EHR Implementations – Lessons Learned & Building Blocks to Interoperability
Lesson #1 – Begin with the Goal in Mind
We have entered a period of rapid change in the healthcare environment…

### Macro Trends

| ↑ | Healthcare costs as share of GDP |
| ↑ | Chronic disease prevalence |
| ↑ | Retiree : Employed ratio |
| ↔ | Delivery system fragmentation |
| ↑ | Access |
| ↑ | Consumer portion of healthcare costs |
| ↑ | Primary Provider Shortages |

### Relaxation of past constraints

| ↑ | EHR adoption |
| ↑ | Inter-organizational HIE infrastructure |
| ↑ | Standardization - format |
| ↑ | Standardization - vocabulary |
| ↑ | Standardization - transport |
| ↑ | CQM Measure maturity |
| ↑ | Provider participation in performance payment programs |

### Shocks / Enablers

- ARRA – HITECH - MU
- Health Reform Law
- Chapter 305
- “Global Recession”
Meaningful Use objectives and standards will change over time, focusing today on **structured data and exchange**.

- **Stage 1** 2011-12
  - Advanced clinical processes
  - Data capture and sharing

- **Stage 2** 2012-13
  - Improved outcomes

- **Stage 3** 2014-15
  - Better clinical outcomes
  - Improved population health outcomes
  - Increased transparency and efficiency
  - Empowered individuals
  - More robust research data on health system

- Standards will be become higher in Stage 2-3
- Menu items will become Core objectives
# Clinical Data Repository – Quality Data Center

![Quality Data Center screenshot](https://dev.qdc.maehc.org/MAeHC-QDC-AHL/MJReports/HomeNew.aspx)

### QDC Reports

<table>
<thead>
<tr>
<th>Measure Date</th>
<th>03/31/2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pod</td>
<td>AHL Pod #3</td>
</tr>
<tr>
<td>Practice</td>
<td>Adirondack Primary Care</td>
</tr>
<tr>
<td>Provider</td>
<td>Zbigniew Wolczynski</td>
</tr>
<tr>
<td>Category</td>
<td>Adult Diabetes</td>
</tr>
<tr>
<td>Measure</td>
<td>Adult DM: % of patients receiving at least one LDL-C test</td>
</tr>
<tr>
<td>Payer</td>
<td>All</td>
</tr>
<tr>
<td>Numerator</td>
<td>5</td>
</tr>
<tr>
<td>Denominator</td>
<td>6</td>
</tr>
<tr>
<td>Percentage</td>
<td>84%</td>
</tr>
</tbody>
</table>

- **Missed Patients**
- **Download Report**

---

**Massachusetts eHealth Collaborative**

© MAeHC. All rights reserved.
Lesson #2 – Utilize a Structured Implementation Approach
OVERALL EMR PROJECT APPROACH

**Strategic**
- Identify and confirm strategic objectives
- Translate strategic objectives into concrete, measurable objectives and milestones
- Confirm current program structure and goals
- What policies and procedures should be considered and why?
- What is the strategy for interoperability and what will the data needs be?

**Program-level**
- Establish and formalize governance and advisory bodies (ie, Steering Committee, clinical advisory, policy and procedure, internal project team)
- Deliver project management tools, reporting and meeting structure
- Define roles & responsibilities for stakeholders
- Develop vendor management structure

**Practice-level**
- Implementation services at practice-level
- Workflow alignment with practice – current state to future state by specialty
- Pre-training
- Vendor training supplementation and oversight
- Go-live support – full go-live with post go-live adoptions support
- Post-implementation adoption improvement
- Interoperability planning and management (ie, lab interfaces, eHX connectivity, etc)
SUPPLEMENT VENDOR ACTIVITIES WHERE NECESSARY ENSURE THAT PRACTICE IMPLEMENTATIONS DELIVER VALUE

Fill in the gaps left by vendors

Project phases

Week 0

Week 4

Week 8

Week 12

Week 16

I
Design

Workflow optimization
System design

Site prep
EHR customization

System install and check

II
Deploy

III
Train

Activities performed by staff

Pre-training preparation

Go-Live Plan
On-site training

Support kickoff

Evaluate

Improve

IV
Master

Key dates

Project Kickoff

EHR vendor Kickoff

Clearing-house setup

Hardware install

Trainer on-site

Go live
Simplify Processes...

Current Process

Lab results

Which Patient?

Create out guide

Find chart?

Yes

Look for chart

No

Look all over office

Pull chart

Bring chart to counter

Hole-punch lab result

Open chart and take out papers

Chart "sits" for ___ days

Put chart in pile on MD desk

Replace rest of papers

Put lab in appropriate place

MD reviews lab, signs

Chart in "out" box on MD desk

Chart back to file room

Chart filed back

Out guide pulled

New Process

Lab results flow in wirelessly

Clinical Task appears in Desktop

MD opens task, reviews lab, checks off

Chart in "out" box on MD desk

Chart back to file room

Chart filed back

Out guide pulled
<table>
<thead>
<tr>
<th>Project kickoff and planning</th>
<th>Design and Configure</th>
<th>Deploy</th>
<th>Support</th>
<th>Evaluate and improve</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engage Steering Committee and establish internal project team</td>
<td>Determine and finalize EHR design and configuration requirements</td>
<td>Launch pilot department</td>
<td>Create training guidance for selected departments</td>
<td>Conduct post-implementation adoption assessments and create remediation action plan</td>
</tr>
<tr>
<td>Finalize program design, participation requirements, and participation agreements</td>
<td>Confirm practice-level implementation plan</td>
<td>Evaluate and adjust final deployment plans based on pilot learning's</td>
<td>• Data input</td>
<td></td>
</tr>
<tr>
<td>Design hardware selection, deployment and support strategy</td>
<td>Finalize infrastructure approach and design; practice/location level; specialty level</td>
<td>Finalize deployment schedules and milestones</td>
<td>• Interfaces</td>
<td></td>
</tr>
<tr>
<td>Finalize high-level timelines and milestones</td>
<td>Determine training approach. Train internal super-users</td>
<td>Launch communication and education campaigns</td>
<td>• Workflow</td>
<td></td>
</tr>
<tr>
<td>Finalize project scope and non-scope items</td>
<td>Finalize measures of success and project management tools</td>
<td>Weekly Project Team meetings</td>
<td>• Decision support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Finalize deployment schedule and identify pilot practice locations</td>
<td>Monthly Steering Committee meetings</td>
<td>• Report generation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• Report analysis</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Assess adoption status– use of ePrescribing, other meaningful use activities</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Transition “live” practices to support</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Close out implementation issues</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Post-implementation adoption improvement visits</td>
<td></td>
</tr>
</tbody>
</table>
Lesson #3 – Adhere to Standards
Lesson Learned: Use Vocabulary Standards

<table>
<thead>
<tr>
<th>Standard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNOMED-CT</td>
<td>Systematized Nomenclature of Medicine - Clinical Terms includes diseases, findings, procedures, microorganisms, substances, etc. to allow for inter-operability and exchange of clinical information.</td>
</tr>
<tr>
<td>ICD-10-CM</td>
<td>International Statistical Classification of Diseases and Related Health Problems - Codifies a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or disease. Version 10 is greatly expanded from version 9 (ICD-9-CM)</td>
</tr>
<tr>
<td>ICD-9-CM</td>
<td>International Statistical Classification of Diseases and Related Health Problems - Codifies a wide variety of signs, symptoms, abnormal findings, complaints, social circumstances, and external causes of injury or disease. Version 10 is greatly expanded from version 9 (ICD-9-CM)</td>
</tr>
<tr>
<td>RxNorm</td>
<td>RxNorm provides normalized names for clinical drugs and links its names to many of the drug vocabularies commonly used in pharmacy management and drug interaction software, including those of First Databank, Micromedex, MediSpan, Gold Standard, and Multum</td>
</tr>
<tr>
<td>HL7</td>
<td>Health Level Seven (HL7), is an all-volunteer, non-profit organization involved in development of international healthcare informatics interoperability standards. &quot;HL7&quot; is also used to refer to some of the specific standards created by the organization (e.g., HL7 v2.x, v3.0, HL7 RIM)</td>
</tr>
<tr>
<td>CPT</td>
<td>Current Procedural Terminology is the most widely accepted medical nomenclature used to report medical procedures and services under public and private health insurance programs.</td>
</tr>
<tr>
<td>CXV</td>
<td>The CDC's National Center of Immunization and Respiratory Diseases (NCIRD) developed and maintains HL7 Table 0292, Vaccine Administered (CVX)</td>
</tr>
<tr>
<td>UNII</td>
<td>FDA Unique Ingredient Identifier (UNII) a Substance Registration System (SRS) that aims to centralize information on every ingredient contained in domestically-marketed foods, drugs and medical devices.</td>
</tr>
<tr>
<td>LOINC</td>
<td>Logical Observation Identifiers Names and Codes (LOINC) is a database of and universal standard for identifying medical laboratory observations.</td>
</tr>
<tr>
<td>Standard</td>
<td>Standard Description and Link</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>ASC X12</td>
<td>Accredited Standards Committee X12 EDI</td>
</tr>
<tr>
<td>ASTM</td>
<td>American Society for Testing and Materials</td>
</tr>
<tr>
<td>DICOM</td>
<td>Digital Imaging and Communications in Medicine</td>
</tr>
<tr>
<td>HITSP</td>
<td>Healthcare Information Technology Standards Panel</td>
</tr>
<tr>
<td>C19</td>
<td>HITSP Entity Identity Assertion Component</td>
</tr>
<tr>
<td>C28</td>
<td>Emergency Encounter Summary Document Component</td>
</tr>
<tr>
<td>C32</td>
<td>Summary Documents Using HL7 Continuity of Care Document (CCD) Component</td>
</tr>
<tr>
<td>C36</td>
<td>Lab Result Message Component</td>
</tr>
<tr>
<td>C37</td>
<td>Lab Report Document Component</td>
</tr>
<tr>
<td>C38</td>
<td>Patient Level Quality Data Document Using IHE Medical Summary (XDS-MS) Component</td>
</tr>
<tr>
<td>C41</td>
<td>Radiology Result Message Component</td>
</tr>
<tr>
<td>C44</td>
<td>Secure Web Connection Component</td>
</tr>
<tr>
<td>C48</td>
<td>Encounter Document Using IHE Medical Summary (XDS-MS) Component</td>
</tr>
<tr>
<td>C62</td>
<td>Unstructured Document Component</td>
</tr>
<tr>
<td>C70</td>
<td>Immunization Query and Response Component</td>
</tr>
<tr>
<td>C72</td>
<td>Immunization Message Component</td>
</tr>
<tr>
<td>C78</td>
<td>Immunization Document Component</td>
</tr>
<tr>
<td>C84</td>
<td>Consult and History &amp; Physical Note Component</td>
</tr>
<tr>
<td>C105</td>
<td>Patient Level Quality Data Document Using HL7 Quality Reporting Document Architecture (QRDA) Component</td>
</tr>
<tr>
<td>C163</td>
<td>Laboratory Order Message Component</td>
</tr>
<tr>
<td>HL7</td>
<td>Health Level Seven</td>
</tr>
<tr>
<td>CCD</td>
<td>Continuity of Care Document</td>
</tr>
<tr>
<td>CDA</td>
<td>Clinical Document Architecture</td>
</tr>
<tr>
<td>QRDA</td>
<td>Quality Reporting Document Architecture</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>IHE</td>
<td>Integrating the Healthcare Enterprise</td>
</tr>
<tr>
<td>ATNA</td>
<td>Audit Trail and Node Authentication</td>
</tr>
<tr>
<td>CT</td>
<td>Consistent Time</td>
</tr>
<tr>
<td>IC</td>
<td>Immunization Content</td>
</tr>
<tr>
<td>PDQ</td>
<td>Patient Demographic Query</td>
</tr>
<tr>
<td>PIX</td>
<td>Patient Identifier Cross Referencing (PIX)</td>
</tr>
<tr>
<td>PWP</td>
<td>Personnel White Pages</td>
</tr>
<tr>
<td>QED</td>
<td>Query for Existing Data</td>
</tr>
<tr>
<td>XCA</td>
<td>Cross Community Access</td>
</tr>
<tr>
<td>XD-LAB</td>
<td>Sharing Laboratory Results</td>
</tr>
<tr>
<td>XDM</td>
<td>Cross-Enterprise Document Media Interchange</td>
</tr>
<tr>
<td>XDR</td>
<td>Cross-Enterprise Document Reliable Interchange</td>
</tr>
<tr>
<td>XDS</td>
<td>Cross Enterprise Document Sharing</td>
</tr>
<tr>
<td>XDS-I</td>
<td>Cross-Enterprise Document Sharing for Imaging</td>
</tr>
<tr>
<td>XDS-MS</td>
<td>Cross-Enterprise Document Sharing of Medical Summaries</td>
</tr>
<tr>
<td>XDS-SD</td>
<td>Cross-Enterprise Document Sharing of Scanned Documents</td>
</tr>
<tr>
<td>XPHR</td>
<td>Exchange of Personal Health Record Content</td>
</tr>
<tr>
<td>XUA</td>
<td>Cross Enterprise User Authentication (HITSP C19)</td>
</tr>
<tr>
<td>NwHIN</td>
<td>Nationwide Health Information Network</td>
</tr>
<tr>
<td>HEIM</td>
<td>NHIN Gateway Health Information Event Messaging Service</td>
</tr>
<tr>
<td>Direct</td>
<td>Direct Project Home - Wiki</td>
</tr>
<tr>
<td>S&amp;I</td>
<td>Standards &amp; Interoperability (S&amp;I) Framework - Provider Directories</td>
</tr>
<tr>
<td>NCPDP</td>
<td>National Council for Prescription Drug Programs</td>
</tr>
<tr>
<td>NLM</td>
<td>National Library of Medicine - RxNorm</td>
</tr>
<tr>
<td>UMLS</td>
<td>Unified Medical Language System - NLM</td>
</tr>
</tbody>
</table>
Lesson #4 – Don’t Boil the Ocean!
Our discussions have been structured in terms of HIE Building Blocks to make sure that all of the working groups are speaking the same language.

- **Community record**: Does require some type of centralized storage of data.
- **Secure routing to public health and patients**: Does not require central storage of clinical data.
- **Secure routing among providers**
Strawman HIE Phasing

Phase 1

• A “push” network that allows secure, standardized, low-cost sending and receiving of clinical documents among providers for treatment purposes
  - Across hospital networks (discharge summaries, labs, etc)
  - Manual record location across provider organizations
  - Within hospital networks for those hospitals who opt for it
  - Outside of hospital networks for offices and clinics who are not part of hospital networks today
• A standing, multi-stakeholder governance process to guide decision-making going forward
• A development program to build Phase 2 capabilities

Phase 2

• Extend “push” network to include public health and other healthcare entities (e.g., long-term care, etc)
• A “pull” network to allow electronic queries of CCD-standardized patient information through a Record Locator Service
• Development program to build Phase 3 capabilities
• Business development to build shared services capabilities

Phase 3

• Extend “push” network to include patients, other entities
• Extend “pull” network to allow centrally orchestrated merging of records across clinical entities
• Advanced shared services capabilities
Technical and functional approach is to create “Hub of Hubs” tying together existing institutions (Phase 1)

New Hampshire HIE

- Secure routing across hubs
- Secure routing within hubs where not currently available
- Secure routing with entities outside of hospital hubs
- Secure routing with NHIN
Approach is to create “Hub of Hubs” tying together existing institutions (Phase 2)

New Hampshire HIE

- Secure routing across hubs
- Secure routing within hubs where not currently available
- Secure routing with entities outside of hospital hubs
- Secure routing with NHIN
- Secure routing to public health
- Secure routing to other clinical entities
- Record locator service for patient information queries
Approach is to create “Hub of Hubs” tying together existing institutions (Phase 3)

New Hampshire HIE

- Secure routing across hubs
- Secure routing within hubs where not currently available
- Secure routing with entities outside of hospital hubs
- Secure routing with NHIN
- Secure routing to public health
- Secure routing to other clinical entities
- Record locator service for patient information queries
- Centrally orchestrated merging of records across clinical entities
- Quality registries
- Other...
Lesson #5 – Understand your Business Needs
Different organization types have different business needs…

<table>
<thead>
<tr>
<th>Business model</th>
<th>Independent actors</th>
<th>IPA</th>
<th>PHO</th>
<th>ACO</th>
<th>IDN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business goals</td>
<td>• Maintain business and contracting autonomy of clinical entities</td>
<td>• Maintain separation of clinical entities</td>
<td>• Integrate care processes across entities</td>
<td>• Integrate care processes across settings</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Achieve administrative and performance benefits of network contracting &amp; meeting contract requirements</td>
<td>• Assume and share risk across entities</td>
<td>• Engage patients as single entity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• with hospital (PHO)</td>
<td>• Engage patients as clinically-integrated entity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• w/out hospital (IPA)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business functions</td>
<td>• Become electronic</td>
<td>• Performance mgmt</td>
<td>• Business alignment</td>
<td>• Business integration</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Fill in gaps in care transitions</td>
<td>• Population mgmt</td>
<td>• Team-based care</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Utilization mgmt</td>
<td>• Patient engagement</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Case facilitation</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The health reform law directs the HHS Secretary to establish a “Shared Savings Program” through ACOs

“Not later than January 1, 2012, the Secretary shall establish a shared savings program that promotes accountability for a patient population and coordinates items under parts A and B, and encourages investment in infrastructure and redesigned care processes for high quality and efficient service delivery”

Allows groups of providers of services and suppliers to manage and coordinate care for Medicare fee-for-services beneficiaries through an “Accountable Care Organization” or ACO

ACOs must meet eligibility requirements to participate

ACOs must report on clinical processes and outcomes, patient and caregiver experience of care, and utilization

ACOs may enter into a shared savings payment model for a defined set of patients

Source: Social Security Act Sec. 1899
Lesson #6 – Know your DRIVERS and CONSTRAINTS
HIE Usage by Reason
No Prior Relationship w/Provider
Total Count: 3,996
As of 4/16/10

- Emergency Care: 36%
- Hospital Admission: 28%
- Other: 11%
- Inpatient Consultation: 9%
- Hospitalist Care: 8%
- VNA Admission: 0%
- Nursing Home Admission: 0%
- Hospice Admission: 0%
- Covering Provider: 1%
- Patient Requested: 0%
- Patient Complaint: 0%
- Medication Reconciliation: 2%
- Quality Assurance: 2%
- Clinical Diagnostics: 2%
- Self-Referral: 1%
There are Factors that affect HIE use and Adoption...

**Legal / Privacy**

- Some states have statutory restrictions on collaborative HIE activities
- HIPAA & HITECH

**HIE Capability**

- Level of Participation
- Richness of information
- Timeliness of information
- Ease of use / access
- Connectivity outside the area

**Full HIE Use & Adoption**

**Patient**

- Communication Challenges
- Visit Patterns
- Complex conditions
- Willingness to participate

**Provider**

- Competing sources of information
- No patient crossover – specialty
- Adoption and awareness
- Workflow modifications
- PCP’s not accepting new patients
- Time constraints
Lesson #7 – Align with Federal & State Initiatives
Current strategic plan is posted at http://www.dhhs.nh.gov/hie/strategic.htm

Federal & State Programs

• Regional Extension Centers
• State HIE’s
• Meaningful Use
• Office of National Coordinator (ONC)
  • CoP’s
  • Boot Camp
  • HITRC
• CMS ACO’s
• CQM Reporting (PQRS, ACO)
• Medicaid AIU
NwHIN Components & Links

Nationwide Health Information Network
The active use of standards and services within a policy framework for health information exchange nationwide

- NHIN gateway Specifications
- NHIN CONNECT Software
- NHIN limited production Exchange
- NHIN Direct Project

NwHIN Gateway | NwHIN Connect | NwHIN limited production | NwHIN Direct

http://www.nationalehealth.org

http://wiki.directproject.org/
Approved State Plans by Model

**Please note that most grantees display characteristics of more than one model**
State HIE Strategic and Operational Plan
Emerging Models

**Elevator**
Rapid facilitation of directed exchange capabilities to support Stage 1 meaningful use

**Capacity-builder**
Bolstering of sub-state exchanges through financial and technical support, tied to performance goals

**Orchestrator**
Thin-layer state-level network to connect existing sub-state exchanges

**Public Utility**
Statewide HIE activities providing a wide spectrum of HIE services directly to end-users and to sub-state exchanges where they exist

**Preconditions:**
- Little to no exchange activity
- Many providers and data trading partners that have limited HIT capabilities
- If HIE activity exists, no cross-entity exchange

**Preconditions:**
- Sub-state nodes exist, but capacity needs to be built to meet Stage 1 MU
- Nodes are not connected
- No existing statewide exchange entity

**Preconditions:**
- Operational sub-state nodes
- Nodes are not connected
- No existing statewide exchange entity
- Diverse local HIE approaches

**Preconditions:**
- Operational state-level entity
- Strong stakeholder buy-in
- State government authority/financial support
- Existing staff capacity
Enrollment

- Private Practice 1 -10
- Public Hospitals
- Practice Consortium
- Specialty Practice
- Community Health Center
- Critical Access Hospitals
- Other Underserved Setting

http://batchgeo.com/map/386338c3401fa4457e6f5124d81ce987
Lesson #8 – Take advantage of Incentives
(MU, AIU, ACO, AQCC, PQRS, Etc.)
ARRA and HITECH have spurred investments and use of information systems that are foundational for system reform

Supply-side interventions

- Health information exchange programs
- Regional health IT extension centers
- EHR certification policies & infrastructure
- NHIN
- Beacon Communities Program
- National health IT resource center
- Privacy & Security Framework
- Workforce Training
- Various studies and reports

Demand-side interventions

- Direct payments to individual providers through Medicare and Medicaid incentive programs
- Meaningful use
  - Use of certified EHR in a **meaningful manner** (e.g., record medication history)
  - Use of certified EHR technology for **electronic exchange** of health information to improve quality of health care
  - Use of certified EHR technology to submit **clinical quality measures** (CQM) and other such measures selected by the Secretary

These funds are almost completely obligated, most in grant awards

These funds are only just beginning to be spent

Most of the action from ARRA will be from bottom-up purchasing decisions by individual providers and hospitals
EXHIBIT 6
Net Potential Savings (Efficiency Benefits Over Adoption Costs) For Hospital And Physician Electronic Medical Record (EMR) Systems Adoption During A Fifteen-Year Adoption Period (2004–2018)

(Billions)

<table>
<thead>
<tr>
<th>Dollars (Billions)</th>
<th>Cumulative inpatient</th>
<th>Cumulative outpatient</th>
<th>Yearly inpatient</th>
<th>Yearly outpatient</th>
</tr>
</thead>
<tbody>
<tr>
<td>350</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCE: F. Girosi et al., Extrapolating Evidence of Health Information Technology Savings and Costs (Santa Monica, Calif.: RAND, 2005), sec. 4.2.3.

We are here!
Lesson #9 – Align with Meaningful Use
# Revised (Phase II) Meaningful Use Timetable

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>2012</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>2013</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>2014</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>2015</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>2016</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
<tr>
<td>2017</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
<td>TBD</td>
</tr>
</tbody>
</table>
Eligible Professional - Stage II Meaningful Use Objectives

Report on all 17 Core Objectives:
1. Use computerized provider order entry (CPOE) for medication, laboratory and radiology orders
2. Generate and transmit permissible prescriptions electronically (eRx)
3. Record demographic information
4. Record and chart changes in vital signs
5. Record smoking status for patients 13 years old or older
6. Use clinical decision support to improve performance on high-priority health conditions
7. Provide patients the ability to view online, download and transmit their health information
8. Provide clinical summaries for patients for each office visit
9. Protect electronic health information created or maintained by the Certified EHR Technology
10. Incorporate clinical lab-test results into Certified EHR Technology
11. Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research, or outreach
12. Use clinically relevant information to identify patients who should receive reminders for preventive/follow-up care
13. Use certified EHR technology to identify patient-specific education resources
14. Perform medication reconciliation
15. Provide summary of care record for each transition of care or referral
16. Submit electronic data to immunization registries
17. Use secure electronic messaging to communicate with patients on relevant health information

Report on 3 of 6 Menu Objectives:
1. Submit electronic syndromic surveillance data to public health agencies
2. Record electronic notes in patient records
3. Imaging results accessible through CEHRT
4. Record patient family health history
5. Identify and report cancer cases to a State cancer registry
6. Identify and report specific cases to a specialized registry (other than a cancer registry)
Eligible Hospitals and CAH’s – Stage II Meaningful Use Objectives

Report on all 16 Core Objectives:
1. Use computerized provider order entry (CPOE) for medication, laboratory and radiology orders
2. Record demographic information
3. Record and chart changes in vital signs
4. Record smoking status for patients 13 years old or older
5. Use clinical decision support to improve performance on high-priority health conditions
6. Provide patients the ability to view online, download and transmit their health information within 36 hours after discharge.
7. Protect electronic health information created or maintained by the Certified EHR Technology
8. Incorporate clinical lab-test results into Certified EHR Technology
9. Generate lists of patients by specific conditions to use for quality improvement, reduction of disparities, research, or outreach
10. Use certified EHR technology to identify patient-specific education resources and provide those resources to the patient if appropriate
11. Perform medication reconciliation
12. Provide summary of care record for each transition of care or referral
13. Submit electronic data to immunization registries
14. Submit electronic data on reportable lab results to public health agencies
15. Submit electronic syndromic surveillance data to public health agencies
16. Automatically track medications with an electronic medication administration record (eMAR)

Report on 3 of 6 Menu Objectives:
1. Record whether a patient 65 years old or older has an advance directive
2. Record electronic notes in patient records
3. Imaging results accessible through CEHRT
4. Record patient family health history
5. Generate and transmit permissible discharge prescriptions electronically (eRx)
6. Provide structured electronic lab results to ambulatory providers
Lesson #10 – Understand how the pieces fit together
One of the following:
- DSL Modem
- Cable Modem
- Router

Legend

<table>
<thead>
<tr>
<th>MAssachusetts eHealth Collaborative Initiative Equipment</th>
<th>Symbol</th>
<th>Count</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>x Perimeter Security</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x Switch</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x Wireless access point</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Database server</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Directory server</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x 15&quot; LCD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x Power supply/UPS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x Desktop</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x 17&quot; LCD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x Tablet PC w/ Biometrics</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x Scanner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x Printer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>x Card Scanner</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Practice Ethernet (Pre-requisite)

- ECW Server/Backup Server
- Fax Server / Report Server / Domain Controller
- Desktops w/ 17" LCD
- Tablet PCs w/ Biometrics
- Network Printer
- Network Scanner
- Card Scanner
- Image Scanner
- Wireless Access Point
- Doctors
- Nurse Practitioner
- Medical Assistant
- Directory server
- Database server
- Switch
- Perimeter Security Appliance
- Power supply/UPS
- 17" LCD
- Tablet PC w/ Biometrics
- Scanner
- Printer
- Card Scanner
- Location1
- Location2
- Location3
- Location4
* Filtered by per occurrence consent items (HIV & Genetic Testing)
HITECH – how the pieces fit together!

**ADOPTION**
- Regional Extension Centers
- Workforce Training

**MEANINGFUL USE**
- Medicare and Medicaid Incentives and Penalties

**EXCHANGE**
- State Grants for Health Information Exchange
- Standards & Certification Framework
- Privacy & Security Framework

**Benefits**
- Improved Individual & Population Health Outcomes
- Increased Transparency & Efficiency
- Improved Ability to Study & Improve Care Delivery