

HIE and Ambulatory Test Utilization

Principal Investigator:	Ross, Stephen Eisenhard, M.D.
Organization:	University of Colorado Denver
Mechanism:	PAR: HS08-269: Exploratory and Developmental Grant to Improve Health Care Quality through Health Information Technology (IT)(R21)
Grant Number:	R21 HS 018749
Project Period:	May 2010 – April 2012
AHRQ Funding Amount:	\$299,916
Summary Status as of:	December 2010

Target Population: General

Summary: One of the purported benefits of health information exchange (HIE) is that it can improve the efficiency of care by reducing redundant laboratory and radiology testing. There is evidence that test utilization is reduced substantially within institutions such as medical centers that implement comprehensive electronic medical records. If physicians can easily access the results of tests that have been done before, they are less likely to repeat them. However, while it is intuitive that HIE across organizations in a community would improve the coordination of care, there is scant evidence that community HIE results in a reduction in test utilization. As the United States explores investments in HIE to improve the quality of care, policymakers and potential stakeholders in HIE, such as health plans, need more estimates of the degree to which HIE improves the efficiency of care.

Mesa County, Colorado, is a rich resource for more definitive assessments of the effects of HIE. Quality Health Network (QHN), a regional HIE that started providing data exchange to Mesa County in 2005, captures nearly all the test results in the county and has been adopted by more than 351 practitioners, which is more than 85 percent of practitioners in the county. There is also evidence that the reductions in laboratory and radiology utilization in Mesa County since HIE was introduced contrast with national trends of steady or increasing test utilization. This study will formally assess whether adoption of a community-wide HIE reduces utilization of laboratory and radiology testing. The primary study design is a retrospective pre-post comparison of providers working in Mesa County medical practices. Because the timeframe for adopting HIE varies across practices, a differences-in-differences modeling approach is being utilized. This approach allows studying the treatment effect of HIE adoption in different subgroups and is used to eliminate observed or unobserved differences that remain constant over time. The approach will include a basic description of cross-sectional patterns for test ordering in each year from 2004 to 2009, examination of trends from 2004 to 2009, and a cross-sectional, time-series analysis. Physician-level data files will be constructed using data collected at the patient encounter and practice level.

The electronic exchange of health information in communities may improve the quality and efficiency of medical care. Doctors can make better decisions when the health information they need is on hand. By assessing whether a robust, mature regional HIE system helped doctors provide more efficient medical care, this project will provide estimates of value that will prove useful for national decisionmakers and local stakeholders in HIE, and will help guide future HIE efforts.

Specific Aim:

- Determine whether adoption of HIE in Mesa County, Colorado is associated with a reduction in test ordering. **(Ongoing)**

2010 Activities: Institutional review board (IRB) materials were submitted to the Colorado Multiple Institutional Review Board and final IRB approval was obtained in August 2010. The data use agreement for the Mesa County regional health information organization, QHN, was completed and signed by both parties in July. However, there was an unanticipated sale of ManagedCare.com, the agency providing claims data for analysis, to TransUnion shortly after the start of the grant period. This triggered the need to re-write the complex set of business associate agreements among TransUnion/ManagedCare.com and the Mesa County stakeholders, including QHN, Rocky Mountain Health Plan, and the Mesa County Physicians Independent Practice Association. While this process caused a delay in the receipt of the anticipated data extracts, all revised agreements were signed by mid-November. This allowed TransUnion/ManagedCare.com to send a claims dataset to QHN in late November for merging with the “HIE use” dataset and de-identifying providers and patients. A revised dataset was required in early December after missing fields were discovered. The revised dataset of more than 10 million records was being cleaned and undergoing quality checks as of the end of December 2010. The project team is developing descriptive statistics on a 0.1 percent random sample of the data. A more powerful computer was purchased in December to speed analysis of the complete dataset, given its relatively large size.

Grantee’s Most Recent Self-Reported Quarterly Status (as of December 2010): The project was stalled in meeting several aims and milestones due to the sale of ManagedCare.com to TransUnion. However, activities have resumed and there is a plan to get back on track in many of the stalled areas. The project is currently under-budget due to the aforementioned project delays, but expenses are expected to increase now that the delivery of datasets for analysis has occurred.

Preliminary Impact and Findings: There are no findings to report at this time.

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