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Design and Implementation of a Shared Treatment Plan in a Federated Health Information Exchange

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Abstract

The poster presents the design and implementation of a shared treatment plan for providing unified views of medications for professionals and patients as a new added-value service on the regional healthcare network "e-toile". Strategies for integrating this service with other institutions infrastructures are also presented.

Keywords:

Shared treatment plan, e-prescription, HIE, IHE, CDA

Introduction

The State of Geneva has implemented a regional health information exchange (HIE) in collaboration with Swiss Post Solutions [1]. The HIE enables the professionals to access medical information concerning their patients, as well as making their own documents available to others. Improving collaboration amongst the participants is done through the use of collaborative tools like the "shared treatment plan" presented here.

Design

The shared treatment plan aims at providing a consistent, complete, and accurate consolidated view of current and past medications, to facilitate annotation by the various professionals involved in the medication loop (prescribers, pharmacists, home nurses), and to provide a didactic view of the medication plan for patients [1,2]. Two important constraints coming from the structure of the HIE platform had to be taken into account: firstly the patient himself decides who can have access to which information, and has the possibility to hide information to some care professionals. As a consequence, the shared treatment plan can be incomplete due to a patient's decision. Secondly the HIE is a platform for managing *documents* structured according to the HL7 Common Document Architecture (CDA). Each document can only be modified by one of its authors.

The core strategy selected for the implementation is based on transactions stored in contributors' specific documents (i.e. one document per patient / contributor). As a consequence, the shared treatment plan is the union of the contributions (transactions) of all stakeholders for a specific patient.

Every action performed by a stakeholder is represented by a transaction like "add a new medication", "prescribe a certain number of packages of this medication", "dispense a medication, etc. The key advantages of such a structure are simplicity and extensibility. The underlying infrastructure being based on CDA documents, transactions are stored in a CDA level 3 document with a fully structured content.

Communication with external users or applications has to be made two-ways, i.e. possibility for retrieving the current content of the shared treatment plan but also for modifying the treatment plan. Implementation is based on emerging IHE standards in the field of e-prescription and medication summary as used e.g. in epSOS [3]: while the retrieval is similar to getting a medication summary, the modification is close to an e-prescription with possibilities of altering medications.

DSS are strongly related to the deep knowledge of the substances. In order to avoid developing and maintain such an expertise, existing services provided by specialized companies are used and called by the module when necessary.

Results

The implementation of the shared treatment plan did, as is often observed in such developments, make visible the complex nature of the prescription process involving multiple care professionals, and raising challenging issues about the roles and responsibilities of each. Such issues included the ability to change another physician's prescription, or the possibility for pharmacists or home nurses to document medications that are obtained without prescriptions. Pragmatic solutions were defined collaboratively, with the understanding that the system would not change or hinder existing practices, but would make them more visible.

Acknowledgments

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