

COLLEGEWIDE COURSE OUTLINE OF RECORD

RESP 206, CLINICAL APPLICATIONS AND CONCEPTS IN CRITICAL CARE I

COURSE TITLE: Clinical Applications and Concepts in Critical Care I

COURSE NUMBER: RESP 206

PREREQUISITES: Maintain required clinical and health documents. RESP 104, Concepts in Adult Critical Care, and RESP 108, Clinical Applications of Assessment and Care of a Cardiopulmonary Patient and Program Chair Approval

SCHOOL: Health Sciences

PROGRAM: Respiratory Therapy

CREDIT HOURS: 2

CONTACT HOURS: Clinical Applications: 10

DATE OF LAST REVISION: Fall, 2020

EFFECTIVE DATE OF THIS REVISION: Spring, 2021

CATALOG DESCRIPTION: Provides supervised experience in critical care intensive care units. Advanced patient assessment, including pulmonary mechanics, interpretation of laboratory data and radiography results will be covered. Students will be expected to initiate, maintain and manage an artificial airway, support a critically ill patient's oxygenation and ventilation status to include initiating and modifying noninvasive positive airway pressures. Utilizes disease protocols and evidence-based medicine to modify respiratory care plans. Assists physician in selected procedures. Continued Certification in AHA-BLS for Healthcare Professionals is required.

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

1. Retain knowledge, skill and competencies from pre-requisite courses.
2. Evaluate data in the patient record:
 - a. Blood gas analysis and/or hemoximetry (co-oximetry) results
 - b. Imaging study results (chest radiographs, CT scan, Ultrasonography and/or echocardiography, PET scan, Ventilation/Perfusion scan)
 - c. Trends and monitoring of ventilator liberation parameters
 - d. Determination of a patient's pathophysiological state
3. Perform clinical assessment by auscultation of heart sounds and rhythm
4. Perform clinical assessment by chest radiograph:
 - a. Quality of imaging (patient position, penetration, lung inflation)
 - b. Presence and position of airways, lines and drains
 - c. Heart size and position
5. Perform procedures to gather:
 - a. Mechanics of spontaneous ventilation (tidal volume, minute volume, MIP, MEP, and vital capacity)
 - b. Blood gas sample collection
 - c. Cardiopulmonary calculations (PA-aO₂, VD/VT, P/F, OI)

- d. Spontaneous breathing trial (SBT)
 - e. Apnea test (brain death determination)
 - f. Cuff management (tracheal tube and laryngeal)
6. Evaluate procedure results:
 - a. Mechanics of spontaneous ventilation (tidal volume, minute volume, MIP, MEP, and vital capacity)
 - b. Blood gas analysis/hemoximetry (co-oximetry)
 - c. Cardiopulmonary calculations ((PA-aO₂, VD/VT, P/F, OI)
 - d. Cuff management (tracheal tube and laryngeal)
 7. Troubleshooting and assembling of equipment:
 - a. CPAP/NPPV with patient interfaces
 - b. Intubation equipment
 - c. Artificial airways
 - d. Patient breathing circuits
 8. Maintain a patent airway and care for artificial airways
 - a. Proper patient positioning
 - b. Recognition of a difficult airway
 - c. Establish and manage a patient's airway:
 - i. Nasopharyngeal
 - ii. Oropharyngeal,
 - iii. Esophagealtracheal tubes/supraglottic airways
 - iv. Endotracheal tubes
 - v. Tracheostomy tube
 - vi. Laryngectomy tube
 - vii. Devices to assist with intubation (endotracheal tube changer, video laryngoscopy)
 - d. Exchanging artificial airway
 9. Support oxygenation and ventilation:
 - a. Minimizing hypoxemia via patient positioning and suctioning
 - b. Initiating and adjusting mask or nasal CPAP
 - c. Initiating and adjusting mechanical ventilation settings
 - i. Continuous mechanical ventilation
 - ii. Noninvasive ventilation
 - iii. Alarms
 10. Administers medications and specialty gases via endotracheal (instillation)
 11. Ensures modifications are made to the respiratory care plan
 - a. Terminates treatment based on life threatening adverse events
 - b. Recommendation for changes:
 - i. Starting treatment based on patient response
 - ii. Adjusting of electrolyte therapy
 - iii. Insertion or change of artificial airway
 - iv. Liberating from mechanical ventilation
 - v. Extubation
 - vi. Discontinuing treatment based on patient response
 - vii. Consultation for a physician specialist
 - viii. Changing patient position

- ix. Changing mechanical ventilation parameters and settings
- 12. Utilizes principles of evidence based medicine principles or clinical practice guidelines:
 - a. Classification of disease severity
 - b. Recommendation for changes in therapeutic plan when indicated
 - c. Application of guidelines (ARDSnet, NAEEP, GOLD)
- 13. Assist a physician/provider in performing procedures
 - a. Intubation
 - b. Withdrawal of life support

COURSE CONTENT: Topical areas of study include –

Arterial blood gas sampling and analysis
 Noninvasive monitoring of the cardiopulmonary system (ECG)
 Managing patients in critical care
 Establishment, maintenance of artificial airways
 Applications and manipulations of invasive mechanical ventilation
 Therapeutic modalities in critical care settings
 Quality control procedures (ABG, POC, Mechanical Ventilators)
 Advanced patient assessment, including interpretation of laboratory and clinical data and recommendations of appropriate therapeutic interventions

PROCEDURES:

- 1. Arterial Line ABGs
 - a. Suggested that students continue ABG stick competency per semester in critical care
 - 2. Assisting with Intubation
 - 3. Mechanical Ventilation Initiation
 - 4. Mechanical Ventilation Rounds
 - 5. Ventilation Liberation Parameters
 - 6. Adult Inline Suctioning
 - 7. Endotracheal Tube Care (Securing airway, Cuff management)
 - 8. Non-Invasive Positive Pressure Ventilation (NPPV)
- Total procedures: 8

HOW TO ACCESS THE IVY TECH COMMUNITY COLLEGE LIBRARY:

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.