Prioritization and Identification of Health IT Patient Safety Measures

HIT Safety Committee Meeting

February 18-19, 2015

NATIONAL QUALITY FORUM

Welcome

Committee Charge

- Provides guidance on identification of:
  - Best practices, challenges and barriers to measuring and preventing HIT related safety events
  - High-impact measures and measurement areas
- Provides input on all phases of the project:
  - Guidance on environmental scan
  - Guidance on framework development
- Acts as a proxy for the NQF multi-stakeholder membership and the general public
  - Review and adjudicate input from stakeholders and the public

Meeting Objectives

- Review preliminary environmental scan results and identify important measurement and other considerations to guide the development of the conceptual framework (e.g., care setting, level of analysis, etc.)
- Identify key opportunities to be consistent with the AHRQ Common Formats and align with other relevant safety and quality measure initiatives or programs
- Obtain committee direction on the development of the conceptual framework (e.g., existing frameworks, adaptable frameworks, and other resources, etc.)

Day 1: Wednesday, February 18, 2015 (Morning Session)

- 8:30 am **Welcome and Introduction of Staff & Co-Chairs**
- 8:40 am **Committee Introductions and Disclosure of Interest**
- 9:00 am **Setting the Stage**
- 9:30 am **Environmental Scan Overview**
- 9:45 am **Environmental Scan – Initial Discussion and Feedback**
- 10:30 am **Conceptual Models for Analyzing HIT Patient Safety**
- 11:15 pm **Legal and Regulatory Environment for HIT Patient Safety**
- 11:45 am **Vendor Perspectives on HIT Safety**
- 12:15 pm **Lunch**

Day 1: Wednesday, February 18, 2015 (Afternoon Session)

- 8:30 am **Welcome and Introduction of Staff & Co-Chairs**
- 1:15 pm **Break-Out Sessions**
  - Group A – Safe Health IT — System and Technology Issues
  - Group B – Using Health IT Safely — Optimize the Safe Use of EHRs
  - Group C – Using Health IT to Improve Safety — Use EHRs to Monitor and Improve Patient Safety
- 3:15 pm **Break**
- 3:30 pm **Report-out and Discussion of Breakout Sessions**
- 4:45 pm **Public and Member Comment**
- 5:00 pm **Adjourn**
- 6:00 pm **Committee Dinner** *(Optional)*

Introductions and Disclosures of Interest

NQF Project Staff

- Jason Goldwater
  - Senior Director
- Andrew Lyzenga
  - Senior Project Manager
- Adeela Khan
  - Project Manager
- Ann Phillips
  - Project Analyst
- Jesse Pines
  - NQF Consultant

HIT Safety Committee

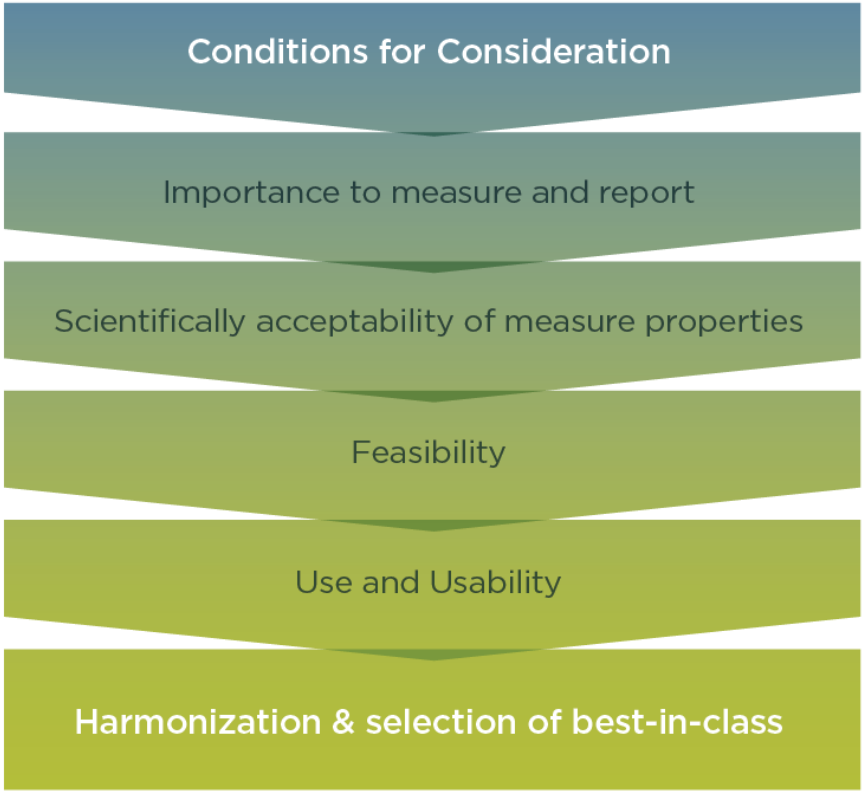
- Elisabeth Belmont, JD (Co-chair)
- Hardeep Singh, MD, MPH (Co-chair)
- Jason Adelman, MD, MS
- Gregory Alexander, PhD, RN, FAAN
- Gerard Castro, PhD, MPH
- David Classen, MD, MS
- Linda Dimitropoulos, PhD
- Lisa Freeman
- Tejal Gandhi, MD, MPH, CPPS
- Andrea Gelzer, MD, MS, FACP
- Kevin Haynes, PharmD, MSCE
- Laura Heermann-Langford, PhD, RN
- George Hripcsak, MD, MS
- Jason Jones, PhD
- Adjhaporn (Nana) Khunlertkit, PhD
- William Marella, MBA
- Dena Mendelsohn, JD, MPH
- James Russell, RPh
- Eric Schneider, MD, MSc
- Mark Segal, PhD
- Karen Paul Zimmer, MD, MPH, FAAP

Background on NQF

NQF Mission


Board of Directors
Steering Committees
8 Membership Councils
Measures Application Partnership (MAP)
National Priorities Partnership (NPP)
CSAC, HITACH
Neutral Convener
Standards Setting Organization
1 Build Consensus
2 Endorse National Consensus Standards
3 Education and Outreach

NQF Measure Evaluation Criteria



Project Overview

Background

- Because of potential benefits related to the quality and efficiency of health care, the government has worked to encourage and incentivize adoption of HIT
  - HITECH Act
  - Meaningful Use
- As adoption has increased, interest in the impact of HIT on patient safety has also grown
- The Office of the National Coordinator for Health Information Technology (ONC) has developed or supported a number of policies, tools, and resources to help address HIT-related safety issues, including:
  - Health IT Patient Safety Action and Surveillance Plan: a report addressing the role of health IT within HHS's commitment to patient safety
  - Proposed Strategy and Recommendations for a Risk-Based Framework: a report providing recommendations on a regulatory framework for health IT, including recommendations related to patient safety
  - A program to certify Health IT products that includes design principles related to safety
  - The SAFER Guides: a tool designed to help healthcare organizations conduct self-assessments to optimize the safety and safe use of electronic health records (EHRs)

Project Description

- Under the guidance of the HIT Safety Committee, NQF will assess the current environment related to measurement of HIT-related safety events.
- The Committee will help to create or adapt an existing conceptual framework for identifying, assessing, and prioritizing measures of HIT safety.
- The project will produce a report providing a comprehensive framework for assessment of HIT safety measurement efforts, a measure gap analysis and recommendations for gap-filling, and best practices and challenges in measurement of HIT safety issues to-date.

Project Scope and Objectives

Provide input and guidance towards the development of a set of recommendations around the measurement of HIT-related safety events.

- Synthesize the current evidence around health IT and safety
- Identify all relevant and meaningful health IT patient safety measures
- Provide input and direction on the development of a conceptual framework for analyzing measures of safety in health IT
- Identify priority measurement areas with the greatest potential for both improving the safety of HIT and using HIT to improve patient safety
- Identify the highest priority measure gaps and make recommendations to address gaps in measures of health IT safety
- Identify challenges to effective performance measurement, such as limited infrastructure for information exchange and lack of evidence

Project Timeline and Milestones

Appointing the Multistakeholder Committee (Sep 2014-Dec 2014)

- Seat Multistakeholder Committee

Environmental Scan and Development of Conceptual Framework (Dec 2014-Aug 2015)

- Preliminary Environmental Scan and Gap Analysis
- Draft Conceptual Framework
- Finalize Environmental Scan
- AHRQ Common Formats Panel review of draft framework

Prioritizing Measures and Gaps, Identifying Best Practices & Challenges (Aug 2014-Dec 2015)

- Incorporate Committee feedback and revisions
- Submit draft report for CMS review
- Draft written report, final conceptual framework, and final environmental scan

Public and Member Comment and Final Report (Dec 2015-Feb 2016)

- Submit final report as revised based on comments

Environmental Scan: Preliminary Results

Purpose of Environmental Scan

- To provide Committee members with a view of the current landscape with respect to evaluation and measurement of HIT-related safety issues
- To lay the groundwork for development, modification, or use of a conceptual framework for analyzing measures of HIT safety
- To inform Committee recommendations around HIT-related measurement issues and the identification and prioritization of HIT safety measures

Preliminary Methodology

- Literature review to identify relevant literature as well as HIT safety-related measures, measure concepts, and/or current or emerging evidence-based practices;
- Review of NQF's portfolio of endorsed measures;
- Review of AHRQ's National Quality Measures Clearinghouse and National Guidelines Clearinghouse;
- Review of the Health Indicators Warehouse

Planned for full environmental scan:

- Refinement and extension of the preliminary literature review;
- Key informant interviews with experts in the field;
- General and targeted outreach to the NQF membership as well as the broader public;
- Review of the CMS Measures Inventory, including measures under development;
- Recommendations from Committee members

Preliminary Results

- **197 articles** identified and reviewed
- Total of **42 measure concepts** related to HIT safety identified
  - 32 measure concepts after accounting for duplicates
- **7 conceptual frameworks** related to HIT safety

Effect of HIT on patient safety

- Evidence of HIT's impact on patient safety is limited
- A number of studies and evidence reviews suggest that elements of HIT can be helpful in improving patient safety (particularly medication safety)
- Others have found that HIT systems or applications have little discernible effect on the safety of patient care
- Limitations of the published evidence preclude definitive conclusions:
  - Harm or adverse effects are often inadequately reported in the research literature, poorly indexed in medical databases, and generally difficult to identify
  - Studies of HIT's impact on patient safety are often narrowly-focused
  - High degree of variability in results
  - Complexity of HIT's effects on safety

Effect of HIT on patient safety (cont.)

- Despite the equivocal nature of the published evidence, it is well-acknowledged that a variety of risks and benefits may be associated with HIT
- Among practicing clinicians, HIT safety is a major issue of great interest and importance
- There is increasing concern over what is sometimes called 'HIT-induced error', 'HIT-facilitated error', or 'e-iatrogenesis'
- Sittig and Singh provide the following definition of HIT-related error:
  - "[Instances where] the HIT system is unavailable for use, malfunctions during use, is used incorrectly, or when HIT interacts with another system component incorrectly, resulting in data being lost or incorrectly entered, displayed, or transmitted."[1]

Effect of HIT on patient safety (cont.)

- Factors across the spectrum of design, implementation, and use of HIT can impact patient safety
  - Challenges related to HIT system **design** include ensuring hardware and software reliability; interface usability; system interoperability; and data integrity, accessibility, and confidentiality
  - Challenges related to **implementation** of HIT include customization of hardware or software for organization-specific needs; integration of new HIT into existing clinical workflows or redesign of clinical workflows to accommodate new HIT; and staff training
  - Challenges related to **use** of HIT include ensuring appropriate clinician response to alarms or warnings; avoiding inappropriate use of features such as copy-and-paste functionality; reducing use of 'workarounds'; and preventing errors in entry or interpretation of information

Approaches to assessing HIT safety and related issues

- **Human Factors and Ergonomics (HFE)** approaches are of growing interest in patient safety, including HIT-related safety
  - HFE acknowledges the cognitive, physical, and organizational limitations that influence human behavior and performance
  - May then account for those limitations in the design, implementation, and use of HIT

Approaches to assessing HIT safety and related issues (cont.)

- Principles of **sociotechnical theory** have also been useful in analyzing issues related to HIT safety
  - Sociotechnical models recognize that work systems are embedded in broader organizational and social contexts
  - focus is on improving the interactions among the various factors involved in an enterprise

Conceptual Frameworks

- Various conceptual models or frameworks have been developed to analyze HIT safety issues
- Key frameworks:
  - Sittig and Singh's 8-dimensional sociotechnical model[1]
  - Sittig and Singh's three-phase framework for EHR safety[2]
  - Meeks, et al.'s combination of the 8-dimensional and three-phase frameworks[3]

1. Sittig DF, Singh H. A New Socio-technical Model for Studying Health Information Technology in Complex Adaptive Healthcare Systems. *Quality & safety in health care* 2010;19(Suppl 3):i68-i74.
2. Sittig DF, Singh H. Electronic Health Records and National Patient-Safety Goals. *N Eng J Med* 2012;367(19):1854-1860.
3. Meeks DW, Takian A, Sittig D, Singh H, Barber N. Exploring the sociotechnical intersection of patient safety and electronic health record implementation. *J Am Med Inform Assoc* 2014: 21; e28–e34.

HIT Safety Measures

- **32** distinct measure concepts related to HIT Safety were identified
  - **Structure** measures: **14**
    - E.g., EHR system uptime rate
  - **Process** measures: **7**
    - E.g., Alert override rate
  - **Intermediate outcome** measures: **7**
    - E.g., Incorrect reporting of test results (rate)
  - **Outcome** measures: **4**
    - E.g., Patient outcome rates (e.g., mortality or HbA1c levels) before and after HIT implementation
- Common themes:
  - Alert appropriateness
    - E.g., Interruptive alerts that have fired more than 100 times with 100% override rate
  - Alert response
    - E.g., Alert override rate
  - System availability
    - E.g., EHR system uptime rate

HIT Safety Measures (cont.)

By sociotechnical dimension

Sociotechnical Domain	# of Measures	Example
Hardware and Software Computing Infrastructure	7	Unexpected EHR related downtimes lasting more than 8 hours
Clinical Content	15	Alert rate
Human Computer Interface	7	Order–retract–reorder events
People (includes users and those involved in design, development and implementation)	10	Alert adherence rate
Workflow and Communication	4	Open patient order rate
Internal Organizational Policies, Procedures, and Culture	4	Percent of EHR users trained and passing a competency test before getting a login
External Rules, Regulations, and Pressures	0	N/A
System Measurement and Monitoring	2	Governing body oversight includes review of certain EHR metrics

By Phase of EHR Safety

EHR Safety Phase	# of Measures	Example
Phase 1: Safe HIT	20	Unexpected EHR related downtimes lasting more than 8 hours
Phase 2: Safe use of HIT	11	Percent of EHR users trained and passing a competency test before getting a login
Phase 3 – Using HIT to make care safer	7	Adherence to Clinical Decision Support Protocols

Environmental Scan: Preliminary Results

Questions?

Break

Conceptual Models for Analyzing HIT Patient Safety

Hardeep Singh, MD

Legal and Regulatory Environment for HIT Patient Safety

Elisabeth Belmont, JD

Vendor Perspectives on HIT Safety

Mark Segal, PhD

Opportunity for Public Comment

Lunch

Overview of Preliminary Framework – Discussion and Feedback

Break-Out Sessions

Break

Break-out Groups Report-Out

Opportunity for Public Comment

Summary of Day

Standing Committee Dinner

Additional Information

- Dinner Reservation 6:00PM
- Parties will have separate checks
- NQF will reimburse for dinner **up to $36** plus one alcoholic beverage

Catch 15 Italian Kitchen + Oyster Bar

1518 K Street NW

Washington, DC 20005

Meeting Objectives

- Review preliminary environmental scan results and identify important measurement and other considerations to guide the development of the conceptual framework (e.g., care setting, level of analysis, etc.)
- Identify key opportunities to be consistent with the AHRQ Common Formats and align with other relevant safety and quality measure initiatives or programs
- Obtain committee direction on the development of the conceptual framework (e.g., existing frameworks, adaptable frameworks, and other resources, etc.)

Day 2: Thursday, February 19, 2015

- 9:30 am **Welcome, Goals, Agenda Review, Recap of Day 1**
- 9:45 am **Continue Discussion of Breakout Sessions**
- 11:00 am **Break**
- 11:15 am **Common Formats – Opportunities for Alignment**
- 11:45 am **Other ONC HIT Patient Safety Projects**
- 12:30 pm **Public and Member Comment**
- 12:45 pm **Lunch**
- 1:30 pm **Conceptual Framework**
- 2:15 pm **Break**
- 2:30 pm **Next Steps/Wrap Up**
- 2:45 pm **Public and Member Comment**
- 3:00 pm **Adjourn**

Committee Discussion

Break

Common Formats – Opportunities for Alignment

David Classen, MD, MS

HIT Patient Safety Projects across CMS/ONC

David Hunt, MD

Opportunity for Public Comment

Lunch

Committee Discussion

Break

Wrap Up/Next Steps

Opportunity for Public Comment

Upcoming Events

- **April 21, 2015:** HIT Safety Committee web meeting to review and finalize environmental scan.
- **July 21, 2015:** HIT Safety Committee web meeting to review draft conceptual framework
- **September 16 – 17 2015**: HIT Safety Committee In-person meeting to finalize conceptual framework and develop recommendations for measurement.
- **January 26, 2015**: HIT Safety Committee web meeting to review draft report
- **February 12, 2016:** Final report due to HHS