Usage of the IHE-Patient Identifier Cross-Reference Profile in a Telemedicine Platform for Cardiac Rhythm Management

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Abstract and Objective

This work explores the usage of the IHE-Patient Identifier Cross-Reference Profile in a telemedicine platform for cardiac rhythm management at the pivotal point between clinical research and routine. It is shown how patients can be uniquely identified in a distributed eHealth environment by usage of electronic health records and devices attached to them.

Keywords:

eHealth, Record linkage, Patient identity management, Cardiac rhythm management, Telemedicine

Introduction

"Herzschrittmacher: Elektronische Gesundheitsakte" (H.ELGA) [1] is a web-based telecare IT-platform enabling integrating therapy and data management in the field of cardiac rhythm management. The system is built on top of the AIT eHealth platform, a web-based system supporting tele-health applications using mobile-phone based data acquisition [2].

H.ELGA exchanges identity information as well as treatment data with a local hospital. In order to be able to correctly identify patients in both systems H.ELGA stores the patient identifier of the local hospital in its database thus leading to a closely-coupled system which is hard to extend.

Methods

A web-based application called PIXManager has been implemented following the guidelines of the Patient-Identifier-Cross-Reference Profiles (PIX) provided by the Integrating the healthcare-Initiative (IHE). The implementation supports probabilistic record linkage based on the theory of [3] which has been implemented based on experiences made in an Austrian tumor register [4].

Results

PIXManager has successfully been integrated within the AIT eHealth platform. The integration has been tested in an interoperability workshop at the eHealth2009 conference in Vienna, Austria, using an experimental version of H.ELGA. The workshop featured a scenario showing H.ELGA as telemedicine platform which is linked to a Health-Level-7 (HL7) Server. This HL7 server manages incoming data transmissions from mobile phones and an application simulating a hospital information system (SIKIS). PIXManager translates mobile phone identifiers and the identifier of SIKIS to the locally known H.ELGA identifier. Patients can be registered either in H.ELGA or SIKIS. Probabilistic record linkage is used to merge identities. Furthermore the record linkage algorithm has been tested against the H.ELGA live database leading to the result that 4.27 % (n=563) patients were possible duplicates.

References

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