Western Technical College

10515173  Respiratory Pharmacology

Course Outcome Summary

Course Information

Description
Examines basic pharmacology principles, drug dosage, and calculations. Medications for inhalation including mucolytics, bronchodilators, and anti-inflammatory drugs. Also includes cardiac drugs, anesthetic drugs, neuromuscular blockers, and antimicrobials. Emphasis is placed on promotion of evidence-based practice using established clinical practice guidelines and published research for its relevance to patient care.

Career Cluster
Health Science

Instructional Level
Associate Degree Courses

Total Credits
3

Total Hours
54

Pre/Corequisites

Prerequisite
10515111 Respiratory Survey

Textbooks


Success Abilities

1. Cultivate Passion: Expand a Growth-Mindset
2. Live Responsibly: Develop Resilience
3. Live Responsibly: Foster Accountability
4. Refine Professionalism: Act Ethically

Program Outcomes
1. Apply respiratory therapy concepts to patient care situations

Course Competencies

1. Apply basic pharmacology principles to medication management
   Assessment Strategies
   1.1. in an oral or written response to scenarios and/or questions
   
   Criteria
   Your performance will be successful when:
   1.1. response differentiates between drug actions and drug effects
   1.2. response differentiates between systemic effects and local effects
   1.3. response differentiates between loading dose and maintenance dose
   1.4. response differentiates among therapeutic, toxic, and lethal dose
   1.5. response describes various undesirable drug effects
   
   Learning Objectives
   1.a. Define key terms related to pharmacologic principles
   1.b. Differentiate systemic effects and local effects
   1.c. Differentiate loading dose and maintenance dose
   1.d. Differentiate therapeutic, toxic, and lethal dose
   1.e. Discuss principles of drug poisonings, adverse drug reactions, and various undesirable drug effects
   1.f. Describe the processes of drug absorption, distribution, metabolism and elimination

2. Compare and contrast drug forms, routes of administration and vehicles
   Assessment Strategies
   2.1. in an oral or written response to scenarios and/or questions
   
   Criteria
   Your performance will be successful when:
   2.1. response among between drug forms
   2.2. response relates routes of administration to onset of action
   2.3. response determines appropriate route of administration on a given patient scenario
   
   Learning Objectives
   2.a. Discuss advantages and disadvantages of different routes of drug administration
   2.b. Determine the correct route of drug delivery based on patient condition
   2.c. Relate route of administration to onset of action

3. Calculate medication dosage
   Assessment Strategies
   3.1. by performing dosage calculations
   
   Criteria
   Your performance will be successful when:
   3.1. you calculate dosages based on weight
   3.2. you interpret and use medical abbreviations pertaining to medication administration
   3.3. you convert from one measurement system to another
   3.4. you calculate dosages from percentage-strength solutions
   
   Learning Objectives
   3.a. Calculate dosages based on weight
   3.b. Interpret and use medical abbreviations pertaining to medication administration
   3.c. Perform conversions between units of measure in the metric and English systems
3.d. Calculate the strength of solutions in percentage and ratio form

4. **Examine the pharmacodynamics of mucolytics, expectorants, surfactants, and antitussives**

   **Assessment Strategies**
   4.1. in an oral, written, or graphical response to scenarios and/or questions

   **Criteria**

   *Your performance will be successful when:*
   4.1. examination includes the classifications and actions of the drugs
   4.2. examination includes examples of when, how and to whom drugs may be administered
   4.3. examination includes the side effects and special considerations associated with the drugs
   4.4. examination includes considerations and implications of using the drugs and the cardiopulmonary status of the patient
   4.5. examination includes recommended age specific dosage

   **Learning Objectives**
   4.a. Classify and state the actions of related drugs
   4.b. Provide examples of when, how and to whom drugs may be administered including age specific dosage
   4.c. Explain the side effects and special considerations associated with the drugs
   4.d. Describe how surface tension relates to oxygenation and work of breathing
   4.e. Define key terms related to mucokinetic and surfactant agents

5. **Examine the pharmacodynamics of bronchodilators**

   **Assessment Strategies**
   5.1. in an oral, written, or graphical response to scenarios and/or questions

   **Criteria**

   *Your performance will be successful when:*
   5.1. examination includes the classifications and actions of the drugs
   5.2. examination includes examples of when, how and to whom drugs may be administered
   5.3. examination includes the side effects and special considerations associated with the drugs
   5.4. examination includes considerations and implications of using the drugs and the cardiopulmonary status of the patient
   5.5. examination includes recommended age specific dosage

   **Learning Objectives**
   5.a. Classify the three pharmacologic methods for bronchodilation (sympathomimetic, anticholinergic, and xanthine) and the mode of action of each
   5.b. Describe the side effects and special considerations associated with these drugs
   5.c. Describe appropriate techniques for monitoring the patient's response to bronchodilator therapy
   5.d. Recommend appropriate bronchodilator therapy for various patients situations including age, drug dosage, frequency, and route of delivery
   5.e. Describe neurologic control of bronchial smooth muscle including sympathetic and parasympathetic nerves, their chemical mediators, and how bronchodilation occurs

6. **Examine the pharmacodynamics of anti-inflammatories, steroidal and non steroidal**

   **Assessment Strategies**
   6.1. in an oral, written, or graphical response to scenarios and/or questions

   **Criteria**

   *Your performance will be successful when:*
   6.1. examination includes the classifications and actions of the drugs
   6.2. examination includes examples of when, how and to whom drugs may be administered
   6.3. examination includes the side effects and special considerations associated with the drugs
   6.4. examination includes considerations and implications of using the drugs and the cardiopulmonary status of the patient
   6.5. examination includes recommended age specific dosage

   **Learning Objectives**
   6.a. Classify and state the actions of anti-inflammatory and antiasthmatic drugs
6.b. Provide examples of when, how and to whom drugs may be administered including age specific considerations
6.c. Discuss the side effects and special considerations associated with the administration and use of anti-inflammatoryatories including steroid dependancy
6.d. Describe the physiology of corticosteroids

7. **Examine the pharmacodynamics of cardiopulmonary drugs, vasodilators, pulmonary vasodilators vasoconstrictors, diuretics**

   **Assessment Strategies**
   7.1. in an oral, written, or graphical response to scenarios and/or questions

   **Criteria**
   7.1. examination includes the classifications and actions of the drugs
   7.2. examination includes examples of when, how and to whom drugs may be administered
   7.3. examination includes the side effects and special considerations associated with the drugs
   7.4. examination includes considerations and implications of using the drugs and the cardiopulmonary status of the patient

   **Learning Objectives**
   7.a. Classify and state the action of drugs used to treat cardiovascular insufficiency
   7.b. Provide examples of when, how and to whom drugs may be administered
   7.c. Discuss the side effects and special considerations associated with the use of cardiovascular drugs
   7.d. Relate cardiovascular physiology to pharmacologic treatment of acute coronary syndrome, arrhythmias, and heart failure

8. **Examine the pharmacodynamics of anesthetics, muscle blockers, analgesics, sedatives, hypnotics, and tranquilizers**

   **Assessment Strategies**
   8.1. in an oral, written, or graphical response to scenarios and/or questions

   **Criteria**
   Your performance will be successful when:
   8.1. examination includes the classifications and actions of the drugs
   8.2. examination includes examples of when, how and to whom drugs may be administered
   8.3. examination includes the side effects and special considerations associated with the drugs
   8.4. examination includes considerations and implications of using the drugs and the cardiopulmonary status of the patient

   **Learning Objectives**
   8.a. Classify and state the actions of the drugs
   8.b. Provide examples of when, how and to whom drugs may be administered
   8.c. Discuss the side effects and special considerations associated with these drugs
   8.d. Describe the implications of using the drugs and the possible effect on the cardiopulmonary status of the patient

9. **Examine the pharmacodynamics of antimicrobials, antivirals, antiinfectives, smoking cessation medications and vaccines**

   **Assessment Strategies**
   9.1. in an oral, written, or graphical response to scenarios and/or questions

   **Criteria**
   9.1. examination includes the classifications and actions of the drugs
   9.2. examination includes examples of when, how and to whom drugs may be administered
   9.3. examination includes the side effects and special considerations associated with the drugs
   9.4. examination includes considerations and implications of using the drugs and the cardiopulmonary status of the patient

   **Learning Objectives**
   9.a. Classify and describe the actions these drugs
   9.b. Provide examples of when, how and to whom drugs may be administered
   9.c. Discuss the side effects and special considerations associated with these drugs
9.d. Discuss the effects and possible side effects of these drugs on the cardiopulmonary status of the patient