Primary Care Provider's Acceptance of Health Information Exchange Utilizing IHE XDS

Birger Haarbrandt[a], Jonas Schwartze[a], Nathalie Gusew[b], Christoph Seidel[c], Thorsten Kleinschmidt[d], Reinhold Haux[a]

[a] *Peter L. Reichertz Institute for Medical Informatics, University of Braunschweig and Hannover Medical School, Germany*
[b] *Department of Information Technology, University of Bonn Medical Center, Germany*
[c] *Medical Center Braunschweig, Braunschweig, Germany*
[d] *Association of Statutory Health Insurance Physicians Lower Saxony, Germany*

Abstract and Objective

Objective We assessed primary care providers' perception of a health information exchange system (HIE) based on IHE XDS in the metropolitan area of Braunschweig, Lower Saxony, Germany. *Design* An application enabling access to medical documents in an XDS Affinity Domain was developed. We examined usability and factors related to user acceptance. *Measurements* User perception was probed using system usability scale (SUS) and semi-structured interviews. The framework analysis was used in the review and interpretation of the interview data. *Results* The evaluation was performed on 7 participants. The SUS showed an above average usability with a median score of 77.5. Participants submitted suggestions for additional features and improvement of usability. Poor integration of functionality into existing workflows was most frequently criticized. *Conclusion* We found, that, while usability was well perceived by primary care providers, challenges remain in adoption of XDS based IHE.

Keywords:

health information exchange, general practitioners, ambulatory care, user adoption, technology acceptance, XDS, IHE

Methods

In the field of cross-institutional data exchange, *Integrating the Healthcare Enterprise* (IHE) provides a widely anticipated approach for implementing electronic health records: Cross-Enterprise Document Sharing (XDS) [1]. As broad user adaption is crucial for the success of HIE [2], we wanted to learn about users' perceptions of newly introduced workflows enforced by XDS. We already had developed a web-based application granting users access to patient data in the XDS Affinity Domain of an HIE called Lower Saxony Bank of Health.

The study was administered to health care providers at general practices in the area of Braunschweig (Lower Saxony, Germany). We documented participants' demographics (age, gender, specialization) and evaluated usability and perception of our system. In the presence of a researcher, participants were asked to carry out four typical use cases induced by XDS (including patient demographics querying and document download). Afterwards, a variation of the system usability scale (SUS) and semi-structured interviews were used to evaluate user satisfaction. The SUS-test is well-validated, can be done in a short period of time and is also understandable by nontechnical users [3]. Its scores may range from 0 to 100.

Results

Of 22 feasible participants for our study, 7 responded to our request. The mean of all conducted tests showed an average score of about 70.7 (SD=13.6) and a median of 77.5.

Asked about the presented prototype, users said they like the simplicity of its graphical user interface (5/7) and the whole idea behind the concept of health information exchange (4/7). Users mostly criticized the workflow as too time consuming (5/7). The concept of patient search via demographic querying was mentioned as being difficult to use in daily practice (3/7). One user (1/7) did not understand the idea of patient querying at all. Two (2/7) physicians said that they want to avoid using a computer during a doctor's consultation.

At all, 4 of 7 participants told us, that they would also like to be able to submit documents to hospitals and colleagues in ambulatory practices. In all cases, participants named the transmission of documentation on medical findings (4/7). In two (2/7) cases, submission of ECGs was requested. Electronic patient referrals were mentioned once (1/7). Participants gave advice about future features and improvements. Receiving electronically sent documents via fax was mentioned most frequently (3/7). A better integration of HIE system into existing electronic medical records was stated, too (2/7).

Conclusion

This study has contributed initial insight into challenges associated with the use of XDS in ambulatory care settings. While most healthcare providers recognize a need for the use of HIE, there are still barriers avoiding broad adoption.

References

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