

COLLEGEWIDE COURSE OUTLINE OF RECORD

RESP 106, CARDIOPULMONARY PHARMACOLOGY

COURSE TITLE: Cardiopulmonary Pharmacology

COURSE NUMBER: RESP 106

PREREQUISITES: Program Chair Approval

SCHOOL: Health Sciences

PROGRAM: Respiratory Therapy

CREDIT HOURS: 3

CONTACT HOURS: Lecture: 3

DATE OF LAST REVISION: Fall, 2019

EFFECTIVE DATE OF THIS REVISION: Spring, 2020

CATALOG DESCRIPTION: The most common pharmacological agents currently being administered are discussed according to all body systems and in relations to the nervous system and its receptors. Emphasis is placed on classifications, indications, side effects, dosages, and routes of administration. Medication discussion to include, but not limited to respiratory, cardiovascular, emergency drugs, anti-infective, diuretics and sedation agents.

MAJOR COURSE LEARNING OBJECTIVES FROM 2020 NBRC MATRIX: Upon successful completion of this course the student will be expected to:

1. Evaluate data in the patient record (e.g., patient history of present illness (HPI), orders, medication reconciliation, progress notes, DNR status/advanced directives, social/family/medical hx, and patient's pathophysiological state)
2. Evaluate lab data (CBC, electrolytes, coagulation, C&S, sputum, cardiac biomarkers)
3. Perform clinical assessment by interviewing patient to assess:
 - a. Level of consciousness and orientation, emotional state, and ability to cooperate
 - b. Shortness of breath, sputum production, and exercise tolerance such as exercise induced asthma)
 - c. Activities of daily living
4. Perform clinical assessment by inspection to assess cough, sputum amount and character
5. Perform clinical assessment to assess breath sounds
6. Discuss administration of SVN, MDI/slow mist inhalers, DPI, and valved holding chambers:
 - a. Infection control
 - b. Assembling/troubleshooting of equipment
 - c. Determine which modality is most appropriate for age specific
 - d. Determine which modality is most appropriate for clinical presentation
7. Ensure modifications of respiratory care plan for:
 - a. Adverse or life threatening events
 - b. Starting treatment based on patient response
 - c. Discontinuing treatment based on patient response

8. Ensure modifications of respiratory care plan by recommending and implementing treatments based on patient response and national guidelines (ARDS Net, NAEPP, and GOLD) for selective diseases
9. Administer medications and specialty gases to ensure modifications are made to the respiratory care plan to include indications, contraindications, hazards, mode of action, classes/subclasses, concentration, doses, names (generic/brand) and frequencies:
 - a. Bronchodilators (Albuterol, Levalbuterol, Salmeterol, Formoterol, Arformoterol, Ipratropium bromide, Tiotropium bromide, Methylxanthines)
 - b. Corticosteroids (Fluticasone, Beclomethasone, Budesonide, Flunisolide, Triamcinolone, Prednisone, Methylprednisolone)
 - c. Combining Medications (Combivent, Duoneb, Advair, Symbicort)
 - d. Mucolytics (Acetylcysteine, Sodium Bicarbonate, Recombinant Human DNase)
 - e. Pulmonary Vasodilators (Prostacyclins: epoprostenol, Iloprost, Sildenafil, INO)
 - f. Wetting Agents Saline solutions (0.45%, 0.9%, 1.8-15%)
 - g. Leukotriene Modifiers (Montelukast, Zafirlukast, Zileuton)
 - h. Mast Cell Stabilizers (Cromolyn sodium)
 - i. Mucosal Vasoconstrictors/Decongestants (aerosolized racemic epinephrine)
 - j. Inotropic Agents (Digitalis, Digoxin)
 - k. Anti-arrhythmic Agents (Amiodarone, Procainamide, Verapamil, Lidocaine, Atropine, Epinephrine)
 - l. Antianginal Agents (Nitroglycerin)
 - m. Vasodilator Drugs (Nitroprusside, Milrinone)
 - n. Vasoconstrictor/Vasopressor Drugs (Epinephrine, Norepinephrine, Dopamine, Dobutamine)
 - o. Diuretics (Furosemide, Mannitol, Acetazolamide)
 - p. Neuromuscular Blocking Agents (Succinylcholine, Neostigmine, Pancuronium, Vecuronium, Atracurium, Cisatracurium, Rocuronium)
 - q. Sedatives (Alprazolam, Diazepam, Midazolam, Lorazepam)
 - r. Anesthetics (Propofol, Ketamine)
 - s. Analgesics (Morphine, Codeine, Meperidine, Fentanyl, Hydromorphone, Oxycodone, Hydrocodone)
 - t. Surfactant Replacement Therapy (Calfactant, Beractant, Poractant alfa, Lucinactant)
 - u. Antimicrobial agents (Ampicillin, Amoxicillin, Nafcillin, Cephalexin, Cefazolin, Cefaclor, Cefoxitin, Ceftriaxone, Cefepime, Amikacin, Gentamicin, Tobramycin, Vancomycin, Erythromycin, Azithromycin, Isoniazid, Rifampin, Ethambutol, Streptomycin, Cycloserine, Ethionamide)
 - v. Antiviral Agent (Ribavirin)
 - w. Anti-pneumocystis Agent (Pentamidine)
 - x. Vaccines (Respiratory Syncytial Virus Immune Globulin Intravenous, Palivizumab)

COURSE CONTENT: Topical areas of study include –

Pharmacokinetics / Pharmacodynamics

Dosage calculations

Peripheral nervous system agents (Cholinergic, Nicotinic, Muscarinic)

Respiratory treatments (Antihistamine, Adrenergic, Xanthines, Stimulants)

Glucocorticoids
Mucolytic agents
Antibacterial medications
Antiviral and antifungal agents
Cardiovascular agents (Cardiotonics, Antianginals, Antiarrhythmics, Antihypertensive)
Diuretics
Psycho hypnotic
Analgesic
Anesthetics
Evaluations

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The Ivy Tech Library is available to students' on- and off-campus, offering full text journals and books and other resources essential for course assignments. Go to <http://www.ivytech.edu/library/> and choose the link for your campus.

ACADEMIC HONESTY STATEMENT:

The College is committed to academic integrity in all its practices. The faculty value intellectual integrity and a high standard of academic conduct. Activities that violate academic integrity undermine the quality and diminish the value of educational achievement.

Cheating on papers, tests or other academic works is a violation of College rules. No student shall engage in behavior that, in the judgment of the instructor of the class, may be construed as cheating. This may include, but is not limited to, plagiarism or other forms of academic dishonesty such as the acquisition without permission of tests or other academic materials and/or distribution of these materials and other academic work. This includes students who aid and abet as well as those who attempt such behavior.

ATTENDANCE:

Students are expected to attend and participate regularly in class meetings, online learning activities and other activities assigned as a part of a course of instruction. Faculty are required to report student participation in compliance with institutional policies and federal financial aid guidelines. Faculty and staff shall be sensitive to students' religious beliefs and observances, including an expectation that instructors make reasonable arrangements when a student must miss an exam or other academic exercise due to their religious observance. When notified in advance, and when possible, faculty will make allowances for students to make up missed work.

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ADA STATEMENT:

Ivy Tech Community College seeks to provide reasonable accommodations for qualified individuals with documented disabilities. If you need an accommodation because of a documented disability, please contact the Office of Disability Support Services.

If you will require assistance during an emergency evacuation, notify your instructor immediately. Look for evacuation procedures posted in your classroom.

TITLE IX STATEMENT:

Ivy Tech Community College is committed to providing all members of the College community with a learning and work environment free from sexual harassment and assault. Ivy Tech students have options for getting help if they have experienced sexual assault, relationship violence, sexual harassment or stalking. This information can be found at <https://www.ivytech.edu/prevent-sexual-violence/index.html>.

If students write or speak about having survived sexual violence, including rape, sexual assault, dating violence, domestic violence, or stalking, federal law and Ivy Tech policies require that instructors share this information with the Campus Title IX Coordinator. The Campus Title IX Coordinator will contact students to let them know about accommodations and support services at the College and in the community as well as options for holding accountable the person who harmed them. When contacted, students are not required to speak with the Campus Title IX Coordinator.

If students do not want the Title IX Coordinator notified, instead of disclosing this information to their instructor, students can speak confidentially with certain individuals at the College or in the community. A list of these individuals can be found at <https://www.ivytech.edu/prevent-sexual-violence/index.html> under Confidential Employees and/or Community Resources.