COLLEGEWIDE COURSE OUTLINE OF RECORD

RESP 209, ADVANCED CLINICAL APPLICATIONS IN CRITICAL CARE AND SPECIALTY ROTATIONS

COURSE TITLE: Advanced Clinical Applications in Critical Care and Specialty Rotations
COURSE NUMBER: RESP 209
PREREQUISITES: Maintain required clinical and health documents. RESP 202 Pediatric and Neonatal Advanced Critical Care, (RESP 206, Clinical Applications and Concepts in Critical Care, and RESP 207, Clinical Applications and Concepts in Critical Care I) or (RESP 208, Clinical Applications and Concepts in Critical Care II) and Program Chair Approval
SCHOOL: Health Sciences
PROGRAM: Respiratory Therapy
CREDIT HOURS: 3
CONTACT HOURS: Clinical Applications: 15
DATE OF LAST REVISION: Fall, 2020
EFFECTIVE DATE OF THIS REVISION: Spring, 2021

CATALOG DESCRIPTION: Provides additional supervised experience in selected therapeutic modalities during adult, pediatric and neonatal intensive care unit rotations. Also includes exposure to advanced cardiopulmonary diagnostic techniques, application of invasive and non-invasive monitoring of the cardiopulmonary system, and quality control. Students will also be exposed to patient care in extended care sites and specialty areas to include patient and family education. Completion of patient care plans and/or written case study will also be performed utilizing principles from evidence-based medicine. Continuing certification in AHA-BLS for Healthcare Professionals is required.
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MAJOR COURSE LEARNING OBJECTIVES FROM 2020 NBRC MATRIX: Upon successful completion of the course the student will be expected to:

1. Retain knowledge, skills, and competency from pre-requisite courses.
2. Evaluate Data in the patient record:
    a. Lines, drains and airways (chest tube, vascular lines, artificial airways)
    b. Laboratory results (CBC, electrolyte, coagulation studies,Sputum C & S, cardiac biomarkers)
    c. PFT results (spirometry, lung volumes, DLCO)
    d. 6 minute walk test results
    e. Imaging studies (chest radiographs, CT, PET, V/Q, Ultrasound/Echocardiography)
    f. Maternal and perinatal/neonatal history (Apgar, gestational age, LS ratio)
    g. Sleep study results (AHI)
    h. Trends in monitoring results:
        i. Fluid balance
        ii. Intracranial pressure monitoring
        iii. Noninvasive (pulse-oximetry, capnography, TCM)

iv. Cardiac evaluation/monitoring results (hemodynamic parameters, ECG)

2. Perform clinical assessment by interviewing
    a. Activities of daily living
    b. Learning needs (literacy, learning styles, culture)
3. Perform clinical assessment by inspection
    a. Status of a neonate (apgar score, gestational age)
4. Perform clinical assessment by reviewing chest radiography
    a. presence of foreign bodies
    b. presence or change in Cardiopulmonary abnormalities (pneumothorax, pleural effusion, consolidation, pulmonary edema, pulmonary artery size)
5. Perform Procedure to Obtain Gather information
    a. Noninvasive (pulse oximetry, capnography, TCM)
    b. Peak flow
    c. Oxygen titration with exercise
    d. Cardiopulmonary calculations ($P_{A\text{-}a}O2$, Vd/VtP/F, OI)
    e. Hemodynamic monitoring
    f. Apnea monitoring
    g. Apnea test (brain death determination)
    h. CPAP/NPPV titration during sleep
    i. Cardiopulmonary stress testing
    j. 6 minute walk test
    k. Spirometry outside or inside of a pulmonary function laboratory
    l. Lung volumes inside a pulmonary function laboratory
6. Evaluate procedure results
    a. Noninvasive monitoring (pulse oximetry, capnography,TCM)
    b. Peak flow
    c. Oxygen titration with exercise
    d. Cardiopulmonary calculations ($P_{A\text{-}a}O2$, Vd/Vt, P/F, OI)
    e. Hemodynamic monitoring
    f. Apnea monitoring
    g. Apnea test (brain death determination)
    h. Overnight pulse oximetry
    i. CPAP/NPPV titration during sleep
    j. Cardiopulmonary stress testing
    k. 6 minute walk test
    l. Spirometry outside or inside a pulmonary function laboratory
    m. Lung volumes inside a pulmonary function laboratory
7. Recommend diagnostic procedures
    a. Bronchoscopy (Therapeutic and Diagnostic)
    b. Bronchoalveolar lavage (BAL)
    c. Pulmonary function testing
    d. Noninvasive monitoring with (pulse oximetry, capnography,TCM)
    e. Exhaled gas analysis (CO, NO (FeNO))
    f. Hemodynamic monitoring
    g. Sleep studies
    h. Thoracentesis

8. Assemble and Troubleshoot equipment
    a. Medical gas delivery, metering, and/or clinical analyzing devices (concentrator, liquid system, flowmeter, regulator, gas cylinder, blender, air compressor, gas analyzer)
    b. Heliox delivery device
    c. Nitric oxide delivery device
    d. Spirometers (portable)
    e. Pleural drainage
    f. Noninvasive monitoring devices (pulse oximetry, capnography, TCM)
    g. Bronchoscopes and light sources
    h. Hemodynamic monitoring devices
        i. Pressure transducer
        ii. Catheters (arterial, pulmonary artery)
    i. Long term oxygen therapy
10. Perform quality control procedures
    a. Pulmonary function equipment for testing
        i. Spirometry results
        ii. Lung volumes
        iii. Diffusion capacity
    b. Noninvasive monitors
11. Maintain a patent airway such as laryngectomy tube and speaking valves
12. Support Oxygenation and Ventilation
    a. Initiating and adjusting high frequency ventilation
    b. Perform lung recruitment maneuvers
13. Administer specialty gases (heliox, NO)
14. Ensure modifications are made to the respiratory care plan
    a. Terminates treatment based on life threatening and adverse event
    b. Recommends
        i. Starting treatment based on patient response
        ii. Treatment of pneumothorax
        iii. Adjustment of fluid balance
        iv. Consultation from a physician specialist
15. Ensure modifications are made to pharmacological interventions
    a. Pulmonary vasodilators
    b. Cardiovascular drugs
    c. Antimicrobials
    d. Sedatives/hypnotics
    e. Analgesics
    f. Narcotic antagonist
    g. Benzodiazepine antagonist
    h. Neuromuscular agents
    i. Diuretics
    j. Surfactants
16. Provides respiratory care in high risk situations
    a. Cardiopulmonary emergencies excluding CPR
    b. Disaster management

c. Land/air patient transports between hospitals

17. Assist a physician/provider in performing:
    a. Bronchoscopy (therapeutic, diagnostic)
    b. Thoracentesis
    c. Tracheotomy
    d. Chest tube insertion
    e. Insertion of venous or arterial catheters
    f. Moderate (conscious) sedation
    g. Cardioversion
18. Initiate and conduct patient and family education
    a. Safety and infection control
    b. Home care and related equipment
    c. Life style changes (smoking cessation, exercise)
    d. Pulmonary rehabilitation
    e. Disease/condition management (Asthma, COPD, CF, Tracheostomy Care, Ventilator Dependent)

COURSE CONTENT: Topical areas of study include –

Advanced cardiopulmonary diagnostic techniques
Invasive monitoring of the cardiopulmonary system
Noninvasive monitoring of the cardiopulmonary system
Quality control procedures
Adult critical care
Pediatric critical care
Neonatal critical care
Alternative care sites
Assisting physician with special procedures
Patient and family education

Procedures:

1. Newborn Assessment/Resuscitation (Basic Airway Care – Bulb Suctioning)
2. Pediatric Assessment
3. Pediatric and Neonatal Mechanical Ventilator Rounds
4. Spirometry
5. Cleaning and Disinfection
6. Regionally determined
   Total procedures: varies with the region

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:

Students shall adhere to the laws governing the use of copyrighted materials. They must ensure that their activities comply with fair use and in no way infringe on the copyright or other proprietary rights of others and that the materials used and developed at Ivy Tech Community College contain nothing unlawful, unethical, or libelous and do not constitute any violation of any right of privacy.

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.