COLLEGEWIDE COURSE OUTLINE OF RECORD

RESP 104, CONCEPTS IN ADULT CRITICAL CARE

COURSE TITLE: Concepts in Adult Critical Care
COURSE NUMBER: RESP 104
PREREQUISITES: RESP 101 Assessment and Caring for a Respiratory Patient, RESP 102
Advanced Assessment & Care of a Cardiopulmonary Patient, RESP 103 Cardiopulmonary
Anatomy and Physiology
COREQUISITES: RESP 102 Advanced Assessment & Care of a Cardiopulmonary Patient
SCHOOL: Health Sciences
PROGRAM: Respiratory Therapy
CREDIT HOURS: 3
CONTACT HOURS: Lecture: 2   Lab: 2
DATE OF LAST REVISION: Fall, 2018
EFFECTIVE DATE OF THIS REVISION: Spring, 2020

CATALOG DESCRIPTION: Introduces how to care for a critically ill adult patient. Provides
concepts of using various artificial airways, mechanically ventilating and improving a critically ill
patient's oxygenation and ventilation status. Student will be presented with methods and concepts for
monitoring and management of a critically ill patient including recommending and evaluating lab data
and blood gas analysis. Recognizes when to liberate a patient from ventilator support. Discusses and
demonstrates establishing an artificial airway, airway maintenance and treatment of respiratory care
emergencies such as lost airway and pneumothorax. Assembling and troubleshooting respiratory care
equipment 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 competency from pre-requisite courses.
2.   Evaluate data in the patient record:
    a. Lines, drains and airways (chest tube, vascular lines, artificial airways-laryngeal mask
        airway, esophageal-tracheal tubes/supraglottic, combitube, king tube, and endotracheal
        tube)
    b. Blood gas analysis and/or hemoximetry (co-oximetry) results
    c. Imaging study results (chest radiograph)
    d. Trends in monitoring results (pulmonary mechanics, WOB, resistance, compliance)
3.   Perform procedures to gather clinical information:
    a. Mechanics of spontaneous ventilation linked to tidal volume, minute volume, maximal
        inspiratory pressure and vital capacity)
    b. Blood gas sample collection
    c. Cardiopulmonary calculations (PA-aO2, Vd/Vt, P/F, OI)
    d. Pulmonary compliance and airways resistance
    e. Plateau pressure
    f. Auto-PEEP determination

        g. Spontaneous breathing trail (SBT)
        h. Apnea test (brain death determination)
        i. Cuff management (tracheal, laryngeal)
        j. Capnography (mechanical ventilation)

4. Evaluate procedure results:
   a. Mechanics of spontaneous ventilation linked to tidal volume, minute volume, maximal inspiratory pressure and vital capacity
   b. Cardiopulmonary calculations (PA-aO2, Vd/Vt, P/F, OI)
   c. Pulmonary compliance and airways resistance
   d. Plateau pressure
   e. Auto-PEEP determination
   f. Spontaneous breathing trial (SBT)
   g. Apnea test (brain death determination)
   h. Cuff management (tracheal, laryngeal)
   i. Chest x-ray
   j. Capnography (mechanical ventilation)

5. Assemble/troubleshoot equipment:
   a. Resuscitation devices (self-inflating resuscitator, flow-inflating resuscitator, AED)
   b. Mechanical ventilators
   c. Intubation equipment
   d. Artificial airways
   e. Patient breathing circuits

6. Perform quality control procedures (mechanical ventilators)

7. Maintain a patent airway including the care of artificial airways:
   a. Recognizes a difficult airway
   b. Esophageal-tracheal tubes/supraglottic airways
   c. Endotracheal tube
   d. Laryngectomy tube
   e. Speaking valves
   f. Devices that assist with intubation (endotracheal tube changer, video laryngoscopy)
   g. Exchanging artificial airways
   h. Maintaining adequate humidification
   i. Initiating protocols to prevent ventilator associated infections
   j. Performing extubation

8. Support oxygenation and ventilation:
   a. Minimizing hypoxemia (patient positioning, secretion removal)
   b. Continuous mechanical ventilation
   c. Alarms
   d. Recognizing and correcting patient-ventilator dyssynchrony
   e. Utilizing ventilator graphics
   f. Performing lung recruitment maneuvers
   g. Liberating patient from mechanical ventilation

9. Ensure modifications are made to the respiratory care plan modalities (BVM, artificial airways, mechanical ventilation, weaning parameters)
   a. Treatment termination (life threatening adverse event)
   b. Liberating from mechanical ventilation (e.g. t-piece, weaning modes)

      c. Discontinuing treatment based on patient response
10. Make recommendations for changes based on patient assessment:
      a. Patient position
      b. Mechanical ventilation
           i. Modes of ventilations (SIMV, A/C, and Spontaneous in both VCV and PCV)
           ii. Ventilator settings (rate, tidal volume, inspiratory pressure, PEEP, FiO_2, I-Time, peak flow, alarms, class of ventilator, terminology associated with mechanical ventilation)
      c. Chest x-ray
11. Utilize evident based medicine principles:
      a. Application of guidelines (ARDS Net, NAEPP, GOLD)
12. Provide respiratory care in high risk situations for cardiopulmonary emergencies (e.g. rapid response team, transport inside hospital and obstructed/lost airway, etc.)
13. Assist a physician/provider in performing procedures:
      a. Intubation
      b. Withdrawal of life support

COURSE CONTENT: Topical areas of study include

Establishing, maintaining a patent airway
Airway emergencies
Arterial line blood gases
Adult Invasive Ventilation to include QC
Monitoring and management of the critically ill patient
Pulmonary Compliance, Airway Resistance, Work of Breathing
Supporting oxygenation and ventilation
Liberating/terminating mechanical ventilation
Assisting physician with intubation and withdrawal of life support
Evaluations

Procedures:
1. Arterial Line ABGs
2. Assisting with Intubation
3. Adult Mechanical Ventilation Initiation and Rounds
4. Adult Mechanical Ventilation Circuit change
5. Weaning Parameters
6. Adult inline suctioning
7. Adult Endotracheal Tube Care (Securing airway and Cuff management)
8. Adult Extubation
9. CXR for Tubes and Lines
10. Basic Waveform Graphic Interpretation
11. Capnography (mechanical ventilator)
    Total Procedures: 11

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.

COPYRIGHT STATEMENT:

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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.