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 6-1 What is Health Informatics? – 3.5 TW

Description:
Unit 6-1 defines information management, information technology, and informatics, describes the fundamental theorem of informatics, explains the meaning of biomedical and health informatics as a field of study, offers definitions of the major biomedical informatics areas of applications, and provides an overview of informatics drivers and trends. In addition, this unit 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.

Objectives:
1. Define information management, information technology and informatics.
2. Explain the basic theoretical concept that underlies informatics practice.
3. Define the meaning of biomedical and health informatics as a field of study.
4. Describe the biomedical informatics areas of applications.
5. Summarize the informatics drivers and trends.
6. State the professional roles and skills of health informaticians.
7. Identify how health informaticians process data into information and knowledge for health care tasks with the support of information technology to improve patient care.

Unit 6-2 Hardware and Software Supporting Health Information Systems – 3.5 TW

Description:
Unit 6-2 explains the major hardware and software components used in computer systems, describes the types of network configurations, defines an information system and its characteristics, identifies the types of information systems that support the health care enterprise requirements, and summarizes the technologies that support health care information systems. In addition, this unit lists some challenges with the use of emerging information technology trends and discusses the advantages and disadvantages of the Internet as a platform for health care applications.

Objectives:
1. Describe the major hardware components of a computer and major types of software used in computer systems.
2. Describe major types of network configurations.
3. Define the concept of an information system in general and characteristics of an information system and a health information system in particular.
4. Describe the different types of information systems in terms of their ability to support the requirements of a health care enterprise.
5. Describe various types of technologies (e.g. medication administration systems/barcoding, chart tracking, patient databases) that support health care information systems.
6. Examine 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.
7. Discuss the advantages and disadvantages of using the Internet as a platform for health care applications.

**Unit 6-3 Electronic Health Records – 3.5 TW**

Description:
Unit 6-3 defines an electronic medical record (EMR) and electronic health record (EHR) and explains their similarities and differences, identifies the attributes and functions of an EHR, discusses the issues surrounding EHR adoption and implementation, and describes the impact of EHRs on patient care. In addition, this unit 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.

Objectives:
1. State the similarities and differences between an electronic medical record (EMR) and electronic health record (EHR).
2. Identify the attributes and functions of an EHR
3. Describe the perspectives of health care providers and the public regarding acceptance of or issues with an EHR, which can serve as facilitators of or major barriers to its adoption.
4. Explain how the use of an EHR can affect patient care safety, efficiency of care practices, and patient outcomes.
5. Discuss how health information exchange (HIE) and Nationwide Health Information Network (NHIN) impact health care delivery and the practice of health care providers.
6. Outline issues regarding governmental regulation of EHR systems such as meaningful use of interoperable health information technology and a qualified EHR
7. Summarize how the Institute of Medicine’s Vision for 21st Century Health Care and Wellness may impact health management information systems.
8. Identify how ongoing developments in biomedical informatics can affect future uses and challenges related to health information systems.
Unit 6-4 Computerized Provider Order Entry (CPOE) – 3.0 TW

Description:
Unit 6-4 defines CPOE, states the purpose of CPOE, lists attributes and functions of CPOE, and explain how CPOE is currently being used in health care. In addition, this unit 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.

Objectives:
1. Describe the purpose, attributes and functions of CPOE
2. Explain ways in which CPOE is currently being used in health care
3. Discuss the major values to CPOE adoption
4. Identify common barriers to CPOE adoption
5. Identify how CPOE can affect patient care safety, quality and efficiency, as well as patient outcomes

Unit 6-5 Clinical Decision Support Systems – 3.5 TW

Description:
Unit 6-5 defines clinical decision support systems, provides some historical context surrounding these systems, describes the requirements of a clinical decision support system, and discusses the relationship of clinical practice guidelines and evidence-based practice to clinical decision support systems. In addition, this unit identifies challenges and barriers in building and using clinical decision support systems, explains how legal and regulatory considerations may affect their use, and introduces the future directions for clinical decision support systems.

Objectives:
1. Describe the history and evolution of clinical decision support systems (CDSSs).
2. Describe the fundamental requirements of an effective CDDSs.
3. Discuss how clinical practice guidelines and evidence-based practice affect CDDSs.
4. Identify the challenges and barriers to building and using CDDSs.
5. Discuss legal and regulatory considerations related to the distribution of CDDSs.
6. Describe current initiatives that will impact the future and effectiveness of CDDSs.

Unit 6-6 Patient Monitoring Systems – 3.0 TW

Description:
Unit 6-6 defines 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. In addition, this unit discusses how Telehealth supports clinical care, explains the effectiveness and economic benefit of Telehealth, and examines the role of smart technology in the home and links to health information systems.
Objectives:
1. Describe the purpose, attributes, and functions of patient monitoring systems.
2. Discuss ways in which automation can improve the quality of patient care.
3. Analyze how the integration of data from many sources assists in making clinical decisions.
4. Discuss how Telehealth communication technologies support clinical care.
5. Discuss the effectiveness and economic benefit of Telehealth.
6. Examine how smart technology in the home and remote links to health information systems can enhance the quality of patient care.

Unit 6-7 Medical Imaging Systems – 3.0 TW

Description:
Unit 6-7 defines 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 factors that will influence the future direction of imaging systems.

Objectives:
1. Examine the purposes, processes, and management issues related to the use of imaging systems in health care.
2. Describe the economic and technological factors that must be addressed when considering the adoption of digital displays in radiology departments.
3. Describe the major challenges imaging systems present to health care institutions and informaticians.
4. Describe factors that will influence the future direction of imaging systems.

Unit 6-8 Consumer Health Informatics – 3.0 TW

Description:
Unit 6-8 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. In addition, this unit defines PHRs, describes the role of PHRs and their implications within health care, and discusses the challenges of consumerism in health information systems.
Objectives:
1. Explain how current and emerging technologies – including the Internet – have impacted and may continue to affect consumer health informatics.
2. Describe the role of genomics in consumer health informatics.
3. Describe the emergence of Personal Health Records and their implications for patients, health care providers, and health systems.
4. Discuss how consumerism influences the ongoing development and use of health information systems.

Unit 6-9 Administrative, Billing and Financial Systems – 3.5 TW

Description:
Unit 6-9 examines the relationship of administrative, billing, and financial systems to the health care information system, explores health care organizations’ integration strategies, identifies the critical requirements for integration of these systems with clinical information systems, and explains how automation tools need to be and are being integrated in health care information systems. In addition, this unit defines a master patient index or MPI and describes its core elements, reviews the current trends in establishing a national patient identifier, and discusses data analysis and trending.

Objectives:
1. Explain applications that need to be integrated in health care information systems
2. Describe the strategies used by health care organizations to ensure integration of functions.
3. Discuss the critical elements needed to integrate billing, financial, and clinical systems.
4. Discuss the core elements of a Master Patient Index (MPI)
5. Describe the components integral to a Unique Patient Identifier (UPI)