

# Introduction to Health and Medical Sciences

**8302 36 weeks / 8301 18 weeks**

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# Acknowledgments

The components of this instructional framework were developed by the following business panelists:

Sharon Adams, Registered Nurse, Kenner Army Health Clinic, Fort Lee  
Aileen Edwards Harris, Executive Director, Virginia Health Workforce Development Authority, Henrico  
Jeanette Pouncey, Nursing Supervisor, Southside Regional Medical Center, Petersburg

The following educators served on the curriculum development panel:

Dovie Ann Blankenship, Bassett High School, Henry County Public Schools  
Toni Bowman, Pulaski County High School, Pulaski County Public Schools  
Edith Daulton, Buckingham County Career and Technical Center, Buckingham County High Schools  
Charity Hale, Covington High School, Covington City Public Schools  
Wendy Jacobs, Norfolk Technical Center, Norfolk Public Schools  
Amy MacIsaac, North Stafford High School, Stafford County Public Schools  
Wynn Parker, Blacksburg High School, Montgomery County Public Schools  
Mozelle Rose, Greensville County High School, Greensville County Public Schools  
Kathy Whitehead, Career and Technical Education Center, New Horizons Career and Technical Center

Tasks/competencies related to opioids were developed by:

David E. Brown, DC, Director, Virginia Department of Health Professions, Henrico  
Linda S. Mintle, PhD, Chair, Division of Behavioral Health, College of Osteopathic Medicine, Liberty University, Lynchburg  
A. Omar Abubaker, DMD, PhD, Professor and Chair, Department of Oral and Maxillofacial Surgery, Virginia Commonwealth University, Richmond

Correlations to the Virginia Standards of Learning were reviewed and updated by:

Leslie R. Bowers, English Teacher (ret.), Newport News Public Schools  
Vickie L. Inge, Mathematics Committee Member, Virginia Mathematics and Science Coalition  
Anne F. Markwith, New Teacher Mentor (Science), Gloucester County Public Schools  
Michael L. Nagy, Social Studies Department Chair, Rustburg High School, Campbell County Public Schools

Jane Best, Virginia HOSA State Advisor, reviewed and updated the HOSA correlations.

The framework was edited and produced by the CTE Resource Center:

Debi F. Coleman, Writer/Editor  
Kevin P. Reilly, Administrative Coordinator

Virginia Department of Education Staff

Michele R. Green-Wright, Specialist, Health and Medical Sciences and Related Clusters  
Dr. Tricia S. Jacobs, CTE Coordinator of Curriculum and Instruction  
Dr. David S. Eshelman, Director, Workforce Development and Initiatives  
George R. Willcox, Director, Operations and Accountability

Office of Career, Technical, and Adult Education  
Virginia Department of Education

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## Course Description

**Suggested Grade Level:** 9 or 10 or 11 or 12

This course introduces the student to a variety of healthcare careers and develops basic skills required in all health and medical sciences. It is designed to help students understand the key elements of the U.S. healthcare system and to learn basic healthcare terminology, anatomy and physiology for each body system, pathologies, diagnostic and clinical procedures, therapeutic interventions, and the fundamentals of traumatic and medical emergency care. Throughout the course, instruction emphasizes safety, cleanliness, asepsis, professionalism, accountability, and efficiency within the healthcare environment. Students also begin gaining job-seeking skills for entry into the health and medical sciences field. In addition, instruction may include the basics of medical laboratory procedures, pharmacology fundamentals, biotechnology concepts, and communication skills essential for providing quality patient care.

## 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.

8302	8301	Tasks/Competencies
Understanding the U.S. Healthcare System		
⊕	⊕	Highlight the major developments of healthcare history.
⊕	⊕	Differentiate among the types of health insurance.
⊕	⊕	Differentiate among the types of medical care delivery systems.

8302	8301	Tasks/Competencies
<input checked="" type="radio"/>	<input type="radio"/>	Describe the roles of healthcare team members.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Differentiate among the scope and functions of the Virginia Department of Health Professions and the Virginia Department of Health.
<input checked="" type="radio"/>	<input type="radio"/>	Examine the influence of the Internet on the healthcare industry and on the individual consumer.
<b>Learning Basic Healthcare Terminology</b>		
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify common medical prefixes, roots, and suffixes and their meanings, and medical terms related to human systems.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe how word parts are combined to form medical terms.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Interpret common abbreviations used in the healthcare field.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Define terminology that relates to the various elements and systems of the body.
<b>Understanding Anatomy and Physiology</b>		
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify basic anatomical structure and body cavities.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify chemical components of the body.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures and functions of the cell.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures and functions of tissues.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the integumentary system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the skeletal system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the muscular system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of blood.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the heart.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of blood vessels and blood circulation.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the lymphatic system.
<input checked="" type="radio"/>	<input type="radio"/>	Explain immunity and its relationship with the lymphatic system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the respiratory system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the gastrointestinal system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the endocrine system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the reproductive system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions and diseases of the nervous system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions and diseases of the urinary system.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the structures, functions, and diseases of the sensory system.
<b>Performing Medical Laboratory Procedures</b>		
<input type="radio"/>	<input type="radio"/>	Describe specimen preparation and handling.
<input type="radio"/>	<input type="radio"/>	Identify the diagnoses, laboratory tests, and procedures used in the treatment for the diseases/disorders of each body system.
<input type="radio"/>	<input type="radio"/>	Examine body fluids and cells for bacteria, parasites, and other microorganisms.

8302	8301	Tasks/Competencies
<input type="radio"/>	<input type="radio"/>	Analyze the chemical content of fluids and tissues.
<input type="radio"/>	<input type="radio"/>	Examine cells to determine the quantity of and/or to look for abnormal cells in blood and other body fluids and tissues.
<input type="radio"/>	<input type="radio"/>	Assess lab findings, using automated equipment and computerized instruments.
<input type="radio"/>	<input type="radio"/>	Document the results of laboratory findings.
<input type="radio"/>	<input type="radio"/>	Report lab results to physicians.
<b>Understanding the Role of Nutrition in Health Care</b>		
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the six essential nutrients, sources, and functions for optimal health and wellness.
<input checked="" type="radio"/>	<input type="radio"/>	Describe the digestion and metabolism of food.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe dietary guidelines recommended for health promotion.
<input checked="" type="radio"/>	<input type="radio"/>	Identify the principles of food management and safety.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain basic dietary management techniques.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify common medical conditions related to poor nutrition.
<input checked="" type="radio"/>	<input type="radio"/>	Identify dietary patterns.
<b>Exploring Pharmacology Fundamentals</b>		
<input type="radio"/>	<input type="radio"/>	Identify general principles of pharmacology.
<input type="radio"/>	<input type="radio"/>	Describe sources, types, and uses of common drugs.
<input type="radio"/>	<input type="radio"/>	Explain the naming processes for drugs.
<input type="radio"/>	<input type="radio"/>	Explain the importance of pharmacokinetics.
<input type="radio"/>	<input type="radio"/>	Describe the elements of a prescription.
<input type="radio"/>	<input type="radio"/>	Explain common abbreviations used on prescriptions.
<input type="radio"/>	<input type="radio"/>	Calculate doses of medications.
<input type="radio"/>	<input type="radio"/>	Identify drug administration routes.
<input type="radio"/>	<input type="radio"/>	Explain the importance of drugs and supplements in preventive medicine.
<input type="radio"/>	<input type="radio"/>	Explain current state and federal regulations regarding the practice of pharmacy.
<b>Understanding Patient Care</b>		
<input type="radio"/>	<input type="radio"/>	Summarize the approaches to health care for a variety of patient categories.
<input type="radio"/>	<input type="radio"/>	Explain the nature and importance of a medical history.
<input type="radio"/>	<input checked="" type="radio"/>	Examine concepts of care relating to ethnic, religious, cultural, and personal preferences.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain the principles of effective communication.
<input type="radio"/>	<input type="radio"/>	Apply principles of communication in establishing therapeutic relationships.
<input type="radio"/>	<input type="radio"/>	Explain the concept and importance of the Patient's Bill of Rights.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain the function and importance of advance directives for health care.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Examine the concepts of death and dying.
<input checked="" type="radio"/>	<input type="radio"/>	Explain the concept of integrated and holistic care.
<b>Ensuring a Clean and Safe Healthcare Environment</b>		

8302	8301	Tasks/Competencies
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain the concept of infection control and asepsis.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain the chain of infection.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Demonstrate hand hygiene procedures.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain transmission-based precautions.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Demonstrate the use of personal protective equipment (PPE) and safe workplace practices.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe policies and procedures for handling and disposing of infectious and/or hazardous materials.
<input checked="" type="radio"/>	<input type="radio"/>	Explain sterile processes.
<input checked="" type="radio"/>	<input type="radio"/>	Identify the importance of the CDC and Occupational Safety and Health Administration (OSHA) guidelines.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify emergency protection areas and devices.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain methods of fire safety.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify environmental hazards.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Describe the principles of body mechanics.
<input type="radio"/>	<input type="radio"/>	Explain radiographic safety.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain the importance of maintaining a safe and clean work environment.
<b>Performing Administrative Functions in the Healthcare Profession</b>		
<input checked="" type="radio"/>	<input type="radio"/>	Explain the process and importance of patient identification.
<input type="radio"/>	<input type="radio"/>	Explain the purpose of medical records.
<input type="radio"/>	<input type="radio"/>	Identify the components of the electronic medical record (EMR).
<b>Handling Traumatic and Medical Emergencies</b>		
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain basic traumatic and medical emergency procedures.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Identify the essential components of disaster planning.
<input checked="" type="radio"/>	<input type="radio"/>	Identify items found in a basic emergency kit.
<input checked="" type="radio"/>	<input type="radio"/>	Describe the causes, symptoms, and treatments of selected medical emergencies.
<input checked="" type="radio"/>	<input type="radio"/>	Demonstrate CPR with the AED.
<b>Exploring Biotechnology Concepts</b>		
<input type="radio"/>	<input type="radio"/>	Explain the concept of biotechnology.
<input type="radio"/>	<input type="radio"/>	Identify the effects of innovations in biotechnology.
<input type="radio"/>	<input type="radio"/>	Describe the effects of biotechnology on preventive health care.
<input type="radio"/>	<input type="radio"/>	Describe the role biotechnology plays in medical forensics.
<b>Examining Professionalism in the Healthcare Industry</b>		
<input checked="" type="radio"/>	<input type="radio"/>	Identify professional agencies and organizations in the healthcare field and the roles of each.
<input checked="" type="radio"/>	<input type="radio"/>	Examine the legal issues related to the health and medical science profession.
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Explain confidentiality and its connection to HIPAA.
<input checked="" type="radio"/>	<input type="radio"/>	Analyze the role of public health in providing health care.
<b>Exploring Healthcare Careers and Employability Skills</b>		
<input checked="" type="radio"/>	<input checked="" type="radio"/>	Conduct a self-assessment to determine career interests in the healthcare field.

8302	8301	Tasks/Competencies
+	○	Describe the major career fields in health and medical sciences.
+	+	Research selected healthcare career(s).
+	○	Explain the importance of ongoing professional development and methods of attaining ongoing training in the healthcare industry.
<b>Describing the Opioid Crisis</b>		
+	+	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.
<b>Examining the Key Factors of Drug Addiction</b>		
+	+	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.
<b>Understanding Pain Management Protocols</b>		
+	+	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.
<b>Working with Patients and Caregivers</b>		
+	+	Describe key communication topics involving opioids for patients.
+	+	Describe communication topics for caregivers and family members.

Legend: + Essential ○ Non-essential ⊖ Omitted

## Curriculum Framework

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### Understanding the U.S. Healthcare System

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## **Task Number 39**

**Highlight the major developments of healthcare history.**

### **Definition**

Highlights should include the

- Hippocratic Oath
- development of microscopy
- discovery of microbes as a cause of disease
- history of medicines and pharmacy practice
- evolution of nursing practices
- aseptic procedures and their effect on medical care
- vaccines and immunizations across the human lifespan
- U.S. Department of Health and Human Services
- Office of Public Health Preparedness and Response
- Center for Disease Control and Prevention (CDC)
- Affordable Care Act.

### **Process/Skill Questions**

- What is the Hippocratic Oath? Why was it developed?
- How did the development of microscopy and the discovery of microorganisms affect the medical care of infectious diseases?
- What discoveries or inventions improved surgical procedures and patient survival?
- How have the roles of nurses changed in the last century?
- What is the purpose of the Affordable Care Act?

### **HOSA Competitive Events (High School)**

#### **Teamwork Events**

- HOSA Bowl

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## **Task Number 40**

**Differentiate among the types of health insurance.**

## **Definition**

Differentiation should include

- preferred provider organization (PPO)
- health maintenance organization (HMO)
- Medicare
- Medicaid
- private insurance
- managed care
- workers' compensation
- State Children's Health Insurance Program (SCHIP)
- Affordable Care Act
- TRICARE
- diagnosis-related groups
- health savings accounts (HAS)
- Veterans Affairs (VA) benefits
- and other agency programs.

Where applicable, differentiation should include elements of health insurance, such as

- premiums
- deductibles
- co-insurance
- copayment.

## **Process/Skill Questions**

- Why are there various types of health insurance?
- Who determines who is eligible for various types of health insurance?
- What happens to patients who are not insured?
- How are Medicare and Medicaid similar? How are they different?
- How has the development of managed care influenced the cost of medical care?
- What is the difference between an HMO and a PPO?
- What is the purpose of workers' compensation?
- What does the Affordable Care Act provide related to coverage, cost, and care?
- What happens to citizens who do not comply with the "minimum essential" health insurance coverage requirement?

## **HOSA Competitive Events (High School)**

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 41**

### **Differentiate among the types of medical care delivery systems.**

#### **Definition**

Differentiation should include

- emergency medical services
- primary care physician's offices
- hospital emergency rooms
- urgent care centers
- community health clinics
- free clinics
- home health care
- telemedicine
- assisted living facilities, nursing homes, independent living facilities, and retirement centers
- rehabilitation centers
- hospice care
- public health facilities
- ambulatory facilities
- mental health centers
- physical and occupational therapy offices
- Program of All-inclusive Care for the Elderly (PACE)
- pharmacies.

#### **Process/Skill Questions**

- What is the difference in the type of medical care given by each of the various medical care delivery systems?
- How does a community benefit from having a variety of healthcare delivery systems?
- What types of career opportunities are available within the various types of healthcare delivery systems?
- What are the differences among assisted living facilities, nursing homes, and independent living facilities?

### **HOSA Competitive Events (High School)**

#### **Teamwork Events**

- HOSA Bowl
- 

## **Task Number 42**

### **Describe the roles of healthcare team members.**

#### **Definition**

Description should include the roles and responsibilities of healthcare team members, such as

- physicians
- pharmacists
- physician assistants
- nurse practitioners
- registered nurses
- psychiatrists
- psychologists
- physical/occupational therapists
- social workers
- nutritionists
- certified nurse aides
- patient care technicians
- dentists/hygienists/assistants
- opticians/technicians
- respiratory therapists
- physical therapists
- volunteers
- speech pathologists
- dietitians
- chaplains
- medical assistants
- first responders/emergency medical technicians (EMTs).

#### **Process/Skill Questions**

- Why is it important for healthcare professionals to be able to work positively in a team setting?
- What are the roles of various team members in the different medical care delivery systems?
- What is the chain of command in the various medical care delivery systems?
- What is an interdisciplinary healthcare team?
- What are the characteristics of effective team members?

- What are the best methods for building positive team relationships?

## **Common Career Technical Core**

### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

### **HL4**

Evaluate the roles and responsibilities of individual members as part of the healthcare team and explain their role in promoting the delivery of quality health care.

## **HOSA Competitive Events (High School)**

### **Teamwork Events**

- Health Career Display
- 

## **Task Number 43**

# **Differentiate among the scope and functions of the Virginia Department of Health Professions and the Virginia Department of Health.**

### **Definition**

Differentiation should include a contrast between the scope and functions of the [Virginia Department of Health Professions](#) and those of the [Virginia Department of Health](#).

### **Process/Skill Questions**

- What is the function of the Virginia Department of Health?
- How does the Department of Health reach those in the community?
- What is the function of the Virginia Department of Health Professions?
- Why is a regulatory agency needed for the healthcare industry?

## **Common Career Technical Core**

### **HL5**

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

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## **Task Number 44**

### **Examine the influence of the Internet on the healthcare industry and on the individual consumer.**

#### **Definition**

Examination should include online security issues, such as

- websites
- health insurance
- health savings accounts
- access
- explanation of benefits
- medical records
- medical and pharmaceutical information
- National Library of Medicine
- medical support groups
- community service projects
- volunteer opportunities
- the capability to order prescriptions and other health-related purchases online
- the influence of technology on the delivery of health care
- the effect of technology on the cost of delivery of health care
- clear communication with healthcare professionals.

#### **Process/Skill Questions**

- How do we know that protected health information is being protected on the Internet?
- What are the advantages and disadvantages of the availability of medical information on the Internet?
- How can one determine which sites are reputable for accurate and updated medical information?
- What are the dangers of ordering pharmaceuticals and prescriptions online from foreign countries (e.g., Canada, Germany, and Mexico)?
- What types of medical support groups are available online?
- What types of community service projects or volunteer opportunities are available on the Internet?
- What are the civic and social responsibilities of the healthcare professional?
- How can information technology enhance the nursing practice?
- What are the advantages and disadvantages of using online media to improve health behavior?

## **Common Career Technical Core**

### **HL5**

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Medical Law and Ethics
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# **Learning Basic Healthcare Terminology**

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## **Task Number 45**

**Identify common medical prefixes, roots, and suffixes and their meanings, and medical terms related to human systems.**

### **Definition**

Identification should include

- dividing medical terms into prefixes, suffixes, and roots
- identifying the origin of each prefix, suffix, and root
- giving the meaning of each prefix, suffix, and combining form
- combining vowels
- medical terms for human systems.

Identification should include word parts such as

- prefixes (e.g., peri-, epi-, hypo-)
- roots (e.g., hepat/o, cardi/o, nephr/o)
- suffixes (e.g., -megaly, -itis, -malacia).

## Process/Skill Questions

- Which languages are the source for most medical terms?
- Why should healthcare workers know the common medical prefixes, suffixes, and roots?
- Why is it important to explain medical terms to the lay person?

## HOSA Competitive Events (High School)

### Health Science Events

- Medical Spelling
- Medical Terminology

### Teamwork Events

- HOSA Bowl

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## Task Number 46

### Describe how word parts are combined to form medical terms.

#### Definition

Description should include the following:

- Building terms from word parts by blending roots, prefixes, and suffixes
- Separating longer terms into roots, prefixes, and suffixes, and defining their meanings
- Showing how and why combining forms may vary slightly in spelling from term to term (e.g., using the combining form *hepat-* when the suffix begins with a vowel, as in *hepatitis* vs. using the variation *hepato-* when the suffix begins with a consonant, as in *hepatomegaly*)

#### Process/Skill Questions

- How would a healthcare worker use knowledge of prefixes, roots, and suffixes to determine the definition of a medical term?

- What is a combining vowel? When is a combining vowel used?
- What is the usual way to add a suffix to a word root that begins with a consonant? Why?
- What are the prefixes that indicate color? When might such prefixes be used?
- What are the prefixes that indicate number? When might such prefixes be used?
- What are the common prefixes used to construct medical terms?
- What are the common suffixes used to construct medical terms?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Medical Spelling
- Medical Terminology

### **Teamwork Events**

- HOSA Bowl

## **Task Number 47**

### **Interpret common abbreviations used in the healthcare field.**

#### **Definition**

Interpretation should include providing the meanings of common Latin and Greek abbreviations, symbols, and acronyms, such as:

- PRN – as needed
- G0P0 – grava 0, para 0 (no pregnancies and no live births)
- H&P – history and physical
- ♀ - female
- ♂ - male
- DOA – dead on arrival
- CHF – congestive heart failure
- bid – twice a day
- Bx – biopsy
- Rx – prescription

Interpretation should also include [Facts about the Official “Do Not Use” List of Abbreviations](#).

### **Process/Skill Questions**

- Why are abbreviations, symbols, and acronyms used in health care?
- Why are there regional differences in abbreviations, symbols, and acronyms?
- Why is it important to distinguish when upper- and lower-case letters, abbreviations, or acronyms are used?
- Why is it important to know a facility’s approved abbreviations list?
- Why are some medical abbreviations no longer used?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Medical Spelling
- Medical Terminology

#### **Teamwork Events**

- HOSA Bowl

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## **Task Number 48**

**Define terminology that relates to the various elements and systems of the body.**

### **Definition**

Definition should include spelling and pronouncing terms related to

- common medical conditions (e.g., inflammation, swelling, pain)
- anatomical reference system (e.g., planes, regions, direction)
- structural units (e.g., cells, organs, tissues).

### **Process/Skill Questions**

- How can pronunciation affect the meaning of a term?
- Why is it important to spell a medical term correctly?
- Why is a basic foundation in suffix and prefix recognition helpful to all healthcare workers and to healthcare consumers?
- How do healthcare workers explain certain medical jargon to lay people and patients?
- What are look-alike sound-alike (LA/SA) medical terms?
- Why is it important to understand the planes of the body?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Medical Terminology

### **Teamwork Events**

- HOSA Bowl

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# **Understanding Anatomy and Physiology**

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## **Task Number 49**

### **Identify basic anatomical structure and body cavities.**

#### **Definition**

Identification should include the name of each body system:

- integumentary
- skeletal
- muscular
- cardiovascular
- blood
- lymphatic/immune

- respiratory
- gastrointestinal
- endocrine
- reproductive
- nervous
- urinary
- sensory

Identification should also include the location of each major body cavity:

- dorsal cavity (containing the cranial cavity and spinal cavity)
- ventral cavity (containing the thoracic cavity, abdominal cavity, and pelvic cavity)

### **Process/Skill Questions**

- What are the body systems? What are the functions of each?
- Why is symmetry an important concept in anatomy?
- What major organs are contained in each body cavity? Why is this information important to medical personnel?
- What is the location of the diaphragm, with relation to the body cavities? What is the function of the diaphragm?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Medical Terminology

#### **Teamwork Events**

- HOSA Bowl

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## **Task Number 50**

### **Identify chemical components of the body.**

#### **Definition**

Identification should include

- the structure of a molecule and the concept of major electrolytes (e.g., potassium, sodium, magnesium, chloride, calcium) and pH
- normal laboratory ranges for chemical components found in the body.

### **Process/Skill Questions**

- What is the difference between an atom and a molecule?
- What is the effect of an elevated potassium level on the heart?
- Why is it important to have a balanced blood pH level?
- Why is water important in the body?
- What is the effect of a low sodium or elevated sodium level on the body?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

#### **Health Professions Events**

- Biomedical Laboratory Science
- Clinical Nursing

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## **Task Number 51**

### **Identify the structures and functions of the cell.**

#### **Definition**

Identification should include

- parts of the cell
- location and function of deoxyribonucleic acid (DNA) and ribonucleic acid (RNA)
- units of organization in the body from simplest (cells) to the most complex (systems).

#### **Process/Skill Questions**

- What is the relationship between cell shapes and cell functions?

- What are the functions of the major organelles?
- How does DNA affect genetics?
- What is mitosis?
- What cells are considered enucleated?
- How does the chromosome's DNA affect genetic information?
- What is the difference between mitosis and meiosis?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 52**

### **Identify the structures and functions of tissues.**

#### **Definition**

Identification should include the four basic types of body tissues:

- epithelial
- muscular
- connective
- nervous

#### **Process/Skill Questions**

- What are the three types of muscle tissue? How do they differ in functionality?
- What type of muscle is used in swallowing food?
- What is the difference between mucous and serous membranes?
- How do glands play a role in diabetes and in reproduction?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 53**

### **Identify the structures, functions, and diseases of the integumentary system.**

#### **Definition**

Identification should include

- the names and descriptions of the layers of the integumentary system (e.g., skin, hair, nails)
- the functions of the integumentary system
- diseases/disorders of the integumentary system (e.g., eczema, fungus, alopecia).

#### **Process/Skill Questions**

- What is the body's first line of defense?
- What are the layers of the skin? How are they similar or different?
- How is the sun harmful to the integumentary system?
- How does the use of tanning beds affect the integumentary system?
- What are the major disorders of the integumentary system?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl

## **Task Number 54**

**Identify the structures, functions, and diseases of the skeletal system.**

### **Definition**

Identification should include the

- function of the skeletal system
- names and locations of the bones
- number and types of bones and their functions
- location and function of major joints

- components of joints
- cartilage
- axial and appendicular skeleton
- diseases/disorders of the skeletal system.

### **Process/Skill Questions**

- What are the two divisions of the skeletal system?
- What are the major groups of bones in each of the two divisions of the skeletal system?
- Why is the fontanel open in newborns?
- What would happen if the human vertebrae were without discs?
- How are joints important in human movement?
- What roles do calcium, magnesium, and vitamin D play in the skeletal system?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

#### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

#### **Teamwork Events**

- HOSA Bowl

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## **Task Number 55**

**Identify the structures, functions, and diseases of the muscular system.**

## **Definition**

Identification should include

- the function of the muscular system
- skeletal muscle (striated)—moves the body and operates with conscious control
- cardiac muscle (striated)—forms the wall of the heart and is not under conscious control
- visceral (smooth)—involuntary muscles that form the walls of organs and are not under conscious control
- diseases/disorders of the muscular system

## **Process/Skill Questions**

- What is the difference between voluntary and involuntary muscle? Why is each important?
- How are muscles attached to bones?
- What muscles are used when performing curl ups?
- What is the significant characteristic differentiating cardiac muscle from other muscle tissues?
- What are the major disorders of the muscular system?
- How are the cardiac, voluntary, and involuntary muscles alike? How are they different?
- What would cause muscles to atrophy?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Home Health Aide

### **Teamwork Events**

- HOSA Bowl

## **Task Number 56**

### **Identify the structures, functions, and diseases of blood.**

#### **Definition**

Identification should include the

- types of blood cells
- function of the blood system
  - red blood cells
  - white blood cells
  - platelets/blood-clotting cells
  - plasma
- acronym for each blood cell
- diseases/disorders of the blood.

#### **Process/Skill Questions**

- What are the purposes of red blood cells, white blood cells, and platelets?
- What are the major blood types?
- How do blood tests help diagnose certain conditions or diseases?
- What is the life cycle of a red blood cell? Why is this factor important?
- What dietary choices help to prevent iron deficiency anemia?
- Where and how are blood cells formed?
- What are the major disorders of the blood?
- How does blood plasma help to maintain blood pressure and volume?

#### **HOSA Competitive Events (High School)**

##### **Health Science Events**

- Knowledge Test: Pathophysiology

##### **Health Professions Events**

- Biomedical Laboratory Science
- Clinical Nursing
- Home Health Aide

- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl
- 

## **Task Number 57**

### **Identify the structures, functions, and diseases of the heart.**

#### **Definition**

Identification should include electrical conduction and

- atria
- ventricles
- valves
- structure and function of the heart
- aorta
- inferior and superior vena cava
- branches of the aorta
- major arteries and veins
- diseases of the heart.

#### **Process/Skill Questions**

- Why does the heart have an electrical and mechanical component?
- How does the blood travel through the heart?
- Why does the heart have valves?
- How would one compare and contrast the physical characteristics of veins and arteries?
- What are the major cardiac disorders?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 58**

### **Identify the structures, functions, and diseases of blood vessels and blood circulation.**

#### **Definition**

Identification should include the structures/functions of

- arteries
- veins
- capillaries
- arterioles and venules

and the differences between oxygenated and unoxygenated blood.

#### **Process/Skill Questions**

- What is the effect of dehydration on the circulatory system?
- What is the effect of hemorrhage on the circulatory system?
- Why do humans have veins and arteries?
- What is the effect of an embolus on the circulatory system?
- Where does the exchange of oxygenated and unoxygenated blood take place?
- What are the major disorders of the vascular system?
- What is the effect of blood or plasma loss on the circulatory system?
- What are the functions of arteries, arterioles, veins, venules, and capillaries?
- How does the blood become oxygenated?

- Where is unoxygenated blood found?
- What are three diseases of the blood, including signs and symptoms?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 59**

### **Identify the structures, functions, and diseases of the lymphatic system.**

#### **Definition**

Identification should include the

- structures/functions of the lymphatic system
- definition of *lymph*
- lymph nodes and nodules
- lymphatic vessels
- spleen
- diseases/disorders of the lymphatic system.

## **Process/Skill Questions**

- Where does lymphatic fluid originate?
- What is lymphatic fluid's destination?
- Why are lymph nodes strategically located in the axillary and femoral areas?
- What is the purpose of the lymphatic tissue in the throat?
- What is the role of the lymphatic system in defending against pathogens?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 60**

### **Explain immunity and its relationship with the lymphatic system.**

#### **Definition**

Explanation should include

- acquired immunity can be

- natural (caused by exposure to the agent)
- artificial (obtained intentionally through vaccines)
- inherited immunity develops before birth
- passive immunity.

### **Process/Skill Questions**

- What is immunity? Why is it an important concept in health care?
- What accessory organs are involved in immunity?
- How does human immunodeficiency virus (HIV) suppress the immune system?
- How does chemotherapy suppress the immune system?
- What are the major disorders of the lymphatic system?
- What are the differences between acquired and inherited immunities?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

#### **Health Professions Events**

- Clinical Nursing

#### **Teamwork Events**

- HOSA Bowl

## **Task Number 61**

**Identify the structures, functions, and diseases of the respiratory system.**

### **Definition**

Identification should include the

- function/structure of the respiratory system
- nose
- pharynx
- larynx
- trachea and bronchi
- alveoli
- diseases/disorders of the respiratory system.

### **Process/Skill Questions**

- What is the function of the diaphragm in the breathing process?
- What is the function of the internal and external intercostal muscles in the breathing process?
- What happens to oxygen when the hemoglobin is low?
- How many alveoli are present in the lungs? How do the alveoli play a major role in emphysema?
- What is the function of cilia in the respiratory tract?
- What occurs during the breathing process of inspiration and expiration, including muscle action and diffusion?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

#### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

#### **Teamwork Events**

- HOSA Bowl

## **Task Number 62**

### **Identify the structures, functions, and diseases of the gastrointestinal system.**

#### **Definition**

Identification should include organs and accessory organs of the digestive tract and their functions:

- the function/structure of the gastrointestinal system
- mouth and teeth
- salivary glands/saliva
- esophagus
- stomach
- small intestine
- large intestine
- liver
- gallbladder
- pancreas
- diseases/disorders of the gastrointestinal system

#### **Process/Skill Questions**

- Where in the gastrointestinal system are most nutrients absorbed? Why is this important?
- What are the roles of the liver in the gastrointestinal system?
- How does food progress through the digestive tract?
- What is the function of peristalsis?
- What is the function of the pancreas in the gastrointestinal system?

#### **HOSA Competitive Events (High School)**

##### **Health Science Events**

- Knowledge Test: Pathophysiology
- Knowledge Test: Nutrition

##### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

#### **Teamwork Events**

- HOSA Bowl

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## **Task Number 63**

### **Identify the structures, functions, and diseases of the endocrine system.**

#### **Definition**

Identification should include the

- functions/structure of the endocrine system
- organs of the endocrine system
  - pancreas
  - thymus
  - ovaries
  - testes
- glands of the endocrine system
  - pituitary gland
  - thyroid gland
  - parathyroid glands
  - adrenal glands
  - pineal gland
- hormones that affect or regulate body organs
- diseases/disorders of the endocrine system.

#### **Process/Skill Questions**

- What is the role of insulin after eating a meal?
- What are the signs and symptoms of hypoglycemia?
- What are the signs and symptoms of hyperglycemia?
- What is the function of a hormone?

- What is the function of the pancreas in the endocrine system?
- What is the function of the adrenal glands in the endocrine system?
- Which gland is considered the master gland of the body?
- What are the major hormones and their effects on target tissues?
- What role does the endocrine system play in metabolism of food?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 64**

### **Identify the structures, functions, and diseases of the reproductive system.**

#### **Definition**

Identification should include structures in the male and female reproductive system, such as the

- functions/structures of the reproductive system
- penis
- testes
- scrotum
- ovaries
- fallopian tubes

- uterus
- process of fertilization
- diseases/disorders of the reproductive system.

### **Process/Skill Questions**

- How is herpes type II different from herpes type I?
- Where is the egg fertilized by the sperm in the fallopian tube?
- What is the importance of the human papillomavirus (HPV) vaccine?
- What are the major sexually transmitted diseases?
- What are the structures of the male and female reproductive systems?
- What are four diseases affecting both the male and female reproductive systems?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

#### **Health Professions Events**

- Clinical Nursing
- Nursing Assisting

#### **Teamwork Events**

- HOSA Bowl

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## **Task Number 65**

**Identify the structures, functions and diseases of the nervous system.**

### **Definition**

Identification should include the

- functions/structures of the nervous system
- four main parts of the neuron and their function
- functions of the neurons
- functions of the main parts of the brain
- functions of the spinal cord
- actions of the parasympathetic and sympathetic nervous systems
- structure of the central nervous system
- structure of the peripheral nervous system
- diseases/disorders of the nervous system.

### **Process/Skill Questions**

- What allows central nervous system cells to regenerate after being damaged? Why is this important?
- Where in the brain are blood pressure, pulse, and respiration centers located?
- Where are the respiratory and cardiac centers located in the brain? How is this important in health care?
- What is meningitis? What test would be used to diagnose it?
- What are the signs and symptoms of an impending stroke?
- How would one describe common neurologic disorders?
- What are the actions of the parasympathetic and sympathetic nervous systems?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

#### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

#### **Teamwork Events**

- HOSA Bowl
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## **Task Number 66**

### **Identify the structures, functions and diseases of the urinary system.**

#### **Definition**

Identification should include the

- functions/structures of the urinary system
- kidneys
- ureters
- bladder
- urethra
- diseases/disorders of the urinary system.

#### **Process/Skill Questions**

- What are nephrons? How many nephrons does each kidney contain?
- What are the components of urine?
- What lab test describes kidney function? How is this test important in diagnosis?
- What are kidney stones, and how are they formed?
- What are some common urological disorders?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

#### **Health Professions Events**

- Clinical Nursing
- Home Health Aide

- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl
- 

## **Task Number 67**

### **Identify the structures, functions, and diseases of the sensory system.**

#### **Definition**

Identification should include the

- functions/structures of the sensory system
- eyes
- ears
- nose
- skin
- taste buds
- diseases/disorders of the sensory system.

#### **Process/Skill Questions**

- How do eyeglasses correct common vision problems?
- What is colorblindness? How is it caused?
- How many smells can the nose detect? How can the sense of smell be a defense mechanism for the body?
- How are taste and smell interconnected?
- Where are the receptors for hearing located?
- What precautions can be taken in young adulthood to reduce vision problems in later life?  
What precautions can be taken to reduce hearing loss over time?
- What are the common disorders of the sensory system?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pathophysiology

### **Health Professions Events**

- Clinical Nursing
- Home Health Aide
- Nursing Assisting

### **Teamwork Events**

- HOSA Bowl

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# **Performing Medical Laboratory Procedures**

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## **Task Number 68**

### **Describe specimen preparation and handling.**

#### **Definition**

Description should include

- selecting the appropriate specimen container(s)
- labeling the specimens accurately
- using the proper handling procedure per organization.

#### **Process/Skill Questions**

- What are the most common considerations when collecting a specimen?
- What are the potential consequences of mislabeling?
- What are the potential consequences of mishandling?

## **Common Career Technical Core**

### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
  - Medical Assisting
  - Nursing Assisting
- 

## **Task Number 69**

**Identify the diagnoses, laboratory tests, and procedures used in the treatment for the diseases/disorders of each body system.**

### **Definition**

Identification should include

- the testing of
  - blood
  - urine
  - sputum
  - spinal fluids
  - other body fluids and tissues, as indicated
- understanding the purpose of a diagnostic procedure
- differentiating between diagnosis and prognosis.

### **Process/Skill Questions**

- How does clinical history determine the selected test?
- What tests are included in a complete blood count (CBC)?
- Why are CBC and urinalysis the most frequently ordered tests?

- How would a blood sugar test determine the level of insulin given to a diabetic patient?

## **Common Career Technical Core**

### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
  - Clinical Nursing
  - Medical Assisting
- 

## **Task Number 70**

### **Examine body fluids and cells for bacteria, parasites, and other microorganisms.**

#### **Definition**

Examination should include

- viewing prepared slides or kits of body tissues and fluid
- determining the presence of bacteria, parasites, and other microorganisms.

#### **Process/Skill Questions**

- How do medical laboratory professionals differentiate between normal flora and pathogenic organisms?
- How do medical laboratory professionals differentiate between the different types and classifications of bacteria?
- What test would be used to rule out parasitic infections?
- What is a C&S?

## **Common Career Technical Core**

**HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

**HOSA Competitive Events (High School)****Health Professions Events**

- Biomedical Laboratory Science
  - Medical Assisting
- 

**Task Number 71****Analyze the chemical content of fluids and tissues.****Definition**

Analysis should include

- electrolytes
- blood glucose
- drug testing
- urine testing
- blood typing
- cross match.

**Process/Skill Questions**

- What drugs are included in a drug-test panel?
- What pretesting does a lab perform to determine blood compatibility?
- What pretesting does a lab perform to determine tissue compatibility for transplants?

**Common Career Technical Core****HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

**HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
- Medical Assisting

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## **Task Number 72**

### **Examine cells to determine the quantity of and/or to look for abnormal cells in blood and other body fluids and tissues.**

#### **Definition**

Examination should include analysis of prepared slides of specimens indicating

- anemia
- cancer
- infection.

#### **Process/Skill Questions**

- What diseases are associated with an abnormal blood cell count?
- What is septicemia? How is it diagnosed?
- How do cancer cells differ in appearance from normal cells?

### **Common Career Technical Core**

#### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

### **HOSA Competitive Events (High School)**

#### **Health Professions Events**

- Biomedical Laboratory Science
- Medical Assisting

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## **Task Number 73**

### **Assess lab findings, using automated equipment and computerized instruments.**

#### **Definition**

Assessment should include

- use of automated equipment and computerized instruments, microscopes, cell counters, and/or other sophisticated laboratory equipment to examine cells such as those of blood and urine
- analysis of specimens to determine their composition and state, noting any irregularities
- comparison of automated testing and manual testing of the specimens.

#### **Process/Skill Questions**

- How has automation changed laboratory procedures?
- What is quality control? How is it achieved? Why is quality control important in a laboratory setting?
- Why is a quick turnaround important for laboratory tests?

#### **Common Career Technical Core**

##### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

#### **HOSA Competitive Events (High School)**

##### **Health Professions Events**

- Clinical Nursing

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## **Task Number 74**

### **Document the results of laboratory findings.**

## **Definition**

Documentation should include both normal limits and critical values.

## **Process/Skill Questions**

- How does age affect normal limits in lab findings?
- Why is documentation of laboratory findings essential?
- How does one go about correcting or reporting an incorrect lab finding?

## **Common Career Technical Core**

### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

### **HL4**

Evaluate the roles and responsibilities of individual members as part of the healthcare team and explain their role in promoting the delivery of quality health care.

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
- Medical Assisting

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## **Task Number 75**

### **Report lab results to physicians.**

#### **Definition**

Reporting should comply with policy and procedure protocols of the facility or agency.

#### **Process/Skill Questions**

- Why is it important to follow the correct policies when relaying lab results?
- How has technology (e.g., voice mail, answering machines) affected the reporting of lab results?

- What are the legal implications of mishandling lab findings?

## **Common Career Technical Core**

### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

### **HL4**

Evaluate the roles and responsibilities of individual members as part of the healthcare team and explain their role in promoting the delivery of quality health care.

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
  - Medical Assisting
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# **Understanding the Role of Nutrition in Health Care**

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## **Task Number 76**

**Identify the six essential nutrients, sources, and functions for optimal health and wellness.**

### **Definition**

Identification should include a definition of

- *carbohydrates*
- *fats*
- *proteins*

- *vitamins*
- *minerals*
- *water.*

### **Process/Skill Questions**

- What does each of the six essential nutrients contribute to wellness?
- What percentage of a person's total calories should come from carbohydrates, fats, and protein? Why is this balance important for good nutrition?
- What fat-soluble vitamin prevents night blindness?
- What are the roles of vitamins and minerals in achieving optimal health and wellness?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Nutrition
- 

## **Task Number 77**

### **Describe the digestion and metabolism of food.**

#### **Definition**

Description should include

- digestion
- absorption of nutrients
- metabolism.

#### **Process/Skill Questions**

- Where does the digestion of carbohydrates begin?
- Why is it important to chew food thoroughly before swallowing it?
- Why can eating too fast cause a person to choke?
- What is the relationship between metabolism and weight loss?
- What is BMI, and what does it measure?
- What are the end products of carbohydrate, fat, and protein digestion?
- What is the function of the large intestine in digestion?
- What is the pathway of ingested nutrients?

## HOSA Competitive Events (High School)

### Health Science Events

- Knowledge Test: Nutrition
- 

## Task Number 78

### Describe dietary guidelines recommended for health promotion.

#### Definition

Description should include dietary guidelines recommended for health and wellness, such as [Choose My Plate](#), and the basic food groups:

- grains
- vegetables
- fruits
- dairy
- protein foods.

Description should also include

- reading nutrition labels
- eating appropriate serving sizes
- maintaining a healthy weight
- understanding the diseases/disorders linked with obesity
- acknowledging the importance of exercise.

#### Process/Skill Questions

- What are the basic food groups? Why is each important for overall good health?
- How many servings should a person eat from each of the food groups?
- How many servings should a person eat from the vegetable group?
- Why was the U.S. Food and Drug Administration (FDA) established?
- What are the differences between the Food Guide Pyramid and Choose My Plate?
- What is BMI, and how is it calculated?
- What conditions can occur as a result of obesity?
- What are the benefits of exercise?

- What are the risks of being under- or overweight?
- What factors must be considered when choosing a weight-loss diet?
- What are the [Dietary Guidelines for Americans, 2010](#)?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Nutrition
- 

## **Task Number 79**

### **Identify the principles of food management and safety.**

#### **Definition**

Identification should include

- expiration dates
- food labeling
- food handling
- hygiene
- foodborne illnesses.

#### **Process/Skill Questions**

- How can careful reading of food labels contribute to health and wellness?
- Why is it important to read expiration dates on foods? Why do some foods have a brief shelf life while others have a long shelf life?
- Why must some foods be refrigerated right away? Why must some foods be refrigerated after opening?
- Why does the Department of Health inspect restaurants?
- What is the proper temperature range for refrigerated/frozen foods?
- What are the symptoms of food poisoning?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Nutrition
- 

## **Task Number 80**

### **Explain basic dietary management techniques.**

#### **Definition**

Explanation should include techniques such as

- diabetic diet
- sodium-restricted diet
- low-fat diet
- calorie-restricted diet
- heart-healthy diet
- bariatric diet
- high-calorie diet
- other therapeutic diets
- fad diets.

#### **Process/Skill Questions**

- What are examples of specific agency therapeutic diets? Why do they work?
- How are diets adjusted to meet the specific needs of clients with heart disease?
- Why should a healthcare worker check the client's dietary tray before serving?
- What are fad diets? Why are fad diets unhealthy?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Nutrition
- 

## **Task Number 81**

## **Identify common medical conditions related to poor nutrition.**

### **Definition**

Identification should include

- anorexia nervosa
- bulimia
- malnutrition
- obesity
- bariatric patients
- vitamin and mineral deficiency disorders.

### **Process/Skill Questions**

- What is the difference between anorexia nervosa and bulimia? Why is each dangerous?
- What diseases can result from excessive weight gain?
- How do social networks affect obesity trends?
- Why should public health take a global position on obesity?
- How can malnutrition affect the body over time?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Behavioral Health
- Knowledge Test: Nutrition

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## **Task Number 82**

### **Identify dietary patterns.**

#### **Definition**

Identification should include

- ethnic
- religious

- cultural
- personal preferences
- allergies.

### **Process/Skill Questions**

- Why is it important for healthcare workers to understand the dietary preferences of various cultural groups?
- How can personal food preferences of patients affect their dietary intake?
- What are the effects of American foods on other cultures? How do these effects relate to the health and wellness of the other cultures?

### **Common Career Technical Core**

#### **HL6**

Evaluate accepted ethical practices with respect to cultural, social and ethnic differences within the healthcare workplace.

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

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

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# **Exploring Pharmacology Fundamentals**

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## **Task Number 83**

**Identify general principles of pharmacology.**

### **Definition**

Identification should include the

- uses, properties, effects, and applications of drugs in the body for medical purposes
- drug's action in the body
- potential side effects/interactions
- resulting activity, which may be selective or non-selective.

### **Process/Skill Questions**

- Why is it important to understand the pharmacology of drugs?
- What are the possible effects of using medication without understanding the pharmacology of the drug?
- How is receptor activation responsible for pharmacologic response in the body?
- What are the differences between side effects and contraindications?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pharmacology

#### **Health Professions Events**

- Clinical Nursing
- Pharmacy Science

## **Task Number 84**

### **Describe sources, types, and uses of common drugs.**

#### **Definition**

Description should include

- the principles that drugs are obtained from natural and/or synthetic sources including plants, organisms, animals, and humans
- drug categories and classifications.

#### **Process/Skill Questions**

- What drugs are derived from animal sources? What are some possible complications from using drugs from animal sources?
- What drugs are derived from plant sources? Why is it safer to derive drugs from plants than from animals?
- What effects could environmental degradation have on the drug industry?
- Why is it important to organize drugs by classes and/or actions?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pharmacology

### **Health Professions Events**

- Clinical Nursing
- Pharmacy Science

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## **Task Number 85**

### **Explain the naming processes for drugs.**

#### **Definition**

Explanation should include the processes for

- trade
- chemical
- generic.

#### **Process/Skill Questions**

- Why do some physicians prefer brand-name drugs over generics?
- What are the advantages and disadvantages of generic drugs? What are the advantages and disadvantages of brand-name drugs?
- Why is the trade-name company awarded a patent?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pharmacology

### **Health Professions Events**

- Clinical Nursing
  - Pharmacy Science
- 

## **Task Number 86**

### **Explain the importance of pharmacokinetics.**

#### **Definition**

Explanation should include the study of drugs regarding

- absorption
- distribution
- duration of action
- metabolism
- excretion.

#### **Process/Skill Questions**

- Why is it important to know how a drug is metabolized and excreted from the body?
- Why can the same drug have different effects on different people?
- Why is it important to take some medications with food?
- Why is it important to take some medications an hour before or two hours after a meal?
- What resources can one use to seek information about drugs and their uses and side effects?
- What is drug resistance?
- What are the superbugs?
- What is the effect of superbugs on the healthcare system?
- Why is it important for clients on antibiotics to complete their regimen?

#### **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pharmacology

### **Health Professions Events**

- Clinical Nursing
- Pharmacy Science

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## **Task Number 87**

### **Describe the elements of a prescription.**

#### **Definition**

Description should include the

- prescriber information
- date written
- inscription
- signa
- signature of the prescriber
- refill instructions
- prescriber instructions (e.g., “dispense as written,” or “generic substitutions allowed”)
- patient name, address, date of birth
- patient's weight, depending on age.

If the prescription is for a compounded medication, a list of ingredients must be included.

#### **Process/Skill Questions**

- Why are all these elements required for a prescription to be complete?
- What healthcare providers are authorized to write prescriptions?
- What actions must be taken if a prescription is thought to be fraudulent?
- What prescriptions cannot be filled/refilled over the phone?
- Why are refills of certain schedules of drugs limited?

### **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Pharmacology

### **Health Professions Events**

- Pharmacy Science
- 

## **Task Number 88**

### **Explain common abbreviations used on prescriptions.**

#### **Definition**

Explanation should include abbreviations indicating

- amount
- frequency
- route
- drug formulation.

Teacher resource:

Institute for Safe Medication Practices (ISMP) [List of Error-Prone Abbreviations](#).

#### **Process/Skill Questions**

- Why are abbreviations used on prescriptions? Why are many abbreviations in Latin rather than English?
- What is the consequence of misinterpreting the abbreviations used?
- Why should some standard abbreviations no longer be used?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Medical Terminology

- Knowledge Test: Pharmacology

### **Health Professions Events**

- Pharmacy Science
- 

## **Task Number 89**

### **Calculate doses of medications.**

#### **Definition**

Calculation should reflect knowledge of medical mathematics, including

- conversion factors for the following systems
  - metric
  - apothecary
  - household measures
- formulas.

#### **Process/Skill Questions**

- What circumstances would allow the use of household measures in dosing of medications?
- Why is accuracy in dosage calculation so critical?
- What are some methods for ensuring accurate dosage calculations?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Medical Math

#### **Health Professions Events**

- Clinical Nursing

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## **Task Number 90**

### **Identify drug administration routes.**

#### **Definition**

Identification should include routes of medication administration, such as

- dermal
- transdermal
- oral (PO)
- intravenous (IV)
- sublingual (SL)
- intramuscular (IM)
- subcutaneous (SC)
- vaginal
- rectal (PR)
- intranasal
- intraocular
- intra-articular
- intradermal (ID)
- inhalation
- buccal.

#### **Process/Skill Questions**

- Why is the route of administration important in drug administration?
- What are the differences among the dermal, transdermal, and intradermal routes of administration?
- Why can some drugs be administered by the patient, while others require a healthcare provider?
- What information must be provided to patient and family members when new medications are prescribed?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Pharmacology

## Health Professions Events

- Clinical Nursing
  - Pharmacy Science
- 

## Task Number 91

### Explain the importance of drugs and supplements in preventive medicine.

#### Definition

Explanation should include

- immunizations
- drugs
- vitamins
- herbs
- supplements.

#### Process/Skill Questions

- Why are vaccinations required before children are allowed to enter school?
- How do vitamin supplements help people with poor dietary habits?
- How are supplements and herbal remedies regulated?
- What common drugs are used both as preventive medicine and as therapeutic medicine?
- Why is recording all prescribed supplemental and natural medication history imperative to proper medical treatment?
- Why do some parents refuse to vaccinate their children?
- What ethical dilemma does a refusal to vaccinate create for the healthcare system and the community in general?

## HOSA Competitive Events (High School)

### Health Science Events

- Knowledge Test: Pharmacology

## Health Professions Events

- Clinical Nursing
  - Pharmacy Science
- 

## Task Number 92

### Explain current state and federal regulations regarding the practice of pharmacy.

#### Definition

Explanation should include the following:

- adherence to and ongoing monitoring of current major state laws and regulations related to pharmacy, including statutes (e.g., [Virginia Drug Control Act](#)), [regulations of the Virginia Board of Pharmacy](#), and other state requirements
- adherence to and ongoing monitoring of the major federal laws, including the [Food, Drug, and Cosmetic Act](#), the [Controlled Substance Act](#), and other pharmacy-related laws enforced by the [U.S. Food and Drug Administration](#) (FDA), as well as the [Health Insurance Portability and Accountability Act](#) (HIPAA), which addresses confidentiality of patient information.

#### Process/Skill Questions

- What resources are available for maintaining current awareness of state and federal pharmacy-related laws and regulations?
- Why is compliance with such laws and regulations important for pharmacists and pharmacy technicians?
- How do state and federal governments intervene in determining the types of job tasks that technicians are allowed to perform in the pharmacy setting?
- What are the pros and cons of government intervention in the job responsibilities of pharmacists and pharmacy technicians?

## HOSA Competitive Events (High School)

### Health Science Events

- Knowledge Test: Pharmacology

### **Health Professions Events**

- Pharmacy Science
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# **Understanding Patient Care**

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## **Task Number 93**

**Summarize the approaches to health care for a variety of patient categories.**

### **Definition**

Summary should include comparing

- long-term care
- acute care
- critical care
- neonatal care
- pediatric care
- outpatient care
- ambulatory care
- mental health care
- maternal care
- palliative care
- emergency care
- physical rehabilitation
- medication.

### **Process/Skill Questions**

- How do neonatal and pediatric care differ from adult care?
- What are the treatment objectives for physical rehabilitation?

- How does the patient category affect the approach to health care?

## **Common Career Technical Core**

### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

### **HL4**

Evaluate the roles and responsibilities of individual members as part of the healthcare team and explain their role in promoting the delivery of quality health care.

## **HOSA Competitive Events (High School)**

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 94**

### **Explain the nature and importance of a medical history.**

#### **Definition**

Explanation should include components such as

- a complete and accurate history of past medical conditions
- a family history
- previous surgeries
- complaints
- medications
- allergies (e.g., drugs, foods, latex, environmental)
- social history.

#### **Process/Skill Questions**

- Why is it important to take a complete and accurate medical history?
- Why is a family history important?
- Why is it important to listen carefully to the patient?
- What is the correlation between current complaints and past medical history?
- What is social history? Why should it be included as part of the patient's medical history?

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Clinical Nursing
- Medical Assisting
- Pharmacy Science

### **Emergency Preparedness Events**

- Emergency Medical Technician

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## **Task Number 95**

**Examine concepts of care relating to ethnic, religious, cultural, and personal preferences.**

### **Definition**

Examination should include

- dietary restrictions
- beliefs and practices
- attitudes toward eye contact, gestures, personal space, and physical contact
- language barriers
- attitudes toward physical contact
- gender preferences of caregivers
- attitudes regarding death and disability
- bias, prejudice, and stereotyping.

### **Process/Skill Questions**

- Why is it important to understand culture differences as they affect patient care? What is cultural bias?
- What is stereotyping?
- How does a healthcare professional become culturally competent?

- How do different cultures perceive health and illness?
- How does nonverbal communication differ among cultures? Why is this an important concept for healthcare workers to understand?
- Why is it important for the patient to receive information and directions in his or her native language?
- How can healthcare workers assist with special dietary requirements of different cultural groups?
- What interventions are suggested by the Institute of Medicine on eliminating racial and ethnic disparities in health care?
- What social or cultural considerations must be addressed for effective HIV prevention interventions in the United States?

## **Common Career Technical Core**

### **HL6**

Evaluate accepted ethical practices with respect to cultural, social and ethnic differences within the healthcare workplace.

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Transcultural Health Care

## **Task Number 96**

### **Explain the principles of effective communication.**

#### **Definition**

Explanation should include

- verbal communication
- nonverbal communication
- communication barriers
- sensory deprivation (e.g., effects of deafness, blindness, speech impairment)
- active listening skills.

#### **Process/Skill Questions**

- Why is it important to understand the effects of nonverbal communication?

- How does body language affect the verbal message?
- What alternative communication skills are in place for patients with sensory impairments?
- How can a healthcare worker effectively communicate with those with physical disabilities?
- How do psychological barriers affect communication?
- How can barriers to communications be overcome?
- What is active listening, and why is it important to the communication process?

## **HOSA Competitive Events (High School)**

### **Leadership Events**

- Interviewing Skills
- Job-Seeking Skills
- Prepared Speaking
- Speaking Skills

### **Teamwork Events**

- Biomedical Debate
- Public Service Announcement

### **Emergency Preparedness Events**

- Emergency Medical Technician

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## **Task Number 97**

**Apply principles of communication in establishing therapeutic relationships.**

### **Definition**

Application should include

- establishing trust
- expressing empathy
- conveying compassion
- ensuring competence
- exhibiting kindness
- spending an adequate length of quality time with the client
- ensuring that communication is delivered, received, and verified
- avoiding or surmounting barriers to communication, such as those related to language, culture, environment, regional accents, age, gender, ethnicity, socioeconomic status, and special needs of the client.

### **Process/Skill Questions**

- How does effective communication help the healthcare provider gain the trust of the client?
- How can the healthcare provider verify that a message is received and understood?
- Why are repeating back or reading back orders necessary for effective communications?
- How does the amount of time spent with a client affect communication?
- What is the role of an interpreter?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Transcultural Health Care

#### **Health Professions Events**

- Clinical Nursing
- Medical Assisting
- Nursing Assisting

#### **Emergency Preparedness Events**

- Emergency Medical Technician

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## Task Number 98

### Explain the concept and importance of the Patient's Bill of Rights.

#### Definition

Explanation should include the importance of healthcare consumer rights, including, but not limited to

- the concept of the [Patient Bill of Rights](#)
- legal aspects
- HIPAA Patient Self Determination Act of 1990 (PSDA).

#### Process/Skill Questions

- How is the Patient's Bill of Rights applied in the healthcare system?
- What happens if patient confidentiality or privacy are breached?
- How has HIPAA influenced healthcare delivery?
- What are the rights of patients? What are the responsibilities of patients?

### HOSA Competitive Events (High School)

#### Health Science Events

- Knowledge Test: Medical Law and Ethics

#### Health Professions Events

- Clinical Nursing
- Nursing Assisting

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## Task Number 99

## **Explain the function and importance of advance directives for health care.**

### **Definition**

Explanation should address the following:

- living will
- durable power of attorney for health care
- do-not-resuscitate (DNR) order
- healthcare proxy
- organ donor directives
- PSDA.

### **Process/Skill Questions**

- Why is it important for a facility to provide information and assistance on advance directives?
- How does a DNR affect a patient's care?
- Who is responsible for discussing organ donation with the family?
- Why is it important for patients to convey their medical wishes to a family member?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Medical Law and Ethics

### **Teamwork Events**

- HOSA Bowl

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## **Task Number 100**

### **Examine the concepts of death and dying.**

#### **Definition**

Examination should address

- the stages of grief
- hospice
- the right to die
- terminal illness
- family management during the time of death
- palliative care
- the Death with Dignity Act.

### **Process/Skill Questions**

- What is the role of the healthcare provider as the patient experiences the five stages of death?
- Why is it essential to be sensitive to the patient during the stages of death?
- What role does hospice play in the palliative care of the patient?
- How do the five stages of grieving help the patient's family deal with their loss?
- What are the five stages of death?
- What is palliative care?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Human Growth and Development
- Knowledge Test: Medical Law and Ethics

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## **Task Number 101**

### **Explain the concept of integrated and holistic care.**

#### **Definition**

Explanation should include

- chiropractic medicine
- hypnotic medicine
- alternative medical systems
  - homeopathic medicine
  - Ayurvedic medicine

- Chinese medicine
- naturopathic medicine
  - aromatherapy
  - botanical or herbal medicine
  - mind and body practices
  - chiropractic medicine
  - massage
  - reflexology
  - acupuncture
  - tai chi
  - yoga.

### **Process/Skill Questions**

- What is the measure of acceptance for holistic practices among health professionals?
- How is Ayurvedic medicine different from Chinese medicine?
- What is meant by integrated and complementary medicine? Why has integrated and complementary medicine become popular in the United States?
- What is the basis of chiropractic medicine, homeopathic medicine, and naturopathic medicine?
- How does a consumer choose which integrated or holistic care approaches may work?

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Transcultural Health Care

#### **Teamwork Events**

- HOSA Bowl

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## **Ensuring a Clean and Safe Healthcare Environment**

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## Task Number 102

### Explain the concept of infection control and asepsis.

#### Definition

Explanation should include

- the difference between medical and surgical asepsis
- the techniques of hand hygiene
- regulations against acrylic nails in patient care areas
- biohazard waste disposal
- the definitions of *aseptic* and *sterile*
- Bloodborne Pathogen standard
- Standard Precautions
- Transmission-Based Precautions
- [Needlestick Safety and Prevention Act](#).

#### Process/Skill Questions

- What is the difference between medical and surgical asepsis? When and where is each important?
- How do acrylic nails contribute to nosocomial infections in health care?
- What is the purpose of short, clean nails and hair pulled back and off the collar in the clinical area?
- What is the relationship between infection control and proper disposal of medical waste?
- How does the Bloodborne Pathogen standard protect healthcare employees from bloodborne health hazards?
- What are the basic rules of Standard Precautions?
- Why was the Needlestick Safety and Prevention Act enacted?
- How are Standard Precautions different from Transmission-Based Precautions?
- When would a healthcare worker use aseptic techniques? When would a healthcare worker use sterile techniques?
- How does the Needlestick Safety and Prevention Act apply to the Office of Safety and Health Administration (OSHA) Bloodborne Pathogens standard?
- What are the benefits of practicing respiratory hygiene/cough etiquette?

#### Common Career Technical Core

##### HL3

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

#### HOSA Competitive Events (High School)

### **Health Professions Events**

- Biomedical Laboratory Science
- Clinical Nursing
- Clinical Specialty
- Dental Science
- Home Health Aide
- Medical Assisting
- Nursing Assisting
- Personal Care
- Pharmacy Science
- Physical Therapy
- Sports Medicine
- Veterinary Science

### **Emergency Preparedness Events**

- CERT (Community Emergency Response Team) Skills
- Emergency Medical Technician

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## **Task Number 103**

### **Explain the chain of infection.**

#### **Definition**

Explanation should include the

- definition of *microorganism*
- causative agents
- reservoir
- portal of exit
- mode of transmission
- portal of entry
- susceptible host.

### **Process/Skill Questions**

- What is the difference between a disease and an infection?
- How does an understanding of the chain of infection aid in breaking the infectious disease cycle?
- What actions by healthcare workers can significantly impede the spread of infection?
- What actions would allow the healthcare worker to break the chain of infection?

### **Common Career Technical Core**

#### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

### **HOSA Competitive Events (High School)**

#### **Health Professions Events**

- Dental Science
- Home Health Aide
- Medical Assisting
- Nursing Assisting
- Personal Care

## **Task Number 104**

### **Demonstrate hand hygiene procedures.**

#### **Definition**

Demonstration should include the use of soap and water and hand sanitizers.

### **Process/Skill Questions**

- Why is it important to apply adequate friction when washing one's hands?
- What are the similarities and differences between hand washing and hand sanitation in maintaining hand hygiene?
- Why might the amount of time needed for hand hygiene vary from one situation to another?
- What would the healthcare worker do if soap and water were not available to wash hands?
- What is the difference between a medical hand wash and a surgical hand wash?
- What microbes are alcohol-based hand sanitizers unable to remove?
- Per the CDC, in the healthcare setting, why would an alcohol-based hand sanitizer be the preferred method for cleaning hands when they are not visibly dirty?

### **Common Career Technical Core**

#### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

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## **Task Number 105**

### **Explain transmission-based precautions.**

#### **Definition**

Explanation should include

- [CDC Standard Precautions](#)
- a contrast between transmission-based precautions
  - droplets
  - contact
  - airborne
- reverse-isolation techniques.

### **Process/Skill Questions**

- How do Standard Precautions help to prevent the spread of disease?
- What is the difference between a contact infection, an airborne infection, and a droplet infection? How is each controlled?
- Why are some patients put into reverse isolation?

## **Common Career Technical Core**

### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
- Clinical Nursing
- Medical Assisting
- Nursing Assisting
- Personal Care
- Pharmacy Science
- Physical Therapy
- Sports Medicine
- Veterinary Science

### **Emergency Preparedness Events**

- CERT (Community Emergency Response Team) Skills
- CPR/First Aid
- Emergency Medical Technician

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## **Task Number 106**

# **Demonstrate the use of personal protective equipment (PPE) and safe workplace practices.**

## **Definition**

Demonstration should include

- high-efficiency particulate air (HEPA) or N95 masks
- filters
- gowns
- gloves
- eye protection/face shields
- shoe and head coverings
- resuscitation devices.

Workplace demonstration should include the

- use of waste receptacles
- use of sharps containers
- use of needleless devices.

## **Process/Skill Questions**

- When must healthcare workers wear a HEPA mask, eye protection, face shields, gloves, gown, and shoe and head coverings? Why is each important?
- How do needleless devices work? Why are they important in the healthcare setting?
- Why are both PPE and personal protective workplace practices essential in the healthcare environment?
- What is the proper sequence for putting on PPE?
- What is the proper sequence for removing PPE?

## **Common Career Technical Core**

### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

### **HL5**

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Clinical Nursing
- Medical Assisting
- Nursing Assisting
- Personal Care
- Pharmacy Science
- Physical Therapy
- Sports Medicine
- Veterinary Science

### **Emergency Preparedness Events**

- CERT (Community Emergency Response Team) Skills
- CPR/First Aid
- Emergency Medical Technician

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## **Task Number 107**

### **Describe policies and procedures for handling and disposing of infectious and/or hazardous materials.**

#### **Definition**

Description should include

- [OSHA Bloodborne Pathogens Standard](#)
- exposure control plan
- employee training
- employee record keeping.

#### **Process/Skill Questions**

- Why are there different categories for handling medical waste?
- What can be the medical and legal consequences of not disposing of infectious and hazardous materials according to OSHA guidelines?
- What are the differences between engineering controls and workplace practices?

## **Common Career Technical Core**

### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

### **HL5**

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
- Clinical Nursing
- Medical Assisting
- Nursing Assisting
- Personal Care
- Pharmacy Science
- Physical Therapy
- Sports Medicine
- Veterinary Science

### **Emergency Preparedness Events**

- CERT (Community Emergency Response Team) Skills
- CPR/First Aid

- Emergency Medical Technician
- 

## **Task Number 108**

### **Explain sterile processes.**

#### **Definition**

Explanation should include

- sterile field
- asepsis
- methods for sterilization
- maintenance of equipment
- wrapping and identification, storage, and use of indicators.

#### **Process/Skill Questions**

- How do sterilization methods differ based on the type of equipment or materials to be sterilized?
- What are the quality control methods to maintain and assure sterility?
- What are the steps needed to prepare items or equipment to be sterilized?
- When is the sterile process used?
- What are some medical procedures that require sterile technique?

### **HOSA Competitive Events (High School)**

#### **Health Professions Events**

- Clinical Nursing
  - Medical Assisting
- 

## **Task Number 109**

# Identify the importance of the CDC and Occupational Safety and Health Administration (OSHA) guidelines.

## Definition

Identification of the importance of [CDC](#) and [OSHA](#) guidelines should include developing and enforcing safety policies, containing infectious diseases, and assuring a safe working environment.

Identification should also include recognition of safety signs and the importance of safety data sheets and the [2019 National Patient Safety Goals](#).

## Process/Skill Questions

- How do the roles of the CDC and OSHA differ?
- What needs to be reported to the CDC?
- How does OSHA contribute to a safe work environment?
- What are the roles of the CDC and OSHA regarding the healthcare environment?
- What information is included on an SDS document? How can they be effectively used in a healthcare setting?
- What are the Joint Commission's National Patient Safety Goals, and why are they important?

## Common Career Technical Core

### HL5

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

## HOSA Competitive Events (High School)

### Health Professions Events

- Clinical Nursing
- Home Health Aide
- Nursing Assisting
- Pharmacy Science

### Teamwork Events

- HOSA Bowl
- 

## **Task Number 110**

### **Identify emergency protection areas and devices.**

#### **Definition**

Identification of emergency protection areas should include

- basic eye wash stations
- decontamination rooms
- isolation rooms.

Devices should include patient mobilization equipment.

#### **Process/Skill Questions**

- Why is orientation so vital when starting any new job in a healthcare setting?
- What emergency protection areas and devices are found in different types of healthcare settings?
- Why are evacuation drills essential to the overall safety of staff and patients?
- Why is it important for every staff member to know where all safety equipment and/or devices are located and how to use them?

#### **Common Career Technical Core**

##### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

#### **HOSA Competitive Events (High School)**

##### **Health Professions Events**

- Clinical Nursing
- Nursing Assisting
- Pharmacy Science

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## **Task Number 111**

### **Explain methods of fire safety.**

#### **Definition**

Explanation should include

- elements contributing to fires
- types of extinguishers
- basic guidelines for use of an extinguisher
- basic emergency fire rules and fire safety guidelines
- smoke, radon, carbon monoxide alarms.

#### **Process/Skill Questions**

- How do professional communication and teamwork contribute to fire safety?
- Why is it important to keep all work areas clutter-free?
- What are the basic similarities and differences among the various classes and uses of fire extinguishers?
- What is the proper way to use a fire extinguisher?

#### **Common Career Technical Core**

##### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

#### **HOSA Competitive Events (High School)**

##### **Health Professions Events**

- Nursing Assisting

##### **Teamwork Events**

- HOSA Bowl

## Task Number 112

### Identify environmental hazards.

#### Definition

Identification should include

- the role of the [Environmental Protection Agency](#) (EPA)
- radioactive contamination
- air pollution
- water pollution.

#### Process/Skill Questions

- How can undetected pollutants contribute to toxic environments?
- What is the role of the EPA? What is the effect of the EPA on the healthcare field?
- What are the effects of radiation exposure on health?

### Common Career Technical Core

#### HL3

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

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## Task Number 113

### Describe the principles of body mechanics.

#### Definition

Description should include the components of good body alignment and the principles of body mechanics (e.g., ergonomics).

#### Process/Skill Questions

- Why is it important to practice good body mechanics?
- How can correct body alignment improve healthcare worker performance?
- Why is it important to communicate with the client and other healthcare workers when lifting weight?
- Why are nurses moving toward a no-lift policy?

## Common Career Technical Core

### HL3

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

## HOSA Competitive Events (High School)

### Health Professions Events

- Home Health Aide
- Nursing Assisting

### Emergency Preparedness Events

- CERT (Community Emergency Response Team) Skills
- Emergency Medical Technician

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## Task Number 114

### Explain radiographic safety.

#### Definition

Explanation should include the guidelines specified by the [Virginia Department of Health](#) and [EPA Radiation Protection](#).

#### Process/Skill Questions

- Why are all radiographic rooms lead-lined?
- How do radiation badges protect workers?
- How are patients protected from radiation exposure?
- How are the Virginia Department of Health and the Radiation Safety Commission similar and different with regard to radiographic safety?

## Common Career Technical Core

### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

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## **Task Number 115**

### **Explain the importance of maintaining a safe and clean work environment.**

#### **Definition**

Explanation should include hazards as they exist per the [National Patient Safety Goals](#), and reasons for maintaining safe and clean equipment, patient-care areas, and non-patient-care areas.

#### **Process/Skill Questions**

- What are the safety consequences of poor building maintenance?
- What types of safety hazards may exist in unclean eating areas?
- What are the major considerations for maintaining a clean environment in healthcare facilities?
- What are daily proactive interventions that would assist in preventing falls?
- Why is it important to maintain a clutter free work and patient-care environment?

#### **Common Career Technical Core**

##### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

##### **HL5**

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

#### **HOSA Competitive Events (High School)**

##### **Health Professions Events**

- Biomedical Laboratory Science
- Clinical Nursing
- Medical Assisting

- Nursing Assisting
  - Personal Care
  - Pharmacy Science
  - Physical Therapy
  - Sports Medicine
  - Veterinary Science
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## **Performing Administrative Functions in the Healthcare Profession**

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### **Task Number 116**

#### **Explain the process and importance of patient identification.**

##### **Definition**

Explanation should include

- using at least two ways to identify patients (e.g., the patient's name and date of birth) to ensure that each patient receives prescribed care
- using [National Patient Safety Goals](#) to identify patients when performing assigned skills.

##### **Process/Skill Questions**

- Why is proper patient identification important when administering medications and performing treatments?
- What role does patient identification play in the reporting of test results or procedure outcomes?
- What effect does patient identification have on billing processes?
- Why should patients be reminded to shred or otherwise destroy their ID bracelet when it is no longer needed?

- How are patients identified in a healthcare setting?

## **Common Career Technical Core**

### **HL2**

Explain the healthcare worker's role within their department, their organization, and the overall healthcare system.

### **HL4**

Evaluate the roles and responsibilities of individual members as part of the healthcare team and explain their role in promoting the delivery of quality health care.

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
- Clinical Nursing
- Medical Assisting
- Nursing Assisting
- Personal Care
- Pharmacy Science
- Physical Therapy
- Sports Medicine

### **Emergency Preparedness Events**

- Emergency Medical Technician

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## **Task Number 117**

### **Explain the purpose of medical records.**

#### **Definition**

Explanation should include medical records as

- legal and binding documents, which can be subpoenaed in court
- an account of events that occur during a patient's care
- determination of payments by insurance companies
- intergroup language communication documents.

#### **Process/Skill Questions**

- What is the importance of keeping accurate and complete records in all branches of healthcare?
- What are the possible effects of incomplete or absent documentation?
- What resources and tools are available to manage medical information?
- What barriers might a patient encounter with an electronic medical record?
- What benefits might a patient receive from the use of electronic medical records?
- What are the consequences of failing to document the administration of medications?
- How would the medical record be useful in the investigation of a medical error?

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Medical Law and Ethics

## **Task Number 118**

### **Identify the components of the electronic medical record (EMR).**

#### **Definition**

Identification should include

- patient's demographic data
- physician's medical orders (e.g., medications, treatments, diagnostic tests)
- patient's history
- physical examinations and/or procedures
- lab and diagnostic tests
- progress notes from the interdisciplinary healthcare team
- legal directives (e.g., advance directives, living wills, DNR orders).

#### **Process/Skill Questions**

- Where would the nurse document his or her patient care?
- Where in the chart is an X-ray report located?
- Where in the chart is a medication order located?
- Where in the chart are doctors' orders located?
- Who is authorized to view an electronic medical record?
- What are advance directives, DNRs, and living wills?

# Handling Traumatic and Medical Emergencies

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## Task Number 119

### Explain basic traumatic and medical emergency procedures.

#### Definition

Explanation should include procedures for first responders, including

- activating the Emergency Medical System (EMS) system (911)
- assessing the scene for safety hazards
- improvising PPE, if not available
- assessing patients for circulation, airway, breathing (CAB)
- determining the number of victims
- performing cardiopulmonary resuscitation (CPR) if necessary
- using an automated external defibrillator (AED)
- following AHA [2018 Guidelines Highlights](#).

#### Process/Skill Questions

- How does the CAB guide assist the caregiver's actions in performing effective CPR and first aid?
- When would it be appropriate to use the ABC or CAB approach in victim assessment and treatment?
- Why should the emergency scene be assessed?
- Which life signs must be assessed for all victims of trauma or medical emergencies?
- What are the sequences of steps for assessing a conscious victim and for an unconscious victim?
- When is it appropriate to use an AED?

#### HOSA Competitive Events (High School)

##### Health Professions Events

- Clinical Nursing

- Medical Assisting
- Nursing Assisting

### **Emergency Preparedness Events**

- CERT (Community Emergency Response Team) Skills
- CPR/First Aid
- Emergency Medical Technician

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## **Task Number 120**

### **Identify the essential components of disaster planning.**

#### **Definition**

Identification should include procedures for

- healthcare facilities in the case of natural disasters (e.g., fire, windstorms, snowstorms, floods)
- environmental biohazards (e.g., viruses, bacteria, or other disease-causing bacterial agents)
- other large-scale calamities (e.g., massive power outage, fire, or acts of war/terrorism)
- cybersecurity
- internal disasters (e.g., flooding, electrical problems, chemical spills).

#### **Process/Skill Questions**

- Why is it imperative to have an effective disaster plan in place?
- Who is responsible for initiating the disaster plan?
- What role does health care play in overall disaster planning for a geographical area? What other groups play a role? How can these diverse groups work together for the common good?
- What are the consequences of undetected biohazards in the healthcare environment?
- Why is it important to know the location of the disaster plan?
- What responsibilities does the individual have in preparing for a disaster?

#### **Common Career Technical Core**

### **HL3**

Identify existing and potential hazards to clients, coworkers, visitors, and self in the healthcare workplace.

## **HOSA Competitive Events (High School)**

### **Emergency Preparedness Events**

- CERT (Community Emergency Response Team) Skills
- 

## **Task Number 121**

### **Identify items found in a basic emergency kit.**

#### **Definition**

Identification should include

- various sizes/types of bandages and dressings
- splints
- sanitizers
- gloves
- other protective equipment
- flashlights, among other items.

#### **Process/Skill Questions**

- Why is it important to wear gloves when performing first aid?
- What difference can a well-stocked emergency kit make in a trauma situation?
- How often is it necessary to update an emergency kit?

## **HOSA Competitive Events (High School)**

### **Emergency Preparedness Events**

- CERT (Community Emergency Response Team) Skills
- Emergency Medical Technician

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## Task Number 122

### Describe the causes, symptoms, and treatments of selected medical emergencies.

#### Definition

Description should focus on cases such as

- falls or other musculoskeletal injuries
- burns
- seizures
- diabetic emergencies
- stroke
- cardiac arrest
- shock
- trauma
- poisoning
- heart attack
- allergic reactions and anaphylaxis
- fainting.

Description should also include knowledge of [AHA Heartsaver First Aid](#).

#### Process/Skill Questions

- What are the five types of shock, and how do they differ?
- What is most important to remember when treating musculoskeletal injuries?
- How is insulin shock different from diabetic coma?
- How is the management of a thermal burn different from that of a chemical or electrical burn?
- What is the difference between an allergic reaction and anaphylaxis?
- When is it appropriate to assist a victim with an epinephrine auto-injector (i.e., EpiPen)?

#### HOSA Competitive Events (High School)

##### Health Professions Events

- Clinical Nursing

- Nursing Assisting

### **Emergency Preparedness Events**

- CERT (Community Emergency Response Team) Skills
  - Emergency Medical Technician
- 

## **Task Number 123**

### **Demonstrate CPR with the AED.**

#### **Definition**

Demonstration should include

- rescue breathing
- abdominal thrusts or back blows
- chest compressions
- the recovery position
- application and use of the AED.

#### **Process/Skill Questions**

- How old must a person be to become CPR certified?
- How do infant and child CPR differ from adult CPR?
- How do rescue techniques differ between conscious and unconscious choking victims?
- How and why have CPR techniques evolved in recent years?

### **HOSA Competitive Events (High School)**

#### **Emergency Preparedness Events**

- CPR/First Aid
  - Emergency Medical Technician
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# Exploring Biotechnology Concepts

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## Task Number 124

### Explain the concept of biotechnology.

#### Definition

Explanation should include that biotechnology consists of

- techniques that use living organisms or substances from those organisms
- making or modifying a product to improve plants or animals
- developing microorganisms for specific uses.

#### Process/Skill Questions

- What is the definition of *biotechnology*?
- How is biotechnology used in careers other than health care (e.g., engineering, agriculture, environmental sciences, production of chemicals and cleaning products, industry, food production, clothing production)?
- How has the field of biotechnology reduced the need for pesticides in agriculture?
- What concerns the opponents of biotechnology in relation to genetically modified crops?
- What is the role of the federal government in regulating biotechnology as it relates to the fields of agriculture, food production, and pharmacology?

#### HOSA Competitive Events (High School)

##### Health Professions Events

- Biomedical Laboratory Science

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## Task Number 125

### Identify the effects of innovations in biotechnology.

## **Definition**

Identification could include, but is not limited to,

- the improvement and development of vaccines
- the use of gene therapy
- advances in organ transplantation
- tissue engineering
- the advancement and use of artificial joints, limbs, and other prosthetic devices.

## **Process/Skill Questions**

- How has the field of biotechnology affected the treatment of genetic diseases?
- What recent advances have been made in joint replacements due to biotechnology?
- How has biotechnology nearly eliminated certain diseases?
- What recent advances have been made in orthopedic surgeries due to biotechnology?
- What recent advances have been made in the treatment of cancer due to biotechnology?
- Which organs have been successfully engineered using biotechnology?

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
- 

## **Task Number 126**

**Describe the effects of biotechnology on preventive health care.**

### **Definition**

Description should include

- vaccines
- human genomics.

### **Process/Skill Questions**

- How do vaccines help the human body become immune to certain diseases?

- What is human genomics? How will human genomics affect health care in the near future?
- What is stem cell research?
- How has stem cell research improved the treatment of diseases and disorders?
- How has diagnostic testing for diseases and disorders changed with the progression of biotechnology?

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
- 

## **Task Number 127**

### **Describe the role biotechnology plays in medical forensics.**

#### **Definition**

Description could include, but is not limited to, genetic fingerprinting, DNA, and RNA analysis.

#### **Process/Skill Questions**

- How does biotechnology apply to forensics?
- How has biotechnology affected criminal investigations?
- What are the ethical considerations in genetic fingerprinting?

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Biomedical Laboratory Science
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# Examining Professionalism in the Healthcare Industry

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## Task Number 128

**Identify professional agencies and organizations in the healthcare field and the roles of each.**

### Definition

Identification should include

- [World Health Organization](#) (WHO)
- [U.S. Department of Health and Human Services](#) (USDHHS)
- [Centers for Disease Control and Prevention](#) (CDC)
- [National Institutes of Health](#) (NIH)
- [Food and Drug Administration](#) (FDA)
- [U.S. Drug Enforcement Administration](#) (DEA)
- [Agency for Healthcare Research and Quality](#) (AHRQ)
- [Office of Safety and Health Administration](#) (OSHA)
- [U.S. Department of Agriculture](#) (USDA)
- [Health Occupations Student Association](#) (HOSA).

### Process/Skill Questions

- How does the WHO address serious health problems throughout the world?
- What organizations on the state level influence health care and disease control in Virginia?
- How do various health professional organizations provide services for health care and disease control in the local community?
- Why is it important that healthcare professionals participate in their respective professional organizations?
- Why is it important that healthcare professionals stay current in legislation at the local, state, and federal levels of government?

### HOSA Competitive Events (High School)

#### Health Professions Events

- Pharmacy Science

### **Teamwork Events**

- HOSA Bowl
- 

## **Task Number 129**

### **Examine the legal issues related to the health and medical science profession.**

#### **Definition**

Examination should include

- certification and licensure
- malpractice
- negligence and abuse
- patient rights
- invasion of privacy
- healthcare records
- power of attorney
- use of professional standards
- criminal vs. civil law
  - negligence
  - torts
  - malpractice
  - invasion of privacy
  - false imprisonment
  - assault and battery
  - abuse
  - defamation
- contracts
  - implied
  - expressed
  - legal disabilities
  - agent.

#### **Process/Skill Questions**

- What are the consequences of employing staff that are not properly certified or licensed?
- What types of liability issues affect healthcare workers in the various healthcare fields?
- How do professional standards ensure the proper care of all patients? What is the relationship between professional standards and legal responsibilities?
- What four components must be proved in a malpractice case?
- How could legal action result from malpractice, negligence, false imprisonment, abuse, assault and battery, invasion of privacy, and defamation?
- What are the two main types of law affecting health care?
- What are examples of torts?
- How does contract law affect health care?
- What are the three parts of a contract?
- When could a healthcare worker be charged with abuse, invasion of privacy, assault and battery, and false imprisonment?
- What are the main types of consent?

## **Common Career Technical Core**

### **HL5**

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

## **HOSA Competitive Events (High School)**

### **Health Science Events**

- Knowledge Test: Medical Law and Ethics

## **Task Number 130**

### **Explain confidentiality and its connection to HIPAA.**

#### **Definition**

Explanation should include

- types of patient information that must be kept confidential (e.g., demographic data, medical records, test results, appointment information, financial information)
- formats of patient information that must be kept confidential (e.g., printed data, handwritten data, electronic data, X-ray and other test reports)
- how the information is stored to ensure privacy
- the importance of maintaining patient confidentiality in and away from the workplace

- the need to inform patients of their right to privacy
- the role of HIPAA in legally mandating patient privacy across the United States.

Teacher resource:

[Health Insurance Portability and Accountability Act \(HIPAA\)](#)

### **Process/Skill Questions**

- What types of patient information are considered confidential?
- What initiated the need for HIPAA? How has this legislation influenced the healthcare industry?
- What types of patient information can be released to other healthcare providers and third-party payers?

### **Common Career Technical Core**

#### **HL5**

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

### **HOSA Competitive Events (High School)**

#### **Health Science Events**

- Knowledge Test: Medical Law and Ethics

#### **Teamwork Events**

- HOSA Bowl

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## **Task Number 131**

### **Analyze the role of public health in providing health care.**

#### **Definition**

Analysis should include

- the provision of health care to individuals, families, communities, populations, and subpopulations
- developing and carrying out the goals of [Healthy People 2030](#)
- the role of public health in addressing global health concerns
- the provision of certain health-related services to the indigent and homeless
- emergency care in the case of natural disasters, pandemics, terrorist acts, war, mass-casualty incidents, or similar widespread dangers
- mass immunization in the case of pandemics, bioterrorist acts, or other widespread biohazard risks
- the dissemination of information related to disaster planning and other issues of general interest.

### Process/Skill Questions

- What are the goals of public health?
- How are ethical issues in public health different from those in medicine?
- How does policy development relate to public health?
- How do terms such as *epidemiology*, *endemic*, *epidemic*, and *pandemic* relate to public health?
- What are the public health roles in home health and schools?
- How is telehealth technology used in public health?
- What is a target audience?
- What can public health professionals do to assist individuals to make healthy choices?
- What types of educational programs can public health professionals provide for communities, populations, and subpopulations?
- Why should public health take a global position on health care, obesity, HIV/AIDS, and tobacco?

### Common Career Technical Core

#### HL5

Analyze the legal and ethical responsibilities, limitations and implications of actions within the healthcare workplace

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## Exploring Healthcare Careers and Employability Skills

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### Task Number 132

## **Conduct a self-assessment to determine career interests in the healthcare field.**

### **Definition**

Self-assessment should

- assist the student regarding
  - determining goals
  - interests
  - personal preferences
  - sources of satisfaction
  - interpersonal strengths
  - skills
  - academic interests
  - work or volunteer experience
- correlate to a variety of healthcare professions that require different types of skills and work habits.

Tools for self-assessment may include

- [Virginia Career VIEW](#)
- [VA Wizard](#)
- [Career Prospects in Virginia.](#)

### **Process/Skill Questions**

- What types of careers in the healthcare field interest you? How do your personal skills and abilities match those needed in these careers?
  - What personal qualities or characteristics are needed to work in the healthcare field?
  - What healthcare careers are currently the most marketable?
  - What trends may affect healthcare career opportunities in the foreseeable future?
- 

## **Task Number 133**

### **Describe the major career fields in health and medical sciences.**

#### **Definition**

Description should include the major pathways in the Health Science Career Cluster, such as

- Therapeutic Services
- Diagnostic Services
- Health Informatics
- Support Services
- Biotechnology Research and Development.

### **Process/Skill Questions**

- Why is it important to explore different career options available in health and medical sciences?
- What types of educational requirements are needed for the various career pathways?
- Why are there so many types of healthcare professions and specialties in the healthcare industry?
- What are the different types of requirements and regulations necessary for each major medical career pathway?
- Why do the state and federal governments require specific licensure and/or certifications for most healthcare professionals?
- What state and federal organizations are responsible for regulating the certifications or licensure examinations for each medical pathway?

### **Common Career Technical Core**

#### **HL1**

Determine academic subject matter, in addition to high school graduation requirements, necessary for pursuing a health science career.

### **HOSA Competitive Events (High School)**

#### **Leadership Events**

- Medical Photography

#### **Teamwork Events**

- Health Career Display

## **Task Number 134**

**Research selected healthcare career(s).**

## **Definition**

Research should include the nature of the work, working conditions, necessary education and/or training, licensure and/or other qualifications, advancement opportunities, employment, job outlook, and earnings.

## **Process/Skill Questions**

- What resources can be used to explore healthcare career options available in a community?
- What types of educational requirements are needed for selected healthcare careers? What educational institutions in the region offer education or training for the selected career options?
- Within the community, how do the selected healthcare careers differ in job outlook and advancement opportunities? What are the statewide job outlook and advancement opportunities for the selected career options?

## **Common Career Technical Core**

### **HL1**

Determine academic subject matter, in addition to high school graduation requirements, necessary for pursuing a health science career.

## **HOSA Competitive Events (High School)**

### **Health Professions Events**

- Clinical Specialty

### **Leadership Events**

- Medical Photography

### **Teamwork Events**

- Health Career Display

## **Task Number 135**

**Explain the importance of ongoing professional development and methods of attaining ongoing training in the healthcare industry.**

### **Definition**

Explanation should include continuing educational opportunities, workshops, conferences, and cross-training.

### **Process/Skill Questions**

- Why is continuing education so important for healthcare practitioners?
- What resources are available to explore opportunities for workshops and conferences in the healthcare field in Virginia?
- What is the effect of cross-training within the healthcare industry?

### **Common Career Technical Core**

#### **HL1**

Determine academic subject matter, in addition to high school graduation requirements, necessary for pursuing a health science career.

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## **Describing the Opioid Crisis**

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### **Task Number 136**

**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
- HOSA Bowl
- Public Service Announcement

## **Task Number 137**

### **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
- HOSA Bowl
- Public Service Announcement

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## Task Number 138

# 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

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# Examining the Key Factors of Drug Addiction

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## Task Number 139

## **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 140**

## **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 141**

### **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 142**

### **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

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## **Task Number 143**

### **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

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# Understanding Pain Management Protocols

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## Task Number 144

**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 145**

### **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 146**

### **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 147

**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

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## **Task Number 148**

### **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 149**

**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

#### **Teamwork Events**

- Creative Problem Solving
- HOSA Bowl

## **Task Number 150**

### **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
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## **Task Number 151**

### **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
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## Task Number 152

### 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
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## Working with Patients and Caregivers

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## **Task Number 153**

### **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

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## **Task Number 154**

### **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

Highlight the major developments of healthcare history.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8  History and Social Science: WG.17, WHI.5, WHII.4, WHII.8, WHII.14  Science: BIO.3
Differentiate among the types of health insurance.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.8, WHII.8
Differentiate among the types of medical care delivery systems.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.14, WG.17, WHII.14
Describe the roles of healthcare team members.	English: 9.5, 10.5, 11.5, 12.5

Differentiate among the scope and functions of the Virginia Department of Health Professions and the Virginia Department of Health.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8 History and Social Science: GOVT.8, GOVT.9
Examine the influence of the Internet on the healthcare industry and on the individual consumer.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: VUS.14, WG.17, WHII.14
Identify common medical prefixes, roots, and suffixes and their meanings, and medical terms related to human systems.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5 History and Social Science: WHI.5, WHI.6, WHII.4
Describe how word parts are combined to form medical terms.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5 History and Social Science: WHI.5, WHI.6
Interpret common abbreviations used in the healthcare field.	English: 9.3, 9.5 History and Social Science: WHI.5, WHI.6
Define terminology that relates to the various elements and systems of the body.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5 History and Social Science: WHI.15, WHII.2, WHII.4 Science: BIO.4
Identify basic anatomical structure and body cavities.	History and Social Science: WHI.15, WHII.2, WHII.4 Science: BIO.4
Identify chemical components of the body.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHII.4 Science: BIO.2
Identify the structures and functions of the cell.	History and Social Science: WHII.4 Science: BIO.3
Identify the structures and functions of tissues.	History and Social Science: WHI.15, WHII.2, WHII.4
Identify the structures, functions, and diseases of the integumentary system.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
Identify the structures, functions, and diseases of the skeletal system.	English: 9.5, 10.5, 11.5, 12.5

	History and Social Science: WHI.15, WHII.2, WHII.4  Science: BIO.4
Identify the structures, functions, and diseases of the muscular system.	English: 9.5, 10.5, 11.5  History and Social Science: WHI.15, WHII.2, WHII.4  Science: BIO.4
Identify the structures, functions, and diseases of blood.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: WHII.4  Science: BIO.4
Identify the structures, functions, and diseases of the heart.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: WHII.4  Science: BIO.4
Identify the structures, functions, and diseases of blood vessels and blood circulation.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: WHII.4  Science: BIO.4
Identify the structures, functions, and diseases of the lymphatic system.	English: 9.5, 10.5, 11.5, 12.5  Science: BIO.4
Explain immunity and its relationship with the lymphatic system.	English: 9.5, 10.5, 11.5, 12.5  Science: BIO.4
Identify the structures, functions, and diseases of the respiratory system.	English: 9.5, 10.5, 11.5, 12.5  Science: BIO.4
Identify the structures, functions, and diseases of the gastrointestinal system.	English: 9.5, 10.5, 11.5, 12.5  Science: BIO.4
Identify the structures, functions, and diseases of the endocrine system.	English: 9.5, 10.5, 11.5, 12.5  Science: BIO.4
Identify the structures, functions, and diseases of the reproductive system.	English: 9.5, 10.5, 11.5, 12.5  Science: BIO.4
Identify the structures, functions and diseases of the nervous system.	English: 9.5, 10.5, 11.5, 12.5  Science: BIO.4

Identify the structures, functions and diseases of the urinary system.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.4
Identify the structures, functions, and diseases of the sensory system.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHII.4 Science: BIO.4
Describe specimen preparation and handling.	English: 9.5, 10.5, 11.5, 12.5 Science: BIO.1
Identify the diagnoses, laboratory tests, and procedures used in the treatment for the diseases/disorders of each body system.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHII.4
Examine body fluids and cells for bacteria, parasites, and other microorganisms.	History and Social Science: WHII.4
Analyze the chemical content of fluids and tissues.	History and Social Science: WHII.4
Examine cells to determine the quantity of and/or to look for abnormal cells in blood and other body fluids and tissues.	History and Social Science: WHII.4
Assess lab findings, using automated equipment and computerized instruments.	History and Social Science: VUS.14, WG.17, WHII.4, WHII.14
Document the results of laboratory findings.	English: 9.6, 10.6, 11.6, 12.6
Report lab results to physicians.	English: 9.6, 9.8, 10.6, 10.8, 11.6, 11.8, 12.6, 12.8
Identify the six essential nutrients, sources, and functions for optimal health and wellness.	English: 10.3, 10.5, 11.3, 11.5, 12.3, 12.5 Science: BIO.2
Describe the digestion and metabolism of food.	English: 10.5, 11.5, 12.5 Science: BIO.4
Describe dietary guidelines recommended for health promotion.	English: 10.5, 11.5, 12.5
Identify the principles of food management and safety.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: VUS.8, VUS.14
Explain basic dietary management techniques.	English: 9.5, 10.5, 11.5, 12.5
Identify common medical conditions related to poor nutrition.	English: 9.5, 10.5, 11.5, 12.5
Identify dietary patterns.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHII.15
Identify general principles of pharmacology.	English: 9.5, 10.5, 11.5, 12.5

Describe sources, types, and uses of common drugs.	English: 9.5, 10.5, 11.5, 12.5
Explain the naming processes for drugs.	English: 9.5, 10.5, 11.5, 12.5
Explain the importance of pharmacokinetics.	English: 9.5, 10.5, 11.5, 12.5
Describe the elements of a prescription.	English: 9.5, 10.5, 11.5, 12.5
Explain common abbreviations used on prescriptions.	English: 9.5, 10.5, 11.5, 12.5
Calculate doses of medications.	History and Social Science: WHI.4, WHI.9  Mathematics: A.1, A.4
Identify drug administration routes.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Explain the importance of drugs and supplements in preventive medicine.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.8, WHII.4, WHII.8
Explain current state and federal regulations regarding the practice of pharmacy.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8  History and Social Science: GOVT.7, GOVT.8, VUS.13, VUS.14
Summarize the approaches to health care for a variety of patient categories.	English: 9.5, 9.8, 10.5, 11.5, 12.5
Explain the nature and importance of a medical history.	English: 9.5, 10.5, 11.5, 12.5
Examine concepts of care relating to ethnic, religious, cultural, and personal preferences.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.13, WHII.15
Explain the principles of effective communication.	English: 9.5, 10.5, 11.1, 11.5, 12.1, 12.5
Apply principles of communication in establishing therapeutic relationships.	English: 9.1, 10.1, 11.1, 12.1
Explain the concept and importance of the Patient's Bill of Rights.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: GOVT.11
Explain the function and importance of advance directives for health care.	English: 9.5, 10.5, 11.5, 12.5
Examine the concepts of death and dying.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.13, VUS.14, WG.17, WHII.14
Explain the concept of integrated and holistic care.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: WHI.11, WHII.6
Explain the concept of infection control and asepsis.	English: 9.5, 10.5, 11.5, 12.5

	History and Social Science: WHII.4
Explain the chain of infection.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5  History and Social Science: WHII.4
Demonstrate hand hygiene procedures.	
Explain transmission-based precautions.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Demonstrate the use of personal protective equipment (PPE) and safe workplace practices.	
Describe policies and procedures for handling and disposing of infectious and/or hazardous materials.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8  History and Social Science: WHII.4
Explain sterile processes.	English: 9.5, 10.5, 11.5, 12.5
Identify the importance of the CDC and Occupational Safety and Health Administration (OSHA) guidelines.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: GOVT.9, VUS.14, WG.17, WHII.14  Science: CH.1
Identify emergency protection areas and devices.	Science: CH.1
Explain methods of fire safety.	English: 9.5, 10.5, 11.5, 12.5
Identify environmental hazards.	History and Social Science: VUS.13, VUS.14, WG.17, WHII.14
Describe the principles of body mechanics.	
Explain radiographic safety.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Explain the importance of maintaining a safe and clean work environment.	English: 9.5, 10.5, 11.5, 12.5  Science: BIO.1, CH.1
Explain the process and importance of patient identification.	English: 9.5, 10.5, 11.5, 12.5
Explain the purpose of medical records.	English: 9.5, 10.5, 11.5, 12.5
Identify the components of the electronic medical record (EMR).	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.14, WG.17, WHII.14  Science: BIO.1
Explain basic traumatic and medical emergency procedures.	English: 9.5, 10.5, 11.5, 12.5
Identify the essential components of disaster planning.	English: 9.5, 10.5, 11.5, 12.5

	History and Social Science: VUS.14, WHII.14
Identify items found in a basic emergency kit.	English: 9.5, 10.5, 11.5, 12.5
Describe the causes, symptoms, and treatments of selected medical emergencies.	English: 9.5, 10.5, 11.5, 12.5
Demonstrate CPR with the AED.	
Explain the concept of biotechnology.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.14, WG.17, WHII.14  Science: BIO.1, BIO.5
Identify the effects of innovations in biotechnology.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.14, WG.17, WHII.14  Science: BIO.1, BIO.5
Describe the effects of biotechnology on preventive health care.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.13, VUS.14, WG.17, WHII.14  Science: BIO.1, BIO.5
Describe the role biotechnology plays in medical forensics.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.13, VUS.14, WG.17, WHII.14  Science: BIO.1, BIO.5
Identify professional agencies and organizations in the healthcare field and the roles of each.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: GOVT.9, VUS.13, VUS.14
Examine the legal issues related to the health and medical science profession.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8  History and Social Science: VUS.14, WHII.14
Explain confidentiality and its connection to HIPAA.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.13, VUS.14
Analyze the role of public health in providing health care.	English: 9.5, 10.5, 11.5, 12.5  History and Social Science: VUS.14, WG.17, WHII.14

Conduct a self-assessment to determine career interests in the healthcare field.	
Describe the major career fields in health and medical sciences.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: VUS.14, WG.17, WHII.14
Research selected healthcare career(s).	English: 9.8, 10.8, 11.8, 12.8 History and Social Science: VUS.8, WHII.8
Explain the importance of ongoing professional development and methods of attaining ongoing training in the healthcare industry.	English: 9.5, 10.5, 11.5, 12.5
Describe the history and current state of the opioid crisis in the United States.	English: 9.5, 10.5, 11.5, 12.5
Describe the history and current state of the opioid crisis in Virginia.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Define the pharmacological components and common uses of opioids.	English: 9.3, 9.8, 10.3, 10.8, 11.3, 11.8, 12.3, 12.8
Examine the science of addiction.	English: 9.5, 10.5, 11.5, 12.5
Explain prevention and early intervention strategies.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).	English: 9.5, 10.5, 11.5, 12.5
Describe the treatment models of addiction therapy.	English: 9.5, 10.5, 11.5, 12.5
Describe the medication management antidote used to prevent fatal opioid overdoses.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Explain the science of physiological and mental pain.	English: 9.3, 9.5, 10.3, 10.5, 11.3, 11.5, 12.3, 12.5
Describe the diagnostic tools used in developing pain management plans.	English: 9.5, 10.5, 11.5, 12.5
Describe pain treatment options available to various populations of patients.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Describe the effects of opioid dependency on the human body systems.	English: 9.5, 10.5, 11.5, 12.5 History and Social Science: WHII.4
Explain the mechanism and physical effects of opioids on the human body.	English: 9.5, 10.5, 11.5, 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: 9.5, 10.5, 11.5, 12.5

Describe the withdrawal and tapering side effects of opioid use.	English: 9.5, 10.5, 11.5, 12.5
Describe storage and disposal options for opioids.	English: 9.5, 9.8, 10.5, 10.8, 11.5, 11.8, 12.5, 12.8
Explain community resources for education about opioid use.	English: 9.5, 10.5, 11.5, 12.5
Describe key communication topics involving opioids for patients.	English: 9.5, 10.5, 11.5, 12.5
Describe communication topics for caregivers and family members.	English: 9.5, 10.5, 11.5, 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

- College and Work Readiness Assessment (CWRA+)
- National Career Readiness Certificate Assessment
- National Health Science 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.*

- Dental Careers I (8328/36 weeks, 280 hours)
- Emergency Medical Responder (8336/36 weeks)
- Emergency Medical Telecommunications (8337/36 weeks)
- Health Assisting Careers (8331/36 weeks)
- Health Informatics (8338/36 weeks)
- Home Health Aide (8364/36 weeks)
- Medical Administration (6730/36 weeks)
- Medical Administration (6731/18 weeks)
- Medical Laboratory Technology I (8377/36 weeks)
- Medical Terminology (8383/36 weeks)
- Medical Terminology (8384/18 weeks)
- Mental Health Assisting Careers (8332/36 weeks, 280 hours)
- Nurse Aide I (8360/36 weeks, 280 hours)
- Nurse Aide I Condensed (8355/36 weeks, 140 hours)
- Pharmacy Technician I (8305/36 weeks, 140 hours)
- Pharmacy Technician II (8306/36 weeks, 280 hours)
- Physical/Occupational Therapy I (8365/36 weeks, 280 hours)
- Physical/Occupational Therapy II (8366/36 weeks, 280 hours)
- Practical Nursing I (8357/18 weeks, 280 hours)
- Practical Nursing II (8358/18 weeks, 280 hours)
- Radiologic Technology I (8375/36 weeks)
- Radiologic Technology II (8376/36 weeks)
- Respiratory Therapy I (8372/36 weeks)
- Respiratory Therapy II (8373/36 weeks)
- Sports Medicine I (7660/36 weeks, 280 hours)
- Sports Medicine I Condensed (8316/36 weeks, 140 hours)
- Sports Medicine II (7662/36 weeks, 280 hours)
- Sports Medicine II Condensed (8317/36 weeks, 140 hours)
- Sterile Processing Technician (8367/36 weeks)

- Surgical Technologist I (8351/36 weeks, 420 hours)
- Surgical Technologist II (8352/36 weeks, 420 hours)

<b>Career Cluster: Health Science</b>	
<b>Pathway</b>	<b>Occupations</b>
<b>Diagnostics Services</b>	<b>Nuclear Medicine Technologist Phlebotomist Radiologic Technologist, Radiographer</b>
<b>Health Informatics</b>	<b>Clinical Ethicist Medical Information Technologist Medical, Health Services Manager</b>
<b>Therapeutic Services</b>	<b>Audiologist Exercise Physiologist Optician Physician Recreation Therapist</b>