Component 7: Working with Health IT Systems

Instructor’s Manual

Version 3.0/Spring 2012
Notes to Instructors

This Instructor’s Manual is a resource for instructors using this component. Each component is broken down into units, which include the following elements:

- Learning objectives
- Suggested student readings, texts, reference links to supplement the narrated PowerPoint slides
- Lectures (voiceover PowerPoint in Flash format); PowerPoint slides (Microsoft PowerPoint format), lecture transcripts (Microsoft Word format); and audio files (MP3 format) for each lecture

Self-assessment questions reflecting Unit Objectives with answer keys and/or expected outcomes

- Application Activities (e.g., discussion questions, assignments, projects) with instructor guidelines, answer keys and/or expected outcomes
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Component Overview

Working with Health IT Systems

This is 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.

Component Units

1. Introduction & Overview: Components of HIT Systems
2. Under the Hood
3. Understanding Information Exchange in HIT Systems
4. The Effective HIT System
5. Fundamentals of Usability in HIT Systems—What Does It Matter?
6. HIT Facilitated Error—Cause and Effect
7. Protecting Privacy, Security, and Confidentiality in HIT Systems
8. HIT System Planning, Acquisition, Installation, & Training: Practices to Support & Pitfalls to Avoid
9. Potential Issues with Adoption and Installation of an HIT system.
10. HIT and Aspects of Patient-Centered Care
11. Health IT in the Future

Component Objectives

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

1. Identify common components of an HIT system and types of HIT applications (e-Mar, POE, PACS, ADT, Lab, Registries, Billing/Coding, etc, and acute care, community health, public health, small provider practices, etc.)
2. Describe data flows across HIT systems and implication of standards.
3. Identify root causes of HIT-induced error (i.e. usability, workflow interference, system error, etc.) and suggest solutions.
4. Assess the strengths and weaknesses of identified solutions to identified HIT problems (to emphasize the reality of “solutions” and illustrate the frequent domino effect/unintended consequences of change of an HIT system)
5. Defines usability, describes general usability principles, and relates usability to adoption in relation to HIT.
6. Define and differentiate security, confidentiality, and privacy and identify common threats.
7. Demonstrate beginning level competency in general HIT system use.
Component Authors

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David Hinton, Howard Community College
David M. Hinton is an Associate Professor at Howard Community College, where he teaches a wide range of career and transfer technology courses. He has extensive knowledge in working with certificate and career seeking students. He has taught Introduction to Computer Repair and Advanced Computer Repair. He has also designed and taught curriculum for Computer-Aided Design, Computer Game Design and Simulation, 3D Animation and Visualization. He has served as support liaison for training faculty online learning management systems. During the summer months, he teaches middle school students 3D Animation and Visualization. He has a bachelor of science in Business Information Systems.

Robert Kolodner, MD, FACMI
Robert M. Kolodner, MD is co-founder and President of Collaborative Transformations, LLC, which consults with government and non-profit organizations regarding their health IT strategies and plans. In addition, he serves as the Chief Health Informatics Officer for Open Health Tools, Inc. Dr. Kolodner brings to his current activities a wealth of experience in health IT from 31 years of federal service and leadership in two Departments—Veterans Affairs and Health and Human Services. From 2006 to April 2009, Dr. Kolodner served as the president’s designated lead for the United States eHealth initiative as the National Coordinator for Health Information Technology (IT) in Office of the Secretary of the US Department of Health and Human Services (HHS). Dr.
Kolodner received his undergraduate degree from Harvard College, his medical degree from Yale University School of Medicine, and completed his psychiatric residency at the Washington University School of Medicine. Dr. Kolodner has medical specialty board certification in psychiatry and is a Fellow in the American College of Medical Informatics.

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**Team Members**

**Lecture Narration/Sound Engineer**

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Disclaimer

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Likewise, the above also applies to the Curriculum Development Centers (including Columbia University, Duke University, Johns Hopkins University, Oregon Health & Science University, University of Alabama at Birmingham, and their affiliated entities).
Component 7/Unit 1

Unit Title
Introduction & Overview: Components of HIT Systems

Unit Description
This unit 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 Objectives
By the end of this unit the student will be able to:
1. Define a system and relate systems concepts to Health IT (HIT).
2. Discuss specific examples of settings where HIT is used (acute, rural, public health, clinic, office, patient home, etc.).
3. Identify common components of a clinical HIT system.
4. Demonstrate beginning level competency in maneuvering the demonstration EHRS.

Unit Topics/Lecture Titles
2.1 – Understanding Systems—Conceptualizing HIT Use
2.2 – HIT Systems
2.3 – Big Picture of HIT Systems
2.4 – Common Aspects of Clinical HIT Systems

Unit References
(All links accessible as of 1/1/2012)
Lecture 1
2. Google Flu Trends http://www.google.org/flutrends/

*Indicates this link is no longer functional.
Lecture 1 Images
Slide 3: Venn Diagram of Healthcare. Created by Dr. Patricia Abbott.
Image 2: Food Service as a System. Courtesy CDC. Available from: http://www.cdc.gov/nceh/ehs/EHSNet/images/Food_Service_as_a_System.jpg*
Image 2: Clinician and Patient: Courtesy Dr. Patricia Abbott.
Image 4: Girl and Patients Like Me. Courtesy Dr. Patricia Abbott.
Available from: http://www.morguefile.com/license/morguefile/
Slide 10: A single Record of Patient Data. Courtesy Dr. John Halamka
Slide 11: VA Vista system. Courtesy US Department of Veterans Affairs

Unit Suggested Readings

Additional Materials
Computerized Patient Record System (CPRS)
User Guide
The VistA CPRS is the award-winning electronic health records system that is used by the US Department of Veterans Affairs.

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Student Application Activities
comp7_unit1_activities
comp7_unit1_activities_key
comp7_unit1_assessment
comp7_unit1_assessment_key

Additional Materials
EHRS Orientation Videos (optional .swf video files)
- Part 1: Working with HIT Systems
- Part 2: Exploring the Coversheet
- Part 3: Diving Deeper into the Tabs
- Part 4: Diving Deeper into the Tabs – Part 2
- Part 5: Labs, Reports, & Starting to Scavenge
- Part 6: Scavenger Hunt (to be used with scavenger hunt activity)
The scavenger hunt can be converted into a graded assignment if desired. Extra credit questions are included in the existing scavenger hunt materials (in the event that this activity is converted to a graded assessment).
Component 7/Unit 2

Unit Title
Under the Hood

Unit 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 simulated patient encounter to highlight how HIT systems support, and sometimes thwart, information flow.

Unit Objectives
By the end of this unit the student will be able to:
1. Identify the health IT functions that support a generic ambulatory patient care process.
2. Identify the health IT functions that support a generic inpatient care process.

Unit Topics / Lecture Titles
2.1 – Inpatient Processes Vs Ambulatory Processes: Comparing and Contrasting
2.2 – Health IT Support of Care Processes (Inpatient & Outpatient)

Unit References
(All links accessible as of 1/1/2012)
Lecture 2a

*Indicates this link is no longer functional.
Lecture 2a Images
Slide 2: Composite Image. Courtesy Dr. Patricia Abbott
Slide 3: Clinician Discusses Medical Test Results. Available from: http://www.flickr.com/photos/59632563@N04/6104068209/sizes/m/in/photostream/
Attribution 2.0 Generic (CC BY 2.0)
Slide 4: Image 1—Paper Chart Pile. Courtesy Dr. Patricia Abbott
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Attribution-NonCommercial 2.0 Generic (CC BY-NC 2.0)
Nick Wheeler Creative Commons Attribution-Non Commercial-ShareAlike 2.0 Generic (CC BY-NC-SA 2.0)

Lecture 2b

Lecture 2b Images
Attribution 2.0 Generic (CC BY 2.0)
Image 2. Process Diagram. Courtesy Dr. Patricia Abbott

*Indicates this link is no longer functional.
Attribution 2.0 Generic (CC BY 2.0)
Image 2. Process Diagram. Courtesy Dr. Patricia Abbott
Slide 4: Image 1—Computer Screen with Patient Data. Lucas Pettinati, Brazil
Available from: http://www.flickr.com/photos/lpettinati/3345788276/sizes/m/in/photostream/
Attribution—NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0)
Image 2—Process Diagram. Courtesy Dr. Patricia Abbott

Unit Suggested Readings
   (Use Chapters 1 & 2)

Student Application Activities
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comp7_unit2_activities_key.doc
comp7_unit2_self_assess.doc
comp7_unit2_self_assess_key.doc

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Component 7/Unit 3

Unit Title
Understanding Information Exchange in HIT Systems

Unit 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 and to assist users in planning for enhanced information flow in HIT systems.

Unit Objectives
By the end of this unit the student will be able to:
1. Identify entities that are commonly involved in HIT system data exchange.
2. Explain the need for standards and why they exist.
3. Define and differentiate between vocabulary, content exchange, and privacy and security standards.
4. Compare current efforts to facilitate health information exchange between providers, communities, regions, and nation (NHIN, HIEs, NHIN Direct).

Unit Topics / Lecture Titles
3.1 – Types of Information Exchange
3.2 – “Meaningful Use” and HIT Information Exchange
3.3 – Types of Standards
3.4 – HIE Initiatives

Unit References
(All links accessible as of 1/1/2012)

Lecture 3
National Alliance for HIT Report to the ONC on Defining Key Health Information Technology Terms (April 28, 2008)
Available from: http://www.hhs.gov/healthit/documents/m20080603/10_2_hit_terms.pdf*

*Indicates this link is no longer functional.
Lecture 3 Images
Slide 4: Exchange. Courtesy Michael Vaughn
Slide 6: Man Moving from One City to Another with His Health Record. Created by Michael Vaughn, used with permission. Clip art obtained from http://www.openclipart.org
Slide 9: Joint Initiative Council Organization Chart. AHIMA. Available from: http://library.ahima.org

Unit Suggested Readings
1. “What is the NHIN?” Available at: http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10741_877368_0_0_18/WhatIsTheNHIN.pdf*
4. Review the NIST (National Institute of Standards and Technology’s Health Information Technology (HIT) Implementation Testing and Support web site at: http://healthcare.nist.gov/

Student Application Activities
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comp7_unit3_self_assess.doc
comp7_unit3_self_assess_key.doc

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Component 7/Unit 4

Unit Title
The Effective IT System

Unit 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 Objectives
By the end of this unit the student will be able to:
1. Identify characteristics of an effective HIT system.
2. Define and provide examples of how evidence-based practice can be supported in HIT Systems.
3. Define and cite examples of usability / configurability / scalability and reliability in HIT Systems.
4. List and contrast different types of reports/queries (predefined vs. ad hoc) required for internal and external reporting.

Unit Topics/Lecture Titles
4.1 – Effective HIT
4.2 – Characteristics of Effective HIT
4.3 – Supporting Workflows

Unit References
(All links accessible as of 1/1/2012)

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**Lecture 4 Images**


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SilverlinedWinnebago


David Feng. Attribution-NonCommercial-ShareAlike 2.0 Generic (CC BY-NC-SA 2.0)


Tony Roberts Attribution-NonCommercial-ShareAlike 2.0 Generic (CC BY-NC-SA 2.0)


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Unit Suggested Readings

Student Application Activities
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comp7_unit4_activities_key.doc
comp7_unit4_self_assess.doc
comp7_unit4_self_assess_key.doc

Additional Materials
Orientation Videos (optional)
- Part 1: The Reports Tab
- Part 2: Reporting Clinical vs AdHoc
- Part 3: Fun with Graphs
- Part 4: Resolving Reminders
- Part 5: Facilitating Quality Efficiency with Reminders
Component 7/Unit 5

Unit Title
Fundamentals of Usability in HIT Systems—What Does It Matter?

Unit 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 EHRS 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 Objectives
By the end of this unit the student will be able to:
1. Define usability in relation to HIT systems
2. Explain the impact of HIT usability on user satisfaction, adoption, and workarounds in error rates or unintended consequences
3. Provide alternatives to HIT usability bottlenecks

Unit Topics/Lecture Titles
5.1 – Defining Usability
5.2 – User Centered Design
5.3 – Usability in HIT
5.4 – Impact of Poor HIT Usability
5.5 – Strategies for Bottlenecks

Unit References
(All links accessible as of 1/1/2012)

Lecture 5a

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**Lecture 5a Images**


2. Attribution—Share Alike 2.0 Generic (CC BY-SA 2.0) Brett L.’s Photostream.


4. Slide 5: Image 1—Notification window: “This is a generic notification box. You should not be seeing this box.”

5. Image 2—Error message : Error opening this file. Courtesy Dr. Patricia Abbott

6. Slide 6: User-centered Design. Adapted from ISO standard 13407 by Dr. Patricia Abbott


8. Image 2—Older Asian Woman. Courtesy Mark Blatt, M.D. (HIMSS Presentation; MCA; 2009)


**Lecture 5b**


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**Lecture 5b Images**
Slide 2:  Image 1—Bar Code on Arm. Courtesy Dr. Ross Koppel, University of Pennsylvania
Slide 3: Example of Bad Webpage. Compiled image. Courtesy Dr. Patricia Abbott
Slide 4: EHR Screen Shots. Courtesy Dr. Patricia Abbott
Attribution-NonCommercial-ShareAlike 2.0 Generic (CC BY-NC-SA 2.0)
Attribution-NonCommercial-ShareAlike 3.0 Unported (CC BY-NC-SA 3.0)

**Unit Suggested Readings**

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Student Application Activities
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comp7_unit5_activities_key.doc
comp7_unit5_self_assess.doc
comp7_unit5_self_assess_key.doc

Additional Materials
Orientation Videos (optional)
- Part 1_Simple Interface Adjustments Font Size & Presentation Order
- Part 2_Created a User Specific View with Graphing
Component 7/Unit 6

Unit Title
HIT Facilitated Error—Cause and Effect

Unit 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 Objectives
By the end of this unit the student will be able to:
1. Explain the concept of facilitated error in HIT
2. Cite examples of situations where HIT systems could increase the potential for user error
3. Analyze sources of HIT facilitated errors and suggest realistic solutions

Unit Topics/Lecture Titles
6.1 — Error in Healthcare
6.2 — Error Vocabulary
6.3 — Technology Induced Error

Unit References
(All links accessible as of 1/1/2012)

Lecture 6a
Lecture 6a Images
Slide 3: Nurse Checking a Man’s Blood Pressure. Courtesy Dr. Patricia Abbott

Lecture 6b

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Health IT Workforce Curriculum Working with Health IT Systems Version 3.0/Spring 2012
This material was developed by Johns Hopkins University funded by the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology under Award Number 1U24OC000013
6. Oh Shnocks! The state of healthcare technology in “09”
healthcare_technology_in_09.html

**Lecture 6b Images**

Created by Dr. Patricia Abbott.
Image 2: Corpsman Giving Shot to Female Patient. Available from:
http://farm5.static.flickr.com/4125/5094485790_dde2e1b735.jpg
Attribution-NonCommercial 2.0 Generic (CC BY-NC 2.0)
Slide 4: Frustrated Man. Creative Commons. Available from:
http://www.flickr.com/photos/14511253@N04/4411497087/sizes/m/in/
photostream/
Attribution 2.0 Generic (CC 2.0).
Video: “Oh Schnocks!” The state of healthcare technology in 2009.
Available from: http://www.youtube.com/watch?v=WxQLzdLjwp4
Slide 5: Human Factors in Surgery. Video From the Mayo Clinic, Available
from: http://www.youtube.com/watch?v=xR78dXTYy9c
Attribution-NonCommercial 2.0 Generic (CC BY-NC-SA 2.0)

**Unit Suggested Readings**

1. “How Usability of a Web-Based Clinical Decision Support System
Has the Potential to Contribute to Adverse Medical Events.”
articles/PMC2655970/
2. “Some Unintended Consequences of Clinical Decision Support
gov/pmc/articles/PMC2813668/
3. “Some Unintended Consequences of Information Technology
in Health Care: The Nature of Patient Care Information System-
gov/pmc/articles/PMC353015/

**Student Application Activities**

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Health IT Workforce Curriculum Working with Health IT Systems 26
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This material was developed by Johns Hopkins University funded by the Department of Health and Human Services, Office of the National Coordinator for Health Information Technology under Award Number 1U24OC000013
Additional Materials (Presentation videos)
Three videos, available online at the time these materials were created, illustrate several of the concepts covered in the presentations and readings. These three videos are integrated directly into the presentation.

Errors in Medication Administration from YouTube – The Story of the Quaid Twins: [http://www.youtube.com/watch?v=XEbf9blOus](http://www.youtube.com/watch?v=XEbf9blOus) (If the video is not available at the time of student access, on any web video search engine using the terms “Quaid Twins – Medication Error” will return nearly the same video.)

Technology Induced Error - “Oh Schnocks!” The state of healthcare technology in 2009: [http://www.youtube.com/watch?v=WxQLzdLjwp4](http://www.youtube.com/watch?v=WxQLzdLjwp4)

Human Factors in Surgery Video. From the Mayo Clinic. [http://www.youtube.com/watch?v=xR78dXTYy9c](http://www.youtube.com/watch?v=xR78dXTYy9c)
Component 7/Unit 7

Unit Title
Protecting Privacy, Security, and Confidentiality in HIT Systems

Unit 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 EHRS, challenges of staff turn-over and student access, unauthorized access, etc. will be detailed. Students will be exposed to simulated breeches of privacy, security and confidentiality of PHI in lab exercises, asked to identify, and propose strategies to thwart.

Unit Objectives
By the end of this unit the student will be able to:
1. Explain and illustrate privacy, security, and confidentiality in HIT settings.
2. Identify common threats encountered when using HIT.
3. Formulate strategies to minimize threats to privacy, security, and confidentiality in HIT systems.

Unit Topics/Lecture Titles
7.1 — Administrative Safeguards
7.2 — Physical Safeguards
7.3 — Technical Safeguards

Unit References
(All links accessible as of 1/1/2012)
Lecture 7a
http://healthit.hhs.gov/portal/server.pt/gateway/PTARGS_0_10731_848088_0_0_18/NationwidePS_Framework-5.pdf*

*Indicates this link is no longer functional.
Lecture 7a Images
Slide 12: A Regularly Scheduled Security Awareness Training Session. Image courtesy CDC.
Slide 13: “Symposium on Diversity, Leadership Development and Succession Planning” at the CDC. Courtesy CDC.
Slide 14: Doctor Looking Through Medical Records. Courtesy HHS.
Slide 15: Centers for Disease Control’s Activity Lead for the Division of Specialized Media, Pete Seidel. Courtesy CDC.

Lecture 7b

*Indicates this link is no longer functional.

Lecture 7b Images
Slide 7: The Field of Security Has to Adapt. Courtesy National Institutes of Health (NIH)
Slide 9: Transmission Security Controls Prevent Unauthorized Access to ePHI.

Unit Suggested Readings

Additional Materials

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**Student Application Activities**
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Component 7/Unit 8

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

Unit 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 Objectives
By the end of this unit the student will be able to:
1. Conduct a basic user needs analysis for a given example situation.
2. Create a plan for training users in a small office practice, a large community clinic, or a single unit in an ambulatory care setting.
3. Identify several potential challenges that may emerge during installation and generate a strategy to solve (space, wiring, lack of basic computer literacy in staff, etc.).

Unit Topics/Lecture Titles
8.1 – The Systems Development Process
8.2 – Business Process
8.3 – Training

Unit References
(All links accessible as of 1/1/2012)
Lecture 8a Images
Slide 6: Implementation Steps. Courtesy Michael Vaughn
Slide 8: Workflow Diagram .Courtesy Michael Vaughn

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Lecture 8b


Lecture 8b Images

Slide 9: Clinician looking at computer. Image courtesy Centers for Disease Control. CDC. PHIL_3664_lores.jpg

Unit Suggested Readings


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Student Application Activities
comp7_unit8_activities.doc
comp7_unit8_activities_key.doc
comp7_unit8_self_assess.doc
comp7_unit8_self_assess_key.doc

Additional Materials

Toolkits
Our goal to teach you where to find the answers rather than providing reams of material for students to memorize.

StratisHealth (slide 16)
Health Information Technology Toolkit for Nursing Homes
http://www.stratishealth.org/expertise/healthit/nursinghomes/nhtoolkit.html

DOQ-IT (slide 17)
A Systems Approach to Operational Redesign
http://www.norc.org/6275/Module5/A%20Systems%20Approach%20to%20Operational%20Redesign%20Workbook.pdf*

StratisHealth (slide 17)
Health Information Technology Tool for Physician Office
http://www.stratishealth.org/expertise/healthit/clinics/clinictoolkit.html

StratisHealth (slide 18)
Health Information Technology Toolkit for Critical Access and Small Hospitals
http://www.stratishealth.org/expertise/healthit/hospitals/htoolkit.html

Additional Information
AHRQ National Resource Center
Health IT Adoption Toolbox
http://healthit.ahrq.gov/portal/server.pt?open=512&objID=1077&cached=true&mode=2&userID=7330

Community Clinics Initiative Health Information Technology Resource Guide

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Component 7/Unit 9

Unit Title
Potential Issues with Adoption and Installation of an HIT system

Unit 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 Objectives
By the end of this unit the student will be able to:
1. Identify frequently encountered challenges to adoption and implementation of HIT systems.
2. Design an action plan to address barriers to implementation of an HIT system.
3. Propose solutions to common problems in the implementation of HIT systems.

Unit Topics/Lecture Titles
9.1 – Why Systems Fail
9.2 – Critical Success Factors in HIT Adoption/Implementation
9.3 – Common Challenges
9.4 – Potential Strategies

Unit References
(All links accessible as of 1/1/2012)

Lecture 9

*Indicates this link is no longer functional.


Lecture 9 Charts, Tables, and Figures


Lecture 9 Images
Slide 2: Girl Flexing Muscles. Courtesy Dr. Patricia Abbott
Slide 4: Beauty and the Beast. Available from: http://www.flickr.com/photos/e_photos/2646616379/sizes/m/in/photostream/ Attribution-NonCommercial-ShareAlike 2.0 Generic (CC BY-NC-SA 2.0)
Slide 5: Shop Sign. Courtesy Dr. Patricia Abbott.
Slide 6: Pills. Available from: http://www.flickr.com/photos/silverlinedwinnebago/1405216080/sizes/m/in/photostream/ Attribution-NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0)
SilverlinedWinnebago.
GNU Free Documentation License

Unit Suggested Readings
1. Trivedi M, Daly E, Kern J, Grannemann B, Sunderajan P, Claassen C. Barriers to implementation of a computerized decision support system for depression: an observational report on lessons learned in “real world” clinical settings.” BMC Medical Informatics and

Resources
Boonstra A, Broekhusis M. Barriers to the acceptance of electronic medical records by physicians from systematic review to taxonomy and interventions. BMC Health Services Research 2010, 10:231 Available from: http://www.biomedcentral.com/1472-6963/10/231 (comp7_unit9_handout2)
4. HIMSS Flyer – Getting Started With An EHR http://www.himss.org/content/files/GettingStartedEMR_Flyer1.pdf*
5. ACP: EHR Adoption Road Map and Tools http://www.acponline.org/running_practice/technology/ehr/roadmap/

Student Application Activities
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comp7_unit9_self_assess.doc
comp7_unit9_self_assess_key.doc

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Component 7/Unit 10

Unit Title
HIT and Aspects of Patient-Centered Care

Unit 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.

Unit Objectives
By the end of this unit the student will be able to:
1. Define patient-centered care.
2. Suggest HIT-enabled solutions/strategies to enhance patient involvement in health and healthcare
3. Assess the effectiveness of HIT systems in supporting patient-centered care.
4. Perform self-assessment of personal beliefs related to HIT and patient-centered care.

Unit Topics/Lecture Titles
10.1 – Patient Centered Care
10.2 – Measuring Effectiveness of Patient Centered Approaches
10.3 – Exploring an Example of HIT

Unit References
(All links accessible as of 1/1/2012)
Lecture 10a

*Indicates this link is no longer functional.

5. Enabling Patient-Centered Care through Health Information Technology (Health IT). Available at: http://www.ahrq.gov/clinic/tp/pcchittp.htm


Lecture 10a Images

Courtesy the US Department of Agriculture: Attribution-NoDerivs 2.0 Generic (CC BY-ND 2.0) USDA

Attribution-NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0)


Slide 6: Image 1—Nursing Avatar. Courtesy Dr. Patricia Abbott.

Slide 7: A Medical Model VERSUS Patient-Centered. Adapted from public domain materials supported by Department of Health and Human Services. Available from:
http://www.esrdnet5.org/Files/Education/Training-Mod/Module-2--Patient-Centered-Care.aspx

Slide 8: Man Questioning Another and African American Clinician with Clipboard: Agency for Healthcare Quality and Research: Available from:
http://www.ahrq.gov/questionsaretheanswer/

*Indicates this link is no longer functional.

Lecture 10b

Lecture 10b Images
Slide 7: I-pad health apps. Courtesy Dr. Patricia Abbott
Slide 9: Baby on computer. Source: http://www.flickr.com/photos/tfrancis/539308690/sizes/m/in/photostream/ Tyron Francis Attribution-NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0)

Unit Suggested Readings
1. “Who will demand access to their personal health record? A focus on the users of health services and what they want.” Accessed June 10, 2010 at: http://www.longwoods.com/content/19503 (PubMed Central – Open Access article)

Student Application Activities
comp7_unit10_activities.doc
comp7_unit10_activities_key.doc
comp7_unit10_self_assess.doc
comp7_unit10_self_assess_key.doc

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Additional Materials

Resources


Component 7/Unit 11

Unit Title
Health IT in the Future

Unit Description
This unit will focus upon future directions for HIT. New areas of research and development in HIT will be examined. Students will gain a foundational understanding of these areas and will debate appropriateness and feasibility of new HIT development areas.

Unit Objectives
By the end of this unit the student will be able to:

1. Speculate the relationship between HIT and health reform
2. Suggest alternative design for usable & supportive HIT
3. Hypothesize how HIT may intersect with publicly available data to improve health (i.e. point of sale, weather, GIS, foods, etc)
4. Predict avenues of future innovations in HIT

Unit Topics/Lecture Titles
11.1 – Alternative Designs for HIT
11.2 – Infodemiology

Unit References
(All links accessible as of 1/1/2012)

Lecture 11a
Patient Protection and Affordable Care Act by United States Congress Title III - Improving the Quality and Efficiency of Health. Available from: http://www.healthcare.gov
Dr. Mark Smith, “Health IT: Hope, Hype and How to Avoid the Road to Hell.” Available from: http://www.chcf.org/
Lecture 11a Images
Slide 4: Nurse, Patient, and Telehealth Device. Courtesy Dr. Patricia Abbott.
Slide 5: Dr. Mark Smith.
Image 3. Cow, a Dying Breed, Cat, & Implantable Chip. Courtesy Dr. Patricia Abbott.

Lecture 11b

*Indicates this link is no longer functional.

Health IT Workforce Curriculum Working with Health IT Systems Version 3.0/Spring 2012

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Lecture 11b Images

Student Application Activities
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Additional Materials

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### Component Acronym Glossary

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<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ADT</td>
<td>Admission, Discharge, Transfer</td>
</tr>
<tr>
<td>AHIMA</td>
<td>American Health Information Management Association</td>
</tr>
<tr>
<td>AHRQ</td>
<td>Agency for Health Care Quality and Research</td>
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<tr>
<td>ASP</td>
<td>Application service provider</td>
</tr>
<tr>
<td>BCMA</td>
<td>Bar Code Medication Administration</td>
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<tr>
<td>BMS</td>
<td>Bed management system</td>
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<tr>
<td>CMS</td>
<td>Centers for Medicare and Medicaid Services</td>
</tr>
<tr>
<td>COWS</td>
<td>Computers on wheels</td>
</tr>
<tr>
<td>CPOE</td>
<td>Computerized Provider Order Entry</td>
</tr>
<tr>
<td>CPRS</td>
<td>Computerized patient record system</td>
</tr>
<tr>
<td>EBP</td>
<td>Evidence Based Practice</td>
</tr>
<tr>
<td>EHR</td>
<td>Electronic Health Records</td>
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<tr>
<td>e-MAR</td>
<td>Electronic medication administration record</td>
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<tr>
<td>EPHI</td>
<td>Electronic Protected Health Information</td>
</tr>
<tr>
<td>GUI</td>
<td>Graphical user interface</td>
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<tr>
<td>HIE</td>
<td>Health Information Exchanges</td>
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<tr>
<td>HIMSS</td>
<td>Health Information Management Systems Society</td>
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<tr>
<td>HIO</td>
<td>Health Information Organization</td>
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<tr>
<td>HIPPA</td>
<td>Health Insurance Portability and Accountability Act</td>
</tr>
<tr>
<td>HITECH Act</td>
<td>Health Information Technology for Economic and Clinical Health Act</td>
</tr>
<tr>
<td>HIT</td>
<td>Health Information Technology</td>
</tr>
<tr>
<td>IOM</td>
<td>Institute of Medicine</td>
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<tr>
<td>ISO</td>
<td>International Standards Organization</td>
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<tr>
<td>LIS</td>
<td>Laboratory information system</td>
</tr>
<tr>
<td>LOINC</td>
<td>Logical Observation Identifiers Name and Codes</td>
</tr>
<tr>
<td>LTC</td>
<td>Long term care</td>
</tr>
<tr>
<td>MRN</td>
<td>Medical record number</td>
</tr>
<tr>
<td>NHIN</td>
<td>National Health Information Network</td>
</tr>
<tr>
<td>NIST</td>
<td>National Institute of Standards</td>
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</tbody>
</table>
NTSB—National Transportation and Safety Board
ONC—Office of the National Coordinator for Health Information Technology
PACS—picture archiving and communication system
PDA—Personal Digital Assistant
PHI—Protected Health Information
PHR—personal health record
RIS—radiology information system
SNF—Skilled Nursing Facility
UCD—User-Centered Design
UML—United Modeling Language
USB—Universal Serial Bus
VA—Department of Veterans Affairs
VDT—Visual Display Terminals
VistA—Veterans Health Information Systems and Technology Architecture
WIIFM—What’s in it for me