Curriculum Development
Centers Program

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

Component 6 - Health Management Information Systems

Unit 2-1b - Hardware and Software Supporting Health Information Systems

Objectives

- Define the concept of an information system and its characteristics
- Describe the different types of information systems
- Describe various types of technologies that support health care information systems

What is an Information System (IS)?

- Combination of
  - People
  - Hardware
  - Software
  - Communication devices
  - Network
  - Data resources
- Process data and information

General Characteristics of an Information System (IS)

- Inputs
  - Order for a drug
- Data
  - Prescribed drug
- Process
  - Verifies drug is correct for the order
- Outputs
  - Documentation of administration

Characteristics of an Information System (IS)

- Organization of data into information
  - Example: A healthcare data dictionary is a central repository of information about stored data
- Ability to analyze the information
  - Example: Medication management

Available from:
  http://www.bettscomputers.com/characteristicsofinformationsystems.htm

Major Information System Categories

- Transaction Processing System (TPS)
- Management Information System (MIS)
- Decision Support System (DSS)

Transaction Processing System (TPS)

- Transaction Processing System (TPS)
  - Processes information in order to complete a transaction
- Examples:
  - Admit, discharge, transfer (ADT)
  - Patient billing

Management Information System (MIS)

- Management Information System (MIS)
  - Helps managers plan and direct business
- Examples:
  - Laboratory management
  - Pharmacy management

Decision Support System (DSS)

- Decision Support Systems
  - Information systems that support business and organizational decision-making activities
- Example:
  - Clinical DSS
    - Computerized Provider Order Entry (CPOE)

Health Care Information System (HCIS)

- Information system used within a health care organization
  - Facilitates communication
  - Integrates information
  - Documents health care interventions
  - Performs record keeping
  - Otherwise support the functions of the organization

Shortliffe, Editor, Biomedical informatics: computer applications in health care and biomedicine. 3rd Edition. 2006.

HCIS Components

- Patient management and billing
- Department management
- Care delivery and clinical documentation
- Clinical decision support
- Financial and resource management

Vogel, LH, Perreault, LE., Management of Information in Healthcare Organizations, Shortliffe, EH. editor, Biomedical informatics: computer applications in health care and Biomedicine. 3rd Edition. 2006.

Patient Management and Billing

- Systems that support patient management functions
  - Example
    - Patient identification
  - Supporting technology
    - Master patient index
- Houses centralized database of patient financial, demographic, registration and location data

Vogel, LH, Perreault, LE., Management of Information in Healthcare Organizations, Shortliffe, EH. editor, Biomedical informatics: computer applications in health care and biomedicine. 3rd Edition. 2006

Department Management

- Systems that support a department's information needs
  - Example
    - Health Information Management Department Systems
  - Supporting technology
    - Electronic Document Management Systems
- Supplies data to patient databases

Vogel, LH, Perreault, LE., Management of Information in Healthcare Organizations, Shortliffe, EH. editor, Biomedical informatics: computer applications in health care and biomedicine. 3rd Edition. 2006

Care Delivery and Clinical Documentation

- Systems that support the delivery of the care and documentation of that care
  - Example
    - Clinical Information Systems
  - Supporting technology
    - Electronic clinical order entry and results reporting
- Houses centralized database of patient clinical data

Vogel, LH, Perreault, LE., Management of Information in Healthcare Organizations, Shortliffe, EH. editor, Biomedical informatics: computer applications in health care and biomedicine. 3rd Edition. 2006

Clinical Decision Support

- Systems that support the clinical staff with data interpretation and decision-making
  - Example
    - Medication Administration System
  - Supporting technology
    - Bar-code medication administration (BCMA)
- Accesses patient and other databases

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Financial and Resource Management

- Systems that support business functions
  - Example
    - Accounts Payable System
  - Supporting technology
    - Claims administration
- Houses centralized database of financial and employee data

Summary

- Definition of an information system and its characteristics
- Types of information systems that support the health care enterprise requirements
- Types of technologies that support health care information systems