Health IT Hazard Manager

Principal Investigator: Walker, James, M.D.; Geisinger Health System
Organization: Abt Associates Inc.
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Summary: This project focused on developing and testing a software tool called the Health IT Hazard Manager. The goal of the Hazard Manager is to enable providers to classify and communicate hazards related to the use of electronic health records (EHRs) and other health information technology (IT) so that problems can be fixed or controlled before they cause patient harm. An example of a hazard would be entering an order for the wrong patient, which could be due to the user interface or the absence of an automated patient identity confirmation.

Rather than looking retrospectively at accidents or near-misses, the Hazard Manager is designed to collect structured information about hazards associated with specific health IT products. The Hazard Manager collects information about four main components of hazards: discovery, causation, impact, and corrective action. The system collects information on the nature of the hazard, its cause, and how it was corrected. The Hazard Manager can help health care providers assemble consistent and organized information about the potential hazards identified in their IT products, as reported by other users of the same products. When deployed regionally or nationally, health care organizations will benefit from a mechanism to consistently categorize, manage, and resolve hazards, and understand hazards others have encountered in the next upgrade of their IT products. The Hazard Manager will also allow health IT vendors to view hazards their customers have identified and prioritize fixes for future upgrades. The Hazard Manager contains three levels of security: 1) participating health care organizations can enter and see information about its own hazards and those reported by unidentified others who use the same products; 2) vendors can view hazards reported by their unidentified customers; and 3) health care organizations, vendors, policymakers, and researchers can view aggregated, unidentified reports of all hazards.

The Beta test was conducted under the auspices of a patient safety organization (PSO). Beta test participants entered several hazards per week for 6 months. They also entered hazard scenarios (vignettes) to test inter-rater differences. The Hazard Manager was evaluated on usability and usefulness and refined accordingly, based on group and individual discussion with participating health care organizations, their software vendors, and federal policymakers.

Project Objectives:

- Design, build, and test the Hazard Manager software. **(Achieved)**
- Beta test the Hazard Manager software in six to eight study sites. **(Achieved)**
- Refine the ontology based on findings from the Beta test. **(Achieved)**
- Deliver a fully-tested and refined version of the Hazard Manager software and final report. **(Ongoing)**

2011 Activities: The primary focus of activities in the first 9 months of the project was on designing, planning, and programming of the Hazard Manager software, finalizing PSO agreements with participating health care

organizations, and obtaining a review waiver from the institutional review board (IRB). Beta testing began with seven sites and Beta test data entry included nearly 500 actual hazards. Data analysis was completed in December 2011. Due to delays in obtaining signatures on the PSO agreements and receiving the IRB waiver, the contract was extended by 3 months with a new project end date of May 2012.

Preliminary Impact and Findings: There were several discoveries that resulted from the Beta testing of the Hazard Manager, such as finding that an individual's role determines the types of hazards they become aware of. For example, the IT implementation teams learn about potential hazards during testing, while patient safety teams may learn about care process compromises during their review of patient care. Hospitals have separate IT and patient incident reporting systems that, while not explicitly designed for hazard identification, can help teams identify hazards.

Failure to control hazards are often labeled as "user error;" the Hazard Manager focuses on the missing safeguards in IT systems that fail to protect users from making mistakes. Hazards are often labeled "software design flaws;" the Hazard Manager specifies whether these flaws are related to usability, data quality, or software specifications. In terms of impact on patients, the Hazard Manager captures the severity, duration, and type of harm—focusing not only on physical harm but also raising awareness about psychological, financial, and reputational harm.

Target Population: General

Strategic Goal: Develop and disseminate health IT evidence and evidence-based tools to support patient-centered care, the coordination of care across transitions in care settings, and the use of electronic exchange of health information to improve quality of care.

Business Goal: Knowledge Creation
