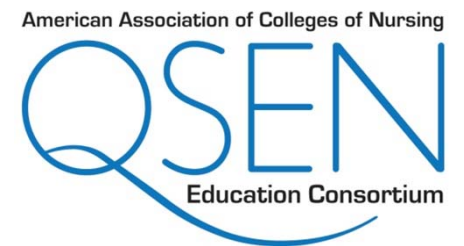




# Health Informatics

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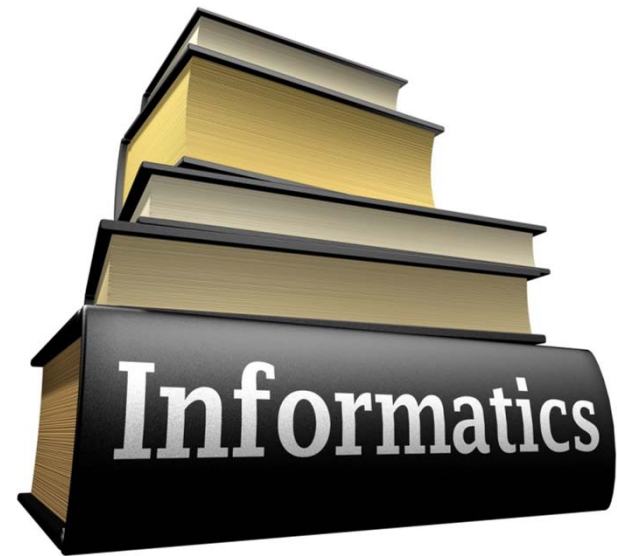


*This program generously funded by the Robert Wood Johnson Foundation*

# Health Informatics

Use information and technology to communicate, manage knowledge, mitigate error, and support decision making.

Intersection of data management and quality.



## Key Message

- Technology is changing how **patients manage** their own healthcare needs and how nurses manage patient care. Nurses need new skills to use and contribute to the development of electronic health records, to **find and evaluate** the **relevance of evidence** to support clinical decisions and to **use data to solve patient and system problems**.

# Learner Objectives

- Describe the cloud and health care
- Analyze large data computing and health care
- Analyze mobile computing's use in health care
- Describe Social media's use in health care



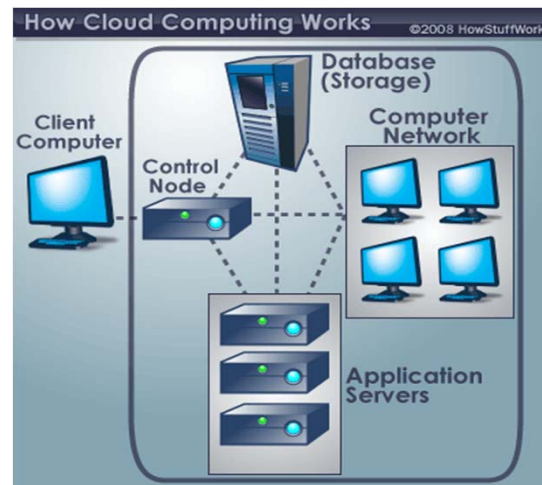
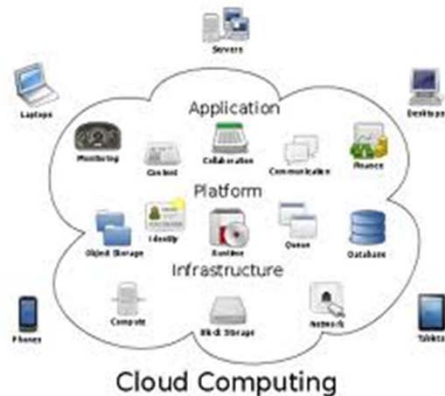
# The Cloud

- National Institute of Standards definition:  
“... convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction.”



# How the Cloud Works

- The foundation for the other forces
- Web-based computing
- Providers have storage, computing, and as part of a total package that can be accessed through an app



# Greater Efficiency with the Cloud

- Flexibility of computing
- Shift in economic and business models for computing
- Reduce operations and maintenance costs of computing
- Agility to size up or down





# Large Data Aggregation

- Electronic health record data
- Personalized health record data
- Administrative data
- Health quality data
- Monitoring data
- Medicare and Medicaid data
- Insurance data
- Pharmacy data
- You get the idea about DATA



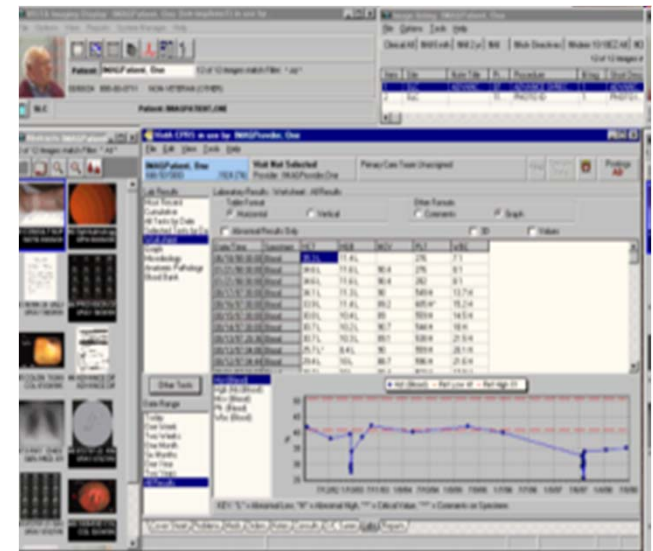


# Large Data Computing and Health Care

- Answer questions about population care as well as individual care
- Efficiency of data analysis
- Application to quality improvement
- Challenge to ensure privacy
- Ethical issues related to use of data

# Electronic Health Records

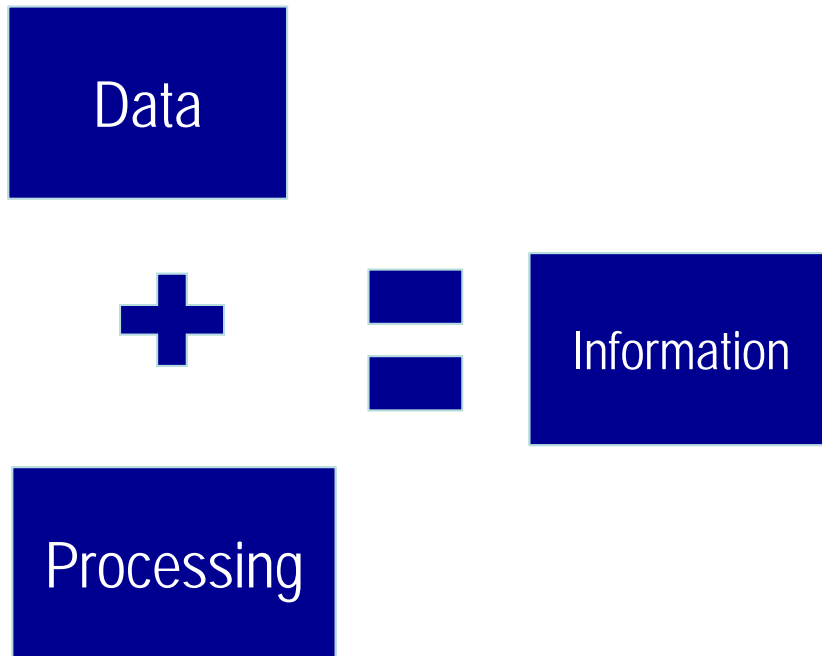
- Slow integration into health care with federal infusion of funds to accelerate
- Basis for required reporting
- Security of data
- Patient ownership
- Use patient data for quality improvement
  - Meaningful use



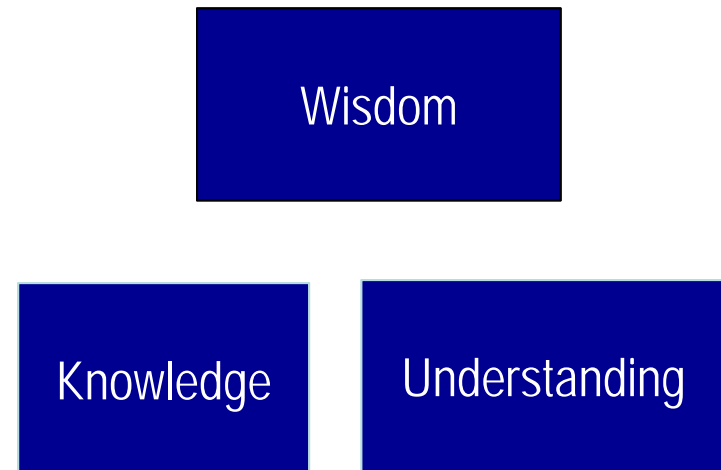
# Example Meaningful Use Measure

- **Objective:** Use CPOE for medication orders directly entered by any licensed healthcare professional who can enter orders into the medical record per state, local and professional guidelines
- **Measure:** More than 30% of unique patients with at least one medication in their medication list seen by the eligible provider or admitted to the eligible inpatient or emergency department have at least one medication order entered using CPOE.
- **Exception:** EPs prescribing less than 100 prescriptions

## Electronic Health Records



## Provider Competence



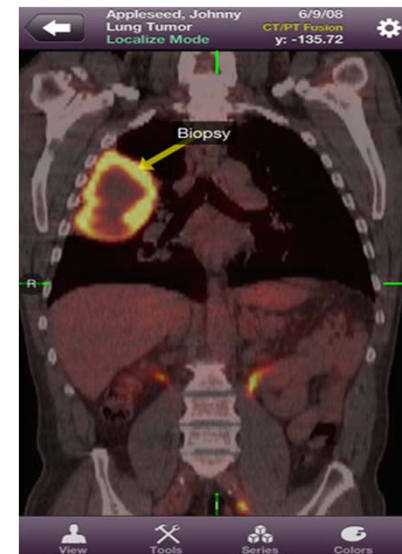
# Role for Graduate Prepared Nurses with EHRs

- Development—at the table
- Implementation—role model
- Evaluation—bring evaluation skills to evaluation team/leader of the team



# Mobile Computing

- Tablets, smartphones and other devices
  - 75% of MDs have IPAD, Iphone or Ipod (Manhattan Research, 2011)
  - 30% used Ipad after just one year of release
- Point of service use
- Issues
  - Privacy and confidentiality of patient data
  - Backend systems integration
- Health Apps
  - Happtech
  - Skeletal System Pro II
  - AirStrip Cardiology
  - Medical MIM
  - Eyedecide



# Patient User of Mobile Computing

- Disease specific apps
  - COPD
  - High BP
  - Weight and nutrition tracking
  - Exercise tracking
- Nursing Specific Apps
  - Nursing Central—charge for use
  - VisualDX
  - Monster anatomy HD



# Telehealth

- Rural areas
- Special Population—Alaskan, American Indian
- Venues for telehealth
  - AFHCAN monitoring equipment
  - Vital signs, glucose testing, INRs, others
  - Wireless network with clinic
  - Cell phone connection
  - IPad use
- Emergency Care
- VA System home monitoring program



# Social Media

- Facebook, LinkedIn, Twitter, Google+, others
- Affinity groups for many different issues
- More informed patients
- Appropriate use by students and providers
  - Ethical issues
  - Professional issues



# Stats for Social Media

- Nearly 7,500,000,000 visits per month on major sites
- Women more on Facebook, Twitter, and Pinterest; men more on LinkedIn and Google+
- On average 405 minutes/month/person spent on social media (6.75 hours)
- Most frequent users age 26-54 years

# Social Media and the Role of Graduate Prepared Nurses

- Review websites to make recommendations to patients on high reliability sites for information
- Integrate into practice such as routinely linking patients through a select group
- Use social media to disseminate information to patients

# The Promise of Health Informatics to Improve Care through Limiting Errors

- Hand off, information exchange at shift change
  - EHRs up to the minute information
  - Support SBAR
- Reduce medication errors
  - Computerized provider order
  - Entry
  - Bar codes
  - EHR medication
  - Reconciliation
- Decision Support Tools
- Meet Meaningful Use

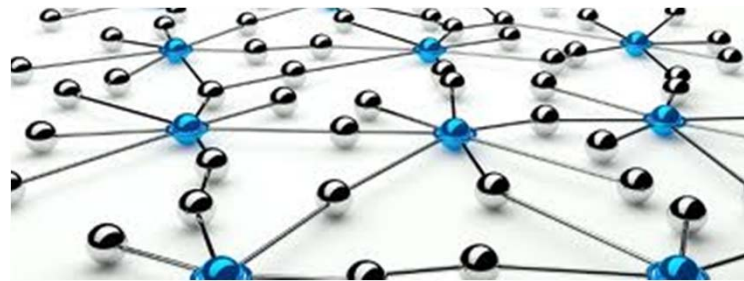


# Intersection of HIT and QI

- Accessible data
- EHR and administrative data linked to
  - HEDIS measures
  - CMS required reporting
  - Specialty areas of practice required reporting, i.e. ER
  - Meaningful use measures
- Data back to relevant units and practitioners for continuous and organized QI

# Interoperability of Systems

- Blue button—Veterans Administration
- Accountable Care Organizations—interoperability amongst all elements of the system
- Regional Interoperable Systems





# Levels of HIT Responsibilities

## 1<sup>st</sup> level

- Electronic Health Record use for patient care
- Analyze usefulness and accuracy of decision support tools

## 2<sup>nd</sup> level

- Use of distance monitoring devices in management of patient care
- Use of EHR data to support quality improvement

## 3<sup>rd</sup> level

- Have major role in design of EHR and HIT systems
- Have major role in implementation of system

# Student Learning Experiences

- Students can:
  - Analyze the use of HIT (EHR, use of mobile technologies etc.) by patients and staff in clinical setting to improve patient care
  - As a group project create a roadmap for use of HIT in a clinical site. Students can be grouped based on type of clinical practice
  - Review literature on new technologies and write a paper on the most promising for creating more patient centered care.
  - Work on an implementation plan for linking HIT to quality in their clinical site