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***Responses to Questions from the HIT Standards Committee
Implementation Workgroup for a Hearing on Adoption Experiences –
October 29, 2009, 9am – 4pm***

Submitted by:

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Quality Measurement Panel

When working with your clients, what business problem (e.g., clinical issue, health outcomes problem, etc) were you helping them solve with implementing standards-based, quality measurement across organizational boundaries? What standards did you use and why? What were they hoping to achieve and did they succeed?

Massachusetts Health Quality Partners Background:

The Massachusetts Health Quality Partners (MHQP), established in 1995, is a nationally recognized coalition that produces trusted, comparable performance measures to help drive health care quality improvement in Massachusetts. In 2006 MHQP was hired by the Massachusetts eHealth Collaborative (MAeHC) to develop a "Quality Data Center" (QDC) jointly with technology partner CSC to capture clinical data from newly-implemented electronic health records (EHRs) in physician offices in the three pilot communities, create quality measures, and feed comparative benchmarking reports to the physicians. MHQP lead the selection, design, development, calculation and reporting of clinical quality measures from electronic health records for the QDC.

Business Problem:

To demonstrate the added value of EHRs and Health Information Exchanges (HIEs) in facilitating quality measurement and reporting, and in improving quality of care. To do this we needed to:

- Capture clinical data from newly implemented EHRs in physician offices, and create patient-centered measures of clinical quality.
- Create credible performance reports that met providers' needs to:
 - Identify and prioritize quality improvement opportunities
 - Qualify for pay for performance (P4P) based on quality measures

What standards did you use and why?

Messaging Standards

Patient registration and clinical data were extracted from the participating physicians' EHRs and submitted to a database maintained by each of three community-based Health Information Exchanges. These HIEs made shared patient information (SPI) available to all participating physicians/practices in each community and passed selected, deidentified patient information to a quality data center (QDC) using HL7 messaging standards. The QDC was the sole source of available data for quality measurement.

Standard Codesets

While some EMR vendors offer more than one codeset option for a given data element (e.g. ICD9 Procedure Codes, CPT-4 Procedure Codes, LOINC Codes or SNOWMED Codes for certain diagnostic procedures) most vendors offer at least the codesets required to comply with HIPAA transaction standards so that an administrative transaction may be generated from an EMR visit or service record. The variety of codesets used offered challenges to standardization. This was particularly true with laboratory and drug codes.

Laboratory Services

Some ancillary service vendors (e.g. individual hospital clinical laboratory systems) that feed clinical data into an EHR or HIE may use homegrown or vendor-specific codes and these may or may not be mapped to a standard codeset within an EMR or may be mapped to an administrative/billing codeset (e.g. CPT-4) which is not sufficiently granular to support laboratory-related quality measures that are based on test results. For example, the specific code for an LDL cholesterol test result is needed for the quality measures that require the LDL-C result to be lower than a specified level, while the CPT-4 code for a lipid panel, which contains multiple component test results, may be the only standard code available. In this case, the individual homegrown code for the LDL-C component of the lipid panel would need to be mapped to a LOINC code before the quality measure could be calculated.

Medications

Administrative transactions (NCPDP standards) rely on NDC codes to identify the medications prescribed and filled for patients; as do most quality measures that require the use of drug information. However, the EHRs that were submitting medication orders to the HIE were

submitting MULTUM codes for these drugs. Other EHR vendors might use other available proprietary drug codes instead of NDC codes. We found that we could not rely on MULTUM codes for the measurement of whether patients suffering a heart attack received an order for aspirin, since a single MULTUM code included both aspirin and acetaminophen. Instead, we had to identify every possible text string that could be used with that Multum code to identify those that represented aspirin.

Measure Standards

We chose measures that were part of the AQA starter set, which had been endorsed by the National Quality Forum (NQF). Among available measures in the AQA starter set, we further chose those that were:

- Likely to have a high enough prevalence or incidence to enable sufficient sample size
- Measures of clinical outcome, which could not be assessed using claims data
- Expected to be measureable using data available in coded form in EHRs

The MHQP team produced functional and technical specifications for 20 quality measures that represented a mapping of HL7 data elements from the EMRs to the “intent” of the original administrative and/or medical chart abstraction specifications to create EHR-based quality measure specifications.

Expectations versus Experience

Expected advantages of HIE data over administrative data

- EHR data can potentially address weaknesses in claims data, by filling the following gaps in claims data:
 - Availability of past and current medical history
 - Accuracy of conditions/diagnoses managed at specific clinical visits
 - Tests and medications ordered, not just those performed/filled
 - Laboratory and radiology results
- Ability to measure health outcomes, not just process of care
- Ability to assess the impact of patient compliance on performance measures

Experience of HIE data versus administrative data

HIE-based process measures revealed lower performance rates for the practice groups than observed in claims-based measures.

- Data leakage issues
 - Test order messages were only submitted to the QDC if a result had been documented. Patients who failed to obtain an ordered test or who had the test performed by a vendor that did not submit data to the HIE appeared as not having had the test ordered or performed.

- Visit records that were not “locked” by the provider were not passed to the HIE or QDC, leading to data gaps in creating the quality measures.
- Documentation issues
 - Physicians were inconsistent in documenting specific items (e.g. smoking status) or services provided by vendors outside the HIE.
- Coding issues
 - There was both non-existent and inconsistent use of standard codesets for lab, radiology and drugs. Homegrown codes were either not mapped (e.g. panel components), mapped incorrectly, or did not exist (e.g. FOBT) and thus were not recognized as meeting the measure specification.
 - The EHR vendor with the largest number of implementation sites did not enable the capture of either historical procedure data or problem list diagnoses in coded form—only text descriptions could be entered and use of standardized text was not forced. We were unable to use this text-only information to inform the automated creation of clinical quality measures.

HIE-based outcome measures were skewed due to the lack of data on tests that had been ordered but had no result (since failure to test is considered a poor outcome) and to selective data entry by some providers of abnormal test results received from vendors that were not automatically submitting all test results to the HIE.

How did implementing quality measurement between organizations help your clients achieve their goals, or did it inhibit progress toward achieving their goals? What role did the standards play?

Implementing quality measurement between organizations can be a critical step in improving the delivery of care as groups can obtain a more complete picture of the care their patients are receiving. Implementing the quality measures from the EHR clinical data allowed our clients to create performance reporting from clinical data. However, we found as noted above that HIE-based process measures revealed lower performance rates for the practice groups than observed in claims-based measures and that HIE-based outcome measures revealed lower performance than observed in manual chart review. Initial performance reports reflected opportunities to improve documentation as much as opportunities to improve care. Data collection and documentation standards help ensure that everyone is being measured on the same behaviors.

However, the challenges of implementing standards and accurate documentation prevented our clients from receiving a fully accurate description. We found as noted above that HIE-based process measures revealed lower performance rates for the practice groups than observed in claims-based measures.

What is an example of the greatest success and the most frustrating issue from your clients' implementations?

Success:

In addition to receiving comparative performance reports, providers could request a list of their patients whose care did not meet the requirements of a given performance measure. Reviews of these patients EMR records against the standards we used help draw attention to how and where the information needed for quality measurement was entered into the chart. By providing this information back to the practices, we were able to influence how the providers' documented care in the EMR and identify changes needed by EMR vendors to enable appropriate documentation. As documentation improved, the performance reports became more reflective of actual deficiencies in care and more useful for targeting improvements. Discussions were begun about building enhanced reporting options that would enable prospective reporting of patients whose care would become deficient if an appropriate action was not taken within a specified time frame.

We were successful at selecting, designing, developing, calculating and reporting clinical quality measures from EHR data that stayed true to the "intent" of NQF endorsed specifications. We were also successful in creating complete functional and technical specifications for these EHR-based measures that allowed calculation of these measures. In addition, we were successful in independently validating the measure results to ensure reliability. The quality report design, which we informed, was also seen as a success by many providers, in that it focused on representing quality information in a way that was useful to physicians. This design included the identification of appropriate and meaningful benchmarks and the balancing of types and amounts of information to create effective reporting.

Frustration:

Our greatest frustration was the lack of standard coding for laboratory and drugs across provider organization and institutions which necessitated significant workarounds that may or may not be transferable to efforts outside of our three pilot communities.

What advice would you give to help others mitigate problems or accelerate adoption of health information technology standards for quality measurement?

Since MHQP developed the QDC with MAeHC, significant progress has been made on the national front to develop both HIT standards for quality measurement and measure specification for the capture of data elements common in EHRs (as opposed to translating claims based specifications.) The implementation of national standard codesets would have simplified measurement and facilitated accuracy and consistency. However, the implementation of standards is just one of many issues that must be addressed to create comparable performance reports from EHRs and HIEs. While it is tempting to assume that if we have standards in place accurate and trusted performance reporting will follow, unfortunately this is not the case. Other issues that also must be addressed are highlighted below.

- Provider buy-in and cooperation is essential to performance reporting efforts, particularly when their work process must change in order to document care in a specific standardized fashion. An effort to collaboratively engage providers to identify effective EHR-based clinical quality report designs and distribution mechanisms that maximize buy-in and usability could accelerate the adoption and effectiveness of health information technology standards for quality measurement.
- Beyond standardizing codes, rules for attributing patients to physicians and physicians to medical groups and/or physician organizations need to be developed and agreed upon.
- Validation processes need to be developed, including a process to update data as corrections are made and/or new data is incorporated.
- To increase the credibility of the performance reports, they should be phased in, with first reports addressing the quality of documentation and later reports addressing the quality of care. Initial performance reports should be released with caveats and tips for improving documentation, along with the offer of technical support if needed.
 - The initial phase should also include analysis to better understand which information is likely *not* to flow into the EHR's and therefore not inform quality report production.
- Decisions will need to be made about what level of the delivery system quality reports will represent (e.g. individual providers, practice sites, medical groups, Accountable Care Organizations.) If the intent is to issue reports to provider organizations in addition to individual providers, a mechanism to accurately map providers to a provider group will need to be developed that represents relevant provider relationships. MHQP has developed a Massachusetts provider database (MPD) that supports quality reporting in Massachusetts.
- To increase value and acceptance from the provider community in the short term, it will be important to be able to reconcile EHR clinical performance derived measures with existing claims based measurement programs such as local P4P and public reporting efforts. Including a reconciliation process of the information gathered from EHRs with similar information gathered from claims would build greater understanding of the strengths and weaknesses of each data source.