Journey to Patient Safety: Where We’ve Been and How Health IT Can Help

Session 180: Wednesday, February 22, 11:30-12:30

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Speaker Introductions

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Conflict of Interest

Ronni Solomon, Patricia Sengstack and William Marella have no real or apparent conflicts of interest to report.
Agenda - Four Questions

1. Where has the patient safety movement in healthcare been and what have we accomplished?

2. What have been some key accomplishments in the health IT patient safety effort?

3. What’s one of the most important thing organizations can do?

4. Where do we want to be in 10 years in relation to patient safety and health IT?
1. Where has the patient safety movement in healthcare been and what have we accomplished?
In 1999...

• Creating a culture of acceptance and open communication.

• Transcending problems of pop culture values
In 1999...

- Creating a culture of acceptance and open communication
- Transcending problems of secrecy and blame
Learning from other high-risk industries

What did we learn:

- Transparency
- Measurement
- Leadership
- Culture
- High reliability principles
In 2003...

- Capturing and analyzing the right data to make giant improvements
In 2003...

• Capturing and analyzing the right data to make giant improvements
Signs of progress in safety

- $28 billion saved & 125,000 deaths averted (2010-15)
- 21% reduction in Hospital Acquired Conditions
  - National Scorecard on Rates of Hospital Acquired Conditions (AHRQ, 2017)
- CLABSIs from 4-5 per 1,000 line-days, now many hospitals <1.0
- 100,000 lives campaign, IHI
- Hospital Engagement Networks / HIINs
- Myriad local examples of improvements
In 2013...

Is medical error the 3d leading cause of death?

“Medical care delivery is complex encompassing many independent and dependent variables and even more complex intervening variables and certainly many confounding variables. Thus it seems that a great deal of multivariate and logistic regression data science methodology must be applied before we hit the scientific or popular press with a shock value number to report”. Dr. Michael W. Popejoy, Ph.D., Ed.D., M.B.A., M.P.H., M.H.S.A., FRSPH, FAMEPPA

“First, the estimate fails the plausibility test. Of around 2.5M deaths in the US each year, approximately 700,000 occur in hospital.[2] We – and many clinicians and researchers - find it very hard to believe that one in 10 of all US deaths, or a third of inpatient deaths (the 251,454 estimated by Makary and Daniel) result from “medical error””. Kaveh G. Shojania, Physician-researcher

### Then
- Shame and Blame
- Punitive
- Reactive
- Opacity
- Secrecy
- Individual error
- Unconnected health IT

### Now
- Just Culture
- Learning
- Proactive
- Transparency
- Sharing
- Systems-driven
- Connected health IT
In 2017....

- Understanding human behavior and behavioral economics
- Influencing evidence-based regulation.
- Putting the landscape of human error on the map
2. What have been some key accomplishments in the Health IT patient safety effort?
The Health IT Safety Landscape
Safety is a Shared Responsibility
Literature on EHR Safety

Supporting Error Reduction

► Effects of computerized physician order entry and clinical decision support systems on medication safety; A systematic review by Kaushal, Shojania & Bates (2003)

► Error reduction in pediatric chemotherapy computerized order entry and failure modes and effects analysis by Kim, et al. (2006)

► The effectiveness of computerized order entry at reducing preventable adverse drug events and medication errors in hospital settings: a systematic review and meta-analysis. Nuckols, et. al. (2014).

► Impact of commercial computerized provider order entry (CPOE) and clinical decision support systems (CDSSs) on medication errors, length of stay, and mortality in intensive care units: a systematic review and meta-analysis. Prgomet, M. (2016).

Supporting Error Causation

► Role of computerized physician order entry systems in facilitating medication errors by Koppel, et. al. (2005)

► Unexpected increased mortality after implementation of a commercially sold computerized physician order entry system by Han, et. al. (2005)

► Types of unintended consequences related to computerized provider order entry by Campbell, Sittig, Ash, Guappone and Dykstra (2006)

► Medication errors related to computerized order entry for hospitalized by Walsh (2006)

Phases of HIT Safety

### Recommended Practices for Phase 1 — Safe Health IT

<table>
<thead>
<tr>
<th>Practice Description</th>
<th>Worksheet</th>
<th>Implementation Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data and application configurations are backed up and hardware systems are redundant.</td>
<td><strong>Worksheet 1</strong></td>
<td><strong>Fully in all areas</strong></td>
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<tr>
<td>EHR downtime and reactivation policies and procedures are complete, available, and reviewed regularly.</td>
<td><strong>Worksheet 2</strong></td>
<td></td>
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<tr>
<td>Allergies, problem list entries, and diagnostic test results (including interpretations of those results, such as “normal” and “high”), are entered/stored using standard, coded data elements in the EHR.</td>
<td><strong>Worksheet 3</strong></td>
<td></td>
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<tr>
<td>Evidence-based order sets and charting templates are available for common clinical conditions, procedures, and services.</td>
<td><strong>Worksheet 4</strong></td>
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Collaborating for Shared Learning

**Make Health IT Safer Together By:**

- Establishing a nonpunitive environment for sharing and learning
- Testing a collaborative model for collecting and analyzing safety issues
- Achieving robust stakeholder engagement
- Sharing best practices and lessons learned
- Informing the national safety strategy for health IT
Safe Practices Development

- **Patient Identification Errors**

Use a standardized process to help reduce the patient and the documentation.
- **Read the name on the label**—It is a common error to confuse the patient and the document. Ensure that the patient's name is correct and matches the document.

Use a visual of the photo and person to reduce the number of errors in the patient's name.
- **Use a standardized system**—A system that is used consistently for all patients is more effective.

Include designing effective patient identification systems, processes, and training.
- **Patient identification systems**—Ensure that the system is easy to use and reliable.

Bringing awareness to the importance of patient identification.
- **Implement systems**—Implement systems that are easy to use and reliable.

Designing effective patient identification systems, processes, and training.
- **Patient identification processes**—Ensure that the processes are easy to follow and reliable.

Include high-quality patient identification systems in all patient identification processes.
- **Technology**—Use the best high-quality systems and technologies during patient identification to ensure accuracy and efficiency.

Implement systems that are easy to use and reliable.
3. What’s one of the most important thing organizations can do?
Establishing a Health IT Safety Program

**What**
- What events happen

**Why**
- Why do they happen

**How**
- How can we improve

Providers, vendors, all settings....Working together
Considerations: Health IT Safety Program

• Incorporate EHR-related patient safety initiatives into existing patient safety efforts.

• Enhance incident-reporting systems to include identification and collection of patient safety events associated with the use of EHRs.

• Make the reporting process easy for end users to submit EHR-related patient safety events.

• Ensure that a risk management response protocol is in place to review and investigate EHR-related patient safety events. Include personnel with informatics expertise in these incident reviews.
Considerations: Health IT Safety Program

- Leadership/Membership
- Surveillance/Investigation
- Feedback/Closed Loop Communication
- Engagement with vendor
- Engagement with clinicians
- Education/Training
- Proactive assessment & measurement
- Simulations, drills
- Walkarounds
- Safety Huddles
- Safety in procurement
- Security
4. Where do we want to be in 10 years in relation to patient safety and health IT?
<table>
<thead>
<tr>
<th>Then</th>
<th>Now</th>
<th>Future</th>
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</thead>
<tbody>
<tr>
<td>Shame and Blame</td>
<td>Just Culture</td>
<td>Predictive analytics</td>
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<td>Punitive</td>
<td>Learning</td>
<td>Voice as the New UI</td>
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<td>Reactive</td>
<td>Proactive</td>
<td>Personalized medicine</td>
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<td>Opacity</td>
<td>Transparency</td>
<td>Mobile health</td>
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<td>Secrecy</td>
<td>Sharing</td>
<td>Sensors, Robots</td>
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<td>Individual error</td>
<td>Data-driven</td>
<td>…less clicks</td>
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<tr>
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<td>Connected health IT</td>
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…less clicks
Enabling personalized medicine

• Inexpensive genetic tests to guide therapy selection (e.g., anti-depressants or anti-psychotics)

• Avoid side effects or other harms (e.g., opioid addiction)
AI-enabled decision support

“Computer, suggest a differential.”

“I’m sorry, but I can’t let you order that antibiotic, Dave.”
Voice as the new UI
Robotic concierge today...

…and tomorrow

• Delivering meds?
• Toileting rounds?
• EHR support?
EHR-focused ideas

• Context-sensitive decision support
• Problem-oriented ordering
• Meta-views of EHR use for proactive safety monitoring
• Eliminating errors in progress
June 19, 2015

Whiteboard photo from Bob Wears
Questions and Contact Info

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