

Respiratory Therapy II

Subject: Career Development and Career and Technical Education

Grade: 12

Expectations: 37

Breakouts: 113

(a) Introduction.

1. Career and technical education provides content aligned with challenging academic standards, industry-relevant technical knowledge, and college and career readiness skills for students to further their education and succeed in current and emerging professions.
2. The Health Science Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
3. Respiratory Therapy II is a technical lab course that addresses knowledge and skills related to critical care and cardiopulmonary medicine. Respiratory therapists are specialized healthcare practitioners trained in cardiopulmonary medicine to work therapeutically with people suffering from cardiopulmonary diseases. Students will learn advanced knowledge and skills performed by respiratory therapists using equipment such as stethoscopes, sphygmomanometers, thermometers, pulse oximeters and monitors, oxygen delivery devices (nasal cannula, masks of various types), nebulizers, airway clearance and hyperinflation therapy devices, spirometers, and intubation mannequin heads and equipment (endotracheal tubes, laryngoscopes, stylets).
4. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations, including:
 - a. work-based experiences/learning; and
 - b. volunteering/shadowing opportunities.
5. Statements that contain the word "including" reference content that must be mastered, while those containing the phrase "such as" are intended as possible illustrative examples.

(b) Knowledge and Skills Statements

- (1) The student demonstrates professional standards and employability skills required by the respiratory therapy profession. The student is expected to:
 - (A) model professionalism associated with respiratory therapy such as adaptability, time management, punctuality, appreciation for diversity, decision-making, dedication, and organizational and leadership skills;
 - (i) model professionalism associated with respiratory therapy
 - (B) demonstrate effective verbal and non-verbal communication in a clear and concise manner;
 - (i) demonstrate effective verbal communication in a clear manner
 - (ii) demonstrate effective verbal communication in a concise manner
 - (iii) demonstrate effective non-verbal communication in a clear manner
 - (iv) demonstrate effective non-verbal communication in a concise manner

- (C) demonstrate therapeutic communication appropriate to the situation, including communication with individuals with language differences or barriers and sensory loss;
 - (i) demonstrate therapeutic communication appropriate to the situation, including communication with individuals with language differences or barriers
 - (ii) demonstrate therapeutic communication appropriate to the situation, including communication with individuals with sensory loss
 - (D) evaluate the effectiveness of conflict resolution techniques in various situations;
 - (i) evaluate the effectiveness of conflict resolution techniques in various situations
 - (E) demonstrate the ability to cooperate, contribute, and collaborate as a member of a team; and
 - (i) demonstrate the ability to cooperate as a member of a team
 - (ii) demonstrate the ability to contribute as a member of a team
 - (iii) demonstrate the ability to collaborate as a member of a team
 - (F) explore career options for respiratory therapy and preparation necessary for employment such as creating a cover letter and resume, completing an application, and conducting mock interviews.
 - (i) explore career options for respiratory therapy
 - (ii) explore preparation necessary for employment
- (2) The student applies mathematics, science, English language arts, and social studies in respiratory therapy. The student is expected to:
- (A) analyze complex technical material related to respiratory therapy;
 - (i) analyze complex technical material related to respiratory therapy
 - (B) analyze how race, culture, and religion impact patient care;
 - (i) analyze how race [impacts] patient care
 - (ii) analyze how culture [impacts] patient care
 - (iii) analyze how religion [impacts] patient care
 - (C) apply mathematical calculations related to respiratory therapy; and
 - (i) apply mathematical calculations related to respiratory therapy
 - (D) analyze biological and chemical processes that affect homeostasis in relation to cardiopulmonary diseases.
 - (i) analyze biological processes that affect homeostasis in relation to cardiopulmonary diseases
 - (ii) analyze chemical processes that affect homeostasis in relation to cardiopulmonary diseases
- (3) The student applies safety standards for a respiratory therapy setting. The student is expected to:

- (A) evaluate and apply standards and guidelines from entities, including the American Association for Respiratory Care (AARC), World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), U.S. Food and Drug Administration (FDA), and Texas Commission on Environmental Quality (TCEQ), as they apply to cardiopulmonary diseases;
- (i) evaluate standards and guidelines from entities, including the American Association for Respiratory Care (AARC), as they apply to cardiopulmonary diseases
 - (ii) evaluate standards and guidelines from entities, including the World Health Organization (WHO), as they apply to cardiopulmonary diseases
 - (iii) evaluate standards and guidelines from entities, including the Centers for Disease Control and Prevention (CDC), as they apply to cardiopulmonary diseases
 - (iv) evaluate standards and guidelines from entities, including the U.S. Food and Drug Administration (FDA), as they apply to cardiopulmonary diseases
 - (v) evaluate standards and guidelines from entities, including the Texas Commission on Environmental Quality (TCEQ), as they apply to cardiopulmonary diseases
 - (vi) apply standards and guidelines from entities, including the American Association for Respiratory Care (AARC), as they apply to cardiopulmonary diseases
 - (vii) apply standards and guidelines from entities, including the World Health Organization (WHO), as they apply to cardiopulmonary diseases
 - (viii) apply standards and guidelines from entities, including the Centers for Disease Control and Prevention (CDC), as they apply to cardiopulmonary diseases
 - (ix) apply standards and guidelines from entities, including the U.S. Food and Drug Administration (FDA), as they apply to cardiopulmonary diseases
 - (x) apply standards and guidelines from entities, including the Texas Commission on Environmental Quality (TCEQ), as they apply to cardiopulmonary diseases
- (B) demonstrate infection control standard and transmission-based precautions in the laboratory setting, including hand hygiene, equipment sterilization, and the use of personal protective equipment (PPE); and
- (i) demonstrate infection control standard in the laboratory setting, including hand hygiene
 - (ii) demonstrate infection control standard in the laboratory setting, including equipment sterilization
 - (iii) demonstrate infection control standard in the laboratory setting, including the use of personal protective equipment (PPE)
 - (iv) demonstrate transmission-based precautions in the laboratory setting, including hand hygiene
 - (v) demonstrate transmission-based precautions in the laboratory setting, including equipment sterilization
 - (vi) demonstrate transmission-based precautions in the laboratory setting, including the use of personal protective equipment (PPE)

- (C) model industry safety standards, including standards for body mechanics, fire prevention, electrical safety, oxygen safety, and the handling of hazardous materials.
 - (i) model industry safety standards, including standards for body mechanics
 - (ii) model industry safety standards, including standards for fire prevention
 - (iii) model industry safety standards, including standards for electrical safety
 - (iv) model industry safety standards, including standards for oxygen safety
 - (v) model industry safety standards, including standards for the handling of hazardous materials
- (4) The student explains the interactions between the cardiopulmonary and other body systems as they relate to wellness and diseases. The student is expected to:
 - (A) analyze the role of the autonomic nervous system in the regulation of the cardiopulmonary system as it pertains to health and illness;
 - (i) analyze the role of the autonomic nervous system in the regulation of the cardiopulmonary system as it pertains to health
 - (ii) analyze the role of the autonomic nervous system in the regulation of the cardiopulmonary system as it pertains to illness
 - (B) analyze the role of the urinary system in the regulation of the acid-base and fluid balance and in cardiopulmonary health and illness;
 - (i) analyze the role of the urinary system in the regulation of the acid-base balance
 - (ii) analyze the role of the urinary system in the regulation of the fluid balance
 - (iii) analyze the role of the urinary system in cardiopulmonary health
 - (iv) analyze the role of the urinary system in cardiopulmonary illness
 - (C) investigate the interactions between body systems and cardiopulmonary diseases and disorders such as Guillain-Barré syndrome, Myasthenia Gravis, SARS-CoV-2 (Covid), Idiopathic Pulmonary Fibrosis (IPF), adult respiratory distress syndrome (ARDS), and congestive heart failure (CHF);
 - (i) investigate the interactions between body systems and cardiopulmonary diseases and disorders
 - (D) differentiate between normal heart rhythms and common cardiac dysrhythmias such as ventricular fibrillation, ventricular tachycardia, and asystole attributed to malfunctions in other body systems; and
 - (i) differentiate between normal heart rhythms and common cardiac dysrhythmias
 - (E) discuss the role of respiratory therapists in the use of mechanical systems, including non-invasive and invasive mechanical ventilators and extracorporeal membrane oxygenation (ECMO), when the cardiopulmonary system fails.
 - (i) discuss the role of respiratory therapists in the use of mechanical systems, including non-invasive mechanical ventilators, when the cardiopulmonary system fails.
 - (ii) discuss the role of respiratory therapists in the use of mechanical systems, including invasive mechanical ventilators, when the cardiopulmonary system fails
 - (iii) discuss the role of respiratory therapists in the use of mechanical systems, including extracorporeal membrane oxygenation (ECMO), when the cardiopulmonary system fails

- (5) The student implements the knowledge and skills of a respiratory therapy professional used in a laboratory setting. The student is expected to:
- (A) demonstrate breathing exercises commonly used for patients with cardiopulmonary disease;
 - (i) demonstrate breathing exercises commonly used for patients with cardiopulmonary disease
 - (B) demonstrate airway management skills in a laboratory setting using equipment for intubation and airway maintenance such as endotracheal and tracheostomy tubes, endotracheal/tracheal suction catheters, laryngoscopes, bag valve mask devices, oral and nasal airways, tube fasteners, or tape;
 - (i) demonstrate airway management skills in a laboratory setting using equipment for intubation
 - (ii) demonstrate airway management skills in a laboratory setting using equipment for airway maintenance
 - (C) demonstrate airway clearance and hyperinflation therapies in a laboratory setting using equipment such as oscillating positive end pressure devices, high frequency chest wall oscillation devices, and an incentive spirometer;
 - (i) demonstrate airway clearance [therapy] in a laboratory setting using equipment
 - (ii) demonstrate hyperinflation [therapy] in a laboratory setting using equipment
 - (D) differentiate between normal lung and pathology in a chest X-ray;
 - (i) differentiate between normal lung and pathology in a chest X-ray
 - (E) recognize typical and atypical arterial blood-gas values related to patient oxygenation and ventilation status;
 - (i) recognize typical arterial blood-gas values related to patient oxygenation status
 - (ii) recognize typical arterial blood-gas values related to patient ventilation status
 - (iii) recognize atypical arterial blood-gas values related to patient oxygenation status
 - (iv) recognize atypical arterial blood-gas values related to patient ventilation status
 - (F) demonstrate the use of the oxygen therapy equipment such as nasal cannula, high flow nasal cannula, simple masks, air-entrainment masks, partial rebreather masks, non-rebreather masks, and non-invasive ventilators;
 - (i) demonstrate the use of the oxygen therapy equipment
 - (G) demonstrate patient assessment methods, including inspection, auscultation, palpitation, and percussion;
 - (i) demonstrate patient assessment methods, including inspection
 - (ii) demonstrate patient assessment methods, including auscultation
 - (iii) demonstrate patient assessment methods, including palpitation
 - (iv) demonstrate patient assessment methods, including percussion
 - (H) interpret and create a basic care plan for asthma and chronic obstructive pulmonary disease (COPD);
 - (i) interpret a basic care plan for asthma
 - (ii) interpret a basic care plan for chronic obstructive pulmonary disease (COPD)
 - (iii) create a basic care plan for asthma
 - (iv) create a basic care plan for chronic obstructive pulmonary disease (COPD)

- (I) demonstrate the role of a respiratory therapist during simulated emergency situations such as situations requiring a rapid response team and advanced cardiac life support; and
 - (i) demonstrate the role of a respiratory therapist during simulated emergency situations
 - (J) describe the respiratory therapists' role in patient education regarding the disease process and proper use of medication and respiratory equipment.
 - (i) describe the respiratory therapists' role in patient education regarding the disease process
 - (ii) describe proper use of medication
 - (iii) describe proper use of respiratory equipment
- (6) The student understands cardiopulmonary pharmaceutical agents and safety. The student is expected to:
- (A) research and identify the application of medications used in respiratory therapy, including bronchodilators, inhaled corticosteroids, mucolytics, biologics, inhaled antibiotics, inhaled pulmonary vasodilators, and antivirals;
 - (i) research the application of medications used in respiratory therapy, including bronchodilators
 - (ii) research the application of medications used in respiratory therapy, including inhaled corticosteroids
 - (iii) research the application of medications used in respiratory therapy, including mucolytics
 - (iv) research the application of medications used in respiratory therapy, including biologics
 - (v) research the application of medications used in respiratory therapy, including inhaled antibiotics
 - (vi) research the application of medications used in respiratory therapy, including inhaled pulmonary vasodilators
 - (vii) research the application of medications used in respiratory therapy, including antivirals
 - (viii) identify the application of medications used in respiratory therapy, including bronchodilators
 - (ix) identify the application of medications used in respiratory therapy, including inhaled corticosteroids
 - (x) identify the application of medications used in respiratory therapy, including mucolytics
 - (xi) identify the application of medications used in respiratory therapy, including biologics
 - (xii) identify the application of medications used in respiratory therapy, including inhaled antibiotics
 - (xiii) identify the application of medications used in respiratory therapy, including inhaled pulmonary vasodilators
 - (xiv) identify the application of medications used in respiratory therapy, including antivirals
 - (B) evaluate indications, contraindications, and side effects of respiratory medications;
 - (i) evaluate indications of respiratory medications
 - (ii) evaluate contraindications of respiratory medications
 - (iii) evaluate side effects of respiratory medications
 - (C) demonstrate delivery methods of medication such as nebulizers and meter dose inhalers (MDI); and
 - (i) demonstrate delivery methods of medication

- (D) evaluate patient response to therapy before, during, and after respiratory treatments such as heart rate, blood pressure, respiration, and breath sounds.
 - (i) evaluate patient response to therapy before respiratory treatments
 - (ii) evaluate patient response to therapy during respiratory treatments
 - (iii) evaluate patient response to therapy after respiratory treatments
- (7) The student evaluates ethical behavioral standards and legal responsibilities in the respiratory therapy profession. The student is expected to:
 - (A) analyze legal and ethical scenarios as it relates to the Patient's Bill of Rights and the Health Insurance Portability and Accountability Act (HIPAA);
 - (i) analyze legal scenarios as [they relate] to the Patient's Bill of Rights
 - (ii) analyze legal scenarios as [they relate] to the Health Insurance Portability and Accountability Act (HIPAA);
 - (iii) analyze ethical scenarios as [they relate] to the Patient's Bill of Rights
 - (iv) analyze ethical scenarios as [they relate] to the Health Insurance Portability and Accountability Act (HIPAA);
 - (B) evaluate the legal and ethical ramifications of unacceptable behavior in therapeutic practice; and
 - (i) evaluate the legal ramifications of unacceptable behavior in therapeutic practice
 - (ii) evaluate the ethical ramifications of unacceptable behavior in therapeutic practice
 - (C) describe ethical dilemmas in respiratory therapy such as advanced directives, palliative care, hospice, and end-of-life care.
 - (i) describe ethical dilemmas in respiratory therapy
- (8) The student identifies academic preparation and skills necessary for employment in the field of respiratory therapy. The student is expected to:
 - (A) research and identify academic requirements for professional advancement such as credentials, certifications, licensure, registration, continuing education, and advanced degrees; and
 - (i) research academic requirements for professional advancement
 - (ii) identify academic requirements for professional advancement
 - (B) research and identify the path to obtain and maintain entry level licensure and credentialing.
 - (i) research the path to obtain entry level licensure
 - (ii) research the path to maintain entry level licensure
 - (iii) research the path to obtain entry level credentialing
 - (iv) research the path to maintain entry level credentialing
 - (v) identify the path to obtain entry level licensure
 - (vi) identify the path to maintain entry level licensure
 - (vii) identify the path to obtain entry level credentialing
 - (viii) identify the path to maintain entry level credentialing