Human aspects of eHealth Interoperability in the Transatlantic Setting

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Abstract The citizens’ right to and value of their health information is widely accepted as key premise for patient safety, quality, and continuity of care. Different aspects of interoperability, e.g. technical, semantic and organizational, illustrate heterogeneity in health records, health systems, and business processes. What has been largely overlooked is the human aspects of eHealth interoperability. Trillium Bridge, supported by the European Commission, studies feasibility of transatlantic exchange of patient summaries building on the European Patient summary Guideline based on epSOS and HL7’s Clinical Document Architecture referenced in the Meaningful Use II program in the United States. This workshop takes an ecological perspective, aiming to engage the audience in unpacking the human aspects of eHealth interoperability. We will question what it takes to transcend the boundaries of countries and health systems conveying health information that matters. The speakers will address the question from different perspectives relating to eHealth standards, patient care and communication, business models, and use of icons and avatars in an effort to rethink interoperability to support collection and use of health information across borders.

Keywords. Integrated care, eHealth, interoperability, patient summaries, semantic mapping

Introduction of the topic

The Trillium Bridge project aims to deliver a feasibility study on the transatlantic exchange of patient summaries supporting the Memorandum of Understanding on eHealth Cooperation between the European Commission and the Department of Health and Human Services of the United States [1]. As part of this study, relevant patient summary specifications were compared in the context of patient and provider mediated exchange. Allergies, Problems, and Medications were identified as clinically equivalent sections present in patient summaries on both sides of the Atlantic.

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A proof-of-concept transformer between patient summaries documents in EU Patient Summary Guideline format and clinical summaries in the HL7 Consolidated Clinical Document Architecture, Continuity of Care Document type used by the Blue Button initiative in the United States was developed. In this way, patients that need urgent or unplanned care overseas may provide the foreign physicians with a patient summary that is fit for the purpose of sharing critical patient information and receive a discharge summary or encounter report after the episode of care, to be used back home. The technical feasibility of these use cases has been successfully tested, identifying the limitations of transforming clinically equivalent sections used in Europe to those used in the US and setting the foundations for an international patient summary [2].

Despite privacy and security concerns, the potential benefit of this transatlantic exchange is evident. However, we need to move beyond technical, semantic and organizational interoperability into “actionable” interoperability and examine the human factors and professional considerations that would make it feasible for health professionals to provide, use, and gradually improve the information in the patient summary document. Moving beyond technical and semantic interoperability into actionable interoperability that would enable exchange of information that can be acted upon, requires more than a leap of faith. Balancing clinical precision and synthetic power is often a challenge for clinicians and Medical Informatics experts when dealing with representation of clinical information. Any coding system may lead to loss of precision, while free text may lead to difficulties for retrieval and translation. Therefore, different kinds of issues including standards, professional practice considerations, education, incentives, business models need to be addressed. The focus of this workshop is to instigate a shift that changes the perspectives on and language used for interoperability along with underlying perceptions and expectations.

Recent advances in user interfaces target empathy as they use icons and avatars to deliver information to patients and health professionals. They question discussed here from the perspective of eHealth standards, health and social care of elderly patients, and the reality of incomplete, situated information deployed in a way that builds trust in the processes are critical.

1. **Aim of the discussion**

The discussion aims to educate the audience in recent advances in human factors engineering focusing on icons, cues and avatars that elicit empathy and cultivate a culture of sharing and trust that is enabled by interoperability for the benefit of the patients, health providers as well as health and social systems. In an interactive discussion with the audience, the speakers will address the question: "what does it take to cultivate a culture of interoperability that transcends the boundaries of countries and health & social systems conveying information that matters."

2. **Contribution from each speaker**

Anne Moen will introduce health and social care realities, pointing to interoperability issues at the backdrop of challenges for elderly and increasingly dependent citizens hampered by chronic disease, frequently living alone.
Catherine Chronaki will speak on the Trillium Bridge feasibility study across the Atlantic and the role of standards and profile developing organizations in cultivating a culture of interoperability today and in the future.

Veli Stroetmann will speak on the challenges of establishing sustainable business models for semantic interoperability that transcend country and organizational barriers potentially leading to a global patient summary.

Robert Vander Stichele will address multilingual aspects of medical communication between patients and doctors, and techniques to facilitate comprehension by lay man of technical medical texts.

Frederic Ehrler will speak about user interface elements and icons that drive adoption of eHealth and mobile Health applications. He will address the issue of technology acceptance through the use of hedonic information systems, aiming at providing self-fulfilling rather than instrumental value to the users and will explore its benefits in a multilingual context.

Arturo Romero will address the topic of cognitive interoperability principles that enhance accessibility of healthcare information for humans. The challenges of cognitive Interoperability in conceptualizing human interaction with systems will be discussed using the EU Patient Summary implementation undertaken by Spain.

Hyeoun-Ae Park will speak on representation of data and knowledge by avatars that elicit empathy from doctors and citizens alike, placed in the context of mobile citizens that acts and interacts with people across country and language barriers.

3. Expected results

The main objective of this workshop is to engage the audience in an actionable way of thinking about interoperability. The results and findings of the discussion will be brought to the informatics community, the EFMI council, standards fora like HL7 and the Joint Initiative Council, and the new European Commission funded interoperability projects aiming to support large-scale eHealth deployment in Europe and beyond.

4. References
