Curriculum Development Centers Program

Awardee of The Office of the National Coordinator for Health Information Technology

HEALTH IT WORKFORCE CURRICULUM
COMPONENT BLUEPRINT
Version 3.0/Spring 2012

Component Number: 12
Component Name: 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.

Assigned Institution: Johns Hopkins University
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Workforce Roles:

- Clinician/Practitioner Consultant
- Practice Workflow and Information Management Redesign Specialist

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. Design and implement information technology that supports effective teamwork, fosters open communication and enables shared decision-making to achieve quality patient care
3. Analyze clinical workflows to design information technology that supports clinical decision-making and care coordination.
4. Design and apply of information technology and standardized practices that support safety and quality
5. Formulate activation planning that supports and maintains safety and quality

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6. Select and apply quality measures for incorporation into information systems to enable review of outcomes of care and identification of improvement opportunities
7. Assess findings from quality reviews of reported events to design and implement clinical information system improvements.
8. Select improvement tools to assist clinical teams in improving the quality and safety of the electronic health record.
9. Monitor use of information technology for inappropriate use leading to hazards and errors
10. Design an information technology culture conducive to highly reliable processes built on human factors research.
11. Design and implement effective strategies to use information technology to decrease reliance on memory.

Component Units with Objectives and Topics

Unit 1 Introduction to Quality Improvement and Health Information Technology

Description:
This unit will introduce the learned to the concept of health care quality and the importance of meaningful use 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 work-arounds.

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. Describe QI as a goal of meaningful use of HIT.
4. Analyze the ways that HIT can either help or hinder quality improvement.
5. Explain health care quality and quality improvement (QI).

Topics:
1.1 – Health Care Quality and HIT
1.2 – Relationship of QI and HIT

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Unit 2 Principles of Quality and Safety for HIT

Description:
This unit is designed to introduce the learner to the magnitude of the problem of medical error in the US. Health care system and the role of the 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.

Topics:
2.1 – Improving Patient Safety

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

Topics
3.1- Introduction to Reliability.

Unit 4 Reliability and Culture of Safety

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.

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3. Identify how teams make wise decisions.

Topics:

4.1– Reliability, culture of safety, and HIT

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.

Topics:

5.1 – Clinical Decision Support System (CDSS) Basics
5.2 – Alerts and Clinical Reminders.

Unit 6 Workflow Design

Description:

This unit introduces the learner to good practices for determining current workflow design and whether this design can be supported by HIT. It also presents ways of assisting users to redesign clinical work-flow as needed without loss of quality and safety in the clinical environment. Discussion of questions to ask when determining hard-wired and mobile technology placement is included.

Objectives*:*

1. Assess decision-making requirements in health or health care.
2. Construct a work process flow chart.
3. Appraise ways of incorporating decision-making requirements into HIT design.

Unit Topics/Lecture Titles

6.1 - Workflow Assessment
6.2 - Work Process Flow Charts

Unit 7 HIT Design to Support Teamwork and Communication

Description:

The unit focuses on ways in which HIT can be designed to support care coordination. The focus is on electronic tools to support communication and teamwork during hand-off, care planning, and care transitions. Incorporation of automatic referral requests,

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data transfer to longitudinal records, and shared problem lists and daily goal forms into the EHR is discussed as well as the utility of electronic whiteboards and clipboard tools.

Objectives:

1. Assess the impact of teamwork and communication on patient safety and care coordination.
2. Investigate ways in which HIT design can serve as a barrier to effective communication.
3. Describe ways in which HIT design can enhance communication and care coordination.

Unit Topics/Lecture Titles

7.1 - Communication and care coordination and barriers of HIT
7.2 - Tools to enhance communication and care coordination

Unit 8 HIT and Infecting a Patient Safety Culture

Description:

This unit dives into the specifics of how poor design and misuse of technology can place patients and organizations at risk. 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. Examples of poor design are provided, as well as their impact on patient care. The HIT professional's role in ensuring attention to usability and compatibility with workflow during the design and testing phase of implementation is discussed.

Objectives:

1. Apply QI tools to the analysis of HIT errors.
2. Identify strategies for adaptive work that can be useful to HIT initiatives.

Unit Topics/Lecture Titles

8.1 - The BSI Story and CUSP
8.2 - Strategies for Adaptive Work

Unit 9 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 the quality and safety are maintained during the transition period. 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.

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Objectives:

1. Critique an implementation team and the roles they play in ensuring quality.
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.

Topics:

9.1 - The Implementation Team and Effective Implementation Planning
9.2 - Go-Live Support Strategies

Unit 10 Measuring Quality

Description:
This unit we will discuss the basics of measurement for quality. We will introduce the concepts of understanding variation. We will also discuss the fact that the design of electronic documents and flow sheets have a significant impact on the ability to extract quality measures from the resulting database. 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. Understand the basic concepts of variation.
2. Explain the attributes of an effective reporting system.
3. Examine the importance of having standardized and structured health information so that you can use those data to make valid reports.
4. Discuss how HIT can facilitate data collection and reporting for improving quality of care and patient safety.

Topics:

10.1 – Measuring Patient Safety

Unit 11 Data Quality Improvement

Description:
This unit will introduce the learner to the importance of data quality and the role of the HIT professional in monitoring and ensuring the 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.

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2. Discuss the impact of poor data quality on quality measurement.
3. Identify ten 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.

Topics:

11.1– Characteristics and use of data.
11.2 – Common causes of Insufficient Data Quality and Design Recommendations.

Unit 12 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 tolls (root cause analysis and failure mode effects analysis) are provided and the role of HIT professional 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 examine HIT errors.

Topics:

12.1 – HIT, Error Detection, and Reporting
12.2 – Quality Improvement Tools and HIT

Unit Elements:

Instructor manual, lectures, self-assessment questions, discussion questions and/or activities, assignments and exercises

Format:

Slides with narration (voiceover PowerPoint in Flash format), suitable for lecture, team-based learning, or online independent study; lecture transcripts (MS Word documents); and audio files in mp3 format for each lecture; self-assessment and discussion questions and keys (MS Word documents).

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Local Resources Required for Implementation:
Computer, Microsoft Office, PowerPoint, Flash player (free download), mp3 player (free download), Learning Management System (optional)

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