



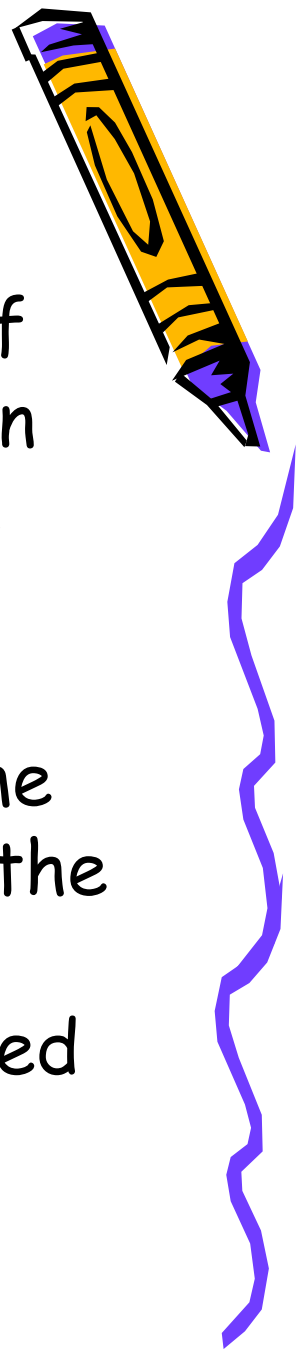
Application of Computer in Nursing,

USES OF COMPUTER IN NURSING PRACTICE AND MANAGEMENT



INTRODUCTION

- In this history of civilization, no work of science including health care information has so comprehensively impacted on the course of human development as health information and management technology(HIMT).currently the outcome of transformation that has taken from the manual information technology management to a fast and accurate computerized - HIMT of this century.



TERMINOLOGIES

- **Data:** This is a collection of facts about an entity.
- **Program:** A program is a task given to a computer.
- **Process :** The computer system breaks down each task it handles into smaller tasks called process.
- **Hardware:** The physical components of a computer system are collectively called hardware.
- **Software:** Refers to the medium containing a set of instructions that instructs the hardware how to perform particular tasks.



DEFINITION

- **COMPUTER:** It means
Commonly
Operated
Machine
Particularly
Used for
Training
Education
Research.



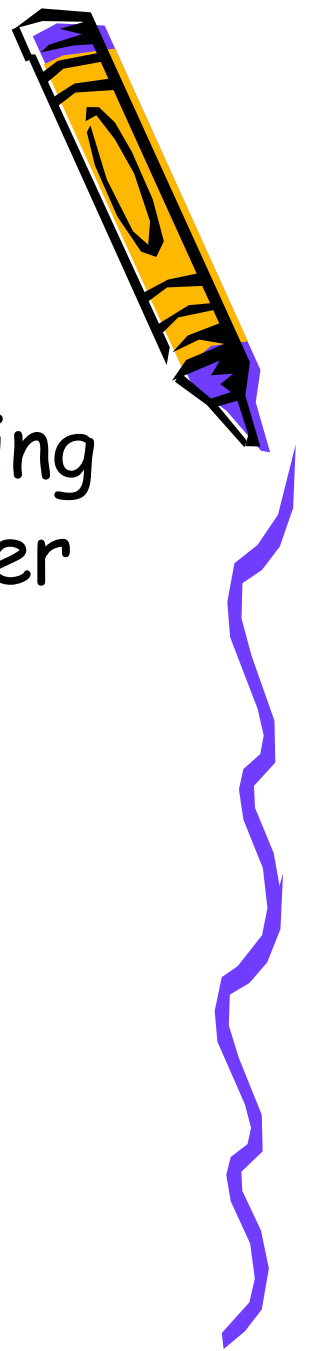
Nursing Informatics



- A field that combines nursing and computers
- Informatics is computer science plus information science



Cont...



- **Nursing informatics:**

The definition stated that nursing informatics was the use of computer technology in all nursing endeavors :services, education and research.

-Scholes and Barber .
(1980)



Cont...

NURSING INFORMATICS :

Nursing informatics combines nursing, information and computer sciences to manage and communicate information to support nurses and health care provider in decision making.

-ANA(2001).

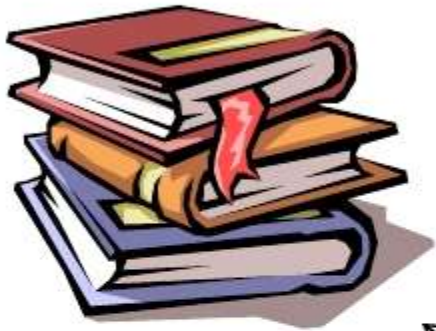


BASIC OPERATION OF COMPUTER SYSTEM

1. INPUTTING
2. STORING
3. PROCESSING
4. OUTPUTTING
5. CONTROLLING

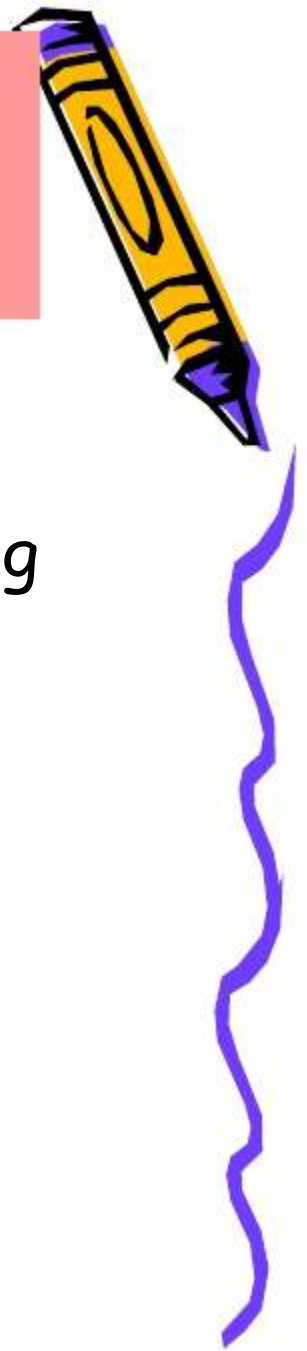


USES OF COMPUTER IN NURSING

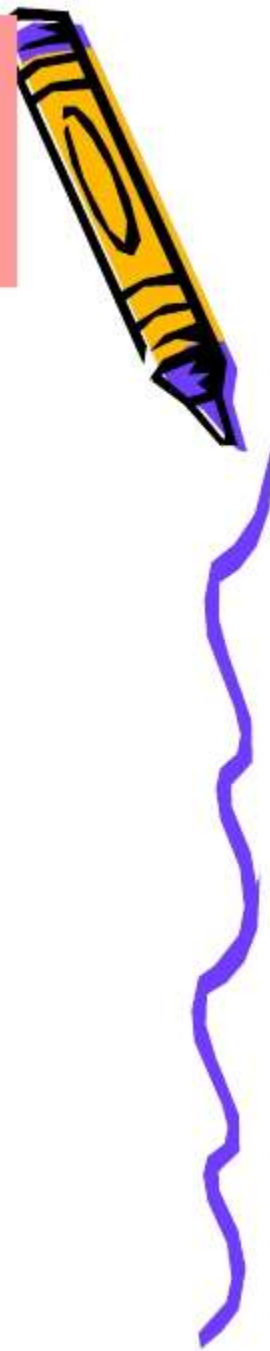


COMPUTER IN NURSING EDUCATION

- Computers are used extensively in nursing education; **libraries** are computerised, nursing educationalists use computers in **classroom** teaching and for academic record keeping.



COMPUTER IN NURSING EDUCATION



- In nursing education, computers are used in

1. Teaching and learning

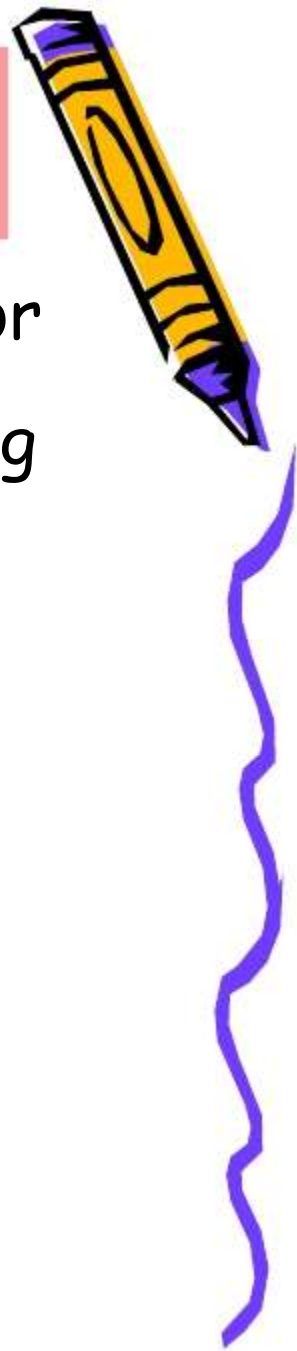
2. Testing

3. Student and course record management

Each of these are described next.



1. Teaching and learning

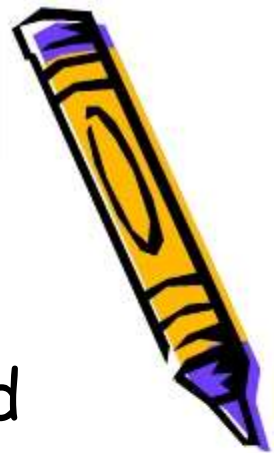


Computers enhance academic performance for both students and faculty through facilitating

- ✓ access to literature
- ✓ computer-assisted instruction
- ✓ classroom technologies
- ✓ distance learning.



cont...



– Literature access and retrieval:

In a fraction of time, continuously updated cumulative indexes of subjects can be searched electronically.

- Once a list of search matches is displayed on screen, the user can select all or certain citations and either print them or store them on the hard disk.

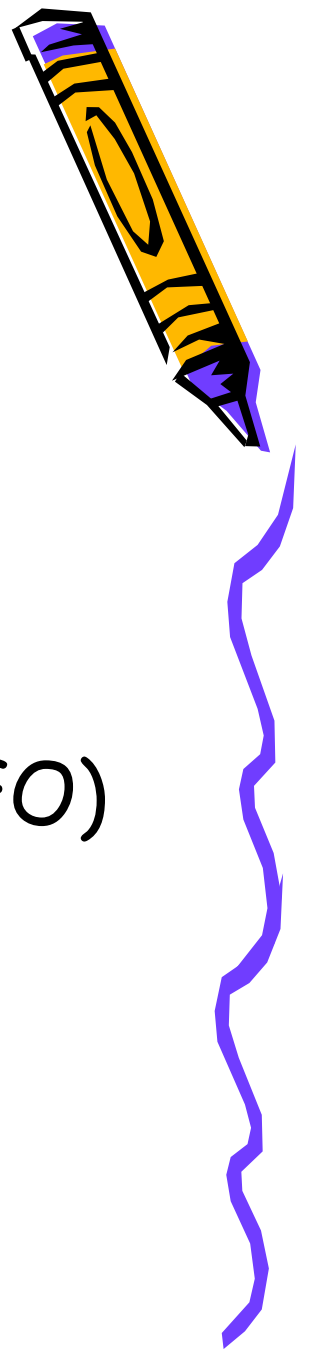


The text below lists commonly used bibliographic systems and databases.

- Acquired Immune Deficiency Syndrome information onLINE (AIDSLINE)
- CANCER LITerature (CANCER LIT)
- Cumulative Index to Nursing and Allied Health Literature (CINAHL)
- Educational Resources Information Center (ERIC)



Cont...

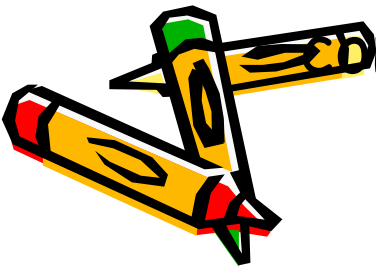
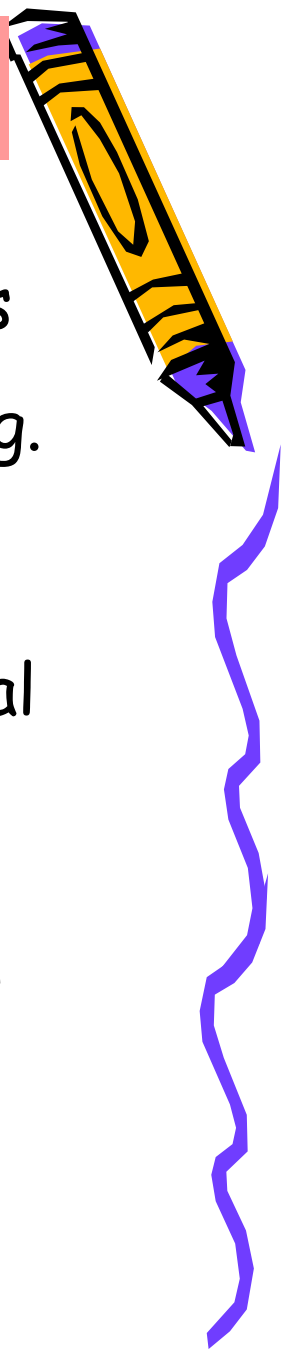


- Medical Literature Analysis and Retrieval System (MEDLARS)
- Mental Measurement Yearbook
- Psychological Abstracts (PsychINFO)

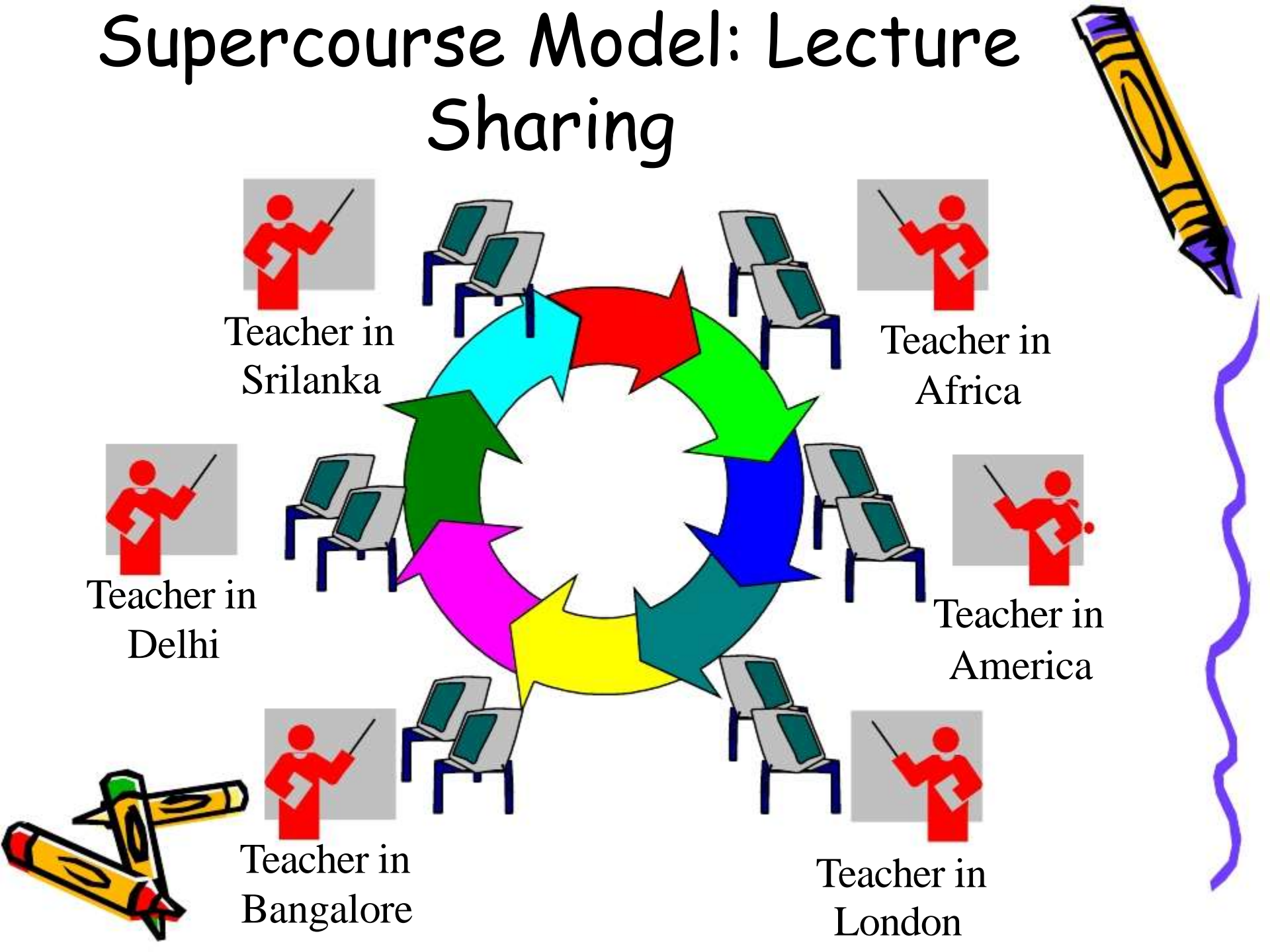


Computer-Assisted Instruction (CAI)

- Many software programmes help students and nurses learn and demonstrate learning.
- Examples of tutorials include ECG interpretation, drug interactions, and legal aspects of nursing.
- Completion of CAI programmes may be an acceptable means of demonstrating continuing education activities.



Supercourse Model: Lecture Sharing



Classroom Technology

- New educational buildings are wired to accommodate technology. This includes electric outlets and **wireless technology for network or Internet access.**
- For nursing faculty, **liquid crystal display (LCD)** panels allow computer screens to be displayed to the entire classroom.



2. Testing



- This is the second use of computer in nursing education.
- Surveys, including anonymous questionnaires, can be completed [online](#).
- For testing, large banks of potential items can be written and the computer can generate different exams for each student depending on the selection criteria.



Cont...



- Students' answers can also be scored electronically and the exam results analysed quickly.
- For example, the **National Council Licensure Examination (NCLEX-RN)** moved from paper and pencil tests to computer tests.



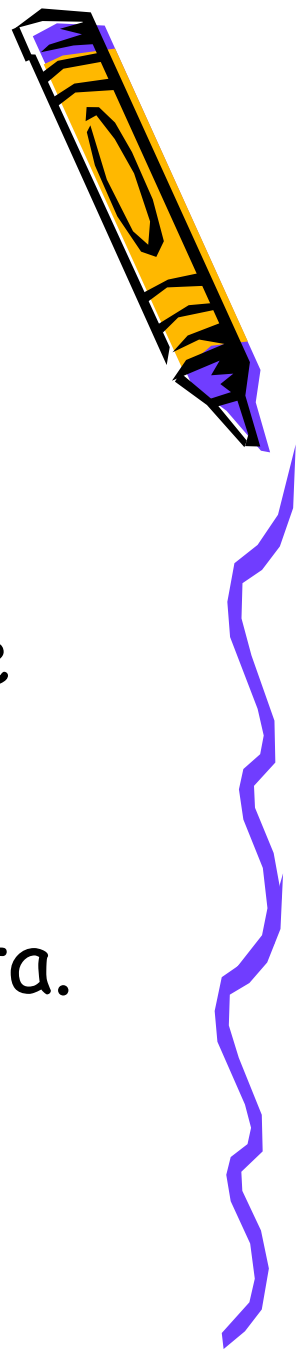
3. Student and Course Record Management



- Computers are useful for maintaining results of **students' grades or attendance**.
- The computer programme can calculate percentages, sort student scores in order, and **print results** for both students and faculty.
- Students are frequently asked to evaluate faculty and courses. These data are also scanned into the computer so that cumulative results can be calculated and stored.



Cont...



- Many schools have now all student records on computer. From application through graduation, the registrar's office keeps track of names, addresses, courses taken, grades, and all other important data.



COMPUTERS IN NURSING PRACTICE



COMPUTERS IN NURSING PRACTICE

- Use information & communication technology to document & evaluate patient care, advance patient education, & enhance the accessibility of care
- Use appropriate technology to assess & monitor patients
- Work on an interdisciplinary team to make ethical decisions regarding the application of technologies & the acquisition of data

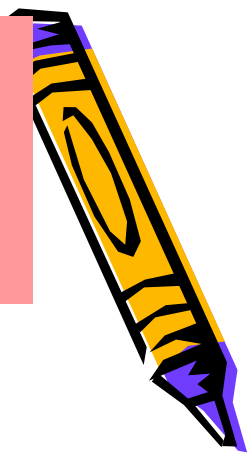


Nursing Skills

- Adapt the use of technologies to meet patient needs
- Teach patients about health care technologies
- Protect the safety & privacy of patients in relation to the use of health care & information technologies
- Use information technologies to enhance one's own knowledge base



Informatics & Technology in Client Care

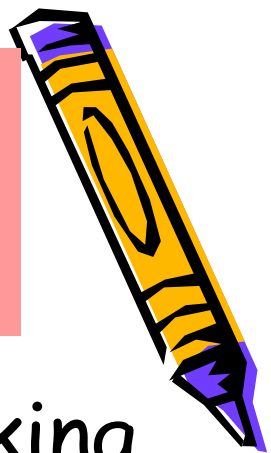


- Handheld monitors
- (e.g., pulse oximetry & peripheral blood glucose monitors, Infusion pumps...)
- Wireless technology with automatic nurse paging capability when client measurements fall outside of normal parameters



Technology & Informatics in Client Care

- Computerized clinical decision-making programs
- Nurse personal digital assistants
- Care-planning software programs
- Handheld clinical resource information devices
- Intravenous pumps for medication delivery



COMPUTERS IN NURSING PRACTICE

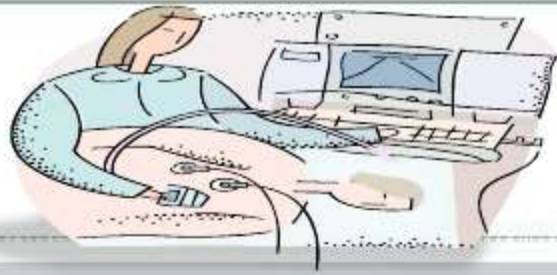
Functions

- Records client information
- Provides access to other departments
- Used to manage client scheduling

DOCUMENTATION OF CLIENT STATUS AND MEDICAL RECORDS KEEPING

- Provides access to standardized forms, policies and procedures
- Access data about client that may be somewhere in the medical record or elsewhere in health care agency.





BEDSIDE DATA ENTRY

- records clients assessments, medication administration, progress notes, care plan updating, client acuity and accrued charges

COMPUTER BASED CLIENT RECORD

- EMRs/CPRs
 - Provides easy retrieval of specific data such as trends in vital signs, immunization records, current problems
 - It can be designed to work providers about conflicting medications or client parameters that indicate dangerous conditions



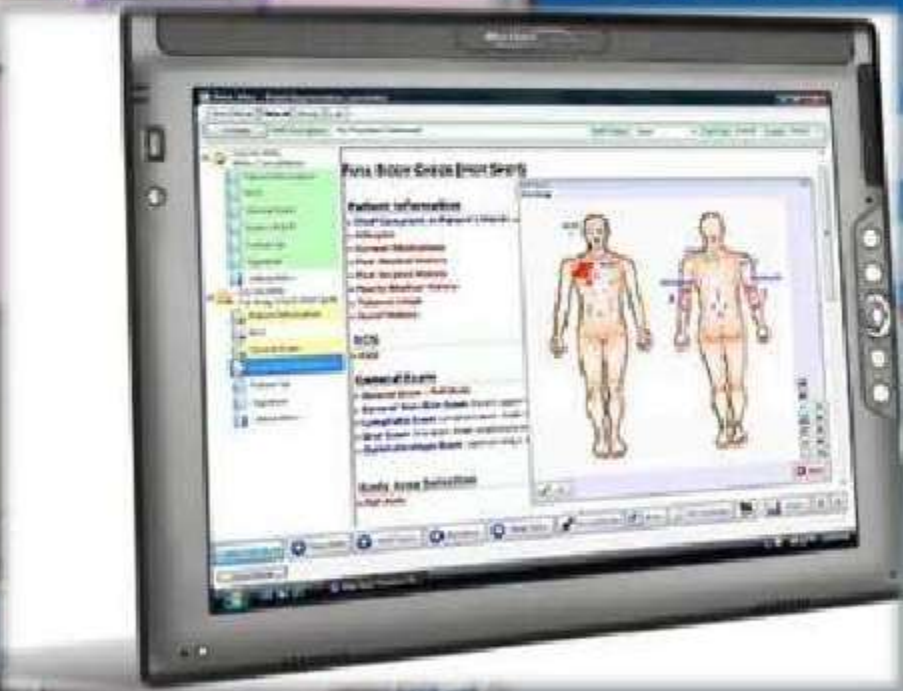
ELECTRONIC ACCESS TO CLIENTS

- Used extensively in health care to assess and monitor clients conditions
- Data accumulated from various electronic devices are stored for research purposes
- Can monitor client
- Computerized diagnosis
- Telemedicine



PRACTICE MANAGEMENT

- Used to order supplies, tests, meals, and services, from other departments
- Allows nursing service to determine the most costly items used by a particular nursing unit.
- May provide information or decisions to modify budget, provide different staffing, move supplies to different locations, or make other changes for more efficient and higher quality care





- All relevant stakeholders are linked together
- Enables ambulance staff to monitor, diagnose and treat patient as well as utilizing decision support like guidelines, checklists and second opinion/telemedicine.
- Documentation using the integrated ePR.
- Enables hospital staff to guide, assist and prepare the medical care using continuously transmitted vital signs, chat, ePR and other information e.g. checklists.
- Facilitating and supporting a borderless "team" approach to pre-hospital care.
- Enables integration of pre-hospital care in patient centric clinical pathways and processes



Current uses of Informatics Applications in Healthcare

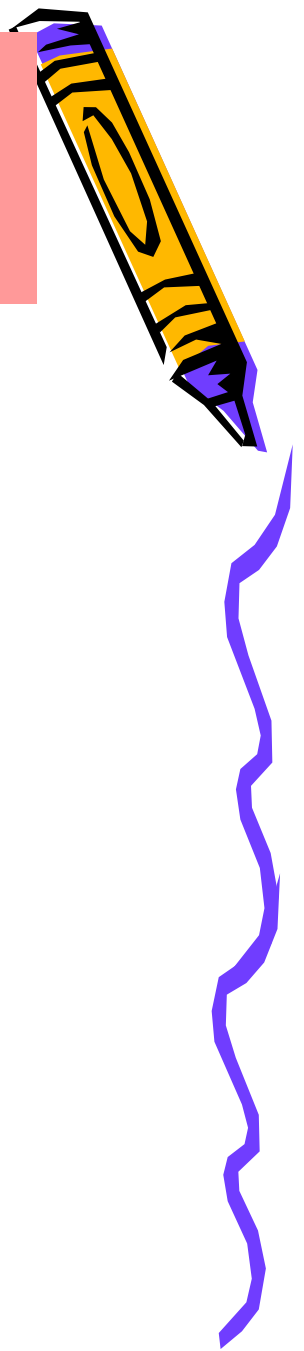


- Admission, discharge, & transfer
- Patient Access Record
- Financial parameters
- Physician order entry
- Ancillary department
- Documentation



Informatics Applications in Healthcare

- Scheduling
- Pharmacy preparation
- Acuity criteria
- Specialty practice
- Decision support
- Communication
- Critical pathways

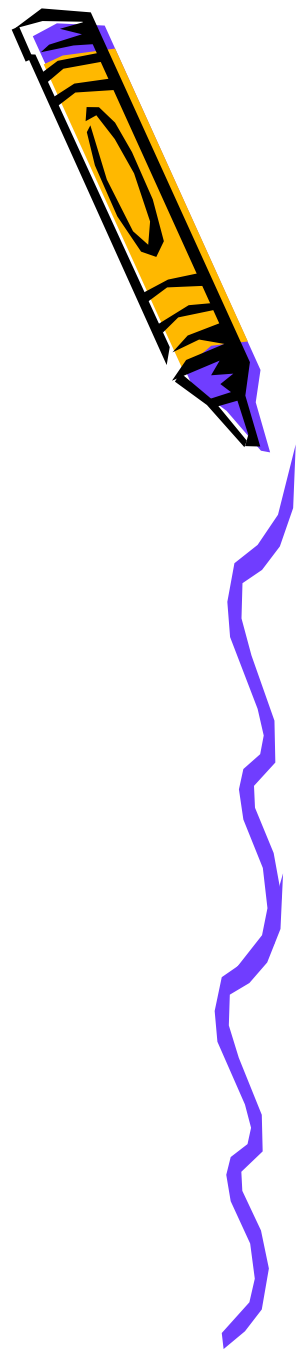


Computers in Nursing Administration



Use of Computers in Nursing Administration

- Human Resources
- Medical Records
- Nursing station system
- Personnel management
- Quality Assurance

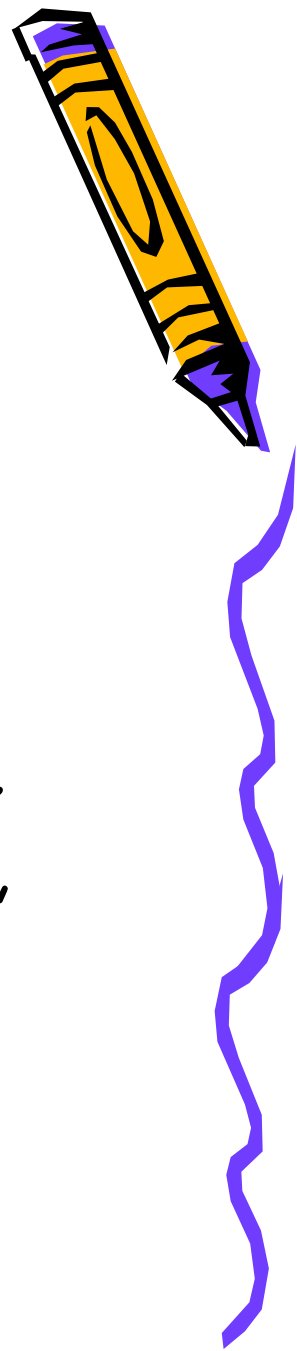


Cont...

- Facilities management
- Budget and Finance
- Accreditation



Use of Computers in Nursing Administration



- **Human resource:**

- Employers must maintain a database, for each employee
- Data's include demographic salary, life support certification, health requirement, performance appraisal.

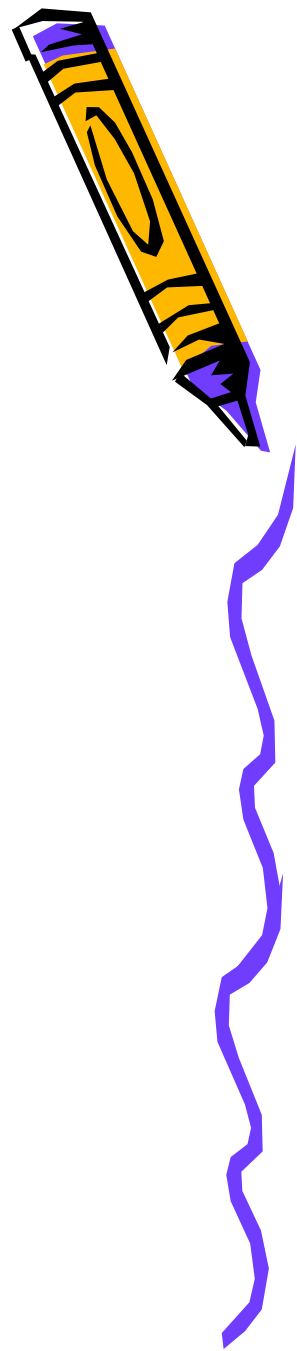


Cont...

- **Medical record system:**

Computerization of medical records is utilized for

- ✓ Monthly demographic data analysis
- ✓ Hospital mortality and morbidity rate
- ✓ Monthly and annual report
- ✓ Reference



Cont...

- **Nurses station system:**

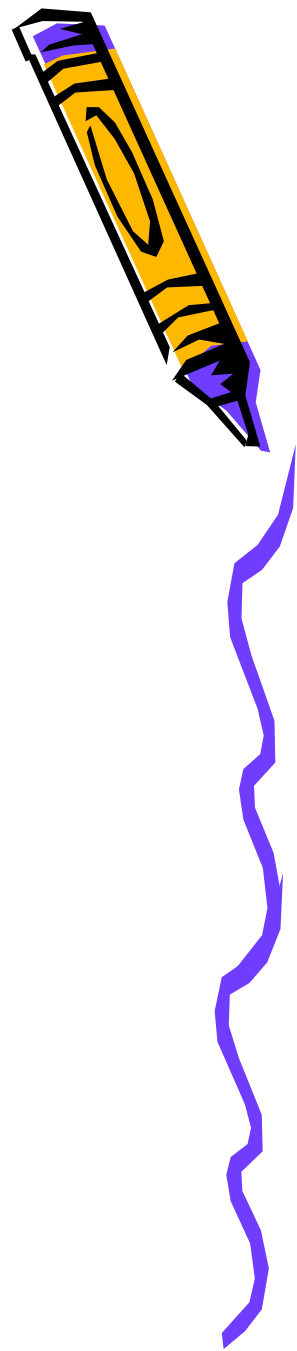
It is located in each ward for patient care management

- Test requisition
- Dietary requirement
- Drug administration schedule
- Other services



Cont...

- **Personnel management:** It includes
 - Nursing audit
 - Performance record
 - Leave record
 - Salary
 - Promotion
 - Career development

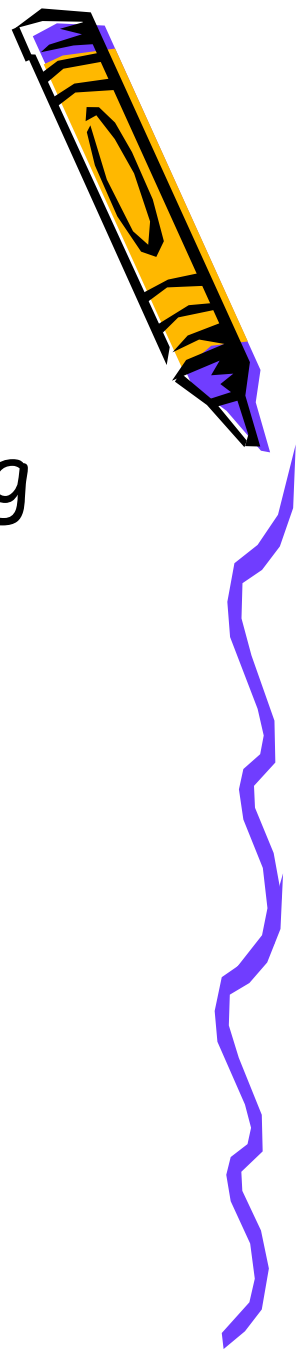


Cont...

- **Facilities management:**

Managing building and non nursing services

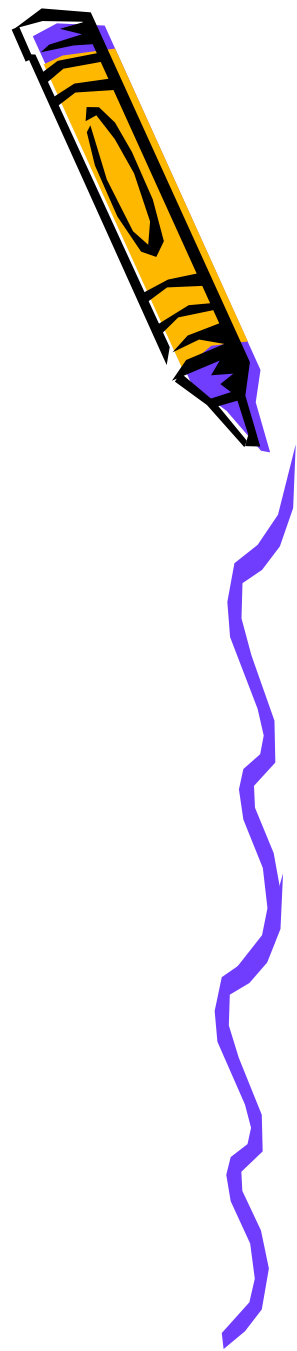
- Control heating
- Air conditioning
- Ventilation
- Alarm system
- Readers (scanning IDcards)
- Barcodes



Cont...

- Budget and finance:
 - Billing
 - Salary
- Accreditation

The joint commission on accreditation care organization requires hospital to have online mechanism to monitor quality indicator.

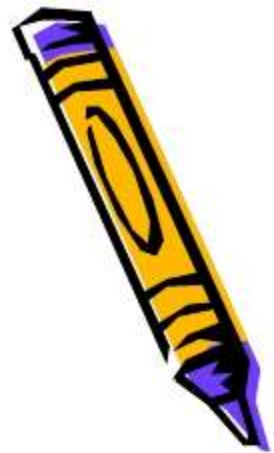


Computers in Nursing Research



Use of Computers in Nursing Research

- Problem identification
- Literature Search
- Research design
- Data Collection and Analysis
- Research Dissemination

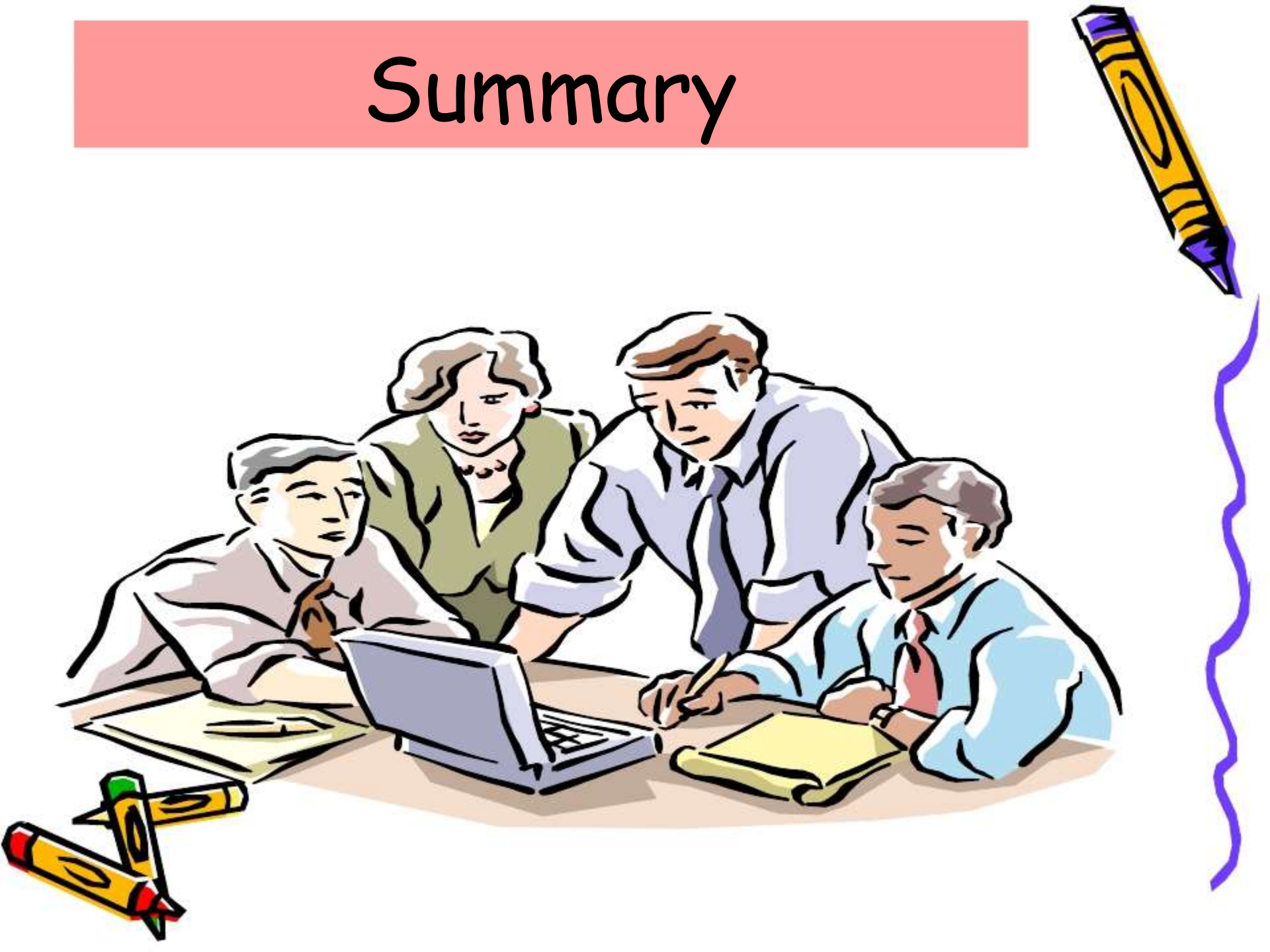


Issues Related to Computers in Nursing

- Legal/Ethical Issues
- privacy/confidentiality
- access to data for research and other purposes
- informed consent
- License issues with telenursing
- Copy right of materials on the Web

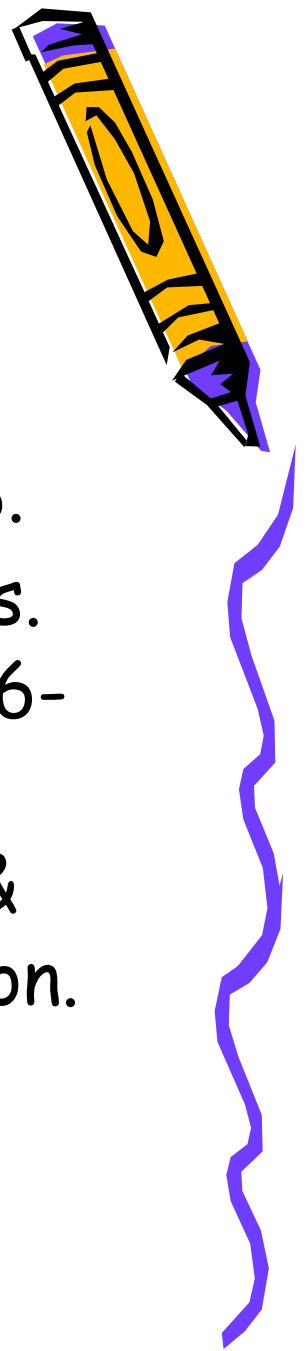


Summary



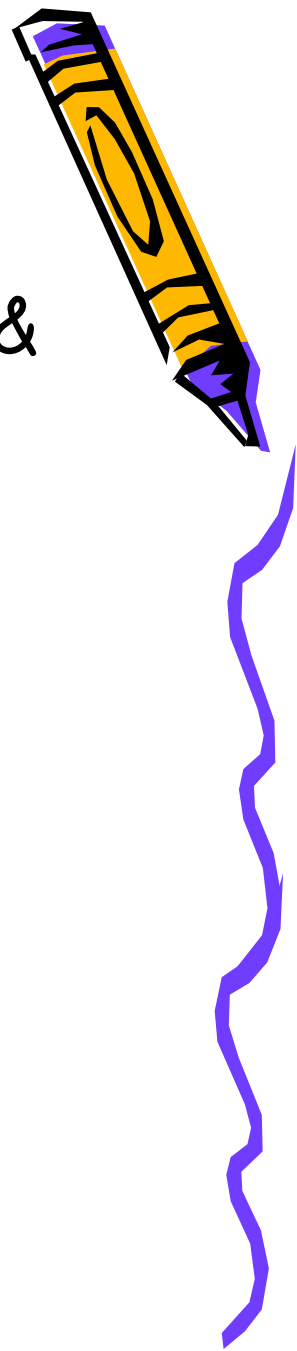
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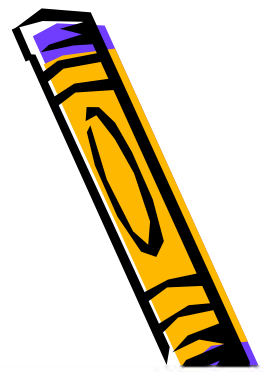


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CONCLUSION



“Computers are incredibly fast , accurate and stupid.

Human beings are incredibly slow , inaccurate and brilliant.



Together they are powerful beyond imagination”

Albert Einstein

