Informatics & Technology in Healthcare
Technology allows people to have easier, quicker access to information they need
INFORMATION MUST BE:

✓ The Right information – from
✓ The Right person – at
✓ The Right time – in
✓ The Right place – and in
✓ The Right amount – and also be
✓ Accurate – easily
✓ Accessible – and
✓ Understandable – to do the Right job.
Information Technology

Any technology which processes and communicates data.

Includes:

- Computers
- Voice Recognition Software
- Data & Image Sensing Programs
- Communications Devices
- Graphics Devices
- Multi-media storage
Informatics & Technology in Healthcare

Healthcare Informatics is the integration of healthcare sciences, computer science, information science, and cognitive science to assist in the management of healthcare information.

![Venn Diagram showing the intersection of Health Care, Health Informatics, Information Science, and Computer Science.]
Goal of Healthcare Informatics

To utilize technology to organize, analyze, manage, and use information to improve the health of populations, communities, families, and individuals by optimizing information management & communication.
The Benefits of Healthcare Informatics

**Improves** the safety & efficiency of patient/resident care.

**Increases time** with the patient/resident and family by freeing the healthcare provider of non-value added activities.

**Communicates & coordinates** care with ALL other clinical disciplines

**Coordinates** transition of care

**Manages** ALL information related to the patient/resident care.

**Brings** evidence for decision making at the point of care.

**Creates** a better work environment for the healthcare providers.

**Enhances** workflow while being supported by the hospital's IT infrastructure.

**Facilitates** analysis of clinical data.
Application of Healthcare Information Technology

Healthcare Information Technology can be applied to all areas of practice:

- Clinical Practice
- Education
- Research
- Administration
In Practice:

- Wireless devices: PDAs, Hand-held Computers, Smart phones
- Real-time equipment and supply location systems
- Delivery robots: meal delivery, lab deliveries
- Workflow management systems: automated census boards
- Wireless patient monitoring systems: prevention of falls
- Electronic medication administration with bar coding
- Electronic clinical documentation with clinical decision support capability
- Interactive patient systems: a digital platform for two-way communication and delivery of multimedia content at the bedside to assist in rendering care and educating patients

In Education:

- PC-based simulations; i.e., Healthstream software
- Virtual Patient Simulation
- Task Trainers
- Human Patient Simulation; i.e., Simman, Simbaby
- Standardized Patients (SP)
- Integrative systems
Current Information Technologies

In Research:

• Computerized literature searching-CINAHL, HINARI, Medline and Web sources

• The adoption of standardized language related to medical terms.

• The ability to find trends in aggregate data, that is data derived from large population groups-Statistical Software, SPSS.

In Administration:

• Automated staff scheduling

• E-mail for improved communication

• Cost analysis and finding trends for budget purposes

• Quality assurance and outcomes analysis
Automated documentation provides:

Up-to-date and accurate information on each step of patient / resident care and is the Power behind safe, high-quality patient-centered care.
E.H.R. Core Components
Identified by the 2003 IOM Report

Health Information & Data: Electronic chart hold everything that is included within a paper chart.

Result Management: Ability to manage all test results (labs, X-ray reports).

Order Management: Prescriptions are written electronically to reduce medical errors. Orders are automatically generated.

Decision Support: Warnings/reminders to enhance clinical performance.

Electronic Communications & Connectivity: An interoperable system that is able to connect with multiple providers, the patient, labs, & hospitals in a secure manner.

Patient Support: Provide patients with educational material as well as the ability to enter data through home monitoring devices.

Administrative Processes: Improves the efficiency in scheduling appointments.

Reporting: Standardized system to produce reports that are demanded by state, federal, and local levels.
E.H.R. Advanced Features & Functions

Ancillary Systems: Information can be shared with multiple providers, the patient, labs, and hospitals in a secure manner.

Clinical Data Repository: Full charting capabilities for healthcare providers.

Physician Documentation: Computerized physician order entry allows physicians to enter orders for medications, laboratory tests, procedures, and imaging studies.

Bar-Coded Medications Administration (BCMA): Use wrist bands with bar codes to identify patients and to check the medication to be administered against the information in pharmacy records.

Continuity of Care Document Transactions: Information can be shared across healthcare settings.

Decision Support:
- Basic decision support: alerts and reminders such as drug interactions or warnings for order duplications (e.g., ordering a chest x-ray when a current one is extant).
- Advanced decision support: protocols, advanced drug-related alerts, and aid in drug selection.
With more complete patient information, healthcare providers improve their ability to make well-informed treatment decisions quickly and safely.
Ethical considerations in Information Technology

- Potential breaches in confidentiality via phone, fax and emails

  - HIPAA violations can be substantial depending on severity of violation

- Patient education materials from credible websites; i.e., MedlinePlus; WebMD; MayoClinic, etc.
Conclusion

Technology will play a leading role in the future of healthcare

National healthcare organizations support the need for healthcare providers to become computer literate and well-versed in the dynamics of informatics.

To thrive in the digital era, healthcare providers must engage in the rapidly advancing technology revolution.

EHR supports, drives, and sustains Evidenced-based Practice (EBP) within the care delivery area.
REFERENCES


- Alliance for Nursing Informatics: http://www.allianceni.org
- American Nurses Association: http://www.nursingworld.org
- HIMSS Nursing Informatics Community: http://www.himss.org/ni