Informatics & Technology in Nursing
Technology is changing the way to administer health care.
Technology allows people to have easier, quicker access to information they need.
INFORMATION MUST BE

✓ Right information – from
✓ Right person – at
✓ Right time – in
✓ Right place – and
✓ Right amount – but
✓ Accurate – easily
✓ Accessible – and
✓ Understandable – to do 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
Information Management

Is the collection and management of information from one or more sources and the distribution of that information to one or more audiences (AIM, 2016)
Informatics & Technology in Nursing

The Future of Nursing report (2011) notes that the growing complexity of care requires that nurses be able to use advanced technology and to analyze and synthesize information in order to make critical decisions, and posits that a more educated workforce would be better equipped to meet these demands (Massachusetts Department of Higher Education, 2016).

ANA defines nursing informatics as a specialty that integrates nursing science, computer science and information science to manage and communicate data, information, knowledge and wisdom and nursing.

Computer science, information science, and nursing science combined to assist in the management and processing of nursing data, information and knowledge to support the practice of nursing and the delivery of nursing care.” (Graves and Corcoran, 1989)
Informatics & Technology: New Definition of Competencies

The Nurse of the Future will be able to use advanced technology, to analyze as well as synthesize information and collaborate with other professionals in order to make critical decisions that optimizes patient outcomes.

(National Academies of Sciences, Engineering, and Medicine, 2015)
Goal

The goal of Nursing Informatics is to improve the health of populations, communities, families, and individuals by optimizing information management & communication.

(Source of Standards of Nursing Informatics Practice – American Nurses Association 2001)
The Benefits of Nursing Informatics

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

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

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

**Coordinates** transition of care

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

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

**Creates** a better work environment for the practicing nurse.

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

**Facilitates** analysis of clinical data
Application of Nursing Information Technology

Nursing Information Technology can be applied to all areas of nursing practice

Clinical Practice
Education
Research
Administration
In Practice:

- Wireless devices: PDAs, Hand-held Computers, Smart phones
- Real-time equipment and supplies 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 Nursing 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 nursing terms—NANDA, etc.
- 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
Automate documentation provides:

- Up-to-date;

Accurate information of each step of the Nursing Process 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 currently 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 due to illegible handwriting. Orders are automatically generated.

Decision Support: Warnings/reminders to enhance clinical performance. Decision support aid in: drug interactions/prescriptions/prevention, detection of disease outbreaks, evidence-based guidelines, etc.

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, eliminating confusions, determining insurance eligibility, etc.

Reporting: Standardized system to produce reports that are demanded by state, federal, and local levels.
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 nurses and clinicians.

Physician Documentation: Computerized physician order entry (CPOE) 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 health care 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.
Electronic Health Record

With more complete patient information, healthcare providers improve their ability to make well-informed treatment decisions quickly and safely.
Ethical considerations in Nursing Information Technology

- Potential breaches in confidentiality via phone, fax and emails
  - HIPAA violations can be up to 6 digit dollar amounts depending on severity of violation

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

Nursing informatics is an emerging field of study.

Technology will play a leading role in the future of nursing and healthcare.

National nursing organizations support the need for nurses to become computer literate and versed in the dynamics of nursing informatics.

To thrive in the digital era, nurses 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](http://www.allianceni.org)
- American Nurses Association: [http://www.nursingworld.org](http://www.nursingworld.org)
- HIMSS Nursing Informatics Community: [http://www.himss.org/ni](http://www.himss.org/ni)