Texas CTE: Health Science

Respiratory Therapy II

Implementation. A

1 The provisions of this section shall be implemented by school districts beginning with the 2023- 2024 school year. A.1

2 School districts shall implement the employability skills student expectations listed in §127.15(d)(2) of this chapter (relating to Career and Technical Education Employability Skills) as an integral part of this course. A.2

General requirements. This course is recommended for students in Grade 12. Prerequisite: Respiratory Therapy I. Students shall be awarded one credit for successful completion of this course. B

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Introduction. C

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. C.1

2 The Health Science Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development. C.2

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). C.3

4 **Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other organizations that foster leadership and career development in the profession such as student chapters of related professional associations, including:** C.4

- A work-based experiences/learning; and C.4.A
- B volunteering/shadowing opportunities. C.4.B

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.** C.5

Knowledge and skills. D

1 **The student applies mathematics, science, English language arts, and social studies in respiratory therapy. The student is expected to:** D.1

- A analyze complex technical material related to respiratory therapy; D.1.A
- B analyze how race, culture, and religion impact patient care; D.1.B
- C apply mathematical calculations related to respiratory therapy; and D.1.C
- D analyze biological and chemical processes that affect homeostasis in relation to cardiopulmonary diseases. D.1.D

2 **The student applies safety standards for a respiratory therapy setting. The student is expected to:** D.2

- 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; D.2.A
- 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 D.2.B
- C model industry safety standards, including standards for body mechanics, fire prevention, electrical safety, oxygen safety, and the handling of hazardous materials. D.2.C

3 **The student explains the interactions between the cardiopulmonary and other body systems as they relate to wellness and diseases. The student is expected to:** D.3

A analyze the role of the autonomic nervous system in the regulation of the cardiopulmonary system as it pertains to health and illness; D.3.A

B analyze the role of the urinary system in the regulation of the acid-base and fluid balance and in cardiopulmonary health and illness; D.3.B

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); D.3.C

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 D.3.D

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. D.3.E

4 **The student implements the knowledge and skills of a respiratory therapy professional used in a laboratory setting. The student is expected to:** D.4

- A demonstrate breathing exercises commonly used for patients with cardiopulmonary disease; D.4.A
- 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; D.4.B
- 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; D.4.C
- D differentiate between normal lung and pathology in a chest X-ray; D.4.D
- E recognize typical and atypical arterial blood-gas values related to patient oxygenation and ventilation status; D.4.E
- 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; D.4.F
- G demonstrate patient assessment methods, including inspection, auscultation, palpitation, and percussion; D.4.G
- H interpret and create a basic care plan for asthma and chronic obstructive pulmonary disease (COPD); D.4.H
- 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 D.4.I
- J describe the respiratory therapists' role in patient education regarding the disease process and proper use of medication and respiratory equipment. D.4.J

5 **The student understands cardiopulmonary pharmaceutical agents and safety. The student is expected to:** D.5

- 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; D.5.A
- B evaluate indications, contraindications, and side effects of respiratory medications; D.5.B
- C demonstrate delivery methods of medication such as nebulizers and meter dose inhalers (MDI); and D.5.C
- D evaluate patient response to therapy before, during, and after respiratory treatments such as heart rate, blood pressure, respiration, and breath sounds. D.5.D

6 **The student evaluates ethical behavioral standards and legal responsibilities in the respiratory therapy profession. The student is expected to:** D.6

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); D.6.A

B evaluate the legal and ethical ramifications of unacceptable behavior in therapeutic practice; and D.6.B

C describe ethical dilemmas in respiratory therapy such as advanced directives, palliative care, hospice, and end-of-life care. D.6.C

7 **The student identifies academic preparation and skills necessary for employment in the field of respiratory therapy. The student is expected to:** D.7

A research and identify academic requirements for professional advancement such as credentials, certifications, licensure, registration, continuing education, and advanced degrees; and D.7.A

B research and identify the path to obtain and maintain entry level licensure and credentialing. D.7.B