AHRQ Pilot Project: Adding Clinical Data to Statewide Administrative Data

Summary Report

The Agency for Health Care Administration (Agency), Florida Center for Health Information and Policy Analysis (Florida Center), was awarded a contract from the Agency for Healthcare Research and Quality (AHRQ) for a pilot project to study new ways to approach hospital quality measures. The contract runs from October 2007 through December 2009. The pilot project funding was provided to assess the added value of combining clinical laboratory data with the administrative data collected by the Agency to evaluate the quality of patient care within hospitals. By adding clinical data to administrative data, the Agency expected to fulfill the AHRQ pilot project’s goals to demonstrate and evaluate the process required to 1) standardize laboratory data into a common nomenclature based on the Logical Observation Identifiers Names and Codes (LOINC); 2) merge the standardized clinical laboratory data with the hospital administrative data collected by the Agency; 3) use the Present on Admission (POA) indicator in the Agency’s administrative dataset to risk-adjust patient records for better predictability of potential complications; and 4) complete a statistical analysis of the merged dataset to test the improvement in predicting potential complications by adding the POA indicator and the clinical laboratory data to the administrative data.

Florida’s Team Members and Subcontractors

The Florida Center, within the Agency worked with the State Consumer Health Information and Policy Advisory Council in all stages of the project. 1) The Agency project team came from the Office of Health Information Technology in the Florida Center, directed by Christine Nye, 2) the twenty-two participating hospitals included Broward Health System, Memorial Healthcare System, BayCare Health System, and two independent pediatric hospitals: Miami Children’s Hospital and All Children’s Hospital, and 3) 3M Health Information Systems (HIS).

Hospital Recruitment

The Agency’s team worked with the Florida Hospital Association and other hospital representatives to identify and recruit hospitals for the pilot project. We conducted face-to-face meetings with each of the three hospital systems teams and the two hospitals. We have been fortunate that the participating hospitals’ personnel were familiar with the issues and research related to the quality indicators, POA’s, and AHRQ’s efforts and projects in those areas. They appreciated the value of this project, were interested in the results of the analysis, and were already involved in measuring their own quality measures. Moreover, the LOINC mapping process experience was of great interest to the hospitals.

Selection of the Data Elements Chosen to Add to Administrative Data Set

The 31 selected data elements were chosen initially based on how likely they were to represent clinical manifestations of greater severity or complexity of illness, and on literature reviews combined with clinical judgment. The choice of data elements relevant for the APR DRG ROM fits into the APR DRG development process. The APR DRGs are a joint development of 3M and the National Association of Children's Hospitals and Related Institutions (NACHRI).

LOINC Mapping and Data Transmission

All hospitals participated in the 3M/AHCA initial meeting where they were introduced to 3M’s team and they were provided with a list of the required data elements. The hospitals sent their laboratory data catalogue to 3M Terminology Consulting Services (3M TCS) to initiate the LOINC mapping. 3M TCS worked with each hospital to provide technical assistance to their quality and technical staff to standardize its laboratory data terminology and values and to verify accuracy of the final normalized map of laboratory values.
Three hospitals were actually mapped within three weeks. The other two hospitals had issues preventing them from submitting in the same time period. For some hospitals, the time required to conduct the LOINC translation was the main barrier encountered. These hospitals had to pull staff resources from other projects to complete the requirements of this pilot project.

Data Transmission

The hospitals extracted three quarters of laboratory and blood culture data, from April 1, 2007 to December 31, 2007, on all inpatients, for all laboratory tests conducted. Then, they applied the LOINC mapping to convert their unique laboratory values to LOINC standardized values and terminology. After conducting quality assurance to ensure that the data mapping is correct, they uploaded the standardized laboratory dataset, using standard messaging format, such as in a Tab Separated Value (TSV) to the secure File Transfer Protocol (FTP) site which were set up by the Agency for each participating hospital to allow secure transfer of the standardized laboratory dataset.

There were issues surrounding the use of a secure FTP server. For the participating hospitals and 3M HIS, firewalls and policies contributed to problems with the secure FTP site. These problems required assistance from the IT departments, and having IT staff upload the data. 3M’s firewall also prevented connecting to the Agency’s secure FTP site. The problem was resolved using a drop box via 3M’s secure FTP site.

The Agency loaded the demographic, blood culture, and clinical lab data received from hospitals and the existing administrative inpatient data into a secure Local Area Network (LAN) server. The clinical and administrative datasets were validated, de-identified and all confidential data were deleted from the administrative files. We performed a quality assurance check by matching the records by inpatient ID’s, then by the newly created ID, and then compared the results of the matches. The Agency uploaded the files using a secure 3M HIS FTP site.

Data Analysis (in progress)

3M HIS merged the clinical and administrative data into All Patient Refined Diagnosis Related Groups (APR DRGs) for analysis. 3M HIS will be performing the following five steps as outlined in the analysis plan:

- Step 1: Assign Admission APR DRG and Risk of Mortality Subclass
- Step 2: Develop Standardized Ranges for the Clinical Laboratory Data Elements
- Step 3: Screening Mechanism for Determining Where There is a Significant Relationship Between a Specific Laboratory Test Result and the Risk of Mortality for a Specific APR DRG
- Step 4: Determine the Effect of each Laboratory Data Element on Risk of Mortality at the Overall Patient Level
- Step 5: Evaluate the Impact of Adding Laboratory Data to Administrative Data on the Discriminatory Power of the Admission APR DRG and Risk of Mortality

Communication Tools

The Agency’s project managers maintained ongoing communication via emails, conference calls, and face-to-face meetings throughout the duration of this pilot project. During the two year duration of this project, we shared the monthly progress report and the final report draft that was submitted to AHRQ with all participating hospitals and the Florida Hospital Association.

During this project, the Florida Center continued to develop relationships with hospital representatives, researchers, clinicians, quality assessment organizations, regional health information organizations, and other key players in the exchange of health information and measurement of health care quality.