

## Porth's Pathophysiology 10th Edition Norris Test Bank

1. At an international nursing conference, many discussions and breakout sessions focused on the World Health Organization (WHO) views on health. Of the following comments made by nurses during a discussion session, which statements would be considered a good representation of the WHO definition? Select all that apply.
  - A) Interests in keeping the elderly population engaged in such activities as book reviews and word games during social time
  - B) Increase in the number of chair aerobics classes provided in the skilled care facilities
  - C) Interventions geared toward keeping the elderly population diagnosed with diabetes mellitus under tight blood glucose control by providing in-home cooking classes
  - D) Providing transportation for renal dialysis patients to and from their hemodialysis sessions
  - E) Providing handwashing teaching sessions to a group of young children

Ans: A, B, C, E

**Feedback:**

The WHO definition of health is defined as “a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity.” Engaging in book reviews facilitates mental and social well-being; chair aerobics helps facilitate physical well-being; and assisting with tight control of diabetes helps with facilitating physical well-being even though the person has a chronic disease. Handwashing is vital in the prevention of disease and spread of germs.

2. A community health nurse is teaching a group of recent graduates about the large variety of factors that influence an individual's health or lack thereof. The nurse is referring to the *Healthy People 2020* report from the U.S. Department of Health and Human Services as a teaching example. Of the following aspects discussed, which would be considered a determinant of health that is outside the focus of this report?
  - A) The client has a diverse background by being of Asian and Native American descent and practices various alternative therapies to minimize effects of stress.
  - B) The client has a family history of cardiovascular disease related to hypercholesterolemia and remains noncompliant with the treatment regime.
  - C) The client has a good career with exceptional preventative health care benefits.
  - D) The client lives in an affluent, clean, suburban community with access to many health care facilities.

Ans: B

**Feedback:**

In *Healthy People 2020*, the focus is to promote good health to all (such as using alternative therapies to minimize effects of stress); achieving health equity and promoting health for all (which includes having good health care benefits); and promoting good health (which includes living in a clean community with good access to health care). A client's noncompliance with treatments to control high cholesterol levels within the presence of a family history of CV disease does not meet the “attaining lives free of preventable disease and premature death” determinant.

3. A physician is providing care for a number of patients on a medical unit of a large, university hospital. The physician is discussing with a colleague the differentiation between diseases that are caused by abnormal molecules and diseases that cause disease. Which of the following patients most clearly demonstrates the consequences of molecules that cause disease?
- A) A 31-year-old woman with sickle cell anemia who is receiving a transfusion of packed red blood cells
  - B) A 91-year-old woman who has experienced an ischemic stroke resulting from familial hypercholesterolemia
  - C) A 19-year-old man with exacerbation of his cystic fibrosis requiring oxygen therapy and chest physiotherapy
  - D) A 30-year-old homeless man who has *Pneumocystis carinii* pneumonia (PCP) and is HIV positive.

Ans: D

**Feedback:**

PCP is an example of the effect of a molecule that directly contributes to disease. Sickle cell anemia, familial hypercholesterolemia, and cystic fibrosis are all examples of the effects of abnormal molecules.

4. A member of the health care team is researching the etiology and pathogenesis of a number of clients who are under his care in a hospital context. Which of the following aspects of clients' situations best characterizes pathogenesis rather than etiology?
- A) A client who has been exposed to the *Mycobacterium tuberculosis* bacterium
  - B) A client who has increasing serum ammonia levels due to liver cirrhosis
  - C) A client who was admitted with the effects of methyl alcohol poisoning
  - D) A client with multiple skeletal injuries secondary to a motor vehicle accident

Ans: B

**Feedback:**

Pathogenesis refers to the progressive and evolutionary course of disease, such as the increasing ammonia levels that accompany liver disease. Bacteria, poisons, and traumatic injuries are examples of etiologic factors.

5. A new myocardial infarction patient requiring angioplasty and stent placement has arrived to his first cardiac rehabilitation appointment. In this first session, a review of the pathogenesis of coronary artery disease is addressed. Which statement by the patient verifies to the nurse that he has understood the nurse's teachings about coronary artery disease?
- A) "All I have to do is stop smoking, and then I won't have any more heart attacks."
  - B) "My artery was clogged by fat, so I will need to stop eating fatty foods like French fries every day."
  - C) "Sounds like this began because of inflammation inside my artery that made it easy to form fatty streaks, which lead to my clogged artery."
  - D) "If I do not exercise regularly to get my heart rate up, blood pools in the veins causing a clot that stops blood flow to the muscle, and I will have a heart attack."

Ans: C

**Feedback:**

The true etiology/cause of coronary artery disease (CAD) is unknown; however, the pathogenesis of the disorder relates to the progression of the inflammatory process from a fatty streak to the occlusive vessel lesion seen in people with coronary artery disease. Risk factors for CAD revolve around cigarette smoking, diet high in fat, and lack of exercise.

6. A 77-year-old man is a hospital inpatient admitted for exacerbation of his chronic obstructive pulmonary disease (COPD), and a respiratory therapist (RT) is assessing the client for the first time. Which of the following aspects of the patient's current state of health would be best characterized as a symptom rather than a sign?
- A) The patient's oxygen saturation is 83% by pulse oxymetry.
  - B) The patient notes that he has increased work of breathing when lying supine.
  - C) The RT hears diminished breath sounds to the patient's lower lung fields bilaterally.
  - D) The patient's respiratory rate is 31 breaths/minute.

Ans: B

**Feedback:**

Symptoms are subjective complaints by the person experiencing the health problem, such as complaints of breathing difficulty. Oxygen levels, listening to breath sounds, and respiratory rate are all objective, observable signs of disease.

7. Which of the following situations would be classified as a complication of a disease or outcome from the treatment regimen? Select all that apply.
- A) Massive pulmonary emboli following diagnosis of new-onset atrial fibrillation
  - B) Burning, intense incision pain following surgery to remove a portion of colon due to intestinal aganglionosis
  - C) Development of pulmonary fibrosis following treatment with bleomycin, an antibiotic chemotherapy agent used in treatment of lymphoma
  - D) Gradual deterioration in ability to walk unassisted for a patient diagnosed with Parkinson disease
  - E) Loss of short-term memory in a patient diagnosed with Alzheimer disease

Ans: A, C

**Feedback:**

Development of pulmonary emboli and pulmonary fibrosis following chemotherapy are both examples of a complication (adverse extensions of a disease or outcome from treatment). It is normal to expect incisional pain following surgery. As Parkinson disease progresses, the inability to walk independently is expected. This is a normal progression for people diagnosed with Parkinson's. Loss of short-term memory in a patient diagnosed with Alzheimer disease is an expected finding.

8. Laboratory testing is ordered for a male patient during a clinic visit for a routine follow-up assessment of hypertension. When interpreting lab values, the nurse knows that
- A) a normal value represents the test results that fall within the bell curve.
  - B) if the lab result is above the 50% distribution, the result is considered elevated.
  - C) all lab values are adjusted for gender and weight.
  - D) if the result of a very sensitive test is negative, that does not mean the person is disease free.

Ans: A

**Feedback:**

What is termed a normal value for a laboratory test is established statistically from results obtained from a selected sample of people. A normal value represents the test results that fall within the bell curve or the 95% distribution. Some lab values (like hemoglobin) are adjusted for gender, other comorbidities, or age. If the result of a very sensitive test is negative, it tells us the person does not have the disease, and the disease has been ruled out or excluded.

9. The laboratory technologists are discussing a new blood test that helps establish a differential diagnosis between shortness of breath with a cardiac etiology and shortness of breath with a respiratory/pulmonary etiology. A positive result is purported to indicate a cardiac etiology. The marketers of the test report that 99.8% of patients who have confirmed cardiac etiologies test positive in the test. However, 1.3% of patients who do not have cardiac etiologies for their shortness of breath also test positive. Which of the following statements best characterizes this blood test?
- A) Low validity; high reliability
  - B) High sensitivity; low specificity
  - C) High specificity; low reliability
  - D) High sensitivity; low reliability

Ans: B

**Feedback:**

A large number of patients would receive the correct positive diagnosis (high sensitivity), while a significant number would receive a false-positive diagnosis (low specificity). The information given does not indicate low reliability or low validity.

10. As part of a screening program for prostate cancer, men at a senior citizens' center are having their blood levels of prostate-specific antigen (PSA) measured. Which of the following statements would best characterize a high positive predictive value but a low negative predictive value for this screening test?
- A) All of the men who had high PSA levels developed prostate cancer; several men who had low PSA levels also developed prostate cancer.
  - B) All of the men who had low PSA levels were cancer-free; several men who had high levels also remained free of prostate cancer.
  - C) Men who had low PSA levels also displayed false-positive results for prostate cancer; men with high levels were often falsely diagnosed with prostate cancer.
  - D) The test displayed low sensitivity but high specificity.

Ans: A

**Feedback:**

The test's inability to rule out cancer with a low PSA level indicates a low negative predictive value. Answer B suggests a high negative predictive value, while answer C indicates a low positive predictive value. High positive predictive value is associated with high sensitivity.

11. A male international business traveler has returned from a trip to Indonesia. While there, he hired a prostitute for companionship and engaged in unprotected sex on more than one occasion. Unbeknownst to him, this prostitute harbored the hepatitis C virus. Upon return to the United States, he exhibited no symptoms and returned to his usual activities. During this period of no outward symptoms, the man would be classified as being in
- A) the preclinical stage of disease.
  - B) remission and unlikely to develop hepatitis C.
  - C) the clinical disease stage of hepatitis C.
  - D) the chronic phase of hepatitis C.

Ans: A

**Feedback:**

During the preclinical stage, the disease is not clinically evident but is destined to progress to clinical disease.

12. As of November 1, 2012, there were a total of 10 confirmed cases of Hantavirus infection in people who were recent visitors (mid-June to end of August, 2012) to Yosemite National Park. Three visitors with confirmed cases died. Health officials believe that 9 out of the 10 people with Hantavirus were exposed while staying in Curry Village in the Signature Tent Cabins. This is an example of
- A) what the anticipated mortality rate would be if a family of five were planning to vacation in Yosemite National Park.
  - B) the prevalence of Hantavirus one can anticipate if he or she is going to vacation in Yosemite National Park.
  - C) the low rate of morbidity one can expect while traveling to Yosemite National Park.
  - D) the incidence of people who are at risk for developing Hantavirus while staying in Yosemite National Park.

Ans: D

**Feedback:**

The incidence reflects the number of new cases arising in a population at risk during a specified time.

13. A particular disease has a debilitating effect on the ability of sufferers to perform their activities of daily living and is a significant cause of decreased quality of life. However, few people die as a result of the disease's direct effects. There are hundreds of thousands of Americans living with the disease but relatively few new cases in recent years. Which of the following statements best conveys an accurate epidemiological characterization of the disease?
- A) Low mortality; high morbidity; low prevalence; high incidence
  - B) Low mortality; high morbidity; high incidence; low prevalence
  - C) High mortality; low morbidity; high incidence; low prevalence
  - D) High morbidity; low mortality; high prevalence, low incidence

Ans: D

**Feedback:**

Morbidity is associated with quality of life, while mortality is indicative of causation of death. In this case, morbidity is high and mortality is low. Prevalence refers to the number of cases present in a population, while incidence refers to the number of new cases. In this case, prevalence is high, while incidence is low.

14. An epidemiologist is conducting a program of research aimed at identifying factors associated with incidence and prevalence of congenital cardiac defects in infants. The researcher has recruited a large number of mothers whose infants were born with cardiac defects as well as mothers whose infants were born with healthy hearts. The researcher is comparing the nutritional habits of all the mothers while their babies were in utero. Which of the following types of study is the epidemiologist most likely conducting?
- A) Cohort study
  - B) Cross-sectional study
  - C) Case-control study
  - D) Risk factor study

Ans: C

**Feedback:**

In this study, the mothers with cardiac-affected babies would be the case group, while the mothers of healthy infants would serve as a control. This study does not possess the characteristics of a cohort or cross-sectional study, and risk factor study is not an existing methodology.

15. A nurse practitioner is working in a crowded neighborhood where the population is primarily immigrants from China. The nurse has designed a research study to follow children from kindergarten to the age of 25. She is going to be looking at their diet, successful progression in school, health practices, and development of disease, to name a few items. This type of research is known as
- A) cohort study.
  - B) cross-sectional study.
  - C) case-control study.
  - D) epidemiological study.

Ans: A

**Feedback:**

In this cohort study, a group of people who were born at approximately the same time or share some characteristics of interest is the focus of the research. This study does not possess the characteristics of a case-control or cross-sectional study, and epidemiological study is not an existing methodology.

16. As part of a community class, student nurses are developing a class to teach expectant parents the importance of having their child properly secured in a child safety seat. During the class, the students are going to have a safety officer examine the car seats that the parents have installed in their vehicles. This is an example of which type of prevention?
- A) Primary prevention
  - B) Secondary prevention
  - C) Tertiary prevention
  - D) Prognosis enhancement

Ans: A

**Feedback:**

Primary prevention is directed at keeping disease from occurring by removing risk factors. Some primary prevention is mandated by law, like child safety seats. Secondary prevention focuses on screening and early disease identification, whereas tertiary prevention is directed at interventions to prevent complications of a disease.



17. A multidisciplinary health care team operates a program aimed at the prevention, identification, and treatment of diabetes on a large Indian reservation. Which of the following aspects of the program would be most likely to be classified as secondary prevention?
- A) Regularly scheduled wound dressing changes for clients who have foot ulcers secondary to peripheral neuropathy and impaired wound healing
  - B) Teaching school children how a nutritious, traditional diet can lessen their chances of developing adult-onset diabetes
  - C) Staffing a booth where community residents who are attending a baseball tournament can have their blood glucose levels checked
  - D) Administering oral antihyperglycemic medications to clients who have a diagnosis of diabetes

Ans: C

**Feedback:**

Secondary prevention focuses on screening and early disease identification, such as checking the blood glucose levels of a large number of individuals to identify potential cases of diabetes. Wound treatment and medication administration would be considered tertiary interventions, and education would be considered primary prevention.

18. An occupational therapist conducts a group therapy program called MindWorks with older adults who have diagnoses of dementia and Alzheimer disease. The goal of the group is to slow the cognitive decline of clients by engaging them in regular, organized mental activity such as reading maps and solving puzzles. How would the program most likely be characterized?
- A) Primary prevention
  - B) Secondary prevention
  - C) Tertiary prevention
  - D) Prognosis enhancement

Ans: C

**Feedback:**

Interventions aimed at slowing the course of an already-diagnosed disease characterize tertiary prevention.

19. The clinical educator of a hospital medical unit has the mandate of establishing evidence-based practice guidelines for the nursing care on the unit. Which of the following statements most accurately captures a guiding principle of the nurse's task?
- A) Evidence-based practice guidelines will be rooted in research rather than nurses' subjective practice preferences and experiences.
  - B) Guidelines are synonymous with systematic research reviews.
  - C) The need for continuity and standardization of guidelines will mean that they will be fixed rather than changeable.
  - D) The guidelines will combine individual expertise with external systematic evidence.

Ans: D

**Feedback:**

Evidence-based guidelines are a result of the combination of empirical, published evidence and the expertise of accomplished practitioners. They are not the same as systematic reviews of the literature, and they are fluid and modifiable in the face of new evidence.

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20. The neuroscience nursing unit has developed a set of step-by-step directions of what should occur if a nursing assessment reveals that the patient may be exhibiting clinical manifestations of a cerebrovascular accident (CVA). Which of the following statements about clinical practice guidelines are accurate? Select all that apply.
- A) Step-by-step guidelines are usually developed and based primarily on “how it has always been done before.”
  - B) The development of evidence-based practice guidelines requires a research review from different studies to develop the most accurate diagnostic method to implement.
  - C) Once developed, practice guidelines only need to be reviewed if a national committee sends out an update on new research.
  - D) When developing a CVA set of step-by-step directions, the nursing unit should ask for assistance from experts in the neuroscience field. The potential users of the guidelines should pilot test it for further feedback.
  - E) A meta-analysis could be utilized to combine evidence from different studies to produce a more accurate diagnostic method.

Ans: B, D, E

**Feedback:**

Clinical practice guidelines are systematically developed and intended to inform practitioners in making decisions about health care for CVA patients. They should be developed using research and review by experts in the clinical content. Potential users should also participate and provide feedback prior to implementation. The purpose of the guidelines is to review EBP articles and develop new practice guidelines rather than continuing practicing primarily on “how it has always been done before.” Once developed, the guidelines must be continually reviewed and changed to keep pace with new research findings. A meta-analysis could be utilized to combine evidence from different studies to produce a more accurate diagnostic method or the effects of an intervention method.

1. During a discussion on cellular components and their function, a student asked the instructor the purpose of messenger RNA (mRNA). Of the following, which is the most accurate answer?
- A) Transports amino acids to the site of protein synthesis
  - B) Acts as an inner nuclear support membrane for a rigid network of protein filaments that bind DNA to the nucleus
  - C) Performs an active role of protein synthesis, where mRNA molecules direct the assembly of proteins on ribosomes to the cytoplasm
  - D) Assists cells in forming neoplastic progression by altering the response of chromatin in the nuclear matrix

Ans: C

**Feedback:**

The nucleus is the site for the synthesis of three types of RNA that move to the cytoplasm and carry out the actual synthesis of proteins. Messenger RNA copies and carries the DNA instructions for protein synthesis to the cytoplasm. Ribosomal RNA is the site of actual protein synthesis; transfer RNA transports amino acids to the site of protein synthesis.

2. The nurse is providing care for a client with a diagnosis of cirrhosis, and she notes that the client's sclerae are jaundiced. The nurse recalls that jaundice is a pigment that can accumulate in which part of the cell?
- A) Nucleus
  - B) Cytoplasm
  - C) Golgi apparatus
  - D) Rough endoplasmic reticulum (ER)

Ans: B

**Feedback:**

Pigments such as bilirubin and melanin can accumulate in the cytoplasm, resulting in the characteristic yellow skin tones associated with jaundice. Pigments do not tend to accumulate in the nucleus, Golgi apparatus, or rough ER.

3. A 14-year-old female has been experiencing severe internal cramps in the region of the pelvis and weight loss. She has been admitted with rectal bleeding. The physician has diagnosed her with inflammatory bowel disease (IBD). She asks the nurse what causes this disease. The nurse will base her response knowing that IBD has been linked to
- A) liver involvement in faulty glycogen stores.
  - B) endoplasmic reticulum stress in the gastrointestinal system.
  - C) oversecretion of insulin from the beta cells in the pancreas.
  - D) infiltration of the gastrointestinal tract by bacterial toxins.

Ans: B

**Feedback:**

Researchers are determining links between the endoplasmic reticulum (ER) and various disease processes. For examples, ER stress in the GI system has been found to be related to intestinal inflammations such as those occur with inflammatory bowel disease. The smooth ER of the liver is involved in glycogen stores. Insulin is synthesized as a large, inactive proinsulin molecule cut apart to produce a smaller, active insulin molecule within the Golgi complex of the beta cells. Bacterial toxins have exploited the retrograde transport mechanism.

4. A professor is teaching a group of students about the role of mitochondria within the cell. Which of the following statements is true of mitochondria?
- A) They are the site of adenosine triphosphate (ATP) production.
  - B) The number of mitochondria in a cell is equal to the number of nuclei.
  - C) They are replicated within the smooth endoplasmic reticulum (ER).
  - D) Mitochondrial DNA is inherited patrilineally.

Ans: A

**Feedback:**

Consistent with their characterization as the “power plants” of the cell, mitochondria are the site of ATP synthesis for the cell. The number of mitochondria in a given cell type varies, according to the energy demands of the particular cell. They are self-replicating rather than being produced in the smooth ER, and they are inherited matrilineally.

5. A patient has been diagnosed with a neurodegenerative disease called multiple sclerosis (MS). The physician explains to the patient that this disease may be caused by dysregulated apoptosis. Later that day, the patient asks the nurse what this means. The nurse should reply,
- A) “The cells around your nerves don't know how to die correctly.”
  - B) “The cytoplasm should neutralize the various apoptotic inhibitors but isn't working correctly.”
  - C) “Dysregulated apoptosis has caused an excessive rate of programmed cell death along the neuropathways.”
  - D) “There is an inappropriately low rate of apoptosis occurring within the cells.”

Ans: C

**Feedback:**

Dysregulated apoptosis can mean too little or too much and has been implicated in neurodegenerative diseases, in which there is an increased or excessive rate of apoptosis.

6. A patient experiencing *immotile cilia syndrome* should be frequently assessed by the nurse for which priority complication?
- A) Epistaxis resulting from loss of cilia in the nasal passageway
  - B) Bronchiectasis due to interferences with clearance of inhaled bacteria along the respiratory tract
  - C) Sterility caused by inability of the sperm to swim downstream
  - D) Inability to hear soft sounds related to kinocilium on the hair cells in the inner ear

Ans: B

**Feedback:**

*Immotile cilia syndrome* immobilizes the cilia of the respiratory tract, thus interfering with clearance of inhaled bacteria, leading to the chronic lung disease called bronchiectasis.

7. A community health care worker is explaining to a group of factory workers the importance of wearing gloves when working with strong chemicals such as turpentine and paint thinner. Which of the following characteristics of cell membranes underlies the nurse's teaching?
- A) Cell membranes are impermeable to all but lipid-soluble substances.
  - B) Cell membranes have a hydrophilic head and a hydrophobic tail.
  - C) Cell membranes contain receptors for hormones and biologically active substances.
  - D) Transmembrane proteins can pass through the cell membrane into the intracellular environment.

Ans: A

**Feedback:**

Because cell membranes are soluble to some lipid-soluble substances such as organic solvents, such substances should be kept from direct contact with skin cells. The facts that cell membranes have a hydrophilic head and a hydrophobic tail and contain receptors for hormones and biologically active substances do not have a bearing on the nurse's teaching. While transmembrane proteins can indeed pass into the intracellular environment, the nurse is not referring to proteins in the teaching.

8. The nurse is explaining the workings of selective serotonin reuptake inhibitors to a client with a diagnosis of depression. Within the teaching, the nurse mentions that in the nervous system, the transmission of information by neurotransmitters is
- A) synaptic signaling.
  - B) endocrine signaling.
  - C) autocrine signaling.
  - D) paracrine signaling.

Ans: A

**Feedback:**

Synaptic signaling occurs in the nervous system, where neurotransmitters act only on adjacent nerve cells through special contact areas called synapses. Endocrine signaling relies on hormones carried in the bloodstream to cells throughout the body. Autocrine signaling occurs when a cell releases a chemical into the extracellular fluid that affects its own activity. With paracrine signaling, enzymes rapidly metabolize the chemical mediators and therefore act mainly on nearby cells.