The Role of
Health Information Exchange (HIE) in
Helping Providers Assess Their
Performance on the AQA Starter Set

June 11, 2007

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Massachusetts eHealth Collaborative (MAeHC)

Moderator:
P. Jon White, MD
Health IT Director, AHRQ
The Role of HIE in Helping Providers Assess Their Performance on the AQA Starter Set

Thomas Fritz, CEO

Inland Northwest Health Services
Ambulatory care Quality Alliance (AQA) Starter Set Set Overview

- A proposed starter set of measures for ambulatory care
- Clinical importance and scientific validity
- Feasibility
- Relevance to physician performance
- Care is delivered electronically as well as in person
- Consumer and purchaser relevance
- Addressed the Institute of Medicine’s priority areas
AQA Starter Set

- Prevention measures
- Coronary artery disease
- Heart failure
- Diabetes
- Asthma
- Depression
- Prenatal care
- Overuse or misuse of services
Consistent with the National Vision for Health Care

• Fewer medical errors
• Less variation in care
• Consumer-centric care
• Medical information moves with consumers
• Care is delivered electronically as well as in person
• Medical records are protected from unauthorized access
• Clinicians can spend more time on patient care
National Strategic Framework

• Goal 1 – Inform Clinical Practice
• Goal 2 – Interconnect Clinicians
• Goal 3 – Personalize Care
• Goal 4 – Improve population health
Realities for many patients/consumers

• Expect and believe that practitioners are appropriately sharing clinically appropriate information to take care of them

• Believe that practitioners keep all clinical records in a computer-based system

• Have a high level of trust with doctors and hospitals managing their data
The Role of HIE in preparation of implementing the AQA Starter Set

• Clinical Performance Measures for Ambulatory Care is a significant undertaking

• Health Information technology can enable clinical performance measurement

• Development of HIEs has created the foundation and building blocks for clinical performance measures
National Strategic Framework

• Physician office adoption is the Achilles heel of the ambulatory care system in collecting accurate, comparable, and comprehensive data.
• Due to our community-wide efforts we have been able to raise physician office EMR adoption to 40%.
• We have been a partner with one of our hospitals and AHRQ to study the ROI for physician office EMR.
• We are also working with our state-wide critical access hospitals and AHRQ on developing appropriate performance measures unique to Critical Access Hospitals (CAHs).
RURAL HEALTH INFORMATION TECHNOLOGY (RHIT) AHRQ GRANT

• Performance Indicators:
  – Acute Myocardial Infarction
    • Aspirin at arrival
    • Beta blocker at arrival or during ER stay
    • EKG at arrival
    • Collection of cardiac enzymes during ER admission
    • Median time to thrombolysis
    • Thrombolytic agent received within 30 minutes of arrival in the ER
    • Date and time patient was transferred to facility providing a higher level of care
RURAL HEALTH INFORMATION TECHNOLOGY (RHIT) AHRQ GRANT

• Performance Indicators:
  – Community-Acquired Pneumonia
    • Initial antibiotic receiving within 4 hours of hospital arrival
    • Antibiotic timing (median)
    • Initial antibiotic selection for non-ICU community-acquired pneumonia in immunocompetent patients
    • Oxygenation assessment
    • Influenza vaccination
    • Pneumococcal vaccination
    • Adult smoking cessation advice/counseling
RURAL HEALTH INFORMATION TECHNOLOGY (RHIT) AHRQ GRANT

• Performance Indicators:
  – Heart Failure
    • Discharge instructions
    • Evaluation of left ventricular systolic (LVS) function
    • Angiogenesis converting enzyme inhibitor (ACEI) or angiotensin receptor blocker (ARB) for left ventricular systolic dysfunction
    • Adult smoking cessation advice/counseling
RURAL HEALTHCARE QUALITY NETWORK
DATA COLLECTION OPTIONS

• Existing Customer Network
  – UB92 billing data – patient-level demographic data
  – Abstracting module – hospitals enter patient-level data required for the performance measures

• INHS Performance Measurement System Web Site
  – Non-system hospitals enter patient-level demographic and clinical data via secured web site
Physicians Clinic of Spokane

• 18 physicians; implemented EMR in 1999

• Results
  – Costs for transcription services reduced by more than 80% within two years (from $330,058 per year to $56,465)
  – Reduced number of FTEs in laboratory from 13.52 to 9.12, with a 25% increase in lab orders
  – Communication between providers and support staff improved dramatically
Inland Northwest Health Services
INHS is a not-for-profit 501(c)3 corporation, owned by the hospitals in Spokane and serving residents of WA, ID, CA, MT, OR, AK and Canada. We started with our own hospitals and today have:

- 38 hospitals, with over 4400 beds, participating in the integrated information system sharing a single client identifier
- More than 50 clinics and 400 physician offices (6,500+ physicians) able to view hospital, laboratory and imaging data
- More than 1,000 physicians accessing patient records wirelessly in hospitals via personal digital assistants (PDA’s)
- Fairchild Air Force Base and the Spokane Veterans Hospital
- 76 hospitals, clinics and public health agencies connected to the INHS telehealth network providing 100’s of clinical and educational programs
Physician EMR Views per Month

EMR Views per Month
Office Staff = 36,000
Physicians = 60,000
Inland Northwest Health Services
Strategic Focus Areas

1. Community electronic medical record – single client identifier (MPI), structured & formatted data, standardized
2. Physician system adoption and usage
3. Patient safety, public health
4. Operational efficiency
5. Computerized physician order entry
6. Evidence based medicine adoption and acceptance
7. Decision support systems
Critical Success Factors of the INHS Model

1. Hospitals as “anchor tenants”; leverage assets & infrastructure, create momentum, provide leadership
2. Share clinical data for the benefit of the patient
3. The business model is a self sustaining, efficiency based model that provides value added services
4. INHS has become the trusted third party; managing shared assets, shared data, data security and provides the shared vision and leadership
5. The INHS system has evolved due to regional accountability involving the entire healthcare community including physicians, clinicians, and consumers
Results of Community Leadership

- Physician buy-in and dependence on real-time availability of complete clinical results/wireless
- 40% adoption rate of EMR
- Strengthens community protection role of our hospital mission i.e. disease surveillance
- Operational efficiencies through real-time data management and dashboards
- Efficient self-sustained business model
## Community Systems for Emergency Services

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**INHS**

**AHRO**

*Agency for Healthcare Research and Quality*

*Advancing Excellence in Health Care* • *www.ahro.gov*
1. Patient Lab work is drawn either at a local hospital, or at a physician’s office.
2. Lab results are available in INHS system – including 26 hospitals, 250 Physician offices, PAML and Quest outpatient Reference Lab patients.
3. Continuous sweep of facility databases for data.
4. Lab tests indexed by LOINC codes available to be fed into CDC algorithm.
5. Graphic results available by Web View.
Reported Med Error Rate

![Graph showing the trend of reported medical error rate from 2001 to 2005. The data shows a decrease in error rate over the years.](image-url)
2003 31 days of Diversion
2004 14 hours
Patient ED wait times: 3+ hours to >30 minutes
Demonstrated a 75% decrease, from 1.29 to 0.31, in time loss days per claim for patients of physicians enrolled in the program.
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Clinical Example

• Rural hospital Rapid Response Teams tied into our trauma and air ambulance system
• Time of arrival to Lincoln ED: 1036
• Time from arrival in ED to EKG: 1041
• Time from EKG to Cardiologist called: 1055
• Time of call to transfer service: 1043
• Mode of transfer: Med Star
• Transfer team arrival to Lincoln: Landed 1110
• Out of door time: 1117
• Arrival time to SHMC: 1132
• Admit to: Cath Lab 1137 ER____ CICU____
• Wire Across Lesion/Balloon time: N/A
• Was there a delay in transfer (greater then 120 min.) and Retavase or TNK was given: Yes___ No  X
• TOTAL ED DOOR TO BALLOON TIME: 61 minutes from Lincoln ED to SHMC Cath lab. Wire across lesion N/A, (target is less than 120 minutes)
What we have learned

• Creating a sustainable business model:
  – Leverage assets – “Do More With Less” – RHQN, AHRQ, HRSA, Joint Commission ORYX/CMS
  – Provide a “fair”, efficient cost plus model – oppose fees
  – Maximize standardization – basis for savings
  – Assure value-added services – quality reporting
  – Assure quality of services – technology integration
  – Fight for lowest cost from vendors & share savings
What we have learned

• Clinical data needs to be shared and made available electronically to be most useful

• Collaboration in information systems has saved millions of dollars for our community

• A thoughtful strategic vision with the leadership and discipline to complete is essential

• Broad community involvement and support with everyone at the table (hospital, physicians, public health, insurance payers, lab, consumer community outreach)

• Strong technical expertise in a stable IT group
Lessons Learned

• We learned that physician champions were essential for acceptance and adoption.

• We learned that we had to demonstrate trust in data management, integrity and security.

• We had to become a “neutral trusted party” for all concerned.
The Challenge and Future

• Outpatient providers will need to address process redesign
• We are ready to track physician performance
  – Hospital utilization
  – Hospital procedures
  – Complications and death rates based upon appropriate outpatient care and management
• Ambulatory care focus will lead to the real issue of the full continuum of care
• Value improvements will no longer be discretionary or optional
• Best reward for outpatient clinicians will be more patients to increase the critical mass
THANK YOU!

Thomas Fritz, CEO
fritzt@INHS.Org
www.INHS.Org
MASSACHUSETTS eHEALTH COLLABORATIVE

Mickey Tripathi
President & Chief Executive Officer
Massachusetts eHealth Collaborative (MAeHC)
AGENDA

• MAeHC Background

• MAeHC Quality Measurement Initiatives
MAeHC ROOTS ARE IN MOVEMENT TO IMPROVE QUALITY, SAFETY, EFFICIENCY OF CARE

- Universal adoption of electronic health records
- MA-SAFE
- $50M commitment to health information infrastructure
- Recognition of “systems” problem

- Company launched September 2004
- Non-profit registered in the State of Massachusetts
- CEO on board January 2005
- Backed by broad array of 34 MA health care stakeholders
## 33 ORGANIZATIONS ON MAeHC BOARD

### Hospitals and hospital associations
- Baystate Health System
- Beth Israel Deaconess Medical Center
- Boston Medical Center
- Caritas Christi
- Fallon Clinic, Inc.
- Lahey Clinic Medical Center
- Massachusetts Hospital Association
- Massachusetts Council of Community Hospitals
- Partners Healthcare
- Tufts-New England Medical Center
- University of Massachusetts Memorial Medical Center

### Health plans and payer organizations
- Blue Cross Blue Shield of Massachusetts
- Fallon Community Health Plan
- Harvard Pilgrim Health Care
- Massachusetts Association of Health Plans
- Tufts Associated Health Maintenance Organization

### Healthcare professional associations
- American College of Physicians
- Massachusetts League of Community Health Centers
- Massachusetts Medical Society
- Massachusetts Nurses Association

### Healthcare purchaser organizations
- Associated Industries of Massachusetts
- Massachusetts Business Roundtable
- Massachusetts Group Insurance Commission

### Consumer, public interest, and at-large
- Health Care for All
- Massachusetts Coalition for the Prevention of Medical Errors
- Massachusetts Health Data Consortium
- Massachusetts Taxpayers Foundation
- Massachusetts Technology Collaborative
- MassPRO, Inc.
- New England Healthcare Institute
- Massachusetts Health Quality Partners

### Governmental agencies
- Executive Office of Health and Human Services

### Non-voting members
- Center for Medicare & Medicaid Services
THREE COMMUNITIES SELECTED FROM 35 APPLICANTS

North Adams

Newburyport

Brockton
SCOPE OF PILOT PROJECTS

Almost 450 physicians…

…who care for ~500K patients…

...in almost 200 offices.

Physicians

Patient population (000)

Offices
PILOT PROJECTS HAVE FOUR MAIN PIECES

- **Management & coordination**
  - Joint oversight and decision-making bodies
  - Multi-stakeholder governance

- **Evaluation**
  - Quality measurement
  - Pilot evaluation

- **Connectivity**
  - Clinical access to data
  - Data gathering and aggregation
  - Communication

- **Clinical IT implementation/support**
  - Hardware/software
  - Implementation/tech support
  - Systems integration
  - Workflow redesign
  - Decision support

---

**Intra-community connectivity**

**ICCC**

**PSC**

**Quality**
- Cost
- Productivity
- Etc.

**Evaluation**

**Connectivity**

**Clinical IT implementation/support**

**Management & coordination**

**PSC**

**PSC**

**PSC**

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**MAeHC**

Massachusetts eHealth Collaborative

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**AHRC**

Agency for Healthcare Research and Quality
Advancing Excellence in Health Care • www.ahrq.gov
### MAeHC PILOT PROJECTS SLATED TO END IN JULY 2008
Pilot Extension To Continue To July 2010

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PILOT COMMUNITIES WILL BE THE FIRST IN THE COUNTRY TO BE COMPLETELY “WIRED” FOR HEALTHCARE

Hope, challenges in computerizing medical records

North Adams blazes a trail

By Liz Kowalczyk, Globe Staff | January 30, 2007

NORTH ADAMS -- This old textile city is about to become the first in the United States where residents have electronic medical records that in an instant can be viewed by any physician and many nurses in the community, from their offices, the local hospital, or the visiting nurses association.

Ethel Roy, 81, visited earlier this month with Dr. Stephen St. Clair, her urologist, at his office in North Adams. (Stephen Rose for the Boston Globe)
HEALTH INFORMATION EXCHANGE
Northern Berkshire Example

Patient recruitment

Health data exchange

Referrals mgmt

Patient portal

Understanding Electronic Health Records

- What are electronic health records?
- How can electronic health records help?
- Who will have access to my electronic record?
- How will my information be protected?
- Is the eHealth Summary right for me?
DISTINGUISHING THE OFFICE RECORD FROM THE COMMUNITY RECORD

Reside only in individual doctor’s office record:
- Private Office Notes
- Consultation Letters
- Scanned Reports
- Non-consented items

Also reside in clinical repository – eHealth Summary
- Medication List
- Problem List
- Procedures
- Social History (limited)
- Allergies
- Past Medical History
- Family History (limited)
- Lab Results
- Radiology Results
- Immunizations
### Problems

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### Procedures

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<td>160</td>
<td>90</td>
<td>5.0 mg/5 ml oral liquid</td>
<td>Continue Amox for 2 more days to finish 7 day course as ears look good</td>
<td>0</td>
<td>Robert Hertag</td>
<td></td>
</tr>
<tr>
<td>Adderall XR</td>
<td>Prescription Dates: Aug 26, 2006</td>
<td>enteric coated tablet</td>
<td>15</td>
<td></td>
<td>15 mg orally QAM</td>
<td>Continue Amox for 2 more days to finish 7 day course as ears look good</td>
<td>0</td>
<td>Robert Hertag</td>
<td></td>
</tr>
</tbody>
</table>

### Immunizations

<table>
<thead>
<tr>
<th>Code</th>
<th>Vaccine</th>
<th>Date</th>
<th>Route</th>
<th>Site</th>
<th>Source</th>
</tr>
</thead>
</table>

### Vital Signs

<table>
<thead>
<tr>
<th>Vital Sign</th>
<th>Date</th>
<th>Result</th>
</tr>
</thead>
</table>

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**MAeHC**
Massachusetts eHealth Collaborative
AGENDA

• MAeHC Background

• MAeHC Quality Measurement Initiatives
MAeHC QUALITY DATA WAREHOUSE DATA FLOWS

MAeHC-level:
Analysis

MAeHC-level:
QDW

Community-level:
HIE

Provider-level:
EHR

Outcomes analysis
Benchmarking

Brockton
Newburyport
North Adams

Wellogic
Wellogic
eClinicalWorks

NextGen
ALLSCRIPTS
eClinicalWorks

Physician Micro Systems
eMDs
MEDITECH
MAeHC QUALITY DATA WAREHOUSE PRIVACY APPROACH

Outcomes analysis

Benchmarking

Individual re-identification as necessary

Brockton

Newburyport

North Adams
MAeHC QUALITY DATA WAREHOUSE
BENCHMARKING METRICS

CLINICAL MEASURES FOR PHYSICIAN PERFORMANCE
AQA Recommended Starter Set

- 1. Breast Cancer Screening
- 2. Colorectal Cancer Screening
- 3. Cervical Cancer Screening
- 4. Tobacco Use #
- 5. Advising Smokers to Quit
- 6. Influenza Vaccination
- 7. Pneumonia Vaccination
- 8. Drug Therapy for Lowering LDL Cholesterol#
- 9. Beta-Blocker Treatment after Heart Attack
- 10. Beta-Blocker Therapy – Post MI
- 11. ACE Inhibitor /ARB Therapy#
- 12. LVF Assessment#
- 13. HbA1C Management
- 14. HbA1C Management Control
- 15. Blood Pressure Management#
- 16. Lipid Measurement
- 17. LDL Cholesterol Level (<130mg/dL)
- 18. Eye Exam
- 19. Use of Appropriate Medications for People w/ Asthma
- 20. Asthma: Pharmacologic Therapy#
- 21. Antidepressant Medication Management 1
- 22. Antidepressant Medication Management 2
- 23. Screening for Human Immunodeficiency Virus#
- 24. Anti-D Immune Globulin#
- 25. Appropriate Treatment for Children with Upper RI

Clinical data “superset”

- Patient demographics
- Medications
- Problems
- Procedures
- Allergies
- Lab Results
- Radiology Results
- Immunizations
- Vitals
QUALITY DATA WAREHOUSE CHALLENGES

- What type of reporting will be done, and for whom, and by whom, and under what conditions?

- How will the data be stored?
  - Where will the data be stored?
  - Who will own the data?
  - Who will have access, and to what, and how, and under what conditions?

- Can each HIE support the required privacy model?
- Can each HIE support the required extraction frequency?
- Is each HIE extracting the same data sets?
- Is each HIE storing the data consistently?

- Are providers entering the right data?
- Are providers entering it in the right way?
- Are they being comprehensive and consistent?
- How will providers be incented/compelled to use their EHR for quality reporting goals?
- Can we extract all of the data from each vendor, consistently and comprehensively?
- Can each vendor support the required privacy model?