Installation and Maintenance of Health IT Systems

Unit 1a

Elements of a Typical EHR System

What We'll Cover…

- The IOM's Healthcare Improvement Initiative and Technology's Role
- EHR Systems
  - Defined
  - Then and Now
  - Advantages to EHR Systems
- EHR Software Elements
  - Client - Server Model
  - Server Applications vs Client Applications
  - EHR Model and Components
- EHR Hardware Components
  - Server
    - 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…"

"Crossing the Quality Chasm," Institute of Medicine 2001

A New Health System for the 21stCentury

Six Aims for Improving
Health Care Quality

1. Safe
2. Effective
3. Patient-centered
4. Timely
5. Efficient
6. Equitable

A Patient Record System

- Any patient record system includes:
  – People
  – Data
  – Rules and Procedures
  – Processing and Storage Devices

A Complete EMR System

- Computerized orders for prescriptions
- Computerized orders for tests
- Reporting of test results
- Physician notes.

The EHR System

- Key Components
  - Provides "longitudinal health data" on individuals
  - Provides immediate, yet secure, electronic access
  - Enhances quality, safety and efficiency of patient care
  - Makes health care more efficient

EHR Systems…Then and Now

Then…

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- Rapid progression of technology meant technology was outdated almost as soon as it was installed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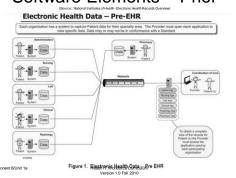- Windows compatible systems reduced training costs.

Advantages to EHR Systems

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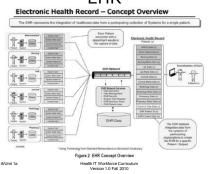- Lower insurance premiums and operating costs

Software Elements – Prior

Figure 1. Electronic Health Data – Pre EHR

Software Elements with EHR

Figure 2 EHR Concept Overview

The Client- Server Model

- Most of today's EHR systems are based on the client –server model
- **Software** - The collection of computer programs and related data that provide the instructions telling a computer what to do.
- **Servers** – Service Providers
  - 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 that data to the requestor in an efficient manner.
- A server and client may reside on the same "box"