CCI CNOR - Quiz Questions with Answers

1. Pre/Postoperative Patient Assessment and Diagnosis

1.

A female patient who is recovering in the postoperative anesthesia care unit (PACU) after a diagnostic cardiac procedure verbalizes concern to the PACU nurse that she is at greater risk of cardiovascular (CV) disease due to a strong family history of CV issues. She has heard that there are several pharmacologic agents and nutritional supplements to lower CV risk.

Which of the following statements regarding the use of specific pharmacologic agents or nutritional supplements to prevent the development of CV disease (CVD) is accurate?

Aspirin therapy has been successfully used for the prevention of CVD, including thromboembolic stroke, and is commonly recommended as a preventative measure.

Folic acid supplementation has been successfully used for the prevention of CVD, including ischemic stroke, and is commonly recommended as a preventative measure.

Hormone therapy has been successfully used for the prevention of CVD, including myocardial infarction, and is commonly recommended as a preventative measure.

Antioxidant supplementation, including vitamins E and C, has been successfully used for the prevention of CVD and is commonly recommended as a preventative measure.

Correct answer: Aspirin therapy has been successfully used for the prevention of CVD, including thromboembolic stroke, and is commonly recommended as a preventative measure.

Women are far more likely than men to believe they can prevent or treat CVD by using pharmaceuticals or nutritional supplements, despite the lack of evidence supporting their effectiveness in the treatment of CVD. While hormone replacement therapy has been prescribed by practitioners to female patients to aid in preventing CVD, this practice is controversial and is not recommended by the Women's Health

Initiative (WHI). In studies, folic acid supplementation has been shown to decrease the risk of CVD and associated CV injury, including myocardial infarction (MI) and ischemic stroke, but it is not currently recommended for preventing primary or secondary CVD.

Studies investigating the use of antioxidant vitamin supplements—such as vitamin E, vitamin C, and beta-carotene—to prevent the development of CVD provide conflicting information; observational studies seem to suggest that antioxidant supplementation is associated with a decreased risk of CVD and CVD-related injury, while randomized trials were unable to support those findings. Routine administration of aspirin (ASA) to women under the age of 65 years is not recommended, but its use in healthy women over the age of 65 may be beneficial in preventing ischemic stroke and MI if the risks of gastrointestinal bleeding are low in the specific patient. ASA administration may also be beneficial for women who have a history of atrial fibrillation and are unable to take warfarin.

2.

A 25-week preterm infant requires surgery to correct gastroschisis. From whom should the surgeon obtain signature of informed consent?

The infant's 15-year-old mother

The infant's 21-year-old father who is currently incarcerated

The maternal grandmother of the infant with whom the infant's mother has a good relationship but does not reside with

An adult member of the foster family with whom the infant's mother currently resides

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Correct answer: The infant's 15-year-old mother

Individuals who sign informed consent must be of legal age, mentally competent, not incapacitated by alcohol or other drugs, and not under coercion to sign. A minor parent of an infant or child who requires surgery is allowed to sign informed consent for his or her child as long as he or she is deemed to be mentally competent, not impaired or incapacitated by drugs or alcohol, and is not being coerced to sign.

Delaying surgery by waiting to obtain informed consent from an incarcerated, but of legal age, parent is not advisable in this situation. While the teenage mother of the infant may desire emotional support and input from her mother, the infant's maternal grandmother, unless the maternal grandmother has already been granted legal guardianship of the infant, is not the correct individual to sign the consent in this scenario.

Teenage parents residing in foster care may benefit from the love and support of their foster family; however, again, a member of the foster family is not the correct individual to sign the consent in this scenario.

3.

Preoperative teaching given to a patient with diabetes includes all the following measures to prevent thrombophlebitis except:

Monitoring and control of his blood sugar

Foot and ankle exercises

Anti-embolism stockings on legs

Sequential anti-embolism foot/leg wraps

Correct answer: Monitoring and control of his blood sugar

A diabetic patient faces increased risk of thrombophlebitis. Preoperative teaching will include patient education on foot and ankle exercises to practice, and that he will be wearing antiembolic stockings during the surgical procedure and postoperatively, as well as sequential compression foot/leg wraps to prevent deep vein thrombosis during long periods of immobility.

Blood sugar monitoring and control is vitally important in diabetic patients but does not reduce the risk of thrombophlebitis.

4.

The World Health Organization (WHO) Universal Protocol has been included in the Comprehensive Checklist advocated by the Association of periOperative Registered Nurses (AORN). What are the preoperative (or pre-procedure) components of this checklist?

Patient identity, procedure and procedure site, consent(s), history and physical including diagnostic and radiologic test results, and site marking

Patient identity, procedure and procedure site, consent(s), difficult airway assessment, history and physical including diagnostic and radiologic test results

Procedure and procedure site, consent(s), history and physical including diagnostic and radiologic test results, anticipated blood loss, and site marking

Procedure and procedure site, consent(s), history and physical including diagnostic and radiologic test results, site marking, and sterilization indicators

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Correct answer: Patient identity, procedure and procedure site, consent(s), history and physical including diagnostic and radiologic test results, and site marking

Universal Protocol is a standardized means for keeping a patient safe in surgery. These details are critically important to give quality care to your patients and should be checked in the holding area, prior to entering the operating room. Other components included in the pre-procedure check-in list are ensuring a preanesthesia assessment has been completed, blood products are readily available, and any special equipment, devices, or implants should be confirmed. Patient identity must be included every time.

Airway assessment, anticipated blood loss, and sterilization indicators are intraoperative components.

5.

Your preoperative patient has anemia. What potential side effects does this patient face during surgery and anesthesia?

Hypoxia and hypotension

Hypotension and hemorrhage

Hypercalcemia and hemorrhage

Hypovolemia and hypertension

Correct answer: Hypoxia and hypotension

Anemic patients have a deficiency in the quantity or quality of red blood cells (erythrocytes). Hemoglobin, the main component of these cells, delivers oxygen to tissues. Normal hemoglobin values are 14 to 18 g/dL in males, 12 to 16 g/dL in females, and 11 to 16 g/dL in children. These values are lower in patients with anemia.

The patient will potentially experience tissue hypoxia and hypotension (low blood pressure), not hypertension. Fluid volume and calcium are not affected with anemia. Hemorrhage during surgery would certainly worsen the patient's already-existing condition, but isn't a potential side effect of anemia itself.

6.

As part of the preoperative assessment, a patient who was admitted to the day surgery unit had his temperature checked using an oral thermometer. The nurse recorded the temperature reading. When the patient was in surgery, the intraoperative nurse compared the patient's current core temperature (bladder) reading with the preoperative temperature. Several hours later, the patient was transferred to the postanesthesia care unit (PACU), where his temperature was checked a third time, this time using a temporal artery thermometer.

Which of the following statements regarding methods of assessing a patient's thermoregulation status is accurate?

Temporal artery temperature measurement does not correlate with oral or bladder (core) temperature measurement in the same patient.

Oral temperature measurement correlates well with temporal artery temperature measurement .

When using multiple methods of measuring temperature for the same patient, the nurse should identify trends for optimal temperature assessment.

For female individuals, oral and temporal artery temperature measurements are closely correlated and reliable methods for temperature measurement.

Correct answer: Temporal artery temperature measurement does not correlate with oral or bladder (core) temperature measurement in the same patient.

It is not uncommon for a surgical patient to have their temperature measured using various methods during the same hospital stay. Invasive methods of measuring the core temperature—including the use of probes placed in the rectum, bladder, distal esophagus, or nasopharynx—are common and provide the most accurate measure of the patient's temperature. While these methods are highly accurate, the ability to use these methods outside the operating room (except for critical care areas such as the intensive care unit) is low due to lack of ease and impracticality.

When a patient's temperature is measured using several different methods during the same surgical experience, the ability to translate the results of the temperature readings, and intervene when necessary, becomes impaired. Despite the many available methods of non-invasive temperature measurement, none can correlate accurately with the invasive methods of core temperature measurement. A study evaluating the use of three different methods of temperature measurement (bladder, oral, temporal artery) on the same patient found that temporal artery temperature measurements did not correlate with either oral or bladder temperature

measurements. While oral temperature did not perfectly correlate with bladder temperature measures, it was found to be an accurate and acceptable method of temperature measurement.

7.

Preoperative risk assessment of deep venous thrombosis (DVT) includes diseases which increase this risk. All the following conditions apply **except**:

Chronic obstructive pulmonary disease

Obesity

Heart disease

Thrombophilia

Correct answer: Chronic obstructive pulmonary disease

Venous stasis, age, obesity, immobility, damage to vessel walls, a history of thromboembolic or cardiovascular disease, and changes in clotting factors in the blood are all predisposing factors that increase the risk of developing deep venous thrombosis (DVT). The type, location, and extent of the surgical procedure can contribute also. Preoperative prophylactic interventions, including anticoagulants, sequential compression devices, or antiembolic stockings, can reduce the risk of postoperative pulmonary embolism, which is a life-threatening complication of DVT.

Chronic obstructive pulmonary disease does not increase DVT risk.

8.

Which of the following blood tests measures the ability of the patient's blood to clot by assessing factors V, VII, X, and fibrinogen?

PT (prothrombin time)

PTT (partial thromboplastin time)

Platelets

Serum vitamin K

Correct answer: PT (prothrombin time)

A prothrombin time (PT) measures how long it takes blood to clot by assessing factors V, VII, X, and fibrinogen. A PT test can be used to check for bleeding problems. Patients with a decreased ability to clot may be considered too high risk for surgery due to the potential risk of hemorrhage and may need to have surgery postponed until their clotting ability improves.

A partial thromboplastin time (PTT) is often ordered in conjunction with PT for preoperative testing, and also looks at how long it takes for clotting to occur by assessing different factors. Platelet counts determine the number of platelets in the blood, which can also indicate potential bleeding problems if the count is too low (thrombocytopenia). Vitamin K enables the liver to produce clotting factors in the blood. To reduce the possibility of intraoperative hemorrhage, patients who have been receiving anticoagulant therapy and those who have faulty metabolism or absorption of Vitamin K are given Vitamin K preoperatively.

9.

NPO (nothing by mouth) refers to no food or water before surgery. NPO time is reduced for what patient groups?

Infants, small children, diabetic patients, older adults prone to dehydration

Infants, small children, school age children, diabetic patients

Infants, small children, ventilator-assisted patients, older adults prone to dehydration

Infants, small children, malnourished patients, older adults prone to dehydration

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Correct answer: Infants, small children, diabetic patients, older adults prone to dehydration

To prevent regurgitation or emesis, and aspiration of gastric contents, the patient should not ingest solid foods before surgery. These instructions are usually stated as NPO after midnight. Clear fluids may be unrestricted until 2 to 3 hours before the surgical procedure, but only at the discretion of the surgeon or anesthesia provider in selected patients. NPO time is usually reduced for infants, small children, patients with diabetes, and older adults prone to dehydration.

10.

A patient, Mrs. Anna Jones, has arrived in the holding area. You are the circulator on duty. You should identify the patient by:

Asking the patient to give her full name and date of birth, and comparing this information to her identification bracelet and chart

Asking the patient, "Are you Anna Jones?" and asking her to state her date of birth, and comparing this information to her identification bracelet and chart

Reading the patient's full name and date of birth off the paper label at the foot of her bed, asking her for verification, and comparing this information to her identification bracelet and chart

Reading the patient's full name and age on the patient's identification bracelet and chart, and asking her if this information is correct

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Correct answer: Asking the patient to give her full name and date of birth, and comparing this information to her identification bracelet and chart

In the holding area, the nurse should introduce him/herself. The patient should be addressed as Mr., Mrs., or Ms. - not by the first name. It is appropriate to ask the patient to state or spell his or her name. The patient should be asked his or her full name and date of birth. These, including the identification number, should be compared to the patient's identification (ID) bracelet and medical record.

Do not attempt identification by stating their name in your question, as this may lead to misidentification (i.e., "Are you Anna Jones?"). Reading a label off the bed is not sufficient. A person's age isn't an identifier.

11.

The perioperative nurse completed a phone interview with a patient scheduled to undergo a knee joint replacement, and later met with the patient to provide preoperative education. When compared to patients who do not receive face-to-face preoperative education, patients who receive preoperative education while interacting face-to-face with a nurse experience all the following, except:

Similar tolerance to the surgical procedure

Decreased apprehension about the surgical procedure

Improved recall of the preoperative education material

Improved comfort after surgery

Correct answer: Similar tolerance to the surgical procedure

Face-to-face preoperative education which allows for personal interaction between the patient and the perioperative nurse, has been found to be beneficial to patients preparing to undergo surgery.

Improved tolerance to the surgical procedure, better recall of the education material, an appearance of improved comfort after the surgery, and decreased apprehension/anxiety prior to surgery are some of the benefits experienced by patients who have been able to receive their preoperative education directly from the perioperative nurse.

12.

What is a common coping mechanism sometimes seen in children preoperatively?

Regression

Repression

Identification

Denial

Correct answer: Regression

To meet a patient's needs, the health care team should be sensitive to the patient's feelings about the illness. A patient's reactions influence his or her behaviors and the staff's behavioral responses. An understanding of the patient's basic methods of coping is helpful to the caregiver in developing the plan of care. When in a scary or threatening situation, such as facing surgery, a child may cope by regressing (reverting to a more primitive state of being), acting like he did at a younger age. The other options are also coping mechanisms, but children tend to regress more frequently than they display denial (refusing to accept), repression (blocking out thoughts or feelings), or identification (acting as the hero) when faced with surgery.

13.

A perioperative nurse working in the postanesthesia care unit (PACU) assesses a patient after transfer from the operating room (OR) and finds that the patient's temperature is within normal limits. Regarding the perioperative nursing guidelines on the prevention of hypothermia in postoperative patients, which of the following statements describes what the nurse's next steps should be?

The nurse should institute passive warming methods for the remainder of the patient's time in the PACU.

The nurse should return to re-evaluate the patient's temperature within 30 minutes.

The nurse should instruct the patient to call if they begin to feel cold.

The nurse should apply a skin temperature-monitoring device to the patient's chest.

Correct answer: The nurse should institute passive warming methods for the remainder of the patient's time in the PACU.

Because of the inherent risks associated with the development of postoperative hypothermia, some of the perioperative nurse's main tasks in caring for a postsurgical patient are monitoring for and preventing hypothermia. Regular temperature assessment should be undertaken; if normothermia is found, the nurse should institute passive warming methods for the remainder of the patient's time in the PACU. The goal of passive warming is to maintain the patient's normothermic state, and this is typically accomplished in the PACU through the application of warmed blankets that are changed every 5 to 10 minutes.

The nurse should also ensure the patient's PACU room temperature is maintained at above 24 degrees Celsius (above 75 degrees Fahrenheit) as an additional method of maintaining normothermia. If, during a later assessment of the patient's temperature, hypothermia is identified, then the nurse should employ active heating methods of rewarming the patient. The patient's temperature should be rechecked every 15 minutes until normothermia is re-achieved.

14.

When a patient discloses her bulimia nervosa during the preoperative interview, the anesthesiologist should be notified of the patient's eating disorder.

All the following are associated with bulimia except:

Jaundice and liver failure

Unstable vital signs

Electrolyte imbalances

Inadequate kidney function

Correct answer: Jaundice and liver failure

A patient with bulimia and subsequent malnutrition may experience poor tolerance of anesthetic agents due to inadequate excretion of toxins by the kidneys, unstable vital signs, and electrolyte imbalances (low potassium, magnesium, and calcium), among other complications. For these reasons, the anesthesia care provider should be notified of the patient's eating disorder.

There may be a decreased metabolism of chemicals by the liver, but bulimia is not associated with jaundice or liver failure.

15.

Assessment of pain in the elderly can be difficult. All the following tools are appropriate when assessing pain in the cognitively intact senior EXCEPT:

Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC)

Verbal Descriptor Scale (VDS)

Numeric Rating Scale (NRS)

Faces Pain Scale-Revised (FPS-P)

Correct answer: Pain Assessment Checklist for Seniors with Limited Ability to Communicate (PACSLAC)

Because assessing pain in the elderly can be difficult, standardized, evidence-based tools and unbiased communication of the results can be the most effective for the cognitively intact and the cognitively impaired. The PACSLAC is an observational tool which can be valuable when assessing pain in the cognitively impaired senior.

Tools such as the VDS, the NRS, and the FPS-P are generally used with cognitively intact seniors.

16.

Patient stretcher transportation from the preoperative holding room to the OR involves all the following actions except:

Attach the IV pole to the stretcher near the patient's head

Push from the head end so the patient's feet go first

Make sure the staff member is at the patient's head

Ensure slow and smooth travel

Correct answer: Attach the IV pole to the stretcher near the patient's head

The IV pole should be placed at the foot of the stretcher for safety, away from the patient's head.

Transporting a patient involves the patient going feet first with the staff member pushing the stretcher at the patient's head, and the travel should be slow and smooth. Rapid movements through corridors and around corners can cause dizziness and nausea, especially if the patient has been medicated. The staff member at the head end can observe the patient for respiratory distress and/or vomiting.

17.

A patient who has undergone diagnostic testing in nuclear medicine is scheduled for surgery. How long should surgery be delayed to prevent exposure of the OR team to radiation?

24 hours

48 hours

12 hours

No delay is required for patients who have undergone diagnostic testing in nuclear medicine

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Correct answer: 24 hours

Diagnostic testing may be required as part of the preoperative preparation for patients scheduled to undergo surgery. A patient who has received radioactive substances for diagnostic studies may emit up to 2 milliroentgens (mR)/hr. If possible, surgery should be delayed for at least 24 hours after the test to prevent the OR team from being unnecessarily exposed to radiation.

18.

What is one antibiotic given preoperatively that can potentiate anesthesia neuromuscular blocking agents?

Clindamycin (Cleocin, ClindaMax)

Vancomycin (Vancocin)

Cefazolin (Ancef, Cefacidal)

Ciprofloxacin (Cipro, Cetraxal)

Correct answer: Clindamycin (Cleocin, ClindaMax)

Skeletal muscle relaxant drugs, referred to as neuromuscular blockers, facilitate muscle relaxation for smoother endotracheal intubation and working conditions during the surgical procedure. Clindamycin can enhance the effect of these drugs. The anesthesia care provider should be reminded that the patient received clindamycin so the dosage of muscle relaxant (the neuromuscular blocker) given can be adequately adjusted.

19.

According to the American Society of Anesthesiologists (ASA), a patient with a severe systemic disease, such as chronic obstructive pulmonary disease (COPD), would be classified as:

Class III

Class II

Class VI

Class V

Correct answer: Class III

The American Society of Anesthesiologists (ASA) and AANA (American Association of Nurse Anesthetists) have established guidelines and standards for safely administering and monitoring anesthesia care. The ASA also developed a grading system for classifying patients by physical status from class 1, the lowest risk, to class 6, the highest risk. This grading system is simply to assess the degree of a patient's "sickness" or "physical state" prior to selecting the anesthetic or prior to performing surgery:

- *Class I: Normal healthy patients*
- *Class II: Patients with mild systemic disease (e.g., diabetes mellitus controlled by oral hypoglycemic agents or diet)*
- *Class III: Patients with severe systemic disease that limits activity but is not totally incapacitating*
- *Class IV: Patients with an incapacitating disease that is a constant threat to life (cardiovascular or renal disease)*
- *Class V: Moribund patients who are not expected to survive 24 hours with or without the surgical procedure. They are operated on in an attempt to save their lives.*
- *Class VI: A declared brain-dead patient whose organs are being removed for donor purposes*

20.

A perioperative nurse prepares to take a patient's temperature using a rectal thermometer. Which of the following statements regarding the use of rectal thermometers/probes is accurate?

Rectal thermometers are slow to register changes in body temperature.

A rectal probe temperature reading correlates closely with a bladder probe temperature reading.

A rectal thermometer reading is an accurate measurement of the core temperature.

Rectal thermometer reading results obtained during the completion of a surgical gastrointestinal (GI) procedure may be affected by the procedure.

Correct answer: Rectal thermometers are slow to register changes in body temperature.

Core temperature is always the most accurate measure of an individual's current temperature. Core temperature measurement may be obtained through the use of a probe placed in the esophagus, nasopharynx, bladder, or rectum. Even more invasive methods may be utilized, including placing a catheter probe in the pulmonary artery or on the tympanic membrane.

While once the mainstay of temperature monitoring and believed to be the most accurate of the noninvasive methods of measuring temperature, rectal thermometers/probes are now known to be less accurate than the other measures of core temperature due to the possibility of the temperature reading being skewed by stool in the rectum and the slower response of the thermometer/probe to the patient's core temperature.

21.

The perioperative nurse is responsible for completing all the following preadmission procedures except:

The informed consent

The preoperative phone call several days before surgery

The plan of care

The baseline vital signs

Correct answer: The informed consent

The perioperative nurse is responsible for completing many aspects of the preoperative preparation and preadmission procedures, including:

- *Baseline vital signs*
- *Preoperative phone call several days before surgery*
- *Plan of care*
- *Preoperative assessment*
- *Nursing diagnoses*
- *Expected surgical outcomes*
- *Preoperative education*
- *Discussion of the perioperative procedure with the patient and his family*
- *Preoperative assessment, and*
- *Preoperative interview, among others*

The informed consent is obtained by the surgeon and is witnessed by the nurse.

22.

A postoperative care unit (PACU) nurse caring for a patient who underwent an open-heart procedure is discussing potential postoperative complications with the patient's spouse. Which of the following is the most likely cause of prerenal oliguria as a postoperative complication of cardiac surgery?

Inadequate fluid volume replacement

Preexisting (but undiagnosed) renal disease

Overuse of diuretics

Renal emboli

Correct answer: Inadequate fluid volume replacement

Patients who undergo open-heart cardiac procedures are at risk of developing both cardiac and noncardiac complications during the postoperative period. While some complications may occur shortly after the surgery and manifest in the postanesthesia care unit (PACU) or intensive care unit, because the in-hospital length of stay has significantly decreased over the last several years, many patients will not develop complications associated with cardiac surgery until after being discharged home.

The patient and their family member(s) should be instructed on the signs and symptoms of potential complications and should be further instructed on how and where to follow up if any complications occur. Prerenal oliguria, as evidenced by a significant decrease in the urine output in conjunction with darker urine color, is most likely to occur after cardiac surgery as a result of inadequate fluid volume replacement during and after the surgery or as a result of decreased cardiac output. Laboratory studies are most likely to show an elevation in the blood urea nitrogen and serum sodium levels without any change in the serum creatine level. If prerenal oliguria is not treated, ideally with the administration of fluids to increase the blood volume, acute renal failure may occur. If prerenal oliguria is due to decreased cardiac output, the patient should be treated with inotropic agents (e.g., digoxin).

23.

Your patient's chart lists St. John's Wort as a daily herbal medication. What significant information should you know about St. John's wort, and what members of the perioperative staff should you notify?

It can prolong sedation and interfere with metabolism of some medications such as calcium channel blockers, warfarin (Coumadin, Jantoven), and some antibiotics; notify all perioperative staff members, including the anesthesia care provider and surgeon

It can cause cardiovascular instability, palpitations, high blood pressure, and seizures; notify the anesthesia care provider and surgeon

It can cause hypokalemia and dysrhythmia, high blood pressure, and edema; notify the anesthesia care provider and surgeon

It can cause bleeding and slow wound healing and collagen repair; notify all perioperative staff members, including the anesthesia care provider and surgeon

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Correct answer: It can prolong sedation and interfere with metabolism of some medications such as calcium channel blockers, warfarin (Coumadin, Jantoven), and some antibiotics; notify all perioperative staff members, including the anesthesia care provider and surgeon

Herbal supplements and their side effects can have negative interactions with other medications, and can cause serious complications such as bleeding. For this reason, patients are advised to report all herbal supplements prior to any surgical procedure. All perioperative staff including the anesthesia care provider and the surgeon should be reminded that the patient is on herbal supplements.

Ephedra (also known as ma huang) can cause cardiovascular instability and seizures. Licorice can cause hypokalemia, dysrhythmia, hypertension and edema. Vitamin E can cause bleeding, slow wound healing and collagen repair.

24.

An 18-week pregnant female is being transferred from the emergency department (ED) after a pelvic ultrasound showed a shortening of the cervical length and funneling of the cervix. Which of the following complications associated with pregnancy is this patient most likely experiencing?

Cervical incompetence

Threatened miscarriage

Spontaneous abortion

Ectopic pregnancy

Correct answer: Cervical incompetence

Cervical incompetence is most often seen in pregnant women between 18 and 26 weeks of gestation. Symptoms include painless dilation and effacement of the cervix; ultrasonography typically reveals a shortened and funneled appearance of the cervix. Women with a history of cervical incompetence are likely to have experienced spontaneous abortion during the second trimester. Unless the placement of a cervical cerclage is precluded by the presence of uterine infection, ruptured membranes, vaginal bleeding, gestation past 26 weeks, or active labor, cervical cerclage is the treatment of choice for supporting an incompetent cervix.

A cervical cerclage is typically placed after the patient has been anesthetized using general anesthesia.

25.

A postoperative patient who underwent an open-chest cardiac procedure developed an arterial thrombosis during recovery in the intensive care unit. Which of the following was the most likely cause of arterial thrombosis?

An intraarterial line placed for arterial blood pressure monitoring

Blood stasis from prolonged immobility in the intensive care unit

Hypercoagulable state following surgery

Inconsistent use of sequential compression boots in the intensive care unit

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Correct answer: An intraarterial line placed for arterial blood pressure monitoring

Patients who undergo cardiac procedures such as coronary artery bypass graft (CABG) or valve surgery are at risk of developing both cardiac and noncardiac complications following cardiac surgery. Factors such as advanced age, the presence of comorbidities, the length of the surgical procedure, and the use of cardiopulmonary bypass during the procedure, among others, can increase a patient's risk of developing associated complications. Cardiac complications may include myocardial infarction, heart failure, tamponade, dysrhythmia, and cardiac arrest, while noncardiac complications may include hemorrhage, dehiscence or infection of the wound, hypovolemia or hypervolemia, permanent or temporary neurological defects, renal failure, gastrointestinal bleeding, and arterial or venous thrombus formation. An arterial thrombosis is most likely to develop secondarily to the placement of an intraarterial line or intraaortic balloon pump.

Blood stasis due to prolonged immobility and inconsistent use of sequential compression boots in the intensive care unit and a postsurgical hypercoagulable state are most likely to contribute to the development of a venous thrombus.

26.

You are reviewing your female patient's laboratory results prior to surgery. The patient's hematocrit is 51%. What might this indicate?

The patient is dehydrated

The patient's kidneys are not functioning adequately

The patient has an infection

The patient has a clotting abnormality that will require further follow-up

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Correct answer: The patient is dehydrated

Normal hematocrit in females is 37 to 47%. An increased hematocrit indicates a decrease in plasma volume, normally caused by dehydration and loss of sodium. Fluid and electrolyte balance are important for maintenance of blood volume during any surgical procedure.

27.

For which of the following preoperative patients is a chest x-ray part of the standard preoperative diagnostic workup?

Patients suspected of having pulmonary edema

Patients who are older than 39 years of age

Patients who have a pacemaker

Patients who have had a previous myocardial infarction

Correct answer: Patients suspected of having pulmonary edema

A preoperative chest x-ray is considered to be a standard component of the plan of care for patients who are suspected of having pulmonary abnormalities, such as pulmonary edema, tuberculosis, pneumonia, or other lung-related issues, or for patients who have known pulmonary abnormalities and are experiencing symptoms.

In some facilities, preoperative chest x-ray may also be standard for all patients over the age of 40; however, this varies from facility to facility.

28.

You are caring for a 2-year-old child who is awaiting surgery for a traumatic injury to the leg and are assessing the child's pain.

Which of the following pain-rating scales would be best suited for a child of this age?

FLACC Scale

Wong-Baker FACES Scale

Verbal Rating Scale

Word Descriptor Scale

Correct answer: FLACC Scale

The Face, Legs, Activity, Cry, Consolability scale (FLACC scale) is appropriate for use in young children. The FLACC scale is a measurement used to assess pain in children between the ages of 2 months and 7 years or individuals that are unable to communicate their pain. The scale is scored in a range of 0 to 10 with 0 representing no pain. The scale has five criteria, which are each assigned a score of 0, 1, or 2.

Criteria	*Score 0*	*Score 1*	*Score 2*
Face	*No particular expression or smile*	*Occasional grimace or frown, withdrawn, uninterested*	*Frequent to constant quivering chin, clenched jaw*
Legs	*Normal position or relaxed*	*Uneasy, restless, tense*	*Kicking, or legs drawn up*
Activity	*Lying quietly, normal position, moves easily*	*Squirming, shifting, back and forth, tense*	*Arched, rigid or jerking*
Cry	*No cry (awake or asleep)*	*Moans or whimpers; occasional complaint*	*Crying steadily, screams or sobs, frequent complaints*
Consolability	*Content, relaxed*	*Reassured by occasional touching, hugging or being talked to, distractible*	*Difficult to console or comfort*

All of the other rating scales are self-report scales and would not be appropriate for a child who is two years of age and unable to adequately verbally articulate pain.

29.

Your patient is scheduled for tubal ligation. What document must be included in the perioperative record?

Authorization for and Special Consent to Reproductive Sterilization

Authorization for and Consent to Surgery

Authorization for the Administration of Blood/Blood Products

Authorization and Special Consent for Instrument Sterilization Procedure

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Correct answer: Authorization for and Special Consent to Reproductive Sterilization

Voluntary reproductive sterilization as a contraceptive method may be contrary to moral, ethical, or religious beliefs of a caregiver. This is a special consent that is required and identifies that the patient will be sterile following the procedure. The circulating nurse should verify and document that the surgeon has notified the patient that she will be unable to procreate and that she understands the purpose and nature of the procedure. Some facilities require consent from a patient's spouse as well.

Consent for the surgery itself and for blood products are critically important for all surgeries, but the reproductive sterilization consent is specific to sterilization surgeries.

30.

Preoperative assessment of a geriatric patient should identify needed resources that will be accessible when the patient is discharged.

Community resource services include all the following except:

Family and friends

Rehabilitation facilities

Home health services

Transportation services

Correct answer: Family and friends

The level of independence exercised by the geriatric patient may depend on the resources available. In developing the plan of care, the nurse should consider how the patient will meet postoperative needs at home. Community resources accessible to meet needs include transportation services to get the patient to and from surgery follow-up visits, home health services to supplement care once home, and rehabilitation services and facilities.

*Family and friends are the **patient's** resources, not **community** resources.*

31.

You check a patient's vital signs prior to surgery. The patient's oxygen saturation is 89%.

What should you do FIRST?

Ensure that the probe is situated on the patient's finger properly

Verify that the patient's pulse correlates with the waveform

Administer supplemental oxygen via a non-rebreather mask

Notify the surgeon and anesthesiologist

Correct answer: Ensure that the probe is situated on the patient's finger properly

Always check the equipment first to ensure that it is positioned correctly and functioning properly. The sensor must be maintained flush with the skin surface and positioned so that the light source and photodetector are in direct alignment. The sensor is attached to an oximeter, which is plugged into a power source. Once you've ensured the probe is positioned correctly on the patient's finger, you can then check that the pulse correlates with the monitor's waveform.

Applying oxygen may be warranted, but this is not the first step to take. Always inform the surgeon and anesthesiologist of any abnormal vital signs that are found preoperatively, but again, this should not be the first intervention that is performed.

32.

Your patient is scheduled for an inguinal hernia repair. When you are checking the patient's chart in the pre-op holding room, you see he is also diagnosed with obstructive sleep apnea (OSA), which may complicate his perioperative period.

The patient's sleep apnea puts him at increased risk for all the following complications EXCEPT:

Severe bradycardia

Systemic and pulmonary hypertension

Neurologic dysfunction

Cardiac dysrhythmias

Correct answer: Severe bradycardia

With OSA, a patient's breath can become very shallow, or they may even briefly stop breathing during sleep (apneic episodes), causing oxygen desaturation and possible oxygen deprivation to vital organs. Upper airway obstruction may be caused by nasal obstruction, a deviated nasal septum, hypertrophied adenoids and/or tonsils, or mandibular retrognathism (overbite). OSA can lead to life-threatening complications including systemic and pulmonary hypertension, cardiac dysrhythmias, and neurologic dysfunction if left untreated.

Sleep apnea could lead to bradypnea (slow and shallow breathing) in the perioperative period, as mentioned above. However, because vitals are closely monitored, this would likely be corrected quickly before bradycardia ensues.

33.

A surgical site involving a particular side of the body (left or right) should be clearly marked. How should the site be marked?

With a Sharpie that won't wash off during skin prep

With a thick, black ballpoint pen

With a water-based marker, being gentle during prep not to wash it off

With adhesive tape that has the surgical site clearly written on it

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Correct answer: With a Sharpie that won't wash off during skin prep

The surgeon should mark the site with his or her initials in indelible ink that does not wash off during intraoperative skin preparation, such as a Sharpie.

Normal ballpoint pens may damage the skin. Markers that are water-based may be easily washed off during surgical skin prep. Marking with an 'X' is inappropriate and may be misunderstood. Ensure the surgeon marks with his or her initials.

34.

In Maslow's hierarchy of needs, which of the following is essential for survival?

Physical

Security

Psychosocial

Spiritual

Correct answer: Physical

In following Maslow's concept of a motivational hierarchy of needs to set priorities for care, the basic lower level (physiologic needs) essential for survival must be met first. Included in physical needs is breathing, circulation, elimination, etc. Satisfaction of higher level needs for safety and security, belonging and acceptance (psychosocial), self-esteem, and finally self-actualization (spiritual) can then be met.

35.

Pain is referred to as what, and assessment for pain begins where?

The fifth vital sign, and in the pre-op holding room

Physiologic and psychologic discomfort, and in the post-anesthesia care unit (PACU)

Physiologic and psychologic discomfort, and in the pre-op holding room

The fifth vital sign, and in the post-anesthesia care unit (PACU)

Correct answer: The fifth vital sign, and in the pre-op holding room

Handoff communication between departments must include a pain assessment. Patients should be assessed for vital signs and level of discomfort.

Pain is referred to as the "fifth vital sign" and has been described as both physiologic and psychologic. Pain assessment must begin in the preoperative holding room and be communicated during handoff reports.

36.

During a preoperative assessment, you recognize that your patient is obese, has cardiovascular disease, and has limited mobility due to severe arthritic pain.

These factors increase the risk of which of the following complications?

Deep vein thrombosis (DVT)

Pulmonary embolism (PE)

Atelectasis

Stroke

Correct answer: Deep vein thrombosis (DVT)

Predisposing factors for DVT include obesity, immobility, cardiovascular or thromboembolic disease, venous stasis, changes in clotting factors in the blood, damage to vessel walls, and age. These factors put the patient at an increased risk of DVT in the perioperative time frame.

The anesthesia provider should keep the patient well hydrated and watch for signs of DVT and potential PE. The patient should be assessed for a positive Homan's signs. If negative, the circulator should check with the surgeon and, if approved, apply compression stockings and antiembolism boots to help decrease the risk of DVT during and after surgery.

Complications of DVT include PE and stroke.

37.

You are performing preoperative teaching. You instruct a patient who is having an elective reversal of his colostomy to avoid eating or drinking after midnight before the day of surgery. He asks you why it is important that he does not eat or drink.

What is your BEST answer to give him?

"It increases the risk of aspiration and a potentially severe lung infection."

"It increases the risk of pre- and postoperative nausea and vomiting."

"It increases the risk of aspiration during anesthesia and constipation following surgery."

"It increases the risk of aspiration, nausea and vomiting when you are given pain medication after surgery."

Correct answer: "It increases the risk of aspiration and a potentially severe lung infection."

Eating or drinking prior to surgery increases the risk of aspiration, or stomach contents coming up into the back of the throat, where they may be inhaled into the lungs, potentially leading to severe pneumonia. To prevent regurgitation or emesis and aspiration of gastric contents, the patient should not ingest solid foods before the surgical procedure.

Eating before surgery would likely not be a cause of constipation postoperatively. Nausea and/or vomiting and constipation are common side effects of pain medication(s) but are not associated with eating before surgery.

38.

Your patient has congenital heart disease (CHD) and is scheduled to have a cardiac pacemaker placed. During your teaching, you explain the importance of carrying identification of his pacemaker with him wherever he goes. All the following information is necessary for the patient to carry except:

Pacemaker expiration date

Insertion date

Pacemaker rate

Manufacturer's name

Correct answer: Pacemaker expiration date

The patient should be instructed to carry the following identification with him regarding his newly implanted pacemaker: serial number, model, rate, manufacturer's name, and date of insertion. He will require adequate and frequent follow-up care.

A pacemaker does not expire, but the battery will run out and require replacement. Battery depletion is the most common indication for replacement of the pulse generator.

39.

You check your patient's vital signs preoperatively and note a blood pressure (BP) of 145/92 mm Hg. What should you do?

Allow the patient to rest quietly for 20 minutes and recheck BP

Notify the surgeon and await further instruction

Administer a 500 mL fluid bolus and recheck BP

Do nothing; this is a normal BP and not a cause for concern

Correct answer: Allow the patient to rest quietly for 20 minutes and recheck BP

A blood pressure of 145/92 is high. Normal pressures range from 90-130/60-90. The patient might be anxious, which can certainly increase BP. Allow the patient to relax for 20-30 minutes, and then recheck the BP.

The surgeon should be made aware, but do obtain a second BP measurement after the patient has been allowed to rest, prior to contacting the surgeon. A fluid bolus may overload the circulatory system and elevate BP even higher.

40.

When a patient has a penicillin allergy, what classification of antibiotic should be avoided or, if given, given with a test dose for allergy cross-sensitivity?

Cephalosporins

Fluoroquinolones

Aminoglycosides

Sulfonamides

Correct answer: Cephalosporins

Cephalosporins are broad spectrum antibiotics that are often used for surgical prophylaxis. They do, however, have a 10% cross-link to penicillin allergy. They should be avoided or, if given, a test dose should be given and the patient watched for any reaction(s) before administering a therapeutic dose.

41.

A patient with active tuberculosis is scheduled for removal of a bothersome lipoma on her upper back. Which of the following steps should be taken to prevent the spread of tuberculosis?

Postpone the surgery

Use respiratory isolation precautions, including requiring all operating room (OR) personnel to wear a high-efficiency particulate air (HEPA) filter mask

If possible, schedule the patient's surgery for the end of the surgical day to limit possible tuberculosis exposures

Use disposable anesthesia equipment

Correct answer: Postpone the surgery

In the case of a patient with active tuberculosis infection, all elective surgical procedures, including removal of a lipoma from the upper back, should be postponed. Once the patient shows a positive response to drug therapy (i.e., has a negative sputum smear), elective surgical procedures may be scheduled.

If a patient actively infected with tuberculosis requires immediate surgery for any reason, the use of disposable anesthesia equipment when possible, the use of HEPA filter masks by all OR personnel and by the patient during transport, and scheduling the patient's surgery for the end of the surgical day to minimize the number of individuals present in the surgical area are all steps that should be taken to prevent the transmission of tuberculosis.

42.

Your elderly patient has ectropion which is to be repaired surgically. What does this mean?

The eyelid is everted to expose the conjunctival surface

The eyelid margin is inverted

Infection of an eyelash follicle is present

Drooping of the upper eyelid is present

Correct answer: The eyelid is everted to expose the conjunctival surface

Ectropion occurs when tissues that support the upper or lower eyelid begin to weaken (most commonly this affects the lower lid), resulting in a lid that droops out and away from the eye globe, exposing the conjunctival surface. The problem in this condition is that more of the eye globe is exposed, and tears are unable to drain properly.

Entropion occurs when the lid margin is inverted, causing the eyelashes to abrade the cornea. A stye is an infection of an eyelash follicle. Drooping of the upper eyelid is called ptosis.

43.

You are to insert an intravenous (IV) catheter prior to surgery. All the following factors might influence your insertion site choice EXCEPT:

Armband placement

Type and length of infusion

Type of surgery being performed

A patch of poison ivy

Correct answer: Armband placement

You can always remove and replace an armband that was placed by admitting personnel, if necessary. This should not be a deciding factor in avoiding a particularly good IV site.

The type and length of infusion before, during and after surgery, plus skin condition, should be an important part of assessing where to insert the intravenous (IV) catheter. Try to choose a site that will accept a large-bore IV catheter in case a blood transfusion is needed. Also, try to avoid any areas of skin that are compromised by inflammation, infection, or trauma.

Consider the surgical procedure, as well, when placing an IV. For example, if the patient is undergoing surgery to repair a left wrist fracture, make sure not to place the IV in the left arm. Ensure the patient will be as comfortable as possible with the IV (i.e., positioning, moving, sleeping, etc).

44.

When you check your patient's chart in the pre-op holding room, you notice their blood urea nitrogen (BUN) is elevated.

What body organ would you consider when you talk to the anesthesia care provider and the surgeon about this finding?

Kidney

Liver

Pancreas

Spleen

Correct answer: Kidney

The kidney removes metabolic waste, excess substances, and toxic substances from the blood. It controls the blood urea nitrogen (BUN) level. Creatinine is a chemical waste molecule that is generated from muscle metabolism. The kidneys maintain the blood creatinine in a normal range.

BUN and creatinine levels provide precise information about how well the kidneys are functioning, and higher than normal levels signify impaired kidney function. If the kidneys are not working properly, many drugs (which the kidneys process and eliminate) may not be processed normally, and the patient could suffer toxicity.

45.

Crying is contraindicated for pediatric patients in the preoperative period for all the following reasons except:

Crying indicates laryngospasm

Crying increases edema in nasal and throat tissues

Crying increases mucus production

Crying may increase stress of the parents

Correct answer: Crying indicates laryngospasm

A crying pediatric patient will have increased mucus production in the respiratory tract, edema in nose and throat tissues, and may increase the parents' stress levels.

Crying does not indicate laryngospasm; in fact, when a child cries, the vocal cords open, relax, and break the laryngospasm.

46.

The preoperative nurse has completed the preoperative teaching with a patient who is scheduled to undergo a coronary artery bypass and graft (CABG). The nurse can reinforce the information included in the education by providing the patient with all the following except:

A brief 10-item post-test after she has finished presenting the information to the patient

A pamphlet which describes the CABG procedure at a reading level appropriate for the patient

A DVD which includes patients discussing their experiences after undergoing a CABG

Written instructions with drawings detailing the CABG procedure itself

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Correct answer: A brief 10-item post-test after she has finished presenting the information to the patient

Audiovisual materials are important tools for reinforcing preoperative teaching materials. Once the preoperative nurse has completed the preoperative education with the patient and his family, she can reinforce the information provided during the teaching session by providing the patient with printed brochures or pamphlets detailing the surgical procedure, as well as videos, DVDs, and slides or tapes which help reinforce the education material.

Providing the patient with a post-test after she has completed presenting the material does not help reinforce what the patient has learned; a post-test is an assessment tool which tells the nurse what the patient understood of the teaching material.

47.

A postanesthesia care unit (PACU) team met to discuss plans for implementing a consistent method of temperature measurement in their postoperative patients. Which of the following non-invasive methods of temperature measurement most closely correlates with bladder temperature measurements?

Oral temperature

Rectal temperature

Tympanic membrane temperature

Temporal artery temperature

Correct answer: Oral temperature

Ensuring that postoperative patients are protected from developing hypothermia is one of the top priorities of nursing care in the PACU. Postoperative hypothermia has been found to increase postoperative morbidity and cause delays in recovery from surgery. Patients who experience impairments in wound healing are found to have a greater incidence of surgical site infection (SSI) and longer length of hospital stay when affected by postoperative hypothermia. For these reasons, accurate monitoring of postoperative patient temperature is of great importance.

In the operating room, the temperature is best monitored by the use of a core temperature monitoring device. The bladder temperature is a simple method of temperature measurement; a Foley catheter with a temperature probe embedded in the tip of the catheter is often used and offers an accurate measure of the core temperature. However, once the patient has been moved to the PACU (or to a postsurgical unit), core temperature monitoring becomes more challenging due to the lack of need for invasive core measuring equipment outside the OR. After testing 8 different non-invasive methods of temperature measurement (oral, axillary, temporal artery, forehead skin-surface, forehead liquid-crystal display, infrared aural canal, deep forehead, and deep chest), oral temperature measurement was found to be an accurate measure of temperature, despite not fully coinciding with bladder temperature measurement.

48.

The anesthesia provider has completed the preoperative visit and physical examination with a patient scheduled to undergo bariatric surgery. Which of the following findings would indicate the need to plan for an "awake intubation"?

Short neck

Presence of fat pad on the anterior neck

History of jaw fracture

History of cleft palate repair and unrepaired bifid uvula

Correct answer: Short neck

When completing the preoperative history and physical, the anesthesia provider may discover findings which necessitate the need for intubation prior to the administration of general anesthesia. This process of intubation is referred to as an "awake intubation," and typically requires two anesthesia providers assist with the procedure. The patient may receive sedation and a topical anesthetic prior to the intubation to decrease the likelihood of eliciting the gag reflex during the intubation process.

Findings such as a short neck, macroglossia, certain syndromes or conditions such as Pierre Robin or acromegaly, limitations to the oral cavity, jaw fixation as a result of previous surgery, and a limited range of motion to the cervical vertebrae are just some of the reasons why an "awake intubation" may be necessary.

History of cleft palate repair or the presence of a bifid uvula should not impact a need for "awake intubation." A fat pad to the anterior neck or an increase in overall fat tissue to the neck may make intubation difficult, but do not necessitate a need for "awake intubation."

49.

Which of the following statements best defines the frailty syndrome?

A natural process which is composed of a group of physiologic changes affecting organ systems and the natural reserve of geriatric patients; may predispose these patients to negative perioperative outcomes

A combination of physiologic and psychological changes that affect some geriatric patients and predispose them to adverse post-surgical outcomes

Physiologic changes in the geriatric patient which occur as a result of chronic illness or injury and predispose them to adverse surgical outcomes

An illness theory proposed by health researchers to potentially be the causative factor in the adverse perioperative outcomes experienced by approximately 15% of geriatric patients

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Correct answer: A natural process which is composed of a group of physiologic changes affecting organ systems and the natural reserve of geriatric patients; may predispose these patients to negative perioperative outcomes

Frailty syndrome is a natural process which results from the physiologic changes to multiple organ systems and a patient's natural resistance as a result of the aging process. When coupled with comorbidities, frailty syndrome may place geriatric patients at risk of adverse outcomes when receiving care/treatment in the perioperative environment.

50.

Significant clinical signs of postoperative narcotic toxicity include all the following EXCEPT:

Marked hypotension

Reduced consciousness

Depressed respirations

Pinpoint pupils

Correct answer: Marked hypotension

After high-dose narcotic anesthesia, patients are awake and pain-free, with adequate but poor ventilation. These patients need careful monitoring by well-trained PACU staff because narcotization after large doses of narcotics can occur rapidly in an apparently awake and responsive patient. Vital signs, pupils, and skin color must be monitored.

Clinical signs of narcotic toxicity are pinpoint pupils, depressed respirations, and reduced consciousness. A narcotic antagonist (naloxone, or narcan) is given to reverse narcotic-induced hypoventilation.

51.

Your diabetic patient is scheduled for a below-the-knee amputation of his right leg. The patient states, "I'm really going to miss having two legs."

What nursing diagnosis is appropriate in this situation?

Anticipatory grieving

Ineffective coping

Anxiety

Fear

Correct answer: Anticipatory grieving

Patients who know that they are going to lose a body part will suffer anticipatory grieving as they come to terms with losing a part of themselves. While this patient is probably dealing with some fear and anxiety, his coping is effective. By allowing the patient to express feelings of grief, you are supporting him.

52.

Your patient's body mass index (BMI) is 35. What complication might you anticipate in this patient in the postoperative phase?

Infection

Excessive blood loss

Inability to clot

Inability to maintain normal body temperature

Correct answer: Infection

Obesity is prevalent in our society. Morbid obesity is defined as 100 pounds over the ideal weight and the patient's BMI (body mass index) exceeds 25 to greater than 30 kg/m^2. Delayed healing and infection are concerns in these patients because of poor vascularity of adipose tissue. Obese patients tend to have an increased incidence of postoperative wound infection and disruption caused by dead space in the adipose tissue.

Excessive blood loss, inability to clot, and inability to maintain normal body temperature are not anticipated complications with the obese patient in the postoperative phase.

53.

Mr. H has reported for Preadmission Testing and Teaching (PAT) before bariatric surgery, and his blood glucose level is 297. He states that he did not know his blood sugar was high. The PAT nurse notifies the surgeon of this finding.

In regard to hyperglycemia, which of the following is Mr. H not at increased risk for?

Hypothermia

Infection

Electrolyte imbalance and dehydration

Slow wound healing

Correct answer: Hypothermia

Uncontrolled diabetes results in an increased risk of infection, dehydration and electrolyte imbalance, and delayed wound healing (among other complications). However, it does not contribute to hypothermia (abnormally low body temperature). The PAT nurse should notify the surgeon's office, so the patient can be assessed and properly treated for the hyperglycemia before, during, and after the bariatric surgical procedure.

54.

An emergency laparoscopic appendectomy is scheduled. As soon as possible, you go to the emergency department (ED) to bring the patient, an 18-year-old female, to the OR.

What lab work do you want to see on her chart?

Pregnancy test results

Hemoglobin and hematocrit (H&H) levels

Potassium level results

Any known drug allergies

Correct answer: Pregnancy test results

A young female should be tested for pregnancy. The safe administration of any drug to a pregnant woman requires knowledge of how the drug might affect a developing fetus. The risks should be identified before any drug is administered to a pregnant or possibly pregnant woman. If she is pregnant, the anesthesia provider will adjust the medication and plan of care in consideration of the mother and fetus.

Potassium levels are not vital to obtain before an emergency surgery, and can be drawn after the surgery (if indicated).

While it is important to know what the patient's H&H levels are in the case of bleeding, this is not as important prior to an emergency surgery as pregnancy test results, and can be drawn after as well. If hemorrhage occurs, the patient should be transfused and levels drawn after.

Checking for drug allergies is vital prior to emergency surgery and should absolutely be done, but this is not lab work.

55.

A postanesthesia care unit (PACU) nurse received a patient from the operating room (OR) who underwent an open parathyroidectomy. In which of the following positions should the patient be placed if they are responsive upon being admitted to the PACU?

Semi-Fowler with the head of the bed elevated 30 degrees to promote venous return

Low-Fowler to with the head of the bed elevated 15 degrees to prevent undue tension on the suture line

High-Fowler with the head of the bed elevated 60 degrees to protect the airway

Side-lying with blankets or other support placed under and along the head and neck to protect the incision

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Correct answer: Semi-Fowler with the head of the bed elevated 30 degrees to promote venous return

Patients who have undergone parathyroidectomy or thyroid surgery should be positioned carefully to protect the airway, promote venous return, and prevent traction or tugging on the surgical incision. If the patient is transported from the OR and arrives at the PACU in a minimally responsive state, they should be put in a side-lying position with the head and neck supported in a neutral position using a pillow or folded blanket to protect the surgical incision.

Once the patient is awake and alert, they should be moved to a semi-Fowler position with the head of the bed elevated 30 degrees to encourage venous return. The head and neck should continue to be supported to prevent pulling on the incision.

56.

A patient who underwent a thyroidectomy had to be returned emergently to the operating room to have a tracheostomy after developing life-threatening airway obstruction in the postanesthesia care unit (PACU) due to bilateral recurrent laryngeal nerve (RLN) injury. Which of the following statements regarding the patient's prognosis after bilateral RLN nerve injury is accurate?

The RLN injury will most likely be transient.

The RLN injury will most likely be permanent, requiring a lifetime tracheostomy.

The RLN injury will most likely improve over time but will leave the patient with permanent voice changes.

The RLN injury will most likely improve over time but will leave the patient with a weak cough and a risk of aspiration.

Correct answer: The RLN injury will most likely be transient.

Patients who undergo surgery on the thyroid or parathyroid glands are at risk of sustaining an injury to the RLN as a result of inadvertent clamping, compression, severing, or stretching of the nerve during the surgery. When performing thyroid or parathyroid surgery, the surgeon typically seeks to identify the RLN and protects it by completely exposing the nerve during the surgery. With the nerve fully exposed, the surgeon is much less likely to inadvertently injure the RLN during the remainder of the thyroid or parathyroid surgery.

If both the left and right branches of the RLN are injured during surgery, the patient is likely to experience acute airway obstruction and, if not already intubated, will require emergency endotracheal intubation or placement of a tracheostomy to protect the airway. RLN injury is treated with the administration of corticosteroids, which results in a full return of function of the RLN.

57.

A postanesthesia care unit (PACU) nurse is caring for a patient who underwent parathyroidectomy surgery. The nurse assesses the patient and believes the patient may have sustained a unilateral injury to the recurrent laryngeal nerve (RLN). All the following symptoms are indicative of RLN injury, except:

Airway obstruction

A weak cough

Changes to the voice

Aspiration of food or liquids

Correct answer: Airway obstruction

The recurrent laryngeal nerve (RLN) may be injured during thyroid or parathyroid surgery if the nerve is not completely exposed at the start of the surgery to prevent inadvertent injury. If one side of the RLN is injured through inadvertent clamping, compression, severing, or stretching, the patient will experience immediate hoarseness of the voice. In addition, the patient may also present with a weak cough and experience aspiration when ingesting food or fluids. Occasionally, patients who have sustained an injury to the RLN will not present with any immediate symptoms. The treatment of RLN injury is corticosteroid administration. This type of injury is typically transient.

Acute airway obstruction is a symptom of bilateral RLN injury.

58.

You would expect the patient with hypoparathyroidism to have:

Increased phosphorus level

Increased calcium level

Decreased phosphorus level

Increased potassium level

Correct answer: Increased phosphorus level

The parathyroid glands are small endocrine glands that regulate the metabolism of calcium and phosphorus. Four or more glands are located within or are attached to the substance of the thyroid gland (two on each side). Calcium levels may be low, and phosphorus levels may be high if the parathyroid glands do not function properly (hypoparathyroidism). The patient may exhibit severe tetany with hypoparathyroidism. The parathyroid glands have no influence on potassium levels.

Primary hyperparathyroidism is associated with hypercalcemia.

59.

Preoperative medication for healthy pediatric patients includes all the following except:

Narcotics such as meperidine (Demerol) or morphine (Duramorph)

Anxiolytics such as diazepam (Valium) or midazolam (Versed)

Anticholinergics such as atropine (Atropen) or glycopyrrolate (Robinul)

Opioid analgesics such as sufentanil (Sufenta) or fentanyl (Actiq)

Correct answer: Narcotics such as meperidine (Demerol) or morphine (Duramorph)

Narcotics, such as morphine and meperidine, are rarely indicated for routine premedication in healthy children.

No ideal premedicant exists, but medications that are commonly used for children may include anxiolytic drugs such as diazepam or midazolam, and anticholinergic drugs to inhibit secretions, such as atropine or glycopyrrolate. Sufentanil given nasally helps the child with separation from parents by causing relaxation and drowsiness (the child becomes calm and cooperative). Fentanyl may be given in lozenge or lollipop form to provide sedation.

60.

Which part of the gastrointestinal (digestive) system absorbs water and electrolytes while secreting mucus to lubricate and protect mucosa?

Large intestine or colon

Small intestine or jejunum

Stomach

Esophagus

Correct answer: Large intestine or colon

The large intestine, or colon, extends from the ileum to the rectum and is generally divided into the ascending, transverse, descending, and sigmoid colon. It absorbs water and electrolytes and secretes mucus to lubricate and protect the delicate mucosal lining.

61.

While reviewing the patient's past medical history before scheduling a contrast dye study, the preoperative nurse learns that the patient has previously had a delayed reaction to contrast dye. Which of the following statements regarding this patient's allergic reaction to the contrast dye agent is correct?

The patient's emotional status at the time of the reaction most likely contributed to the severity of the allergic reaction.

The patient most likely has an allergy to shellfish.

A delayed allergic reaction to a contrast dye agent indicates a non-IgE-mediated response.

The patient should be given a test dose of 5 mL of the contrast dye agent before the required dose.

Correct answer: The patient's emotional status at the time of the reaction most likely contributed to the severity of the allergic reaction.

A true iodine allergy is rare, with fewer than 1% of individuals actually demonstrating a true allergic or anaphylactic response to iodine. Any apparent allergic reactions to iodinated contrast agents are not immunologic in nature; the "allergic" response is non-IgE mediated, demonstrating that whatever the reaction might be, it is not truly allergic in nature.

Delayed reactions to contrast agents, occurring several hours after the contrast agent has been administered, are more indicative of a true iodine allergy. Patients who have documentation of an allergic reaction to the contrast agent should receive a test dose of 1 mL to 2 mL of the contrast agent prior to receiving the full ordered dose. The patient's emotional state and physiologic status at the time of the allergic reaction have been strongly correlated with the severity of allergic reactions, and even the incidence of allergic reactions to contrast agents.

62.

A 54-year-old male patient who recently immigrated to the United States from Ecuador arrives at the eye care surgery center to complete a preoperative assessment. The perioperative nurse notices that the patient has a raised, fleshy, triangular-shaped piece of tissue in his right eye that extends from the nasal edge of the conjunctiva and covers a portion of his iris and pupil.

Which of the following ocular conditions is this patient most likely experiencing?

Pterygium

Acute-onset cataract

Acute retinal detachment

Endophthalmitis

Correct answer: Pterygium

The development of pterygium occurs in response to exposure to the sun's ultraviolet rays, and it is much more common in the Southern Hemisphere than the Northern Hemisphere. It can be prevented by wearing polarized sunglasses when outside during the day.

Pterygium is characterized by the raised, fleshy, triangular-shaped appearance of this abnormal conjunctival growth, which can be noted in the inner or outer canthus of the eye, extending across the sclera, growing over the iris and pupil, partially or fully obscuring vision in the affected eye. If left untreated, pterygium can lead to permanent visual loss if it extends fully across the pupil.

63.

You are providing pre-op teaching to a 15-year-old female who is about to have a central venous catheter (CVC) placed for chemotherapy. She tells you she is worried that her friends will notice the catheter under her clothing.

What is your best response?

"I understand that you are worried about others seeing the catheter. I can show you dressing strategies to hide the catheter."

"I understand that you are worried about others seeing the catheter, but you should not be concerned about what other kids will think."

"I understand that you are worried about others seeing the catheter, but no one will notice. Do not worry about it."

"I understand that you are worried about others seeing the catheter. You should be more worried about your cancer than the catheter."

Correct answer: "I understand that you are worried about others seeing the catheter. I can show you dressing strategies to hide the catheter."

To meet the patient's needs, you should be sensitive to her feelings and concerns about the illness. The correct response shows that you have heard and understood the patient's concern and offers constructive feedback. The other responses downplay the patient's concern and may be viewed as uncaring or condescending.

64.

A postanesthesia care unit (PACU) nurse checks a patient's temperature and obtains a reading of 35 degrees Celsius. As the nurse prepares to correct the patient's hypothermia, which rewarming method that actively heats the patient is the most effective choice?

Apply a quilted forced-air warming blanket and attach it to the air warming system.

Apply warmed blankets to the patient and change them for newly warmed blankets every 5 to 10 minutes.

Apply a nasal cannula device to the patient and administer warmed humidified oxygen.

Administer warmed intravenous (IV) fluids to the patient.

Correct answer: Apply a quilted forced-air warming blanket and attach it to the air warming system.

Maintaining normothermia, or preventing the development of hypothermia, should be the PACU nurse's first priority in regard to managing the patient's thermoregulation status. Postoperative hypothermia can be deadly for already compromised patients (e.g., the elderly, children under age 2 years, patients with underlying cardiac disease) and can cause significant adverse effects for patients who were healthy prior to surgery. If left untreated, postoperative hypothermia can cause cardiac dysrhythmias, hypoxia, metabolic acidosis, neurologic compromise, and hyperglycemia.

Postoperative hypothermia is best prevented, but once it has occurred, using a rewarming method that actively heats the patient is the best option. In studies, the best rewarming results were seen when rewarming methods were combined for vulnerable patients. Using a single method of rewarming is effective for a healthy population, with a forced-air warming device being the best choice for rewarming the patient. Other methods of active rewarming that may be used—but are less effective as a single-use strategy—include administering warmed, humidified oxygen via nasal cannula; covering the patient with a thin blanket and directing an ultraviolet heating lamp at the patient; using a warm, fluid-filled mattress or gel pad under the patient; and administering warmed IV fluids,

Applying warmed blankets is a passive method of rewarming the patient.

65.

A perioperative nurse assists in a surgical case during which the patient will be intubated via nasal intubation. For which symptom resulting from activation of the upper airway receptors tube insertion should the nurse be prepared to provide corrective intervention?

Bradycardia

Excitement

Hypertension

Coughing

Correct answer: Bradycardia

The upper airway is peppered with receptors that respond to both mechanical and chemical stimulation. Within the nose, these receptors produce their responses to stimulation via the trigeminal and olfactory nerves. If these receptors are stimulated during nasotracheal intubation, the patient may respond by sneezing, becoming bradycardic, or becoming apneic. Administering atropine or glycopyrrolate (Robinul) prior to nasotracheal intubation may be indicated to prevent these vagal responses.

Stimulation of the receptors of the epipharynx can cause hypertension and coughing.

66.

While reviewing your patient's chart in the preoperative holding area, you see "epinephrine" listed as an allergy. When questioned about the allergy, the patient doesn't remember what happened when taking this drug. You know this patient's surgeon usually injects 1% lidocaine with epinephrine 1:100,000.

What should you do?

Review this allergy with the surgeon who decides to inject 1% lidocaine intraoperatively. You document this information.

Review this allergy with the surgeon who decides to inject 1% lidocaine with epinephrine anyway. You document this information.

Review this allergy with the anesthesia care provider who agrees to give the patient some diphenhydramine (Benadryl)

Review this allergy with the surgeon who decides to inject bupivacaine (Sensorcaine, Marcaine) 0.25% with epinephrine. You document this information.

Correct answer: Review this allergy with the surgeon who decides to inject 1% lidocaine intraoperatively. You document this information.

By reminding the surgeon of the patient's allergy to epinephrine, you are following universal protocol. You document what the surgeon decides to inject.

The surgeon should not inject a drug with epinephrine, knowing the patient has an allergy to it. Having the anesthesia care provider pre-treat with diphenhydramine should not be done without the surgeon being involved in the decision.

67.

Which of the following represents the normal range of serum sodium levels in mEq/L?

From 136 to 145

From 126 to 135

From 136 to 150

From 146 to 155

Correct answer: From 136 to 145

Normal serum sodium levels should be between 136 and 145 mEq/L. Hypernatremia (elevated serum sodium) may be caused by hyperglycemia or administration of mannitol. Diaphoresis may be the only obvious symptom. Convulsions can occur. Hyponatremia (insufficient serum sodium) usually accompanies excessive fluid loss (i.e., diarrhea, dehydration) or adrenal insufficiency. Muscle twitching, hypovolemia, hypotension, and tachycardia may be symptoms.

68.

Your postoperative patient is shivering, complains of dizziness, and has impaired speech. What is the most likely cause?

Hypothermia

Malignant hyperthermia

Anoxia

Excessive blood loss (hypovolemia)

Correct answer: Hypothermia

Shivering, impaired speech, cyanosis, muscle rigidity, dizziness, a weak pulse, falling blood pressure, and dysrhythmias seen in the PACU are all signs of hypothermia caused by an inability to generate body heat (anesthesia inhibits the protective reflexes that generate body heat).

Anoxia would present as cyanosis, confusion, and dizziness, but not shivering. Excessive blood loss (hypovolemia) would present as dry mucous membranes and skin, hypotension, decreased urine output, and deep, rapid respirations. Malignant hyperthermia would show as tachycardia, fever, and muscle rigidity.

69.

After an adult preoperative patient is found to have a significant difference in bilateral arm blood pressure, they are referred to a cardiologist for follow-up, at which time a congenital cardiac defect is diagnosed. Which of the following congenital cardiac defects is most likely to be identified by a finding of discordant blood pressure?

Coarctation of the aorta

Atrial septal defect

Patent ductus arteriosus

Pulmonary stenosis

Correct answer: Coarctation of the aorta

It is not uncommon either to elect to delay treatment of a known, less severe congenital cardiac defect until adulthood or for a congenital cardiac defect to go undiscovered until adulthood due to a lack of significant cardiac symptoms. Cardiac defects such as atrial septal defect, coarctation of the aorta, patent ductus arteriosus, pulmonary stenosis, and ventricular septal defects (VSD) may go unnoticed until adulthood or, in some cases, may develop later in adulthood as a result of other cardiac issues (e.g., the development of a VSD after myocardial infarction).

Coarctation of the aorta is one of the more common congenital cardiac defects and typically presents in an infant as hypertension in the upper extremities (above the strictured area) and hypotension in the lower extremities due to impaired circulation below the strictured area. If the condition is not discovered until adulthood, it may be identified by the presence of a significant discordance of the blood pressure in the upper extremities. Typically, the strictured area is excised, and a prosthetic graft is placed to correct the defect.

70.

The preoperative nurse is involved in providing education to the patient prior to surgery. When including the patient's family in the preoperative education, the nurse needs to consider all the following except:

The need for all the teaching material to be presented

The family's coping skills

The learning environment

The patient's priorities

Correct answer: The need for all the teaching material to be presented

Preoperative teaching often includes the patient's family members; they can be critical in the success or failure of the patient to recover post-operatively. When including the family in preoperative teaching, the nurse must consider several factors, including:

- *Level of education and intelligence of the patient and his family*
- *Family's coping skills*
- *Appropriateness of the learning environment*
- *Patient's priorities*
- *Family's knowledge and understanding of the patient's needs*
- *Family's willingness to help the patient*

Once the nurse has considered all these factors, she must adapt the teaching material appropriately to best meet the needs of the patient and present it in a manner in which he and his family can understand.

71.

You check your patient's preoperative vital signs and note a heart rate of 48 beats per minute. You should ask the patient if this is a normal finding, and point it out to both the surgeon and the anesthesia provider.

Which of the following most likely explains the patient's low heart rate?

Sinus bradycardia

Hypothyroidism

Digoxin therapy

Second-degree heart block

Correct answer: Sinus bradycardia

A normal heart rate range in adults is 60-100 beats per minute. Causes of slow heart rate include sinus bradycardia (especially in athletes), hypothyroidism, digoxin, and second-degree heart block.

Although a slow heart rate might be expected in this patient, the surgeon and anesthesia care provider should be made aware of any abnormal vital signs.

72.

What is the most common type of hernia seen in children?

Inguinal hernia

Hiatal hernia

Umbilical hernia

Ventral hernia

Correct answer: Inguinal hernia

Of the four types of hernias seen in pediatric patients, indirect inguinal hernia is the most common, appearing during the first ten years of life. It occurs much more frequently in male patients. In embryonic development, the testes develop in the abdomen. Later, the testes and their support structures (blood vessels, nerves, and lymphatics) descend into the scrotum. After descent, the inguinal canal partially closes. It cannot close completely because the spermatic cord and support structures are located in the inguinal canal. This partial closure varies and can become a hernia where abdominal structures (bowel) can enter that area.

A hiatal hernia is a rare, surgical emergency in the newborn if abdominal contents are in the chest and cause acute respiratory distress. Most umbilical hernias do not need surgical intervention and resolve spontaneously. A ventral hernia is a fragment of intestines or other organs that push through the abdomen muscle wall and usually develops along an area where an incision (cut) for surgery has occurred. They are most commonly seen in the adult patient after surgery.

73.

When assessing a postoperative patient, a nurse working in the postanesthesia care unit (PACU) is most likely to notice a blunted response to carbon dioxide in all the following patients, except:

A 55-year-old patient who underwent surgery with ether used for inducing anesthesia

A 35-year-old patient with a history of hypothyroidism

An 85-year-old patient who underwent repair of a fractured hip

A 65-year-old patient with a 35-year history of depression

Correct answer: A 55-year-old patient who underwent surgery with ether used for inducing anesthesia

The respiratory drive is built upon a response to carbon dioxide (CO_2) which causes an individual to increase the rate of breathing to exchange the CO_2 formed as a byproduct of metabolism for inspired oxygen. This innate drive is critical to survival; however, an individual's response to CO_2 may be blunted due to a disease process, emotional state, or the administration of anesthetic agents. Hypothyroidism, depression, advanced age, barbiturates, narcotics, and general anesthetic medications can also cause a blunted response to CO_2. For this reason, all patients receiving care in a PACU setting should receive supplemental oxygen.

Ether is the only anesthetic agent that does not cause a blunted response to CO_2; it continues to be regularly used as a general anesthetic agent outside the United States.

74.

The preoperative nurse who is completing a patient assessment knows that 78% of patients over the age of 70 years face an increased risk of what musculoskeletal injury?

Bone fractures

Tendon tears

Muscle atrophy

Ankylosing spondylosis

Correct answer: Bone fractures

More than three-fourths of all geriatric patients (older than 70 years) have some degree of osteoporosis that is complicated by osteoarthritis, putting them at an increased risk of bone fractures (specifically hips, wrists, vertebrae, and ends of long bones).

Aging does cause atrophy of muscle fibers, but muscle atrophy is not an injury itself, rather a condition of aging. Tendons become more fibrous with age, causing decreased range of motion and muscle cramps (not tearing), and ankylosing spondylosis (a chronic inflammatory disease characterized by the fusion of a vertebral joint) causes kyphosis (curvature of the thoracic spine).

75.

A preoperative chest x-ray is required for which of the following patient(s)?

A patient with known cancer

Routinely for all patients

Routinely for patients who are age 40 years or older

Only if indicated by facility policy

Correct answer: A patient with known cancer

Routine use of preoperative chest x-ray is not indicated for all patients. Medical indications such as pulmonary or cardiac disease or diagnoses may necessitate ordering a chest x-ray to support the clinical evaluation of a patient scheduled for surgery. Chest x-ray is also indicated preoperatively for patients who are smokers, are over the age of 60 years, or who have cancer. Individual facilities may require a preoperative chest x-ray, but this is not the only indication for obtaining a preoperative chest x-ray.

76.

Your preoperative patient is to undergo a scleral buckling procedure. The patient should be educated that this procedure involves:

Implantation of a silicone wedge intrasclerally or episclerally

Placement of a donor cornea after the patient's damaged cornea has been removed

Replacement of the lens of the eye

Excision of the cornea

Correct answer: Implantation of a silicone wedge intrasclerally or episclerally

Internal elevation of the sclera may be increased by the scleral buckling procedure. This technique involves implantation of a wedge of silicone episclerally or intrasclerally. An encircling silicone band may be used to keep constant external pressure on the buckle.

A scleral buckle procedure does not treat cataracts or remove/replace the cornea.

77.

Your preoperative patient tells you, "I'm allergic to every antibiotic under the sun, and all antibiotics make me sick." You should:

Verify the patient's allergies by reviewing old charts, determining which antibiotics caused a problem and what the problem was

Write, "*All antibiotics"* on the patient's allergy armband per patient report, and verify the patient's allergies by reviewing old charts

Inform the surgeon that the patient cannot have antibiotics because he/she is allergic to all of them per patient report, and review old charts

Inform the surgeon that the patient will be unable to receive antibiotics and may suffer a life-threatening infection

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Correct answer: Verify the patient's allergies by reviewing old charts, determining which antibiotics caused a problem and what the problem was

Verify the patient's allergies by careful questioning and reviewing old charts to obtain an accurate list of allergies. Try to determine what type of reaction the patient experienced (i.e., side effects versus true allergy).

By carefully assessing the information, you will provide quality care in your nursing practice. Reassure the patient that there are many alternative antibiotics available and that staff will monitor carefully for any adverse reactions.

78.

What category of antibiotic is routinely given preoperatively as surgical prophylaxis to orthopedic patients with no drug allergies?

Cephalosporins

Tetracyclines

Penicillins

Aminoglycosides

Correct answer: Cephalosporins

This classification of antibiotic is used as broad-spectrum surgical prophylaxis, and is recommended for preoperative orthopedic patients who do not have an allergy to penicillin (10% cross-link to penicillin sensitivity). Perioperative staff and surgeons must know the best practice recommendations to provide appropriate care for their patients.

Tetracyclines are generally used for malaria prophylaxis and acne treatment. Penicillins are considered narrow-spectrum antibiotics and are not generally used as surgical prophylaxis. Aminoglycosides are primarily used for IV treatment of septicemia and meningitis.

79.

You are providing preoperative teaching to a mother of a 2-month-old infant who is scheduled for surgery. The mother is exclusively breastfeeding the infant. You instruct her that the last feeding must be given no later than:

Four hours preoperatively

Two hours preoperatively

One hour preoperatively

Three hours preoperatively

Correct answer: Four hours preoperatively

For infants, the appropriate NPO interval is:

- *Clear liquids up to two hours preoperatively*
- *Breast milk up to four hours preoperatively*
- *Formula/Cow's milk/solids up to six hours preoperatively*

Breast milk has fewer or no curds and empties faster from the stomach than formula. Infants should not miss more than one or two feedings. Oral intake is resumed promptly after the infant recovers from anesthesia.

80.

You are preparing a patient for surgery. The patient is undergoing a mastectomy for breast cancer. She states, "I just feel so angry right now."

How should you respond?

"You're feeling angry right now?"

"Anger is an unhealthy emotion."

"Be glad you are only losing one breast. I have had patients who have lost both breasts to cancer."

"When you are ready we can consult Reach for Recovery staff for you."

Correct answer: "You're feeling angry right now?"

Assessing the patient's emotional status is an important aspect of the preoperative visit with the patient. Reflecting the patient's statement allows her to expand on it and gives her a chance to express concerns/ask questions, opens up communication, and builds trust. Empathy is important in this environment.

The other statements are not appropriate. While anger may be an unhealthy emotion, the patient is entitled to her feelings. Telling the patient she should be glad she is only losing one breast is disregarding her feelings, and she is probably not ready for Reach for Recovery staff while in the anger stage.

81.

A perioperative nurse who calls a patient at home one week before surgery to obtain health data from the patient is performing an activity within which of the AORN Standards of Perioperative Clinical Practice?

Standard I

Standard II

Standard III

Standard IV

Correct answer: Standard I

The AORN Standards of Perioperative Clinical Practice are a set of six standards which incorporate intrinsic nursing practice activities into the nursing process.

- *Standard I, Assessment, includes collection of patient health data and completion of the patient assessment, including the physical and psychosocial assessment and reviewing laboratory data.*
- *Standard II, Diagnosis, includes the formulation of the nursing diagnoses based on the information obtained during Standard I, Assessment.*
- *Standard III, Outcome Identification, includes patient outcome goals or expectations as identified by the nurse based on the information obtained during the assessment, and as pertinent to the nursing diagnoses.*
- *Standard IV, Planning, includes the development of the plan of care.*
- *Standard V, Implementation, includes the implementation of the nursing interventions identified in the plan of care.*
- *Standard VI, Evaluation, includes evaluation of the outcomes of the plan of care, noting the patient's progress, and actual outcomes using the language universal to the Perioperative Nursing Data Set (PNDS).*

82.

A 25-year-old male patient who was severely injured in a high-velocity motor vehicle accident (MVA) is being evaluated in the preoperative holding area before being taken to surgery to repair a severe injury to his lower extremity. The patient is complaining of excruciating pain and paresthesia of the anterior aspect of the injured extremity; the perioperative nurse notes that the patient has weakness with toe extension and foot dorsiflexion. When the nurse passively moves his great toe, the patient reports severe pain.

Which of the following injuries to the anterior lower extremity is the patient most likely experiencing?

Compartment syndrome

Fractured tibia

Fractured fibula

Internal pedal amputation

Correct answer: Compartment syndrome

Compartment syndrome is most commonly identified after injuries to the lower extremities, although it may also occur as a result of traumatic injury to the upper extremities and abdomen. Patients who are experiencing compression syndrome most often present with complaints of excruciating pain out of proportion to the apparent severity of the injury, paresthesias, and muscle weakness.

If compartment syndrome is suspected, the surgeon may elect to check the pressure of the affected compartment using a manometer device; fasciotomy is the treatment of choice for compartment syndrome. Once fasciotomy has been performed, the nurse's main priority should be the management of the wound, which typically will remain open for many months and will result in extensive scarring.

83.

A medical history and physical examination are included in the chart in the preoperative period. What staff members are qualified to perform and document the history and physical?

Physician, nurse practitioner, physician assistant, and registered nurse first assistant

Physician, nurse practitioner, registered nurse, and physician assistant

Physician, dietitian, physician assistant, and registered nurse first assistant

Nurse practitioner, surgeon, physician assistant, and dietitian

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Correct answer: Physician, nurse practitioner, physician assistant, and registered nurse first assistant

As a part of the preoperative procedures, the medical history and physical examinations are performed and documented by a physician, nurse practitioner, physician assistant (PA), or the registered nurse first assistant (RNFA). These professionals have the qualifications to perform/document histories and physical exams.

These activities are outside the scope of practice for registered nurses and dietitians.

84.

What blood test is drawn to check a patient's warfarin (Coumadin) level?

Prothrombin time

Platelet count

Partial thromboplastin time

Desmopressin time

Correct answer: Prothrombin time

Prothrombin time (PT) tests are used to determine the clotting tendency of blood, in the measure of warfarin dosage, liver damage, and vitamin K status. This test measures the level of anticoagulation achieved with Coumadin (warfarin).

Partial thromboplastin time looks at how long it takes for blood to clot. It can help tell if there is a bleeding problem or if the blood does not clot properly, and shows the effectiveness of heparin. Platelet count gives the level the platelets in the patient's blood and affects blood clotting. Desmopressin is a synthetic vasopressin and is needed for certain patients (uremic and von Willebrand) to promote normal clotting.

85.

Mrs. H. is scheduled for open reduction and internal fixation (ORIF) of a supracondylar femur fracture. Her preoperative hemoglobin is 9.7 g/dL. Tourniquet usage is unlikely, and some blood may be lost. Mrs. H. does not have a blood band (type and screen or crossmatch) bracelet on.

What nursing assessment and actions would be appropriate PREOPERATIVELY?

Assessment: potential for blood loss. Actions: talk to the anesthesia care provider about type and screen or crossmatch blood units

Assessment: potential for blood loss. Actions: talk to the anesthesia care provider about type and screen or crossmatch blood units and monitor blood loss during procedure

Assessment: potential for blood loss. Actions: talk to the surgeon about hemodilution and plasma expanders

Assessment: potential for blood loss. Actions: talk to the surgeon about hypotensive anesthesia

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Correct answer: Assessment: potential for blood loss. Actions: talk to the anesthesia care provider about type and screen or crossmatch blood units

Open reduction and internal fixation (ORIF) refers to a surgical procedure to fix a severe bone fracture or break. “Open reduction” means surgery is needed to realign the bone fracture into the normal position. Normal hemoglobin levels for females are 12-16 g/dL. Preoperative actions to care for this patient involve talking to the anesthesia care provider about ordering type and screen or crossmatch in case the patient needs a blood transfusion, since her hemoglobin is already low. Even minimal blood loss could be detrimental to Mrs. H.

Monitoring blood loss during surgery is an intraoperative, rather than a preoperative action. It is appropriate to talk to the anesthesia care provider (not the surgeon) about the potential use of hemodilution, hypotensive anesthesia, and plasma expanders.

86.

During the medication reconciliation, the preoperative nurse learns that the patient takes ginseng every day. The nurse knows that ginseng may cause which of the following?

Hypertension and bleeding

Hypotension and bleeding

Hypotension and bradycardia

Hyperglycemia and bleeding

Correct answer: Hypertension and bleeding

Patients should be encouraged to report their usage of any herbal or dietary supplement. Some may cause serious complications if continued when a patient is preparing to undergo surgery, or may even interfere with the use of certain anesthetic agents.

Ginseng is an herbal supplement commonly used for improving vitality and enhancing sexuality. Potential complications from ginseng usage include hypertension and tachycardia, hypoglycemia, and bleeding.

87.

Your preoperative patient has arterial disease affecting the lower legs and complains of pain in his legs when walking. What can you do to ease his discomfort?

Keep the extremities in a dependent position

Elevate his legs

Position the patient on his side with a pillow between his knees

Place the patient in a supine position with a pillow under the lower back

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Correct answer: Keep the extremities in a dependent position

Intermittent claudication (numbness, tingling, pain during exercise caused by decreased blood flow) is a symptom of peripheral arterial disease. It is best relieved by keeping the legs in a dependent position, thus optimizing peripheral circulation.

Elevating the legs or placing them horizontally may worsen pain. Allow patients to maintain a position of comfort if possible.

88.

A preoperative nurse is completing the admission process for a 62-year-old female patient who is scheduled for a parathyroid hormone (PTH)-guided parathyroidectomy to treat hyperparathyroidism. The patient asks when bloodwork will be drawn. During which of the following time frames is the patient most likely to have bloodwork drawn to assist in guiding the parathyroidectomy surgery?

Before, during, and after the surgery

Before and after the surgery

During the surgery

Before the surgery

Correct answer: Before, during, and after the surgery

While an open approach to parathyroidectomy with bilateral neck exploration of all 4 (or more) parathyroid glands was the standard for many years in parathyroidectomy surgery to treat adenoma of the parathyroid gland(s), more recently, minimally invasive surgical techniques have become the first choice due to the risks associated with more invasive procedures. One type of minimally invasive parathyroidectomy surgery, PTH-guided parathyroidectomy, uses blood samples obtained before, during, and after the surgery to guide the surgical procedure.

Typically, the PTH level is drawn before the patient has an intravenous (IV) catheter placed to establish a baseline PTH level. The surgeon then proceeds with the surgery, removes the parathyroid gland that is believed to be diseased, and then draws a second PTH level. This PTH level may be higher than the preoperative level due to manipulation of the gland during its removal. The surgeon does not send the excised parathyroid gland to the pathology lab for analysis but instead keeps it in the operating room (OR) in sterile saline until it is confirmed by the lab that the PTH blood level has dropped by at least 50%. If the PTH level is higher, subsequent intraoperative levels may be drawn 5, 10, and 20 minutes after the gland was excised. If these lab studies do not reveal at least a 50% drop in the PTH level, the ipsilateral parathyroid gland is explored and possibly excised.

Patients with renal disease, slow metabolic rate, or large adenomas may not demonstrate an adequate drop in the PTH level.

89.

While collecting information during the preoperative visit, the nurse identifies that the patient has cochlear implants. What should the nurse tell the patient with regard to the implants?

She will not be able to wear her audio processor into the surgical suite or during surgery

There will be no disruptions in her ability to wear her audio processor on the day of her surgery

She will not be able to wear her audio processor in the surgical suite and that an American Sign Language interpreter will be available in the surgical suite for her to facilitate communication

The nurse will make the surgeon aware of her cochlear implants and that he will make the decision regarding her ability to continue use of the devices on the day of surgery

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Correct answer: She will not be able to wear her audio processor into the surgical suite or during surgery

Patients with hearing impairment may require special accommodations on the day of their surgery. Patients who have cochlear implants will be able to wear their audio processor only into the preoperative area (should be removed before the surgical procedure, either at the bedside or in the OR). The nurse should ensure the patient that a notepad and pencil will be available for communicating with the patient while in the surgical suite.

If the patient is fluent in the use of American Sign Language (ASL), an ASL interpreter may be used in the surgical area. The surgeon does not have any discretion in the use of the audio processor within the surgical suite.

90.

Regarding the pathophysiology of disease in a patient scheduled to undergo surgery, the anesthesia provider:

Possesses knowledge pertinent to the use of anesthetic agents

Is reliant upon the detailed medical history and physical examination obtained by the preoperative examiner and included in the preoperative chart

Does not rely on knowledge of disease pathophysiology when making decisions about anesthesia

Is solely reliant upon knowledge of disease pathophysiology when making decisions about anesthesia

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Correct answer: Possesses knowledge pertinent to the use of anesthetic agents

As part of the preoperative visit, an anesthesia provider should meet with the patient; this has been shown to decrease complications during the intraoperative time. The anesthesia provider possesses knowledge of disease pathophysiology as it pertains to anesthetic agents.

While the anesthesia provider may utilize information included in the medical history and physical examination when making decisions about anesthesia, the inclusion of knowledge of disease pathophysiology is also necessary for making a comprehensive decision regarding anesthetic agents.

91.

When you arrive in the presurgical holding area, you notice your patient still has her wedding band on her operative hand. She says she cannot get it off. What should be done?

Remove the ring, using various methods (including cutting it off if necessary), and give it to the designated person

Since the ring is not coming off, let her keep it on, tape it in place and take her to the OR

Try the "wrap the suture around finger" method to remove the ring. If that doesn't work, call her husband and tell him you will have to cut off the ring. Keep the ring with her belongings.

Apply soap to help slip off the ring. If that doesn't work, tell the surgeon that she will have to cancel surgery until a jeweler can get the ring off.

Correct answer: Remove the ring, using various methods (including cutting it off if necessary), and give it to the designated person

Various methods of removing rings include soaping the finger, wrapping a suture or string around the finger to slip the ring over the knuckle, and using a ring cutter tool. The ring should be given to whomever the patient designates or locked up in a secure location to be returned to her before she goes home. Jewelry should never be left on an operative hand in case of swelling, which could cause strangulation of the finger.

If the procedure is not on the hand where the ring is (in this case, left hand), and the ring cannot be removed, it is acceptable to loosely tape the ring in place to prevent loss. The patient may be permitted to keep a religious symbol, but the patient should understand that it may be removed during the surgical procedure if necessary.

92.

Which of the following is not an advantage of using the Perioperative Nursing Data Set (PNDS) when providing care for patients in the perioperative area?

A staffing model which predicts patient outcomes based on proposed staffing

Data about how patient outcomes are impacted by nursing contributions within the perioperative area

A common language for perioperative nursing practice and education

A framework for standardized nursing documentation

Correct answer: A staffing model which predicts patient outcomes based on proposed staffing

The Perioperative Nursing Data Set (PNDS) was developed by the Association of periOperative Registered Nurses (AORN) to provide standardization and ensure adherence to recommended nursing guidelines while improving patient outcomes. A standardized nursing documentation framework, a common language for perioperative nursing practice and education, and data which correlates patient outcomes with nursing contributions are just a few of the advantages of utilizing the PNDS.

While the PNDS has not created a staffing model predicting outcomes based on staffing, it can help to inform decisions about the relationship of staffing to patient outcomes.

93.

Mechanical methods of preventing postoperative deep vein thrombosis (DVT) should be communicated to patients during preoperative teaching and testing.

What are these mechanical methods?

Passive and active foot and ankle exercises, foot inflation devices, and calf/thigh wraps

Passive and active knee and shoulder exercises, foot inflation devices, and calf/thigh wraps

Passive and active foot and ankle exercises, foot inflation devices, and knee braces

Passive and active foot and ankle exercises, knee braces, and calf/thigh wraps

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Correct answer: Passive and active foot and ankle exercises, foot inflation devices, and calf/thigh wraps

The patient should be taught to perform foot and ankle exercises, including dorsiflexion and plantar flexion, to help prevent DVT of the lower extremities. Foot inflation devices, such as sequential compression devices (SCDs), and calf/thigh wraps, such as antiembolic stockings, will be applied by perioperative staff if used.

94.

The anesthesia provider has completed her part of the preoperative visit and has assigned the patient a physical status classification of Class IV. What does this mean?

The patient has an incapacitating disease that poses a constant threat to his life

The patient has a severe systemic disease that limits his activity but is not completely incapacitating

The patient will not survive 24 hours whether or not he undergoes surgery

The patient has a localized pathologic process that requires surgery, but is otherwise relatively healthy

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Correct answer: The patient has an incapacitating disease that poses a constant threat to his life

The American Society of Anesthesiologists (ASA) has designated a classification system that assigns a physical classification system to all patients undergoing surgery. The system was designed to assess the fitness of patients prior to undergoing surgery.

- *Class I includes relatively healthy patients with localized pathologic processes.*
- *Class II includes patients with mild systemic disease (e.g., type 2 diabetes controlled by diet or oral hypoglycemic agents).*
- *Class III includes patients with severe systemic disease that limits their activity but is not totally incapacitating (e.g., COPD).*
- *Class IV includes patients with an incapacitating disease that poses a constant threat to life (e.g., cardiovascular or renal disease).*
- *Class V includes patients who are not expected to survive 24 hours, regardless of whether or not they undergo the surgical procedure. The surgery is considered a resuscitative effort only.*
- *Class VI includes patients who have been declared brain dead. Surgery is being done solely to remove organs for donation.*

95.

An intraoperative nursing assessment and care plan to prevent complications includes all the following patient information except**:**

Anxiety and nutritional status

Cardiovascular function

Oxygenation needs

Allergies and medications given

Correct answer: Anxiety and nutritional status

Preoperative patient assessment establishes a baseline and provides valuable information with which intraoperative and postoperative patient care is planned and evaluated. Establishing the preoperative baseline enables the caregiver to be alerted to changes in patient's physiologic condition that may require prompt attention.

Intraoperatively, the team concentrates on the patient's physiologic needs for oxygen and circulation, and keeps track of the patient's vital functions, focusing on the prevention of complications and encouraging patient self-actualization. The team also closely monitors medications administered and takes note of any existing allergies.

*The patient's anxiety and nutritional status are addressed **preoperatively**.*

96.

You are providing preoperative teaching to the mother of a 2-year-old who is scheduled for surgery with general anesthetic. Your facility allows parents to remain with their children during induction.

When the patient's mother voices surprise that she will be allowed to stay with her child, you explain that:

Having a parent present can help decrease the child's anxiety

Having the parent hold the anesthetic mask will facilitate cooperation from the child

It is the facility's policy that a parent stay with the child during induction

Having a parent present can help decrease the parent's anxiety

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Correct answer: Having a parent present can help decrease the child's anxiety

Having a parent present primarily helps to reduce the child's anxiety, which may in turn help the child to be more cooperative. This can be particularly important for toddlers and preschool-age children. The parent should not hold the anesthetic mask, however.

Each child/family should be assessed to best meet their needs. Facility policy regarding parents with children should be followed.