Informatics in Nursing
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Author Note

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The nursing profession is constantly adapting to new challenges and advancements emerging in the healthcare field. The field of Informatics is increasingly becoming integrated with healthcare in nearly all aspects. As nurses stand at the forefront of care delivery, it creates one of the most significant differences in the way care is delivered. The essay will explore the importance of health informatics, its applications, and challenges, alongside its wide-ranging implications in healthcare.

# Nursing Informatics and its Importance

Nursing informatics has been defined by Graves and Corcoran (1989) as "a combination of computer science, information science, and nursing science to assist in the management and processing of nursing data, information, and knowledge, to support the practice of nursing and delivery of nursing care" (Graves & Corcoran, 1989). As a specialization within nursing and healthcare, informatics in nursing revolves around the concept of data, which involves the intersection of science, information, and computing to enhance the communication and management of data and knowledge in healthcare. Since its inception a range of elements have been incorporated into the field of health informatics, such as decision support systems, data recovery, imaging informatics, electronic patient records, telenursing, and intelligent systems, to enhance patient care (Darvish, Bahramnezhad, & Navidhamidi, 2014).

Quality nursing practice entails using evidence and information to make ensure effective decision-making. A large share of nursing practice today involves working with information such as communication patient information, assessing patient needs, developing care plans, analyzing staff performance, and resource management; thus, being an information-intensive work. As technology increasingly becomes integrated into nursing practice, nurses are expected to engage with various digital tools and information services to provide quality, safe, and evidence-based care. Informatics in nursing has, therefore, become critical to delivering quality patient care today.

# Growth of Computer Systems and Benefits in Practice

As the integration of technology with healthcare increased, the health care system itself underwent a significant transformation. Informatics in nursing has moved beyond simple data processing, or payroll creation, and is now directly involved in patient care, clinical practice, education and research, and healthcare administration. Such developments can be attributed to the rapid growth of computer systems over the decades, which have greatly expanded in terms of processing capabilities, storage, and miniaturization. The development of handheld digital devices and wireless internet allowed informatics to enter into nearly every aspect of nursing practice. The integration of these systems has increased the accuracy and efficiency of the nursing process, helped save time, improved the quality of nursing care, and enhanced the proficiency of the staff (Hannah, Hussey, Kennedy, & Ball, 2015).

Staying up-to-date with these developments provide a range of benefits. A well-known benefit is ease in collecting data through computer terminals or hand-held devices, such as patient history, health status, symptoms, and various assessments. The use of databases can help nursing staff quickly associate symptoms with a standard diagnosis. They can also be helpful in providing detailed information, about diseases, plan of care, and recommended interventions, to nurses who have exercised their own clinical judgment to make a nursing diagnosis (Hannah, Hussey, Kennedy, & Ball, 2015). Moreover, they can record patient information, personal evaluation statements, observations, and interventions and easily communicate this information to other departments.

# Error Prevention & Confidentiality Issues

The frequent collection and recording of health information by nurse provide a number of advantages in care delivery. A prominent advantage is the reduction of medication errors in the delivery of care. Medication errors are among the leading causes of patient harm and increased medical costs. Informatics in nursing allows for a range of applications such as automated dispensing, electronic medication reconciliation, barcode medication administration, and computerized physician order entry as error prevention strategies. There is considerable evidence to advocate for its widespread implementation in order to reduce medication errors (Seidling & Bates, 2016).

However, the integration of informatics into nursing and healthcare makes the protection of data and health information a critical issue in practice. All healthcare organizations and staff responsible for collecting, analyze, store, and process health information are responsible for ensuring the confidentiality and integrity of the information. Frequent breaches would risk a loss of public confidence in the health care system and harm the privacy of the patient (Rezaeibagha, Win, & Susilo, 2015). As informatics in nursing become more indispensable to care delivery, nurses have to be well acquainted with the concepts relating to information security, confidentiality, and privacy, especially with regards to health information systems. A patient's right to privacy entails that it is their right to determine the extent, means, and time, of sharing information about themselves. Conversely, confidentiality refers to the protection of that personal information from unauthorized access (Rezaeibagha, Win, & Susilo, 2015). Healthcare organizations should develop operational guidelines for staff to make sure that information confidentiality remains at an appropriate level.

# Examples of Healthcare Informatics and Implications

There are several applications of health informatics currently in practice in healthcare across the board. A well-recognized application is the use of Electronic Health Records (EHRs) that allows for the aggregation, communication, and analysis of patient information to improve diagnostics, safety, and patient outcomes. Since patients frequently visit multiple care providers, it becomes difficult to manage paper-based patient assessment and prescription records. The use of HER systems significantly improved the management of patient records and eased referrals and patient transfer in the continuum of care. All medical histories, immunization records, prescription, and evaluations are available instantly in a standardized setting, which helps save time and costs, reduces paperwork, and allows for a rapid collection and analyses of data (Cowie, et al., 2017). Care providers are facilitated into better decision making while helping them enhance the clinical and operational process to improve efficiency and patient outcomes.

Another health informatics application gaining prominence is known as consumer health informatics (CHI) which aim to promote self-management among patients. CHI emerged out of the need for shared decision making with patients and to lend them a greater awareness of their health status (Abaidoo & Larweh, 2014). CHI applications use the internet and cellular messaging systems to provide are providers with real-time data on the health condition of the patient, while assisting them in self-management through prompts and reminders. The applications can integrate with the patient's EHR data to provide them with an accurate analysis of their health status. Besides shared-decision making, the use of CHIs is also incentivized by cost-saving pressures on health organizations, and therefore rely on the self-help potential of the patient to save costs and enhance the quality of care.

#  Personal Thoughts about Informatics in Healthcare

 As a student nurse, I am a first-hand witness of the expansion of informatics into healthcare. Nurses are faced with unique challenges in their practice and are in need of information systems to enhance their decision-making skills. Though some nurses find it difficult to incorporate informatics into their practice, I have seen many nurses adopting these applications when they saw the potential for reduction in errors and enhanced efficiency. I had limited health-related technology experience when I started my nursing courses. However, the increased emphasis on information systems in health care today made me realize, the importance of developing competency in nursing informatics to ensure quality of care. In my experience, patients frequently compare about poor communication and coordination between providers and hospitals, especially during referrals. As a nurse, whenever I have to observe a patient, I find it highly useful to go through their medical history before I undertake a procedure. I find that being well acquainted with the patient's records enhanced my communication with the patients as well as physicians and nurse leaders, and thus enriched my own learning experience.

 To conclude, health informatics improve patient safety and quality of care precisely because it allows for a better observation of the patient's information and health history. The ability to know a patient's complete medical history, treatments, concerns, and evaluations from other care providers allow for accurate decision making and reduced medication errors. Moreover, it has allowed patients to take part in their recovery through shared decision-making through the use of CHIs. As a result, the improved coordination between patients and care providers in the continuum of care has created a significant improvement in patient perceptions of care and health outcomes.

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