

## Chapter 01: Drug Definitions, Standards, and Information Sources

### Clayton/Willihnganz: Basic Pharmacology for Nurses, 17th Edition

#### MULTIPLE CHOICE

1. What is the name under which a drug is listed by the U.S. Food and Drug Administration (FDA)?
  - a. Brand
  - b. Nonproprietary
  - c. Official
  - d. Trademark

ANS: C

The official name is the name under which a drug is listed by the FDA. The brand name, or trademark, is the name given to a drug by its manufacturer. The nonproprietary, or generic, name is provided by the U.S. Adopted Names Council.

DIF: Cognitive Level: Knowledge      REF: Page 2      OBJ: 2  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Safe, Effective Care Environment  
 NOT: CONCEPT(S): Patient Education

2. Which source contains information specific to nutritional supplements?
  - a. *USP Dictionary of USAN & International Drug Names*
  - b. *Natural Medicines Comprehensive Database*
  - c. *United States Pharmacopoeia/National Formulary (USP NF)*
  - d. *Drug Interaction Facts*

ANS: C

*United States Pharmacopoeia/National Formulary* contains information specific to nutritional supplements. *USP Dictionary of USAN & International Drug Names* is a compilation of drug names, pronunciation guide, and possible future FDA approved drugs; it does not include nutritional supplements. *Natural Medicines Comprehensive Database* contains evidence based information on herbal medicines and herbal combination products; it does not include information specific to nutritional supplements. *Drug Interaction Facts* contains comprehensive information on drug interaction facts; it does not include nutritional supplements.

DIF: Cognitive Level: Knowledge      REF: Page 2 | Page 3  
 OBJ: 4      TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Nutrition; Patient Education

3. What is the most comprehensive reference available to research a drug interaction?
  - a. *Drug Facts and Comparisons*
  - b. *Drug Interaction Facts*
  - c. *Handbook on Injectable Drugs*
  - d. *Martindale—The Complete Drug Reference*

ANS: B

First published in 1983, *Drug Interaction Facts* is the most comprehensive book available on drug interactions. In addition to monographs listing various aspects of drug interactions, this information is reviewed and updated by an internationally renowned group of physicians and pharmacists with clinical and scientific expertise.

DIF: Cognitive Level: Comprehension REF: Page 3 OBJ: 3  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Safety; Patient Education; Clinical Judgment

4. The physician has written an order for a drug with which the nurse is unfamiliar. Which section of the *Physicians' Desk Reference (PDR)* is most helpful to get information about this drug?
- Manufacturer's section
  - Brand and Generic Name section
  - Product Category section
  - Product Information section

ANS: B

A physician's order would include the brand and/or generic name of the drug. The alphabetic index in the *PDR* would make this section the most user friendly. Based on a physician's order, manufacturer's information and classification information would not be known. The Manufacturer's section is a roster of manufacturers. The Product Category section lists products subdivided by therapeutic classes, such as analgesics, laxatives, oxytocics, and antibiotics. The Product Information section contains reprints of the package inserts for the major products of manufacturers.

DIF: Cognitive Level: Comprehension REF: Page 3 OBJ: 3  
 TOP: Nursing Process Step: Planning  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Safety; Patient Education; Clinical Judgment

5. Which online drug reference makes available to health care providers and the public a standard, comprehensive, up-to-date look up and downloadable resource about medicines?
- American Drug Index*
  - American Hospital Formulary*
  - DailyMed
  - Physicians' Desk Reference (PDR)*

ANS: C

DailyMed makes available to health care providers and the public a standard, comprehensive, up-to-date look up and downloadable resource about medicines. The *American Drug Index* is not appropriate for patient use. The *American Hospital Formulary* is not appropriate for patient use. The *PDR* is not appropriate for patient use.

DIF: Cognitive Level: Knowledge REF: Page 4 OBJ: 4  
 TOP: Nursing Process Step: Implementation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Safety; Patient Education; Clinical Judgment

6. Which legislation authorizes the FDA to determine the safety of a drug before its marketing?
- Federal Food, Drug, and Cosmetic Act (1938)

- b. Durham Humphrey Amendment (1952)
- c. Controlled Substances Act (1970)
- d. Kefauver Harris Drug Amendment (1962)

ANS: A

The Federal Food, Drug, and Cosmetic Act of 1938 authorized the FDA to determine the safety of all drugs before marketing. Later amendments and acts helped tighten FDA control and ensure drug safety. The Durham Humphrey Amendment defines the kinds of drugs that cannot be used safely without medical supervision and restricts their sale to prescription by a licensed practitioner. The Controlled Substances Act addresses only controlled substances and their categorization. The Kefauver Harris Drug Amendment ensures drug efficacy and greater drug safety. Drug manufacturers are required to prove to the FDA the effectiveness of their products before marketing them.

DIF: Cognitive Level: Knowledge REF: Page 5 OBJ: 6  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Safety; Patient Education; Evidence; Health Care Law

7. Meperidine (Demerol) is a narcotic with a high potential for physical and psychological dependency. Under which classification does this drug fall?
- a. I
  - b. II
  - c. III
  - d. IV

ANS: B

Meperidine (Demerol) is a Schedule II drug; it has a high potential for abuse and may lead to severe psychological and physical dependence. Schedule I drugs have high potential for abuse and no recognized medical use. Schedule III drugs have some potential for abuse. Use may lead to low to moderate physical dependence or high psychological dependence. Schedule IV drugs have low potential for abuse. Use may lead to limited physical or psychological dependence.

DIF: Cognitive Level: Comprehension REF: Page 5 OBJ: 1  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Safe, Effective Care Environment  
 NOT: CONCEPT(S): Patient Education; Addiction; Pain

8. What would the FDA do to expedite drug development and approval for an outbreak of smallpox, for which there is no known treatment?
- a. List smallpox as a health orphan disease.
  - b. Omit the preclinical research phase.
  - c. Extend the clinical research phase.
  - d. Fast track the investigational drug.

ANS: D

Once the Investigational New Drug Application has been approved, the drug can receive highest priority within the agency, which is called fast tracking. A smallpox outbreak would become a priority concern in the world. Orphan diseases are not researched in a priority manner. Preclinical research is not omitted. Extending any phase of the research would mean a longer time to develop a vaccine. The FDA must ensure that all phases of the preclinical and clinical research phase have been completed in a safe manner.

DIF: Cognitive Level: Knowledge REF: Page 7 OBJ: 8  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Safe, Effective Care Environment  
 NOT: CONCEPT(S): Health Care Law; Health Policy; Infection; Care Coordination

9. Which statement is true about over-the-counter (OTC) drugs?
- They are not listed in the *USP NF*.
  - A prescription from a health care provider is needed.
  - They are sold without a prescription.
  - They are known only by their brand names.

ANS: C

OTC medications do not require a prescription. A variety of names, both generic and trade, can be used for individual drugs sold OTC. OTC drugs are listed in the *USP NF*. Prescription drugs require an order by a health professional who is licensed to prescribe, such as a physician, nurse practitioner, physician assistant, or dentist.

DIF: Cognitive Level: Comprehension REF: Page 2 OBJ: 5  
 TOP: Nursing Process Step: Planning  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education

10. Which is the most authoritative reference for medications that are injected?
- Physicians' Desk Reference*
  - Handbook on Injectable Drugs*
  - DailyMed
  - Handbook of Nonprescription Drugs*

ANS: B

The *Handbook on Injectable Drugs* is the most comprehensive reference available on the topic of compatibility of injectable drugs. It is a collection of monographs for more than 300 injectable drugs that are listed alphabetically by generic name.

DIF: Cognitive Level: Comprehension REF: Page 3 OBJ: 3  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Clinical Judgment; Safety

11. The nurse is administering Lomotil, a Schedule V drug. Which statement is true about this drug's classification?
- Abuse potential for this drug is low.
  - Psychological dependency is likely.
  - There is a high potential for abuse.
  - This drug is not a controlled substance.

ANS: A

Lomotil, a Schedule V drug, has an abuse potential of limited physical or psychological dependence liability compared with drugs in Schedule IV. Because abuse potential is low with a Schedule V drug, a prescription may not be required. Psychological dependency is not likely with a Schedule V drug. Schedule V drugs are classified as controlled substances.

DIF: Cognitive Level: Knowledge REF: Page 5 OBJ: 2  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Clinical Judgment; Safety; Patient Education

12. The nurse is transcribing new orders written for a patient with a substance abuse history. Choose the medication ordered that has the greatest risk for abuse.
- Lomotil
  - Diazepam
  - Phenobarbital
  - Lortab

ANS: D

Lortab is a Schedule III drug with a high potential for abuse but less so than drugs in Schedules I and II. Lomotil is a Schedule V drug with a low potential for abuse compared with those in Schedule V. Diazepam is a Schedule IV drug with a low potential for abuse compared with those in schedule III. Phenobarbital is a Schedule IV drug with a low potential for abuse compared with those in Schedule III.

DIF: Cognitive Level: Application REF: Page 5 OBJ: 2  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Addiction; Patient Education; Safety

### MULTIPLE RESPONSE

1. An older adult experiencing shortness of breath is brought to the hospital by her daughter. While obtaining the medication history from the patient and her daughter, the nurse discovers that neither has a list of the patient's current medications or prescriptions. All the patient has is a weekly pill dispenser that contains four different pills. The prescriptions are filled through the local pharmacy. Which resource(s) would be appropriate to use in determining the medication names and doses? (*Select all that apply.*)
- Martindale—The Complete Drug Reference*
  - Physicians' Desk Reference*, Section 4
  - Senior citizens' center
  - Patient's home pharmacy

ANS: B, D

The *Physicians' Desk Reference*, Section 4, has full color images of commonly dispensed tablets and capsules. The patient's pharmacy would have an accurate account of all the medications the client is currently taking. *Martindale—The Complete Drug Reference* has written information on medications and would not be an appropriate resource. The senior citizens' center is not likely to have specific patient medication information.

DIF: Cognitive Level: Application REF: Page 3 OBJ: 3

TOP: Nursing Process Step: Assessment

MSC: NCLEX Client Needs Category: Physiological Integrity

NOT: CONCEPT(S): Care Coordination; Safety; Patient Education; Clinical Judgment

2. The nurse planning patient teaching regarding drug names would include which statement(s)?  
(*Select all that apply.*)
- Most drug companies place their products on the market under generic names.
  - The official name is the name under which the drug is listed by the U.S. Food and Drug Administration (FDA).
  - Brand names are easier to pronounce, spell, and remember.
  - The first letter of the generic name is not capitalized.
  - The chemical name is most meaningful to the patient.

ANS: B, C, D

The official name is the name under which the drug is listed by the FDA. Brand names are easier to pronounce, spell, and remember. The first letter of the generic name is not capitalized. Most drug companies place their products on the market under brand names instead of generic names. The chemical name is most meaningful to the chemist.

DIF: Cognitive Level: Application

REF: Page 1 | Page 2

OBJ: 1

TOP: Nursing Process Step: Planning

MSC: NCLEX Client Needs Category: Physiological Integrity

NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

3. When categorizing, the nurse is aware that which drug(s) would be considered Schedule II?  
(*Select all that apply.*)
- Marijuana
  - Percodan
  - Amphetamines
  - Fiorinal
  - Flurazepam

ANS: B, C

Schedule II drugs have a high potential for abuse, they are currently accepted in the United States, and use may lead to severe psychological or physical dependence. Percodan and amphetamines are considered Schedule II drugs. Marijuana is a Schedule I drug. Fiorinal is a Schedule III drug. Flurazepam is a Schedule IV drug.

DIF: Cognitive Level: Analysis

REF: Page 5

OBJ: 2

TOP: Nursing Process Step: Assessment

MSC: NCLEX Client Needs Category: Physiological Integrity

NOT: CONCEPT(S): Addiction; Clinical Judgment; Patient Education

## Chapter 02: Basic Principles of Drug Action and Drug Interactions

### Clayton/Willihnganz: Basic Pharmacology for Nurses, 17th Edition

#### MULTIPLE CHOICE

1. The nurse assesses hives in a patient started on a new medication. What is the nurse's priority action?
  - a. Notify physician of allergic reaction.
  - b. Notify physician of idiosyncratic reaction.
  - c. Notify physician of potential teratogenicity.
  - d. Notify physician of potential tolerance.

ANS: A

An allergic reaction is indicative of hypersensitivity and manifests with hives and/or urticaria, which are easily identified. An idiosyncratic reaction occurs when something unusual or abnormal happens when a drug is first administered. A teratogenic reaction refers to the occurrence of birth defects related to administration of the drug. Tolerance refers to the body's requirement for increasing dosages to achieve the same effects that a lower dose once did.

DIF: Cognitive Level: Application REF: Page 17 OBJ: 4  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Clinical Judgment; Safety

2. The nurse administers an initial dose of a steroid to a patient with asthma. Thirty minutes after administration, the nurse finds the patient agitated and stating that "everyone is out to get me." What is the term for this unusual reaction?
  - a. Desired action
  - b. Adverse effect
  - c. Idiosyncratic reaction
  - d. Allergic reaction

ANS: C

Idiosyncratic reactions are unusual, abnormal reactions that occur when a drug is first administered. Patients typically exhibit an overresponsiveness to a medication related to diminished metabolism. These reactions are believed to be related to genetic enzyme deficiencies. Desired actions are expected responses to a medication. Adverse effects are reactions that occur in another system of the body; they are usually predictable. Allergic reactions appear after repeated medication dosages.

DIF: Cognitive Level: Knowledge REF: Page 18 OBJ: 4  
 TOP: Nursing Process Step: Evaluation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Caregiving; Safety; Sensory Perception

3. Which is the best description of when drug interactions occur?
  - a. On administration of toxic dosages of a drug
  - b. On an increase in the pharmacodynamics of bound drugs
  - c. On the alteration of the effect of one drug by another drug
  - d. On increase of drug excretion

ANS: C

Drug interactions may be characterized by an increase or decrease in the effectiveness of one or both of the drugs. Toxicity of one drug may or may not affect the metabolism of another one. Drug interactions may result from either increased or decreased pharmacodynamics. Drug interactions may result from either increased or decreased excretion.

DIF: Cognitive Level: Comprehension REF: Page 18 OBJ: 5  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Safety; Patient Education; Clinical Judgment

4. What occurs when two drugs compete for the same receptor site, resulting in increased activity of the first drug?
- Desired action
  - Synergistic effect
  - Carcinogenicity
  - Displacement

ANS: D

The displacement of the first drug from receptor sites by a second drug increases the amount of the first drug because more unbound drug is available. An expected response of a drug is the desired action. A synergistic effect is the effect of two drugs being greater than the effect of each chemical individually or the sum of the individual effects. Carcinogenicity is the ability of a drug to cause cells to mutate and become cancerous.

DIF: Cognitive Level: Comprehension REF: Page 19 OBJ: 6  
 TOP: Nursing Process Step: Implementation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Safety; Patient Education

5. What do drug blood levels indicate?
- They confirm if the patient is taking a generic form of a drug.
  - They determine if the patient has sufficient body fat to metabolize the drug.
  - They verify if the patient is taking someone else's medications.
  - They determine if the amount of drug in the body is in a therapeutic range.

ANS: D

The amount of drug present may vary over time and the blood level must remain in a therapeutic range in order to obtain the desired result. Generic drugs do not necessarily produce a different drug blood level than proprietary medications. Body fat is not measured by drug blood levels. Drug blood levels only measure the amount of drug in the body; they do not determine the source of the medication.

DIF: Cognitive Level: Comprehension REF: Page 17 OBJ: 4  
 TOP: Nursing Process Step: Evaluation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Clinical Judgment; Safety

6. What is the process by which a drug is transported by circulating body fluids to receptor sites?
- Osmosis
  - Distribution
  - Absorption



d. Biotransformation

ANS: B

Distribution refers to the ways in which drugs are transported by the circulating body fluids to the sites of action (receptors), metabolism, and excretion. Osmosis is the process of moving solution across a semipermeable membrane to equalize the dilution on each side. Absorption is the process by which a drug is transferred from its site of entry into the body to the circulating fluids for distribution. Biotransformation, also called metabolism, is the process by which the body inactivates drugs.

DIF: Cognitive Level: Comprehension REF: Page 15 OBJ: 3  
 TOP: Nursing Process Step: Planning  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

7. The nurse assesses which blood level to determine the amount of circulating medication in a patient?
- Peak
  - Trough
  - Drug
  - Therapeutic

ANS: C

When a drug is circulating in the blood, a blood sample may be drawn and assayed to determine the amount of drug present; this is known as the drug blood level. Peak levels are only those drug blood levels that are at their maximum before metabolism starts to decrease the amount of circulating drug. Trough levels are only those drug blood levels that are at their minimum when metabolism has decreased the amount of circulating drug and before an increase caused by a subsequent dose of the medication. Therapeutic levels are only those within a prescribed range of blood levels determined to bring about effective action of the medication.

DIF: Cognitive Level: Comprehension REF: Page 17 OBJ: 3  
 TOP: Nursing Process Step: Evaluation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

8. The nurse administers 50 mg of a drug at 6:00 AM that has a half-life of 8 hours. What time will it be when 25 mg of the drug has been eliminated from the body?
- 8:00 AM
  - 11:00 AM
  - 2:00 PM
  - 6:00 PM

ANS: C

Fifty percent of the medication, or 25 mg, will be eliminated in 8 hours, or at 2:00 PM. 8:00 AM is 2 hours after administration; the half-life is 8 hours. 11:00 AM is 4 hours after administration; the half-life is 8 hours. 6:00 PM is 12 hours after administration; the half-life is 8 hours.

DIF: Cognitive Level: Analysis REF: Page 15 OBJ: 2  
 TOP: Nursing Process Step: Evaluation

MSC: NCLEX Client Needs Category: Physiological Integrity

NOT: CONCEPT(S): Clinical Judgment; Safety; Elimination; Health Promotion

9. What will the nurse need to determine first in order to mix two drugs in the same syringe?
- Absorption rate of the drugs
  - Compatibility of the drugs
  - Drug blood level of each drug
  - Medication adverse effects

ANS: B

Knowledge of absorption is important but not in order to mix drugs. In order to mix two drugs, compatibility is determined so there is no deterioration when the drugs are mixed in the same syringe. Drug level does not indicate if it is acceptable to mix medications in the same syringe. Adverse effects are important for the nurse to know, but not in order to mix drugs.

DIF: Cognitive Level: Application REF: Page 19 OBJ: 6

TOP: Nursing Process Step: Implementation

MSC: NCLEX Client Needs Category: Physiological Integrity

NOT: CONCEPT(S): Clinical Judgment; Safety

10. A patient developed hives and itching after receiving a drug for the first time. Which instruction by the nurse is accurate?
- Stop the medication and encourage the patient to wear a medical alert bracelet that explains the allergy.
  - Explain to the patient that these are signs and symptoms of an anaphylactic reaction.
  - Emphasize to the patient the importance to inform medical personnel that in the future a lower dosage of this drug is necessary.
  - Instruct the patient that it would be safe to take the drug again because this instance was a mild reaction.

ANS: A

This initial allergic reaction is mild, and the patient is more likely to have an anaphylactic reaction at the next exposure; a medical alert bracelet is necessary to explain the reaction. Signs and symptoms of an anaphylactic reaction are respiratory distress and cardiovascular collapse. A more severe reaction will occur at the next exposure, and the patient should not receive the drug again.

DIF: Cognitive Level: Application REF: Page 18 OBJ: 4

TOP: Nursing Process Step: Implementation

MSC: NCLEX Client Needs Category: Physiological Integrity

NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

11. When obtaining a patient's health history, which assessment data would the nurse identify as having the most effect on drug metabolism?
- History of liver disease
  - Intake of a vegetarian diet
  - Sedentary lifestyle
  - Teacher as an occupation

ANS: A

Liver enzyme systems are the primary site for metabolism of drugs. Intake of a vegetarian diet may affect absorption but not metabolism. Sedentary lifestyle and occupations could affect metabolism (exposure to environmental pollutants), but these do not have the most significant effect on metabolism.

DIF: Cognitive Level: Application REF: Page 16 OBJ: 3  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

12. A physician's order indicates to administer a medication to the patient via the percutaneous route. The nurse can anticipate that the patient will receive this medication
- intramuscularly.
  - subcutaneously.
  - topically.
  - rectally.

ANS: C

The percutaneous route refers to drugs that are absorbed through the skin and mucous membranes. Methods of the percutaneous route include inhalation, sublingual (under the tongue), or topical (on the skin) administration. The parenteral route bypasses the gastrointestinal (GI) tract by using subcutaneous (subcut), intramuscular (IM), or intravenous (IV) injection. The parenteral route bypasses the GI tract by using subcut, IM, or IV injection. In the enteral route, the drug is administered directly into the GI tract by the oral, rectal, or nasogastric route.

DIF: Cognitive Level: Application REF: Page 14 OBJ: 1  
 TOP: Nursing Process Step: Implementation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

13. A nurse is preparing to administer tetracycline to a patient diagnosed with an infection. Which medication should not be administered with tetracycline?
- Ativan
  - Tylenol
  - Colace
  - Mylanta

ANS: D

Administering tetracycline with Mylanta can provide an antagonistic effect that will result in decreased absorption of the tetracycline. Ativan, Tylenol, and Colace are not contraindicated to administer with tetracycline.

DIF: Cognitive Level: Application REF: Page 18 OBJ: 5 | 6  
 TOP: Nursing Process Step: Implementation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

### MULTIPLE RESPONSE

1. Which statement(s) about liberation of drugs is/are true? (*Select all that apply.*)

- a. A drug must be dissolved in body fluids before it can be absorbed into body tissues.
- b. A solid drug taken orally must disintegrate and dissolve in GI fluids to allow for absorption into the bloodstream for transport to the site of action.
- c. The process of converting the drug into a soluble form can be controlled to a certain degree by the dosage form.
- d. Converting the drug to a soluble form can be influenced by administering the drug with or without food in the patient's stomach.
- e. Elixirs take longer to be liberated from the dosage form.

ANS: A, B, C, D

Regardless of the route of administration, a drug must be dissolved in body fluids before it can be absorbed into body tissues. Before a solid drug taken orally can be absorbed into the bloodstream for transport to the site of action, it must disintegrate and dissolve in the GI fluids and be transported across the stomach or intestinal lining into the blood. The process of converting a drug into a soluble form can be partially controlled by the pharmaceutical dosage form used (e.g., solution, suspension, capsules, and tablets with various coatings). The conversion process can also be influenced by administering the drug with or without food in the patient's stomach. Elixirs are already drugs dissolved in a liquid and do not need to be liberated from the dosage form.

DIF: Cognitive Level: Comprehension REF: Page 14 OBJ: 3  
 TOP: Nursing Process Step: Implementation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

2. Which are routes of drug excretion? (*Select all that apply.*)
  - a. GI tract; feces
  - b. Genitourinary (GU) tract; urine
  - c. Lymphatic system
  - d. Circulatory system; blood/plasma
  - e. Respiratory system; exhalation

ANS: A, B, E

The GI system is a primary route for drug excretion. The GU and the respiratory systems do function in the excretion of drugs. The lymphatic and circulatory systems are involved with drug distribution, not drug excretion.

DIF: Cognitive Level: Knowledge REF: Page 15 OBJ: 3  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety; Elimination

3. Which route(s) enable(s) drug absorption more rapidly than the subcut route? (*Select all that apply.*)
  - a. IV route
  - b. IM route
  - c. Inhalation/sublingual
  - d. Intradermal route
  - e. Enteral route

ANS: A, B, C

IV route of administration enables drug absorption more rapidly than the subcut route. IM route of administration enables drug absorption more rapidly because of greater blood flow per unit weight of muscle. Inhalation/sublingual route of administration enables drug absorption more rapidly than the subcut route. Intradermally administered drugs are absorbed more slowly because of the limited available blood supply in the dermis. Enterally administered drugs are absorbed more slowly because of the biotransformation process.

DIF: Cognitive Level: Comprehension REF: Page 14 OBJ: 1 | 3  
 TOP: Nursing Process Step: Evaluation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

4. The nurse recognizes that which factor(s) would contribute to digoxin toxicity in a 92-year-old patient? (*Select all that apply.*)
- Taking the medication with meals
  - Prolonged half-life of the drug digoxin
  - Impaired renal function
  - Diminished mental capacity

ANS: B, C

Impaired renal and hepatic function in older adults impairs metabolism and excretion of drugs, thus prolonging the half-life of a medication. Food would decrease the absorption of the drug. Diminished mental capacity does not contribute to drug toxicity unless it is due to administration errors.

DIF: Cognitive Level: Application REF: Page 15 OBJ: 2 | 3 | 7  
 TOP: Nursing Process Step: Assessment  
 MSC: NCLEX Client Needs Category: Health Promotion and Maintenance  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

5. Which statement(s) about variables that influence drug action is/are true? (*Select all that apply.*)
- An older adult will require increased dosage of a drug to achieve the same therapeutic effect as that seen in a younger person.
  - Body weight can affect the therapeutic response of a medication.
  - Chronic smokers may metabolize drugs more rapidly than nonsmokers.
  - A patient's attitude and expectations affect the response to medication.
  - Reduced circulation causes drugs to absorb more rapidly.

ANS: B, C, D

Body weight can affect response to medications; typically, obese patients require an increase in dosage and underweight patients a decrease in dosage. Chronic smoking enhances metabolism of drugs. Attitudes and expectations play a major role in an individual's response to drugs. Older adults require decreased dosages of drugs to achieve a therapeutic effect. Decreased circulation causes drugs to absorb more slowly.

DIF: Cognitive Level: Comprehension REF: Page 16 | Page 17  
 OBJ: 5 | 6 | 7 TOP: Nursing Process Step: Implementation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

6. Which factor(s) affect(s) drug actions? (*Select all that apply.*)

- a. Teratogenicity
- b. Age
- c. Body weight
- d. Metabolic rate
- e. Illness

ANS: B, C, D, E

Age, body weight, metabolic rate, and illness may contribute to a variable response to a medication. Teratogenicity does not contribute to a variable response to a medication.

DIF: Cognitive Level: Comprehension REF: Page 16 | Page 17

OBJ: 7 TOP: Nursing Process Step: Assessment

MSC: NCLEX Client Needs Category: Physiological Integrity

NOT: CONCEPT(S): Patient Education; Clinical Judgment; Safety

## COMPLETION

1. A patient receives 200 mg of a medication that has a half-life of 12 hours. How many mg of the drug would remain in the patient's body after 24 hours?

ANS:

50

The half-life is defined as the amount of time required for 50% of the drug to be eliminated from the body. If a patient is given 200 mg of a drug that has a half-life of 12 hours, then 50 mg of the drug would remain in the body after 24 hours.

DIF: Cognitive Level: Analysis REF: Page 15 OBJ: 2 | 3

TOP: Nursing Process Step: Evaluation

MSC: NCLEX Client Needs Category: Physiological Integrity

NOT: CONCEPT(S): Clinical Judgment; Safety

## Chapter 03: Drug Action Across the Life Span

### Clayton/Willihnganz: Basic Pharmacology for Nurses, 17th Edition

#### MULTIPLE CHOICE

1. What time will the trough blood level need to be drawn if the nurse administers the intravenous medication dose at 9:00 AM?
  - a. 6:30 AM
  - b. 8:30 AM
  - c. 9:30 AM
  - d. 11:30 AM

ANS: B

Trough blood levels measure the lowest blood level of medicine and are obtained just before the dose is administered. In this case, 6:30 AM is too early to obtain the blood level. The other two times occur after the medication is administered.

DIF: Cognitive Level: Application      REF: Page 27      OBJ: 2  
 TOP: Nursing Process Step: Implementation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Clinical Judgment; Safety

2. What will the nurse expect the health care provider's order to be when starting an older adult patient on thyroid hormone replacement therapy?
  - a. Administering a loading dose of the drug
  - b. Directions on how to taper the drug
  - c. A dosage that is one third to one half of the regular dosage
  - d. A dosage that is double the regular dosage

ANS: C

To prevent toxicity, dosages for new medications in older adults should be one third to one half the amount of a standard adult dosage. Loading doses of drugs could cause severe toxicity. Tapering off is characteristic of discontinuation of medications and is not appropriate for this situation. Older adults generally need a lower medication dosage than younger patients.

DIF: Cognitive Level: Application      REF: Page 29      OBJ: 3  
 TOP: Nursing Process Step: Implementation  
 MSC: NCLEX Client Needs Category: Physiological Integrity  
 NOT: CONCEPT(S): Clinical Judgment; Safety; Patient Education; Development

3. Which drugs cause birth defects?
  - a. Teratogens
  - b. Carcinogens
  - c. Metabolites
  - d. Placebos

ANS: A

Teratogens are drugs that cause birth defects. Carcinogens cause cancer. Metabolites are the end product of metabolism. Placebos are drugs that have no pharmacologic activity.