

Respiratory Therapy I

Subject: Career Development and Career and Technical Education

Grade: 11

Expectations: 38

Breakouts: 96

(a) Introduction.

1. Career and technical education instruction 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 Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
3. Respiratory Therapy I is a technical lab course that addresses knowledge and skills related to cardiopulmonary medicine. Respiratory therapists are specialized healthcare practitioners trained in cardiopulmonary medicine to work therapeutically with people suffering from cardiopulmonary diseases. Students will learn basic knowledge and skills performed by respiratory therapists using equipment such as: stethoscopes, sphygmomanometers, thermometers, pulse oximeters, oxygen delivery devices (nasal cannula, masks of various types), nebulizers, and airway clearance and hyperinflation therapy devices.
4. Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations, including:
5. work-based experiences/learning; and
6. volunteering/shadowing opportunities.
7. 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/barriers and sensory loss;
 - (i) demonstrate therapeutic communication appropriate to the situation, including communication with individuals with language differences/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; and
 - (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.
 - (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
- (2) The student applies mathematics, science, English language arts, and social studies in respiratory therapy. The student is expected to:
- (A) interpret complex technical material related to respiratory therapy;
 - (i) interpret complex technical material related to respiratory therapy
 - (B) identify how race, culture, and religion impact patient care;
 - (i) identify how race impact[s] patient care
 - (ii) identify how culture impact[s] patient care
 - (iii) identify how religion impact[s] patient care
 - (C) solve mathematical calculations related to respiratory therapy; and
 - (i) solve mathematical calculations related to respiratory therapy
 - (D) summarize biological and chemical processes that maintain homeostasis.
 - (i) summarize biological processes that maintain homeostasis
 - (ii) summarize chemical processes that maintain homeostasis
- (3) The student investigates the history and profession of respiratory therapy, including education and licensure. The student is expected to:
- (A) analyze the advancement of respiratory therapy practices over time;
 - (i) analyze the advancement of respiratory therapy practices over time
 - (B) summarize the roles of respiratory therapists in various settings; and
 - (i) summarize the roles of respiratory therapists in various settings
 - (C) identify academic requirements for respiratory therapist and professional advancement opportunities such as professional organizations, credentials, certifications, registrations, licensure, continuing education, and advanced degrees.
 - (i) identify academic requirements for respiratory therapist opportunities
 - (ii) identify academic requirements for professional advancement opportunities
- (4) The student applies regulatory and safety standards in a respiratory therapy setting. The student is expected to:

- (A) identify and conform to regulations and guidelines from entities such as the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), Occupational Safety and Health Administration (OSHA), U.S. Food and Drug Administration (FDA), The Joint Commission, the National Institute of Health (NIH), Texas Commission on Environmental Quality (TCEQ), Texas Department of State and Health Services (DSHS), and American Association for Respiratory Care (AARC);
 - (i) identify regulations from entities
 - (ii) identify guidelines from entities
 - (iii) conform to regulations from entities
 - (iv) conform to guidelines from entities
 - (B) identify infection control standard and transmission-based precautions in the patient care setting, including hand hygiene, equipment sterilization, and the use of personal protective equipment (PPE); and
 - (i) identify infection control standard precautions in the patient care setting, including hand hygiene
 - (ii) identify infection control standard precautions in the patient care setting, including equipment sterilization
 - (iii) identify infection control standard precautions in the patient care setting, including the use of personal protective equipment (PPE)
 - (iv) identify transmission-based precautions in the patient care setting, including hand hygiene
 - (v) identify transmission-based precautions in the patient care setting, including equipment sterilization
 - (vi) identify transmission-based precautions in the patient care setting, including the use of personal protective equipment (PPE)
 - (C) identify industry safety standards, including standards for body mechanics, fire prevention, electrical safety, oxygen safety, and the handling of hazardous materials.
 - (i) identify industry safety standards, including standards for body mechanics
 - (ii) identify industry safety standards, including standards for fire prevention
 - (iii) identify industry safety standards, including standards for electrical safety
 - (iv) identify industry safety standards, including standards for oxygen safety
 - (v) identify industry safety standards, including the handling of hazardous materials
- (5) The student investigates the structure and function of cardiopulmonary anatomy. The student is expected to:
- (A) analyze the cardiovascular system, including ventricles, atrium, valves, blood vessels, nerves, blood flow, and cardiac conduction system;
 - (i) analyze the cardiovascular system, including ventricles
 - (ii) analyze the cardiovascular system, including atrium
 - (iii) analyze the cardiovascular system, including valves
 - (iv) analyze the cardiovascular system, including blood vessels
 - (v) analyze the cardiovascular system, including nerves
 - (vi) analyze the cardiovascular system, including blood flow
 - (vii) analyze the cardiovascular system, including cardiac conduction system

- (B) explain the respiratory system, including airways, trachea, lungs, and pulmonary vessels that aid the body in the exchange of gases;
 - (i) explain the respiratory system, including airways
 - (ii) explain the respiratory system, including trachea
 - (iii) explain the respiratory system, including lungs
 - (iv) explain the respiratory system, including pulmonary vessels that aid the body in the exchange of gases
 - (C) trace the blood flow through the cardiopulmonary system; and
 - (i) trace the blood flow through the cardiopulmonary system
 - (D) examine a variety of human diseases and disorders affecting the cardiopulmonary system such as chronic obstructive pulmonary disease (COPD), asthma, pneumonia, cystic fibrosis, and lung cancer.
 - (i) examine a variety of human diseases affecting the cardiopulmonary system
 - (ii) examine a variety of human disorders affecting the cardiopulmonary system
- (6) The student develops knowledge pertaining to respiratory therapy procedures. The student is expected to:
- (A) demonstrate the use of breathing exercises for patients with cardiopulmonary disease such as pursed lipped breathing and diaphragmatic breathing;
 - (i) demonstrate the use of breathing exercises for patients with cardiopulmonary disease
 - (B) explain the use of hyperinflation and airway clearance therapies;
 - (i) explain the use of hyperinflation [therapy]
 - (ii) explain the use of airway clearance [therapy]
 - (C) explain the use of tracheostomy and endotracheal tubes and oral and nasal airway devices for assisted breathing;
 - (i) explain the use of tracheostomy for assisted breathing
 - (ii) explain the use of endotracheal tubes for assisted breathing
 - (iii) explain the use of oral airway devices for assisted breathing
 - (iv) explain the use of nasal airway devices for assisted breathing
 - (D) identify anatomy of the heart and lungs and proper endotracheal tube placement on X-ray;
 - (i) identify anatomy of the heart on X-ray
 - (ii) identify anatomy of the lungs on X-ray
 - (iii) identify proper endotracheal tube placement on X-ray
 - (E) explain the use of oximetry and arterial blood-gases for patient assessment;
 - (i) explain the use of oximetry for patient assessment
 - (ii) explain the use of arterial blood-gases for patient assessment

- (F) identify and explain the use of the equipment for oxygen therapies such as nasal cannula, high flow nasal cannula, simple masks, air-entrainment masks, partial rebreather masks, and non-rebreather masks; and
 - (i) identify the equipment for oxygen therapies
 - (ii) explain the use of the equipment for oxygen therapies
 - (G) demonstrate the administration of oxygen therapy using oxygen concentrators and portable cylinders.
 - (i) demonstrate the administration of oxygen therapy using oxygen concentrators
 - (ii) demonstrate the administration of oxygen therapy using portable cylinders
- (7) The student recognizes cardiopulmonary pharmaceutical agents and safety and protocol measures. The student is expected to:
- (A) identify medications used in respiratory therapy, including bronchodilators and inhaled corticosteroids;
 - (i) identify medications used in respiratory therapy, including bronchodilators
 - (ii) identify medications used in respiratory therapy, including inhaled corticosteroids
 - (B) summarize indications, contraindications, and side effects of respiratory medications;
 - (i) summarize indications of respiratory medications
 - (ii) summarize contraindications of respiratory medications
 - (iii) summarize side effects of respiratory medications
 - (C) discuss delivery of respiratory medications such as nebulizers and meter dose inhalers (MDI); and
 - (i) discuss delivery of respiratory medications
 - (D) assess the impact of cardiopulmonary agents on vital signs.
 - (i) assess the impact of cardiopulmonary agents on vital signs
- (8) The student implements the knowledge and skills of respiratory therapy professionals in a laboratory setting. The student is expected to:
- (A) demonstrate patient assessment of vital signs, including blood pressure, pulse, respiratory rate, temperature, oxygenation, and ventilation status;
 - (i) demonstrate patient assessment of vital signs, including blood pressure
 - (ii) demonstrate patient assessment of vital signs, including pulse
 - (iii) demonstrate patient assessment of vital signs, including respiratory rate
 - (iv) demonstrate patient assessment of vital signs, including temperature
 - (v) demonstrate patient assessment of vital signs, including oxygenation
 - (vi) demonstrate patient assessment of vital signs, including ventilation status
 - (B) demonstrate patient positioning for respiratory comfort and procedures;
 - (i) demonstrate patient positioning for respiratory comfort
 - (ii) demonstrate patient positioning for respiratory procedures

- (C) demonstrate patient care techniques used in high stress respiratory therapy situations such as non-compliant, combative, and distressed patients; and
 - (i) demonstrate patient care techniques used in high stress respiratory therapy situations
 - (D) demonstrate correct cardiopulmonary resuscitation (CPR) and automated external defibrillator (AED) skills.
 - (i) demonstrate correct cardiopulmonary resuscitation (CPR) skills
 - (ii) demonstrate correct automated external defibrillator (AED) skills
- (9) The student evaluates ethical behavioral standards and legal responsibilities in the respiratory therapy profession. The student is expected to:
- (A) examine legal and ethical behavior standards such as the Patient's Bill of Rights, advanced directives, and the Health Insurance Portability and Accountability Act (HIPAA);
 - (i) examine legal behavior standards
 - (ii) examine ethical behavior standards
 - (B) investigate and discuss the legal and ethical ramifications of unacceptable behavior in therapeutic practice;
 - (i) investigate the legal ramifications of unacceptable behavior in therapeutic practice
 - (ii) investigate the ethical ramifications of unacceptable behavior in therapeutic practice
 - (iii) discuss the legal ramifications of unacceptable behavior in therapeutic practice
 - (iv) discuss the ethical ramifications of unacceptable behavior in therapeutic practice
 - (C) research and describe role of professional associations and regulatory agencies; and
 - (i) research role of professional associations
 - (ii) research role of regulatory agencies
 - (iii) describe role of professional associations
 - (iv) describe role of regulatory agencies
 - (D) describe ethical dilemmas in health care.
 - (i) describe ethical dilemmas in health care