




From a One Health Perspective - AFROHUN Cameroon develops an in-service training program on Antimicrobial Resistance for Health professionals

BACKGROUND

Antimicrobial resistance (AMR) constitutes a major public health challenge which has greatly limited the efforts of various stakeholders in the public health system in Cameroon, as in other sub-Saharan countries. The burden of AMR is aggravated in developing countries due to weak surveillance and antimicrobial stewardship frameworks. A published systematic review and meta-analysis estimates antimicrobial resistance rates at 68.2% in human health, 13.6% in animal health and 18.2% in the environment.

Virtually all the four JEE indicators, namely AMR Detection, Surveillance, Infection Prevention and Control (IPC), and Stewardship, were at the lowest score (1 of 5) for the Antimicrobial GHSA package from the WHO's joint External Evaluation of 2017 (WHO, 2017). Raising awareness on the issue and related determinants, both among health professionals and the communities, is key to efficient fight against AMR.

Responding to this global public health threat, AFROHUN (previously OHCEA) Cameroon prioritized capacity building, focusing primarily on health professionals, using a One Health, highly participatory, and need-driven approach.



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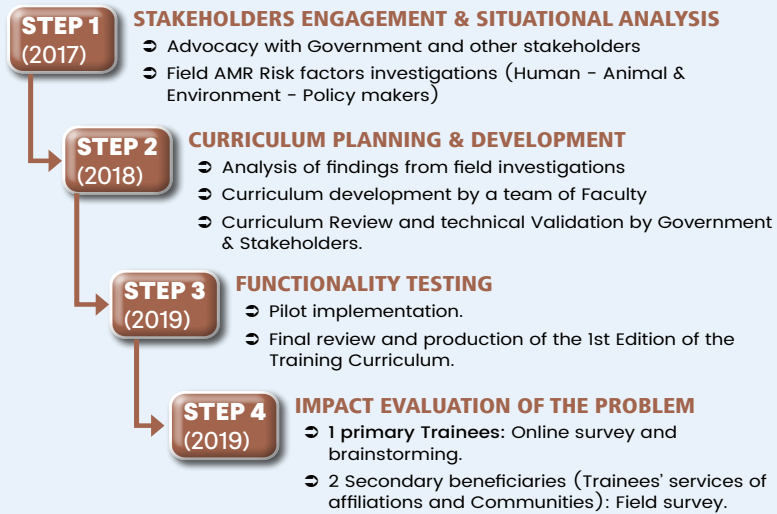
A four-step process from 2017 to 2020

The process started in 2017 with an advocacy workshop during which stakeholders were brought together from the different sectors (Health, Livestock, Agriculture, Environment, Wildlife), universities, non-academia research institutions, national and international partners (WHO, FAO, IFRC, METABIOTA) and the One Health Workforce Project technical partners (University of Minnesota, Tufts University), to brainstorm on the magnitude and the determinants of the AMR challenge in Cameroon. A major recommendation from this workshop was that a field Knowledge Attitude Practice (KAP) investigation be conducted, and this was done the same year, targeting human health professionals, animal health actors, agronomists, environmental health professionals and decision makers. This situational analysis revealed poor perception and practice despite high levels of awareness of the problem across the

sectors. It also informed the curriculum development process, by identifying gaps and training needs, for an in-service training program available in both English and French in 2018. To test the curriculum developed for its functionality and applicability, a first cohort of 21 participants was enrolled in 2019, and this pilot implementation of the program was followed by an impact assessment in 2020. A field investigation was conducted, targeting both the 21 trainees (primary beneficiaries), their respective services and communities (secondary beneficiaries) on the benefits from the training and the sustainability of the activities/outcomes of the program.

The training curriculum developed covers a total period of six months, and runs discontinuously, alternating three in-person workshops and two field practicums. The program is organized in twelve (12) modules

with specific goals and objectives, organized in three main sets: (i) One Health concepts, AMR stewardship and Laboratory and surveillance; (ii) Risk Communication and Community Engagement; and (iii) Quality Control, AMR- regulations.



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RESULTS

The pilot implementation of this curriculum in 2019 attracted strong interest from the Government of Cameroon, through the Ministry of Livestock, Fisheries and Animal Industries who co-sponsored five (05) of their staff to attend the training, enabling AFROHUN to reach beyond the initially anticipated 15 participants.

This program benefited from additional support from our US-One Health Workforce (OHW) Project Partner (Tufts University), which enabled implementation of 7 field intervention micro projects by trainees in their respective communities, at the end of the training. After the training, the curriculum documents, including facilitator and participant guides in both English and French, were revised by the team to improve the quality, taking into account gaps observed from this pilot implementation.

- The curriculum documents, including a facilitator and participant guides in both English and French, were disseminated for wide use by the different actors in the AMR space.
- ~~Twenty one (21) professionals who were trained from both human, animal and environmental health benefited from the pilot training in 2019.~~

- Seven (7) micro projects were developed by teams of trainees in their respective communities, with engagement of local health actors in the following regions of Cameroon.

- **Buea (South-West Region):** 25 poultry farmers sensitized on the use of antimicrobials in livestock, and local populations sensitized on

Field Intervention by AFROHUN trainees



Local farmers sensitizing their peers on AMR Extreme-North, October, 2019



AMR through a TV program.

- **Yokadouma (East Region):** 26 rural women club and association leaders trained on antimicrobial use and AMR.
- **Bobo (Far-North Region):** 30 cattle farmers sensitized on the use of Antimicrobials in livestock and one Community-Radio Program was run to sensitize populations on risks of antimicrobial resistance.
- **Yaounde (Center Region):** 30 livestock staff and farmers sensitized on AMR risk and rational use of antimicrobials, especially in livestock.
- **Monatele (Center Region):** 25 Women association leaders sensitized on AMR.
- **All ~~the~~ regions:** Dissemination meetings were organized by trainees to share their experience and lessons learned with their peers at their respective job sites.

into national AMR strategies

The program developed can easily be deployed by the Government (both at central and sub-national levels), development partners, civil society organizations /training institutions, researchers, and the private sector. However, to ensure sustainability, it is crucial this program be institutionalized by integrating it into ~~the~~ AMR strategies. While it is important to extend the training to more professionals, deriving an academic program (Masters' degree) from the in-service curriculum is more likely to sustain the AMR workforce development and promote a research and surveillance system for the country. Addressing the relatively high cost of the present training approach could be achieved by introducing blended learning approaches which combine distance learning with in-person training activities for better cost-effectiveness.

CONCLUSION:

This journey clearly reveals the key role academia plays in addressing major health challenges in Cameroon in a One Health framework.

ABOUT AFROHUN

Africa One Health University Network (AFROHUN) is an international network, currently in 28 higher education institutions of public health, veterinary medicine, pathobiology, environmental sciences, medicine and global health, in 10 countries in Africa. The countries are *Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Ethiopia, Kenya, Liberia, Rwanda, Senegal, Tanzania and Uganda*.

AFROHUN is working to transform the training environment and approaches in universities and allied institutions in Africa, to develop a One Health workforce: a workforce with no disciplinary boundaries. AFROHUN is building a workforce with competency to predict, detect and respond to the kind of complex health challenges we are witnessing today. To achieve this transformation, we are reviewing curricula, designing new and exciting experiential learning multidisciplinary training programs, re-tooling teachers and trainers, educating communities on existence and transmission of zoonotic and infectious diseases, while engaging national and sub-national governments to integrate One Health into national policy and strategic planning.

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