AHRQ-National Resource Center for HIT
Web Conference

The Massachusetts eHealth Collaborative:
Description and Evaluation Plan

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Presenter:
David W. Bates, MD, MSc
Medical Director of Clinical and Quality Analysis, Partners Healthcare
Chief, Division of General Medicine, Brigham and Women's Hospital

Moderator:
P. Jon White, MD
Agency for Healthcare Research and Quality

Overview

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

State Profile: Massachusetts

- 6.4 million people
  - 1 million age 65 years or older
  - ~88% white
- Relatively few payers
  - BCBS
  - HPHC
  - Tufts
  - Fallon
  - MassHealth/Medicaid
- 500,000 Uninsured (before recent plan)

~80 Acute-Care Hospitals
~18,000 practicing physicians
~6,000 office practices
~3,000 solo or 2-3 physician practices
Highly ranked for quality (HEDIS, CAHPS)

Among the hospitals:
- 10% have CPOE
- 20% are implementing
- 70%???

Among the office practices:
- 10-15 had EHRs when collaborative started

MAeHC ROOTS ARE IN MOVEMENT TO IMPROVE QUALITY, SAFETY, EFFICIENCY OF CARE

ACP
- Universal adoption of electronic health records
- MA-SAFE

BlueCross BlueShield of Massachusetts
- $50M commitment to heath information infrastructure
- Recognition of "systems" problem

MAeHC Massachusetts eHealth Collaborative
- 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

Massachusetts eHealth Collaborative

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33 ORGANIZATIONS REPRESENTED 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

Governmental agencies
- Executive Office of Health and Human Services

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

Non-voting members
- Center for Medicare & Medicaid Services

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

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
- Tufts University Medical School
- UMass Medical School

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MAeHC STRATEGY

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

State-wide implementation
- 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

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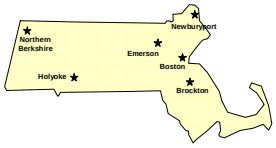
Three Pilot Communities Were Chosen From Six Finalists

Finalist communities

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**

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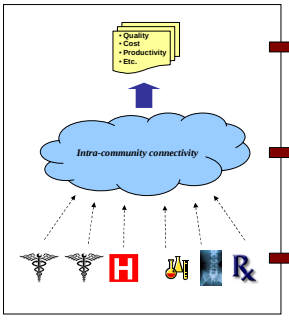
THREE MAIN AREAS OF ACTIVITY IN PILOT PROJECTS



Evaluation/ transformation

- **Quality reporting**
- **Pilot evaluation**
- **Transformation models**

Connectivity

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

EHR/support

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

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MAeHC PILOT PROJECTS SLATED TO END IN JULY 2008

Pilot Extension To Continue To July 2010

Activities	2004	2005	2006	2007	2008
ACP-MA summit	▲				
MAeHC launch		▲			
Community RFA launch		▲			
Pilot communities announced		▲			
EHR vendor RFP		▲			
EHR vendor finalization			▲		
Physician recruitment			▲		
EHR implementation			▲		
HIE implementation				▲	
Evaluation					
Formal pilot completion					▲

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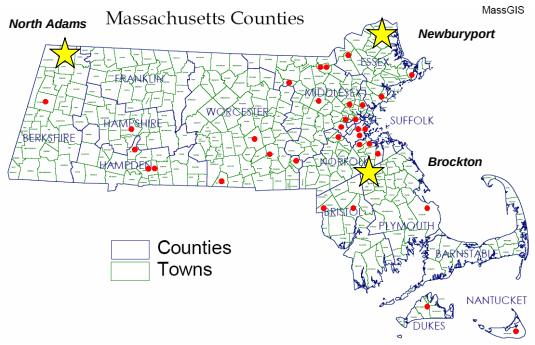
THREE COMMUNITIES SELECTED FROM 35 APPLICANTS



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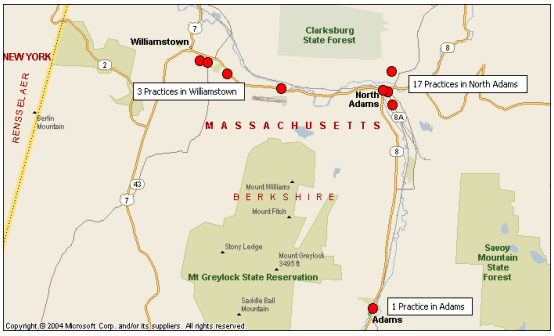
NORTH ADAMS PRACTICES



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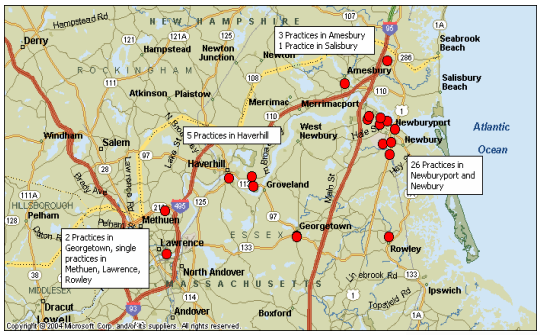
NEWBURYPORT PRACTICES



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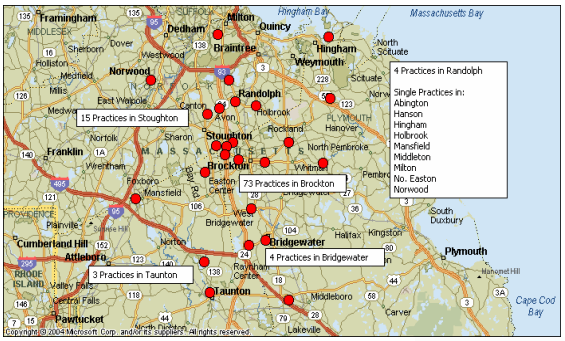
BROCKTON PRACTICES



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EHR SELECTION

Preferred Vendors 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

Physician Micro Systems, Inc. · ALLSCRIPTS · MEDITECH · NextGen · Wellogic · eClinicalWorks

Community down-select

Newburyport	Brockton	North Adams
NextGen	NextGen	NextGen
eClinicalWorks	eClinicalWorks	eClinicalWorks
Physician Micro Systems, Inc.	ALLSCRIPTS	

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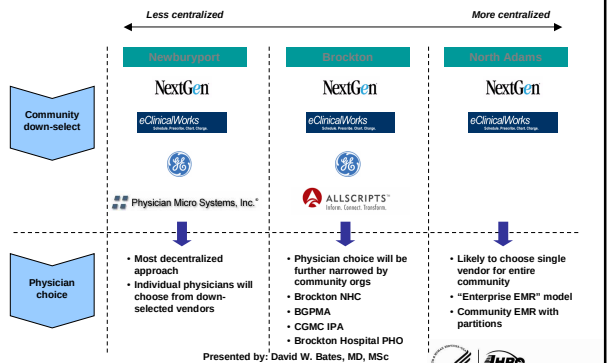
PHYSICIAN EHR SELECTIONS



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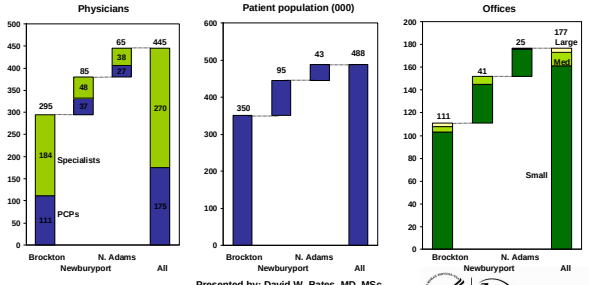
SCOPE OF PILOT PROJECTS

Almost 450 physicians… **…who care for ~500K patients…** **…in almost 200 offices.**



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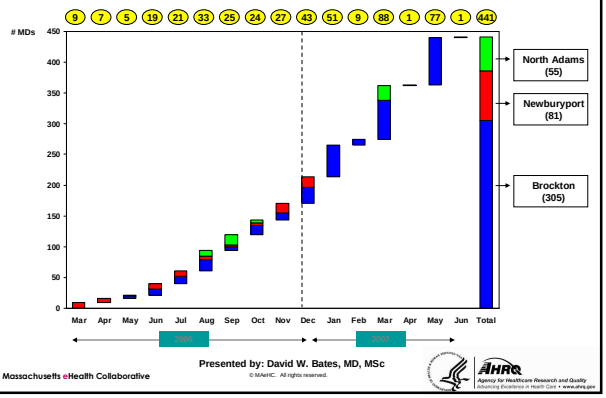
PHYSICIANS "GOING LIVE", BY COMMUNITY



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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

The Boston Globe

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.

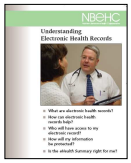
Ethel Roy, 81, visited earlier this month with Dr. Stephen St. Clair, her urologist, at his office in North Adams. (Stephen Rose for the Boston Globe)

HEALTH INFORMATION EXCHANGE

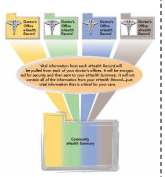
Northern Berkshire Example

NBeHC Northern Berkshire eHealth Collaborative

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

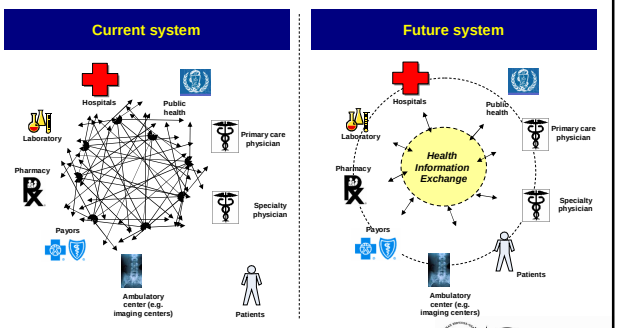
Use of Technologies

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

GOAL: BRING TOGETHER INFORMATION TO IMPROVE PATIENT CARE



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Use of Technologies

Progress to date:

- **Baseline statewide survey complete**
- **Baseline pilot community survey complete**
- **Statewide analysis complete**
  - **Manuscripts published**

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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?

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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**

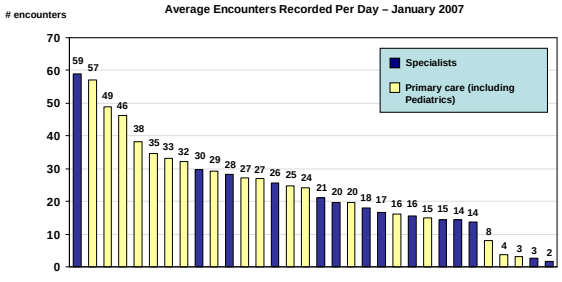
Barriers/Facilitators of Adoption

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



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

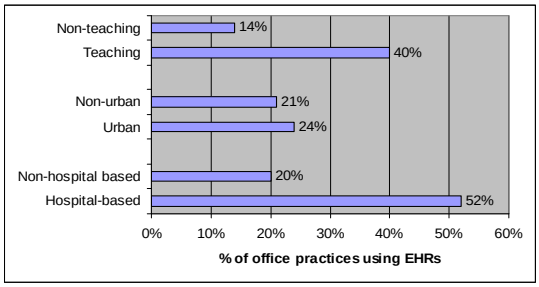
8-page mail survey with $20 incentive

Overall Response Rate: 71%

EHR Adoption

	Percent of Office Practices Using EHRs
Overall	23%
Specialty	
Primary Care	25%
Single Specialty	20%
Multi-Specialty	23%
Number of physicians	
1	14%
2-3	15%
4-6	33%
7+	52%

EHR Adoption



Additional Adoption Statistics

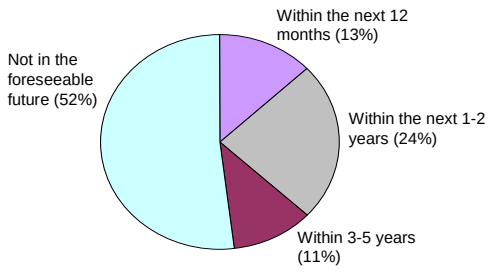
On a physician level, a total of 45 percent of physicians in Massachusetts had EHRs.

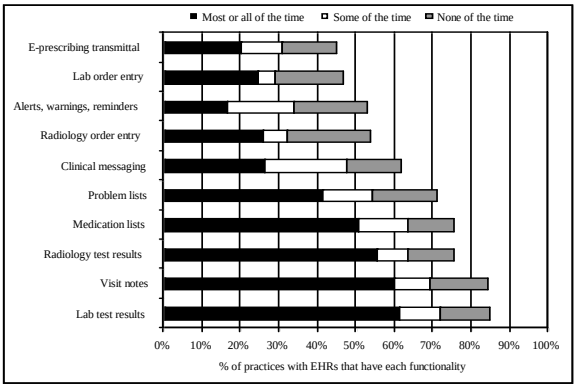
Among practices with EHRs, more than half (53 percent) reported having EHRs in their practice for more than 3 years.

Barriers to HIT Adoption or Expansion

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

Implementation – Future Plans





Practice Concerns and Satisfaction

	High Users	Low Users	Non Adopters
	(N=303)	(N=84)	(N=794)
Isolation	13.2%	20.2%	17.8%
Stress	43.9%	38.1%	38.4%
Long hours	53.1%	45.2%	48.0%
Demoralized	45.9%	46.4%	53.2%*
Dissatisfied	26.2%	23.8%	27.0%

* 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-implementation rates

Correlation with EHR reports

Assessment of provider satisfaction

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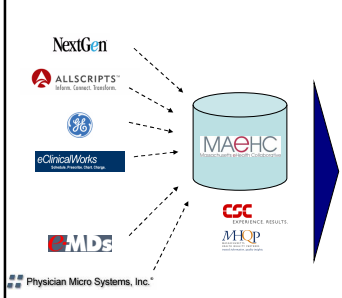
MAeHC QUALITY DATA WAREHOUSE



CLINICAL MEASURES FOR PHYSICIAN PERFORMANCE
AQA Recommended Starter Set

1. Breast Cancer Screening
2. Colorectal Cancer Screening
3. Cervical Cancer Screening
4. 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
26. Appropriate Testing for Children with Pharyngitis

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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

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Effects on Medication Safety

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

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**

Effects on Medication Safety

Progress to date

- **~27 Brockton physicians participating**
- **Data collection for baseline complete**

Economic Evaluation

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

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**