European Workshop on
Practical Aspects of Health Informatics
(PAHI 2013)

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1 Introduction

The first European workshop on Practical Aspects of Health Informatics (PAHI) took place in Edinburgh, Scotland 11th and 12th of March 2013, with participants from Norway, Scotland and Finland. The Norwegian University of Science and Technology (NTNU) and The Norwegian Women's Network in Health Informatics organized the workshop in collaboration with the Edinburgh eHealth Interdisciplinary Research Network.

A range of disciplinary perspectives and skill sets are required for the successful development, implementation and use of technologies in healthcare, which can create challenges for the use of common concepts and vocabularies. For example, the terms Health informatics, eHealth, and Health ICT (HIT) are used interchangeably in the literature. Our expectations were that the workshop would raise awareness about a range of theoretical, methodological and empirical approaches in order to advance interdisciplinary research for better eHealth. A subsidiary aim was to facilitate the networking of women in health informatics across Norway and Scotland.

1.1 Objectives of workshop

The objective of the "European Workshop on Practical Aspects of Health Informatics 2013" was to address a broad spectrum of theoretical and methodological angles in order to enhance health informatics research.

The specific aims were to: (1) Facilitate exchange of knowledge and experiences through international networking activities for researchers working in eHealth, (2) Present work reflecting the on-going discussions in health informatics, with a particular emphasis on the implications for health care *practice*, and (3) Explore the possibilities for developing common research projects and develop a more permanent research collaboration between the parties. A sub-aim was to consider the contribution of women in health informatics.

1.2 The review process

The call for papers for the workshop suggested (but was not limited to) the following topics: Patient-centred ICT, the impact of ICT for professional healthcare practice, translating health informatics research into clinical practice, methodological development of healthcare ICT relevant for practice, usability of health informatics, policies and strategies for ICT in healthcare, health communication and ICT.

We received a reasonable number of quality submissions from many fields of research within health technology. The acceptance rate was 75%. Workshop participants either wrote full papers, abstracts, or gave oral presentations only. Full papers are eligible for Cristin points in the Norwegian system. The accepted papers are found in the proceedings.

2 Workshop summary

The workshop brought together researchers from different disciplines concerned with issues of health informatics in the fields of technology, healthcare and the humanities and social sciences.

Invited speakers were:

- Claudia Pagliari, PhD., Senior Lecturer in Primary Care at Centre for Population Health Sciences, The University of Edinburgh
- Heather Strachan, Senior Research Fellow at NMAHP Research Unit, Glasgow Caledonian University
- Elizabeth Brooks, Head of Computing & IT, University of Highlands and Islands Millennium Institute
- Nessa Barry, Leader of the Scottish Telehealth Champions Network, NHS24

The abstracts of the talks of the invited speakers can be found in the proceedings starting from page 84.

2.1 Program

March 11	Time	Presenters/Authors
Welcome and presentation of the participants	9.30-10.00	Line Melby and Heidi Gilstad
Keynote: Understanding value creation in eHealth (short title)	10.00-10.30	Claudia Pagliari
	10.30-10.45	Break
Paper session		
Topic 1: Means for collaboration	10.45-12.00	Gro Alice Hamre and Eric Monteiro Bente Christensen and Gunnar Ellingsen Ragnhild Hellesø and Hanne Marie Rostad

Topic 2: HIT Development and methods	12.00-13.00	Marjo Rissanen Lill Kristiansen
	13.00-14.00	Lunch
Topic 3: Modelling and simulation	14.00-14.30	Christina-Adriana Alexandru and Perdita Stevens
Topic 4: Health communication	14.30-15.45	Ellen A. A. Jaatun, Kari Sand and Martin Gilje Jaatun Sverre Pettersen, Anne Marie Lilleengen, Laura Terragni, Lisa Garnweidner and Annhild Mosdøl Heidi Gilstad
	15.45-16.15	Break
Topic 5: Presentations without paper	16.15-17.00	Line Melby Erna Haaland Kirsti Berntsen

Moderator: Erna Haaland

March 12	Time	Presenters/Authors
Welcome day 2	09.00-09.15	Claudia Pagliari and Ellen Jaatun
Person Centred Caring and eHealth - theory, research and practice	09.15-09.45	Heather Strachan
Attracting and retaining women in ICT research	09.45-10.15	Elizabeth Brooks
	10.15-10.30	Break
Panel session – Building Networks – Possibilities and Limitations 10.30-11.30 The Research Network for Women in Health Informatics represented by Line Melby and Erna Haaland The Interdisciplinary Research Group in eHealth represented by Claudia Pagliari The Social Informatics Cluster/ School of Informatics represented by Perdita Stevens Scottish Centre for Telehealth represented by Nessa Barry The University of the Highlands and Islands represented by Elizabeth Brooks The Norwegian Research Centre for Electronic Patient Records (NSEP) and the Master Programme in Health Informatics, NTNU, represented by Kirsti Berntsen and Heidi Gilstad		
Group work - Creating common projects	11.30-12.15	
	12.15-13.00	Lunch
Discussion and further plans	13.00-15.00	

Moderator: Ragnhild Hellesø

Allocated time for the presentations:

Paper presentations: 15 minutes presentation and 5 minutes discussion
Presentations without paper: 10 minutes including discussion
Network presentations: 10 minutes

1.3 Summary of full papers

Communication from various perspectives was a common theme for a number of the contributions. Jaatun et al. point out that the current use of electronic systems in health care do not support communication between the actors who collaboratively aim to achieve care, including the patients themselves. While there are several obstacles, such as legal, practical and traditional, a main issue is that current EHRs are aimed at storing information and documenting activities rather than supporting communication between involved actors. The paper suggests a retake on EHRs as communication systems inspired by the now popular social network applications. From a different angle, Gilstad suggests discourse theory for analysing the communication taking place between caregiver and patient when technology is involved. Based on field observations and interviews of midwives doing obstetric ultrasound examinations, rich examples demonstrate the (conscious) communicative expertise on the caregivers' part in order to accommodate the role of medical technology in the health care setting. Hellesø & Rostad on the other hand look at collaboration via electronic communication means from a macro perspective. They find that the structure of the healthcare system itself influences the interaction climate between hospital and municipality nurses. Based on a questionnaire survey, where hospital nurses asses the interaction climate they work in, the authors find that parts of their communication, regarding collaboration and medication, is affected by structural factors such as the size of the hospital and type of department they belong to. However, the nursing information climate was not found to be affected by these factors.

As ICT may facilitate a change in patient roles it is to be expected that the landscape of producing and consuming health care will change too. Rissannen's paper addresses the challenge of designing health applications for new purposes on the outskirts of traditional health care – that of promoting occupational health. Such an application must meet a different scope of requirements than traditional Information Systems Design methods aim for – that of sustaining healthy behaviour. The resulting usability of such a system will depend on the practiced healthy living of its users as well as the usability of the system itself. Another approach to practical technology development is Participatory Design (PD). Stemming from a Scandinavian tradition, Kristiansen explores how PD inspired workshops involving nurses and rapid ethnography are used to discover potential improvements to the current Nurse Call system at a hospital which includes signals and speech. Desired features include reducing disturbances to interaction and workflows, means of prioritizing signals and inquiries and improvement of the user interface in order to support the collaborative aspects of nursing work. A common critique of both PD and usability testing as methods for developing useful systems is that it may be cumbersome and costly to perform in order to gain valid insights. Alexandru and Stevens argue that this is the case especially for telemedicine systems where scale and variation of contexts are salient factors that defy comprehensive up front testing. As an alternative approach

they develop a model of experimentation that may give indications as to what issues might arise for deployments in new settings. The model is illustrated with a case where the user's interaction with the system is simulated against statistical information on key aspects of the environment.

For improving quality, efficiency and safety in health care, ICTs are often mentioned as a crucial component. Standardizing surgery planning is an aim frequently mentioned. Ensuring comprehensive access to one set of up to date information on a patient's medication is another. Both Christensen & Ellingsen's paper and Hamre & Monteiro's paper address the fact that in integrating systems, normalizing ways of doing and reducing deviation in documentation through use of Information System (IS) also brings about new challenges. A proposed standard template for planning the clinical pathway of a cancer patient does not easily fit the actual planning as it is shown to unfold in practice, since the planning itself needs to produce input which unpredictably alters the original premises of the planning. Deciding what can be normalized up front in a system faced with necessary improvisation needs to be understood and taken into account in the system design. Similarly, reducing the redundancy of medication documentation also removes several quality assuring activities from the original medication/treatment process. Methodically both papers are informed by rich and detailed descriptions of actual work practices as they unfold.

2.2 Workshop outcome

A wide range of issues within health informatics research was discussed during the workshop. The specific focus was on the practical implications of the introduction of ICT in the health sector, such as: What impacts will new health information technologies have for clinical practice? How are these impacts realised? How does the patient role change with increasing access to (some sorts of) information? How can designers and users of health information systems work together to build better systems? How does the introduction of health information technologies affect the organization of the health care services? What is the role and contribution of women in health informatics? During the workshop the participants explored the possibilities for developing common research projects and for developing amore permanent research collaboration between the parties.

3 Participants

The Norwegian University of Science and Technology (NTNU) and The Norwegian Women's Network in Health Informatics organized the workshop in collaboration with the Edinburgh eHealth Interdisciplinary Research Network at the University of Edinburgh.

3.1 Chairs

Heidi Gilstad, (PhD), NSEP, NTNU, Norway, General Chair
Claudia Pagliari, (PhD), University of Edinburgh, UK, General Chair
Line Melby (PhD), UiO, Norway, Program Chair
Martin Gilje Jaatun, SINTEF ICT, Norway, Publication Chair

3.2 Organizing committee

Kirsti Berntsen, NSEP, NTNU, Norway
Heidi Gilstad, NSEP, NTNU, Norway
Ellen Jaatun, NTNU, Norway / University of Edinburgh, UK
Martin Gilje Jaatun, SINTEF ICT, Norway
Line Melby, UiO, Norway
Claudia Pagliari, University of Edinburgh, UK

3.3 Program committee

Elke Beck, University of Saltzburg, Austria
Kirsti Berntsen, NSEP, NTNU, Norway
Aurora Constantin, University of Edinburgh, UK
Anita Das, NTNU, Norway
Florian Förster, Research Studios Austria
Heidi Gilstad, NSEP, NTNU, Norway
Mark Hartswood, University of Edinburgh, UK
Erna Håland, NTNU, Norway
Ellen Jaatun, NTNU/ University of Edinburgh, UK
Bridget Kane, Trinity College Dublin, Ireland
Lill Kristiansen, NTNU, Norway
Line Melby, UiO, Norway
Marianna Obrist, Newcastle University, UK

3.4 Participants

Anne Margrethe Fylkesnes	Faculty of Health Sciences, Oslo and Akershus University College of Applied Sciences
Anne Marie Lilleengen	Faculty of Health Sciences, Oslo and Akershus University College of Applied Sciences
Annhild Mosdøl	Faculty of Health Sciences, Oslo and Akershus University College of Applied Sciences
Antti Rissanen	NDU
Bente Christensen	Norwegian Centre for Integrated Care and Telemedicine, UNN

Claudia Pagliari	University of Edinburgh
Elizabeth Brooks	University of the Highlands and Islands
Ellen Jaatun	University of Edinburgh / NTNU
Erna Håland	NTNU
Gro Alice Hamre	Department of computer and information science, NTNU, Norway
Hadi Daneshvar	University of Edinburgh
Heather Strachan	Glasgow Caledonian University
Heidi Gilstad	The Norwegian Research Centre for Electronic Patient Records (NSEP) Faculty of Medicine, NTNU
Jenny Ure	University of Edinburgh
Kathryn Cresswell,	CPHS
Kirsti E Berntsen	The Norwegian Research Centre for Electronic Patient Records (NSEP) Faculty of Medicine, NTNU
Kjell Sverre Pettersen	Faculty of Health Sciences, Oslo and Akershus University College of Applied Sciences
Lill Kristiansen	NTNU
Line Melby	Institute of Health and Society Department of Nursing, UiO
Line Silsand	Norwegian Centre for Integrated Care and Telemedicine, UNN
Maria Wolters	School of Informatics, University of Edinburgh
Marjo Rissanen	Aalto University
Mark Hartswood	School of Informatics, University of Edinburgh
Mome Mukherjee	CPHS
Nessa Barry	Scottish Centre for Telehealth and Telecare
Perdita Stevens	School of Informatics, University of Edinburgh
Petros Papapanagiotou	CISA, School of Informatics The University of Edinburgh
Ragnhild Hellesø	Institute of Health and Society Department of Nursing, UiO
Shah Jamal Alam	School of Geosciences, University of Edinburgh,
Sharon Levy	Lecturer, School of Nursing
Susan Buckingham	CPHS
Susannah McLean	CPHS

4 Presentations of the organizations in the network

4.1 The Norwegian Research Centre for Electronic Patient Records (NSEP), NTNU

Represented by Heidi Gilstad and Kirsti E. Berntsen

The Norwegian Electronic Patient Records Research Centre (NSEP), established in 2004 at The Norwegian University of Science and Technology (NTNU), is a multidisciplinary research infrastructure that focuses on research in health informatics. The vision of the centre is to develop knowledge-based systems for knowledge-based practice. Strategic research themes are: clinical process support, access control/information security, secondary use of health information, support for collaboration between health care organisations and patient-oriented systems. NSEP is the coordinator of a master program in health informatics, which includes students with healthcare and information technology background.

4.2 The Norwegian Research Group for Women in Health Informatics

Represented by Line Melby and Erna Håland

The majority of researchers in health informatics have traditionally been men. A research network for women in health informatics, arising from the environment of NSEP was established in 2009. The main purpose was to create a forum where women scientists, PhD-candidates, and post-doctors across disciplines and institutions could network. The network has conducted scientific meetings within health informatics in Norway. In addition to exchange research interests nationally, we invited an international scholar, Professor Patricia Brennan, from University of Wisconsin-Madison in 2012. She held a keynote about digitalized opportunities for future patients. Since the national network was initiated it has been a goal to establish a sustainable international network. Dr. Brennan's talk inspired us to realize our intention. The reason is that we have realized that we are few female health informatics researchers in Norway and broaden our network would provide new insight and ideas. The planned workshop in Edinburgh is a point of departure for expanding the existing network and capitalizing from a broader network both nationally as well as internationally within the research field.

4.3 The Edinburgh eHealth Interdisciplinary Research Network, University of Edinburgh

Represented by Claudia Pagliari

See http://www.ehealth.ed.ac.uk/ for information about the eHealth Research Network.

4.4 Scottish Centre for Telehealth & Telecare NHS 24

Represented by Nessa Barry

The remit for this role is particular around: workforce development and includes: working with HEIs and other education providers; raising the profile of telehealth and telecare at a strategic level; facilitating and delivering a programme of Learning Network activities; working on the Measurement Framework for teleheatlh and telecare.

The Scottish Centre for Telehealth was established in 2006 by the Scottish Governement. Initially a very small team who worked with Health Boards to influence, support and advise on the use of telehealth in service delivery and project development. In 2009-10 a Review was carried out by SG and the recommendation was made that the Centre for Telehealth should move into NHS 24 - a national telephone based organisation which was actively growing its own range of web based content. This move gave the Centre a more focussed and more structured national remit. The Telecare Development Programme, which had been working in parallel from 2006, was part of the Scottish Government's Joint Improvement Team, working primarily with the 32 Scottish Local Authorities and supporting a well-developed Telecare Programme, also joined NHS 24 in 2011 and we became the Centre for Telehealth and Telecare. This joint working approach is very much in line the direction of Scottish health and social care policy - to support the delivery of services (health and care) in homes and communities where ever possible.

Contact us or go to:
http://www.knowledge.scot.nhs.uk/telehealthcare/learning-network.aspx to find out more about the Telehealth and Telecare Learning Network. To view webcasts go to: http://www.video3uk.com/sctt

4.5 The University of the Highlands and Islands

Represented by Elizabeth Brooks

The University of the Highlands and Islands delivers higher education through thirteen further and higher education colleges, specialist colleges and research institutions,distributed throughout the Highlands and Islands of Scotland and co-ordinated by an executive office. Collectively, this comprises the UHI partnership.

Purpose: The University of the Highlands and Islands will have a transformational impact on the development and prospects of the region, its people and its communities.

Vision: The University of the Highlands and Islands will be nationally and internationally recognised as a distinctive and innovative partnership which embraces both further and higher education. It will be:

- The university **in** the Highlands and Islands

Building upon the individual and distinctive strengths of each of its constituent institutions it will make a demonstrable contribution to the vibrancy of the communities of the region.

- The university **for** the Highlands and Islands
  Providing flexible access to opportunities for all parts of the region and beyond, enabled by the use of information technologies.

- The university **of** the Highlands and Islands
  Drawing upon the distinctive characteristics of the region in developing research and teaching of national and international relevance and excellence. In so doing, it will attract students, staff and researchers from throughout the world and develop national and international links and alliances.