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Using technology in improving nursing practice and communicating with patients

By:
AHMED SHEHAB ALJAZIRI
Mohammed abdulaziz alali
Mohammed Ali Al barak
Khdijah Abdulaziz alali
ALI NABEEH ALSULTAN
AMNAH MOHAMMED ALDHAFIRI
Hussain Ali bomuzah

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Abstract:

Nursing practice is undergoing significant transformation with the integration of technology, revolutionizing healthcare provider-patient communication and enhancing patient care delivery. This paper explores the impact of technology on nursing practice, highlighting its potential to improve efficiency, patient outcomes, and nurse-patient relationships. Key technological advancements, such as electronic health records, telemedicine solutions, and clinical decision support tools, enable nurses to manage patient care intricacies effectively and provide evidence-based, personalized care. However, along with these advancements come challenges, including limited human interaction, privacy and security concerns, reluctance to adopt new technology, and potential threats to traditional nursing roles. By addressing these challenges and harnessing the benefits of technology, nurses can navigate the complexities of modern healthcare and fulfill their commitment to delivering high-quality, patient-centered care in a technology-enabled environment.

Keywords: Nursing practice, technology, healthcare communication, electronic health records, telemedicine, patient care.

Introduction:

Nursing practice is changing and healthcare provider-patient communication is being revolutionized by the incorporation of technology, which is driving revolutionary change in the healthcare industry. Improved patient care, more efficiency, and stronger relationships between nurses and their patients are all possible thanks to technological advancements such as electronic health records and telemedicine solutions. Technological progress has provided nurses with new resources that help them better manage the intricacies of patient care. Nurses are better able to provide safe, evidence-based care with the help of technology-driven solutions like clinical decision support tools and medication management systems, which reduce the likelihood of mistakes and improve patient outcomes. Also Digital communication platforms, including secure messaging systems and patient portals, facilitate real-time interaction, enabling patients to communicate with their healthcare providers, access educational resources, and actively participate in their care plans (Alghamdi, M. G., & Urden, L. D. 2016).

One way to help with health care delivery is through eHealth, which stands for health and information communication technology. As time goes on, these technologies will continue to impact the way nurses organize, administer, record, and evaluate patient care (Kruse, C. S., et al.2016). Additional integration of ICTs into nursing practice will lead to major changes in the ways in which nurses acquire and evaluate diagnostic information, make clinical choices, communicate and socialize with patients and their families, and execute clinical interventions. The provision and support of health care is facilitated by a diverse array of ICTs. Management systems, communication systems, computerized decision support systems (CDSSs), and information systems are the four overarching areas of electronic health care proposed by Mair et al. Electronic health records (EHRs) and electronic medical records (EMRs) are examples of patient-related administrative or clinical data that can be acquired, stored, sent, and displayed through management systems. Diagnostic, managerial, counseling, instructional, and supportive uses for communication systems abound (Monteiro, A. P. 2016). Their use can improve dialogue between doctors and patients or between doctors and other medical staff. Telemedicine and telecare are only two examples of the many different types of communication technology available today. Accessible from a variety of devices, including computers, mobile phones, and personal digital assistants (PDAs), CDSSs are automated systems. Health care providers rely on them to help them make decisions and stay within the bounds of clinical guidelines and treatment pathways. The utilization of the Internet to access sources of health-related information is known as information systems, and it includes things like web-based resources and eHealth portals (Rouleau, G., et al.2017).

Despite the difficulties, a plethora of information and communication technologies (ICTs) can be utilized to bolster nursing's complicated and varied practices and solutions. Electronic health records (EHRs) and computerized nursing care plans are two examples of ICTs that aid in the documentation and planning of

nursing care by providing easy access to patient records. Nevertheless, nurses are anticipated to modify their documentation of patient care practices by transitioning from paper records to electronic systems as a result of these technological advancements. Electronic nursing documentation features like copy and paste, electronic interface, and drop-down choices could impact the quality of documentation and the ability to think critically (Sullivan, D. H. 2015). Another example is telehealth technologies, which encompass a broad variety of information and communication technologies (ICTs) such computer-mediated communications, remote patient monitoring, and videoconferencing. In order to respond appropriately to each patient's condition when using remote patient monitoring (telemonitoring), nurses need clinical decision-making abilities and the ability to handle vast amounts of data from the system, such as vital signs and symptoms. Specific communication abilities, such as active listening, discussion facilitation, questioning, redirecting, and verifying, are still necessary for discerning indications within encounters via technological modalities (Topaz, M., et al.2016).

Despite these advantages, there are also certain special considerations and problems associated with using ICTs in nursing practice. The transmission and storage of sensitive patient data necessitates stringent security measures and adherence to regulatory requirements like HIPAA due to privacy and security concerns. Furthermore, in order to guarantee that all patient populations are included and have access to healthcare, it is necessary to distribute resources equitably and implement targeted interventions to close the digital gap, which may worsen healthcare access inequities (Topaz, M., et al.2016).

❖ **Ways by which new technologies enhancing healthcare delivery and the nursing profession:**

- **Predictive Analytics:**

The use of predictive analytics is one emerging nursing technology with enormous potential to enhance patient outcomes. Predictive analytics uses AI to look at patient records and provide a treatment plan with the best chance of success. Health care providers can save time and effort while improving patient outcomes by using predictive analytics to rapidly assess patient data, which extends beyond treatment plans. If AI can identify the necessity for a blood test more quickly than a human, for instance, the collection of tests may go more quickly and the findings could be available sooner. The care team can now operate with more agility than ever before thanks to this data. The data allows them to swiftly adjust the drug or dosage based on the patient's needs, allowing the patient's condition to improve even more (Alharthi, H. 2018).

Another case in point is Predict, a widely used UK-based online program that aids both patients and doctors in deciding how best to proceed after surgery for early invasive breast cancer. Based on research of people with the same age and kind of cancer, patients can find out what their expected average survival rate is. Medical professionals can use predictive analytics to learn how likely a patient is to acquire more chronic diseases like diabetes, obesity, and heart disease. A treatment plan that is tailor-made for the patient is then determined by this data (Keim-Malpass, J., & Moorman, L. P. 2021).

- **Clinical Mobility:**

What we call "clinical mobility" is the practice of healthcare workers using mobile computers, tablets, and smartphones while on the go. With the increased mobility these gadgets provide, they can provide a new, more convenient point of care according to the position of each patient or family member, regardless of where they are in the facility. With the use of clinical mobility devices, nurses are able to do their jobs better and save lives by exchanging patient data in real-time with their care team (Boynton, T., et al.2014). There are numerous ways in which clinical mobility helps both clinicians and patients. **Some of these ways are:**

- Better health outcomes for patients
- Better informed clinicians
- Streamlined procedures

Nursing has recently benefited from the incorporation of new clinical mobility technologies, which allow for the simplification of formerly laborious procedures and the efficient exchange of patient and family records throughout the healthcare system (Booth, R. G., et al.2021).

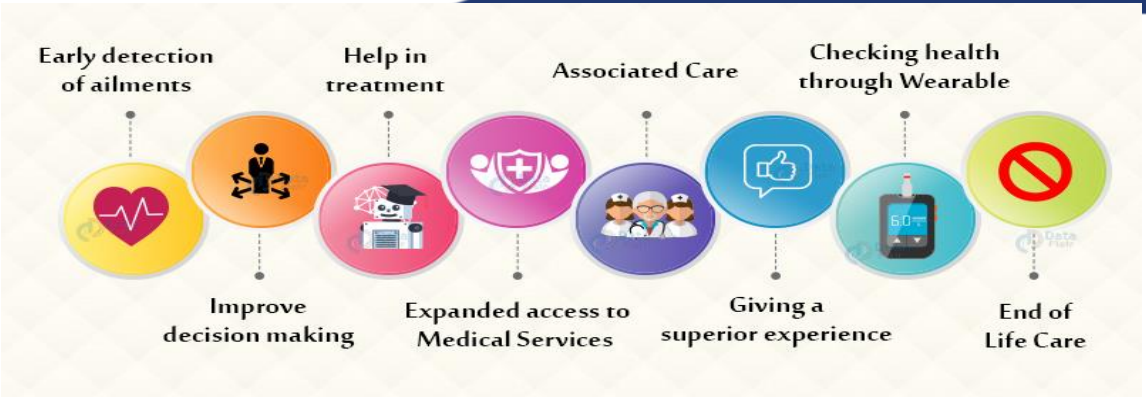
- **Clinical Decision Support with Artificial Intelligence:**

When it comes to medical care, AI is priceless when it comes to assisting patients in making clinical decisions or taking action based on their diagnosis or treatment plan. To automate the process of turning data into knowledge, AI makes use of IT to point the patient in the right direction. assists healthcare providers in organizing vast amounts of patient data and comprehending fresh information. An additional rationale for the anticipated integration of AI into nursing is the fact that it aids RNs, NPs, and physicians in avoiding "information fatigue." There are several benefits of incorporating AI into clinical decision-making for nurses (Buchanan, C., et al.2021). **Some of these include:**

- Efficiently processing massive datasets
- Identifying patients at risk with precision

Here are some examples of AI uses in the field of nursing:

- Disease presence detection in patients without symptoms
- Risk assessment for falls and the application of safety measures
- Guided decision trees to prevent infection from catheterization



When it comes to implementing AI technology in healthcare facilities, nurses will be pivotal. They can find ways to automate current processes so that you may spend more time with patients. When it comes to artificial intelligence (AI) and its development and implementation, chief information officers (CIOs) of healthcare systems can make sure that nurses and nursing leadership get their say (Buchanan, C., et al.2021).

- **Telehealth:**

Nursing is expected to undergo a radical transformation in the near future due to the advent of telehealth, often known as telemedicine. The phrase "telehealth" describes the practice of facilitating remote medical

consultations between patients and doctors using electronic devices such as computers, tablets, and smartphones. Patients in remote or otherwise inaccessible areas, who may otherwise encounter a physical obstacle to treatment or go untreated altogether, would benefit greatly from the capacity to link them with the health care system (Wakefield, M., et al.2021).

Health care organizations hastened to implement telehealth systems once the COVID-19 outbreak began. Keeping sick or contagious people out of healthcare facilities has always been, and continues to be, a major benefit of virtual visits. Furthermore, patients who have mobility and transportation issues find telemedicine to be more accessible. Virtual visits save time for both patients and physicians since they eliminate the need for in-person appointments and the associated commute. In many cases, telehealth consultations are more convenient to schedule than in-office visits due to their higher availability. Additionally, the total cost is usually lower for these visits since all that is needed is a provider's office and a peaceful area at the patient's house. Having said that, it is imperative that nurses possess a valid license in the state where their patients reside and are well-versed in any particular regulations pertaining to telehealth (Shaver, J. 2022).

Nurse practitioners can now provide high-quality, efficient care remotely through virtual visits by:

- Determining whether a patient needs in-person treatment.
- Delivering mental health counseling.
- Recognizing mild illnesses.
- Prescribe or renew prescription drugs.
- Providing the findings of diagnostic imaging or laboratory tests.
- Delivering care following surgical or medical procedures.
- Offering speech, occupational or physical therapy.

❖ **The impact of Technology on Nursing Practice:**

✓ **Enhanced Efficiency and Effectiveness:** Technology streamlines routine processes, allowing nurses to allocate more time to direct patient care. Tasks such as documentation, medication administration, and data management are automated, reducing the burden of manual labor and minimizing the risk of errors (Huter, K., et al.2020). As a result, nurses can work more efficiently and focus on delivering high-quality, patient-centered care.

✓ **Improved Patient Monitoring and Management:** Advanced technologies enable real-time monitoring of patient vital signs, medication adherence, and treatment responses. Devices such as wearable sensors, remote monitoring systems, and telehealth platforms facilitate continuous assessment and proactive intervention, particularly for patients in remote or underserved areas (Topaz., et al. 2016). Virtual visits and telemedicine consultations allow nurse practitioners to reach patients in rural or hard-to-reach locations, ensuring a continuum of care and timely interventions.

✓ **Enhanced Communication and Collaboration:** Technology bridges communication gaps between healthcare providers, facilitating seamless collaboration and interdisciplinary teamwork. Electronic Health Records (EHRs), secure messaging platforms, and teleconferencing tools enable efficient information exchange, care coordination, and consultation with specialists (Vos, J. F., et al.2020). By fostering open communication channels, technology promotes shared decision-making and enhances patient engagement in their care journey.

✓ **Career Advancement and Professional Development:** Nurses trained in technology gain valuable skills and competencies that enhance their career prospects and expand their scope of practice. Proficiency in EHRs, telehealth platforms, and digital health technologies opens doors to diverse job opportunities in healthcare informatics, telemedicine, and population health management. Furthermore, ongoing training and professional development in nursing technology ensure that nurses remain at the forefront of innovation and best practices in patient care delivery.

- ✓ **Time-Saving Routine Processes:** Nursing technology automates time-consuming routine processes, allowing nurses to focus on providing one-on-one, compassionate care to patients. Electronic documentation systems, medication dispensing technologies, and automated vital sign monitors streamline workflow efficiency, reducing administrative burdens and increasing nurse-patient interaction time (Rouleau, G., et al.2017).

❖ **Challenges of Nursing Technology:**

While technology presents numerous opportunities to enhance nursing practice and communication with patients, it also introduces a set of challenges:

- ✓ **Limited Human Interaction:**

Technology can potentially diminish the quality of human interaction between nursing staff and patients, as it may replace face-to-face communication and personal connection (Topaz et al., 2016). Patients rely on nurses not only for clinical tasks but also for emotional support and guidance, aspects that technology may struggle to replicate effectively. Maintaining a balance between technology-driven efficiency and personalized patient care is essential to ensure a positive patient experience and overall satisfaction with healthcare services.

- ✓ **Privacy and Security Concerns:**

With the digitization of patient records and the adoption of electronic health records (EHRs), healthcare organizations face heightened risks of data breaches and unauthorized access to sensitive patient information. The storage of patient data in the cloud or electronic databases increases vulnerability to cyberattacks, posing significant challenges in safeguarding patient privacy and ensuring data security. Healthcare facilities must invest in robust cybersecurity measures and compliance with regulatory standards such as the Health Insurance Portability and Accountability Act (HIPAA) to mitigate privacy and security risks associated with technology use (Gariépy-Saper, K., & Decarie, N. 2021).

- ✓ **Reluctance to New Technology:**

The introduction of new technologies may encounter resistance from nursing staff, particularly among older generations of nurses who may be less familiar or comfortable with adopting digital tools. Addressing generational differences in technology acceptance and providing comprehensive training and support are crucial to fostering a culture of innovation and facilitating successful technology adoption among nursing staff (Barchielli, C., et al.2021).

- ✓ **Threat to Nursing Positions:**

As technology advances, there is a potential threat to traditional nursing roles, with automation and artificial intelligence gradually assuming tasks traditionally performed by nurses. While technology can enhance efficiency and improve patient outcomes, it also raises concerns about job displacement and the

need for upskilling and reskilling nurses to adapt to evolving roles and responsibilities (Booth, R. G., et al.2021). Healthcare organizations must proactively address workforce implications and provide professional development opportunities to equip nurses with the necessary skills and competencies to thrive in a technology-enabled healthcare environment.

Conclusion:

In conclusion, the integration of technology into nursing practice has shown immense potential in enhancing patient care and communication. Through the utilization of innovative tools and platforms, nurses can streamline processes, access crucial patient data efficiently, and facilitate effective communication with patients. Additionally, technology enables the delivery of personalized care, promotes patient engagement, and fosters collaboration among healthcare teams. However, it is crucial to acknowledge the importance of maintaining a balance between technological advancements and the human touch in nursing care. Nurses must continuously adapt and embrace emerging technologies while upholding the core principles of compassionate and patient-centered care. By leveraging technology responsibly, nurses can further elevate the quality of care, improve patient outcomes, and ultimately enhance the overall healthcare experience for patients and providers alike.

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