MEASUREMENT IS THE FIRST STEP IN IMPROVING HEALTH IT SAFETY: THE 2016 NQF REPORT

HARDEEP SINGH, MD, MPH
HOUSTON VA CENTER FOR INNOVATIONS IN QUALITY, EFFECTIVENESS & SAFETY
MICHAEL E. DEBAKEY VA MEDICAL CENTER
BAYLOR COLLEGE OF MEDICINE
Twitter: @HardeepSinghMD

VA HEALTH CARE | Defining EXCELLENCE in the 21st Century

Baylor College of Medicine

Identification and Prioritization of Health IT Patient Safety Measures

FINAL REPORT

FEBRUARY 11, 2016

NATIONAL QUALITY FORUM

This report is funded by the Department of Health and Human Services under contract HHSM-500-2012-00009I, Task Order HHSM-500-T0016.

3 Key Messages

- How do we define Health IT Safety
- How do we start measuring Health IT Safety
- Who takes the agenda forward

NQF Health IT Safety Committee Tasks

- What is the state of science on measurement of HIT-related safety events
- What conceptual framework can be used to identify, assess & prioritize HIT safety measures
- Comprehensive report outlining:
  - Assessment of HIT safety measurement efforts,
  - Gap analysis on measures & recommendations for gap-filling
  - Best practices and challenges in measurement of HIT safety issues

Committee Faced a Key Question

We must measure Health IT for improvement

But we cannot measure what we cannot define!

What is Health IT Safety – 3 domains

- Domain 1: Safe health IT:
  - Events unique/specific to health IT

Sittig & Singh N Engl J Med. 2012 Nov 8;367(19):1854-60

STATE POLITICS

Computer system glitch puts thousands of NT patients at risk

The Australian | 11:34AM August 25, 2016

AMOS AIKMAN
Northern correspondent | Darwin | @amosaikman

Thousands of Northern Territory patients have been put at risk by a major failure of a crucial computer system that transmits information between hospitals and remote clinics.

The NT Department o
investigate the glitch,
pieces of information
destinations.

BBC NEWS | Watch One-Minute World News | News services Your news when you want it

Smokers prescribed Viagra to quit

Smokers trying to quit the habit were mistakenly prescribed anti-impotence drug Viagra by doctors.

NHS Greater Glasgow and Clyde said the error was due to a computer glitch at two city GP practices.

When GPs selected anti-smoking pill **Zyban**, computers selected **sildenafil**, the generic name for **Viagra**.

The health board said no-one received Viagra

A health board spokeswoman said: "At no time was patient care affected by this as all prescriptions are subject to stringent double checking."

What is Health IT Safety – 3 domains

- Domain 1: Safe health IT:
  - Events unique/specific to health IT
- Domain 2: Using health IT safely:
  - Unsafe or inappropriate use of technology
  - Unsafe changes in the workflows that emerge from technology use

Sittig & Singh N Engl J Med. 2012 Nov 8;367(19):1854-60

By MICHELLE CASTILLO / CBS NEWS / March 5, 2013, 1:16 PM

Too many electronic health record alerts may be leading doctors to skip them

Your doctor may be more likely to ignore your test results if they come electronically.

A new study published in the JAMA Internal Medicine on Mar. 4 revealed that doctors receive about 63 electronic health record (EHR)-based alerts each day, which are supposed to let them know about abnormal patient results. And, almost one-third of the doctors surveyed -- about 30 percent -- admitted that they had missed some results because of too many alerts.

"If you're getting 100 emails a day, you are bound to miss a few. I study this area and I still sometimes miss emails. We have good intentions, but sometimes getting too many can be a problem," Dr. Hardeep Singh, chief of health policy, quality, and informatics at the Michael E. DeBakey Veterans Affairs Medical Center, in Houston, told TIME.

Opinion Paper Open Access

Divvy K. Upadhyay, Dean F. Sittig and Hardeep Singh*

Ebola US Patient Zero: lessons on misdiagnosis and effective use of electronic health records

Abstract: On September 30th, 2014, the Centers for Disease Control and Prevention (CDC) confirmed the first travel-associated case of US Ebola in Dallas, TX. This case exposed two of the greatest concerns in patient safety in the US outpatient health care system: misdiagnosis and ineffective use of electronic health records (EHRs). The case received widespread media attention highlighting failures in disaster management, infectious disease control, national security, and emergency department (ED) care. In addition, an error in making a correct and timely Ebola diagnosis on initial ED presentation brought diagnostic decision-making vulnerabilities in the EHR era into non-technical factors will be needed. Ebola US Patient Zero reminds us that in certain cases, a single misdiagnosis can have widespread and costly implications for public health.

Keywords: cognition; decision-making; diagnostic error; Ebola; electronic medical records; health information technology; human factors; misdiagnosis; patient safety.

DOI 10.1515/dx-2014-0064
Received October 15, 2014; accepted October 17, 2014

What is Health IT Safety – 3 domains

- Domain 1: Safe health IT :
  - Events unique/specific to EHRs
- Domain 2: Using health IT safely:
  - Unsafe or inappropriate use of technology
  - Unsafe changes in the workflows that emerge from technology use
- Domain 3: Using health IT to improve safety
  - Leveraging health IT to identify unsafe care processes and potential patient safety concerns before harm

Sittig & Singh N Engl J Med. 2012 Nov 8;367(19):1854-60

Radiology

Development and Validation of Electronic Health Record–based Triggers to Detect Delays in Follow-up of Abnormal Lung Imaging Findings[1]

Daniel R. Murphy, MD, MBA
Eric J. Thomas, MD, MPH
Ashley N. D. Meyer, PhD
Hardeep Singh, MD, MPH

ORIGINAL RESEARCH

BMJ Quality & Safety

The international journal of healthcare improvement

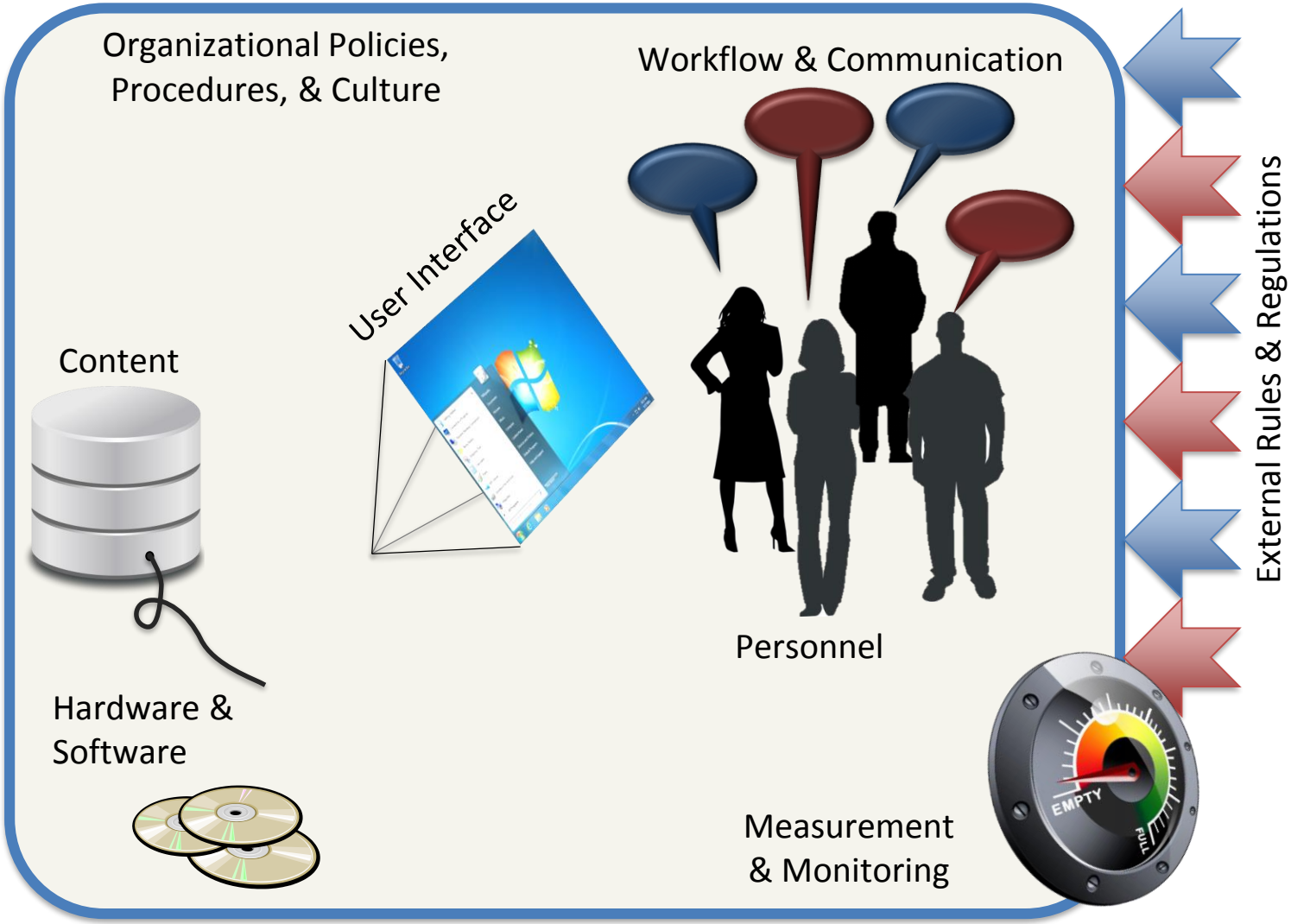
Electronic health record-based triggers to detect potential delays in cancer diagnosis

Daniel R Murphy,[1,2] Archana Laxmisan,[1,2] Brian A Reis,[1,2] Eric J Thomas,[3] Adol Esquivel,[4] Samuel N Forjuoh,[5] Rohan Parikh,[6] Myrna M Khan,[1,2] Hardeep Singh[1,2]

ABSTRACT

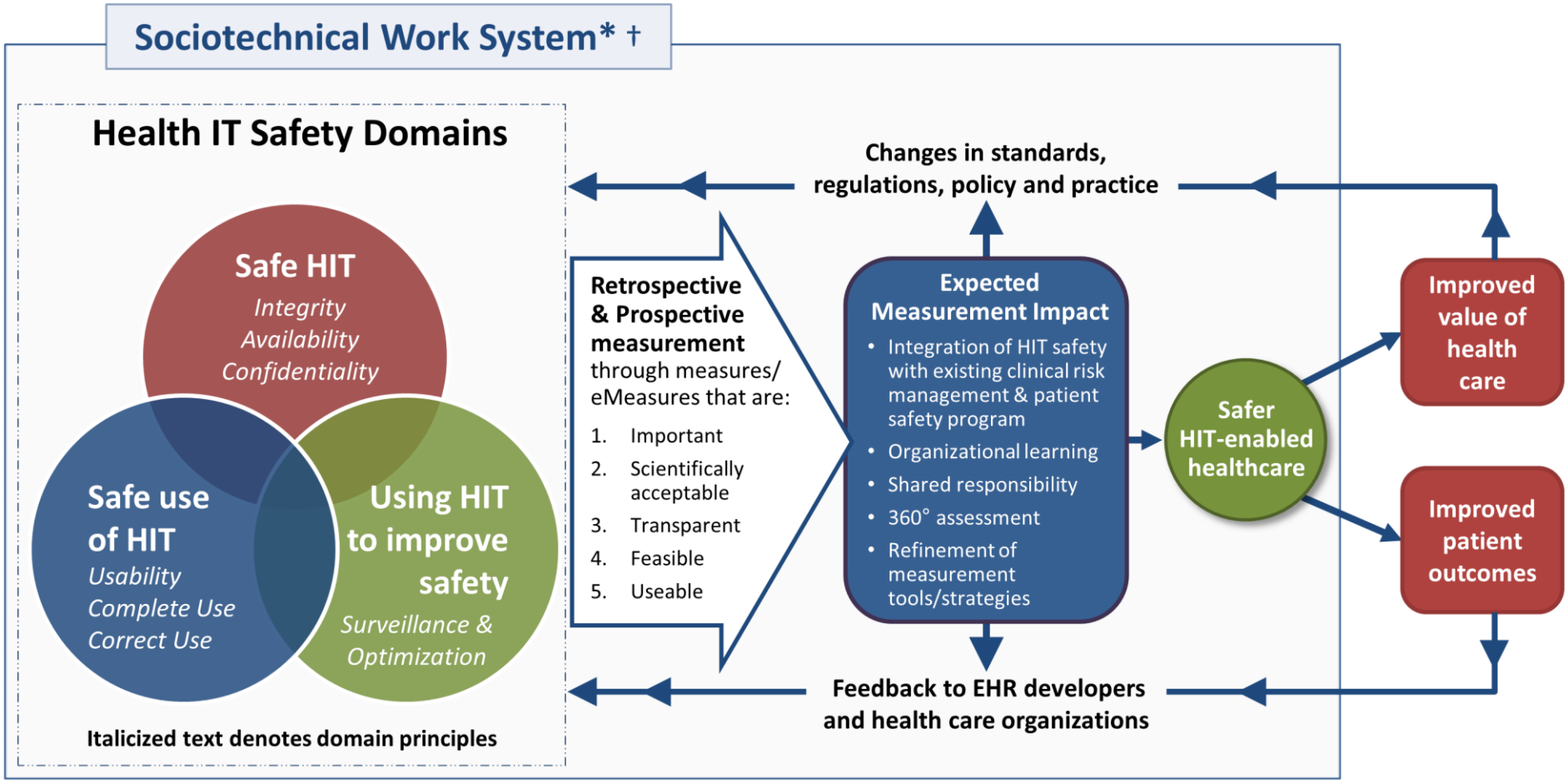
Background Delayed diagnosis of cancer can follow-up of abnormal clinical findings suspicious for cancer.

NQF Adopted an 8-dimensional Socio-Technical Approach



Sittig Singh *QSHC* 2010

Health Information Technology Safety Measurement Framework (HITS Framework)



* Includes 8 technological and non-technological dimensions.

† Includes external factors affecting measurement such as payment systems, legal factors, national quality measurement initiatives, accreditation, and other policy and regulatory requirements.

Singh Sittig BMJ Qual Saf doi:10.1136/bmjqs-2015-004486

Measurable Aspects of Health IT Safety

Type of HIT-related safety concern	Examples
1. Instances in which **HIT fails during use or is otherwise not working** as designed.	Broken hardware or software "bugs"
2. Instances in which HIT is working as designed, but the design **does not meet the user's needs or expectations.**	Usability issues
3. Instances in which HIT is well-designed and working correctly, but was **not configured, implemented, or used in a way anticipated or planned** for by system designers and developers	Duplicate order alerts that fire on alternative PRN pain medications

Sittig Classen Singh J Am Med Inform Assoc. 2014 Oct 20

Measurable Aspects of Health IT Safety

Type of HIT-related safety concern	Examples
4. Instances in which HIT is working as designed, and was configured and used correctly, but **interacts with external systems (e.g., via hardware or software interfaces) so that data is lost or incorrectly transmitted or displayed.**	Medication order for extended release morphine inadvertently changed to immediate release morphine by error in interface translation table
5. Instances in which specific safety **features or functions were not implemented or not available** (i.e., HIT could have prevented a safety concern).	Hospitalized patient inadvertently receives 5 grams of acetaminophen in 24 hours because maximum daily dose alerting was not available

Sittig Classen Singh J Am Med Inform Assoc. 2014 Oct 20

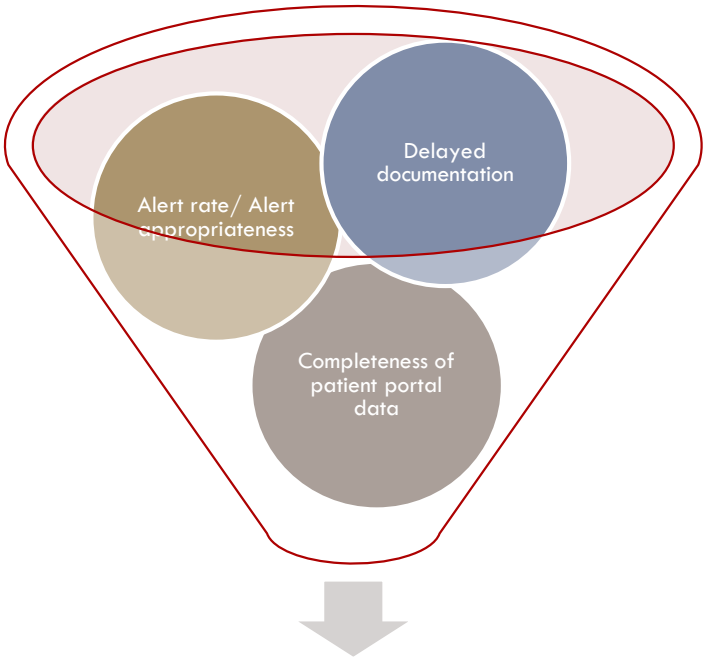
Measurement Concepts from ONC SAFER Guides

http://www.healthit.gov/safer

- **Foundational Guides**
  - High Priority Practices
  - Organizational Responsibilities
- **Infrastructure Guides**
  - System Configuration
  - System Interfaces
  - Contingency Planning
- **Clinical Process Guides**
  - Patient Identification
  - Computerized Provider Order Entry with Clinical Decision Support
  - Test Results Reporting and Follow-up
  - Clinician Communication

Sittig, Singh, Ash. Am J Manag Care. 2014;20(5):418-423

Prioritization of NQF Measure Concepts or Measurement Areas



Prioritized Measure Concepts or Measurement Areas

Possible Criteria

Importance to Measure and Report

- related to measures that have the greatest potential of driving improvement (i.e., high impact on patients and workflow, strong evidence base and gap in care, with variation across providers)

Feasibility

- related to ease of implementation
- may be influenced by concerns about the ability to obtain data due to the presence or absence of EHRs, standardized diagnostic codes, standardized descriptions as well as other concerns.

NQF's High Priority Areas for Measurement

1. Clinical Decision Support
2. System Interoperability
3. Patient Identification
4. User-Centered Design and Use of Testing, Evaluation, and Simulation to Promote Safety across the HIT Lifecycle
5. System Downtime (Data Availability)
6. Feedback and Information-Sharing
7. Use of HIT to Facilitate Timely and High-Quality Documentation
8. Patient Engagement
9. HIT-Focused Risk-Management Infrastructure

Improvement is a Shared Responsibility

- Between EHR developers AND those responsible for configuring, implementing, and using them
- Institute of Medicine 2012
  - *"vendors [developers], care providers, provider organizations and their health IT departments, and public and private agencies"*
- Party most in control in the best position to address performance

Thank you and Acknowledgements

- Funding Agencies:
  - Department of Veterans Affairs
  - National Institute of Health
  - Agency for Health Care Research & Quality
  - ONC for SAFER Guides

- Multidisciplinary team at VA Health Services Research Center for Innovation

Email: Hardeeps@bcm.edu

Web: http://www.houston.hsrd.research.va.gov/bios/singh.asp

Twitter: @HardeepSinghMD