Using Health Information Technology in Practice Redesign: Impact of Health Information Technology on Workflow

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Summary: Health information technology (IT) has the potential to improve the quality, safety, efficiency, and effectiveness of care. However, the implementation of new health IT systems can change established clinical work processes and workflow, creating more work and unfavorable workflow changes for end-users. Anticipated benefits of health IT are therefore difficult to achieve unless implementation and workflow challenges are identified and addressed.

The overall objective of this project is to study the impacts of health IT implementation on workflow processes in six primary and specialty ambulatory care practices from two participating health care organizations: Billings Clinic in Montana and Cabin Creek Health Systems in West Virginia. These organizations serve different patient populations living in areas with distinct geographic and socioeconomic profiles. Both organizations are engaged in major practice redesign efforts with various health IT implementations to create patient-centered medical homes. Specifically, Billings Clinic is planning to implement an electronic patient homepage in their existing electronic health record (EHR) that will aggregate patient information; a standardized message center application; and an e-prescribing application. Cabin Creek Health Systems plans to implement a completely new EHR. New features will include automatic telephone patient reminders and followup for no-shows, a patient portal, patient kiosks at the clinic, computerized order system with tracking, integrated education materials, deficiency/gaps in care reporting, extensive library of template notes, and voice-recognition for progress note completion.

A mixed-methods approach will be applied to understand the relationship between these various health IT implementations and ambulatory care workflow redesign, socio-technical factors and the role they play in mitigating or augmenting health IT's impacts on workflow processes, and the workflow impacts of health IT magnified through frequently occurring disruptive events such as interruptions and exceptions. The components of the evaluation will include: 1) non-participant observations and contextual inquiries; 2) mapping and remapping of study practices; 3) a pre-post time and motion study; 4) an exploratory log analysis of audit trails and time-stamped clinical data; 5) post-implementation semi-structured interviews; and 6) results triangulation and member checking. Using these complementary quantitative and qualitative methods, this project will generate data and insight for understanding how health IT implementation alters clinical workflow and the root causes and consequences of such impacts.

Project Objective:

- Study the impacts of health IT implementation on workflow processes in six primary and specialty ambulatory care practices from two participating health care organizations. **(Ongoing)**

2012 Activities: The project started in June 2012 and focused on developing and completing the research

and data analysis plans. The research plan includes a summary of the literature studying the impact of health IT on clinical workflow, gaps in the field, and motivation for this project; a description of the conceptual model that guides the methodological design; a description of the study settings and planned health IT implementations at the study sites; an outline of the mixed-methods approach comprised of the previously described six quantitative and qualitative study components; and a timeline of these research activities. The data analysis plan provides a summary of the study components and outlines the planned methodology for each analysis.

In addition, the team submitted the materials to AHRQ for the Office of Management and Budget clearance required to conduct the evaluation.

Preliminary Impact and Findings: This project has no findings to date.

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