Welcome to

A Safety Leaders Update

Is H.I.T. Evidence Based?

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Welcome

Charles Denham, MD
Chairman, TMIT
TMIT High Performer Webinar
November 17, 2016

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TMIT Purpose Statement

Our Purpose:
We will measure our success by how we protect and enrich the lives of families...patients AND caregivers.

Our Mission:
To accelerate performance solutions that save lives, save money, and create value in the communities we serve and ventures we undertake.
Disclosure Statement

The following panelists certify:

that unless otherwise noted below, each presenter provided full disclosure information; does not intend to discuss an unapproved/investigative use of a commercial product/device; and has no significant financial relationships to disclose. If unapproved uses of products are discussed, presenters are expected to disclose this to participants.

Ross Koppel, PhD, FACMI, is a leading scholar of healthcare IT, and of the interactions of people, computers and workplaces. Professor Koppel is on the faculty of the Sociology Department and of the Medical School at the University of Pennsylvania. Koppel is also a Senior Fellow at the Leonard Davis Institute at Penn’s Wharton School. He has nothing to disclose.

Jennifer Dingman realized, after her mother’s death in 1995 due to errors in medical diagnoses and treatment, that there is little to no help available for patients and their families in similar situations. This life-changing experience left her feeling vulnerable, and she decided to dedicate her life to help prevent medical tragedies from happening to others. She has nothing to disclose.

Charles Denham, MD, is the Chairman of TMIT; a former TMIT education grantee of CareFusion and AORN with co-production by Discovery Channel for Chasing Zero documentary and Toolbox including models; and an education grantee of GE with co-production by Discovery Channel for Surfing the Healthcare Tsunami documentary and Toolbox, including models. HCC is a former contractor for GE and CareFusion, and a former Chairman of TMIT. HCC is a former contractor for ByoPlanet, a producer of sanitation devices for multiple industries. Dr. Denham is a collaborator with Professor Christensen.

Speakers and Reactors

- Ross Koppel
- Jennifer Dingman
- Charles Denham

Voice of the Patient and Family

Jennifer Dingman

Founder, Persons United Limiting Substandards and Errors in Healthcare (PULSE), Colorado Division
Co-founder, PULSE American Division
TMIT Patient Advocate Team Member
Pueblo, CO

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In the News and Polling Highlights:

News Update and
October 2016 Webinar Polling
with Prior Mortality Review Polling

Charles Denham, MD
Chairman, TMIT
TMIT High Performer Webinar
November 17, 2016
Coordination among providers across the continuum. The Oct. 14 final regulations for MACRA fall short in hospitals. This alignment is critical to ensuring the ability to share information and improve care support clinical care. As these changes are implemented, it will be essential to ensure that program requirements are aligned across all participants, including physicians, hospitals and critical access providers. The Oct. 14 final regulations for MACRA fail short in this regard.


High Impact Care Hazards to Patients, Students, and Employees

Researchers at Baylor College of Medicine have developed a framework of strategies to reduce diagnostic errors in hospitalized patients. While investigating diagnostic errors in hospitalized patients, the researchers identified five dimensions of diagnosis, then analyzed errors to identify improvement opportunities within each dimension. Their work was published in Annals of Internal Medicine. The research focused on inpatients, but the dimensions of diagnosis and corresponding improvement opportunities are broadly applicable, Singh said in a statement.

The five dimensions and some suggested improvements include:

- **Patient-physician encounter:** Allocate time to effectively communicate with patients; seek “cognitive support” to avoid decision-making in cases of uncertainty
- **Performance and interpretation of diagnostic tests:** Collaborate in person with lab professionals and radiologists to interpret complex test results or in cases of difficult diagnosis
- **Follow-up and tracking of diagnostic information over time:** Do not overlook past diagnostic data during the current hospitalization; clarify responsibilities of follow-up of abnormal test results
- **Subspecialty consultation-related communication and coordination:** Use direct verbal communication when making critical decisions; ensure everyone on the team is on the same page about the diagnosis when multiple consultants are involved
- **Patient-focused strategies:** Encourage proactive patient and family participation in the diagnostic process; encourage patients to look at their own medical notes to find inconsistencies


A Medical-Tactical Approach undertaken by clinical and non-clinical people can have enormous impact on loss of life and harm from very common hazards:

- **High Impact Care Hazards** are frequent, severe, preventable, and measurable.
- **Lifeline Behaviors** undertaken by anyone can save lives.
In The News …


Source: CBS, American College of Surgeons website. (also available via CBS All Access)
Available at http://www.bleedingcontrol.org/about-bc/news-updates#kit

Jeanne M. Huddleston, MD, FACP, FHM
Hospitalist
Chairperson of Mortality Review Subcommittee
Mayo Clinic
Rochester, MN
TMIT High Performer Webinar
July 21, 2016

Anonymous Polling Questions

“I am interested in ALL CAUSE HARM approach integrating mortality reviews for Patient Safety and Risk Management”

93% Agreed and 74% Strongly or Very Strongly Agreed, and 57% Very Strongly Agreed
ALL CAUSE HARM topics I would like to be covered include:

- Missed diagnoses, failure to rescue, medication reconciliation errors, resulting in medicate errors
- Missing orders in the point of care
- Omissions
- Charting by omission
- Patient identification
- PSB, WAC, overlap with Traynor and measuring measurement methodology, chart errors, etc., events.
- Psychotic patients who want to harm self and others.
- Relationship of misdiagnosis to mortality and other harm
- Quality care
- Sepsis mortality
- Surgical error
- Train coordination of care for our patients
- Wait time in the ER and alternative explanations

Chasing Zero: Winning the War on Healthcare Harm

Julie Thao:
The nurse indicted for the death of a 16 year old mother due to an unintentional medication error.

Anonymous Polling Questions

"I am interested in a webinar addressing the latest update on Errors and Caregiver (RN MD etc) blame and H.R. Issues"

86% Agreed and 63% Strongly or Very Strongly Agreed, and 51% Very Strongly Agreed

Surfing the Healthcare Tsunami: Bring Your Best Board

Eric Cropp:
The pharmacist sent to prison for the death of a child due to unintentional medication error.
Anonymous Polling Questions
I am interested in a webinar addressing the latest update on Electronic Health Records and H.I.T. errors and harm.

89% Agreed and 62% Strongly or Very Strongly Agreed, and 44% Very Strongly Agreed.

Electronic Health Records: Panacea vs. Unintended Consequences

Although EHRs have largely replaced paper records and brought some efficiencies to the process of delivering health care, there are some important problems that call into question some of the assumptions made by their architects. Those are some of the unintended consequences of the widespread adoption of EHRs as they now are.

A 2016 national study in four specialties (family medicine, internal medicine, cardiology, and orthopedic surgery), however, identified some growing frustration with EHRs. Physicians were spending almost two hours of each shift for every hour of direct face-to-face time with patients.

Data entry is time-consuming and inefficient, physicians are forced to type into the computer during patient visits, when that burden increases has shifting from reading to and reviewing the patient, notes are brought to the desk with computer entry.

A 2013 report from the RAND Corporation confirmed the inefficiency of EHRs, ruling inadequate exchange of health information and non-compatibility, and concluded that long and complex notes degrade the quality of oral documentation and care.

A 2015 study found that less than one in every four U.S. hospitals can transmit a patient record document and that only 14 percent of physicians used any exchange of data with outside hospitals or other providers.

Exchange of health information and interoperability are problematic as manufacturers resist standardization and customization of EHRs to their liking. As one example, Wisconsin-based Epic, with the largest market share in the country for EHRs, has passed on to different hospitals in nearby Madison’s three hospitals, requiring attending physicians to learn each system. The hassle of dealing with EHRs has contributed to increasing frustration and burnout of one-third of their physician users.

A 2012 study found that physicians, nurses, for EHRs did not reduce their ordering of unnecessary tests. The study found that physicians, nurses, and other staff reduced their ordering of unnecessary tests.

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Is H.I.T. Evidence Based?

Ross Koppel, PhD, FACMI
Adjunct Professor of Sociology, University of Pennsylvania
Philadelphia, PA
TMIT High Performer Webinar
Part 1 and Part 2

Is Healthcare Information Technology Evidence-Based?

Ross Koppel, Ph.D., FACMI
Sociology Department,
Leonard Davis Institute, Wharton School,
School of Engineering and Applied Science, and
School of Medicine
University of Pennsylvania
rkoppel@sas.upenn.edu

Ross Koppel, Ph.D. FACMI
At the University of Pennsylvania:
• Sociology Dept.
• PI, Center for Clinical Epidemiology & Biostatistics (Sch. of Med.)
• Senior Fellow, L Davis Inst. of Healthcare Economics. (Wharton)
At Harvard:
• PI, Study of CPOE & Medication Error. (Harvard & Penn)
• Former Internal Evaluator, Harvard Med. Sch. (SMART Project to create a new HIT architecture.
• Also:
PI: NSA Study of Workarounds to Cyber Security.
PI: Study of Medical Imaging Software Integration
University of Pennsylvania: rkoppel@sas.upenn.edu

Definitions: HIT = CPOE, EHRs, eMARs, & BCMA, but mostly EHRs
Uncontested: EHRs Wonderful Benefits

- Readable text (no handwriting)
- Speed and access to and from the pharmacy, other record systems, most labs
- Basis for CDS
- Potential to reduce duplicate orders, tests, and procedures
- Order formats requiring specification of route, dose, schedule/time, formulation, etc.
- Ubiquity—immediate possible sharing of all information across the hallway and the nation
- Ability to incorporate natural language processing
- Potential ability to mine the vast oceans of data generated by digital data, which could advance medical knowledge in ways that would otherwise take decades to accomplish.*
  - Well… if we had agreed data standards and interoperability

Evidence of what?

- Efficient and effective in practice?
  - Is navigation within and among software screens evaluated and modified to be the least burdensome and most intuitive?
  - Are clicking and scrolling reduced to the minimum?
  - Navigation: Do clinicians know “where they are” and how to get to where they are going, or at least, how to get back?
  - Is usability of the systems—as measured via human factors research—tested and progressively improved?
  - Are displays of information in graphic and textual form carefully assessed?
  - Are they tested on a wide range of users in many real-life settings?

- Are observations of clinicians’ use of HIT systematically analyzed as to how information can be amassed and analyzed with minimum distractions and minimum unnecessary cognitive burdens?
  - Do we mean we evaluate the implementation of differing systems’ in situ? Or implementations of the same system in dozens or hundreds of various medical settings?
  - Are we assessing various methods of implementation, incorporating facility design, number of clinicians, number of intersecting offices, expertise of the IT team, etc?
  - At what point do we evaluate the success of the implementation? Six months after the “go live” date? A year after the “go live” date? After the third upgrade? After each patch or version is installed?
  - Are our evaluations based on random controlled trials (RCT) or double blind RCTs? Is RCT possible with “evidence” from HIT use?

Evidence of what?

- Are our CDS examined to ensure:
  - Reduced alert fatigue by careful titration of alerts to only the most essential?
  - Presentation of alerts in ways that align with clinical workflow and thought-flow?
  - Presentation of alert data that are relevant to the user at the point-of-care and the time of decision?
  - Easy access to additional information on how the alerts are determined?
- Do we evaluate how other IT systems are connected to the CPOE/EHR….and in each setting…including interactions of other IT systems among themselves and with the core HIT systems?
- Do we mean that clinical decision support (CDS), order sets, disease protocols, or dosage alerts are built on the latest medical knowledge?
Evidence of Interoperability?

- Do we have evidence of one of HIT’s most basic promises: **Interoperability**, or at least proof it is **capable** of interoperability—sharing information in usable formats with interpretable data?
- Do our HIT systems allow us to share data across a region, across town, across the hallway, or across the room?

Evidence of improved patient safety

- Evidence of improved patient safety from HIT?
- Improving patient safety is one of the central claims of HIT enthusiasts.
- **But are there systematic data to support this claim?**

Evidence of ROI?

- Have we calculated the return-on-investment in HIT?
  - Are there savings in time? (When...after 3 months? 3 years?)
  - in staff
  - in avoided errors?
  - in fewer repeated tests and laboratory orders?
- Is the ROI logic and purchase based on any valid calculations?
  - or on a post hoc justification?

- Implicit in this question is that we know the **cost** of the HIT and its implementation.
- **This is a stunningly difficult figure to determine.**

Evidence of Meaningful Evaluation

- In our evaluations, are we controlling for:
  - Training and re-training of clinicians?
  - Patient loads and acuity?
  - History of technology use in each institution and by each clinician user?
  - The quality (and number) of IT support staff?
  - Roll out time?
  - Big bang or Incremental?
  - One facility or part of a chain or region or national system
The findings: Some supportive (especially if funded by HIMSS or ONC), often dubious, contentious, and always methodologically suspect

TO BE FAIR...

LACK OF GOOD EVIDENCE IS NOT PROOF OF INEFFECTIVENESS

Some of the evidence: Let’s look

Perceived Facilitators of Adoption of Electronic-Records Systems among Hospitals with Systems as Compared with Hospitals without Systems
Jha et al. NEJM 360 (16): 1628, Figure 2 (16 April 2009)
The anchor author:

David Blumenthal

History of Meaningful Use

- Developed when?
- By whom?

The Use and Meaning of Patient Safety

“Because patient safety is viewed so favorably, our task is to ensure HIT appears to enable patient safety”

Dr. Douglas Peddicord
(American Medical Informatics Association’s Chief Lobbyist)
Washington Health Strategies Group
Oldaker, Belair & Wittie LLP
Phoenix, Arizona, May 2010
“The message to government officials must not appear to be for the purposes of establishing barriers to entry, rather, it must suggest that meaningful cost savings & quality improvements cannot be achieved without a high standard of “meaningful use.”

RAND 2005: “Can Electronic Medical Record Systems Transform Health Care? Potential Health Benefits, Savings, And Costs” (Health Affairs)

Richard Hillestad, James Bigelow, Anthony Bower, Federico Girosi, Robin Meili, Richard Scoville and Roger Meyer

That RAND Report in 2005:
...this paper compares health care with the use of IT in other industries. It estimates potential savings and costs of widespread adoption of electronic medical record (EMR)... and concludes that 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 while increasing health and other social benefits. However, this is unlikely to be realized without related changes to the health care system.

The next shoe drops
8 YEARS LATER:
What It Will Take To Achieve The As-Yet-Unfulfilled Promises Of Health Information Technology  A. Kellermann  S. Jones  Health Affairs 2013

Kellerman and Jones 2013: Abstract  ...“Seven years later the empirical data on the technology’s impact on health care efficiency and safety are mixed, and annual health care expenditures in the United States have grown by $800 billion. In our view, the disappointing performance of health IT to date can be largely attributed to several factors: sluggish adoption of health IT systems, coupled with the choice of systems that are neither interoperable nor easy to use; and the failure of health care providers and institutions to reengineer care processes to reap the full benefits of health IT.

• Continued...  Kellerman and Jones 2013

We believe that the original promise of health IT can be met
• if the systems are redesigned to address these flaws by creating more-standardized systems that are easier to use,
• are truly interoperable,
• and afford patients more access to and control over their health data.
• Providers must ...reengine[er] care processes to take full advantage of efficiencies offered by health IT,
• in the context of redesigned payment models that favor value over volume.

From Kellerman and Jones, 2013

also note.... “Congressional Budget Office analysis asserted that RAND’s team had overestimated the likely benefits of widespread adoption of health IT. Despite, or perhaps because of, the ensuing controversy, the RAND health IT study continues to be widely cited.
Even more amazing… The 2005 study was paid for and *guided* by: Cerner, GE, and other vendors of IT products.

**AND**

“GUIDANCE”

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**To Conclude…**

- Is Healthcare Information Technology Evidence-Based?

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**Can we answer our question?**
But real recent progress:

- Evaluation In Situ
- ONC's Guide to contracts
- Journal of Patient Safety: Electronic Health Record-Related Events in Medical Malpractice Claims. Graber, Mark L. MD, FACP; Siegal, Dana RN, CPHRM; Riah, Heather MBA; Johnston, Doug MTS; Kenyon, Kathy JD
- Willingness to look at all sides

Recent balance:

The SAFER Guides “These guides enable healthcare organizations to address EHR safety in a variety of areas.”

And More.

In conclusion:

- A Legacy of hope and desire
- Honorable intentions
- Commercial motivations
- Limited vision
- But recent positive movement....
- To be continued
- And on which to build

Thank you.

Questions?

Ross Koppel, Ph.D., FACMI
Sociology Department, School of Arts & Sciences, & Center for Clinical Epidemiology & Biostatistics, Med. School Leonard Davis Institute for Healthcare Economics, Wharton School of Engineering and Applied Science University of Pennsylvania
rkoppel@sas.upenn.edu
Polling Questions

**I am interested in a webinar on MEDICAL TACTICAL emergency response topics**

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**SAFETY topics I would like to be covered include:**

- [ ]

Polling Questions

**I am interested in a webinar addressing How Caregivers PROTECT THEIR PROFESSIONAL IDENTITY After An Accident**

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**The topics regarding caregiver PROFESSIONAL IDENTITY PROTECTION I want to see addressed in future webinars are:**

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Polling Questions

**I am interested in a webinar addressing the latest update on CONFLICTS OF INTEREST and FINANCIAL DISCLOSURE**

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**The topics regarding CONFLICTS OF INTEREST and FINANCIAL DISCLOSURE I would like to be covered include:**

- [ ]

Q&A Questions

**When push comes to shove do you believe there is evidence that H.I.T. really delivers?**
Feds Criticized for lax oversight of health IT

“Conflicts of interest are holding back a more rigorous approach to identifying and regulating software problems”

“The Foxes are the architects of the hen house
These committees are dominated by the vendors”

Q&A Questions

What about the H.I.T. vendors not having to report risk areas – anything new?

What message do you have for board members regarding H.I.T.?

Q&A Questions

What questions should ask of I.T. leaders?
Q&A Questions

What about Cybersecurity – what should we know?

Q&A Questions

What is your take on consumer access to their medical records?

Q&A Questions

What impact do you believe the new administration will have on H.I.T.?

Speakers and Reactors

Ross Koppel
Jennifer Dingman
Charles Denham