

## **MENTOR HEALTH IT CURRICULUM**

### **Informatics and Technical Support Tracks**

Component Number: 1

Component Title: Introduction to Healthcare and Public Health in the US

Component Description: This component is a survey of how healthcare and public health are organized and services delivered in the US. It covers public policy, relevant organizations and their interrelationships, professional roles, legal and regulatory issues, and payment systems. It also addresses health reform initiatives in the US.

#### Unit 1: Introduction and History of Modern Healthcare in the US

Description: This introductory unit covers definitions of terms used in the component, with an emphasis on paradigm shifts in healthcare, including the transition from physician-centric to patient-centric care, the transition from individual care to interdisciplinary team-based care, and the central role of technology in healthcare delivery. This unit also emphasizes the core values in US healthcare.

#### Unit 2: Delivering Healthcare (Part 1)

Description: This unit depicts the medical model of healthcare in the US, with an overview of the organization of healthcare and the physical structure of healthcare delivery in the outpatient, inpatient and long-term care settings, including an overview of the organization of the Veterans Affairs (VA) system. This unit is intended primarily for the student who does not have a background in healthcare, though the topics of this unit will be described at a relatively advanced level.

#### Unit 3: Delivering Healthcare (Part 2)

Description: This unit depicts the medical model of healthcare in the US, with an overview of the organization of healthcare and the physical structure of healthcare delivery in the outpatient setting, including an overview of the people involved in the delivery of healthcare, their education and licensing. This unit is intended primarily for the student who does not have a background in healthcare, though the topics of this unit will be described at a relatively advanced level.

#### Unit 4: Financing Healthcare (Part 1)

Description: This unit provides an overview of the role of healthcare in the economy and a description of various models of healthcare financing. The unit provides a history of the current US system and laws that have influenced its development. It also includes discussion of healthcare financing at the governmental, enterprise, and consumer levels.

#### Unit 5: Financing Healthcare (Part 2)

Description: This unit continues the discussion of healthcare financing at the governmental, organizational, and consumer levels. It describes the revenue cycle for healthcare organizations, identifies the different reimbursement methodologies and standards developed for the billing (reimbursement) process. Finally, this unit reviews

some of the factors responsible for the escalating healthcare expenditures in the US and discusses some methods for controlling rising medical costs.

#### Unit 6 Regulating Healthcare

Description: This unit provides an overview of the regulation of healthcare, including regulatory and professional organizations, the regulation of safety in medicine, and key legal aspects of medicine. This unit also covers compliance issues including privacy violations, reimbursement and fraud and abuse.

#### Unit 7: Public Health (Part 1)

Description: This unit provides a discussion of public health origins and history, the differentiation from private health, and the significant value provided by public health. It also reviews important terminology and includes an examination of the general organization of public health agencies and the flow of data within public health.

#### Unit 8: Public Health (Part 2)

Description: This unit provides an overview of public health topics including: important communicable diseases and public health responses; terrorism, including biological, agricultural, and chemical terrorism; and chronic diseases and environmental health.

#### Unit 9: Healthcare Reform

Description: This unit provides an overview of healthcare trends including evidence based medicine, quality and practice-care recommendations, comparative effectiveness research, and an overview of healthcare reform initiatives in the US.

#### Unit 10: Meaningful Use

Description: The Health Information Technology for Economic and Clinical Health (HITECH) Act of the American Recovery and Reinvestment Act (ARRA) legislated incentives for the meaningful use of health information technology. This unit describes the meaningful use program of HITECH, eligibility for incentive payments, and the criteria for achieving those payments in Stage 1 of the program. It also describes the standards specified for Stage 1 of meaningful use, including those devoted to privacy and security.

Component Number: 2

Component Title: The Culture of Healthcare

Component Description: For individuals not familiar with healthcare, this component addresses job expectations in healthcare settings. It discusses how care is organized within a practice setting, privacy laws, and professional and ethical issues encountered in the workplace.

#### Unit 1: An Overview of the Culture of Healthcare

Description: This introductory unit discusses some of the underlying concepts of health, culture, and how health informatics applications can be used to study culture.

## Unit 2: Health Professionals – the People in Healthcare

Description: This unit discusses the health professionals who deliver healthcare and the training needed to work in these professions. The following professionals are described in this unit: physicians, nurses, advanced practice nurses, physician assistants, pharmacists, therapists, allied health professionals, paramedics, EMTs, dental professionals, mental health professionals, and social workers.

## Unit 3: Healthcare Settings – The Places Where Care is Delivered

Description: This unit describes healthcare delivery sites including outpatient care, hospitals, tertiary care centers, academic medical centers, the VA healthcare system, the military health system, the Indian health service, and non-traditional delivery sites such as school-based, community-based, and employer-based sites. It also specifically examines the structure, function and interrelationship between healthcare settings.

## Unit 6: Nursing Care Processes

Description: This unit describes the processes used by a nurse in making clinical decisions and assessing patients. It also describes how nurses are trained, where they work and the procedures that they perform.

## Unit 10: Sociotechnical Aspects: Clinicians and Technology

Description: This unit looks at the challenges of adapting work processes to new technology, and the resulting impact on quality, efficiency, and safety. This unit also examines the phenomena of social and technical resistance to change, especially among clinicians.

Component Number: 5

Component Title: History of Health Information Technology in the U.S.

Component Description: This component traces the development of IT systems in health care and public health, beginning with the experiments of the 1950s and 1960s and culminating in the HITECH act, including the introduction of the concept of “meaningful use” of electronic health records.

## Unit 6: History of Electronic Health Records (EHRs)

Description: This unit describes the history of electronic health records.

## Unit 7: History of Clinical Decision Support Systems

Description: This unit describes the history of clinical decision support systems.

## Unit 8: History of CPOE and E-Prescribing

Description: This unit describes the history of CPOE and e-prescribing.

Component Number: 3

Component Title: Terminology in Health Care and Public Health Settings

Component Description: This component explains specific terminology used by workers in health care and public health. This is NOT a course in data representation or standards.

Computer Terminology  
When to call the IT Helpdesk

Unit 1: Understanding Medical Words  
Description: This unit describes the meanings of medical words.

Unit 2: Integumentary System  
Description: This unit describes the integumentary system.

Unit 3: Musculoskeletal System  
Description: This unit describes the musculoskeletal system.

Unit 4: Blood, Lymphatic and Immune System  
Description: This unit describes the blood, lymphatic and immune systems.

Unit 5: Cardiovascular System  
Description: This unit describes the cardiovascular system.

Unit 6: Digestive System  
Description: This unit describes the digestive system.

Unit 7: Endocrine System  
Description: This unit describes the endocrine system.

Unit 8: Ears, Nose, Throat, Eye and Vision  
Description: This unit describes the ears, nose, throat, eyes and vision.

Unit 9: Nervous System  
Description: This unit describes the nervous system.

Unit 10: Reproductive System  
Description: This unit describes the reproductive systems.

Unit 11: Respiratory System  
Description: This unit describes the respiratory system.

Unit 12: Urinary System  
Description: This unit describes the urinary system.

Unit 13: Public Health and Healthcare System Terminology  
Description: This unit describes public health.

#### Unit 14: What is Health Information Management and Technology?

Description: This unit describes health information management and technology.

#### Unit 15: Electronic Health Records

Description: This unit describes the electronic health record (EHR).

#### Unit 16: Standards to Promote Health Information Exchange

Description: This unit describes standards to promote health information exchange.

Component Number: 4

Component Title: Introduction to Information and Computer Science

Component Description: For students without an IT background, this Component provides a basic overview of computer architecture; data organization, representation and structure; structure of programming languages; networking and data communication. It also includes basic terminology of computing.

#### Unit 1: Basic Computing Concepts, Including History

Description: This unit introduces basic computing concepts and terminology. It identifies common elements of computers, both in terms of hardware and software and provides information on selecting a computer by discussing the range of computer types, from desktops to laptops to servers. Finally, it provides a history of the development of computing and healthcare information systems over time.

#### Unit 2: Internet and the World Wide Web

Description: This unit covers the implications, origins, and use of the Internet and the World Wide Web, including the advantages and disadvantages of this technology.

#### Unit 3 – Computer Hardware

Description: This unit provides a foundation on how a computer functions and how data is represented in memory, input and output devices, and the CPU, including its role in system functionality.

#### Unit 4 – Computer Software

Description: This unit covers application and system software, with a focus on healthcare systems. It also describes the functions of operating systems, presents different operating systems, and defines the purpose and usage of file systems.

#### Unit 5 – Computer Programming

Description: This unit discusses the purpose and types of programming languages from simple machine code to high level programming languages, including the process of compiling and interpreting. Students will use variables, loops and conditional statements to build a simple program. Finally, this unit presents some advanced programming concepts such as Object Oriented Programming.

#### Unit 6 – Databases and SQL

Description: This unit discusses the purposes of databases, a relational database, and the querying language SQL. Students will design a simple database using data modeling and normalization. This unit will define basic data operations, provide instruction on how to create common query statements, and discuss SQL implementation.

#### Unit 7 – Networks

Description: This unit covers the history and evolution of computer networks, including the various types of network communications. Various forms of networking addressing are also covered, including network topologies, standards and protocols, logical model concepts, network hardware, and wireless communication.

#### Unit 8 – Security

Description: This unit covers common security concerns and safeguards, including firewalls, encryption, virus protection software and patterns, and programming for security. Additional topics include security of wireless networks, and concerns, mitigations, and regulations related to healthcare applications.

#### Unit 9 – Information Systems

Description: This unit defines information systems and describes how they are used. It discusses how an information system is designed, developed, tested, supported and maintained. Finally, it explains how information systems are used in healthcare settings, including the role of specialized information systems.

#### Unit 10 – Future of Computing

Description: This unit covers five topics concerning the future of computing: trends in computing, interfaces used to communicate with computer systems, cloud computing, the changing social implications of the use of computer systems, and the ubiquity of computers in our daily lives.

Component Number: 6

Component Title: Health Management Information Systems

Component Description: A “theory” component, specific to health care and public health applications. Introduction to health IT standards, health-related data structures, software applications; enterprise architecture in health care and public health organizations.

#### Unit 1: What is Health Informatics?

Description: Lecture a defines information management, information technology, and informatics, describe the fundamental theorem of informatics, explains the meaning of biomedical and health informatics as a field of study, and offers definitions of the major biomedical informatics areas of applications. It also provides an overview of informatics drivers and trends in the health care field. Lecture b defines the informatics team, their skills, roles and responsibilities, and identifies how health informaticians process data into information and knowledge for health care tasks with the support of information technology to improve patient care.

## Unit 2: Health Information Systems Overview

Description: Lecture a defines the concept of an information system and its characteristics, describes the different types of information systems, and describe various types of technologies that support health care information systems. Lecture b examines the challenges presented by emerging trends in information technology (e.g., mobility, web services, the Internet, Intranet, and wireless computing), social media, and global communications and discusses the advantages and disadvantages of using the Internet as a platform for health care applications.

## Unit 3: Electronic Health Records

Description: Lecture a defines an electronic medical record (EMR) and electronic health record (EHR) and explains their similarities and differences, identifies attributes and functions of an EHR, discusses the issues surrounding EHR adoption and implementation, and describes the impact of EHRs on patient care. Lecture b links EHRs to the Health Information Exchange (HIE) and the Nationwide Health Information Network (NHIN) initiatives, discusses how HIE and NHIN impact health care delivery and the practice of health care providers, summarizes the governmental efforts related to EHR systems including meaningful use of interoperable health information technology and a qualified EHR, describes the Institute of Medicine's vision of a health care system and its possible impact on health management information systems, and lists examples of the effects of developments in bioinformatics on health information systems.

## Unit 4: Computerized Provider Order Entry (CPOE)

Description: Lecture a defines CPOE, states the purpose of CPOE, lists attributes and functions of CPOE, and explains how CPOE is currently being used in health care. Lecture b describes the major value to adopting CPOE applications, identifies the common barriers to adoption, and summarizes the potential impact CPOE has on patient care safety, quality and efficiency, and patient outcomes.

## Unit 5: Clinical Decision Support Systems

Description: Lecture a will offer a definition of clinical decision support, provide some historical context surrounding clinical decision support, describe the requirements of a clinical decision support system, and discuss the relationship of clinical practice guidelines and evidence-based practice to clinical decision support systems. Lecture b will identify the challenges and barriers in building and using clinical decision support systems, explain how legal and regulatory technologies may affect their use, and introduce the future directions for clinical decision support systems.

## Unit 6: Patient Monitoring Systems

Description: Lecture a offers a definition of patient monitoring systems, describes the purpose, attributes, and functions of patient monitoring systems, discusses the primary applications and how automation can improve quality of care, and analyzes how the integration of data from many sources assists in medical decision making. Lecture b

discusses how telehealth communication technologies support clinical care, explains the effectiveness and economic benefit of telehealth, and examines the role smart technology in the home and remote links to health information systems play in enhancing the quality of patient care.

#### Unit 7: Medical Imaging Systems

Description: The lecture offers a definition of medical imaging, describes the purpose, processes, and management issues of medical imaging systems, analyzes the economic and technological factors that must be considered in the adoption of digital displays in radiology departments, looks at the major challenges with imaging systems faced by health care institutions and informaticians, and examines the future directions for imaging systems.

#### Unit 8: Consumer Health Informatics

Description: Lecture a provides a definitions of health communication, e-Health, consumer health informatics, and interactive health communication, identifies how the Internet has impacted consumer health informatics, explains how current and emerging technologies may affect consumer health informatics, and introduces the role of genomics in consumer health informatics. Lecture b offers definitions of personal health records or PHRs, describes the role of PHRs and their implications within health care, and discusses the challenges of consumerism in health information systems.

#### Unit 9: Administrative, Billing, and Financial Systems

Description: Lecture a examines the relationship of administrative, billing, and financial systems to the health care information system, explains applications that need to be integrated in health care information systems, explores health care organizations' integration strategies, identifies the critical elements for integration of these systems with clinical information systems, and discusses how health care organizations may gain valuable insights from integrated data through data analytics and trending. Lecture b defines a master patient index or MPI and describes its core elements and discusses current trends to establish a unique patient identifier.

Component Number: 10

Component Title: Fundamentals of Health Workflow Process Analysis & Redesign

Component Description: Fundamentals of health workflow process analysis and redesign is a necessary component of complete practice automation and includes topics of process validation and change management.

#### Unit 1: Concepts of Processes and Process Analysis

Description: This unit focuses on the six aims for health care process improvement. In this unit, students are helped to understand the concepts of systems, systems thinking and health care processes. Such understanding provides a foundation for the study of clinical process analysis and redesign.

#### Unit 2: Process Mapping Theory and Rationale



Description: In two parts, Fundamentals of Health Workflow Process Analysis and Redesign: Process Mapping Theory and Rationale, Lecture a and Process Mapping Diagramming Tools, Lecture b, covers the background necessary for graphically representing processes. It uses flowcharts and basic flowchart symbols to provide an introduction to graphical process representation, also called process diagramming. Separate units cover complete symbol sets and conventions for different types of process diagrams.

### Unit 3: Interpreting and Creating Process Diagrams

Description: Unit 3 is composed of several lectures, one for each diagramming method. Lecture a, Interpreting and Creating Process Diagrams: Introduction - provides an introduction to these concepts and reviews information from Unit 2, Lecture b. Based on feedback from practitioners, we recommend using two methods (data flow diagrams in Yourdon notation, and flowcharts). In Lecture a, we review the process aspects that each diagram type covers. In separate presentations, we cover each diagram type. For the two recommended methods, the presentation covers concepts and skills from reading and interpreting the diagrams to actually creating them. For the rest of the diagrams, we cover only background, use, and notation, i.e., the presentation prepares the student to read and interpret the diagram but not to create them.

### Unit 4: Acquiring Clinical Process Knowledge

Description: In three lectures, this unit covers the concepts and methods for Acquiring Clinical Process Knowledge in the health care setting needed by the health care Workflow Analysis and Redesign Specialist.

### Unit 5: Process Analysis

Description: In two lectures, Fundamentals of Health Workflow Process Analysis and Redesign: Process Analysis covers the background and methodology for process analysis.

### Unit 6: Process Redesign

Description: This unit, Process Design, consists of 4 lectures and covers the background and methodology for process redesign in the health care facility.

### Unit 7: Facilitating Meetings for Implementation Decisions

Description: In one lecture, this unit, Facilitating Meetings for Implementation Decisions, covers a method and the associated logistics for conducting meetings in which health care facility decision makers review options for major process and implementation related decisions and make decisions. The purpose of the meetings is to outline the decisions that need to be made, to assure that decision makers have the necessary information for decision making, and to facilitate decision making. This unit provides the Practice Workflow and Information Management Redesign Specialist with tools for conducting decision making meetings. There are many methods for conducting and facilitating meetings. Here, we provide one method, discuss key concepts, and

provide references to resources that you can use as you develop your skills and portfolio of tools for meeting facilitation.

#### Unit 8: 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.

#### Unit 9: Leading and Facilitating Change

Description: This unit, Leading and Facilitating Change, introduces the concepts of change and the impact of such change on the providers and staff within a health care facility. It enhances the understanding that workflow analysts must be sensitive to the human component as they examine and propose modifications in processes. This unit prepares the student to recognize and address common change management problems, and to work with individuals and groups to facilitate change.

#### Unit 10: Process Change Implementation and Evaluation

Description: This unit focuses on helping students develop skills needed to implement and evaluate the effectiveness of changes designed to improve workflow processes and the quality of care in health care facility. This unit prepares the student to implement a process change by covering three key skill sets: 1) develop a process change plan (implementation plan), 2) communicate a process change plan, and 3) develop an evaluation plan.

#### Unit 11: Maintaining and Enhancing the Improvements

Description: This unit focuses on helping the student develop the skills to recognize and access changes that can be maintained, develop alternative processes and methods needed to keep the practice running if the EHR system fails and apply to these activities an understanding of health IT, meaningful use, and the challenges practice settings will encounter in achieving, sustaining and enhancing meaningful use.

Component Number: 19

Component Name: Introduction to Project Management

Component Description: An understanding of project management tools and techniques that results in the ability to create and follow a project management plan.

#### Unit 1: Overview of Health IT Projects

Description: Students will receive a broad overview of project management including some distinctive characteristics of health IT projects. This unit includes several real scenarios to illustrate the diversity of projects in health IT.

## Unit 2: Project Life Cycles

Description: This unit provides an overview of various project life cycles so that students can assess their appropriateness for use depending on characteristics of a project. Students examine processes, knowledge areas, and organizational influences that are critical to successful project management.

## Change Management in Health IT

Component Number: 9

Component Name: Networking and Health Information Exchange

Component Description: In-depth analysis of data mobility including the hardware infrastructure (wires, wireless, and devices supporting them) , the ISO stack, standards, Internet protocols, federations and grids, the NHIN and other nationwide approaches.

### Unit 1 (ISO Open Systems Interconnection (OSI)):

Description: This unit will address the OSI, including the purpose and content of each of its seven layers: physical, data link, network, transport, session, presentation, and application. Products, processes, protocols and tools at each level will be explained. This unit will also focus on the flow of data through the models as data is transmitted and receive by end devices.

### Unit 2 (Network Media and Hardware Communication Devices):

Description: This unit is designed to help the student understand network media, hardware devices, and how to select appropriate items to meet the guidelines for usage.

### Unit 3 (National and International Standards Developing Organizations):

Description: This unit introduces students to the national and international organizations that create standards used in networking and health information exchange

### Unit 4 (Basic Health Data Standards):

Description: This unit provides an orientation to the important data-related standards that enable interoperable health data interchange

### Unit 5 (EHR Functional Model Standards):

Description: This unit explores the functional requirements and standards for electronic health records (EHRs).

### Unit 6 (Health Data Interchange Standards):

Description: This unit emphasizes the importance of adhering to health data interchange these standards in order to ensure compatibility between systems.

### Unit 7 (Supporting Standards for EHR Applications):

Description: This unit presents a set of standards that support the application layer of the OSI and extend EHR functionality

Unit 8 (Enterprise Architecture Models):

Description: This unit addresses different enterprise architecture models that provide an infrastructure for healthcare networks.

Unit 9 (Privacy, Confidentiality, and Security Issues and Standards):

Description: This unit explores issues related to creating an environment in which to transport data in a secure manner that ensures privacy and confidentiality.

Unit 10 (Health Information Exchange):

Description: This unit explores the networking standards and the standards required for interoperability to enable the creation of Health Information Exchanges.

Unit 11: Introduction to Health Information Exchange

Unit 12: HIE Standards

Unit 13: Meaningful Use in HIE

Unit 14: HIE Governance

Unit 15: HIE Transport and Storage

Component Number: 7

Component Name: Working with Health IT Systems

Component Description: A laboratory component. Students will work with simulated systems or real systems with simulated data. As they play the role of practitioners using these systems, they will learn what is happening “under the hood.” They will experience threats to security and appreciate the need for standards, high levels of usability, and how errors can occur. Materials must support hands-on experience in computer labs and on-site in health organizations.

Unit 1 Introduction & Overview: Components of HIT Systems

Description: Unit 1 is an introductory unit where the core definitions and concepts of systems in general and healthcare specifically are presented. Using hands on exploratory lab exercises, students will be introduced to an example HIT system where they will learn basic navigation and gain familiarity with components common to many clinical HIT systems. Specific examples of HIT systems from a variety of settings will be discussed.

Unit 2 Under the Hood: Functions of HIT Systems

Description: Unit 2 is designed to introduce students to the generic functions of HIT systems that underpin inpatient and outpatient (ambulatory) processes. Crafted HIT lab exercises will lead the student through a complete patient encounter – both inpatient and outpatient – to highlight how HIT systems support, and sometimes thwart, information flow.

Unit 3 Understanding Information Exchange in HIT Systems

Description: Unit 3 will focus upon the functional aspects of interoperability within and between systems. Applying didactically presented concepts to hands on lab assignments, students will be challenged to locate and collate data from disparate systems, to respond to user requests for reports, and to assist users in planning for enhanced information flow in HIT systems.

#### Unit 4 The Effective HIT System

Description: Unit 4 is designed to emphasize the aspects of HIT that contribute to effectiveness and meaningful use. The concepts of usability, consistency, and reliability in regards to HIT systems and how each contributes to, or detracts from, effectiveness will be presented. Definitions of evidence-based practice and guideline-enhanced care will be covered in addition to how HIT can support effective, safe, and efficient patient-centered care.

#### Unit 5 Fundamentals of Usability in HIT Systems – What Does It Matter?

Description: Unit 5 will present the basic concepts of usability in general and HIT usability specifically. Students will be exposed to usability bottlenecks and learn to identify usability roadblocks in the EHR lab system, hypothesizing potential downstream effects of poor usability, and suggesting solutions/alternate designs. This unit will detail the relationships between usability, user satisfaction, and workarounds.

#### Unit 6 HIT Facilitated Error—Cause and Effect

Description: Unit 6 is a unit that will focus upon error in health and healthcare that can be facilitated and propagated by HIT. Different classes of HIT errors (slips/mistakes, omission/commission) will be discussed and differentiated. Specific scenarios that create opportunities for HIT facilitated error will be presented to students in the lab exercises. In these exercises, students will apply concepts learned in the didactic portion of this unit to identify error, classify error, analyze root cause, and propose solutions.

#### Unit 7 Protecting Privacy, Security, and Confidentiality in HIT Systems

Description: Unit 7 is designed to present an overview of the concepts of privacy, security, and confidentiality of protected health information (PHI) in relation to HIT systems. Threats to PHI frequently encountered in HIT environments such as password sharing, offsite access to EHR, challenges of staff turn-over and student access, unauthorized access, etc. will be detailed. Students will be exposed to simulated breaches of privacy, security and confidentiality of PHI in lab exercises, asked to identify, and propose strategies to thwart.

#### Unit 8 HIT System Planning, Acquisition, Installation, & Training: Practices to Support & Pitfalls to Avoid

Description: Unit 8 is a unit where the core definitions and concepts of HIT systems planning, acquisition, installation and training are presented. A variety of different settings will be used as examples in the unit, including small office practices, community clinics, acute care facilities and skilled nursing facilities. Students will conduct simulated

user needs analysis, and using the lab EHRs, will identify gaps in meeting those needs. Students will develop training plans for a variety of settings.

#### Unit 9 Potential Issues with Adoption and Installation of an HIT system

Description: The basics of human behavior, change, and adaptation will be discussed. Strategies for dealing with barriers to implementation (human and structural) will be covered.

#### Unit 10 HIT and Aspects of Patient-Centered Care

Description: Patient-centered care will be defined and explained. The aspects of HIT that support (and detract) from patient-centered care will be discussed. Specific examples will be provided. Students will explore aspects of HIT that currently support patient-centered care and will propose new methods for enhancing patient-centered care.

## **MENTOR HEALTH IT CURRICULUM Trainer Track**

Component Number: 16

Component Title: Professionalism/Customer Service in the Health Environment

Component Description: This component develops the skills necessary to communicate effectively across the full range of roles that will be encountered in healthcare and public health settings.

Unit 1: Customer Service in Healthcare IT

Description: This unit describes Customer Service in Healthcare IT.

Unit 2: Professional Behavior in the Healthcare Environment

Description: This unit describes Professional Behavior in the Healthcare Environment.

Unit 3: Overview of Communication Relevant to Health IT

Description: This unit describes the Overview of Communication Relevant to Health IT.

Unit 4: Key Elements of Effective Communication

Description: This unit describes Key elements of effective communication.

Unit 5: Regulatory Issues: HIPAA and Standard Precautions

Description: This unit describes Regulatory Issues: Standard Precautions and HIPAA.

Unit 6: Team and Small Group Communication

Description: This unit describes Team and Small Group Communication.

Unit 7: Conflict Resolution

Description: This unit describes Handling Conflict.

Unit 8: Ethical and Cultural Issues Related to Communication and Customer Service

Description: This unit describes Ethical and Cultural Issues Related to Communication and Customer Service.

Unit 9: Personal Communications and Professionalism

Description: This unit describes Personal Communications and Professionalism.

Component Number: 17

Component Name: Working in Teams

Component Description: An experiential course that helps trainees become “team players” by understanding their roles, the importance of communication, and group cohesion.

Unit 1: Health IT Teams: Examples and Characteristics

Description: This unit is an introductory unit designed to highlight different types of health information technology teams and the purpose and functions of its different members. Characteristics of effective teamwork will also be discussed with emphasis on the organizational structure, individual contributions, and team processes. Why teams are valued for their collaborative efforts and teamwork will be outlined in this component. Activities for the learner include a virtual hospital tour that will facilitate the learner to explore different areas where HIT teams may be used, to interview a member of a HIT team and explore their job, purpose, skills, and contributions made to the team in addition to serving as a HIT team member who needs to select HIT team members to build an effective team for the work outlined in the case.

#### Unit 2: Forming and Developing a Team for HIT

Description: This unit is designed to introduce students to the stages of team development: forming, storming, norming, and performing with the needs of the team identified at each stage. Common goals and purposes will be described in addition to information on key factors needed to maintain an effective team.

#### Unit 3: Initial Tools for Teaming: Ground Rules & Action Plans for HIT Team

Description: This unit is designed to introduce learners to specific guidelines and rules that may be associated with teams and working on a HIT team. A realistic learning activity that focuses on the learner developing a team action plan will bring this unit to the forefront for application and understanding of the team plan. Two major communication strategies, active listening and assertive communication techniques will be included in this component and demonstrated through selected exercises in the module.

#### Unit 4

##### Team Strategies and Tools to Enhance Performance and Patient Safety: TeamSTEPPS

Description: This unit is focused upon the, “TeamSTEPPS,” methodology. This methodology, initially used by the Department of Defense to assist with coordination of military teams, was adapted (with the assistance of the Agency for Healthcare Quality & Research) for use in clinical environments. The goal of TeamSTEPPS is to improve teaming skills, enhance communication across provider teams, and to seed a fundamental culture change – all in the quest to improve patient outcomes. The material in this unit is based very heavily on the TeamSTEPPS materials which can be found on the Agency for Healthcare Quality and Research website. Some adaptation has been made (and noted) in order to apply TeamSTEPPS more directly to health IT teams. The point made repeatedly in this unit is that even though TeamSTEPPS is focused upon clinical teams in clinical environments, these techniques were conceived on the battlefield. Therefore, many of the concepts and skills learned in prior units will reappear in TeamSTEPPS, reinforcing the point that the foundations of high performing teams are similar regardless of where they are applied. Various tools and techniques are presented from the TEAMSTEPPS toolkit with suggestions for how these approaches can be adapted for use in health IT teams.

#### Unit 5: Leveraging Integration Techniques: Power of HIT Team Dynamics



Description: This unit will discuss techniques for team members to problem solve within their teams so the team can be more effective. Activities will include how to conduct a SWOT analysis and mind maps within this component. Different activities described within the module will be differentiated between team or individual task. Activities will include a SWOT analysis of a case-based team and other experiential activities associated with team tasks and specific roles within the team.

#### Unit 6: Articulating Feedback and Feedforward: Tracking Success and Change

Description: This unit will provide information to the learner on tools and techniques for giving and receiving feedback regarding HIT team performance. Elements introduced include the use of formative and summative evaluations, conflict management, and appropriate communication channels. Participants will evaluate individual behaviors regarding stated ground rules for functioning as a member of an HIT team. The difference between feedback and feedforward will be clarified as students will incorporate the seminal elements of positive change into their dealings with others. Tools for serving as a change agent and tracking success will also be practiced by students in team exercises. Based upon the belief that we can change the future but we cannot change the past, participants will practice the steps to both delivering and receiving feedforward information. Also based on the belief that it can be more productive to help people be right than to prove they are wrong, participants will be challenged with developing strategies for applying feedforward mechanisms within HIT team involvement.

#### Unit 7: Leadership: All Members as Leaders – Leaderful Teams

Description: This unit will challenge participants to critically evaluate elements that lead to success in the field of HIT. The changing role of leadership will be explored. Leadership has taken on new requirements as we have moved through the information and biotech ages into the conceptual age where the knowledge worker is being continually replaced by the conceptual leadership at every level in organizations. The expansive role of leadership that requires each team player to be prepared to “carry the torch” and lead others is a fundamental building block for HIT teams. Participants will investigate leadership behavior across HIT platforms, identify key leadership skills, and demonstrate personal abilities across those skill areas as related to HIT teams.

#### Unit 8: Sharing Resources and Information: Tools to Optimize Performance of HIT Teams

Description: This unit will equip participants with a working appreciation for tools and techniques that enable HIT teams to optimize performance both within their team and in collaboration with other teams, units, and organizations. Specific technologies and methods will be introduced and applied to HIT team settings. Participants will be provided an opportunity to use several of these tools and techniques as they simulate HIT team functions. Outdated views on how people share information will be highlighted. New frameworks in thinking regarding information access and decision making activities for successful HIT teams will be discussed. Meeting to share information will be discouraged as participants will become adept using some basic tools for collaboration. Meeting for purposes of clarifying options and making decisions

will be encouraged along with applying tools and techniques to facilitate such meetings. Participants will select appropriate structural components to enable greater efficiencies of information sharing and decision making by HIT teams.

#### Unit 9: Positioning for High Performance Teaming: Challenges and Opportunities in the HIT Environment

Description: This unit provides participants an opportunity to gain insights into the criteria, processes, and structures that support the development of high performance for HIT teams. As Observations from various industries, sports, and military examples will be compared with HIT team environments. Participants will draw from personal experiences in developing criteria for providing the requisite structure to support high performance teaming.

#### Unit 10: Barriers to Success: Reading Early Warning Signs of HIT Team Failure

Description: This unit prepares participants to recognize elements that lead to HIT team failures and provides several frameworks that can serve to maintain appropriate monitoring of more typical symptoms of team dysfunction. Elements of selfish behaviors, tool seduction, lack of confidence, arrogance, lone heroism, cowardice, and comfort will be examined along with appropriate responses to each. Effects such as common knowledge, in-group bias, false consensus, and transactive memory will be investigated along with proper mechanisms to alleviate negative consequences and mitigate further damage. Lessons will be gained by inspecting case histories of HIT teams involved in each of these elements. Participants will explore frameworks to heighten awareness and early diagnosis of symptoms that lead to HIT team failures.

#### Unit 11: Life Cycle of HIT Teams: Reforming and Repositioning Techniques

Description: This unit introduces participants to the natural stages in team development and the normative life cycles of teams. The process of handling change will be investigated as participants work through understanding the elements of immobilization, denial of change, incompetence, acceptance of reality, frustration, understanding, and integration. Participants will be introduced to techniques employed to structure HIT teams for specific purposes and repurposing teams for new tasks.

Component Number: 19

Component Name: Introduction to Project Management

Component Description: An understanding of project management tools and techniques that results in the ability to create and follow a project management plan.

#### Unit 1: Overview of Health IT Projects

Description: Students will receive a broad overview of project management including some distinctive characteristics of health IT projects. This unit includes several real scenarios to illustrate the diversity of projects in health IT.

#### Unit 2: Project Life Cycles

Description: This unit provides an overview of various project life cycles so that students can assess their appropriateness for use depending on characteristics of a project. Students examine processes, knowledge areas, and organizational influences that are critical to successful project management.

Component Number: 20

Component Name: Training and Instructional Design

Component Description: Overview of learning management systems, instructional design software tools, teaching techniques and strategies, evaluation of learner competencies, maintenance of training records, and measurement of training program effectiveness.

Unit 1: Introduction to Training and Adult Learning

Description: Apply the Instructional Systems Design method and the phases of the ADDIE model of instruction design, to a given population of adult learners.

Unit 2: Needs Analysis

Description:

Plan and implement an instructional needs assessment, given a specific population of users in a health care setting.

Unit 3: Creating a Lesson Plan

Description: Construct a lesson plan using appropriate instructional methods and approaches, given a specific population of learners.

Unit 4: Selecting and Working with Media

Description: Construct an instructional product (simple online tutorial) using appropriate media, such as customized images, customized video (e.g., EHR screen captures).

Unit 5: Building & Delivering Effective PowerPoint Presentation

Description: Create a custom PowerPoint presentation using the principles of effective PowerPoint design, given a particular training program and learner population.

Unit 6: Assessments

Description: Conduct student outcome assessments and program evaluations in given training contexts.

Unit 7: Learning Management Systems

Description: Design a training program in Learning Management Systems (LMS) that adhere to the standards and open source initiatives in online learning.

Unit 8: Web 2.0 and Social Networking Tools

Description: Select and implement Web 2.0 technologies as instructional technologies given a specific platform and training program.

## Training Presentation Final

## **MENTOR HEALTH IT CURRICULUM Analyst Track**

Component Number: 18

Component Title: Planning, Management and Leadership for Health IT

Component Description: This component targets those preparing for leadership roles, principles of leadership and effective management of teams. Emphasis on the leadership modes and styles best suited to IT deployment.

Unit 1: Introduction to Leadership

Description: This unit describes leadership styles and theories of leadership.

Unit 2: The Management and Leadership Distinction

Description: This unit describes the management and leadership distinction.

Unit 3: Key Concepts Associated with Leadership

Description: This unit describes keys concepts associated with leadership, including creativity and emotional intelligence.

Unit 4: Effective and Ineffective Leaders

Description: This unit describes the traits of effective and ineffective leaders.

Unit 5: Overview of the IT Strategic Planning Process

Description: This unit provides a high level of overview of the IT Strategic Planning Process.

Unit 6: Achieving External Alignment

Description: This unit describes achieving external alignment among various stakeholders.

Unit 7: Team and Small Group Communication

Description: This unit describes Team and Small Group Communication.

Unit 8: Conflict Resolution

Description: This unit describes Handling Conflict.

Unit 9: Purchasing and Contracting

Description: This unit describes Purchasing and Contracting.

Unit 10: Change Management

Description: This unit describes change management.

Component Number: 19

Component Name: Introduction to Project Management

**Component Description:** An understanding of project management tools and techniques that results in the ability to create and follow a project management plan.

#### Unit 1: Overview of Health IT Projects

**Description:** Students will receive a broad overview of project management including some distinctive characteristics of health IT projects. This unit includes several real scenarios to illustrate the diversity of projects in health IT.

#### Unit 2: Project Life Cycles

**Description:** This unit provides an overview of various project life cycles so that students can assess their appropriateness for use depending on characteristics of a project. Students examine processes, knowledge areas, and organizational influences that are critical to successful project management.

#### Unit 3: Project Selection and Initiation

**Description:** Students learn what is necessary to get projects off to a strong start. Critical activities are to prepare a project charter and to identify and engage the project stakeholders.

#### Unit 4: Project Planning Overview

**Description:** In this unit, students will learn how to effectively plan projects and to develop a project management plan. Several key documentation components will be introduced.

#### Unit 5: Managing Project Scope

**Description:** This unit addresses a critical determinant of project success: defining and managing the scope of the project. Students learn the importance of eliciting stakeholder requirements and developing effective work breakdown structures.

#### Unit 6: Managing Project Time, Cost, and Procurements

**Description:** In this unit, students will gain an understanding of how to manage project schedules and spending. The unit will cover broad topics such as purchasing, procurement, cost estimation and scheduling.

#### Unit 7: Managing Project Risk

**Description:** A key to successful health IT projects is the pro-active management of risks: beginning with the preparation of a risk management plan. Risk management will be a continuing activity throughout the project, to identify risks and to plan and implement risk responses.

#### Unit 8: Team Management and Communications

**Description:** Whatever role you play on a project team, it is essential to understand basic concepts of team management and communications. This unit covers key elements of managing and communicating in a team, including the development of an HR and communications plan.

#### Unit 9: Project Monitoring and Control

Description: Project managers use monitoring and control tools and techniques to assess plans and deliverables, evaluate progress against plans, manage change requests, and review all project activities. It is critically important to keep the project within scope, budget, and schedule to meet stakeholder expectations.

#### Unit 10: Quality Management

Description: Quality is an elusive but essential component and consideration in any project. This unit will cover quality management planning and key characteristics of quality assurance and its impact on project management.

#### Unit 11: Project Closure and Transition

Description: It is essential that project managers know all the processes required to bring a project to a successful conclusion. Key steps include completing all deliverables on time, gaining customer acceptance, documenting the project lessons learned, and managing the transition to operations.

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.

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

Description: This unit will introduce the learner 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.

#### 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 learner 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).

#### 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.

#### 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.

#### 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.

#### 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.

#### 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, 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.

#### 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.

#### 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.

#### 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.

#### 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.

#### 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 tools (root cause analysis and failure mode effects analysis) are provided and the role of HIT professional in contributing to these efforts is discussed.

- **Analyst Skills & Techniques**
- **Introduction to Analytics**
- **Key Concepts of Analytics**
- **Analytical Thinking and Problem Solving**
- **Behavioral Characteristics of an Analyst**
- **Business Knowledge**
- **Analyst Techniques**
- **Technology and Tools**