PERIOPERATIVE ENVIRONMENT OF CARE

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# Perioperative Environment of Care

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PURPOSE/GOAL
The purpose of this study guide and accompanying video is to provide an overview of perioperative nursing, including the history of the profession and the roles and responsibilities of team members in the modern perioperative environment.

OBJECTIVES
After viewing the video and completing the study guide, the participant will be able to:

1. Describe key events in the historical evolution of perioperative nursing.
2. List and explain the responsibilities of perioperative registered nurses.
3. Define and describe traffic patterns in perioperative practice areas.
4. Identify other key personnel involved in providing a safe environment for the care of the surgical patient.
INTRODUCTION

Every day, registered nurses (RNs) across the United States help ensure the safety of thousands of patients as they undergo surgery and other invasive procedures. Modern perioperative RNs practice complex technical skills and must understand an increasingly sophisticated array of surgical techniques, tools, and electronic data management systems. Yet people—including patients, support persons, and health professionals—remain the center of the perioperative environment.

Patients often have concerns about their care, as do support persons such as friends and family members. Addressing these concerns is as much a part of nursing as ensuring the physical safety of patients and working to optimize surgical outcomes. The concept of a perioperative environment of care unites the diverse responsibilities of perioperative team members, keeping the patient as the focus of all team activities. In a perioperative environment of care, the activities of all team members—from surgeons and perioperative RNs to anesthesia professionals and operating room (OR) assistants—support the health and wellbeing of patients.

Modern perioperative nursing is as fast-paced and demanding as it is rewarding. To understand modern perioperative nursing, it is helpful to review the history of the profession and the factors that have shaped it.

HISTORY OF PERIOPERATIVE NURSING

Modern nursing’s foundations date to 1855 and the Crimean War, during which Britain, France, and the Ottoman Empire joined forces to stop further Russian expansion into Europe. Because women of status did not work outside the home at this time, the British public assigned nurses the same status as alcoholics and prostitutes. British nurse, social reformer, and statistician Florence Nightingale transformed that image, pioneering the field of modern nursing and training the first perioperative nurses.

As the Crimean War raged on, Nightingale and her team of 38 volunteer nurses virtually fought their way to the Scutari Barracks in Istanbul, Turkey, which housed thousands of wounded and sick British soldiers. Conditions at the barracks were unacceptable when Nightingale arrived. Basic sanitation was nonexistent. There were no soap, towels, or clean linens. The wards were overcrowded, poorly ventilated, and infested with lice, fleas, and rats. Only 14 baths were available for approximately 2,000 soldiers. Antibiotics had not yet been discovered, and the role of microorganisms in disease was poorly understood. Because sterile surgical technique was not practiced, wounded soldiers who survived surgery and did not hemorrhage risked death from infections that were common and not limited to post-surgical infections. During the Crimean War, 10 times more British soldiers died from dysentery, cholera, typhus, and typhoid as on the battlefield.

Because there were no anesthetic agents available, one of the nurses’ most valued services was to hold soldiers’ hands and offer courage and comfort before surgery. Nightingale and her nursing team also cleaned the hospital wards and kitchen, and Nightingale used large sums of private money to buy hospital supplies. Peers called Nightingale “the Lady with the Lamp” because she made her rounds after the military officers had retired for the night. Under her watch, the British Sanitation Commission arrived to clean the sewers and improve ventilation. The death rate in the barracks subsequently decreased by two-thirds.

After returning from Scutari, Nightingale established a school of nursing in London and published her seminal work Notes on Nursing: What it is and What it is Not, which emphasized the ethics of nursing and advocated for nursing education that was both intellectual and practical. She was among the first in Europe to apply the new field of statistics to hospital data, and her analyses led to improved sanitation and public health in Britain and India. Nightingale is recognized today as a founder of nursing, perioperative practice, and evidence-based approaches to infection control, hospital epidemiology, and hospice care.
Advancements in perioperative nursing in the United States have been traced to 1873, when Bellevue Hospital established the first nursing school in the country that was based on the Nightingale model. This and other schools emphasized strict hygiene and taught a new management model in which a hospital nurse supervisor oversaw a trained nursing staff. Graduates of these early schools implemented new standards of cleanliness, education, and organization in hospitals. By 1889, OR nursing became one of nursing’s first areas of specialization, and at the end of the 19th century, nursing schools added surgical nursing instruction and a clinical rotation in the OR to their curricula. By the early 20th century, some states required experience in the OR for nursing licensure.

The period 1900-1920 heralded major advances in the identification and control of bacteria, which spurred further changes in perioperative nursing. The first temperature-controlled sterilizers were developed, and surgical gowns, gloves, caps, and masks were commonly worn in ORs. By 1910, two distinct perioperative nursing roles had emerged. The sterile instrument or scrub nurse washed their hands aseptically, donned sterile gown and gloves, and organized and handed sterile supplies to the surgeon during surgery. The circulating nurse performed nursing duties outside the sterile field during surgery, including managing the OR and communicating with persons outside the OR. By 1920, the National League for Nursing had developed a standard curriculum of OR technique, which served as a model for preparing surgical nurses.

During World War II, advances in antibiotics, anesthetics, blood transfusions, and reconstructive procedures helped support and save thousands of soldiers. As healthcare workers struggled to care for mounting numbers of patients, both military and civilian hospitals faced nursing shortages. In response, corpsmen were trained in activities previously performed by OR nurses, thereby becoming the first OR technologists. Meanwhile, military nurses relinquished their roles as scrub nurses and took on new responsibilities, including preparing patients for surgery, delivering anesthesia, assisting the surgeon, managing supplies, and teaching essential care practices to corpsmen.

The expanded roles and responsibilities of perioperative nurses continued during peacetime. In 1954, nurses in New York founded the Association of Operating Room Nurses, which was later renamed, AORN, in reference to the acronym the Association of periOperative Registered Nurses to emphasize nurses’ care for patients before, during, and after surgery. Subsequent decades brought continued refinement of perioperative nursing. Clinicians and researchers developed new surgical techniques and technologies, which required nurses to master new and more specialized skills. AORN and other professional associations published evidence-based standards and recommendations to further guide nursing, advocate for patients, and address concerns regarding patient safety. Electronic health records gained widespread use, and the appropriate use and management of these data became another essential responsibility of RNs and other perioperative team members.

CULTURE OF SAFETY

In recent years, increased scrutiny of US standards for patient care has increased awareness of the need for healthcare facilities to prioritize patient safety. Promoting patient safety means implementing specific measures, such as surveillance for hand washing compliance or protocols to prevent wrong-site surgical errors. But it is just as important for healthcare organizations to establish and uphold a culture of safety, defined in healthcare literature as an environment that ends blame, involves senior leadership, solicits multidisciplinary input into the development of standards and practices, encourages reporting of mistakes, and focuses on learning from near misses and improving systems to reduce error.
Within a culture of safety, healthcare workers do not fear retaliation when reporting errors or discussing needs for systemic improvements to enhance safety; are encouraged to learn and be flexible to promote safety and reduce errors; help, support, and trust one another; communicate openly, honestly, and respectfully; and focus on the team and the workflow process.

Today’s perioperative RNs are well educated and perform highly specialized activities within complex healthcare environments. Although many of the responsibilities of perioperative nurses today differ greatly from those of their predecessors more than 150 years ago, the essential priority remains the promotion of positive outcomes for all patients undergoing operative or other invasive procedures. **The patient is the center of everything the perioperative team does.** This focus is exemplified by daily patient care activities and by perioperative nurses’ role in developing specific policies and procedures to support a perioperative environment of care within an overarching culture of safety.

**FIRST IMPRESSIONS**

Most patients feel at least somewhat anxious before undergoing operative or other invasive procedures, and their support persons may share these tensions and fears. Perioperative anxiety has pervasive negative effects, including greater postoperative pain, increased risk of postoperative infection, and prolonged healing times. Complex factors affect patients’ anxiety levels, including health conditions, perceptions of health status, coping strategies, perceived social support, and religious and spiritual beliefs. For surgical patients, fears about losing control, postoperative pain, or altered appearance can further exacerbate perioperative anxiety.

A patient’s first contact with perioperative professionals and first impressions when arriving at the surgery center or facility can affect their anxiety levels throughout the perioperative experience. Therefore, it is important to make a good impression and to reassure the patient and his or her support persons by promoting a sense of calm, friendly professionalism, and competency. Within the healthcare facility, patients and support persons are further reassured by a calming atmosphere that includes pleasant surroundings and modern, well-maintained tools and equipment.

It is essential to remember that patients and their support persons might conceal anxieties; hesitate to ask questions; misunderstand or exaggerate the risks associated with a surgical procedure; or forget information previously communicated by the surgeon or other members of the perioperative team. The quality of communication by healthcare providers affects the anxiety levels of both patients and support persons. Repeating key information, verbally reassuring the patient that he or she will be cared for, and answering questions in a calm, professional manner helps inform and reassure the patient and his or her support persons as the admissions process and initial preparations proceed.

**PREPARING FOR SUCCESSFUL OUTCOMES**

Successful surgery depends on the coordinated activity of a well-prepared surgical team whose members work together to meet the needs of the patient. Modern perioperative teams prepare for surgical procedures long before the patient arrives in the OR. When the surgery is scheduled, needs for equipment and personnel are recorded, personnel are assigned to the perioperative team, and equipment is ordered or reserved.

Many hospitals have **pre-admission** nurses who communicate with patients before surgery. Pre-admission nurses are key members of the perioperative team; in one study, patients’ perceptions of information and psychological support given during the pre-admission period affected their anxiety levels.
Pre-admission nurses are often the first point of contact between patients and the surgical department or ambulatory surgery facility, and can allay patients’ fears and concerns by using a friendly tone and exhibiting good listening and communication skills.

When the pre-admission nurse first calls the patient, the nurse explains the reason for the call and verifies the patient’s identity, the date and time of surgery, the surgical procedure, and the surgical site. This is the first of a series of repeated steps to prevent wrong-site and wrong-procedure errors. The nurse also confirms the name of the surgeon who will perform the procedure. The nurse reviews the patient’s medical history, including information about height and weight, allergies, previous surgeries, concurrent (comorbid) medical conditions, special needs or movement restrictions, and the names and doses of any medications or supplements the patient is taking.

During the call, the pre-admission nurse also explains how the patient should prepare for surgery, including when to stop eating and drinking before the procedure and what time to arrive at the facility or location of surgery. The nurse records information on who will accompany the patient, the responsible adult who will drive the patient home after discharge, and whether the patient has provided informed consent for surgery. Missing consent forms are an important cause of delays in patient care, extra work by nursing staff on the day of surgery, and patient anxiety. The nurse answers any other patient questions before ending the call.

Some facilities send patients pre-admission packets that ask patients to record answers to questions regarding their medical and surgical history. Patients are asked to bring the pre-admission packet on the day of surgery. The packet also contains instructions and information to help the patient and answers common questions. Studies indicate that a written pre-admission packet can potentially save time on the day of surgery, help patients provide a more complete history, and can improve patients’ understanding of postoperative instructions. In addition, some facilities use online computerized systems to collect confidential patient data, which are automatically placed in electronic health record.

Based on the patient’s history, the pre-admission nurse develops an individualized plan of care based on the procedure that will be performed and the patient’s medical history. This plan uses the Perioperative Nursing Data Set (PNDS), a standardized vocabulary that describes perioperative nursing and relates to the delivery of care in diverse perioperative settings. The PNDS is validated by clinicians and experts in vocabulary and informatics, and is intended for use in both written documentation and electronic health records.

The nurse communicates the individualized plan of care to the team in surgical admitting and the OR. At this stage, the entire team understands that key health data could be missing, incomplete, or inaccurate and that the plan of care may need to change based on new or different information. Every team member’s communication with the patient provides an opportunity to discover important information that must then be communicated immediately to all team members and incorporated into the patient’s plan of care.

CONFIDENTIALITY

It is essential that perioperative team members promptly communicate and discuss important and relevant health data from patient’s medical histories to promote patient safety. This practice is not to be confused with casually discussing confidential patient information in a public space, which constitutes a breach of confidentiality under the Health Insurance Portability and Accountability Act (HIPAA) of 1996. This act specifies that covered entities (including healthcare organizations) take reasonable safeguards to protect individual privacy, such as speaking quietly when discussing a patient’s condition with support persons in a waiting room or other public area; avoiding using patients’ names in public hallways and elevators; posting signs to remind employees to protect patient confidentiality; isolating or locking file cabinets or records rooms; and providing additional security, such as passwords, for electronic systems that store personal information.

RECEPTION AREA

When the patient checks in at the reception area on the day of surgery, a trained staff person confirms his or her name, date of birth, and any additional information to be verified at this stage in accordance with facility policy. The friendly, efficient, calm, and competent demeanor of this team member helps set the tone for the patient’s experience by instilling confidence and reducing anxiety. The quality of this
interaction is not only important from the patient’s perspective, but it can also reduce anxiety and may help patients provide more complete and accurate information.

After checking in, the patient and his or her support person should then be invited to sit in the waiting area until they are escorted to the preoperative area. This wait can exacerbate anxiety, particularly if unavoidable delays occur. It is helpful for staff to offer reassurance and information as needed and appropriate.

**PREOPERATIVE AREA**

A preoperative staff member takes the patient and support person to the **preoperative area**, where the **preoperative nurse** confirms and communicates important information while maintaining a warm, professional demeanor to reassure the patient and support person.

A major responsibility of the preoperative nurse is to verify information from the chart. This interaction is most efficient when the nurse has previously reviewed the patient’s health history.

Specific activities performed in the preoperative area include:

- verifying the correct patient, procedure, and surgical site;
- confirming important information from the patient’s history, including medications and supplements, medication allergies, previous surgeries, and co-morbid conditions;
- verifying that consent for the anesthesia is present;
- administering prophylactic antibiotics, if prescribed;
- ensuring that the surgical site is properly marked by the physician; and
- answering any questions from the patient and the support person.

The preoperative nurse can take several steps to promote patient privacy and enhance the likelihood of gathering complete, accurate information. These include:

- drawing the curtain or closing the door;
- reducing distractions such as televisions, cell phones, and radios;
- ensuring that only essential persons remain with the patient; and
- determining whether persons the patient wishes to remain are compromising the completeness or accuracy of the patient’s answers.37

Communication is a key aspect of nursing involvement in the preoperative area. Every team member who cares for the patient communicates information to other team members. Some information is verified several times, such as the patient’s name, allergies, the surgical procedure, and for certain procedures, the side of the body on which the surgery will be performed. If the patient expresses concern or irritation about being asked the same questions several times, team members should explain that this is a precautionary measure to prevent errors.

The preoperative area is where preoperative nurses should use specific communication techniques to facilitate interactions and improve the quality of information gathered. Examples of such techniques include:

- directly questioning the patient when brief yes/no answers are needed;
- remaining silent so the patient has time to gather his or her thoughts or process information;
- encouraging the patient to elaborate by using nonverbal communication techniques such as nods and facial expressions, or verbal responses such as “Really?” “Tell me more about that,” or “Uh-huh”;
- summarizing or repeating the patient’s responses, especially if clarification is needed;37 and
verbally acknowledging the patient’s feelings of anger, depression, fear, or sadness.

It is also appropriate at this time to describe what the patient will see and hear as he or she enters the OR and what to expect before the administration of anesthesia. This information can help reduce anxiety.

After gathering and verifying information, the preoperative nurse begins implementing the plan of care. The nurse and other members of the perioperative team use a safety checklist to ensure that the plan of care is appropriate and is implemented correctly before, during, and after surgery. The safety checklist helps ensure that essential activities are performed at the appropriate times before induction of anesthesia, before the initial skin incision is made, and before the patient leaves the operating room. One of the most commonly used preoperative checklists is the World Health Organization (WHO) Surgical Safety Checklist. Several other prominent checklists have been published, however. The SURPASS checklist includes patient care activities from admission to discharge. The AORN Comprehensive Surgical Checklist incorporates key aspects of the WHO Surgical Safety Checklist and The Joint Commission’s Universal Protocol, and is appropriate for hospital ORs, ambulatory surgery centers, and physician offices.

An IV may be started in the preoperative area, and hair around the surgical site may be removed with clippers to minimize the patient’s exposure to infectious microorganisms during the surgical procedure. However, shaving itself can potentially create microscopic cuts that could increase risk of infection. Therefore, clipper shaves should be performed only if hair could interfere with the procedure, and only immediately before the surgical procedure.

TRAFFIC PATTERNS

Movement of personnel, patients, and inanimate objects creates air currents that contain microbes and inert particles, such as lint, that can enter wounds or create airborne exposure to pathogens. Healthcare facilities therefore use traffic patterns to limit and prevent the airborne spread of microbes and contaminants. Traffic patterns divide the surgical practice area into three specific areas defined by the activities performed there. These areas are designated as unrestricted, semi-restricted, and restricted. Doors, signs, or barrier markers indicate divisions between the three areas.

Unrestricted areas include a central control point where personnel monitor the entrance of patients, personnel, and materials. The unrestricted area is used for communication of information between the surgical suite and the rest of the healthcare facility. Wearing street clothes is permitted in unrestricted areas, and traffic is not limited.

Semi-restricted areas include peripheral support areas of the surgical suite, such as work areas for processing and storing instruments; storage areas for clean and sterile supplies; scrub sink areas; and corridors to restricted areas of the surgical suite. Traffic in semi-restricted areas is limited to authorized personnel and patients. Surgical attire is required, and head and facial hair should be covered.

Restricted areas include areas where surgical procedures are performed and unwrapped sterile supplies are used. These areas include the OR, procedure rooms, and the clean core. Personnel should follow recommended practices for surgical
attire at all times when in restricted areas, and should wear masks in areas where there are scrubbed persons or open sterile supplies. Patients are not required to wear masks unless they are subject to airborne precautions (such as patients with active tuberculosis or other airborne respiratory diseases). Personal protective equipment such as face shields and goggles may also be worn.

Restricted areas merit additional precautions when noninvasive or invasive procedures are underway. During these times, personnel should minimize conversations and movement, both of which cause movement of airborne particles that could contaminate the sterile field. Doors to ORs or procedure rooms should be kept closed except during necessary movements of patients, personnel, equipment, and supplies. Keeping the OR doors closed reduces traffic through the room and maintains air pressure and the optimal number of air exchanges per hour. Also, to prevent contamination, clean and sterile equipment and supplies should be kept separate from contaminated supplies, equipment, and waste.

Transitions zones, such as locker rooms for donning surgical attire, allow for secure movement of personnel between semi-restricted or restricted areas. These areas also can be used as security points to monitor persons who are admitted to the surgical suite or procedure area.

THE SURGICAL TEAM: A COLLABORATION OF EXPERTS

Few teams or organizations do work that is as important, sophisticated, and respected as an OR surgical team. The perioperative team is absolutely interdependent, and the team’s diligence and precise and focused responsibilities are required during everything from minimally invasive procedures to hours-long open surgeries.

Every member of the perioperative team has a distinct and necessary role. Team members typically include:

- surgeons;
- anesthesia professionals;
- perioperative RNs (RN circulator, first assistant, scrub nurse);
- surgical technicians (eg, scrub person);
- allied healthcare providers (eg, endoscopy technicians); and
- support personnel (eg, patient transporters).

The next section of this learner guide reviews perioperative team member roles in more detail.

TEAM MEMBER ROLES

The surgeon.

The surgeon is a physician specifically trained and qualified to evaluate and treat patients with health conditions that require surgery. The surgeon’s responsibilities include assessing the patient on presentation, evaluating and diagnosing the patient’s presenting complaints, determining the type of surgery required to mitigate or alter the condition, and coordinating the patient’s surgical care with other team members to provide quality, cost-effective care.

In the preoperative area on the day of surgery, the surgeon visits the patient, answers questions, reassures the patient when needed, and speaks with the patient’s support persons. During this time, the surgeon may need to remind the patient of key aspects of the surgical plan and explain possible risks or alternatives. The surgeon also notes and conveys any new information to the team. In the OR, the surgeon makes the incision and performs the procedure. After the procedure, the surgeon talks with the support persons and with the patient (after the patient is fully awake). The surgeon follows the patient postoperatively until the recovery period is complete and the patient is discharged from care. The surgeon also may remain involved in the patient’s care during follow-up assessments to evaluate medium-term and long-term postoperative recovery.

Anesthesia Professional.

An anesthesia professional can be a physician or nurse specifically educated to administer anesthesia. The anesthesia professional administers anesthesia to eliminate or reduce pain during surgery and monitors the patient’s breathing, heart rate and rhythm, blood pressure, and other vital functions during the procedure.

The anesthesia professional visits the patient in the preoperative area before the procedure and introduces himself...
or herself, examines the patient, describes the type of anesthesia that will be used, obtains the patient’s written consent for anesthesia, and verifies the patient’s surgical, anesthetic, and medical history. This interaction provides yet another opportunity to obtain important patient health information. For instance, the anesthesia professional may learn that the patient recalls being aware during a previous anesthetic episode. Anesthesia awareness is the postoperative recollection of noises, conversation, pain, feelings (such as sensations during intubation), or other events that occurred when the patient was under anesthesia. When interviewing patients preoperatively, the anesthesia care provider or the RN circulator should assess the patient for previous incidents of anesthesia awareness. If these have occurred, all other surgical team members should be informed immediately of the potential risk for an episode of anesthesia awareness.

Anesthesia professionals also screen patients scheduled to undergo general anesthesia for malignant hyperthermia, a medical emergency that requires a rapid, synchronized, multidisciplinary team response. Patients with increased risk of malignant hyperthermia will need continued assurance that the team is aware of their risk and that an anesthesia treatment plan is in place.

After surgery, the anesthesia professionals help maintain patient comfort and safety during recovery and provide care in the intensive care unit (ICU) if needed.

**Perioperative RNs.**

Perioperative RNs are fundamental members of perioperative teams who work closely with other team members; assist with preparations; care for patients before, during, and after surgery; and supervise nursing tasks delegated to allied healthcare providers and support personnel. Specific types of perioperative RNs include RN circulators, RN First Assistants (RNFA), and scrub nurses.

During surgery, the registered nurse first assistant (RNFA) assists with the surgical procedure, practices at the direction of the surgeon, and does not concurrently perform the duties of a scrub nurse. The position of RNFA is an expanded role in perioperative nursing that requires extensive knowledge, strong clinical judgment, and strong skills in perioperative nursing. An RNFA is a registered nurse with additional training who displays cognitive, psychomotor, and affective behaviors that are appropriate to determine and meet the needs of perioperative patients. All 50 states regulate the scope of practice of RNFAAs. Perioperative RNFAAs must meet minimum qualifications including certification in perioperative nursing, successful completion of an RNFA program that meets AORN standards, and compliance with applicable statutes, regulations, and institutional policies. In addition, as of January 1, 2020, all practicing RNFAAs will be required to have a bachelor’s degree.

The circulating nurse is always an RN.

This RN circulator works outside the sterile field to organize the OR environment so that it supports safe and effective patient care. He or she sets priorities and manages and coordinates the nursing care required for each patient. The overarching responsibility of the RN circulator is to ensure that operative procedures go safely, smoothly, and according to plan. The RN circulator is the perioperative RN who is dedicated to a patient during that patient’s entire intraoperative
Specific responsibilities of RN circulators include:

- performing a preoperative assessment of the patient;
- preparing the physician’s preference card or pick list with the scrub person;
- helping the scrub person prepare the OR before surgery;
- ensuring that all necessary equipment is available and functioning before the patient is transported into the room;
- monitoring the integrity of the sterile field;
- watching for breaks in sterile technique;
- helping to ensure that accurate sponge and sharps counts are performed and recorded at appropriate times;
- remaining alert to the needs of the patient and serving as a primary advocate for the patient’s safety during surgery;
- communicating new or altered information about the patient to the team; and
- continually assessing the patient’s needs until the patient recovers from anesthesia.

The scrub person is an RN, licensed vocational nurse (LVN) or licensed practical nurse (LPN), surgical technologist (ST), certified surgical technologist (CST), or certified first assistant (CST/CFA). When the scrub person is not licensed to practice professional nursing, the RN circulator should remain actively involved to ensure appropriate delegation and supervision of scrub duties. The scrub person should have an excellent knowledge of anatomy and physiology, understand the sequence of the procedure, and be able to anticipate the surgeon’s and other team member’s requirements. Specific responsibilities of the scrub person include:

- working with the RN circulator to check supplies and equipment needed for the operative procedure;
- obtaining and opening needed supplies;
- preparing the sterile table with instruments, sutures, blades, electrosurgical equipment, and suction needed for the procedure;
- passing instruments to the surgeon and first assistant during the procedure;
- counting sponges, sharps, and instruments at appropriate times;
- preparing sterile dressings and other sterile supplies needed at the end of the procedure; and
- helping turn the OR over after the procedure to prepare for the next patient.

The postanesthesia care unit (PACU) nurse monitors patients as they recover after surgery. Many PACU nurses have a background in critical care nursing. Postanesthesia nursing is crucial because patients must be carefully assessed to determine if they are ready for discharge home after same-day (ambulatory) surgery or (for more involved cases) require discharge to an extended-care setting.

Advanced practice nurses. Teams at some surgical facilities include advanced practice perioperative nurses, such as nurse practitioners, clinical nurse specialists, or certified registered nurse anesthetists. Advanced practice nurses have additional education and licensure. They practice according to state board of nursing regulations, which vary from state to state. In the perioperative setting, advanced practice nurses typically:

- direct patient care;
- integrate nursing practice with medical diagnosis;
- teach patients and families self-care;
- perform assessments, and plan, implement, evaluate, and document care;
• advocate for patients and families with other members of the healthcare team; and
• and help implement improvements in healthcare delivery systems.

As the field of perioperative care continues to expand, so do opportunities for advanced practice nurses.

**Surgical residents.** The surgical resident is a physician enrolled in a five-year surgical residency program. Surgical residents work under the direction of the surgeon as an assistant.

**Allied healthcare providers and support personnel.** In addition to surgeons, anesthesia professionals, and perioperative RNs, perioperative teams typically include allied healthcare providers and support personnel.

**Allied healthcare providers** help with delegated patient care activities as determined by the perioperative RN and in accordance with individual state boards of nursing, scope of practice regulations, and other local, state, and federal laws. Allied healthcare providers are accountable to and work under the supervision of perioperative RNs. The RN’s decision regarding to whom, how, and when to delegate patient care tasks depends on the patient’s needs and the allied healthcare provider’s level of education, training, and demonstrated competency in the required skill set.

Examples of allied healthcare providers include:• anesthesia technicians and technologists;
• biomedical technicians;
• endoscopy technicians;
• materials management personnel;
• medical assistants;
• operating room assistants (a certified nursing assistant, or CNA);
• nursing assistive personnel;
• sterile processing technicians; and
• surgical technologists.

**Support personnel** also work under the supervision of perioperative RNs and should have the appropriate education and documented competency necessary to carry out their defined responsibilities. Examples of support personnel include

• administrative and clerical staff;
• building/facilities engineering personnel;
• environmental services personnel;
• patient transporters; and
• surgery schedulers.

One staff person may perform more than one role, particularly in ambulatory surgical centers.

**STERILE TECHNIQUE: KEY CONCEPTS**

The skin is the body’s major defense against infection. Therefore, patients are at risk of infection as soon as a skin incision is made. Worldwide, surgical site infections (SSIs) are among the most common complications in patients who undergo operative and other invasive procedures. These infections are associated with severe postoperative outcomes, including death, and create billions of dollars of cost annually in excess healthcare costs.

Surgical site infections are particularly concerning because of the increasing prevalence of **multi-drug resistant pathogens** (MDROs) in both healthcare and community settings. Infections of MDROs can be very difficult to treat and are associated with poor postoperative outcomes. Furthermore, the Centers for Disease Control and Prevention (CDC) estimates that up to half of SSIs in the United States are preventable.

**Sterile technique** means practicing specific procedures before and during operative and other invasive procedures to help prevent SSIs and other infections acquired in hospitals, ambulatory surgery centers, physicians’ offices, and all other areas where patients undergo invasive procedures. Practicing correct sterile technique helps reduce microbial contamination of the surgical site and decreases the number of microorganisms in the surgical suite.

Creating, maintaining, and correctly monitoring a **sterile field** can improve patient outcomes. The sterile field includes the area surrounding the site of the incision or perforation into tissue, or the site at which an instrument is introduced into a body orifice that has been prepared for an invasive procedure. The sterile field also includes all work areas,
furniture, and equipment covered with sterile drapes and drape accessories and all personnel who are wearing sterile attire.

Skin is not only a barrier to infection, but also a major source of microbial contamination. Hand washing is a key practice to prevent transmission of healthcare- and community-acquired infections. Personnel should wash their hands with an approved cleansing product before and after contact with patients or contaminated objects. Hand washing in the OR is taken a step further.

All perioperative personnel who will come in contact with the sterile field perform a surgical scrub of their hands and forearms to minimize microbial contamination of the operative site and sterile field. All team members who require a surgical hand scrub need to wear appropriate surgical attire and remove watches and jewelry from the hands and arms. Masks and protective eyewear should be in place before starting the scrub, and fingernail polish should be removed. Any team members with cuts or abrasions on their hands or arms should refrain from scrubbing until these areas heal. The scrub should be performed with a US Food and Drug Administration (FDA)-approved, long-acting, antimicrobial soap. The CDC recommends that surgical scrubs last two to six minutes.62

The surgical hand scrub reduces but does not eliminate microbial load from the hands and forearms. Therefore, after the surgical scrub is performed, scrubbed persons must don sterile gowns and gloves. The scrub nurse first dons his or her own sterile attire, and then helps other scrubbed team members gown and glove. After donning a sterile gown and gloves, scrubbed personnel continually keep their hands above their elbows when not resting on the sterile field, and never allow their hands to drop below the level of the sterile field. Scrubbed persons also should inspect their gloves for integrity after donning them. Intact gloves minimize the passage of microorganisms from hands to the sterile field, and protect the wearer from exposure to infectious substances, such as blood or body fluids.

Scrubbed team members should wear two surgical gloves on each hand whenever there is a risk of exposure to blood, body fluids, or other possibly infectious materials during a surgical invasive procedure.47 This practice is called double-gloving.

Sterile technique should be practiced in hospital ORs, ambulatory surgery centers, physician’s offices, cardiac catheterization suites, endoscopy suites, interventional radiology departments, and all other areas where operative and other invasive procedures may be performed whenever perioperative team members establish or are maintaining a sterile field. Perioperative RNs and other team members can promote the safety of patients and colleagues by practicing correct sterile technique and promptly speaking out if a practice appears unsafe.

PREPARING THE BACK TABLE

Before the patient is transported to the OR, the RN circulator and scrub person work together to prepare the OR for the surgical procedure. They check the assembled supplies and instruments against a list of everything needed for the procedure. This list called a physician’s preference card or pick list. They also set up the back table by opening a sterile pack on it and delivering sterile supplies and instruments to the back table or other areas (eg, ring stands or Mayo stands)
that are covered by sterile drapes. It is important to note that only the surface of the draped back table is considered sterile. Everything below table level is considered contaminated. Any sterile item that touches a non-sterile object or falls below table level is considered contaminated and should be discarded and replaced.

The sterile field should be prepared where it will be used. Moving the sterile field after it is established creates air currents that can lead to microbial and particle contamination. For the same reason, movement of personnel around the sterile field should be minimized. In addition, the sterile field should be prepared as near as possible to the start time of the surgery or other invasive procedure. This practice helps decrease settling of dust, microbes, and other airborne particles on the field. The sterile field should be continually monitored to prevent accidental contamination.

**SURGICAL DRAPES**

Surgical drapes are used in the OR to create barriers that minimize movement of microorganisms between sterile and non-sterile areas. Sterile drapes are positioned to cover the patient and inanimate objects that are part of the sterile field. Sterile drapes are also used to prevent contact between sterile personnel and equipment and nonsterile areas. Sterile drapes should be handled as little as possible, because movement creates air currents that can transport dust, lint, and other particles. In addition, sterile draping material should be held in a compact manner above the OR bed, and placed from the surgical site to the periphery of the sterile field. Modified draping techniques are used for certain types of procedures, such as extremity surgeries. Gloved hands should be protected during draping by cuffing the drape material over the hands. This practice helps reduce the likelihood of contaminating sterile gloves during draping.

**MEETING THE PATIENT IN THE PREOPERATIVE AREA**

As the procedure time approaches, the RN circulator leaves further preparation in the OR to the scrub person and returns to the preoperative area to talk with the patient, if she or he has not already done so. The RN circulator reassures the patient and reviews key aspects of the patient’s medical record, including:

- history and physical examination findings;
- allergies;
- current medications and supplements;
- anesthesia notes;
- nursing notes;
- preparations for surgery; and
- Informed consent.

By reviewing this data from the chart, the RN circulator learns more about the patient’s medical conditions and specific concerns. The RN circulator shares specific information with other members of the team and continues the patient’s plan of care. Throughout this process, the RN circulator sets priorities and makes decisions that help ensure the safety and best care of the patient. As previously described, other perioperative team members also meet with the patient, including the anesthesia professional and surgeon. In addition, OR assistants or transport personnel may be asked to come to the preoperative area to help transport the patient to the OR.

**THE PATIENT ARRIVES IN THE OR**

The RN circulator remains with the patient to offer reassurance while the patient is transported to the OR. It is important to keep in mind that from the patient’s perspective, traveling from the preoperative area to the OR can feel disorienting or even frightening. Patients may experience the OR as a cold room with bright lights, startling sounds, and a flurry of activity as the perioperative team moves around and above the patient.
In addition to the RN circulator, other personnel need to be on hand to assist patients who require help in the OR. It is recommended that at least four people be available to transport the patient if the patient cannot move on his or her own or is anesthetized. Because the OR bed is narrow, a safety strap is recommended whenever a patient is on the OR bed, even if the patient is conscious. Conscious adults or those receiving only local anesthetics or light sedation can become anxious, restless, and disoriented. Therefore, a safety strap and arm bands should be used whenever possible.63

Patients need to be positioned appropriately before surgery to optimally expose the surgical site, provide adequate access to the airway for the anesthesia professional, help ensure the patient’s physiologic safety, and maintain the patient’s dignity by controlling unnecessary exposure.63 As the patient’s advocate, the RN circulator actively participates in positioning the patient and communicating the patient’s needs to the team during positioning.

The OR environment should be maintained at 68 to 73 degrees Fahrenheit (20 degrees to 23 degrees Celsius), which can feel cold to the patient.64 Stress also can cause patients to feel cold. Regulation of patient temperature during surgery is key to preventing postoperative complications. Appropriate use of warming blankets and other practices to regulate body temperature are recommended.

PROTECTING THE PATIENT: SAFETY FIRST

After anesthesia induction and intubation, the team positions the patient so that the incision site is easily accessible. The RN circulator pads any areas that need extra protection from compression or other injury, and prepares the surface of the skin in the area of the patient’s body where the incision will be made. The incision site may or may not be clipped, depending on the surgeon’s directions. The RN circulator uses sterile sponges and an antimicrobial solution to remove as many microorganisms from the incision site as possible. This is called the skin prep.

Every member of the sterile surgical team, including the scrub person, surgeon, and surgical assistant, correctly performs a surgical hand scrub to remove as many microorganisms as possible from the hands and arms. Next, the RN circulator and the scrub person help the surgeon and the surgeon’s assistant don sterile gowns and gloves. The surgeon’s assistant may be a physician or another professional specially trained to work with a surgeon, such as a registered nurse first assistant, physician’s assistant, certified first assistant, or surgical resident.

After donning gowns and gloves, the surgeon takes sterile towels from the scrub nurse, places them around the incision site, and covers the patient with sterile drapes to complete the sterile field. This is a careful, deliberate process that provides the patient with a crucial safeguard against infection.

TIME OUT!

Before starting an invasive procedure or making the incision, the entire perioperative team (surgeons, perioperative RNs, surgical technicians, and anesthesia professionals) stops what they are doing and performs a time out. During the time out, the team confirms, at minimum, the

- identity of the patient (including name, age, and sex);
- procedure being performed;
- side of the body involved;
- correct patient position; and
- availability of implants or special equipment.

As a component of the pre-surgical checklist, the time out is essential to prevent wrong-site, wrong-patient, and wrong-procedure errors, as well as unnecessary and hazardous complications such as the need to move an incorrectly positioned patient.66 It is imperative that a time out be performed before every surgical procedure and that the time out involves all perioperative team members. The Joint Commission’s Universal Protocol emphasizes the time out,
the preoperative verification process, and marking of the operative site as key practices to prevent these errors.\textsuperscript{67}

Unfortunately, major surgical errors persist in the 21st century. At least 928 wrong-site, wrong-patient, or wrong-procedure errors were reported to The Joint Commission during 2004-2012.\textsuperscript{68} In a recent study, medical students watched 98 operative procedures at a major university medical center.\textsuperscript{69} The students ostensibly observed the anesthesia professional, but actually monitored compliance with the medical center’s pre-surgical checklist. The results showed that a time out was not performed in more than 10\% of cases; that at least one perioperative team member did not pay attention during 18\% of time outs; and that the pre-surgical checklist was not completely filled out for 18\% of cases. Findings were shared with hospital personnel and one year later, compliance with all aspects of the medical center’s universal protocols had improved. The researchers emphasized the seriousness of potential medical errors resulting from lack of compliance with time outs and other components of the pre-surgical checklist. These findings also demonstrate the importance of a perioperative safety culture in which monitoring and open discussions of errors are encouraged.

**THE PROCEDURE**

The operative procedure begins when the surgeon makes the incision. As the procedure continues, the RN circulator coordinates the nursing care required for the patient. He or she anticipates the needs of the surgical team and organizes the OR environment, including traffic and management of surgical supplies, to ensure that the procedure occurs safely and efficiently. The RN circulator pays close attention to any interruptions in, or contamination of, the sterile field, and continually evaluates the patient’s safety. Using peripheral vision and a broad perspective, the RN circulator helps manage patient care while also assessing the needs of perioperative team member.\textsuperscript{70} Throughout the procedure, the RN circulator also uses the operative record to record every intervention and resulting outcome.

Monitoring the movements of personnel in and out of the OR is essential to maintain the sterile environment and protect the patient from exposure to infectious pathogens. The RN circulator provides this monitoring and helps the scrub nurse count surgical instruments, sponges, and sharps in the sterile field. The scrub person, meanwhile, carefully observes the procedure and anticipates the surgeon’s needs for additional instruments, supplies, and equipment. The support of the scrub person enables the surgeon to remain focused on the patient and the procedure. To perform these duties effectively, the scrub person needs a detailed understanding of anatomy and physiology as well as the specific steps of the operative procedure.

During some operative procedures, other healthcare providers participate in patient care. Technicians from radiology operate equipment when intraoperative x-rays, fluoroscopy, or computed tomography are indicated. The perioperative team needs to seamlessly accommodate these personnel and all team members must collaborate effectively throughout the procedure. Teamwork requires understanding one another’s capabilities and responsibilities; communication skills; respecting one another; and being willing to work together for the safety and benefit of the patient.

Patients with health conditions such as diabetes, cardiovascular diseases, or pulmonary disorders need enhanced precautions and increased monitoring during operative and other invasive procedures. In one recent study, researchers determined that only 33\% of patients with type 2 diabetes had intraoperative glucose monitoring during elective surgeries, despite prolonged anesthetic periods and perioperative deterioration of glycemic control.\textsuperscript{71} Perioperative RNs, advanced practice nurses, and other team members can promote patient safety during surgery by communicating concerns about monitoring and care of patients.

**KEEPING SUPPORT PERSONS INFORMED**
During long procedures, the RN circulator may contact support persons with updates to help reduce their concerns. This is typically a brief communication that does not go into specifics. The nurse may communicate a time frame for completion of surgery and reiterate that the surgeon will speak with the support persons after the procedure is over. Because the RN circulator often serves as the sole source of information for support persons during the procedure, his or her affect should be warm, reassuring, and responsive.

**THE POSTOPERATIVE PERIOD**

At the end of the operative procedure, the **RN circulator and anesthesia professional** accompany the patient to the PACU and report to the **PACU nurse**. Whenever a patient is transferred from one level of care to another, the perioperative RN should communicate all relevant information to the next caregiver. Such hand-offs should be accurate, clear, precise, and comprehensive; should prioritize patient safety by emphasizing key health information; should use key phrases to help standardize communications; and should include the opportunity to ask questions. The Joint Commission has estimated that 80% of serious medical errors are associated with miscommunication during patient hand-offs.

By definition, the postoperative period begins with admission to the PACU and ends with discharge or transfer to a patient care unit. It is important for the patient to receive a complete assessment during the first few minutes of PACU care. The assessment should include

- vital signs;
- respiratory adequacy;
- postoperative cardiac status;
- peripheral circulation (postoperative tissue perfusion);
- neurologic status;
- level of consciousness;
- allergies and sensitivities;
- skin integrity;
- pain management;
- temperature regulation;
- surgical wound integrity and condition of the surgical wound site; and
- overall condition.

Assessments in the PACU occur at regular intervals as the patient’s recovery is monitored. While the patient is recovering in the PACU, the surgeon informs the family about the procedure and explains what to expect during the postoperative recovery.

The postoperative period begins by providing the patient with a transition from the anesthetized state, and care proceeds until the patient meets discharge criteria. There are three phases of postanesthesia recovery.

**Phase I** is the immediate postanesthesia period. During this phase, patients emerge from anesthesia and regain physiological homeostasis. The goal of phase I is to provide appropriate postanesthesia nursing care and to transition the patient to phase II, the inpatient setting, or to an intensive care unit (ICU) setting for ongoing care.

In **Phase II**, the patient is more alert and functional and no longer requires intensive nursing care. During Phase II, the focus is preparing the patient for self-care, care by support persons, or care in an extended-care environment.

In **Phase III**, ongoing care is provided to patients who require extended observation or intervention after transfer. These patients may need alternative care, such as home healthcare or a stay in an overnight, short-stay hospital unit or recovery center.

Advances in rapid-onset, fast-emergence general anesthetics such as propofol mean that patients in the OR can be completely awake and oriented with stable vital signs shortly after an operative procedure. When appropriate and indicated, these patients may be fast tracked, or transferred directly from the OR to PACU Phase II, bypassing Phase I of the postoperative process. Fast tracking requires the increased use of prophylactic drugs for preemptive anti-emesis and pain control. When these medications are administered appropriately, patients spend less time under anesthesia and have fewer complications, with less postoperative pain, nausea, and vomiting. Fast tracking does not appear to significantly affect nursing workload or associated costs, but has been shown to significantly decrease recovery time after ambulatory surgery without compromising patient satisfaction.
Varied forms of fast tracking are used for some types of major surgery, such as liver transplantation.\textsuperscript{81} In such cases, fast tracking may refer to the decision to discharge suitable patients directly from the PACU to the surgical ward, bypassing the ICU. In a single-center study of 870 patients undergoing liver transplantation, 60\% were fast-tracked in this manner.\textsuperscript{82} The decision to fast track was based on an anesthesiologist’s determination that mechanical ventilation could be stopped shortly after discontinuation of anesthesia.

Postoperative care continues after the patient goes home. In many healthcare organizations, nurses follow up with patients who have undergone surgery to reinforce healthcare education messages, answer questions and otherwise help guide recovery.\textsuperscript{83} In a convenience sample of 77 patients undergoing same-day knee arthroscopy, continuous contact between nurses and patients during the recovery period helped patients discuss and process the surgical experience.\textsuperscript{83} The study found that patients gained the most information and reassurance from follow-up calls made 12 to 24 hours after surgery.

\textbf{SUMMARY}

From first contact with the hospital or ambulatory surgery center to discharge from the PACU, surgical patients are cared for by a skilled, dedicated team committed to a perioperative environment of care within an overarching culture of safety. Operative and other invasive procedures are increasingly complex, specialized, coordinated efforts that involve multidisciplinary teams of surgeons, perioperative RNs and advanced practice nurses, anesthesia professionals, technologists, and other healthcare workers. To help ensure patients’ immediate safety and comfort and optimize postoperative outcomes, every team member must do his or her job and communicate professionally. By keeping the patient as the essential focus, the perioperative team can focus on essential activities such as creating and maintaining sterile technique, promptly communicating safety concerns, coordinating their expertise, and tailoring care for the needs of individual patients. These vital practices help achieve the primary goal of every invasive procedure – a successful perioperative experience that leads to satisfied patients and support persons.
ADDITIONAL RESOURCES

AORN Correct Site Surgery Toolkit: http://www.aorn.org/PracticeResources/Tool Kits/CorrectSiteSurgeryToolKit
Additional AORN Time Out Resources: http://www.aorn.org/timeout/
AORN Comprehensive Surgical Checklist:
REFERENCES


1. A nurse who helped found the field of perioperative nursing during the Crimean War was
   a. Clara Barton
   b. Florence Nightingale
   c. Lillian Wald
   d. Mary Breckinridge
   e. Mary Ezra Mahoney

2. In 1920, an organization that developed a standard curriculum of OR techniques was
   a. AMA
   b. AORN
   c. Bellevue Hospital
   d. The National League of Nursing
   e. The Nightingale Society

3. In an environment of care, perioperative RNs should
   a. Always follow the instructions of surgeons
   b. Maintain the patient as the focus of all team activities
   c. Minimize communication in order to work efficiently
   d. Never deviate from protocol, even if an error may result
   e. Strive for a culture of efficiency rather than safety

4. Perioperative RNs primarily use checklists to ensure that
   a. Lawsuits from the patient and their family are avoided
   b. New nurses perform their work as expected
   c. Surgical supplies are not wasted before or after surgery
   d. Staff begin shifts on schedule and relieve one another as needed
   e. The plan of care is implemented correctly before, during, and after surgery

5. The pre-incision TIME OUT should be performed by which member(s) of the perioperative team?
   a. All perioperative team members
   b. All perioperative team members except anesthesia professionals
   c. Perioperative RNs
   d. Scrub nurses only
   e. Surgeons only

6. This perioperative RN prepares the OR, helps with anesthesia induction if requested, and works outside the sterile field to ensure the perioperative team has everything it needs.
   a. PACU nurse
   b. Pre-admission nurse
   c. RN circulator
   d. Registered nurse first assistant (RNFA)
   e. Scrub person

7. Which of the following best describes the semi-restricted surgical practice area?
   a. Has work areas for processing and storing instruments
   b. Includes the OR
   c. Permits wearing of street clothes
   d. Requires that all patients wear masks
   e. Used for communication of information between the surgical suite and the rest of the health care facility

8. When updating the patient’s support person during surgery, a nurse should
   a. Call the surgeon away from the operation, but only if the support person demands it.
   b. Discuss a projected time frame for completion of the surgery
   c. Discuss the patient’s expected prognosis
   d. Provide details of the surgery and describe any problems
   e. Tell the patient that she is not allowed to talk to the support person
9. Advanced practice nurses in the perioperative setting may do all of the following except which one?
   a. Direct patient care
   b. Help implement improvements in healthcare systems
   c. Perform surgery in an emergency without a surgeon being present
   d. Serve as first assistant during surgery
   e. Teach self-care to patients and their support team

10. Wrong-site surgical errors
   a. Almost never happen
   b. Are the sole responsibility of the surgeon to prevent
   c. Are usually due to incorrect information provided by the patient
   d. Can result from failure to perform the TIME OUT before surgery
   e. Should be concealed from the patient as much as possible

11. Approximately what percentage of serious medical errors are thought to be associated with miscommunication during patient hand-offs?
   a. < 1%
   b. 10%
   c. 50%
   d. 80%
   e. 100%

12. Which of these activities is NOT performed in the preoperative area?
   a. Information is confirmed from the patient’s history
   b. The circulating RN and scrub nurse count instruments, sponges, needles, and other sharps
   c. The patient’s name, date of birth, procedure, and procedure site are confirmed
   d. The anesthesia plan is confirmed, and consent for anesthesia is obtained
   e. The surgical site is confirmed and marked

13. The postoperative period is defined as which of the following?
   a. Admission to the PACU to transfer to a patient care unit
   b. Admission to the PACU to patient’s death
   c. Closure of the incision to admission to the PACU
   d. Discharge from hospital to patient’s return home
   e. Leaving the OR to admission to the PACU

14. Fast tracking patients from the OR to the PACU Phase II due to rapid-onset, fast-emergence general anesthetics may require the increased use of which drugs?
   a. Amphetamines
   b. Anticoagulants
   c. Anti-emetic and pain control drugs
   d. Antihypertensives
   e. Sedatives

15. The body’s most important barrier to infection is
   a. Saliva
   b. Skin
   c. Keratin
   d. Tears
   e. Vitamin C

16. Which activity is NOT recommended to reduce the risk of surgical infections?
   a. Administer prophylactic antibiotics as directed
   b. Keep the OR doors closed during the operative procedure
   c. Minimize movement and talking during the operative procedure
   d. Perform a TIME OUT before beginning the procedure
   e. Perform a thorough skin prep and hand scrub

17. The primary responsibility of scrub nurses is to
   a. Help anesthesia professionals anesthetize patients
   b. Perform the skin prep
   c. Perform a thorough hand scrub before surgery
   d. Providing needed instruments to the surgeon and first assistant during the surgical procedure.
   e. Scrub dirty/used surgery instruments before they are sterilized.
18. Which of the following is a role of a registered nurse first assistant (RNFA)?
   a. Assist with the surgical procedure
   b. Clean up the OR after surgery
   c. Concurrently perform the duties of a scrub nurse
   d. Perform the skin prep
   e. Practice at the direction of a RN Circulator

19. Which of the following phases of anesthesia recovery is best described by the following description? The patient is more alert and functional and no longer requires intensive nursing care. The focus is on preparing the patient for self-care, care by support persons, or care in an extended-care environment.
   a. Phase I
   b. Phase II
   c. Phase III
   d. Phase IV
   e. Not possible to state based on this information

20. An instrument falls below the level of the back table during an operative procedure. Only the circulating RN sees this happen. The nurse should
   a. Try to catch the instrument before it touches the floor
   b. Discard and replace the instrument with a sterile one
   c. Pick up the instrument and return it to the table
   d. Follow the 5-second rule (OK if not on floor for more than 5 seconds)
   e. Inspect for visible particulate matter and use if clean
POST-TEST ANSWERS

PERIOPERATIVE ENVIRONMENT OF CARE

1. b
2. d
3. b
4. e
5. a
6. c
7. e
8. b
9. c
10. d
11. d
12. b
13. a
14. c
15. b
16. d
17. e
18. a
19. b
20. b