

Accuracy of Clinical Information Entered by Patients through Health Information Kiosks Compared to Patient Charts and Claims Data

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

Abstract. *With the increasing emphasis on engaging patients in their own healthcare, the role of free-standing kiosks to collect information directly from patients is likely to grow. Unfortunately, little is known about the accuracy of patient-entered information, especially among patients of lower socioeconomic status. We discovered the information entered at unsupervised kiosks by Medicaid patients is accurate for diagnoses (93%) but less accurate for past procedures (51%) when compared to information recorded in their medical records.*

Introduction. The use of kiosks in healthcare by patients to collect and deliver health information is growing rapidly¹. Studies have shown that accuracy for certain groups entering information into kiosks in a supervised clinical setting about specific diseases can be highly accurate². However the accuracy of directly entered patient data at unsupervised stand-alone kiosks has not been measured.

As part of a project in which we deployed health information kiosks in 17 diverse community settings, we were able to compare the health information entered by patients directly with information in their medical records and with claims data. Kiosks were deployed at two hospital emergency department (ED) waiting rooms, two hospital waiting areas, a federally qualified health center, four family practice clinics, four county health departments, and four county Department of Social Services offices. The kiosks are not supervised, and the patients are able to enter as little or as much information as they desire.

Methods. Claims information is received nightly from clinics in a 6 county area for use in a Health Information Exchange (HIE) for Medicaid beneficiaries. Additionally, we receive State Medicaid claims on a monthly basis for this same population. By comparing information entered by patients with their medical records (gold standard) and the claims data, we were able to determine the accuracy of the patient entered data.

The kiosk provides a Web-based health assessment survey to patients. If a patient's Medicaid ID matches with one in the HIE, the patient is asked to verify the match and the survey responses are stored along with the patient's other encounter data. For this analysis we picked 4 questions from the survey that would map directly to information available via chart

audits and in coded claims data. Specifically, the questions were selected to represent both adult and pediatric issues. The exact wording of the survey questions is shown in Table 1. Responses were verified by the presence or absence of the corresponding ICD9/CPT codes in claims and of the appropriate documentation in medical records.

[Do/Does][you/this child/this person] have asthma?
[Do/Does][you/this child/this person] have diabetes?
[Have/Has][you/this person] had [your/their] cholesterol checked in the past 5 years?
[Have/Has][you/this child] ever had a blood test to check for lead poisoning?

Table 1. Survey Questions

Results. We collected data over a period of 3 years from 411 kiosk sessions during which at least one of the 4 questions was answered. The results of our comparisons are shown in Table 2.

	Patient Entered Data Accuracy	Claims Data Accuracy
Asthma	89%	92%
Diabetes	96%	85%
Cholesterol	52%	83%
Lead	50%	67%
Average	72%	81%

Table 2. Data Accuracy Related to Medical Records

Conclusions. As the use of kiosks grows, it is important to measure the accuracy of patient entered data. Our results show a high level of accuracy for diagnoses (93%). Accuracy was considerably less related to past procedures (51%). Additionally, we show that HIE claims data are reasonably accurate across both diagnoses and procedures (81%).

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References

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