NRS 450 Topic 1: Information and Communication Technologies in Nursing

Student Name

Program Name or Degree Name (e.g., Bachelor of Science in Psychology), University

COURSE XXX: Title of Course

Instructor Name

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Information and Communication Technologies in Nursing

Health information technology (HIT) is the use of electronic systems to store, share, and analyze health information. HIT involves the processing, storing, and exchanging of health information in an electronic domain. The use of HIT improves the quality of health care, aids in preventing medical errors, reduces health care costs, increases administrative efficiencies, decreases paperwork, and expands access to affordable health care (HHS, 2022). Electronic HIT has become the standard with very little being done by pen and paper.

Nursing informatics (NI) is the specialty that integrates nursing science with information management and analytical sciences to identify, manage, define, and communicate data, information, knowledge, and wisdom in nursing. NI supports consumers, patients, nurses, and the interprofessional healthcare team (Houston et al., 2018). In the 1940s, nurses, along with operations researchers, industrial engineers, hospital administrators, and public health officials, began utilizing the notion that patient needs could be identified quantitatively and that based on these classification schemes could be used to predict the resources that would be needed for patient care (Patel et al., 2018).

The 1940s also brought employer-based health insurance, new inpatient technology and services, and federal hospital funding following the Hospital Survey and Construction Act of 1946. The federal legislation introduced historic economic influences in the 1960s with the Medical Assistance to the Aged Act of 1960, the Community Health Services and Facilities Act of 1961, the Nurse Training Act of 1964, and the Social Security Amendments of 1965 authorizing Medicare and Medicaid. Saba and Zielstorff were early adopters of computers in healthcare settings.

The United States Public Health Services (USPHS) use of computers was inevitable and led to the development of management information systems by Saba (Patel et al., 2018). In 1976, Carol Romano established the first graduate curriculum in nursing informatics. The nurses who took on the tasks of managing said systems were self-taught and, at times, took computer courses to utilize the system to the best of their ability.

Of the practice areas discussed on the American Medical Informatics Association (AMIA) website, I believe Public Health Informatics is most relevant to daily nursing practice. Public Health Informatics is the application of information in areas of public health such as surveillance, prevention, preparedness, and health promotion (AMIA, n.d.). Often, we monitor illnesses for patterns or recurrence, especially in long-term care facilities.

Many information and communication technologies are utilized daily, two of which are electronic health records (EHRs) and telemedicine. Electronic health records (EHRs) are an electronic version of a patient's medical history that the provider maintains over time (CMS, 2024). Telemedicine uses electronic devices such as a computer, tablet, or smartphone that lets you see your healthcare provider without going to their office (HHS, 2024). Telemedicine keeps others from becoming ill from being in public, allows you to see your provider from work or home, and eliminates travel time.

Multimedia applications are utilized in healthcare in the form of videos of surgical procedures, computer animation, graphics, and preoperative patient education to aid in improving the quality of the informed consent process prior to surgeries (Michalski, 2016). Technology has a significant impact on how we provide care to our patients. One example of technology helping healthcare professionals provide optimal care for patients would be the use of Dexcoms. Dexcoms allow for continual monitoring of a patient's blood sugar. This provides

useful information, especially in a brittle diabetic's care who may go from being 460 before a meal, requiring a substantial amount of insulin, to being in the 50s 2 hours after a meal even though he did eat.

With a Dexcom, you have an account that you sign up for when you start utilizing the technology that is linked to your transmitter. It allows the application to keep a log of blood sugars, and a report can be run and given to your provider. This report can give your provider an insight into any patterns related to hypoglycemia and/or hyperglycemia and better guide them in adjustments that may need to be made to a patient's insulin or oral medication.

Another way technology plays a vital role in patient care is a computer system's ability to "flag you," potentially preventing fatal errors. Rather, it is that a medication requires blood pressure to be entered prior to the medication administration due to parameters such as the patient may run lower at times or the computer system not allowing you to administer another dose of Morphine prior to the allotted time frame. Our facility utilizes Point Click Care for documentation. When entering blood sugar into a sliding scale on the medication administration record (MAR), it highlights the number of units you are to administer to help eliminate an error. Suppose a hypertensive medication is entered to have parameters. In that case, it will not let you document the medication without entering a blood pressure and flags it if it is below parameters, making you acknowledge you are below parameters and should not give the medication.

Nursing engagement in the selection of healthcare technologies is vital. This is because the nurses will be the primary users of the technology selected. The healthcare technology selected should be user-friendly, improve patient safety, and optimize patient care. The system must be user-friendly to prevent errors from occurring due to a nurse not being able to utilize the system properly. When a system is ineffective, the staff cannot be effective. It is essential that

any healthcare provider can seamlessly flow from one section of a patient's chart to another to ensure proper time management. Time management is a vital characteristic for a nurse, as it allows for increased patient care instead of charting.

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