The Massachusetts eHealth Collaborative: Description and Evaluation Plan

April 10, 2007

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Overview

• Backdrop
• Formation of the MaEHC
• Evaluation plan
• Conclusions

State Profile: Massachusetts

• 6.4 million people
  ♦ 1 million age 65 years or older
  ♦ ~30% white
• Relative few payers
• BCBS
• HMO
• Fallon
• MassHealth/Medicaid
• ~100,000 Uninsured (before recent plan)

• ~90 Acute-Care Hospitals
• ~10,000 practicing physicians
• ~5,000 office practices
• ~3,000 solo or 2-3 physician practices

Highly ranked for quality (HEDIS, CAHPS)

Among the hospitals:
  • 15% have CPOE
  • 20% are implementing
  • 70% ???

Among the office practices:
  • 10-15 had EffIIs when collaborative started
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" problems
- Company launched September 2004
- Non-profit registered in the State of Massachusetts
- CEO on board January 2005
- Backed by broad array of MA health care stakeholders

33 ORGANIZATIONS REPRESENTED ON MAeHC BOARD

Hospitals and hospital associations
- Baystate Health System
- Beth Israel Deaconess Medical Center
- Boston Medical Center
- CareNewest
- 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 purchasing organizations
- Associated Industries of Massachusetts
- Massachusetts Business Roundtable
- Massachusetts Group Insurance Commission
- Massachusetts Nurses Association

Non-voting members
- Center for Medicare & Medicaid Services

Medicare professional associations
- American Academy of Family Physicians
- Massachusetts League of Community Health Centers
- Massachusetts Medical Society
- Massachusetts Nurses Association
- Consumers, Public Interest, and Age
- Massachusetts Coalition for the Prevention of Medical Errors
- Massachusetts Health Data Consortium
- Massachusetts Health Care Foundation
- Massachusetts Technology Collaborative
- MassPHI, Inc.
- New England Healthcare Institute
- Massachusetts Hospital Association
- Partners Healthcare
- University of Massachusetts Memorial Medical Center

MAeHC STRATEGY

- Lots of barriers – need to learn about them
- Replicability and sustainability – clear demonstration of net benefit
- Systems approach through concentration of resources

- Success breeds success
- Creation of community of communities
- Rapid proliferation of pilot results
- Sharing pilot program infrastructure state-wide
- Additional funding for broad-based implementation
Three Pilot Communities Were Chosen From Six Finalists

- Boston HealthNet
- Emerson Community EHR Collaborative
- Greater Brockton eCare Alliance
- Greater Newburyport Community
- Holyoke Community
- Northern Berkshire Community

• Broad community participation
• Dedicated local project leadership structure
• Diversity of patients, practices, locations

THREE MAIN AREAS OF ACTIVITY IN PILOT PROJECTS

- Connectivity
- Evaluation/Transformation

- Clinical access to data
- Data gathering and aggregation
- Communication
- Decision support

- Hardware/software
- Implementation/tech support
- Systems integration
- Workflow redesign

MAeHC PILOT PROJECTS SLATED TO END IN JULY 2008

Pilot Extension To Continue To July 2010

<table>
<thead>
<tr>
<th>Activity</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
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<td>ACP-MA summit</td>
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<tr>
<td>MAeHC launch</td>
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<td>Community RFA launch</td>
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<td>Pilot communities announced</td>
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<td>EHR vendor RFP</td>
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<td>EHR vendor finalization</td>
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<tr>
<td>Physician recruitment</td>
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<td>▲</td>
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<td>EHR implementation</td>
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<td>NE implementation</td>
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<td>Evaluation</td>
<td></td>
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<td></td>
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<tr>
<td>Formal pilot completion</td>
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</table>
THREE COMMUNITIES SELECTED FROM 35 APPLICANTS

Newburyport
North Adams
Brockton

NORTH ADAMS PRACTICES

NEWBURYPORT PRACTICES
**EHR SELECTION**

- EHR RFP distributed in May, 2005
- Over 30 responses received
- Vendor Selection Committee validated 7 vendors to go forward
- Currently in final negotiations on term sheets with remaining vendors

**Community down-select**

- Community Steering Committees down-select to smaller number for individual physician choice in each community
- 3 or 4 in each community
- Initial vendor fairs completed in each community and down-select complete

**Physician choice**

- Individual physician vendor fairs
- Each community developing different model of physician choice

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**COMMUNITY DOWN-SELECT**

- Preferred Vendors Selection
- Community down-select
- Physician choice

- Newburyport
- North Adams
- Brockton
PHYSICIAN EHR SELECTIONS

- Less centralized
  - Most decentralized approach
  - Individual physicians will choose from down-selected vendors
- More centralized
  - Likely to choose single vendor for entire community
  - "Enterprise EMR" model
  - Community EMR with partitions

PHYSICIANS "GOING LIVE", BY COMMUNITY

SCOPE OF PILOT PROJECTS

Almost 450 physicians...
...who care for ~500,000 patients...
...in almost 200 offices.

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...who care for ~500,000 patients...
...in almost 200 offices.

PHYSICIANS "GOING LIVE", BY COMMUNITY

Almost 450 physicians...
...who care for ~500,000 patients...
...in almost 200 offices.
PILOT COMMUNITIES WILL BE THE FIRST IN THE COUNTRY TO BE COMPLETELY “WIRED” FOR HEALTHCARE

Hope, challenges in computerizing medical records
North Adams blaze a trail

By Liz Kowalczuk, Globe Staff / January 30, 2007

NORTH ADAMS — This Berkshire city is about to become the first in the United States where residents, from the local hospital to the local hospital, will have a shared electronic health record. The project is being spearheaded by the Berkshire Health Systems Partnership, a community of health care providers, residents, and businesses.

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

SOME EARLY LESSONS LEARNED

This can get done on a large scale, and it can get done collaboratively

Building the program is more difficult than originally anticipated
- Collaboration takes time, but builds a stronger foundation
- Fixed costs that we can leverage going forward

Affordability isn’t the only barrier to physician adoption

Where is collaborative offering greatest value?
- Funding
- Affordability
- Forcing rapid change
- Behavior change at the community- and practice-levels
- Facilitators/navigators at the practice-level
- Community catalyst – wholesale vs retail
- Forcing HIE
Evaluation: Overriding Purpose

Provide the MAeHC with key business information that it needs to move to the next level
• Inform national debate
• Gathering both information about:
  • EHRs
  • Clinical data exchange

General Principles

Collect as much electronically as possible
• When not possible, sample
Minimize burden to practices
Close integration with working groups, MAeHC staff
Practices had to agree to evaluation to participate in pilot
• Will require high degree of transparency

Overview of Evaluation Plan

Key components
Key questions
Evaluation elements summary
Individual data elements (high-level)
What MAeHC will be able to say at conclusion
Key Components
Usage data elements
• Use of technologies
• Number of data elements moving in clinical data exchanges
• Barriers/facilitators of adoption
• Implementation tactics
Effects on quality
Medication safety
Economic evaluation

Use of Technologies
What is the current (baseline) status of electronic health record usage and data exchange in Massachusetts overall and in the 3 communities and how do they change over the pilot period?

Use of Technologies
Before/after use of EHRs
Extent of usage within practices
• Electronic prescriptions
• Use of clinical decision support
Proportion of practices exchanging data
• Lab, radiology, prescription, referral, hospital
Among exchanging practices:
• Proportion sending/receiving key elements
• Counts of key elements
Use of Technologies
Progress to date:
• Baseline statewide survey complete
• Baseline pilot community survey complete
• Statewide analysis complete
  • Manuscripts published

Barriers/Facilitators of Adoption
What are the characteristics of physicians, practices, vendor characteristics and implementation strategies that are more or less successful in adopting EHRs and implementing data exchange?
Barriers/Facilitators of Adoption

Statewide and pilot community survey of physicians and EHR data

- MD characteristics
- Practice characteristics
- Physician receptivity to and use of EHRs/data exchange
- Characterization of implementation strategies and vendors

Progress to date:

- Baseline statewide survey complete
- Baseline pilot community survey complete
- Statewide analysis complete
- Manuscript published

Preliminary Data: EHR Use in the Community

Primary Care and Specialty

Average Encounters Recorded Per Day – January 2007

Sample of 32 Brockton physicians who went live before January 1, 2007
2005 Physician Survey

Sampled 1829 practices (30% of state) within strata:

- Primary care vs. specialty
- Urban vs. rural
- Large vs. small practices

Only physicians w/ambulatory practices

8-page mail survey with $20 incentive

Overall Response Rate: 71%

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EHR Adoption

<table>
<thead>
<tr>
<th>Overall</th>
<th>23%</th>
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</thead>
<tbody>
<tr>
<td>Specialty</td>
<td></td>
</tr>
<tr>
<td>Primary Care</td>
<td>25%</td>
</tr>
<tr>
<td>Single Specialty</td>
<td>20%</td>
</tr>
<tr>
<td>Multi-Specialty</td>
<td>23%</td>
</tr>
</tbody>
</table>

Number of physicians

| 1 | 14% |
| 2-3 | 15% |
| 4-6 | 33% |
| 7+ | 52% |

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EHR Adoption

- Non-teaching: 14%
- Teaching: 40%
- Non-urban: 21%
- Urban: 34%
- Non-hospital based: 20%
- Hospital based: 52%
Additional Adoption Statistics

On a physician level, a total of 45 percent of physicians in Massachusetts had EHRs.

Among practices with EHRs, more than half (53 percent) reported having EHRs in their practice for more than 3 years.

Barriers to HIT Adoption or Expansion

<table>
<thead>
<tr>
<th></th>
<th>EHR Adopters (%)</th>
<th>EHR Non-Adopters (%)</th>
<th>Adjusted Odds Ratio</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of time to acquire knowledge about systems</td>
<td>69%</td>
<td>80%</td>
<td>0.66</td>
<td>0.56 – 0.93</td>
</tr>
<tr>
<td>Physician skepticism</td>
<td>49%</td>
<td>60%</td>
<td>0.53</td>
<td>0.39 – 0.73</td>
</tr>
<tr>
<td>Lack of computer skills</td>
<td>57%</td>
<td>60%</td>
<td>1.04</td>
<td>0.76 – 1.41</td>
</tr>
<tr>
<td>Lack of technical support</td>
<td>59%</td>
<td>69%</td>
<td>0.78</td>
<td>0.57 – 1.07</td>
</tr>
<tr>
<td>Lack of uniform standards</td>
<td>68%</td>
<td>81%</td>
<td>0.57</td>
<td>0.40 – 0.80</td>
</tr>
<tr>
<td>Technical limitations of systems</td>
<td>78%</td>
<td>79%</td>
<td>1.02</td>
<td>0.70 – 1.49</td>
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<tr>
<td>Start-up financial costs</td>
<td>64%</td>
<td>90%</td>
<td>0.26</td>
<td>0.18 – 0.38</td>
</tr>
<tr>
<td>Ongoing financial costs</td>
<td>63%</td>
<td>88%</td>
<td>0.35</td>
<td>0.24 – 0.50</td>
</tr>
<tr>
<td>Loss of productivity</td>
<td>65%</td>
<td>86%</td>
<td>0.41</td>
<td>0.29 – 0.59</td>
</tr>
<tr>
<td>Privacy or security concerns</td>
<td>47%</td>
<td>58%</td>
<td>0.83</td>
<td>0.61 – 1.13</td>
</tr>
</tbody>
</table>

Implementation – Future Plans

- Not in the foreseeable future (52%)
- Within the next 12 months (19%)
- Within the next 1-2 years (24%)
- Within 3-5 years (11%)
Practice Concerns and Satisfaction

<table>
<thead>
<tr>
<th></th>
<th>High Users</th>
<th>Low Users</th>
<th>Non Adopters</th>
</tr>
</thead>
<tbody>
<tr>
<td>(N=303)</td>
<td>(N=84)</td>
<td>(N=794)</td>
<td></td>
</tr>
<tr>
<td>Isolation</td>
<td>13.2%</td>
<td>20.2%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Stress</td>
<td>43.9%</td>
<td>38.1%</td>
<td>38.4%</td>
</tr>
<tr>
<td>Long hours</td>
<td>53.1%</td>
<td>45.2%</td>
<td>48.0%</td>
</tr>
<tr>
<td>Demoralized</td>
<td>45.9%</td>
<td>46.4%</td>
<td>53.2%*</td>
</tr>
<tr>
<td>Dissatisfied</td>
<td>26.2%</td>
<td>23.8%</td>
<td>27.0%</td>
</tr>
</tbody>
</table>

* P=0.02 for comparison of adopters to non-adopters

Implementation Tactics

Does intensive educational outreach ("academic detailing"), targeting practice-specific and physician-specific barriers to adoption, promote EHR adoption and minimize the loss of productivity more effectively than a standard program of implementation?
Implementation Tactics
Assess whether intensive outreach, targeting specific adoption barriers, promotes EHR adoption more effectively than standard program
Outcomes to include proportion of notes electronic, electronic prescriptions, number of problems documented among others

Implementation Tactics
Progress to date
- Protocol development complete
- Conducting implementation

Effects on Quality
What are the effects of EHR implementation and data exchange on quality of health care?
Effects on Quality

Quality measures selected from:
- AQA, DOQ-IT, HEDIS, others
Comparison of pre and post-implementaiton rates
Correlation with EHR reports
Assessment of provider satisfaction

MAeHC QUALITY DATA WAREHOUSE

CLINICAL MEASURES FOR PHYSICIAN PERFORMANCE
AQA Recommended Starter Set

1. Breast Cancer Screening
2. Colorectal Cancer Screening
3. Cervical Cancer Screening
4. Quitting Smokers to Quit
5. Alcohol Intoxication
6. Drug Intoxication
7. Singing Therapy for Lifting Weakness
8. Depression
9. Blood Pressure Management
10. LDL Cholesterol Management
11. HbA1C Management
12. LDL Cholesterol Level (mg/dL)
13. Eye Exam
14. Use of Appropriate Medications for People with Asthma
15. Appropriate Prescription Therapy for People with Diabetes
16. Establishment Medication Management
17. Establishment Medication Management 2
18. Appropriate Treatment for Children with Asthma
19. Appropriate Treatment for Children with Obesity

Effects on Quality

Progress to date
- Baseline statewide data from MHQP
- EHR data elements identified
  - Working with vendors to standardize data electronic data collection
- Have initial results
CSC and MHQP will provide quality data warehouse function
Effects on Medication Safety

What are the effects of EHR implementation on medication errors and medication safety?

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Effects on Medication Safety

In sample of practices, collect before/after data using duplicate prescription pads in “before” period
Measure rates of:
• Medication errors
• Near-misses
• Preventable ADEs
• Other alerts e.g. allergy, drug-drug including overrides

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Effects on Medication Safety

Progress to date
• ~27 Brockton physicians participating
• Data collection for baseline complete

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Economic Evaluation

What are the costs, savings, and return on investment related to EHR implementation, interoperability, and data exchange?

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Economic Evaluation

Progress to date
• RFP drafted; will be distributed soon

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Key to Success for MaEHC
Strong leadership from physician organizations and the physician community
• Clear vision about key components of the plan
  • Electronic health records
  • Interoperability
Prior collaborative work and structures in Massachusetts and track record of successes which built trust that a collaborative effort could work
  • NEHEN
  • Massachusetts Health Data Consortium
  • Massachusetts Health Quality Partnership
  • Massachusetts Coalition for the Prevention of Medical Error
Strong support from the state government
Group of payers which was all very public-spirited and willing to come in together
Major financial commitment by the largest payer in the state

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Conclusions

Goals to provide the MAeHC with key business information that it needs to move to the next level and to assess impact of both:
  • EHRs
  • Clinical data exchange
Will learn different things from different communities
Early progress has been outstanding—still early in evaluation
Massachusetts should be able to serve as exemplar for the country
  • Have engaged Governor Patrick
  • Other states may be able to emulate