1409	734	1.056	0.301	0.003	0.014
HIV prevalence among young women and men 15-24	0.006	0.003	466	234	0.895	0.518	0.000	0.013

Table B.8 Sampling errors: South Central sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.475	0.021	2562	4645	2.136	0.044	0.433	0.517
Literacy	0.627	0.019	2759	4854	2.094	0.031	0.589	0.666
No education	0.252	0.016	2759	4854	1.893	0.062	0.220	0.283
Secondary or higher education	0.493	0.017	2759	4854	1.835	0.035	0.458	0.527
Currently pregnant	0.067	0.006	2759	4854	1.243	0.088	0.055	0.079
Children ever born to women age 40-49	5.793	0.181	478	708	1.434	0.031	5.431	6.155
Currently using any method	0.242	0.029	1491	2481	2.587	0.119	0.184	0.299
Currently using a modern method	0.224	0.024	1491	2481	2.249	0.109	0.175	0.272
Currently using a traditional method	0.018	0.010	1491	2481	2.772	0.534	0.000	0.037
Currently using pill	0.047	0.009	1491	2481	1.568	0.183	0.030	0.064
Currently using male condoms	0.006	0.002	1491	2481	1.084	0.355	0.002	0.011
Currently using injectables	0.137	0.018	1491	2481	2.023	0.131	0.101	0.174
Currently using implants	0.028	0.007	1491	2481	1.618	0.245	0.015	0.042
Currently using rhythm	0.018	0.010	1491	2481	2.772	0.534	0.000	0.037
Want no more children	0.282	0.016	1491	2481	1.411	0.058	0.249	0.315
Ideal number of children	4.394	0.072	2640	4665	1.944	0.016	4.250	4.537
Mothers received prenatal care for last birth	0.977	0.005	1294	2103	1.177	0.005	0.967	0.987
Mothers protected against tetanus for last birth	0.906	0.009	1294	2103	1.143	0.010	0.887	0.925
Births with skilled attendant at delivery	0.713	0.026	1703	2668	1.953	0.037	0.661	0.766
Had diarrhea in the past 2 weeks	0.213	0.013	1590	2485	1.134	0.059	0.188	0.238
Treated with ORS	0.533	0.036	366	528	1.209	0.067	0.461	0.605
Sought medical treatment for diarrhea	0.453	0.038	366	528	1.278	0.084	0.377	0.529
Vaccination card seen	0.523	0.037	330	543	1.338	0.072	0.448	0.597
Received BCG vaccination	0.979	0.008	330	543	0.938	0.008	0.964	0.994
Received Pentavalent vaccination (3 doses)	0.768	0.031	330	543	1.298	0.040	0.707	0.829
Received polio vaccination (3 doses)	0.711	0.035	330	543	1.376	0.049	0.641	0.781
Received measles vaccination	0.772	0.029	330	543	1.255	0.038	0.713	0.831
Received all vaccinations	0.581	0.032	330	543	1.151	0.055	0.517	0.645
Height-for-age (-2SD)	0.294	0.024	852	1447	1.485	0.080	0.246	0.341
Weight-for-height (-2SD)	0.066	0.012	852	1447	1.337	0.179	0.042	0.089
Weight-for-age (-2SD)	0.117	0.014	852	1447	1.191	0.119	0.089	0.144
Body Mass Index (BMI) < 18.5	0.074	0.009	1215	2164	1.242	0.126	0.055	0.092
Had 2+ sexual partners in past 12 months	0.079	0.009	2759	4854	1.680	0.109	0.062	0.096
Condom use at last sex	0.262	0.033	190	383	1.026	0.125	0.196	0.327
Had an HIV test and received results in past 12 months	0.190	0.011	2759	4854	1.509	0.059	0.168	0.213
Accepting attitudes towards people with HIV	0.071	0.009	2726	4820	1.796	0.124	0.054	0.089
Total fertility rate (3 years)	3.783	0.163	7489	13178	1.184	0.043	3.457	4.109
Neonatal mortality rate (last 0-9 years)	39.258	5.649	3541	5624	1.379	0.144	27.961	50.556
Post-neonatal mortality rate (last 0-9 years)	33.692	3.753	3526	5620	1.105	0.111	26.187	41.197
Infant mortality rate (last 0-9 years)	72.951	6.700	3553	5648	1.231	0.092	59.550	86.351
Child mortality rate (last 0-9 years)	41.952	5.560	3493	5568	1.325	0.133	30.832	53.072
Under-five mortality rate (last 0-9 years)	111.842	10.155	3581	5695	1.475	0.091	91.531	132.153
HIV prevalence among women 15-49	0.026	0.006	1244	2293	1.298	0.225	0.014	0.038
HIV prevalence among young women 15-24	0.020	0.007	537	1052	1.237	0.374	0.005	0.035
MEN								
Literacy	0.798	0.016	1193	2149	1.410	0.021	0.765	0.831
No education	0.096	0.011	1193	2149	1.329	0.118	0.073	0.118
Secondary or higher education	0.687	0.018	1193	2149	1.348	0.026	0.650	0.723
Want no more children	0.281	0.025	610	1033	1.369	0.089	0.231	0.331
Had 2+ sexual partners in past 12 months	0.166	0.019	1193	2149	1.759	0.114	0.128	0.204
Condom use at last sex	0.276	0.039	241	357	1.362	0.143	0.197	0.354
Paid for sexual intercourse in past 12 months	0.041	0.008	1193	2149	1.428	0.200	0.025	0.057
Had an HIV test and received results in past 12 months	0.148	0.014	1193	2149	1.367	0.095	0.120	0.177
Accepting attitudes towards people with HIV	0.160	0.021	1179	2125	1.977	0.132	0.118	0.202
HIV prevalence among men 15-49	0.029	0.007	1081	1975	1.395	0.246	0.015	0.043
HIV prevalence among young men 15-24	0.008	0.004	444	835	1.039	0.549	0.000	0.017
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.027	0.005	2325	4268	1.532	0.190	0.017	0.038
HIV prevalence among young women and men 15-24	0.015	0.004	981	1887	1.167	0.305	0.006	0.024

Table B.9 Sampling errors: South Eastern A sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.452	0.022	1554	573	1.701	0.048	0.409	0.495
Literacy	0.323	0.021	1367	483	1.686	0.066	0.280	0.365
No education	0.407	0.019	1367	483	1.429	0.047	0.369	0.445
Secondary or higher education	0.203	0.017	1367	483	1.546	0.083	0.169	0.237
Currently pregnant	0.096	0.010	1367	483	1.224	0.102	0.077	0.116
Children ever born to women age 40-49	6.709	0.181	267	95	1.053	0.027	6.347	7.070
Currently using any method	0.205	0.018	976	348	1.419	0.090	0.168	0.241
Currently using a modern method	0.205	0.018	976	348	1.419	0.090	0.168	0.241
Currently using a traditional method	0.000	0.000	976	348	na	na	0.000	0.000
Currently using pill	0.059	0.008	976	348	1.068	0.137	0.043	0.075
Currently using male condoms	0.002	0.001	976	348	1.008	0.749	0.000	0.005
Currently using injectables	0.127	0.015	976	348	1.439	0.121	0.096	0.158
Currently using implants	0.014	0.004	976	348	1.130	0.300	0.006	0.023
Currently using rhythm	0.000	0.000	976	348	na	na	0.000	0.000
Want no more children	0.334	0.018	976	348	1.171	0.053	0.299	0.370
Ideal number of children	5.928	0.159	1290	458	1.798	0.027	5.610	6.247
Mothers received prenatal care for last birth	0.927	0.013	921	328	1.485	0.014	0.901	0.952
Mothers protected against tetanus for last birth	0.790	0.023	921	328	1.698	0.029	0.745	0.836
Births with skilled attendant at delivery	0.653	0.027	1384	492	1.805	0.041	0.599	0.708
Had diarrhea in the past 2 weeks	0.275	0.024	1300	463	1.868	0.089	0.226	0.324
Treated with ORS	0.541	0.027	362	127	0.961	0.050	0.487	0.596
Sought medical treatment for diarrhea	0.462	0.029	362	127	1.025	0.063	0.404	0.520
Vaccination card seen	0.496	0.040	249	85	1.233	0.081	0.415	0.576
Received BCG vaccination	0.894	0.024	249	85	1.214	0.027	0.846	0.943
Received Pentavalent vaccination (3 doses)	0.586	0.040	249	85	1.235	0.068	0.506	0.665
Received polio vaccination (3 doses)	0.600	0.029	249	85	0.918	0.049	0.542	0.659
Received measles vaccination	0.667	0.035	249	85	1.150	0.053	0.596	0.738
Received all vaccinations	0.376	0.037	249	85	1.157	0.097	0.303	0.449
Height-for-age (-2SD)	0.326	0.023	639	237	1.183	0.071	0.280	0.373
Weight-for-height (-2SD)	0.071	0.010	639	237	0.978	0.140	0.051	0.091
Weight-for-age (-2SD)	0.168	0.016	639	237	1.092	0.096	0.136	0.200
Body Mass Index (BMI) < 18.5	0.067	0.010	599	213	0.954	0.145	0.047	0.086
Had 2+ sexual partners in past 12 months	0.029	0.007	1367	483	1.471	0.231	0.015	0.042
Condom use at last sex	0.165	0.073	44	14	1.275	0.440	0.020	0.311
Had an HIV test and received results in past 12 months	0.246	0.016	1367	483	1.335	0.063	0.214	0.277
Accepting attitudes towards people with HIV	0.040	0.008	1281	454	1.506	0.206	0.023	0.056
Total fertility rate (3 years)	6.545	0.283	3892	1379	1.217	0.043	5.979	7.110
Neonatal mortality rate (last 0-9 years)	25.908	2.842	2728	966	0.836	0.110	20.224	31.591
Post-neonatal mortality rate (last 0-9 years)	44.028	5.463	2725	963	1.260	0.124	33.101	54.955
Infant mortality rate (last 0-9 years)	69.935	5.971	2734	968	1.155	0.085	57.993	81.878
Child mortality rate (last 0-9 years)	46.500	5.169	2627	929	1.092	0.111	36.161	56.839
Under-five mortality rate (last 0-9 years)	113.183	9.059	2753	974	1.312	0.080	95.065	131.301
HIV prevalence among women 15-49	0.011	0.004	638	231	0.934	0.352	0.003	0.019
HIV prevalence among young women 15-24	0.002	0.002	227	81	0.715	1.020	0.000	0.007
MEN								
Literacy	0.691	0.025	697	254	1.448	0.037	0.641	0.742
No education	0.097	0.011	697	254	0.999	0.116	0.074	0.119
Secondary or higher education	0.502	0.022	697	254	1.174	0.044	0.458	0.547
Want no more children	0.232	0.022	397	147	1.034	0.095	0.188	0.275
Had 2+ sexual partners in past 12 months	0.218	0.023	697	254	1.461	0.105	0.172	0.263
Condom use at last sex	0.218	0.040	150	55	1.195	0.185	0.137	0.299
Paid for sexual intercourse in past 12 months	0.089	0.014	697	254	1.272	0.155	0.061	0.116
Had an HIV test and received results in past 12 months	0.115	0.014	697	254	1.140	0.120	0.088	0.143
Accepting attitudes towards people with HIV	0.176	0.016	661	239	1.061	0.089	0.145	0.208
HIV prevalence among men 15-49	0.015	0.007	628	233	1.367	0.442	0.002	0.028
HIV prevalence among young men 15-24	0.003	0.003	229	86	0.791	1.020	0.000	0.008
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.013	0.004	1266	465	1.206	0.295	0.005	0.021
HIV prevalence among young women and men 15-24	0.002	0.002	456	167	0.771	0.736	0.000	0.006

na = Not applicable

Variable	Value (R)	Standard Error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Un-weighted (N)	Weighted (WN)			R-2SE	R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.456	0.026	1436	571	1.999	0.058	0.403	0.509
Literacy	0.392	0.028	1432	577	2.144	0.071	0.337	0.448
No education	0.388	0.022	1432	577	1.678	0.056	0.345	0.431
Secondary or higher education	0.246	0.030	1432	577	2.664	0.124	0.185	0.307
Currently pregnant	0.092	0.007	1432	577	0.945	0.078	0.078	0.106
Children ever born to women age 40-49	7.079	0.246	280	111	1.439	0.035	6.588	7.570
Currently using any method	0.224	0.014	944	358	1.028	0.062	0.196	0.252
Currently using a modern method	0.223	0.014	944	358	1.020	0.062	0.195	0.250
Currently using a traditional method	0.001	0.001	944	358	1.164	0.994	0.000	0.004
Currently using pill	0.071	0.009	944	358	1.135	0.134	0.052	0.090
Currently using male condoms	0.005	0.003	944	358	1.228	0.575	0.000	0.010
Currently using injectables	0.129	0.013	944	358	1.200	0.102	0.103	0.155
Currently using implants	0.018	0.006	944	358	1.317	0.320	0.006	0.029
Currently using rhythm	0.001	0.001	944	358	1.164	0.994	0.000	0.004
Want no more children	0.397	0.026	944	358	1.658	0.067	0.344	0.450
Ideal number of children	4.921	0.101	1372	554	1.523	0.021	4.719	5.124
Mothers received prenatal care for last birth	0.901	0.026	899	352	2.549	0.028	0.850	0.953
Mothers protected against tetanus for last birth	0.694	0.030	899	352	1.913	0.043	0.634	0.753
Births with skilled attendant at delivery	0.567	0.045	1353	529	2.759	0.080	0.476	0.658
Had diarrhea in the past 2 weeks	0.277	0.031	1223	466	2.234	0.113	0.214	0.340
Treated with ORS	0.667	0.042	374	129	1.468	0.063	0.583	0.751
Sought medical treatment for diarrhea	0.556	0.055	374	129	1.814	0.099	0.446	0.667
Vaccination card seen	0.457	0.039	258	92	1.169	0.085	0.379	0.535
Received BCG vaccination	0.789	0.053	258	92	1.943	0.068	0.682	0.896
Received Pentavalent vaccination (3 doses)	0.520	0.054	258	92	1.629	0.105	0.411	0.629
Received polio vaccination (3 doses)	0.567	0.045	258	92	1.368	0.080	0.476	0.658
Received measles vaccination	0.600	0.042	258	92	1.276	0.070	0.516	0.684
Received all vaccinations	0.397	0.059	258	92	1.816	0.149	0.278	0.515
Height-for-age (-2SD)	0.341	0.029	652	248	1.462	0.087	0.282	0.400
Weight-for-height (-2SD)	0.042	0.009	652	248	1.187	0.221	0.023	0.061
Weight-for-age (-2SD)	0.191	0.021	652	248	1.300	0.108	0.150	0.232
Body Mass Index (BMI) < 18.5	0.050	0.011	633	259	1.291	0.223	0.027	0.072
Had 2+ sexual partners in past 12 months	0.039	0.009	1432	577	1.664	0.218	0.022	0.056
Condom use at last sex	0.166	0.070	59	23	1.417	0.422	0.026	0.305
Had an HIV test and received results in past 12 months	0.161	0.017	1432	577	1.789	0.108	0.126	0.196
Accepting attitudes towards people with HIV	0.077	0.022	1299	526	2.906	0.280	0.034	0.120
Total fertility rate (3 years)	5.852	0.268	4051	1629	1.236	0.046	5.317	6.388
Neonatal mortality rate (last 0-9 years)	50.000	6.537	2789	1064	1.210	0.131	36.927	63.073
Post-neonatal mortality rate (last 0-9 years)	36.285	3.402	2794	1063	0.853	0.094	29.481	43.089
Infant mortality rate (last 0-9 years)	86.285	7.634	2793	1065	1.212	0.088	71.016	101.554
Child mortality rate (last 0-9 years)	61.850	7.258	2757	1044	1.138	0.117	47.335	76.365
Under-five mortality rate (last 0-9 years)	142.798	8.730	2815	1074	1.114	0.061	125.339	160.258
HIV prevalence among women 15-49	0.027	0.010	675	283	1.543	0.357	0.008	0.046
HIV prevalence among young women 15-24	0.015	0.009	237	104	1.168	0.622	0.000	0.033
MEN								
Literacy	0.741	0.031	663	288	1.839	0.042	0.678	0.803
No education	0.088	0.016	663	288	1.438	0.180	0.056	0.120
Secondary or higher education	0.578	0.036	663	288	1.877	0.062	0.506	0.650
Want no more children	0.327	0.027	370	158	1.104	0.082	0.273	0.381
Had 2+ sexual partners in past 12 months	0.209	0.027	663	288	1.728	0.131	0.155	0.264
Condom use at last sex	0.212	0.060	159	60	1.823	0.282	0.092	0.331
Paid for sexual intercourse in past 12 months	0.063	0.014	663	288	1.460	0.219	0.035	0.090
Had an HIV test and received results in past 12 months	0.079	0.016	663	288	1.567	0.208	0.046	0.112
Accepting attitudes towards people with HIV	0.088	0.019	618	264	1.660	0.215	0.050	0.126
HIV prevalence among men 15-49	0.008	0.004	603	264	1.037	0.483	0.000	0.015
HIV prevalence among young men 15-24	0.003	0.003	220	98	0.841	1.035	0.000	0.009
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.018	0.005	1278	547	1.480	0.309	0.007	0.029
HIV prevalence among young women and men 15-24	0.009	0.005	457	202	1.222	0.599	0.000	0.020

Table B.11 Sampling errors: North Central sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.661	0.026	2159	2634	2.577	0.040	0.608	0.714
Literacy	0.301	0.032	2128	2488	3.261	0.108	0.236	0.366
No education	0.407	0.034	2128	2488	3.153	0.083	0.339	0.474
Secondary or higher education	0.213	0.031	2128	2488	3.505	0.147	0.150	0.275
Currently pregnant	0.102	0.011	2128	2488	1.658	0.107	0.080	0.124
Children ever born to women age 40-49	6.169	0.271	409	464	2.008	0.044	5.627	6.711
Currently using any method	0.136	0.016	1417	1619	1.773	0.119	0.103	0.168
Currently using a modern method	0.128	0.016	1417	1619	1.786	0.124	0.096	0.160
Currently using a traditional method	0.008	0.002	1417	1619	1.009	0.306	0.003	0.012
Currently using pill	0.044	0.007	1417	1619	1.343	0.166	0.029	0.059
Currently using male condoms	0.003	0.002	1417	1619	1.113	0.553	0.000	0.006
Currently using injectables	0.061	0.011	1417	1619	1.764	0.184	0.038	0.083
Currently using implants	0.015	0.004	1417	1619	1.376	0.298	0.006	0.024
Currently using rhythm	0.006	0.002	1417	1619	1.004	0.332	0.002	0.011
Want no more children	0.281	0.014	1417	1619	1.186	0.050	0.253	0.310
Ideal number of children	5.376	0.115	2030	2366	2.268	0.021	5.145	5.607
Mothers received prenatal care for last birth	0.958	0.009	1307	1491	1.528	0.009	0.941	0.975
Mothers protected against tetanus for last birth	0.902	0.013	1307	1491	1.572	0.014	0.876	0.929
Births with skilled attendant at delivery	0.514	0.025	1819	2082	1.853	0.049	0.464	0.564
Had diarrhea in the past 2 weeks	0.220	0.016	1724	1970	1.575	0.074	0.187	0.252
Treated with ORS	0.641	0.032	372	433	1.208	0.049	0.578	0.704
Sought medical treatment for diarrhea	0.453	0.036	372	433	1.347	0.080	0.380	0.525
Vaccination card seen	0.658	0.036	350	417	1.431	0.055	0.586	0.730
Received BCG vaccination	0.926	0.020	350	417	1.409	0.021	0.887	0.965
Received Pentavalent vaccination (3 doses)	0.681	0.039	350	417	1.574	0.057	0.603	0.758
Received polio vaccination (3 doses)	0.686	0.037	350	417	1.516	0.055	0.611	0.760
Received measles vaccination	0.726	0.035	350	417	1.460	0.048	0.657	0.795
Received all vaccinations	0.530	0.040	350	417	1.514	0.076	0.450	0.611
Height-for-age (-2SD)	0.345	0.019	958	1182	1.290	0.056	0.307	0.384
Weight-for-height (-2SD)	0.055	0.008	958	1182	1.104	0.146	0.039	0.072
Weight-for-age (-2SD)	0.186	0.013	958	1182	1.011	0.071	0.159	0.212
Body Mass Index (BMI) < 18.5	0.086	0.010	938	1102	1.073	0.114	0.066	0.105
Had 2+ sexual partners in past 12 months	0.059	0.010	2128	2488	1.973	0.171	0.039	0.080
Condom use at last sex	0.052	0.023	108	148	1.070	0.443	0.006	0.097
Had an HIV test and received results in past 12 months	0.177	0.015	2128	2488	1.784	0.083	0.147	0.206
Accepting attitudes towards people with HIV	0.054	0.007	1986	2368	1.426	0.134	0.040	0.069
Total fertility rate (3 years)	5.554	0.190	6026	7048	1.177	0.034	5.174	5.934
Neonatal mortality rate (last 0-9 years)	22.210	3.030	3691	4202	1.156	0.136	16.149	28.271
Post-neonatal mortality rate (last 0-9 years)	29.753	3.031	3701	4208	0.880	0.102	23.691	35.814
Infant mortality rate (last 0-9 years)	51.963	4.379	3695	4205	1.047	0.084	43.204	60.722
Child mortality rate (last 0-9 years)	47.242	6.197	3602	4093	1.481	0.131	34.849	59.636
Under-five mortality rate (last 0-9 years)	96.750	8.155	3718	4228	1.351	0.084	80.441	113.059
HIV prevalence among women 15-49	0.012	0.005	1051	1194	1.348	0.380	0.003	0.021
HIV prevalence among young women 15-24	0.005	0.003	377	440	0.811	0.588	0.000	0.011
MEN								
Literacy	0.581	0.033	898	1060	2.022	0.057	0.515	0.648
No education	0.187	0.021	898	1060	1.649	0.115	0.144	0.230
Secondary or higher education	0.432	0.033	898	1060	1.992	0.076	0.366	0.498
Want no more children	0.267	0.028	560	644	1.471	0.103	0.212	0.323
Had 2+ sexual partners in past 12 months	0.184	0.019	898	1060	1.483	0.104	0.145	0.222
Condom use at last sex	0.198	0.034	149	195	1.026	0.170	0.131	0.265
Paid for sexual intercourse in past 12 months	0.046	0.008	898	1060	1.219	0.186	0.029	0.063
Had an HIV test and received results in past 12 months	0.100	0.018	898	1060	1.816	0.182	0.063	0.136
Accepting attitudes towards people with HIV	0.089	0.016	797	970	1.592	0.181	0.057	0.121
HIV prevalence among men 15-49	0.002	0.001	853	974	0.768	0.623	0.000	0.004
HIV prevalence among young men 15-24	0.001	0.001	305	354	0.584	1.009	0.000	0.003
WOMEN AND MEN								
HIV prevalence among women and men 15-49	0.007	0.003	1904	2168	1.328	0.354	0.002	0.013
HIV prevalence among young women and men 15-24	0.003	0.002	682	794	0.781	0.521	0.000	0.007

Table B.12 Sampling errors: Bomi sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Un-weighted (N)	Weighted (WN)			R-2SE	R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.707	0.058	491	280	2.819	0.083	0.590	0.823
Literacy	0.424	0.038	456	244	1.629	0.089	0.349	0.500
No education	0.420	0.045	456	244	1.932	0.107	0.330	0.509
Secondary or higher education	0.287	0.035	456	244	1.661	0.123	0.216	0.357
Currently using any method	0.191	0.018	268	145	0.742	0.093	0.156	0.227
Currently using a modern method	0.180	0.014	268	145	0.578	0.075	0.153	0.208
Currently using a traditional method	0.011	0.007	268	145	1.062	0.621	0.000	0.024
Currently using pill	0.027	0.008	268	145	0.816	0.298	0.011	0.044
Currently using male condoms	0.002	0.002	268	145	0.811	1.006	0.000	0.007
Currently using injectables	0.138	0.020	268	145	0.947	0.145	0.098	0.178
Currently using implants	0.013	0.005	268	145	0.795	0.431	0.002	0.023
Currently using rhythm	0.011	0.007	268	145	1.062	0.621	0.000	0.024
Want no more children	0.299	0.033	268	145	1.163	0.109	0.234	0.364
Ideal number of children	4.790	0.181	450	240	1.700	0.038	4.429	5.151
Mothers received prenatal care for last birth	0.913	0.035	241	128	1.893	0.038	0.844	0.982
Mothers protected against tetanus for last birth	0.913	0.027	241	128	1.508	0.030	0.858	0.968
Births with skilled attendant at delivery	0.690	0.037	336	177	1.278	0.054	0.616	0.764
Had diarrhea in the past 2 weeks	0.119	0.021	302	160	1.154	0.180	0.076	0.161
Treated with ORS	0.699	0.075	35	19	0.968	0.107	0.550	0.848
Sought medical treatment for diarrhea	0.694	0.050	35	19	0.650	0.072	0.594	0.795
Vaccination card seen	0.634	0.065	61	31	1.018	0.103	0.503	0.765
Received BCG vaccination	0.984	0.016	61	31	0.975	0.016	0.951	1.016
Received Pentavalent vaccination (3 doses)	0.906	0.031	61	31	0.826	0.035	0.843	0.969
Received polio vaccination (3 doses)	0.845	0.060	61	31	1.271	0.071	0.724	0.965
Received measles vaccination	0.853	0.048	61	31	1.029	0.056	0.758	0.948
Received all vaccinations	0.727	0.073	61	31	1.254	0.101	0.581	0.874
Height-for-age (-2SD)	0.331	0.043	196	110	1.153	0.130	0.245	0.417
Weight-for-height (-2SD)	0.088	0.020	196	110	0.975	0.227	0.048	0.127
Weight-for-age (-2SD)	0.197	0.035	196	110	1.172	0.180	0.126	0.267
Body Mass Index (BMI) < 18.5	0.069	0.020	201	106	1.099	0.286	0.030	0.109
Had 2+ sexual partners in past 12 months	0.029	0.007	456	244	0.884	0.238	0.015	0.043
Had an HIV test and received results in past 12 months	0.271	0.022	456	244	1.065	0.082	0.226	0.315
Accepting attitudes towards people with HIV	0.117	0.015	445	238	0.991	0.130	0.086	0.147
MEN								
Literacy	0.695	0.067	163	97	1.851	0.097	0.560	0.830
No education	0.150	0.045	163	97	1.589	0.299	0.060	0.239
Secondary or higher education	0.538	0.048	163	97	1.222	0.089	0.442	0.634
Want no more children	0.434	0.047	96	55	0.929	0.109	0.339	0.528
Had 2+ sexual partners in past 12 months	0.123	0.049	163	97	1.879	0.397	0.025	0.221
Paid for sexual intercourse in past 12 months	0.060	0.017	163	97	0.888	0.276	0.027	0.093
Had an HIV test and received results in past 12 months	0.123	0.024	163	97	0.920	0.193	0.075	0.170
Accepting attitudes towards people with HIV	0.228	0.061	159	95	1.816	0.268	0.106	0.350

Table B.13 Sampling errors: Bong sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.660	0.043	734	1118	2.455	0.065	0.573	0.746
Literacy	0.200	0.031	630	894	1.964	0.157	0.137	0.263
No education	0.553	0.041	630	894	2.050	0.074	0.472	0.635
Secondary or higher education	0.132	0.023	630	894	1.674	0.171	0.087	0.178
Currently using any method	0.199	0.034	457	635	1.825	0.172	0.131	0.268
Currently using a modern method	0.183	0.033	457	635	1.818	0.180	0.117	0.249
Currently using a traditional method	0.016	0.006	457	635	0.940	0.343	0.005	0.027
Currently using pill	0.070	0.014	457	635	1.210	0.207	0.041	0.099
Currently using male condoms	0.004	0.003	457	635	1.063	0.773	0.000	0.011
Currently using injectables	0.079	0.019	457	635	1.488	0.239	0.041	0.116
Currently using implants	0.019	0.008	457	635	1.258	0.420	0.003	0.036
Currently using rhythm	0.013	0.005	457	635	0.952	0.386	0.003	0.023
Want no more children	0.283	0.020	457	635	0.956	0.071	0.242	0.323
Ideal number of children	5.262	0.191	551	786	2.060	0.036	4.879	5.645
Mothers received prenatal care for last birth	0.953	0.014	396	559	1.279	0.014	0.925	0.980
Mothers protected against tetanus for last birth	0.864	0.027	396	559	1.578	0.032	0.809	0.918
Births with skilled attendant at delivery	0.445	0.044	559	792	1.783	0.099	0.357	0.534
Had diarrhea in the past 2 weeks	0.285	0.032	525	739	1.553	0.113	0.221	0.349
Treated with ORS	0.621	0.043	147	211	1.017	0.069	0.535	0.706
Sought medical treatment for diarrhea	0.420	0.060	147	211	1.384	0.142	0.301	0.539
Vaccination card seen	0.653	0.077	107	158	1.698	0.118	0.499	0.808
Received BCG vaccination	0.889	0.033	107	158	1.094	0.037	0.824	0.954
Received Pentavalent vaccination (3 doses)	0.621	0.080	107	158	1.715	0.128	0.462	0.780
Received polio vaccination (3 doses)	0.672	0.068	107	158	1.523	0.102	0.535	0.808
Received measles vaccination	0.686	0.065	107	158	1.472	0.095	0.556	0.817
Received all vaccinations	0.504	0.084	107	158	1.733	0.166	0.337	0.671
Height-for-age (-2SD)	0.347	0.037	288	434	1.289	0.106	0.273	0.420
Weight-for-height (-2SD)	0.072	0.017	288	434	1.129	0.239	0.037	0.106
Weight-for-age (-2SD)	0.174	0.030	288	434	1.244	0.173	0.114	0.234
Body Mass Index (BMI) < 18.5	0.106	0.015	278	394	0.798	0.139	0.077	0.136
Had 2+ sexual partners in past 12 months	0.060	0.012	630	894	1.266	0.199	0.036	0.084
Had an HIV test and received results in past 12 months	0.143	0.014	630	894	0.991	0.097	0.115	0.171
Accepting attitudes towards people with HIV	0.052	0.010	615	878	1.101	0.189	0.032	0.072
MEN								
Literacy	0.534	0.049	271	389	1.625	0.093	0.435	0.633
No education	0.243	0.046	271	389	1.748	0.189	0.151	0.334
Secondary or higher education	0.381	0.048	271	389	1.618	0.126	0.285	0.477
Want no more children	0.314	0.053	179	247	1.506	0.168	0.208	0.419
Had 2+ sexual partners in past 12 months	0.232	0.034	271	389	1.309	0.145	0.165	0.299
Condom use at last sex	0.224	0.057	62	90	1.058	0.252	0.111	0.337
Paid for sexual intercourse in past 12 months	0.032	0.012	271	389	1.137	0.382	0.008	0.056
Had an HIV test and received results in past 12 months	0.088	0.018	271	389	1.059	0.208	0.051	0.124
Accepting attitudes towards people with HIV	0.071	0.019	263	376	1.214	0.272	0.032	0.110

Table B.14 Sampling errors: Gbarpolu sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.648	0.026	529	212	1.272	0.041	0.595	0.701
Literacy	0.281	0.038	482	182	1.869	0.137	0.204	0.358
No education	0.432	0.026	482	182	1.168	0.061	0.380	0.485
Secondary or higher education	0.132	0.031	482	182	1.982	0.233	0.070	0.193
Currently using any method	0.252	0.035	328	123	1.441	0.138	0.183	0.321
Currently using a modern method	0.238	0.032	328	123	1.349	0.134	0.175	0.302
Currently using a traditional method	0.014	0.009	328	123	1.355	0.641	0.000	0.031
Currently using pill	0.083	0.013	328	123	0.837	0.153	0.058	0.109
Currently using male condoms	0.000	0.000	328	123	na	na	0.000	0.000
Currently using injectables	0.134	0.024	328	123	1.291	0.181	0.086	0.183
Currently using implants	0.012	0.007	328	123	1.116	0.552	0.000	0.026
Currently using rhythm	0.000	0.000	328	123	na	na	0.000	0.000
Want no more children	0.288	0.023	328	123	0.913	0.079	0.242	0.333
Ideal number of children	4.989	0.142	461	173	1.417	0.028	4.705	5.273
Mothers received prenatal care for last birth	0.949	0.014	303	112	1.067	0.014	0.922	0.976
Mothers protected against tetanus for last birth	0.768	0.046	303	112	1.868	0.060	0.676	0.859
Births with skilled attendant at delivery	0.519	0.093	432	161	3.168	0.178	0.334	0.704
Had diarrhea in the past 2 weeks	0.216	0.027	402	149	1.310	0.123	0.163	0.269
Treated with ORS	0.706	0.062	91	32	1.217	0.089	0.581	0.831
Sought medical treatment for diarrhea	0.442	0.101	91	32	1.853	0.229	0.240	0.644
Vaccination card seen	0.631	0.064	84	32	1.188	0.101	0.503	0.759
Received BCG vaccination	0.860	0.053	84	32	1.396	0.062	0.754	0.966
Received Pentavalent vaccination (3 doses)	0.629	0.076	84	32	1.408	0.121	0.477	0.781
Received polio vaccination (3 doses)	0.759	0.055	84	32	1.181	0.073	0.649	0.870
Received measles vaccination	0.742	0.064	84	32	1.296	0.086	0.615	0.870
Received all vaccinations	0.522	0.085	84	32	1.534	0.164	0.351	0.693
Height-for-age (-2SD)	0.251	0.024	230	92	0.895	0.097	0.203	0.300
Weight-for-height (-2SD)	0.065	0.030	230	92	1.915	0.463	0.005	0.126
Weight-for-age (-2SD)	0.108	0.019	230	92	0.942	0.171	0.071	0.145
Body Mass Index (BMI) < 18.5	0.109	0.022	231	88	1.058	0.198	0.066	0.152
Had 2+ sexual partners in past 12 months	0.054	0.018	482	182	1.718	0.329	0.018	0.089
Had an HIV test and received results in past 12 months	0.149	0.025	482	182	1.550	0.169	0.098	0.199
Accepting attitudes towards people with HIV	0.070	0.016	468	178	1.375	0.233	0.037	0.102
MEN								
Literacy	0.558	0.031	240	94	0.978	0.056	0.495	0.620
No education	0.171	0.016	240	94	0.665	0.094	0.139	0.204
Secondary or higher education	0.393	0.036	240	94	1.144	0.092	0.320	0.465
Want no more children	0.268	0.066	159	63	1.867	0.247	0.135	0.401
Had 2+ sexual partners in past 12 months	0.105	0.031	240	94	1.537	0.292	0.044	0.166
Condom use at last sex	0.114	0.071	27	10	1.128	0.619	0.000	0.256
Paid for sexual intercourse in past 12 months	0.052	0.015	240	94	1.025	0.284	0.022	0.081
Had an HIV test and received results in past 12 months	0.082	0.032	240	94	1.784	0.387	0.019	0.146
Accepting attitudes towards people with HIV	0.186	0.053	240	94	2.082	0.284	0.081	0.292

na = Not applicable

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.608	0.032	637	588	1.634	0.052	0.545	0.672
Literacy	0.297	0.037	505	434	1.833	0.126	0.223	0.372
No education	0.533	0.035	505	434	1.582	0.066	0.463	0.604
Secondary or higher education	0.190	0.034	505	434	1.918	0.177	0.123	0.257
Currently using any method	0.084	0.016	349	294	1.078	0.191	0.052	0.116
Currently using a modern method	0.082	0.016	349	294	1.092	0.196	0.050	0.114
Currently using a traditional method	0.002	0.002	349	294	0.897	1.009	0.000	0.007
Currently using pill	0.013	0.006	349	294	0.932	0.443	0.001	0.024
Currently using male condoms	0.000	0.000	349	294	na	na	0.000	0.000
Currently using injectables	0.065	0.015	349	294	1.127	0.230	0.035	0.094
Currently using implants	0.005	0.004	349	294	1.171	0.933	0.000	0.013
Currently using rhythm	0.002	0.002	349	294	0.897	1.009	0.000	0.007
Want no more children	0.353	0.040	349	294	1.552	0.113	0.273	0.433
Ideal number of children	5.784	0.231	482	419	2.053	0.040	5.322	6.246
Mothers received prenatal care for last birth	0.924	0.019	312	267	1.252	0.020	0.887	0.962
Mothers protected against tetanus for last birth	0.735	0.042	312	267	1.667	0.057	0.652	0.819
Births with skilled attendant at delivery	0.419	0.048	439	366	1.739	0.115	0.323	0.516
Had diarrhea in the past 2 weeks	0.300	0.028	411	345	1.168	0.093	0.245	0.356
Treated with ORS	0.482	0.063	129	104	1.225	0.130	0.357	0.608
Sought medical treatment for diarrhea	0.335	0.047	129	104	0.999	0.141	0.241	0.430
Vaccination card seen	0.456	0.068	71	64	1.172	0.148	0.321	0.592
Received BCG vaccination	0.917	0.047	71	64	1.480	0.052	0.822	1.011
Received Pentavalent vaccination (3 doses)	0.532	0.074	71	64	1.289	0.140	0.383	0.681
Received polio vaccination (3 doses)	0.585	0.062	71	64	1.084	0.106	0.461	0.708
Received measles vaccination	0.664	0.052	71	64	0.950	0.078	0.560	0.768
Received all vaccinations	0.389	0.075	71	64	1.328	0.193	0.239	0.539
Height-for-age (-2SD)	0.381	0.041	221	197	1.226	0.108	0.299	0.463
Weight-for-height (-2SD)	0.086	0.021	221	197	1.161	0.243	0.044	0.128
Weight-for-age (-2SD)	0.197	0.024	221	197	0.889	0.122	0.149	0.245
Body Mass Index (BMI) < 18.5	0.094	0.021	225	193	1.062	0.221	0.052	0.135
Had 2+ sexual partners in past 12 months	0.039	0.012	505	434	1.407	0.313	0.014	0.063
Had an HIV test and received results in past 12 months	0.143	0.014	505	434	0.909	0.099	0.114	0.171
Accepting attitudes towards people with HIV	0.041	0.025	478	412	2.697	0.599	0.000	0.091
MEN								
Literacy	0.574	0.038	227	204	1.140	0.065	0.499	0.649
No education	0.204	0.031	227	204	1.165	0.153	0.142	0.267
Secondary or higher education	0.397	0.036	227	204	1.101	0.090	0.325	0.468
Want no more children	0.280	0.032	158	140	0.881	0.113	0.216	0.343
Had 2+ sexual partners in past 12 months	0.274	0.042	227	204	1.418	0.154	0.189	0.358
Condom use at last sex	0.239	0.040	66	56	0.761	0.168	0.159	0.319
Paid for sexual intercourse in past 12 months	0.054	0.018	227	204	1.206	0.335	0.018	0.091
Had an HIV test and received results in past 12 months	0.171	0.041	227	204	1.642	0.242	0.088	0.253
Accepting attitudes towards people with HIV	0.151	0.023	222	199	0.968	0.154	0.104	0.198

na = Not applicable

Table B.16 Sampling errors: Grand Cape Mount sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.707	0.041	602	417	2.222	0.058	0.625	0.790
Literacy	0.228	0.032	615	412	1.861	0.138	0.165	0.291
No education	0.562	0.024	615	412	1.182	0.042	0.515	0.610
Secondary or higher education	0.109	0.019	615	412	1.501	0.173	0.071	0.147
Know a modern method	0.997	0.003	451	312	1.130	0.003	0.991	1.003
Currently using any method	0.194	0.024	451	312	1.286	0.124	0.146	0.242
Currently using a modern method	0.194	0.024	451	312	1.286	0.124	0.146	0.242
Currently using a traditional method	0.000	0.000	451	312	na	na	0.000	0.000
Currently using pill	0.070	0.014	451	312	1.135	0.195	0.043	0.097
Currently using male condoms	0.000	0.000	451	312	na	na	0.000	0.000
Currently using injectables	0.119	0.022	451	312	1.430	0.183	0.076	0.163
Currently using implants	0.005	0.003	451	312	0.933	0.629	0.000	0.011
Currently using rhythm	0.000	0.000	451	312	na	na	0.000	0.000
Want no more children	0.378	0.044	451	312	1.924	0.117	0.290	0.467
Ideal number of children	5.368	0.197	588	393	2.034	0.037	4.974	5.762
Mothers received prenatal care for last birth	0.964	0.020	383	256	2.048	0.020	0.925	1.003
Mothers protected against tetanus for last birth	0.909	0.058	383	256	3.880	0.064	0.793	1.025
Births with skilled attendant at delivery	0.442	0.034	579	392	1.418	0.078	0.373	0.510
Had diarrhea in the past 2 weeks	0.175	0.034	517	355	1.975	0.196	0.106	0.243
Treated with ORS	0.872	0.035	75	62	0.933	0.040	0.802	0.941
Sought medical treatment for diarrhea	0.485	0.139	75	62	2.473	0.287	0.207	0.762
Vaccination card seen	0.843	0.041	101	71	1.173	0.049	0.760	0.926
Received BCG vaccination	0.965	0.021	101	71	1.210	0.022	0.922	1.008
Received Pentavalent vaccination (3 doses)	0.858	0.050	101	71	1.475	0.058	0.757	0.958
Received polio vaccination (3 doses)	0.881	0.037	101	71	1.181	0.042	0.806	0.955
Received measles vaccination	0.831	0.047	101	71	1.291	0.057	0.737	0.925
Received all vaccinations	0.736	0.049	101	71	1.132	0.066	0.639	0.833
Height-for-age (-2SD)	0.285	0.041	290	204	1.430	0.143	0.203	0.366
Weight-for-height (-2SD)	0.041	0.014	290	204	1.280	0.354	0.012	0.069
Weight-for-age (-2SD)	0.110	0.024	290	204	1.219	0.217	0.062	0.158
Body Mass Index (BMI) < 18.5	0.034	0.013	270	178	1.188	0.390	0.007	0.060
Had 2+ sexual partners in past 12 months	0.032	0.008	615	412	1.088	0.243	0.016	0.047
Had an HIV test and received results in past 12 months	0.235	0.027	615	412	1.597	0.117	0.180	0.289
Accepting attitudes towards people with HIV	0.044	0.013	608	407	1.502	0.285	0.019	0.069
MEN								
Literacy	0.583	0.049	264	176	1.612	0.084	0.485	0.681
No education	0.277	0.044	264	176	1.573	0.157	0.190	0.364
Secondary or higher education	0.378	0.035	264	176	1.163	0.092	0.309	0.448
Want no more children	0.298	0.049	170	118	1.395	0.165	0.199	0.396
Had 2+ sexual partners in past 12 months	0.211	0.035	264	176	1.384	0.165	0.141	0.281
Condom use at last sex	0.154	0.056	55	37	1.129	0.361	0.043	0.266
Paid for sexual intercourse in past 12 months	0.040	0.013	264	176	1.068	0.322	0.014	0.066
Had an HIV test and received results in past 12 months	0.088	0.020	264	176	1.169	0.232	0.047	0.129
Accepting attitudes towards people with HIV	0.220	0.054	258	174	2.090	0.247	0.111	0.328

na = Not applicable

Table B.17 Sampling errors: Grand Gedeh sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.540	0.045	525	196	2.043	0.083	0.451	0.629
Literacy	0.445	0.035	448	167	1.488	0.079	0.375	0.515
No education	0.333	0.023	448	167	1.031	0.069	0.287	0.379
Secondary or higher education	0.302	0.025	448	167	1.142	0.082	0.252	0.352
Currently using any method	0.179	0.026	313	113	1.220	0.148	0.126	0.232
Currently using a modern method	0.179	0.026	313	113	1.220	0.148	0.126	0.232
Currently using a traditional method	0.000	0.000	313	113	na	na	0.000	0.000
Currently using pill	0.045	0.014	313	113	1.169	0.307	0.017	0.072
Currently using male condoms	0.006	0.004	313	113	1.024	0.765	0.000	0.014
Currently using injectables	0.104	0.020	313	113	1.174	0.195	0.063	0.144
Currently using implants	0.020	0.008	313	113	1.068	0.425	0.003	0.037
Currently using rhythm	0.000	0.000	313	113	na	na	0.000	0.000
Want no more children	0.271	0.027	313	113	1.078	0.100	0.217	0.325
Ideal number of children	6.114	0.295	443	166	1.985	0.048	5.523	6.704
Mothers received prenatal care for last birth	0.953	0.016	304	112	1.356	0.017	0.920	0.986
Mothers protected against tetanus for last birth	0.848	0.034	304	112	1.635	0.040	0.780	0.916
Births with skilled attendant at delivery	0.734	0.040	428	157	1.611	0.054	0.654	0.814
Had diarrhea in the past 2 weeks	0.222	0.042	398	146	1.892	0.188	0.138	0.305
Treated with ORS	0.553	0.062	90	32	1.128	0.113	0.428	0.678
Sought medical treatment for diarrhea	0.464	0.051	90	32	0.903	0.109	0.362	0.565
Vaccination card seen	0.448	0.066	80	26	1.108	0.147	0.316	0.580
Received BCG vaccination	0.924	0.031	80	26	0.988	0.034	0.861	0.986
Received Pentavalent vaccination (3 doses)	0.620	0.073	80	26	1.253	0.117	0.475	0.766
Received polio vaccination (3 doses)	0.612	0.046	80	26	0.785	0.075	0.520	0.703
Received measles vaccination	0.790	0.062	80	26	1.264	0.078	0.667	0.914
Received all vaccinations	0.440	0.050	80	26	0.843	0.114	0.340	0.540
Height-for-age (-2SD)	0.314	0.044	210	80	1.341	0.140	0.226	0.402
Weight-for-height (-2SD)	0.059	0.017	210	80	1.077	0.294	0.024	0.094
Weight-for-age (-2SD)	0.155	0.036	210	80	1.398	0.232	0.083	0.228
Body Mass Index (BMI) < 18.5	0.059	0.016	197	74	0.963	0.272	0.027	0.091
Had 2+ sexual partners in past 12 months	0.046	0.015	448	167	1.540	0.334	0.015	0.076
Had an HIV test and received results in past 12 months	0.315	0.034	448	167	1.551	0.108	0.247	0.383
Accepting attitudes towards people with HIV	0.062	0.018	437	162	1.581	0.295	0.025	0.099
MEN								
Literacy	0.731	0.036	214	82	1.169	0.049	0.660	0.802
No education	0.071	0.021	214	82	1.177	0.293	0.029	0.112
Secondary or higher education	0.628	0.035	214	82	1.068	0.056	0.557	0.699
Want no more children	0.130	0.037	119	44	1.190	0.284	0.056	0.204
Had 2+ sexual partners in past 12 months	0.156	0.043	214	82	1.719	0.276	0.070	0.241
Condom use at last sex	0.276	0.061	39	13	0.846	0.221	0.154	0.399
Paid for sexual intercourse in past 12 months	0.089	0.028	214	82	1.415	0.312	0.033	0.144
Had an HIV test and received results in past 12 months	0.167	0.023	214	82	0.913	0.140	0.120	0.214
Accepting attitudes towards people with HIV	0.184	0.019	211	80	0.706	0.103	0.146	0.221

na = Not applicable

Table B.18 Sampling errors: Grand Kru sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.395	0.031	461	206	1.344	0.078	0.334	0.457
Literacy	0.333	0.022	450	217	0.982	0.066	0.290	0.377
No education	0.473	0.026	450	217	1.121	0.056	0.421	0.526
Secondary or higher education	0.153	0.023	450	217	1.339	0.149	0.108	0.199
Currently using any method	0.176	0.027	294	135	1.210	0.153	0.122	0.230
Currently using a modern method	0.176	0.027	294	135	1.210	0.153	0.122	0.230
Currently using a traditional method	0.000	0.000	294	135	na	na	0.000	0.000
Currently using pill	0.038	0.010	294	135	0.913	0.268	0.018	0.059
Currently using male condoms	0.000	0.000	294	135	na	na	0.000	0.000
Currently using injectables	0.122	0.024	294	135	1.274	0.200	0.073	0.171
Currently using implants	0.016	0.012	294	135	1.613	0.739	0.000	0.040
Currently using rhythm	0.000	0.000	294	135	na	na	0.000	0.000
Want no more children	0.413	0.048	294	135	1.679	0.117	0.316	0.510
Ideal number of children	5.111	0.154	437	209	1.318	0.030	4.804	5.419
Mothers received prenatal care for last birth	0.863	0.057	291	147	2.823	0.066	0.749	0.978
Mothers protected against tetanus for last birth	0.587	0.064	291	147	2.223	0.109	0.459	0.716
Births with skilled attendant at delivery	0.579	0.077	454	235	2.707	0.133	0.425	0.734
Had diarrhea in the past 2 weeks	0.274	0.065	409	203	2.662	0.237	0.144	0.404
Treated with ORS	0.649	0.074	131	56	1.473	0.114	0.501	0.798
Sought medical treatment for diarrhea	0.527	0.107	131	56	1.993	0.204	0.312	0.741
Vaccination card seen	0.372	0.075	77	35	1.284	0.201	0.223	0.522
Received BCG vaccination	0.748	0.135	77	35	2.560	0.180	0.479	1.017
Received Pentavalent vaccination (3 doses)	0.422	0.116	77	35	1.942	0.274	0.191	0.654
Received polio vaccination (3 doses)	0.491	0.089	77	35	1.474	0.181	0.313	0.668
Received measles vaccination	0.564	0.052	77	35	0.877	0.093	0.459	0.668
Received all vaccinations	0.375	0.129	77	35	2.208	0.344	0.117	0.633
Height-for-age (-2SD)	0.312	0.039	228	100	1.243	0.126	0.234	0.390
Weight-for-height (-2SD)	0.036	0.018	228	100	1.473	0.491	0.001	0.072
Weight-for-age (-2SD)	0.185	0.029	228	100	1.228	0.158	0.127	0.243
Body Mass Index (BMI) < 18.5	0.039	0.019	209	101	1.454	0.501	0.000	0.078
Had 2+ sexual partners in past 12 months	0.026	0.015	450	217	1.953	0.561	0.000	0.056
Had an HIV test and received results in past 12 months	0.132	0.031	450	217	1.923	0.233	0.070	0.194
Accepting attitudes towards people with HIV	0.066	0.030	383	185	2.376	0.461	0.005	0.126
MEN								
Literacy	0.773	0.048	227	110	1.727	0.063	0.676	0.869
No education	0.061	0.021	227	110	1.314	0.343	0.019	0.103
Secondary or higher education	0.615	0.060	227	110	1.835	0.097	0.495	0.734
Want no more children	0.335	0.041	132	65	0.999	0.123	0.252	0.417
Had 2+ sexual partners in past 12 months	0.215	0.060	227	110	2.177	0.279	0.095	0.335
Condom use at last sex	0.193	0.127	58	24	2.342	0.662	0.000	0.447
Paid for sexual intercourse in past 12 months	0.099	0.030	227	110	1.519	0.305	0.039	0.160
Had an HIV test and received results in past 12 months	0.103	0.028	227	110	1.371	0.270	0.047	0.158
Accepting attitudes towards people with HIV	0.077	0.028	197	90	1.447	0.359	0.022	0.132

na = Not applicable

Table B.19 Sampling errors: Lofa sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Un-weighted (N)	Weighted (WN)			R-2SE	R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.746	0.034	670	498	2.025	0.046	0.678	0.815
Literacy	0.255	0.027	629	447	1.539	0.105	0.202	0.309
No education	0.565	0.036	629	447	1.799	0.063	0.494	0.636
Secondary or higher education	0.159	0.025	629	447	1.692	0.156	0.110	0.208
Currently using any method	0.100	0.021	401	291	1.396	0.210	0.058	0.141
Currently using a modern method	0.094	0.021	401	291	1.439	0.223	0.052	0.137
Currently using a traditional method	0.005	0.003	401	291	0.977	0.685	0.000	0.012
Currently using pill	0.054	0.016	401	291	1.448	0.305	0.021	0.086
Currently using male condoms	0.000	0.000	401	291	na	na	0.000	0.000
Currently using injectables	0.035	0.012	401	291	1.281	0.336	0.011	0.059
Currently using implants	0.006	0.004	401	291	1.098	0.718	0.000	0.014
Currently using rhythm	0.005	0.003	401	291	0.977	0.685	0.000	0.012
Want no more children	0.283	0.031	401	291	1.388	0.111	0.220	0.346
Ideal number of children	5.270	0.209	618	440	2.405	0.040	4.852	5.688
Mothers received prenatal care for last birth	0.908	0.031	363	262	2.048	0.034	0.845	0.970
Mothers protected against tetanus for last birth	0.923	0.013	363	262	0.920	0.014	0.897	0.949
Births with skilled attendant at delivery	0.718	0.034	470	342	1.477	0.047	0.650	0.786
Had diarrhea in the past 2 weeks	0.137	0.021	447	323	1.252	0.151	0.096	0.179
Treated with ORS	0.734	0.056	63	44	0.952	0.076	0.622	0.846
Sought medical treatment for diarrhea	0.540	0.092	63	44	1.408	0.170	0.357	0.723
Vaccination card seen	0.760	0.062	89	67	1.395	0.082	0.636	0.885
Received BCG vaccination	0.989	0.011	89	67	1.005	0.011	0.968	1.011
Received Pentavalent vaccination (3 doses)	0.809	0.051	89	67	1.246	0.063	0.707	0.912
Received polio vaccination (3 doses)	0.771	0.058	89	67	1.327	0.076	0.654	0.887
Received measles vaccination	0.800	0.054	89	67	1.305	0.068	0.692	0.909
Received all vaccinations	0.637	0.065	89	67	1.288	0.102	0.508	0.767
Height-for-age (-2SD)	0.285	0.032	249	189	1.129	0.111	0.222	0.348
Weight-for-height (-2SD)	0.068	0.019	249	189	1.148	0.280	0.030	0.105
Weight-for-age (-2SD)	0.148	0.027	249	189	1.171	0.181	0.094	0.202
Body Mass Index (BMI) < 18.5	0.083	0.018	285	205	1.122	0.220	0.046	0.119
Had 2+ sexual partners in past 12 months	0.014	0.005	629	447	1.132	0.382	0.003	0.024
Had an HIV test and received results in past 12 months	0.185	0.017	629	447	1.085	0.091	0.151	0.218
Accepting attitudes towards people with HIV	0.074	0.017	530	375	1.444	0.222	0.041	0.107
MEN								
Literacy	0.545	0.043	294	219	1.489	0.080	0.459	0.632
No education	0.248	0.037	294	219	1.448	0.147	0.175	0.321
Secondary or higher education	0.434	0.035	294	219	1.218	0.081	0.364	0.505
Want no more children	0.240	0.053	165	124	1.576	0.220	0.134	0.345
Had 2+ sexual partners in past 12 months	0.066	0.026	294	219	1.810	0.399	0.013	0.119
Paid for sexual intercourse in past 12 months	0.009	0.005	294	219	0.954	0.585	0.000	0.019
Had an HIV test and received results in past 12 months	0.048	0.014	294	219	1.120	0.291	0.020	0.076
Accepting attitudes towards people with HIV	0.118	0.029	227	169	1.338	0.244	0.060	0.175

na = Not applicable

Table B.20 Sampling errors: Margibi sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.553	0.037	627	694	1.876	0.068	0.478	0.627
Literacy	0.400	0.052	720	744	2.819	0.129	0.296	0.503
No education	0.407	0.051	720	744	2.769	0.125	0.305	0.509
Secondary or higher education	0.252	0.040	720	744	2.436	0.157	0.173	0.331
Currently using any method	0.195	0.019	389	407	0.966	0.100	0.156	0.234
Currently using a modern method	0.188	0.020	389	407	1.013	0.107	0.148	0.229
Currently using a traditional method	0.006	0.005	389	407	1.223	0.776	0.000	0.016
Currently using pill	0.055	0.011	389	407	0.934	0.197	0.033	0.076
Currently using male condoms	0.005	0.003	389	407	0.970	0.728	0.000	0.011
Currently using injectables	0.110	0.013	389	407	0.796	0.115	0.085	0.136
Currently using implants	0.011	0.005	389	407	0.969	0.457	0.001	0.022
Currently using rhythm	0.006	0.005	389	407	1.223	0.776	0.000	0.016
Want no more children	0.344	0.031	389	407	1.285	0.090	0.282	0.406
Ideal number of children	4.387	0.114	689	711	1.577	0.026	4.160	4.615
Mothers received prenatal care for last birth	0.974	0.009	340	349	1.031	0.009	0.957	0.992
Mothers protected against tetanus for last birth	0.911	0.021	340	349	1.333	0.023	0.870	0.953
Births with skilled attendant at delivery	0.569	0.059	462	478	2.147	0.103	0.452	0.686
Had diarrhea in the past 2 weeks	0.201	0.019	436	448	0.953	0.097	0.162	0.239
Treated with ORS	0.594	0.068	86	90	1.192	0.115	0.457	0.731
Sought medical treatment for diarrhea	0.415	0.068	86	90	1.176	0.164	0.279	0.551
Vaccination card seen	0.524	0.060	92	98	1.167	0.114	0.405	0.644
Received BCG vaccination	0.948	0.024	92	98	1.031	0.025	0.901	0.995
Received Pentavalent vaccination (3 doses)	0.793	0.042	92	98	1.018	0.053	0.708	0.877
Received polio vaccination (3 doses)	0.754	0.042	92	98	0.955	0.056	0.670	0.839
Received measles vaccination	0.768	0.046	92	98	1.063	0.060	0.676	0.860
Received all vaccinations	0.600	0.053	92	98	1.049	0.088	0.494	0.705
Height-for-age (-2SD)	0.309	0.040	243	262	1.254	0.130	0.228	0.389
Weight-for-height (-2SD)	0.054	0.017	243	262	1.161	0.323	0.019	0.088
Weight-for-age (-2SD)	0.144	0.025	243	262	1.073	0.172	0.094	0.193
Body Mass Index (BMI) < 18.5	0.095	0.019	322	321	1.143	0.200	0.057	0.133
Had 2+ sexual partners in past 12 months	0.035	0.009	720	744	1.305	0.255	0.017	0.053
Had an HIV test and received results in past 12 months	0.203	0.018	720	744	1.210	0.089	0.167	0.239
Accepting attitudes towards people with HIV	0.092	0.016	719	743	1.446	0.170	0.060	0.123
MEN								
Literacy	0.730	0.038	338	364	1.573	0.052	0.654	0.806
No education	0.105	0.023	338	364	1.380	0.220	0.059	0.151
Secondary or higher education	0.542	0.037	338	364	1.351	0.068	0.469	0.616
Want no more children	0.302	0.035	177	194	1.000	0.114	0.233	0.372
Had 2+ sexual partners in past 12 months	0.187	0.037	338	364	1.727	0.197	0.113	0.260
Condom use at last sex	0.243	0.086	63	68	1.553	0.353	0.072	0.414
Paid for sexual intercourse in past 12 months	0.031	0.010	338	364	1.045	0.318	0.011	0.051
Had an HIV test and received results in past 12 months	0.119	0.026	338	364	1.445	0.214	0.068	0.170
Accepting attitudes towards people with HIV	0.175	0.031	334	360	1.469	0.175	0.113	0.236

Table B.21 Sampling errors: Maryland sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.441	0.033	532	249	1.541	0.075	0.375	0.508
Literacy	0.468	0.048	559	257	2.254	0.102	0.372	0.563
No education	0.307	0.025	559	257	1.292	0.082	0.256	0.357
Secondary or higher education	0.344	0.048	559	257	2.365	0.139	0.248	0.439
Currently using any method	0.227	0.020	342	148	0.901	0.090	0.186	0.268
Currently using a modern method	0.227	0.020	342	148	0.901	0.090	0.186	0.268
Currently using a traditional method	0.000	0.000	342	148	na	na	0.000	0.000
Currently using pill	0.096	0.016	342	148	0.975	0.162	0.065	0.127
Currently using male condoms	0.012	0.007	342	148	1.178	0.588	0.000	0.025
Currently using injectables	0.108	0.013	342	148	0.795	0.124	0.081	0.134
Currently using implants	0.012	0.006	342	148	1.045	0.516	0.000	0.024
Currently using rhythm	0.000	0.000	342	148	na	na	0.000	0.000
Want no more children	0.400	0.044	342	148	1.662	0.110	0.312	0.489
Ideal number of children	4.684	0.160	542	249	1.486	0.034	4.364	5.004
Mothers received prenatal care for last birth	0.921	0.027	336	141	1.781	0.029	0.867	0.975
Mothers protected against tetanus for last birth	0.795	0.035	336	141	1.540	0.044	0.725	0.865
Births with skilled attendant at delivery	0.548	0.071	475	196	2.509	0.129	0.406	0.690
Had diarrhea in the past 2 weeks	0.256	0.027	431	175	1.151	0.104	0.203	0.310
Treated with ORS	0.704	0.073	118	45	1.549	0.104	0.557	0.851
Sought medical treatment for diarrhea	0.551	0.081	118	45	1.526	0.146	0.390	0.712
Vaccination card seen	0.464	0.051	98	40	0.950	0.111	0.361	0.567
Received BCG vaccination	0.835	0.042	98	40	1.041	0.051	0.750	0.919
Received Pentavalent vaccination (3 doses)	0.584	0.078	98	40	1.447	0.133	0.429	0.740
Received polio vaccination (3 doses)	0.622	0.069	98	40	1.288	0.110	0.485	0.759
Received measles vaccination	0.627	0.080	98	40	1.511	0.128	0.467	0.788
Received all vaccinations	0.403	0.072	98	40	1.372	0.180	0.258	0.548
Height-for-age (-2SD)	0.334	0.045	243	105	1.358	0.136	0.243	0.425
Weight-for-height (-2SD)	0.033	0.009	243	105	0.810	0.285	0.014	0.052
Weight-for-age (-2SD)	0.173	0.026	243	105	1.036	0.148	0.121	0.224
Body Mass Index (BMI) < 18.5	0.054	0.014	250	115	0.982	0.261	0.026	0.082
Had 2+ sexual partners in past 12 months	0.042	0.010	559	257	1.196	0.243	0.021	0.062
Had an HIV test and received results in past 12 months	0.193	0.027	559	257	1.638	0.142	0.138	0.247
Accepting attitudes towards people with HIV	0.084	0.039	538	248	3.232	0.465	0.006	0.162
MEN								
Literacy	0.748	0.054	251	123	1.943	0.072	0.640	0.855
No education	0.090	0.026	251	123	1.418	0.286	0.038	0.141
Secondary or higher education	0.589	0.058	251	123	1.862	0.099	0.473	0.706
Want no more children	0.364	0.046	127	58	1.075	0.127	0.272	0.456
Had 2+ sexual partners in past 12 months	0.176	0.030	251	123	1.239	0.170	0.116	0.235
Condom use at last sex	0.274	0.076	48	22	1.156	0.275	0.123	0.425
Paid for sexual intercourse in past 12 months	0.041	0.016	251	123	1.285	0.393	0.009	0.073
Had an HIV test and received results in past 12 months	0.061	0.023	251	123	1.526	0.381	0.014	0.107
Accepting attitudes towards people with HIV	0.101	0.033	241	121	1.700	0.329	0.035	0.167

na = Not applicable

Table B.22 Sampling errors: Montserrado sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.436	0.027	1298	3363	1.935	0.061	0.382	0.489
Literacy	0.713	0.021	1534	3675	1.789	0.029	0.671	0.754
No education	0.187	0.016	1534	3675	1.638	0.087	0.154	0.220
Secondary or higher education	0.577	0.020	1534	3675	1.592	0.035	0.537	0.617
Currently using any method	0.278	0.039	753	1780	2.350	0.138	0.201	0.355
Currently using a modern method	0.255	0.033	753	1780	2.046	0.128	0.190	0.321
Currently using a traditional method	0.023	0.013	753	1780	2.384	0.568	0.000	0.049
Currently using pill	0.051	0.012	753	1780	1.449	0.229	0.028	0.074
Currently using male condoms	0.008	0.003	753	1780	0.955	0.397	0.002	0.014
Currently using injectables	0.156	0.025	753	1780	1.851	0.158	0.107	0.205
Currently using implants	0.036	0.009	753	1780	1.377	0.259	0.018	0.055
Currently using rhythm	0.023	0.013	753	1780	2.384	0.568	0.000	0.049
Want no more children	0.257	0.021	753	1780	1.302	0.081	0.215	0.298
Ideal number of children	4.230	0.080	1469	3536	1.751	0.019	4.071	4.389
Mothers received prenatal care for last birth	0.987	0.006	642	1487	1.230	0.006	0.976	0.998
Mothers protected against tetanus for last birth	0.936	0.010	642	1487	0.975	0.010	0.916	0.955
Births with skilled attendant at delivery	0.810	0.032	802	1824	1.968	0.039	0.747	0.874
Had diarrhea in the past 2 weeks	0.198	0.017	743	1692	1.122	0.086	0.164	0.232
Treated with ORS	0.532	0.050	151	335	1.186	0.094	0.432	0.633
Sought medical treatment for diarrhea	0.500	0.053	151	335	1.233	0.107	0.393	0.607
Vaccination card seen	0.533	0.050	167	380	1.271	0.094	0.433	0.633
Received BCG vaccination	0.998	0.002	167	380	0.603	0.002	0.993	1.002
Received Pentavalent vaccination (3 doses)	0.801	0.041	167	380	1.293	0.051	0.720	0.883
Received polio vaccination (3 doses)	0.722	0.048	167	380	1.355	0.066	0.626	0.817
Received measles vaccination	0.791	0.040	167	380	1.238	0.050	0.712	0.870
Received all vaccinations	0.609	0.041	167	380	1.079	0.068	0.526	0.692
Height-for-age (-2SD)	0.272	0.033	388	988	1.495	0.119	0.207	0.337
Weight-for-height (-2SD)	0.065	0.016	388	988	1.253	0.247	0.033	0.097
Weight-for-age (-2SD)	0.093	0.018	388	988	1.199	0.197	0.057	0.130
Body Mass Index (BMI) < 18.5	0.067	0.011	668	1650	1.194	0.170	0.044	0.090
Had 2+ sexual partners in past 12 months	0.092	0.011	1534	3675	1.522	0.122	0.070	0.115
Had an HIV test and received results in past 12 months	0.193	0.014	1534	3675	1.425	0.074	0.164	0.222
Accepting attitudes towards people with HIV	0.071	0.011	1529	3664	1.647	0.153	0.049	0.092
MEN								
Literacy	0.842	0.020	628	1582	1.356	0.023	0.803	0.882
No education	0.080	0.014	628	1582	1.263	0.172	0.052	0.107
Secondary or higher education	0.757	0.022	628	1582	1.277	0.029	0.713	0.801
Want no more children	0.275	0.035	275	699	1.297	0.127	0.205	0.345
Had 2+ sexual partners in past 12 months	0.148	0.023	628	1582	1.619	0.156	0.102	0.193
Condom use at last sex	0.294	0.054	112	233	1.251	0.184	0.186	0.402
Paid for sexual intercourse in past 12 months	0.041	0.011	628	1582	1.333	0.256	0.020	0.063
Had an HIV test and received results in past 12 months	0.152	0.017	628	1582	1.216	0.115	0.117	0.187
Accepting attitudes towards people with HIV	0.158	0.028	623	1566	1.888	0.175	0.102	0.213

Variable	Value (R)	Standard Error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Un-weighted (N)	Weighted (WN)			R-2SE	R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.621	0.049	755	1018	2.750	0.079	0.523	0.718
Literacy	0.397	0.050	869	1147	3.026	0.127	0.296	0.498
No education	0.230	0.038	869	1147	2.635	0.164	0.155	0.306
Secondary or higher education	0.296	0.053	869	1147	3.380	0.178	0.191	0.401
Currently using any method	0.093	0.023	559	694	1.894	0.252	0.046	0.139
Currently using a modern method	0.092	0.023	559	694	1.901	0.254	0.045	0.138
Currently using a traditional method	0.001	0.001	559	694	0.679	1.008	0.000	0.002
Currently using pill	0.017	0.006	559	694	1.144	0.372	0.004	0.029
Currently using male condoms	0.003	0.002	559	694	1.003	0.789	0.000	0.007
Currently using injectables	0.055	0.020	559	694	2.057	0.361	0.015	0.095
Currently using implants	0.015	0.007	559	694	1.382	0.481	0.001	0.029
Currently using rhythm	0.001	0.001	559	694	0.679	1.008	0.000	0.002
Want no more children	0.279	0.024	559	694	1.261	0.086	0.231	0.327
Ideal number of children	5.495	0.199	861	1140	2.406	0.036	5.098	5.892
Mothers received prenatal care for last birth	0.983	0.007	548	670	1.183	0.007	0.969	0.996
Mothers protected against tetanus for last birth	0.927	0.016	548	670	1.385	0.017	0.895	0.958
Births with skilled attendant at delivery	0.498	0.037	790	949	1.787	0.074	0.424	0.572
Had diarrhea in the past 2 weeks	0.195	0.020	752	908	1.352	0.105	0.154	0.236
Treated with ORS	0.643	0.055	162	177	1.291	0.086	0.532	0.753
Sought medical treatment for diarrhea	0.470	0.048	162	177	1.112	0.103	0.374	0.567
Vaccination card seen	0.626	0.041	154	192	1.040	0.066	0.544	0.709
Received BCG vaccination	0.934	0.033	154	192	1.601	0.035	0.869	1.000
Received Pentavalent vaccination (3 doses)	0.685	0.048	154	192	1.264	0.071	0.588	0.781
Received polio vaccination (3 doses)	0.668	0.054	154	192	1.385	0.080	0.560	0.775
Received measles vaccination	0.733	0.048	154	192	1.322	0.066	0.637	0.829
Received all vaccinations	0.515	0.049	154	192	1.198	0.096	0.416	0.613
Height-for-age (-2SD)	0.365	0.029	421	559	1.291	0.080	0.306	0.423
Weight-for-height (-2SD)	0.039	0.009	421	559	0.947	0.229	0.021	0.056
Weight-for-age (-2SD)	0.207	0.014	421	559	0.678	0.066	0.180	0.234
Body Mass Index (BMI) < 18.5	0.071	0.015	375	503	1.127	0.210	0.041	0.100
Had 2+ sexual partners in past 12 months	0.076	0.018	869	1147	1.950	0.231	0.041	0.111
Had an HIV test and received results in past 12 months	0.200	0.026	869	1147	1.931	0.131	0.148	0.253
Accepting attitudes towards people with HIV	0.049	0.012	841	1115	1.561	0.238	0.026	0.072
MEN								
Literacy	0.639	0.058	333	451	2.183	0.090	0.524	0.755
No education	0.108	0.018	333	451	1.067	0.168	0.072	0.145
Secondary or higher education	0.474	0.059	333	451	2.155	0.125	0.356	0.593
Want no more children	0.238	0.037	216	273	1.276	0.156	0.164	0.313
Had 2+ sexual partners in past 12 months	0.199	0.030	333	451	1.355	0.149	0.139	0.258
Condom use at last sex	0.156	0.043	68	90	0.966	0.274	0.071	0.242
Paid for sexual intercourse in past 12 months	0.075	0.016	333	451	1.134	0.218	0.042	0.108
Had an HIV test and received results in past 12 months	0.136	0.035	333	451	1.860	0.259	0.065	0.206
Accepting attitudes towards people with HIV	0.094	0.030	307	425	1.779	0.318	0.034	0.153

Table B.24 Sampling errors: River Cess sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Un-weighted (N)	Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
			Number of cases					
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.504	0.034	488	152	1.494	0.067	0.436	0.572
Literacy	0.236	0.033	459	135	1.667	0.141	0.169	0.302
No education	0.479	0.045	459	135	1.924	0.094	0.389	0.569
Secondary or higher education	0.099	0.016	459	135	1.151	0.162	0.067	0.131
Currently using any method	0.200	0.036	328	100	1.620	0.180	0.128	0.272
Currently using a modern method	0.200	0.036	328	100	1.620	0.180	0.128	0.272
Currently using a traditional method	0.000	0.000	328	100	na	na	0.000	0.000
Currently using pill	0.063	0.016	328	100	1.185	0.254	0.031	0.094
Currently using male condoms	0.000	0.000	328	100	na	na	0.000	0.000
Currently using injectables	0.130	0.029	328	100	1.550	0.222	0.073	0.188
Currently using implants	0.003	0.003	328	100	0.978	1.013	0.000	0.009
Currently using rhythm	0.000	0.000	328	100	na	na	0.000	0.000
Want no more children	0.382	0.040	328	100	1.483	0.105	0.302	0.462
Ideal number of children	5.549	0.211	417	123	1.622	0.038	5.127	5.971
Mothers received prenatal care for last birth	0.968	0.014	305	92	1.390	0.014	0.940	0.996
Mothers protected against tetanus for last birth	0.891	0.034	305	92	1.910	0.038	0.823	0.959
Births with skilled attendant at delivery	0.634	0.052	484	147	2.062	0.082	0.530	0.738
Had diarrhea in the past 2 weeks	0.321	0.044	457	139	1.888	0.138	0.233	0.410
Treated with ORS	0.513	0.051	153	45	1.151	0.100	0.410	0.616
Sought medical treatment for diarrhea	0.449	0.067	153	45	1.491	0.148	0.315	0.582
Vaccination card seen	0.602	0.064	87	27	1.225	0.106	0.474	0.730
Received BCG vaccination	0.924	0.029	87	27	1.047	0.032	0.865	0.982
Received Pentavalent vaccination (3 doses)	0.606	0.053	87	27	1.014	0.087	0.501	0.712
Received polio vaccination (3 doses)	0.649	0.052	87	27	1.034	0.081	0.544	0.753
Received measles vaccination	0.574	0.051	87	27	0.973	0.089	0.471	0.676
Received all vaccinations	0.331	0.060	87	27	1.174	0.182	0.211	0.451
Height-for-age (-2SD)	0.354	0.034	214	69	1.041	0.097	0.285	0.423
Weight-for-height (-2SD)	0.086	0.016	214	69	0.827	0.181	0.055	0.118
Weight-for-age (-2SD)	0.210	0.023	214	69	0.870	0.109	0.164	0.256
Body Mass Index (BMI) < 18.5	0.077	0.015	209	61	0.786	0.188	0.048	0.106
Had 2+ sexual partners in past 12 months	0.021	0.007	459	135	1.109	0.356	0.006	0.036
Had an HIV test and received results in past 12 months	0.231	0.017	459	135	0.845	0.072	0.197	0.264
Accepting attitudes towards people with HIV	0.004	0.003	432	126	0.952	0.732	0.000	0.010
MEN								
Literacy	0.660	0.045	214	64	1.370	0.068	0.571	0.749
No education	0.073	0.013	214	64	0.704	0.172	0.048	0.098
Secondary or higher education	0.399	0.048	214	64	1.415	0.119	0.304	0.495
Want no more children	0.321	0.033	130	41	0.805	0.103	0.255	0.387
Had 2+ sexual partners in past 12 months	0.295	0.041	214	64	1.324	0.140	0.212	0.378
Condom use at last sex	0.211	0.056	54	19	0.993	0.264	0.100	0.322
Paid for sexual intercourse in past 12 months	0.071	0.016	214	64	0.882	0.218	0.040	0.102
Had an HIV test and received results in past 12 months	0.083	0.018	214	64	0.963	0.219	0.047	0.119
Accepting attitudes towards people with HIV	0.220	0.029	209	62	1.018	0.133	0.162	0.279

na = Not applicable

Table B.25 Sampling errors: River Gee sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases		Design effect (DEFT)	Relative error (SE/R)	Confidence limits	
			Un-weighted (N)	Weighted (WN)			R-2SE	R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.594	0.079	443	116	3.356	0.133	0.436	0.753
Literacy	0.328	0.059	423	103	2.553	0.179	0.210	0.445
No education	0.411	0.042	423	103	1.757	0.103	0.327	0.495
Secondary or higher education	0.199	0.057	423	103	2.933	0.290	0.084	0.313
Currently using any method	0.306	0.028	308	74	1.046	0.090	0.251	0.361
Currently using a modern method	0.299	0.028	308	74	1.055	0.092	0.244	0.354
Currently using a traditional method	0.007	0.007	308	74	1.379	0.939	0.000	0.020
Currently using pill	0.080	0.022	308	74	1.392	0.269	0.037	0.124
Currently using male condoms	0.000	0.000	308	74	na	na	0.000	0.000
Currently using injectables	0.184	0.036	308	74	1.614	0.195	0.112	0.255
Currently using implants	0.032	0.011	308	74	1.077	0.339	0.010	0.053
Currently using rhythm	0.007	0.007	308	74	1.379	0.939	0.000	0.020
Want no more children	0.361	0.037	308	74	1.342	0.102	0.287	0.435
Ideal number of children	5.124	0.259	393	96	2.154	0.051	4.605	5.643
Mothers received prenatal care for last birth	0.948	0.021	272	63	1.557	0.023	0.905	0.991
Mothers protected against tetanus for last birth	0.715	0.044	272	63	1.589	0.062	0.626	0.804
Births with skilled attendant at delivery	0.575	0.046	424	97	1.645	0.081	0.482	0.668
Had diarrhea in the past 2 weeks	0.323	0.045	383	88	1.751	0.139	0.233	0.413
Treated with ORS	0.642	0.048	125	28	0.969	0.075	0.546	0.739
Sought medical treatment for diarrhea	0.624	0.061	125	28	1.241	0.098	0.501	0.746
Vaccination card seen	0.607	0.094	83	18	1.616	0.155	0.419	0.795
Received BCG vaccination	0.767	0.082	83	18	1.603	0.107	0.602	0.931
Received Pentavalent vaccination (3 doses)	0.567	0.121	83	18	2.035	0.213	0.325	0.809
Received polio vaccination (3 doses)	0.595	0.104	83	18	1.758	0.174	0.388	0.802
Received measles vaccination	0.608	0.091	83	18	1.566	0.150	0.426	0.791
Received all vaccinations	0.425	0.098	83	18	1.664	0.230	0.230	0.621
Height-for-age (-2SD)	0.426	0.077	181	43	1.800	0.182	0.271	0.580
Weight-for-height (-2SD)	0.078	0.024	181	43	1.144	0.302	0.031	0.125
Weight-for-age (-2SD)	0.250	0.075	181	43	1.838	0.301	0.100	0.400
Body Mass Index (BMI) < 18.5	0.064	0.018	174	43	0.953	0.276	0.029	0.099
Had 2+ sexual partners in past 12 months	0.060	0.019	423	103	1.627	0.314	0.022	0.098
Had an HIV test and received results in past 12 months	0.143	0.038	423	103	2.214	0.265	0.067	0.218
Accepting attitudes towards people with HIV	0.081	0.025	378	93	1.746	0.304	0.032	0.130
MEN								
Literacy	0.660	0.034	185	55	0.982	0.052	0.592	0.729
No education	0.138	0.029	185	55	1.150	0.212	0.080	0.197
Secondary or higher education	0.481	0.042	185	55	1.134	0.087	0.397	0.564
Want no more children	0.254	0.035	111	35	0.852	0.139	0.183	0.324
Had 2+ sexual partners in past 12 months	0.274	0.027	185	55	0.821	0.098	0.220	0.328
Condom use at last sex	0.151	0.033	53	15	0.677	0.222	0.084	0.218
Paid for sexual intercourse in past 12 months	0.039	0.017	185	55	1.223	0.449	0.004	0.074
Had an HIV test and received results in past 12 months	0.073	0.020	185	55	1.024	0.270	0.034	0.112
Accepting attitudes towards people with HIV	0.080	0.034	180	54	1.666	0.424	0.012	0.148

na = Not applicable

Table B.26 Sampling errors: Sinoe sample, Liberia 2013

Variable	Value (R)	Standard Error (SE)	Number of cases Un-weighted (N)	Number of cases Weighted (WN)	Design effect (DEFT)	Relative error (SE/R)	Confidence limits R-2SE	Confidence limits R+2SE
WOMEN								
Ownership of at least 1 Insecticide Treated Net (ITN)	0.341	0.033	541	225	1.601	0.096	0.276	0.406
Literacy	0.276	0.033	460	182	1.577	0.120	0.210	0.342
No education	0.423	0.029	460	182	1.241	0.068	0.366	0.480
Secondary or higher education	0.189	0.032	460	182	1.728	0.167	0.126	0.252
Currently using any method	0.230	0.030	335	135	1.298	0.130	0.170	0.290
Currently using a modern method	0.230	0.030	335	135	1.298	0.130	0.170	0.290
Currently using a traditional method	0.000	0.000	335	135	na	na	0.000	0.000
Currently using pill	0.068	0.012	335	135	0.887	0.180	0.044	0.092
Currently using male condoms	0.000	0.000	335	135	na	na	0.000	0.000
Currently using injectables	0.144	0.027	335	135	1.421	0.190	0.089	0.198
Currently using implants	0.018	0.008	335	135	1.108	0.444	0.002	0.035
Currently using rhythm	0.000	0.000	335	135	na	na	0.000	0.000
Want no more children	0.352	0.024	335	135	0.923	0.069	0.304	0.400
Ideal number of children	6.023	0.287	430	169	1.676	0.048	5.448	6.597
Mothers received prenatal care for last birth	0.872	0.031	312	124	1.608	0.035	0.810	0.933
Mothers protected against tetanus for last birth	0.663	0.044	312	124	1.635	0.066	0.575	0.751
Births with skilled attendant at delivery	0.602	0.048	472	189	1.786	0.080	0.505	0.698
Had diarrhea in the past 2 weeks	0.282	0.040	445	178	1.803	0.141	0.202	0.361
Treated with ORS	0.559	0.031	119	50	0.664	0.056	0.496	0.622
Sought medical treatment for diarrhea	0.473	0.027	119	50	0.572	0.058	0.419	0.527
Vaccination card seen	0.445	0.076	82	32	1.350	0.170	0.293	0.597
Received BCG vaccination	0.847	0.054	82	32	1.331	0.063	0.740	0.954
Received Pentavalent vaccination (3 doses)	0.541	0.078	82	32	1.392	0.144	0.384	0.697
Received polio vaccination (3 doses)	0.551	0.054	82	32	0.973	0.099	0.442	0.659
Received measles vaccination	0.645	0.066	82	32	1.218	0.103	0.513	0.778
Received all vaccinations	0.363	0.072	82	32	1.332	0.198	0.219	0.506
Height-for-age (-2SD)	0.315	0.039	215	88	1.105	0.124	0.238	0.393
Weight-for-height (-2SD)	0.070	0.017	215	88	0.952	0.239	0.037	0.104
Weight-for-age (-2SD)	0.146	0.021	215	88	0.877	0.145	0.104	0.189
Body Mass Index (BMI) < 18.5	0.066	0.018	193	77	1.034	0.279	0.029	0.103
Had 2+ sexual partners in past 12 months	0.019	0.007	460	182	1.117	0.373	0.005	0.033
Had an HIV test and received results in past 12 months	0.193	0.023	460	182	1.236	0.118	0.147	0.239
Accepting attitudes towards people with HIV	0.046	0.013	412	166	1.220	0.275	0.020	0.071
MEN								
Literacy	0.680	0.047	269	108	1.634	0.069	0.587	0.773
No education	0.131	0.019	269	108	0.947	0.149	0.092	0.170
Secondary or higher education	0.468	0.035	269	108	1.140	0.074	0.398	0.537
Want no more children	0.244	0.038	148	62	1.066	0.155	0.169	0.320
Had 2+ sexual partners in past 12 months	0.218	0.032	269	108	1.250	0.145	0.155	0.282
Condom use at last sex	0.193	0.073	57	24	1.381	0.381	0.046	0.340
Paid for sexual intercourse in past 12 months	0.099	0.022	269	108	1.206	0.222	0.055	0.144
Had an HIV test and received results in past 12 months	0.095	0.023	269	108	1.282	0.242	0.049	0.141
Accepting attitudes towards people with HIV	0.142	0.031	241	97	1.367	0.217	0.080	0.204

na = Not applicable

Table B.27 Sampling errors for adult and maternal mortality rates, Liberia 2013

Variable	Value R	Standard Error SE	Number of cases		Design Effect DEFT	Relative Error SE/R	Confidence limits	
			Un-weighted N-UNWE	Weighted N-WEIG			Lower R-2SE	Upper R+2SE
WOMEN								
Adult mortality rates								
15-19	2.923	0.485	18401	18616	1.184	0.166	1.953	3.894
20-24	3.720	0.538	21648	21948	1.273	0.145	2.645	4.796
25-29	4.833	0.679	21304	21254	1.397	0.141	3.475	6.192
30-34	4.473	0.690	18092	17638	1.333	0.154	3.094	5.853
35-39	5.556	1.098	13654	12880	1.636	0.198	3.359	7.753
40-44	8.408	1.413	8775	8184	1.374	0.168	5.582	11.234
45-49	8.734	1.909	5299	4753	1.414	0.219	4.915	12.553
15-49 (age-adjusted)	4.868	0.407	107173	105273	1.383	0.084	4.053	5.682
Adult mortality probabilities								
$_{35}q_{15}$ 2013	176	15	107173	105273	1.869	0.084	146	205
$_{35}q_{15}$ 2007	164	13	73432	74086	1.44	0.078	138	189
Maternal mortality rates								
15-19	0.923	0.262	18401	18616	1.176	0.283	0.400	1.446
20-24	1.457	0.370	21648	21948	1.438	0.254	0.717	2.198
25-29	2.191	0.573	21304	21254	1.769	0.261	1.045	3.337
30-34	2.137	0.516	18092	17638	1.434	0.241	1.105	3.170
35-39	1.565	0.410	13654	12880	1.177	0.262	0.745	2.384
40-44	3.119	0.888	8775	8184	1.395	0.285	1.343	4.896
45-49	1.769	0.667	5299	4753	1.096	0.377	0.435	3.102
15-49 (age-adjusted)	1.737	0.241	107173	105273	1.397	0.139	1.255	2.219
Maternal mortality ratio (MMR) 2013	1072	148	107173	105273	1.397	0.138	776	1368
Maternal mortality ratio (MMR) 2007	994	158	73432	74086	1.378	0.159	678	1310
MEN								
Adult mortality rates								
15-19	3.057	0.574	17661	18322	1.409	0.188	1.910	4.205
20-24	3.460	0.583	19779	19961	1.384	0.168	2.295	4.626
25-29	2.714	0.461	19956	20226	1.218	0.170	1.793	3.636
30-34	4.437	0.670	16532	16161	1.270	0.151	3.097	5.777
35-39	4.636	0.826	12823	11983	1.333	0.178	2.985	6.288
40-44	7.687	1.243	8096	7349	1.207	0.162	5.201	10.173
45-49	6.681	1.636	4946	4446	1.341	0.245	3.408	9.953
15-49 (age-adjusted)	4.138	0.295	99793	98447	1.317	0.071	3.547	4.728
Adult mortality probabilities								
$_{35}q_{15}$ 2013	151	11	99793	98447	1.708	0.074	129	173
$_{35}q_{15}$ 2007	186	16	69702	70793	1.661	0.088	153	218

DATA QUALITY TABLES

C

Appendix

Table C.1 Household age distribution

Single-year age distribution of the de facto household population by sex (weighted), Liberia 2013

Age	Female Number	Female Percent	Male Number	Male Percent	Age	Female Number	Female Percent	Male Number	Male Percent
0	700	3.1	775	3.5	36	257	1.1	229	1.0
1	664	2.9	723	3.2	37	229	1.0	197	0.9
2	604	2.7	717	3.2	38	296	1.3	194	0.9
3	775	3.4	768	3.4	39	203	0.9	225	1.0
4	745	3.3	777	3.5	40	265	1.2	241	1.1
5	676	3.0	696	3.1	41	165	0.7	151	0.7
6	774	3.4	893	4.0	42	192	0.8	274	1.2
7	765	3.4	896	4.0	43	122	0.5	197	0.9
8	734	3.2	710	3.2	44	145	0.6	123	0.6
9	637	2.8	695	3.1	45	151	0.7	256	1.1
10	766	3.4	737	3.3	46	116	0.5	135	0.6
11	482	2.1	496	2.2	47	108	0.5	114	0.5
12	646	2.8	673	3.0	48	171	0.8	159	0.7
13	677	3.0	595	2.7	49	151	0.7	164	0.7
14	381	1.7	460	2.1	50	199	0.9	128	0.6
15	579	2.5	520	2.3	51	152	0.7	100	0.4
16	483	2.1	418	1.9	52	213	0.9	184	0.8
17	361	1.6	424	1.9	53	142	0.6	127	0.6
18	478	2.1	433	1.9	54	148	0.7	86	0.4
19	378	1.7	359	1.6	55	148	0.7	140	0.6
20	443	1.9	464	2.1	56	112	0.5	123	0.6
21	240	1.1	284	1.3	57	80	0.3	72	0.3
22	384	1.7	345	1.5	58	118	0.5	99	0.4
23	428	1.9	287	1.3	59	66	0.3	53	0.2
24	315	1.4	236	1.1	60	245	1.1	157	0.7
25	360	1.6	307	1.4	61	36	0.2	39	0.2
26	328	1.4	277	1.2	62	51	0.2	56	0.3
27	381	1.7	312	1.4	63	59	0.3	57	0.3
28	355	1.6	334	1.5	64	38	0.2	39	0.2
29	322	1.4	296	1.3	65	134	0.6	101	0.5
30	352	1.5	312	1.4	66	14	0.1	50	0.2
31	194	0.9	176	0.8	67	35	0.2	33	0.1
32	270	1.2	321	1.4	68	79	0.3	60	0.3
33	250	1.1	249	1.1	69	44	0.2	43	0.2
34	238	1.0	215	1.0	70+	558	2.5	445	2.0
					Don't know/ missing	5	0.0	1	0.0
35	308	1.4	284	1.3	Total	22,725	100.0	22,317	100.0

Note: The de facto population includes all residents and nonresidents who stayed in the household the night before the interview.

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Table C.2.1 Age distribution of eligible and interviewed women

De facto household population of women age 10-54, interviewed women age 15-49; and percent distribution and percentage of eligible women who were interviewed (weighted), by five-year age groups, Liberia 2013

Age group	Household population of women age 10-54	Interviewed women age 15-49		Percentage of eligible women interviewed
		Number	Percentage	
10-14	2,952	na	na	na
15-19	2,279	2,242	22.7	98.3
20-24	1,810	1,788	18.1	98.8
25-29	1,747	1,723	17.5	98.6
30-34	1,305	1,287	13.1	98.6
35-39	1,293	1,265	12.8	97.9
40-44	889	868	8.8	97.6
45-49	696	687	7.0	98.6
50-54	854	na	na	na
15-49	10,020	9,859	100.0	98.4

Note: The de facto population includes all residents and nonresidents who stayed in the household the night before the interview. Weights for both household population of women and interviewed women are household weights. Age is based on the household questionnaire.
na = Not applicable

Table C.2.2 Age distribution of eligible and interviewed men

De facto household population of men age 10-54, interviewed men age 15-49. and percentage of eligible men who were interviewed (weighted), by five-year age groups, Liberia 2013

Age group	Household population of men age 10-54	Interviewed men age 15-49		Percentage of eligible men interviewed
		Number	Percentage	
10-14	1,459	na	na	na
15-19	977	924	22.2	94.5
20-24	729	700	16.8	96.0
25-29	700	675	16.2	96.5
30-34	594	575	13.8	96.9
35-39	492	456	11.0	92.6
40-44	489	467	11.2	95.6
45-49	368	359	8.6	97.6
50-54	351	na	na	na
15-49	4,349	4,156	100.0	95.6

Note: The de facto population includes all residents and nonresidents who stayed in the household the night before the interview. Weights for both household population of men and interviewed men are household weights. Age is based on the household questionnaire.
na = Not applicable

Table C.3 Completeness of reporting

Percentage of observations missing information for selected demographic and health questions (weighted), Liberia 2013

Subject	Reference group	Percentage with information missing	Number of cases
Birth date	Births in the 15 years preceding the survey		
Month only		0.69	18,399
Month and year		0.00	18,399
Age at death	Deceased children born in the 15 years preceding the survey	0.00	2,260
Age/date at first union[1]	Ever-married women age 15-49	0.15	6,372
	Ever-married men age 15-49	0.26	2,369
Respondent's education	All women age 15-49	0.14	9,239
	All men age 15-49	0.21	4,118
Diarrhea in past 2 weeks	Living children age 0-59 months	3.16	6,047
Anthropometry of children	Living children age 0-59 months (from the Household Questionnaire)		
Height		2.12	3,706
Weight		1.94	3,706
Height or weight		2.13	3,706
Anthropometry of women	Women age 15-49 (from the Household Questionnaire)		
Height		3.22	5,055
Weight		3.21	5,055
Height or weight		3.27	5,055
Anthropometry of men	Men age 15-49 (from the Household Questionnaire)		
Height		5.33	4,351
Weight		5.19	4,351
Height or weight		5.33	4,351

[1] Both year and age missing

Table C.4 Births by calendar years

Number of births, percentage with complete birth date, sex ratio at birth, and calendar year ratio by calendar year, according to living (L), dead (D), and total (T) children (weighted), Liberia 2013

Calendar year	Number of births			Percentage with complete birth date[1]			Sex ratio at birth[2]			Calendar year ratio[3]		
	L	D	T	L	D	T	L	D	T	L	D	T
2013	482	18	500	100.0	100.0	100.0	112.5	105.2	112.2	na	na	na
2012	1,387	72	1,459	100.0	100.0	100.0	108.2	170.4	110.6	na	na	na
2011	1,177	101	1,278	100.0	100.0	100.0	118.8	88.3	116.0	92.3	107.9	93.3
2010	1,164	115	1,279	100.0	100.0	100.0	101.2	77.2	98.7	99.6	120.8	101.2
2009	1,162	89	1,251	100.0	100.0	100.0	93.0	114.8	94.4	105.1	80.4	102.8
2008	1,048	107	1,155	99.9	98.5	99.8	98.1	110.6	99.2	82.4	80.3	82.2
2007	1,381	177	1,558	99.8	97.1	99.5	96.2	132.1	99.8	121.4	138.5	123.1
2006	1,227	149	1,376	99.7	95.6	99.3	108.9	90.0	106.7	92.5	86.3	91.7
2005	1,274	168	1,443	99.1	94.7	98.6	107.4	104.3	107.1	113.3	96.5	111.1
2004	1,021	200	1,221	98.9	96.3	98.5	104.6	117.3	106.6	85.8	105.0	88.5
2009-2013	5,371	395	5,767	100.0	100.0	100.0	105.7	102.2	105.5	na	na	na
2004-2008	5,952	801	6,753	99.5	96.3	99.1	102.9	110.9	103.8	na	na	na
1999-2003	4,369	962	5,330	99.2	97.3	98.9	105.1	121.2	107.8	na	na	na
1994-1998	3,060	903	3,963	99.2	98.0	98.9	102.7	111.9	104.7	na	na	na
≤1993	3,408	1,444	4,852	99.1	97.6	98.7	100.3	126.8	107.5	na	na	na
All	22,159	4,506	26,665	99.5	97.6	99.1	103.6	117.3	105.8	na	na	na

na = Not applicable
[1] Both year and month of birth given
[2] (Bm/Bf)x100, where Bm and Bf are the numbers of male and female births, respectively
[3] [2Bx/(Bx-1+Bx+1)]x100, where Bx is the number of births in calendar year x

Table C.5 Reporting of age at death in days

Distribution of reported deaths under 1 month by age at death in days and the percentage of neonatal deaths reported to occur at ages 0-6 days, for five-year periods of birth preceding the survey (weighted), Liberia 2013

Age at death (days)	Number of years preceding the survey				Total 0-19
	0-4	5-9	10-14	15-19	
<1	31	37	29	36	133
1	52	53	65	53	222
2	21	65	27	27	140
3	13	27	19	17	76
4	3	14	15	9	41
5	2	5	4	9	19
6	8	9	3	6	26
7	14	29	23	13	80
8	0	1	4	3	9
9	2	3	2	2	9
10	2	2	3	1	8
11	0	0	0	0	0
12	0	3	0	1	5
13	0	0	0	0	0
14	15	15	9	8	46
15	1	2	0	6	9
16	0	1	0	1	2
18	0	1	0	4	5
19	0	0	0	1	2
20	1	2	1	3	7
21	6	6	7	2	22
22	0	0	0	1	1
23	0	0	0	0	0
25	1	0	0	1	2
26	0	1	0	0	1
27	0	0	0	1	1
28	0	1	2	0	3
29	1	0	0	1	2
30	0	2	0	4	6
Total 0-30	172	279	216	210	876
Percentage early neonatal[1]	75.2	74.8	75.0	75.3	75.1

[1] ≤6 days / ≤30 days

Table C.6 Reporting of age at death in months

Distribution of reported deaths under age 2 by age at death in months and the percentage of infant deaths reported to occur at age under 1 month, for five-year periods of birth preceding the survey (weighted), Liberia 2013

Age at death (months)	Number of years preceding the survey				Total 0-19
	0-4	5-9	10-14	15-19	
<1[a]	172	279	216	210	876
1	20	33	30	34	117
2	14	34	48	30	125
3	23	40	36	50	149
4	18	24	37	38	117
5	13	17	21	26	77
6	15	29	54	34	131
7	10	17	39	27	92
8	13	24	25	23	84
9	13	27	34	30	104
10	1	10	11	12	34
11	12	12	32	17	73
12	11	30	39	39	118
13	8	9	14	23	54
14	9	16	13	23	62
15	10	8	6	8	33
16	6	4	12	1	23
17	5	4	13	6	27
18	9	8	14	19	49
19	8	4	5	6	23
20	1	4	5	8	18
21	5	5	2	5	17
22	2	2	3	0	7
23	6	3	3	0	11
1 Year	13	19	20	15	68
Total 0-11	324	545	582	529	1,980
Percentage neonatal[1]	52.9	51.2	37.1	39.6	44.2

[a] Includes deaths under one month reported in days
[1] Under one month / under one year

Table C.7 Completeness of information on siblings

Completeness of data on survival status of sisters and brothers reported by interviewed women, age of living siblings and age at death (AD) and years since death (YSD) of dead siblings (unweighted), Liberia 2013

	Sisters		Brothers		All siblings	
	Number	Percent	Number	Percent	Number	Percent
All siblings	24,349	100.0	23,841	100.0	48,190	100.0
Living	20,403	83.8	19,426	81.5	39,829	82.6
Dead	3,936	16.2	4,411	18.5	8,347	17.3
Survival status unknown	10	0.0	4	0.0	14	0.0
Living siblings	20,403	100.0	19,426	100.0	39,829	100.0
Age reported	20,384	99.9	19,403	99.9	39,787	99.9
Age missing	19	0.1	23	0.1	42	0.1
Dead siblings	3,936	100.0	4,411	100.0	8,347	100.0
AD and YSD reported	3,922	99.6	4,391	99.5	8,313	99.6
Missing only AD	12	0.3	15	0.3	27	0.3
Missing only YSD	1	0.0	1	0.0	2	0.0
Missing AD and YSD	1	0.0	4	0.1	5	0.1

Table C.8 Sibship size and sex ratio of siblings

Mean sibship size and sex ratio of siblings at birth, Liberia 2013

Age of respondents	Mean sibship size[1]	Sex ratio of siblings at birth[2]
15-19	5.8	102.8
20-24	6.2	96.5
25-29	6.4	97.0
30-34	6.5	96.7
35-39	6.3	97.7
40-44	6.2	92.8
45-49	6.4	104.0
Total	6.2	98.3

[1] Includes the respondent
[2] Excludes the respondent

PARTICIPANTS IN THE 2013 LIBERIA DEMOGRAPHIC AND HEALTH SURVEY

Appendix **D**

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Dr. Walter Gwenigale, Minister of Health and Social Welfare and Member of LISGIS Board

Dr. T. Edward Liberty, Director-General of LISGIS

Dr. Fatorma K. Bolay, Director of Liberia Institute of Biomedical Research

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Liberia Institute of Statistics and Geo-Information Services (LISGIS)

Planned Parenthood Association of Liberia (PPAL)

National AIDS Control Program (NACP)

Liberia Institute for Biomedical Research (LIBR)

United States Agency for International Development (USAID)

United Nations Population Fund (UNFPA)

United Nations Children's Fund (UNICEF)

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GOVERNMENT OF LIBERIA
LIBERIA INSTITUTE OF STATISTICS AND GEO-INFORMATION SERVICES
2013 LIBERIA DEMOGRAPHIC AND HEALTH SURVEY
HOUSEHOLD QUESTIONNAIRE

IDENTIFICATION

PLACE NAME _____

NAME OF HOUSEHOLD HEAD _____

LDHS CLUSTER NUMBER . . . .

HOUSEHOLD NUMBER . . . .

HOUSEHOLD SELECTED FOR MALE SURVEY, ANTHROPOMETRY, AND BLOOD COLLECTION?
(YES = 1, NO = 2)

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY
				MONTH
				YEAR 2 0 1 3
INTERVIEWER'S NAME	_____	_____	_____	INT. NUMBER
RESULT*	_____	_____	_____	RESULT
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER
TIME	_____	_____		OF VISITS

*RESULT CODES:
1   COMPLETED
2   NO HOUSEHOLD MEMBER AT HOME OR NO COMPETENT RESPONDENT
     AT HOME AT TIME OF VISIT
3   ENTIRE HOUSEHOLD ABSENT FOR EXTENDED PERIOD OF TIME
4   POSTPONED
5   REFUSED
6   DWELLING VACANT OR ADDRESS NOT A DWELLING
7   DWELLING DESTROYED
8   DWELLING NOT FOUND
9   OTHER _____
                                    (SPECIFY)

TOTAL PERSONS IN HOUSEHOLD

TOTAL ELIGIBLE WOMEN

TOTAL ELIGIBLE MEN

LINE NO. OF RESPONDENT TO HOUSEHOLD QUESTIONNAIRE

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME _____	NAME _____		

INTRODUCTION AND CONSENT

Hello. My name is _____. I am working with the Liberia Institute of Statistics and Geo-Information Services (LISGIS). We are conducting a survey about demographics and health all over Liberia. The information we collect will help the government to plan health services. Your household was selected for the survey. I would like to ask you some questions about your household. The questions usually take about 30 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time. In case you need more information about the survey, you may contact the person listed on this card.

GIVE CARD WITH CONTACT INFORMATION

Do you have any questions? May I begin the interview now?

SIGNATURE OF INTERVIEWER: _____   DATE: _____

RESPONDENT AGREES TO BE INTERVIEWED . . . 1   RESPONDENT DOES NOT AGREE TO BE INTERVIEWED . . . 2 → END

HOUSEHOLD SCHEDULE

									IF AGE 15 OR OLDER	
LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	MARITAL STATUS	ELIGIBILITY		
1	2	3	4	5	6	7	8	9	10	11
	Please give me the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household. AFTER LISTING THE NAMES AND RECORDING THE RELATIONSHIP AND SEX FOR EACH PERSON, ASK QUESTIONS 2A-2C ON PAGE HH-6 TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK APPROPRIATE QUESTIONS IN COLUMNS 5-25 FOR EACH PERSON.	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? IF 95 OR MORE, RECORD '95'.	What is (NAME)'s current marital status? 1 = MARRIED OR LIVING TOGETHER 2 = DIVORCED/ SEPARATED 3 = WIDOWED 4 = NEVER-MARRIED AND NEVER LIVED TOGETHER	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	IF HH IS SELECTED FOR MALE SURVEY ANTHROPOMETRY, AND BLOOD COLLECTION: CIRCLE LINE NUMBER OF ALL MEN AGE 15-49	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0-5
			M F	Y N	Y N	IN YEARS				
01			1 2	1 2	1 2			01	01	01
02			1 2	1 2	1 2			02	02	02
03			1 2	1 2	1 2			03	03	03
04			1 2	1 2	1 2			04	04	04
05			1 2	1 2	1 2			05	05	05
06			1 2	1 2	1 2			06	06	06
07			1 2	1 2	1 2			07	07	07
08			1 2	1 2	1 2			08	08	08
09			1 2	1 2	1 2			09	09	09
10			1 2	1 2	1 2			10	10	10

CODES FOR Q. 3: RELATIONSHIP TO HEAD OF HOUSEHOLD

01 = HEAD
02 = WIFE OR HUSBAND
03 = SON OR DAUGHTER
04 = SON-IN-LAW OR DAUGHTER-IN-LAW
05 = GRANDCHILD
06 = PARENT
07 = PARENT-IN-LAW
08 = BROTHER OR SISTER
09 = CO-WIFE
10 = OTHER RELATIVE
11 = ADOPTED
12 = FOSTER
13 = STEP
14 = NOT RELATED
98 = DON'T KNOW

	IF AGE 0-17 YEARS				IF AGE 5 YEARS OR OLDER		IF AGE 5-24 YEARS		IF AGE 0-4 YEARS
LINE NO.	SURVIVORSHIP AND RESIDENCE OF BIOLOGICAL PARENTS				EVER ATTENDED SCHOOL		CURRENT/RECENT SCHOOL ATTENDANCE		BIRTH REGIS-TRATION
	12	13	14	15	16	17	18	19	20
	Is (NAME)'s natural mother still living?	Does (NAME)'s natural mother usually live in this household or was she a guest last night? IF YES: What is her name? RECORD MOTHER'S LINE NUMBER. IF NO, RECORD '00'.	Is (NAME)'s natural father still living?	Does (NAME)'s natural father usually live in this household or was he a guest last night? IF YES: What is his name? RECORD FATHER'S LINE NUMBER. IF NO, RECORD '00'.	Has (NAME) ever attended school?	What is the highest level of school (NAME) has attended? SEE CODES BELOW. What is the highest grade (NAME) completed at that level? SEE CODES BELOW.	Did (NAME) attend school at any time during the 2012-2013 school year?	During this/that school year, what level and grade [is/was] (NAME) attending? SEE CODES BELOW.	Does (NAME) have a birth certificate? 1 = HAS CERTIFICATE 2 = DOES NOT HAVE CERTIFICATE 8 = DON'T KNOW
01	Y 1 N 2 ⊤ DK 8 → GO TO 14	☐☐	Y 1 N 2 ⊤ DK 8 → GO TO 16	☐☐	Y 1 N 2 → GO TO 21	LEVEL GRADE ☐☐	Y 1 N 2 → GO TO 21	LEVEL GRADE ☐☐	☐
02	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐
03	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐
04	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐
05	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐
06	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐
07	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐
08	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐
09	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐
10	1 2 ⊤ 8 → GO TO 14	☐☐	1 2 ⊤ 8 → GO TO 16	☐☐	1 2 → GO TO 21	☐☐	1 2 → GO TO 21	☐☐	☐

CODES FOR Qs. 17 AND 19: EDUCATION

LEVEL	GRADE
1 = PRIMARY	00 = LESS THAN 1 YEAR COMPLETED
2 = SECONDARY	(USE '00' FOR Q. 17 ONLY.
3 = HIGHER	THIS CODE IS NOT ALLOWED
6 = NURSERY, KINDERGARTEN	FOR Q. 19)
8 = DON'T KNOW	98 = DON'T KNOW

LINE NO.	INPATIENT		OUTPATIENT		
	21	22	23	24	25
	In the last six months, was (NAME) admitted overnight to stay at a health facility?	CIRCLE LINE NUMBER OF HOUSE-HOLD MEMBER ELIGIBLE FOR IN-PATIENT MODULE CHECK COLUMN 21: CODE 1 "YES" CIRCLED.	In the last four weeks, did (NAME) receive care from a health provider, a pharmacy, or a traditional healer without staying overnight?	The last time (NAME) received care, was any money paid?	CIRCLE LINE NUMBER OF HOUSE-HOLD MEMBER ELIGIBLE FOR OUT-PATIENT MODULE CHECK COLUMN 24: CODE 1 "YES" CIRCLED.
	Y N DK		Y N DK	Y N DK	
01	1 2 — 8 GO TO 23	01	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	01
02	1 2 — 8 GO TO 23	02	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	02
03	1 2 — 8 GO TO 23	03	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	03
04	1 2 — 8 GO TO 23	04	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	04
05	1 2 — 8 GO TO 23	05	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	05
06	1 2 — 8 GO TO 23	06	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	06
07	1 2 — 8 GO TO 23	07	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	07
08	1 2 — 8 GO TO 23	08	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	08
09	1 2 — 8 GO TO 23	09	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	09
10	1 2 — 8 GO TO 23	10	1 2 — 8 NEXT LINE	1 2 — 8 NEXT LINE	10

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LINE NO.	USUAL RESIDENTS AND VISITORS	RELATIONSHIP TO HEAD OF HOUSEHOLD	SEX	RESIDENCE		AGE	MARITAL STATUS	ELIGIBILITY	IF AGE 15 OR OLDER	
1	2	3	4	5	6	7	8	9	10	11
	Please give me the names of the persons who usually live in your household and guests of the household who stayed here last night, starting with the head of the household. AFTER LISTING THE NAMES AND RECORDING THE RELATIONSHIP AND SEX FOR EACH PERSON, ASK QUESTIONS 2A-2C ON PAGE HH-6 TO BE SURE THAT THE LISTING IS COMPLETE. THEN ASK APPROPRIATE QUESTIONS IN COLUMNS 5-25 FOR EACH PERSON.	What is the relationship of (NAME) to the head of the household? SEE CODES BELOW.	Is (NAME) male or female?	Does (NAME) usually live here?	Did (NAME) stay here last night?	How old is (NAME)? IF 95 OR MORE, RECORD '95'.	What is (NAME)'s current marital status? 1 = MARRIED OR LIVING TOGETHER 2 = DIVORCED/ SEPARATED 3 = WIDOWED 4 = NEVER-MARRIED AND NEVER LIVED TOGETHER	CIRCLE LINE NUMBER OF ALL WOMEN AGE 15-49	IF HH IS SELECTED FOR MALE SURVEY ANTHROPOMETRY, AND BLOOD COLLECTION: CIRCLE LINE NUMBER OF ALL MEN AGE 15-49	CIRCLE LINE NUMBER OF ALL CHILDREN AGE 0-5
			M 1 F 2	Y 1 N 2	Y 1 N 2	IN YEARS				
11		☐☐	1 2	1 2	1 2	☐☐	☐	11	11	11
12		☐☐	1 2	1 2	1 2	☐☐	☐	12	12	12
13		☐☐	1 2	1 2	1 2	☐☐	☐	13	13	13
14		☐☐	1 2	1 2	1 2	☐☐	☐	14	14	14
15		☐☐	1 2	1 2	1 2	☐☐	☐	15	15	15
16		☐☐	1 2	1 2	1 2	☐☐	☐	16	16	16
17		☐☐	1 2	1 2	1 2	☐☐	☐	17	17	17
18		☐☐	1 2	1 2	1 2	☐☐	☐	18	18	18
19		☐☐	1 2	1 2	1 2	☐☐	☐	19	19	19
20		☐☐	1 2	1 2	1 2	☐☐	☐	20	20	20

TICK HERE IF CONTINUATION SHEET USED ☐

2A) Just to make sure that I have a complete listing: are there any other persons such as small children or infants that we have not listed? YES ☐ → ADD TO TABLE   NO ☐

2B) Are there any other people who may not be members of your family, such as domestic servants, lodgers, or friends who usually live here? YES ☐ → ADD TO TABLE   NO ☐

2C) Are there any guests or temporary visitors staying here, or anyone else who stayed here last night, who have not been listed? YES ☐ → ADD TO TABLE   NO ☐

CODES FOR Q. 3: RELATIONSHIP TO HEAD OF HOUSEHOLD

01 = HEAD
02 = WIFE OR HUSBAND
03 = SON OR DAUGHTER
04 = SON-IN-LAW OR DAUGHTER-IN-LAW
05 = GRANDCHILD
06 = PARENT
07 = PARENT-IN-LAW

08 = BROTHER OR SISTER
09 = CO-WIFE
10 = OTHER RELATIVE
11 = ADOPTED
12 = FOSTER
13 = STEP
14 = NOT RELATED
98 = DON'T KNOW

	IF AGE 0-17 YEARS				IF AGE 5 YEARS OR OLDER		IF AGE 5-24 YEARS		IF AGE 0-4 YEARS
LINE NO.	SURVIVORSHIP AND RESIDENCE OF BIOLOGICAL PARENTS				EVER ATTENDED SCHOOL		CURRENT/RECENT SCHOOL ATTENDANCE		BIRTH REGIS-TRATION
	12	13	14	15	16	17	18	19	20
	Is (NAME)'s natural mother still living?	Does (NAME)'s natural mother usually live in this household or was she a guest last night? IF YES: What is her name? RECORD MOTHER'S LINE NUMBER. IF NO, RECORD '00'.	Is (NAME)'s natural father still living?	Does (NAME)'s natural father usually live in this household or was he a guest last night? IF YES: What is his name? RECORD FATHER'S LINE NUMBER. IF NO, RECORD '00'.	Has (NAME) ever attended school?	What is the highest level of school (NAME) has attended? SEE CODES BELOW. What is the highest grade (NAME) completed at that level? SEE CODES BELOW.	Did (NAME) attend school at any time during the 2012-2013 school year?	During this/that school year, what level and grade [is/was] (NAME) attending? SEE CODES BELOW.	Does (NAME) have a birth certificate? 1 = HAS CERTIFICATE 2 = DOES NOT HAVE CERTIFICATE 8 = DON'T KNOW
11	Y 1 N 2 → GO TO 14 DK 8	☐☐	Y 1 N 2 → GO TO 16 DK 8	☐☐	Y 1 N 2 GO TO 21	LEVEL ☐ GRADE ☐	Y 1 N 2 GO TO 21	LEVEL ☐ GRADE ☐	☐
12	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐
13	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐
14	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐
15	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐
16	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐
17	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐
18	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐
19	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐
20	1 2 → GO TO 14 8	☐☐	1 2 → GO TO 16 8	☐☐	1 2 GO TO 21	☐ ☐	1 2 GO TO 21	☐ ☐	☐

CODES FOR Qs. 17 AND 19: EDUCATION

LEVEL	GRADE
1 = PRIMARY	00 = LESS THAN 1 YEAR COMPLETED (USE '00' FOR Q. 17 ONLY.
2 = SECONDARY	
3 = HIGHER	THIS CODE IS NOT ALLOWED
6 = NURSERY, KINDERGARTEN	FOR Q. 19)
8 = DON'T KNOW	98 = DON'T KNOW

LINE NO.	INPATIENT		OUTPATIENT		
	21	22	23	24	25
	In the last six months, was (NAME) admitted overnight to stay at a health facility?	CIRCLE LINE NUMBER OF HOUSE-HOLD MEMBER ELIGIBLE FOR IN-PATIENT MODULE CHECK COLUMN 21: CODE 1 "YES" CIRCLED.	In the last four weeks, did (NAME) receive care from a health provider, a pharmacy, or a traditional healer without staying overnight?	The last time (NAME) received care, was any money paid?	CIRCLE LINE NUMBER OF HOUSE-HOLD MEMBER ELIGIBLE FOR OUT-PATIENT MODULE CHECK COLUMN 24: CODE 1 "YES" CIRCLED.
	Y N DK		Y N DK	Y N DK	
11	1 2 ⊤ 8 GO TO 23	11	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	11
12	1 2 ⊤ 8 GO TO 23	12	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	12
13	1 2 ⊤ 8 GO TO 23	13	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	13
14	1 2 ⊤ 8 GO TO 23	14	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	14
15	1 2 ⊤ 8 GO TO 23	15	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	15
16	1 2 ⊤ 8 GO TO 23	16	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	16
17	1 2 ⊤ 8 GO TO 23	17	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	17
18	1 2 ⊤ 8 GO TO 23	18	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	18
19	1 2 ⊤ 8 GO TO 23	19	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	19
20	1 2 ⊤ 8 GO TO 23	20	1 2 ⊤ 8 NEXT LINE	1 2 ⊤ 8 NEXT LINE	20

HOUSEHOLD CHARACTERISTICS

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	How often does anyone smoke inside your house? Would you say daily, weekly, monthly, less than monthly, or never?	DAILY . . . . 1 WEEKLY . . . . 2 MONTHLY . . . . 3 LESS THAN MONTHLY . . . . 4 NEVER 5	

102	What is the main source of drinking water for members of your household?	PIPED WATER
		   PIPED INTO DWELLING 11
		   PIPED TO YARD/PLOT 12
		   PUBLIC TAP/STANDPIPE 13
		TUBE WELL OR BOREHOLE 21
		DUG WELL
		   HAND PUMP, PROTECTED WELL 31
		   UNPROTECTED WELL 32
		WATER FROM SPRING
		   PROTECTED SPRING 41
		   UNPROTECTED SPRING 42
		RAINWATER 51
		TANKER TRUCK 61
		CART WITH SMALL TANK 71
		SURFACE WATER (RIVER/DAM/
		   LAKE/POND/STREAM/CANAL/
		   IRRIGATION CHANNEL) 81
		BOTTLED WATER 91
		
		OTHER _____ 96
		        (SPECIFY)
			→ 105
			
			→ 105

103	Where is that water source located?	IN OWN DWELLING . . . . 1 IN OWN YARD/PLOT . . . . 2 ELSEWHERE 3	→ 105
104	How long does it take to go there, get water, and come back?	MINUTES . . . . ☐☐☐ DON'T KNOW 998	
105	Do you do anything to the water to make it safer to drink?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	→ 107

106	What do you usually do to make the water safer to drink?
	
	Anything else?
	
	RECORD ALL MENTIONED.
		BOIL . . . . A
		ADD BLEACH/CHLORINE . . . . B
		PUR C
		WATERGUARD . . . . D
		STRAIN THROUGH A CLOTH . . . . E
		USE WATER FILTER (CERAMIC/
		   SAND/COMPOSITE/ETC.) . . . . F
		SOLAR DISINFECTION . . . . G
		LET IT STAND AND SETTLE . . . . H
		
		OTHER _____ X
		      (SPECIFY)
		DON'T KNOW . . . . Z	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

107	What type of toilet do you use here?	FLUSH OR POUR FLUSH TOILET
		  FLUSH TO PIPED SEWER
		    SYSTEM 11
		    FLUSH TO SEPTIC TANK 12
		    FLUSH TO PIT LATRINE 13
		    FLUSH TO SOMEWHERE ELSE 14
		    FLUSH, DON'T KNOW WHERE 15
		PIT LATRINE
		  VENTILATED IMPROVED
		    PIT LATRINE 21
		    PIT LATRINE WITH SLAB 22
		    PIT LATRINE WITHOUT SLAB/
		      OPEN PIT 23
		COMPOSTING TOILET 31
		BUCKET TOILET 41
		HANGING TOILET/HANGING LATRINE 51
		NO FACILITY/BUSH/FIELD 61
		
		OTHER _____ 96
		           (SPECIFY)
			→ 110

108	Do you share this toilet facility with other households?	YES .... 1 NO 2	→ 110
109	How many households use this toilet facility?	NO. OF HOUSEHOLDS IF LESS THAN 10 .... [0][ ] 10 OR MORE HOUSEHOLDS .... 95 DON'T KNOW 98	
110	Does your household have: Electricity that is connected? A generator? A solar panel? A radio? A mobile telephone? An ice box? A table? Chairs? A cupboard? A mattress (not made of straw or grass)? A sewing machine? A television? A computer?	YES NO ELECTRICITY .... 1 2 GENERATOR .... 1 2 SOLAR .... 1 2 RADIO .... 1 2 MOBILE TELEPHONE .... 1 2 ICE BOX (REFRIGERATOR) 1 2 TABLE .... 1 2 CHAIRS .... 1 2 CUPBOARD .... 1 2 MATTRESS .... 1 2 SEWING MACHINE .... 1 2 TELEVISION .... 1 2 COMPUTER 1 2	

111	What type of fuel does your household mainly use for cooking?	ELECTRICITY 01
		GAS CYLINDER 02
		KEROSENE STOVE 03
		BIOGAS 04
		FIRE COAL/CHARCOAL 05
		WOOD 08
		
		NO FOOD COOKED
		  IN HOUSEHOLD 95
		
		OTHER _____ 96
		           (SPECIFY)
			→ 114

112	Where do you usually do your cooking? In the house, on a porch, in a separate building, or outdoors?	IN THE HOUSE .... 1 ON A PORCH .... 2 IN A SEPARATE BUILDING .... 3 OUTDOORS .... 4 OTHER _____ 6 (SPECIFY)	→ 113 → 114
113	Do you have a separate room which is used as a kitchen?	YES .... 1 NO 2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
114	What is the main source of energy for lighting in this household?	ELECTRICITY . . . . 01 BATTERY . . . . 02 SOLAR . . . . 03 KEROSENE . . . . 04 OIL LAMP/JACKOLANTERN . . . . 05 CHINESE LAMP . . . . 06 GAS . . . . 07 CANDLES . . . . 08 FIREWOOD . . . . 09 NO LIGHTING IN HOUSEHOLD . . . . 95 OTHER _____ (SPECIFY) 96	
115	MAIN MATERIAL OF THE FLOOR OF THE HOUSEHOLD. RECORD OBSERVATION. IF DIFFERENT ROOMS HAVE DIFFERENT FLOOR MATERIAL, CIRCLE THE CODE FOR THE MOST COMMON, i.e., WHAT COVERS THE LARGEST AREA.	NATURAL FLOOR EARTH/SAND/MUD . . . . 11 RUDIMENTARY FLOOR WOOD PLANKS . . . . 21 FINISHED FLOOR PARQUET OR POLISHED WOOD . . . . . 31 FLOOR MAT, LINOLEUM, VINYL . . . . 32 CERAMIC TILES/TERRAZO . . . . 33 CONCRETE, CEMENT . . . . 34 CARPET . . . . 35 OTHER _____ (SPECIFY) 96	
116	MAIN MATERIAL OF THE ROOF OF THE HOUSEHOLD. RECORD OBSERVATION.	NATURAL ROOFING THATCH/PALM LEAF . . . . 11 RUDIMENTARY ROOFING RUSTIC MAT . . . . 21 PALM/BAMBOO . . . . 22 WOOD PLANKS . . . . 23 TARPAULIN, PLASTIC . . . . 24 FINISHED ROOFING ZINC, METAL, ALUMINUM . . . . 31 WOOD . . . . 32 CERAMIC TILES . . . . 33 CONCRETE, CEMENT . . . . 34 ASBESTOS SHEETS, SHINGLES . . . 35 OTHER _____ (SPECIFY) 96	
117	MAIN MATERIAL OF THE EXTERIOR WALLS OF THE HOUSEHOLD. RECORD OBSERVATION.	NATURAL WALLS MUD AND STICKS . . . . 11 CANE/PALM/TRUNKS . . . . 12 STRAW, THATCH MATS . . . . 13 RUDIMENTARY WALLS MUD BRICKS . . . . 21 PLYWOOD . . . . 22 CARDBOARD, PLASTIC . . . . 23 REUSED WOOD . . . . 24 FINISHED WALLS ZINC, METAL . . . . 31 CEMENT . . . . 32 STONE BLOCKS . . . . 33 BRICKS . . . . 34 WOOD PLANKS/SHINGLES . . . . 35 OTHER _____ (SPECIFY) 96	
118	How many rooms in this household are used for sleeping?	ROOMS . . . . [ ][ ]	
119	Does any member of this household own: A watch? A bicycle? A motorcycle or motor scooter? A car or truck? A boat or canoe?	YES NO WATCH . . . . 1 2 BICYCLE . . . . 1 2 MOTORCYCLE/SCOOTER . . . 1 2 CAR/TRUCK . . . . 1 2 BOAT OR CANOE 1 2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
120	Does any member of this household farm any agricultural land?	YES .... 1 NO 2	→ 122
121	How many acres of agricultural land do members of this household farm? IF 95 OR MORE, CIRCLE '950'.	ACRES .... ☐☐.☐ 95 OR MORE ACRES .... 950 DON'T KNOW 998	
122	Does this household own any livestock, herds, other farm animals, or poultry?	YES .... 1 NO 2	→ 124

123	How many of the following animals does this household own?
	
	 IF NONE, ENTER '00'.
	 IF 95 OR MORE, ENTER '95'. IF UNKNOWN, ENTER '98'.
	
	     Cows?
	
	     Pigs?
	
	     Goats?
	
	     Sheep?
	
	     Chickens, ducks, or guinea fowl?
		
		 COWS .... ☐☐
		
		 PIGS .... ☐☐
		
		 GOATS .... ☐☐
		
		 SHEEP .... ☐☐
		
		 CHICKENS/DUCKS/GUINEA ..... ☐☐	

124	Does any member of this household have a bank account?	YES .... 1 NO 2	
125	What is the distance from your home to the nearest health facility? IF LESS THAN ONE MILE, ENTER '00'. IF MORE THAN 95 MILES, ENTER '95'.	MILES .... ☐☐ DON'T KNOW 98	

126	If you were to go to the nearest health facility, how would you go there?	PRIVATE TRANSPORT (CAR, MOTORBIKE) 1
		 PUBLIC TRANSPORT (BUS, TAXI,
		     MOTORBIKE) 2
		 WALKING 3
		 BICYCLE 4
		 WHEELBARROW 5
		
		 OTHER _____ 6
		         (SPECIFY)	

127	How long does it take you to get to the nearest health facility by (MEANS OF TRANSPORTATION RECORDED IN 126)?	MINUTES .... ☐☐☐ DON'T KNOW 998	
128	At any time in the past 12 months, has anyone come into your dwelling to spray the interior walls against mosquitoes?	YES .... 1 NO .... 2 DON'T KNOW 8	→ 130

129	Who sprayed the dwelling?	GOVERNMENT WORKER/PROGRAM ..... A
		 PRIVATE COMPANY .... B
		 NONGOVERNMENTAL
		   ORGANIZATION (NGO) C
		 OTHER _____ X
		       (SPECIFY)
		 DON'T KNOW .... Z	

130	Does your household have any mosquito nets that can be used while sleeping? PROBE: Any mosquito nets at all?	YES .... 1 NO 2	→ 140
131	How many mosquito nets does your household have? IF 7 OR MORE NETS, RECORD '7'.	NUMBER OF NETS .... ☐	

		NET #1	NET #2	NET #3
132	ASK THE RESPONDENT TO SHOW YOU ALL THE NETS IN THE HOUSEHOLD IF MORE THAN 3 NETS, USE ADDITIONAL QUESTIONNAIRE(S).	OBSERVED . . . . . 1 NOT OBSERVED . . . 2	OBSERVED . . . . . 1 NOT OBSERVED . . . 2	OBSERVED . . . . . 1 NOT OBSERVED . . . 2
133	How many months ago did your household get the mosquito net? IF LESS THAN ONE MONTH AGO, RECORD '00'.	MONTHS AGO . . . ☐☐ MORE THAN 36 MONTHS AGO . . . 95 NOT SURE 98	MONTHS AGO . . . ☐☐ MORE THAN 36 MONTHS AGO . . . 95 NOT SURE 98	MONTHS AGO . . . ☐☐ MORE THAN 36 MONTHS AGO . . . 95 NOT SURE 98
134	OBSERVE OR ASK THE BRAND/ TYPE OF MOSQUITO NET. IF BRAND IS UNKNOWN AND YOU CANNOT OBSERVE THE NET, SHOW PICTURES OF TYPICAL NET TYPES/BRANDS TO RESPONDENT.	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET . . . . . 11⌐ PERMANET . . . . . 12⌐ BASF NET . . . . . 13 ⌐ OTHER/DK BRAND BUT LLIN . . . . . 16⌐ (SKIP TO 137) ← OTHER BRAND . . . 96 DK BRAND 98	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET . . . . . 11⌐ PERMANET . . . . . 12⌐ BASF NET . . . . . 13 ⌐ OTHER/DK BRAND BUT LLIN . . . . . 16⌐ (SKIP TO 137) ← OTHER BRAND . . . 96 DK BRAND 98	LONG-LASTING INSECTICIDE-TREATED NET (LLIN) OLYSET . . . . . 11⌐ PERMANET . . . . . 12⌐ BASF NET . . . . . 13 ⌐ OTHER/DK BRAND BUT LLIN . . . . . 16⌐ (SKIP TO 137) ← OTHER BRAND . . . 96 DK BRAND 98
135	Since you got the net, was it ever soaked or dipped in a liquid to kill or repel mosquitoes?	YES . . . . 1 NO . . . . 2 (SKIP TO 137) ← NOT SURE 8	YES . . . . 1 NO . . . . 2 (SKIP TO 137) ← NOT SURE 8	YES . . . . 1 NO . . . . 2 (SKIP TO 137) ← NOT SURE 8
136	How many months ago was the net last soaked or dipped? IF LESS THAN ONE MONTH AGO, RECORD '00'.	MONTHS AGO . . . ☐☐ MORE THAN 24 MONTHS AGO . . . 95 NOT SURE 98	MONTHS AGO . . . ☐☐ MORE THAN 24 MONTHS AGO . . . 95 NOT SURE 98	MONTHS AGO . . . ☐☐ MORE THAN 24 MONTHS AGO . . . 95 NOT SURE 98

		NET #1	NET #2	NET #3
137	Did anyone sleep under this mosquito net last night?	YES .... 1 NO .... 2 (SKIP TO 139) ←| NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 139) ←| NOT SURE 8	YES .... 1 NO .... 2 (SKIP TO 139) ←| NOT SURE 8
138	Who slept under this mosquito net last night? RECORD THE PERSON'S NAME AND LINE NUMBER FROM THE HOUSEHOLD SCHEDULE.	NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐	NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐	NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐ NAME_____ LINE NO. ..... ☐☐
139		GO BACK TO 132 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 140.	GO BACK TO 132 FOR NEXT NET; OR, IF NO MORE NETS, GO TO 140.	GO TO 132 IN FIRST COLUMN OF A NEW QUESTIONNAIRE; OR, IF NO MORE NETS, GO TO 140.

140	Please show me where members of your household most often wash their hands.	OBSERVED 1
		NOT OBSERVED,
		   NOT IN DWELLING/YARD/PLOT .... 2 ⌐
		NOT OBSERVED,
		   NO PERMISSION TO SEE .... 3 ⊦
		NOT OBSERVED, OTHER REASON .... 4 ⌐
		                   (SKIP TO 143) ←

141	OBSERVATION ONLY: OBSERVE PRESENCE OF WATER AT THE PLACE FOR HANDWASHING.	WATER IS AVAILABLE .... 1 WATER IS NOT AVAILABLE 2
142	OBSERVATION ONLY: OBSERVE PRESENCE OF SOAP, DETERGENT, OR OTHER CLEANSING AGENT.	SOAP OR DETERGENT (BAR, LIQUID, POWDER, PASTE) .... A ASH, MUD, SAND .... B NONE C
143	Can you please provide me with a teaspoonful of cooking salt.? I will conduct a test to determine the presence of iodine. Iodine prevents goiter. ASK RESPONDENT FOR A TEASPOONFUL OF COOKING SALT. TEST SALT FOR IODINE.	IODINE PRESENT .... 1 NO IODINE .... 2 NO SALT IN HOUSEHOLD .... 3 SALT NOT TESTED _____ 6 (SPECIFY REASON)

INPATIENT HEALTH EXPENDITURES

201	CHECK COLUMN 22 IN HOUSEHOLD SCHEDULE:	ONE OR MORE INPATIENTS ☐	NO INPATIENTS ☐	→ 301

202	CHECK COLUMN 22 IN HOUSEHOLD SCHEDULE: ENTER THE LINE NUMBER AND NAME OF EACH HOUSEHOLD MEMBER WHO WAS AN INPATIENT. Now I would like to ask some questions about the household members who stayed overnight in a health facility in the last six months. (IF THERE ARE MORE THAN 3 INPATIENTS, USE ADDITIONAL QUESTIONNAIRE).

203	LINE NUMBER FROM COLUMN 22 IN HOUSEHOLD SCHEDULE	INPATIENT LINE NUMBER ☐☐	INPATIENT LINE NUMBER ☐☐	INPATIENT LINE NUMBER ☐☐
204	NAME FROM COLUMN 2 IN HOUSEHOLD SCHEDULE	INPATIENT NAME _____	INPATIENT NAME _____	INPATIENT NAME _____

205	Where did (NAME) most recently stay overnight for health care?	PUBLIC SECTOR
		  GOVT HOSPITAL 21
		  GOVT HEALTH
		    CENTER 22
		  GOVT HEALTH
		    CLINIC 23
		  OTHER PUBLIC
		    SECTOR
		    _____ 26
		    (SPECIFY)
		
		PRIVATE MEDICAL
		  SECTOR
		  PVT. HOSPITAL/
		    CLINIC 31
		  OTHER PRIVATE
		    MED. SECTOR
		    _____ 36
		    (SPECIFY)
		
		OTHER _____ 96
		    (SPECIFY)
			PUBLIC SECTOR
			  GOVT HOSPITAL 21
			  GOVT HEALTH
			    CENTER 22
			  GOVT HEALTH
			    CLINIC 23
			  OTHER PUBLIC
			    SECTOR
			    _____ 26
			    (SPECIFY)
			
			PRIVATE MEDICAL
			  SECTOR
			  PVT. HOSPITAL/
			    CLINIC 31
			  OTHER PRIVATE
			    MED. SECTOR
			    _____ 36
			    (SPECIFY)
			
			OTHER _____ 96
			    (SPECIFY)
				PUBLIC SECTOR
				  GOVT HOSPITAL 21
				  GOVT HEALTH
				    CENTER 22
				  GOVT HEALTH
				    CLINIC 23
				  OTHER PUBLIC
				    SECTOR
				    _____ 26
				    (SPECIFY)
				
				PRIVATE MEDICAL
				  SECTOR
				  PVT. HOSPITAL/
				    CLINIC 31
				  OTHER PRIVATE
				    MED. SECTOR
				    _____ 36
				    (SPECIFY)
				
				OTHER _____ 96
				    (SPECIFY)

206	What was the main reason for (NAME) to seek care this most recent time?	PREGNANCY/
		  DELIVERY 01
		ILLNESS 02
		ACCIDENT/INJURY 03
		OTHER
		  _____ 06
		    (SPECIFY)
			PREGNANCY/
			  DELIVERY 01
			ILLNESS 02
			ACCIDENT/INJURY 03
			OTHER
			  _____ 06
			    (SPECIFY)
				PREGNANCY/
				  DELIVERY 01
				ILLNESS 02
				ACCIDENT/INJURY 03
				OTHER
				  _____ 06
				    (SPECIFY)

207	How much money was spent on treatment and services (NAME) received during the most recent overnight stay? We want to know about all the costs for the stay, including any charges for laboratory tests, drugs, or other items.	COST (LIB. DOLLARS)
		☐☐☐☐☐
		
		NO COST/
		  FREE 00000
		IN KIND ONLY . 99995
		DON'T KNOW . 99998
			COST (LIB. DOLLARS)
			☐☐☐☐☐
			
			NO COST/
			  FREE 00000
			IN KIND ONLY . 99995
			DON'T KNOW . 99998
				COST (LIB. DOLLARS)
				☐☐☐☐☐
				
				NO COST/
				  FREE 00000
				IN KIND ONLY . 99995
				DON'T KNOW . 99998

208	Did (NAME) stay overnight at a health facility another time in the last six months?	YES 1
		NO 2
		  (GO TO 218) ◄┘
			YES 1
			NO 2
			  (GO TO 218) ◄┘
				YES 1
				NO 2
				  (GO TO 218) ◄┘

	NAME FROM COLUMN 2 IN HOUSEHOLD SCHEDULE	INPATIENT NAME _____	INPATIENT NAME _____	INPATIENT NAME _____
209	Where did (NAME) stay the next-to-last time he/she stayed overnight for health care?	PUBLIC SECTOR GOVT HOSPITAL ..... 21 GOVT HEALTH CENTER ..... 22 GOVT HEALTH CLINIC .... 23 OTHER PUBLIC SECTOR _____ 26 (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/ CLINIC .... 31 OTHER PRIVATE MED. SECTOR _____ 36 (SPECIFY) OTHER _____ 96 (SPECIFY)	PUBLIC SECTOR GOVT HOSPITAL ..... 21 GOVT HEALTH CENTER ..... 22 GOVT HEALTH CLINIC .... 23 OTHER PUBLIC SECTOR _____ 26 (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/ CLINIC .... 31 OTHER PRIVATE MED. SECTOR _____ 36 (SPECIFY) OTHER _____ 96 (SPECIFY)	PUBLIC SECTOR GOVT HOSPITAL ..... 21 GOVT HEALTH CENTER ..... 22 GOVT HEALTH CLINIC .... 23 OTHER PUBLIC SECTOR _____ 26 (SPECIFY) PRIVATE MEDICAL SECTOR PVT. HOSPITAL/ CLINIC .... 31 OTHER PRIVATE MED. SECTOR _____ 36 (SPECIFY) OTHER _____ 96 (SPECIFY)
210	What was the main reason for (NAME) to seek care this next-to-last time?	PREGNANCY/ DELIVERY ..... 01 ILLNESS .... 02 ACCIDENT/INJURY 03 OTHER _____ 06 (SPECIFY)	PREGNANCY/ DELIVERY ..... 01 ILLNESS .... 02 ACCIDENT/INJURY 03 OTHER _____ 06 (SPECIFY)	PREGNANCY/ DELIVERY ..... 01 ILLNESS .... 02 ACCIDENT/INJURY 03 OTHER _____ 06 (SPECIFY)
211	How much money was spent on treatment and services (NAME) received during the next-to-last overnight stay? We want to know about all the costs for the stay, including any charges for laboratory tests, drugs, or other items.	COST (LIB. DOLLARS) ☐☐☐☐☐ NO COST/ FREE ..... 00000 IN KIND ONLY . 99995 DON'T KNOW . 99998	COST (LIB. DOLLARS) ☐☐☐☐☐ NO COST/ FREE ..... 00000 IN KIND ONLY . 99995 DON'T KNOW . 99998	COST (LIB. DOLLARS) ☐☐☐☐☐ NO COST/ FREE ..... 00000 IN KIND ONLY . 99995 DON'T KNOW . 99998
212	Besides the two stays you have told me about, did (NAME) stay overnight in a health facility another time in the last six months?	YES .... 1 NO .... 2 (GO TO 218) ←	YES .... 1 NO .... 2 (GO TO 218) ←	YES .... 1 NO .... 2 (GO TO 218) ←

	NAME FROM COLUMN 2 IN HOUSEHOLD SCHEDULE	INPATIENT NAME _____	INPATIENT NAME _____	INPATIENT NAME _____

213	Where did (NAME) stay the second-to-last time he/she stayed overnight for health care?	PUBLIC SECTOR
		  GOVT HOSPITAL 21
		  GOVT HEALTH
		    CENTER 22
		  GOVT HEALTH
		    CLINIC 23
		  OTHER PUBLIC
		    SECTOR
		                     26
		    (SPECIFY)
		
		PRIVATE MEDICAL
		  SECTOR
		  PVT. HOSPITAL/
		    CLINIC 31
		  OTHER PRIVATE
		    MED. SECTOR
		                     36
		    (SPECIFY)
		
		OTHER _____ 96
		      (SPECIFY)
			PUBLIC SECTOR
			  GOVT HOSPITAL 21
			  GOVT HEALTH
			    CENTER 22
			  GOVT HEALTH
			    CLINIC 23
			  OTHER PUBLIC
			    SECTOR
			                     26
			    (SPECIFY)
			
			PRIVATE MEDICAL
			  SECTOR
			  PVT. HOSPITAL/
			    CLINIC 31
			  OTHER PRIVATE
			    MED. SECTOR
			                     36
			    (SPECIFY)
			
			OTHER _____ 96
			      (SPECIFY)
				PUBLIC SECTOR
				  GOVT HOSPITAL 21
				  GOVT HEALTH
				    CENTER 22
				  GOVT HEALTH
				    CLINIC 23
				  OTHER PUBLIC
				    SECTOR
				                     26
				    (SPECIFY)
				
				PRIVATE MEDICAL
				  SECTOR
				  PVT. HOSPITAL/
				    CLINIC 31
				  OTHER PRIVATE
				    MED. SECTOR
				                     36
				    (SPECIFY)
				
				OTHER _____ 96
				      (SPECIFY)

214	What was the main reason for (NAME) to seek care this second-to-last time?	PREGNANCY/
		  DELIVERY 01
		ILLNESS 02
		ACCIDENT/INJURY 03
		OTHER
		              06
		   (SPECIFY)
			PREGNANCY/
			  DELIVERY 01
			ILLNESS 02
			ACCIDENT/INJURY 03
			OTHER
			              06
			   (SPECIFY)
				PREGNANCY/
				  DELIVERY 01
				ILLNESS 02
				ACCIDENT/INJURY 03
				OTHER
				              06
				   (SPECIFY)

215	How much money was spent on treatment and services (NAME) received during the second-to-last overnight stay? We want to know about all the costs for the stay, including any charges for laboratory tests, drugs, or other items.	COST (LIB. DOLLARS)
		
		□□□□□
		
		NO COST/
		  FREE 00000
		IN KIND ONLY . 99995
		DON'T KNOW . 99998
			COST (LIB. DOLLARS)
			
			□□□□□
			
			NO COST/
			  FREE 00000
			IN KIND ONLY . 99995
			DON'T KNOW . 99998
				COST (LIB. DOLLARS)
				
				□□□□□
				
				NO COST/
				  FREE 00000
				IN KIND ONLY . 99995
				DON'T KNOW . 99998

216	Besides the three stays you have told me about, did (NAME) stay overnight in a health facility another time in the last six months?	YES 1
		NO 2
		   (GO TO 218) ◄┘
			YES 1
			NO 2
			   (GO TO 218) ◄┘
				YES 1
				NO 2
				   (GO TO 218) ◄┘

217	In total, how many times did (NAME) stay overnight in a health facility in the last six months?	NUMBER OF INPATIENT VISITS □□	NUMBER OF INPATIENT VISITS □□	NUMBER OF INPATIENT VISITS □□

	NAME FROM COLUMN 2 IN HOUSEHOLD SCHEDULE	INPATIENT NAME _____	INPATIENT NAME _____	INPATIENT NAME _____
218	Is (NAME) covered by any health insurance?	YES . . . . 1 NO . . . . 2 (SKIP TO 220) ← DON'T KNOW . . . 8	YES . . . . 1 NO . . . . 2 (SKIP TO 220) ← DON'T KNOW . . . 8	YES . . . . 1 NO . . . . 2 (SKIP TO 220) ← DON'T KNOW . . . 8
219	What is (NAME)'s main type of health insurance?	MUTUAL HEALTH ORGANIZATION/ COMMUNITY BASED HEALTH INSURANCE . . . 1 HEALTH INSURANCE THROUGH EMPLOYER . . . . . 2 SOCIAL SECURITY . . . . . 3 OTHER PRIVATELY PURCHASED COMMERCIAL HEALTH INSURANCE . . . 4 OTHER . . . . 6 DON'T KNOW . . . 8	MUTUAL HEALTH ORGANIZATION/ COMMUNITY BASED HEALTH INSURANCE . . . 1 HEALTH INSURANCE THROUGH EMPLOYER . . . . . 2 SOCIAL SECURITY . . . . . 3 OTHER PRIVATELY PURCHASED COMMERCIAL HEALTH INSURANCE . . . 4 OTHER . . . . 6 DON'T KNOW . . . 8	MUTUAL HEALTH ORGANIZATION/ COMMUNITY BASED HEALTH INSURANCE . . . 1 HEALTH INSURANCE THROUGH EMPLOYER . . . . . 2 SOCIAL SECURITY . . . . . 3 OTHER PRIVATELY PURCHASED COMMERCIAL HEALTH INSURANCE . . . 4 OTHER . . . . 6 DON'T KNOW . . . 8
220		GO BACK TO 205 IN NEXT COLUMN; OR, IF NO MORE INPATIENTS, GO TO 301.	GO BACK TO 205 IN NEXT COLUMN; OR, IF NO MORE INPATIENTS, GO TO 301.	GO TO 205 IN FIRST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE INPATIENTS, GO TO 301.

301   CHECK COLUMN 25:

ONE OR MORE ELIGIBLE ☐   OUTPATIENTS ↓   NO ELIGIBLE ☐ ─────────────→ 311
OUTPATIENTS

TABLE FOR SELECTION OF OUTPATIENT
WHO PAID FOR CARE THE LAST TIME SOUGHT CARE IN THE LAST FOUR WEEKS

LOOK AT THE LAST DIGIT OF THE HOUSEHOLD NUMBER ON THE HOUSEHOLD QUESTIONNAIRE COVER PAGE. THIS IS THE ROW NUMBER YOU SHOULD GO TO. CHECK THE TOTAL NUMBER OF ELIGIBLE OUTPATIENTS (COLUMN 25) IN THE HOUSEHOLD SCHEDULE. THIS IS THE COLUMN NUMBER YOU SHOULD GO TO. FOLLOW THE SELECTED ROW AND COLUMN TO THE CELL WHERE THEY MEET AND CIRCLE THE NUMBER IN THE CELL. THIS IS THE NUMBER OF THE PERSON SELECTED FOR THE OUTPATIENT QUESTIONS FROM THE LIST OF ELIGIBLE OUTPATIENTS IN COLUMN 25 OF THE HOUSEHOLD SCHEDULE. WRITE THE NAME AND LINE NUMBER OF THE SELECTED OUTPATIENT IN Q302.

EXAMPLE: THE HOUSEHOLD NUMBER IS '116' AND THE HOUSEHOLD SCHEDULE COLUMN 25 SHOWS THAT THERE ARE THREE ELIGIBLE OUTPATIENTS IN THE HOUSEHOLD (LINE NUMBERS 02, 04, AND 05). SINCE THE LAST DIGIT OF THE HOUSEHOLD SERIAL NUMBER IS '6' GO TO ROW '6' AND SINCE THERE ARE THREE ELIGIBLE OUTPATIENTS IN THE HOUSEHOLD, GO TO COLUMN '3'. FOLLOW THE ROW AND COLUMN AND FIND THE NUMBER IN THE CELL WHERE THEY MEET ('2') AND CIRCLE THE NUMBER. NOW GO TO THE HOUSEHOLD SCHEDULE AND FIND THE SECOND OUTPATIENT WHO IS ELIGIBLE FOR THE OUTPATIENT QUESTIONS (LINE NUMBER '04' IN THIS EXAMPLE). WRITE THE NAME AND LINE NUMBER OF THE SELECTED OUTPATIENT IN Q302.

LAST DIGIT OF THE HOUSEHOLD QUESTIONNAIRE SERIAL NUMBER	TOTAL NUMBER OF ELIGIBLE OUTPATIENTS IN HOUSEHOLD SCHEDULE COLUMN 25							
	1	2	3	4	5	6	7	8
0	1	2	2	4	3	6	5	4
1	1	1	3	1	4	1	6	5
2	1	2	1	2	5	2	7	6
3	1	1	2	3	1	3	1	7
4	1	2	3	4	2	4	2	8
5	1	1	1	1	3	5	3	1
6	1	2	2	2	4	6	4	2
7	1	1	3	3	5	1	5	3
8	1	2	1	4	1	2	6	4
9	1	1	2	1	2	3	7	5

302

NAME
OF SELECTED OUTPATIENT _____

HH LINE NUMBER
OF SELECTED OUTPATIENT ☐☐

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

303	Now I would like to ask some questions about health care that (NAME IN 302) received in the last four weeks, without having to stay overnight. Where did (NAME) get care most recently without staying overnight?	PUBLIC SECTOR
		  GOVERNMENT HOSPITAL 21
		  GOVERNMENT HEALTH CENTER . . . 22
		  GOVERNMENT HEALTH CLINIC 23
		  COM. HEATH VOLUNTEER/gCHV 24
		  OTHER PUBLIC SECTOR
		
		                                    26
		                     (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		  PRIVATE HOSPITAL/CLINIC 31
		  PHARMACY 32
		  PRIVATE DOCTOR 33
		  MOBILE CLINIC 34
		  PLANNED PARENTHOOD ASSN. LIBERIA 35
		  OTHER PRIVATE
		    MEDICAL SECTOR
		
		                                    36
		                     (SPECIFY)
		
		OTHER SOURCE
		  SHOP 41
		  TRADITIONAL PRACTITIONER 42
		
		OTHER 46
		                    (SPECIFY)	

304	How much money was spent on treatment and services (NAME) received from (NAME OF PROVIDER IN 303)? Please include the consulting fee and any expenses for other items including drugs and tests.	COST IN LIBERIAN DOLLARS . . . . ☐☐☐☐☐ DON'T KNOW 99998	

305	What was the main reason for (NAME) to seek care this most recent time?	FAMILY PLANNING 01
		PRENATAL CARE/
		  DELIVERY/
		  POSTNATAL CARE 02
		MALARIA 03
		FEVER 04
		RUNNING STOMACH/DIARRHEA 05
		HIV/AIDS/STD 06
		OTHER ILLNESS 07
		CHECK-UP/
		  PREVENTIVE CARE 08
		ACCIDENT/INJURY 09
		OTHER 96
		                (SPECIFY)
		DON'T KNOW 98	

306	Did (NAME) get care another time in the last four weeks from a health provider, a pharmacy, or a traditional healer, without staying overnight?	YES . . . . 1 NO 2	→ 309
307	How many other times did (NAME) get care in the last four weeks?	NUMBER OF OUTPATIENT VISITS . . . . ☐☐	
308	How many times was money spent?	NUMBER OF OUTPATIENT VISITS PAID MONEY . . . . ☐☐	

309	Is (NAME) covered by any health insurance?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	→ 311
310	What is (NAME)'s main type of health insurance?	MUTUAL HEALTH ORGANIZATION/ COMMUNITY BASED HEALTH INSURANCE . . . . 1 HEALTH INSURANCE THROUGH EMPLOYER . . . . 2 SOCIAL SECURITY 3 OTHER PRIVATELY PURCHASED COMMERCIAL HEALTH INSURANCE . . . 4 OTHER . . . . 6 DON'T KNOW 8	
311	Sometimes people buy vitamins, medicines, and herbal remedies without consulting with a health provider, pharmacy, or traditional healer. They may also buy other health-related items such as band-aids/plasters, thermometers, or other medical devices, and so on without a consultation. In the last four weeks, how much money was spent on these types of health-related items for members of your household?	COST IN LIBERIAN DOLLARS . . . . ☐☐☐☐☐ NONE . . . . 00000 IN KIND . . . . 99995 DON'T KNOW 99998	

400	CHECK COVER PAGE: IS HOUSEHOLD SELECTED FOR ANTHROPOMETRY AND BLOOD COLLECTION?

YES ☐   NO ☐ ────────────────────────────→ END OF HOUSEHOLD QUESTIONNAIRE

401	CHECK COLUMN 11 IN HOUSEHOLD SCHEDULE. RECORD THE LINE NUMBER AND NAME FOR ALL ELIGIBLE CHILDREN 0-5 YEARS IN QUESTION 402. IF MORE THAN SIX CHILDREN, USE ADDITIONAL QUESTIONNAIRE(S).			
		CHILD 1	CHILD 2	CHILD 3
402	LINE NUMBER FROM COLUMN 11	LINE NUMBER . . . . . ☐☐	LINE NUMBER . . . . . ☐☐	LINE NUMBER . . . . . ☐☐
	NAME FROM COLUMN 2	NAME _____	NAME _____	NAME _____
403	IF MOTHER INTERVIEWED, COPY MONTH AND YEAR OF BIRTH FROM BIRTH HISTORY AND ASK DAY; IF MOTHER NOT INTERVIEWED, ASK: What is (NAME)'s birth date?	DAY . . . . ☐☐ MONTH . . . . . ☐☐ YEAR ☐☐☐☐	DAY . . . . ☐☐ MONTH . . . . . ☐☐ YEAR ☐☐☐☐	DAY . . . . ☐☐ MONTH . . . . . ☐☐ YEAR ☐☐☐☐
404	CHECK 403: CHILD BORN IN JANUARY 2008 OR LATER?	YES . . . . 1 NO . . . . 2 (GO TO 403 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 409)	YES . . . . 1 NO . . . . 2 (GO TO 403 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 409)	YES . . . . 1 NO . . . . 2 (GO TO 403 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 409)
405A	CONFIRM SCALE IS SET TO KG.	CONFIRM SCALE SET TO KG ☐	CONFIRM SCALE SET TO KG ☐	CONFIRM SCALE SET TO KG ☐
405	WEIGHT IN KILOGRAMS	KG. ☐☐ . ☐☐ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996	KG. ☐☐ . ☐☐ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996	KG. ☐☐ . ☐☐ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996
406	HEIGHT IN CENTIMETERS	CM. ☐☐☐ . ☐ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996	CM. ☐☐☐ . ☐ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996	CM. ☐☐☐ . ☐ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996
407	MEASURED LYING DOWN OR STANDING UP?	LYING DOWN . . . . 1 STANDING UP . . . . 2 NOT MEASURED 3	LYING DOWN . . . . 1 STANDING UP . . . . 2 NOT MEASURED 3	LYING DOWN . . . . 1 STANDING UP . . . . 2 NOT MEASURED 3
408	GO BACK TO 403 IN NEXT COLUMN OF THIS QUESTIONNAIRE OR IN THE FIRST COLUMN OF THE NEXT PAGE; IF NO MORE CHILDREN, GO TO 409.			

		CHILD 4	CHILD 5	CHILD 6
402	LINE NUMBER FROM COLUMN 11 NAME FROM COLUMN 2	LINE NUMBER . . . . . NAME _____	LINE NUMBER . . . . . NAME _____	LINE NUMBER . . . . . NAME _____
403	IF MOTHER INTERVIEWED, COPY MONTH AND YEAR OF BIRTH FROM BIRTH HISTORY AND ASK DAY; IF MOTHER NOT INTERVIEWED, ASK: What is (NAME)'s birth date?	DAY . . . . MONTH . . . . . YEAR	DAY . . . . MONTH . . . . . YEAR	DAY . . . . MONTH . . . . . YEAR
404	CHECK 403: CHILD BORN IN JANUARY 2008 OR LATER?	YES . . . . 1 NO . . . . 2 (GO TO 403 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 409)	YES . . . . 1 NO . . . . 2 (GO TO 403 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 409)	YES . . . . 1 NO . . . . 2 (GO TO 403 FOR NEXT CHILD OR, IF NO MORE CHILDREN, GO TO 409)
405A	CONFIRM SCALE IS SET TO KG.	CONFIRM SCALE SET TO KG	CONFIRM SCALE SET TO KG	CONFIRM SCALE SET TO KG
405	WEIGHT IN KILOGRAMS	KG. ___ . ___ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996	KG. ___ . ___ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996	KG. ___ . ___ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996
406	HEIGHT IN CENTIMETERS	CM. ___ . ___ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996	CM. ___ . ___ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996	CM. ___ . ___ NOT PRESENT . . . 9994 REFUSED . . . . 9995 OTHER 9996
407	MEASURED LYING DOWN OR STANDING UP?	LYING DOWN . . . . 1 STANDING UP . . . . 2 NOT MEASURED 3	LYING DOWN . . . . 1 STANDING UP . . . . 2 NOT MEASURED 3	LYING DOWN . . . . 1 STANDING UP . . . . 2 NOT MEASURED 3
408	GO BACK TO 403 IN NEXT COLUMN OF THIS QUESTIONNAIRE OR IN THE FIRST COLUMN OF AN ADDITIONAL QUESTIONNAIRE; IF NO MORE CHILDREN, GO TO 409.			

| 409 | CHECK COLUMN 9 IN HOUSEHOLD SCHEDULE. RECORD THE LINE NUMBER AND NAME FOR ALL ELIGIBLE WOMEN IN 410. IF THERE ARE MORE THAN THREE WOMEN, USE ADDITIONAL QUESTIONNAIRE(S). | | | |

		WOMAN 1	WOMAN 2	WOMAN 3
410	LINE NUMBER FROM COLUMN 9 NAME FROM COLUMN 2	LINE NUMBER .... ☐☐ NAME _____	LINE NUMBER .... ☐☐ NAME _____	LINE NUMBER .... ☐☐ NAME _____
410A	CHECK SCALE	CONFIRM SCALE ☐ IS SET TO KG ↓	CONFIRM SCALE ☐ SET TO KG ↓	CONFIRM SCALE ☐ IS SET TO KG ↓
411	WEIGHT IN KILOGRAMS	KG. ☐☐☐.☐ NOT PRESENT .... 99994 REFUSED .... 99995 OTHER 99996	KG. ☐☐☐.☐ NOT PRESENT .... 99994 REFUSED .... 99995 OTHER 99996	KG. ☐☐☐.☐ NOT PRESENT .... 99994 REFUSED .... 99995 OTHER 99996
412	HEIGHT IN CENTIMETERS	CM. ☐☐☐.☐ NOT PRESENT .... 9994 REFUSED .... 9995 OTHER 9996	CM. ☐☐☐.☐ NOT PRESENT .... 9994 REFUSED .... 9995 OTHER 9996	CM. ☐☐☐.☐ NOT PRESENT .... 9994 REFUSED .... 9995 OTHER 9996
413	AGE: CHECK COLUMN 7.	15-17 YEARS .... 1 18-49 YEARS .... 2 (GO TO 418) ↵	15-17 YEARS .... 1 18-49 YEARS .... 2 (GO TO 418) ↵	15-17 YEARS .... 1 18-49 YEARS .... 2 (GO TO 418) ↵
414	MARITAL STATUS: CHECK COLUMN 8.	CODE 4 (NEVER IN UNION) ... 1 OTHER .... 2 (GO TO 418) ↵	CODE 4 (NEVER IN UNION) ... 1 OTHER .... 2 (GO TO 418) ↵	CODE 4 (NEVER IN UNION) ... 1 OTHER .... 2 (GO TO 418) ↵
415	RECORD LINE NUMBER OF PARENT/OTHER ADULT RESPON-SIBLE FOR ADOLESCENT. RECORD '00' IF NOT LISTED.	LINE NUMBER OF PARENT OR OTHER RESPONSIBLE ADULT ☐☐	LINE NUMBER OF PARENT OR OTHER RESPONSIBLE ADULT ☐☐	LINE NUMBER OF PARENT OR OTHER RESPONSIBLE ADULT ☐☐
416	ASK CONSENT FOR DBS COLLECTION FROM PARENT/ OTHER ADULT IDENTIFIED IN 415 AS RESPONSIBLE FOR NEVER IN UNION WOMEN AGE 15-17.	As part of the survey we also are asking people all over the country to take an HIV test. HIV is the virus that causes AIDS. AIDS is a very serious illness. The HIV test is being done to see how big the AIDS problem is in Liberia. For the HIV test, we need a few drops of blood from a finger. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after each test. No names will be attached so we will not be able to tell you the test results. No one else will be able to know (NAME OF ADOLESCENT)'s test results either. If (NAME OF ADOLESCENT) wants to know her HIV status, I can provide a list of [nearby] facilities offering counseling and testing for HIV. Do you have any questions? You can say yes to the test, or you can say no. It is up to you to decide. Will you allow (NAME OF ADOLESCENT) to take the HIV test?		
417	CIRCLE THE APPROPRIATE CODE AND SIGN YOUR NAME.	GRANTED .... 1 ___(SIGN)___ ← PARENT/OTHER RESPONSIBLE ADULT REFUSED .... 2 NOT PRESENT .... 5 OTHER .... 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 428)	GRANTED .... 1 ___(SIGN)___ ← PARENT/OTHER RESPONSIBLE ADULT REFUSED .... 2 NOT PRESENT .... 5 OTHER .... 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 428)	GRANTED .... 1 ___(SIGN)___ ← PARENT/OTHER RESPONSIBLE ADULT REFUSED .... 2 NOT PRESENT .... 5 OTHER .... 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 428)

		WOMAN 1	WOMAN 2	WOMAN 3
	NAME FROM COLUMN 2	NAME _____	NAME _____	NAME _____
418	ASK CONSENT FOR DBS COLLECTION FROM RESPONDENT.	As part of the survey we also are asking people all over the country to take an HIV test. HIV is the virus that causes AIDS. AIDS is a very serious illness. The HIV test is being done to see how big the AIDS problem is in Liberia. For the HIV test, we need a few drops of blood from a finger. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after each test. No names will be attached so we will not be able to tell you the test results. No one else will be able to know your test results either. If you want to know whether you have HIV, I can provide you with a list of [nearby] facilities offering counseling and testing for HIV. Do you have any questions? You can say yes to the test, or you can say no. It is up to you to decide. Will you take the HIV test?		
419	CIRCLE THE APPROPRIATE CODE, SIGN YOUR NAME, AND ENTER YOUR INTERVIEWER NUMBER.	GRANTED . . . . 1 (SIGN) ← RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 ☐☐☐ (IF REFUSED, NOT PRESENT OR OTHER, GO TO 428)	GRANTED . . . . 1 (SIGN) ← RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 ☐☐☐ (IF REFUSED, NOT PRESENT OR OTHER, GO TO 428)	GRANTED . . . . 1 (SIGN) ← RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 ☐☐☐ (IF REFUSED, NOT PRESENT OR OTHER, GO TO 428)
420	AGE: CHECK COLUMN 7.	15-17 YEARS . . . . 1 18-49 YEARS . . . . 2 (GO TO 424) ↵	15-17 YEARS . . . . 1 18-49 YEARS . . . . 2 (GO TO 424) ↵	15-17 YEARS . . . . 1 18-49 YEARS . . . . 2 (GO TO 424) ↵
421	MARITAL STATUS: CHECK COLUMN 8.	CODE 4 (NEVER IN UNION) . . . 1 OTHER . . . . 2 (GO TO 424) ↵	CODE 4 (NEVER IN UNION) . . . 1 OTHER . . . . 2 (GO TO 424) ↵	CODE 4 (NEVER IN UNION) . . . 1 OTHER . . . . 2 (GO TO 424) ↵
422	ASK CONSENT FOR ADDITIONAL TESTING FROM PARENT/OTHER ADULT IDENTIFIED IN 415 AS RESPONSIBLE FOR NEVER IN UNION WOMEN AGE 15-17.	We ask you to allow the National Reference Laboratory to store part of the blood sample at the laboratory for additional tests or research. We are not certain about what additional tests might be done. The blood sample will not have any name or other data attached that could identify (NAME OF ADOLESCENT). You do not have to agree. If you do not want the blood sample stored for additional testing (NAME OF ADOLESCENT) can still participate in the HIV testing in this survey. Will you allow us to keep the blood sample stored for additional testing?		
423	CIRCLE THE APPROPRIATE CODE AND SIGN YOUR NAME.	GRANTED . . . . 1 (SIGN) ← PARENT/OTHER RESPONSIBLE ADULT REFUSED . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 426)	GRANTED . . . . 1 (SIGN) ← PARENT/OTHER RESPONSIBLE ADULT REFUSED . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 426)	GRANTED . . . . 1 (SIGN) ← PARENT/OTHER RESPONSIBLE ADULT REFUSED . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 426)

		WOMAN 1	WOMAN 2	WOMAN 3
	NAME FROM COLUMN 2	NAME _____	NAME _____	NAME _____
424	ASK CONSENT FOR ADDITIONAL TESTING FROM RESPONDENT.	We ask you to allow the National Reference Laboratory to store part of the blood sample at the laboratory for additional tests or research. We are not certain about what additional tests might be done. The blood sample will not have any name or other data attached that could identify you. You do not have to agree. If you do not want the blood sample stored for additional testing, you can still participate in the HIV testing in this survey. Will you allow us to keep the blood sample stored for additional testing?		
425	CIRCLE THE APPROPRIATE CODE AND SIGN YOUR NAME.	GRANTED . . . . 1 _____ (SIGN) ← RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF GRANTED, SKIP TO 427)	GRANTED . . . . 1 _____ (SIGN) ← RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF GRANTED, SKIP TO 427)	GRANTED . . . . 1 _____ (SIGN) ← RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF GRANTED, SKIP TO 427)
426	ADDITIONAL TESTS	CHECK 423 AND 425: IF CONSENT HAS NOT BEEN GRANTED WRITE "NO ADDITIONAL TEST" ON THE FILTER PAPER.	CHECK 423 AND 425: IF CONSENT HAS NOT BEEN GRANTED WRITE "NO ADDITIONAL TEST" ON THE FILTER PAPER.	CHECK 423 AND 425: IF CONSENT HAS NOT BEEN GRANTED WRITE "NO ADDITIONAL TEST" ON THE FILTER PAPER.
427	PREPARE EQUIPMENT AND SUPPLIES AND PROCEED WITH THE TEST.			
428	BAR CODE LABEL	PUT THE 1ST BAR CODE LABEL HERE. NOT PRESENT . . . . 99994 REFUSED . . . . 99995 OTHER . . . . 99996 PUT THE 2ND BAR CODE LABEL ON THE RESPONDENT'S FILTER PAPER AND THE 3RD ON THE TRANSMITTAL FORM.	PUT THE 1ST BAR CODE LABEL HERE. NOT PRESENT . . . . 99994 REFUSED . . . . 99995 OTHER . . . . 99996 PUT THE 2ND BAR CODE LABEL ON THE RESPONDENT'S FILTER PAPER AND THE 3RD ON THE TRANSMITTAL FORM.	PUT THE 1ST BAR CODE LABEL HERE. NOT PRESENT . . . . 99994 REFUSED . . . . 99995 OTHER . . . . 99996 PUT THE 2ND BAR CODE LABEL ON THE RESPONDENT'S FILTER PAPER AND THE 3RD ON THE TRANSMITTAL FORM.
429	GO BACK TO 410A IN NEXT COLUMN OF THIS QUESTIONNAIRE OR IN THE FIRST COLUMN OF AN ADDITIONAL QUESTIONNAIRE; IF NO MORE WOMEN, GO TO 430.			

430	CHECK COLUMN 10 IN HOUSEHOLD SCHEDULE. RECORD THE LINE NUMBER AND NAME FOR ALL ELIGIBLE MEN IN 431. IF THERE ARE MORE THAN THREE MEN, USE ADDITIONAL QUESTIONNAIRE(S).		
		MAN 1	MAN 2	MAN 3
431	LINE NUMBER FROM COLUMN 10 NAME FROM COLUMN 2	LINE NUMBER .... ☐☐ NAME _____	LINE NUMBER .... ☐☐ NAME _____	LINE NUMBER .... ☐☐ NAME _____
431A	CHECK SCALE	CONFIRM SCALE ☐ IS SET TO KG ↓	CONFIRM SCALE ☐ SET TO KG ↓	CONFIRM SCALE ☐ IS SET TO KG ↓
432	WEIGHT IN KILOGRAMS	KG. ☐☐☐.☐ NOT PRESENT .... 99994 REFUSED .... 99995 OTHER 99996	KG. ☐☐☐.☐ NOT PRESENT .... 99994 REFUSED .... 99995 OTHER 99996	KG. ☐☐☐.☐ NOT PRESENT .... 99994 REFUSED .... 99995 OTHER 99996
433	HEIGHT IN CENTIMETERS	CM. ☐☐☐.☐ NOT PRESENT .... 9994 REFUSED .... 9995 OTHER 9996	CM. ☐☐☐.☐ NOT PRESENT .... 9994 REFUSED .... 9995 OTHER 9996	CM. ☐☐☐.☐ NOT PRESENT .... 9994 REFUSED .... 9995 OTHER 9996
434	AGE: CHECK COLUMN 7.	15-17 YEARS .... 1 18-49 YEARS .... 2 (GO TO 439) ↵	15-17 YEARS .... 1 18-49 YEARS .... 2 (GO TO 439) ↵	15-17 YEARS .... 1 18-49 YEARS .... 2 (GO TO 439) ↵
435	MARITAL STATUS: CHECK COLUMN 8.	CODE 4 (NEVER IN UNION ... 1 OTHER .... 2 (GO TO 439) ↵	CODE 4 (NEVER IN UNION) ... 1 OTHER .... 2 (GO TO 439) ↵	CODE 4 (NEVER IN UNION) ... 1 OTHER .... 2 (GO TO 439) ↵
436	RECORD LINE NUMBER OF PARENT/OTHER ADULT RESPON-SIBLE FOR ADOLESCENT. RECORD '00' IF NOT LISTED.	LINE NUMBER OF PARENT OR OTHER RESPONSIBLE ADULT ☐☐	LINE NUMBER OF PARENT OR OTHER RESPONSIBLE ADULT ☐☐	LINE NUMBER OF PARENT OR OTHER RESPONSIBLE ADULT ☐☐
437	ASK CONSENT FOR DBS COLLECTION FROM PARENT/ OTHER ADULT IDENTIFIED IN 436 AS RESPONSIBLE FOR NEVER IN UNION MEN AGE 15-17.	As part of the survey we also are asking people all over the country to take an HIV test. HIV is the virus that causes AIDS. AIDS is a very serious illness. The HIV test is being done to see how big the AIDS problem is in Liberia. For the HIV test, we need a few drops of blood from a finger. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after each test. No names will be attached so we will not be able to tell you the test results. No one else will be able to know (NAME OF ADOLESCENT)'s test results either. If (NAME OF ADOLESCENT) wants to know his HIV status, I can provide a list of [nearby] facilities offering counseling and testing for HIV. Do you have any questions? You can say yes to the test, or you can say no. It is up to you to decide. Will you allow (NAME OF ADOLESCENT) to take the HIV test?		
438	CIRCLE THE APPROPRIATE CODE AND SIGN YOUR NAME.	GRANTED .... 1 (SIGN) ← PARENT/OTHER RESPONSIBLE ADULT REFUSED .... 2 NOT PRESENT .... 5 OTHER .... 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 449)	GRANTED .... 1 (SIGN) ← PARENT/OTHER RESPONSIBLE ADULT REFUSED .... 2 NOT PRESENT .... 5 OTHER .... 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 449)	GRANTED .... 1 (SIGN) ← PARENT/OTHER RESPONSIBLE ADULT REFUSED .... 2 NOT PRESENT .... 5 OTHER .... 6 (IF REFUSED, NOT PRESENT OR OTHER, GO TO 449)

		MAN 1	MAN 2	MAN 3
	NAME FROM COLUMN 2	NAME _____	NAME _____	NAME _____
439	ASK CONSENT FOR DBS COLLECTION FROM RESPONDENT.	As part of the survey we also are asking people all over the country to take an HIV test. HIV is the virus that causes AIDS. AIDS is a very serious illness. The HIV test is being done to see how big the AIDS problem is in Liberia. For the HIV test, we need a few drops of blood from a finger. The equipment used to take the blood is clean and completely safe. It has never been used before and will be thrown away after each test. No names will be attached so we will not be able to tell you the test results. No one else will be able to know your test results either. If you want to know whether you have HIV, I can provide you with a list of [nearby] facilities offering counseling and testing for HIV. Do you have any questions? You can say yes to the test, or you can say no. It is up to you to decide. Will you take the HIV test?		
440	CIRCLE THE APPROPRIATE CODE, SIGN YOUR NAME, AND ENTER YOUR INTERVIEWER NUMBER.	GRANTED . . . . 1 _____ (SIGN) ←____ RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 ☐☐☐ (IF REFUSED, NOT PRESENT OR OTHER, GO TO 449)	GRANTED . . . . 1 _____ (SIGN) ←____ RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 ☐☐☐ (IF REFUSED, NOT PRESENT OR OTHER, GO TO 449)	GRANTED . . . . 1 _____ (SIGN) ←____ RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 ☐☐☐ (IF REFUSED, NOT PRESENT OR OTHER, GO TO 449)
441	AGE: CHECK COLUMN 7.	15-17 YEARS . . . . 1 18-49 YEARS . . . . 2 (GO TO 445) ↵	15-17 YEARS . . . . 1 18-49 YEARS . . . . 2 (GO TO 445) ↵	15-17 YEARS . . . . 1 18-49 YEARS . . . . 2 (GO TO 445) ↵
442	MARITAL STATUS: CHECK COLUMN 8.	CODE 4 (NEVER IN UNION) . . . 1 OTHER . . . . 2 (GO TO 445) ↵	CODE 4 (NEVER IN UNION) . . . 1 OTHER . . . . 2 (GO TO 445) ↵	CODE 4 (NEVER IN UNION) . . . 1 OTHER . . . . 2 (GO TO 445) ↵
443	ASK CONSENT FOR ADDITIONAL TESTING FROM PARENT/OTHER ADULT IDENTIFIED IN 436 AS RESPONSIBLE FOR NEVER IN UNION MEN AGE 15-17.	We ask you to allow the National Reference Laboratory to store part of the blood sample at the laboratory for additional tests or research. We are not certain about what additional tests might be done. The blood sample will not have any name or other data attached that could identify (NAME OF ADOLESCENT). You do not have to agree. If you do not want the blood sample stored for additional testing (NAME OF ADOLESCENT) can still participate in the HIV testing in this survey. Will you allow us to keep the blood sample stored for additional testing?		

444	CIRCLE THE APPROPRIATE CODE AND SIGN YOUR NAME.	GRANTED 1
		_____ (SIGN) ←____
		PARENT/OTHER RESPONSIBLE
		  ADULT REFUSED 2
		NOT PRESENT 5
		OTHER 6
		
		(IF REFUSED, NOT PRESENT OR OTHER, GO TO 447)
			GRANTED 1
			_____ (SIGN) ←____
			PARENT/OTHER RESPONSIBLE
			  ADULT REFUSED 2
			NOT PRESENT 5
			OTHER 6
			
			(IF REFUSED, NOT PRESENT OR OTHER, GO TO 447)
				GRANTED 1
				_____ (SIGN) ←____
				PARENT/OTHER RESPONSIBLE
				  ADULT REFUSED 2
				NOT PRESENT 5
				OTHER 6
				
				(IF REFUSED, NOT PRESENT OR OTHER, GO TO 447)

		MAN 1	MAN 2	MAN 3
	NAME FROM COLUMN 2	NAME _____	NAME _____	NAME _____
445	ASK CONSENT FOR ADDITIONAL TESTING FROM RESPONDENT.	We ask you to allow the National Reference Laboraotry to store part of the blood sample at the laboratory for additional tests or research. We are not certain about what additional tests might be done. The blood sample will not have any name or other data attached that could identify you. You do not have to agree. If you do not want the blood sample stored for additional testing, you can still participate in the HIV testing in this survey. Will you allow us to keep the blood sample stored for additional testing?		
446	CIRCLE THE APPROPRIATE CODE AND SIGN YOUR NAME.	GRANTED . . . . 1 _____ ← (SIGN) RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF GRANTED, SKIP TO 448)	GRANTED . . . . 1 _____ ← (SIGN) RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF GRANTED, SKIP TO 448)	GRANTED . . . . 1 _____ ← (SIGN) RESPONDENT REFUSED . . . . . 2 NOT PRESENT . . . . 5 OTHER . . . . 6 (IF GRANTED, SKIP TO 448)
447	ADDITIONAL TESTS	CHECK 444 AND 446: IF CONSENT HAS NOT BEEN GRANTED WRITE "NO ADDITIONAL TEST" ON THE FILTER PAPER.	CHECK 444 AND 446: IF CONSENT HAS NOT BEEN GRANTED WRITE "NO ADDITIONAL TEST" ON THE FILTER PAPER.	CHECK 444 AND 446: IF CONSENT HAS NOT BEEN GRANTED WRITE "NO ADDITIONAL TEST" ON THE FILTER PAPER.
448	PREPARE EQUIPMENT AND SUPPLIES AND PROCEED WITH THE TEST.			
449	BAR CODE LABEL	PUT THE 1ST BAR CODE LABEL HERE. NOT PRESENT . . . . 99994 REFUSED . . . . 99995 OTHER . . . . 99996 PUT THE 2ND BAR CODE LABEL ON THE RESPONDENT'S FILTER PAPER AND THE 3RD ON THE TRANSMITTAL FORM.	PUT THE 1ST BAR CODE LABEL HERE. NOT PRESENT . . . . 99994 REFUSED . . . . 99995 OTHER . . . . 99996 PUT THE 2ND BAR CODE LABEL ON THE RESPONDENT'S FILTER PAPER AND THE 3RD ON THE TRANSMITTAL FORM.	PUT THE 1ST BAR CODE LABEL HERE. NOT PRESENT . . . . 99994 REFUSED . . . . 99995 OTHER . . . . 99996 PUT THE 2ND BAR CODE LABEL ON THE RESPONDENT'S FILTER PAPER AND THE 3RD ON THE TRANSMITTAL FORM.
450	GO BACK TO 431A IN NEXT COLUMN OF THIS QUESTIONNAIRE OR IN THE FIRST COLUMN OF AN ADDITIONAL QUESTIONNAIRE; IF NO MORE MEN, END INTERVIEW.			

11 January 2013

GOVERNMENT OF LIBERIA
LIBERIA INSTITUTE OF STATISTICS AND GEO-INFORMATION SERVICES
2013 LIBERIA DEMOGRAPHIC AND HEALTH SURVEY
WOMAN'S QUESTIONNAIRE

IDENTIFICATION

PLACE NAME _____

NAME OF HOUSEHOLD HEAD _____

LDHS CLUSTER NUMBER . . . . ☐☐☐

HOUSEHOLD NUMBER . . . . ☐☐☐

NAME AND LINE NUMBER OF WOMAN _____ ☐☐

INTERVIEWER VISITS				
	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY ☐☐
				MONTH ☐☐
				YEAR 2 0 1 3
INTERVIEWER'S NAME	_____	_____	_____	INT. NUMBER ☐☐
RESULT*	_____	_____	_____	RESULT ☐
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER OF VISITS ☐
TIME	_____	_____		

*RESULT CODES:
    1   COMPLETED   4   REFUSED
    2   NOT AT HOME   5   PARTLY COMPLETED   7   OTHER _____
    3   POSTPONED   6   INCAPACITATED   (SPECIFY)

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME _____ ☐☐	NAME _____ ☐☐	☐☐	☐☐

INTRODUCTION AND CONSENT

INFORMED CONSENT

Hello. My name is _____. I am working with the Liberia Institute of Statistics and Geo-Information Services (LISGIS). We are conducting a survey about demographics and health all over Liberia. The information we collect will help the government to plan health services. Your household was selected for the survey. The questions usually take about 30 to 60 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time.

In case you need more information about the survey, you may contact the person listed on the card that has already been given to your household.

Do you have any questions? May I begin the interview now?

SIGNATURE OF INTERVIEWER: _____   DATE: _____

RESPONDENT AGREES TO BE INTERVIEWED   . . .   1   RESPONDENT DOES NOT AGREE TO BE INTERVIEWED . . . 2 → END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR . . . . ☐☐ MINUTES . . . . ☐☐	
102	In what month and year were you born?	MONTH . . . . ☐☐ DON'T KNOW MONTH . . . . 98 YEAR . . . . ☐☐☐☐ DON'T KNOW YEAR 9998	
103	How old were you at your last birthday? COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT.	AGE IN COMPLETED YEARS ☐☐	
104	Have you ever attended school?	YES . . . . 1 NO 2	→ 108
105	What is the highest level of school you attended: primary, secondary, or higher?	PRIMARY . . . . 1 SECONDARY . . . . 2 HIGHER 3	
106	What is the highest grade you completed at that level? IF COMPLETED LESS THAN ONE YEAR AT THAT LEVEL, RECORD '00'.	GRADE . . . . ☐☐	
107	CHECK 105: PRIMARY ☐ SECONDARY ☐ OR HIGHER		→ 110

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
108	Now I would like you to read this sentence to me. SHOW CARD TO RESPONDENT. IF RESPONDENT CANNOT READ WHOLE SENTENCE, PROBE: Can you read any part of the sentence to me?	CANNOT READ AT ALL . . . . 1 ABLE TO READ ONLY PARTS OF SENTENCE . . . . 2 ABLE TO READ WHOLE SENTENCE 3 NO CARD WITH REQUIRED LANGUAGE _____ 4 (SPECIFY LANGUAGE) BLIND/VISUALLY IMPAIRED 5	
109	CHECK 108: CODE '2', '3' CODE '1' OR '5' OR '4' CIRCLED CIRCLED		→ 111
110	Do you read a newspaper or magazine at least once a week, less than once a week or not at all?	AT LEAST ONCE A WEEK . . . . 1 LESS THAN ONCE A WEEK . . . . 2 NOT AT ALL 3	
111	Do you listen to the radio at least once a week, less than once a week or not at all?	AT LEAST ONCE A WEEK . . . . 1 LESS THAN ONCE A WEEK . . . . 2 NOT AT ALL 3	
112	Do you watch television at least once a week, less than once a week or not at all?	AT LEAST ONCE A WEEK . . . . 1 LESS THAN ONCE A WEEK . . . . 2 NOT AT ALL 3	
113	What is your religion?	CHRISTIAN . . . . 1 MUSLIM . . . . 2 TRADITIONAL RELIGION . . . . 3 NO RELIGION . . . . 4 OTHER _____ 6 (SPECIFY)	
114	What dialect do you speak (besides English)?	BASSA . . . . 01 GBANDI . . . . 02 BELLE . . . . 03 DEY . . . . 04 GIO . . . . 05 GOLA . . . . 06 GREBO . . . . 07 KISSI . . . . 08 KPELLE . . . . 09 KRAHN . . . . 10 KRU . . . . 11 LORMA . . . . 12 MANDINGO . . . . 13 MANO . . . . 14 MENDE . . . . 15 SARPO . . . . 16 VAI . . . . 17 NONE / ONLY ENGLISH . . . . 18 OTHER 96	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Now I would like to ask about all the births you have had during your life. Have you ever born a child?	YES . . . . 1 NO 2	→206
202	Do you have any sons or daughters you born who are now living with you? I mean belly born.	YES . . . . 1 NO 2	→204
203	How many sons live with you? And how many daughters live with you? IF NONE, RECORD '00'.	SONS AT HOME . . . . ☐☐ DAUGHTERS AT HOME . . . . . ☐☐	
204	Do you have any sons or daughters you born who are alive but do not live with you?	YES . . . . 1 NO 2	→206
205	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? IF NONE, RECORD '00'.	SONS ELSEWHERE . . . . ☐☐ DAUGHTERS ELSEWHERE ☐☐	
206	Have you ever given birth to a son or daughter who was born alive but later died? IF NO, PROBE: Any baby who cried or showed signs of life but did not survive?	YES . . . . 1 NO 2	→208
207	How many boys have died? And how many girls have died? IF NONE, RECORD '00'.	BOYS DEAD . . . . ☐☐ GIRLS DEAD . . . . ☐☐	
208	SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE, RECORD '00'.	TOTAL BIRTHS . . . . ☐☐	
209	CHECK 208: Just to make sure that I have this right: you have had in TOTAL _____ births during your life. Is that correct? YES ☐ NO ☐ → PROBE AND CORRECT 201-208 AS NECESSARY.		
210	CHECK 208: ONE OR MORE BIRTHS ☐ NO BIRTHS ☐		→226

| 211 | Now I would like to record the names of all the children you born, whether still alive or not, starting with the first one you had. RECORD NAMES OF ALL THE BIRTHS IN 212. RECORD TWINS AND TRIPLETS ON SEPARATE ROWS. (IF THERE ARE MORE THAN 12 BIRTHS, USE AN ADDITIONAL QUESTIONNAIRE, STARTING WITH THE SECOND ROW). | | | | | | | | |

212 What name was given to your (first/next) child? RECORD NAME. BIRTH HISTORY NUMBER	213 Is/was (NAME) a boy or a girl?	214 Were any of these births twins?	215 In what month and year was (NAME) born? PROBE: When is his/her birthday?	216 Is (NAME) still living?	217 IF ALIVE: How old is (NAME)? RECORD AGE IN COMPLETED YEARS.	218 IF ALIVE: Is (NAME) living with you?	219 IF ALIVE: RECORD HOUSE-HOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSE-HOLD).	220 IF DEAD: How old was (NAME) when he/she died? IF '1 YR', PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH; MONTHS IF LESS THAN TWO YEARS; OR YEARS.	221 Did you born any other child between (NAME OF PREVIOUS BIRTH) and (NAME), including any children who died after birth?
01	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 ↓ 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (NEXT BIRTH)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	
02	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 ↓ 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
03	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 ↓ 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
04	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 ↓ 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
05	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 ↓ 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
06	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 ↓ 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
07	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 ↓ 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH

212 What name was given to your next child? RECORD NAME. BIRTH HISTORY NUMBER	213 Is/was (NAME) a boy or a girl?	214 Were any of these births twins?	215 In what month and year was (NAME) born? PROBE: When is his/her birthday?	216 Is (NAME) still living?	217 IF ALIVE: How old is (NAME)? RECORD AGE IN COMPLETED YEARS.	218 IF ALIVE: Is (NAME) living with you?	219 IF ALIVE: RECORD HOUSEHOLD LINE NUMBER OF CHILD (RECORD '00' IF CHILD NOT LISTED IN HOUSEHOLD).	220 IF DEAD: How old was (NAME) when he/she died? IF '1 YR', PROBE: How many months old was (NAME)? RECORD DAYS IF LESS THAN 1 MONTH; MONTHS IF LESS THAN TWO YEARS; OR YEARS.	221 Did you born any other child between (NAME OF PREVIOUS BIRTH) and (NAME), including any children who died after birth?
08	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 → 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
09	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 → 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
10	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 → 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
11	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 → 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH
12	BOY 1 GIRL 2	SING 1 MULT 2	MONTH ☐☐ YEAR ☐☐☐☐	YES .. 1 NO ... 2 → 220	AGE IN YEARS ☐☐	YES ... 1 NO 2	HOUSEHOLD LINE NUMBER ☐☐ ↓ (GO TO 221)	DAYS ... 1 ☐☐ MONTHS 2 ☐☐ YEARS .. 3 ☐☐	YES .... 1 ADD ↵ BIRTH NO ..... 2 NEXT ↵ BIRTH

222	Did you born any child since the birth of (NAME OF LAST BIRTH)? IF YES, RECORD BIRTH(S) IN TABLE.	YES . . . . 1 NO 2

223	COMPARE 208 WITH NUMBER OF BIRTHS IN HISTORY ABOVE AND MARK:

NUMBERS ARE SAME ☐ ↓   NUMBERS ARE DIFFERENT ☐ → (PROBE AND RECONCILE)

224	CHECK 215: ENTER THE NUMBER OF BIRTHS IN 2008 OR LATER.	NUMBER OF BIRTHS . . . . ☐ NONE . . . . 0 → 226

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
225	**C** FOR EACH BIRTH SINCE JANUARY 2008, ENTER 'B' IN THE MONTH OF BIRTH IN THE CALENDAR. WRITE THE NAME OF THE CHILD TO THE LEFT OF THE 'B' CODE. FOR EACH BIRTH, ASK THE NUMBER OF MONTHS THE PREGNANCY LASTED AND RECORD 'P' IN EACH OF THE PRECEDING MONTHS ACCORDING TO THE DURATION OF PREGNANCY. (NOTE: THE NUMBER OF 'P's MUST BE ONE LESS THAN THE NUMBER OF MONTHS THAT THE PREGNANCY LASTED.)		
226	Are you pregnant now?	YES . . . . 1 NO . . . . 2 UNSURE 8	→ 230
227	How many months pregnant are you? RECORD NUMBER OF COMPLETED MONTHS. **C** ENTER 'P's IN THE CALENDAR, BEGINNING WITH THE MONTH OF INTERVIEW AND FOR THE TOTAL NUMBER OF COMPLETED MONTHS.	MONTHS . . . . ☐☐	
228	When you got pregnant, did you want to get pregnant at that time?	YES . . . . 1 NO 2	→ 230
229	Did you want to have a baby later on or did you not want any (more) children?	LATER . . . . 1 NO MORE 2	
230	Did you ever had a pregnancy that got spoiled: was miscarried, was aborted, or the baby was born dead (stillbirth)?	YES . . . . 1 NO 2	→ 238
231	When was the last time it happened?	MONTH . . . . ☐☐ YEAR . . . . ☐☐☐☐	
232	CHECK 231: LAST PREGNANCY ENDED IN JAN. 2008 OR LATER ↓ LAST PREGNANCY ENDED BEFORE JAN. 2008 ☐———		→ 238
233	How many months pregnant were you when the last such pregnancy ended? **C** RECORD NUMBER OF COMPLETED MONTHS. ENTER 'T' IN THE CALENDAR IN THE MONTH THAT THE PREGNANCY TERMINATED AND 'P' FOR THE REMAINING NUMBER OF COMPLETED MONTHS.	MONTHS . . . . ☐☐	
234	Since January 2008, have you had any other pregnancies that got spoiled or aborted?	YES . . . . 1 NO 2	→ 236
235	ASK THE DATE AND THE DURATION OF PREGNANCY FOR EACH EARLIER NON-LIVE BIRTH PREGNANCY BACK TO JANUARY 2008. **C** ENTER 'T' IN THE CALENDAR IN THE MONTH THAT EACH PREGNANCY TERMINATED AND 'P' FOR THE REMAINING NUMBER OF COMPLETED MONTHS.		
236	Did you have any miscarriages, abortions or stillbirths that ended before 2008?	YES . . . . 1 NO 2	→ 238
237	When did the last such pregnancy that terminated before 2008 end?	MONTH . . . . ☐☐ YEAR . . . . ☐☐☐☐	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
238	When did your last menstrual period start? _____ (DATE, IF GIVEN)	DAYS AGO . . . . 1 ☐☐ WEEKS AGO . . . . 2 ☐☐ MONTHS AGO . . . . 3 ☐☐ YEARS AGO . . . . 4 ☐☐ IN MENOPAUSE/ HAS HAD HYSTERECTOMY . . . 994 BEFORE LAST BIRTH . . . . 995 NEVER MENSTRUATED 996	
239	From one menstrual period to the next, are there certain days when a woman is more likely to become pregnant?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	⌐→ 301
240	Is this time just before her period begins, during her period, right after her period has ended, or halfway between two periods?	JUST BEFORE HER PERIOD BEGINS . . . . 1 DURING HER PERIOD . . . . 2 RIGHT AFTER HER PERIOD HAS ENDED . . . . 3 HALFWAY BETWEEN TWO PERIODS . . . . 4 OTHER _____ 6 (SPECIFY) DON'T KNOW 8	

301	Now I would like to talk about family planning or birth control - the various ways or methods that a couple can use to delay or avoid a pregnancy. Have you ever heard of (METHOD)?		
01	**Female Sterilization, Tube Tie, Turning the Womb.** PROBE: Women can have an operation to avoid having any more children.	YES . . . . 1 NO 2	
02	**Male Sterilization**. PROBE: Men can have an operation to avoid having any more children.	YES . . . . 1 NO 2	
03	**IUD**. PROBE: Women can have a loop or coil placed inside them by a doctor or a nurse.	YES . . . . 1 NO 2	
04	**Injectables, Depo**. PROBE: Women can have an injection by a health provider that stops them from becoming pregnant for one or more months.	YES . . . . 1 NO 2	
05	**Implants, Jadelle**. PROBE: Women can have one or more small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years.	YES . . . . 1 NO 2	
06	**Pill**. PROBE: Women can take a pill every day to avoid becoming pregnant.	YES . . . . 1 NO 2	
07	**Condom, Raincoat.** PROBE: Men can put a rubber sheath on their penis before sexual intercourse.	YES . . . . 1 NO 2	
08	**Female Condom**. PROBE: Women can place a sheath in their vagina before sexual intercourse.	YES . . . . 1 NO 2	
09	**CycleBeads/Standard Days.** PROBE: A woman uses a string of colored beads to know the days she can get pregnant. On the days she can get pregnant, she uses a condom or does not have sexual intercourse.	YES . . . . 1 NO 2	
10	**Lactational Amenorrhea Method (LAM)**.	YES . . . . 1 NO 2	
11	**Rhythm Method**. PROBE: To avoid pregnancy, women do not have sexual intercourse on the days of the month they think they can get pregnant.	YES . . . . 1 NO 2	
12	**Withdrawal**. PROBE: Men can be careful and pull out before climax.	YES . . . . 1 NO 2	
13	**Emergency Contraception**. PROBE: As an emergency measure, within five days after they have unprotected sexual intercourse, women can take special pills to prevent pregnancy.	YES . . . . 1 NO 2	
14	Have you heard of any other ways or methods that women or men can use to avoid pregnancy?	YES . . . . 1 _____ (SPECIFY) _____ (SPECIFY) NO 2	
302	CHECK 226: NOT PREGNANT PREGNANT OR UNSURE		→ 311
303	Are you using any family planning or birth control right now?	YES . . . . 1 NO 2	→ 311

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
304	Which method are you using? CIRCLE ALL MENTIONED. IF MORE THAN ONE METHOD MENTIONED, FOLLOW SKIP INSTRUCTION FOR HIGHEST METHOD IN LIST.	FEMALE STERILIZATION . . . . A MALE STERILIZATION . . . . B IUD . . . . C INJECTABLES . . . . D IMPLANTS . . . . E PILL . . . . F CONDOM . . . . G FEMALE CONDOM . . . . H FOAM/JELLY . . . . I CYCLEBEADS/STANDARD DAYS . . . J LACTATIONAL AMEN. METHOD . . . . . K RHYTHM METHOD . . . . L WITHDRAWAL . . . . M OTHER MODERN METHOD . . . . X OTHER TRADITIONAL METHOD . . . Y	→ 307 → 308A → 306 →308A
305	What is the brand name of the pills you are using? IF DON'T KNOW THE BRAND, ASK TO SEE THE PACKAGE. MICROLUTE IS WHITE PILL. MICROGYNON IS BROWN PILL.	MICROLUT . . . . 01 MICROGYNON . . . . 02 PPLA BRAND . . . . 03 OTHER . . . . 96 DON'T KNOW 98	→ 308A
306	What is the brand name of the condoms you are using? IF DON'T KNOW THE BRAND, ASK TO SEE THE PACKAGE.	STAR . . . . 01 MOH/NACP FREE . . . . 02 OTHER . . . . 96 DON'T KNOW 98	→ 308A

307	In what facility did the operation take place?
	
	PROBE TO IDENTIFY THE TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE)
		PUBLIC SECTOR
		   GOVT. HOSPITAL 11
		   GOVT. HEALTH CENTER 12
		   OTHER PUBLIC
		     SECTOR _____ 16
		          (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		   PRIVATE HOSPITAL/CLINIC 21
		   PLANNED PARENTHOOD ASSN. LIB. 22
		   OTHER PRIVATE MEDICAL
		     SECTOR _____ 26
		          (SPECIFY)
		
		OTHER _____ 96
		        (SPECIFY)
		DON'T KNOW 98	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
308	In what month and year was the operation performed?		
308A	Since what month and year have you been using (CURRENT METHOD) without stopping? PROBE: For how long have you been using (CURRENT METHOD) now without stopping?	MONTH . . . . YEAR	
309	CHECK 308/308A, 215 AND 231: ANY BIRTH OR PREGNANCY TERMINATION AFTER MONTH AND YEAR OF START OF USE OF CONTRACEPTION IN 308/308A GO BACK TO 308/308A, PROBE AND RECORD MONTH AND YEAR AT START OF CONTINUOUS USE OF CURRENT METHOD (MUST BE AFTER LAST BIRTH OR PREGNANCY TERMINATION).	YES ☐ NO ☐	
310	CHECK 308/308A: YEAR IS 2008 OR LATER ☐ **C** ENTER CODE FOR METHOD USED IN MONTH OF INTERVIEW IN THE CALENDAR AND IN EACH MONTH BACK TO THE DATE STARTED USING. YEAR IS 2007 OR EARLIER ☐ **C** ENTER CODE FOR METHOD USED IN MONTH OF INTERVIEW IN THE CALENDAR AND EACH MONTH BACK TO JANUARY 2008. THEN SKIP TO ────────→ 322		
311	I would like to ask you some questions about the times you or your partner may have used a method to avoid getting pregnant during the last few years. USE CALENDAR TO PROBE FOR EARLIER PERIODS OF USE AND NONUSE, STARTING WITH MOST RECENT USE, BACK TO JANUARY 2008. USE NAMES OF CHILDREN, DATES OF BIRTH, AND PERIODS OF PREGNANCY AS REFERENCE POINTS. **C** IN COLUMN 1, ENTER METHOD USE CODE OR '0' FOR NONUSE IN EACH BLANK MONTH. ILLUSTRATIVE QUESTIONS: * When was the last time you used a method? Which method was that? * When did you start using that method? How long after the birth of (NAME)? * How long did you use the method then? IN COLUMN 2, ENTER CODES FOR DISCONTINUATION NEXT TO THE LAST MONTH OF USE. NUMBER OF CODES IN COLUMN 2 MUST BE SAME AS NUMBER OF INTERRUPTIONS OF METHOD USE IN COLUMN 1. ASK WHY SHE STOPPED USING THE METHOD. IF A PREGNANCY FOLLOWED, ASK WHETHER SHE BECAME PREGNANT UNINTENTIONALLY WHILE USING THE METHOD OR DELIBERATELY STOPPED TO GET PREGNANT. ILLUSTRATIVE QUESTIONS: * Why did you stop using the (METHOD)? Did you become pregnant while using (METHOD), or did you stop to get pregnant, or did you stop for some other reason? * IF DELIBERATELY STOPPED TO BECOME PREGNANT, ASK: How many months did it take you to get pregnant after you stopped using (METHOD)? AND ENTER '0' IN EACH SUCH MONTH IN COLUMN 1.		

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

| 312 | CHECK THE CALENDAR FOR USE OF ANY CONTRACEPTIVE METHOD IN ANY MONTH | | |

NO METHOD USED ☐   ANY METHOD USED ☐ → 314

| 313 | Have you ever used anything or tried in any way to delay or avoid getting pregnant? | YES 1
NO . . . . 2 | → 324 |

| 314 | CHECK 304:

CIRCLE METHOD CODE:

IF MORE THAN ONE METHOD CODE CIRCLED IN 304, CIRCLE CODE FOR HIGHEST METHOD IN LIST. | NO CODE CIRCLED 00
FEMALE STERILIZATION 01
MALE STERILIZATION 02
IUD 03
INJECTABLES 04
IMPLANTS 05
PILL 06
CONDOM 07
FEMALE CONDOM 08
FOAM/JELLY 09
CYCLEBEADS/STANDARD DAYS 10
LACTATIONAL AMEN. METHOD 11
RHYTHM METHOD 12
WITHDRAWAL 13
OTHER MODERN METHOD 95
OTHER TRADITIONAL METHOD . . . . . 96 | → 324
→ 317A
→ 326

→ 315A

→ 326 |

| 315 | You first started using (CURRENT METHOD) in (DATE FROM 308/308A). Where did you get it at that time? | PUBLIC SECTOR
    GOVERNMENT HOSPITAL 11
    GOVT. HEALTH CENTER 12
    GOVT. CLINIC 13
    COMMUNITY HEALTH VOL/gCHV 14
    OTHER PUBLIC
        SECTOR _____
                    (SPECIFY)   16 | |
| 315A | Where did you learn how to use the rhythm method/ cyclebeads/lactational amenorrhea method?

PROBE TO IDENTIFY THE TYPE OF SOURCE.

IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.

_____
(NAME OF PLACE) | PRIVATE MEDICAL SECTOR
    PRIVATE HOSPITAL/CLINIC 21
    PHARMACY 22
    PRIVATE DOCTOR 23
    PLANNED PARENTHOOD ASSN. LIB. 24
    MOBILE CLINIC 25
    OTHER PRIVATE MEDICAL
        SECTOR _____ 26
                    (SPECIFY)

OTHER SOURCE
    SHOP 31
    CHURCH 32
    FRIENDS/RELATIVES 33

OTHER _____
                    (SPECIFY)   96 | |

| 316 | CHECK 304:

CIRCLE METHOD CODE:

IF MORE THAN ONE METHOD CODE CIRCLED IN 304, CIRCLE CODE FOR HIGHEST METHOD IN LIST. | IUD 03
INJECTABLES 04
IMPLANTS 05
PILL 06
CONDOM 07
FEMALE CONDOM 08
FOAM/JELLY 09
CYCLEBEADS/STANDARD DAYS . . . 10
LACTATIONAL AMEN. METHOD 11
RHYTHM METHOD . . . . 12 | → 323
→ 320

→ 326 |

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
317	At that time, were you told about side effects or problems you might have with the method?	YES . . . . 1 NO 2	→ 319
317A	When you got sterilized, were you told about side effects or problems you might have with the method?		
318	Were you ever told by a health or family planning worker about side effects or problems you might have with the method?	YES . . . . 1 NO 2	→ 320
319	Were you told what to do if you experienced side effects or problems?	YES . . . . 1 NO 2	
320	CHECK 317: CODE '1' CIRCLED CODE '1' NOT CIRCLED At that time, were you told about other methods of family planning that you could use? When you obtained (CURRENT METHOD FROM 314) from (SOURCE OF METHOD FROM 307 OR 315), were you told about other methods of family planning that you could use?	YES . . . . 1 NO 2	→ 322
321	Were you ever told by a health or family planning worker about other methods of family planning that you could use?	YES . . . . 1 NO 2	
322	CHECK 304: CIRCLE METHOD CODE: IF MORE THAN ONE METHOD CODE CIRCLED IN 304, CIRCLE CODE FOR HIGHEST METHOD IN LIST.	FEMALE STERILIZATION . . . . 01 MALE STERILIZATION . . . . 02 IUD . . . . 03 INJECTABLES . . . . 04 IMPLANTS . . . . 05 PILL . . . . 06 CONDOM . . . . 07 FEMALE CONDOM . . . . 08 FOAM/JELLY . . . . 09 CYCLEBEADS/STANDARD DAYS . . . 10 LACTATIONAL AMEN. METHOD . . . . . 11 RHYTHM METHOD . . . . 12 WITHDRAWAL . . . . 13 OTHER MODERN METHOD . . . . 95 OTHER TRADITIONAL METHOD . . . 96	→ 326 → 326

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

323	Where did you obtain (CURRENT METHOD) the last time?
	
	PROBE TO IDENTIFY THE TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE)
		PUBLIC SECTOR
		  GOVERNMENT HOSPITAL 11
		  GOVT. HEALTH CENTER 12
		  GOVT. CLINIC 13
		  COMMUNITY HEALTH VOL/gCHV 14
		  OTHER PUBLIC
		    SECTOR _____
		          (SPECIFY) 16
		
		PRIVATE MEDICAL SECTOR
		  PRIVATE HOSPITAL/CLINIC 21
		  PHARMACY 22
		  PRIVATE DOCTOR 23
		  PLANNED PARENTHOOD ASSN. LIB. 24
		  MOBILE CLINIC 25
		  OTHER PRIVATE MEDICAL
		    SECTOR _____ 26
		          (SPECIFY)
		
		OTHER SOURCE
		  SHOP 31
		  CHURCH 32
		  FRIENDS/RELATIVES 33
		
		OTHER _____
		          (SPECIFY) 96
			326

324	Do you know of a place where you can get a method of family planning?	YES . . . . 1 NO 2	→ 326

325	Where is that?
	
	Any other place?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE(S))
		PUBLIC SECTOR
		  GOVERNMENT HOSPITAL . . . . A
		  GOVT. HEALTH CENTER . . . . B
		  GOVT. CLINIC C
		  COMMUNITY HEALTH VOL/gCHV D
		  OTHER PUBLIC
		    SECTOR _____ E
		          (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		  PRIVATE HOSPITAL/CLINIC . . . . . F
		  PHARMACY . . . . G
		  PRIVATE DOCTOR . . . . H
		  PLANNED PARENTHOOD ASSN. LIB. I
		  MOBILE CLINIC . . . . J
		  OTHER PRIVATE MEDICAL
		    SECTOR _____ K
		          (SPECIFY)
		
		OTHER SOURCE
		  SHOP L
		  CHURCH . . . . M
		  FRIENDS/RELATIVES . . . . N
		
		OTHER _____ X
		          (SPECIFY)	

326	In the last 12 months, were you visited by a fieldworker who talked to you about family planning?	YES . . . . 1 NO 2	
327	In the last 12 months, have you visited a health facility for care for yourself (or your children)?	YES . . . . 1 NO 2	→ 401
328	Did any health worker at the health facility speak to you about family planning methods?	YES . . . . 1 NO 2	

401	CHECK 224:		
	ONE OR MORE BIRTHS IN 2008 OR LATER ☐	NO BIRTHS IN 2008 OR LATER ☐	→ 556

402	CHECK 215: ENTER IN THE TABLE THE BIRTH HISTORY NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH IN 2008 OR LATER. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 3 BIRTHS, USE LAST 2 COLUMNS OF ADDITIONAL QUESTIONNAIRES). Now I would like to ask some questions about your children born in the last five years. (We will talk about each separately.)

403	BIRTH HISTORY NUMBER FROM 212 IN BIRTH HISTORY	LAST BIRTH BIRTH HISTORY NUMBER ☐☐	NEXT-TO-LAST BIRTH BIRTH HISTORY NUMBER ☐☐	SECOND-FROM-LAST BIRTH BIRTH HISTORY NUMBER ☐☐
404	FROM 212 AND 216	NAME _____ LIVING ☐ DEAD ☐	NAME _____ LIVING ☐ DEAD ☐	NAME _____ LIVING ☐ DEAD ☐
405	When you got pregnant with (NAME), did you want to get pregnant at that time?	YES . . . . 1 (SKIP TO 408)←┘ NO 2	YES . . . . 1 (SKIP TO 430)←┘ NO 2	YES . . . . 1 (SKIP TO 430)←┘ NO 2
406	Did you want to have a baby later on, or did you not want any (more) children?	LATER . . . . 1 NO MORE . . . . 2 (SKIP TO 408) ←┘	LATER . . . . 1 NO MORE . . . . 2 (SKIP TO 430) ←┘	LATER . . . . 1 NO MORE . . . . 2 (SKIP TO 430) ←┘
407	How much longer did you want to wait?	MONTHS . .1 ☐☐ YEARS . . 2 DON'T KNOW . . . 998	MONTHS . .1 ☐☐ YEARS . . 2 DON'T KNOW . . . 998	MONTHS . .1 ☐☐ YEARS . . 2 DON'T KNOW . . . 998
408	Did you see anyone for a checkup (prenatal care) for this pregnancy?	YES . . . . 1 NO . . . . 2 (SKIP TO 415) ←┘		
409	Whom did you see? Anyone else? PROBE TO IDENTIFY EACH TYPE OF PERSON AND RECORD ALL MENTIONED.	HEALTH PERSONNEL DOCTOR . . . . A NURSE/MIDWIFE B PHYSICIAN ASSISTANT C OTHER PERSON TRADITIONAL MIDWIFE . . . . . . D OTHER _____ X (SPECIFY)		

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

410	Where did you receive prenatal checkups for this pregnancy?
	
	Anywhere else?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE(S))
		HOME
		  YOUR HOME . . . A
		  OTHER HOME . . . B
		
		PUBLIC SECTOR
		  GOVT. HOSPITAL C
		  GOVT. HEALTH
		    CENTER . . . . . . D
		  GOVT. HEALTH
		    CLINIC . . . . E
		  OTHER PUBLIC
		    SECTOR
		  _____ F
		    (SPECIFY)
		PRIVATE MED. SECTOR
		  PVT. HOSPITAL/
		    CLINIC . . . . G
		  OTHER PRIVATE
		    MED. SECTOR
		  _____ H
		    (SPECIFY)
		
		OTHER _____ X
		    (SPECIFY)		

411	How many months pregnant were you when you first received a prenatal checkup for this pregnancy?	MONTHS . . . ☐☐ DON'T KNOW 98		
412	How many times did you receive prenatal checkup during this pregnancy?	NUMBER OF TIMES ☐☐ DON'T KNOW 98		
413	As part of your prenatal checkups during this pregnancy, were any of the following done at least once: Was your blood pressure measured? Did you give a urine sample? Did you give a blood sample?	YES NO BP . . . . 1 2 URINE . . . . . . 1 2 BLOOD . . . 1 2		
414	During (any of) your prenatal checkups, were you told about things to look out for that might suggest problems with the pregnancy?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8		
415	During this pregnancy, were you given an injection in the arm to prevent the baby from getting tetanus, that is, jerking after birth?	YES . . . . 1 NO . . . . 2 (SKIP TO 418) ← DON'T KNOW 8		

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
416	During this pregnancy, how many times did you get a tetanus injection?	TIMES . . . . ☐ DON'T KNOW 8		
417	CHECK 416:	2 OR MORE OTHER TIMES ☐ ☐ (SKIP TO 421)		
418	**Before this pregnancy**, did you receive any tetanus injections?	YES . . . . 1 NO . . . . 2 (SKIP TO 421) ←┐ DON'T KNOW . . . 8		
419	Before this pregnancy, how many times did you receive a tetanus injection? IF 7 OR MORE TIMES, RECORD '7'.	TIMES . . . . ☐ DON'T KNOW 8		
420	How many years ago did you receive the last tetanus injection before this pregnancy?	YEARS AGO . . . . . . ☐☐		
421	During this pregnancy, were you given or did you buy any iron tablets (blood tablets)? SHOW TABLETS.	YES . . . . 1 NO . . . . 2 (SKIP TO 423) ←┐ DON'T KNOW 8		
422	During the whole pregnancy, for how many days did you take the tablets? IF ANSWER IS NOT NUMERIC, PROBE FOR APPROXIMATE NUMBER OF DAYS.	DAYS ☐☐☐ DON'T KNOW . . . 998		
423	During this pregnancy, did you take any worm medicine?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8		
424	During this pregnancy, did you take any medicine to keep you from getting malaria?	YES . . . . 1 NO . . . . 2 (SKIP TO 430) ←┐ DON'T KNOW 8		
425	What medicine did you take? RECORD ALL MENTIONED. IF TYPE OF DRUG IS NOT DETERMINED, SHOW TYPICAL ANTIMALARIAL DRUGS TO RESPONDENT.	SP/FANSIDAR . . . . . . A CHLOROQUINE . . . B OTHER _____ X (SPECIFY) DON'T KNOW . . . . Z		

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
426	CHECK 425: SP/FANSIDAR TAKEN FOR MALARIA PREVENTION.	CODE 'A' CODE CIRCLED A' NOT ☐ ☐ CIRCLED (SKIP TO 430) ←		
427	How many times did you take (SP/Fansidar) during this pregnancy?	TIMES . . . . . . ☐☐		
428	CHECK 409: PRENATAL CARE FROM HEALTH PERSONNEL DURING THIS PREGNANCY	CODE 'A', OTHER ☐ 'B' OR 'C' CIRCLED ☐ (SKIP TO 430) ←		
429	Did you get the (SP/Fansidar) during any prenatal checkup, during another visit to a health facility or from another source?	PRENATAL VISIT . . 1 ANOTHER FACILITY VISIT . . . . 2 OTHER SOURCE . . . 6		

430	When (NAME) was born, was he/she very big, bigger than normal, normal, smaller than normal, or very small?	VERY BIG 1
		BIGGER THAN
		   NORMAL 2
		NORMAL 3
		SMALLER THAN
		   NORMAL 4
		VERY SMALL 5
		DON'T KNOW 8
			VERY BIG 1
			BIGGER THAN
			   NORMAL 2
			NORMAL 3
			SMALLER THAN
			   NORMAL 4
			VERY SMALL 5
			DON'T KNOW 8
				VERY BIG 1
				BIGGER THAN
				   NORMAL 2
				NORMAL 3
				SMALLER THAN
				   NORMAL 4
				VERY SMALL 5
				DON'T KNOW 8

431	Was (NAME) weighed at birth?	YES 1
		
		NO 2
		    (SKIP TO 433) ←
		DON'T KNOW 8
			YES 1
			
			NO 2
			    (SKIP TO 433) ←
			DON'T KNOW 8
				YES 1
				
				NO 2
				    (SKIP TO 433) ←
				DON'T KNOW 8

432	How much did (NAME) weigh? RECORD WEIGHT IN KILOGRAMS FROM HEALTH CARD, IF AVAILABLE.	KG FROM CARD 1 ☐ . ☐☐ KG FROM RECALL 2 ☐ . ☐☐ DON'T KNOW 99998	KG FROM CARD 1 ☐ . ☐☐ KG FROM RECALL 2 ☐ . ☐☐ DON'T KNOW 99998	KG FROM CARD 1 ☐ . ☐☐ KG FROM RECALL 2 ☐ . ☐☐ DON'T KNOW 99998

433	Who assisted with the delivery of (NAME)?
	
	Anyone else?
	
	PROBE FOR THE TYPE(S) OF PERSON(S) AND RECORD ALL MENTIONED.
	
	IF RESPONDENT SAYS NO ONE ASSISTED, PROBE TO DETERMINE WHETHER ANY ADULTS WERE PRESENT AT THE DELIVERY.
		HEALTH PERSONNEL
		   DOCTOR . . . . . . A
		   NURSE/MIDWIFE B
		   PHYSICIAN
		     ASSISTANT C
		OTHER PERSON
		   TRADITIONAL
		     MIDWIFE . . . . . . D
		   RELATIVE/FRIEND . E
		   OTHER
		   _____ X
		     (SPECIFY)
		NO ONE ASSISTED Y
			HEALTH PERSONNEL
			   DOCTOR . . . . . . A
			   NURSE/MIDWIFE B
			   PHYSICIAN
			     ASSISTANT C
			OTHER PERSON
			   TRADITIONAL
			     MIDWIFE . . . . . . D
			   RELATIVE/FRIEND . E
			   OTHER
			   _____ X
			     (SPECIFY)
			NO ONE ASSISTED Y
				HEALTH PERSONNEL
				   DOCTOR . . . . . . A
				   NURSE/MIDWIFE B
				   PHYSICIAN
				     ASSISTANT C
				OTHER PERSON
				   TRADITIONAL
				     MIDWIFE . . . . . . D
				   RELATIVE/FRIEND . E
				   OTHER
				   _____ X
				     (SPECIFY)
				NO ONE ASSISTED Y

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

434	Where did you deliver (NAME)?
	
	PROBE TO IDENTIFY THE TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE)
		HOME
		  YOUR HOME . . . 11
		    (SKIP TO 439) ◄─┐
		  OTHER HOME . . . 12
		
		PUBLIC SECTOR
		  GOVT. HOSPITAL 21
		  GOVT. HEALTH
		    CENTER 22
		  GOVT. HEALTH
		    CLINIC 23
		  OTHER PUBLIC
		    SECTOR
		    _____ 26
		    (SPECIFY)
		
		PRIVATE MED. SECTOR
		  PVT. HOSPITAL/
		    CLINIC 31
		  OTHER PRIVATE
		    MED. SECTOR
		    _____ 36
		    (SPECIFY)
		
		OTHER _____ 96
		    (SPECIFY)
		  (SKIP TO 439) ◄─┘
			HOME
			  YOUR HOME . . . 11
			    (SKIP TO 448) ◄─┐
			  OTHER HOME . . . 12
			
			PUBLIC SECTOR
			  GOVT. HOSPITAL 21
			  GOVT. HEALTH
			    CENTER 22
			  GOVT. HEALTH
			    CLINIC 23
			  OTHER PUBLIC
			    SECTOR
			    _____ 26
			    (SPECIFY)
			
			PRIVATE MED. SECTOR
			  PVT. HOSPITAL/
			    CLINIC 31
			  OTHER PRIVATE
			    MED. SECTOR
			    _____ 36
			    (SPECIFY)
			
			OTHER _____ 96
			    (SPECIFY)
			  (SKIP TO 448) ◄─┘
				HOME
				  YOUR HOME . . . 11
				    (SKIP TO 448) ◄─┐
				  OTHER HOME . . . 12
				
				PUBLIC SECTOR
				  GOVT. HOSPITAL 21
				  GOVT. HEALTH
				    CENTER 22
				  GOVT. HEALTH
				    CLINIC 23
				  OTHER PUBLIC
				    SECTOR
				    _____ 26
				    (SPECIFY)
				
				PRIVATE MED. SECTOR
				  PVT. HOSPITAL/
				    CLINIC 31
				  OTHER PRIVATE
				    MED. SECTOR
				    _____ 36
				    (SPECIFY)
				
				OTHER _____ 96
				    (SPECIFY)
				  (SKIP TO 448) ◄─┘

435	How long after (NAME) was delivered did you stay there? IF LESS THAN ONE DAY, RECORD HOURS. IF LESS THAN ONE WEEK, RECORD DAYS.	HOURS 1 ☐☐ DAYS 2 ☐☐ WEEKS 3 ☐☐ DON'T KNOW . . . 998		
436	Was (NAME) delivered by C-section, that is, an operation to take the baby out?	YES . . . . 1 NO 2	YES . . . . 1 NO 2	YES . . . . 1 NO 2
437	I would like to talk to you about checks on your health after delivery, for example, someone asking you questions about your health or examining you. Did anyone check on your health while you were still in the facility?	YES . . . . 1 (SKIP TO 440) ◄─┐ NO 2		

438	Did anyone check on your health after you left the facility?	YES 1
		  (SKIP TO 440) ◄─┐
		NO 2
		  (SKIP TO 442) ◄─┘		

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
439	I would like to talk to you about checks on your health after delivery, for example, someone asking you questions about your health or examining you. Did anyone check on your health after you gave birth to (NAME)?	YES . . . . 1 NO . . . . 2 　(SKIP TO 442)◄——┐		
440	Who checked on your health at that time? PROBE FOR MOST QUALIFIED PERSON.	HEALTH PERSONNEL 　DOCTOR　. . . . . . 11 　NURSE/MIDWIFE　12 　PHYSICIAN 　　ASSISTANT　　13 OTHER PERSON 　TRADITIONAL 　　MIDWIFE . . . . . . 21 　RELATIVE/FRIEND　22 　OTHER 　_____　96 　　　(SPECIFY)		
441	How long after delivery did the first check take place? IF LESS THAN ONE DAY, RECORD HOURS. IF LESS THAN ONE WEEK, RECORD DAYS.	HOURS　1 ☐☐ DAYS　　2 ☐☐ WEEKS　3 ☐☐ DON'T KNOW . . .　998		
442	During the two months after (NAME) was born, did any health worker or a traditional midwife check on his/her health?	YES . . . . 1 NO　. . . . . 2 　(SKIP TO 446)◄——┐ DON'T KNOW 8		
443	How many hours, days or weeks after (NAME) was born did (he/she) first receive a checkup? IF LESS THAN ONE DAY, RECORD HOURS. IF LESS THAN ONE WEEK, RECORD DAYS.	HRS AFTER BIRTH . . 1 ☐☐ DAYS AFTER BIRTH . . 2 ☐☐ WKS AFTER BIRTH . . 3 ☐☐ DON'T KNOW . . .　998		
444	Who checked on (NAME)'s health at that time? PROBE FOR MOST QUALIFIED PERSON.	HEALTH PERSONNEL 　DOCTOR . . . . 11 　NURSE/MIDWIFE　12 　PHYSICIAN 　　ASSISTANT　　13 OTHER PERSON 　TRADITIONAL 　　MIDWIFE . . . . . . 21 　COMMUNITY/ 　　VILLAGE HEALTH 　　WORKER　. . . 22 OTHER _____ 96 　　　(SPECIFY)		

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

445	Where did this first check of (NAME) take place?
	
	PROBE TO IDENTIFY THE TYPE OF SOURCE AND CIRCLE THE APPROPRIATE CODE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE)
		HOME
		  YOUR HOME ... 11
		  OTHER HOME ... 12
		
		PUBLIC SECTOR
		  GOVT. HOSPITAL 21
		  GOVT. HEALTH
		    CENTER 22
		  GOVT. HEALTH
		    CLINIC 23
		  OTHER PUBLIC
		  _____ 26
		    (SPECIFY)
		
		PRIVATE MED. SECTOR
		  PVT. HOSPITAL/
		    CLINIC 31
		  OTHER PRIVATE
		    MED. ____ 36
		     (SPECIFY)
		
		OTHER ____ 96
		    (SPECIFY)		

446	In the first two months after delivery, did you receive a vitamin A dose like (this/any of these)? SHOW COMMON TYPES OF AMPULES/CAPSULES/SYRUPS.	YES .... 1 NO .... 2 DON'T KNOW 8		

447	Has your period returned since the birth of (NAME)?	YES 1
		  (SKIP TO 449)◄——
		NO 2
		  (SKIP TO 450)◄——		

448	Did your period return between the birth of (NAME) and your next pregnancy?		YES 1
			NO 2
			  (SKIP TO 452)◄——
				YES 1
				NO 2
				  (SKIP TO 452)◄——

449	For how many months after the birth of (NAME) did you <u>not</u> have a period?	MONTHS ... [ ][ ] DON'T KNOW 98	MONTHS ... [ ][ ] DON'T KNOW 98	MONTHS ... [ ][ ] DON'T KNOW 98
450	CHECK 226: IS RESPONDENT PREGNANT?	NOT [ ] PREGNANT PREG- OR NANT UNSURE [ ] ↓ (SKIP TO 452) ◄—		
451	Have you started man business again since the birth of (NAME)?	YES .... 1 NO .... 2 (SKIP TO 453)◄——		
452	For how many months after the birth of (NAME) did you <u>not</u> do man business?	MONTHS ... [ ][ ] DON'T KNOW 98	MONTHS ... [ ][ ] DON'T KNOW 98	MONTHS ... [ ][ ] DON'T KNOW 98
453	Did you ever give titi water to (NAME)?	YES .... 1 (SKIP TO 455)◄—— NO 2	YES .... 1 NO 2	YES .... 1 NO 2

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
454	CHECK 404: IS CHILD LIVING?	LIVING ☐ DEAD ☐ (SKIP TO 460) (GO BACK TO 405 IN NEXT COLUMN; OR IF NO MORE BIRTHS, GO TO 501)		
455	How long after you delivered did you first give (NAME) the titi? IF LESS THAN 1 HOUR, RECORD '00' HOURS. IF LESS THAN 24 HOURS, RECORD HOURS. OTHERWISE, RECORD DAYS.	IMMEDIATELY . . . 000 HOURS 1 ☐☐ DAYS 2		
456	In the first three days after delivery, was (NAME) given anything to drink beside titi?	YES . . . . 1 NO . . . . 2 (SKIP TO 458) ◄────		
457	What was (NAME) given to drink? Anything else? RECORD ALL LIQUIDS MENTIONED.	MILK (OTHER THAN BREAST MILK) A PLAIN WATER . . . B SUGAR OR GLU-COSE WATER . . . C GRIPE WATER . . . D SUGAR-SALT-WATER SOLUTION . . . . . . E FRUIT JUICE . . . . . . F INFANT FORMULA G TEA/INFUSIONS . . . H COFFEE . . . . I HONEY . . . . J THRUSH MEDICINE K OTHER _____ X (SPECIFY)		
458	CHECK 404: IS CHILD LIVING?	LIVING ☐ DEAD ☐ (GO BACK TO 405 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501)	LIVING ☐ DEAD ☐ (GO BACK TO 405 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501)	LIVING ☐ DEAD ☐ (GO BACK TO 405 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 501)
459	Are you still giving titi water to (NAME)?	YES . . . . 1 NO 2		
460	Did (NAME) drink anything from a bottle with a nipple yesterday or last night?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
461		GO BACK TO 405 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501.	GO BACK TO 405 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 501.	GO BACK TO 405 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 501.

| 501 | ENTER IN THE TABLE THE BIRTH HISTORY NUMBER, NAME, AND SURVIVAL STATUS OF EACH BIRTH IN 2008 OR LATER. ASK THE QUESTIONS ABOUT ALL OF THESE BIRTHS. BEGIN WITH THE LAST BIRTH. (IF THERE ARE MORE THAN 3 BIRTHS, USE LAST 2 COLUMNS OF ADDITIONAL QUESTIONNAIRES). |

| 502 | BIRTH HISTORY NUMBER FROM 212 IN BIRTH HISTORY | LAST BIRTH
BIRTH HISTORY NUMBER .... ☐☐ | NEXT-TO-LAST BIRTH
BIRTH HISTORY NUMBER .... ☐☐ | SECOND-FROM-LAST BIRTH
BIRTH HISTORY NUMBER ...... ☐☐ |

| 503 | FROM 212 AND 216 | NAME _____
LIVING ☐   DEAD ☐
(GO TO 503 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 553) | NAME _____
LIVING ☐   DEAD ☐
(GO TO 503 IN NEXT COLUMN OR, IF NO MORE BIRTHS, GO TO 553) | NAME _____
LIVING ☐   DEAD ☐
(GO TO 503 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE, OR IF NO MORE BIRTHS, GO TO 553) |

| 504 | Do you have a vaccination card for (NAME)?

IF YES:
May I see it please? | YES, SEEN 1
(SKIP TO 506) ←┘
YES, NOT SEEN 2
(SKIP TO 509) ←┘
NO CARD .... 3 | YES, SEEN 1
(SKIP TO 506) ←┘
YES, NOT SEEN 2
(SKIP TO 509) ←┘
NO CARD .... 3 | YES, SEEN 1
(SKIP TO 506) ←┘
YES, NOT SEEN 2
(SKIP TO 509) ←┘
NO CARD .... 3 |

| 505 | Did you ever have a vaccination card for (NAME)? | YES 1
(SKIP TO 509) ←┘
NO .... 2 | YES 1
(SKIP TO 509) ←┘
NO .... 2 | YES 1
(SKIP TO 509) ←┘
NO .... 2 |

| 506 | (1) COPY DATES FROM THE CARD.
(2) WRITE '44' IN 'DAY' COLUMN IF CARD SHOWS THAT A DOSE WAS GIVEN, BUT NO DATE IS RECORDED. |

		LAST BIRTH DAY MONTH YEAR	NEXT-TO-LAST BIRTH DAY MONTH YEAR	SECOND-FROM-LAST BIRTH DAY MONTH YEAR
	BCG	BCG	BCG	BCG
	OPV-0/POLIO 0		OPV0	OPV0
	OPV-1/POLIO 1		OPV1	OPV1
	OPV-2/POLIO 2		OPV2	OPV2
	OPV-3/POLIO 3		OPV3	OPV3
	PENTA-1/DPT-1		PE/D1	PE/D1
	PENTA-2/DPT-2		PE/D2	PE/D2
	PENTA-3/DPT-3		PE/D3	PE/D3
	MEASLES		MEA	MEA
	YELLOW FEVER		YF	YF
	VITAMIN A (MOST RECENT)		VIT A	VIT A

| 507 | CHECK 506: | BCG TO YELLOW FEV. OTHER
ALL RECORDED
☐ ☐
(GO TO 511) | BCG TO YELLOW FEV. OTHER
ALL RECORDED
☐ ☐
(GO TO 511) | BCG TO YELLOW FEV. OTHER
ALL RECORDED
☐ ☐
(GO TO 511) |

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
508	Has (NAME) had any vaccinations that are not recorded on this card, including vaccinations given in a national immunization day campaign? RECORD 'YES' ONLY IF THE RESPONDENT MENTIONS AT LEAST ONE OF THE VACCINATIONS IN 506 THAT ARE NOT RECORDED AS HAVING BEEN GIVEN.	YES . . . . 1 (PROBE FOR ←┐ VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) ┐ (SKIP TO 511) ←┘ NO . . . . 2 (SKIP TO 511) ←┤ DON'T KNOW 8	YES . . . . 1 (PROBE FOR ←┐ VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) ┐ (SKIP TO 511) ←┘ NO . . . . 2 (SKIP TO 511) ←┤ DON'T KNOW 8	YES . . . . 1 (PROBE FOR ←┐ VACCINATIONS AND WRITE '66' IN THE CORRESPONDING DAY COLUMN IN 506) ┐ (SKIP TO 511) ←┘ NO . . . . 2 (SKIP TO 511) ←┤ DON'T KNOW 8
509	Did (NAME) ever have any vaccinations to prevent him/her from getting diseases, including vaccinations received in a national immunization day campaign?	YES . . . . 1 NO . . . . 2 (SKIP TO 511) ←┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 511) ←┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 511) ←┤ DON'T KNOW 8
510	Please tell me if (NAME) had any of the following vaccinations:			
510A	A BCG vaccination against tuberculosis, that is, an injection in the arm or shoulder that usually leaves a mark?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
510B	Polio vaccine, that is, drops in the mouth?	YES . . . . 1 NO . . . . 2 (SKIP TO 510E) ←┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 510E) ←┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 510E) ←┤ DON'T KNOW 8
510C	The first time (NAME) got the polio vaccine, was it in the first two weeks after he/she was born or later?	FIRST 2 WEEKS . . . 1 LATER 2	FIRST 2 WEEKS . . . 1 LATER 2	FIRST 2 WEEKS . . . 1 LATER 2
510D	How many times did (NAME) get the polio vaccine?	NUMBER OF TIMES . . . . . [ ]	NUMBER OF TIMES . . . . . [ ]	NUMBER OF TIMES . . . . . [ ]
510E	A penta vaccination, that is, an injection given in the thigh, sometimes at the same time as polio drops?	YES . . . . 1 NO . . . . 2 (SKIP TO 510G) ←┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 510G) ←┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 510G) ←┤ DON'T KNOW 8
510F	How many times did (NAME) get a penta vaccination?	NUMBER OF TIMES . . . . . [ ]	NUMBER OF TIMES . . . . . [ ]	NUMBER OF TIMES . . . . . [ ]
510G	A measles injection - that is, a shot in the arm at the age of 9 months or older - to prevent him/her from getting measles?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
510H	A yellow fever injection - that is, a shot in the arm at the age of 9 months or older - to prevent him/her from getting yellow fever?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
511	During the last six months, was (NAME) given a vitamin A dose like (this/any of these)? SHOW COMMON TYPES OF CAPSULES.	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
512	During the last seven days, was (NAME) given iron pills or iron syrup like (any of these)? SHOW COMMON TYPES OF PILLS/SYRUPS.	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
513	Was (NAME) given any worm medicine in the last six months?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
514	Has (NAME) had running stomach in the last 2 weeks?	YES . . . . 1 NO . . . . 2 (SKIP TO 525) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 525) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 525) ◄─┤ DON'T KNOW 8
515	Was there any blood in the stools/pupu?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
516	Now I would like to know how much (NAME) was given to drink during the running stomach (including titi water). Was he/she given less than usual to drink, about the same amount, or more than usual to drink? IF LESS, PROBE: Was he/she given much less than usual to drink or somewhat less?	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8
517	When (NAME) had running stomach was he/she given less than usual to eat, about the same amount, more than usual, or nothing to eat? IF LESS, PROBE: Was he/she given much less than usual to eat or somewhat less?	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 STOPPED FOOD 5 NEVER GAVE FOOD 6 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 STOPPED FOOD 5 NEVER GAVE FOOD 6 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 STOPPED FOOD 5 NEVER GAVE FOOD 6 DON'T KNOW 8
518	Did you get advice or treatment for the running stomach from anywhere?	YES . . . . 1 NO . . . . 2 (SKIP TO 522)◄───┘	YES . . . . 1 NO . . . . 2 (SKIP TO 522)◄───┘	YES . . . . 1 NO . . . . 2 (SKIP TO 522)◄───┘

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

519	Where did you get advice or treatment?
	
	Anywhere else?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE(S))
		PUBLIC SECTOR
		  GOVT HOSPITAL A
		  GOVT HEALTH
		    CENTER . . . . . B
		  GOVT HEALTH
		    CLINIC C
		  gCHV . . . . D
		  OTHER PUBLIC
		    SECTOR
		    _____ E
		    (SPECIFY)
		
		PRIVATE MEDICAL
		SECTOR
		  PVT. HOSPITAL/
		    CLINIC . . . . F
		  PHARMACY . . . G
		  PVT DOCTOR . . . H
		  MOBILE CLINIC I
		  OTHER PRIVATE
		    MED. SECTOR
		    _____ J
		    (SPECIFY)
		
		OTHER SOURCE
		  SHOP . . . . K
		  TRADITIONAL
		    PRACTITIONER L
		  BLACK BAGGER/
		    DRUG PEDDLER M
		OTHER _____ X
		    (SPECIFY)
			PUBLIC SECTOR
			  GOVT HOSPITAL A
			  GOVT HEALTH
			    CENTER . . . . . B
			  GOVT HEALTH
			    CLINIC C
			  gCHV . . . . D
			  OTHER PUBLIC
			    SECTOR
			    _____ E
			    (SPECIFY)
			
			PRIVATE MEDICAL
			SECTOR
			  PVT. HOSPITAL/
			    CLINIC . . . . F
			  PHARMACY . . . G
			  PVT DOCTOR . . . H
			  MOBILE CLINIC I
			  OTHER PRIVATE
			    MED. SECTOR
			    _____ J
			    (SPECIFY)
			
			OTHER SOURCE
			  SHOP . . . . K
			  TRADITIONAL
			    PRACTITIONER L
			  BLACK BAGGER/
			    DRUG PEDDLER M
			OTHER _____ X
			    (SPECIFY)
				PUBLIC SECTOR
				  GOVT HOSPITAL A
				  GOVT HEALTH
				    CENTER . . . . . B
				  GOVT HEALTH
				    CLINIC C
				  gCHV . . . . D
				  OTHER PUBLIC
				    SECTOR
				    _____ E
				    (SPECIFY)
				
				PRIVATE MEDICAL
				SECTOR
				  PVT. HOSPITAL/
				    CLINIC . . . . F
				  PHARMACY . . . G
				  PVT DOCTOR . . . H
				  MOBILE CLINIC I
				  OTHER PRIVATE
				    MED. SECTOR
				    _____ J
				    (SPECIFY)
				
				OTHER SOURCE
				  SHOP . . . . K
				  TRADITIONAL
				    PRACTITIONER L
				  BLACK BAGGER/
				    DRUG PEDDLER M
				OTHER _____ X
				    (SPECIFY)

520	CHECK 519:	TWO OR ONLY
		☐ MORE ONE ☐
		   CODES CODE
		   CIRCLED CIRCLED
		↓ (SKIP TO 522) ←
			TWO OR ONLY
			☐ MORE ONE ☐
			   CODES CODE
			   CIRCLED CIRCLED
			↓ (SKIP TO 522) ←
				TWO OR ONLY
				☐ MORE ONE ☐
				   CODES CODE
				   CIRCLED CIRCLED
				↓ (SKIP TO 522) ←

521	Where did you go first for advice or treatment? USE LETTER CODE FROM 519.	FIRST PLACE . . . ☐	FIRST PLACE . . . ☐	FIRST PLACE . . . ☐
522	Was he/she given any of the following to drink at any time since he/she started having running stomach: a) A fluid made from a special packet called ORS? b) A homemade sugar-salt drink?	YES NO DK FLUID FROM ORS PKT 1 2 8 HOMEMADE FLUID . . . 1 2 8	YES NO DK FLUID FROM ORS PKT 1 2 8 HOMEMADE FLUID . . . 1 2 8	YES NO DK FLUID FROM ORS PKT 1 2 8 HOMEMADE FLUID . . . 1 2 8

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
523	Was anything (else) given to treat the running stomach?	YES . . . . 1 NO . . . . 2 (SKIP TO 525) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 525) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 525) ◄─┤ DON'T KNOW 8

524	What (else) was given to treat the running stomach?
	
	Anything else?
	
	RECORD ALL TREATMENTS GIVEN.
		PILL OR SYRUP
		  ANTIBIOTIC . . . . . A
		  FLAGYL . . . . B
		  ZINC C
		  OTHER (NOT ANTI-
		    BIOTIC, ANTI-
		    MOTILITY, OR
		    ZINC) . . . . D
		  UNKNOWN PILL
		    OR SYRUP . . . E
		
		INJECTION
		  ANTIBIOTIC . . . . . F
		  NON-ANTIBIOTIC G
		  UNKNOWN
		    INJECTION . . . H
		
		(IV) INTRAVENOUS I
		
		HOME REMEDY/
		  HERBAL MEDICINE J
		
		OTHER _____ X
		    (SPECIFY)
			PILL OR SYRUP
			  ANTIBIOTIC . . . . . A
			  FLAGYL . . . . B
			  ZINC C
			  OTHER (NOT ANTI-
			    BIOTIC, ANTI-
			    MOTILITY, OR
			    ZINC) . . . . D
			  UNKNOWN PILL
			    OR SYRUP . . . E
			
			INJECTION
			  ANTIBIOTIC . . . . . F
			  NON-ANTIBIOTIC G
			  UNKNOWN
			    INJECTION . . . H
			
			(IV) INTRAVENOUS I
			
			HOME REMEDY/
			  HERBAL MEDICINE J
			
			OTHER _____ X
			    (SPECIFY)
				PILL OR SYRUP
				  ANTIBIOTIC . . . . . A
				  FLAGYL . . . . B
				  ZINC C
				  OTHER (NOT ANTI-
				    BIOTIC, ANTI-
				    MOTILITY, OR
				    ZINC) . . . . D
				  UNKNOWN PILL
				    OR SYRUP . . . E
				
				INJECTION
				  ANTIBIOTIC . . . . . F
				  NON-ANTIBIOTIC G
				  UNKNOWN
				    INJECTION . . . H
				
				(IV) INTRAVENOUS I
				
				HOME REMEDY/
				  HERBAL MEDICINE J
				
				OTHER _____ X
				    (SPECIFY)

525	Has (NAME) been ill with a fever at any time in the last 2 weeks?	YES . . . . 1 NO . . . . 2 (SKIP TO 527) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 527) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 527) ◄─┤ DON'T KNOW 8
526	At any time during the illness, did (NAME) have blood taken from his/her finger or heel for testing?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	YES . . . . 1 NO . . . . 2 DON'T KNOW 8
527	Has (NAME) had an illness with a cough at any time in the last 2 weeks?	YES . . . . 1 NO . . . . 2 (SKIP TO 530) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 530) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 530) ◄─┤ DON'T KNOW 8
528	When (NAME) had an illness with a cough, did he/she breathe faster than usual with short, rapid breaths or have a hard time breathing?	YES . . . . 1 NO . . . . 2 (SKIP TO 531) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 531) ◄─┤ DON'T KNOW 8	YES . . . . 1 NO . . . . 2 (SKIP TO 531) ◄─┤ DON'T KNOW 8

529	Was the fast or hard time breathing due to a problem in the chest or to a blocked or runny nose?	CHEST ONLY . . . 1 ┐
		NOSE ONLY . . . . . 2 │
		BOTH . . . . 3 │
		OTHER _____ 6 │
		    (SPECIFY) │
		DON'T KNOW . . . . . 8 ┘
		(SKIP TO 531) ◄─
			CHEST ONLY . . . 1 ┐
			NOSE ONLY . . . . . 2 │
			BOTH . . . . 3 │
			OTHER _____ 6 │
			    (SPECIFY) │
			DON'T KNOW . . . . . 8 ┘
			(SKIP TO 531) ◄─
				CHEST ONLY . . . 1 ┐
				NOSE ONLY . . . . . 2 │
				BOTH . . . . 3 │
				OTHER _____ 6 │
				    (SPECIFY) │
				DON'T KNOW . . . . . 8 ┘
				(SKIP TO 531) ◄─

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____
530	CHECK 525: HAD FEVER?	YES ☐ NO OR DK ☐ (GO BACK TO 503 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 553)	YES ☐ NO OR DK ☐ (GO BACK TO 503 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 553)	YES ☐ NO OR DK ☐ (GO TO 503 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 553)
531	Now I would like to know how much (NAME) was given to drink (including titi water) during the illness with a (fever/cough). Was he/she given less than usual to drink, about the same amount, or more than usual to drink? IF LESS, PROBE: Was he/she given much less than usual to drink or somewhat less?	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 NOTHING TO DRINK 5 DON'T KNOW 8
532	When (NAME) had a (fever/cough), was he/she given less than usual to eat, about the same amount, more than usual, or nothing to eat? IF LESS, PROBE: Was he/she given much less than usual to eat or somewhat less?	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 STOPPED FOOD 5 NEVER GAVE FOOD 6 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 STOPPED FOOD 5 NEVER GAVE FOOD 6 DON'T KNOW 8	MUCH LESS . . . . . 1 SOMEWHAT LESS 2 ABOUT THE SAME 3 MORE . . . . 4 STOPPED FOOD 5 NEVER GAVE FOOD 6 DON'T KNOW 8
533	Did you get advice or treatment for the illness from anywhere?	YES . . . . 1 NO . . . . 2 (SKIP TO 537)←	YES . . . . 1 NO . . . . 2 (SKIP TO 537)←	YES . . . . 1 NO . . . . 2 (SKIP TO 537)←

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

534	Where did you get advice or treatment?
	
	Anywhere else?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE(S))
		PUBLIC SECTOR
		  GOVT HOSPITAL A
		  GOVT HEALTH
		    CENTER . . . . . B
		  GOVT HEALTH
		    CLINIC C
		  gCHV . . . . D
		  OTHER PUBLIC
		    SECTOR
		    _____ E
		    (SPECIFY)
		
		PRIVATE MEDICAL
		SECTOR
		  PVT. HOSPITAL/
		    CLINIC . . . . F
		  PHARMACY . . . G
		  PVT DOCTOR . . . H
		  MOBILE CLINIC I
		  OTHER PRIVATE
		    MED. SECTOR
		    _____ J
		    (SPECIFY)
		
		OTHER SOURCE
		  SHOP . . . . K
		  TRADITIONAL
		    PRACTITIONER L
		  BLACK BAGGER/
		    DRUG PEDDLER M
		
		OTHER _____ X
		    (SPECIFY)
			PUBLIC SECTOR
			  GOVT HOSPITAL A
			  GOVT HEALTH
			    CENTER . . . . . B
			  GOVT HEALTH
			    CLINIC C
			  gCHV . . . . D
			  OTHER PUBLIC
			    SECTOR
			    _____ E
			    (SPECIFY)
			
			PRIVATE MEDICAL
			SECTOR
			  PVT. HOSPITAL/
			    CLINIC . . . . F
			  PHARMACY . . . G
			  PVT DOCTOR . . . H
			  MOBILE CLINIC I
			  OTHER PRIVATE
			    MED. SECTOR
			    _____ J
			    (SPECIFY)
			
			OTHER SOURCE
			  SHOP . . . . K
			  TRADITIONAL
			    PRACTITIONER L
			  BLACK BAGGER/
			    DRUG PEDDLER M
			
			OTHER _____ X
			    (SPECIFY)
				PUBLIC SECTOR
				  GOVT HOSPITAL A
				  GOVT HEALTH
				    CENTER . . . . . B
				  GOVT HEALTH
				    CLINIC C
				  gCHV . . . . D
				  OTHER PUBLIC
				    SECTOR
				    _____ E
				    (SPECIFY)
				
				PRIVATE MEDICAL
				SECTOR
				  PVT. HOSPITAL/
				    CLINIC . . . . F
				  PHARMACY . . . G
				  PVT DOCTOR . . . H
				  MOBILE CLINIC I
				  OTHER PRIVATE
				    MED. SECTOR
				    _____ J
				    (SPECIFY)
				
				OTHER SOURCE
				  SHOP . . . . K
				  TRADITIONAL
				    PRACTITIONER L
				  BLACK BAGGER/
				    DRUG PEDDLER M
				
				OTHER _____ X
				    (SPECIFY)

535	CHECK 534:	TWO OR ONLY
		□ MORE ONE □
		   CODES CODE
		   CIRCLED CIRCLED
		↓ (SKIP TO 537) ←
			TWO OR ONLY
			□ MORE ONE □
			   CODES CODE
			   CIRCLED CIRCLED
			↓ (SKIP TO 537) ←
				TWO OR ONLY
				□ MORE ONE □
				   CODES CODE
				   CIRCLED CIRCLED
				↓ (SKIP TO 537) ←

536	Where did you go first for advice or treatment? USE LETTER CODE FROM 534.	FIRST PLACE . . . □	FIRST PLACE . . . □	FIRST PLACE . . . □

537	At any time during the illness, did (NAME) take any medicine for the illness?	YES 1
		NO 2
		  (GO BACK TO 503
		  IN NEXT COLUMN;
		  OR, IF NO MORE
		BIRTHS, GO TO 553)
		DON'T KNOW 8
			YES 1
			NO 2
			  (GO BACK TO 503
			  IN NEXT COLUMN;
			  OR, IF NO MORE
			BIRTHS, GO TO 553)
			DON'T KNOW 8
				YES 1
				NO 2
				  (GO TO 503 IN
				  NEXT-TO-LAST
				  COLUMN OF NEW
				  QUESTIONNAIRE;
				  OR, IF NO MORE
				BIRTHS, GO TO 553)
				DON'T KNOW 8

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

538	What medicine did (NAME) take?
	
	Any other drugs?
	
	RECORD ALL MENTIONED.
	
	NEW MALARIA TABLET = ARTEMISININ COMBINATION THERAPY (ACT)
		ANTIMALARIAL DRUGS
		    SP/FANSIDAR . . . A
		    CHLOROQUINE B
		    AMODIAQUINE C
		    QUININE . . . . D
		    NEW MALARIA
		      TABLET (ACT) E
		    OTHER ANTI-
		      MALARIAL
		      _____ . . . F
		        (SPECIFY)
		
		ANTIBIOTIC DRUGS
		    PILL/SYRUP . . . G
		    INJECTION . . . H
		
		OTHER DRUGS
		    ASPIRIN I
		    PARACETAMOL J
		    IBUPROFEN . . . K
		
		OTHER _____ X
		        (SPECIFY)
		DON'T KNOW . . . . . Z
			ANTIMALARIAL DRUGS
			    SP/FANSIDAR . . . A
			    CHLOROQUINE B
			    AMODIAQUINE C
			    QUININE . . . . D
			    NEW MALARIA
			      TABLET (ACT) E
			    OTHER ANTI-
			      MALARIAL
			      _____ . . . F
			        (SPECIFY)
			
			ANTIBIOTIC DRUGS
			    PILL/SYRUP . . . G
			    INJECTION . . . H
			
			OTHER DRUGS
			    ASPIRIN I
			    PARACETAMOL J
			    IBUPROFEN . . . K
			
			OTHER _____ X
			        (SPECIFY)
			DON'T KNOW . . . . . Z
				ANTIMALARIAL DRUGS
				    SP/FANSIDAR . . . A
				    CHLOROQUINE B
				    AMODIAQUINE C
				    QUININE . . . . D
				    NEW MALARIA
				      TABLET (ACT) E
				    OTHER ANTI-
				      MALARIAL
				      _____ . . . F
				        (SPECIFY)
				
				ANTIBIOTIC DRUGS
				    PILL/SYRUP . . . G
				    INJECTION . . . H
				
				OTHER DRUGS
				    ASPIRIN I
				    PARACETAMOL J
				    IBUPROFEN . . . K
				
				OTHER _____ X
				        (SPECIFY)
				DON'T KNOW . . . . . Z

539	CHECK 538: ANY CODE A-F CIRCLED?	YES☐ NO☐ (GO BACK TO 503 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 553)	YES☐ NO☐ (GO BACK TO 503 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 553)	YES☐ NO☐ (GO TO 503 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 553)
540	CHECK 538: SP/FANSIDAR ('A') GIVEN	CODE 'A' CODE 'A' CIRCLED☐ NOT CIRCLED☐ ↓ (SKIP TO 542) ←	CODE 'A' CODE 'A' CIRCLED☐ NOT CIRCLED☐ ↓ (SKIP TO 542) ←	CODE 'A' CODE 'A' CIRCLED☐ NOT CIRCLED☐ ↓ (SKIP TO 542) ←

541	How long after the fever started did (NAME) first take (SP/Fansidar)?	SAME DAY 0
		NEXT DAY 1
		TWO DAYS AFTER
		    FEVER 2
		THREE OR MORE
		    DAYS AFTER
		    FEVER 3
		DON'T KNOW . . . 8
			SAME DAY 0
			NEXT DAY 1
			TWO DAYS AFTER
			    FEVER 2
			THREE OR MORE
			    DAYS AFTER
			    FEVER 3
			DON'T KNOW . . . 8
				SAME DAY 0
				NEXT DAY 1
				TWO DAYS AFTER
				    FEVER 2
				THREE OR MORE
				    DAYS AFTER
				    FEVER 3
				DON'T KNOW . . . 8

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____		NEXT-TO-LAST BIRTH NAME _____		SECOND-FROM-LAST BIRTH NAME _____	
542	CHECK 538: CHLOROQUINE ('B') GIVEN	CODE 'B' CIRCLED ☐ ↓	CODE 'B' NOT CIRCLED ☐ (SKIP TO 544) ◄	CODE 'B' CIRCLED ☐ ↓	CODE 'B' NOT CIRCLED ☐ (SKIP TO 544) ◄	CODE 'B' CIRCLED ☐ ↓	CODE 'B' NOT CIRCLED ☐ (SKIP TO 544) ◄

543	How long after the fever started did (NAME) first take chloroquine?	SAME DAY 0
		NEXT DAY 1
		TWO DAYS AFTER
		  FEVER 2
		THREE OR MORE
		  DAYS AFTER
		  FEVER 3
		DON'T KNOW ... 8
				SAME DAY 0
				NEXT DAY 1
				TWO DAYS AFTER
				  FEVER 2
				THREE OR MORE
				  DAYS AFTER
				  FEVER 3
				DON'T KNOW ... 8
						SAME DAY 0
						NEXT DAY 1
						TWO DAYS AFTER
						  FEVER 2
						THREE OR MORE
						  DAYS AFTER
						  FEVER 3
						DON'T KNOW ... 8	

544	CHECK 538: AMODIAQUINE ('C') GIVEN	CODE 'C' CIRCLED ☐ ↓	CODE 'C' NOT CIRCLED ☐ (SKIP TO 546) ◄	CODE 'C' CIRCLED ☐ ↓	CODE 'C' NOT CIRCLED ☐ (SKIP TO 546) ◄	CODE 'C' CIRCLED ☐ ↓	CODE 'C' NOT CIRCLED ☐ (SKIP TO 546) ◄

545	How long after the fever started did (NAME) first take amodiaquine?	SAME DAY 0
		NEXT DAY 1
		TWO DAYS AFTER
		  FEVER 2
		THREE OR MORE
		  DAYS AFTER
		  FEVER 3
		DON'T KNOW ... 8
				SAME DAY 0
				NEXT DAY 1
				TWO DAYS AFTER
				  FEVER 2
				THREE OR MORE
				  DAYS AFTER
				  FEVER 3
				DON'T KNOW ... 8
						SAME DAY 0
						NEXT DAY 1
						TWO DAYS AFTER
						  FEVER 2
						THREE OR MORE
						  DAYS AFTER
						  FEVER 3
						DON'T KNOW ... 8	

546	CHECK 538: QUININE ('D') GIVEN	CODE 'D' CIRCLED ☐ ↓	CODE 'D' NOT CIRCLED ☐ (SKIP TO 548) ◄	CODE 'D' CIRCLED ☐ ↓	CODE 'D' NOT CIRCLED ☐ (SKIP TO 548) ◄	CODE 'D' CIRCLED ☐ ↓	CODE 'D' NOT CIRCLED ☐ (SKIP TO 548) ◄

547	How long after the fever started did (NAME) first take quinine?	SAME DAY 0
		NEXT DAY 1
		TWO DAYS AFTER
		  FEVER 2
		THREE OR MORE
		  DAYS AFTER
		  FEVER 3
		DON'T KNOW ... 8
				SAME DAY 0
				NEXT DAY 1
				TWO DAYS AFTER
				  FEVER 2
				THREE OR MORE
				  DAYS AFTER
				  FEVER 3
				DON'T KNOW ... 8
						SAME DAY 0
						NEXT DAY 1
						TWO DAYS AFTER
						  FEVER 2
						THREE OR MORE
						  DAYS AFTER
						  FEVER 3
						DON'T KNOW ... 8	

548	CHECK 538: NEW MALARIA TABLET (ACT) ('E') GIVEN	CODE 'E' CIRCLED ☐ ↓	CODE 'E' NOT CIRCLED ☐ (SKIP TO 550) ◄	CODE 'E' CIRCLED ☐ ↓	CODE 'E' NOT CIRCLED ☐ (SKIP TO 550) ◄	CODE 'E' CIRCLED ☐ ↓	CODE 'E' NOT CIRCLED ☐ (SKIP TO 550) ◄

NO.	QUESTIONS AND FILTERS	LAST BIRTH NAME _____	NEXT-TO-LAST BIRTH NAME _____	SECOND-FROM-LAST BIRTH NAME _____

549	How long after the fever started did (NAME) first take the new malaria tablet (ACT)?	SAME DAY 0
		NEXT DAY 1
		TWO DAYS AFTER
		   FEVER 2
		THREE OR MORE
		   DAYS AFTER
		   FEVER 3
		DON'T KNOW ... 8
			SAME DAY 0
			NEXT DAY 1
			TWO DAYS AFTER
			   FEVER 2
			THREE OR MORE
			   DAYS AFTER
			   FEVER 3
			DON'T KNOW ... 8
				SAME DAY 0
				NEXT DAY 1
				TWO DAYS AFTER
				   FEVER 2
				THREE OR MORE
				   DAYS AFTER
				   FEVER 3
				DON'T KNOW ... 8

550	CHECK 538:
	
	OTHER ANTIMALARIAL ('F')
	GIVEN
		CODE 'F' CODE 'F'
		CIRCLED NOT
		          CIRCLED
		
		(GO BACK TO
		503 IN NEXT
		COLUMN; OR,
		IF NO MORE
		BIRTHS, GO
		TO 553)
			CODE 'F' CODE 'F'
			CIRCLED NOT
			          CIRCLED
			
			(GO BACK TO
			503 IN NEXT
			COLUMN; OR,
			IF NO MORE
			BIRTHS, GO
			TO 553)
				CODE 'F' CODE 'F'
				CIRCLED NOT
				          CIRCLED
				
				(GO TO 503 IN
				NEXT-TO-LAST
				COLUMN OF NEW
				QUESTIONNAIRE;
				OR, IF NO MORE
				BIRTHS, GO TO 553)

551	How long after the fever started did (NAME) first take (OTHER ANTIMALARIAL)?	SAME DAY 0
		NEXT DAY 1
		TWO DAYS AFTER
		   FEVER 2
		THREE OR MORE
		   DAYS AFTER
		   FEVER 3
		DON'T KNOW ... 8
			SAME DAY 0
			NEXT DAY 1
			TWO DAYS AFTER
			   FEVER 2
			THREE OR MORE
			   DAYS AFTER
			   FEVER 3
			DON'T KNOW ... 8
				SAME DAY 0
				NEXT DAY 1
				TWO DAYS AFTER
				   FEVER 2
				THREE OR MORE
				   DAYS AFTER
				   FEVER 3
				DON'T KNOW ... 8

552		GO BACK TO 503 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 553.	GO BACK TO 503 IN NEXT COLUMN; OR, IF NO MORE BIRTHS, GO TO 553.	GO TO 503 IN NEXT-TO-LAST COLUMN OF NEW QUESTIONNAIRE; OR, IF NO MORE BIRTHS, GO TO 553.

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
553	CHECK 215 AND 218, ALL ROWS: NUMBER OF CHILDREN BORN IN 2008 OR LATER LIVING WITH THE RESPONDENT ONE OR MORE ☐ NONE ☐ RECORD NAME OF YOUNGEST CHILD LIVING WITH HER AND CONTINUE WITH 554 _____ (NAME)		→ 556

554	The last time (NAME FROM 553) passed stools/pupu, what was done to dispose of the stools?	CHILD USED TOILET OR LATRINE . . . 01
		PUT/RINSED
		  INTO TOILET OR LATRINE 02
		PUT/RINSED
		  INTO DRAIN OR DITCH 03
		THROWN INTO GARBAGE 04
		BURIED 05
		LEFT IN THE OPEN 06
		LEFT IN BUSH/FIELD 07
		OTHER _____ 96
		(SPECIFY)	

555	CHECK 522(a), ALL COLUMNS: NO CHILD ANY CHILD RECEIVED FLUID ☐ RECEIVED FLUID ☐ FROM ORS PACKET FROM ORS PACKET		→ 557
556	Have you ever heard of a special product called ORS or oral rehydration salts you can get for the treatment of running stomach?	YES . . . . 1 NO 2	
557	CHECK 215 AND 218, ALL ROWS: NUMBER OF CHILDREN BORN IN 2011 OR LATER LIVING WITH THE RESPONDENT ONE OR MORE ☐ NONE ☐ RECORD NAME OF YOUNGEST CHILD LIVING WITH HER AND CONTINUE WITH 558 _____ (NAME)		→ 601

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

| 558 | Now I would like to ask you about liquids or foods that (NAME FROM 557) had yesterday during the day or at night. I am interested in whether your child had the item I mention even if it was combined with other foods. |

Did (NAME FROM 557) (drink/eat):

			YES	NO	DK
a)	Plain water?	**a)**	1	2	8
b)	Juice or juice drinks?	**b)**	1	2	8
c)	Clear broth?	**c)**	1	2	8
d)	Milk such as powdered, tinned, or fresh animal milk?	**d)**	1	2	8

IF YES: How many times did (NAME) drink milk?
    IF 7 OR MORE TIMES, RECORD '7'.
NUMBER OF TIMES DRANK MILK ☐

| e) | Guigoz, Sma Progress or other infant formula? | **e)** | 1 | 2 | 8 |

IF YES: How many times did (NAME) drink infant formula?
    IF 7 OR MORE TIMES, RECORD '7'.
NUMBER OF TIMES DRANK FORMULA ☐

| f) | Any other liquids? | **f)** | 1 | 2 | 8 |
| g) | Yogurt? | **g)** | 1 | 2 | 8 |

IF YES: How many times did (NAME) eat yogurt?
    IF 7 OR MORE TIMES, RECORD '7'.
NUMBER OF TIMES ATE YOGURT ☐

h)	Any Gerber, Cerelac or other commerically fortified baby food?	**h)**	1	2	8
i)	Rice, bread, porridge, cereal, corn/maize or other foods made from grains?	**i)**	1	2	8
j)	Pumpkin, carrots, squash or sweet potatoes that are yellow or orange inside?	**j)**	1	2	8
k)	Cassava, eddoes, white potatoes, white yams, or any other foods made from roots?	**k)**	1	2	8
l)	Potato greens, bitter leaf, cassava leaf or any dark green, leafy vegetables?	**l)**	1	2	8
m)	Ripe mangoes or pawpaws?	**m)**	1	2	8
n)	Any other fruits or vegetables?	**n)**	1	2	8
o)	Liver, kidney, heart or other organ meats?	**o)**	1	2	8
p)	Any meat, such as beef, pork, lamb, goat, chicken, or duck?	**p)**	1	2	8
q)	Eggs?	**q)**	1	2	8
r)	Fresh, tinned or dried fish or crawfish, crab, or kissmeat?	**r)**	1	2	8
s)	Any foods made from beans, peas, lentils, or nuts?	**s)**	1	2	8
t)	Cheese or other food made from milk?	**t)**	1	2	8
u)	Red palm soup or foods made with red palm oil or palm butter?	**u)**	1	2	8
v)	Any other solid, semi-solid, or soft food?	**v)**	1	2	8

559	CHECK 558 (CATEGORIES "g" THROUGH "v"):		

NOT A SINGLE "YES" ☐ ↓

AT LEAST ONE "YES" ☐ ————————————→ | 561

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
560	Did (NAME) eat any solid, semi-solid, or soft foods yesterday during the day or at night? IF 'YES' PROBE: What kind of solid, semi-solid or soft foods did (NAME) eat?	YES . . . . 1 　(GO BACK TO 558 TO RECORD　↵ 　FOOD EATEN YESTERDAY) NO . . . . 2 → 601	
561	How many times did (NAME FROM 557) eat solid, semi-solid, or soft foods yesterday during the day or at night? IF 7 OR MORE TIMES, RECORD '7'.	NUMBER OF TIMES . . . . ☐ DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
601	Are you currently married or living together with a man as if married?	YES, CURRENTLY MARRIED . . . . 1 YES, LIVING WITH A MAN . . . . 2 NO, NOT IN UNION 3	→ 604
602	Have you ever been married or lived together with a man as if married?	YES, FORMERLY MARRIED . . . . 1 YES, LIVED WITH A MAN . . . . 2 NO 3	→ 612
603	What is your marital status now: are you widowed, divorced, or separated?	WIDOWED . . . . 1 DIVORCED . . . . 2 SEPARATED 3	→ 609
604	Is your (husband/partner) living with you now or is he staying somewhere else?	LIVING WITH HER . . . . 1 STAYING ELSEWHERE 2	
605	RECORD THE HUSBAND'S/PARTNER'S NAME AND LINE NUMBER FROM THE HOUSEHOLD QUESTIONNAIRE. IF HE IS NOT LISTED IN THE HOUSEHOLD, RECORD '00'.	NAME _____ LINE NO. . . . . ☐☐	
606	Does your (husband/partner) have other wives or does he live with other women as if married?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	→ 609
607	Including yourself, in total, how many wives or live-in partners does he have?	TOTAL NUMBER OF WIVES AND LIVE-IN PARTNERS . . . . . ☐☐ DON'T KNOW 98	
608	Are you the first, second, … wife?	RANK . . . . ☐☐	
609	Have you been married or lived with a man only once or more than once?	ONLY ONCE . . . . 1 MORE THAN ONCE 2	
610	CHECK 609: MARRIED/ LIVED WITH A MAN ONLY ONCE ↓ MARRIED/ LIVED WITH A MAN MORE THAN ONCE ↓ In what month and year did you start living with your (husband/partner)? Now I would like to ask about your first (husband/partner). In what month and year did you start living with him?	MONTH . . . . ☐☐ DON'T KNOW MONTH . . . . 98 YEAR . . . . ☐☐☐☐ DON'T KNOW YEAR 9998	→ 612
611	How old were you when you first started living with him?	AGE . . . . ☐☐	
612	CHECK FOR THE PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY.		

613	Now I would like to ask some questions about man business in order to gain a better understanding of some important life issues.
	
	How old were you when you did man business for the very first time?
		NEVER HAD SEXUAL
		  INTERCOURSE 00
		
		AGE IN YEARS . . . . ☐☐
		
		FIRST TIME WHEN STARTED
		  LIVING WITH (FIRST)
		  HUSBAND/PARTNER 95
			→ 628

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
614	Now I would like to ask you some questions about your recent sexual activity. Let me assure you again that your answers are completely confidential and will not be told to anyone. If we should come to any question that you don't want to answer, just let me know and we will go to the next question.		
615	When was the last time you did man business? IF LESS THAN 12 MONTHS, ANSWER MUST BE RECORDED IN DAYS, WEEKS OR MONTHS. IF 12 MONTHS (ONE YEAR) OR MORE, ANSWER MUST BE RECORDED IN YEARS.	DAYS AGO . . . . 1 WEEKS AGO . . . . 2 MONTHS AGO . . . . 3 YEARS AGO 4	→ 617 → 627

		LAST SEXUAL PARTNER	SECOND-TO-LAST SEXUAL PARTNER	THIRD-TO-LAST SEXUAL PARTNER
616	When was the last time you did man business with this man?		DAYS AGO 1 · WEEKS AGO 2 · MONTHS AGO 3	DAYS AGO 1 · WEEKS AGO 2 · MONTHS AGO 3
617	The last time you had man business (with this second/third man) did he use a condom?	YES . . . . 1 · NO . . . . 2 (SKIP TO 619)	YES . . . . 1 · NO . . . . 2 (SKIP TO 619)	YES . . . . 1 · NO . . . . 2 (SKIP TO 619)
618	Was a condom used every time you did man business with this person in the last 12 months?	YES . . . . 1 · NO 2	YES . . . . 1 · NO 2	YES . . . . 1 · NO 2
619	What was your relationship to this person with whom you did man business? IF BOYFRIEND: Were you living together as if married? IF YES, CIRCLE '2'. IF NO, CIRCLE '3'.	HUSBAND . . . . 1 · LIVE-IN PARTNER . . . 2 · BOYFRIEND NOT LIVING WITH RESPONDENT . . . 3 · CASUAL ACQUAINTANCE . . . 4 · CLIENT/PROSTITUTE 5 · OTHER _____ 6 (SPECIFY) (SKIP TO 622)	HUSBAND . . . . 1 · LIVE-IN PARTNER . . . 2 · BOYFRIEND NOT LIVING WITH RESPONDENT . . . 3 · CASUAL ACQUAINTANCE . . . 4 · CLIENT/PROSTITUTE 5 · OTHER _____ 6 (SPECIFY) (SKIP TO 622)	HUSBAND . . . . 1 · LIVE-IN PARTNER . . . 2 · BOYFRIEND NOT LIVING WITH RESPONDENT . . . 3 · CASUAL ACQUAINTANCE . . . 4 · CLIENT/PROSTITUTE 5 · OTHER _____ 6 (SPECIFY) (SKIP TO 622)
620	CHECK 609:	MARRIED ONLY ONCE ↓	MARRIED MORE THAN ONCE (SKIP TO 622)	MARRIED ONLY ONCE ↓	MARRIED MORE THAN ONCE (SKIP TO 622)	MARRIED ONLY ONCE ↓	MARRIED MORE THAN ONCE (SKIP TO 622)
621	CHECK 613:	FIRST TIME WHEN STARTED LIVING WITH FIRST HUSBAND ↓ OTHER (SKIP TO 623)	FIRST TIME WHEN STARTED LIVING WITH FIRST HUSBAND ↓ OTHER (SKIP TO 623)	FIRST TIME WHEN STARTED LIVING WITH FIRST HUSBAND ↓ OTHER (SKIP TO 623)
622	How long ago did you first do man business with this (second/third) man?	DAYS AGO 1 · WEEKS AGO 2 · MONTHS AGO 3 · YEARS AGO 4	DAYS AGO 1 · WEEKS AGO 2 · MONTHS AGO 3 · YEARS AGO 4	DAYS AGO 1 · WEEKS AGO 2 · MONTHS AGO 3 · YEARS AGO 4
623	How many times during the last 12 months have you done man business with this man? IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. IF NUMBER OF TIMES IS 95 OR MORE, WRITE '95'.	NUMBER OF TIMES	NUMBER OF TIMES	NUMBER OF TIMES
624	How old is this man?	AGE OF PARTNER DON'T KNOW 98	AGE OF PARTNER DON'T KNOW 98	AGE OF PARTNER DON'T KNOW 98
625	Apart from (this person/these two people) have you done man business with any other person in the last 12 months?	YES . . . . 1 (GO BACK TO 616 IN NEXT COLUMN) NO . . . . 2 (SKIP TO 627)	YES . . . . 1 (GO BACK TO 616 IN NEXT COLUMN) NO . . . . 2 (SKIP TO 627)	
626	In the last 12 months, how many men have you done man business with? IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. IF NUMBER OF PARTNERS IS 95 OR MORE, WRITE '95'.			NUMBER OF PARTNERS LAST 12 MONTHS . . . DON'T KNOW . . . 98

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
627	In your whole life, how many men have you done man business with? IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. IF NUMBER OF PARTNERS IS 95 OR MORE, WRITE '95'.	NUMBER OF PARTNERS IN LIFETIME . . . . ☐☐ DON'T KNOW 98	
628	PRESENCE OF OTHERS DURING THIS SECTION	YES NO CHILDREN <10 . . . . 1 2 MALE ADULTS . . . . 1 2 FEMALE ADULTS 1 2	
629	Do you know of a place where a person can get condoms?	YES . . . . 1 NO 2	→ 701

630	Where is that?
	
	Any other place?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE(S))
		PUBLIC SECTOR
		   GOVERNMENT HOSPITAL . . . . A
		   GOVT. HEALTH CENTER . . . . B
		   GOVT. CLINIC C
		   COMMUNITY HEALTH VOL/gCHV D
		   NACP . . . . E
		
		   OTHER PUBLIC
		     SECTOR _____ F
		                  (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		   PRIVATE HOSPITAL/CLINIC . . . . . G
		   PHARMACY . . . . H
		   PRIVATE DOCTOR I
		   PLANNED PARENTHOOD ASSN. LIB J
		   MOBILE CLINIC . . . . K
		   OTHER PRIVATE MEDICAL
		     SECTOR _____ L
		                  (SPECIFY)
		
		OTHER SOURCE
		   SHOP . . . . M
		   CHURCH . . . . N
		   FRIENDS/RELATIVES . . . . O
		
		OTHER _____ X
		              (SPECIFY)	

631	If you wanted to, could you yourself get a condom?	YES . . . . 1 NO . . . . 2 DON'T KNOW/UNSURE 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
701	CHECK 304: NEITHER HE OR SHE STERILIZED STERILIZED		→ 712
702	CHECK 226: NOT PREGNANT PREGNANT OR UNSURE		→ 704
703	Now I have some questions about the future. After the child you are expecting now, would you like to have another child, or would you prefer not to have any more children?	HAVE ANOTHER CHILD . . . . 1 NO MORE . . . . 2 UNDECIDED/DON'T KNOW 8	→ 705 → 711
704	Now I have some questions about the future. Would you like to have (a/another) child, or would you prefer not to have any (more) children?	HAVE (A/ANOTHER) CHILD . . . . 1 NO MORE/NONE . . . . 2 SAYS SHE CAN'T GET PREGNANT 3 UNDECIDED/DON'T KNOW 8	 → 707 → 712 → 710

705	CHECK 226:
	
	NOT PREGNANT PREGNANT
	OR UNSURE
	
	How long would you like to After the birth of the child you are
	wait from now before the expecting now, how long would
	birth of (a/another) child? you like to wait before the birth of
	                          another child?
		MONTHS 1
		
		YEARS 2
		
		SOON/NOW 993
		SAYS SHE CAN'T GET PREGNANT 994
		AFTER MARRIAGE 995
		
		OTHER _____ 996
		          (SPECIFY)
		DON'T KNOW 998
			
			→ 710
			→ 712
			
			→ 710

706	CHECK 226: NOT PREGNANT PREGNANT OR UNSURE		→ 711
707	CHECK 303: USING A CONTRACEPTIVE METHOD? NOT CURRENTLY CURRENTLY USING USING		→ 712
708	CHECK 705: NOT 24 OR MORE MONTHS 00-23 MONTHS ASKED OR 02 OR MORE YEARS OR 00-01 YEAR		→ 711

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

709 — CHECK 704:

WANTS TO HAVE A/ANOTHER CHILD ☐   WANTS NO MORE/ NONE ☐

You have said that you do not want (a/another) child soon.

Can you tell me why you are not using a method to prevent pregnancy?

Any other reason?

You have said that you do not want any (more) children.

Can you tell me why you are not using a method to prevent pregnancy?

Any other reason?

RECORD ALL REASONS MENTIONED.

CODING CATEGORIES:

NOT MARRIED . . . . A

FERTILITY-RELATED REASONS
   NOT HAVING SEX . . . . B
   INFREQUENT SEX C
   MENOPAUSAL/HYSTERECTOMY   D
   CAN'T GET PREGNANT . . . . E
   NOT MENSTRUATED SINCE
      LAST BIRTH . . . . F
   BREASTFEEDING . . . . G
   UP TO GOD/FATALISTIC . . . . H

OPPOSITION TO USE
   RESPONDENT OPPOSED I
   HUSBAND/PARTNER OPPOSED . . . J
   OTHERS OPPOSED . . . . K
   RELIGIOUS PROHIBITION L

LACK OF KNOWLEDGE
   KNOWS NO METHOD . . . . M
   KNOWS NO SOURCE . . . . N

METHOD-RELATED REASONS
   SIDE EFFECTS/HEALTH
      CONCERNS . . . . O
   LACK OF ACCESS/TOO FAR . . . . . P
   COSTS TOO MUCH . . . . Q
   PREFERRED METHOD
      NOT AVAILABLE . . . . R
   NO METHOD AVAILABLE . . . . S
   INCONVENIENT TO USE . . . . T
   INTERFERES WITH BODY'S
      NORMAL PROCESSES . . . . U

OTHER _____ X
               (SPECIFY)
DON'T KNOW . . . . Z

---

710 — CHECK 303: USING A CONTRACEPTIVE METHOD?

NOT ASKED ☐   NO, NOT CURRENTLY USING ☐   YES, CURRENTLY USING ☐ → 712

---

711 — Do you think you will use a contraceptive method to delay or avoid pregnancy at any time in the future?

YES 1
NO 2
DON'T KNOW 8

---

712 — CHECK 216:

HAS LIVING CHILDREN ☐   NO LIVING CHILDREN ☐

If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be?

If you could choose exactly the number of children to have in your whole life, how many would that be?

PROBE FOR A NUMERIC RESPONSE.

NONE . . . . 00 → 714

NUMBER . . . . ☐☐

OTHER _____ 96 → 714
               (SPECIFY)

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
713	How many of these children would you like to be boys, how many would you like to be girls and for how many would it not matter if it's a boy or a girl?	BOYS GIRLS EITHER NUMBER ☐☐ ☐☐ ☐☐ OTHER _____ 96 (SPECIFY)	
714	In the last few months have you: Heard about family planning on the radio? Seen anything about family planning on the television? Read about family planning in a newspaper or magazine?	YES NO RADIO . . . . 1 2 TELEVISION . . . . 1 2 NEWSPAPER OR MAGAZINE . . . 1 2	
715	In the past 12 months, have you seen or heard the slogan "Baby by choice not by chance"?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	716
715A	Where have you seen or heard the slogan "Baby by choice not by chance"? Anywhere else?	RADIO . . . . A BILLBOARD . . . . B POSTER . . . . C T-SHIRT . . . . D LEAFLET/FACT SHEET/ BROCHURE E TELEVISION . . . . F MOBILE VIDEO UNIT . . . . G SCHOOL . . . . H HEALTH CARE WORKER . . . . I COMMUNITY EVENT/PRESENTATION J FRIEND/NEIGHBOR/FAMILY MEMBER K OTHER _____ X (SPECIFY) DON'T KNOW . . . . Z	
716	CHECK 601: YES, YES, NO, CURRENTLY ☐ LIVING ☐ NOT IN ☐ MARRIED ↓ WITH A MAN ↓ UNION		801
717	CHECK 303: USING A CONTRACEPTIVE METHOD? NOT CURRENTLY ☐ CURRENTLY ☐ USING ↓ USING OR NOT ASKED		720
718	Would you say that using contraception is mainly your decision, mainly your (husband's/partner's) decision, or did you both decide together?	MAINLY RESPONDENT . . . . 1 MAINLY HUSBAND/PARTNER . . . . . 2 JOINT DECISION . . . . 3 OTHER _____ 6 (SPECIFY)	
719	CHECK 304: NEITHER ☐ HE OR SHE ☐ STERILIZED ↓ STERILIZED		801
720	Does your (husband/partner) want the same number of children that you want, or does he want more or fewer than you want?	SAME NUMBER . . . . 1 MORE CHILDREN . . . . 2 FEWER CHILDREN . . . . 3 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
801	CHECK 601 AND 602: CURRENTLY FORMERLY MARRIED/ MARRIED/ LIVING WITH LIVED WITH A MAN A MAN NEVER MARRIED AND NEVER LIVED WITH A MAN		→ 803 → 807
802	How old was your (husband/partner) on his last birthday?	AGE IN COMPLETED YEARS ☐☐	
803	Did your (last) (husband/partner) ever attend school?	YES . . . . 1 NO 2	→ 806
804	What was the highest level of school he attended: primary, secondary, or higher?	PRIMARY . . . . 1 SECONDARY . . . . 2 HIGHER . . . . 3 DON'T KNOW 8	→ 806
805	What was the highest grade he completed at that level? IF COMPLETED LESS THAN ONE YEAR AT THAT LEVEL, RECORD '00'.	GRADE . . . . ☐☐ DON'T KNOW 98	
806	CHECK 801: CURRENTLY MARRIED/ FORMERLY MARRIED/ LIVING WITH A MAN LIVED WITH A MAN What is your (husband's/ What was your (last) (husband's/ partner's) occupation? partner's) occupation? That is, what kind of work does That is, what kind of work did he he mainly do? mainly do?	_____ _____ ☐☐	
807	Aside from your own housework, have you done any work in the last seven days?	YES . . . . 1 NO 2	→ 811
808	As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business. In the last seven days, have you done any of these things or any other work?	YES . . . . 1 NO 2	→ 811
809	Do you have any job or business from which you were absent for leave, illness, vacation, maternity leave, or any other such reason?	YES . . . . 1 NO 2	→ 811
810	Have you done any work in the last 12 months?	YES . . . . 1 NO 2	→ 815
811	What is your occupation, that is, what kind of work do you mainly do?	_____ _____ ☐☐	
812	Do you do this work for a member of your family, for someone else, or are you self-employed?	FOR FAMILY MEMBER . . . . 1 FOR SOMEONE ELSE . . . . 2 SELF-EMPLOYED 3	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
813	Do you usually work throughout the year, or do you work seasonally, or only once in a while?	THROUGHOUT THE YEAR . . . . 1 SEASONALLY/PART OF THE YEAR 2 ONCE IN A WHILE 3	
814	Are you paid in cash or kind for this work or are you not paid at all?	CASH ONLY . . . . 1 CASH AND IN KIND . . . . 2 IN KIND ONLY . . . . 3 NOT PAID 4	
815	CHECK 601: CURRENTLY MARRIED/LIVING NOT IN UNION ☐ WITH A MAN ☐ ↓		▸ 823
816	CHECK 814: CODE 1 OR 2 CIRCLED ☐ OTHER ☐ ↓		▸ 819
817	Who usually decides how the money you earn will be used: you, your (husband/partner), or you and your (husband/partner) jointly?	RESPONDENT . . . . 1 HUSBAND/PARTNER . . . . 2 RESPONDENT AND HUSBAND/PARTNER JOINTLY . . . 3 OTHER _____ 6 (SPECIFY)	
818	Would you say that the money that you earn is more than what your (husband/partner) earns, less than what he earns, or about the same?	MORE THAN HIM . . . . 1 LESS THAN HIM . . . . 2 ABOUT THE SAME . . . . 3 HUSBAND/PARTNER HAS NO EARNINGS . . . . 4 DON'T KNOW 8	▸ 820

819	Who usually decides how your (husband's/partner's) earnings will be used: you, your (husband/partner), or you and your (husband/partner) jointly?	RESPONDENT 1
		HUSBAND/PARTNER 2
		RESPONDENT AND
		   HUSBAND/PARTNER JOINTLY . . . 3
		HUSBAND/PARTNER HAS
		   NO EARNINGS 4
		OTHER _____ 6
		(SPECIFY)	

820	Who usually makes decisions about health care for yourself: you, your (husband/partner), you and your (husband/partner) jointly, or someone else?	RESPONDENT . . . . 1 HUSBAND/PARTNER . . . . 2 RESPONDENT AND HUSBAND/PARTNER JOINTLY . . . 3 SOMEONE ELSE . . . . 4 OTHER 6	
821	Who usually makes decisions about making major purchases for the household?	RESPONDENT . . . . 1 HUSBAND/PARTNER . . . . 2 RESPONDENT AND HUSBAND/PARTNER JOINTLY . . . 3 SOMEONE ELSE . . . . 4 OTHER 6	
822	Who usually makes decisions about visits to your family or relatives?	RESPONDENT . . . . 1 HUSBAND/PARTNER . . . . 2 RESPONDENT AND HUSBAND/PARTNER JOINTLY . . . 3 SOMEONE ELSE . . . . 4 OTHER 6	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
823	Do you own this or any other house either alone or jointly with someone else?	ALONE ONLY . . . . 1 JOINTLY ONLY . . . . 2 BOTH ALONE AND JOINTLY . . . . 3 DOES NOT OWN 4	
824	PRESENCE OF OTHERS AT THIS POINT (PRESENT AND LISTENING, PRESENT BUT NOT LISTENING, OR NOT PRESENT)	PRES./ PRES./ NOT LISTEN. NOT PRES. LISTEN. CHILDREN < 10 . . . . . 1 2 3 HUSBAND . . . . 1 2 3 OTHER MALES . . . . . 1 2 3 OTHER FEMALES . . . 1 2 3	
825	In your opinion, is a husband justified in hitting or beating his wife in the following situations: If she goes out without telling him? If she neglects the children? If she argues with him? If she refuses to have sex with him? If she burns the food?	YES NO DK GOES OUT . . . . 1 2 8 NEGL. CHILDREN . . . 1 2 8 ARGUES . . . . 1 2 8 REFUSES SEX . . . . . 1 2 8 BURNS FOOD 1 2 8	
826	In your opinion, are parents justified in hitting or beating their children in the following situations: If they go out without telling them? If they do not want to do housework? If they speak when grown-ups are talking? If they do not study well at school? If they ask for clothes and toys?	YES NO DK GOES OUT . . . . 1 2 8 HOUSEWORK . . . . 1 2 8 SPEAK . . . . 1 2 8 DON'T STUDY . . . . . 1 2 8 ASK FOR CLOTHES 1 2 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
901	Now I would like to talk about something else. Have you ever heard of an illness called AIDS?	YES . . . . 1 NO 2	→ 937
902	Can people reduce their chance of getting the AIDS virus by having just one uninfected sex partner who has no other sex partners?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
903	Can people get the AIDS virus from mosquito bites?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
904	Can people reduce their chance of getting the AIDS virus by using a condom every time they have sex?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
905	Can people get the AIDS virus by sharing food with a person who has AIDS?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
906	Can people get the AIDS virus because of witchcraft or other supernatural means?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
907	Is it possible for a healthy-looking person to have the AIDS virus?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
908	Can the virus that causes AIDS be transmitted from a mother to her baby: During pregnancy? During delivery? By breastfeeding?	YES NO DK DURING PREG. . . . . . 1 2 8 DURING DELIVERY . . . 1 2 8 BREASTFEEDING . . . 1 2 8	
909	CHECK 908: AT LEAST ☐ OTHER ☐ ONE 'YES' ↓		→ 911
910	Are there any special drugs that a doctor or a nurse can give to a woman infected with the AIDS virus to reduce the risk of transmission to the baby?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
911	CHECK 208 AND 215: NO BIRTHS ☐ LAST BIRTH SINCE ☐ LAST BIRTH BEFORE ☐ JANUARY 2011 ↓ JANUARY 2011		→ 926 → 926
912	CHECK 408 FOR LAST BIRTH: HAD NO ANTENATAL ☐ ANTENATAL ☐ CARE ↓ CARE		→ 920
913	CHECK FOR PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY.		
914	During any of the antenatal visits for your last birth were you given any information about: Babies getting the AIDS virus from their mother? Things that you can do to prevent getting the AIDS virus? Getting tested for the AIDS virus?	YES NO DK AIDS FROM MOTHER 1 2 8 THINGS TO DO 1 2 8 TESTED FOR AIDS 1 2 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
915	Were you offered a test for the AIDS virus as part of your prenatal checkup?	YES . . . . 1 NO 2	
916	I don't want to know the results, but were you tested for the AIDS virus as part of your prenatal checkup?	YES . . . . 1 NO 2	→ 920
917	Where was the test done? PROBE TO IDENTIFY THE TYPE OF SOURCE. IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE. _____ (NAME OF PLACE)	PUBLIC SECTOR 　GOVERNMENT HOSPITAL . . . . 11 　GOVT. HEALTH CENTER . . . . 12 　GOVT. HEALTH CLINIC . . . . 13 　STAND-ALONE VCT CENTER . . . . . 14 　NACP . . . . 15 　OTHER PUBLIC 　　SECTOR _____ 16 　　　　　(SPECIFY) PRIVATE MEDICAL SECTOR 　PRIVATE HOSPITAL/CLINIC . . . . . 21 　PRIVATE DOCTOR . . . . 22 　STAND-ALONE VCT CENTER . . . . . 23 　PHARMACY . . . . 24 　PLANNED PARENTHOOD ASSN. LIB 25 　MOBILE CLINIC . . . . 26 　OTHER PRIVATE 　　MEDICAL SECTOR 　　　　_____ 27 　　　　　(SPECIFY) OTHER SOURCE 　SHOP . . . . 31 OTHER _____ 96 　　　　　(SPECIFY)	
918	I don't want to know the results, but did you get the results of the test?	YES . . . . 1 NO 2	→ 924
919	All women are supposed to receive counseling after being tested. After you were tested, did you receive counseling?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	→ 924
920	CHECK 434 FOR LAST BIRTH: 　　ANY CODE ☐　　　　OTHER ☐ _____ 　　21-36 CIRCLED ↓		→ 926
921	Between the time you went for delivery but before the baby was born, were you offered a test for the AIDS virus?	YES . . . . 1 NO 2	
922	I don't want to know the results, but were you tested for the AIDS virus at that time?	YES . . . . 1 NO 2	→ 926
923	I don't want to know the results, but did you get the results of the test?	YES . . . . 1 NO 2	
924	Have you been tested for the AIDS virus since that time you were tested during your pregnancy?	YES . . . . 1 NO 2	→ 927
925	How many months ago was your most recent HIV test?	MONTHS AGO . . . . ☐☐ TWO OR MORE YEARS 95	→ 932

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
926	I don't want to know the results, but have you ever been tested to see if you have the AIDS virus?	YES . . . . 1 NO 2	→ 930
927	How many months ago was your most recent HIV test?	MONTHS AGO . . . . ☐☐ TWO OR MORE YEARS 95	
928	I don't want to know the results, but did you get the results of the test?	YES . . . . 1 NO 2	

929	Where was the test done?
	
	PROBE TO IDENTIFY THE TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE)
		PUBLIC SECTOR
		    GOVERNMENT HOSPITAL 11
		    GOVT. HEALTH CENTER 12
		    GOVT. HEALTH CLINIC 13
		    STAND-ALONE VCT CENTER 14
		    NACP 15
		    OTHER PUBLIC
		        SECTOR _____ 16
		                        (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		    PRIVATE HOSPITAL/CLINIC 21
		    PRIVATE DOCTOR 22
		    STAND-ALONE VCT CENTER 23
		    PHARMACY 24
		    PLANNED PARENTHOOD ASSN. LIB 25
		    MOBILE CLINIC 26
		    OTHER PRIVATE
		        MEDICAL SECTOR
		                _____ 27
		                        (SPECIFY)
		OTHER SOURCE
		    SHOP 31
		
		OTHER _____ 96
		                (SPECIFY)
			→ 932

930	Do you know of a place where people can go to get tested for the AIDS virus?	YES . . . . 1 NO 2	→ 932

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

931	Where is that?
	
	Any other place?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE(S))
		PUBLIC SECTOR
		  GOVERNMENT HOSPITAL . . . . A
		  GOVT. HEALTH CENTER . . . . B
		  GOVT. HEALTH CLINIC C
		  STAND-ALONE VCT CENTER . . . . . D
		  NACP . . . . E
		  OTHER PUBLIC
		    SECTOR _____ F
		            (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		  PRIVATE HOSPITAL/CLINIC . . . . . G
		  PRIVATE DOCTOR . . . . H
		  STAND-ALONE VCT CENTER I
		  PHARMACY . . . . J
		  PLANNED PARENTHOOD ASSN. LIB K
		  MOBILE CLINIC L
		  OTHER PRIVATE
		    MEDICAL SECTOR
		
		    _____ M
		        (SPECIFY)
		OTHER SOURCE
		  SHOP . . . . N
		
		OTHER _____ X
		       (SPECIFY)	

932	Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had the AIDS virus?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
933	If a member of your family got infected with the AIDS virus, would you want it to remain a secret or not?	YES, REMAIN A SECRET . . . . 1 NO . . . . 2 DK/NOT SURE/DEPENDS 8	
934	If a member of your family became sick with AIDS, would you be willing to care for her or him in your own household?	YES . . . . 1 NO . . . . 2 DK/NOT SURE/DEPENDS 8	
935	In your opinion, if a female teacher has the AIDS virus but is not sick, should she be allowed to continue teaching in the school?	SHOULD BE ALLOWED . . . . 1 SHOULD NOT BE ALLOWED . . . . 2 DK/NOT SURE/DEPENDS 8	
936	Should children age 12-14 be taught about using a condom to avoid getting AIDS?	YES . . . . 1 NO . . . . 2 DK/NOT SURE/DEPENDS 8	
937	CHECK 901: HEARD ABOUT ☐ NOT HEARD ☐ AIDS ABOUT AIDS Apart from AIDS, have you heard about other infections that can be transmitted through man business? Have you heard about infections that can be transmitted through man business?	YES . . . . 1 NO 2	
938	CHECK 613: HAS HAD SEXUAL ☐ NEVER HAD SEXUAL ☐ INTERCOURSE INTERCOURSE		→ 946

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
939	CHECK 937: HEARD ABOUT OTHER SEXUALLY TRANSMITTED INFECTIONS? YES ☐ NO ☐		→ 941
940	Now I would like to ask you some questions about your health in the last 12 months. During the last 12 months, have you had a disease which you got through man business?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
941	Sometimes women experience a bad-smelling fluid coming from their vagina/private parts. During the last 12 months, have you had a bad-smelling fluid like this?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
942	Sometimes women have a sore or ulcer on or near their vagina/private parts. During the last 12 months, have you had a sore or ulcer on or near your vagina/private parts?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
943	CHECK 940, 941, AND 942: HAS HAD AN HAS NOT HAD AN INFECTION ☐ INFECTION OR ☐ (ANY 'YES') DOES NOT KNOW		→ 946
944	The last time you had (PROBLEM FROM 940/941/942), did you go for any kind of advice or treatment?	YES . . . . 1 NO 2	→ 946

945	Where did you go?
	
	Any other place?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE(S))
		PUBLIC SECTOR
		    GOVERNMENT HOSPITAL . . . . A
		    GOVT. HEALTH CENTER . . . . B
		    GOVT. HEALTH CLINIC C
		    STAND-ALONE VCT CENTER . . . . . D
		    OTHER PUBLIC
		      SECTOR _____ E
		                (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		    PRIVATE HOSPITAL/CLINIC . . . . . F
		    PRIVATE DOCTOR . . . . G
		    STAND-ALONE VCT CENTER . . . . . H
		    PHARMACY I
		    PLANNED PARENTHOOD ASSN. LIB J
		    MOBILE CLINIC . . . . K
		    OTHER PRIVATE
		       MEDICAL SECTOR
		       _____ L
		                (SPECIFY)
		OTHER SOURCE
		    SHOP . . . . M
		    TRADITIONAL PRACTITIONER . . . N
		    BLACK BAGGER/DRUG PEDDLER O
		
		OTHER _____ X
		                (SPECIFY)	

946	If a wife knows her husband has a disease that she can get from doing man business, is she justified in asking that they use a condom when they do man business?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
947	Is a wife justified in refusing to do man business with her husband when she knows he has sex with women other than his wives?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
948	CHECK 601: CURRENTLY MARRIED/ ☐ LIVING WITH A MAN ↓ NOT IN UNION ☐		→ 951
949	Can you say no to your (husband/partner) if you do not want to do man business?	YES . . . . 1 NO . . . . 2 DEPENDS/NOT SURE 8	
950	Could you ask your (husband/partner) to use a condom if you wanted him to?	YES . . . . 1 NO . . . . 2 DEPENDS/NOT SURE 8	
951	Now I would like to ask you about something else. As you know some women belong to bush societies, like the Sande society. Have you heard of these societies?	YES . . . . 1 NO 2	→ 1001
952	Are you a member of the Sande society or a woman's bush society?	YES . . . . 1 NO 2	→ 1001
953	Do you think this should continue or should it stop?	CONTINUE . . . . 1 STOP . . . . 2 DOES NOT KNOW/NOT SURE 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
1001	Now I would like to ask you some other questions relating to health matters. Have you had an injection for any reason in the last 12 months? IF YES: How many injections have you had? IF NUMBER OF INJECTIONS IS 90 OR MORE, OR DAILY FOR 3 MONTHS OR MORE, RECORD '90'. IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE.	NUMBER OF INJECTIONS . . . ☐☐ NONE 00	→ 1004
1002	Among these injections, how many were administered by a doctor, a nurse, a pharmacist, a dentist, or any other health worker? IF NUMBER OF INJECTIONS IS 90 OR MORE, OR DAILY FOR 3 MONTHS OR MORE, RECORD '90'. IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE.	NUMBER OF INJECTIONS . . . ☐☐ NONE 00	→ 1004
1003	The last time you got an injection from a health worker, did he/she take the syringe and needle from a new, unopened package?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
1004	Do you currently smoke cigarettes?	YES . . . . 1 NO 2	→ 1006
1005	In the last 24 hours, how many cigarettes did you smoke?	NUMBER OF CIGARETTES . . . . ☐☐	
1006	Do you currently smoke or use any (other) type of tobacco?	YES . . . . 1 NO 2	→ 1008
1007	What (other) type of tobacco do you currently smoke or use? RECORD ALL MENTIONED.	PIPE . . . . A CHEWING TOBACCO . . . . B SNUFF . . . . C CIGAR . . . . D OTHER _____ X (SPECIFY)	
1008	Now I would like to ask you a few questions about drinking alcohol. In the past month, have you drunk alcohol such as beer, palm wine, or liquor?	YES . . . . 1 NO 2	→ 1011
1009	In the past month, how often have you drunk alcohol? PROBE: How many times in a month?	EVERY DAY . . . . 1 ALMOST EVERY DAY . . . . 2 1-2 TIMES A WEEK . . . . 3 2-3 TIMES A MONTH . . . . 4 ONCE A MONTH 5	
1010	When you did drink alcohol, how many drinks did you usually have? We count one drink as one can or bottle of beer, one glass of wine, or one shot of liquor.	NUMBER OF DRINKS . . . . ☐☐	
1011	Many different factors can prevent women from getting medical advice or treatment for themselves. When you are sick and want to get medical advice or treatment, is each of the following a big problem or not?		BIG PROB-LEM	NOT A BIG PROB-LEM
	Getting permission to go to the doctor?	PERMISSION TO GO . . . 1	2
	Getting money needed for advice or treatment?	GETTING MONEY 1	2
	The distance to the health facility?	DISTANCE 1	2
	Not wanting to go alone?	GO ALONE 1	2

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
1012	Are you covered by any health insurance?	YES . . . . 1 NO 2	→ 1101

1013	What type of health insurance are you covered by?
	
	RECORD ALL MENTIONED.
		MUTUAL HEALTH ORGANIZATION/
		   COMMUNITY-BASED HEALTH
		   INSURANCE . . . . A
		HEALTH INSURANCE THROUGH
		   EMPLOYER . . . . B
		SOCIAL SECURITY C
		OTHER PRIVATELY PURCHASED
		   COMMERCIAL HEALTH INSURANCE D
		OTHER _____ X
		           (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

| 1101 | Now I would like to ask you some questions about your brothers and sisters. I mean all of the children belly born to your natural mother, including those who are living and those who have died.

How many children did your mother give birth to, _including_ you? | NUMBER OF BIRTHS TO NATURAL MOTHER ☐☐ | |

| 1102 | CHECK 1101:

TWO OR MORE BIRTHS ☐   ONLY ONE BIRTH ☐ (RESPONDENT ONLY) | | → 1114 |

| 1103 | How many births did your mother have before you were born? | NUMBER OF PRECEDING BIRTHS . . . . ☐☐ | |

1104	What was the name given to your oldest (next oldest) brother or sister?	(1)	(2)	(3)	(4)	(5)	(6)
		____	____	____	____	____	____
1105	Is (NAME) male or female?	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2
1106	Is (NAME) still alive?	YES . . . 1 NO . . . 2 GO TO 1108 DK . . . 8 GO TO (2)	YES . . . 1 NO . . . 2 GO TO 1108 DK . . . 8 GO TO (3)	YES . . . 1 NO . . . 2 GO TO 1108 DK . . . 8 GO TO (4)	YES . . . 1 NO . . . 2 GO TO 1108 DK . . . 8 GO TO (5)	YES . . . 1 NO . . . 2 GO TO 1108 DK . . . 8 GO TO (6)	YES . . . 1 NO . . . 2 GO TO 1108 DK . . . 8 GO TO (7)
1107	How old is (NAME)?	☐☐ GO TO (2)	☐☐ GO TO (3)	☐☐ GO TO (4)	☐☐ GO TO (5)	☐☐ GO TO (6)	☐☐ GO TO (7)
1108	How many years ago did (NAME) die?	☐☐	☐☐	☐☐	☐☐	☐☐	☐☐
1109	How old was (NAME) when he/she died?	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (2)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (3)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (4)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (5)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (6)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (7)
1110	Was (NAME) pregnant when she died?	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2
1111	Did (NAME) die during childbirth?	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2	YES . . . 1 GO TO 1113 NO . . . 2
1112	Did (NAME) die within two months after the end of a pregnancy or childbirth?	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2
1113	How many children did (NAME) born during her lifetime?	☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

IF NO MORE BROTHERS OR SISTERS, GO TO 1114.

NO.	QUESTIONS AND FILTERS				CODING CATEGORIES			SKIP
1104	What was the name given to your oldest (next oldest) brother or sister?	(7) _____	(8) _____	(9) _____	(10) _____	(11) _____	(12) _____	
1105	Is (NAME) male or female?	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	MALE 1 FEMALE 2	
1106	Is (NAME) still alive?	YES . . . 1 NO . . . 2 GO TO 1108← DK . . . 8 GO TO (8) ←	YES . . . 1 NO . . . 2 GO TO 1108← DK . . . 8 GO TO (9) ←	YES . . . 1 NO . . . 2 GO TO 1108← DK . . . 8 GO TO (10) ←	YES . . . 1 NO . . . 2 GO TO 1108← DK . . . 8 GO TO (11) ←	YES . . . 1 NO . . . 2 GO TO 1108← DK . . . 8 GO TO (12) ←	YES . . . 1 NO . . . 2 GO TO 1108← DK . . . 8 GO TO (13) ←	
1107	How old is (NAME)?	☐☐ GO TO (8)	☐☐ GO TO (9)	☐☐ GO TO (10)	☐☐ GO TO (11)	☐☐ GO TO (12)	☐☐ GO TO (13)	
1108	How many years ago did (NAME) die?	☐☐	☐☐	☐☐	☐☐	☐☐	☐☐	
1109	How old was (NAME) when he/she died?	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (8)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (9)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (10)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (11)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (12)	☐☐ IF MALE OR DIED BEFORE 12 YEARS OF AGE GO TO (13)	
1110	Was (NAME) pregnant when she died?	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	
1111	Did (NAME) die during childbirth?	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	YES . . . 1 GO TO 1113← NO . . . 2	
1112	Did (NAME) die within two months after the end of a pregnancy or childbirth?	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	YES . . . 1 NO . . . 2	
1113	How many children did (NAME) born during her lifetime?	☐☐	☐☐	☐☐	☐☐	☐☐	☐☐	
IF NO MORE BROTHERS OR SISTERS, GO TO 1114.								
1114	RECORD THE TIME.			HOURS . . . . ☐☐ MINUTES . . . . ☐☐				

INTERVIEWER'S OBSERVATIONS

TO BE FILLED IN AFTER COMPLETING INTERVIEW

COMMENTS ABOUT RESPONDENT:

_____

_____

_____

_____

_____

_____

COMMENTS ON SPECIFIC QUESTIONS:

_____

_____

_____

_____

_____

ANY OTHER COMMENTS:

_____

_____

_____

_____

_____

SUPERVISOR'S OBSERVATIONS

_____

_____

_____

_____

_____

_____

_____

NAME OF SUPERVISOR: _____   DATE: _____

EDITOR'S OBSERVATIONS

_____

_____

_____

_____

_____

NAME OF EDITOR: _____   DATE: _____

INSTRUCTIONS:
ONLY ONE CODE SHOULD APPEAR IN ANY BOX.
COLUMN 1 REQUIRES A CODE IN EVERY MONTH.

INFORMATION TO BE CODED FOR EACH COLUMN

COLUMN 1: <u>BIRTHS, PREGNANCIES, CONTRACEPTIVE USE</u>
        B BIRTHS
        P PREGNANCIES
        T TERMINATIONS

        0 NO METHOD
        1 FEMALE STERILIZATION
        2 MALE STERILIZATION
        3 IUD
        4 INJECTABLES/DEPO
        5 IMPLANTS/JADELLE
        6 PILL
        7 CONDOM
        8 FEMALE CONDOM
        9 FOAM OR JELLY
        J CYCLEBEADS/STANDARD DAYS
        K LACTATIONAL AMENORRHEA METHOD
        L RHYTHM METHOD
        M WITHDRAWAL
        X OTHER MODERN METHOD
        Y OTHER TRADITIONAL METHOD

COLUMN 2: <u>DISCONTINUATION OF CONTRACEPTIVE USE</u>
        0 INFREQUENT SEX/HUSBAND AWAY
        1 BECAME PREGNANT WHILE USING
        2 WANTED TO BECOME PREGNANT
        3 HUSBAND/PARTNER DISAPPROVED
        4 WANTED MORE EFFECTIVE METHOD
        5 SIDE EFFECTS/HEALTH CONCERNS
        6 LACK OF ACCESS/TOO FAR
        7 COSTS TOO MUCH
        8 INCONVENIENT TO USE
        F UP TO GOD/FATALISTIC
        A DIFFICULT TO GET PREGNANT/MENOPAUSAL
        D MARITAL DISSOLUTION/SEPARATION
        X OTHER _____
                  (SPECIFY)
        Z DON'T KNOW

				1	2	
	12	DEC	01			
	11	NOV	02			
	10	OCT	03			
	09	SEP	04			
2	08	AUG	05			2
0	07	JUL	06			0
1	06	JUN	07			1
3	05	MAY	08			3
	04	APR	09			
	03	MAR	10			
	02	FEB	11			
	01	JAN	12			
	12	DEC	13			
	11	NOV	14			
	10	OCT	15			
	09	SEP	16			
2	08	AUG	17			2
0	07	JUL	18			0
1	06	JUN	19			1
2	05	MAY	20			2
	04	APR	21			
	03	MAR	22			
	02	FEB	23			
	01	JAN	24			
	12	DEC	25			
	11	NOV	26			
	10	OCT	27			
	09	SEP	28			
2	08	AUG	29			2
0	07	JUL	30			0
1	06	JUN	31			1
1	05	MAY	32			1
	04	APR	33			
	03	MAR	34			
	02	FEB	35			
	01	JAN	36			
	12	DEC	37			
	11	NOV	38			
	10	OCT	39			
	09	SEP	40			
2	08	AUG	41			2
0	07	JUL	42			0
1	06	JUN	43			1
0	05	MAY	44			0
	04	APR	45			
	03	MAR	46			
	02	FEB	47			
	01	JAN	48			
	12	DEC	49			
	11	NOV	50			
	10	OCT	51			
	09	SEP	52			
2	08	AUG	53			2
0	07	JUL	54			0
0	06	JUN	55			0
9	05	MAY	56			9
	04	APR	57			
	03	MAR	58			
	02	FEB	59			
	01	JAN	60			
	12	DEC	61			
	11	NOV	62			
	10	OCT	63			
	09	SEP	64			
2	08	AUG	65			2
0	07	JUL	66			0
0	06	JUN	67			0
8	05	MAY	68			8
	04	APR	69			
	03	MAR	70			
	02	FEB	71			
	01	JAN	72			

11 January 2013

GOVERNMENT OF LIBERIA
LIBERIA INSTITUTE OF STATISTICS AND GEO-INFORMATION SERVICES
2013 LIBERIA DEMOGRAPHIC AND HEALTH SURVEY
MAN'S QUESTIONNAIRE

IDENTIFICATION

PLACE NAME _____

NAME OF HOUSEHOLD HEAD _____

LDHS CLUSTER NUMBER . . . .

HOUSEHOLD NUMBER . . . .

NAME AND LINE NUMBER OF MAN _____

INTERVIEWER VISITS

	1	2	3	FINAL VISIT
DATE	_____	_____	_____	DAY
				MONTH
				YEAR 2 0 1 3
INTERVIEWER'S NAME	_____	_____	_____	INT. NUMBER
RESULT*	_____	_____	_____	RESULT
NEXT VISIT: DATE	_____	_____		TOTAL NUMBER OF VISITS
TIME	_____	_____		

*RESULT CODES:
1 COMPLETED   4 REFUSED
2 NOT AT HOME   5 PARTLY COMPLETED   7 OTHER _____
3 POSTPONED   6 INCAPACITATED   (SPECIFY)

SUPERVISOR	FIELD EDITOR	OFFICE EDITOR	KEYED BY
NAME _____	NAME _____		

INTRODUCTION AND CONSENT

INFORMED CONSENT

Hello. My name is _____. I am working with the Liberia Institute of Statistics and Geo-Information Services (LISGIS). We are conducting a survey about demographics and health all over Liberia. The information we collect will help the government to plan health services. Your household was selected for the survey. The questions usually take about 20 minutes. All of the answers you give will be confidential and will not be shared with anyone other than members of our survey team. You don't have to be in the survey, but we hope you will agree to answer the questions since your views are important. If I ask you any question you don't want to answer, just let me know and I will go on to the next question or you can stop the interview at any time.

In case you need more information about the survey, you may contact the person listed on the card that has already been given to your household.

Do you have any questions? May I begin the interview now?

SIGNATURE OF INTERVIEWER: _____   DATE: _____

RESPONDENT AGREES TO BE INTERVIEWED 1   RESPONDENT DOES NOT AGREE TO BE INTERVIEWED . . . 2 → END

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
101	RECORD THE TIME.	HOUR . . . . [ ][ ] MINUTES . . . . [ ][ ]	
102	In what month and year were you born?	MONTH . . . . [ ][ ] DON'T KNOW MONTH . . . . 98 YEAR . . . . [ ][ ][ ][ ] DON'T KNOW YEAR 9998	
103	How old were you at your last birthday? COMPARE AND CORRECT 102 AND/OR 103 IF INCONSISTENT.	AGE IN COMPLETED YEARS [ ][ ]	
104	Have you ever attended school?	YES . . . . 1 NO 2	→ 108
105	What is the highest level of school you attended: primary, secondary, or higher?	PRIMARY . . . . 1 SECONDARY . . . . 2 HIGHER 3	
106	What is the highest grade you completed at that level? IF COMPLETED LESS THAN ONE YEAR AT THAT LEVEL, RECORD '00'.	GRADE . . . . [ ][ ]	
107	CHECK 105: PRIMARY [ ] SECONDARY OR HIGHER [ ]		→ 110

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

108	Now I would like you to read this sentence to me.
	
	SHOW CARD TO RESPONDENT.
	
	IF RESPONDENT CANNOT READ WHOLE SENTENCE, PROBE:
	Can you read any part of the sentence to me?
		CANNOT READ AT ALL 1
		ABLE TO READ ONLY PARTS OF
		   SENTENCE 2
		ABLE TO READ WHOLE SENTENCE 3
		NO CARD WITH REQUIRED
		   LANGUAGE _____ 4
		           (SPECIFY LANGUAGE)
		BLIND/VISUALLY IMPAIRED 5	

109	CHECK 108:
	
	   CODE '2', '3' CODE '1' OR '5'
	      OR '4' CIRCLED
	     CIRCLED
			→ 111

110	Do you read a newspaper or magazine, at least once a week, less than once a week or not at all?	AT LEAST ONCE A WEEK . . . . 1 LESS THAN ONCE A WEEK . . . . 2 NOT AT ALL 3	
111	Do you listen to the radio, at least once a week, less than once a week or not at all?	AT LEAST ONCE A WEEK . . . . 1 LESS THAN ONCE A WEEK . . . . 2 NOT AT ALL 3	
112	Do you watch television, at least once a week, less than once a week or not at all?	AT LEAST ONCE A WEEK . . . . 1 LESS THAN ONCE A WEEK . . . . 2 NOT AT ALL 3	
113	What is your religion?	CHRISTIAN . . . . 1 MUSLIM . . . . 2 TRADITIONAL RELIGION . . . . 3 NO RELIGION . . . . 4 OTHER _____ 6 (SPECIFY)	
114	What dialect do you speak (besides English)?	BASSA . . . . 01 GBANDI . . . . 02 BELLE . . . . 03 DEY . . . . 04 GIO . . . . 05 GOLA . . . . 06 GREBO . . . . 07 KISSI . . . . 08 KPELLE . . . . 09 KRAHN . . . . 10 KRU . . . . 11 LORMA . . . . 12 MANDINGO . . . . 13 MANO . . . . 14 MENDE . . . . 15 SARPO . . . . 16 VAI . . . . 17 NONE / ONLY ENGLISH . . . . 18 OTHER 96	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
201	Now I would like to ask about any children you have had during your life. I am interested in all of the children that are biologically yours, even if they are not legally yours or do not have your last name. Have you ever fathered any children with any woman?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	⌐→ 206
202	Do you have any sons or daughters that you have fathered who are now living with you?	YES . . . . 1 NO 2	→ 204
203	How many sons live with you? And how many daughters live with you? IF NONE, RECORD '00'.	SONS AT HOME . . . . ☐☐ DAUGHTERS AT HOME . . . . . . ☐☐	
204	Do you have any sons or daughters that you have fathered who are alive but do not live with you?	YES . . . . 1 NO 2	→ 206
205	How many sons are alive but do not live with you? And how many daughters are alive but do not live with you? IF NONE, RECORD '00'.	SONS ELSEWHERE . . . . ☐☐ DAUGHTERS ELSEWHERE . . . ☐☐	
206	Have you ever fathered a son or a daughter who was born alive but later died? IF NO, PROBE: Any baby who cried or showed signs of life but did not survive?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	⌐→ 208
207	How many boys have died? And how many girls have died? IF NONE, RECORD '00'.	BOYS DEAD . . . . ☐☐ GIRLS DEAD . . . . ☐☐	
208	SUM ANSWERS TO 203, 205, AND 207, AND ENTER TOTAL. IF NONE, RECORD '00'.	TOTAL CHILDREN . . . . ☐☐	
209	CHECK 208: HAS HAD ☐ HAS HAD ☐ MORE THAN ONLY ONE CHILD ↓ ONE CHILD HAS NOT HAD ☐ ANY CHILDREN		→ 212 → 301
210	Did all of the children you have fathered have the same biological mother?	YES . . . . 1 NO 2	→ 212
211	In all, how many women have you fathered children with?	NUMBER OF WOMEN . . . . ☐☐	
212	How old were you when your (first) child was born?	AGE IN YEARS . . . . ☐☐	
213	CHECK 203 AND 205: AT LEAST ONE ☐ NO LIVING ☐ LIVING CHILD ↓ CHILDREN		→ 301
214	How old is your (youngest) child?	AGE IN YEARS . . . . ☐☐	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
215	CHECK 214: (YOUNGEST) CHILD ☐ OTHER ☐ IS AGE 0-2 YEARS		→ 301
216	What is the name of your (youngest) child? WRITE NAME OF (YOUNGEST) CHILD _____ (NAME OF (YOUNGEST) CHILD)		
217	When (NAME)'s mother was pregnant with (NAME), did she have any prenatal check-ups?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	→ 219
218	Were you ever present during any of those prenatal check-ups?	PRESENT . . . . 1 NOT PRESENT 2	
219	Was (NAME) born in a hospital or health facility?	HOSPITAL/HEALTH FACILITY . . . . . . 1 OTHER 2	
220	When a child has running stomach how much should he or she be given to drink: more than usual, about the same as usual, less than usual, or nothing to drink at all?	MORE THAN USUAL . . . . 1 ABOUT THE SAME . . . . 2 LESS THAN USUAL . . . . 3 NOTHING TO DRINK . . . . 4 DON'T KNOW 8	

301	Now I would like to talk about family planning or birth control - the various ways or methods that a couple can use to delay or avoid a pregnancy. Have you ever heard of (METHOD)?		
01	**Female Sterilization, Tube Tie, Turning the Womb.** PROBE: Women can have an operation to avoid having any more children.	YES . . . . 1 NO 2	
02	**Male Sterilization**. PROBE: Men can have an operation to avoid having any more children.	YES . . . . 1 NO 2	
03	**IUD**. PROBE: Women can have a loop or coil placed inside them by a doctor or a nurse.	YES . . . . 1 NO 2	
04	**Injectables, Depo**. PROBE: Women can have an injection by a health provider that stops them from becoming pregnant for one or more months.	YES . . . . 1 NO 2	
05	**Implants, Jadelle**. PROBE: Women can have one or more small rods placed in their upper arm by a doctor or nurse which can prevent pregnancy for one or more years.	YES . . . . 1 NO 2	
06	**Pill**. PROBE: Women can take a pill every day to avoid becoming pregnant.	YES . . . . 1 NO 2	
07	**Condom, Raincoat.** PROBE: Men can put a rubber sheath on their penis before sexual intercourse.	YES . . . . 1 NO 2	
08	**Female Condom**. PROBE: Women can place a sheath in their vagina before sexual intercourse.	YES . . . . 1 NO 2	
09	**CycleBeads, Standard Days.** PROBE: A woman uses a string of colored beads to know the days she can get pregnant. On the days she can get pregnant, she uses a condom or does not have sexual intercourse.	YES . . . . 1 NO 2	
10	**Lactational Amenorrhea Method (LAM)**.	YES . . . . 1 NO 2	
11	**Rhythm Method**. PROBE: To avoid pregnancy, women do not have sexual intercourse on the days of the month they think they can get pregnant.	YES . . . . 1 NO 2	
12	**Withdrawal**. PROBE: Men can be careful and pull out before climax.	YES . . . . 1 NO 2	
13	**Emergency Contraception**. PROBE: As an emergency measure, within five days after they have unprotected sexual intercourse, women can take special pills to prevent pregnancy.	YES . . . . 1 NO 2	
14	Have you heard of any other ways or methods that women or men can use to avoid pregnancy?	YES . . . . 1 _____ (SPECIFY) _____ (SPECIFY) NO 2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
302	In the last few months have you: Heard about family planning on the radio? Seen anything about family planning on the television? Read about family planning in a newspaper or magazine?	YES NO RADIO . . . . 1 2 TELEVISION . . . . 1 2 NEWSPAPER OR MAGAZINE 1 2	
303	In the last few months, have you discussed family planning with a health worker or health professional?	YES . . . . 1 NO 2	
304	Now I would like to ask you about a woman's risk of pregnancy. From one menstrual period to the next, are there certain days when a woman is more likely to become pregnant when she does man business?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	→ 306

305	Is this time just before her period begins, during her period, right after her period has ended, or halfway between two periods?	JUST BEFORE HER
		   PERIOD BEGINS 1
		DURING HER PERIOD 2
		RIGHT AFTER HER
		   PERIOD HAS ENDED 3
		HALFWAY BETWEEN
		   TWO PERIODS 4
		OTHER _____ 6
		             (SPECIFY)
		DON'T KNOW 8	

306	I will now read you some statements about contraception. Please tell me if you agree or disagree with each one.
	
	a) Contraception is a woman's issue and a man should not have to worry about it.
	b) Women who use contraception may become loose or promiscuous.
		DIS-
		       AGREE AGREE DK
		CONTRACEPTION
		  WOMAN'S ISSUE 1 2 8
		WOMEN MAY BECOME
		  PROMISCUOUS 1 2 8	

307	CHECK 301 (07): KNOWS MALE CONDOM YES NO		→ 401
308	Do you know of a place where a person can get condoms?	YES . . . . 1 NO 2	→ 401

309	Where is that?
	
	Any other place?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	         (NAME OF PLACE(S))
		PUBLIC SECTOR
		   GOVERNMENT HOSPITAL . . . . A
		   GOVT. HEALTH CENTER . . . . B
		   GOVT. CLINIC C
		   COMMUNITY HEALTH VOL/gCHV D
		   NACP . . . . E
		   OTHER PUBLIC
		     SECTOR _____ F
		              (SPECIFY)
		PRIVATE MEDICAL SECTOR
		   PRIVATE HOSPITAL/CLINIC . . . . . G
		   PHARMACY . . . . H
		   PRIVATE DOCTOR I
		   PLANNED PARENTHOOD ASSN. LIB. J
		   MOBILE CLINIC . . . . K
		   OTHER PRIVATE MEDICAL
		     SECTOR _____ L
		              (SPECIFY)
		OTHER SOURCE
		   SHOP . . . . M
		   CHURCH . . . . N
		   FRIENDS/RELATIVES . . . . O
		OTHER _____ X
		            (SPECIFY)	

310	If you wanted to, could you yourself get a condom?	YES . . . . 1 NO 2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
401	Are you currently married or living together with a woman as if married?	YES, CURRENTLY MARRIED . . . . 1 YES, LIVING WITH A WOMAN . . . . . . 2 NO, NOT IN UNION 3	→ 404
402	Have you ever been married or lived together with a woman as if married?	YES, FORMERLY MARRIED . . . . 1 YES, LIVED WITH A WOMAN . . . . 2 NO 3	→ 413
403	What is your marital status now: are you widowed, divorced, or separated?	WIDOWED . . . . 1 DIVORCED . . . . 2 SEPARATED 3	→ 410
404	Is your (wife/partner) living with you now or is she staying elsewhere?	LIVING WITH HIM . . . . 1 STAYING ELSEWHERE 2	
405	Do you have other wives or do you live with other women as if married?	YES (MORE THAN ONE) . . . . 1 NO (ONLY ONE) 2	→ 407
406	Altogether, how many wives or live-in partners do you have?	TOTAL NUMBER OF WIVES AND LIVE-IN PARTNERS . . . ☐☐	

407	CHECK 405:			408

407 CHECK 405:

ONE WIFE/ PARTNER ☐ | MORE THAN ONE WIFE/ PARTNER ☐

Please tell me the name of (your wife/the woman you are living with as if married).

Please tell me the name of each of your wives or each woman you are living with as if married.

RECORD THE NAME AND THE LINE NUMBER FROM THE HOUSEHOLD QUESTIONNAIRE FOR EACH WIFE AND LIVE-IN PARTNER.

IF A WOMAN IS NOT LISTED IN THE HOUSEHOLD, RECORD '00'.

408 ASK 408 FOR EACH PERSON.

408 How old was (NAME) on her last birthday?

NAME	LINE NUMBER	AGE
_____	☐☐	☐☐
_____	☐☐	☐☐
_____	☐☐	☐☐
_____	☐☐	☐☐

409	CHECK 407: ONE WIFE/ PARTNER ☐ MORE THAN ONE WIFE/ PARTNER ☐		→ 411A
410	Have you been married or lived with a woman only once or more than once?	ONLY ONCE . . . . 1 MORE THAN ONCE 2	→ 411A

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
411	In what month and year did you start living with your (wife/partner)?	MONTH . . . . ☐☐	
411A	Now I would like to ask about your first (wife/partner). In what month and year did you start living with her?	DON'T KNOW MONTH . . . . 98 YEAR . . . . ☐☐☐☐ DON'T KNOW YEAR 9998	→ 413
412	How old were you when you first started living with her?	AGE . . . . ☐☐	
413	CHECK FOR THE PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY.		

414	Now I would like to ask some questions about woman business in order to gain a better understanding of some important life issues.
	
	How old were you when you did woman business for the very first time?
		NEVER HAD SEXUAL
		    INTERCOURSE 00
		
		AGE IN YEARS . . . . ☐☐
		
		FIRST TIME WHEN STARTED
		    LIVING WITH (FIRST)
		    WIFE/PARTNER 95
			→ 501

415	Now I would like to ask you some questions about your recent sexual activity. Let me assure you again that your answers are completely confidential and will not be told to anyone. If we should come to any question that you don't want to answer, just let me know and we will go to the next question.		
416	When was the last time you did woman business? IF LESS THAN 12 MONTHS, ANSWER MUST BE RECORDED IN DAYS, WEEKS OR MONTHS. IF 12 MONTHS (ONE YEAR) OR MORE, ANSWER MUST BE RECORDED IN YEARS.	DAYS AGO . . . . 1 ☐☐ WEEKS AGO . . . . 2 ☐☐ MONTHS AGO . . . . 3 ☐☐ YEARS AGO . . . . 4 ☐☐	→ 418 → 430

		LAST SEXUAL PARTNER	SECOND-TO-LAST SEXUAL PARTNER	THIRD-TO-LAST SEXUAL PARTNER
417	When was the last time you did woman business with this person?		DAYS AGO 1 WEEKS AGO 2 MONTHS AGO 3	DAYS AGO 1 WEEKS AGO 2 MONTHS AGO 3
418	The last time you did woman business (with this second/third woman) did you use a condom?	YES . . . . 1 NO . . . . 2 (SKIP TO 420)	YES . . . . 1 NO . . . . 2 (SKIP TO 420)	YES . . . . 1 NO . . . . 2 (SKIP TO 420)
419	Did you use a condom every time you did woman business with this person in the last 12 months?	YES . . . . 1 NO 2	YES . . . . 1 NO 2	YES . . . . 1 NO 2
420	What was your relationship to this person with whom you did woman business? IF GIRLFRIEND: Were you living together as if married? IF YES, CIRCLE '2'. IF NO, CIRCLE '3'.	WIFE . . . . 1 LIVE-IN PARTNER . . . . 2 GIRLFRIEND NOT LIVING WITH RESPONDENT . . . . 3 CASUAL ACQUAINTANCE . . . 4 CLIENT/PROSTITUTE 5 OTHER _____ 6 (SPECIFY) (SKIP TO 423)	WIFE . . . . 1 LIVE-IN PARTNER . . . . 2 GIRLFRIEND NOT LIVING WITH RESPONDENT . . . . 3 CASUAL ACQUAINTANCE . . . 4 CLIENT/PROSTITUTE 5 OTHER _____ 6 (SPECIFY) (SKIP TO 423)	WIFE . . . . 1 LIVE-IN PARTNER . . . . 2 GIRLFRIEND NOT LIVING WITH RESPONDENT . . . . 3 CASUAL ACQUAINTANCE . . . 4 CLIENT/PROSTITUTE 5 OTHER _____ 6 (SPECIFY) (SKIP TO 423)
421	CHECK 410:	MARRIED ONLY ONCE MARRIED MORE THAN ONCE OR BLANK (SKIP TO 423)	MARRIED ONLY ONCE MARRIED MORE THAN ONCE OR BLANK (SKIP TO 423)	MARRIED ONLY ONCE MARRIED MORE THAN ONCE OR BLANK (SKIP TO 423)
422	CHECK 414:	FIRST TIME WHEN STARTED LIVING WITH FIRST WIFE (SKIP TO 424) OTHER	FIRST TIME WHEN STARTED LIVING WITH FIRST WIFE (SKIP TO 424) OTHER	FIRST TIME WHEN STARTED LIVING WITH FIRST WIFE (SKIP TO 424) OTHER
423	How long ago did you first do woman business with this (second/third) woman?	DAYS AGO 1 WEEKS AGO 2 MONTHS AGO 3 YEARS AGO 4	DAYS AGO 1 WEEKS AGO 2 MONTHS AGO 3 YEARS AGO 4	DAYS AGO 1 WEEKS AGO 2 MONTHS AGO 3 YEARS AGO 4
424	How many times during the last 12 months have you done woman business with this woman? IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. IF NUMBER OF TIMES IS 95 OR MORE, WRITE '95'.	NUMBER OF TIMES	NUMBER OF TIMES	NUMBER OF TIMES

		LAST SEXUAL PARTNER	SECOND-TO-LAST SEXUAL PARTNER	THIRD-TO-LAST SEXUAL PARTNER
425	How old is this woman?	AGE OF PARTNER ☐☐ DON'T KNOW 98	AGE OF PARTNER ☐☐ DON'T KNOW 98	AGE OF PARTNER ☐☐ DON'T KNOW 98
426	Apart from (this person/these two people), have you had woman business with any other person in the last 12 months?	YES . . . . 1 (GO BACK TO 417 ↩ IN NEXT COLUMN) NO . . . . 2 (SKIP TO 428) ↩	YES . . . . 1 (GO BACK TO 417 ↩ IN NEXT COLUMN) NO . . . . 2 (SKIP TO 428) ↩	
427	In the last 12 months, how many women have you done woman business with? IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. IF NUMBER OF PARTNERS IS 95 OR MORE, WRITE '95'.			NUMBER OF PARTNERS LAST 12 MONTHS . . . ☐☐ DON'T KNOW . . . 98

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
428	CHECK 420 (ALL COLUMNS): AT LEAST ONE PARTNER NO PARTNERS IS PROSTITUTE ARE PROSTITUTES		→ 430
429	CHECK 420 AND 418 (ALL COLUMNS): CONDOM USED WITH EVERY PROSTITUTE OTHER		→ 433 → 434
430	In the last 12 months, did you pay anyone in exchange for doing woman business?	YES . . . . 1 NO 2	→ 432
431	Have you ever paid anyone in exchange for doing woman business?	YES . . . . 1 NO 2	→ 434
432	The last time you paid someone in exchange for doing woman business, did you use a condom?	YES . . . . 1 NO 2	→ 434
433	Was a condom used for woman business every time you paid someone in exchange for doing woman business in the last 12 months?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
434	In your whole life, how many women have you done woman business with? IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE. IF NUMBER OF PARTNERS IS 95 OR MORE, WRITE '95'.	NUMBER OF PARTNERS IN LIFETIME . . . . DON'T KNOW 98	
435	CHECK 418, MOST RECENT PARTNER (FIRST COLUMN): NOT ASKED CONDOM NO CONDOM USED USED		→438 →438
436	You told me that a condom was used the last time you had sex. What is the brand name of the condom used at that time? IF BRAND NOT KNOWN, ASK TO SEE THE PACKAGE.	STAR . . . . 01 MOH/NACP FREE . . . . 02 OTHER . . . . 96 DON'T KNOW 98	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

437	From where did you obtain the condom the last time?
	
	PROBE TO IDENTIFY TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE)
		PUBLIC SECTOR
		  GOVERNMENT HOSPITAL 11
		  GOVT. HEALTH CENTER 12
		  GOVT. CLINIC 13
		  NACP 14
		
		  OTHER PUBLIC
		    SECTOR _____ 15
		          (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		  PRIVATE HOSPITAL/CLINIC 21
		  PHARMACY 22
		  PRIVATE DOCTOR 23
		  PLANNED PARENTHOOD ASSN. LIB. 24
		  MOBILE CLINIC 25
		  OTHER PRIVATE MEDICAL
		    SECTOR _____ 26
		          (SPECIFY)
		
		OTHER SOURCE
		  SHOP 31
		  CHURCH 32
		  FRIENDS/RELATIVES 33
		
		OTHER _____ 96
		      (SPECIFY)	

438	The last time you had sex did you or your partner use any method (other than a condom) to avoid or prevent a pregnancy?	YES .... 1 NO .... 2 DON'T KNOW 8	501
439	What method did you or your partner use? PROBE: Did you or your partner use any other method to prevent pregnancy? RECORD ALL MENTIONED.	FEMALE STERILIZATION .... A MALE STERILIZATION .... B IUD .... C INJECTABLES .... D IMPLANTS .... E PILL .... F CONDOM .... G FEMALE CONDOM .... H FOAM/JELLY .... I CYCLEBEADS/STANDARD DAYS ... J LACTATIONAL AMEN. METHOD ... K RHYTHM METHOD .... L WITHDRAWAL .... M OTHER MODERN METHOD ...... X OTHER TRADITIONAL METHOD ...... Y	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
501	CHECK 401: CURRENTLY MARRIED OR ☐ NOT CURRENTLY MARRIED LIVING WITH A PARTNER AND ☐ ↓ NOT LIVING WITH A PARTNER		→ 509
502	CHECK 439: MAN NOT ☐ MAN STERILIZED ↓ STERILIZED ☐		→ 509
503	(Is your (wife/partner)/Are any of your (wives/partners)) currently pregnant?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	┐ ┘→ 505
504	Now I have some questions about the future. After the (child/children) you and your (wife(wives)/partner(s)) are expecting now, would you like to have another child, or would you prefer not have any more children?	HAVE ANOTHER CHILD . . . . 1 NO MORE . . . . 2 UNDECIDED/DON'T KNOW 8	→ 506 → 509

505	Now I have some questions about the future. Would you like to have (a/another) child, or would you prefer not to have any (more) children?	HAVE (A/ANOTHER) CHILD 1
		NO MORE/NONE 2
		SAYS COUPLE
		   CAN'T GET PREGNANT 3
		WIFE (WIVES)/PARTNER(S)
		   STERILIZED 4
		UNDECIDED/DON'T KNOW 8
			→ 509

506	CHECK 407: ONE WIFE/ ☐ MORE THAN PARTNER ↓ ONE WIFE/ ☐ PARTNER		→ 508

507	CHECK 503:
	WIFE/PARTNER ☐ WIFE/PARTNER ☐
	  NOT PREGNANT PREGNANT
	  OR DON'T KNOW ↓ ↓
	
	How long would you like to / After the birth of the child you are
	wait from now before the / expecting now, how long would
	birth of (a/another) child? / you like to wait before the birth of
	                       / another child?
		MONTHS . . . . 1 ☐☐
		
		YEARS 2
		
		SOON/NOW 993
		COUPLE INFECUND 994
		
		OTHER _____ 996
		            (SPECIFY)
		DON'T KNOW 998
			→ 509

508	How long would you like to wait from now before the birth of (a/another) child?	MONTHS . . . . 1 ☐☐
		
		YEARS 2
		
		SOON/NOW 993
		
		HE/ALL HIS WIVES/PARTNERS
		  ARE INFECUND 994
		
		OTHER _____ 996
		            (SPECIFY)
		DON'T KNOW 998	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
509	CHECK 203 AND 205: HAS LIVING CHILDREN ☐ NO LIVING CHILDREN ☐ If you could go back to the time you did not have any children and could choose exactly the number of children to have in your whole life, how many would that be? If you could choose exactly the number of children to have in your whole life, how many would that be? PROBE FOR A NUMERIC RESPONSE.	NONE . . . . 00 NUMBER . . . . ☐☐ OTHER _____ 96 (SPECIFY)	→ 601 → 601
510	How many of these children would you like to be boys, how many would you like to be girls and for how many would it not matter if it's a boy or a girl?	BOYS GIRLS EITHER NUMBER ☐☐ ☐☐ ☐☐ OTHER _____ 96 (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
601	Have you done any work in the last seven days?	YES . . . . 1 NO 2	→ 604
602	Although you did not work in the last seven days, do you have any job or business from which you were absent for leave, illness, vacation, or any other such reason?	YES . . . . 1 NO 2	→ 604
603	Have you done any work in the last 12 months?	YES . . . . 1 NO 2	→ 607
604	What is your occupation, that is, what kind of work do you mainly do?	_____ _____ _____ ☐☐	
605	Do you usually work throughout the year, or do you work seasonally, or only once in a while?	THROUGHOUT THE YEAR . . . . 1 SEASONALLY/PART OF THE YEAR 2 ONCE IN A WHILE 3	
606	Are you paid in cash or kind for this work or are you not paid at all?	CASH ONLY . . . . 1 CASH AND IN KIND . . . . 2 IN KIND ONLY . . . . 3 NOT PAID 4	
607	CHECK 401: CURRENTLY MARRIED OR ⵣ NOT CURRENTLY MARRIED ☐ LIVING WITH A PARTNER AND ↓ NOT LIVING WITH A PARTNER		→ 612
608	CHECK 606: CODE 1 OR 2 ⵣ OTHER ☐ CIRCLED ↓		→ 610

609	Who usually decides how the money you earn will be used: you, your (wife/partner), or you and your (wife/partner) jointly?	RESPONDENT 1
		WIFE/PARTNER 2
		RESPONDENT AND WIFE/
		  PARTNER JOINTLY 3
		OTHER _____ 6
		            (SPECIFY)	

610	Who usually makes decisions about health care for yourself: you, your (wife/partner), you and your (wife/partner) jointly, or someone else?	RESPONDENT 1
		WIFE/PARTNER 2
		RESPONDENT AND WIFE/
		  PARTNER JOINTLY 3
		SOMEONE ELSE 4
		OTHER _____ 6
		            (SPECIFY)	

611	Who usually makes decisions about making major household purchases?	RESPONDENT 1
		WIFE/PARTNER 2
		RESPONDENT AND WIFE/
		  PARTNER JOINTLY 3
		SOMEONE ELSE 4
		OTHER _____ 6
		            (SPECIFY)	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
612	Do you own this or any other house either alone or jointly with someone else?	ALONE ONLY .... 1 JOINTLY ONLY .... 2 BOTH ALONE AND JOINTLY ...... 3 DOES NOT OWN 4	
614	In your opinion, is a husband justified in hitting or beating his wife in the following situations: If she goes out without telling him? If she neglects the children? If she argues with him? If she refuses to have sex with him? If she burns the food?	YES NO DK GOES OUT .... 1 2 8 NEGL. CHILDREN ... 1 2 8 ARGUES .... 1 2 8 REFUSES SEX ...... 1 2 8 BURNS FOOD 1 2 8	
615	In your opinion, are parents justified in hitting or beating their children in the following situations: If they go out without telling them? If they do not want to do housework? If they speak when grown-ups are talking? If they do not study well at school? If they ask for clothes and toys?	YES NO DK GOES OUT .... 1 2 8 HOUSEWORK .... 1 2 8 SPEAK .... 1 2 8 DON'T STUDY ...... 1 2 8 ASK FOR CLOTHES 1 2 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
701	Now I would like to talk about something else. Have you ever heard of an illness called AIDS?	YES . . . . 1 NO 2	→723
702	Can people reduce their chance of getting the AIDS virus by having just one uninfected sex partner who has no other sex partners?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
703	Can people get the AIDS virus from mosquito bites?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
704	Can people reduce their chance of getting the AIDS virus by using a condom every time they have sex?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
705	Can people get the AIDS virus by sharing food with a person who has AIDS?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
706	Can people get the AIDS virus because of witchcraft or other supernatural means?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
707	Is it possible for a healthy-looking person to have the AIDS virus?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
708	Can the virus that causes AIDS be transmitted from a mother to her baby: During pregnancy? During delivery? By breastfeeding?	YES NO DK DURING PREG. . . . . . . 1 2 8 DURING DELIVERY . . . 1 2 8 BREASTFEEDING . . . 1 2 8	

709	CHECK 708:
	
	     AT LEAST ☐ OTHER ☐
	     ONE 'YES' ↓
			→711

710	Are there any special drugs that a doctor or a nurse can give to a woman infected with the AIDS virus to reduce the risk of transmission to the baby?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
711	CHECK FOR PRESENCE OF OTHERS. BEFORE CONTINUING, MAKE EVERY EFFORT TO ENSURE PRIVACY.		
712	I don't want to know the results, but have you ever been tested to see if you have the AIDS virus?	YES . . . . 1 NO 2	→716
713	How many months ago was your most recent HIV test?	MONTHS AGO . . . . ☐☐ TWO OR MORE YEARS 95	
714	I don't want to know the results, but did you get the results of the test?	YES . . . . 1 NO 2	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
715	Where was the test done? PROBE TO IDENTIFY THE TYPE OF SOURCE. IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE. _____ (NAME OF PLACE)	PUBLIC SECTOR 　GOVERNMENT HOSPITAL　. . . . . 11 　GOVT. HEALTH CENTER　. . . . . . . .12 　GOVT. HEALTH CLINIC　. . . . . 13 　STAND-ALONE VCT CENTER　. . . . . . 14 　NACP　. . . . . 15 　OTHER PUBLIC 　　SECTOR　_____ 16 　　　　　　　(SPECIFY) PRIVATE MEDICAL SECTOR 　PRIVATE HOSPITAL/CLINIC　. . . . . . 21 　PRIVATE DOCTOR　. . . . . 22 　STAND-ALONE VCT CENTER　. . . . . . 23 　PHARMACY . . . . 24 　PLANNED PARENTHOOD ASSN. LIB 25 　MOBILE CLINIC　. . . . . 26 　OTHER PRIVATE 　　MEDICAL SECTOR 　　　　　　_____ 27 　　　　　　　(SPECIFY) OTHER SOURCE 　SHOP . . . . 31 OTHER　_____ 96 　　　　　　(SPECIFY)	→ 718
716	Do you know of a place where people can go to get tested for the AIDS virus?	YES . . . . 1 NO 2	→ 718
717	Where is that? Any other place? PROBE TO IDENTIFY EACH TYPE OF SOURCE. IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE. _____ (NAME OF PLACE)	PUBLIC SECTOR 　GOVERNMENT HOSPITAL　. . . . . A 　GOVT. HEALTH CENTER　. . . . . B 　GOVT. HEALTH CLINIC　. . . . . C 　STAND-ALONE VCT CENTER　. . . . . . D 　NACP　. . . . . E 　OTHER PUBLIC 　　SECTOR　_____ F 　　　　　　　(SPECIFY) PRIVATE MEDICAL SECTOR 　PRIVATE HOSPITAL/CLINIC　. . . . . . G 　PRIVATE DOCTOR　. . . . . H 　STAND-ALONE VCT CENTER　. . . . . . I 　PHARMACY . . . . J 　PLANNED PARENTHOOD ASSN. LIB　K 　MOBILE CLINIC　. . . . . L 　OTHER PRIVATE 　　MEDICAL SECTOR 　　　　　　_____ M 　　　　　　　(SPECIFY) OTHER SOURCE 　SHOP . . . . N OTHER　_____ X 　　　　　　(SPECIFY)	
718	Would you buy fresh vegetables from a shopkeeper or vendor if you knew that this person had the AIDS virus?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
719	If a member of your family got infected with the AIDS virus, would you want it to remain a secret or not?	YES, REMAIN A SECRET . . . . 1 NO . . . . 2 DK/NOT SURE/DEPENDS 8	
720	If a member of your family became sick with AIDS, would you be willing to care for her or him in your own household?	YES . . . . 1 NO . . . . 2 DK/NOT SURE/DEPENDS 8	
721	In your opinion, if a female teacher has the AIDS virus but is not sick, should she be allowed to continue teaching in the school?	SHOULD BE ALLOWED . . . . 1 SHOULD NOT BE ALLOWED . . . . 2 DK/NOT SURE/DEPENDS 8	
722	Should children age 12-14 be taught about using a condom to avoid getting AIDS?	YES . . . . 1 NO . . . . 2 DK/NOT SURE/DEPENDS 8	
723	CHECK 701: HEARD ABOUT ☐ NOT HEARD ☐ AIDS ABOUT AIDS Apart from AIDS, have you heard about other infections that can be transmitted through woman business? Have you heard about infections that can be transmitted through woman business?	YES . . . . 1 NO 2	
724	CHECK 414: HAS HAD SEXUAL ☐ HAS NOT HAD SEXUAL ☐ INTERCOURSE INTERCOURSE		→ 732
725	CHECK 723: HEARD ABOUT OTHER SEXUALLY TRANSMITTED INFECTIONS? YES ☐ NO ☐		→ 727
726	Now I would like to ask you some questions about your health in the last 12 months. During the last 12 months, have you had a disease which you got through woman business?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
727	Sometimes men experience an abnormal discharge from their penis/private parts. During the last 12 months, have you had an abnormal discharge from your penis/private parts?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
728	Sometimes men have a sore or ulcer near their penis/private parts. During the last 12 months, have you had a sore or ulcer near your penis/private parts?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
729	CHECK 726, 727, AND 728: HAS HAD AN ☐ HAS NOT HAD AN ☐ INFECTION INFECTION OR (ANY 'YES') DOES NOT KNOW		→ 732
730	The last time you had (PROBLEM FROM 726/727/728), did you go for any kind of advice or treatment?	YES . . . . 1 NO 2	→ 732

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP

731	Where did you go?
	
	Any other place?
	
	PROBE TO IDENTIFY EACH TYPE OF SOURCE.
	
	IF UNABLE TO DETERMINE IF PUBLIC OR PRIVATE SECTOR, WRITE THE NAME OF THE PLACE.
	
	_____
	(NAME OF PLACE(S))
		PUBLIC SECTOR
		   GOVERNMENT HOSPITAL . . . . A
		   GOVT. HEALTH CENTER . . . . B
		   GOVT. HEALTH CLINIC C
		   STAND-ALONE VCT CENTER . . . . . . D
		   OTHER PUBLIC
		     SECTOR _____ E
		            (SPECIFY)
		
		PRIVATE MEDICAL SECTOR
		   PRIVATE HOSPITAL/CLINIC . . . . . . F
		   PRIVATE DOCTOR . . . . G
		   STAND-ALONE VCT CENTER . . . . . . H
		   PHARMACY I
		   PLANNED PARENTHOOD ASSN. LIB J
		   MOBILE CLINIC . . . . K
		   OTHER PRIVATE
		     MEDICAL SECTOR
		     _____ L
		         (SPECIFY)
		OTHER SOURCE
		   SHOP . . . . M
		   TRADITIONAL PRACTITIONER . . . N
		   BLACK BAGGER/DRUG PEDDLER O
		
		OTHER _____ X
		        (SPECIFY)	

732	If a wife knows her husband has a disease that she can get from doing man business, is she justified in asking that they use a condom when they do man business?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
733	Is a wife justified in refusing to do man business with her husband when she knows he has sex with women other than his wives?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	

NO.	QUESTIONS AND FILTERS	CODING CATEGORIES	SKIP
801	Some men are circumcised, that is, the foreskin is completely removed from the penis. Are you circumcised?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
802	Now I would like to ask you some other questions relating to health matters. Have you had an injection for any reason in the last 12 months? IF YES: How many injections have you had? IF NUMBER OF INJECTIONS IS 90 OR MORE, OR DAILY FOR 3 MONTHS OR MORE, RECORD '90'. IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE.	NUMBER OF INJECTIONS . . . ☐☐ NONE 00	→ 805
803	Among these injections, how many were administered by a doctor, a nurse, a pharmacist, a dentist, or any other health worker? IF NUMBER OF INJECTIONS IS 90 OR MORE, OR DAILY FOR 3 MONTHS OR MORE, RECORD '90'. IF NON-NUMERIC ANSWER, PROBE TO GET AN ESTIMATE.	NUMBER OF INJECTIONS . . . ☐☐ NONE 00	→ 805
804	The last time you got an injection from a health worker, did he/she take the syringe and needle from a new, unopened package?	YES . . . . 1 NO . . . . 2 DON'T KNOW 8	
805	Do you currently smoke cigarettes?	YES . . . . 1 NO 2	→ 807
806	In the last 24 hours, how many cigarettes did you smoke?	NUMBER OF CIGARETTES . . . . ☐☐	
807	Do you currently smoke or use any (other) type of tobacco?	YES . . . . 1 NO 2	→ 809
808	What (other) type of tobacco do you currently smoke or use? RECORD ALL MENTIONED.	PIPE . . . . A CHEWING TOBACCO . . . . B SNUFF . . . . C CIGAR . . . . D OTHER _____ X (SPECIFY)	
809	Now I would like to ask you a few questions about drinking alcohol. In the past month, have you drunk alcohol such as beer, palm wine, or liquor?	YES . . . . 1 NO 2	→ 812
810	In the past month, how often have you drunk alcohol? PROBE: How many times in a month?	EVERY DAY . . . . 1 ALMOST EVERY DAY . . . . 2 1-2 TIMES A WEEK . . . . 3 2-3 TIMES A MONTH . . . . 4 ONCE A MONTH 5	
811	When you did drink alcohol, how many drinks did you usually have? We count one drink as one can or bottle of beer, one glass of wine, or one shot of liquor.	NUMBER OF DRINKS . . . . ☐☐	