Program

Friday 23ᵗʰ August

09:00 Introduction

9:15 **Invited keynote: Tommaso Bellandi**

Human Factors and Ergonomics for a Safe Transition to Digital Health

In this paper we elaborate a preliminary framework to fill this gap and describe the potential contributions of HFE to improve digital health interventions, at the macro, meso and micro level of a health system. Researchers present a practical approach, integrated with some limited reflections on methodological aspects, recently covered in a position paper, while previously in conference series and handbooks. This paper presents a HFES perspective on digital health - from the macro, meso and micro level to improve patient safety and delivery of quality care. Experts in HFE can play a key role in creating evidence for an ethical and effective design of digital health intervention and providing support to their implementation and evaluation at the macro, meso and micro level. This framework may help to integrate HFE at the different levels of the system and following the tracks of organization, technology and human factors.

10:15	Coffee break

10:35 **Session 1: Understanding Organizational contexts**

Researching Collective Mindfulness and Health IT: a Framework and Translation to Context-specific Questions. (*Valentina Lichtner, Bryony Dean Franklin & Johanna I. Westbrook*)

To improve patient safety, hospital organisations are encouraged to run their operations in line with high reliability organisations' collective mindfulness principles and practices. For the same safety goals, they also implement health information technology (IT). However, little is known about whether, or how, health IT can impact organisational mindfulness, and thereby safety. We propose that research in this area can be approached through a simple framework of overarching, umbrella questions, then carefully translated into nuanced context-specific questions and study designs. The framework and approach we propose provides a structure for comparing results from studies of collective mindfulness and health IT, across different clinical contexts and IT applications.

Impact of Work Organization on Technology Use: the Case of Hydration Process with a Smart Drinking Glass. (*Clément Gazza, Sylvia Pelayo, Brice Kovacs, Jessica Schiro & Romaric Marcilly*)

This paper presents preliminary results from a larger project led with the French company Auxivia. The latter offers a smart drinking glass (SDG), supporting monitoring daily water intakes of elderly people and helping identify residents to encourage. Contexts and work organizations can deeply differ from a nursing home to another and can impact the use of the SDG. Based on a comparison between two nursing homes, we unveil the impact of both work organizations on the integration of technology requirements. We discuss the results by providing recommendations to improve the integration of SDGs in various work organizations.

Lost in Translation? Care Coordination across Contexts in Swedish Homecare Nursing. (*Gudbjörg Erlingsdottir, Johanna Persson, Gerd Johansson, Roger Larsson & Christofer Rydenfält*)

The responsibilities for delivery of care in Sweden is divided between the regions and the municipalities. The regions run the hospitals and the primary care centres (PCCs) whereas the municipalities are responsible for homecare nursing and nursing homes. The homecare nurses and the doctors they need to seek advice from, thus belong to different organizations/contexts. As more patients with multi- and long-term illnesses are taken care of in their homes the workload of the homecare nurses has increased. A new healthcare agreement has thus been signed between a region in South Sweden and its municipalities. The healthcare agreement states that doctors from the PCCs are to form mobile teams together with the homecare nurses. This paper reports from a pre-study investigating how the agreement, in terms of translation sociology, is interpreted in four of the municipalities. The aim of the research project as a whole is to develop digital support systems for the mobile teams.

Adapting mHealth to Workflow – a Case Study in South Africa. (*Malin Lindberg, Sofia Rosborg, Mokholelana Margaret Ramukumba & Maria Hägglund*)

Community Health Workers (CHW) perform important healthcare and health promotion in many low and middle income countries. They are increasingly supported in their work by the use of mHealth. This study aims to explore how mHealth services can support the everyday work for CHWs when delivering home care in rural areas in South Africa. A single case study was performed, mapping CHWs workflow and investigating where and when CHW can be supported by mHealth services. Despite the very positive feedback from the CHWs and the fact that the studied

mHealth solutions appears to support the majority of the important activities in the CHWs work process, the application is no longer in use. Financial and strategic decisions are behind the discontinuation of the project, further stressing the importance of taking all socio-technical dimensions into account when evaluating success or failure of implementation projects.

Exploring mHealths Fit to Workflow in Homecare – A Case Study in Sweden. (*Sofia Rosborg, Malin Lindberg, Lovisa Jäderlund Hagstedt & Maria Hägglund*)

With an ageing population and limited resources in healthcare, many high-income countries such as Sweden see an increase in homecare and mobile work for healthcare professionals. In this case study, we explore how mHealth services can support the everyday work for healthcare professionals when delivering home care in rural areas in Sweden. The studied mHealth application had failed to be adopted among district nurses, despite a great expressed need for mobile tools. The results indicate that the mHealth solution did not live up the healthcare professionals' expectations in terms of providing the same functions as the regular electronic health record systems, and with poor integration into the existing eco-system of eHealth applications. In conclusion, in order for a mHealth application to be successfully implemented in a context where many digital services are already in use, it is not enough to support important activities in the current workflow. The mHealth application will need to be carefully integrated into the existing eco-system of healthcare applications to increase the chances of adoption.

12:15	Lunch

13:15 **Session 2: Towards sustainable EHR**

Sustainable Information Infrastructures: Insights from a Realist Synthesis. (*Justin Keen, Maysam Abdulwahid, Joanne Greenhalgh, Natalie King, Judy Wright & Rebecca Randell*)

Policy makers and health system managers in many countries are advocating the deployment of inter-operable health information technology systems, spanning organisations in a health economy, believing that they will be clinically effective. The case for investments has not, however, been made to date. This paper presents early results from a systematic review of the effects of inter-operable systems on patient safety. The review uses the realist synthesis method, which focuses on evidence about the decisions and actions that link interventions and outcomes, as well as the evidence about those outcomes. The evidence base is sufficient to identify plausible arguments for investments in inter-operable systems. This said, there is limited empirical evidence about each of the steps in the sequences of events. We comment on implications for the design of sustainable socio-technical solutions. We suggest that current gaps in the evidence base are in areas where informatics field methods can make a valuable contribution to our understanding of the role of inter-operable systems in patient safety.

Context and Meaning in EHR Displays. (*Craig E. Kuziemsky, Diane G. Schwartz, Subha Airan-Javia & Ross Koppel*)

Many Electronic Health Record (EHRs) data displays are insensitive to their settings, contexts, and to clinicians' needs. Yet, the contexts in which the data are displayed critically affect EHR usability and patient safety. Medication prescribing is a complex task; especially sensitive to contextual variation in EHR displays as vast variations in formats and logic are often unnecessarily confusing, leading to unwanted cognitive burdens and medical errors. With examples of EHR screenshots, we illustrate contextual variations in medication and allergy displays across different EHR systems and implementations—noting often seemingly haphazard differences that can lead to misunderstandings and misinterpretations.

Educational Electronic Health Records at the University of Victoria: Challenges, Recommendations and Lessons Learned. (*Elizabeth M. Borycki & Andre W. Kushniruk*)

There has been an acknowledged need for the integration of health technologies such as the electronic health record system (EHR) into health professional education. At the University of Victoria we have been experimenting with different models, architectures and applications of educational EHRs in the context of training health informatics, medical, and nursing students who will ultimately use this technology in their daily practice upon graduation. Our initial work involved the development of a Web-based portal that contained a number of open source EHRs and is described in this paper. In addition to the technical side, considerations around pedagogy and how best to integrate such technology into the classroom and educational experience are discussed. Finally, challenges and lessons learned from our decade of work in this area are discussed.

Development of a Video Coding Scheme for Understanding Human-Computer Interaction and Clinical Decision Making. (*Andre Kushniruk, Helen Monkman, Nicole Kitson & Elizabeth M. Borycki*)

The usability of healthcare information technology has become a major issue in health informatics. There have been many reports of systems that have been deemed unusable by end users such as clinicians and a growing body of usability studies have been reported in the literature. The issue of how to fruitfully analyze and code usability study data in a meaningful way that can lead to optimized and more efficient systems has remained to be fully detailed. In this paper we describe our work in developing and organizing a principled video coding scheme that builds from our

previous work in a couple of areas. We include video coding categories we have developed for understanding problems and issues with human-computer interaction. In addition, we integrate this coding scheme with categories we have used to characterize human cognition, such as clinical reasoning and decision making, in isolation of technology use. The resultant new scheme thus incorporates coding categories that can used to evaluate both usability issues (applying categories from human-computer interaction) and human cognition, in order to assess the impact of technology on clinical reasoning and decision making.

From Free-Text to Structure in Electronic Patient Records. (Gro-Hilde Severinsen, Line Silsand, Gunnar Ellingsen & Rune Pedersen)

We report from the initial steps of a collaboration project between two post-doctoral projects, both using a qualitative action research approach to address challenges related to shifting from a free text to a structured EPR system constituting important preconditions for establishing advanced decision support and reuse of healthcare data. We have started to explore three areas that may influence this process related to: 1) Legislative challenges of getting access to all relevant healthcare data. 2) Challenges of exchanging data between silo systems and open platform systems. 3) Replacing a free text silo EPR with an open platform system - and the practical challenges of defining the content of the context sensitive structured EPR. Hence, we ask the following research questions: How to address challenges related to the shift from free text to structured EPR systems? How will the need for semantic interoperability between different EPRs influence the goal of advanced clinical decision support? Empirically, we draw on the regional FRESK program (2017-2022), in the North Norwegian Health Region, which includes implementing both a new regional open platform based EPR system, and a proprietary medical chart system.

14:55	Coffee break

15:15 **Session 3: Different contexts for medication errors and patient safety**

Mandatory Medication Indications in Electronic Systems – the Prescriber Perspective. (Melissa Baysari, Jessica Del Gigante, Maria Moran, Elin Lehnbom & Richard Day)

As hospitals transition from paper to electronic medication charts, an opportunity exists to 'nudge' prescribers to document medication indications by making this data-entry field mandatory. The aim of this study was to explore hospital doctors' perceptions of mandatory documentation of indications in an electronic medication management (EMM) system. Ten junior doctors took part in brief semi-structured interviews. Participants identified improved communication among staff as a key benefit of indication documentation. Recording indications was also seen to act as a prompt for medication review. Despite these benefits, indication documentation for all medications would be challenging to implement in practice. Users of the EMM system (i.e. junior doctors) explained that they are time poor and are often tasked with transcribing medication orders into the electronic system with limited knowledge of why medications are being prescribed. Determining the indication for use would require additional time and effort, and prescribers reported a high risk of working around the system if indication documentation was made mandatory.

Data Quality Assessment of Narrative Medication Error Reports. (Bin Yao, Hong Kang & Yang Gong)

Medication errors are preventable adverse events or unsafe conditions caused by inappropriate uses of medication. To collect data of patient safety events (PSE) and to analyze the root causes of PSE, reporting systems have been implemented in healthcare settings and patient safety organizations (PSO). However, the poor data quality of reports impedes the reporting and root cause analysis (RCA) of PSE. Incomplete or missing data is the most prevalent problem in event reports. To assess the data quality of PSE reports, we used an adapted taxonomy as the data evaluation model to evaluate the quality of narrative reports collected by a PSO. Sample reports were extracted based on eight error types and scored by experts. Most structured fields in the reports were ignored by reporters. In contrast, the narrative parts of the reports contain rich and valuable information. The evaluation results show that the adapted taxonomy is a promising tool for report quality assessment and improvement.

Medication Errors and Safety Culture in a Norwegian Hospital. (Marit Waaseth, Adelina Ademi, Mette Fredheim, Margaret A. Antonsen, Nina M. B. Brox & Elin C. Lehnbom)

Medication errors are associated with adverse health outcomes and may prolong hospital stays and increase societal costs. Safety initiatives to reduce adverse health outcomes should be based on reliable information of current shortcomings. The aim of this study was to identify barriers to medication error reporting in a hospital and to describe heath personnel's views of the safety culture. Seven interviews with health personnel (two doctors, four nurses and one pharmacist) were conducted November 2016 - January 2017 at the University Hospital of North Norway. Nurses, more frequently than doctors, reported medication errors and discussed reported errors at staff meetings. Doctors preferred to solve the problem directly, for example writing a new medication order, rather than writing a report when a medication error had been identified. There was variation between the wards regarding the perception of support, confidence in and focus on error reporting, which indicates different safety cultures within the hospital. Identified barriers to medication error reporting included lack of time, and the impression that the reporting system is complicated and not user-friendly. Staff also reported inadequate training using the system, which could contribute to the perception that the system is inaccessible. Hospital management should take actions to improve the safety culture

throughtout the hospital based on the barriers identified in this study. This could include stronger focus on the importance of reporting medication errors, a transparent review process and clearly communicated actions.

Classification Scheme for Incident Reports of Medication Errors. (*Yuko Shiima & Zoie Shui-Yee Wong*)

This study aimed to develop a classification scheme for retrieving information from incident reports of medication errors. This 15-category classification scheme captures minimal medication-incident related information from incident reports and thus serves as an information model for automatic information retrieval solution. The automatic solution uses recent advances in artificial intelligence methods to learn from incident report resources and is promising to the prevention of adverse drug events and promotion of safety in medical care.

16:35 Networking and Scientific slam

18:00 End of the day

19:30	*Conference Dinner (reservation required)*

Saturday 24ᵗʰ August

09:00 Introduction

9:15 **Invited keynote: Pascale Carayon**

Human Factors in Health(care) Informatics: Toward Continuous Sociotechnical System Design

Developing structures and processes for continuous sociotechnical system design is key to sustaining human factors (HF) knowledge in the context of rapid health care changes and technological innovations. Two research studies illustrate how to embed HF in organizational learning processes and structures. We need to develop innovative HF methods for continuous sociotechnical system design.

10:15	*Coffee break*

10:35 **Presentation of the book "Applied theory in health informatics"**

10:55 **Session 4: Methods and models to study contexts for health information systems**

Supporting Safety in Health Care Transformations. (*Helle Sofie Wentzer*)

Health care is in dramatic transformation due to the rapid development and massive implementation of (high- and low-tech) technologies. But not all transformations are as intended. Research in health transformation has disclosed new sources of risk and unpredictability, which require more research and organizational adjustment, i.e. learning. However, unintended consequences and effects occur at different levels of interaction and collaboration, requiring corresponding adjustment and learning strategies. – On the background of an ethnographic study of support-work in surgery in different Danish hospitals, this paper analyses cognitive-socio-technical health care practices as learning ecologies, giving special attention to the intentional and unintentional roles of technologies herein and their context dependency. The paper argues for an increased awareness of support at different contextual levels of use, presenting three examples from the study as learning cases. The three cases exemplify instances of disruption of the workflow and the collaboration among clinicians. They display how these instances are taken as challenges requiring learning at different levels in order to live up to the overall purpose, which is to reestablish safety – in the team and for the patient.

Shared Decision-making in Emergency Departments: Context Sensitivity through Divergent Discourses. (*Melissa Miao, Andrew Georgiou, Maria R. Dahm, Julie Li & Judith Thomas*)

Patient-centred care and the empowerment of patients through shared clinical decision-making is a key goal of healthcare systems internationally. The Emergency Department is one of the first opportunities for shared decision-making to occur, with information exchanged between patient and clinician, between clinical disciplines, across the continuum of care, and between clinicians and ancillary departments including radiology and pathology laboratories. The successful development and implementation of sustainable health information technology (HIT) to support shared decision-making in Emergency care requires an understanding of the factors affecting this context. From a purposive, maximum variation sample of clinicians and a convenience sample of patients across three metropolitan and regional Emergency Departments in Australia, we identified three divergent discourses from an in-depth qualitative exploration of issues around shared decision-making. This allowed us to identify unanticipated factors affecting patient-centred care to inform context-sensitive implementation of HIT in the Emergency Department.

The Design of PE Dx, a CDS to Support Pulmonary Embolism Diagnosis in the ED. (*Peter L. T. Hoonakker, Pascale Carayon, Megan E. Salwei, Ann S. Hundt, Douglas Wiegmann, Peter Kleinschmidt, Michael S. Pulia, Yudi Wang, Clair Novak & Brian W. Patterson*)

Designing and implementing clinical decision support (CDS) in health care has been challenging. Attempts have been made to design and implement CDS to support clinical procedures, but many of these CDSs have met user resistance. One possible explanation for the lack of acceptability can be the poor design of the CDS. In this study, we describe the design of PE Dx, a CDS built to support the diagnosis of pulmonary embolism (PE) in the emergency department (ED) using human factors methods.

Model for Evaluating the Implementation of a Third Generation EHR System. (*Morten Balle Hansen, Kristian Kidholm, Christian Nøhr, Thomas Schmidt & Kasper Trolle Elmholdt*)

Most theoretical approaches to evaluate implementation of EHR systems origins from the time when EHR systems replaced paper records. When staff and management have many years' experience in use of EHR, the approaches to implementation is different. In this protocol paper we review the main implementation theories and discuss the adequacy for planning and evaluation of implementation of third generation EHR. Finally, we present a model to understand relations between leadership, the implementation of the EHR system in the individual clinical departments, the perception of the staff and the quality of care. The model is used to outline five hypothesis that can be tested in a specific evaluation project.

Lessons Learned from Implementing a Patient Prioritization Tool Designed with End-Users in a Pediatric Emergency Ward. (*Clément Wawrzyniak, Jessica Schiro, François Dubos, Sylvia Pelayo & Romaric Marcilly*)

Introduction. Overcrowding is a common problem in emergency departments. This is true for adult and pediatric emergency department (PED) and issues are potentially important (e.g. quality of care, financial, social, ethical). Optimum is one among several solutions implemented to fight this phenomenon. It is an electronic patient prioritization tool for PED devoted to non-vital emergencies. First usage assessments reported the tool was not used by the PED staffs despite their strong involvement during the development. Aim. This paper aims at understanding why the PED staff did not use the Optimum system that has been designed with them and for them, through a user-centered design process. Method. PED staffs answered answer a short survey about their usage of Optimum. Depending on their answer (user vs. non-user), they either underwent an individual semi-structured interview or an unstructured one. Interviews were audio-recorded and transcribed and, from each interview, meaningful semantic units representing the reasons for using/non-using Optimum were extracted and organized iteratively following a grounded approach by three ergonomics experts till a consensus was reached. Results. 12 interviews have been performed with 6 physicians, 5 nurses and 1 auxiliary nurse. Overall, the prioritization tool Optimum have received a mixed response from the PED staff: Optimum display is neither understood nor trusted by users. Moreover, it is mainly used to estimate the PED attendance rate and not to prioritize patients. Discussion. This study shows how much it is difficult to implement new tool in wards despite a user-centered development and without being included in the daily used patient management tool.

12:35	Lunch

13:35 **Session 5: Citizens in health contexts**

Managing Privacy and Data Sharing Through the Use of Health Care Information Fiduciaries. (*Paul R. DeMuro & Carolyn Petersen*)

Policy and regulation seldom keep up with advances in technology. Although data de-identification is seen as a key to protecting one's data, re-identification is often possible. Whether one's data is to be used for care, research, or commercial purposes, individuals are concerned about the use of their information. The authors propose the concept of an information fiduciary for holders of data, describe how it might be applied in a health care context, and outline considerations to determine whether a holder of health care-related information should be regarded as an information fiduciary.

The Evaluation of Decision Support Tools Needs to be Preference Context-Sensitive. (*Jack Dowie & Mette Kjer Kaltoft*)

Individuals have different preferences in how they wish to relate to healthcare professionals such as doctors. Given choice, they also have preferences in relation to the type and location of support they want for their health and healthcare decisions. We argue that preference-based clusters within this heterogeneity constitute different contexts and that evaluations of decision aids should be context-sensitive in this respect. We draw attention to two distinct preference-based clusters: individuals with a preference for 'intermediative' decision support as a patient, implemented in a largely qualitative deliberative model, on the one hand, and for 'apomediative' decision support as a person, implemented in a largely quantitative multi-criteria decision analytic model, on the other. For convenience, we refer to the latter as Person Decision Support Tools (PDSTs), leaving Patient Decision Aids (PDAs) for its former, conventional use. Seeking to establish proof of method, we present an online PDST that can help individuals establish

which of these two types of decision support they would find optimal. It is based on nine key attributes on which PDAs and PDSTs can be contrasted. Within population heterogeneity, preference clusters should be identified, and acknowledged and respected as contexts relevant to the evaluation of decision support tools.

Avoiding Sedentary Work: Exploring Motivational Issues. (*Ann Bygholm & Lisbeth Kappelsgaard*)

In this paper we present a qualitative study on motivations for avoiding sedentary work. Sedentary work has been recognized as a significant public health problem and many workplaces now invest in initiatives to support employees in avoiding it. The initiative in focus here include bikes, treadmills, step machines and adjustable workstations combined with a digital platform to keep track of activities and to make relevant information available. Experiences indicates that while employees are excited at the beginning, the use of exercise tools drop relatively fast. In order to understand motivation for use, clarify challenges and identify opportunities to support use of exercise tools through the digital platform we did interviews with employees and decision makers from four different companies. The overall challenge identified was pressure of busyness and reasons for use was due to individual objectives. Thus, in order to support employees in avoiding sedentary work the digital platform should provide facilities which allow for formulating and pursuing individual objective.

Narratives and Stories: Novel Approaches to Improving Patient-Facing Information Resources and Patient Engagement. (*Blake Lesselroth & Helen Monkman*)

Patient-centered healthcare requires development of materials for health consumers that increase health literacy, enrich the provider-patient dialog, empower shared decision-making, and improve downstream outcomes. Unfortunately, evidence suggests current methods of communication, including print and electronic media, are inadequate. The Narrative Theory of Learning is grounded in the premise that humans define their experiences and form cognitive structures (e.g., new learning, novel concepts) within the context of narratives. Simply put, humans remember stories better than fragmented bits of information. Therefore, we propose leveraging the power of narratives and stories to improve the efficacy and impact of consumer health applications. We describe several examples of future technologies that could incorporate narrative techniques and present a call to action for future research and development.

Patient Experiences and Digital Involvement in Patient-centred Care Models. (*Berglind F. Smaradottir & Rune W. Fensli*)

The provision of individualised treatment and care from health care services to patients with chronic conditions and multi-morbidities is under pressure because of an increasing elderly population. There is a need for services that are: 1) person-centred, 2) integrated and 3) proactive, and supported by digital technology. The research project 3P-Patients and Professionals in Productive Teams aims to study different patient-centred teamwork models in Norway and Denmark. This paper presents a study on patients' experiences and digital involvement in patient-centred care teams. Qualitative research methods were applied with interviews and demonstrations of technology use made at patient's homes. The results showed that the patients were satisfied with the patient-centred service models and had an increased feeling of safety. A constraint was information sharing between the patient-centred health care team and the patients. Most of them did not have access to read own medical information and mainly verbal information was shared between the patients and the health providers.

15:15	Coffee break

15:35 **Session 6: Designing and evaluating in contexts**

We Built It, But They Are Not Coming: Exploring Deterrents to Consumer Medication Information Use. (*Helen Monkman, Andre W. Kushniruk, Jeff Barnett, Elizabeth M. Borycki & Debra Sheets*)

Given the prevalence of prescription medication use, it is important that consumers are aware of the benefits and risks of taking their prescribed medications. One approach to informing consumers in North America is to provide them with Consumer Medication Information (CMI), the paper leaflets given to consumers when they fill a prescription for the first time. Unfortunately, reported use rates of written medication information are quite low. As part of a broader study investigating memory, perceptions, preferences and information needs around CMI, this study specifically examined reported deterrents to CMI use. Findings from this study revealed three areas that appear to influence CMI use: 1) Documentation, how CMI is designed and what it contains; 2) Provision, how and when CMI is given to consumers; and 3) Context, what the individual's characteristics and experiences are. These three factors warrant further investigation to reveal more of their unique facets and their relative influences on CMI use. That is, some aspects may be more influential than others.

"I feel like a nurse and my clients learn more": mHealth, Capacity Building and Empowerment in Community Based Care. (*Mokholelana Ramukumba & Maria Hägglund*)

Community health workers, led by trained nurses who are linked to a health facility are well positioned to play an important role in improving health of the communities in low and middle-income countries. The South African Department of Health has implemented various mobile health programmes to improve community-based services. This paper presents a component of a study that evaluates mHealth interventions in South Africa. The study was

conducted in Pretoria urban and semi-urban areas, with the aim of understanding how community health workers experience mHealth technologies. Three focus group interviews were conducted and data analysis followed Thorne Interpretive Description framework. An overarching theme was that the mHealth application provided clinical content that empowered community health workers to develop confidence, higher efficacy, independent decisions making and experience higher social standing with their clients. This in turn, translated into informed clients. There is evidence of strengthened capacity in the use of mHealth technology and application of knowledge to provide an engaged client care. Functionalities in the application allowed timely exchange of information and decision support.

Application Programming Interfaces (APIs) in Health Care: Findings from a Current-State Assessment. (*Prashila Dullabh, Lauren Hovey, Krysta Heaney-Huls, Nithya Rajendran, Adam Wright & Dean F. Sittig*)

Interest in application programming interfaces (APIs) as a means to increase health data access and exchange among patients, health care providers, and payers has become an important area for development. In an effort to better understand the various contexts in which APIs can be applied, we explored different use cases. While APIs and our collective understanding of the best ways to implement and use them continue to develop, in the coming years the use of proprietary and standards-based APIs could be key to the sustainability of applied clinical informatics research, as well as associated improvements in patient engagement, clinical decision making, efficiency, quality and safety of the healthcare delivery system.

Open or Closed: A Project Proposal for Investigating Two Different EHR Platform Approaches. (*Kristian Malm-Nicolaisen, Rune Pedersen & Asbjørn J. Fagerlund*)

Technical platforms form the fundament on which IT systems and Electronic Health Records (EHRs) are implemented. The use of either open or proprietary standards and technologies for information modelling and interoperability have implications for how clinical and health data is handled and made available for the system users. In Norway, two different EHRs are procured in different health regions of the Specialist healthcare service. The two platforms are characterized as one being open platform-based and the other being closed platform-based. The study aims to identify and describe consequences and implications related to two different platform approaches for EHRs from an end-user perspective. The study will employ three methods of data capturing; scoping study, interviews, and questionnaires. Data will be systematically analyzed through proven methods. Interviews and questionnaire data will be gathered from European hospitals having implemented EHRs in recent years. Results will be compared to the Norwegian context. The technical platform used for health IT systems in general, and the EHR specifically, can have substantial consequences for clinicians and organization of work. Closed platform-based EHRs still constitutes the majority of the market, but open platform approaches are rapidly gaining popularity. An assessment of the consequences related to different platform designs can shed light on the implications the chosen technical approach will have on clinical and organizational practice.

Evaluating the Contextual Integrity of Australia's My Health Record. (*Timothy Kariotis, Megan Prictor, Shanton Chang & Kathleen Gray*)

My Health Record (MyHR) is Australia's national personally-controlled electronic health record. Initially established in 2012, it moved from an opt-in to an opt-out system in 2018. This paper considers the privacy aspects of MyHR shared health summary. Drawing on Nissenbaum's theory of privacy as contextual integrity, we argue that the shift in the event-specific nature of information sharing leads to MyHR breaching contextual integrity. As per Nissenbaum's decision heuristic for contextual integrity, we evaluate this breach through a reflection on the changing nature of health care, including patient empowerment, and the greater complexity of care. It is evident that more needs to be known about the benefits of shared health summaries, as well as the actual use of MyHR by clinicians and patients. Though we focus on MyHR, this evaluation has broader applicability to other national electronic health records and electronic shared health summaries.

17:15 Closing ceremony