Acceptance and Usability of Computer Kiosks that Enable Patients to Contribute Personal Health Information Directly into a Health Information Exchange for Use in Clinical Decision Support

Janese M. Willis, MS, MBA; Garry M. Silvey; and David F. Lobach, MD, PhD, MS
Division of Clinical Informatics, Department of Community and Family Medicine, Duke University Medical Center, Durham, NC

Abstract
Use of kiosks for collecting data in healthcare is increasing. However, little is known regarding patients’ ability to contribute information directly into a Health Information Exchange (HIE). This project investigated the acceptability of computer kiosks that collected health information and integrated patient-entered data into a HIE for use in clinical decision support (CDS).

Introduction
The use of publicly accessible computer kiosks by patients to collect and deliver health information is growing rapidly. Benefits of such kiosks include:
- Capacity to collect patient data electronically in a structured format
- Means to encourage and facilitate increased patient involvement in their own healthcare
- Ability to provide contextually relevant health information.

However, little is known about patients’ perceptions of using kiosks to enter information directly into a regional HIE for use in clinical decision support.

Methods
In collaboration with a local Medicaid care management organization, we developed a health information kiosk system (Figure 1) comprised of:
1. A patient Health Risk Assessment (HRA) questionnaire. (See example in Figure 2).
2. Patient resources in the form of health education pamphlets and videos;
3. Patient-tailored printouts that include health tips and local health resources.

Results
A convenience sample of 232 individuals was invited to use the kiosks and complete a questionnaire between 8/10/06 to 12/21/06. This population was 81% female, 71% minority, 13% Caucasian, and 18% undisclosed race. A total of 216 participants used the kiosks and completed the kiosk experience questionnaire. Responses were favorable for 27 of the 29 survey questions. Results for 28 of the 29 questions were significantly different from a neutral response. Results are shown in Table 1.

Conclusion
This study demonstrates that publicly accessible computer kiosks can have a high level of acceptance and usability for the unassisted, direct collection of clinical information from patients for use in a regional HIE with subsequent use for clinical decision support. Additional research is needed to determine 1) whether the patient entered information is accurate; and 2) whether the types of information collected can be used in CDS to impact user behavior.

Figure 1. Touch-Screen Computer Kiosk Used to Collect and Access Health Information

Figure 2. Sample Medicaid Patient Health Risk Assessment

Figure 3. CDS-Generated E-mail Notification to Medicaid Patient Care Managers

Table 1. Results of User Satisfaction and Usability Surveys Concerning Kiosk Experience (n=216)

References

Acknowledgements
This study was funded in part by the Healthcare Delivery Research Branch, Division of Innovation Development and Implementation, Office of the National Coordinator for Health Information Technology, and the Office for the Advancement of Telehealth of HRSA. The CDS system was funded in part by the National Library of Medicine Informatics Research and Development (NLM).