## Content You Should Know

### Objectives
- Differentiate between the three main types of anesthesia delivery used in surgery
- Describe four patient factors that influence the choice of anesthetic
- Explain the rationale for three of the goals for general anesthesia
- Discuss the responsibilities of the perioperative nurse who will be caring for the patient receiving general anesthesia during the intraoperative period
- Describe the beginning and end points of the three phases of general anesthesia
- Identify the signs and symptoms that characterize a malignant hyperthermia crisis
- Differentiate between the three types of regional anesthesia that can be administered

### 3

"Anesthesia" was coined by Oliver Wendell Holmes when the effects of ether were discovered. In the 1840s, surgeons and dentists began using ether and nitrous oxide with success, and the practice of anesthesia was born.

### 4

Anesthesia care may be provided by:
- anesthesiologists,
- certified registered nurse anesthetics (CRNAs),
- anesthesiologist's assistants, and
- perioperative nurses.

### P. 5 and pop up

Recommendations about the choice of anesthesia are made after a thorough physical evaluation, during which the patient is assigned a **physical status classification** which helps to estimate their **perioperative risk**. Risk includes length of surgery, past experiences with anesthesia and the specific surgical procedure.

### 5

The factors to take into consideration before determining what anesthetic to use for a particular patient are:
- Patient/surgeon preference
- Surgical procedure
- Physiological status
- Age
- Postoperative recovery time
- Length of surgery
- Position of patient
- Patient’s previous experiences with anesthesia
### Types of Anesthesia include:
- **General** - a reversible state of unconsciousness, consisting of amnesia, analgesia, and muscle relaxation.
- **Regional** - a reversible loss of sensation, which is achieved by injecting a local anesthetic to block the nerve fibers from transmitting impulses.
- **Local** - functions like regional anesthesia but usually applies to a smaller area or a single body part such as a finger or a toe.
- **Monitored anesthesia care (MAC)** - consists of intravenous medications and concurrent local infiltration of tissue at the surgical site.

During monitored anesthesia care (MAC) it is the responsibility of the perioperative nurse during this intraoperative period to monitor the patient for the following risks:
- Extravasation of intravenous medication
- A reduction of arterial oxygen saturation
- Breathing difficulty

The mechanism of anesthesia is partially explained by three theories: the Protein Receptor Theory, the Meyer-Overton Theory and the Endogenous Endorphins Theory.

The action of anesthesia is divided into **FOUR STAGES**.
- **Stage I: Initial Administration** – The first stage is the actual administering of the anesthetic drugs. There are only a few seconds in between the initial administering of the drug and unconsciousness.
- **Stage II: Excitement** – In Stage II the patient is now unconscious. Also known as "excitement", is the time from loss of consciousness to the loss of eyelid reflex. Involuntary movements may occur at this time.
- **Stage III: Intrasurgery** – This is the time of surgical anesthesia. The patient has rapid eye movement and breathing may be labored until the muscles completely relax. It is time to start the surgery.
- **Stage IV: Possibility of respiratory failure** - During this last stage of anesthesia, the patient might need help. If too much anesthesia has been given, this stage is characterized by respiratory failure, leading to circulatory failure. Without breathing apparatus and heart support, the patient can die.

More specifically, it can also be divided into **THREE PHASES**:
- **Induction** - This phase begins with the administration of anesthesia and lasts until the surgical incision is made.
- **Maintenance** - This phase begins with the surgical incision and lasts until near completion of the procedure (Stage 3).
- **Emergence** - This phase starts as the patient begins to awaken and ends upon exiting the operating room.

General anesthesia can be administered via IV or inhalation, or both.
Muscle relaxants are used to facilitate intubation and allow exposure of the surgical site.

For total intravenous (IV) anesthesia during general anesthesia:
- Carried out by the action of short-acting drugs that are continuously infused throughout the surgery
- Is carried out using drugs such as thiopental and propofol

Not all patients who have general anesthesia need to be intubated. Depending upon the length of the surgical procedure, the anesthesia care provider may opt to use mask ventilation or a laryngeal mask airway (LMA), which provides many advantages including comfort for the patient and faster recovery.

Caring for the patient undergoing general anesthesia requires that the perioperative nurse be sensitive to and aware of the loss of control the patient is experiencing.

Interoperative responsibilities of the perioperative nurse caring for a patient undergoing a procedure with general anesthesia may include:
- Starting IVs
- Setting up monitoring equipment such as arterial lines
- Double-checking blood
- Obtaining warming blankets and emergency equipment as necessary
- Applying cricoid pressure

High-risk patients who cannot tolerate general anesthesia can undergo surgery by regional or local anesthesia.

Regional anesthesia is administered by injecting a local anesthetic anywhere along a nerve pathway.

Depending upon placement of the block, regional anesthesia may be classified as spinal, epidural, or intravenous regional (Bier Block) anesthesia.

Intravenous regional anesthesia or a Bier Block is used most often for upper extremity nerve blockade.

An epidural anesthetic is injected into the space between the ligamentum flavum and the dura – NOT the spinal canal.

Perioperative nurses must be alert to the potential for hypotension (due to vasodilation) after the spinal anesthesia is given.

For regional anesthesia - continuous nerve stimulation helps ensure proper needle placement during peripheral nerve blocks.

Local anesthetics, alone or in combination with intravenous analgesics (fentanyl) and amnesiacs (versed), are also used. This method can be used for healthy patients, as well as high-risk patients, who may not be able to tolerate other types of anesthesia.
Complications of anesthesia are avoided by thorough preoperative evaluation; however, unforeseen complications can occur, no matter how thorough the preoperative interview and assessment are. One of these complications is malignant hyperthermia, which is an inherited disorder.

One of the most consistent physiological indications of malignant hyperthermia is an increase in the end-tidal CO2.

Recognition of MH is crucial to its treatment. Once detected, **surgery should be immediately stopped**. If this is not possible, **all triggering agents should be stopped and replaced with safe agents**. MH should then be treated according to written protocol.

For Malignant Hyperthermia - In addition to giving Dantrolene, provide 100% oxygen and use iced saline to cool the patient.

### PRACTICE QUESTIONS:

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<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
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<tbody>
<tr>
<td>Name 5 factors to take into consideration before determining what anesthetic to use for a particular patient.</td>
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<tr>
<td>During monitored anesthesia care, the patient is monitored to avoid what 3 risks?</td>
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<tr>
<td>During a peripheral nerve block, why must there be continuous nerve stimulation in the area to be anesthetized?</td>
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<tr>
<td>List 5 intraoperative responsibilities of the perioperative nurse caring for a patient undergoing a procedure with general anesthesia.</td>
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<tr>
<td>Name 3 factors to take into consideration before determining what anesthetic to use for a particular patient.</td>
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<tr>
<td>What is the most consistent physiological indications of malignant hyperthermia?</td>
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</table>
After spinal anesthesia is administered to a patient, the perioperative nurse should watch for hypotension or hypertension?

Intravenous regional anesthesia or a Bier Block is used most often for an upper or lower extremity?

What are the 3 phases of anesthesia?

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| OBJECTIVES | • List activities that exemplify critical thinking  
• Describe the relationships between critical thinking, clinical reasoning and clinical judgment  
• Define the role that critical thinking, clinical reasoning and clinical judgment play in positive patient outcomes  
• List two nursing tools that reflect critical thinking skills and require clinical reasoning  
• Discuss the inter-relationships of the basic components of clinical reasoning  
• Identify two differences between the roles of preceptor and mentor  
• Explain how critical thinking, clinical reasoning, and clinical judgment develops as the perioperative nurse progresses through the novice to expert continuum |
| P.3 and P.29 | Examples of commonly accepted nursing tools:  
• the nursing process  
• Perioperative Nursing Data Set, (PNDS), and  
• the World Health Organization (WHO)/Joint Commission/AORN surgical safety checklists are used to illustrate the terms. |
| P.4 | The following statements reflect the concept of critical thinking:  
• Informed practice  
• Holistic thinking  
• Unbiased thinking  
• Reasoned application of a step by step process |
The clinical setting reflects a culture that is affected by:

- **Beliefs** - The clinical culture is affected by beliefs about:
  - the patient;
  - the perioperative setting;
- **Attitudes** - The clinical setting reflects a culture that is affected by attitudes illustrating the desire to:
  - provide effective care;
  - engage in critical thinking;
- **Values** - The clinical setting reflects a culture that is affected by the values of:
  - fairness;
  - equitable care;
- **Skills** - The clinical setting highlights the effect of acquired skills on nurses’ ability to demonstrate critical thinking and clinical reasoning. These skills include:
  - problem-solving
  - situational awareness

**Mentor** – one who provides encouragement and acts as a guide and facilitator while modeling professional nursing behaviors.

**Preceptor** – one who teaches, counsels, inspires, serves as a role model, and supports the growth and development of the novice for a fixed and limited period.

Both mentors and preceptors model professional nursing behaviors. Examples of differences include:
- Mentors guide nurses through a wide range of professional activities
- Preceptors guide nurses through defined clinical activities

The competent nurse is now learning to apply and integrate theory and experience to patient situations. Examples of critical thinking and clinical reasoning for the competent nurse includes questions like:
- How does the conduction system work?
- What is:
  - Normal sinus rhythm (NSR)
  - Atrial fibrillation (AF)
  - Ventricular fibrillation (VF)
- What are the differences between:
  - cardioversion
  - defibrillation and pacing?

Questions the novice nurse might ask regarding an upcoming cardiovascular surgical procedure.

- What’s the anatomy and physiology of the heart?
- What are we trying to do that will involve this patient’s heart?
- Is there a ‘map’ or a list of what I need to get/have/do in relation to this procedure?
- Who can I talk to for more information on this cardiovascular procedure?
- How long will the surgery take?
- Do I have access to a defibrillator?
  - Is it turned on?
  - Is it set to the correct setting?

**PRACTICE QUESTIONS:**

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<tr>
<td><strong>The outcome related to positioning injury prevention is:</strong> the patient is free from signs and symptoms of injury related to positioning.</td>
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<td>List the patient-specific indicators are applicable to this outcome and explain why.</td>
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<td><strong>Scenario:</strong> A nurse brings a patient into the OR; helps the patient transfer onto the OR bed; applies the safety strap over the patient’s thighs above his or her knees; positions the patient’s arms on the arm boards; and introduces the anesthesia provider and turns to check the back table.</td>
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<td><strong>Was the nurse employing critical thinking and clinical reasoning?</strong> Please explain.</td>
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| **OBJECTIVES** | • List three potential complications of laparoscopic abdominal surgery  
• Explain how each of the components of a medical video system are essential in endoscopic surgery  
• Describe the safety precautions that should be implemented when utilizing a CO2 insufflator  
• List three nursing considerations that are important for the patient undergoing endoscopic surgery  
• Differentiate between the nursing care for the patient undergoing an endoscopic and an open surgical procedure  
• Discuss the importance of maintaining endoscopic instrumentation at an optimum level of function |
| P.9 | Major components of medical video imaging include:  
• Fiber optic light cable  
• Camera Control Unit (CCU) |
| P.17 | **Endoscopic Light Source**  
• Do not turn on the light source until the light cable is connected to the telescope.  
• When not in use, the light source should be placed in “standby” mode.  
• Always set your parameters according to the manufacturer’s instructions. |
| P.25 | In order for the surgeon to see the abdominal contents and have room to perform the tasks necessary to do a laparoscopic operation, the abdominal cavity is insufflated with CO2 to establish a pneumoperitoneum. Precautions include:  
• Always have a back-up tank of CO2 available  
• The insufflator should be positioned on the cart at the level of the patient’s heart or higher to prevent intra-abdominal fluids or gases from contaminating the device.  
• Most insufflators have alarms and displays to show actual CO2 pressure and CO2 supply levels. Make sure the alarm is on, is audible, and working correctly.  
• Maintaining intra-abdominal pressure under 12 mm/Hg in adult patients reduces the risk of systemic hemodynamic changes. |
<p>| P.30 | One of the advantages of endoscopic surgery as opposed to open surgery is that surgical procedures performed via laparoscopic surgery can be performed through smaller incisions. |</p>
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<th>Notes</th>
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<tr>
<td>P.35-36</td>
<td>The scrub person should devote more time to inspecting laparoscopic instruments than inspecting instruments used in open procedures, because the problems they present may not be apparent upon casual observation. Special attention should be focused on the condition of the insulation. Electrical current will escape through any break in the insulation, and thermal burns can result from these breaks.</td>
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</table>
| P.39 | **Cleaning Endoscopic Instruments**  
- Clean off external debris during the case with a moistened sponge  
- Flush the channels with sterile water to remove gross soil during surgery. Sterile water is recommended because saline water can cause erosion of metal surfaces.  
- Test scissors for sharpness prior to sterilization |
| P.40 | In addition to all the usual assessments and preparations, the circulating nurse should focus on some special considerations for the patient undergoing endoscopic or MIS.  
1. **Previous incisions** that may alter the trocar insertion technique (e.g., with the Hasson minilaparotomy technique, additional sterile supplies may be needed).  
2. **History of deep vein thrombosis** (DVT) or venous stasis  
3. **Consent to include the possibility of an open procedure**: This decision is made at the discretion of the surgeon, based on how the surgery is proceeding.  
4. **Voiding prior to surgery**: Having the patient void prior to surgery empties the bladder and helps avoid puncturing it during trocar placement. This also decreases the need for unnecessary catheterization during surgery. |
| P.41 | Fluid management in MIS is critical both for irrigation and distention fluids. The risks involved are hypothermia and fluid overload. Achieving correct fluid management for the patient include:  
- Monitoring overload of IV and irrigation fluids to avoid hyponatremia and hypervolemia.  
- Monitoring the amount of irrigation fluids dispensed and returned during the surgical procedure. |
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<th>PRACTICE QUESTION</th>
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<tr>
<td>Discuss some of the methods used to maintain a sterile camera head.</td>
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<tr>
<td>Per AORN's <em>Guideline for Minimally Invasive Surgery</em>, what are the key points regarding fluid management?</td>
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## Objectives
- Identify four common pathogens responsible for health care acquired infections that are found in the OR environment
- Differentiate between the activities included in preliminary room preparation, end of procedure cleaning, and terminal cleaning
- Identify the preventative measures that should be employed to prevent vermin infestations
- Describe the three microorganisms that a facility approved EPA registered disinfectant must be effective against
- Review three strategies that the perioperative nurse can employ to improve waste management practices
- Explain the scope of the cleaning procedures that are required at the end of each invasive procedure
- List precautionary measures that are used in the surgical setting to limit the transmission of microorganisms
- Recognize at least 4 cleaning activities that are specific to daily terminal cleaning of the surgical suite
- Discuss the infection prevention processes that should be utilized during OR construction

### Standard Methods and Procedures to confine and contain contamination and physically remove microorganisms:
- Discard sponges into a plastic-lined receptacle, for example, a kick bucket. When counting sponges, place them in an impervious receptacle such as a sponge counter or clear plastic bag.
- Bag all soiled linen and used disposable items in the proper bags prior to removing them from the room at the end of the procedure.
- Clean up spills immediately with an effective disinfectant.
- Before leaving the OR, remove soiled shoe covers to prevent “tracking” of blood and body fluids.
- Soiled sponges, other bloodied waste, and items contaminated with body fluids should be discarded into appropriate impervious biohazard waste receptacles that are impermeable to moisture, resistant to puncture, rupture, or tears under normal conditions and sealed for transport to prevent leakage.
- The unused sponges, nonwoven drapes, and other non-blood disposable waste are placed into the regular trash receptacle as they are considered non-infectious.
- All disposable sharps such as blades, needles, stapling devices, pins, and cautery tips should be discarded in a sharps disposal container and never into any other trash receptacle.

### HAI – Health Care Associated Infections
- MRSA - Methicillin-resistant Staphylococcus aureus

### Guidelines to help prevent contamination in the OR:
1. Hand hygiene is the single most important factor in minimizing microorganism transfer. Hands should be washed with soap and water for at least 15 seconds. Hand washing for 15 seconds has been shown to reduce soil, spores, and microorganism counts on the hands.
2. A facility approved waterless, alcohol-based product can be used for minimizing microorganism transfer.
3. **All horizontal surfaces should be damp dusted** before the first scheduled procedure of the day.

P.5 A clean surgical environment is fundamental to reducing the incidence of health care-associated infections. All horizontal surfaces should be damp dusted before the first scheduled procedure of the day. Operating rooms should be cleaned after each surgical or invasive procedure with a lint-free or microfiber cloth moistened with detergent/disinfectant and water. Maintaining a clean environment will reduce the number of microorganisms. Hand hygiene is the single most important factor in minimizing microorganism transfer. Hands should be washed with soap and water for at least 15 seconds. Hand washing for 15 seconds has been shown to reduce soil, spores, and microorganism counts on the hands.

P.7 **Standard Precautions** - The primary strategy for successful infection control and reduction of worker exposure. Precautions used for care of all patients regardless of their diagnosis or presumed infectious status.

P.8 AORN’S Guideline for Environmental Cleaning – Recommendation II directly pertains to interim cleaning by stating: “A safe, clean environment should be reestablished after each surgical procedure.”

P.10 **Endogenous** sources for pathogens that may cause a surgical site infection (SSI) include surgical personnel; the operating room environment (including the air); and all tools, instruments, and supplies brought to the sterile field during the procedure. **Exogenous** sources of pathogens are mainly aerobes (live in the air).

P.12 **Damp Dusting** - All horizontal surfaces in the OR, for example, furniture, surgical lights, tables, equipment, should be damp dusted with a clean, lint-free cloth moistened with a hospital approved disinfectant. Begin with the higher surfaces and work down to the lower levels. Proper cleaning of these surfaces helps reduce viable microbial contamination from air and other sources.

P.13 - **Wet vacuuming** is the most effective method for floor care in the surgical suite. - Wet vacuuming begins with flooding the floor -- half the room at a time with a detergent-disinfectant solution. This solution may be dispensed from a pump sprayer or automatic spraying device attached to a central vacuuming system or with a watering can. The water is left to sit for at least five (5) minutes and then vacuumed.

P.20 Environmental surface germicides used for low-to intermediate-level disinfection are regulated by the Environmental Protection Agency (EPA) and are labeled with EPA registration numbers. Any germicide that is labeled as a hospital disinfectant has passed the potency test for activity against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Salmonella choleraesuis*.

P.25 The floors of the operating room should be cleaned and disinfected after each surgical or invasive procedure if soiled or potentially soiled. This frequently means cleaning a perimeter area around the OR table and extending as necessary. **Note:** Prior to 2014, the Recommended Practices said to mop the floor in a perimeter of 3-4 feet around the OR table. Based on the new Guidelines, this is no longer true.
Today the recommendation is to extend the perimeter of the area being mopped to include all areas that are visibly soiled and move the OR bed to check for any items or soiled areas that might be under it.

| P.32 | **Terminal cleaning** of the environment is the more thorough cleaning that takes place at the end of the day’s schedule. |
| P.37 | Health care personnel handling contaminated items **must wear appropriate PPE** to reduce the risk of exposure to bloodborne or other potentially infectious microorganisms and hazardous materials. All body fluids (e.g., semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, pericardial fluid, peritoneal fluid, amniotic fluid, saliva,) except sweat are potentially infectious. |
| P.45 | Complete **air sampling** before construction begins, after demolition occurs, and at the end of the project. When the construction, renovation, remediation, repair, or demolition is completed, always perform terminal cleaning and disinfection before placing equipment and supplies in the area. |
| P.46 | **The Occupational Health and Safety Act of 1970** (Public Law 91) mandates employers to provide programs for the education and training of employees in the recognition, avoidance, and prevention of unsafe or unhealthful working conditions. |

**PRACTICE QUESTIONS:**

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<tr>
<td>Why are microfiber mops a great option for mopping floors in the OR?</td>
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<tr>
<td>Why should you NOT use vinyl exam gloves in environmental cleaning and disinfection?</td>
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<td>What is the purpose of end of procedure or interim cleaning?</td>
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<td>Question</td>
<td>Answer</td>
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<tr>
<td>What AORN Guideline most directly pertains to interim cleaning?</td>
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<td>When damp dusting the OR, why should the cloth be damp?</td>
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<td>What liquid should you use to dampen the cloth and why?</td>
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<td>Is it necessary to mop the entire OR floor between procedures? Why or</td>
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<td>why not?</td>
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### Objectives
- Describe each of the three methods of achieving hemostasis
- Discuss two devices that are used to effect the thermal method of hemostasis
- Discriminate between the various chemicals used to achieve hemostasis
- Explain how various types of sponges are commonly used in surgery
- Describe the roles and responsibilities of each member of the surgical team in sponge counts
- Identify the appropriate times for conducting sponge counts
- Explain the role of a standardized procedure in the count process
- Recognize the primary purposes for using a drain in a surgical procedure
- Describe the indications for two different types of drains
- Identify three types of dressings that may be applied to the incision site

#### P.5
**Mechanical hemostasis** is achieved by occluding severed vessels until platelet formation occurs. During the surgical procedure, the surgeon may use various mechanical methods to achieve hemostasis:
- manual pressure using various types of sponges
- using hemostatic clamps;
- suturing;
- and using staples,
- clips,
- ligatures,
- and/or pledgets

A **ligature**, commonly known as a tie, is a strand of material that is tied around a blood vessel to occlude the lumen and prevent bleeding. Large, pulsating vessels may require a transfixion suture, which is a crisscross stitch placed to control bleeding from a tissue surface or small vessel when it is tied.

A **plegdet** is a non-absorbable suture support that is used when there is possibility of sutures tearing through tissue. They can be used on a variety of surgical procedures but are most commonly used for vascular closure, septal repair, myocardial closure, heart valve suturing, and hepatic repair.

**Bone wax** is composed of a mixture of beeswax, isopropyl palmitate, and a softening agent. Provides a mechanical tamponade effect to stop oozing from cut bone surfaces. Bone wax is used in some orthopedic and neurosurgical procedures and on the sternum during heart procedures.

#### P.4
**Achieving Hemostasis**

**Chemical Method** - Chemical methods involves the use of:
1. **Pharmacological methods** (medications, for example Epinephrine, Vitamin K, Protamine, Desmopressin, Lysine Analogues (aminocaproic acid; tranexamic acid)

2. **Topical hemostatic products** for example active agents (thrombins), passive agents (collagen-based gelatins, spheres, flowable agents, and sealants.

**Thermal Method** - Thermal/Energy based methods of hemostasis can include high-frequency electric current provided from an electrosurgical unit to coagulate bleeding points; bipolar vessel sealing devices; laser energy sources; ultrasonic energy; and radio frequency energy generated by Argon gas.

**Mechanical Method** – Involves applying physical pressure on the wound to stop the blood flow. Mechanical methods can include direct pressure using fabric pads/gauze sponges/sponges sutures, staples, or ligating clips.

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<th><strong>P.7</strong></th>
<th><strong>Thermal Method of Hemostatis</strong></th>
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<tr>
<td><strong>Laser</strong></td>
<td>An intense and concentrated beam of light that coagulates and cuts at the same time while minimizing tissue destruction.</td>
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<tr>
<td><strong>Argon Beam</strong></td>
<td>A device that uses ionized gas and electrical current to coagulate vessels.</td>
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<td><strong>Electrosurgery</strong></td>
<td>The electrosurgical unit (ESU) is used to apply electrical current through the patient's tissue to cut and/or coagulate the tissue.</td>
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<tr>
<th><strong>P.8</strong></th>
<th><strong>Chemical Methods of Hemostatis</strong> - Chemical methods to achieve hemostasis during surgical procedures includes pharmacological agents and topical hemostatic agents.</th>
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<tbody>
<tr>
<td><strong>Microfibrillar Collagen</strong></td>
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<td><strong>Oxidized Cellulose</strong></td>
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<tr>
<td><strong>Collagen Sponge</strong></td>
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<tr>
<td><strong>Gelatin Sponge</strong></td>
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<tr>
<td><strong>Fibrin Sealant</strong></td>
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<td><strong>Phenol Solution</strong></td>
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<td><strong>Thrombin</strong></td>
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<td><strong>Styptics</strong></td>
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<th><strong>P.12</strong></th>
<th><strong>Types of Surgical Sponges</strong> –</th>
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<tr>
<td><strong>Laparotomy Sponges</strong></td>
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<td><strong>Tonsil Sponges</strong></td>
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<tr>
<td><strong>Neuro-patties or Cottonoids</strong></td>
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<td><strong>Dissector Sponges</strong></td>
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<td><strong>Radiopaque 4X4 Sponge</strong></td>
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<th><strong>P.15</strong></th>
<th><strong>Counting Sponges</strong></th>
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Note: While these are not the exact questions on the test, the questions are related to the concepts that are covered in the module.
• Counts are performed before, during and after surgical procedures.
• Sponges are to be separated as they are counted
• Two people, one of whom is the RN circulator, should count the sponges simultaneously and audibly as each sponge is separated.

P.19 **Participation in Sponge Counts**

• All perioperative personnel involved in a surgical case are responsible for the accuracy of the sponge count.
• Each has a duty to remain aware of the location of the sponges on the sterile field and in the wound.
• Two people, one of whom is the registered nurse circulator, must perform the sponge count.
• The RN circulator should facilitate the count process by initiating the count, performing count procedures in coordination with the perioperative team, documenting count reconciliation activities, and reporting any count discrepancy.
• The scrub person should maintain awareness of the location of all soft goods (eg, radiopaque sponges, towels, textiles).
• The scrub person and the circulating nurse should count sponges simultaneously and audibly as each sponge is separated from others in the pack before the beginning of the operation, before any closure begins, and when skin closure is begun.
• All sponges must remain in the same OR room until the count is complete.
• Sponges should be counted on all procedures where they are used.
• Use standard precautions and PPE to prevent exposure to blood and body fluids when handling sponges.
• Do not use radiopaque sponges for postoperative wound dressings.
• Sponges with radiopaque markers must be used during any invasive procedure.

P.23 **Types of Drains and Their Uses**
The drainage of body fluids and purulent material can be achieved by either passive (gravity) or active means (suction). They are also used to drain pus, purulent, or necrotic material from a wound.
The type, location, and patency of all drains should be covered in the hand over report to PACU or the nursing unit.

• Penrose – Abdominal Surgery, peritoneal cavity or skin wound
• Nasogastric - Decompression of the stomach (Levin tube). Indications for a Miller-Abbott is to treat obstructive lesions of the small intestine. Nasogastric suction (Salem sump tube).
• T-Tube - Inserted into the biliary tract to allow for drainage of bile. Generally left in place for 10 days or more in order to develop a tract through which bile can drain after the tube is removed.
• Suction Drains - Abdominal or breast surgery (Jackson-Pratt). Orthopedic surgery (Hemovac). Jackson-Pratt and Hemovac are two specific types of suction drains and both removed blood or other fluids that might build up at the surgical site.
• Chest Tubes – Thoracic surgery and cardiac surgery
**PRACTICE QUESTIONS:**

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gather the following types of drains on a table. Have everyone take turns naming</td>
<td></td>
</tr>
<tr>
<td>the drain, what it is used for, and if applicable, name a specific type of drain</td>
<td></td>
</tr>
<tr>
<td>(ie, Jackson-Pratt, Penrose etc).</td>
<td></td>
</tr>
<tr>
<td>• Penrose drain</td>
<td></td>
</tr>
<tr>
<td>• Nasogastric tube</td>
<td></td>
</tr>
<tr>
<td>• T-Tube</td>
<td></td>
</tr>
<tr>
<td>• Suction Drain</td>
<td></td>
</tr>
<tr>
<td>• Chest Tube</td>
<td></td>
</tr>
</tbody>
</table>

| Obtain a stack of surgical sponges. Practice counting sponges as they are         |             |
| separated.                                                                       |             |
| • When do you count sponges?                                                     |             |
| • Do you count silently or out loud?                                             |             |
| • How many OR staff count sponges?                                               |             |
| • Does one of the staff need to be the RN circulator?                            |             |

**Hemostasis:** *Under each method to achieve hemostasis, describe the specific method used to control bleeding:*

1. Mechanical Method:
   a. Pressure-
   b. Hemostats-
   c. Ligating Clips-
   d. Ligature-
   e. Pledget-

2. Thermal Method:
   a. Argon Beam Coagulator-
   b. Electrosurgery-
   c. Laser-

3. Chemical Method:
   a. Microfibrillar Collagen
   b. Oxidized Cellulose
<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
</tr>
</thead>
</table>
| Objectives | • Identify the role of the perioperative nurse in preparing medications for the field  
| | • Identify the role of the perioperative nurse in administering medications  
| | • Select an example of a medication in each of the four groups of intraoperative medications  
| | • State the required documentation elements when providing medications to the scrub person during a procedure  
| | • Identify two nursing interventions related to medication administration  |
| P.3 | The Perioperative RNs role in both preparing and administering medications include:  
| | 1. **Verifying:** The perioperative nurse is frequently the primary person responsible for verifying the correct medication or solution, as well as the proper route and dose of the medication or solution.  
| | 2. **Preparing:**  
| | • Verbal orders for medication administration should be minimized.  
| | • Label all medications, medication containers, and other solutions.  
| | • The perioperative nurse should write down and read back any verbal orders, per facility policy.  
| | • Avoid using abbreviations that could cause medication errors. The Joint Commission (JC) has formulated a list of "Do Not Use" abbreviations that have been known to cause errors. Your facility may also have its own list. Please check with your policy.  
| | 3. **Obtaining Patient History:** The perioperative nurse must now obtain the patient’s relevant history.  
| | • Current medications and dosages  
| | • Medication allergies and idiosyncratic responses  |
- Potential interaction with other medications
- Herbal or dietary supplements
- Patient's weight, age, and existing disease or condition

<table>
<thead>
<tr>
<th>P.4</th>
<th>The 6 Phases of the Medication Use Process:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Procuring</td>
<td></td>
</tr>
<tr>
<td>2. Prescribing</td>
<td></td>
</tr>
<tr>
<td>3. Transcribing/Documenting</td>
<td></td>
</tr>
<tr>
<td>4. Dispensing</td>
<td></td>
</tr>
<tr>
<td>5. Administering</td>
<td></td>
</tr>
<tr>
<td>6. Monitoring</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>P.5</th>
<th>Factors affecting the medication use process in the perioperative environment include, but are not limited to:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- the aseptic transfer of medications onto the sterile field,</td>
<td></td>
</tr>
<tr>
<td>- the presence of an intermediary (eg, scrub person) who is in sterile attire to receive and transfer dispensed medications to the licensed independent practitioner who is in sterile attire (eg, surgeon),</td>
<td></td>
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<tr>
<td>- time-sensitive conditions, and</td>
<td></td>
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<tr>
<td>- sensory distractions intrinsic to the environment.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>P.9</th>
<th>Risk for errors at the Procurement phase of the medication use process can be reduced by making proactive decisions about:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- unit-of-use versus multi-dose containers – NO multi-use containers!</td>
<td></td>
</tr>
<tr>
<td>- shelf life</td>
<td></td>
</tr>
<tr>
<td>- general supply chain which includes medication availability, delivery, and protection during transit</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P.12</th>
<th>Prescribing and Dispensing Phase: Prescribing personnel should provide clear, unambiguous, and accurate medication orders. Pharmacists should be actively involved in dispensing phase of the medication use process across all perioperative settings. Some examples include:</th>
</tr>
</thead>
<tbody>
<tr>
<td>- When available, prescribers should use CPOE systems (Computerized-provider order entry). Those systems with rule-based decision support aids have reduced the opportunity for errors.</td>
<td></td>
</tr>
<tr>
<td>- Advantages of a CPOE include:</td>
<td></td>
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<tr>
<td>- Allowing electronic recording of medication administration</td>
<td></td>
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<tr>
<td>- Decreasing the risk for misinterpretation of medication orders due to illegible handwriting or misunderstood verbal orders</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>P.21</th>
<th>The 7 Rights of Medication Administration:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Right Patient</td>
<td></td>
</tr>
<tr>
<td>2. Right Medication</td>
<td></td>
</tr>
<tr>
<td>3. Right Dose</td>
<td></td>
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<td></td>
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<td>---</td>
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</tr>
<tr>
<td><strong>4. Right Time</strong></td>
<td><strong>5. Right Route</strong></td>
</tr>
<tr>
<td><strong>6. Right Indication</strong></td>
<td><strong>7. Right Documentation</strong></td>
</tr>
</tbody>
</table>

**P.23** Medications that are removed from the original package and not labeled cannot be verified before administration, increasing the risk for administering the wrong medication. Medications that are removed from the original package and found in a secondary container without a label should be discarded!

**P.24** Labeling Medications:
All medications and solutions on and off the sterile field must be labeled with:
- Medication name
- Concentration and amount of the medication or solution if not apparent from the container
- Initials of the RN preparing the medication
- Expiration date when not used within 24 hrs
- Expiration time if less than 24 hrs (applies to only a few drugs)
- Date prepared

**P.26** The following guidelines should be noted while transferring solutions:
- **Use of sterile technique**: the medication or solution must be transferred to the sterile field using sterile technique.
- **Do not remove stoppers from the vials** for the purpose of pouring medications.
- Use commercially available sterile transfer devices whenever possible.

**P.28** Drug Diversion - To prevent incidences of drug diversion by OR personnel, only authorized personnel should have access to medications, including controlled substances, and medication supplies. Policies and procedures should be developed by your facility.

**P.34** Adverse reactions to hemostatic agents: Avoid use of microfibrillar collagen with autologous blood salvage units.

**P.46** Hypervolemia - An excessive volume of fluid in the vascular space. An abnormally increased volume of blood.
Hyponatremia - is reduced blood sodium concentration. An abnormally low concentration of sodium ions in circulating blood; serum sodium less than 135 mEq/L.

**P.57** Symptoms of **systemic toxicity** include, but are not limited to:
- Metallic taste
- Tinnitus
- Lightheadedness
- Visual disturbances
- Numbness of tongue and lips
- Confusion
- Tremors
- Shivering
- Generalized seizures
- Tachycardia/hypertension (initially)
- Bradycardia/hypotension (with increased toxicity)
- Ventricular arrhythmias; cardiac arrest
- Respiratory arrest

AORN’s definition of moderate sedation is “A minimally depressed level of consciousness that allows a surgical patient to retain the ability to independently and continuously maintain a patent airway and respond appropriately to verbal commands and physical stimulation.”

Examples of moderate sedation agents are:
- Opioids (morphine sulfate, meperidine hydrochloride, fentanyl)
- Benzodiazepines (diazepam, midazolam)
- Propofol

**PRACTICE QUESTION:**

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>The 6 Phases of the Medication Use Process are as follows:</td>
<td></td>
</tr>
</tbody>
</table>
List/describe at least one medication error that could happen in each phase and how it could be avoided.

<table>
<thead>
<tr>
<th>Content You Should Know</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
</tr>
<tr>
<td>- State the expected outcomes of patient and family education in the perioperative setting</td>
</tr>
<tr>
<td>- Identify the ethical mandates related to patient and family education in the perioperative setting</td>
</tr>
<tr>
<td>- Identify barriers to patient and family education in the perioperative setting</td>
</tr>
<tr>
<td>- Discuss the role of the perioperative nurse in patient and family education</td>
</tr>
<tr>
<td>- Identify challenges that perioperative nurses face when providing patient education</td>
</tr>
<tr>
<td><strong>P.3</strong></td>
</tr>
<tr>
<td><strong>The goals of patient and family education</strong> is to provide information to the patient and family in order to increase knowledge and satisfaction. This acquired knowledge may be necessary in order to make behavior changes.</td>
</tr>
</tbody>
</table>

The ultimate goal of patient education is to achieve long-lasting changes in patient health status by providing patients with the knowledge that will allow them to make autonomous decisions and to take ownership of their care as much as possible which will ultimately improve their outcomes.

**P.4** Importance of Patient and Family Education:
- First, improvement in quality of care.
- Second, patient education improves patient satisfaction.
- Third, patient education results in increased adherence.
- Fourth, patient and family education is also important because of the ethical, legal, and regulatory mandates for patient education.

### P.15
It is the ethical duty of the physician or health care provider to involve the patients in their care. In the perioperative arena, this involvement means the patient:
1. **has received information from the surgeon regarding** the nature of the impending procedure,
2. **the risks and benefits of the procedure,**
3. **if there are any alternative treatments or interventions to the procedure,** and
4. **the patient has signed the consent form.**

### P.17
**Self-determination** is the premise for respect. Truth telling and informed choice underlie this premise. Patients have the right to make informed choices based on truthful information. An example of self-determination is: Automatic suspension of DNR orders during the perioperative experience undermines the patient’s right to self-determination. Required reconsideration of DNR decisions with patients is an integral component of the care of patients undergoing surgery.

### P.19
Barriers to effective patient and family education in perioperative settings include
- anxiety about an uncertain outcome
- discomfort or pain
- fear of the unknown
- limited time for assessment and teaching

### P.20
The perioperative nurse's role in patient and family education includes:
- Explaining to the patient what the patient will experience
- Providing emotional support to enhance coping
- Teaching specific skills that the patient will need to perform postoperatively

### PRACTICE QUESTIONS:

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
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</thead>
<tbody>
<tr>
<td>Surgical patient assessment should be based on critical activities that the patient will be expected to accomplish before, during, and immediately after surgery. <em>List and explain those critical activities.</em></td>
<td></td>
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</tbody>
</table>
Each time you or another member of the perioperative team asks the same patient the same question, the patient may begin to wonder if you know what you are doing. For example, patients may be asked multiple times to confirm their name, date of birth and the surgical procedure that is planned.

What would you say to your patient to reassure them there are reasons for asking the same questions multiple times?

PCC_ Perianesthesia Nursing– Final Exam Study Guide

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
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</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>• Identify the scope of practice of a perianesthesia nurse</td>
</tr>
<tr>
<td></td>
<td>• Describe the role of the perianesthesia nurse in phase one of postanesthesia care</td>
</tr>
<tr>
<td></td>
<td>• Explain the nurse to patient ratios in each of the three phases of perianesthesia care</td>
</tr>
<tr>
<td></td>
<td>• Differentiate between phase one and phase two postanesthesia care nursing activities</td>
</tr>
<tr>
<td><strong>P.3</strong></td>
<td>Perianesthesia nursing encompasses the care of the patient before, during and after anesthesia administration. The departments where perianesthesia nurses practice include:</td>
</tr>
<tr>
<td></td>
<td>• Preadmission Testing Unit (PAT)</td>
</tr>
<tr>
<td></td>
<td>• Preoperative Care Unit</td>
</tr>
<tr>
<td></td>
<td>• Preoperative Holding</td>
</tr>
<tr>
<td></td>
<td>• Postanesthesia Care Unit (PACU)</td>
</tr>
<tr>
<td></td>
<td>• Extended Care Unit</td>
</tr>
<tr>
<td><strong>P.7</strong></td>
<td><strong>Preoperative Interview</strong> – Can be done over the phone or at the hospital/ASC. Must be done sufficiently in advance of the surgical procedure so any tests can be performed.</td>
</tr>
</tbody>
</table>
Scope of the interview includes:
- Past surgeries
- Current medications including OTC and herbal medications
- Confirming surgical details conveyed by the surgeon
- Ask patient if they have any questions about the surgery itself

**P.12 Phase 1 Postanesthesia Care**
What should the perioperative nurse know about a patient that is admitted to Phase 1 Postanesthesia Care?
- Airway – this is always the FIRST thing the perioperative nurse should do
- Monitor for BP, O2 saturation and heart rate
- Level of consciousness
- Pain and PONV

**P.12 The Aldrete scale** determines the patient’s readiness for discharge including:
- Patient’s mobility
- Respiratory status
- Circulation
- Level of consciousness
- Pulse oximetry

**P.21 Standardized documentation formats** provide adequate and purposeful information to ensure safe patient care transitions. Standardized transfers and hand-off protocols have the potential to reduce communication breakdowns.

**SBAR:** situation, background, assessment, recommendation

**PRACTICE QUESTIONS:**

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>What are the main differences between a perioperative nurse and a perianesthesia nurse as far as education and duties?</td>
<td></td>
</tr>
</tbody>
</table>
The PACU is divided into two levels, Phase I and Phase II with different levels of care. Explain the levels of care in Phase 1 and Phase II.

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
</tr>
</thead>
</table>
| Objectives | • Select one aspect of perioperative nursing care and give the rationale for documentation of this care  
• Cite documentation requirements for two pieces of patient care equipment frequently used during the intraoperative period  
• Discuss documentation requirements for medications administered during the intraoperative period  
• Describe the CDC classification system for surgical wounds  
• Explain the role of the perioperative nurse in obtaining informed consent |
| P.11 | **Properly executed informed consent for surgery**  
• Name of the health care facility providing the surgery or invasive procedure  
• **Specific name of the intervention**  
• **Indications for the proposed intervention**  
• Name of the responsible health care provider performing the intervention  
• Statement identifying the risks and benefits associated with the proposed intervention and indication that a discussion took place with the patient or patient representative  
• **Signature of the patient or the patient’s representative**  
• Date and time the patient or patient’s representative signed the informed consent document  
• **Date and time and signature of the individual that witnessed the signing of the informed consent document**  
• Signature of the responsible health care provider who discussed the informed consent document with the patient or the patient’s legal representative. |
| P.18 | **Preoperative Documentation**  
• Orders for antibiotic prophylaxis and administration of other ordered preoperative medications  
• Preoperative visits by the surgeon and anesthesia care provider |
• Preoperative skin preparation and hair removal if appropriate
• Skin assessment prior to and post hair removal or skin prep if applicable Performance of the Universal Protocol for Preventing
• Wrong Site, Wrong Procedure, Wrong Person Surgery™

P.20 Documenting Patient History
Name 5 things the perioperative nurse should note when taking a patient’s history:
• Check for allergies or sensitivities (including latex), and the presence of any implants, prostheses, or piercing’s.
• Discuss discharge plans.
• Complete a medication profile, including the use of herbals.
• Note patient's nutritional status.
• Discuss any cultural considerations with the patient.

P.24 Nursing Care Plan
1. Patient Assessment – Identifies Physical, Psychosocial, Cultural and Spiritual Needs
2. Nursing Diagnosis – Risk for infection and impaired skin integrity
3. Outcome Identification – The patient is free from signs and symptoms of infection and pain, redness, swelling, drainage or delayed healing at time of discharge
4. Planning – Ensures maintenance of appropriate traffic patterns and that doors to the OR remain closed
5. Implementation – Implements aseptic technique, protects from cross-contamination and performs skin preparations
6. Evaluation – Evaluates the factors associated with increased risk for postoperative infection

P.29 Documentation of the Intraoperative Patient Position
• Document patient position and all positioning devices such as bolsters, pillows, braces or sand bags
• Identify the persons who assisted in the positioning
• Document position and use of any specific positioning devices like immobilizing devices, including safety belt
• Document placement of arms

P.36 Documenting Medications
Perioperative documentation includes all medications and solutions on and off the sterile field.
• the drug name
• the drug concentration
• route of administration
• dose administered
• time the dose was given
**PRACTICE QUESTIONS:**

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>Do Not Use</th>
<th>Use Instead</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Joint Commission Do Not Use list of abbreviations is in the chart on their website. <a href="http://www.jointcommission.org/facts_about_do_not_use_list/">http://www.jointcommission.org/facts_about_do_not_use_list/</a></td>
<td>U, u</td>
<td></td>
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</tbody>
</table>

In the column to the right fill in the "Use Instead" column. Discuss the potential problems for each of the Do Not Use abbreviations.

List the 6 things a perioperative nurse should document when performing skin antisepsis on a surgical patient.
## PCC_Periop Safety: Equipment Focus – Final Exam Study Guide

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
</tr>
</thead>
</table>
| **Objectives** | • Discuss the perioperative team member responsible for managing each component of the fire triangle  
• Relate three basic principles of electrical safety particularly related to the perioperative setting  
• Provide the rationale for visually checking the integrity and insulation of all cords and coagulation instruments before use  
• Explain the safety precautions that should be taken when using flammable skin antiseptic agents  
• State the steps involved in the safe application and use of a pneumatic tourniquet  
• Discuss the types of hazards that perioperative team members and patients are exposed to during laser use  
• Describe the application of the acronym ALARA to patient and worker safety  
• Explain the use of Safety Data Sheets (SDS) in the surgical setting |
| **P.4** | Potential sources of fuel for surgical fires include:  
• Patient and staff linens and **drapes**  
• **Prep solutions**  
• Skin degreasers/ tinctures/ aerosols  
• Body tissues and patient hair  
• Intestinal gases |
| **P.6** | Basic steps in fire safety in the correct order:  
R – **Rescue** patients and staff that are in immediate danger  
A – Pull the **alarm** – or call 911  
C – **Confine** the fire – shut all doors  
E – **Evacuate** |
| **PP.9-10** | Basic fire safety guidelines the perioperative should be aware of include:  
• Take the patients’ medical records if possible.  
• Have an evacuation plan posted in the surgical suite, and review it frequently.  
• Surgical patients who are evacuated due to a fire have an increased risk of postoperative infection.  
• Move patients horizontally. If you can’t move horizontally because smoke or flames block your way, proceed vertically. Work your way down to a lower level.  
• Never leave patients unattended.  
• Hold routine fire drills or mock scenarios involving all members of the surgical team. |
### Handling Electrosurgical Equipment
Methods to prevent an unsafe situation, mishap, or fire when using electrosurgical equipment include:
- Do not use in an oxygen-enriched environment, such as the trachea or when oxygen is being "blown over" a patient.
- Allow enough time for skin preparation solutions that are flammable or contain alcohol to thoroughly dry.
- Visually check the integrity and insulation of all cords and coagulation instruments before use.

### Electrical Power Outage
OR management is responsible for devising an emergency electrical outage plan BUT staff members, including the OR nurse are responsible for knowing, understanding, and complying with that plan.

### A volatile liquid is a liquid that evaporates quickly. Most often, volatile liquids in the OR are associated with:
- skin antiseptic agents,
- anesthetic gases,
- specimen fixatives, and
- lubricants.

### The best strategy to reduce the risk associated with ignition of prep solution vapor is to allow the prep solution to completely dry and for the vapors to dissipate BEFORE draping.

### To reduce personnel exposure to specimen fixatives such as formalin the perioperative nurse should:
- Avoid splashing while pouring.
- Avoid skin contact by wearing gloves during handling and pouring.
- If skin contact occurs, wash thoroughly with water.
- Use absorbent material and then triple-rinse with water any area or surface where accidental formalin spillage occurs.
- Store in a dedicated area away from medications, sterile supplies, and food supplies.
- Store fixatives securely so they are inaccessible to persons unfamiliar with their proper use.

### Pneumatic tourniquet documentation:
- pneumatic tourniquet system identification serial number,
- limb occlusion pressure (LOP),
- cuff pressure,
- skin protection measures,
- location of tourniquet cuff,
- skin integrity under the cuff before and after use of the pneumatic tourniquet,
- the name of the person placing the tourniquet cuff,
- time of inflation and deflation,
- assessment and evaluation of the entire extremity, and
• systematic reaction to ischemia and reperfusion.

PRACTICE QUESTIONS:

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volatile and combustible liquids are a danger to YOU as a perioperative nurse. Discuss how you reduce personal exposure to specimen fixatives (formalin) while in the OR.</td>
<td></td>
</tr>
<tr>
<td>Operating rooms must have their electrical power supplied by an isolated power line. An isolated power line prevents unintentional grounding of persons in contact with a live electrical cable or current. Faulty grounding can result in a burn, cardiac fibrillation, or shock to the patient or user. Discuss the immediate actions a perioperative nurse should take when there are line isolation issues.</td>
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</tbody>
</table>
### Objectives
- Describe the impact of a standardized approach to counting on preventing retained surgical items
- List the steps involved in resolving a count discrepancy
- Discuss the importance of the steps in the time-out process to patient safety
- Summarize the contributing factors to perioperative skin injuries
- Relate the nursing process steps and how they are applied to the care of the patient with latex allergy/sensitivity

### Preoperative Verification
**P.4**
Confirmation and verification includes the following:
- Patient’s name on the ID band
- Date of birth
- Medical record number
- Consents

### Identifying the Patient
**P.4**
- According to AORN’s guidelines, two patient identifiers must be used.
- **Examples:**
  - Ask the patient to state their full name.
  - Ask the patient to state their date of birth.
  - Ask the patient to state their planned procedure and document it in the patient’s own words.

### Time Out
**P.8**
- The Time Out should occur immediately before the start of the surgery or invasive procedure.
- Take place in the same room the procedure is to be performed.
- It should involve the entire surgical team.
- The process should take place verbally.
- It should be documented which includes:
  - The patient’s identity using 2 patient identifiers
  - The site and side (right/left distinction) of the surgical procedure
  - Verification of the procedure to be performed

### Time Out Discrepancies
**P.11**
- If a discrepancy or issue associated with patient verification, marking the operative site or “Time Out” the perioperative RN should:
  - The procedure should NOT begin until the discrepancy is addressed and agreed upon by all team members.
  - If the discrepancy is not resolved, follow the facility policy and notify appropriate hospital officials.
- Document all discrepancies and resolutions in the medical record.

**P.13-14-15 Retained Surgical Items (RSI)**

*Be sure to watch the video clip on page 13.*

Strategies to prevent RSIs include:
- Using the same standardized approach for every count procedure
- Unnecessary activity and distractions should be eliminated during the counting process
- Types of items to be counted include: radiopaque soft goods, sharps, miscellaneous items and instruments.

**P.13 Strategies for Preventing RSIs – A Team Approach**

- A *standardized approach* should be used by the circulating nurse and scrub person each time a count is conducted. Counting items in the same sequence each time in a logical progression as determined by hospital policy is a standardized approach that reduces the risk of human error.
- *Any of the surgical team members* can initiate a count or an additional count.
- Surgeons should be actively engaged in supporting the count procedure by communicating when counted items are placed in the wound, acknowledging the start of the count procedure, and performing a methodical wound exploration when counts are initiated.
- Anesthesia care providers should participate by planning anesthetic milestones to enable the perioperative team to conduct appropriate counts.

**P.17 Count Discrepancies: What should the surgical team do if there is a count discrepancy?**

- The RN circulator begins a search of the areas outside the sterile field.
- The surgeon suspends wound closure and conducts a thorough search of the wound.
- The perioperative team performs a search of the surgical field, instrument table, count bags, and trash and linen receptacles.
- If the missing item is not recovered, intraoperative imaging should be performed to rule out a retained item before the final closure of the wound.
- Intraoperative imaging should be read by a radiologist and the results communicated directly to the surgeon.
- Facility policies and procedures for documentation and subsequent notifications should be followed.

**P.21 Patient transfer from the OR bed to the Gurney**

- Lock the wheels of the gurney and the bed
- Make sure the patient is covered with a sheet or light blanket
- Stand next to the gurney on the side opposite from the bed
- Ask another nursing team member to stand on the opposite side of the bed to assist
- Use a draw sheet and patient transfer device to transfer the patient.
- Cross the patient’s arms across the chest.
- Roll the patient up to one side to place the transfer device under the patient.
- **Gather and secure IV lines, catheters, and other apparatus so they will not be disturbed during the transfer.**
- Gently roll the patient to the awaiting gurney.
- Roll the patient up to retrieve the transfer device.
- Center the patient on the bed.
- **Apply a safety strap just above the patient’s knees.**
- Pull the guard rails up and unlock the gurney.
- Push the patient feet first to the OR area.

<table>
<thead>
<tr>
<th>P.27</th>
<th>In the OR, the patient has a heightened risk for skin injury due to:</th>
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<tbody>
<tr>
<td></td>
<td>- Preexisting metabolic conditions (diabetes)</td>
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<td></td>
<td>- Unusual positions or positioning devices</td>
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<td></td>
<td>- Use of electrical equipment</td>
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<td></td>
<td>- Prolonged length of surgery</td>
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<td></td>
<td>- Reduced tissue perfusion</td>
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<tr>
<td></td>
<td>- The use of chemical agents</td>
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</tbody>
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<table>
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<tr>
<th>P.29</th>
<th><strong>Methods to Reduce Intraoperative Skin Injury</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. <strong>Positioning</strong> - Protect sensitive areas by using appropriate positioning devices</td>
</tr>
<tr>
<td></td>
<td>2. <strong>Electrical and Thermal Equipment</strong> - Ensure that warming devices that use forced air heat are used appropriately and according to manufacturer’s instructions. <strong>DO NOT place the hose of the warmer under the patient’s blanket.</strong></td>
</tr>
<tr>
<td></td>
<td>3. <strong>Implantable Electronic Devices</strong> - Manage the sources of electromagnetic interference.</td>
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<tr>
<td></td>
<td>4. <strong>Mechanical Safety Issues</strong> - never place heavy instruments or equipment on the patient. Never lean on the patient.</td>
</tr>
<tr>
<td></td>
<td>5. <strong>Chemical Safety Issues</strong> - Ensure that prep solution does not pool on the patient skin or the drapes. Use blotting towels to absorb excess prep solution. Be sure to remove the towels after the prep is completed. Allow adequate time for the prep solution to dry.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P.34</th>
<th><strong>Latex Sensitivity Categories</strong> – Exposure to latex gloves and latex containing products can cause three different types of adverse reactions:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1. <strong>Irritant contact dermatitis</strong> - Non-allergic skin reaction usually aggravated by glove powder and chemical agents added to raw latex. Symptoms are usually confined to the area of the body that comes in contact with the irritant – it is NOT an allergic reaction.</td>
</tr>
</tbody>
</table>
2. **Immediate Type I Hypersensitivity Reaction or Latex Allergy** – This type of reaction will occur within 5 to 30 minutes of exposure to an antigen or have delayed onset of 10 to 12 hours.

3. **Delayed Type IV Hypersensitivity Reaction/Allergic Contact Dermatitis** – This is a delayed allergic reaction that occurs 24 to 72 hours after a sensitized individual had contact with the allergen.

---

**P.35**

**Clinical Manifestations of a reaction to latex:**

**Stage I:** Contact urticaria at the site of exposure. Symptoms could include: swelling, redness, itching and/or burning.

**Stage II:** The allergic reaction spreads beyond the area of contact. Symptoms could include: edema and itching around the eyes, acute rhinitis, nasal itching, sneezing, asthma, shortness of breath and/or bronchial obstruction.

**Stage III:** If allowed to persist, the reaction can progress to a sudden drop in blood pressure, increased heart rate, circulatory collapse, or anaphylactic shock.

---

**P.37**

Who should be treated as potentially latex-allergic or latex sensitive?

- Has a history of anaphylaxis to latex
- Has had allergic reactions of a nonsystemic nature to latex
- Has had multiple surgical procedures
- Is a child with spinal bifida and genitourinary abnormalities requiring surgical procedures
- Who is from a high-risk group

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### PRACTICE QUESTIONS:

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describe/elaborate on the 3 steps to preoperative verification:</td>
<td></td>
</tr>
<tr>
<td>1. Identifying the patient/confirming the patient and procedure</td>
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<tr>
<td>2. Marking the site</td>
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<tr>
<td>3. Time Out</td>
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<tr>
<td>Describe appropriate counting procedures for the surgical team during a surgical procedure.</td>
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<tr>
<td>Question</td>
<td>Answer</td>
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<tr>
<td>-------------------------------------------------------------------------</td>
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<tr>
<td>Who can initiate a count?</td>
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<tr>
<td>During a surgical procedure the team member who opens and enters sterile items into the surgical field should also be responsible for what actions? (P.15)</td>
<td></td>
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<tr>
<td>How should the surgical team handle counted items?</td>
<td></td>
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<tr>
<td>The staff member who comes to transport a patient from the preop area to the OR should do what before transporting the patient?</td>
<td></td>
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<tr>
<td>List the reasons why personnel in charge of transferring a patient on a gurney should push the patient feet first.</td>
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</tr>
<tr>
<td>In the OR, the patient has a heightened risk for skin injury due to:</td>
<td></td>
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<tr>
<td>- Unusual positions or positioning devices</td>
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<td>- The use of chemical agents</td>
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</tbody>
</table>

*Elaborate on the list above.*
### Objectives
- Explain the importance of perioperative assessment for patient outcomes
- Select two areas that should be explored during the psychosocial portion of the perioperative assessment
- Identify 3 systems that must be assessed for all age groups during the physiological portion of the perioperative assessment

### P.3
**Documentation**

Documentation provides a means for planning perioperative care as well as evaluation of the care rendered.

### P.3
**Data collection**

Data collected by the perioperative nurse forms the baseline for perioperative care. It can be collected from physician notes, medical history, physical exam, preoperative diagnostic studies, unit progress notes, nursing care plans, consultation with health care team members, patient and family interviews, observation, and physical assessment of the patient.

### P.4
**Subjective data**

Subjective data is the patient’s own feelings or perceptions regarding his or her impending surgery.

**Objective data**

Objective data is independent facts, figures and findings such as the history and physical, laboratory and radiology reports, patient’s plan of care, and nursing notes.

### P.8
**Skin Condition**

- **Elderly Patient**
  - Factors that make their skin more sensitive to injury:
    - Decrease in subcutaneous fat
    - Decrease in skin elasticity
    - Thinning and wrinkling of the skin
    - Atrophy of the sweat glands that makes it difficult to tolerate changes in temperature

- **Pediatric Patient**
  - does not have a thermoregulatory system that is developed
    - Body temperature averages vary with environmental changes
    - The skin should be inspected for color, temperature, sensation, turgor, thickness, and amount of subcutaneous tissue.

### P.11
**When making an assessment**

- When making an assessment, the nurse must take into consideration the patient’s:
  - Physiological status
  - Body size
  - Mobility
  - Preexisting health conditions
  - Planned duration of the procedure
  - Type of anesthesia
  - Environment
Patients need to be assessed for their ability to move between the gurney and the OR bed. Utilize the patient’s chart and the results of the preoperative interview to assess baseline functional status.

The cardiovascular assessment is modified for elderly as well as pediatric patients. In the geriatric patient there is a decrease and slowing of the blood flow from the coronary arteries which could cause a decreased rate of medication absorption and the need for deep vein thrombosis prophylactic devices. In addition elderly patients may need warming devices to maintain normothermia.

Decreased cardiac output and elasticity of vessels, sclerosis of heart valves, and thickened arterial walls all contribute to the inability of the heart to compensate for the added workload. An elderly patient’s position may have to be adapted for effective air exchange.

The following factors three main factors should be taken into account while assessing the patient for allergies:

- **Prior reaction:** Ascertain if the patient has had a prior reaction to any medications or prep solutions. Notify the surgeon if the patient has had a prior reaction to a surgical prep solution.
- **Heredity:** It is also important to note if the patient or anyone in the family has had problems with anesthesia in the past. Reactions vary from itching or rash to full anaphylaxis and cardiovascular collapse.
- **Type:** If the patient has an allergy, ask the type of reaction. You may want to ask if they had hives or if it was just a stomach upset. This will assist you in determining if the reaction is a true allergy.

When assessing the patient for medication use, it is important to ask questions about the following:

- **Herbal preparations:** Ask if the patient is taking any herbal preparations. Herbal preparations or botanical products may accentuate the toxicity of anesthetics or interfere with drug metabolism or clearance. Herbal preparations might also affect bleeding times.
- **Recreational drugs:** It is also important to ask if the patient is using any recreational drugs, even if the patient is elderly. A user of cocaine or heroin is usually given an opiate for premedication. Close observation must be maintained for symptoms of withdrawal, especially during and after long procedures.
- **Drugs, alcohol, and smoking** can alter lab values or system assessment. A chemically-dependent patient who is recovering may have concerns about medication he or she is given.

During the preoperative assessment, the perioperative nurse must take into consideration that the geriatric patient may have a decreased sensation to pain and body temperature variations. In addition, the elderly may have problems with depth and color perception, as well as dry eyes.
There are some basic concepts of perioperative care that don't change.

- The patient's safety should always be put first.
- No matter what the technical advances are, the patient needs to interact and communicate openly with the perioperative nurse. It is essential that the nurse is aware of the psychosocial elements of the patient assessment.
- Nurses must be able to educate the patient and the family.
- The relationship and rapport established between the patient and the nurse can make a difference in the patient/family's perception of the perioperative experience.

A psychosocial assessment should include the patient's:

1. Expectations of perioperative care including patient levels of anxiety or stress
2. Understanding of the surgical procedure
3. Philosophical and religious beliefs
4. Cultural beliefs and practices

The surgeon is responsible for discussing the risks, benefits, and alternatives of the planned procedure with the patient before surgery. The responsibility of the perioperative nurse is to reinforce what has been discussed with the patient.

The ability of the patient to understand is especially important to assess in children. Be sensitive to children’s age limitations for learning and understanding. For the age group between 3 and 6 years of age: This age group interprets terms literally, so be specific and honest.

PRACTICE QUESTIONS:

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
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</thead>
<tbody>
<tr>
<td>Why is a patient’s renal status such an important assessment point?</td>
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<tr>
<td>List one special assessment need for a gynecologic procedure:</td>
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<tr>
<td>List one special assessment need for vascular surgery:</td>
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<tr>
<td>List one special assessment need for breast surgery:</td>
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</tbody>
</table>
## Objectives

- State the factors that can contribute to medical errors
- Identify existing perioperative patient safety standards, expectations, and goals
- Discuss safety related entities in the perioperative setting
- Illustrate the effective use of the Universal Protocol in preventing surgical errors
- Describe the impact of human factors in establishing a culture of safety

### P.6

AORN has endorsed *[The Joint Commission’s "Universal Protocol for Preventing Wrong Site, Wrong Procedure, Wrong Person Surgery™"](https://www.jointcommission.org/patientafety/psa/psa13/psa13.aspx)* and has developed a "Correct Site Surgery Tool Kit" that details steps for implementing the Universal Protocol. This tool kit was designed to standardize the implementation of the universal protocol. The four steps are:

1. Patient participation
2. Identifying the patient
3. Marking the site
4. Time Out

### P.7

The Health Insurance Portability and Accountability Act (HIPAA) provides federal protections for individually identifiable health information held by covered entities and their business associates and gives patients an array of rights with respect to that information.

### P.8

WHO launched the *[World Alliance on Patient Safety](https://www.who.int/patient_safety)** to examine patient safety in acute and primary care settings. Its action initiatives include:

- **Clean Care is Safe Care** - focuses on hand hygiene
- **Safe Surgery Saves Lives** - the WHO Surgical Safety Checklist came from this initiative
- **Surgical Hand Preparation** - includes discussion on the length of preoperative hand antisepsis, encouragement of the use of brushless hand scrubs, and review of hand scrub preparations.

### P.13

The *Institute of Medicine* (IOM) Report stated that "changes within health care organizations will have the most direct impact on making care delivery processes safer for patients" and recommended the following:

- Health care organizations, health professionals, and the Federal Drug Administration (FDA) should strengthen the focus of existing processes on patient safety issues.
- Health professional licensing bodies should implement meaningful patient programs and periodic reexaminations and re-licensure of doctors, nurses, and other key providers.
<table>
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<th>Page</th>
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</table>
| P.17 | **Culture of Safety** includes:  
- A sense of trust among team members.  
- Development and support of a proactive approach rather than a reactive, blaming approach.  
- Dissemination and verification of receipt of information to all levels of staff and management.  
- A sincere commitment to affirming safety as the first priority. |
| P.20 | **Skill-Based** behavior errors generally occur when our attention is diverted and we fail to monitor the actions we are performing. Example: A nurse inadvertently hits the wrong control button – the correct button is near the incorrect button. |
| P.21 | **Knowledge-based** performance errors Rule or knowledge-based performance errors arise when a nurse misinterprets a situation or incorrectly applies a rule. Examples: A nurse misinterprets test results, or a nurse fails to respond to a device alarm. |
| P.22 | **Lack of attention and situational factors** play a significant role in medical errors. Be able to identify those situational factors that contribute to medical errors.  
- Distraction (e.g., background noise, conversations, radios)  
- Fatigue and/or sleep loss  
- Drugs (including alcohol, and caffeine)  
- Juggling multiple activities  
- Stress  
- Boredom  
- Frustration  
- Anxiety  
- Anger  
- Physical stamina due to occupational musculoskeletal injuries (e.g., back, shoulder) |
| P.24 | **The OR management team is responsible for** setting up guidelines, policies, and practices that are related to safety and in accordance with regulatory agency guidelines and standards. *Read P.24 for specific responsibilities.* |
| P.26 | **Responsibilities of individual OR staff members** include:  
- Know, understand, and comply with facility policies, procedures, and practices related to safety, including their facilities emergency power outage plan. (Staff members do not write the emergency power outage plan, but are expected to know, understand and comply with it.) |
- Practice sound, basic and OR-specific safety
- Monitor, identify, and report safety hazards

### PRACTICE QUESTIONS:

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<thead>
<tr>
<th>PRACTICE QUESTION</th>
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<tbody>
<tr>
<td>Many medical errors occur due to human errors. List the three types of human errors and give an example of each.</td>
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<tr>
<td>CMS is a government agency charged with regulations for payment. Significant to patient safety is the decision by CMS to impose financial disincentives for <strong>selected negative patient care outcomes</strong>, resulting from unsafe practices, by refusing to pay for the extra cost of treating those outcomes. Name a few examples of facility-acquired unsafe patient outcomes that are no longer reimbursable.</td>
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</table>
| CMS wants to emphasize that the financial cost of insufficient patient safety controls be directly borne by facilities deemed responsible. How can your actions as a perioperative nurse affect patient outcomes, which in turn affect your facility? Here is a list of the facility-acquired unsafe patient outcomes that are no longer reimbursable:  
  - Pressure Ulcer stages III and IV  
  - Falls and trauma  
  - Surgical site infections (SSI)  
  - Retained foreign object (RFO)  
  - Wrong site surgery  
  - Deep Vein Thrombosis (DVT) |  |
# PCC_ Positioning– Final Exam Study Guide

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
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</table>
| P.2  | 1. Describe the importance of anatomical considerations in patient positioning  
|      | 2. Identify the physiological considerations of positioning  
|      | 3. Select four safety measures that can be employed to promote optimum patient outcomes  
|      | 4. Describe the four main surgical positions and their modifications  
|      | 5. Identify one PNDS outcome related to safe patient positioning  |
| P.4  | • The surgeon determines the position that will facilitate optimal exposure.  
|      | • The anesthesia care provider will be consulted to ensure that the position does not compromise airway management, vascular access, or cardiac stability.  
|      | • The perioperative nurse coordinates the activities related to positioning such as; obtaining and preparing positioning aids, devices, and/or equipment based on information obtained from the preoperative assessment.  |
| P.5  | Factors that should be considered before positioning the patient include:  
|      | • Physical indicators that would be present if the patient were not medicated that would warn of pain or pressure, are now absent.  
|      | • Exaggerated positioning for long periods should be avoided.  
|      | • Patients are at higher risk for injury during long surgical procedures due to interrupted or low blood flow.  
|      | • The anatomy and related physiology.  
|      | • Planned surgical procedure.  
|      | • Respect for the patient’s privacy should be considered at all times.  |
| P.8  | The AORN Guideline for positioning the patient outlines patient specific positioning but also allows the perioperative nurse to use additional precautions based on unique patient considerations gathered during the preoperative assessment.  |
| P.9  | Assessment includes both patient and intraoperative factors.  
|      | **Patient Factors:**  
|      | 1. Patient age  
|      | 2. Height and weight  
|      | 3. Skin condition  
|      | 4. Nutritional status  
|      | 5. Preexisting conditions  
|      | 6. Physical/ mobility limits  
|      | 7. BMI - Body Mass Index  
|      | 8. Presence of jewelry  |
9. Lab results

**Intraoperative Factors:**
1. Anesthesia
2. Length of surgery
3. Position required

### General Positioning Safety Measures
- Positioning equipment should be used to protect, support, and maintain the patient's position.
- Padding should be used to protect the patient's bony prominences.
- The patient's arms should be positioned to protect them from nerve injury.
- The location of the patient's fingers should be confirmed to ensure they are in a position that is clear of procedure bed breaks or other hazards.
- Safety restraints should be applied carefully to avoid nerve compression injury and compromise blood flow.
- The patient's body should be protected from coming in contact with metal portions of the procedure bed.
- The patient's heels should be elevated off the underlying surface when possible.
- The patient's head and upper body should be in alignment with the hips. The patient's legs should be parallel and ankles uncrossed to reduce pressure to occiput, scapulae, thoracic vertebrae, olecranon processes (ie, elbows), sacrum/coccyx, calcaneae (ie, heel) and ischial tuberosities.
- The patient's head should be in a neutral position and placed on a headrest.
- A pillow may be placed under the back of the patient's knees to relieve pressure on the lower back.
- If the patient is pregnant, a wedge should be inserted under the patient's right side to displace the uterus to the left and prevent supine hypotensive syndrome, caused by gravid uterus compressing the aorta and vena cava.
- If the patient is attached to a robot, caution should be used before moving, either the patient or the robot.

### Three basic surgical positions:
- **Supine** – lying on the back. Also referred to as the dorsal recumbent position.
  - Trendelenburg’s and Reverse Trendelenburg’s position – modification of the Supine position
  - Modified Fowlers – modification of the Trendelenburg’s position
  - Lithotomy Position – modification of the Supine position
- **Lateral** - In the lateral or lateral recumbent position, the patient is anesthetized in the Supine position and then log rolled onto the non-operative side on the OR table.
- **Prone** - In this position, the patient is anesthetized on a gurney and then log rolled over on his/ her stomach on the OR table.
  - The Kraske, or jackknife position is a variation of the prone position.
<table>
<thead>
<tr>
<th>Page</th>
<th>Position</th>
<th>Details</th>
</tr>
</thead>
</table>
| 13   | Supine Position: | - Positioning of the arms directly effects the nerves.  
- If necessary, for surgical reasons, the patient's arms may be tucked at his or her sides with the use of a draw sheet. The draw sheet should extend above the elbows and should be tucked between the patient and the procedure bed's mattress. This position prevents ulnar nerve injuries.  
- Arm extension should be less than 90 degrees to avoid compression of the brachial plexus.  
- Pressure points are padded, e.g. occiput, scapulae, thoracic vertebrae, olecranon process, sacrum/ coccyx, and elbows. The patient's heels should be elevated off of the bed whenever possible.  
- Safety strap is applied 2” above the knee with padding placed between the strap and the patient's skin. |
| 15   | Trendelenburg Position: | - Modification of the supine position  
- Procedure table it tilted so head and upper torso is lower and feet are higher  
- Safe anatomic positioning is ensured by placing the knees over the break in the table to allow flexing of the leg section of the bed  
- Use of shoulder braces should be AVOIDED |
| 16   | DVT prophylaxis | - Mechanical – graduated compression stockings, sequential compression devices, and early ambulation.  
- Pharmacological – incorporates various medications used to thin the blood. |
| 19   | Lithotomy Position: | - Modification of the supine position  
- The patient’s buttocks are even with the lower break in the OR bed to prevent lumbosacral strain.  
- The arms are placed on padded arm boards to prevent the patient's fingers from resting in the OR table break. Physiological effects include:  
- Significant drop in the blood pressure if the legs are lowered too quickly.  
- The circulatory and respiratory systems may be compromised due to compression of abdominal contents on the inferior vena cava and abdominal aorta.  
- Nerve damage to femoral, obturator, and perineal nerves can occur with this position. |
| 21   | Prone Position | - The prone position is one of the basic positions. In this position, the patient is anesthetized on a gurney and then log rolled over on his/ her stomach on the OR table. |
1. Maintain feet in correct anatomical position to prevent foot drop.
2. Eyes should be padded and pressure avoided to prevent conjunctival edema, corneal abrasion, or retinal ischemia.
3. Arms should be rotated slowly when placing on arm boards to prevent brachial plexus injuries.
4. If the patient is positioned correctly, minimal cardiovascular effects occur.
5. Improper positioning can result in pressure on the inferior vena cava and femoral veins which can reduce venous return and produce hypotension.
6. Pressure on the carotid artery from the head being turned can produce hypotension and arrhythmias.
7. Most vulnerable to respiratory problems due to compression of the diaphragm which impairs gas exchange.
8. Increased airway pressure and difficulty in ventilation can occur from the effects of body weight against the abdominal wall.

**P.27**

Three forces can act on the patient as they lay on the surgical table:
1. Pressure
2. Shearing
3. Friction

**P.28**

Pressure - The duration of pressure is more important than the intensity. Great pressure for a short period can be tolerated better than low pressure for a long period because of the longer period of diminished tissue perfusion.

**P.29**

Pressure Ulcer formation: Intrinsic and Extrinsic factors can lead to the development of pressure ulcers. Extrinsic factors include the intensity and duration of the applied pressure and exaggerated positions, while intrinsic factors include such conditions as diabetes, circulatory disorders, respiratory disorders, body temperature, malnutrition, advanced age, impaired mobility, body size, and anemia.

- **Stage I:** Intact, reddened skin does not blanch to fingertip pressure.
- **Stage II:** Partial skin loss involving the epidermis and/or dermis. Skin is abraded, blistered, or has shallow craters.
- **Stage III:** Full-thickness skin loss possibly down to, but not through, the fascial layer. Deep craters with or without undermining adjacent tissue.
- **Stage IV:** Full-thickness skin loss with extensive destruction, tissue necrosis, or damage to muscle, bone, or supporting structures.

**P.31**

Nursing considerations to reduce the risk of shearing during patient transfer:
- Request additional personnel. For most positions, depending on the type of transfer device used, two to four caregivers are required to transfer the patient between the gurney and the OR procedure bed.
- Use friction reducing sheets, slider board, air assisted transfer device to assist in patient transfer.
- Use the draw sheet to lift the patient slightly to allow the skin to realign with the skeletal structures.
Friction - Friction occurs when skin surfaces rub over a rough, stationary surface. Friction can denude the epidermis and increase the risk for pressure ulcer formation.

Maceration - Maceration occurs when moisture on the skin saturates and weakens the epidermis, making it vulnerable to the effects of external forces.

Positioning may lead to an increased risk of venous stasis and vessel wall injury which contributes to the formation of a deep vein thrombosis (DVT). If the thrombus is dislodged it may travel to the lungs and become a pulmonary embolism.

Documentation - Documentation should include, but should not be limited to:
- Preoperative assessment
- Type and location of positioning and/or padding devices
- Names and titles of persons positioning the patient
- Postoperative outcome evaluation

Policies and Procedures
These policies and procedures should include, but not be limited to, assessment, evaluation criteria, and documentation of:
- Anatomic and physiologic considerations
- Safety interventions
- Documentation of patient position and/or repositioning, positioning devices, and personnel positioning the patient; and
- Positioning device care and maintenance
- Ergonomic safety

PRACTICE QUESTIONS:

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<thead>
<tr>
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<tbody>
<tr>
<td>Describe the 3 basic surgical positions and the positions that are modifications of these 3 basic positions – if possible illustrate them on a gurney or OR bed.</td>
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<tr>
<td>Explain why the perioperative nurse would not just look at a picture of a surgical position with instructions for a specific surgical procedure and follow that to the letter?</td>
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<tr>
<td>Question</td>
<td>Answer</td>
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<tr>
<td>What types of circulatory and respiratory physiological effects result</td>
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<td>from positioning a patient in the lithotomy position?</td>
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<tr>
<td>Describe the positioning precautions, including positioning devices you</td>
<td></td>
</tr>
<tr>
<td>would use, when positioning a patient in the prone position.</td>
<td></td>
</tr>
<tr>
<td>Why can you say that the duration of pressure is more important than</td>
<td></td>
</tr>
<tr>
<td>the intensity of the pressure when it comes to positioning considerations?</td>
<td></td>
</tr>
<tr>
<td>Explain the difference between shearing and friction – give examples.</td>
<td></td>
</tr>
<tr>
<td>Why is the preoperative assessment of the patient for functional</td>
<td></td>
</tr>
<tr>
<td>limitations and skin conditions so important for a patient with arthritis?</td>
<td></td>
</tr>
</tbody>
</table>
## Objectives
- Explain the rationale for performing surgical skin preps
- Compare the indications and contraindications of the four major types of prepping agents
- Identify the prepping procedure for three common surgical procedures
- Identify the components to be included in the documentation of skin preps

### Transient Bacteria:
Are usually limited to the exposed areas of skin and easily removed by mechanical cleansing.

### Resident Microorganisms
Inhabit the deep structures of the dermis, the glands, and the hair follicles. Resident microorganisms require chemical agents to eliminate them and prevent their regrowth for a period of time.

### The goals of surgical skin preps are:
- To remove soil and transient microorganisms from the skin
- To reduce the resident microbial count to below pathogenic levels in a short period of time and with the least possible tissue irritation
- To inhibit rapid rebound growth of microorganisms

### Characteristics of Antimicrobial Agents:
- **Broad Spectrum** - Kills a wide range of microorganisms.
- **High log reduction capability** - Ability to decrease microbial colonies by as much as possible. A 10-fold reduction in colonies would be a log 1; a 100-fold reduction a log 2; a 1000-fold reduction a log 3; and so on.
- **Persistency** - Maintenance of effectiveness over a long period of time.
- **Nonirritating** - To a large percentage of the population antimicrobial agents are non-irritating, although they can cause skin irritation in a small percentage of people.
- **Nontoxic** - Is safe for use on the skin and other superficial tissues.
- **Fast acting** - Acts rapidly and is totally effective with the first application.

### The most commonly used antimicrobial agents are:
1. Chlorhexidine gluconate (CHG) 4%
2. Chlorhexidine gluconate (CHG) and alcohol
3. Povidone – Iodine
4. Alcohol

CHG is designed for topical use only. It must NOT be used above the neck due to potential corneal damage and toxicity when introduced into the auditory canal.

Povidone-Iodine – Persistence is not high
<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>P.13</td>
<td>Alcohol - Although alcohols do not have a persistent chemical effect on the skin, they initially provide the quickest reduction in microbial counts.</td>
</tr>
<tr>
<td>P.19</td>
<td>Refer to the Guideline Essentials for preoperative bathing on this page. Bathe or shower the night before or day of surgery with either soap or a skin antiseptic. This will reduce the number of microorganisms on the skin and reduce the risk or SSI.</td>
</tr>
<tr>
<td>P.20</td>
<td>Refer to the Guideline Essentials for hair removal. Hair removal may increase the patient’s risk for surgical site infection. In clinical situations where removal is necessary, clipping or using a depilatory instead of shaving with a razor may lower the patient’s risk for surgical site infection.</td>
</tr>
<tr>
<td>P.21</td>
<td>Exposing the Area to be Prepped Determine the area to be prepped. The prep area should extend at least six to eight inches in all directions beyond the planned incision site. The size of the prepped area needs to be large enough to accommodate extensions of the incision, additional incisions, and all potential drain sites. The prepped area also needs to be large enough to avoid wound contamination by inadvertent drape movement during the procedure.</td>
</tr>
</tbody>
</table>
| P.23 | Please read the Guideline Essentials attached to this page. Recommendations for preoperative patient skin antisepsis:  
- Beginning at the site of the incision, use friction and scrub in a circular motion, moving away from the site in all directions. This directs any contaminants away from the critical area.  
- If a paint solution is applied, use an outward circular motion, starting at the incision site. |
| P.31 | Skin Preps for Extremities  
- When performing an extremity prep, a tourniquet is sometimes used.  
- Seal off the tourniquet with tape or an impervious drape  
- Begin at the incision site and scrub away from the incision, circumferentially.  
- Hand and foot preps begin at the incision, and include the fingers or toes and move up the extremity.  
- Cleaning the foot before beginning the antiseptic skin preparation for surgery was found more effective in reducing bacterial counts between the toes than application of the antiseptic alone. |
| P.35 | Minimizing Fire Risk  
Flammable skin antisectics are a fuel source and pose a fire hazard.  
- When an alcohol-based skin antiseptic will be used for a procedure involving an ignition source, clip hair at the surgical site before applying the antiseptic.  
- Prevent flammable skin antisectics from pooling or soaking into linens or the patient’s hair.  
- Use sterile towels to absorb drips and excess solution during application.  
- Remove saturated materials before the patient is draped. |
- Allow adequate time for the skin antiseptic to dry completely and for fumes to dissipate before surgical drapes are applied or a potential ignition source is used.
- Before the procedure begins, make sure all team members are aware a flammable skin antiseptic was used.
- Do not heat flammable skin antiseptics.

<table>
<thead>
<tr>
<th>P.36</th>
<th><strong>Skin Prep Documentation</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>- The area of the body to be prepped</td>
</tr>
<tr>
<td></td>
<td>- The type and extent of hair removal at the operative site</td>
</tr>
<tr>
<td></td>
<td>- Name of the person performing the prep</td>
</tr>
<tr>
<td></td>
<td>- Assessment of the skin at the operative site</td>
</tr>
<tr>
<td></td>
<td>- The skin prep agent used</td>
</tr>
</tbody>
</table>

**PRACTICE QUESTIONS:**

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Why should a surgical prep start at the site of incision and move outward?</td>
<td></td>
</tr>
<tr>
<td>The perioperative nurse's documentation of the skin prep procedure should include preoperative assessment of the skin at the operative site. Why is this important?</td>
<td></td>
</tr>
<tr>
<td>List some protective measures you would use on a surgical patient to avoid prolonged contact with skin antiseptics.</td>
<td></td>
</tr>
</tbody>
</table>
### Objectives

- Define professional nursing performance in perioperative settings
- Differentiate between the Standards of Perioperative Nursing and the AORN *Guidelines for Perioperative Practice*
- Identify two ways that the AORN *Guidelines for Perioperative Practice* can be used in perioperative nursing practice
- List methods a nurse can choose to improve professionally
- Describe personal accountability in professional practice
- Describe the role of documentation in avoiding legal action

### P.7

Through precepting, mentoring, and role modeling, the professional nurse is a daily example of excellence in the perioperative setting. Perioperative nurses will:

- provide feedback to peers.
- welcome the novice perioperative nurse to the clinical setting.
- provide leadership through committee participation, quality improvement activities, and participation in departmental inservices.
- set the example regarding professional development to include lifelong learning, certification and ongoing professional development.

### P.12

**Social Media**

Reminders for responsible, professional online behavior.

- Maintain standards of professionalism at all times even online.
- Report identified breaches in confidentiality or privacy.
- Everyone can view your postings. Adopt the attitude that if you post something to the Internet, it is there forever.
- Do not transmit or place online any identifiable patient, coworker, facility or school information.
- Do not have online contact with patients.
- Do not take photos or videos of patients on personal devices.
- Do not make disparaging remarks about patients, co-workers or employers online.
- Do not speak on behalf of your employer unless authorized to do so.

### P.24

The use of the AORN Guidelines for Perioperative Practice are NOT mandatory!

- They do not replace your department and your institution’s policies.
- The *Guidelines* are evidence-based.
- You must take your individual work setting (area of country, type of facility, etc.) into account as you use them.
- Varying situations may determine to what degree these guidelines can be fulfilled.

### P.32  Key Business Metrics for the OR that the OR nurse can affect:
- On time starts
- Turnover time
- Volume of cases – this can be increased by on time starts and lowering turnover time
- Length of cases – have all necessary equipment ready to go

### P.33  Personal Accountability
- Commitment to patients
- Commitment to Nursing – becoming certified and pursuing a higher degree
- Collaboration on surgical procedures with peers
- Communication – thorough patient assessments
- Performance – self evaluate and seek peer evaluation as well as continuing education opportunities

### P.40-41  Direct Expenses:
- Medical supplies
- Personnel
- Purchases Services

**Indirect Expenses:**
- Heating and cooling
- Electricity
- Administrative or support personnel (housekeeping)

### P.48-50  Ethical Decision Making – Personal Accountability and Ethical Dilemmas
- If a patient is older than 18 yrs of age and has signed a DNR before surgery, is it ethical to resuscitate him anyway if he quits breathing? Why or why not?
- If a patient is older than 18 yrs of age and has agreed to organ donation if he should die – it is acceptable for his parents to refuse organ donation if he dies? Why or why not?
- If an 18 year old patient gives consent to a below the knee amputation if the surgeon cannot save his lower leg – is it acceptable for the parents to intervene and tell the surgeon there will be NO amputation? Why or why not?

### P.64  The Perceived Value of Certification Tool (PVCT) shows:
- Over 94% of the nurses surveyed agreed that certification:
  - Enhances feelings of personal accomplishment
  - Indicates professional growth
• Validates specialized knowledge
• Provides evidence of professional commitment

This study again demonstrated a high level of agreement among certified nurses, non-certified nurses, and managers regarding the value of certification. Nurse managers would prefer to hire a certified nurse over an otherwise equally qualified non-certified nurse.

P.65
The Institute of Medicine (IOM) Report
2011 the Institute of Medicine released a comprehensive, far-ranging report on the future role of nurses in the American health care system. Two of the four key messages in the report were:

1. Nurses should practice to the full extent of their education and training.
2. Nurses should achieve higher levels of education and training through an improved education system that promotes seamless academic progression.

The report goes into further detail in making specific recommendations regarding lifelong learning and professional development of nurses. Recommendation 6 states:

• Ensure that nurses engage in lifelong learning.
• Accrediting bodies, nursing education programs, health care organizations, and continuing competency educators from multiple health professions should collaborate to ensure that nurses and nursing students and faculty continue their education and engage in lifelong learning to gain the competencies needed to provide care for diverse populations across the lifespan.

PRACTICE QUESTIONS:

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>The AORN Guidelines are now evidence-based. What does that mean to your practice?</td>
<td></td>
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<tr>
<td>Explain how ethical decision making is part of being a professional.</td>
<td></td>
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</tbody>
</table>
Why is it important for you to understand basic business concepts? How does this understanding translate to your role as a Perioperative Nurse?

### PCC_Safe Use of Surgical Energy – Final Exam Study Guide

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td>The goal of this module is to introduce the nurse to the concepts of monopolar and bipolar electrosurgery and the vital safety practices that accompany its use.</td>
</tr>
<tr>
<td></td>
<td>- Identify the differences between monopolar and bipolar electrosurgery</td>
</tr>
<tr>
<td></td>
<td>- Describe one of the considerations that can help prevent electrosurgical injuries when applying a dispersive electrode</td>
</tr>
<tr>
<td></td>
<td>- Review the precautions related to electrosurgery that should be taken for patients that have Implanted Electronic Devices (IEDs).</td>
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<tr>
<td></td>
<td>- Discuss fire safety practices appropriate to electrosurgical use</td>
</tr>
<tr>
<td></td>
<td>- Recognize the actions that should be taken to reduce the risks related to surgical plume</td>
</tr>
<tr>
<td></td>
<td>- Describe the use of additional safety practices when argon-enhanced electrocautery is applied</td>
</tr>
<tr>
<td>P.1 and 3</td>
<td>Electrosurgery is used routinely to cut and coagulate tissue during surgery by using a high radio frequency electrical current.</td>
</tr>
<tr>
<td>P.6-8-10</td>
<td><strong>Safe use of surgical energy:</strong></td>
</tr>
<tr>
<td>P.6 –</td>
<td>The perioperative nurse should inspect the electrosurgical unit before use to verify electrical integrity.</td>
</tr>
<tr>
<td>P.8 –</td>
<td>Assure that the prep solutions have dried and vapors evaporated before the device is used.</td>
</tr>
<tr>
<td>P.10</td>
<td>- Confirm each requested power setting change orally with the surgeon.</td>
</tr>
<tr>
<td></td>
<td>- Inspect each circuit component if the surgeon repeatedly requests high power settings.</td>
</tr>
<tr>
<td>P.8</td>
<td><strong>Using the generator safely:</strong></td>
</tr>
<tr>
<td></td>
<td>- When the ESU is activated, there is an audible alarm indicator which must be maintained at an audible level.</td>
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<tr>
<td></td>
<td>- The perioperative nurse should encase the footswitch in a clean, clear, impervious cover whenever there is a potential for fluids to spill on the floor.</td>
</tr>
</tbody>
</table>
- Fluids should never be poured on the generator or the footswitch.

**P.12**  
Four types of ESU systems are available: grounded, isolated, return electrode contact quality monitoring (RECQMS), and tissue response monitoring systems. There is a difference in the technology and current delivery in each of these units. If multiple ESUs are used simultaneously during an operative procedure, the ESUs should have the same technology. The perioperative nurse should ensure that ESUs conform to the same set of instructions and method of applications.

**P.13**  
**Monopolar** is the most commonly used electrosurgical modality due to its versatility and clinical effectiveness. In monopolar electrosurgery, the active electrode is in the surgical site. The patient-return electrode is somewhere else on the patient’s body. The current passes through the patient as it completes the circuit from the active electrode to the patient-return electrode.

**P.14**  
When not in use, the active electrode should be stored in an insulated safety holster.

**P.15**  
**Active Electrode:**  
Using electrosurgery near the head and neck presents a particular hazard because of the presence of combustible gases (e.g., oxygen, nitrous oxide).  
- Administer the lowest practical level of oxygen to the patient in order to minimize this hazard.  
- Consider discontinuing oxygen delivery during the time the electrosurgical unit is in use, if appropriate.

**P.16**  
When using the dispersive electrode, the perioperative nurse should remember the following:  
1. The patient’s skin must be inspected before affixing the dispersive electrode to ensure that the skin is intact.  
2. The integrity of the skin must be documented before applying and after removing the dispersive electrode.  
3. The dispersive electrode should cover as large an area of the patient’s skin as possible to minimize the potential for electrosurgical injuries.  
4. The dispersive electrode should be of appropriate size for the patient and should never be cut to fit the patient.

**P.18**  
Avoid placing the dispersive electrode in these areas:  
- Bony prominences  
- Area over an implanted prosthesis  
- Hairy areas  
- Tattooed areas  
- Scar tissue

**P.19**  
**Placement of the dispersive electrode:** The dispersive electrode should be placed as close to the operative site as is feasible and over a large, well perfused, muscle mass, which will permit uniform contact.

**P.24**  
**Bipolar ESU - Capacitive Coupling:** Capacitive coupling is the transfer of electrical current from the active electrode through intact insulation to adjacent conductive items, such as tissue or trocars.
### P. 26

**Argon-enhanced coagulation technology (AEC)** – This is a form of monopolar electrosurgery. This technology uses electrical current and argon gas.

**PRECAUTIONS:** The AEC provides a secondary source of gas that can result in a rapid rise in the patient’s intra-abdominal pressure. This pressure may exceed venous pressure, creating the potential for gas emboli formation.

### P. 28

**Ultrasonic electrosurgical devices**

1. The ultrasonic device has a generator that converts electrical energy into mechanical energy.
2. The energy is transmitted through a hand piece to a blade or probe that can be used for sharp or blunt dissection, coagulation, or to break apart tissue without damage to adjacent tissues.

### P. 32

**Safety concerns with a patient with an IED:**

- The patient should be monitored closely for signs of complications and IED malfunction.
- Bipolar surgery should be used whenever possible.
- The active electrode and dispersive electrodes are close together but as far away from the IED as possible.

### PRACTICE QUESTIONS:

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
</table>
| Cite the safety reasons behind the perioperative nurse doing the following:  
  1. Inspect the electrosurgical unit before use to verify electrical integrity.  
  2. Assure that the prep solutions have dried and vapors evaporated before the device is used.  
  3. Confirm each requested power setting change orally with the surgeon.  
  4. Inspect each circuit component if the surgeon repeatedly requests high power settings. |             |

What is the reasoning behind placing the dispersive electrode as close to the operative site as possible? |             |
### Objectives
- Identify routine hand hygiene practices
- Identify the purpose of the surgical hand scrub
- List the procedural steps for a surgical hand scrub
- Describe the steps involved in the gowning and degowning process
- Relate the differences between the closed glove technique and the open glove technique
- Identify the sterile areas of the surgical attire worn by the scrubbed members of the surgical team

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
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<tbody>
<tr>
<td>3</td>
<td>All health care workers should practice general hand hygiene. Microorganism transfer from the hands of health care workers to patients is an important factor in health care-associated (ie, nosocomial) infections. <em>Skin is a major potential source of microbial contamination in the surgical environment.</em></td>
</tr>
</tbody>
</table>
| 3    | What is the difference between general hand hygiene and a surgical hand scrub or surgical antisepsis? The term *general hand hygiene* refers to decontamination of the hands by one of two methods:  
  - hand washing with either an antimicrobial or plain soap and water, or  
  - use of an antiseptic hand rub.  

  The term *surgical hand antisepsis* refers to the antiseptic surgical scrub or antiseptic hand rub performed before donning sterile attire preoperatively. The choice of surgical hand antiseptic scrub agents should be  
  - limited to that are US Food and Drug Administration (FDA) compliant,  
  - have a documented ability to kill organisms immediately upon application,  
  - provide antimicrobial persistence to reduce regrowth of microorganisms, and  
  - have a cumulative effect over time. |
| 6    | What is the purpose of the *surgical hand scrub*?  
  - remove debris and transient microorganisms from the nails, hands, and forearms;  
  - reduce the resident microbial count to a minimum; and  
  - inhibit rapid rebound growth of microorganisms. |
| 7    | What are the two types of microorganisms found on the skin?  
  1. Transient organisms |
### 2. Resident organisms

What is the difference between the two types of microorganisms?

How does the surgical hand scrub reduce or remove these microorganisms?

<table>
<thead>
<tr>
<th>P.10</th>
<th>Surgical Attire –</th>
</tr>
</thead>
<tbody>
<tr>
<td>• All surgical suites where surgery or invasive procedures are being performed are <strong>restricted areas</strong>.</td>
<td></td>
</tr>
<tr>
<td>• When in the restricted area, all non-scrubbed personnel should wear <strong>a freshly laundered or single-use long-sleeved warm-up jacket</strong> snapped closed with the cuffs down to the wrists or a long-sleeved scrub top.</td>
<td></td>
</tr>
<tr>
<td>• Scrubs (scrub top and pants) should not be worn outside of the hospital. Cover apparel should be laundered daily in a health care approved or accredited laundry facility.</td>
<td></td>
</tr>
<tr>
<td>• Shoes made of cloth, that are open-toed, or have holes in the top or sides do not offer protection against spilled liquids or sharp items that may be dropped or kicked.</td>
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<table>
<thead>
<tr>
<th>P.13</th>
<th>Stethoscopes</th>
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<tbody>
<tr>
<td>• Stethoscopes should be clean and NOT worn around the neck.</td>
<td></td>
</tr>
<tr>
<td>• Although stethoscopes are not considered part of the surgical attire, health care providers often wear them around their necks as though they were part of surgical attire.</td>
<td></td>
</tr>
<tr>
<td>• Fabric stethoscope tubing covers should not be used. Adding fabric covers to stethoscope tubing may result in the covers acting as fomites (A <strong>fomite</strong> is an inanimate object or substance, such as clothing, furniture, or soap that is capable of transmitting infectious organisms from one individual to another).</td>
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<thead>
<tr>
<th>P.14</th>
<th>Head coverings in the restricted zones:</th>
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</thead>
<tbody>
<tr>
<td>• Should cover all hair on the head including, facial hair, sideburns and neckline.</td>
<td></td>
</tr>
<tr>
<td>• A clean, low-lint surgical <strong>bouffant head covering or hood</strong> that confines hair and covers scalp skin should be worn.</td>
<td></td>
</tr>
<tr>
<td>• A single-use head covering should be removed and discarded in a designated receptacle daily or when contaminated.</td>
<td></td>
</tr>
<tr>
<td>• Reusable head coverings should be laundered in a health care-accredited laundry facility after each daily use.</td>
<td></td>
</tr>
<tr>
<td>• Skull caps fail to contain the side hair above and in front of the ears and hair at the nape of the neck.</td>
<td></td>
</tr>
<tr>
<td><strong>NO SCULL CAPS!!</strong></td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>P.16</th>
<th>The Surgical Mask</th>
</tr>
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<tbody>
<tr>
<td>• All individuals entering the restricted areas should wear a mask when open sterile supplies and equipment are present.</td>
<td></td>
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</tbody>
</table>
- A fresh clean mask should be worn for every procedure. The mask should be replaced and discarded whenever it becomes wet or soiled.
- Masks **SHOULD NOT** be worn hanging down from the neck. The filter portion of a surgical mask harbors bacteria collected from the nasopharyngeal airway. The contaminated mask may cross-contaminate the surgical attire top.
- Masks should be removed carefully by handling only **mask ties**.

**P.20**

What are the steps to a surgical hand scrub?
1. Wash hands and forearms with soap and running water immediately before beginning the surgical scrub.
2. Dispense the approved antimicrobial scrub agent according to the manufacturer's written directions.
3. Clean the subungual areas of both hands under running water using a disposable nail cleaner.
4. Visualize each finger, hand, and arm as having four sides. Wash all four sides effectively – repeat on other hand – rinse thoroughly.

**P.27**

Strike through - The hands and arms must be thoroughly dried, before donning the gown, to prevent **strike through**, which is organisms on the wet skin from soaking through and contaminating the sterile gown.

**P.29**

The following procedure should be followed to don the gown.
- Lift the folded gown directly upward from the sterile package taking care not to contaminate the gown with the edge of the wrapper.
- **Step back from the table into an unobstructed area to let the gown unfold.**
- Carefully locate the neckband and hold the inside front of the gown just below the neckband with both hands.
- Let the gown unfold while keeping the inside of the gown toward the body without touching the sterile exterior of the gown with bare hands.
- Hold the hands at shoulder level and slip both arms into the armholes simultaneously.

**P.33**

The surgical gown should be **completely fastened, including tied in the back**, before donning gloves to prevent contamination from the gown flaps.
If you are doing an **initial donning of sterile gown and gloves**, you will use the **Closed Gloving Technique**.

**P.42**

What are the sequence of steps in the end of procedure **removal** of gown and gloves?
1. Circulator unfastens the neck and back closure ties of the gown – the scrub person grasps the shoulders of the own and pulls it downward from the shoulder and off the arms, turning the sleeves inside out.
2. Remove the gown by folding the contaminated surface of the gown to the inside
3. Use a glove-to-glove and skin-to-skin technique to remove the gloves.
<table>
<thead>
<tr>
<th>PRACTICE QUESTIONS</th>
<th>YOUR ANSWER</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Open or Closed Gloving?</strong></td>
<td></td>
</tr>
<tr>
<td>1. The scrub person’s hands remain inside the gown sleeves and should not touch the cuff edges.</td>
<td></td>
</tr>
<tr>
<td>2. Used for subsequent gloving and when performing procedures when a gown is not worn.</td>
<td></td>
</tr>
<tr>
<td>3. The scrub person’s hands slide all the way through the sleeves and out beyond the cuffs.</td>
<td></td>
</tr>
<tr>
<td>4. The closed glove method is used for the initial donning of sterile gown and gloves.</td>
<td></td>
</tr>
<tr>
<td><strong>In assisted regloving, the closed glove technique should NOT be used when changing one or both gloves….WHY?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Why is it a best practice to wear one pair of standard thickness gloves on top of a pair of standard thickness colored gloves?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Describe the sterile areas of surgical attire:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Why should surgical personnel remove the surgical gloves AFTER removing the surgical gown?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Why is it important for surgical personnel to wear protective eyewear during a surgical procedure?</strong></td>
<td></td>
</tr>
<tr>
<td><strong>After the surgical hand scrub, the scrub person should keep the fingers of their hands pointed in which direction to allow water to drip away from the surgical attire?</strong></td>
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</tbody>
</table>
After the surgical hand scrub and hand/arm drying with a sterile towel, the scrub person should keep the fingers of their hands pointed in which direction as they wait to gown?

### PCC Specimens– Final Exam Study Guide

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
</tr>
</thead>
</table>
| **Objectives** | • Identify the types of surgical specimens  
• Describe the proper means of transporting specimens  
• Identify the preparation required for cytology specimens  
• Describe the types of tissues found in a tissue bank  
• Identify the process for documentation and preservation of forensic evidence  
• Explain the general guidelines for labeling surgical specimens |
| P.5 | **Surgical Interventions**  
• Needle Aspiration - A fine gauge needle and syringe are used to aspirate the sample.  
• Incisional Biopsy - A small portion of tissue is incised and sent for examination.  
• Excisional Biopsy - An entire section of tissue is sent for examination. |
| P.12 | **Types of surgical specimens:**  
• Biopsy - specimens that will be microscopically studied by the pathologist and may undergo histologic or cytologic analysis  
• Frozen section - physical evidence retrieved from a person involved as a suspect or victim in a crime  
• Cytology - specimens obtained for studying cell biology  
• Routine specimen - specimens that do not require immediate processing by the pathologist  
• Culture - specimens of tissue or fluid suspected of being infected |
| P.14 | **Identify the general guidelines for identifying and labeling specimens.** |
- The specimen is always identified by the surgeon first, then passed off the surgical field to the CIRCULATING NURSE
- A laboratory or pathology requisition form must be filled out for the specimen
- Specimen description to include type and site (also laterality if appropriate)
- Patient name and unique identifier (medical record number)
- Date and time of collection
- Diagnosis
- Surgeons name
- Presence of chemical preservatives or biohazardous material

PP.26-27 Management of forensic specimens:
- Forensic specimens include but are not limited to hair, fibers, debris, body fluids, and foreign bodies
- Hospitals need to have policies to give guidance to the perioperative nurse about the management of forensic specimens.
- Forensic specimens require special handling when the surgeon is using metal instruments
- Critical evidence could be lost, discarded, or mishandled, if not handled properly

P.42 Surgical tissue banking is the retrieval, processing, preserving, and storing elected human tissue for later transplantation back into the patient, or into another patient. Organizations provide guidance related to surgical tissue banking include:
- **AORN** - AORN has guidelines for autologous tissue management, that is, tissue that is removed from a patient for replantation (same site e.g. avulsed tooth) or auto-transplantation (different site e.g. skin graft) on or in the same patient.
- **AATB** - The American Association of Tissue Banks
- **FDA** - US Food and Drug Administration

P.55 Documentation of the intraoperative surgical specimen is of vital importance. Information pertaining to specimens that is required on the perioperative record generally consists of:
- Patient identification
- Specimen identification in the perioperative record (including any additional information pertinent to the specimen such as location of suture tags). No abbreviations.
- Pathology examination required (eg, gross only, frozen section)
- Pathology requisition
- Final disposition of tissue and explanted devices
- Requests for special handling (eg, return of explanted orthopedic hardware)
- Date and time of specimen collection with notation of markers or tags such as clips or sutures. Also include statement of what they represent.
- Physician identification and contact information
- Perioperative RN identification
### PRACTICE QUESTIONS:

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
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<tbody>
<tr>
<td>What is the difference between the following:</td>
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<tr>
<td>A. Biopsy</td>
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<td>B. Frozen section</td>
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<tr>
<td>C. Cytology</td>
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<tr>
<td>D. Routine specimen</td>
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<tr>
<td>E. Culture</td>
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<tr>
<td>List the steps YOU would take to identify and label several specimens that were collected in the last surgery you scrubbed in on.</td>
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</table>
| P.5  | **Definition of Sterile Technique:** The use of specific actions and activities to **prevent contamination** and maintain sterility of identified areas during operative or other invasive procedures.  

The perioperative team implements **aseptic technique practices** to meet the primary goals of:  
- Minimize the length of recovery from surgery  
- Optimize primary wound healing  
- Prevent surgical site infection |
| P.7  | Refer to the AORN Guideline for Sterile Technique:  
**Attire:**  
- When in the restricted area, all non-scrubbed personnel should wear **a freshly laundered or single-use long-sleeved warm-up jacket** snapped closed with the cuffs down to the wrists or a long-sleeved scrub top.  
- Scrubs (scrub top and pants) should not be worn outside of the hospital. Cover apparel should be laundered daily in a health care approved or accredited laundry facility.  
- Shoes made of cloth, that are open-toed, or have holes in the top or sides do not offer protection against spilled liquids or sharp items that may be dropped or kicked.  
- A clean, low-lint surgical **bouffant head covering or hood** that confines hair and covers scalp skin should be worn.  
- A fresh clean mask should be worn for every procedure. The mask should be replaced and discarded whenever it becomes wet or soiled.  
- **Protective Eyewear**  
- **NO** stethoscopes around the neck, **NO** masks hanging down and touching the front of the sterile gown, **NO** jewelry of any kind to be worn by surgical personnel in the surgical suite. |
| P.14 | **Open assisted gloving:** In contrast, during open assisted gloving, the team member's gown sleeve is pulled up so that the gown cuff is at wrist level, leaving the fingers and hand exposed.  
It is important to note that **open assisted gloving should only be used when closed assisted gloving is not possible or practical.**  
During open assisted gloving, the team member's gown sleeve is pulled up so that the gown cuff is at wrist level, leaving the fingers and hand exposed. **When the scrubbed team member's hands pass through and beyond the cuff, the sleeve cuffs are considered contaminated.** |
| P.23 | Processes for opening and presenting a variety of sterile items to a sterile field.  
**Opening wrapped sterile supplies in the proper sequence.**  
1. the farthest wrapper flap,  
2. each of the side flaps, and  
3. the nearest wrapper flap. |
| P.26 | **Recommendation VI** - transferring and handling medications and sterile solutions on the sterile field.  
Use a **sterile transfer device** such as a sterile vial spike when transferring medications or solutions to the sterile field. |
Sterile fields should be constantly monitored. Once created, a sterile field should not be left unattended until the operative or other invasive procedure is completed.

Doors should not be taped closed as an alternative to monitoring the sterile field.

**NOTE:** Direct observation increases the likelihood of detecting a breach in sterility.

Sterile fields may be covered
- when there is an unanticipated delay, or
- during periods of increased activity.

**NOTE:** Covering may help to preserve the sterility of the field and minimize exposure to environmental contaminants.

What should the perioperative nurse do if a dirty instrument is found on the back table before the patient enters the OR?

Outcome Indicators per the PNDS applied to a patient undergoing surgery include a medical regimen of preoperative antibiotics.

**PRACTICE QUESTIONS:**

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
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<tbody>
<tr>
<td>List the areas of the sterile gown that are considered sterile:</td>
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<tr>
<td>The barrier performance class of surgical gowns, gloves and drape products refers to:</td>
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<tr>
<td>Explain the reasons for double-gloving and how a perioperative nurse would know his/her glove was perforated:</td>
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<tr>
<td>Why is there a recommendation to change surgical gloves after a maximum time of 150 minutes?</td>
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<tr>
<td>Describe the process of applying sterile drapes on the back table:</td>
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<tr>
<td>Plastic adhesive incise drapes should NOT be used for prevention of surgical site infection - why?</td>
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**PCC_Sterilization and Disinfection– Final Exam Study Guide**

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
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<tbody>
<tr>
<td><strong>Objectives</strong></td>
<td></td>
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<tr>
<td>• Describe the risk factors that may contribute to surgical site infections</td>
<td></td>
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<tr>
<td>• Define the four surgical wound classifications</td>
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<tr>
<td>• Describe the processes of instrument decontamination prior to preparation for sterilization</td>
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<tr>
<td>• Identify the process steps necessary for sterilization</td>
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<td>• Identify the features of an ideal packaging system</td>
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<td>• Identify the features of three sterilization methods</td>
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<tr>
<td>• Identify two types of process control methods</td>
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<tr>
<td>• Explain the parameters for sterilization of implants</td>
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<tr>
<td>• Describe the requirements for perioperative documentation of implants</td>
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<tr>
<th>P.6</th>
<th><strong>Surgical Conscience –</strong></th>
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<tr>
<td>• Requires mental alertness to errors and the ability to speak out about breaks in technique made by others on the team and by themselves.</td>
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<tr>
<td>• It involves the ability to set aside personal preferences and prejudices in order to provide optimum patient care.</td>
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</table>
**Surgical conscience** is that concept which allows for no compromise in the principles of aseptic technique, since anything less could increase the potential risk of infection, resulting in harm to the patient.

**P.22** The first step in the sterilization process is **cleaning**. Removing gross soil and moistening soil at the point of use improves the efficiency and effectiveness of the next step - decontamination.

**P.27** **Decontamination**

Instruments used during surgery should be cleaned and decontaminated. What are some steps in the decontamination process?

- Open box locks and disassemble instruments with multiple parts.
- Use an enzymatic detergent on heavily soiled instruments.
- Wear personal protective equipment.
- Instruments with lumens should be flushed with water or detergent solution.

**P.31** **Automated Cleaning and Decontamination**

- Ultrasonic cleaner – Removes fine debris through cavitation
- Washer decontaminator/disinfector – Allows hands-free processing and renders instruments safe for handling
- Washer/sterilizer – Process instruments through several cycles. Instruments are NOT considered prepared for use.

**P.45** Immediate-use steam sterilization should be used **only when there is insufficient time to process** by the preferred wrapped or container method.

**P.60 and 63** **Biological Monitoring** - After exposure to the sterilization cycle and incubation, the absence of growth indicates that the appropriate parameters have been met. **No growth, no color change, or no fluorescence demonstrates a negative response or that the intended physical conditions in the sterilizer were met.**

**P.69-70** **Storage of Sterile Items**

What are the conditions that are important considerations in maintaining the sterility of an item?

- **Condition of the storage area, that is, cleanliness, temperature, humidity, air exchange**
  - The temperature in the sterile storage areas should fall between 72 and 78°F.
  - The storage area should have at least four air exchanges per hour.
  - Relative humidity should be controlled to be within 60-70%.
- **Traffic should be controlled to limit access to those trained in handling sterile supplies.**
- **Supplies should be stored in a manner that allows adequate air circulation, ease of cleaning, and compliance with local fire codes.**
PRACTICE QUESTIONS:

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
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<tbody>
<tr>
<td>List the properties of low-temperature gas plasma hydrogen peroxide sterilization.</td>
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<tr>
<td>Explain the difference between sterile technique and aseptic practices.</td>
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</table>

PCC_ Surgical Draping – Final Exam Study Guide

<table>
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<tr>
<th>Page</th>
<th>Content You Should Know</th>
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</table>
| Objectives | - Identify the purpose of surgical draping  
                 - Describe AORN’s Guidelines for selection of draping materials  
                 - Identify standard types of surgical drapes  
                 - Discuss the guidelines for proper draping of an extremity |
| P.3  | The expected outcome of primary importance when draping the surgical patient would be:  
                   *The patient is free from signs and symptoms of infection* |
| P.4  | The sterile field consists of:  
                   - Patient  
                   - OR bed  
                   - Instrument table  
                   - Mayo stand  
                   - Equipment  
                   Items that may be draped as part of the sterile field include:  
                   - Mayo stand  
                   - Back table  
                   - Microscopes  
                   - Drills  
                   - C-arm |
### P.6 Desirable characteristics of surgical drapes include:
- Provides a barrier to prevent the migration of microorganisms
- Resistant to tearing, puncture or abrasion
- Antistatic and non-allergenic
- Dull and non-glaring to minimize distortions under the OR lights

### P.8 Disposable Drapes:
- Disposable drapes are usually soft, lint-free, lightweight, compact, moisture-resistant, nonirritating, and static-free.
- Other advantages of disposable drapes include their moisture repellency and their ability to retard “strike-through” of fluids which prevents contamination. They are also lint free and light-weight, yet strong enough to prevent tears.

Reusable Drapes:
- Reusable drapes are exposed to repeated laundering and sterilization. The moisture causes the fibers to swell, and drying shrinks them. This causes the fibers to loosen and, over time, they lose their ability to be a protective barrier. Most manufacturers report a decrease in barrier quality after 75 to 100 laundry or sterilization cycles.

### P.10 There are 4 basic styles of drapes:
1. Towels
2. Fenestrated sheets
3. Non-fenestrated sheets
4. Plastic drapes

### P.12 Types of drapes and their uses:
- Laparotomy Sheet—abdominal areas
- Thyroid Sheet – neck
- Breast Sheet – Breast or chest
- Extremity Sheet – Cover arm boards, pieces of furniture, or a patient’s extremity

### P.18 Describe the draping procedure:
- Cuff the drapes over gloved hand. This prevents the hand from being contaminated.
- Drape from the operative site to the periphery.
- Drape from a sterile area to an unsterile area by draping the nearest first.
- Extra draping material may be needed for procedures on the extremities.
- When draping the opposite side, the scrubbed person should walk around the OR bed to drape.
- Drapes that are incorrectly placed should be discarded by an unscrubbed person.
The circulating nurse observes the laparotomy drape fall below the waist level of the scrub person. What is the best action for the nurse to take?
Once the drape is placed, it should not be moved or repositioned. Do not allow drapes to fall below waist, as this area is considered contaminated. If this happens, the drape should be discarded.

### PRACTICE QUESTIONS:

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<thead>
<tr>
<th>PRACTICE QUESTION</th>
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<tbody>
<tr>
<td>Describe the procedure for draping the back table:</td>
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<tr>
<td><strong>Preparation:</strong></td>
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<tr>
<td><strong>Procedure:</strong></td>
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<tr>
<td>Describe the procedure for the removal of contaminated drapes after the surgical procedure has concluded:</td>
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</table>
## Objectives

Instruments are integral tools to all surgical procedures. The perioperative nurse must have an understanding of the use, handling, and care of surgical instruments. This understanding along with careful planning, preparation, and use of instruments contributes to an efficient, effective surgical procedure within a safe environment.

- Identify common examples of each of the categories of surgical instruments
- Describe how to pass sharps on the surgical field safely
- Describe the basic types of powered surgical instruments
- Describe basic principles of safe care for surgical instruments

## P. 8

Metal alloys used in manufacturing surgical instruments:

- Stainless Steel
- Titanium
- Vitallium
- Other metals

## P. 12

Using Surgical Instruments – incorporate the sequence of events in a surgical procedure and the corresponding instruments:

1. Surgical incision – uses a cutting instrument
2. Clamps are used to control bleeding
3. Graspers are used to hold tissue
4. Electrosurgical energy may be used to create hemostasis
5. Cutting of internal tissue
6. Retractors used to expose surgical field
7. Suction evacuation used to eliminate surgical smoke or to suction fluid or blood

## P. 13

5 basic categories of surgical instruments:

1. Cutting & Dissecting
2. Clamping & Occluding
3. Grasping & Holding
4. Exposing & Retracting
5. Accessory & Ancillary

## P. 15-18

**Cutting and Dissection Instruments**

Knives (scalpels) have 2 parts, the handle and the blade. Specialized knives include

- chisels,
- curettes,
- ronguers,
- osteotomes,
- amputation knife, and
- a variety of powered surgical instruments

P.19  **A Neutral Zone** is a designated area on the sterile field where the scrub person and the surgeon place all sharp instruments. It may be a magnetic pad, a basin, or a specially designed disposable pad.

Pp. 21-26  **Cutting & Dissection – Scissors**
The blades must meet at the swivel and the cutting point for scissors to cut smoothly.

Two basic types of scissors: tissue and suture. Other cutting instruments include biopsy forceps, chisels, curettes, osteotomes, rasps, rongeurs, saws, snares, and trephines.

Pp.29-34  **Clamping & Grasping** - The jaws form the working end of the clamp. This is the part that makes contact with the tissue. Clamps are differentiated by their jaws.

P.33  **Hemostats** are used to prevent excessive loss of fluid, usually blood, by closing the severed ends of a vessel with a minimum of tissue damage.

1. **Crile** – Used to control bleeders in subcutaneous tissues *(A layer of loose, irregular connective tissue immediately beneath the skin)*
2. **Mosquito** – Used to control superficial bleeders in delicate tissues (examples: plastic surgery or hand surgery)
3. **Kelly** – Used to control bleeders in muscle tissues

P.37  **Grasping & Holding instruments**
- Grasping and holding instruments are used to atraumatically hold tissue to allow the surgeon to dissect and/or suture tissue without causing injury.
- Graspers and holder instruments (clamps) have jaws that are designed for a specific use.
- Instruments in this category include tissue forceps, sponge forceps, towel forceps, allis forceps, babcocks, stone forceps, tennacula, and needle holders.

P. 42  **Non-clamping Grasping & Holding Instruments**
Non-clamping grasping instruments enable surgeons to pick up and hold tissue while they are cutting with scissors or sewing with a needle. The most common types of graspers are the two-bladed, tweezer-like forceps or "pickups" that are used for handling tissues and dressings.
Grasping & Holding Instruments: Forceps
Commonly used grasping forceps:
- Tissue
- Atraumatic
- Smooth
- Cushing

Retractors
- Handheld/Manual
- Self-Retaining

Retractor tips are varied according to the delicacy of the tissue to be retracted. Sharp points are used to hold tough tissue, while smooth tips are used for delicate tissue such as bowel or liver. Retractors are also selected based on the depth within the body where they will be used. Some retractors have short blades for surface retraction, while others have deeper or longer blades for deep organ retraction.

Self-retaining retractors have holding devices, locks, and catches, which keep the retractor in a preset spread position after it is inserted and adjusted. To maintain wound exposure during repair of an inguinal hernia, a Weitlaner retractor may be used. Like the Jansen retractor, the Weitlaner has two blades held apart by a ratchet. It may have sharp or blunt jaws and 2 x 3 or 3 x 4 teeth.

Accessory and Ancillary
Used in conjunction with other instruments to expedite procedure. Includes dilators, mallets, ESU devices, probes, suction tips irrigator/aspirator, and screwdrivers.

Stapling Instruments (gastrointestinal, ligating/dividing, thoracoabdominal) are available for both internal and external stapling. They also come as disposable instruments, or non-disposable with disposable inserts. Most staples are composed of titanium.

Powered Cutting Instruments
Precision-designed to make working with bone and cartilage easier. The first powered instruments were powered by electricity, air or nitrogen under pressure, and batteries. Types include dermatomes, craniotomies, phaco, drills, and sternal saw. Powered cutting instruments are commonly used as:
- Bone reamers
- Variable speed saws
- Tissue shavers

Care & handling of powered instruments:
- Always hand the powered instrument to the surgeon with the safety turned on.
- Always use the instrument with the blade or drill guard in place.
• Always have irrigation ready to use with the drill or saw, because they generate enough heat to injure or burn surrounding tissue.

**PRACTICE QUESTIONS:**

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<thead>
<tr>
<th>PRACTICE QUESTION</th>
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<tr>
<td>Why is it so important for the perioperative nurse to have a thorough understanding of the use, handling and care of all surgical instruments?</td>
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<tr>
<td>Why is it important for instruments to be cleaned and decontaminated as soon as possible after use?</td>
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<tr>
<td>Why is the first step always cleaning a surgical instrument?</td>
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<tr>
<td>What are the repercussions of NOT inspecting each instrument before and after each use to detect imperfections?</td>
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### Content You Should Know

<table>
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<th>Objective(s)</th>
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|     | - Differentiate among the roles of the surgical team members  
|     | - Describe the three zones of the surgical suite  
|     | - Select the proper attire for surgical team members in each zone of the surgical suite  
|     | - Identify the activities that take place during each phase of the nursing process related to the perioperative environment  
|     | - Describe how statistical data are used by the health care facility |
| P.1 | Concepts critical to the perioperative environment focus on:  
|     |   - Establishing geographic isolation within the facility (ie, protected from unauthorized personnel)  
|     |   - Obtaining bacteriologic isolation through specific practices (eg, attire, delivery and disposal systems) intended to prevent cross-contamination from or to other areas of the facility  
|     |   - Centralizing equipment and supplies to provide immediate access to specific items needed for surgery without requiring that personnel leave the protected area |
| P.5 | Individualized Care - Individualized care reflects the art of nursing, the "unique approach" to meeting the individual needs of the patient. This may include providing comfort measures to allay the fears of the patient, wiping tears, or holding a hand as the patient is being anesthetized for surgery.  
|     | Standardized Care - Standardized care is derived from a body of scientific knowledge that has been developed through research and clinical practice. Standards set the expectations of the full professional role within which the nurse practices. An example of standardized practice would be counting sponges for all procedures in which the possibility exists that a sponge could be retained. |
| P.24 | The restricted zone, where operating rooms are located, is located within the semi-restricted area and is only accessible through a semi-restricted area. It includes the actual OR where surgical or other invasive procedures are performed. |
| PP.24-25 | The Restricted Zone –  
|     |   - Air flow in the OR rooms should be cleaned by a HEPA filter  
|     |   - Masks are required when open sterile supplies are present  
|     |   - The air should be under positive pressure  
|     |   - 20 air exchanges per hour with a minimum of 4 of the exchanges from outdoor air  
|     |   - The temperature should be generally maintained between 68°C and 75°F (20°C – 24°C) |
The relative humidity should be maintained between 20% – 60% at all times.

**Semi-restricted includes:**
- Equipment and sterile supply storage
- Sterile processing department

**Unrestricted includes:**
- Pre-op holding area
- Waiting rooms

**P.28 Two-Piece Scrub Suit**
The two-piece scrub suit is a garment constructed of lint-free material that minimizes bacterial shedding. The top of a two-piece scrub suits should be secured at the waist, tucked into the pants, or fit closely to the body to prevent skin cells from being dispersed into the environment.

The warm-up jacket is snapped up the front and has cuffs down to the wrists.

**P.30**
A sterile gown is worn over the scrub suit as a part of the requirements for the sterile team. Gowns may be made of disposable or reusable material and should be resistant to "strike-through" by fluids.

**P.31**
Hair is a source of gross contamination. It acts as a filter and collects bacteria. All hair should be covered before surgical attire is donned.

All hair must be confined and covered including sideburns and neckline hair. *Skull caps should NOT be worn because they may not contain sideburns and neckline hair.*

**P.43 Responsibilities’ of the Circulating RN:**
Include:
- providing emotional support to patient before anesthesia induction;
- performing ongoing patient assessment;
- verifying accurate and complete preparation of supplies, instruments, and equipment preoperatively for each patient;
- creating and maintaining a safe environment;
- implementing and enforcing policies and procedures;
- preparing specimens;
- coordinating nursing care from other health care team members for each patient;
- communicating information to other members of health care team and family; and
- documenting patient care.
Important examples of activities that are made possible with perioperative nursing documentation:
- Billing documents for finance and accounting
- Supply and equipment inventory
- Communication of patient care by caregivers

The first form of documentation is patient charting. This documentation provides a basis for future reference to be used for things like:
- Ensure the quality of patient care
- Reconstruct a personal experience record
- As evidence in a court of law

PRACTICE QUESTIONS:

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<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
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<tr>
<td>Depending on the facility, the anesthesia professional may be a nurse anesthetist or an anesthesiologist. What is the difference between the two as far as education and responsibilities?</td>
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<tr>
<td>List the 7 steps of the Nursing Process. Give a brief description/example of what should happen in each step.</td>
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<tr>
<td>What is the purpose of a standardized nursing language such as PNDS?</td>
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<tr>
<td>In your group of students, have one person dress in the appropriate attire for each of the following zones: 1. The Unrestricted Zone 2. The Semi-restricted Zone 3. The Restricted Zone Have each person that is dressed for each of the zones describe what they put on and why that piece of attire is required.</td>
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### Content You Should Know

<table>
<thead>
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<th>Objectives</th>
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</table>
|      | - Identify three principal elements required for an infection to occur.  
|      | - Describe practices to be implemented when adhering to the OSHA Blood borne Pathogen Standard and Standard and Transmission-based precautions.  
|      | - Identify methods for prevention of hospital acquired infections (HAIs) such as:  
|      |   o Surgical site infections (SSIs),  
|      |   o Multi-drug resistant organisms (MDROs),  
|      |   o Central line-associated bloodstream infections (CLABSIs), and  
|      |   o Catheter-associated urinary tract infections (CAUTIs).  
|      | - List the recommended vaccinations for health care providers.  
|      | - Describe the Centers for Disease Control (CDC) Surgical Wound Classification System. |

P.3 The three principle **elements of an infection**
- 1. A source or reservoir
- 2. A susceptible host
- 3. A method of transmission

P.4 **Standard Precautions** - This is one of the most effective ways to prevent disease transmission and control infections in health care settings. Review the following standard precautions and their details.
- **Hand Hygiene** - This includes the perioperative nurse washing his/her hands prior to greeting the patient in the pre-operative area.
  - PPE
  - Patient Resuscitation
  - Environmental Control

P.6 through 12 **Transmission-Based Precautions** – Review how pathogens are transmitted to hospital patients and staff via these methods
- **Contact Precautions**– Direct and Indirect
  - **Droplet Precautions**
  - **Airborne Precautions**

P.14 **Blood borne Pathogens** – Review the methods for preventing blood borne pathogen exposure.
- **PPE**
- **Garments**
- **Masks**
• Eye Protection
• Surgical caps and shoe coverings
• Gloves

P.18 **Prevention of Surgical Site Infections** – Review each method including:
• Sterile technique
• Environmental cleaning protocols
• Surgical attire and barriers
• Skin antisepsis
• Hand hygiene
• Minimizing OR traffic
• Sterilization methods
• Testing and treating carriers

P.20 **MDRO’s – Multidrug-resistant Organisms**
2 most common are:
  o methicillin-resistant S aureus (MRSA)
  o vancomycin-resistant enterococci (VRE)
Review methods to prevent MDRO’s in the hospital setting.

P.21 **CLABSI** - Central line-associated bloodstream infections. Review the CDC guidelines for the prevention of CLABSI.

P.22 **CAUTI** - catheter-associated UTI. Review the CDC guidelines for the prevention of CAUTI.

P.27 Review the **Wound Classification Tree** PDF document. Understand the Wound Classifications and examples:
• Class I – Clean – not infected, not inflamed – wound result of blunt trauma
• Class II – Clean-Contaminated – evidence of infection or contamination – spillage from gastrointestinal tract
• Class III – Contaminated – non-purulent inflammation
• Class IV – Dirty, infected – retained devitalized tissue like gangrene, presence of purulence

Note: *Purulent means full of, containing, forming or discharging PUS. Non-purulent would mean NOT containing PUS.*
**PRACTICE QUESTIONS:**

<table>
<thead>
<tr>
<th>PRACTICE QUESTION</th>
<th>YOUR ANSWER</th>
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</thead>
<tbody>
<tr>
<td>Why is it important for you, as a perioperative nurse, to know and practice all methods for preventing blood borne pathogens?</td>
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<tr>
<td><strong>Standard precautions include practices for:</strong></td>
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<tr>
<td>- hand hygiene,</td>
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<tr>
<td>- PPE,</td>
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<td>- patient resuscitation,</td>
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<td>- environmental control,</td>
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<td>- respiratory hygiene,</td>
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<td>- cough etiquette,</td>
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<td>- sharps safety,</td>
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<td>- textiles and</td>
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<td>- laundry.</td>
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<tr>
<td>Describe the practices that you would incorporate for each of these standard precautions.</td>
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</tbody>
</table>
## Objectives

- Differentiate between the characteristics of various suture materials
- Describe the relationship between the type of tissue and the appropriate type of suture to be used
- Identify characteristics of various types of needle points
- Provide two examples of skin closure products

### P.11 Natural Absorbable Sutures

- TYPES: Surgical gut and collagen
- Both types are packaged in fluid, which may be irritating, particularly to eye tissue.
- As a precaution, open packages over a small basin to prevent splashing on the field or into the eyes.

### P.14 Synthetic Absorbable Sutures

- Are made of polymers
- Some examples of synthetic absorbable sutures include:
  - Poliglecaprone – Brand name is Monocryl
  - Poliglyconate – Brand name is Maxon
  - Polyglaclin – Brand name is Vicryl
  - Polyglycolic Acid – Brand name is Dexon
  - Polydioxanone – Brand Name is PDS AND PDS II

### P.20 Surgical Stainless Steel

- Made from 316L-SS low-carbon iron alloy wire
- Used for abdominal wall closure or sternum, respiratory tract, Orthopedics and Neurosurgery
- Stainless steel may also be used in the presence of infection but NOT in the presence of another alloy such as titanium.

### P.26 Polypropylene

- Material of choice for plastic surgery. Recommended suture size is 5-0.

### P.33 Taper Point Needles

- A needle in this second category has a smooth point with no cutting edges. It pushes the tissue aside when passing through and is used for aponeurosis, biliary tract, dura, fascia, GI tract, muscle, myocardium, nerve, peritoneum, pleura, subcutaneous fat and vessels (example: vascular anastomosis).

### P.34 Blunt Point Needles

- Have a rounded blunt tip and will not cut tissue.
- Blunt points are used for dissection of friable tissue e.g. kidney, liver, spleen, and uterine cervix ligation.
### Disposable Stapling Instrument Sets
- Disposable stapling sets, or single instruments, come preassembled and sterile.
- These instruments are self-contained, lightweight, and available in a variety of sizes.

### Skin Clips
- The clips tend to cause more scar tissue formation than other methods.
- They can be applied quickly, and are good for critical cases, not cosmetic ones.
- The surgeon may use clips when infection or drainage is present.

### Skin Adhesives
- A combination of liquid monomers form polymers in the presence of water and act as a liquid topical skin adhesive which can be used as a replacement for sutures.
- These products are fast setting adhesives primarily used on facial, extremity, and torso wounds.
- It is reported they attain the strength of healed tissue after seven days.

## PRACTICE QUESTIONS:

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<tr>
<td>List the desirable characteristics for surgical needles and explain why these characteristics are important.</td>
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<tr>
<td>Describe two things:</td>
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<tr>
<td>- How you would place the needle in the needle holder</td>
<td></td>
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<tr>
<td>- The process of passing the needle holder to the surgeon</td>
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</tbody>
</table>
### Objectives
- Describe the steps involved in the body’s defense mechanisms.
- Identify the events that take place during the inflammation phase of healing.
- Compare the characteristics of each of the 4 wound classifications.
- Differentiate between the preoperative and intraoperative factors that affect wound healing.

### Content You Should Know

#### P.4
The correct sequence of events involved in the body’s defense mechanisms for a wound is as follows:
1. Stop the bleeding
2. Clean the wound of debris
3. Seal the wound against infection
4. Regenerate the natural epidermal covering
5. Repair deeper tissue damage

#### P.5
Name 5 factors affecting healing that are controlled by the surgical team:
1. Maintenance of sterile and aseptic techniques to prevent infection
2. Hemostasis
3. Removal of necrotic tissue and foreign material
4. Choice of closure material
5. Closing with sufficient tension

#### P.8
Events that occur during the Inflammation Phase of wound healing:
- Hemostasis
- Phagocytosis
- Edema

#### P.9
Events that occur during the Proliferation Phase of wound healing:
- Epithelialization
- Neovascularization
- Collagen synthesis
- Contraction

#### P.10
Events that occur during the Remodeling Phase of wound healing:
- Collagen remodeling
- Tensile strength gain

#### P.12
Granulation or second intention - Wound left open and allowed to heal from the inner layer to the outer surface without additional surgery.

#### P.27-28
What are the preoperative systemic factors that negatively affect wound healing?
1. Inadequate Nutrition:
### 1. Nutritional Factors:

a. Protein deficiency  
b. Carb and fat deficiency  
c. Deficiency of vitamins, A, B, C and the mineral Zinc  

2. **Physical Conditions:**

a. Older in age  
b. Medications such as steroids  
c. Obesity  
d. Smoking  
e. Chronic diseases such as diabetes

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**PRACTICE QUESTIONS:**

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<tr>
<td>From the list of wound examples, list the wound type:</td>
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<tr>
<td>a. Colon resection</td>
<td></td>
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<tr>
<td>b. Ruptured appendix</td>
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<tr>
<td>c. Fresh surgical incision</td>
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<tr>
<td>d. Open leg wound from a car accident</td>
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</tbody>
</table>

Why is collagen production so important in wound healing?
## ASC Preoperative Patient Care

<table>
<thead>
<tr>
<th>Page</th>
<th>Content You Should Know</th>
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</table>
| **Objectives** | - Define preoperative admission guidelines  
- Identify critical preoperative risk factors  
- Describe a patient education plan |
| P.6 | To ensure delivery of safe and efficient patient care, a thorough patient assessment is essential. The ASC must develop a systematic preoperative assessment process that includes physical and psychosocial questions that assist in identifying unique patient considerations. Some ASC’s may use a web-based questionnaire that is completed on line by the patient, and then reviewed by the RN. If the nurse has any concerns or needs additional information, he or she may follow up with a phone call to the patient. |
| P.8 | The nursing assessment can help determine whether the following critical risk factors could contribute to a possible adverse event:  
- High body mass index (obesity)  
- Potential for development of deep vein thrombosis  
- History of obstructive sleep apnea  
- Results of diagnostic testing (abnormal findings)  
- History of coronary artery disease (cardiac clearance)  
- Age considerations (pediatrics)  
- Age considerations (geriatrics)  
- Latex sensitivity or allergy  
- Patient or family history of malignant hyperthermia  
- Potential for unplanned hypothermia  
- Potential for development of a surgical site infection  
- Need for isolation or respiratory precautions |
| P.23 | Preoperative Holding Area: It is the responsibility of the RN to:  
- Validate patient health history information that was obtained during the preoperative assessment process  
- Assess any changes in preoperative status  
- Check any last-minute lab results that were not available during the preop phone call (eg, pregnancy test, diabetic urine test, etc.)  
- Assess for special patient safety needs  
- Verify the patient's identity with 2 identifiers  
- Note the patient's baseline vital signs |
- Note medications the patient has taken including time, last dose, and for what purpose
- Assess the patient's pain level on admission
- Verify the surgical procedure, surgery time details, surgical site, and skin integrity
- Verify marking of surgical site by the patient and surgeon
- Obtain IV access
- Check the patient for presence of fever or infection
- Allow the patient to ask questions
- Ensure the anesthesia evaluation is completed
- Review the patient's chart for appropriate documentation
- Develop a pre-procedure verification process

### P.28

Information to be communicated or documented on the verification checklist before transfer of patient care from the preoperative area to the surgical suite or GI procedure room includes:

- NPO status, allergies, and vital signs including pain assessment, oxygen saturation, height and weight
- The presence or absence of any advance directives documents (if the patient has no advance directive, they must be asked if they wish to be given information on an advance directive)
- Medication profile including preoperative medications
- Relevant cultural, spiritual, psycho-social, and/or educational patient needs
- The patient's primary language
- The family or significant other contact information
- The patient's risk for hypothermia, deep vein thrombosis (DVT), difficult airway, and surgical site infection
- Performance measures (e.g., antibiotic prophylaxis, beta-blocker administration)
- The patient has been seen by the surgeon and anesthesia provider
- The patient is ready for transfer

### P.31

**Perioperative Education Program:**

- Should start with a preoperative interview
- Should consider the patients cognitive ability when explaining the education plan
- Should take into consideration any language or sensory barriers (i.e., hearing aids)
- Should provide information about pain management
### Objectives
- List the postanesthesia levels of care
- Identify key points of ongoing patient assessment
- Explain the concept of fast tracking

### P.6
During admission of a patient to Phase 1 of postanesthesia care, the RN is responsible for the following patient assessments:

1. level of consciousness
2. pain level
3. the surgical dressing including any drainage
4. airway status - maintaining a patent airway
5. blood pressure, heart rate, oxygen saturation

### P.9
Education is the focus in Phase II, as this will be the last stop before being discharged home. Patients are told what to expect after they are home.

### P.11
When administering anti-emetics, it is important to not over sedate the patient when administering antiemetics and to protect the airway. Risk factors for PONV include:

- history of PONV,
- history of motion sickness,
- use of some inhalation agents (isoflurane, sevoflurane, desflurane),
- the use of nitrous oxide,
- the use of postoperative opioids,
- female gender, and
- non-smoker status.