

Health Information Technology



Prepared by:



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HIT

Health Information Technology involves computerized systems used by healthcare professionals to document, access, and exchange patient data safely and efficiently.

It supports clinical decision-making, communication, documentation, and healthcare management.



What is a HIT Goal?

A Health Information Technology (HIT) Goal refers to the specific objective or intended outcome of using technology to improve healthcare delivery, patient safety, documentation, communication, or health data management.





Goals of HIT

- **Improve quality and safety of patient care**
- **Reduce medical errors**
- **Enhance communication among healthcare providers**
- **Increase efficiency and productivity**
- **Support evidence-based practice**
- **Promote data-driven healthcare decisions**

Examples of HIT Goals in Nursing / Healthcare

- Improve accuracy of patient documentation using Electronic Health Records (EHR)
- Enhance patient safety through barcode medication administration
- Strengthen communication among healthcare team members via digital systems
- Reduce medical errors with clinical decision support systems
- Increase efficiency in nursing workflow
- Support telehealth and remote patient monitoring
- Protect patient privacy and data security



Importance in Nursing

- **Accurate documentation of patient data**
- **Faster access to medical history and labs**
- **Improved care coordination**
- **Supports nursing informatics practice**
- **Helps in clinical decision-making and patient monitoring**



Milestone (USA)

During George W. Bush Era

✓ 2004 – Executive Order on HIT

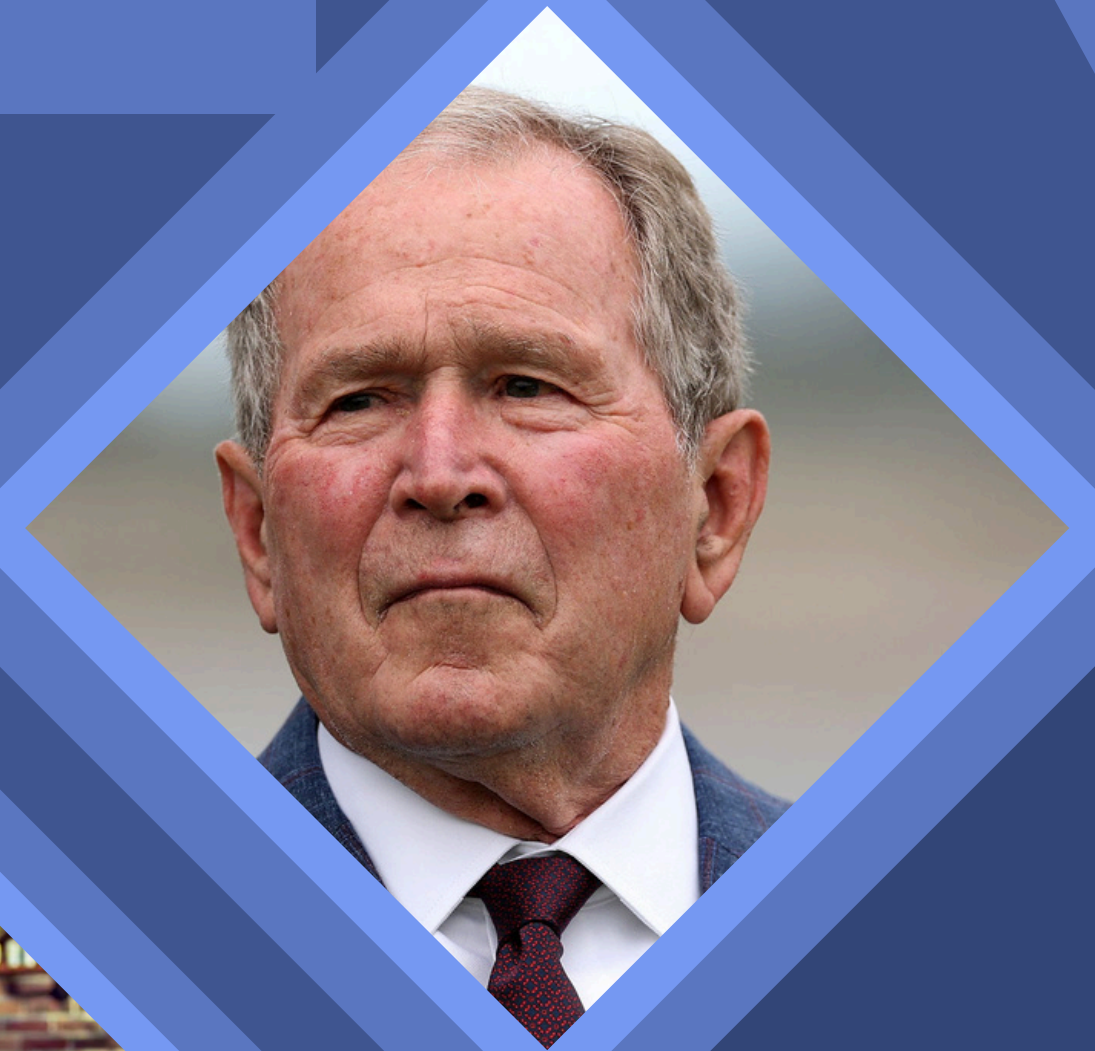
- Bush announced a goal to make Electronic Health Records (EHRs) available for most Americans within 10 years.
- Focused on improving quality, safety, and efficiency of healthcare through technology.



Milestone (USA)

✓ **Creation of ONC (Office of the National Coordinator for Health Information Technology) – 2004**

- Established under the U.S. Department of Health and Human Services (HHS).
- Responsible for coordinating nationwide HIT adoption.

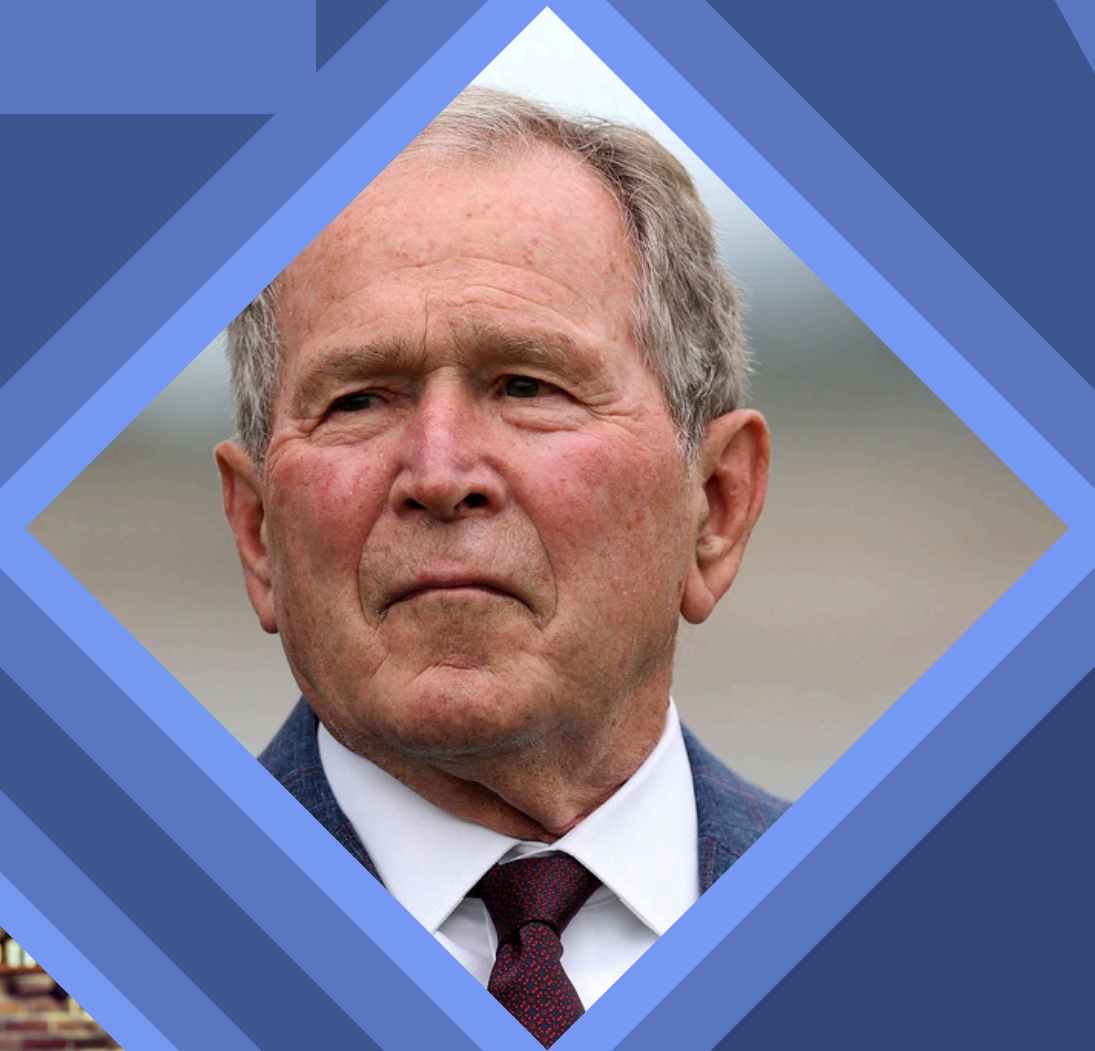


Milestone (USA)

✓ Early Development Stage

- Promoted standards for health data exchange.
- Encouraged hospitals and providers to start transitioning to electronic systems.

No major nationwide financial incentives yet (those came with the HITECH Act under Obama).



Milestone (USA)

President Barack Obama (2009)

HIT gained major national support during Barack Obama's administration through the:

👉 **HITECH Act (Health Information Technology for Economic and Clinical Health Act) – 2009**

- Part of the American Recovery and Reinvestment Act (ARRA)
- Promoted nationwide adoption of Electronic Health Records (EHRs)
- Introduced “Meaningful Use” standards



Milestone (USA)

Provided incentives for hospitals and healthcare providers to use digital health systems



Milestone (PHILIPPINES)

President Gloria Macapagal-Arroyo
(2001–2010)

👉 Early foundation stage

- Promotion of ICT in government services
- Initial development of hospital information systems
- Early digitization efforts in healthcare facilities



Milestone (PHILIPPINES)

President Benigno Aquino III (2010–2016)

- 👉 Major starting point of Philippine eHealth
 - 2013 – Philippine eHealth Strategic Framework and Plan
 - Collaboration between DOH, DOST, PhilHealth, UP Manila, and DICT

Focus on electronic medical records and health data systems



Milestone (PHILIPPINES)

President Rodrigo Duterte (2016–2022)

👉 Expansion & implementation

- Growth of telemedicine and digital health services
- Strengthening of health information systems during COVID-19
- Online surveillance and reporting systems



Milestone (PHILIPPINES)

President Ferdinand Marcos Jr.
(2022–present)

👉 Digital health modernization

- Continued push for digital transformation in healthcare
- Expansion of telehealth and integrated national health data systems



Key Contributors to HIT / Health Informatics

- Dr. Lawrence L. Weed – Developed the Problem-Oriented Medical Record (POMR) and SOAP notes; foundation for electronic documentation.
- Dr. Homer R. Warner – One of the fathers of medical informatics; developed early computerized clinical decision systems.
- Dr. Edward H. Shortliffe – Pioneer in AI in healthcare; created MYCIN expert system.
- Dr. Morris F. Collen – Early developer of computerized medical records at Kaiser Permanente.
- Dr. Virginia Saba – Pioneer in nursing informatics; developed Clinical Care Classification (CCC) system.



In Nursing Informatics Context (most commonly cited)

👉 Virginia Saba and Patricia Abbott are frequently referenced authors when discussing HIT applications in nursing.



Introduction to Computers

Understanding the Basics and Beyond

Presented by

**Michelle Ann Lorielee
T. Talatagod, RN**



What is a Computer?

A computer is an electronic device that manipulates information or data. It has the ability to store, retrieve, and process data.

Modern computers can perform a wide range of tasks, from simple calculations to complex simulations.



Basic Components of a Computer

CPU (Central Processing Unit)

The brain of the computer.

RAM (Random Access Memory)

Temporary storage for data and instructions.

Storage

Hard drives or SSDs for long-term data storage.

Motherboard

The main circuit board connecting all components.



Computer Parts

- There are many parts that work together to make a computer work.



Hardware

- Physical parts of the computer, including processor and memory chips, input/output devices, tapes, disks, modems, cable, etc.



- The Central Processing Unit



Processor

- The CPU – The chip or chips that interpret and execute program instructions and manage the functions of input, output, and storage devices.



Computer Case

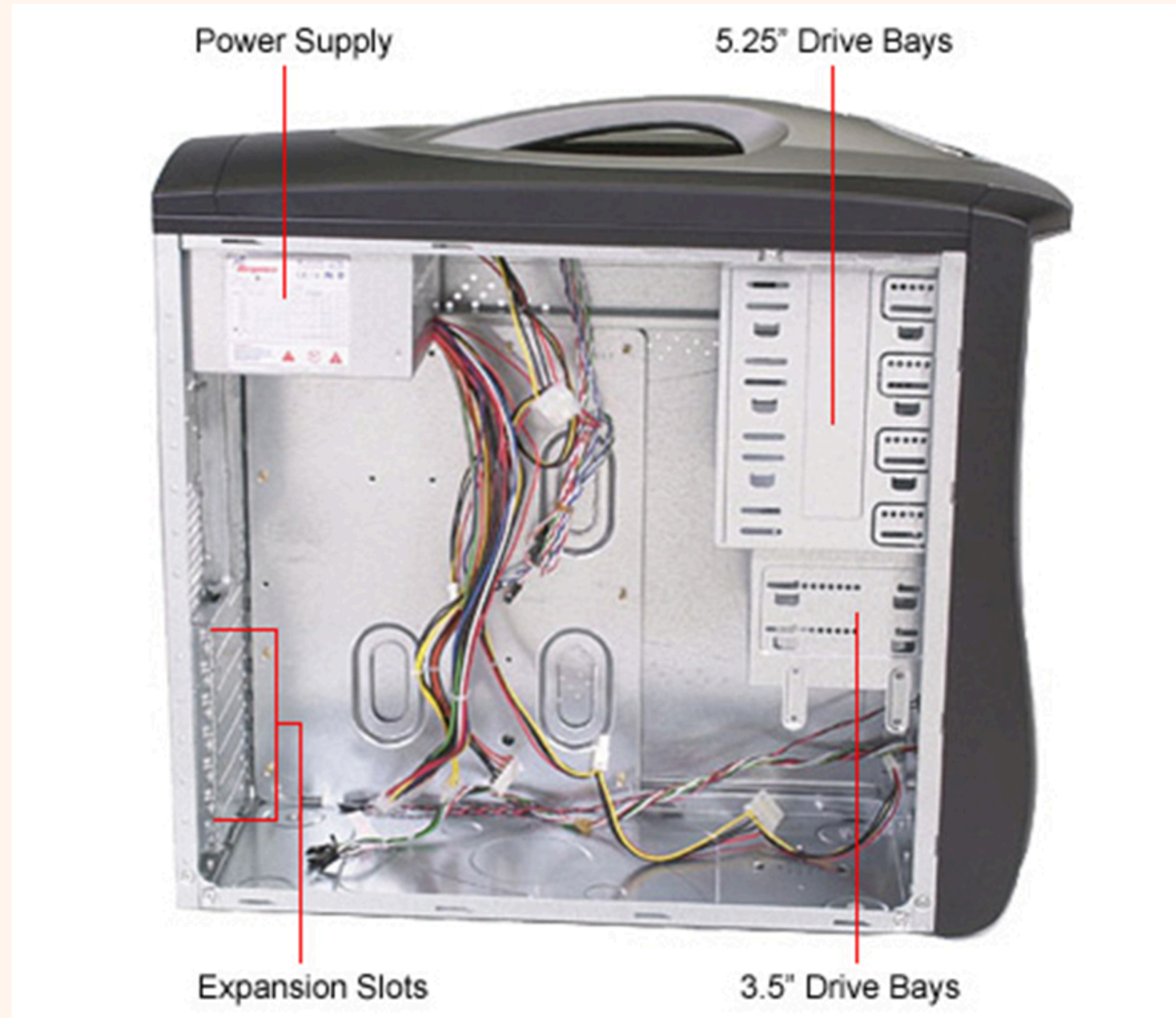
- Contains the major components of the computer. It helps protect them.



Front of the Computer Case



Inside the Computer Case



Monitor

- A display screen to provide “output” to the user. It is where you view the information your are working on.



Video Card

- Connects the computer to the monitor. It is a circuit board attached to the motherboard that contains the memory and other circuitry necessary to send information to the monitor for display on screen.



Mouse

- An input device operated by rolling its ball across a flat surface. The mouse is used to control the on-screen pointer by pointing and clicking, double-clicking, or dragging objects on the screen.



Keyboard

- Used to enter information into the computer and for giving commands.



Touchpad

- A pressure-sensitive and motion sensitive device used in place of a mouse.



CD Rom Drive

- The drive that plays CDs and reads data that has been stored on the CD.



CD

- Compact Disk – A type of optical storage device.



Floppy Disk Drive

- A device that holds a removable floppy disk when in use; read/write heads read and write data to the diskette.



Hard Disk

- Magnetic storage device in the computer.



RAM

- Random Access Memory
RAM is a computer's temporary memory, which exists as chips on the motherboard near the CPU. It stores data or programs while they are being used and requires power.



Printer

- An output device that produces a hard copy on paper. It gives information to the user in printed form.



Barcode Reader

- An input device that converts a pattern of printed bars into a number that a computer can read. They are often used by businesses to quickly input price and product information.



Scanner

- A device that allows pictures to be placed into a computer.



Microphone

- Allows the user to record sounds as input to their computer.



Speakers

- Used to generate or reproduce voice, music, and other sounds.



Sound Card

- Connects the speakers and microphone to the computer.



Modem

- The place where the computer is connected to the phone line.



Network Card

- A circuit board that connects the computer to the rest of the network usually using special cables.



Software

- Programs that tell the computer what to do. It provides instructions that the CPU will need to carry out.



DOS

- Disk Operating System

This software connects the hardware with the programs you want to run.

MS-DOS:

Microsoft DOS (Disk Operating System) is a command line user interface. MS-DOS 1.0 was released in 1981 for IBM computers.

Example of MS-DOS

```
C:\WINDOWS>dir h:

Volume in drive H is USERS
Directory of H:\TLC FILES

.                <DIR>
..               <DIR>
HUMANRES SHW     317,952  09-14-01  8:12a Human resources Activity 2.shw
HUMANRE0 SHW     196,608  09-17-01  2:08p Human Resources Activity 5.shw
HUMANRE1 SHW     135,680  09-18-01  1:46p Human Resources Job Application.shw
CASHIER1 SHW     126,976  09-20-01  9:00a Cashiering Lesson 1.shw
THELORAX WPD       3,862  08-29-01  2:56p The Lorax.wpd
TLCDISCL SHW     167,424  09-19-01 10:57a TLC Disclosure.shw
KASH      SHW     105,472  09-19-01  1:32p KASH.shw
ETHICS    SHW       94,208  09-19-01  1:44p Ethics.shw
CASHIER0 SHW     200,192  09-20-01  3:26p Cashiering Lesson 2.shw
COMPUTER SHW     140,800  09-21-01 11:05a computer basics.shw
          10 file(s)      1,489,174 bytes
          2 dir(s)      12,395.44 MB free

C:\WINDOWS>_
```

Windows

- A family of operating systems developed and produced by Microsoft Corp. It provides a software graphical user interface (GUI) used on IBM and compatible computers.



Example of Windows (GUI)





Supercomputers

Extremely powerful machines used for complex calculations.

Mainframes

Large systems used by businesses for bulk data processing.

Personal Computers

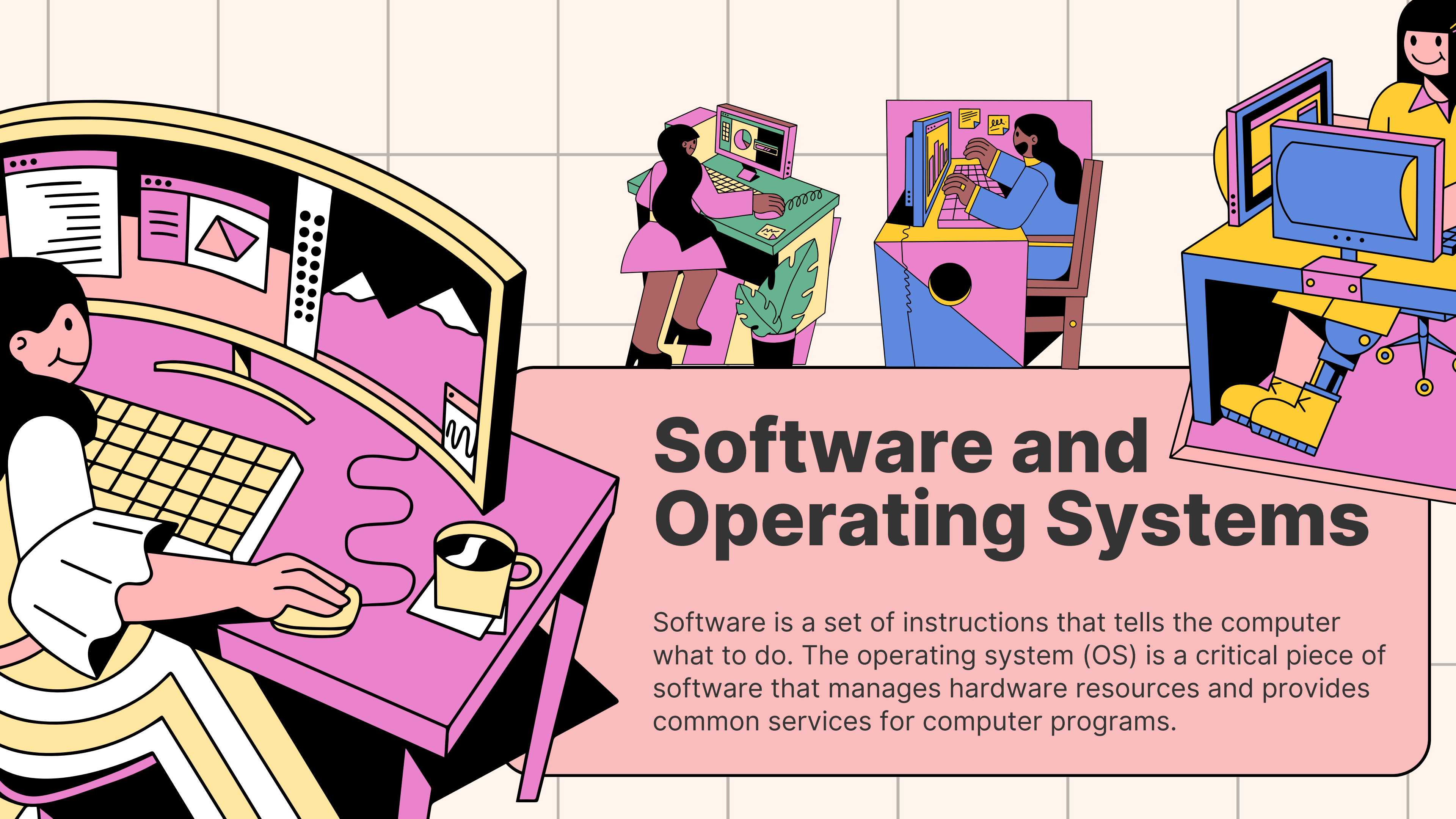
Desktops and laptops used by individuals.

Mobile Devices

Smartphones and tablets.

Types of Computers



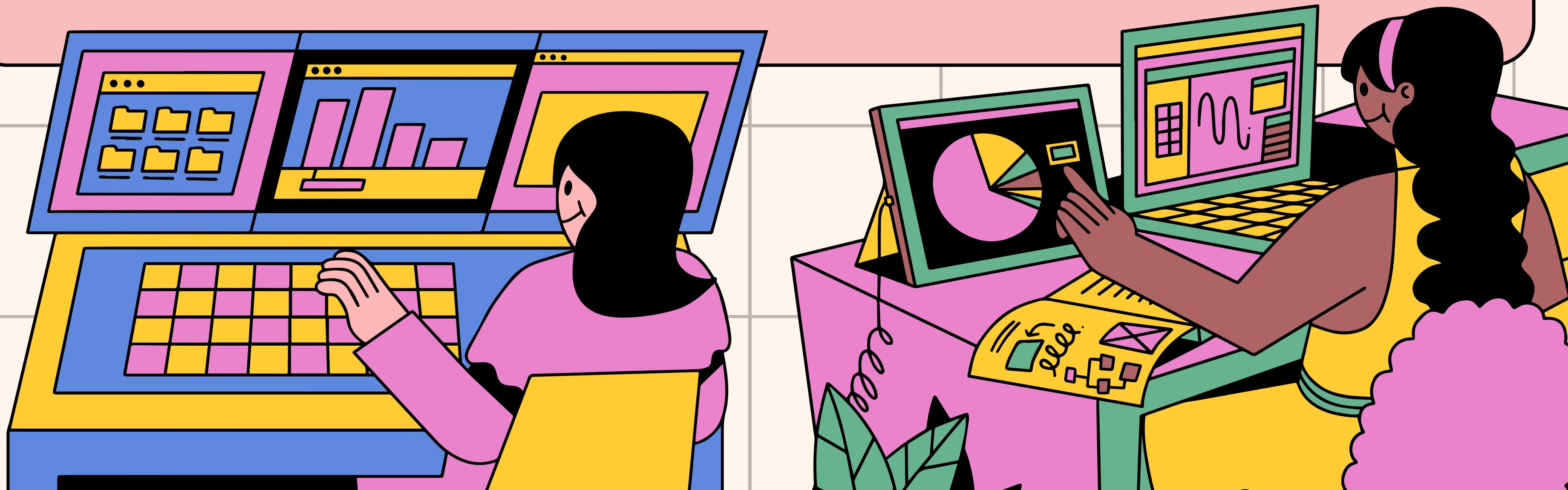


Software and Operating Systems

Software is a set of instructions that tells the computer what to do. The operating system (OS) is a critical piece of software that manages hardware resources and provides common services for computer programs.

The Internet and Networking

The internet is a global network of computers that communicate through standardized protocols. Networking allows computers to connect and share resources, enabling activities like browsing the web, emailing, and streaming media.





Modern Uses of Computers

- Education
- Healthcare
- Business
- Entertainment

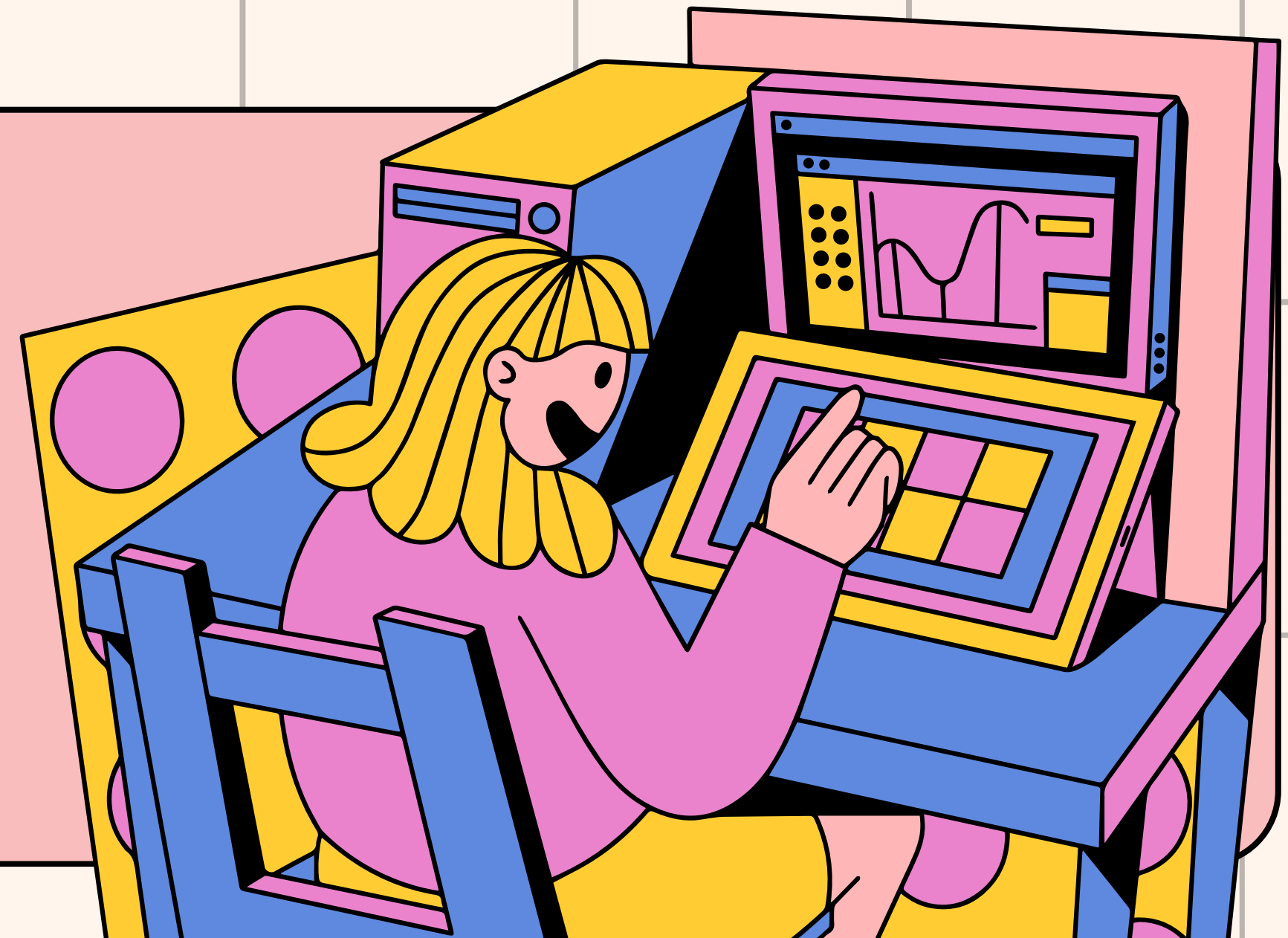


The Future of Computing



The future of computing holds exciting possibilities, including advancements in artificial intelligence, quantum computing, and the continued growth of the Internet of Things (IoT).

These innovations will further transform how we live and work.



Conclusion

Computers have become an integral part of our lives, driving innovation and progress. Understanding their basics, history, and impact can help us appreciate the technology that shapes our world.



Conclusion

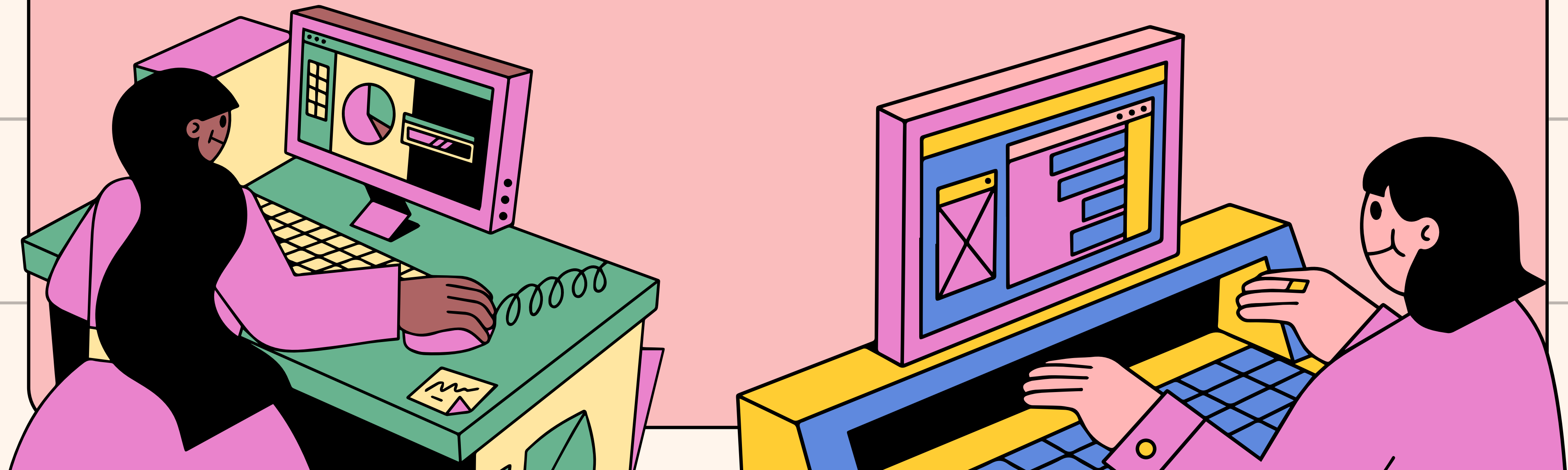
Technology isn't replacing nurses — it's empowering them.

The future is one where nurses:

- ★ Spend more time on high-value care
- 📊 Use data to guide decisions
- 🌐 Extend care beyond hospital walls
- 🤝 Partner with patients in managing health



Thank You For Your Attention



Information Technology System Applicable in Nursing Practice

Group 1

A. Hospital/Critical care Application

B. Community Health Application

Group 2

C. Ambulatory Care Systems

D. Emergency preparedness and Response

Group 3

E. Administrative Assistive Devices and Workplace Technologies

E. Telehealth

Group 4

Informatics Applications in Evidence-Based Nursing Practice

a. Computer generated NCP

b. Critical Pathways

c. Critical Guidelines

d. E-journals

Content:

Title Slide

Introduction

Definition/overview

Main Discussion

Examples

Advantage/Disadvantages

Nursing Implications

Summary

Conclusions

References



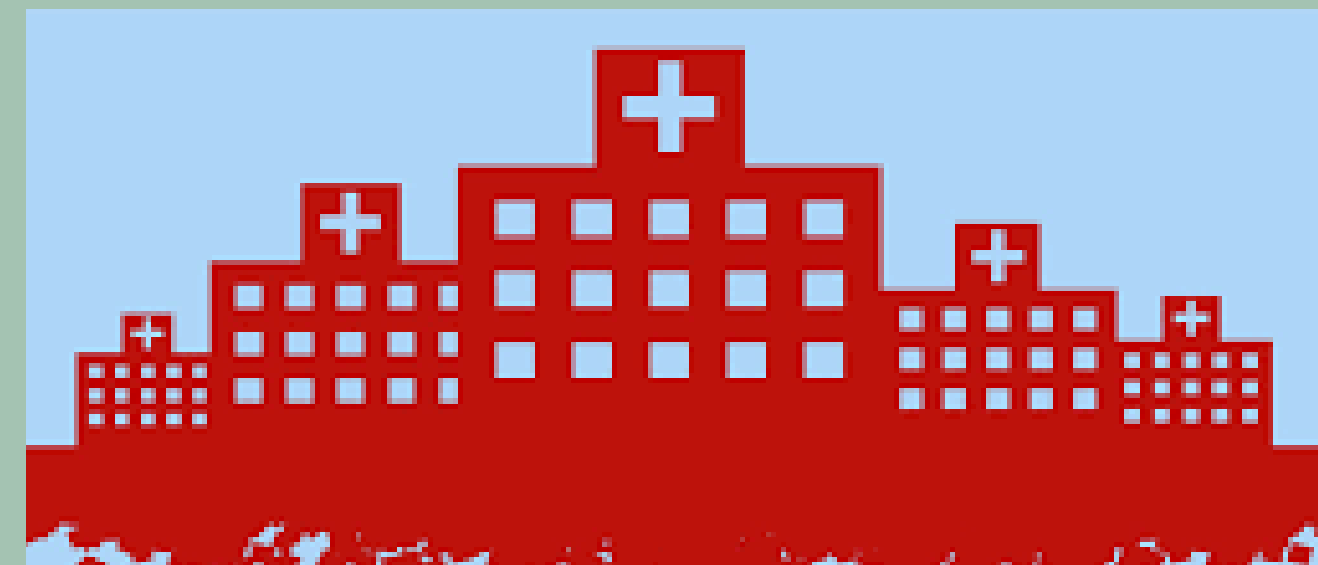
INFORMATION TECHNOLOGY SYSTEMS APPLICABLE IN NURSING PRACTICE

Prepared by: Michelle Talatagod, RN



Introduction

The healthcare system has undergone rapid transformation due to advancements in information and communication technology. Nursing practice today is no longer limited to bedside care but is deeply integrated with digital systems that support clinical decision-making, patient safety, documentation, communication, and health management.



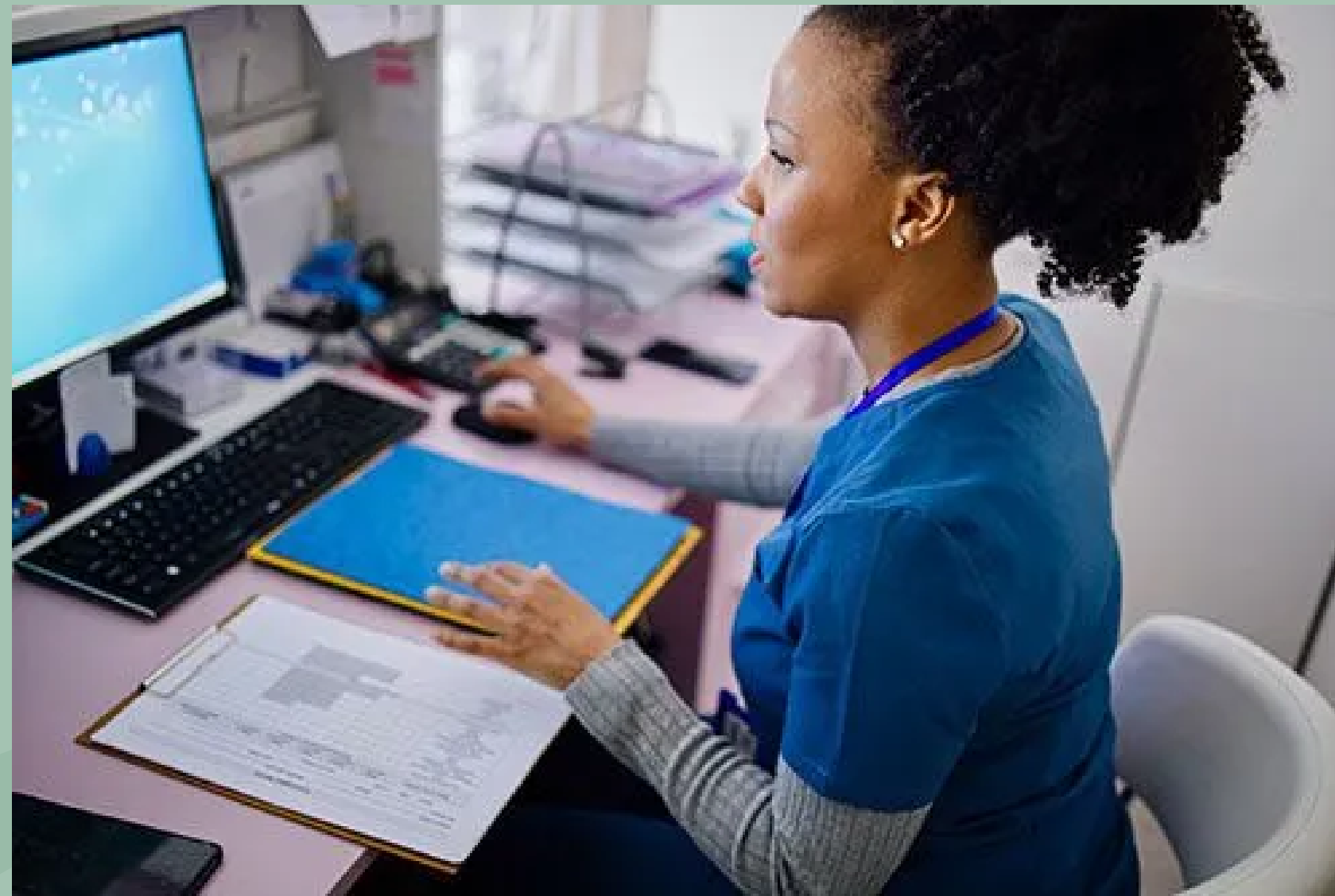
Introduction

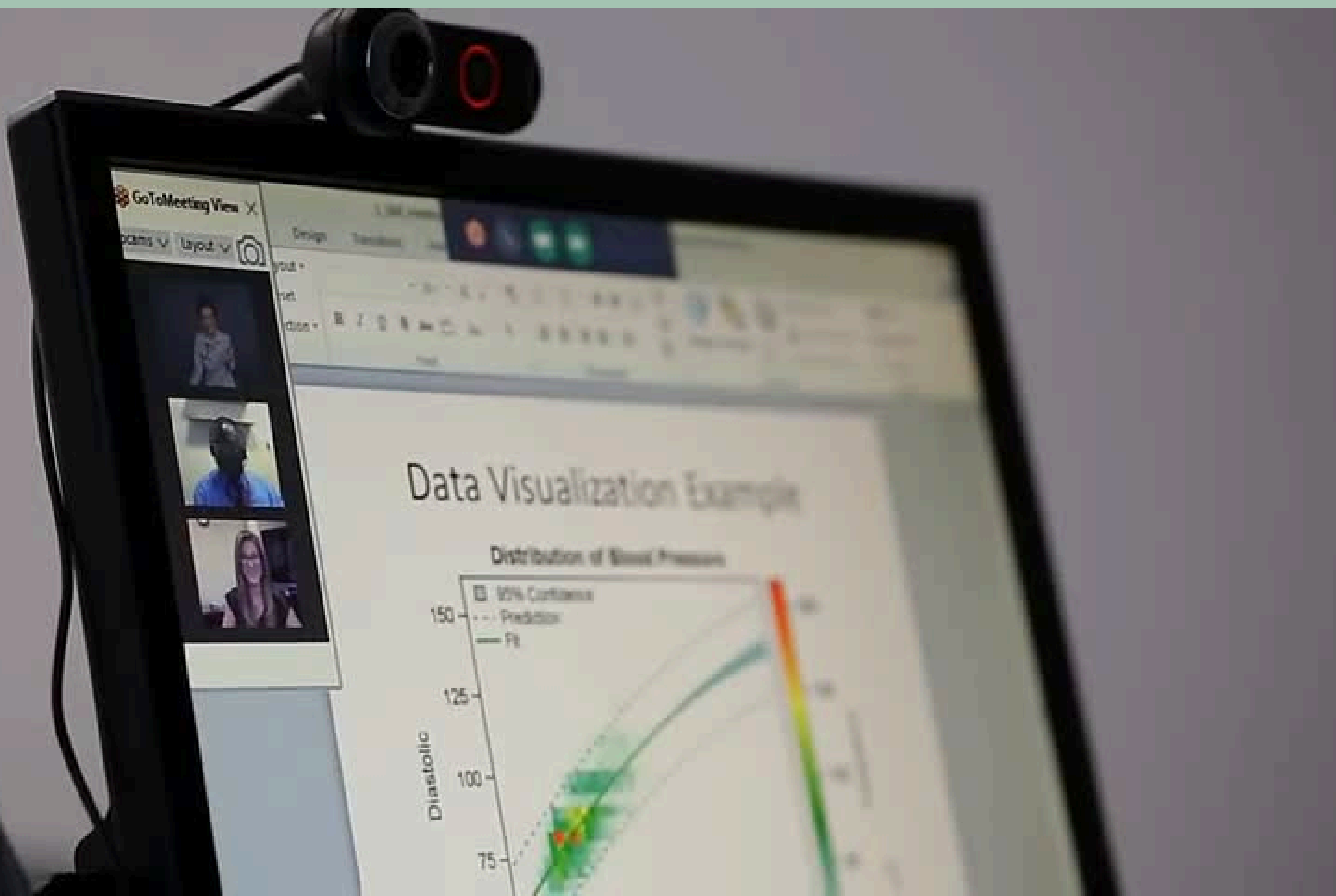
Information Technology (IT) systems in nursing refer to the use of computers, software, networks, and digital tools to collect, store, retrieve, and exchange health information to improve patient outcomes.



Introduction

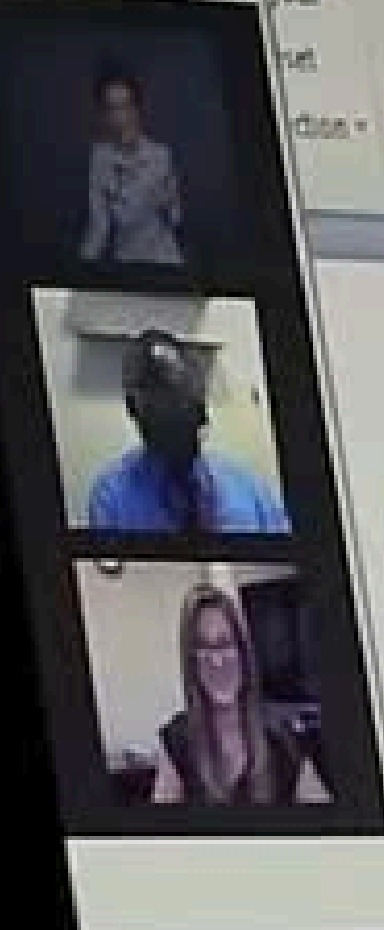
As future professional nurses, BSN students must be competent users of health information systems to ensure safe, ethical, efficient, and evidence-based nursing care.





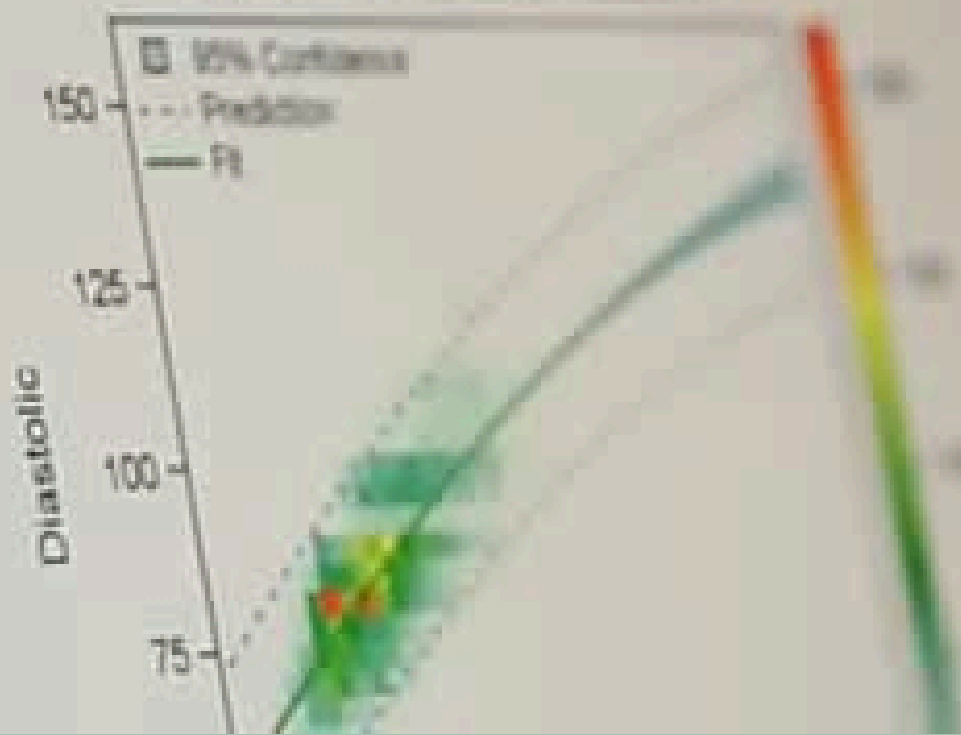
GoToMeeting View X

Layout



Data Visualization Example

Distribution of Blood Pressure



General Objective

Demonstrate an understanding of the role and application of information technology systems in various nursing practice settings to promote safe, efficient, ethical, and evidence-based patient care.



Learning Objectives

At the end of this lecture, the students will be able to:

1. Define information technology systems used in nursing practice
2. Describe various IT applications in hospital, community, ambulatory, emergency, administrative, and telehealth settings
3. Explain the role of nurses in utilizing health information technologies
4. Identify the benefits and challenges of IT systems in nursing care
5. Apply informatics concepts to safe and effective nursing practice



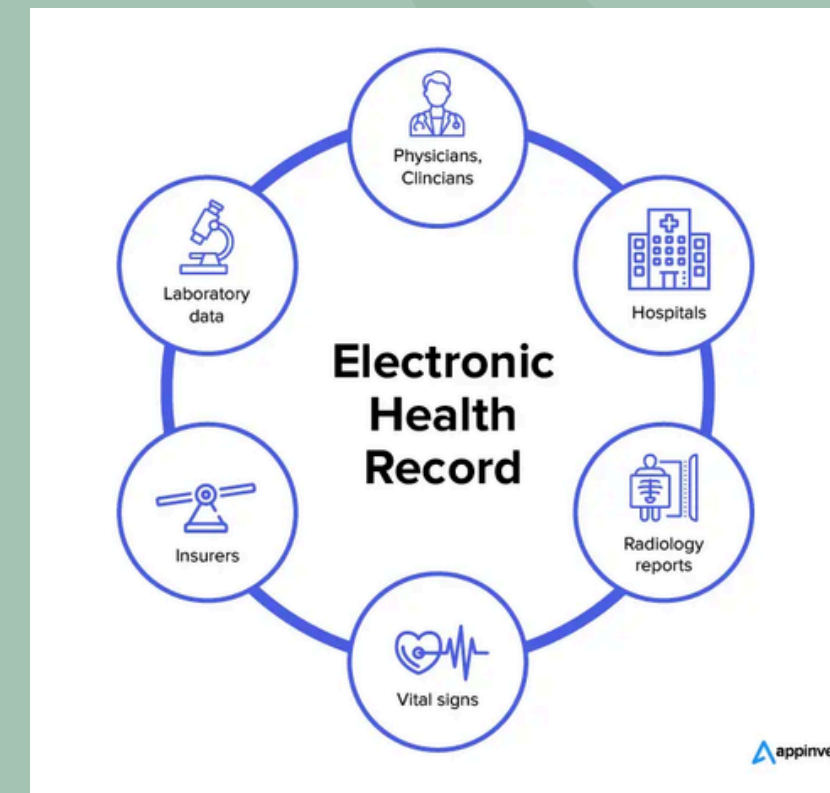
Hospital / Critical Care Applications

Hospital and critical care environments require highly integrated and real-time information systems due to the complexity and acuity of patient conditions.



Electronic Health Records (EHR)

- A digital version of a patient's paper chart
- Contains:
- Demographic data
- Medical and nursing history
- Vital signs
- Medication records
- Laboratory and diagnostic results
- Nursing care plans and progress notes



The screenshot shows a web-based EHR interface for a patient named David Anderson, born on January 5, 2009. The interface is titled "Handy patients enterprise edition" and includes a menu bar (File, Edit, View, Help). The main content area is divided into several sections:

- Patient Information:** Last name: Anderson, First name: David, Birth: 5 January 2009, Age: 8 month and 10 days, Patient nb: 3.
- Forms and Sheets:** A list of forms including Meeting (Doctor), Full status (Doctor), Assistant, Billing, Reports, Statistics, and various medical sheets like Neurologic, Vascular, Cardiac, Respiratory, Abdomen, Exams, Radiology, Summary, Patient documents, and Letter.
- Meetings:** A table showing upcoming appointments: 2 month checkup (5 Mar 09, 2m, 0d), 1 month checkup (5 Feb 09, 1m, 0d), Respiration problem (22 Jan 09, 17d), 10 days checkup (13 Jan 09, 8d), Control for return at home (9 Jan 09, 4d), and Birth (5 Jan 09, 0d).
- Diagnosis:** A list of diagnoses including General, My Diagnosis, and Social.
- Notes:** A text area containing the note: "Father ask many questions, add 10 minutes to consultation".
- Current doctor:** Dr Herman.

The central part of the interface displays a "Digestive" examination report for Thursday, 22 Jan 2009. The report includes sections for Digestive inspection (Normal), Digestive auscultation (Normal abdomen noises), Digestive palpation (Little pain on the right lower area), Liver (No hepatomegaly), and Rectal. Below the text is a medical illustration of the human torso showing the digestive system (Esophagus, Liver, Stomach, Colon, Small Intestine, Gall bladder, Rectum, Anus). Red arrows point to the right lower abdomen area on the illustration, and a red question mark is placed near the rectum. A "Documents manager" section is visible at the bottom left of the illustration area.



Importance to Nursing:

- Promotes continuity of care
- Reduces duplication of documentation
- Enhances communication among healthcare professionals
- Supports legal and professional accountability

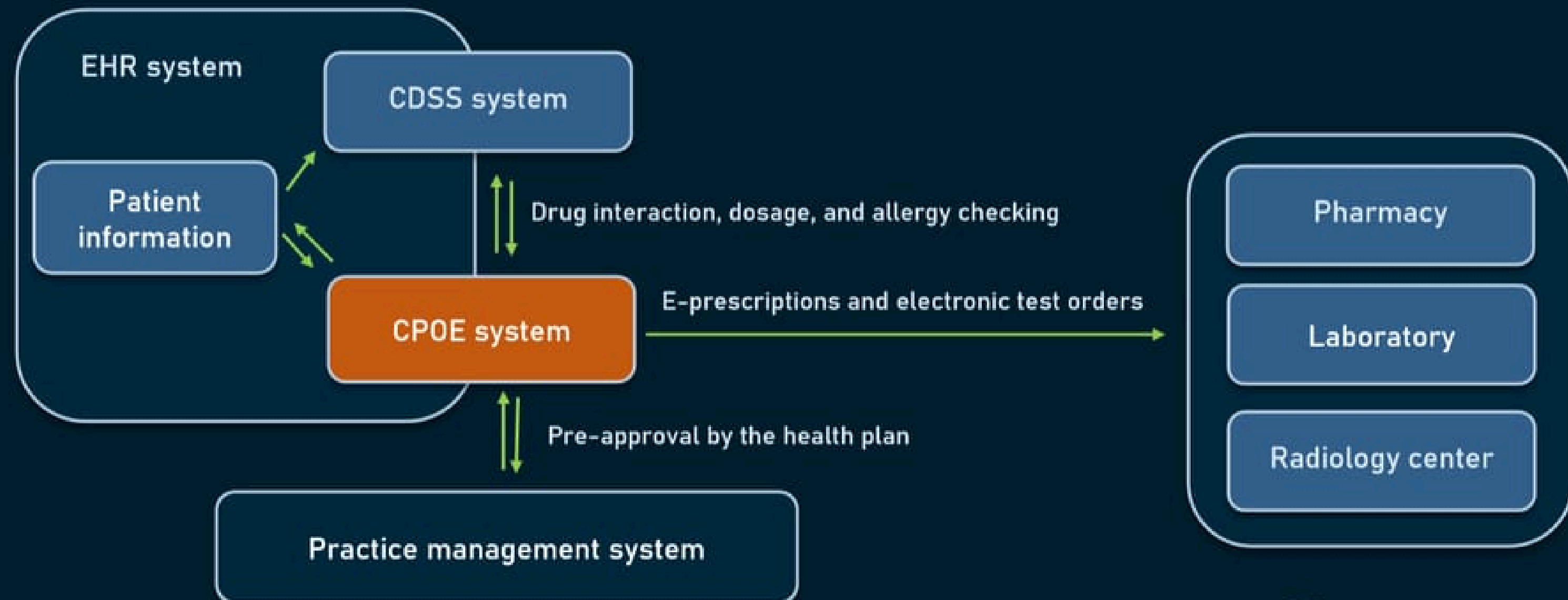


Computerized Physician Order Entry (CPOE)

- Electronic system used by providers to enter medication and treatment orders
- Integrated with EHR and pharmacy systems



CPOE INTEGRATIONS AND WORKFLOW





Computerized Physician Order Entry (CPOE):



Benefits

- Reduces transcription and medication errors
- Improves order accuracy and clarity
- Enables faster order processing





Computerized Physician Order Entry (CPOE):



Nursing Role

- **Verifying orders**
- **Implementing prescribed interventions**
- **Monitoring patient response**

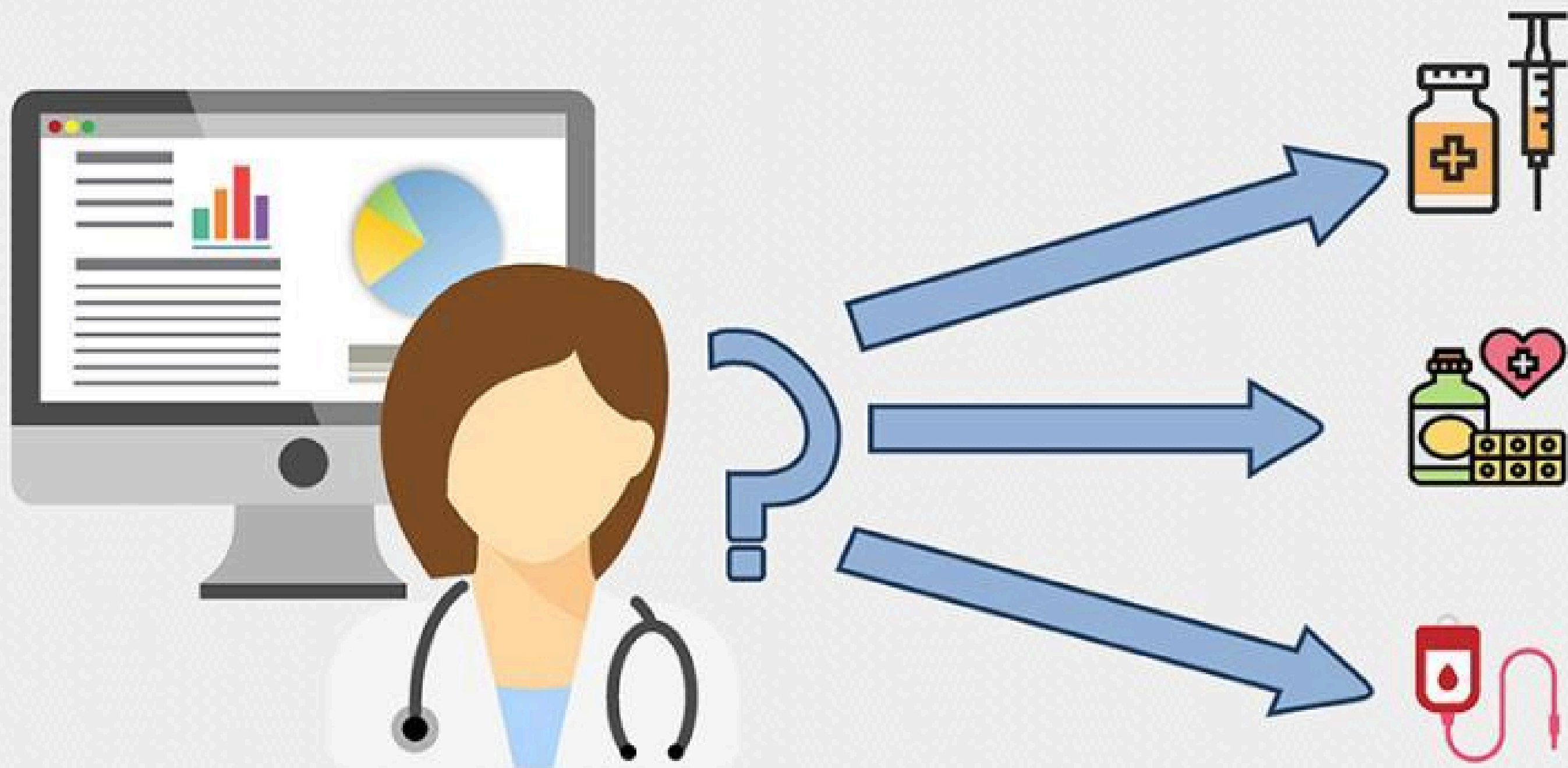


Clinical Decision Support Systems (CDSS)

- Provides evidence-based alerts, reminders, and clinical guidelines
- Examples:
 - Drug–drug interaction alerts
 - Allergy warnings
 - Fall-risk and sepsis screening tools



CLINICAL DECISION SUPPORT SYSTEM (CDSS) MARKET





Clinical Decision Support Systems (CDSS)



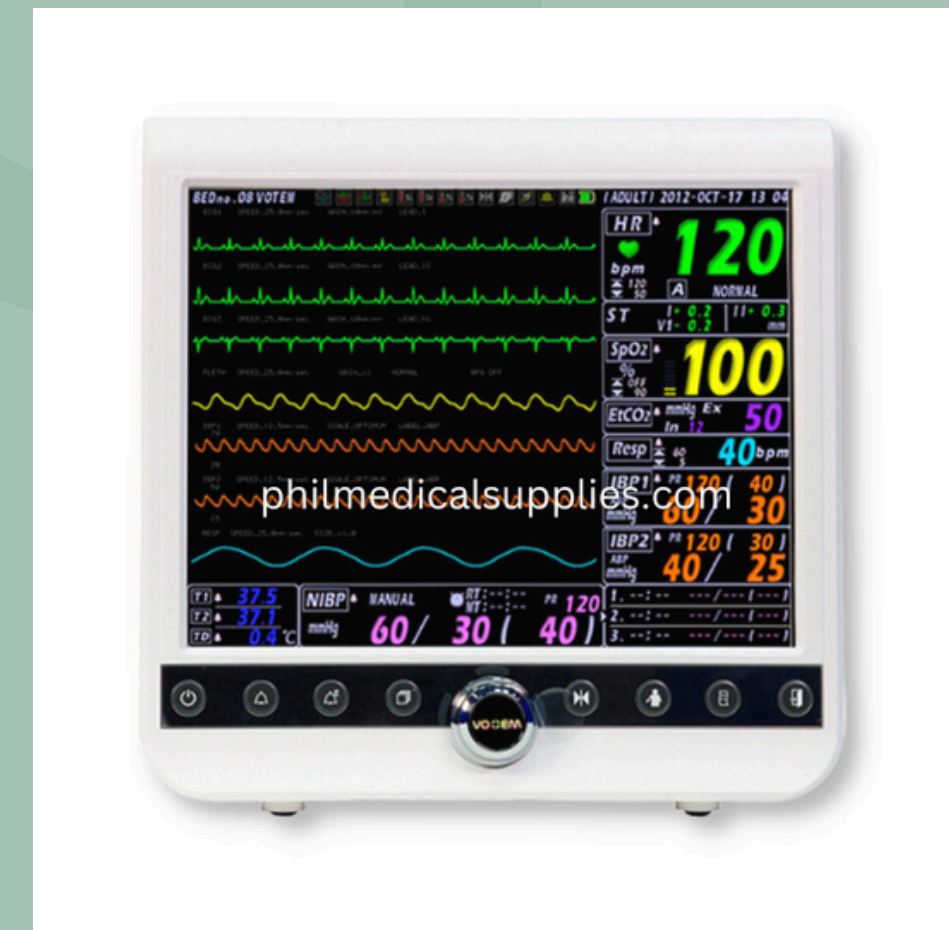
Nursing Implications:

- Supports critical thinking
- Enhances patient safety
- Assists in early detection of complications



Smart Medical Devices

- Smart infusion pumps
- Ventilator monitoring systems
- Bedside cardiac monitors



Smart Medical Devices

Function:

- Automatically record and transmit data to EHR
- Reduce human error in medication administration



Community Health Applications

Community health nursing focuses on population-based care, prevention, and health promotion.

A. Public Health Information Systems

- Used for:
- Disease surveillance
- Immunization tracking
- Maternal and child health monitoring



Community Health Applications

Examples:

- National immunization registries
- Notifiable disease reporting systems





Community Health Applications

Geographic Information Systems (GIS)

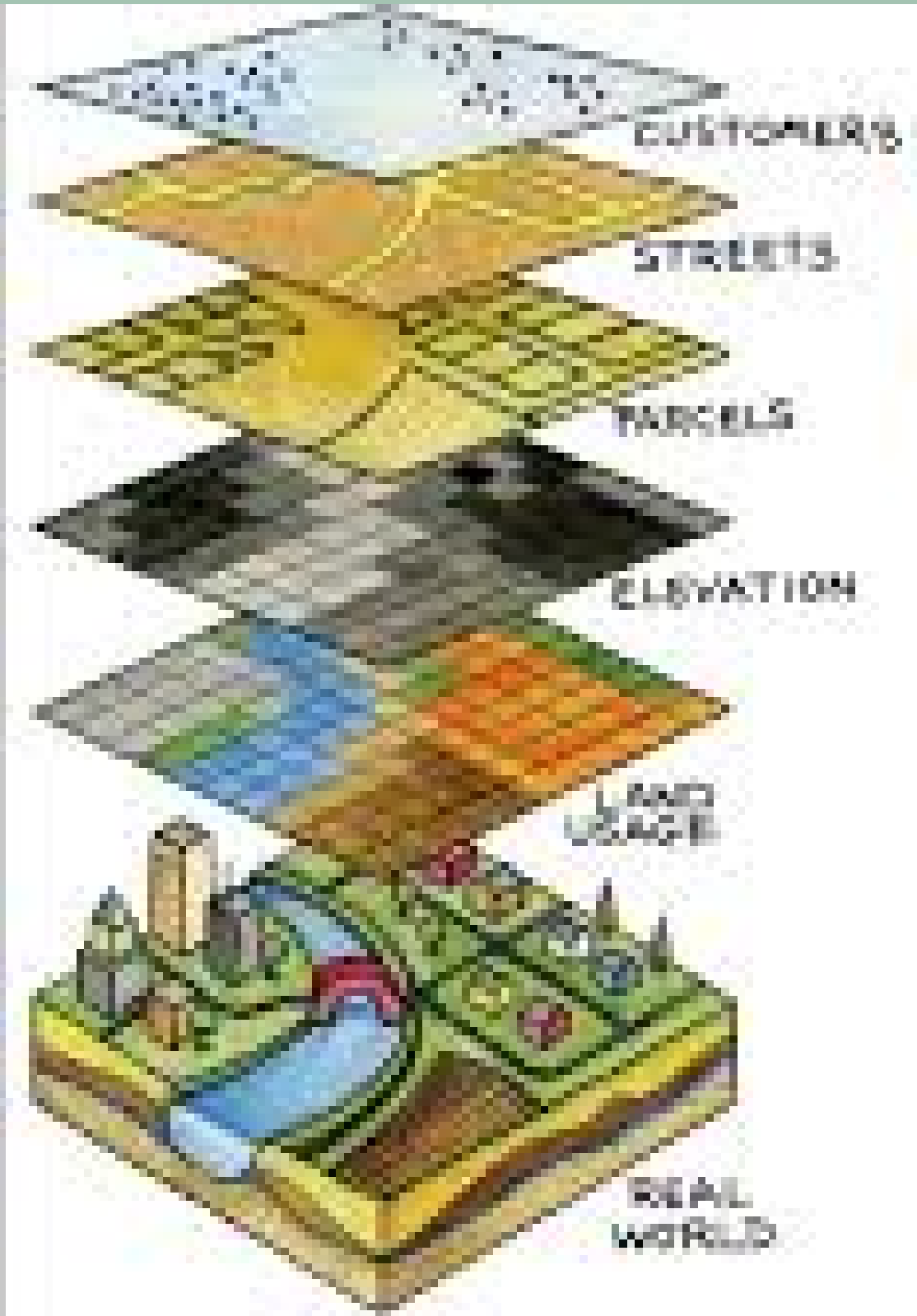


Computer-based systems that analyze and display geographic health data

Uses in Community Health:

- Identifying disease clusters
- Planning health programs
- Disaster risk mapping





GIS

**geographic
information
system**

Community Health Applications

Mobile Health (mHealth)

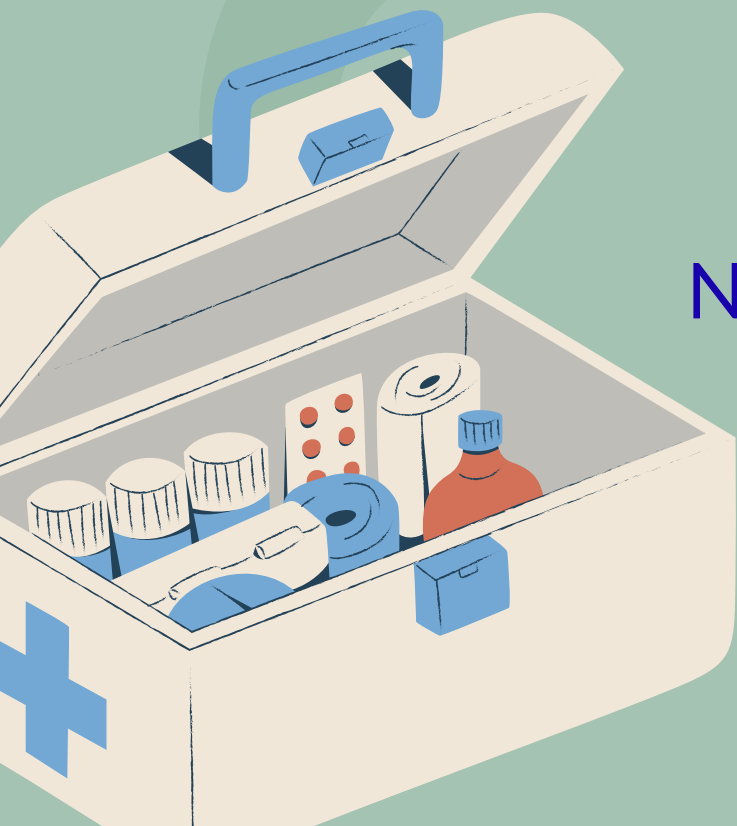
Use of mobile devices such as smartphones and tablets for health services

Applications:

- Health education reminders
- Medication adherence alerts
- Prenatal and postnatal care monitoring

Nursing Role:

- Health teaching
- Patient follow-up
- Data collection



Ambulatory Care Systems

Ambulatory care refers to healthcare services provided without hospital admission.

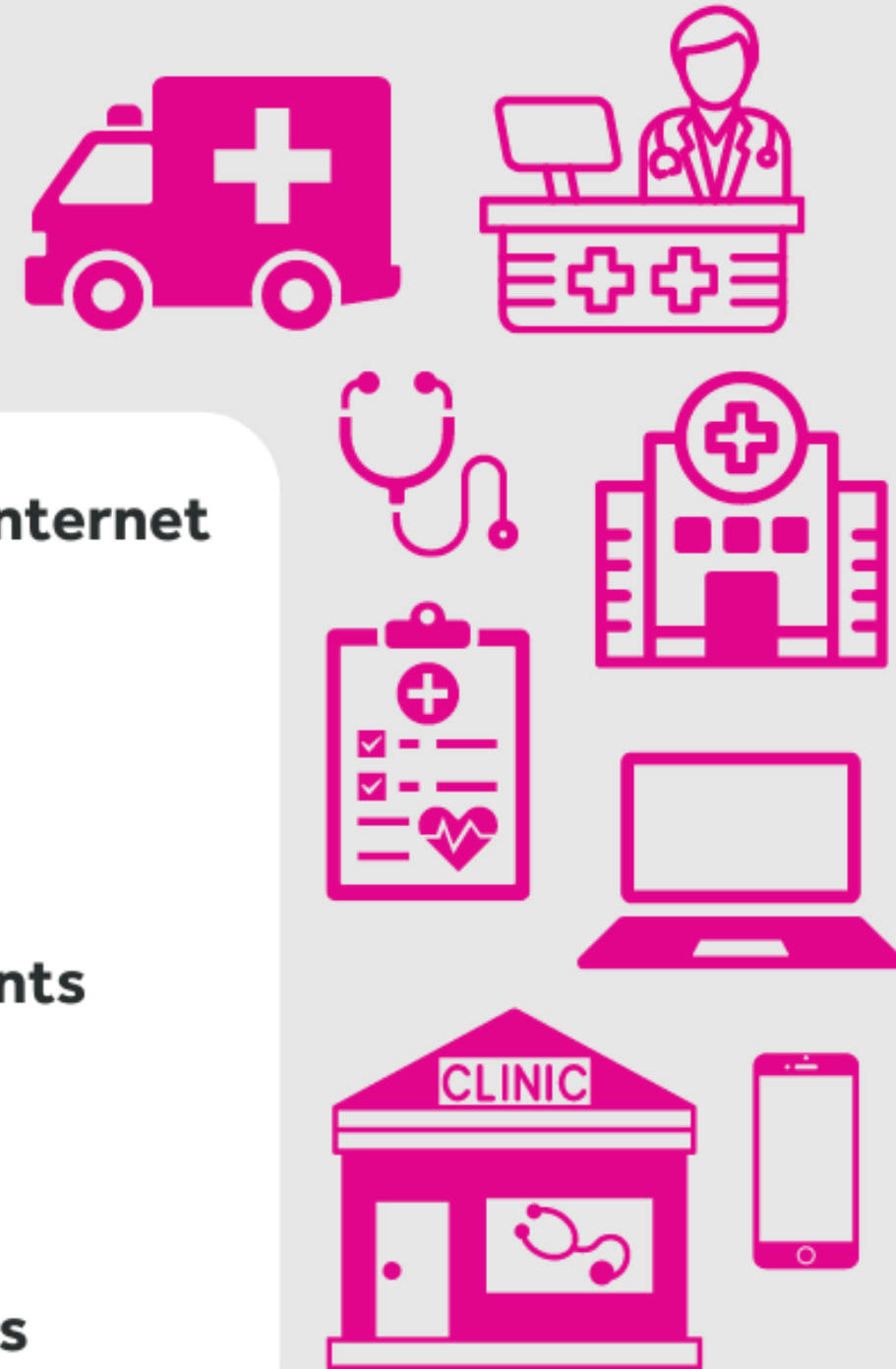
A. Outpatient Electronic Health Systems

- Used in clinics, diagnostic centers, and specialty practices
- Includes:
 - Patient registration
 - Clinical documentation
 - Billing and insurance claims



8 TYPES OF **Ambulatory Care Settings**

1. Smartphones, computers, and the internet
2. Mobile care units
3. Convenience care and retail clinics
4. Urgent care
5. Freestanding emergency departments
6. Work-based clinics
7. Primary care clinics
8. Specialty care and high-tech centers



Source: American Hospital Association

Ambulatory Care Systems

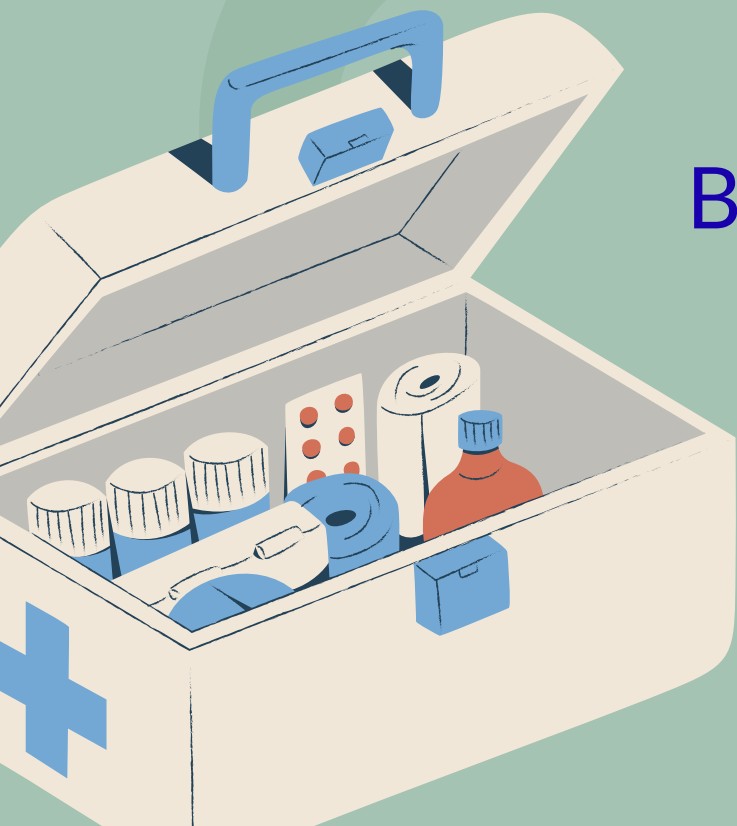
Patient Portals

Secure online platforms that allow patients to:

- View test results
- Schedule appointments
- Communicate with healthcare providers

Benefits:

- Improves patient engagement
- Encourages self-management
- Enhances continuity of care



Ambulatory Care Systems

E-Prescribing Systems

- Electronic transmission of prescriptions to pharmacies
- Reduces medication errors and prescription fraud





Emergency Preparedness and Response Systems



IT systems are essential during disasters, outbreaks, and emergencies.

A. Emergency Management Information Systems (EMIS)

- Coordinates resources, personnel, and patient information during disasters





Emergency Preparedness and Response Systems

Electronic Triage and Tracking Systems

- Used during mass casualty incidents
- Prioritizes patients based on severity
- Tracks patient movement and outcomes







Emergency Preparedness and Response Systems



Electronic Triage and Tracking Systems

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Emergency Preparedness and Response Systems

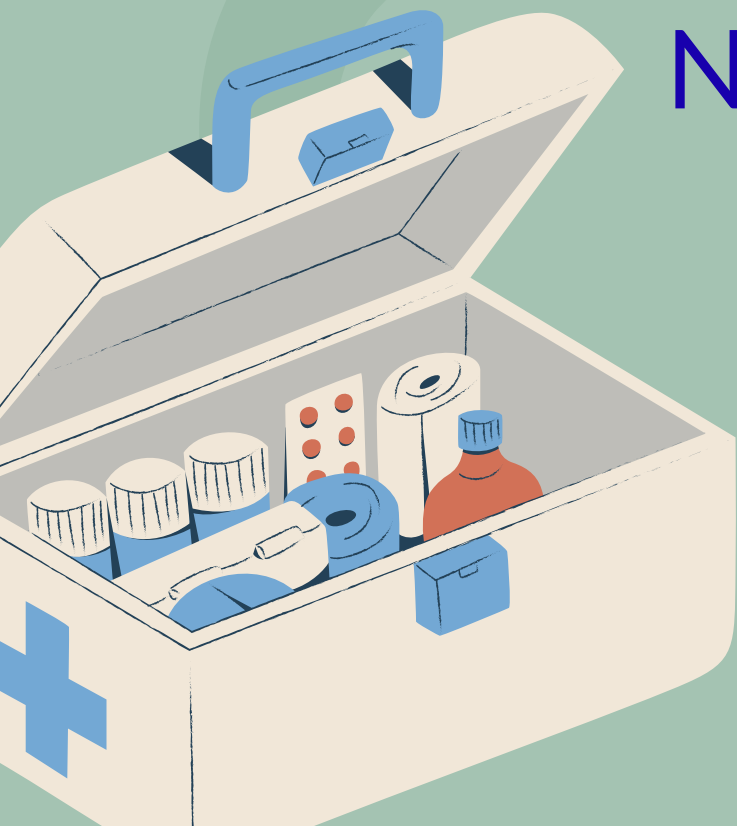


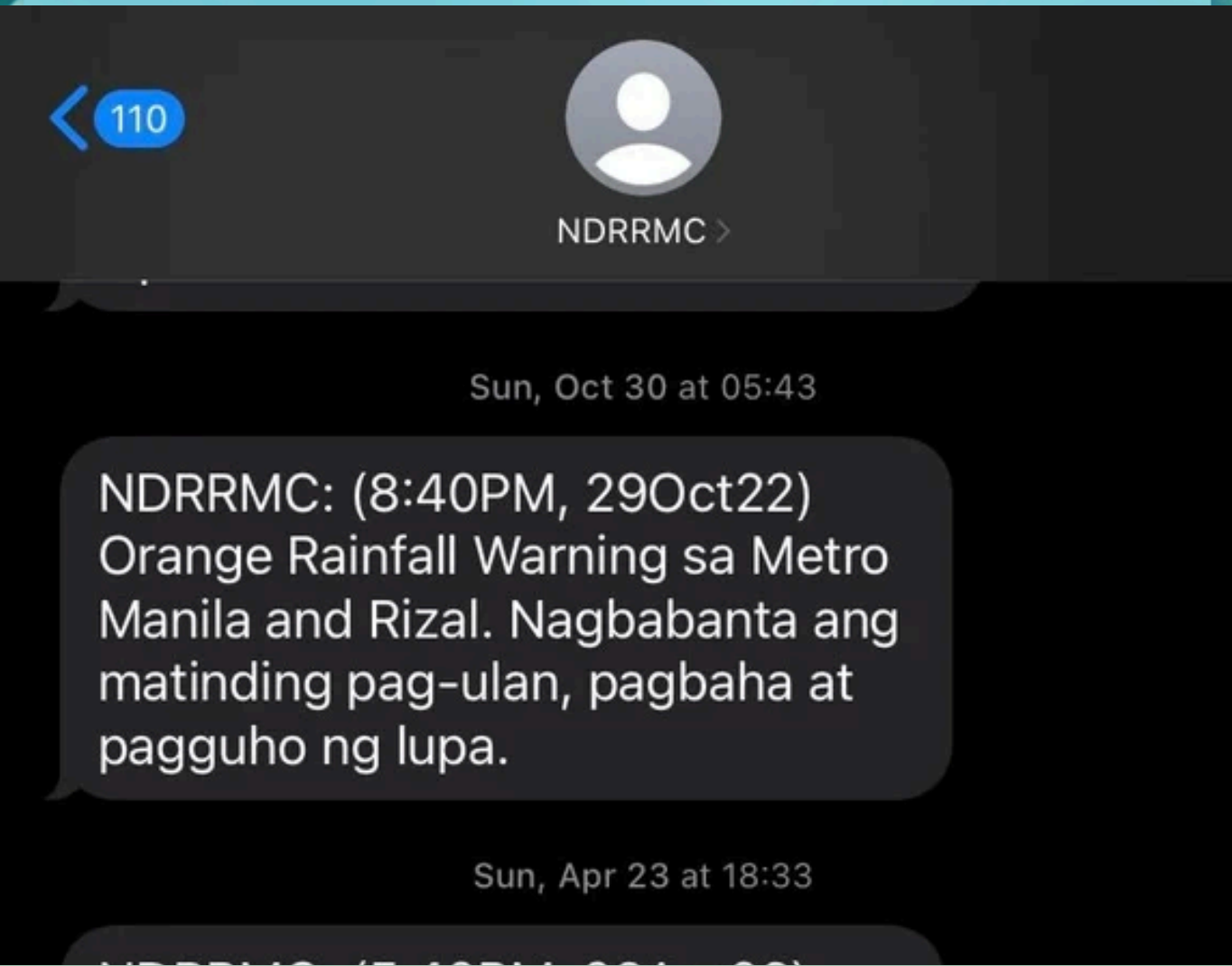
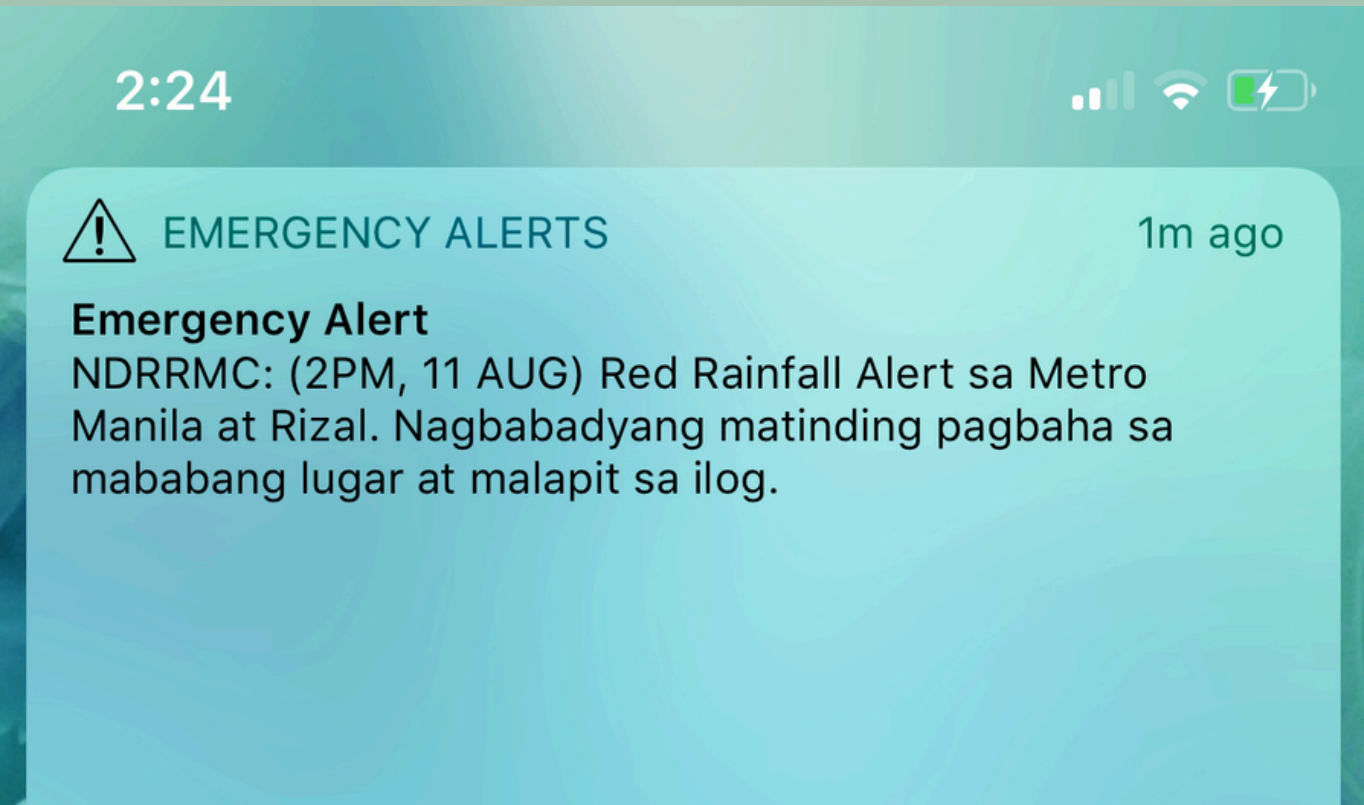
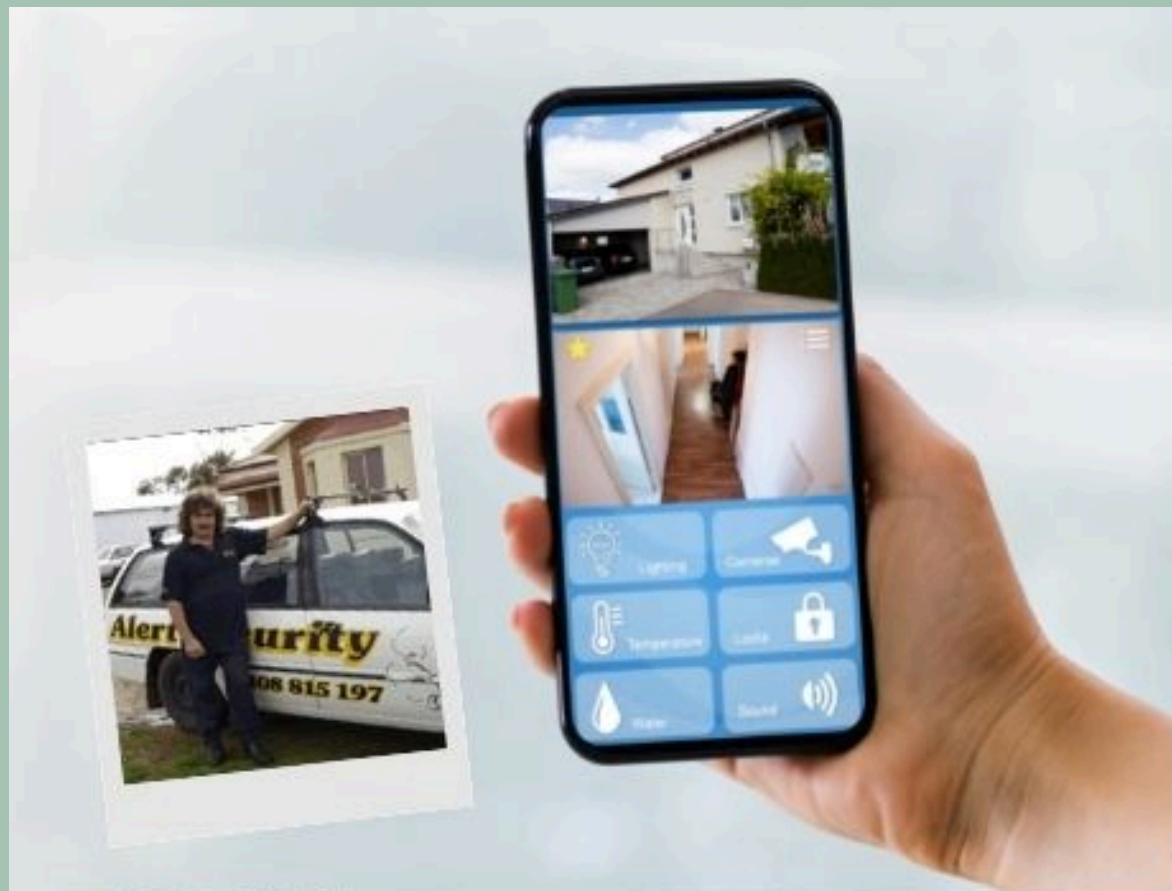
Surveillance and Alert Systems

- Early detection of disease outbreaks
- Rapid dissemination of emergency information

Nursing Role in Emergencies:

- Accurate electronic documentation
- Rapid triage and assessment
- Coordination with emergency teams







Administrative Assistive Devices and Workplace Technologies

**These technologies improve workflow efficiency
and organizational management.**

A. Staffing and Scheduling Systems

- Automated nurse scheduling
- Ensures adequate staffing levels
- Reduces burnout and errors





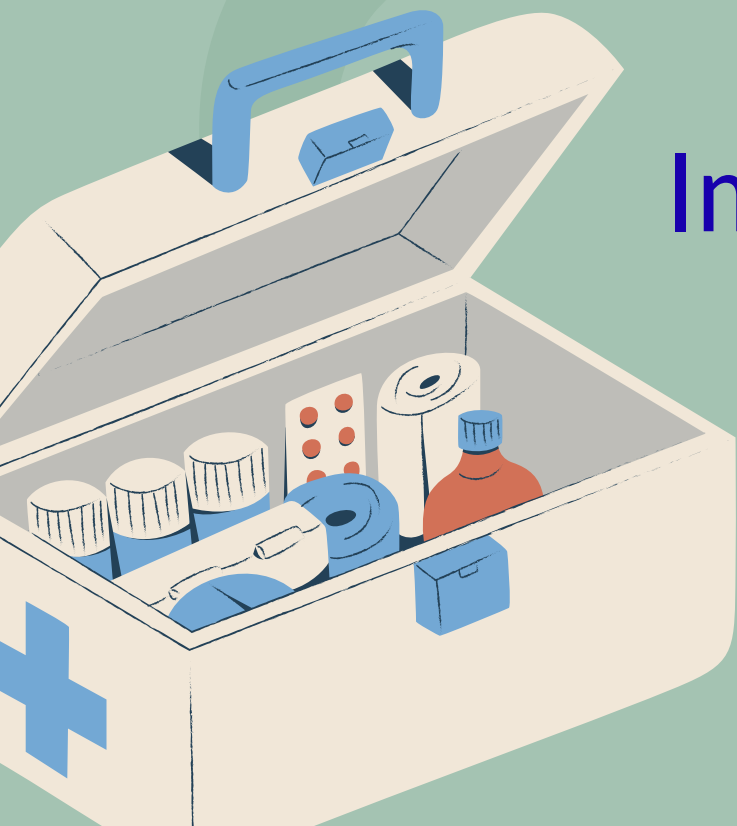
Administrative Assistive Devices and Workplace Technologies

Barcode Medication Administration (BCMA)

- Scans patient ID and medication barcode
- Ensures the 5 Rights of Medication Administration

Impact:

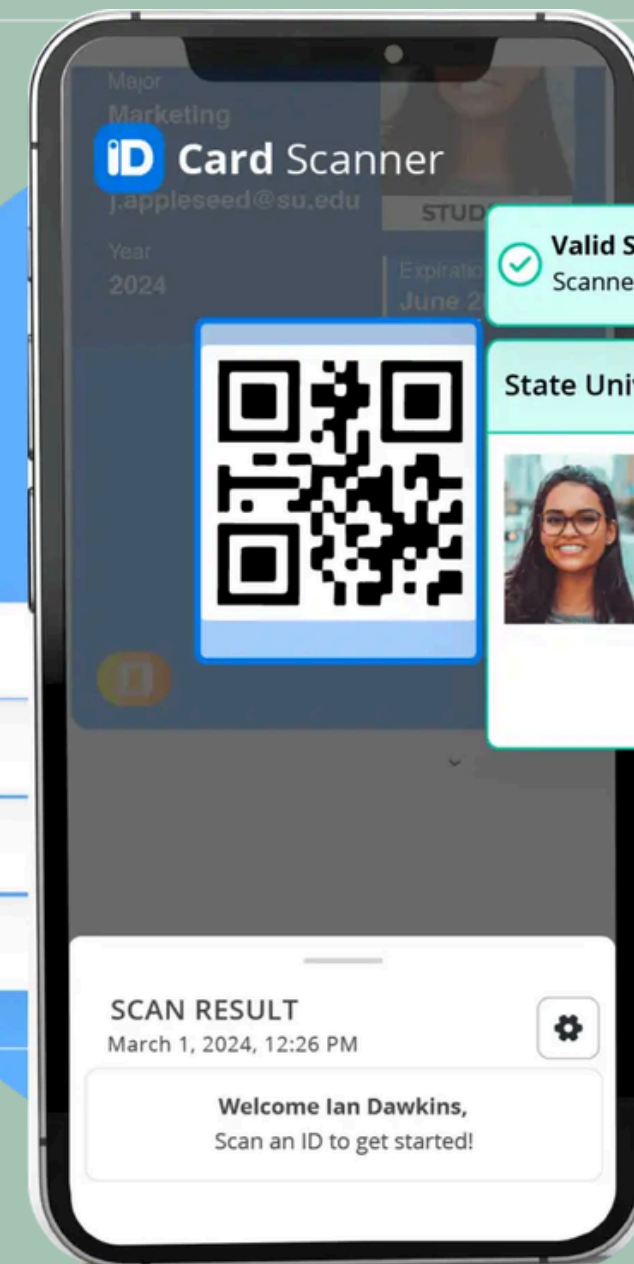
- Significantly reduces medication errors
- Enhances patient safety





RECENT SCANS

- ✓ Jane A.
- ✗ Not in Database
- ! Ian D.
- ✓ Isabella D.



✓ **Valid Scan**
Scanned on: March 1, 2024, 12:26 PM

State University STUDENT

 **Jane Applesseed**
Major: Marketing
Year: 2025
Example: example data
Expires: Aug 24, 2024

SCAN RESULT
March 1, 2024, 12:26 PM

Welcome Ian Dawkins,
Scan an ID to get started!

Administrative Assistive Devices and Workplace Technologies

Inventory and Supply Management Systems

- Tracks availability of medical supplies and equipment
- Prevents shortages and wastage



Administrative Assistive Devices and Workplace Technologies

Secure Communication Systems

- Encrypted messaging and email
- Improves interprofessional collaboration while maintaining confidentiality

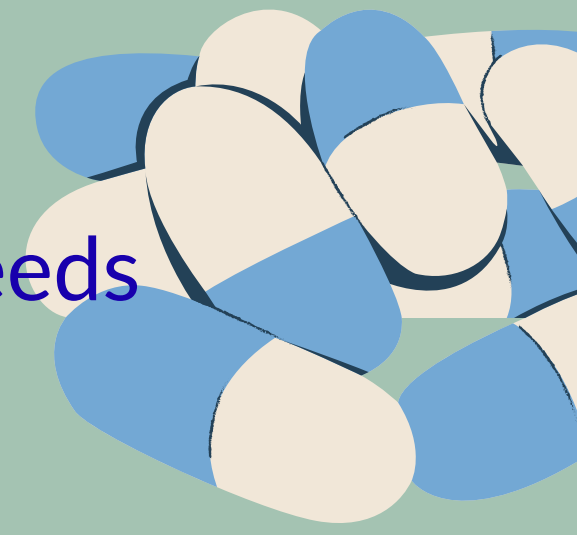


Telehealth Systems

Telehealth uses technology to provide healthcare services remotely.

A. Types of Telehealth

1. **Teleconsultation** – Remote consultations with healthcare providers
2. **Telemonitoring** – Remote monitoring of vital signs and chronic conditions
3. **Telenursing** – Nursing care, counseling, and education provided remotely
4. **Teletriage** – Remote assessment and prioritization of patient needs







Telehealth Systems

Benefits of Telehealth



- Increased access to healthcare
- Reduced hospital visits
- Cost-effective care
- Improved chronic disease management



Telehealth Systems

Nursing Responsibilities in Telehealth

- Patient education
- Ethical and legal compliance
- Data privacy and confidentiality
- Accurate documentation



Telehealth Systems

Ethical, Legal, and Professional Considerations

- Patient confidentiality and data privacy
- Compliance with data protection laws
- Accurate and timely documentation
- Professional accountability

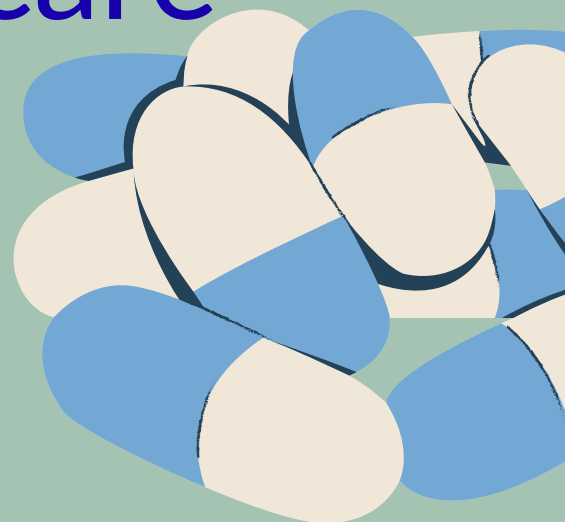




Importance of IT Systems in Nursing Practice



- Enhances patient safety and quality of care
- Supports evidence-based practice
- Improves efficiency and communication
- Prepares nurses for digital healthcare environments

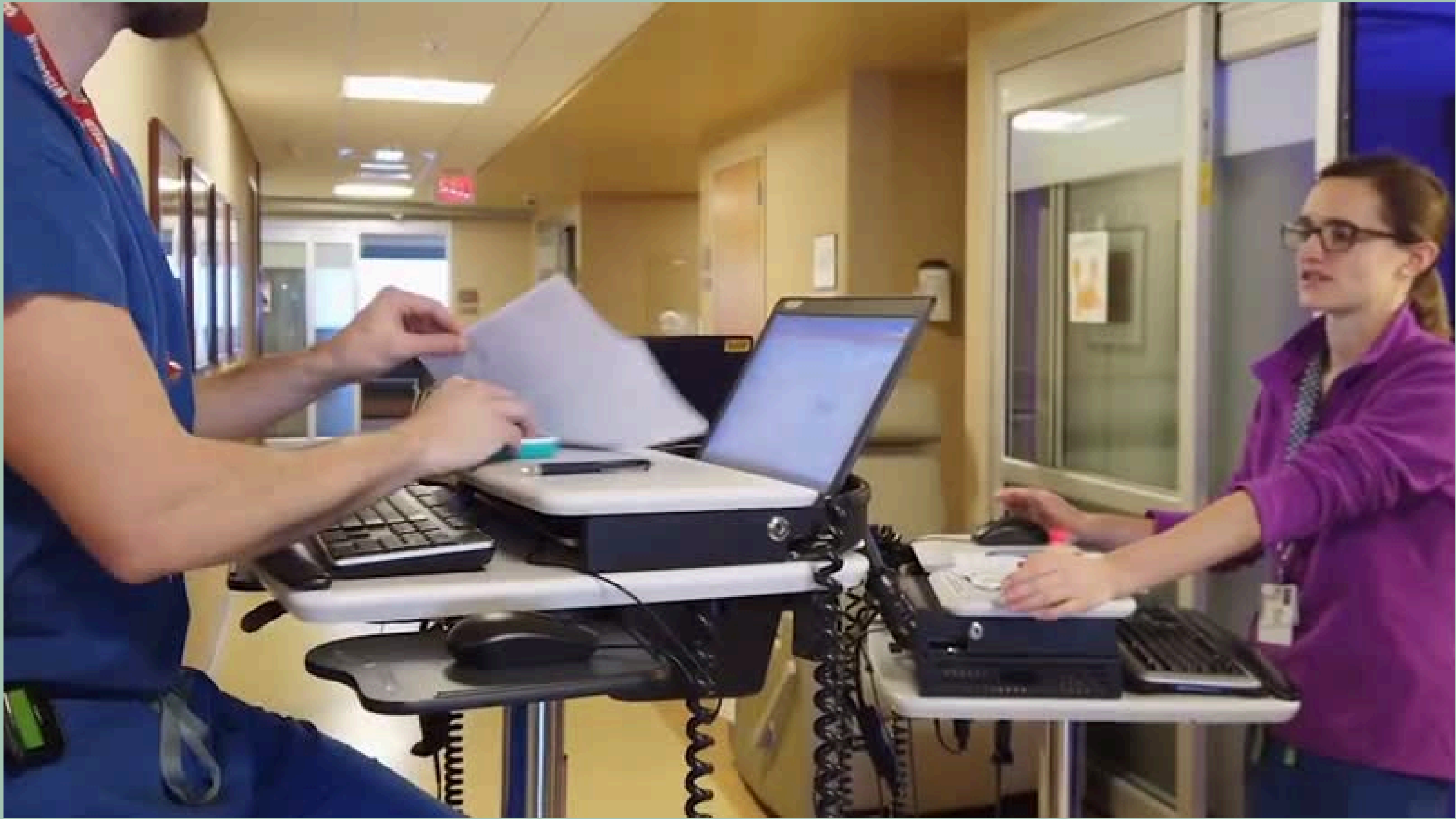


Conclusion

Information Technology systems are essential components of modern nursing practice. From hospital care to community health and telehealth services, nurses play a crucial role in the effective use of health information systems. Mastery of nursing informatics competencies empowers nurses to deliver safe, ethical, and high-quality care in an increasingly digital healthcare system.

References

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ANY QUESTIONS ?

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Thank You

