Health Information Exchanges (HIEs): What’s Next?

2013 Cerner Great Lakes Regional User Group Conference
Chicago, Illinois
May 23, 2013
Agenda

• Today’s Objectives
• HIE Landscape: Key Sources and Characteristics
  – Surveys & Studies: Limited Sources of HIE Information
  – ONC and State-Level HIE: Origins, Characteristics & Goals
  – Advancing National Exchange: NwHIN Transition to eHealth Exchange, Public-Private Initiative, October 2012
• Successes and Major Impediments to Progress Toward HIE Adoption
• ONC/CMS Focus on Interoperability & Standards for MU Stage 2 Means Work for Industry
• Emerging Government and Healthcare Industry Initiatives
• Vendor and User Community Actions
• Other Government and Industry Efforts
• What Can We Do To Make This Work, Achieve Results in Our Lifetimes?
• Questions
• Contact Information
Today’s Objectives

• Understand key characteristics of the current HIE landscape – national, state and local

• Identify key successes and major impediments to progress on HIE adoption

• Understand emerging government and healthcare industry initiatives designed to accelerate integration, interoperability and usability of HIEs
HIE Landscape: Key Sources and Characteristics
HIE: Verb or Noun?

In this presentation, HIE will be used both as
- A verb ("to exchange health information") and
- a noun (the organization(s) that provide exchange)
HIE: Making Health Information Patient-Centered Across the Continuum of Care

• National objective (Triple Aim) is to improve individual patient health, population health and decrease cost

• Health information must be:
  – Trusted
  – Shared across care settings
  – Structured and standardized
  – Simple – reducing the complexities so that it can be easily accessed and used by patients and providers

• Health information needs to follow the patient and be easily accessed by patients and providers
HIE: Making Health Information Patient-Centered Across the Continuum of Care

• Improving individual health
  – Health information needs to follow the patient where and when it is needed, across organizational, vendor, and geographic boundaries
  – Acute care, ambulatory care, long-term care, behavioral health care, home health care – wherever care is provided

• Improving population health
  – Providing comprehensive, structured, semantically sound and reliable data across all settings and organizations
    • Chronic disease management
    • Public health reporting – immunizations, syndromic surveillance, reportable labs, disease registries
    • Clinical research
    • Business intelligence

• Decreasing cost of healthcare services, making it standard, affordable and accountable
Examples of HIE Organizations

When you’ve seen one HIE, you’ve seen one HIE!

- **Private**
  - Enterprise owned and operated
  - Collaboration of providers, but restricted membership/ownership
  - EHR vendors
  - National healthcare or technology firms
    - Examples: Surescripts, CVS, Walgreens, Walmart, ATT

- **Public-Private**
  - National, regional, state-level and local non-profits
  - HealtheWay (eHealth Exchange)

- **Public**
  - Federal agencies (DoD, Indian Health, VA, SSA)
  - State-run exchanges
SURVEYS & STUDIES:
Limited Sources of HIE Information and None Unimpeachable

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Surveys of HIE / HI Os

• Limited surveys / studies of the HIE market

• Key sources of HIE status in U.S. include:
  – eHI (2004-2012 annual survey of HIEs)
  – KLAS (HIE vendor assessments)
  – Accenture (Physician survey across 8 countries)
  – NORC (ONC commissioned) 2011, 2012
  – HIMSS-NASCO (To Be Published: June 2013, state focus)
  – ONC website www.healthit.gov
  – HIMSS State HIT Dashboard http://apps.himss.org/statedashboard/

• No unimpeachable sources

• Certification of HIEs may help in future (ONC pilots with NYeHC announced May 2013)
KLAS Health Information Exchange 2012: Muddled in the Interfaces

• About the survey:
  – 309 survey participants

• Conclusions:
  – Market is maturing and consolidating
  – 38 vendors with clients
  – 11 of the 38 vendors hold 80% of market (208 providers)
  – Overall satisfaction lagging for most vendors
  – Interfaces and integration are key issues now and for the immediate future

• Top Vendors (alphabetic order):
  – Caradigm; Cerner; dbMotion; eClinicalWorks; Epic; ICA; Medicity; OptumInsight; Orion Health; RelayHealth; Siemens MobileMD

[Source: KLAS Health Information Exchange 2012: Muddled in the Interfaces, Report Author Mark Allphin, Research Director KLAS]
## Extracts from eHI 2012 HIE Survey

<table>
<thead>
<tr>
<th>Year</th>
<th>HIEs Solicited</th>
<th>In Survey</th>
<th>Excluded – Not Live</th>
<th>New HIEs In Survey</th>
<th>Prior Yrs Still Pursuing</th>
<th>Self-Ranked Advanced</th>
<th>Offer Direct?</th>
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<td>322</td>
<td>161</td>
<td>100</td>
<td>54</td>
<td>107</td>
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<td>2011</td>
<td>255</td>
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<table>
<thead>
<tr>
<th>Year</th>
<th>HIE Org (HIEO)</th>
<th>State-wide or SDE</th>
<th>Health Del. Orgs (Hosp, IDN, IPA)</th>
<th>Other (NGO, Assoc, Univ, Vendor, Public Hlth, State Govt)</th>
<th>Private / Enterpr, Restrict Member</th>
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<th>For-Profit</th>
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<td>101</td>
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<tr>
<td>2012</td>
<td>116</td>
<td>97</td>
<td>27 (22 are SDEs)</td>
<td>37 of 39 SDEs</td>
<td>31 of 39 SDEs</td>
<td>104</td>
<td>112</td>
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### Figure 2: Top States for HIE

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<tr>
<th>State</th>
<th>Number of HIEs 2011</th>
<th>Number of HIEs 2012</th>
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<tr>
<td>California</td>
<td>10</td>
<td>22</td>
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<td>9</td>
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<td>North Carolina</td>
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## Stakeholders Providing Data to HIE Initiatives

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<tr>
<th>Stakeholder Type</th>
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<tr>
<td>Hospitals</td>
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<td>Ambulatory practice (primary + specialty)</td>
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<td>Independent laboratory</td>
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<td>Behavioral health provider</td>
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<td>Integrated delivery network</td>
<td>N/A</td>
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<td>Independent radiology center</td>
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<tr>
<td>Public Health Department (local + state)</td>
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<td>32</td>
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<tr>
<td>Long-term care provider</td>
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<td>24</td>
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<td>Independent pharmacy</td>
<td>50</td>
<td>22</td>
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<td>Psychiatric hospitals</td>
<td>N/A</td>
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<tr>
<td>Private Payers</td>
<td>38</td>
<td>17</td>
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<tr>
<td>Public Payers (Medicaid + Medicare)</td>
<td>59</td>
<td>16</td>
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**Figure 13: Stakeholders Providing Data to HIE Initiatives**
How Do You Identify Yourself / Your Organization?

1. Hospitals or Health Systems (20%)
2. **Health Information Exchange (15%)**
3. Technology Solutions Vendor or Services Providers (13%)
4. Consulting Firms (12%)
5. Government – State (9%)
6. Health IT or Other Non-Profit Org. (8%)
7. Other (7%)
8. Physician Practice or Medical Group (5%)
9. Employer (3%)
10. Government – Federal (3%)
11. Educational Institution (1%)
12. Health Plan or Insurance Org. (1%)
13. Laboratory or Imaging (1%)
14. Pharmaceutical Org. (1%)
15. Professional Assoc. or Medical Society (1%)

2013 NeHC Stakeholder Survey

Dates Survey Conducted: February 7-22, 2013
Number of Stakeholders Targeted: 11,000
Number of Response from Stakeholders: 219

Drivers of Widespread HIE

1. Ability to improve care coordination (98%)
2. Interoperability (97%)
3. Ability to improve healthcare quality (95%)
4. Ability to reduce healthcare costs (93%)
5. Improved care coordination as cost-cutting strategy (93%)
6. Meaningful Use (91%)

Barriers to Widespread HIE

1. Breadth and pace of change required of stakeholders (96%)
2. Cost (96%)
3. HIE financial sustainability (95%)
4. Privacy and security (95%)
5. EHR vendor readiness (94%)
6. Lack of interoperability (93%)

Most Important HIE Governance Goals

1. Increase interoperability (96%)
2. Increase consumers’ trust about the exchange of their information (95%)
3. Increase providers’ trust about the exchange services they use (94%)
4. Support for new functions such as personal health records, analytics, registries, public health reporting (94%)
5. Better align state and federal policy to enable exchange (93%)
6. Reduce the cost and complexity of exchange (92%)

Most Important Enablers of Exchange with Entities Served by Another Exchange Provider

1. Minimum trust requirements (92%)
2. Standards for interoperability (92%)
3. Updated policies to enable interoperability (92%)
4. Simplified data user agreements (90%)
5. Common governance functions (85%)
6. Reduction of anti-competitive business practices (72%)

Major Obstacles Preventing Participation in HIEs

**Major Obstacles**
1. Lack of **interoperability** between various EHR systems (71%)
2. Lack of **infrastructure** to support an HIE (71%)
3. **Costs** of setting up and maintaining interfaces and exchanges (68%)

**Minor Obstacles Identified**
A. **Privacy** and **security** concerns
B. Concern about **malpractice liability** if information is not acted on, and
C. Concern about not being able to **trust data** in the exchange


**Survey Details:**
- **8 Countries:** Australia, Canada, England, France, Germany, Singapore, Spain and the United States
- **Total Number of Physicians Surveyed:** 3,700

**Question 1:**
*How frequently do you use/perform the following functions/activities?*

*Function: I have electronic access to clinical data about a patient who has been seen by a different health organization (e.g., hospital, laboratory)*

Sample HIE Surveys

Figure 5. Countries are showing increases in connected health maturity across both HIE and EMR.

2012 “Digital Doctor” Survey (Accenture)

EMR Adoption and Use (Per Cent  Routine Users)

Health Information Exchange (Per Cent Routine Users)

ONC and State-Level HIE:

Origins, Characteristics and Goals
ONC and State-Level HIE

About ONC

The Office of the National Coordinator for Health Information Technology (ONC) is at the forefront of the administration’s health IT efforts and is a resource to the entire health system to support the adoption of health information technology and the promotion of nationwide health information exchange to improve health care. ONC is organizationally located within the Office of the Secretary for the U.S. Department of Health and Human Services (HHS).

ONC is the principal federal entity charged with coordination of nationwide efforts to implement and use the most advanced health information technology and the electronic exchange of health information. The position of National Coordinator was created in 2004, through an Executive Order, and legislatively mandated in the Health Information Technology for Economic and Clinical Health Act (HITECH Act) of 2009.
• Created by ACA
  - State-Level Health Information Exchange Cooperative Agreements Created by Affordable Care Act, 2010
  - 50 States, D.C., and 5 Territories

• Funding Time-Limited
  – Funded for 3 years, starting in Dec. 2010
  – Matching funds required, increasing rate each year
  – Funding ends with FY 2013 but actual funding ends 3 years from date of award (e.g., Feb. 2014 for Dec. 2010 award)

• Accelerate HIE Adoption
  – SL-HIEs intended to accelerate HIE adoption and nationwide connectivity, supporting Meaningful Use

• SL-HIEs are not intended to replace independent HIE initiatives at the national, regional or local levels
Characteristics of State-Level HIEs

• ONC Categorizes State-level HIE into Four Models:
  – Models developed for ONC by Deloitte Consulting (Lead authors: Mickey Tripathi and Missy Hyatt)
  – 4 Models but most SL-HIEs are hybrids
    • Convener
    • Elevator
    • Orchestrator
    • Public Utility
State HIE Strategic and Operational Plan
Emerging Models

**Elevator**
- Rapid facilitation of directed exchange capabilities to support Stage 1 meaningful use
- Preconditions:
  ✓ Operational sub-state nodes
  ✓ Nodes are not connected
  ✓ No existing statewide exchange entity
  ✓ Diverse local HIE approaches

**Capacity-builder**
- Bolstering of sub-state exchanges through financial and technical support, tied to performance goals
- Preconditions:
  ✓ Operational state-level entity
  ✓ Strong stakeholder buy-in
  ✓ State government authority/financial support
  ✓ Existing staff capacity

**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

## Key Model Description Contents

### Preconditions
- What approach is being used to accelerate meaningful use achievement and reach HIE program goals?

### Organization
- Which environmental features are associated with different program approaches?
- Who will support state-level infrastructure and services?
- Who bears responsibility for end-user support?
  - How will end-users that currently do not use HIE services offered by another entity (sub-state node, etc.) be addressed?
  - How will providers/data trading partners that have limited HIT capabilities by supported?

### Technical
- What technical architecture supports the model?
- What services will be centrally deployed at the state-level and what will be local?
- How will the implementation be phased?

### Legal/policy
- What legal and policy foundation is needed to support the model?

### Risks
- What are the main risks associated with the model?
- What mitigation strategies can help minimize risks?

### Key success factors
- What are the key organizational, technical, and legal factors that can contribute to ultimate success when using the model?
Approved State Plans by Model

**Please note that most grantees display characteristics of more than one model**

ONC’s Health Information Exchange Governance Goals

• Increase interoperability;

• Increase trust among all participants to mobilize trusted exchange to support patient health and care; and

• Decrease the cost and complexity of exchange.

Source: [http://www.nationalehealth.org/GovernanceUpdate](http://www.nationalehealth.org/GovernanceUpdate)
Advancing National Exchange: NwHIN Transition to eHealth Exchange, Public-Private Initiative, October 2012

Source: Mariann Yeager
Executive Director
HealtheWay
HIMSS HIE Symposium, March 2013
eHealth Exchange

Source: Mariann Yeager, Executive Director
HealtheWay, HIMSS HIE Symposium, March 2013

Shared trust framework and rules of the road

The Internet

Standards, Specifications and Data Use & Reciprocal Support Agreement (DURSA) for Secure Connections

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<th>eHealth Exchange Participants</th>
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<tbody>
<tr>
<td>Alabama One Health Record</td>
</tr>
<tr>
<td>Centers for Medicare and Medicaid Services (CMS)</td>
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<tr>
<td>Childrens’ Hospital of Dallas</td>
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<tr>
<td>Community Health Information Collaborative (CHIC)</td>
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<td>Conemaugh Health System</td>
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<tr>
<td>Department of Defense (DOD)</td>
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<td>Department of Veterans Affairs</td>
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<td>Dignity Health</td>
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<td>Douglas County Individual Practice Association (DCIPA)</td>
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<tr>
<td>Eastern Tennessee Health Information Network (etHIN)</td>
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<tr>
<td>EHR Doctors</td>
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<td>Hawaii Pacific Health</td>
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<td>HealthBridge</td>
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<td>HealtheConnections RHIO Central New York</td>
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<td>HEALTHeLINK (Western New York)</td>
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<td>Idaho Health Data Exchange</td>
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<tr>
<td>Inland Northwest Health Services (INHS)</td>
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<td>Kaiser Permanente</td>
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<td>Lancaster General Health</td>
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<td>Marshfield Clinic</td>
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<td>Medical University of South Carolina (MUSC)</td>
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<td>MultiCare Health System</td>
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<td>National Renal Administrators Association (NRAA)</td>
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<td>Utah Health Information Network (UHIN)</td>
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<td>Wright State University</td>
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Source: Mariann Yeager, Executive Director HealtheWay, HIMSS HIE Symposium, March 2013
eHealth Exchange Anchor Participants

Source: Mariann Yeager, Executive Director HealtheWay, HIMSS HIE Symposium, March 2013
New Testing Program

- HeatheWay and EHR | HIE Interoperability Workgroup (IWG), in partnership with CCHIT, developing and launching program

- Overall Goal:
  - **Reduce barriers** to HIE, establish interoperability, while minimizing cost and complexity when possible
  - **Test once** and capable of exchanging with many others

- Product Testing Program:
  - Provide market assurance and technical clarity in **compliant products**
  - Assure Provider to HIE **interoperability**

- eHealth Exchange Participation Testing Program:
  - Verify that implementations of successfully certified products are compliant as a condition of participation in the eHealth Exchange
  - Assure interoperability among participants in the eHealth Exchange

Source: Mariann Yeager, Executive Director HealtheWay, HIMSS HIE Symposium, March 2013
eHealth Exchange: Evolving Landscape

- Evolved from federal initiative to sustainable public-private model
- Dramatic growth, particularly in private sector, driven by:
  - Maturation of HIE capabilities
  - Financial incentives
  - Recognized value in commoditizing basic connectivity
- Robust HIE certification program for products and eHealth Exchange participants
- Work ahead:
  - Expand the network
  - Improve identity matching
  - Enhance data content validation
  - Develop strategic road map
  - Foster continued collaboration around HIE implementation

Source: Mariann Yeager, Executive Director HealtheWay, HIMSS HIE Symposium, March 2013
Successes and Major Impediments to Progress Toward HIE Adoption
Benefits

• Increased adoption of eHRs and HIEs by health systems and physicians over the last 4 years in order to meet Meaningful Use Stage 1 and 2
  – 20% provider adoption in 2009 (less than 5% in small (1-5) physician groups
  – 60%+ adoption in 2013
  – Significant payments have been made for MU, more pending in 2013 for EH Stage 1

• HIT Policy and HIT Standards Committees set direction and pace for evolution of meaningful standards
  – Care summaries, referrals, ADT, consults, immunizations, reportable labs
  – Direct transactions

• Federal health architecture, nation-wide health information network
  – links between federal agencies and commercial sector

• Engaged vendor and user communities push interoperability – consortia, S&I Framework, etc.
Challenges

- Governance and financial sustainability
  - Stakeholders won't stay at the table forever
  - Participation has a price
  - Enterprise / private HIEs with simple governance will have an advantage over large public-private collaboratives
  - There must be a clear vision and a viable business model

- Flexibility, innovation and simplicity are key

- Competing standards and high cost of interfaces present major obstacles
ONC/CMS Focus on Interoperability & Standards for MU Stage 2 Means Work for Industry

Source of following 3 slides:
http://www.healthit.gov/buzz-blog/meaningful-use/meaningful-use-stage-2/
HealthITBuzz, Meaningful Use Stage 2: A Giant Leap in Data Exchange, August 28, 2012, 10:20 am, Dr. Farzad Mostashari
### Interoperability & Standards Requirements for MU Stage 2

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<th>Vocabulary &amp; Code Sets</th>
<th>Content Exchange / Utilization</th>
<th>Transport</th>
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<td>Demographics</td>
<td>OMB Race/Ethnicity, ISO 639-2 (constrained)</td>
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<td>Problems</td>
<td>SNOMED CT + US ext</td>
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<td>CDS</td>
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<td>HL7 Infobutton + IGs</td>
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<td>Smoking Status</td>
<td>SNOMED CT + US ext</td>
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<td>Family Health History</td>
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<td>ToC = receive, display, &amp; incorporate</td>
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# Interoperability & Standards Requirements for MU Stage 2

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<td><strong>AppState + XDR/XDM</strong></td>
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<td>CQM e-Submit</td>
<td></td>
<td>QRDA Category I &amp; III</td>
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<td>View, download, transmit to 3rd party</td>
<td>[Common MU Data Set]</td>
<td>Consolidated CDA</td>
<td>Applicability Statement for Secure Health Transport</td>
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<td>Clinical Summary</td>
<td>[Common MU Data Set]</td>
<td>Consolidated CDA</td>
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<tr>
<td>Immz Reporting</td>
<td>CVX</td>
<td>HL7 2.5.1 + IGs</td>
<td></td>
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<tr>
<td>Syndromic Surveillance</td>
<td></td>
<td>HL7 2.5.1 + IG (inpatient only)</td>
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<tr>
<td>ELR</td>
<td>SNOMED CT + US ext LOINC</td>
<td>HL7 2.5.1 + IG</td>
<td></td>
</tr>
<tr>
<td>Cancer Registry</td>
<td>SNOMED CT + US ext LOINC</td>
<td>CDA R2 + IG</td>
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Emerging Government and Healthcare Industry Initiatives

Accelerating Integration, Interoperability and Usability of HIEs
ONC / CMS Actions

• ONC and CMS released an RFI in March 2013 to the industry asking for ideas on payment and policy levers to increase HIE adoption and interoperability

• Substantial industry feedback

• Changes are coming!
ONC Exemplar Governance Program

- ONC awarded two cooperative agreements to existing HIE governance entities to
  - develop and adopt policies, interoperability requirements and business practices that align with national priorities
  - overcome interoperability challenges
  - reduce implementation costs and
  - assure the privacy and security of health

<table>
<thead>
<tr>
<th>Recipient</th>
<th>Award</th>
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</thead>
<tbody>
<tr>
<td>DirectTrust.org, Inc.</td>
<td>$280,205</td>
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<tr>
<td>New York eHealth Collaborative, Inc.</td>
<td>$200,000</td>
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</table>

Source: [http://www.nationalehealth.org/GovernanceUpdate](http://www.nationalehealth.org/GovernanceUpdate)
Providers can now look for certification seals for proof of “plug and play” interoperability compliance of EHRs and other HIT systems

Source: NeHC ONC HIE Governance Update, May 10, 2013
http://www.nationalehealth.org/GovernanceUpdate
Vendor and User Community Actions
CommonWell Health Alliance™
Announced March 2013 at HIMSS AC

• Six initial major health IT vendors form non-profit association to increase data liquidity, interoperability, universal access to health data
  – Cerner, McKesson, RelayHealth, Allscripts, Greenway, athenahealth
  – Look for additional participants

• Founding companies account for
  – 41% of the EHR installations in US hospitals
  – 23.2% of all ambulatory practices using an EHR

• Focus on identity management, consent management, standards and interoperability
Getting Ready for National Scale Up

<table>
<thead>
<tr>
<th>2013 Q1</th>
<th>Q2</th>
<th>Q3</th>
<th>Q4</th>
<th>2014 Q1</th>
<th>Q2</th>
<th>Q3</th>
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</thead>
<tbody>
<tr>
<td>Announce CommonWell at HIMSS</td>
<td>Close on pilot geography &amp; participating EHRs</td>
<td>First slice of functionality complete</td>
<td>Roll out slice 1 to pilot participants</td>
<td>Roll out slice 2 to pilot participants</td>
<td>Second wave partners join</td>
<td>CommonWell Alliance deploying nationally</td>
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<tr>
<td>Additional members join second wave</td>
<td>Testing with partners</td>
<td>Second slice complete</td>
<td>Testing with partners</td>
<td>Confirm value of the Alliance through pilot</td>
<td>Report to HIMSS</td>
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</table>

Source: 3/12/2013

Copyright © 2013. All rights reserved. Anticipated timeline. Subject to change based on pilot testing.
Care Connectivity Consortium

Coverage Map

Source: http://www.careconnectivity.org/about/details/?a=who-is-the-ccc
CCC Added Value Services, HealtheWay Collaboration

Value Added Services
- Patient Identity
- Management Services
- Enhanced Consent Management
- Integration Portal
- Learning Lab
- Advanced Query Rules

Desired Outcomes
- Higher patient matching success rate
- Consent management at point of service
- Improved HIE workflows
- Innovation incubator

Notes:
CCC – looking for additional institutions to participate; HealtheWay will manage operations for new CCC HIE-only participants; Will make ideas, some IP available to industry at no cost.
Other Government and Industry Efforts
Consortia and SDOs Focused on Identity, Standards, Interoperability

- Western States Consortium
- EHR/HIE Interoperability Work Group (NYeHC)
- HL7 – FHIR
- CCDA requirements for MU Stage 2
- S&I Framework programs/projects
- VA
- DoD
Impacts of ONC Governance Framework Pilots?

• NeHC HIE Governance Forum
• NYeHC pilots for HIE certification
• ONC work groups, pilots for patient data matching fields, criteria – starting in July 2013 for 12 months
What Can We Do To Make This Work, Achieve Results in Our Lifetimes?

• Participate in state and national consortia, policy and standards groups and make your voice heard
• Keep your organization up to date on HIE
• Participate on your local and state HIE committees and boards
• Keep it simple and be nimble
• Don’t sit on the sidelines – join the fun and move the industry forward!
We welcome your comments or questions

Thank you for your attention today
Helen L. Hill, FHIMSS  
Executive Director  
Advisory Services Practice  
Cell Phone: 734.546.3317

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