Nurses’ role in robotic surgery

Danuta Lichosik, of the European Institute of Oncology, Milan, Italy, addressed the ECC on this fascinating subject. The Institute runs training courses in robotic surgery, and here Danuta answers some key questions about her experience of this relatively new technology and what it means for cancer nurses.

What is robotic surgery and how is it developing?
Throughout the history of nursing, the discoveries and knowledge of one time have served as a platform for the innovations of the next. That is especially true for minimally invasive surgery (MIS), where perioperative practitioners have been challenged to learn and stay abreast of technology in a constantly changing landscape of new techniques, and improved instruments and equipment.

The “laparoscopic revolution” of the 1980s propelled and encouraged the changes towards less invasive approaches and new techniques, such as modern robotic-assisted surgery. The da Vinci Surgical System is used in several surgical specialties including urology, gynaecology, cardiac, general surgery, head and neck and thoracic surgery. Minimally invasive robotic surgery brings important benefits for patients, such as less blood loss, reduced risk of blood transfusion and a shorter overall recovery time.

How did you, as a nurse, become interested in robotic surgery?
My personal experience in surgery started immediately after basic study in the Medical School of Nursing in Warsaw. Following that, I graduated as a specialist ICU nurse working in the operating theatre in the Post Graduate Medical Center. National and international professional activity has allowed me to improve and update my knowledge and practice. From 1994, I have been employed at the European Institute of Oncology in Milan, Italy, where robotic-assisted surgery was introduced in the operating theatre in 2006.

I have been involved in this clinical activity as a team member and as Coordinator Nurse at the School of Robotic Surgery which was founded in the Education Department of the European Institute of Oncology, Milan. We believe that team training involves all members of the robotic surgical team – surgeons and nurses learning together – and is the main key to ensuring patient advocacy and safe care.
What is the role of the nurse in robotic surgery – what are the challenges and opportunities?

The role of the robotics nurse specialist is both challenging and exciting because the technology is new and the role is open to interpretation and definition – and, because of this, needs a flexible job description. Daily practice shows us the need for continuous education, especially regarding e-nursing skills, creation and revision of guidelines and specific protocols.

Science and technology are advancing at an incredible pace and a critical analysis of these new developments is the responsibility of the perioperative nurse. Nurses, as members of the robotic surgical team, must demonstrate a very good level of professional knowledge, and be an expert in robotic technology. This is demonstrated by playing a key role in data collection, analysing trends and outcomes, and identifying safety issues.

The operating theatre nursing staff has an important responsibility to work following best-practice rules. To analyse periodically their roles and skills is an effective instrument to improve everyday practice. The creation and application of guidelines and specific protocols give positive results in daily practice and maintain standards of care.

What are the implications for working as a multidisciplinary team?

Robotic technology has increased the need for staff in the operating room. The nurse coordinator, scrub nurse and circulators involved in a robotics programme become as specialised as the doctors doing the actual surgery. When one surgery ends, nurses and surgical technicians are responsible for completing the medical charts, undocking the robot and doing an inventory of the robotic instruments, then the clean-up and set-up for the next case. Everything happens at once and it’s labour intensive. Operating room staff strive to improve efficiency while maintaining the highest quality to benefit the patient, surgeons and the hospital. This creates much more of a team, with an equal approach within the operating room – which I have found to be not only much more efficient, but much friendlier, fun and, most of all, beneficial to the patient.

There is no question that without the expertise of a good robotic nursing coordinator, scrub nurse circulators and technicians, the robotic surgery programme would not be where it is now. The team approach has helped robotics to be recognised.

What does robotic surgery mean for nurse training?

The training pathway incorporates product training, clinical training, and clinical education for integrated teams of both surgeons and operating theatre staff.

The primary purpose of our training programmes are to develop and increase a surgical team’s confidence and competence in the use of da Vinci surgical system. The ultimate goal is to develop a self-sufficient team fully capable of performing surgical procedures with minimal product support and instruction. The training programmes are designed for surgeons, first assistants, nurses, da Vinci coordinators, residents and fellows.

The da Vinci Skills Simulator contains a variety of exercises and scenarios specifically designed to give users the opportunity to improve their proficiency with the console controls. Simulation is an important part of the learning experience for robotic surgical technology. The exercises range from basic to advanced and are designed to be relevant to surgeons and nurses from any surgical specialty, each
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exercise covers skill categories such as system settings, needle control and driving, energy and dissection.

**What does the future look like for nurses’ role in robotic surgery - again, what are the challenges and the opportunities?**

As more surgeons perform robotic surgery and more patients experience it, operating room nurses see their roles changing as well. A nurse colleague of mine qualified since 1986, says her role traditionally has been a patient advocate offering emotional support, being part of the patient safety team and providing clinical care. Now, technological oversight is a large part of the picture.

Before the patient arrives in the theatre, nurses make sure the large robotic equipment is set up correctly in the operating room. The patient has to be positioned a certain way depending on what surgery will be performed. Accurate patient positioning, careful padding of all pressure points, and appropriate application of anti-skid materials therefore are paramount for preventing neuromuscular injuries.

Surgeons use different tools attached to the robot’s arms depending on the type of surgery: nurses have to make sure the proper tools are ready to go. Because of the technology, nurses must think of different ways of doing things, to provide the best patient care.

During the procedure, the action taking place in the patient’s body is displayed on a high-definition monitor in the operating room. Nurses observe this to anticipate the needs of the surgeon. The reason why many nurses choose to work in the operating theatre is because they love anatomy, physiology and technology. The exciting aspects of robotic-assisted surgery is new technology in continuous evolution, the team work and the multidisciplinary surgical practice, especially in the surgical oncology field.

Until recently, it was unknown how robotic surgery would develop and evolve. Robotics does not replace human intelligence, skill and experience but there is confidence that it is the surgery of the future. We hope that operating theatre nurses will have the opportunity to be closer to the patient and to express themselves using the technology in the support of patient care.

Based on an oral presentation by Danuta Lichosik at the 30th European Cancer Congress, Amsterdam, 2013.

Details of the references cited in this article can be accessed at www.cancernurse.eu/communications/eons_newsletter.html