

XML based electronic forms of electronic health care record support workflow in healthcare centres

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1. Introduction

Health care enterprises need to optimise their work processes to increase the efficiency and the quality of medical services [1]. Often administrative forms and even parts of the health care record are still sent on paper from one point in the hospital to initiate procedures in patient treatment. This requires precious time, and sometimes records even get lost.

Hospital information systems, where used, normally do not support a workflow approach. Electronic forms are compiled into the programs as fixed input masks and data types, and therefore cannot be modified easily. Changes in the organisational structure or in data flow can only be achieved by expensive recompilations.

2. Concept

The concept to use editors for the creation of input masks for forms is well known. New in our approach is modeling the document components in XML (extended markup language) with the possibility to integrate workflow automation into data entry and data processing.

Since the introduction of XML [2], various standardisation committees and working groups attempt to use this flexible language for their requirements in modeling interchangeable data.

In the medical area, some efforts have been put into modeling the electronic health care record using XML. There is work in progress by the HL7 committee [3] and also by the technical committee 251 of the European standards centre [4]. On the other side, the workflow management coalition is also trying to use XML for their modeling and processing purposes.[5]

3. Realization

An editor was developed to create and modify input masks based on XML representation of data. Input forms can be easily generated by users. They select components for the masks, specify an element hierarchy by positioning the components in a tree structure and enter the appropriate parameters. The forms and their information contents can be used in a workflow engine to trigger actions for the next person in that specific workflow task. The forms are presented in a browser for filling in the required data. After completing the data entry, the form is sent back to the processing engine to save the data and start the next action.

Forms can be configured for different roles in workflow so that only appropriate parts of the electronic document are exposed to the person that has to fill in the fields. Some parts may be shown but are protected against modification, others may be hidden for privacy protection. This adaptive presentation and processing is achieved by the workflow engine that parses the document source before sending it to the actual workstation.

4. Conclusion

The presented XML based forms for EHCR can be used to reduce the costs of document processing and improve the quality and efficiency of medical services by supporting automatic workflow. Creation, extension and adaptation of document forms can be done by users. No recompilation by service personnel is required.

References

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