Roles of the Perioperative Nurse and Informaticist and Implications for Practice, Education, and Administration

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KEYWORDS

• Informatics • Technology • Perioperative nurse • Practice

KEY POINTS

- Technology within the scope of patient care is advancing.
- Informatics is the specialty of nursing which advances the use of technology within patient care to enhance safety.
- Perioperative nursing informatics is a subspecialty within the nursing informatics role which is experiencing a significant growth.

Technology and innovation are vital partners in the patient safety improvement process. For new innovation and technology to succeed in this process, it must be supported by the nurses who use it, the informaticist who supports it, the educators who ensure it is correctly utilized, the administrators who must budget for it, and the researchers who will demonstrate the value of technological advancements in improving patient safety. Providing training for the use of new equipment and ensuring competency of staff who will use that equipment is one of the roles of the educator, but requiring that training is a role of the administration for the surgical department.

ROLES OF THE PERIOPERATIVE NURSE

Safety is a key concept that is impacted by technology, for both the patient and the staff who use it.¹ Preoperative nurses must utilize the technology provided in the

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manner in which it was designed to ensure their patients' safety and maintain quality patient care. Perioperative nurses use computers for multiple purposes within the operative area, including reviewing the patient electronic medical record. One important area is obtaining laboratory results. Orders placed electronically allow faster turnaround time, allowing laboratory and test results to be viewed by the appropriate perioperative care provider in real time.

Other areas in which technology impacts the perioperative nurse include documentation of care provided, tracking of instruments and staff members, and delivery of medications.² Through appropriate use of the many forms of technology available to the perioperative nurse, adverse events, such as administration of the incorrect preoperative antibiotic, can be decreased through the use of bar code medication verification.² The practice of the perioperative nurse will continue to grow while incorporating the technology available. The direction that growth will take can be influenced by the willingness of the nurses to get involved, becoming change leaders and activists in the process of enhancing patient safety through planning and utilization of technology. Perioperative nursing documentation is incorporated into the electronic health record (EHR), making that information available in real time to all practitioners who have been granted access to the record. One practitioner who would use this information is the pathologist who examines specimens removed during the surgery. The nurses involved in the use of the equipment are key to ensuring that other perioperative professionals receive proper training on equipment.

A new specialty within the nursing informaticist role is developing, which focuses on the perioperative nurse's use of technology. As new technology is created, software vendors combine perioperative nurses' experience with science to develop products with practical application to the role of the perioperative nurse.² Another developing role is the Master's Prepared Perioperative Advance Practice Nurse (APN) degree. A nurse with this degree provides care for surgical patients and their families throughout the perioperative process. This practitioner prevents delays in surgery cases by assessing patients and reviewing their histories and providing information to the surgeon and anesthesia provider through documentation into the EHR, which may influence a positive outcome for the patient. Through reviewing information within the EHR, this perioperative APN can identify any preoperative tests or procedures that were not completed that could have caused a delay in the case. After evaluating the information, this APN can inform the surgical team of anything that may influence how the surgical care is provided for that patient, especially if research is necessary to clarify unusual diseases processes.² This APN can also identify educational and emotional needs the patient may have related to the surgery.

ROLE OF THE INFORMATICIST

Nursing has embraced technology to improve patient care for decades.³ The field of nursing is evolving from low to high technology. The role of nursing informatics has developed to serve as a bridge between nursing and technology. The Nurse Informaticist utilizes nursing knowledge to ensure that appropriate software, hardware, and equipment choices are made. They assist with implementation of new technology and provide ongoing support of software and equipment. Their technology background allows them to identify optimization opportunities related to the technology used by the perioperative clinical staff. Additionally, informaticists utilize their clinical background to identify the need for appropriate technology and equipment to meet the requirements of the jobs, such as selection of electronic tablets to document with the EHR rather than a large desktop computer within the operating

room to allow the nurse to have her documentation readily available, regardless of where she is in the perioperative suite. This enhances the practice of nursing through the use of informatics. Nurse informatics specialists must embrace innovation and use technology that advances nursing care and enriches the profession.³

One role of the informaticist is to provide tools that allow perioperative staff to identify improvements in patient care through analysis of data related to patient outcomes.⁴ Analysis of that data helps drive care decisions based on the evidence derived and builds the bank of evidence-based practice models. Mobile applications have been developed to track process workflow within the perioperative arena to investigate how different types of care provided affects patient flow through the operating room (OR).⁵ Analysis of these data by the informatics nurse can provide benchmarking and simulations. This can be used to determine a flow map to identify causes of delays while increasing the efficiency of staffing within the OR. The role of the perioperative informatics nurse specialist has evolved as technology within the perioperative area has grown.² These specialists become certified as system administrators for the systems used within the OR. Other specialties for informatics nurses within the perioperative area are nurse educators, robotics specialists, and research consultants. Nurses can also work for companies that provide the technology, helping companies choose the appropriate equipment and technology because of a shared knowledge of the perioperative workflow.²

IMPLICATIONS FOR PRACTICE

Technology has increased the proficiency of the nursing profession. Charting is now completed on the computer.⁶ Physicians enter orders into the computer system, resulting in a decrease in medication errors due to poor penmanship.¹ Medication orders are available to the pharmacy for verification as soon as the physician enters the orders in the computer. All care providers are able to view the laboratory results more quickly because of the advancement in technology implemented with the EHR.

Changes to surgery techniques within the last few decades meant changes for the circulating nurse. Computer charting is more prevalent in the OR. The circulating nurse can place orders in the computer for laboratory results on specimens, which decreases the time needed to obtain results. Currently, surgery involving robotics includes laparoscopic gallbladder surgery and appendectomy and arthroscopic procedures such as partial and total joint replacement. Circulating nurses need to be proficient and knowledgeable in the use of equipment for these types of surgery to ensure equipment is correctly set up and operating for the procedure.² As the technology within the operating room increases, so does the need for advanced training among the circulating nurses. Additional roles of nursing informatics within the operating room arena are being developed, which include perioperative robotics nurse specialists, supply company representatives, research consultants to track best outcomes, and evidence-based practices. Patients are benefiting from this type of procedure because of smaller incisions, shorter hospitalizations, and faster healing with fewer complications.

IMPLICATIONS FOR EDUCATION

Nurses currently in practice bring a wide range of technological savvy to the workplace.⁷ Depending on their previous experience and education, veteran nurses may have limited computer technology literacy. Equipment within health care settings varies from one facility to another. This creates a challenge for academic educators who must provide current, relevant content to students to ensure they have adequate

skills to utilize equipment they will find within the workplace. Eley and colleagues⁷ report that of the 10,000 nurses surveyed about the information technology and training they had received, 83% report they use computers as part of their workflow. Half of these nurses reported that the training they had received as part of their employment was insufficient to meet the computer and technology aspect of their jobs. These nurses also reported a feeling that their career development was hampered by their lack of technology skills.

This gap in skill is amplified when a nurse returns to the perioperative setting after an extended time away. The challenge for educators is to assess the competency level of each nurse and develop a training plan to ensure correct use of technology. Orientation for new perioperative nurses must focus on the specific equipment each staff member will be working with and can be extended to ensure competency.² With the advancement of operative technology, perioperative nurses may specialize in specific types of surgeries, such as orthopedic or robotic. As technology continues to advance the practice of nursing, educators must incorporate this into the nursing curricula to ensure new nurses have updated information and skills to utilize the new technology. Perioperative nurse educators within hospital settings must also develop methods of maintaining competency standards and evaluations for staff nurses. Mock ORs are being used as one method of training and testing nurses' competencies, focusing on equipment and instruments that will be utilized within the OR.²

As the technology within the OR advances, the need for continuous training of the staff increases.² Basic nursing knowledge is not sufficient for a perioperative nurse to function within today's OR, and nursing education programs struggle to keep up with technology new nurses will face on the job. Training within the OR for new equipment may be conducted by the sale representatives, which may require hands-on training and time commitment away from the unit. Orientation of new nurses may take up to 9 months to ensure they are competent with equipment such as laparoscopic towers, robots, and the EHR, technology that they must work with on a daily basis.

IMPLICATIONS FOR ADMINISTRATION

Implementing technology by replicating paper processes to an electronic format does not ensure successful or appropriate utilization of technology.¹ Inappropriate or incorrect utilization of technology can actually hamper patient safety rather than enhance it. Any introduction of technology creates change within a culture and must be supported by the administration. Strategic planning that defines the need for change, scope, and recognition of the impact of that change is necessary to ensure success for technology projects. Costs that must be calculated into the budget include not only the cost of the equipment but also the training to ensure safe operation by the staff within the operating room.

Administrators must ensure that key people who make decisions related to technology as well as nursing informaticists are employed for this purpose. Ensuring that informaticians are utilized to the benefit of both the practitioner and the hospital is one of the roles administrators play.⁸ Informaticians must be allowed to use their knowledge of the art and science of nursing to ensure proper equipment, software, and hardware purchase choices are made. Costs of technology increase with each version of software, and hardware is quickly outdated. Introduction of technology creates change in processes and sometimes the culture of an organization and often makes things seem worse before they become better.¹ A well-defined strategy and recognition of the impact of the change on the people involved are necessary for a successful technology initiative. Administrators must ensure that budgeting for technology must include sufficient funding for training with each implementation to

ensure staff competence. Staff that is well trained to use the new technology is essential for the success of the new technology.

SUMMARY

Technological advances continue to present options to enhance patient safety. One small piece of technology, the EHR, alerts the perioperative nurse and physicians to potential problems that could occur with medications or with the patient's care. The challenge for health care providers is to maintain a balance, ensuring staff can depend on the equipment provided without forfeiting the utilization of critical thinking skills. Administrators play a key role in ensuring the right people are in place to choose the appropriate software, hardware, and technology equipment to ensure decisions are made wisely, keeping in mind safety, cost, and efficiency. Technology within all fields of nursing is advancing at a rapid rate. Perioperative nurses, as well as all nurses, must be involved in that evolution, doing their part to advance the practice of nursing through the proper use of technology.

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