

Conducting Measurement Activities for Health Information Technology Initiative

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Organization:	Abt Associates, Inc.
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Summary Status as of:	August 2010, Completion of Contract

Target Population: General

Summary: Agency for Healthcare Research and Quality (AHRQ)-supported research has played a central role in identifying areas where health information technology (IT) might provide needed improvements in health care delivery. AHRQ's extensive research has shown the increased need to assess the adoption, use, and outcomes of health IT.

This project identified the most appropriate and feasible methods of collecting data on national performance on the adoption, use, and outcomes of health IT in four areas: 1) reduction in medication errors due to adoption of computerized provider order entry (CPOE) systems; 2) the number of patients who can access information electronically on medication therapy; 3) the number of clinicians who can access evidence-based (EB) prevention or treatment information electronically; and 4) the number of clinician organizations that have adopted EB decision support technologies.

After clarifying constructs and assessing the availability and quality of data, selected measures were used to inform the activities of AHRQ's Health IT Portfolio and gauge national progress toward health IT adoption goals. Additionally, based on the lessons learned from this effort, Abt Associates proposed a flexible new framework that AHRQ, the Office of the National Coordinator (ONC) for Health IT, and various foundations may use to monitor the adoption, use, and outcomes of health IT in the new landscape created by the Health Information Technology for Economic and Clinical Health Act of 2009 (HITECH).

Project Objectives:

- Develop reliable, valid, useful, timely, and cost-efficient measures and national estimates for four key measures of health IT progress:
 - Reduction in medication errors due to adoption of CPOE systems. **(Achieved)**
 - The number of patients who can electronically access information on medication therapy. **(Retired*)**
 - The number of clinicians who can electronically access EB prevention or treatment information. **(Achieved)**
 - The number of clinician organizations that have adopted EB decision support technologies. **(Achieved)**

2010 Activities: Data analysis and reports were completed and a manuscript was submitted for publication to the Archives of Internal Medicine. The project team completed data analysis on the reduction in medication errors due to CPOE, the adoption and use of clinical decision support (CDS) in ambulatory care settings, and the adoption by hospitals of EB decision support technologies. The study team also

analyzed the implications of the HITECH Act of 2009 on future measurements in the health IT field, as well as the implications of new meaningful use of health IT measures proposed by the ONC and Centers for Medicare and Medicaid Services. The Office of Management and Budget (OMB) determined that developing measures or estimates for the number of patients who can electronically access information on medication therapy was outside AHRQ's scope; therefore this particular objective was retired.

Impact and Findings: The main findings are grouped into the following three categories:

Reduction of medication errors due to the adoption of electronic prescribing systems. Based on data from the American Society of Health System Pharmacists (ASHP) and the 2007 American Hospital Association (AHA) Electronic Health Record (EHR) Adoption Database—A Supplement to the AHA Annual Survey, it was estimated that approximately 26 percent of all in-hospital prescription drug orders were processed by an e-prescribing system in 2008. This estimate was combined with data from peer-reviewed studies and medication order volume data from the ASHP to estimate that the use of e-prescribing systems averted approximately 14.3 million medication errors in 2008. Further, it was estimated that as many as 86 million medication errors could have been averted in 2008 with greater adoption and use of e-prescribing.

Adoption and use of CDS in ambulatory settings. Based on data from the 2008 National Survey of Health Record Keeping among Physicians and Group Practices in the United States, it was estimated that 68.6 percent of physicians practicing in ambulatory settings have at least one of three types of CDS available to them: reminders for guideline-based interventions and/or screening tests, warnings of drug interactions or contraindications, or highlighting out-of-range laboratory results. Of those physicians, 94.4 percent use at least one type of CDS system at least some of the time. Fifty-seven percent of physicians have access to a computerized system that highlights out-of-range laboratory results; 95.8 percent use this feature at least some of the time. Of physicians, 28.8 percent have access to a computerized system that provides warnings of drug interactions or contraindications; 91.9 percent use this feature at least some of the time. Twenty-three point one percent have access to a computerized system for reminders for guideline-based interventions or screening tests; 85.3 percent use this feature at least some of the time. The data shows that CDS use is high in ambulatory settings where it is available. Adoption and use of CDS technologies is higher for physicians working in ambulatory care practices that are larger, multi-specialty, and/or located within a hospital medical center.

Adoption of CDS in hospitals. Based on data from the 2007 EHR Adoption Supplement to the AHA Annual Survey, it was estimated that in 2008, 65 percent of hospitals (3,054 of 4,701) in the study population had adopted at least one of six types of CDS (clinical guidelines, clinical reminders, drug allergy alerts, drug-drug interaction alerts, drug-laboratory interaction alerts, or drug dosing support). CDS technologies that inform courses of action (clinical guidelines, clinical reminders, and drug dosing support) were adopted at a lower rate than CDS technologies that correct courses of action (drug-allergy alerts, drug-drug interaction alerts, and drug-lab interaction alerts). Further, adoption was higher among hospitals that were larger, members of hospital systems, major teaching hospitals, or urban hospitals.

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

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