Technology Boom or Bust: Optimizing the HIT Investment

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An ex-CMIO travelling from afar carrying lots of colorful slides whose degree of expertise is measured by the distance traveled
Objectives

❖ Describe the issues facing health systems with the implementation of HIT

❖ Discuss the management of unexpected challenges resulting from the implementation of HIT

❖ Discuss critical situations organizations need to consider when a product or implementation may be raising risks in patient care and/or data security
The 2005 Article That Led To the Meaningful Use Dream

Health Affairs

Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings, And Costs

effective EMR implementation and networking could eventually save more than $81 billion annually—by improving health care efficiency and safety—and that HIT-enabled prevention and management of chronic disease could eventually double those savings

Health Aff September 2005 vol. 24 no. 5 1103-1117
The Reality - Top HIT Issues of 2012 and 2016

2012 – CIO Magazine:
- Meaningful Use
- Information Exchange/Interoperability
- Healthcare Reform/Population Health
- HIPAA Compliance
- Mobile Health
- Wireless Networking
- Telehealth
- Patient Engagement

2016 – Becker’s:
- Cybersecurity
- Optimization/Productivity
- Interoperability
- Managing the Data Deluge
- Impact of Mergers and Acquisitions
- IT/Informatics Talent Gap
- Apps, mobile health
- Population Health

www.cio.com/article/2368501/healthcare/top-challenges-facing-healthcare-cios.html#slide1
Polling Question

Choose the HIT challenge LEAST concerning to you:

A. Cybersecurity
B. Optimization/Productivity
C. Interoperability
Key HIT Implementation Issues We Will Discuss

- Meaningful Use – good and bad
- Optimization Challenges
- Interoperability Challenges
- Data/Cybersecurity
Issues with HIT Implementation

Meaningful Use: What’s Good
Physician EMR Use Growing, But Lots More To Do

- Over 50% of office based physicians are using at least a “basic” EMR
- Overall physician adoption is close to 60%
Issues with HIT Implementation

Meaningful Use: What’s Good
Hospital Use Growing, But Lots More To Do

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Issues with HIT Implementation

Meaningful Use: What’s Not So Good

- 85% of 20,088 physicians surveyed in 2014 have EMRs
  - Only 24% said EMR improved efficiency
  - Only 32% said EMR has improved quality of care
  - 47% feel EMRs detract from patient interaction
- 39% said they will accelerate their retirement due to healthcare system changes
- Physicians spend ~20% of their time on non-clinical paperwork
Issues with HIT Implementation

Meaningful Use: What’s Not So Good

- CMS inadvertently rewarded “using the EMR” rather than “truly meaningful use”
  - e.g., EMR had to recommend educational materials when many practices already had good alternative ways to do this
- MU rewarded “checking boxes”
  - Workflow/productivity often neglected by vendors
  - Physicians became default data entry clerks
- Marginal vendors kept afloat by MU physician subsidies
- Innovative designs deferred because of the need to meet government requirements
Issues with HIT Implementation

Optimization: Why Is It So Difficult To Get What We Need?

How the customer explained it

How the analyst designed it
Issues with HIT Implementation

Optimization: Why Is It So Difficult To Get What We Need?

- How the project was documented
- How patches were applied
Issues with HIT Implementation

Optimization: Why Is It So Difficult To Get What We Need?
Issues with HIT Implementation

The Interoperability Dream – Why Is It So Hard?
**Issues with HIT Implementation**

**The Good - Basic Interoperability Is Improving**

Bar chart showing the percentage of hospital providers able to electronically query each year from 2012 to 2014.
But True Interoperability Is Overwhelmingly Complex

Issues with HIT Implementation

The assumption is that by combining all the records of a patient you get to the truth.

Unfortunately this is often not true
Issues with HIT Implementation

True Interoperability Is Overwhelmingly Complex

- Patient tells Boston physician they have an allergy; recorded in their EMR and HIE
- Patient moves to Dallas; new physician conclusively determines no allergies; recorded in their EMR and HIE
- Patient is in Denver ED unconscious; HIE shows patient is both allergic and non-allergic...
- Conflicts can exists for other patient-level data, e.g., name changes, gender, insurance
- Often impossible to fix source systems
**Issues with HIT Implementation**

Data/Cybersecurity Issues Have Skyrocketed

*Three US hospitals hit by ransomware*

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Issues with HIT Implementation

The Impact of Breaches Has Soared

- **Individuals Affected by a Hacking/IT Incident Breach**
- **Individuals Affected by a Non-hacking/IT Incident Breach**

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Polling Question

Have you or your family been affected by a data breach?

A. Yes
B. No
C. I Don’t know
Polling Question

Choose the HIT issue that is MOST concerning:

A. Meaningful Use Impact
B. Optimization Challenges
C. Interoperability
D. Cybersecurity
Objectives

- Describe the issues facing health systems with the implementation of HIT
- Discuss the management of unexpected challenges resulting from the implementation of HIT
- Discuss critical situations organizations need to consider when a product or implementation may be raising risks in patient care and/or data security
Managing Unexpected Challenges in HIT Implementation

- Communication Hurdles
- Data Accuracy Issues
- New Types of Errors
- Downtime/Downtime Recovery
Managing Unexpected Challenges
Clinician Communication Needs Improvement

Recommendation: Join clinicians to gain support for educational programs that help clinicians use the EMR appropriately (not exclusively) for communication.
Patient Communication Needs Improvement (Before)

Medications from my EMR patient portal
Patient Communication Needs Improvement (After)

<table>
<thead>
<tr>
<th>New</th>
<th>Education</th>
<th>Medication</th>
<th>Directions</th>
<th>Date</th>
<th>Refills</th>
<th>Provider</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>pioglitazone 15 MG Oral Ta...</td>
<td>Take 1 q AM</td>
<td></td>
<td>Hahn,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gabapentin 300 MG Oral C...</td>
<td>Take 3 times a day</td>
<td></td>
<td>Hahn,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Warfarin Sodium 4 MG Oral...</td>
<td>Take once a day a...</td>
<td></td>
<td>Hahn,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Simvastatin 20 MG Oral Ta...</td>
<td>Take 1 every morn...</td>
<td></td>
<td>Hahn,</td>
<td></td>
</tr>
</tbody>
</table>

**Recommendation:** Enlist patients to gain support for development of tools to make communication meaningful
**Unexpected Challenges**

Getting Data Accurate (And Corrected) Can Be Challenging

*Recommendation:* Join clinicians to foster a culture of safety through data accuracy and to develop the expectation that mistakes must be corrected.
Unexpected Challenges

New Types of Errors Are Being Made

Some Unintended Consequences of Information Technology in Health Care: The Nature of Patient Care Information System-related Errors

JOAN S. ASH, PhD, MLS, MARC BERG, MD, PhD, ENRICO COIERA, MBBS, PhD


Unexpected Increased Mortality After Implementation of a Commercially Sold Computerized Physician Order Entry System

Yong Y. Han, MD†; Joseph A. Carcillo, MD‡§; Shekhar T. Venkataraman, MD†§; Robert S.B. Clark, MD†§; R. Scott Watson, MD, MPH†§; Trung C. Nguyen, MD†; Hulya Bayir, MD†; and Richard A. Orr, MD†§
New Errors: A Real Life Situation

- Patient is 64, was getting a routine GI procedure requiring anesthesia at a large academic hospital; no allergies and no prior surgical history
- During the “timeout”, it’s clear that a chart mix-up had occurred; another patient’s information was entered with multiple allergies

**Recommendation:** Make Patient Safety the Primary Focus of Your Implementation and Optimization; Prioritize “Human Factors” Improvements
"70% [of 50 institutions] had at least one unplanned downtime greater than 8 hours in the last 3 years. Three institutions reported that one or more patients were injured as a result of either a planned or unplanned downtime."
Reducing Downtime and Downtime Recovery Danger

**SAFER Guides**

**Recommended Practices for Phase 2 — Using Health IT Safety**

5. Policies and procedures are in place to ensure accurate patient identification when preparing for, during, and after downtimes.

6. Staff are trained and tested on downtime and recovery procedures.

7. A communication strategy that does not rely on the computing infrastructure exists for downtime and recovery periods.

**Implementation Status**

- Fully implemented
- Partially implemented
- Not implemented

**Recommendation:** Incorporate the SAFER Guides in EMR implementation and optimization (www.healthit.gov/safer/safer-guides)
Polling Question

What is your longest EMR downtime in the past five years?

A. Under 6 hours
B. 6 to 12 hours
C. 12+ to 24 hours
D. Over 24 hours
Polling Question

How often do you have pharmacy downtime drills?

A. All staff drill quarterly
B. All staff drill annually
C. Some staff don’t get drills
D. We don’t do downtime drills
Polling Question

What % of meds given are reentered after a 24 hr downtime?

A. All doses
B. Most doses
C. Key doses
D. We keep doses on paper
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Add slide reference if needed
Critical Situations Where Risk Occurs

❖ It’s everywhere!
   • System Selection
   • Design, Configuration and Testing
   • Go-Lives
   • Optimization/Upgrades
   • Bedside Clinical Decision Support
   • Downtimes and Recovery
Bedside Clinical Decision Support

Variation in high-priority drug-drug interaction alerts across institutions and electronic health records

Dustin S McEvoy, Dean F Sittig, Thu-Trang Hickman, Skye Aaron, Angela Al, Mary Amato, David W Bauer, Gregory M Fraser, Jeremy Harper, Angela Kennemer, Michael A Krall, Christoph U Lehmann, Sameer Malhotra, Daniel R Murphy, Brandi O'Kelley, Lipika Samal, Richard Schreiber, Hardeep Singh, Eric J Thomas, Carl V Vartian, Jennifer Westmorland, Allison B McCoy, Adam Wright

DOI: http://dx.doi.org/10.1093/jamia/ocw114 ocw114 First published online: 28 August 2016

Clinical decision support malfunctions are widespread and persistent, AMIA says

More than 90 percent of CMIOs have experienced at least one CDS error; nearly 67 percent experience them every year.

By Mike Miliard | April 01, 2016 | 11:26 AM

Healthcare IT News
CDS Errors – Examples from the AMIA Paper

- “An alert for monitoring thyroid function in patients receiving amiodarone stopped working when an internal identifier for amiodarone was changed in another system”
- “An alert for lead screening for children stopped working when the rule was inadvertently edited”
- “A software upgrade of the electronic health record software caused numerous spurious alerts to fire”
- “A malfunction in an external drug classification system caused an alert to inappropriately suggest antiplatelet drugs, such as aspirin, for patients already taking one.”
What Can Pharmacy Leadership Do?

- Get involved locally
  - Build partnerships with clinical informaticists
  - Establish a pharmacy informatics program
  - Get involved in local HIMSS and patient safety coalitions
- Get involved nationally to expand pharmacy informatics involvement in leading HIT implementation and optimization

ASHP Statement on the Pharmacist’s Role in Clinical Informatics

<table>
<thead>
<tr>
<th>Position</th>
<th>Roles and Responsibilities</th>
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<tbody>
<tr>
<td>ASHP believes that pharmacists have the training, knowledge, background, and responsibility to assume a significant role in clinical informatics.</td>
<td>Pharmacists who practice clinical informatics must collaborate with other healthcare and information technology professionals to promote the safe, efficient, effective, timely, and optimal use of medications. They contribute to</td>
</tr>
</tbody>
</table>
Key Takeaways

- We have a long way to go before care is safely supported by EMRs and HIT
- Pharmacy leadership must be engaged in all stages of EMR/HIT implementation
- Get involved and stress patient safety and the adoption of human factors
- Build strong relationships with physicians, nurses, IT, informatics and others

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