

The Office of the National Coordinator for  
Health Information Technology



# **Component 12:**

# **Quality Improvement**

## **Component Guide**

### **Health IT Workforce Curriculum Version 4.0/Spring 2016**

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## **Component Number: 12**

### **Component Title:**

Quality Improvement

### **Component Description:**

Introduces the concepts of health IT and practice workflow redesign as instruments of quality improvement. Addresses establishing a culture that supports increased quality and safety. Discusses approaches to assessing patient safety issues and implementing quality management and reporting through electronic systems.

### **Component Objectives:**

At the completion of this component, the student will be able to:

1. Analyze clinical decision-making requirements, including who, what, when, how, and where information is needed.
2. Propose ways in which quality improvement methods, tools, and health IT can be applied within a health care setting to improve workflow processes.
3. Design and apply information technology and standardized practices that support safety and quality.
4. Formulate activation planning that supports and maintains safety and quality.
5. Design and implement effective strategies to use information technology to decrease reliance on memory.
6. Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record.
7. Design an information technology culture conducive to highly reliable processes built on human factors research.
8. Monitor use of information technology for inappropriate use leading to hazards and errors.
9. Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities.
10. Assess findings from quality reviews of reported events to design and implement clinical information system improvements.
11. Assess data quality issues impacting quality and safety.

### **Component Files**

Each unit within the component includes the following files:

- Lectures (voiceover PowerPoint in .mp4 format); PowerPoint slides (Microsoft PowerPoint format), lecture transcripts (Microsoft Word format); and audio files (.mp3 format) for each lecture.

- Application activities (discussion questions, assignments, or projects) with answer keys.
- Self-assessment questions with answer keys based on identified learning objectives.
- Some units may also include additional materials as noted in this document.

## **Component Units with Objectives and Topics**

### **Unit 1: Introduction to Quality Improvement and Health Information Technology**

#### **Description:**

This unit will introduce the concept of health care quality and the importance of health information technology in improving health care quality. The Institute of Medicine aims of quality improvement and the Institute of Healthcare Improvement's Triple Aim are used to frame a discussion of the role of health information technology in leading to improvement of patient safety, efficiency, effectiveness, equity, timeliness, and patient centeredness. The learner is also provided with examples of how health IT can facilitate quality improvement as well as unintended consequences of health IT that can be byproducts of poor system design and user workarounds. Measurement of quality as a tool for adaptive leadership will be discussed.

#### **Objectives:**

1. Identify the current challenges in health care quality.
2. Examine the components of the health care system that have an impact on quality.
3. Explain health care quality and quality improvement (QI).
4. Describe quality improvement as a goal of key national health care priorities, including the National Quality Strategy.
5. Analyze the ways that HIT can either help or hinder quality and patient safety.

#### **Lectures:**

- a. Health Care Quality and HIT (18:09)
- b. Relationship of QI and HIT (19:44)
- c. HIT and Optimizing Efficiency (14:12)
- d. HIT: Help or Hinder Quality and Patient Safety? (10:35)

### **Unit 2: Principles of Safety for HIT**

#### **Description:**

This unit is designed to introduce the learner to the magnitude of the problem of medical error in the U.S. health care system and the role of learning in helping to make our system safer. Emphasis is placed on how the science of safety can be applied to health care and the impact of system factors on patient safety. Three principles of safe design are introduced (eliminate steps, create independent checks, and learn from mistakes).

#### **Objectives:**

1. Investigate the fallibility of people and systems.
2. Describe the ways that every system is designed to achieve the results it gets.

3. Apply the basic principles of safe design.
4. Explain the ways that teams make wise decisions with diverse and independent input.

**Lectures:**

- a. Improving Patient Safety (14:45)
- b. Principles of Safe Design (13:33)

**Unit 3: Introduction to Reliability**

**Description:**

This unit introduces the learner to the notion of high-reliability organizations. Reliability principles, used to design systems that compensate for the limits of human ability, can improve safety and the rate at which a system consistently produces desired outcomes.

**Objectives:**

1. Discuss the basic concepts of reliability.
2. Understand what makes organizations highly reliable.

**Lectures:**

- a. Introduction to Reliability (11:39)

**Unit 4: Reliability, Culture of Safety, and HIT**

**Description:**

This unit introduces the learner to the notion of high-reliability organizations, and the importance of transparency and speaking up to a culture of safety. Characteristics of a culture of safety are outlined, and the role of the HIT professional in this culture is defined. Strategies and tactics for communicating risks and advocating for resolution in a resistant culture are discussed.

**Objectives:**

1. Discuss reliability as a tool for ensuring safety.
2. Examine how ultra-safe organizations operate.
3. Identify how teams make wise decisions.

**Lectures:**

- a. Reliability, Culture of Safety, and HIT (11:34)

**Additional Materials**

Additional materials beyond the core contents for this unit include the following files:

comp12\_unit4\_lecture\_video\_HoneyBee  
comp12\_unit4\_lecture\_video\_HoneyBee\_transcript  
comp12\_unit4\_lecture\_video\_NavyCarrier  
comp12\_unit4\_lecture\_video\_NavyCarrier\_transcript  
comp12\_unit4\_readme

## **Unit 5: Decision Support for Quality Improvement**

### **Description:**

This unit presents an in-depth review of ways in which decision support can enhance quality and safety in patient care. Definitions of decision support are provided.

### **Objectives:**

1. Define decision support, its importance, and why it is difficult to implement.
2. Compare decision support tools that help improve quality.
3. Analyze the benefits and shortfalls of alerts and clinical reminders.

### **Lectures:**

- a. Clinical Decision Support System (CDSS) Basics (15:25)
- b. Alerts and Clinical Reminders (12:14)

## **Unit 6: Quality Improvement Methods**

### **Description:**

This unit covers quality improvement methods recommended for use in the health care setting. Many different approaches to quality improvement have been used in the health care arena. The workflow analysts will encounter organizations and people with experience with a multitude of proven methods and fads. Thus, an awareness of the history, methods, and tools of quality improvement is critical. This unit introduces students to these elements of QI as well as categories of mistakes seen in these methods. It is not intended to teach the student how to use these methods and tools.

### **Objectives:**

1. Describe strategies for quality improvement.
2. Describe the role of leadership in quality improvement.
3. Describe the local clinic improvement capabilities.
4. Describe and recommend tools for quality improvement.
5. Compare and contrast the quality improvement methodologies and tools and their appropriate uses in the health care setting.

**Lectures:**

- a. Foundations of Quality Improvement (10:46)
- b. Methods for Quality Improvement (24:41)

**Additional Materials**

Additional materials beyond the core contents for this unit include the "Putting Quality into Practice" embedded videos found at the following website:

<http://abimfoundation.org/videos>

The titles and URLs of the individual source videos are as follows:

"Putting Quality Into Practice - Part I": <http://youtu.be/HqmqRRLC5IE>

"Putting Quality Into Practice - Part II": <http://youtu.be/FtvBmIPlt0c>

"Putting Quality Into Practice - Part III": <http://youtu.be/FtvBmIPlt0c>

Further details can be found in the file:

comp12\_unit6\_readme

**Unit 7: HIT's Impact on a Patient Safety Culture****Description:**

This unit dives into the specifics of how design and the implementation of technology can support a safe environment or place patients and organizations at risk. Examples of poor design are provided as well as their impact on patient care. A strong case is made for the responsibility of users to monitor information systems for risks and to ensure that they use these systems appropriately. The HIT professional's role is vital in ensuring attention to usability and compatibility with workflow during the design and testing phase of implementation. We will discuss the HIT professional's need to employ adaptive leadership skills to work with clinical users in safely implementing clinical information systems.

**Objectives:**

1. Apply QI tools to the analysis of HIT errors.
2. Identify strategies for adaptive work that can be useful to HIT initiatives.
3. Identify techniques for adaptive leadership.
4. Identify frameworks to support a patient safety culture.
5. Differentiate between technical and adaptive change.

**Lectures:**

- a. The BSI Story and CUSP (23:23)
- b. Strategies for Adaptive Work (12:41)

- c. Adaptive Leadership to Identify EMR Safety Risks (06:10)

## **Unit 8: HIT Implementation Planning for Quality and Safety**

### **Description:**

This unit focuses the attention of the learner on ways in which HIT implementation can be managed to ensure quality and safety are maintained during the transition period and reporting of electronic quality measures can be a byproduct of routine clinical documentation in the EHR. Use of internal support pools, super-users, and front-line clinical experts to provide at-the-elbow support during the transition period is discussed. Emphasis is placed on the need for local adaptation and ongoing development of skills so that users can gain expertise in safe use of electronic health records and other information technology.

### **Objectives:**

1. Critique an implementation team and the roles they play in ensuring quality and safety of patient care during implementation.
2. Analyze effective implementation planning.
3. Assess the quality implications of “big bang” versus “staggered” approaches to activation.
4. Discuss “go live” support strategies that minimize risk.
5. Discuss “post live” maintenance support strategies.

### **Lectures:**

- a. The Implementation Team and Effective Implementation Planning (24:29)
- b. Go-Live Support Strategies (15:50)

## **Unit 9: Assessing Data Quality**

### **Description:**

This unit will introduce the learner to the importance of data quality and the role of the HIT professional in monitoring and ensuring quality of data in clinical information systems. The theme of this unit is "beginning with the end in mind," and a review of both measurable and intangible dimensions of data quality is provided. Examples of each dimension are reviewed, and a business case for quality is presented.

### **Objectives:**

1. Understand the different purposes of data.
2. Discuss the impact of poor data quality on quality measurement.
3. Identify 10 attributes of data quality and key process recommendations.

4. Explore the attributes of data quality and key process recommendations for maintaining data integrity.
5. Discuss common causes of data insufficiency.
6. Describe how health information technology design can enhance data quality and improve quality and safety measure results.

**Lectures:**

- a. Characteristics and Use of Data (24:48)
- b. Common Causes of Insufficient Data Quality (16:38)

**Unit 10: Measuring Quality of Care with Electronic Clinical Quality Measures (eCQMS)**

**Description:**

This unit will introduce different types of quality and safety measures, with emphasis on electronic clinical quality measures (eCQMs). We will discuss how data entry and the design of electronic documents and flow sheets have a significant impact on the ability to extract quality measures data from the resulting database(s). The importance of rigorous design and testing of system reports used for quality purposes is emphasized. Sample quality measures that are frequently requested of HIT systems are identified, and questions that guide data extraction are suggested.

**Objectives:**

1. Review types of quality and safety measures currently in use nationally.
2. Explain the attributes of an effective electronic clinical quality measures (eCQMs) reporting system.
3. Examine the importance of having standardized and structured health information for quality measurement, especially electronic clinical quality measures (eCQMs).
4. Discuss the role of HIT standards and terminologies in electronic clinical quality measures.
5. Discuss how HIT can facilitate data collection and reporting for improving quality of care and patient safety.
6. Describe data quality issues in electronic measures.

**Lectures:**

- a. Measuring Quality of Care with Electronic Clinical Quality Measures (eCQMs) (15:40)

**Unit 11: Learning from Mistakes: Error Reporting and Analysis and HIT**

**Description:**

This unit is designed to assist the learner in understanding the role of HIT in error detection and reporting and analysis of errors. The unit pulls together the links between learning from mistakes and the science of safety and safe culture. It includes a review of three tools for error detection and reporting: automated surveillance systems, error reporting systems, and predictive analytics and modeling. Examples of two powerful quality improvement tools (root cause analysis and failure mode effects analysis) are provided, and the role of HIT professionals in contributing to these efforts is discussed.

**Objectives:**

1. Explain how reporting errors can help to identify HIT system issues.
2. Describe ways in which HIT can facilitate error reporting and detection.
3. Assess HIT for unintended negative consequences.
4. Examine common themes in HIT design deficiencies.
5. Apply QI tools to the analysis of HIT errors.

**Lectures:**

- a. HIT, Error Detection, and Reporting (18:26)
- b. Types of Unintended Consequences (17:08)
- c. Quality Improvement Tools and HIT (21:34)

# Component Authors

## **Component Originally Developed and Updated by:**

### **Assigned Institution:**

The Johns Hopkins University

### **Team Lead(s):**

Stephanie Poe, DNP, RN, Johns Hopkins Hospital

Anna Maria Izquierdo-Porrera, MD PhD, BlueNovo, Inc

Peter Pronovost, PhD, MD, JHU, School of Medicine

### **Primary Contributing Authors:**

Zahid Butt, MD, FACC — CEO, Medisolv Inc.

Patricia Dawson, MSN, RN, Johns Hopkins Hospital

Kelly Hugo, MBA, Anne Arundel Community College

Paul Nagy, PhD — JHU, School of Medicine

### **Lecture Narration**

Voiceover Talent: Ned Boyle, Renee Dutton-O'Hara

Sound Engineer: Judith Schonbach

[Center for Teaching and Learning](#), Johns Hopkins Bloomberg School of Public Health

Voiceover Talent & Sound Engineer:

Raland Technologies LLC, David Flass – Project Manager

### **Team Members:** [listed alphabetically]

Patricia Abbott, PhD, RN, FAAN, Principal Investigator (original), JHU, School of Nursing

Hadi Kharrazi, MD, MHI, PhD, co-Principal Investigator, Research Director of the Center for Population Health IT, JHU, School of Public Health and School of Medicine

Harold Lehmann, MD, PhD, co-Principal Investigator, Director of the Division of Health Sciences Informatics, JHU, School of Medicine and School of Public Health

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