Pathophysiology Concepts of Human Disease 1st edition Sorenson Solutions Manual

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Chapter 1: Introduction to the Basics of Pathophysiology

Chapter Outline and Learning Outcomes

1.1 The Language of Pathophysiology

Define the conceptual basis for and the language used in the study of pathophysiology.

1.2 Overview of Health and Illness

Describe characteristics of risk factors associated with health and illness.

***1.3 The Structure of* Pathophysiology: Concepts of Human Disease**

Outline the structure of this book/eText, including the pathogenesis and etiology of disease; the clinical manifestations of disorders; how pathophysiology is linked to diagnosis and treatment; and the impact of genetics, nutrition, and lifespan on health and illness.

1.4 Leading Indicators of Morbidity and Mortality

Describe the study of epidemiology, and outline the leading indicators of morbidity and mortality in the United States.

1.5 The Importance of Evidence-based Practice

Explain the importance of evidence-based practice.

Key Terms
Abbreviations

1.1 The Language of Pathophysiology

Essential Terminology

a. **Pathophysiology**: The study of functional alterations at the molecular, cellular, tissue, and organ system levels that are involved in disease states
    1. Also studies how alterations in one organ system affect the function of interrelated organ systems.
        i. Understanding alterations is important for understanding clinical manifestations of disease.
        ii. Understanding manifestations makes it possible to identify both what happens and why it happens.
    2. Understanding pathophysiology requires knowledge of normal anatomy and physiology.
b. **Pathology**: A medical discipline that focuses on structural alterations in tissues and organs and is closely related to pathophysiology
    - Involves the analysis of specimens from patients for the purpose of diagnosing diseases and assessing disease progression

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c. **Histology**: A subdivision of pathology that studies the microscopic anatomy of cells and tissues
    - Cells taken from patients or grown in culture are examined using special stains and light or electron microscopes.

The Conceptual Basis of Pathophysiology

a. Basic concepts underlie all physiologic mechanisms and make it possible to apply knowledge across different situations.
    - See Table 1.1 Biophysiologic concepts, p. 5–7
b. Pharmacologic therapies and nursing interventions are based on the conceptual mechanisms underlying a pathogenic process.
    1. Pharmacologic example: Treating hypertension with a calcium channel blocker to stop calcium entering cardiac tissue, thus lessening the heart's contractile force and lowering blood pressure
    2. Nursing example: Turning a patient to prevent pressure injuries based on principles of blood flow and ischemia
c. Myocardial ischemia and infarction provide a larger example of how interrelated concepts explain the effects of disease states on health.
    1. A decrease in blood flow to tissue leads to a decrease in oxygen and glucose known as ischemia.
        i. Lack of oxygen results in tissue death (infarction).
        ii. Lack of glucose results in disruption to cellular regulation.
    2. Narrowing of vessels decreases blood flow.
        i. Oxygen levels in blood can stimulate constriction.
        ii. Lipid deposits in atherosclerosis narrow vessels.
            - The immune system impacts how quickly lipids accumulate.
    3. Diabetes can influence the thickness (viscosity) of blood, slowing circulation.
        - See Figure 1.1 Concepts related to the pathogenesis of myocardial infarction in an individual with diabetes, p. 7
d. Asthma provides another multi-concept example.
    1. Parts of the respiratory tract are sensitive to allergens.
        i. In the presence of allergens, these parts constrict.
        ii. Constriction restricts air flow to the lungs.
        iii. Restricted air flow leads to decreased oxygen concentration in the blood.
    2. Allergens also stimulate the immune system.
        i. Stimulation triggers the release of inflammatory mediators.
        ii. Resulting inflammation contributes to airflow reduction.
    3. Obesity is a state of chronic inflammation that can worsen asthma.
        - Increased pressure on the lungs and relative lack of fitness make breathing difficult.

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4. Nervous pathways also influence constriction and dilation of the respiratory system.
    - See Figure 1.2 Concepts related to an asthma attack, p. 8

Answers to Case Studies

Frank Smith: Introduction

1. Mr. Smith's complains of headache and blurry vision.
2. The nurse should focus on sensory perception and perfusion.

Check Your Progress: Section 1.1

1. The conceptual basis of pathophysiology helps with the assessment and diagnosis process by enabling the nurse to apply basic principles across different situations and disease states.
2. Pathophysiology focuses on functional alterations in body systems, whereas pathology focuses on structural alterations.
3. Nurses apply pathophysiology in daily practice by using it as a knowledge base for understanding *why* alterations happen rather than just *what* happens.

1.2 Overview of Health and Illness

Characteristics of Health and Illness

a. Health and illness are points along a continuum and a person moves back and forth on that continuum throughout life.
b. **Health**: An absence of disease or functional changes that can result in disease
c. **Disease**: A situation that is impairing functional ability in some way
    1. Illness and disease are often used interchangeably, but are different concepts.
    2. A disease has clear diagnostic criteria and can lead to symptoms and complications.
d. **Illness**: The individual experience that a person has with a disease
    1. Based on a personal response to disease
    2. Subject to individual beliefs, knowledge, cultural factors, and overall state of health
        i. For example, asthma is a disease.
        ii. A common cold exacerbates asthma.
        iii. The patient with asthma is hospitalized for the cold.
        iv. The patient's experience of being hospitalized is illness.
e. **Disorder**: The functional changes that occur as a result of disease
    1. May describe a disruption of physiologic or psychologic function
    2. Immunoproliferative disorders are an example.
        i. Genetic variations lead to disruptions of immune cells in immunoproliferative disorders.
        ii. As a result, certain cell types overproduce or overgrow.
        iii. This leads to loss of other cells or the release of immature cells.
        iv. This is what occurs in leukemia.

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f. **Syndrome**: A group of signs or symptoms that emerge from a disease state
    1. A syndrome can have varying etiologic factors and diagnostic findings, but the symptoms and underlying mechanisms are the same.
    2. Acute coronary syndrome is an example.
        i. It manifests as angina and electrophysiologic heart changes.
        ii. It is caused by a decrease in blood flow to the heart.
        iii. The decreased blood flow results in ischemia.
        iv. It has several possible causes and several different electrocardiographic abnormalities.

Risk Factors

a. **Risk factor**: Anything that puts a person at a greater risk for developing a particular disease
b. Risk factors come from a number of sources:
    1. Genetics
    2. Lifestyle factors
    3. Social determinants of health
c. Risk factors are classified as modifiable or nonmodifiable.
    1. **Modifiable**: One that the individual can change, such as diet or smoking
    2. **Nonmodifiable**: One that cannot be changed
    3. , such as age, race, or genetics

Check Your Progress: Section 1.2

1. Obesity is a condition that can become a disease if it impairs the person's functional ability in some way.
2. A disorder is a disruption of physiologic or psychologic function, whereas a syndrome is a group of signs and symptoms that emerge as part of a disease state.
3. Family history is a nonmodifiable risk factor because it involves the genetics of the birth parents.

1.3 The Structure of *Pathophysiology: Concepts of Human Disease*

Presentation of Disorders and Conditions

a. Throughout the text, condition presentation follows a set structure.
b. *Etiology and Pathogenesis* is presented first, followed by *Clinical Manifestations*, and then *Linking Pathophysiology to Diagnosis and Treatment.*

Etiology and Pathogenesis

a. **Etiology**: The cause of a disease or injury
    1. Some conditions have only one etiologic factor, whereas others are multifactorial.
        i. A cold has one etiologic factor—rhinovirus.

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ii. Hypertension has many factors that combine genetics, diet, and lifestyle.

2. Exogenous disease etiologies arise from chemical, physical, or infection agents in the external environment.
   i. Chemical agents: Alcohol, lead, mercury, air pollutants
   ii. Physical agents: Extreme temperatures, radiation, trauma, electricity
   iii. Infectious agents: Bacteria, viruses, fungi, helminths
      - Disease development depends upon the intensity or duration of exposure to an exogenous agent as well as individual health status and genetics.
3. Endogenous disease etiologies arise from within the body.
   i. Examples include abnormal immune reactions, gene mutations, coagulation defects, stress, and metabolic abnormalities.
   ii. An abnormal substance in the body is not necessarily an etiologic agent.
      - For example, the presence of abnormal hemoglobin is not an endogenous agent for sickle cell disease; genetic mutation is the endogenous agent.
4. **Idiopathic disease**: A disease of unknown etiology
5. **Iatrogenic disease**: A disease with an unintentional etiology from a treatment, diagnostic procedure, or error of a healthcare provider

b. **Pathogenesis**: The origin of or underlying mechanisms responsible for the clinical manifestations of a disease
   - Considers how the origin created structural or functional alterations in cells, tissues, organs that resulted in disease.

c. Diarrhea caused by *Clostridium difficile* (*C. difficile*) provides an example for distinguishing etiology and pathogenesis.
   1. Etiology is infection with the gram-positive, spore-forming bacterium *C. difficile*.
   2. Pathogenesis involves the interaction of environmental and host factors.
      i. Exposure to environmental source of *C. difficile*
      ii. Entry of *C. difficile* spores into the digestive tract
      iii. Host defense and intestinal microbiota response to *C. difficile*
      iv. Ability of *C. difficile* to replicate and injure the intestinal wall

Clinical Manifestations

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a. **Clinical manifestations**: The signs and symptoms associated with a disease as well as alterations in diagnostic tests
    1. **Sign**: An objective indication of disease that is observable by the person conducting a physical assessment
        - Examples include abnormal heart sounds, rash, fever, and changes in skin color.
    2. **Symptom**: A subjective sensation indicative of disease that is perceived by the affected individual but is not observable by the person examining the individual
        - Examples include pain, nausea, shortness of breath, and numbness.
    3. Some diseases are asymptomatic in the early stages—the patient experiences no symptoms.
        - Examples include hypertension, diabetes, and coronary artery disease.
    4. Some clinical manifestations are the direct result of disease, whereas others are the result of the body's effort to compensate for the disease.

b. The temporal course of a disease or injury may be described as acute or chronic.
    1. **Acute**: A disease or injury that appears quickly
    2. **Chronic**: A disease or injury with an enduring quality and lasting implications
        i. The terms acute and chronic refer only to time, not to severity.
        ii. The focus of treatment is on conditions that require more care or are more severe in nature.

c. The course of some chronic diseases involves alternating periods of exacerbation and remission of variable duration.
    1. **Exacerbation**: An increase in the severity of a disease, detected by a worsening of symptoms, signs, and test results
    2. **Remission**: A decrease in the severity of a disease
        i. **Partial remission**: Some clinical manifestations remain present, but have decreased in severity
        ii. **Total remission**: Complete disappearance of detectable disease manifestations
    3. Examples of diseases with exacerbations and remissions are cancer, HIV, and autoimmune disorders.

Linking Pathophysiology to Diagnosis and Treatment

a. All treatment strategies have a basis in physiologic and pathophysiologic mechanisms; these ties are presented in the text.
b. The renin-angiotensin-aldosterone system is a major regulatory system of the body and provides an example.

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a. The system regulates sodium and fluid balance, controlling blood pressure.
b. Pharmacologic therapies for hypertension target aspects of this system to decrease blood pressure.

Genetics and Genomics

a. **Genetics**: The study of the role of specific genes and the way variations are passed through familial inheritance
    - An inherited genetic trait influences the likelihood of an individual developing a disease; information about this is presented in the text.
b. **Genomics**: The study of the function of groups of genes in terms of mediating physiologic function
    1. Genomic pathways predispose an individual to a disease; information about this is presented in the text.
    2. See Genetics and Genomics for Clinical Practice feature, p. 12
c. **Epigenomics**: The study of all genetic variations or modifications that have influenced a particular cell
    - The focus is on the broad picture of the overall variation to cellular DNA; information about this is presented in the text.

Nutrition

a. Nutrition is often identified as a modifiable risk factor.
b. Dietary choices and influences can impact the development of disease; information about this is presented in the text.
    1. For example, a diet high in fat and carbohydrates increases the risk of diabetes.
    2. A diet high in sodium can negatively impact cardiovascular health.
c. See Impact of Nutrition in Clinical Practice feature, p. 12

Lifespan Considerations

a. There are variations in physiologic functioning throughout the lifespan that influence health and illness; nurses provide care for patients at all life stages and must understand these variations.
    1. Pediatric population
        i. Genetic variables influence fetal development, causing physiologic alterations.
        ii. Several disease states have increased incidence and prevalence in the pediatric population, including tetralogy of Fallot, sickle cell disease.
    2. Pregnant population
        i. Physiologic changes impact disease pathogenesis.
        ii. Changes put the mother at risk for disease states, such as gestational diabetes and preeclampsia.

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3. Older adult population
    i. Age-related changes in physiology have long-term consequences for health.
    ii. Many disease states have increased incidence and prevalence in the older adult population.

b. Information about considerations that must be given in relation to specific age-based populations is presented in the text.
    1. For example, genetic variables can can cause cardiac defects in children; these defects influence perfusion and oxygenation, leading to alterations in cognitive function and developmental delay.
    2. Glucose levels are low in early pregnancy and increase gradually; this increase is concurrent with decreased sensitivity to insulin, placing the mother at risk of gestational diabetes.
    3. Dietary patterns and genetic factors combine to increase incidence of atherosclerosis in older adults; this—along with hypertension and heart failure—influence blood flow and oxygen to the brain and create areas of ischemia, causing a disruption in memory and cognition.

Answers to Case Studies

Frank Smith: Application

3. It would be useful to obtain more information about Mr. Smith's resources for acquiring and preparing food.
4. Genetic information may be useful for identifying other risk factors and for identifying the most effective form of treatment.

Check Your Progress: Section 1.3

1. Etiology is the cause of the disease, whereas pathogenesis is the origin of the sequence of events leading to disease.
2. Shortness of breath is a subjective sensation or symptom.
3. Physiologic changes during different stages of development can affect the pathogenesis of illness and disease.

1.4 Leading Indicators of Morbidity and Mortality

The Study of Epidemiology

a. **Epidemiology**: The study of how disease is distributed in populations and identification of the factors influencing the distribution
    1. Frequency of disease is classified in two ways:
        i. **Incidence**: The number of new cases of a disease or condition within a defined period and for a defined population
            - The number of individuals in the U.S. who experienced spinal cord injury in the past 12 months
        ii. **Prevalence**: The number of individuals of a defined population who already have a disease or condition

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- The number of adults in the U.S. with a spinal cord injury

2. Epidemiology uses statistical techniques to help healthcare providers understand how rapidly a condition is developing in a population.
    i. **Relative risk**: The probability of developing a certain disease in the presence of select risk factors
    ii. Relative risk ratio is calculated to identify the relationship between certain risk factors and the probability of a disease developing.

b. Epidemiologic study results are used to plan and evaluate strategies for preventing health-related problems and treat people with these health problems.
c. Epidemiology is data-driven and uses systematic, unbiased approaches to collecting, analyzing, and interpreting data.
d. Epidemiology has several objectives:
    1. Identify the cause of a disease in the community.
    2. Identify the risk factors.
    3. Determine the extent of the disease.
    4. Study the natural history and prognosis of the disease.
    5. Evaluate existing and new preventive and therapeutic measures.
    6. Provide the basis for developing public policy.
e. Type 2 diabetes (T2D) in young people provides an example for understanding epidemiology.
    1. T2D is characterized by insulin resistance and a decrease in insulin secretion from pancreatic beta cells.
    2. During the 1990s, the number of young people with T2D began increasing, though only anecdotal evidence existed.
    3. In 2000, the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH) implemented an observational study in to diabetes in youth.
        i. A primary goal of the study was to estimate the number of new and existing childhood diabetes cases by type, age, sex, and race or ethnicity.
        ii. A second goal was to characterize risk factors for complications according to type and race or ethnicity.
    4. In 2009, data was published showing an estimated 20,262 cases of T2D in people age 20 or younger in the U.S.
        i. T2D was most prevalent in Native American and Black populations.
        ii. Prevalence of multiple cardiovascular disease risk factors was high among youth with diabetes, especially those under 10 years.
        iii. Microalbuminuria, hypertension, hypercholesterolemia, and hypertriglyceridemia are common in T2D.

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5. These data support the early development of diabetic complications among youth with T2D and the need for early interventions to decrease risk.

Public Health

a. **Public health**: The science of protecting and improving the health of families and communities through promotion of healthy lifestyles, research for disease and injury prevention, and detection and control of infectious diseases
    1. The goal of public health is to improve the life of each individual.
    2. The central site for public health interventions is within the community.
b. Some public health issues are contained within a local area; others extend beyond local borders.
    1. Infectious diseases
    2. Natural disasters
        - Incidents such as these require the involvement of national and international organizations, which must communicate to address these types of issues.
c. To understand the challenges to public health, the burden of disease must be tracked.
    1. The core epidemiologic function of public health is surveillance.
        - **Surveillance**: A continuing and systematic collection, analysis, and interpretation of health data that guide decisions about health and assist in determining plans of action
    2. Morbidity and mortality reports are sources of public surveillance data.
        i. **Mortality**: The number of deaths in a given population
        ii. **Morbidity**: A departure from physiologic or psychologic well-being that encompasses disease, injury, and disability
    3. Primary sources of this data are public and private healthcare providers and facilities that report to health departments.
    4. The CDC's National Notifiable Diseases Surveillance System (NDSS) is a public health surveillance system that facilitates collection, management, analysis, interpretation, and dissemination of this type of data.
        i. A major function of the NDSS is publishing summaries of data findings weekly and annually in the journal *Morbidity and Mortality Weekly Report (MMWR).*
        ii. See Table 1.2 Leading causes of death in the United States in 2015, p. 15
    5. The World Health Organization (WHO) Global Burden of Disease (GBD) study provides an ongoing and comprehensive method for assessing the burden of disease, injury, and risk factors globally.
        1. DALYs are years of potential life lost due to early mortality and years of productive life lost due to disability.

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2. One Daly is one year of healthy life.

6. **Mortality rate**: A measure of the frequency of the occurrence of death in a defined population within a specified time interval

Chronic Disease

a. **Chronic disease**: A prolonged, noncommunicable illness that is seldom cured or spontaneously resolved
b. Fifty percent of U.S. adults have at least one chronic disease.
c. Most prominent illnesses:
    1. Heart disease
    2. Cancer
    3. Chronic lower respiratory diseases
    4. Stroke
    5. Alzheimer disease, diabetes
    6. Nephritis/nephrotic syndrome/nephrosis
d. Approximately 7 out of 10 deaths in the U.S. are due to one of the most prominent illnesses.
    1. Heart disease, cancer, and stroke combined account for over 50% of all deaths each year.
    2. Diabetes is the leading cause of kidney failure, nontraumatic lower extremity amputations, and blindness in adults.
    3. Arthritis is the most common cause of disability.
    4. Obesity affects 33% of adults and 20% of youth.
d. The four most important modifiable health risk behaviors:
    1. Physical inactivity: Over one-third of adults fail to meet minimum recommendations and 33% of high school students engage in PE daily.
    2. Poor nutrition: 24% of adults and 20% of high school students eat daily recommended servings of fruit and vegetables; 60% of high school students eat more than the recommended daily amount of saturated fat.
    3. Tobacco use: 20% of adults and high school students smoke.
    4. Excessive alcohol consumption: 16% of adults binge drink and 45% of high school students have consumed at least one drink in the previous month.
e. Many factors contribute to chronic disease development; age, gender, and racial/ethnic differences are primary factors.

Age

a. The number of U.S. children and adolescents with chronic disease has increased from 1.8% in the 1960s to over 7% in 2004. Most common diseases are:
    1. Asthma
    2. Diabetes
    3. Hypertension

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4. Dental disease
5. Mental illness
6. Attention-deficit/hyperactivity disorder
7. Sickle cell anemia
8. Cystic fibrosis
9. Genetic diseases
10. Birth defects

b. People are living longer and often enter old age with chronic diseases that developed in youth or middle age. Most common diseases are:
    1. Cardiovascular and cerebrovascular disorders
    2. Malignancy
    3. Neurodegenerative disorders
    4. Pulmonary disorders
    5. Endocrine and metabolic disorders
    6. Chronic renal diseases with renal failure

c. As mortality rates decrease and the population ages, multimorbidity in older adults is becoming very common.
    - **Multimorbidity**: The coexistence of two or more chronic conditions

d. The relationship between chronic disease and aging is an important area of research, particularly the influence of exposure earlier in life on the development of chronic disease in old age.
    1. The relationship between obesity in midlife and cognition in late life
    2. The relationship between T2D and risk of Alzheimer disease

e. Biological markers of aging are an important area of research that could be used to develop and guide treatment for older adults.

Gender

a. Gender disparities in morbidity and mortality are significant.
    1. In most countries, life expectancy for men is lower than women.
    2. Disparity persists regardless of race, ethnicity, and place of residence.

b. In most places, men have higher morbidity and mortality from coronary heart disease, hypertension, and diabetes.
    1. These conditions develop earlier in men.
    2. Lengthy disease duration likely contributes to increased morbidity and mortality.

c. Chronic conditions can influence maternal and fetal outcomes during pregnancy.
    1. Obesity increases risk for gestational diabetes, hypertension, and preeclampsia.

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2. Smoking is associated with placental abruption, preterm membrane rupture, low birth weight, and preterm delivery.
3. Diabetes increases the risk for preeclampsia, hypertension, cesarean delivery, miscarriage, birth defects, preterm delivery, macrosomia, hypoglycemia, fetal death, and infant death.
4. Hypertension is associated with preeclampsia, placental abruption, gestational diabetes, preterm delivery, and an infant that is small for gestational age.

Ethnicity

a. Certain racial and ethnic variables can place individuals at a significant increased risk for major chronic disease.
b. Socioeconomic determinants of health can also fall along racial and ethnic divisions, with lower socioeconomic groups more likely to develop chronic disease.
    1. These disparities are present regardless of age.
    2. Children and youth from racial and ethnic minorities have a higher likelihood for disorders like asthma, diabetes, cancer, and mental illness.

Check Your Progress: Section 1.4

1. Incidence and prevalence tell us about the frequency of disease in society. Incidence is the number of new cases of a disease or condition within a defined period and for a defined population, and prevalence is the number of individuals of a defined population who already have a disease or condition.
2. The findings from the SEARCH study identified the frequency of diabetes in certain age groups, outlined risk factors, and complications.
3. Seven of the top ten causes of mortality are considered chronic conditions: heart disease, cancer, chronic lower respiratory diseases, stroke, Alzheimer disease, diabetes, and nephritis/nephrotic syndrome/nephrosis.

1.5 The Importance of Evidence-Based Practice

a. **Evidence-based practice (EBP)**: The conscientious, explicit, and judicious use of current best evidence in making decisions about the care of the individual patient
    1. Underlying principle of EBP is that decisions are made on research that has been evaluated using consistent criteria.
    2. Findings are often compiled into sets of practice guidelines that are the basis for identifying procedures and techniques supported by clinical evidence.
b. In addition to guidelines, EBP integrates an individual's clinical expertise with research evidence.
    1. Provider also acknowledges values and preferences of the patient.
    2. This ensures that the patient adheres to the recommendations.

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Answers to Case Studies

Frank Smith: Outcome

5. In addition to knowing the evidence-based recommendations for the treatment of hypertension, it is important to know about Mr. Smith's goals, values, and expectations, as well as the resources he has or may need to help support following the prescribed intervention.
6. The nurse can assess the social determinants of health that may impact Mr. Smith's ability to adhere to the prescribed medication. Social determinants of health are factors related to where one lives, educational level, income, availability of fresh food, public transportation, and several other considerations that can impact health.

Check Your Progress: Section 1.5

1. The underlying principle of evidence-based practice is that practice decisions should be based on research studies that have been evaluated by using a set of consistent criteria.
2. Evidence-based practice guidelines can be applied to clinical practice by identifying healthcare procedures and techniques that are supported by direct clinical evidence.
3. Before selecting an evidence-based treatment intervention, it is important to consider the patient's goals, values, and expectations.

Chapter Summary pgs. 17–19

Answers to Review Questions

1. *Correct Answer:* a
Rationale: Intracranial regulation is influenced by fluid status and electrolyte balance, which are major targets of intervention in patients with traumatic brain injury. Hormone balance, appraisal, and social support are not involved in intracranial regulation in patients with traumatic brain injury or other disorders.
Nursing Process: Assessment
Bloom's Taxonomy: Understanding

2. *Correct Answer:* d
Rationale: Modifiable risk factors are those that can be changed, such as smoking. An intervention would be developed to reduce a modifiable risk factor. For conditions that are nonmodifiable, such as gender, race, and ethnicity, efforts to improve patient outcomes are centered on early detection and treatment.
Nursing Process: Assessment
Bloom's Taxonomy: Apply

3. *Correct Answer:* c

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Rationale: The etiology is the cause of a disease or injury; most etiologies are multifactorial. In this case, answer c is the only correct answer because it explains the cause of the patient's pressure injury. Answer a explains the observed changes of the wound. Answer b describes the pathogenesis of the wound infection. Answer d explains what was done to try and prevent further breakdown.
Nursing Process: Assessment
Bloom's Taxonomy: Apply

4. *Correct Answer:* b
Rationale: A sign is an objective indication of disease that is observable, whereas a symptom is a subjective sensation. Only answer b provides objective information. Answer a, c, and d describe sensations that are subjective and cannot be observed, so they are symptoms, not signs.
Nursing Process: Assessment
Bloom's Taxonomy: Apply

5. *Correct Answer:* c
Rationale: The relative risk is the probability of developing a disease in the presence of selected risk factors. The incidence refers to the number of new cases of a disease within a defined period of time. Prevalence is the number of individuals of a defined population who already have a condition. Disability-adjusted life-years (DALYs) are the years of potential life lost due to premature mortality and the years of productive life lost due to disability for people living with a health condition or its sequelae.
Nursing Process: Assessment
Bloom's Taxonomy: Understanding

6. *Correct Answer:* a
Rationale: Although the patient has heart failure, his blood pressure remains in normal range. Clubbed nails are a sign of lack of oxygen and therefore reflect a maladaptive response to heart failure. A bluish tinge to the lips, called cyanosis, and a pulse oximeter reading that is less than 90% are signs of a lack of oxygen, and they signify a maladaptive response to heart failure.
Nursing Process: Assessment
Bloom's Taxonomy: Apply

7. *Correct Answer:* c
Rationale: The four most important modifiable health risk behaviors are physical inactivity, poor nutrition, tobacco use, and excessive alcohol consumption.
Nursing Process: Assessment
Bloom's Taxonomy: Apply

8. *Correct Answer:* c
Rationale: Identifying the patient's goals, values, and expectations should be part of the application of evidence-based practice decision making. Only answer c seeks to get more information about the patient's values. Answers a, b, and d each assume that the patient is going

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to follow the prescribed treatment without asking the patient about his own goals, values, and expectations of the treatment, which can lead to higher rates of nonadherence.
Nursing Process: Assessment
Bloom's Taxonomy: Apply

Suggested Classroom Activities
Suggestions for Decision Making Cases
Recommended Websites
Recommended Readings
References

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