Clinical Decision Support in the US:
Implications for Health Information Exchange and Interoperability

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A CHANGING LANDSCAPE

A Shifting Marketplace from 2008 to 2015

- Greater EHR adoption
- MU, MACRA and Consumer Directed Exchange driving need for widespread exchange
- HIEs have evolved and many new types of data sharing networks have developed
- Evolving role of EHR vendors
- New types of services for data sharing (e.g. RLS)
- Growing pressure from policy makers to connect “health data silos” that are still prevalent

State EHR Adoption Rates have Increased from 2008 to 2014

CDS TOOLS IN THE US: OBSERVATIONS

• Standardize and improve quality of care and clinical outcomes
• Support shift from FFS to value based care.
• Maximize efficiency by integration of CDS solutions into EMR workflow
  – Embedded CDS solution
  – Integrated
• Maturing solutions
  – Order sets; care plans; point-of-care diagnostic support; surveillance; and infection control.
• Demand for CDS in the US varies by type of provider
  – Independent physician practices largely want a “plug and play” solution
  – Hospitals either basic CDS or customized
CHALLENGES WITH CDS TOOLS IN THE US

• Implementation barriers:
  - Clinical and technical challenges
  - High maintenance
  - Evaluation issues

• Failure of alerts to fire and CDS malfunctions:
  – Changes in codes and fields
  – Software upgrades and upgrades of other systems
  – Database corruption
  – Inadvertent disabling or editing of rules
  – Malfunctions of external systems
## WHICH CDS APPLICATIONS ARE A CORE FOCUS FOR YOUR ORGANIZATION GOING FORWARD?

<table>
<thead>
<tr>
<th>Application</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Order Sets (n=74)</td>
<td>82%</td>
</tr>
<tr>
<td>Surveillance (n=41)</td>
<td>46%</td>
</tr>
<tr>
<td>Care Plans (n=39)</td>
<td>43%</td>
</tr>
<tr>
<td>POC Disease Reference (n=30)</td>
<td>33%</td>
</tr>
<tr>
<td>Infection Control (n=23)</td>
<td>26%</td>
</tr>
<tr>
<td>Diagnostic Support (n=19)</td>
<td>21%</td>
</tr>
</tbody>
</table>

*17% of providers reported other applications as a core focus, such as imaging or drug reference CDS tools.*
ECQM
ENGAGED PATIENTS
TREATMENT
CARE COORD
VALUE-BASED CARE
ANALYTICS
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NATIONWIDE EXCHANGE: A HISTORY

2006
ONC Conceived the Nationwide Health Information Network (NHIN / NwHIN)

2008
NHIN moves from prototype to production pilot

2009
First production exchange between Social Security Administration & MedVirginia

2012
NHIN transitions from government to private sector & renamed eHealth Exchange

2015
Participation quadruples & expands to all 50 states

2016
New initiatives increase quality & types of content shared
“….brings together industry and government to systematically address the practical challenges of secure, interoperable nationwide health data sharing”
Initiatives

- The eHealth Exchange is the largest health data sharing network in the US.
- Carequality facilitates consensus on a standardized, national-level interoperability framework to link all data sharing networks.
- RSNA Image Share Validation Program is an interoperability testing program to enable seamless sharing of medical images.
IN 2017, THE EHEALTH EXCHANGE CONNECTS:

- All 50 states
- 50,000 medical groups
- 3,400+ dialysis centers
- 8,300 pharmacies
- Supporting more than 100 million patients
- Four federal agencies (DoD, VA, CMS, SSA)
- 65% of U.S. hospitals
- 35% Growth in participation last year
WHAT IS CAREQUALITY?

Carequality creates a standardized, national-level interoperability framework to link all data sharing networks.

Carequality is creating a web of interconnected networks.
CAREQUALITY CONNECTED AGREEMENT SIGNEES
CAREQUALITY BY THE NUMBERS

15,000+ Clinics

600+ Hospitals

210K+ Providers

50K+ Records
Exchanged in Jan;
accelerating monthly

Visualization of sites of care connected at full implementation of current signees
EMERGING OPPORTUNITIES

- Social determinants
- LTPAC
- Behavioral health
- Opioids
- Advanced directives
- Genomics / precision medicine
CONSUMERS / PATIENTS

- B2B → B2C
- Consent management
- Self-reported data
- Devices
- Research
- “Portal of portals”
GOVERNANCE

• Trust framework
• Policy
• Business model
• Scarce resources
• Investment strategy
Many paths lead up the mountain.
But at the top, we all look at the same bright moon.

- Ikkyu
Thank you!

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