Benefits of Technology in Nursing

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Technology is slowly taking over every aspect of the modern world with nursing being no exception. New advances in medicine and information systems have led to the creation of a whole new sector called nursing informatics. Nursing informatics refers to the integration of nursing with technology (Canadian Nurses Association [CNA], 2017). Current challenges to the healthcare system, including medication errors, long hospital wait times, lack of competent workers, and decreasing health literacy in citizens, can all be resolved with nursing informatics (Nagle, Sermeus & Junger, 2017). The purpose of this paper is to highlight the benefits technology brings to the nursing profession for all individuals. A review of literature suggests that nursing informatics helps prepare nursing students for the clinical setting (Farley, 2017), decreases knowledge gaps within the interprofessional team (Nagle et al., 2017), and helps make health data more accessible (White, Nagle & Hannah, 2017).

A current trend in nursing is an increasing shortage of nurses, specifically in specialized areas, such as surgical suites or operating rooms (Farley, 2017). Therefore, it is extremely important that the next generation of nurses–current nursing students–are equipped with the proper skills and assets to fill in the gaps of the aging nursing population. Farley (2017) highly stresses the importance of integrating technology use in undergraduate nursing programs. One example she mentions is simulation training, where students practice hands-on techniques using computers, robots, and other machinery. This helps students build psychomotor skills in a clinical setting without the possibility of patients being put at risk of harm. Students can practice techniques, like aseptic procedure, until they fully master the skill. This is imperative for programs that do not offer students enough clinical experience through placements. The experience and skill set the students receive have been shown to increase employment rates (Farley, 2017); staff shortages can easily be solved with nursing graduates who have developed specialized skills throughout their education using technology. Another advantage to technology integration in the classroom is that students constantly have access to the latest information. Nagle et al. (2017) cite that new research takes approximately 17 years to reach clinical practice; however, if students always have access to the latest medical information as they study, the students will directly integrate new research into their practice and take it with them to their jobs. Thus, by utilizing evidence-informed practice, the issue of outdated information in the nursing practice is fixed. While advancing technology, like simulation training, is promising to the new generation of nurses, barriers such as cost often inhibit programs from taking full advantage of its capabilities.

Similar to how it eliminates the use of outdated information via evidence-informed practice, nursing informatics also helps decrease knowledge gaps between members of the interprofessional team such as the physicians, nurses, pharmacists, and even the patient themselves. Nagle et al. (2017) explain that each member of the team has a role in the patient’s plan of care; however, this can cause delays when members must wait for others in the team to complete their tasks first. For example, a nurse may have to wait for a physician to sign off on a lab before a patient can be discharged. Technology, such as electronic health records (EHRs), would allow for updates, such as discharge approval, to be shared with the team in real-time. This saves time while also ensuring the whole “virtual interprofessional patient team” is on the same page regarding the patient’s current status and any changes in status (Nagle et al., 2017, p. 215). Another issue the authors address is that nurses’ knowledge is already outdated by the time they reach the field. As previously mentioned, this can be solved by integrating research into practice during school; however, it can also be fixed afterwards as well. Nagle et al. (2017) claim that new information can be directly imbedded in EHRs and feature decision-making algorithms to help nurses determine nursing interventions. Likewise, White et al. (2017) reinforce that these algorithms allow new evidence-informed practices to be fused into ongoing nursing actions. These algorithms along with other technology, such as pressure ulcer sensors, patient identity barcode scanners, medication-dispensing robots, and patient tracking devices, all increase patient safety by decreasing medical errors (CNA, 2017; Nagle et al., 2017). By decreasing these knowledge gaps, nurses are ensuring they are accountable and responsible in their care because the knowledge they receive from digital resources confirms their competency. Not only does this help the nurse, but it also strengthens trust within the therapeutic nurse-client relationship.

In addition to providing nurses with strengthening resources, nursing informatics also assists individuals who are not directly providing care, but still part of the healthcare system, such as policy makers and patients. White et al. (2017) underline the need for standardized health data so that further research can be completed, and new public policies can improve current health systems. The data collected through nursing technology can be analyzed to find patterns and trends in healthcare. This information can be used to fight diseases and improve patient outcomes. Technology is also providing greater autonomy and dignity for patients by allowing them to monitor their own health from the comfort of their homes (Nagle et al., 2017; White et al., 2017). Nagle et al. (2017) reason that smartphone apps and various at-home devices allow patients to self-monitor their health and alert medical personnel in case of an emergency. Technology has even advanced to the point where appliances are equipped with sensors and alerts that further protect patients from harm. Telemedicine is the delivery of healthcare services through a phone or the internet (College of Nurses of Ontario, 2017). It is becoming increasingly used by hospitals as a means of triage; nurses assess patients with conditions such as congestive heart failure (CHF) or chronic obstructive pulmonary disease (COPD) and determine whether they need immediate medical attention or not (Nagle et al., 2017). While smartphone apps and monitoring devices can help with prevention and maintenance of disease, new initiatives including telemedicine help solve systemic problems such as overcrowded emergency rooms and long hospital wait-times. Overall, technology has the ability to help all members of the Canadian society whether it is before admission (prevention and screening), during admission (treatment), or after discharge (coping and maintenance).

Though traditional nursing did its best with resources provided, current technology benefits the profession by preparing the next generation of nurses to be better than the last (Farley, 2017), enabling members of the interprofessional team to communicate in an effective manner (Nagle et al., 2017), and creating a database for research and quality improvement (White et al., 2017). The question that remains is whether nurses are ready for technology to have more of a role within their scope of practice. Kleib, Chauvette, and Nagle (2018) asked 2844 Canadian nurses this very question. While over 90% of the nurses agreed with the importance of nursing informatics, 8.7% expressed concerns over digital health. Some concerns include the lack of regulation by governing bodies, a shift of focus from the patient to computers, training, and logistical issues, such as the need to use multiple programs to complete a single task. Although there is merit in some of these claims, the research shows just how beneficial digital resources are in nursing. Whether nurses are ready or not, technology advances exponentially every day (Nagle et al., 2017). With epidemics like the recent COVID-19 outbreak, healthcare professionals need all the tools they can acquire to conquer diseases. Nursing informatics gives nurses the information they need to know and additional resources necessary to complete their job. Ultimately, nursing informatics saves lives.

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