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Nursing Information Technology Training to Maintain Sustainable Development Goals

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INTRODUCTION

Nurses make up a large part of the health workers' sector; therefore, by introducing changes in nurses' work that improve sustainability, it is possible to have a wide impact on improving public health

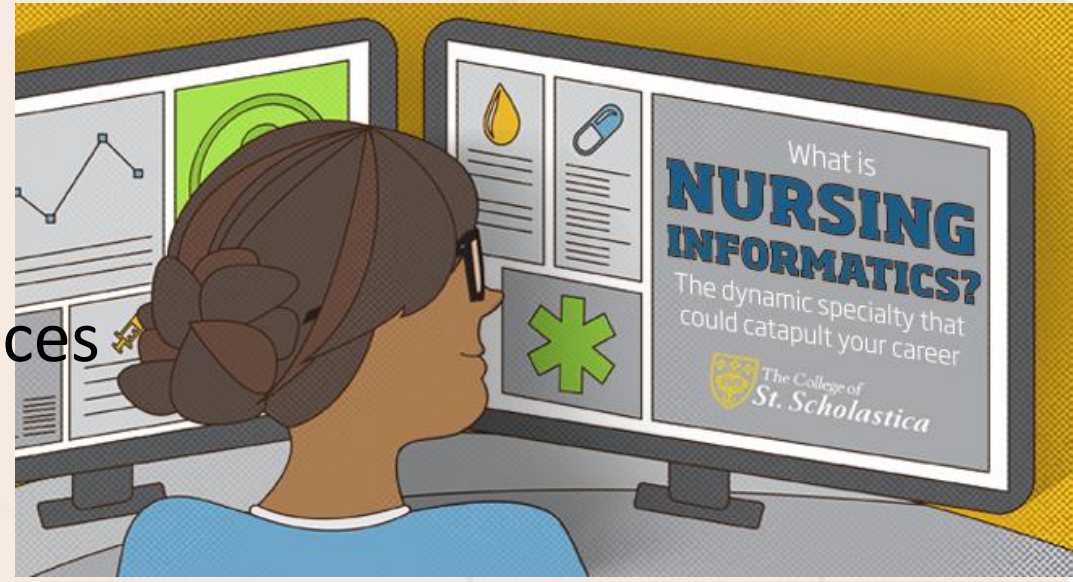
the issue of sustainability in nursing is still in its early stages and we hope that by sharing our findings on the factors that will lead to a change in the professional behavior of nurses, we can raise awareness of the subject and suggest ways to implement changes in nursing practice.

The international community sets great importance on understanding the concept of sustainability, and discusses in detail how health systems need to be designed to maintain social and health sustainability .

- Is specialty that integrate nursing science, computer science, and information science to manage and communicate data, information and knowledge in nursing practice.
- Nursing informatics facilitate the integration of data, information and knowledge to support patient, nurses and other provider in their decision –making in all the roles and setting. **(Ameican Nursing Association (ANA)(2001)**

The goals of nursing informatics

- To improve the health of populations, communities, families, and individuals by optimizing information management and communication.
- By using technology in:
- The direct provision of care
- Establishing effective administrative systems
- Managing and delivering education experiences
- Supporting life-long learning
- Supporting nursing research.



The Value of Nursing Informatics

- Support nursing work processes using technology (Bi-Lingual).
- Map out clinical workflow and facilitate change
- Management acute care, all specialties and home health.
- Provide nursing content to standardized languages.
- Enhance continuity of care.
- Improve relationships between providers and recipients of health care.

The responsibility of the nurse Informatics is to:

- Understand the department's information requirements and workflow
- Gain a full understanding of the software's features and functions
- Complete a gap analysis for the new system's capabilities with the department's requirements
- Assist in the system testing effort
- Participate in developing and conducting end-user education
- Provide a high level of support during the initial activation period of the new system.

The responsibility of the nurse Informatics

- Requires advanced skills and competencies in several areas.
- Bridge the communication divide between the technical content experts and the clinical end users.
- Customize data elements and forms to meet the clinical needs of the environment where the tool will be utilized
- Make recommendations for programming changes so that legacy systems fit with the design of the system being developed or implemented.

Patient Safety

It is the avoidance, prevention, and elimination of adverse outcomes or injuries stemming from the processes of health care.

HIT Applications for Improving patient safety

- Computerize Provider's Orders Entry(CPOE)
- Clinical Decision Support System (CDSS)
- Automated Medication Dispensing Cabinets (ADC)
- Bar-Code Medication Administration (BCMA)
- Smart pump technology
- Electronic sign-out and Hand-off tools

Computerized Provider’s Order Entry (CPOE)

An electronic prescription system designed to support physicians and nurse practitioners in writing complete appropriate medication and care orders for patients

Benefits:

- Prompts discern notification against the possibility of drug interaction, allergy or overdose.
- Accurate, current information that helps physician keep up with new drug
- Eliminates confusion on drug that have similar name

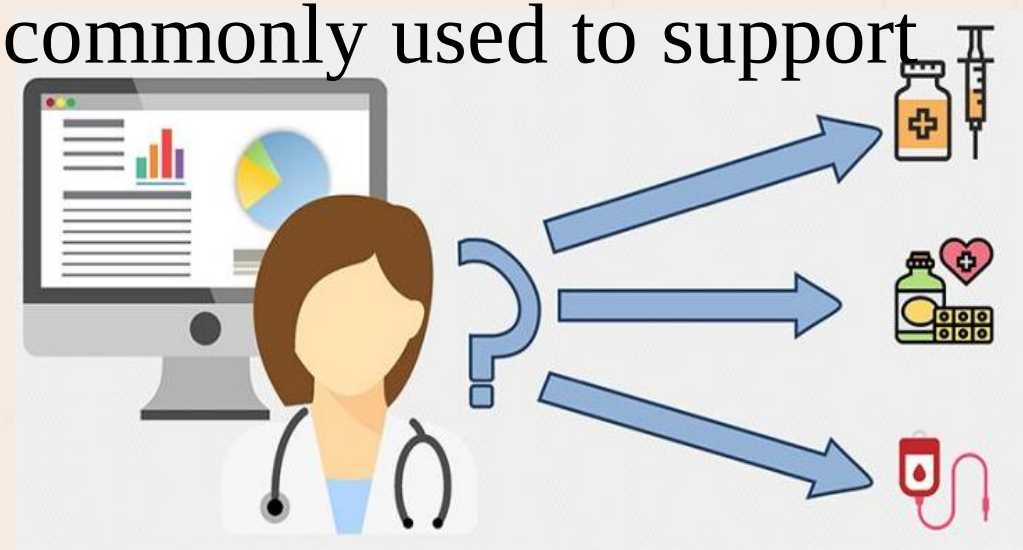
Computerized Physician Order Entry (contd.)

Benefits:

- Improve communication between health care workers
- Reduce health care cost
- Solve safety issues related to poor hand writing

Clinical Decision Support System (CDSS)

Clinical decision support system is an application that analyzes data to help health care providers make clinical decisions. A CDSS is an adaptation of the decision support system commonly used to support case management.



Clinical Decision Support tools

- Notifications and alerts.
- Reminders to care providers and patients.
- Clinical guidelines and condition-specific order sets.
- Patient specific clinical summaries and documentation templates.
- Investigation and diagnostic support.
- Reference information.

CPOE Integrated with a Clinical Decision Support System (CDSS)

- Guiding the prescriber on the preferred drug doses, route, and frequency of administration.
- The feature of prompting the prescriber to any patient allergies
- Drug-drug or drug-lab interactions
- Prompt the prescriber towards interventions that should be prescribed based on clinical guideline recommendation

- Reduce medication errors and adverse drug events in hospitals
- Use of hard-stops as a measure of forcing function and error prevention in CPOE systems.
- Effective in changing prescribing errors.

Automated Medication Dispensing Technology

- Automated Dispensing Cabinets (ADC) are electronic drug cabinets that store medication at the point of care with controlled dispensing and tracking of medication distribution.

- Automated Medication Dispensing Cabinets have been successfully used as a medication inventory management tool that help in automating the medication dispensing process by minimizing the workload on the central pharmacy and keeping better track of medication dispensing and patient billing.

- Automated dispensing cabinets seem to reduce medication preparation errors in critical care setting

Barcode Medication Administration

- It is electronic system that integrate electronic medication administration records with bar-code technology. The systems are intended to prevent medication error by ensuring that the right patient receives the right medication at the right time
- Some software produces alerts when sound-alike or look-alike medications may be confused.
- Provide clinical advisories for specific medications when scanned, and others may assist with documentation

Smart Pump Technology

- Smart Pumps have a software that reflect the facility's infusion parameter and drug library, that compare normal dosing rates with rates programmed into the pump, and can be integrated into BCMA systems and feed straight in EHR
- Designed for administration for hazard drugs.
- To reduce unwanted drug errors events while intravenous is being administered

Electronic Sign-out and Hand-off tools

- **Electronic Hand-over**: are tools used as stand-alone or integrated with the electronic medical record to ensure a structured transfer of patient information during healthcare provider hand-off for the purpose of ensuring patient care continuity and safety.
- Electronic tools support healthcare provider shift-to-shift handoffs with an improvement in the process of handover, fewer omissions of critical patient information and reduced handover time when using the electronic tool with few low-quality to assessing patient outcome measures.

E-Health Technology and Applications

eHealth refers to the use of information and communication technologies (ICTs) in healthcare.

The World Health Organization (WHO) defines eHealth as the use of Information and Communication Technologies (ICT) for health. The terms ‘eHealth’ (electronic health). It also identified that “technological advances, economic investment, and social and cultural changes are also contributing to the realization that the health sector must now integrate technology into its way of doing business.

E-health can empower consumers and patients, and it opens doors for new types of relationships, such as shared decision-making between a patient and his or her healthcare provider.

- Make health care accessible to people who live in rural or isolated communities.
- Make services more readily available or convenient for people with limited mobility, time or transportation options.
- Provide access to medical specialists.
- Improve communication and coordination of care among members of a health care team and a patient.
- Provide support for self-management of health care.

Telehealth

Telehealth is the use of digital information and communication technologies to access health care services remotely and manage your health care.

Telehealth

Technologies can include computers and mobile devices, such as tablets and smartphones. This may be technology you use from home. Or a nurse or other health care professional may provide telehealth from a medical office or mobile van, such as in rural areas. Telehealth can also be technology that your health care provider uses to improve or support health care services.

Telemedicine

Telemedicine, which enables video or phone appointments between a patient and their health care practitioner, benefits both health and convenience. More health care providers are offering to “see” patients by computer and smartphone.

m-Health (Mobile Health)

mHealth (mobile health) is a general term for the use of mobile phones and other wireless technology in medical care. The most common application of mHealth is the use of mobile devices to educate consumers about preventive health care services. However, mHealth is also used for disease surveillance, treatment support, epidemic outbreak tracking and chronic disease management.