

Respiratory Therapy II

8373 36 weeks

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Course Description

Suggested Grade Level: 12 or 13

Students will develop a scientific understanding of the biological and technical factors involved in respiratory therapy. Emphasis will be placed on the modalities, procedures and effects of respiratory care for patients. Appropriate responses to the most common medical emergencies will be addressed. This course applies rigorous scientific standards to the daily application of respiratory therapy in health care. It also emphasizes critical thinking skills and career opportunities in the field of respiratory therapy.

Task Essentials Table

- Tasks/competencies designated by plus icons (⊕) in the left-hand column(s) are essential
- Tasks/competencies designated by empty-circle icons (○) are optional
- Tasks/competencies designated by minus icons (⊖) are omitted
- Tasks marked with an asterisk (*) are sensitive.

8373	Tasks/Competencies
Examining Biological Factors in Respiratory Therapy	
⊕	Summarize cell theory of human biology.
⊕	Analyze physical factors that have an impact on the patient's respiratory status.
⊕	Describe the physical and biological factors that have an influence on respiratory status.
⊕	Describe the transmission and prevention of infectious diseases associated with respiratory therapy.
⊕	Describe diseases associated with pulmonary anatomy.
⊕	Describe three acute syndromes and symptoms associated with oxygen therapy.
Examining the Practice of Respiratory Therapy	
⊕	Describe mathematical units of measure in respiratory care.
⊕	Differentiate among the various modalities in respiratory care.
⊕	Describe the scope of practice for a respiratory therapist.
⊕	Describe types of diagnostic testing.
⊕	Differentiate among various patient positions.
Examining Professional Standards for Patient Care	
⊕	Describe the basic needs of patients according to Maslow's hierarchy.
⊕	Demonstrate interpersonal communication skills and professional courtesy when interacting with patients, family members, and other healthcare workers.
⊕	Obtain a clinical history.
⊕	Demonstrate history taking.
⊕	Assess data in the patient record that pertains to a respiratory therapist's treatment of a patient.
⊕	Demonstrate taking a respiratory therapy patient's vital signs.
⊕	Examine safeguards to address the risk factors associated with oxygen therapy in medical imaging.
⊕	Outline the chain of infection.
⊕	Evaluate chemical and physical asepsis techniques.
⊕	Outline basic principles of sterile technique.
⊕	Evaluate the respiratory therapy work environment for medical emergency preparedness.

8373	Tasks/Competencies
+	Identify various complications that can result from the use of pharmacologic items in respiratory therapy.
+	Identify signs and symptoms of respiratory distress.
+	Differentiate among the classes of medication used in respiratory care.
+	Describe acquisition, documentation and distribution procedures related to pharmacologic administration.
Exploring Careers in Respiratory Therapy	
+	Examine laws and regulations related to respiratory care.
+	Prepare a sample application and associated forms for licensure.
+	Research requirements for continuing education and specializations in respiratory therapy.
Describing the Opioid Crisis	
+	Describe the history and current state of the opioid crisis in the United States.
+	Describe the history and current state of the opioid crisis in Virginia.
+	Define the pharmacological components and common uses of opioids.
Examining the Key Factors of Drug Addiction	
+	Examine the science of addiction.
+	Explain prevention and early intervention strategies.
+	Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).
+	Describe the treatment models of addiction therapy.
+	Describe the medication management antidote used to prevent fatal opioid overdoses.
Understanding Pain Management Protocols	
+	Explain the science of physiological and mental pain.
+	Describe the diagnostic tools used in developing pain management plans.
+	Describe pain treatment options available to various populations of patients.
+	Describe the effects of opioid dependency on the human body systems.
+	Explain the mechanism and physical effects of opioids on the human body.
+	Explain the use of opioids in practice settings, the role of opioids in pain management, and risk factors associated with the use of the medication.
+	Describe the withdrawal and tapering side effects of opioid use.
+	Describe storage and disposal options for opioids.
+	Explain community resources for education about opioid use.
Working with Patients and Caregivers	
+	Describe key communication topics involving opioids for patients.
+	Describe communication topics for caregivers and family members.

Legend: + Essential ○ Non-essential - Omitted

Curriculum Framework

Examining Biological Factors in Respiratory Therapy

Task Number 39

Summarize cell theory of human biology.

Definition

Summary should include the following basic tenets:

- All living things are made up of cells.
- The cell is the structural and functional unit of all living things.
- All cells come from pre-existing cells by division.
- Cells contain hereditary information that is passed from cell to cell during cell division.
- All cells have essentially the same chemical composition.
- All energy flow (metabolism and biochemistry) of life occurs within cells.

Process/Skill Questions

- What is the structure of a human cell?
- What are the functions of a human cell?
- How are human cells different from plant and other animal cells?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Human Growth and Development

Teamwork Events

- HOSA Bowl
-

Task Number 40

Analyze physical factors that have an impact on the patient's respiratory status.

Definition

Analysis should include physical findings, such as

- general appearance
 - venous distention
 - edema
 - accessory muscle activity
 - chest wall movement
 - diaphoresis
 - clubbing
 - cyanosis
 - breathing pattern
- airway (e.g., macroglossia, neck range of motion)
- cough, sputum amount, character
- Apgar score, age, transillumination of chest.

Process/Skill Questions

- What adjustments may be needed to accommodate special needs patients?
- What technical factors would need to be adjusted when treating a young patient vs. an elderly patient?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Task Number 41

Describe the physical and biological factors that have an influence on respiratory status.

Definition

Description should include

- disease progression
- age-specific populations
- skin pigmentation
- thoracic congenital anomalies
- chest trauma.

Process/Skill Questions

- What are the physical factors that affect response to treatment?
- What are the biologic factors that affect response to treatment?
- What is meant by metabolic state?
- What is meant by oxygenation?
- What is disease progression? How does it affect treatment?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
 - Medical Terminology
-

Task Number 42

Describe the transmission and prevention of infectious diseases associated with respiratory therapy.

Definition

Description should include signs, symptoms, and measures associated with

- tuberculosis
- influenza
- Avian flu
- severe acute respiratory syndrome (SARS).

Process/Skill Questions

- How does a susceptible host contribute to the transmission of infectious disease in the community?
- What are common reservoirs found in the home that spread infectious disease?
- What is the role of zoonotic disease in the field of emerging and re-emerging epidemics?

HOSA Competitive Events (High School)

Teamwork Events

- Health Education
- Public Service Announcement

Emergency Preparedness Events

- Epidemiology
 - Public Health
-

Task Number 43

Describe diseases associated with pulmonary anatomy.

Definition

Description should include obstructive and restrictive pathologies such as

- acute respiratory distress syndrome (ARDS)
- chronic obstructive pulmonary disease (COPD)
- asthma
- pulmonary fibrosis
- pneumonia
- lung cancer
- trauma.

Process/Skill Questions

- Where is the site of pathology in COPD?
- What are the major body organs involved in cystic fibrosis?
- How are the auscultation findings for pneumonia different from asthma or bronchitis?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pathophysiology

Teamwork Events

- Community Awareness

- Forensic Medicine
- Health Education
- Public Service Announcement

Emergency Preparedness Events

- Public Health
-

Task Number 44

Describe three acute syndromes and symptoms associated with oxygen therapy.

Definition

Description should include the concurrent symptom progression of

- oxygen toxicity
- CO₂ retention
- hypoxemia
- diving-related emergencies
- barotrauma.

Process/Skill Questions

- How is oxygen toxicity prevented in neonatal ventilator management?
- Who is a good candidate for hyperbaric chamber therapy?
- What patient diagnosis is most likely to be at risk for hypoxic drive?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
 - Medical Terminology
-

Examining the Practice of Respiratory Therapy

Task Number 45

Describe mathematical units of measure in respiratory care.

Definition

Description should cite base and derived units of scientific systems of measurement to include

- conversion factors
- units of measurement
- solutions and dilutions
- tank factors
- gas laws.

Process/Skill Questions

- What are the basic units of measurement?
- How do units relate to the decimal system?

HOSA Competitive Events (High School)

Health Science Events

- Medical Math
-

Task Number 46

Differentiate among the various modalities in respiratory care.

Definition

Differentiation should include

- oxygen therapy
- bronchial hygiene therapy
- bronchodilator therapy
- CPR
- airway management

- rapid response team
- hyperinflation therapy
- ventilator management.

Process/Skill Questions

- What are some of the innovations available for chest physical therapy?
- What types of ventilators are best for neonatal management?
- How is sleep apnea treated?

HOSA Competitive Events (High School)

Health Science Events

- Medical Terminology

Health Professions Events

- Clinical Specialty

Leadership Events

- Medical Photography

Task Number 47

Describe the scope of practice for a respiratory therapist.

Definition

Description should include

- administering pharmacological, diagnostic, and therapeutic agents to implement a treatment prescribed by a doctor
- transcribing and implementing a doctor's written or oral orders for respiratory therapy
- observing and monitoring signs, symptoms, reactions and response to treatment and diagnostic testing
- implementing respiratory care procedures based on observation or doctor's orders, or in an emergency.

Process/Skill Questions

- What duties does a respiratory therapist share with other healthcare practitioners?

- What duties are specifically performed by a respiratory therapist?
- What organizations describe the scope of practice for respiratory therapy?
- How is a pulmonary function test technique-dependent?
- What is the role of the respiratory therapist in pulmonary rehabilitation?
- How is patient outcome affected by an accurate respiratory assessment?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Medical Math
- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Specialty

Leadership Events

- Medical Photography

Task Number 48

Describe types of diagnostic testing.

Definition

Description should include

- chest X ray
- bedside spirometry (e.g., peak flow, pressure volume measurements)
- CT scan
- MRI
- angiography
- pulmonary function testing
- bronchoscopy
- arterial blood gases
- EKG
- capnography
- nuclear medicine.

Process/Skill Questions

- What are the pathological conditions best identified by an arterial blood gas?
- What is the best chest X ray view for identifying pneumonia?
- How can bedside spirometry be useful in preoperative screening?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Health Professions Events

- Clinical Specialty
-

Task Number 49

Differentiate among various patient positions.

Definition

Differentiation should include

- supine
- prone
- Fowler's
- semi-Fowler's
- high Fowler's
- Trendelenberg
- reverse Trendelenberg
- recumbent Trendelenberg
- left/right lateral
- tripod.

Process/Skill Questions

- What is the benefit of the prone position in patients with acute respiratory distress syndrome (ARDS)?
- How would you encourage a reluctant patient to change their body position?
- What are some of the possible complications of placing a patient in the Trendelenberg position?

- What is the best patient position for treating dsypnea?
- What is the best patient position to help prevent SIDS in infants?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl

Examining Professional Standards for Patient Care

Task Number 50

Describe the basic needs of patients according to Maslow's hierarchy.

Definition

Description should include the physiological, safety, social, esteem, and self-actualization needs of patients.

Process/Skill Questions

- How can the respiratory therapist make the patient feel safe?
- What techniques could the respiratory therapist use to involve patients in their own care?
- What environmental factors affect a patient's physical comfort?

HOSA Competitive Events (High School)

Teamwork Events

- HOSA Bowl

Task Number 51

Demonstrate interpersonal communication skills and professional courtesy when interacting with patients, family members, and other healthcare workers.

Definition

Demonstration should include

- verbal vs. nonverbal communication
- subjective vs. objective assessment
- private vs. public consultation with patients, families, and colleagues to protect patient confidentiality
- appropriate age-specific interactions with patients based on patient's age and abilities across cognitive, affective, and psychomotor spectrums.

Process/Skill Questions

- How can nonverbal communication be used effectively in the patient setting?
- What is the difference between a subjective and objective assessment?
- What techniques could the respiratory therapist use with a dementia patient?
- What techniques could the respiratory therapist use to explain a treatment to a 4-year-old?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Human Growth and Development
- Knowledge Test: Transcultural Health Care

Teamwork Events

- HOSA Bowl

Task Number 52

Obtain a clinical history.

Definition

The clinical history should be

- obtained directly from the patient or guardian and be relevant to the medical complaint
- correlated with the patient's existing medical record.

Process/Skill Questions

- What are the components of a clinical history?
- What information is critical to gather from a patient's existing record?
- Why would information concerning allergies be important?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
 - Medical Terminology
-

Task Number 53

Demonstrate history taking.

Definition

Demonstration should include

- present illness
- admission notes
- respiratory care orders
- medication history
- progress notes
- diagnoses
- DNR status
- previous patient education.

Process/Skill Questions

- When does the advanced directive determine treatment options?
- How does the past medical history influence pulmonary modality selection for bronchial hygiene?
- What findings are pertinent to look for in the progress notes?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
 - Medical Terminology
-

Task Number 54

Assess data in the patient record that pertains to a respiratory therapist's treatment of a patient.

Definition

Assessment should include

- environmental factors (e.g., smoking, workplace exposure, irritants)
- laboratory data (e.g., CBC, electrolytes)
- pulmonary function tests
- blood gas results
- imaging studies (e.g., radiograph, CT, MRI)
- monitoring data
- cardiac monitoring
- maternal and perinatal/neonatal history and data.

Process/Skill Questions

- What ABG finding will indicate that a nonrebreather mask is contraindicated?
- What chest X ray landmark is essential to locate for correct intubation?
- How can recent patient smoking activity risk surgical outcome?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Human Growth and Development
 - Knowledge Test: Pathophysiology
-

Task Number 55

Demonstrate taking a respiratory therapy patient's vital signs.

Definition

Demonstration should emphasize the need to assess and record the patient's vital signs (e.g., pulse, heart rate, blood pressure, respiration rate) to detect significant variations from the norm that would have an effect on patient care.

Process/Skill Questions

- What is a normal heart rate for a child?
- What is considered a normal respiration rate for an adult?
- What should the respiratory therapist do if the patient has an abnormal vital sign?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
 - Medical Terminology
-

Task Number 56

Examine safeguards to address the risk factors associated with oxygen therapy in medical imaging.

Definition

Examination should cite

- the need for caution when performing radiographic procedures on patients receiving oxygen therapy
- safety issues when oxygen is in use (e.g., no flames or high heat sources)
- MRI safety.

Examination should also consider patient-comfort aspects of oxygen therapy to include

- ensuring the maintenance of physician-ordered oxygen flow rate

- ensuring the tubing is properly connected and free of kinks
- ensuring proper positioning of mask.

Process/Skill Questions

- Why is it important to compare the flow meter gauge on the oxygen tank against the doctor's order?
- Why is oxygen dangerous in a fire?

HOSA Competitive Events (High School)

Health Science Events

- Medical Terminology

Health Professions Events

- Clinical Specialty

Teamwork Events

- HOSA Bowl
-

Task Number 57

Outline the chain of infection.

Definition

Outline should identify the source, host, and transmission vehicles for bacteria and viruses.

Process/Skill Questions

- What are some typical ways an infection is spread?
- What is a host?
- What is the difference between a bacteria and a virus?
- Why are airborne diseases a particular concern in an age of global travel?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling

- Medical Terminology

Teamwork Events

- Health Education
- HOSA Bowl

Emergency Preparedness Events

- Epidemiology
 - Public Health
-

Task Number 58

Evaluate chemical and physical asepsis techniques.

Definition

Evaluation should include chemical techniques (e.g., antibacterial cleansers and antiseptic cleansers) and physical techniques (e.g., washing hands frequently, covering the mouth when coughing, covering open wounds, wearing a mask and gloves).

Process/Skill Questions

- When are masks most effective?
- Does length of time matter when washing hands?
- What is the difference between an antiseptic and an antibacterial cleanser? What are the appropriate uses of each?
- Why should standard precautions be strictly followed?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl
-

Task Number 59

Outline basic principles of sterile technique.

Definition

Outline should include how to establish and maintain a sterile field (e.g., use of personal protective equipment, preparation of materials, avoidance of contact with nonsterile items and surfaces).

Process/Skill Questions

- How is personal protective equipment used to ensure sterile environments?
- Why is a sterile field necessary in some instances of respiratory therapy?
- What could be a consequence of failure to maintain a sterile field?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl
-

Task Number 60

Evaluate the respiratory therapy work environment for medical emergency preparedness.

Definition

Evaluation should include

- preparedness of the crash cart and assurance that its location is known to all personnel
- established disposal procedures for contaminated material
- appropriate application of standard and transmission-based precautions.

Process/Skill Questions

- What supplies should always be on a crash cart?
- Why do respiratory therapists need to be prepared for medical emergencies?
- What could happen if contaminated medical materials are not disposed of properly?
- What is the universal color used for biohazard containers?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl

Emergency Preparedness Events

- MRC Partnership

Task Number 61

Identify various complications that can result from the use of pharmacologic items in respiratory therapy.

Definition

Identification should include the signs and symptoms of

- anaphylactic shock
- sudden onset of shortness of breath
- diabetic crisis
- seizure
- adverse drug effects.

Process/Skill Questions

- Why is it important to instruct a patient to rinse out their mouth with water after inhaling steroid inhalers?
- What are the most common side effects for bronchodilator therapy?
- Why does a pentamidine treatment require a special nebulizer design?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Medical Math
- Knowledge Test: Pharmacology

Teamwork Events

- HOSA Bowl
-

Task Number 62

Identify signs and symptoms of respiratory distress.

Definition

Identification should include

- increased work of breathing
- use of accessory muscles
- nasal flaring
- altered mental status
- diaphoresis
- abnormal breathing patterns
- respiratory rate
- apnea
- noisy breathing (e.g., stridor, grunting)
- agitation
- prolonged exhalation
- pursed-lip breathing.

Process/Skill Questions

- What are the components of an initial assessment for a patient in respiratory distress?
- What is the effect of purse-lipped breathing in respiration?
- What is stridor? When is it heard?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pathophysiology

Teamwork Events

- HOSA Bowl
-

Task Number 63

Differentiate among the classes of medication used in respiratory care.

Definition

Differentiation should include the following:

- bronchodilators
- sedatives
- anesthetics
- steroids
- beta blockers
- antibiotics
- insulin
- alcohol
- pulmonary vasodilators
- anticholinergics.

Process/Skill Questions

- How does a sedative affect respiratory status?
- What are some of the contraindications for anticholinergics?
- Why is a culture and sensitivity needed before the administration of antibiotics?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pharmacology

Teamwork Events

- HOSA Bowl
-

Task Number 64

Describe acquisition, documentation and distribution procedures related to pharmacologic administration.

Definition

Description should include

- guidelines for safe administration and usage
- obtaining medications from dispensing systems.

Process/Skill Questions

- Where would you find guidelines on administration of drugs?
- What is the procedure for using a dispensing system?
- What would happen if you forgot or lost your password for the dispensing system?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Medical Math
- Knowledge Test: Pharmacology

Teamwork Events

- HOSA Bowl
-

Exploring Careers in Respiratory Therapy

Task Number 65

Examine laws and regulations related to respiratory care.

Definition

Examination should include

- a review of licensing requirements and practice of respiratory therapists through the [Virginia Department of Health Professions](#)
- a review of national certification requirements from the [National Board for Respiratory Care](#).

Process/Skill Questions

- How does one get licensed?
- Whose responsibility is it to get licensed? The employee or the employer?
- Why would you need to know about licensing?
- What are your rights?
- What is the difference between certification and licensure?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Medical Law and Ethics
-

Task Number 66

Prepare a sample application and associated forms for licensure.

Definition

Preparation for new graduates should include

- completing a sample application (VDHP application for respiratory therapy is an online application)
- any other documentation pertaining to criminal history, if necessary
- proof of national certification from NBRC.

Forms and applications for respiratory therapists are available from the [Virginia Department of Health Professions](#).

Process/Skill Questions

- Where would you submit forms once they are complete?
- What is the cost to apply for licensure?
- What forms would need to be notarized?
- What types of crimes would prevent you from obtaining certification or licensure?

HOSA Competitive Events (High School)

Leadership Events

- Interviewing Skills
 - Job-Seeking Skills
-

Task Number 67

Research requirements for continuing education and specializations in respiratory therapy.

Definition

Research should include

- the difference between attending an accredited and a nonaccredited program
- academic and clinical requirements (associate degree required for licensure)
- ensuring that transfer requirements between programs may vary
- special modalities
- postgraduate programs
- maintaining continuing education requirements after licensure.

Process/Skill Questions

- What is the difference between national and regional accreditation?
- How many hours of continuing education do you need for recertification?
- Who would approve continuing education credits?
- What are the requirements for clinical and academic courses?

HOSA Competitive Events (High School)

Recognition

- Health Care Issues Exam

Describing the Opioid Crisis

Task Number 68

Describe the history and current state of the opioid crisis in the United States.

Definition

Description should include

- the relationship between opioid prescribing and illicit opioid use to overall opioid overdose deaths
- the prevalence of co-occurring mental health disorders
- the shift in attitudes in the 1990s toward pain management and use of opioids, including the role of pharmaceutical marketing
- the stigma associated with addiction and the changing view of addiction from a moral failing to a chronic, relapsing disease
- statistics, trends, and demographics surrounding the crisis
- population health and other public health aspects of the crisis, including its effects on family and neonates, as well as overall health costs.

Process/Skill Questions

- How are opioids created?
- Can opioids be safely prescribed to patients taking psychotropic drugs?
- How does society stereotype individuals with a history of drug addiction?
- What are the current trends that have contributed to the nationwide opioid crisis?
- How has the opioid epidemic affected emergency rooms and the first responder system?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling

- Medical Terminology

Teamwork Events

- Creative Problem Solving
 - Public Service Announcement
-

Task Number 69

Describe the history and current state of the opioid crisis in Virginia.

Definition

Description should include

- the relationship between opioid prescribing and illicit opioid use to overall opioid overdose deaths
- the prevalence of co-occurring mental health disorders
- the shift in attitudes in the 1990s toward pain management and use of opioids, including the role of pharmaceutical marketing
- the stigma associated with addiction and the changing view of addiction from a moral failing to a chronic, relapsing disease
- statistics, trends, and demographics surrounding the crisis
- population health and other public health aspects of the crisis, including its effects on family and neonates, as well as overall health costs
- the Virginia Department of Health's [Declaration of a Public Health Emergency](#) on November 21, 2016
- proposed legislation to address the crisis in Virginia (i.e., [House Bill 2161](#) and [Senate Bill 1179](#), which require the secretary of health and human resources to convene a workgroup to establish educational guidelines for training healthcare providers in the safe prescribing and appropriate use of opioids)
- the development of curricula and educational standards regarding opioid addiction.

Resource: [The Opioid Crisis Among Virginia Medicaid Beneficiaries](#)

Process/Skill Questions

- What agencies participated in the governor's task meeting on the opioid crisis?
- What educational organizations will be tasked with providing opioid training to their students?
- What is the benefit of educating future medical professionals about opioid addiction?
- What is the current attitude in society about opioid use and addiction?

- How is the local community affected by the opioid epidemic?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- Creative Problem Solving
 - Public Service Announcement
-

Task Number 70

Define the pharmacological components and common uses of opioids.

Definition

Definition should include

- plant-based opioids (e.g., opium from poppy seeds)
- names of legal and illegal opioids
- [heroin](#)
- names of the most common opioids
- [fentanyl](#)
- medical diagnoses and injuries associated with opioid prescriptions
- [commonly used terms](#).

Resource: [Prescription Pain Medications](#), National Institute on Drug Abuse for Teens

Process/Skill Questions

- For what illnesses are opioids commonly prescribed?
- What is the current medical protocol when opioids are prescribed?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Examining the Key Factors of Drug Addiction

Task Number 71

Examine the science of addiction.

Definition

Examination should include

- biopsychosocial aspects of addiction
- the role of endorphins and dopamine
- the role of religious beliefs
- behavioral aspects of addiction
- life cycle of addiction
- misuse of opioids.

Process/Skill Questions

- How will understanding the physiological absorption of opioids in the body provide a holistic assessment?
- What spiritual characteristics might be observed in the science of addiction?
- What are some genetic explanations for some family members being more prone to addiction?

Task Number 72

Explain prevention and early intervention strategies.

Definition

Explanation should include

- risk and protective factors in opioid addiction
- specific populations at risk of addiction
- motivational interviewing and other communication strategies
- naloxone co-prescribing
- roles of family and social institutions in prevention and early intervention.

Resources:

- [Prevention Tip Card](#), Office of the Attorney General of Virginia
- [Prescription Opioids: Even When Prescribed by a Doctor](#) (video), Centers for Disease Control and Prevention (CDC)

Process/Skill Questions

- What are the physiological characteristics of opioid addiction?
 - What demographic is most affected by the opioid epidemic? What are some explanations for this?
 - How can provision of naloxone and training in its use be sustained financially?
 - What obligations do families and society as a whole have in preventing and providing early intervention related to drug addiction?
-

Task Number 73

Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).

Definition

Identification should include

- DSM-5 Criteria for Substance Use Disorders
- American Society of Addiction Medicine (ASAM) Criteria (i.e., The Six Dimensions of Multidimensional Assessment)
- CONTINUUM, The ASAM Criteria Decision Engine

- clinical and behavioral aspects of addiction
- practice-appropriate screening tools, including co-morbidity screening.

Process/Skill Questions

- What are DSM-5 and ASAM and what information do they provide to healthcare professionals?
- What are clinical and behavioral elements of addiction that should be recognized by healthcare professionals?
- Who is responsible for providing the necessary screening tools and training?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Behavioral Health
- Knowledge Test: Medical Law and Ethics

Health Professions Events

- Clinical Nursing

Task Number 74

Describe the treatment models of addiction therapy.

Definition

Description should include

- a recognition that addiction is a chronic disease
- evidence-based treatment models for addiction in general and opioid addiction in particular
- medication-assisted treatment
- the continuum of care in opioid addiction treatment
- how and when to make a referral for treatment
- the roles in an interdisciplinary addiction team
- the role of peers in the treatment of addiction
- the difference between a drug culture and recovery culture
- the management of patients in recovery, including factors contributing to relapse.

Process/Skill Questions

- How many treatment models exist for addiction therapy? Why is one model better than the other?
- What are the advantages of evidence-based treatments and models?
- What medication-assisted treatment programs are available? Who provides them?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Behavioral Health
- Knowledge Test: Medical Law and Ethics

Health Professions Events

- Clinical Nursing

Task Number 75

Describe the medication management antidote used to prevent fatal opioid overdoses.

Definition

Description should include

- availability and use of naloxone
- naloxone training (e.g., [REVIVE!](#))
- naloxone training agencies
- monitoring of concurrent prescriptions.

Resources:

- [Frequently Asked Questions about Naloxone](#), Virginia Department of Health
- [How to prepare naloxone for administration](#), Virginia Department of Behavioral Health and Developmental Services

Process/Skill Questions

- What is naloxone?
- How much does naloxone cost with health insurance? How much does naloxone cost without health insurance?
- Who should receive naloxone training?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
 - Medical Terminology
 - Knowledge Test: Pharmacology
-

Understanding Pain Management Protocols

Task Number 76

Explain the science of physiological and mental pain.

Definition

Explanation should include

- definition of pain from the International Association for the Study of Pain (IASP)
- neurobiological basis of pain
- biopsychosocial model of pain
- types of pain (e.g., neuropathic)
- acute, sub-acute, and chronic pain, including pain generation
- spinal and brain modulation, behavioral adaptation and maladaptation, and the continuum from acute to chronic disabling pain
- the underlying science of pain relief.

Process/Skill Questions

- What is the IASP definition of pain?
- How can a medical professional get a patient to describe physiological pain?
- What assessment tools can be used to help patients describe physiological pain? How do tools differ for describing mental pain?
- How are pain and levels of pain categorized?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition

- Knowledge Test: Transcultural Health Care

Teamwork Events

- Community Awareness
 - Creative Problem Solving
 - HOSA Bowl
-

Task Number 77

Describe the diagnostic tools used in developing pain management plans.

Definition

Description should include

- pain-related health history and examination
- understanding the role of family in supporting individuals in need of pain management
- practice-appropriate screening tools that include aspects such as mood and function
- the use and limitations of pain scales
- differential diagnosis of pain and its placement on the pain continuum.

Resource: [Promoting Safer and More Effective Pain Management](#), CDC

Process/Skill Questions

- What are the Wong-Baker, LEGO, and Hospice assessment tools?
- How do pain assessment tools vary across the life span?
- When completing an assessment, is pain considered subjective or objective?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition
- Knowledge Test: Transcultural Health Care

Teamwork Events

- Community Awareness
- Creative Problem Solving

- HOSA Bowl
-

Task Number 78

Describe pain treatment options available to various populations of patients.

Definition

Description should include

- special populations in pain management, such as palliative/end-of-life care patients, patients with cancer, pediatric patients, and geriatric populations
- non-pharmacologic treatment of pain, including active care and self-care, evidence- and non-evidence-based approaches, and multimodal pain management
- non-opioid pharmacologic management of pain
- the challenges in discussing the psychological aspects of pain and the role of the central nervous system
- adverse drug event prevention for all pain medications
- the roles in an interdisciplinary pain management team
- the significance of issues such as anxiety, depression, and sleep deprivation in pain management
- the placebo effect
- goals and expectations in the treatment of pain, based on diagnosis and pain continuum
- when to make a pain referral and to whom.

Resources:

- [CDC Fact Sheet for Prescribing Opioids for Chronic Pain](#)
- [CDC Guidelines for Prescribing Opioids for Chronic Pain](#)

Process/Skill Questions

- What pain management resources are available for special populations?
- What are alternative forms of pain management?
- What role does the mind play in pain management?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Nutrition

- Knowledge Test: Transcultural Health Care

Teamwork Events

- Community Awareness
 - Creative Problem Solving
 - HOSA Bowl
-

Task Number 79

Describe the effects of opioid dependency on the human body systems.

Definition

Description should include the short- and long-term effects of opioids on the following:

- Nervous system
- Respiratory system
- Circulatory system
- Digestive system
- Skeletal system

Resource: [Drugs and Your Body](#), Scholastic

Process/Skill Questions

- How does the misuse of opioids affect nutrition and weight loss?
- How might opioid misuse be evident in a person's vital signs?
- How do opioids affect the brain as the control center for homeostasis?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl

Task Number 80

Explain the mechanism and physical effects of opioids on the human body.

Definition

Explanation should include the following:

- Mechanism of action and metabolism of opioids
- Development of tolerance, dependence, and addiction
- Health consequences of drug misuse
 - HIV, hepatitis, and other infectious diseases
 - Cancer
 - Cardiovascular effects
 - Respiratory effects
 - Gastrointestinal effects
 - Musculoskeletal effects
 - Kidney damage
 - Liver damage
 - Neurological effects
 - Hormonal effects
 - Prenatal effects
 - Other health effects
 - Mental health effects
 - Death
- Withdrawal
 - Causes
 - Timeframe (i.e., peaks of withdrawal symptoms)
 - Physical signs (e.g., nausea, diarrhea, vomiting, cold flashes)

Process/Skill Questions

- What are the short- and long-term effects of withdrawal dependence symptoms?
- How long can the human body function while exhibiting the symptoms of withdrawal?
- What are other medical conditions that may arise because of the symptoms of physical dependence?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl
-

Task Number 81

Explain the use of opioids in practice settings, the role of opioids in pain management, and risk factors associated with the use of the medication.

Definition

Explanation should include

- appropriate use of different opioids in various practice settings
- the interactions, risks, and intolerance of prescription opioids
- the role and effectiveness of opioids in acute, sub-acute, and chronic pain
- a reassessment of opioid use based on stage of pain
- contemporary treatment guidelines, best practices, health policies, and government regulations related to opioid use
- use of opioids in pain management of patients with substance abuse disorders, in recovery, and in palliative/end-of-life care.

Process/Skill Questions

- When should risk factors regarding opioids be reviewed with the patient?
- What are the options when treating patients with a history of substance abuse?
- What government regulations and policies are in place to improve the safe administration of opioids?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pharmacology

Teamwork Events

- Creative Problem Solving
 - HOSA Bowl
-

Task Number 82

Describe the withdrawal and tapering side effects of opioid use.

Definition

Description should include

- characteristics of acute and protracted withdrawal from opioid dependence or addiction
- tapering
- pain contracts or agreements.

Process/Skill Questions

- What are the stages of withdrawal in opioid abuse transition?
- What medications might be needed in the withdrawal stage?
- What information should be included in the pain management contract?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing
-

Task Number 83

Describe storage and disposal options for opioids.

Definition

Description should include

- medicine take-back options (e.g., [National Drug Take Back Day](#))
- disposal in the household trash and flushing certain potentially dangerous medicines down the toilet.

Resources:

- [Disposal of Unused Medicines: What You Should Know](#), Food and Drug Administration (FDA)
- [Prescription Drug Abuse and Tips for Proper Disposal](#), Office of the Attorney General of Virginia

Process/Skill Questions

- How should medications be stored in the house?
- What is National Prescription Drug Take Back Initiative?
- What is the *black box*?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Task Number 84

Explain community resources for education about opioid use.

Definition

Explanation should include key components of and resources for patient education in the use of opioids, including

- risks
- benefits
- side effects
- tolerance
- signs of sedation or overdose

- naloxone, including its storage and disposal.

Process/Skill Questions

- What resources for opioid education are available locally, statewide, and nationally?
- Where should the patient first be informed about the resources available?
- How does social media aid in patient education on opioid addiction?

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Working with Patients and Caregivers

Task Number 85

Describe key communication topics involving opioids for patients.

Definition

Description should include

- benefits and risks of opioids
- opioid risk screening (i.e., taking a social, medical, and financial history)
- risk mitigation (e.g., naloxone, safe storage, pain contracts)
- medication tapers and/or discontinuation of therapy.

Process/Skill Questions

- What are the benefits of using opioids in medicine?
- What is the relationship between demographics and risk of opioid addiction?
- How does culture influence risk factors in opioid abuse?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Health Professions Events

- Clinical Nursing
-

Task Number 86

Describe communication topics for caregivers and family members.

Definition

Description should include

- basic knowledge about opioids
- signs of addiction
- treatment options for addiction
- naloxone training for caregivers
- legal issues related to misuse.

Process/Skill Questions

- What rights do caregivers have in regard to medical information of the abuser?
- What legal steps might the caregiver or family have to take for treatment?
- Where can the caregiver or family members receive naloxone training? Are children of opioid abusers eligible for training?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Health Professions Events

- Clinical Nursing

SOL Correlation by Task

Summarize cell theory of human biology.	Science: BIO.3
Analyze physical factors that have an impact on the patient's respiratory status.	Science: BIO.4
Describe the physical and biological factors that have an influence on respiratory status.	
Describe the transmission and prevention of infectious diseases associated with respiratory therapy.	English: 12.5
Describe diseases associated with pulmonary anatomy.	English: 12.5
Describe three acute syndromes and symptoms associated with oxygen therapy.	English: 12.5
Describe mathematical units of measure in respiratory care.	Mathematics: A.1, A.4, AII.3
Differentiate among the various modalities in respiratory care.	
Describe the scope of practice for a respiratory therapist.	
Describe types of diagnostic testing.	
Differentiate among various patient positions.	
Describe the basic needs of patients according to Maslow's hierarchy.	
Demonstrate interpersonal communication skills and professional courtesy when interacting with patients, family members, and other healthcare workers.	English: 12.1
Obtain a clinical history.	
Demonstrate history taking.	
Assess data in the patient record that pertains to a respiratory therapist's treatment of a patient.	
Demonstrate taking a respiratory therapy patient's vital signs.	
Examine safeguards to address the risk factors associated with oxygen therapy in medical imaging.	
Outline the chain of infection.	Science: BIO.3
Evaluate chemical and physical asepsis techniques.	Science: BIO.3
Outline basic principles of sterile technique.	Science: BIO.3
Evaluate the respiratory therapy work environment for medical emergency preparedness.	
Identify various complications that can result from the use of pharmacologic items in respiratory therapy.	
Identify signs and symptoms of respiratory distress.	
Differentiate among the classes of medication used in respiratory care.	

Describe acquisition, documentation and distribution procedures related to pharmacologic administration.	
Examine laws and regulations related to respiratory care.	English: 12.5 History and Social Science: GOVT.8, GOVT.9
Prepare a sample application and associated forms for licensure.	
Research requirements for continuing education and specializations in respiratory therapy.	English: 12.8
Describe the history and current state of the opioid crisis in the United States.	English: 12.5
Describe the history and current state of the opioid crisis in Virginia.	English: 12.5, 12.8
Define the pharmacological components and common uses of opioids.	English: 12.3, 12.8
Examine the science of addiction.	English: 12.5
Explain prevention and early intervention strategies.	English: 12.5, 12.8
Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).	English: 12.5
Describe the treatment models of addiction therapy.	English: 12.5
Describe the medication management antidote used to prevent fatal opioid overdoses.	English: 12.5, 12.8
Explain the science of physiological and mental pain.	English: 12.3, 12.5
Describe the diagnostic tools used in developing pain management plans.	English: 12.5
Describe pain treatment options available to various populations of patients.	English: 12.5, 12.8
Describe the effects of opioid dependency on the human body systems.	English: 12.5
Explain the mechanism and physical effects of opioids on the human body.	English: 12.5
Explain the use of opioids in practice settings, the role of opioids in pain management, and risk factors associated with the use of the medication.	English: 12.5
Describe the withdrawal and tapering side effects of opioid use.	English: 12.5
Describe storage and disposal options for opioids.	English: 12.5, 12.8
Explain community resources for education about opioid use.	English: 12.5
Describe key communication topics involving opioids for patients.	English: 12.5
Describe communication topics for caregivers and family members.	English: 12.5

Entrepreneurship Infusion Units

Entrepreneurship Infusion Units may be used to help students achieve additional, focused competencies and enhance the validated tasks/competencies related to identifying and starting a new business venture. Because the unit is a complement to certain designated courses and is not mandatory, all tasks/competencies are marked “optional.”

Opioid Abuse Prevention Education

This [Opioid Abuse Prevention](#) document includes resources for opioid abuse prevention education from kindergarten to 12th grade.

Other Opioid Resources

Virginia Department of Behavioral Health and Developmental Services. Revive! Opioid Overdose and Naloxone Education for Virginia. [Naloxone Fact Sheet](#) (PDF).

Virginia Department of Behavioral Health and Developmental Services. [Revive! Opioid Overdose and Naloxone Education for Virginia](#) (website).

Office of National Drug Control Policy, White House. [Fentanyl: Safety Recommendations for First Responders](#) (PDF).

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Alcohol](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Bath Salts](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Cocaine](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: E-Cigarette](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Heroin](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Marijuana](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: MDMA](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Meth](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Pain Medicine](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Spice \(K2\)](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Tobacco and Nicotine](#) (website; PDF available)

National Institute on Drug Abuse, National Institutes of Health. [Easy to Read Drug Facts: Other Drugs People Use and Misuse](#) (website; PDF available)

Appendix: Credentials, Course Sequences, and Career Cluster Information

Industry Credentials: Only apply to 36-week courses

- National Career Readiness Certificate Assessment
- Workplace Readiness Skills for the Commonwealth Examination

Concentration sequences: *A combination of this course and those below, equivalent to two 36-week courses, is a concentration sequence. Students wishing to complete a specialization may take additional courses based on their career pathways. A program completer is a student who has met the requirements for a CTE concentration sequence and all other requirements for high school graduation or an approved alternative education program.*

- Introduction to Health and Medical Sciences (8302/36 weeks)
- Introduction to Health and Medical Sciences (8301/18 weeks)
- Respiratory Therapy I (8372/36 weeks)

Career Cluster: Health Science	
Pathway	Occupations
Therapeutic Services	Respiratory Therapist Respiratory Therapy Technician