

Component 8 Installation and Maintenance of Health IT Systems

Unit 1a Elements of a Typical Electronic Health Record System

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What We'll Cover

- IOM healthcare improvement initiative and the role of technology
- Electronic Health Record (EHR) systems
 - Defined
 - Then & now
 - Advantages
- EHR software elements
 - Client-server model
 - Server vs. client applications
 - EHR model & components
- EHR hardware components
 - Servers: internal vs. external
 - Clients: workstations; laptops and tablets
 - Miscellaneous hardware: PDAs; scanning and medical equipment
- Network elements
 - WAN, LAN
 - Remote access
 - Assessing network needs

“Information technology ... holds enormous potential for transforming the health care delivery system”

- Institute of Medicine (IOM), *Crossing the Quality Chasm*, 2001

A New Health System for the 21st Century

- IOM (2001): six aims for improving health care quality
 - Safe
 - Effective
 - Patient-centered
 - Timely
 - Efficient
 - Equitable

Patient Record System

- IOM (1991): Any “patient record system” includes:
 - People
 - Data
 - Rules and procedures
 - Processing and storage devices
 - Communication and support facilities

Core EHR Functions: US Government

- Orders for therapies (e.g. medications)
- Orders for tests
- Reporting of test results
- Physician notes

Core EHR Functions: IOM

- Provides longitudinal health data on individuals
- Provides immediate, yet secure, electronic access
- Provides knowledge to enhance quality, safety, and efficiency of care
- Supports efficient processes of care

EHR Systems: Then and Now

Then...

- Earlier EHR systems required extremely expensive computer hardware.
- Core components usually ran on UNIX and often incurred high training costs.
- Rapid progression of technology meant technology was outdated almost as soon as it was installed.

EHR Systems: Then and Now

Now...

- Fast, low-cost PC systems permeate the workplace, often less than \$500 each.
- Improved network protocols make updating and maintenance easier and more cost-effective.
- Ubiquitous, easy to use graphical systems reduce training costs.

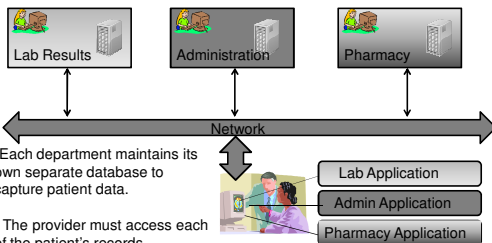
Advantages to EHR Systems

- Better, more accurate documentation
- More efficient storage & retrieval of records
- Higher quality of care, fewer errors
- Lower insurance premiums and operating costs

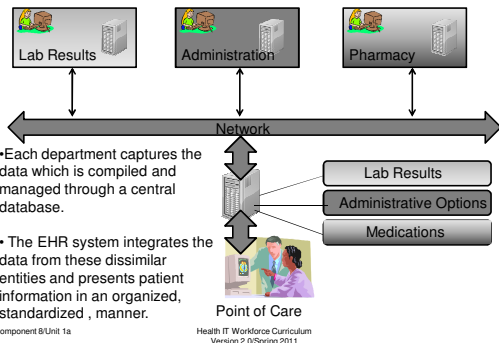
Hardware and Software

- Hardware - Consists of the physical components that make up a computer system.
- Software - Computer programs and accompanying data needed to tell the computer what to do and how to behave.

Software Elements: Pre-EHR



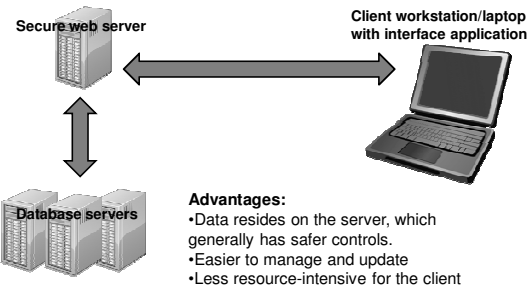
Software Elements: Post-EHR



Client-Server Model

- Most of today's EHR systems are based on the client-server model.
- Software: the collection of programs and related data that contain the instructions for what the computer should do
- Servers: *service providers*
 - Servers run "server application" software designed to meet client requests.
- Clients: *service requesters*
 - Client software is designed to "request" information from a server and then present it to the user in an efficient manner.
- A server and client may reside on the same "box".

Client-Server Model



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