Massachusetts Quality e-Measure Validation Study (MQeVS)

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Outline of Presentation

- Background
- Translating Community Health Information Exchange data into quality measure results
- MQeVS evaluation
Using the EHR to Improve Performance Measurement

- Detailed, structured clinical data
- Unobtrusive data collection
- Aggregation across care settings can enable sophisticated measures (e.g., care coordination & safety)
- Performance results relevant to physician groups
  - Patients sampled by group, rather than health plan
  - Timely

Schneider et al, Enhancing performance measurement: NCQA’s Roadmap for a Health Information Framework. JAMA 1999;282:1184
MQeVS Aims

To compare a quality measurement method using structured, coded EHR data with...

1) Current “hybrid method” involving a combination of aggregated claims data and medical record review.
2) Current “claims-only method” based on a novel database that aggregates claims data from commercial health plans and Medicare.
Built on EHR adoption initiative of MA Chapter of ACP and quality and safety initiatives of MA Health Data Consortium’s CIO Forum

Start-up funding provided by Blue Cross Blue Shield of MA

Launched in September 2004 as non-profit company registered in the Commonwealth of Massachusetts
  • CEO, Micky Tripathi began in January 2005
  • Backed by wide range of stakeholders
THREE PILOT COMMUNITIES SELECTED
(35 APPLICANTS)
SCOPE OF PILOT PROJECTS

Almost 450 physicians...

...who care for ~500K patients...

...in almost 200 offices.
Translating Community Health Information Exchange data into quality measure results
MAeHC DATA FLOWS

**MAeHC-level:**
- Analysis & Reporting

**MAeHC-level:**
- QDC

**Community-level:**
- HIE

**Provider-level:**
- EHR

Outcomes analysis

Benchmarking

Brockton
Newburyport
North Adams

Individual re-identification as necessary
QUALITY DATA CENTER (QDC)

Goals

• Reporting
  – Quality reports to community physicians and physician organizations to help them benchmark their performance & identify clinical areas needing improvement

• Evaluation
  – Enable MAeHC and its research partners to evaluate the impact of HIT on the quality of health care delivery in the pilot communities
MAeHC QUALITY DATA WAREHOUSE
PILOT BENCHMARKING METRICS

Clinical data “superset” in
Community eHealth Summary

Patient demographics
Medications
Problems
Procedures
Allergies
Lab Results
Radiology Results
Immunizations
Vitals

CLINICAL MEASURES
FOR PHYSICIAN PERFORMANCE
Drawn from AQA Recommended Starter Set

- Breast Cancer Screening
- Colorectal Cancer Screening
- Tobacco Use
- Influenza Vaccination
- Pneumonia Vaccination
- CAD: Drug Therapy for Lowering LDL Cholesterol
- CAD: Antiplatelet Therapy
- DM: HbA1C Management
- DM: HbA1C Management Control
- DM: Eye Exam
- DM & HTN: Blood Pressure Management
- CAD & DM Lipid Measurement
- CAD & DM: LDL Cholesterol Level <100mg/dL
- Use of Appropriate Meds for People w/ Asthma
- Appropriate Treatment for Children with URI
- Appropriate Testing for Children with Pharyngitis
QDW DATA VALIDATION PROCESS

- **Purpose**
  - Test availability of necessary information in extracted data fields in Quality Data Warehouse
  - Test assumptions re format and coding of data elements
  - Identify documentation issues that can be remediated with training
  - Identify coding issues and remediation strategies

- **Process**
  - Identification of common documentation issues affecting measures
  - Development of training tips to improve performance results through better documentation
  - Development of code maps as needed
  - Patient re-identification process to support both patient and chart-based validation of measures
CURRENT ASSESSMENT OF DATA AND CODING ISSUES

• Measures with *no* data gaps/coding issues
  – Community 1: 7 of 20 measures
  – Community 2: 18 of 20 measures
  – Community 3: in progress

• Data gaps and coding issues (examples):
  – Missing historical screening and surgical procedure codes
  – E & M codes not transmitted (remedied)
  – Incompatible coding systems (lab/billing)
  – Lack of data on inpatient/ED orders
MQeVS Evaluation
MQeVS Evaluation

• Sample
  – Aim 1: 2100 patients recruited from MAeHC communities via patient survey
  – Aim 2: All “measure eligible” patients with EHR-HIE data and health plan administrative data (de-identified data analysis)

• Data Sources for comparison
  – Quality data from Quality Data Center (Community HIEs)
  – Survey of patients about measured services
  – Office medical record review (including paper records)
  – Health plan claims data
### Quality Measures: Deconstructing Data Needs

E = exclusion criteria; D = denominator inclusion; N = numerator inclusion; Var = varies

<table>
<thead>
<tr>
<th>Metric</th>
<th>Age/Sex</th>
<th>Den Time Window</th>
<th>Num Time Window</th>
<th>Enc Data</th>
<th>Dx Data</th>
<th>Rx Data</th>
<th>Proc Data</th>
<th>Test</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colorectal Screening</td>
<td>D</td>
<td>2 yr</td>
<td>10 yr</td>
<td>N</td>
<td>E</td>
<td>N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Beta-blocker after MI</td>
<td>D</td>
<td>1 yr</td>
<td>7 d</td>
<td>D</td>
<td>D,E</td>
<td>N</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>HbA1C Control</td>
<td>D</td>
<td>1 yr</td>
<td>1 yr</td>
<td>D,E</td>
<td></td>
<td>D, N</td>
<td>N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye exam</td>
<td>D</td>
<td>1 yr</td>
<td>1 yr</td>
<td>D,N</td>
<td>D</td>
<td>E</td>
<td>N,E</td>
<td></td>
<td>E</td>
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</table>
# Analysis

<table>
<thead>
<tr>
<th>Availability of Inclusion Criteria Data for Colonoscopy?</th>
<th>Through EHR Data Method</th>
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</thead>
<tbody>
<tr>
<td>Through Hybrid Method</td>
<td>Yes</td>
</tr>
<tr>
<td>Through Hybrid Method</td>
<td>Yes</td>
</tr>
<tr>
<td>Through Hybrid Method</td>
<td>No</td>
</tr>
</tbody>
</table>

Where: Availability through the EHR = \( \frac{a+c}{a+b+c+d} = 92\% \)

And: Availability through Hybrid method = \( \frac{a+b}{a+b+c+d} = 98\% \)
Challenges

• Logistical
  – HIE implementation
  – Data sharing (privacy/confidentiality)

• Analytic
  – Lack of a “gold standard”
  – Complex correlation among data sources
  – Identifying and interpreting “missing” data
  – Small sample sizes for some measures
“Crossing the Quality Chasm?”