Technology Boom or Bust: Optimizing the HIT Investment

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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

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

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

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

1. 85% of 20,088 physicians surveyed in 2014 have EMRs
2. Only 24% said EMR improved efficiency
3. Only 32% said EMR has improved quality of care
4. 47% feel EMRs detract from patient interaction
5. 39% said they will accelerate their retirement due to healthcare system changes
6. Physicians spend ~20% of their time on non-clinical paperwork

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

- How the project was documented
- How patches were applied
- What the customer really needed

The Interoperability Dream – Why Is It So Hard?

The Good - Basic Interoperability Is Improving
**Technology Boom or Bust: Optimizing the HIT Investment**

21th Annual ASHP Conference for Pharmacy Leaders

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**Issues with HIT Implementation**

**But True Interoperability Is Overwhelmingly Complex**

The assumption is that by combining all the records of a patient you get to the truth. *Unfortunately this is often not true*

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**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 exist for other patient-level data, e.g., name changes, gender, insurance
- Often impossible to fix source systems

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**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**

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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

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

**PATIENT-CENTERED CARE**

- 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)**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Route</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin 500 MG 3x/day</td>
<td>1 tab</td>
<td>Oral</td>
<td>Pain relief</td>
</tr>
<tr>
<td>Metoprolol 50 MG 3x/day</td>
<td>1 tab</td>
<td>Oral</td>
<td>Blood pressure</td>
</tr>
<tr>
<td>Lisinopril 20 MG 3x/day</td>
<td>1 tab</td>
<td>Oral</td>
<td>Blood pressure</td>
</tr>
<tr>
<td>Furosemide 40 MG 3x/day</td>
<td>1 tab</td>
<td>Oral</td>
<td>Diuretic</td>
</tr>
<tr>
<td>Potassium 20 MEQ 3x/day</td>
<td>1 tab</td>
<td>Oral</td>
<td>Electrolyte replacement</td>
</tr>
</tbody>
</table>

**Patient Communication Needs Improvement (After)**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>MyMedSchedule.com</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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

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

Yong Y. Han, MD; Joseph A. Ciccarelli, MD, MPH; Shubhrat T. Vankataraman, MD, MPH; Robert S.B. Clark, MD, MPH; E. Scott Watson, MD, MPH; Trang C. Nguyen, MD; Hathy Bayrak, MD; and Richard A. Cleary, 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
- The procedure was not stopped
- The record was not flagged for correction

Recommendation: Make Patient Safety the Primary Focus of Your Implementation and Optimization; Prioritize Human Factors Improvements

Downtimes & Recovery Are Dangerous

“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

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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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

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.

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

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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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