The State of Health Data Exchange:
The Impact on Healthcare Operations

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ONC Depiction of the Health IT Ecosystem
Cliché but important
ONC and CMS focus is on the verb, not necessarily perpetuating an HIE entity
Information Exchange: The Verb

The capability and process of reliably exchanging data electronically across both affiliated and non-affiliated healthcare systems.

Non-affiliate exchange is a key metric in Meaningful Use.
Health Information Exchange: The Noun

HIE: The organization providing the information exchange capability and processes
Consider 7 Different Models for HIEs:

- Statewide HIE
- Regional HIOs (participation agreements)
- ACOs
- IDNs with interconnection with networks including non-affiliates (e.g., referral network)
- Direct secure messaging
- Vendor networks (EPIC: “Care Everywhere”)
- National network: Healtheway (formerly NwHIN, NHIN), Midwest Consortium
HIE Sustainability: Still the Major Issue

- CHINS (1990’s)
- RHIOS (2000’s)
- HIOS/HIES (2010’s)
ARRA (HITECH) ....

- Primary source of funding of public HIEs has been through the State Cooperative Agreement Grants under HITECH.

- Funding provided to each state, allocated by population size.

- These Grants ended 3/2014
  - ONC denied no cost extension requests
  - Although such extensions granted to some RECs at the time.
There Is No Consistent HIE Market Structure

- **Health Information Exchange is a regional business**
  - Subject to the competitive characteristics of the region
  - States used their own models in allocating Cooperative Agreement Funds
  - Some regions have long standing (R)HIOs.

- **Mergers/acquisitions in healthcare**
  - Evolution of IDNs
  - Hospitals
  - Ambulatory/Specialty Clinics
  - LTPAC/BH
Private HIEs Are Growing Faster than Public HIEs

- **Mix of Private and Public HIEs**
  - eHealth Initiative study identified “315 data exchange initiatives across the nation”
    
  
  - No validated measure but studies indicate that there are 2 to 2.5x’s as many private HIEs than public HIEs.
  
  - Dynamic number because there are new entrants of both private and public HIEs (particularly private).
HIOs in the SF East Bay Area?
Kentucky Structure: Cabinet for Health & Family Services

- Community Based Services
- Aging
- KHBE Kynect
- Birth & Death Registry
- Public Health
- Office Of Health Policy
- Medicaid
- State Lab
- Behavioral Health
History and Health Information Exchange in Kentucky

**eHealth Milestones**

- **March/2005**  
  - Legislation (Senate Bill 2) to create a secure interoperable statewide electronic health network

- **2007 – 2008**  
  - Medicaid Transformation Grant Funding – $4.9 million  
  - Built the technical infrastructure for the KHIE

- **2009**  
  - ARRA/HITECH Funding - $9.75 million  
  - Provides Kentucky the advantage in progressing toward STATE-wide HIE  
  - Governor’s Office of Electronic Health Information  
    - Executive Order of the Governor  
    - Housed in the Cabinet for Health & Family Services

- **April 2010**  
  - First Hospital Live
The patient clinical record is available through the Community Record or Continuity of Care Document (CCD):

- The Community Record uses edge servers connected via a Virtual Private Network (VPN) for connectivity.
- The CCD uses web services for connectivity.
- Direct Secure Messaging.
# Health Information Exchange: Use Cases

<table>
<thead>
<tr>
<th>HIE Use Cases</th>
<th>Data Intermediary &amp; Delivery</th>
<th>Care Coordination &amp; Transitions</th>
<th>Event Notification/Alerts</th>
<th>Clinical Reminders</th>
<th>Disaster/Emergency Management</th>
<th>Patient/Consumer Engagement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public Health Reporting/MU</td>
<td>Health Home Integrated Health Model</td>
<td>KY ER Smart Local Health Departments</td>
<td>KY ER Smart Correctional Facility Care</td>
<td>Public Health Emergency Operations</td>
<td>Patient portal/Personal health record</td>
</tr>
</tbody>
</table>
KHIE is one of the largest HIEs in the U.S.

- 721 Signed Participation Agreements (Represents 2700+ Locations)
- As of January 1, 2015 KHIE had a total of 1033 provider locations submitting live data and actively exchanging information. 90% of acute care hospitals are live on KHIE.
Medicaid eHR Incentive Payments

Hospitals by County

Total Hospital Incentive Payments to date
$117,627,010.78

As of 12/8/14
Medicaid eHR Incentive Payments
Physicians by County

Total Provider Incentive Payments to date $58,757,666.81

As of 12/8/14
Recent KHIE Developments: Improving Care Coordination

Provider views the CCD in the KHIE Community Record

Super-Utilizer Patients are identified via Medicaid claims and Alert presents in CCD

Clinical Alert Notification

- Diabetes: no eye exam in the last 365 days
- Diabetes: no lipid panel in the last 365 days
- Diabetes: no urine protein screening in the last 365 days
- Diabetes HgA1C check due
- Blood pressure check due
- Cholesterol screening due IF ‘At Risk’
- Developmental/Behavioral assessment due
- Height and weight check due
- Injury prevention counseling due
- Nutrition counseling due
- Objective hearing screening due
- Objective vision screening due
- Potential Hep B catch-up
- Potential MMR catch-up
- Potential polio catch-up
- Potential varicella catch-up
- Tuberculin Test (TB test) due IF ‘At Risk’
- Violence prevention counseling due
Including Detention Centers in the HIE can vastly improve community health.

Division of Community Corrections
Lexington-Fayette Urban County Government

24,000 people annually
Every day:
- 865 people on medication
- 90 inmates seen by mental health doctors
- 194 inmates seen by nurses

The facility can now push its data onto the exchange allowing all treatments that inmates receive and medications they take be accessed by doctors in the community should he or she seek treatment upon release. The facility is also working on receiving data.

Healthcare providers and correctional institutions are recognizing that public health and correctional health should be treated as one.
Nationally, interoperability and data exchange are viewed as problematic and evolving.

- **Evidence from two recent reports**
  - Rand assessment of HIE research studies found little evidence of economic benefits to date.
  - ONC “A 10 Year Vision to Achieve an Interoperable Health IT Infrastructure” finds “a strong foundation” but “much work to do.”

- **Disappointing levels of MU Stage 2 attestations**
Issues Facing Information Exchange

Key Technical Concerns
- Interoperability/Interfaces
- HL-7 as a competitive weapon
- Workflow
- Delivery to point of care (transitions in care)
- Issues with DIRECT

Data Exchange
- Private HIE walled gardens
- Economic incentives to share data
- Actionable information/Workflow
- Analytics/Business Intelligence
Keys to HIE Organization Sustainability

- Value of Data Exchanged/Value Propositions
  - Changes under different payment models
- Interoperability/Record Locator/MPI/Clinical Data/APCD/Provider Directory/Behavioral Health, Consumer Engagement Support, etc.
- Scope of Integration (including Public Health/CMS Programs)
- Payer Integration
- Revenue Models
  - Subscription
  - Public Funding
  - Value-Added Services
  - Third Party Services
**Issue: Sharing Data**

- Private HIEs (Providers/IDNs) are most common
- Willingness to share data
  - Community specific (historical)
  - Degree of competition
  - Size of region
- Movement to Shared Savings/Accountable Care is huge incentive
  - Need for data
  - “Network leakage” viewed differently under shared savings
Competition between HIEs

- Reflection of competitive marketplace
- “Wait and See”
- Focus on Meaningful Use requirements (connectivity rather than volume to this point)
- “Trust” and Governance
Technological Barriers

- General standards and interoperability
- Interfaces
- CCD issues
- Workflow integration
  - Both technical and human factors
  - Limited workflow availability across provider
- Analytics
- Patient portal integration
Two Provider Concerns in Meeting MU2

- Demonstration of exchange with non-affiliates
- Consumer engagement
  - Vendor patient portal issues (costs & integration)
  - Functionality of portal
  - Getting 5% of patients to view/download/ transmit
Information Exchange/Payment Reform

Need Each Other

- Alignment with Meaningful Use
- Shared risk/Bundled payments
  - Provider financial incentive for information from non-affiliates
  - Population management/Risk adjustment
  - Consumer engagement
- Willingness to push data
- Value of exchanged data
- Migration path to HIE 2.0 (or is it 4.0?)
Core Processes of Shared Savings/Risk Models

- Data
- Exchange
- Clinical/Business Integration
- Care Coordination/
  Performance Improvement
- Analytics/BI
- Reporting
Policy Levers:
Shared & Integrated Claims and Clinical Data Will Be Required for Reporting
Information Exchange and ACO Revenue Management

Health Information Exchange

- Attributed Pop & Comparative Data
- Supply Chain
- Transitions In Care
- Clinical Care/Predictive Modeling
- Real Time Data Across Settings
- Billing & Reporting
- In/Out of Network Costs
Analytics Require Shared Data

Clinical Data
Claims Data

Predictive Modeling

Risk Adjustment

Outcomes

Interventions

Reporting & Compliance
Analytics Can Reside in the Exchange or on the Premise

Business Intelligence, Informatics, and Big Data

- Attributed Pop & Comparative Data
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Transitions In Care

Clinical Care/Predictive Modeling

Real Time Data Across Settings

Billing & Reporting

In/Out of Network Costs

Supply Chain
Consumer Engagement and HIE: Another Policy Lever

- The success of healthcare reform depends upon engagement
- Data to the right place at the right time includes consumers
- Chronic disease management/wellness/adherence monitor and engage
- Transitions in care
- Shared Savings will not meet targets without an engaged consumer
- CE: “The Blockbuster Drug of this Century”
Potential Roles for HIE in Consumer Engagement

1. Gateway for consumer-sourced data
   - m-Health, remote monitoring
   - Consumer sourced content
   - Audit/Validate/Standardize
2. Aggregate and populate data for Provider PHRs
3. Offer a portal (branded or non-branded)
Near Term Provider Considerations

- There is a HIE/HIO shakeout underway
- Expect leadership from CMS
  - Payer perspective
  - Large scale integration perspective
- Private HIE development
  - Will follow M&A activity
  - Large IDN’s expand to non-affiliates
- Payment reform drives HIE acceptance and use
- Standards & Interoperability are being addressed
Engines Driving HIE 2.0 (or is it 4.0?)

- Cloud-based services
- Standards
- Need for Trusted 3rd Party connecting private/public HIEs
- Big Data/Analytics/BI distributed between cloud and local sites
- Timely data to multiple locations and stakeholders
- Consumers on the network through intermediaries

Diagram:
- Complex Assessments
- Complex Interventions
- Community Case Management
- Patient Concurrent Monitoring
- Patient Education
The structure and roles for health information exchange continues to be in flux.

Sustainability in most regions of the country is uncertain.

Private HIEs are likely to be a principal component, but we don’t know the model yet.

CMS through the funding of Medicaid solutions is the primary source of capital.

Kentucky through KHIE, Indiana through IHIE, and Cincinnati through HealthBridge are national leaders.