Course Information Form (CIF)

Course Code: RTT 217

Course Title: Respiratory Therapy VIII

Department: Allied Health
PCS Code: 1.2 - Occupational/Technical Instruction
CIP Code: 51.0908
Repeatability: 0

Effective Date: Summer 2026

Credit Hours

Catalog Notation: 3-0-3
Credit Hour Distribution:

Lecture: 3	Lab: 0	Clinical: 0	**Total: 3**

General Course Information

Catalog Description

Diagnostic testing: pulmonary function, exercise, nutritional, sleep testing; blood lab management; patient education, smoking cessation, disease management; respiratory therapy in disaster response; transport of the ventilator dependent patient, long-term care for the ventilator patient in healthcare facilities and home; healthcare economics; healthcare ethics; respiratory care board exam applications, licensure, credential maintenance. Comprehensive review for board preparation.

General Course Objectives

The student will be able to:

- recommend appropriate diagnostic studies including pulmonary function testing, sleep testing, exercise testing, and nutritional testing based on patient clinical presentation and evaluate the clinical significance of test results;
- explain the laws and regulations related to the management of the pulmonary function and blood gas labs;
- evaluate the laboratory quality control data and recommend corrective action when indicated;
- identify patient education needs and develop an education plan for the patient;
- identify the key components of health care finance and discuss challenges;
- discuss some common ethical considerations for the respiratory care practitioner;
- explain the process required to apply for and complete National Board for Respiratory Care board exams to achieve the Registered Respiratory Therapist credential and credential maintenance requirements;
- explain the process to obtain a state license to practice respiratory care and license maintenance requirements.

Minimum Placement Levels

English	Reading	Math
Placement out of ENG 099	Placement out of CCS 099	None

Prerequisites

Credit in RTT 212, RTT 213, RTT 215, BIO 121, BIO 122, and ENG 101
Credit or concurrent enrollment in RTT 214, BIO 123, ENG 102, and PSY 101
Admission into the Respiratory Care program

Methods of Evaluation

Weekly homework, 10-12 quizzes, 3-4 exams, 1 major three-part project that includes a research paper, patient case study, and electronic poster presentation. Must pass the National Board for Respiratory Care Secure Assessment Exam at the established high cut score +2 points to pass this course. Graduates must pass the Therapist Multiple Choice Exam to be eligible to take the Clinical Simulation Exam and earn the Registered Respiratory Therapist (RRT) credential.

Instructional Materials and Additional Supplies

No new texts. All texts required for this course have previously been obtained by the student.

Course Content

General Learning Outcomes (GLOs)

- Communication: Students will demonstrate the ability to read, write, listen, and speak effectively.
- Critical Thinking and Information Literacy: Students will demonstrate the ability to evaluate perspectives, evidence, and implications, and to locate, assess, and use information effectively.

Course Segments and Student Learning Outcomes

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Pulmonary Function Instrumentation and Testing	1. Explain the function of each of the following components of pulmonary function equipment: a) gas analyzers, b) directional valves, c) sampling devices, d) flow measuring devices, e) volume measuring devices, f) pressure measuring devices, g) recording devices, and h) computer interfaces. 2. Select the appropriate device(s) to provide the specific test ordered for a given patient. 3. Explain the American Thoracic Society standards for pulmonary function laboratories including calibration and function verification procedures for testing equipment. 4. Identify the indications and contraindications for performing spirometry, for assessing all lung volumes, and for evaluating diffusing capacity. Correlate patient history with indications for recommending pulmonary function testing. 5. Identify the changes in the pulmonary function parameters common in both obstructive and restrictive pulmonary disorders. Give examples of obstructive and restrictive disorders. 6. Identify common errors that occur before, during, and after pulmonary function testing. 7. Identify and explain the three common methods of determining functional residual capacity. 8. Identify the American Thoracic Society (ATS) criteria for pulmonary function test validity.	3	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Pulmonary Function Instrumentation and Testing (cont'd)	9. Discuss the process and purpose of bronchial challenge testing. 10. Discuss common errors in equipment function or testing protocol; troubleshoot equipment malfunction from a description of the observed performance of a device; suggest methods to improve patient compliance with testing protocol. 11. Discuss the risks of cross contamination during patient testing. Explain evidence-based protocols for disinfecting pulmonary function devices to prevent cross contamination. 12. Evaluate lung function test results to determine the presence of abnormalities. Recommend additional follow-up testing to narrow the differential diagnosis probabilities.			
Quality Assurance in Pulmonary Diagnostic Testing, Safety	1. Describe the following quality control measures: a) American Thoracic Society (ATS)-American College of Chest Physician (ACCP) standards for equipment performances, b) ATS-ACCP standards for patient performances, and c) statistical analysis of PFT data. 2. Identify the quality control requirements for blood gas analyzers, including daily quality controls, calibration verification, proficiency studies, and staff and student competency requirements. 3. Discuss the hospital and laboratory accreditation process. Identify possible penalties for noncompliance with the standards. 4. Distinguish between a policy and a procedure. Develop a policy and procedure for integration of students into the blood gas lab quality compliance requirements. 5. Explain the term culture of safety as it applies to the issues of high risk/high reliability, safe harbor, teamwork, and commitment. 6. Define the concept of robust process improvement and identify the tools that are incorporated within the concept. 7. Define root cause analysis and explain its relationship to active and latent errors. 8. Describe the purpose and process of filing an incident report. 9. Explain the role, purpose, and composition of rapid response teams. 10. Describe the role of the respiratory therapist in safe medication practice. 11. Explain how shift report, patient handoffs, and alarm fatigue pose potential safety consequences to the patient.	4	0	0
Specialty Diagnostic Procedures	1. Describe the following special procedures: a) bronchial provocation, b) ventilation-perfusion, c) carbon monoxide diffusion, d) bronchoscopy, e) endobronchial biopsy, f) thoracentesis, g) pleurodesis, h) exercise testing, and i) metabolic stress testing. 2. Identify the indications for each type of study: a) bronchial provocation, b) ventilation-perfusion, c) carbon monoxide diffusion, d) bronchoscopy, e) endobronchial biopsy, f) thoracentesis, g) pleurodesis, h) exercise testing, and i) metabolic stress testing. 3. Apply knowledge of each type of study to recommend the appropriate test to evaluate the patient's condition and contribute to definitive diagnosis. 4. Identify and explain the risks associated with a) bronchial provocation, b) ventilation-perfusion, c) carbon monoxide diffusion, d) bronchoscopy, e) endobronchial biopsy, f) thoracentesis, g) pleurodesis, h) exercise testing, and i) metabolic stress testing. Recommend strategies to reduce the risks and endure patient safety. 5. Discuss the disinfection protocols for cleaning testing equipment between patients for bronchoscopy, exercise testing, and metabolic testing. 6. Evaluate each of the test results to determine significance of findings and recommend respiratory treatment when indicated. 7. Integrate knowledge of diagnostic procedures and interpretation of results to identify appropriate intervention for abnormalities in the following diagnostic tests/procedures: a) bronchoscopy, b) percutaneous lung biopsy, c) insertion of hemodynamic line, d) patient sedation, e) thoracentesis, f) pulmonary and cardiac stress testing, g) cardioversion, h) defibrillation, i) trans-tracheal aspiration, j) land/air transport, k) metabolic studies, l) sleep apnea studies, m) chest tubes, and n) chest drainage systems.	4	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Homecare and Care in Alternative Settings; Transport	1. Identify alternative care settings in which respiratory care is often performed. Discuss and describe recent trends in respiratory care in alternative care settings. 2. Identify the bodies/organizations that regulate health care in alternative settings. Discuss the standards that apply specifically to respiratory care in alternative health care settings. 3. List the essentials of a discharge plan for a patient to be discharged to an alternative health care setting. Develop a discharge plan for a specific patient as presented in a case study. 4. Identify and discuss the essential psychosocial factors to be considered when evaluating or assessing care in alternative care settings. 5. Describe the roles and responsibilities of the home medical equipment company. 6. Discuss the role and responsibilities of the homecare respiratory therapist. 7. Discuss the reimbursement of homecare services in the U.S. 8. Identify the environmental issues that must be considered when home oxygen therapy or home ventilation is considered. 9. Discuss the role of oxygen in the homecare environment. Discuss patient education needs. 10. Compare and contrast the different home oxygen delivery systems: continuous vs demand. Discuss the characteristics, benefits, and disadvantages of the various home oxygen delivery devices: concentrators, liquid, compressed gas cylinders; and the delivery interfaces: conserving cannulas, pulse-flow devices, demand delivery devices, and transtracheal catheters. 11. Identify the indications for mechanical ventilation in the home. 12. Discuss the criteria for inter-hospital transport of the mechanical ventilator-dependent patient. 13. Identify the minimum capabilities of a mechanical ventilator for transport purposes. 14. Identify the personnel required for a safe transport of a ventilator-dependent patient. 15. Identify the distances for a ground transport, helicopter transport, and fixed-wing transport. 16. Develop a care plan for the transport of a patient requiring respiratory support. Include the recommended mode of transportation, the personnel needed, and equipment and supplies based on the specific patient case. 17. Recommend modifications in the patient respiratory care plan on clinical changes or disease progression.	5	0	0
Polysomnography	1. Define obstructive sleep apnea (OSA). Describe why airway closure occurs only during sleep. 2. Describe the long-term consequences of uncontrolled/untreated OSA. 3. Explain the process of assessing a patient in order to make a diagnosis of OSA. 4. Identify the characteristics that are common in patients who develop OSA. 5. Identify and describe the treatment available to treat OSA. 6. Explain how CPAP works in clinical terms, as if to a student or another clinician. 7. Explain how CPAP works in clinical terms, as if to a patient and family. 8. Identify the potential problems or complications associated with CPAP. 9. Determine when bi-level ventilation is needed to treat OSA. 10. Describe "auto-titrating" CPAP. 11. Identify the surgical options available to treat OSA. 12. Discuss the oral appliance options available to treat OSA. 13. Discuss the challenges of treatment compliance in patients with OSA and identify ways the respiratory therapist can encourage compliance. 14. Analyze sleep study results to determine the presence of airway obstruction during sleep. Recommend appropriate sleep apnea/airway obstruction treatment based on specific patient needs. Include the possible use of dental appliances and implanted devices.	3	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Nutrition for the Respiratory Patient	1. Describe the following metabolic studies: a) energy use calculations, b) oxygen utilization, and c) calorimetry. 2. List the indications, contraindications, hazards, and limitations of indirect calorimetry. Recommend appropriate nutritional study for patient presentation. 3. List the biochemical indicators of nutrition status. 4. Interpret the results of indirect calorimetry. 5. Adjust resting energy expenditure values to reflect the actual patient energy needs. 6. Describe the effects of malnutrition on the respiratory system. 7. Describe how to identify patients at high risk for malnutrition. 8. Identify the criteria for implementation of enteral nutrition and parenteral nutrition. 9. Discuss the nutrition guidelines for specific pulmonary diseases. 10. Provide nutritional education to address the specific needs of a patient with chronic obstructive lung disease that addresses their specific nutritional challenges and personal preferences.	3	0	0
Pulmonary Rehabilitation	1. Identify the goals of pulmonary rehabilitation. 2. Identify the patient eligibility requirements for pulmonary rehabilitation. 3. Identify the assessment tools for determining current functional status of a new pulmonary rehabilitation patient. 4. Describe the upper and lower body exercises commonly prescribed for pulmonary patients. 5. Recommend specific upper and lower body exercises that a patient with chronic lung disease can do independently at home without the need to purchase equipment.	3	0	0
Patient Education	1. State the rationale for patient education in the practice of respiratory care. 2. Define patient education and related terms. 3. Explain the critical role of effective therapeutic communication to include the basic principles, the factors affecting communication, and the process of communication. 4. Identify and explain the skills of the sender and receiver and questioning techniques employed in communication encounters. 5. List the goals of patient education from the patient's perspective and that of the provider. 6. Identify and explain the major components of the patient education process. 7. Identify and explain the appropriate use of various teaching strategies in patient education. 8. Identify and discuss the basic principles of adult learning. 9. Discuss the evaluation phase of the patient education process. 10. Explain how patient education can be incorporated into asthma education, pulmonary rehabilitation, and smoking cessation. 11. Develop a patient/caregiver education plan based on the assessed needs of the patient. This may be an infant to be discharged from the NICU requiring respiratory monitoring and/or support, a child newly diagnosed with asthma, CF, or other chronic respiratory disease, and an adult patient with a long-term chronic lung disease.	3	0	0
Smoking Cessation	1. Describe the components of tobacco cessation readiness. 2. Identify examples of medications available to help patients with tobacco cessation. 3. Identify and describe strategies of motivational interviewing in tobacco cessation programs. 4. Identify and describe the Five Steps to Tobacco Cessation for clients willing to attempt quitting. 5. Identify and describe the Five Steps to Tobacco Cessation for clients NOT yet willing to attempt quitting. 6. Collaborate with the patient to develop an individualized smoking cessation plan that respects personal preferences and access to smoking cessation aides.	3	0	0

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The Respiratory Therapist as the Disease Manager	1. Identify the forces driving disease management and the new mindset in managing disease. 2. Explain the history and evolution of the disease management movement. 3. Define disease management and terms associated with care management. 4. Explain the difference between case management and disease management. 5. Identify the core components of disease management. 6. Explain the goals of disease management. 7. Describe the concept of health value as it pertains to disease management. 8. List and explain the basic principles of disease management. 9. Identify the diseases best suited for disease management programs. 10. Identify and explain the steps used to develop a disease management program. 11. List and explain the barriers and opportunities of disease management. 12. Explain the roles of respiratory therapists with regard to disease management.	3	0	0
Disaster Management and the Respiratory Therapist	1. Define mass casualty respiratory failure. 2. List the most likely disaster scenarios likely to result in mass casualty respiratory failure. 3. Describe the requirements of devices required to provide ventilation in mass casualty respiratory failure. 4. Describe common challenges related to acquisition and allocation of respiratory equipment (ventilators, positive pressure devices), consumables, and oxygen in mass casualty respiratory failure. 5. Discuss the role of the respiratory therapist in a disaster. 6. Discuss the rationale for a system of triage of patients based on severity of illness in a mass casualty respiratory failure event. 7. Create a disaster management plan for a hospital respiratory care department. Address staffing, equipment availability, triage, and priorities.	3	0	0
Financing Health Care	1. Explain the four major functions of the healthcare delivery system. 2. Identify the major stakeholders in healthcare delivery. 3. Discuss the forces influencing healthcare change and costs. 4. Describe the general healthcare payment systems. 5. Explain the types of managed care organizations. 6. Describe the more popular reimbursement methodologies. 7. Discuss the implications of reimbursement for the respiratory therapist. 8. Identify DRG groups that involve care from a respiratory therapist.	2	0	0
Ethics and the Practice of Respiratory Care	1. Explain how the systems of civil and criminal law differ. 2. Describe what constitutes professional malpractice and negligence. 3. Explain how a respiratory therapist can become liable for wrongful acts. 4. List the elements that constitute a practice act. 5. Explain how licensing affects legal responsibility and liability. 6. Describe the information that should be gathered before making an ethical decision. 7. Describe how changes in health care delivery have shaped the ethical and legal aspects of practice. 8. Summarize the basic elements of the Health Insurance Portability and Accountability Act of 1996 (HIPAA). 9. Describe the role of advance directives and living wills in health care. 10. Recognize the ethical dilemma or possible conflict of interest in a variety of common healthcare-related case studies.	2	0	0

Course Segment	Learning Outcomes	Lecture Hours	Lab Hours	Clinical Hours
Aging and Care of the Elderly Patient	1. Explain why health care of the elderly has taken on increasingly greater importance in the 21st century. 2. Identify why older people are more prone to falls and how this phenomenon is related to pulmonary health. 3. Identify why the elderly are more predisposed to infections than the younger population. 4. Describe the nature of major age-related physiologic changes of the respiratory and cardiovascular systems. 5. Explain why the PaO2 of the healthy elderly person is lower than that of the younger person when both individuals are breathing room air. 6. Identify why the elderly person has a lower maximum cardiac output and oxygen consumption during exercise than the younger person. 7. Explain the major benefits of an exercise program for the elderly individual. 8. Discuss the importance of gerontology and geriatric care in respiratory care. 9. Describe how the demographics of aging will affect healthcare professionals. 10. Discuss common typical symptoms in the elderly and explain why older patients may not present with typical complaints when ill. 11. Explain the role of the respiratory therapist in the assessment and care of the elderly patient who requires respiratory therapeutics at home. Include oxygen or CPAP, inhaled medications, and airway clearance therapies.	2	0	0
Post Graduation Professional Responsibilities	1. Identify the requirements for application to the NBRC to complete exams for respiratory credentials. 2. Explain the Therapist Multiple Choice scoring requirements for the Certified Respiratory Therapist credential. 3. Explain the Therapist Multiple Choice scoring requirements and the Clinical Simulation Exam requirement for the Registered Respiratory Therapist. 4. Explain the National Board for Respiratory Care Continued Competency Program requirements to maintain an active credential. 5. Discuss the process to obtain a license to practice respiratory care in Illinois and other states where licensure is required.	2	0	0

Total Contact Hours

Lecture Hours	Lab Hours	Clinical Hours
45	0	0