Pharmacy Technician II

8306 36 weeks / 280 hours

Table of Contents

Acknowledgments 1
Course Description 2
Task Essentials Table 3
Curriculum Framework 5
Assisting the Pharmacist in Serving Patients 5
Maintaining Medication and Inventory Control Systems 32
Participating in the Administration and Management of Pharmacy Practice 55
Describing the Opioid Crisis 73
Examining the Key Factors of Drug Addiction 76
Understanding Pain Management Protocols 80
Working with Patients and Caregivers 88
SOL Correlation by Task 90
Acronym Glossary 94
HOSA Information 95
Teacher Resources 95
Opioid Abuse Prevention Education 97
Appendix: Credentials, Course Sequences, and Career Cluster Information 99

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

Course Description

Suggested Grade Level: 11 or 12
Prerequisites: 8305

This certificate program is designed to provide students with the basic skills and knowledge to begin work as a pharmacy technician. The coursework will fulfill the requirements of the Virginia Board of Pharmacy and prepare students to take national examinations, Pharmacy Technician Certification Exam (PTCE) or Exam Certified Phlebotomy Technician (ExCPT). Trained, experienced pharmacy technicians who can demonstrate the right skills and knowledge, have many exciting and respected career options, and are well-positioned to pursue postsecondary study in the pharmacy field.

NOTE: This course has specific state laws and regulations from a governing medical board or agency. Please contact the Virginia Department of Education, Office of Career and Technical Education prior to implementing this course. All inquiries may be sent to cte@doe.virginia.gov.

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.

8306	Tasks/Competencies
Assisting the Pharmacist in Serving Patients	
⊕	Receive prescription or medication orders.
⊕	Assist in obtaining information from a patient/patient's representative, at the direction of the pharmacist.
⊕	Record data to assist the pharmacist in monitoring patient outcomes.
⊕	Assist the pharmacist in collecting data.
⊕	Confirm a prescription or medication order.
⊕	Generate a patient profile.
⊕	Process a prescription or medication order.
⊕	Compound a prescription or medication order.
⊕	Provide medication to a patient/patient's representative.
⊕	Assist with data collection and analysis for quality assurance and for patient safety activities.
⊕	Perform billing and accounting functions for pharmacy functions and goods.
⊕	Communicate with third-party payers to determine coverage, rejected claims, or prior authorizations.
○	Provide supplemental information, as permitted by state law and regulations.
⊕	Communicate with a patient to determine whether the patient needs/wants counseling with the pharmacist.
○	Perform screening functions for drug administration under appropriate supervision, as permitted by state law and regulations.
Maintaining Medication and Inventory Control Systems	

8306	Tasks/Competencies
⊕	Identify pharmaceuticals, durable medical equipment, devices, and supplies to be ordered.
⊕	Place routine and emergency orders.
⊕	Receive and verify purchases.
⊕	Place purchases in inventory.
⊕	Distribute non-patient-specific inventory.
⊕	Review inventory for possible removal of items.
⊕	Manage changes in product availability.
⊕	Explain policies and procedures to deter theft and/or drug diversion.
⊕	Assist with the maintenance of a record of controlled substances received, stored, and removed from inventory, under the supervision of a pharmacist.
⊕	Perform required inventories.
⊕	Maintain record-keeping systems for inventory activities.
⊕	Compound medications in anticipation of prescription/medication orders.
⊕	Discuss quality assurance tests on compounded medication.
⊕	Repackage finished dosage forms for dispensing.
⊕	Identify quality assurance reports related to nursing units, products, and/or supplies.
○	Communicate with representatives of pharmaceutical and equipment suppliers.
Participating in the Administration and Management of Pharmacy Practice	
⊕	Collect productivity information.
⊕	Participate in continuous quality improvement programs and patient safety activities.
⊕	Generate quality assurance reports.
⊕	Maintain the practice setting for compliance with federal, state, and local laws, regulations, and professional standards.
⊕	Evaluate written policies and procedures for environmental quality, sanitation management, handling of hazardous waste, and infection or exposure control.
⊕	Perform routine sanitation, maintenance, and calibration of equipment.
⊕	Use manual or computer-based information systems to perform job-related activities.
⊕	Maintain automated dispensing technology.
⊕	Conduct staff training and continuing education for pharmacy-assisting tasks.
⊕	Aid in establishing, implementing, and monitoring policies and procedures.
⊕	Maintain patient and data confidentiality in the administrative and management environment.
⊕	Maintain required registration(s), license(s), and/or certification(s).
⊕	Implement safety, security, and loss-prevention policies and procedures.
⊕	Maintain inventory of operational supplies.
Describing the Opioid Crisis	
⊕	Describe the history and current state of the opioid crisis in the United States.
⊕	Describe the history and current state of the opioid crisis in Virginia.
⊕	Define the pharmacological components and common uses of opioids.
Examining the Key Factors of Drug Addiction	
⊕	Examine the science of addiction.
⊕	Explain prevention and early intervention strategies.

8306	Tasks/Competencies
⊕	Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).
⊕	Describe the treatment models of addiction therapy.
⊕	Describe the medication management antidote used to prevent fatal opioid overdoses.
Understanding Pain Management Protocols	
⊕	Explain the science of physiological and mental pain.
⊕	Describe the diagnostic tools used in developing pain management plans.
⊕	Describe pain treatment options available to various populations of patients.
⊕	Describe the effects of opioid dependency on the human body systems.
⊕	Explain the mechanism and physical effects of opioids on the human body.
⊕	Explain the use of opioids in practice settings, the role of opioids in pain management, and risk factors associated with the use of the medication.
⊕	Describe the withdrawal and tapering side effects of opioid use.
⊕	Describe storage and disposal options for opioids.
⊕	Explain community resources for education about opioid use.
Working with Patients and Caregivers	
⊕	Describe key communication topics involving opioids for patients.
⊕	Describe communication topics for caregivers and family members.

Legend: ⊕Essential ○Non-essential ⊖Omitted

Curriculum Framework

Assisting the Pharmacist in Serving Patients

Task Number 39

Receive prescription or medication orders.

Definition

Receiving orders could be from a patient/patient's representative, prescriber, or other healthcare professional and should include the following steps:

- Accept new written or electronic prescription or medication order (e.g., by fax or computer).
- Accept refill request.

- Accept refill request electronically (e.g., by telephone, fax, or computer).
- Contact prescriber/originator for clarification about prescription or medication order refill, as specified by regulation and/or policy.
- Perform days' supply calculation and any metric conversions related to dosage.

See Pharmacy Technician Certification Board (PTCB) 4.2, 4.3.
See American Society of Health-System Pharmacists (ASHP) 3.1, 3.2.

Process/Skill Questions

- Why is it important to match the patient to the drug indication?
- Why should the Drug Enforcement Administration (DEA) number be validated?
- Why is it important to know both generic and brand names?
- What skills are useful when receiving prescriptions/medical orders?
- What are the regulations/procedures for technicians when contacting prescribers/organizations to clarify prescriptions or medication order refills?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3408.03 — Dispensing of therapeutically equivalent drug products

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.3. Knowledge of state-specific prescription transfer regulations
- I.4. Knowledge of pharmaceutical and medical abbreviations and terminology
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.7. Knowledge of epidemiology

- I.12. Knowledge of drug interactions (such as drug-disease, drug-drug, drug-laboratory, drug-nutrient)
- I.13. Knowledge of strengths/dose, dosage forms, physical appearance, routes of administration, and duration of drug therapy
- I.14. Knowledge of effects of patient's age (for example, neonates, geriatrics) on drug and non-drug therapy
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.16. Knowledge of pharmacology (for example, mechanism of action)
- I.17. Knowledge of common and severe side or adverse effects, allergies, and therapeutic contraindications associated with medications
- I.18. Knowledge of drug indications
- I.19. Knowledge of relative role of drug and non-drug therapy (for example, herbal remedies, lifestyle modification, smoking cessation)
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.22. Knowledge of required prescription order refill information
- I.23. Knowledge of formula to verify the validity of a prescriber's DEA number
- I.24. Knowledge of techniques for detecting forged or altered prescriptions
- I.25. Knowledge of techniques for detecting prescription errors (for example, abnormal doses, early refill, incorrect quantity, incorrect patient ID #, incorrect drug)
- I.28. Knowledge of non-prescription (over-the-counter [OTC]) formulations
- I.73. Knowledge of confidentiality requirements

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-275 — Delivery of dispensed prescriptions
18VAC110-20-280 — Transmission of a prescription order by facsimile machine
18VAC110-20-285 — Electronic transmission of prescriptions from prescriber to pharmacy

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Task Number 40

Assist in obtaining information from a patient/patient's representative, at the direction of the pharmacist.

Definition

Assistance should include obtaining information regarding

- language preference of patient
- communication barriers
- diagnosis or desired therapeutic outcome

- medication use (e.g., aspirin, vitamins, acetaminophen, cough syrups)
- allergies (e.g., sulfur, penicillin)
- adverse reactions
- medical history and relevant patient information
- physical disability
- reimbursement mechanisms
- full name of patient (for male patients, verify suffix [e.g., Jr., Sr., II])
- date of birth, address, and phone number
- insurance type, including identification numbers and group numbers
- prescription completeness
- product inventory.

See PTCB 1.5, 2.8, 8.1, 9.1.
See ASHP 3.1.

Process/Skill Questions

- What are situations in which the patient requires the attention of a pharmacist?
- Why is confidentiality important when obtaining patient information?
- What are techniques for detecting prescription errors?
- Why is it important to know if patients are taking over-the-counter (OTC) and/or herbal medications?
- Why are dispense-as-written (DAW) codes important?
- What information should be given to a patient on the first visit to a pharmacy?
- Who determines when to use a safety top or easy-open top?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.5. Knowledge of generic and brand names of pharmaceuticals

- I.6. Knowledge of therapeutic equivalence
- I.7. Knowledge of epidemiology
- I.8. Knowledge of risk factors for disease
- I.9. Knowledge of anatomy and physiology
- I.11. Knowledge of standard and abnormal laboratory values
- I.12. Knowledge of drug interactions (such as drug-disease, drug-drug, drug-laboratory, drug-nutrient)
- I.13. Knowledge of strengths/dose, dosage forms, physical appearance, routes of administration, and duration of drug therapy
- I.14. Knowledge of effects of patient's age (for example, neonates, geriatrics) on drug and non-drug therapy
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.16. Knowledge of pharmacology (for example, mechanism of action)
- I.17. Knowledge of common and severe side or adverse effects, allergies, and therapeutic contraindications associated with medications
- I.18. Knowledge of drug indications
- I.19. Knowledge of relative role of drug and non-drug therapy (for example, herbal remedies, lifestyle modification, smoking cessation)
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.21. Knowledge of information to be obtained from patient/patient's representative (for example, demographic information, allergy, third-party information)
- I.25. Knowledge of techniques for detecting prescription errors (for example, abnormal doses, early refill, incorrect quantity, incorrect patient ID #, incorrect drug)
- I.28. Knowledge of non-prescription (over-the-counter [OTC]) formulations
- I.40. Knowledge of techniques for assessing patient's compliance with prescription or medication order
- I.41. Knowledge of action to be taken in the event of a missed dose
- I.47. Knowledge of automatic stop orders
- I.71. Knowledge of customer service principles
- I.72. Knowledge of communication techniques
- I.73. Knowledge of confidentiality requirements

Task Number 41

Record data to assist the pharmacist in monitoring patient outcomes.

Definition

Recording may include data such as

- blood pressure
- cholesterol values
- glucose values
- an explanation of the purposes of and procedures for monitoring and documenting patient outcomes.

See ASHP 3.2, 3.7.

Process/Skill Questions

- What types of lab tests are commonly used to monitor drug therapy?
- How are screening tests used in the pharmacy?
- How should the results of lab tests be communicated?
- To whom should the results of lab tests be communicated?
- How might dangerous interactions between OTC drugs and prescription drugs be averted?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3320 — Acts restricted to pharmacists

HOSA Competitive Events (High School)

Health Science Events

- Medical Terminology
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.7. Knowledge of epidemiology

- I.8. Knowledge of risk factors for disease
- I.9. Knowledge of anatomy and physiology
- I.10. Knowledge of signs and symptoms of disease states
- I.12. Knowledge of drug interactions (such as drug-disease, drug-drug, drug-laboratory, drug-nutrient)
- I.13. Knowledge of strengths/dose, dosage forms, physical appearance, routes of administration, and duration of drug therapy
- I.14. Knowledge of effects of patient's age (for example, neonates, geriatrics) on drug and non-drug therapy
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.16. Knowledge of pharmacology (for example, mechanism of action)
- I.17. Knowledge of common and severe side or adverse effects, allergies, and therapeutic contraindications associated with medications
- I.18. Knowledge of drug indications
- I.19. Knowledge of relative role of drug and non-drug therapy (for example, herbal remedies, lifestyle modification, smoking cessation)
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.25. Knowledge of techniques for detecting prescription errors (for example, abnormal doses, early refill, incorrect quantity, incorrect patient ID #, incorrect drug)
- I.28. Knowledge of non-prescription (over-the-counter [OTC]) formulations
- I.53. Knowledge of physical and chemical incompatibilities
- I.71. Knowledge of customer service principles
- I.72. Knowledge of communication techniques
- I.73. Knowledge of confidentiality requirements

Task Number 42

Assist the pharmacist in collecting data.

Definition

Assistance should include an explanation of the purposes of and procedures for monitoring and documenting patient outcomes and data such as

- blood pressure
- cholesterol values
- glucose values.

See PTCB 3.3, 3.4.
See ASHP 3.7.

Process/Skill Questions

- What types of lab tests are commonly used to monitor drug therapy?
- How are screening tests used in the pharmacy?
- How should the results of lab tests be communicated?
- To whom should the results of lab tests be communicated?

HOSA Competitive Events (High School)

Health Science Events

- Pathophysiology
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.11. Knowledge of standard and abnormal laboratory values
- I.12. Knowledge of drug interactions (such as drug-disease, drug-drug, drug-laboratory, drug-nutrient)
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.16. Knowledge of pharmacology (for example, mechanism of action)
- I.17. Knowledge of common and severe side or adverse effects, allergies, and therapeutic contraindications associated with medications
- I.18. Knowledge of drug indications
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.29. Knowledge of monitoring and screening equipment (for example, blood pressure cuffs, glucose monitors)
- I.73. Knowledge of confidentiality requirements

Task Number 43

Confirm a prescription or medication order.

Definition

Confirmation should include a check for

- completeness—patient's full name, address, date of birth, and date written
- accuracy—drug name, consistency with products available, dosage, route of administration, dosage form, quantity, directions for use, and intravenous (IV) therapy flow rates
- authenticity—DEA registration number verification, if required, and National Plan Identifier (NPI) number
- physician's name, address, and phone number
- authentic prescriber signature
- legality
- reimbursement eligibility
- dispense-as-written (DAW) or product selection codes (PSC).

See PTCB 6.4, 8.1, 9.1.
See ASHP 3.7.

Process/Skill Questions

- What are the essential parts of a prescription or medication order? Why is each part important?
- What would you look for to determine if a prescription is forged or altered?
- How would you determine if a prescription could be filled with a generic when a brand was designated?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.4. Knowledge of pharmaceutical and medical abbreviations and terminology
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.22. Knowledge of required prescription order refill information
- I.23. Knowledge of formula to verify the validity of a prescriber's DEA number
- I.24. Knowledge of techniques for detecting forged or altered prescriptions
- I.30. Knowledge of medical and surgical appliances and devices (for example, ostomies, orthopedic devices, pumps)
- I.73. Knowledge of confidentiality requirements

Task Number 44

Generate a patient profile.

Definition

Generation should include information regarding

- date of birth
- medication history
- allergies
- medication duplication
- drug-disease, drug-drug, drug-laboratory, and drug-food interactions
- update of profile as needed (may include vaccination record).

See PTCB 9.1.
See ASHP 3.1.

Process/Skill Questions

- Why is it important to have the most current patient-specific data available?
- What systems are commonly used to record dispensing activity?
- What methods may be used for securing missing pieces of information in a prescription/medication order?

- What systems are commonly used to detect interactions such as drug-disease or drug-drug allergies?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.4. Knowledge of pharmaceutical and medical abbreviations and terminology
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.11. Knowledge of standard and abnormal laboratory values
- I.12. Knowledge of drug interactions (such as drug-disease, drug-drug, drug-laboratory, drug-nutrient)
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.16. Knowledge of pharmacology (for example, mechanism of action)
- I.17. Knowledge of common and severe side or adverse effects, allergies, and therapeutic contraindications associated with medications
- I.18. Knowledge of drug indications
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.69. Knowledge of pharmacy-related computer software for documenting the dispensing of prescriptions or medication orders
- I.73. Knowledge of confidentiality requirements

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-240 — Manner of maintaining records, prescriptions, inventory records
18VAC110-20-250 — Automated data processing records of prescriptions

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Task Number 45

Process a prescription or medication order.

Definition

Processing should include the following steps:

- Enter prescription or medication order information into the patient profile.
- Be aware of error-prone abbreviations and/or medication names.
- Select the product(s) for a generic prescription or medication order.
- Select the product(s) for a brand-name prescription or medication order (consulting established formulary as appropriate).
- Obtain medications or devices from inventory.
- Check medication and/or device expiration date.
- Measure, count, or calculate finished dosage forms for dispensing.
- Record preparation of prescription or medication, including any special requirements for controlled substances.
- Package finished dosage forms (e.g., blister pack, vial).
- Affix label(s) and auxiliary label(s) to container(s).
- Assemble patient information materials.
- Check for accuracy during processing of the prescription or medication order (e.g., matching National Drug Code [NDC] number).
- Verify the measurements, preparation, and/or packaging of medications produced by other technicians.
- Prepare the prescription or medication order for final check by pharmacist.

See PTCB 6.1, 6.4, 6.5, 6.6, 6.7.
See ASHP 3.4, 3.5.

Process/Skill Questions

- Why is each step of the order process important?
- What is the difference between "q.i.d." (quater in die) and "q.h." (every hour)?
- What are common abbreviations used to indicate the route of administration?
- Why do drugs have lot numbers and expiration dates?
- Why is a basic knowledge of human biological functions important when processing a prescription or medication order?
- What are an open formulary and a closed formulary, and what is the importance of each?
- What abbreviations are on the "Do Not Use" list as recommended by The Joint Commission (TJC) and Institute for Safe Medication Practices (ISMP)?
- What are common auxiliary labels affixed to containers?
- What are the state regulations for tech-to-tech checking of prepared products?
- Why is verification of the NDC number vitally important?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3408.01 — Requirements for prescriptions
Va. Code §54.1-3408.02 — Transmission of prescriptions
Va. Code §54.1-3408.03 — Dispensing of therapeutically equivalent drug products

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Clinical Specialty
- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.4. Knowledge of pharmaceutical and medical abbreviations and terminology
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.12. Knowledge of drug interactions (such as drug-disease, drug-drug, drug-laboratory, drug-nutrient)
- I.13. Knowledge of strengths/dose, dosage forms, physical appearance, routes of administration, and duration of drug therapy
- I.14. Knowledge of effects of patient's age (for example, neonates, geriatrics) on drug and non-drug therapy
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.16. Knowledge of pharmacology (for example, mechanism of action)
- I.17. Knowledge of common and severe side or adverse effects, allergies, and therapeutic contraindications associated with medications
- I.18. Knowledge of drug indications
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.22. Knowledge of required prescription order refill information

- I.25. Knowledge of techniques for detecting prescription errors (for example, abnormal doses, early refill, incorrect quantity, incorrect patient ID #, incorrect drug)
- I.31. Knowledge of proper storage conditions
- I.32. Knowledge of automated dispensing technology
- I.33. Knowledge of packaging requirements
- I.34. Knowledge of NDC number components
- I.35. Knowledge of purpose for lot numbers and expiration dates
- I.36. Knowledge of information for prescription or medication order label(s)
- I.49. Knowledge of quality improvement methods (for example, matching NDC number, double-counting narcotics)
- I.52. Knowledge of drug stability
- I.69. Knowledge of pharmacy-related computer software for documenting the dispensing of prescriptions or medication orders
- I.73. Knowledge of confidentiality requirements

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-270 — Dispensing of prescriptions; certification of completed prescriptions; supervision of pharmacy technicians
18VAC110-20-275 — Delivery of dispensed prescriptions
18VAC110-20-280 — Transmission of a prescription order by facsimile machine
18VAC110-20-285 — Electronic transmission of prescriptions from prescriber to pharmacy
18VAC110-20-290 — Dispensing of Schedule II drugs
18VAC110-20-320 — Refilling of Schedule III through VI prescriptions
18VAC110-20-330 — Labeling of prescription as to content and quantity
18VAC110-20-350 — Special packaging
18VAC110-20-355 — Pharmacy repackaging of drug; records required; labeling requirements

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Task Number 46

Compound a prescription or medication order.

Definition

Compounding an order should include the following steps:

- Assemble equipment and/or supplies necessary for compounding the prescription or medication order in accordance with United States Pharmacopeia-National Formulary (USP-NF) standards.
- Demonstrate proper use of all equipment needed to compound the prescription or medication order.

- Perform calculations required for usual dosage determinations and preparation of compounded IV admixtures.
- Compound medications (e.g., ointments, reconstituted antibiotic suspensions) for dispensing according to prescription formula or instructions.
- Prepare sterile products.
- Simulate preparation of chemotherapy.
- Record preparation and/or ingredients of medications (e.g., lot number, control number, expiration date).
- Keep all medication containers and supply packages together for the final check by the pharmacist.
- Dispose of all waste items in accordance with safety standards.

See PTCB 3.6, 3.7, 7.4.
See ASHP 3.15, 3.16, 3.17.

Process/Skill Questions

- What is the logic of each step in the procedure for cleaning a laminar flow biological safety cabinet?
- What does the term *calibration* mean as it refers to equipment commonly used in pharmacy practice?
- Why is documentation important in compounding?
- Why are storage and stability information important when compounding a product?
- What are USP compounding standards?
- What are the definitions for *TPN, TPA, IVPB, IV,* and *LVP*? What are *piggybacks*?
    - Total Parenteral Nutrition
    - Tissue Plasminogen Activator
    - Intravenous piggyback
    - Large Volume Parenteral

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3410.2 — Compounding; pharmacists' authority to compound under certain conditions; labeling and record maintenance requirements

HOSA Competitive Events (High School)

Health Science Events

- Medical Math
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.4. Knowledge of pharmaceutical and medical abbreviations and terminology
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.13. Knowledge of strengths/dose, dosage forms, physical appearance, routes of administration, and duration of drug therapy
- I.14. Knowledge of effects of patient's age (for example, neonates, geriatrics) on drug and non-drug therapy
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.30. Knowledge of medical and surgical appliances and devices (for example, ostomies, orthopedic devices, pumps)
- I.32. Knowledge of automated dispensing technology
- I.35. Knowledge of purpose for lot numbers and expiration dates
- I.36. Knowledge of information for prescription or medication order label(s)
- I.50. Knowledge of pharmacy calculations (for example, algebra, ratio and proportions, metric conversions, IV drip rates, IV admixture calculations)
- I.51. Knowledge of measurement systems (for example, metric and avoirdupois)
- I.54. Knowledge of equipment calibration techniques
- I.55. Knowledge of procedures to prepare IV admixtures
- I.56. Knowledge of procedures to prepare chemotherapy
- I.57. Knowledge of procedures to prepare total parenteral nutrition (TPN) solutions
- I.58. Knowledge of procedures to prepare reconstituted injectable and non-injectable medications
- I.59. Knowledge of specialized procedures to prepare injectable medications (for example, epidurals and patient controlled analgesic [PCA] cassettes)
- I.62. Knowledge of procedures to compound sterile non-injectable products (for example, eyedrops)
- I.63. Knowledge of procedures to compound non-sterile products (for example, ointments, mixtures, liquids, emulsions)
- I.65. Knowledge of aseptic techniques (for example, laminar flow hood, filters)
- I.66. Knowledge of infection control procedures
- I.67. Knowledge of requirements for handling hazardous products and disposing of hazardous waste
- I.73. Knowledge of confidentiality requirements

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-411 — General Requirements
18VAC110-20-412 — Policy and Procedure Manual
18VAC110-20-413 — Physical and equipment requirements for pharmacies preparing sterile products
18VAC110-20-414 — Labeling requirements
18VAC110-20-415 — Quality Assurance
18VAC110-20-416 — Regulations for Sterile Compounding

Task Number 47

Provide medication to a patient/patient's representative.

Definition

Provision of medication should include the following steps:

- Store medication prior to distribution.
- Verify identification of recipient by facility policy.
- Deliver medication to a patient/patient's representative (e.g., by hand, mail, pneumatic tube, robotics).
- Place medication in dispensing system (e.g., unit-dose cart, robotics).
- Deliver medication to patient-care unit, as applicable.
- Record distribution of prescription medication.
- Record distribution of controlled substances.
- Record distribution of investigational drugs.
- Maintain confidentiality of transaction.

See PTCB 2.4, 3.2, 7.4.

Process/Skill Questions

- What is an investigational drug? Why are such drugs important?
- Who may participate in the use of an investigational drug?
- What types of documentation are associated with the distribution of controlled substances?
- What types of systems exist to dispense and store-controlled substances?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.30. Knowledge of medical and surgical appliances and devices (for example, ostomies, orthopedic devices, pumps)
- I.32. Knowledge of automated dispensing technology
- I.35. Knowledge of purpose for lot numbers and expiration dates
- I.36. Knowledge of information for prescription or medication order label(s)
- I.42. Knowledge of requirements for mailing medications
- I.43. Knowledge of delivery systems for distributing medications (for example, pneumatic tube, robotics)
- I.44. Knowledge of requirements for dispensing controlled substances
- I.45. Knowledge of requirements for dispensing investigational drugs
- I.46. Knowledge of record-keeping requirements for medication dispensing
- I.68. Knowledge of documentation requirements for controlled substances, investigational drugs, and hazardous wastes
- I.73. Knowledge of confidentiality requirements

Task Number 48

Assist with data collection and analysis for quality assurance and for patient safety activities.

Definition

Assistance should include methods used to increase patient safety by decreasing drug misadventures through detecting, reporting, analyzing, and correcting errors. Methods should include

- double-checking one's own work
- having another pharmacy technician double-check work
- having a pharmacist double-check work
- investigating situations where a drug misadventure is common, such as missing doses; extra doses; look-alike, sound-alike drugs (LASA)
- reporting and correcting errors, as needed
- analyzing the role of safety organizations in the prevention of errors
- defining
    - *Institute for Safe Medical Practices (ISMP)*
    - *The Joint Commission*
    - *MedWatch*
    - *black box warning*
    - *contraindications*
    - *off-label use*
    - *National Coordinating Council for Medication Error Reporting and Prevention (NCC MERP)*
    - *Institute of Medicine (IOM)*
    - *Risk Evaluation and Mitigation Strategies (REMS)*

See PTCB 4.1, 4.3, 4.6, 5.1, 5.3, 5.4.
See ASHP 3.13.

Process/Skill Questions

- What are the characteristics of an effective pharmacy department's approach to preventing medication misadventures?
- What roles do automation and information technology play in preventing drug misadventures?
- What are the basic features of some common programs for reporting medication misadventures?
- What are LASA drugs?
- What systems can be implemented to avoid misadventures due to LASA?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.73. Knowledge of confidentiality requirements

Task Number 49

Perform billing and accounting functions for pharmacy functions and goods.

Definition

Performance should include functions such as

- auditing
- tiers
- DAW code
- day's supply
- deductible/donut hole/gap
- coupons
- personal charge accounts
- third-party rejections
- third-party reconciliations
- census maintenance
- state-managed insurance programs
- co-pay, co-insurance, dual co-pay (e.g., generic vs. brand)
- maximum allowable cost (MAC)
- usual, customary, and reasonable (UCR) price
- out-of-pocket costs

Other categories

Insurance information

- formulary
- prescription drug benefits card
    - patient ID number
    - group number
    - co-pay amount
- referrals
- prior authorization
- primary care physician
- search of insurance database for coverage
- state, federal, and third-party insurance payer
- communication of co-pay information to patient

Payment consideration

- electronic payment processing
- online adjudication
- Medication Therapy Management (MTM) billing process

Prescription Essentials

- Pharmacy Benefits Manager (PBM)
- generic and therapeutic substitution
- limits
    - quantity-per-fill
    - number of refills
    - time between refills
    - dose
- readily retrievable signature logs and prescriptions

Insurance types and providers

- Exclusive Provider Organization (EPO), Preferred Provider Organization (PPO), Health Maintenance Organization (HMO), Health Savings Account (HSA), Point of Service Plan (POS), and Patient Centered Medical Home (PCMH)
- workers' compensation, Consolidated Omnibus Budget Reconciliation Act (COBRA), disability insurance, and manufacturer sponsored patient assistance programs.

See PTCB 8.1, 8.2, 8.3, 8.4.
See ASHP 3.14.

Process/Skill Questions

- What are the steps in obtaining prior authorization? Why is each step important?
- What is the role of a pharmacy technician in processing third-party payments and/or rejections?
- What is the purpose of a financial audit?
- What is the purpose of a third-party payer audit?
- How would financial audits apply to the pharmacy setting? Why are they important?
- What are the different types of insurance plans or cards in use?
- How do the HIPAA privacy and security regulations affect billing processes involving third-party payers and vendors that process electronic payments (e.g., credit card companies, banks)?
- How would billing proceed for a patient with more than one insurance plan?
- What is the difference between primary and secondary insurance?

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.13. Knowledge of strengths/dose, dosage forms, physical appearance, routes of administration, and duration of drug therapy
- I.14. Knowledge of effects of patient's age (for example, neonates, geriatrics) on drug and non-drug therapy
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.73. Knowledge of confidentiality requirements
- I.74. Knowledge of cash handling procedures
- I.75. Knowledge of reimbursement policies and plans

Task Number 50

Communicate with third-party payers to determine coverage, rejected claims, or prior authorizations.

Definition

Communication should be conducted with professionalism through

- telephone
- letter
- email
- faxes
- electronic formats
- mobile devices (e.g., text messages).

See PTCB 8.2, 8.3.
See ASHP 3.14.

Process/Skill Questions

- What are common reasons for rejected claims?
- What are the most common prior authorization procedures?
- How would a pharmacy technician communicate with patients, third-party payers, and others regarding medication coverage?
- How does HIPAA limit what information may be communicated to the patient regarding rejected claims and cancelled policies?
- What is the pharmacy benefits manager's role in the adjudication of claims?
- What is the pharmacy benefits manager's relationship to a third-party payer?

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.12. Knowledge of drug interactions (such as drug-disease, drug-drug, drug-laboratory, drug-nutrient)
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.16. Knowledge of pharmacology (for example, mechanism of action)
- I.17. Knowledge of common and severe side or adverse effects, allergies, and therapeutic contraindications associated with medications
- I.18. Knowledge of drug indications
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.72. Knowledge of communication techniques
- I.73. Knowledge of confidentiality requirements

Task Number 51

Provide supplemental information, as permitted by state law and regulations.

Definition

Provision may include

- patient package leaflets
- videos and other audiovisual presentations
- computer-generated information
- additional medication guides for some medications
- brochures or newsletters
- mobile apps
- association- and organization-based websites
- process for identifying patients requiring referrals to pharmacists
- information promoting wellness and disease prevention
- information identifying the effect of alcohol, tobacco, and legal and non-legal drugs on wellness, with the understanding that the pharmacy technician is not permitted to provide counseling.

See PTCB 4.2.
See ASHP 5.1, 5.2, 5.3, 5.4, 5.5.

Process/Skill Questions

- What are the purposes of supplemental information?
- How does HIPAA affect the provision of supplemental information?
- What are the legal obligations of a pharmacy to provide supplemental information?
- What types of supplemental information are available for patients with disabilities or language barriers?
- What apps aid patients in understanding and monitoring their disease state or state of wellness?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3320 — Acts restricted to pharmacists
Va. Code §54.1-3321 — Registration of pharmacy technicians

HOSA Competitive Events (High School)

Teamwork Events

- Community Awareness
- Health Education

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.13. Knowledge of strengths/dose, dosage forms, physical appearance, routes of administration, and duration of drug therapy
- I.14. Knowledge of effects of patient's age (for example, neonates, geriatrics) on drug and non-drug therapy
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.26. Knowledge of effects of patient's disabilities (for example, visual, physical) on drug and non-drug therapy
- I.37. Knowledge of requirements regarding auxiliary labels
- I.38. Knowledge of requirements regarding patient package inserts
- I.39. Knowledge of special directions and precautions for patient/patient's representative regarding preparation and use of medications
- I.72. Knowledge of communication techniques
- I.73. Knowledge of confidentiality requirements

Task Number 52

Communicate with a patient to determine whether the patient needs/wants counseling with the pharmacist.

Definition

Communication should be accomplished in accordance with

- customer service principles
- patient confidentiality guidelines
- legal requirements
- professional standards
- Omnibus Budget Reconciliation Act of 1990 (OBRA 90).

See PTCB 5.4, 5.5.
See ASHP 3.3.

Process/Skill Questions

- What are some effective communication techniques to determine whether a patient desires or requires counseling?
- What cues from the patient might indicate that counseling about medications and/or medical equipment by the pharmacist is needed?
- Why is patient counseling restricted to pharmacists?
- Why is patient counseling important?
- What regulation governs patient counseling?

HOSA Competitive Events (High School)

Health Science Events

- Medical Law and Ethics

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.26. Knowledge of effects of patient's disabilities (for example, visual, physical) on drug and non-drug therapy
- I.71. Knowledge of customer service principles
- I.72. Knowledge of communication techniques
- I.73. Knowledge of confidentiality requirements
- I.76. Knowledge of legal requirements for pharmacist counseling of patient/patient's representative

Task Number 53

Perform screening functions for drug administration under appropriate supervision, as permitted by state law and regulations.

Definition

Performance should include functions such as those listed below, performed under the supervision of a pharmacist or other qualified professional:

- Performing drug/IV rounds
- Anticipating refills of drugs/IVs
- Maintaining a log or electronic chart to identify patient's IVs checked during rounds and making any accompanying notes
- Screening for immunizations:
    - Review patient's prescription, as needed
    - Review patient's electronic file
    - Obtain information and signatures
    - Inform pharmacist of patient needs
    - Bill insurance companies, if appropriate
- Assist pharmacist in medication reconciliation functions for an institutional patient

See PTCB 2.5, 2.14.
See ASHP 5.1.

Process/Skill Questions

- What are the proper techniques for a pharmacy technician to use when administering sterile medications?
- What are the basic features of the systems commonly used to anticipate refills of drugs/IVs to ensure appropriate administration?
- What activities can a pharmacy technician perform to support immunization administration in the pharmacy?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3320 — Acts restricted to pharmacists
Va. Code §54.1-3321 — Registration of pharmacy technicians

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.1. Knowledge of federal, state, and/or practice site regulations, codes of ethics, and standards pertaining to the practice of pharmacy
- I.2. Knowledge of pharmaceutical, medical, and legal developments which impact on the practice of pharmacy
- I.5. Knowledge of generic and brand names of pharmaceuticals
- I.6. Knowledge of therapeutic equivalence
- I.15. Knowledge of drug information sources including printed and electronic reference materials
- I.20. Knowledge of practice site policies and procedures regarding prescriptions or medication orders
- I.27. Knowledge of techniques, equipment, and supplies for drug administration (for example, insulin syringes and IV tubing)
- I.73. Knowledge of confidentiality requirements

Maintaining Medication and Inventory Control Systems

Task Number 54

Identify pharmaceuticals, durable medical equipment, devices, and supplies to be ordered.

Definition

Identification should include

- pharmaceuticals (e.g., OTC, non-prescription behind-the-counter, and prescription products)
- durable medical equipment (DME) (e.g., wheelchairs, hospital beds, walking canes, crutches)
- devices (e.g., blood pressure monitors, air purifiers, blood sugar testing machines)
- supplies (e.g., forms, labels, packaging)
- maintained, up-to-date inventory
- pharmacy ordering policies.

See PTCB 2.15, 3.5.
See ASHP 3.11.

Process/Skill Questions

- What are the similarities between OTC medications and prescription medications?
- What are the pharmacy policies regarding inventory and ordering?
- What types of pharmaceuticals, DME, devices, and supplies are commonly part of a retail pharmacy inventory? How would this inventory vary in other pharmacy settings?
- Why should pharmacy staff have knowledge of pharmaceuticals, DME, medical devices, and all items stocked in the pharmacy?
- Why is it important to maintain an adequate supply of pharmaceuticals, DME, devices, and supplies in the pharmacy?
- What are the problems associated with an excessive supply of pharmaceuticals, DME, devices, and supplies in the pharmacy?
- What role does judgment play in supplementing an automated system for determining the timing and number of pharmaceuticals, DME, devices, and supplies in the pharmacy?
- What are the procedures for managing overages of items on the shelves and policies regarding returning items to the wholesaler to maintain optimal inventory?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.2. Knowledge of pharmaceutical industry procedures for obtaining pharmaceuticals

- II.6. Knowledge of par and reorder levels and drug usage
- II.12. Knowledge of products used in packaging and repackaging (for example, child-resistant caps and light-protective unit-dose packaging)
- II.17. Knowledge of legal and regulatory requirements and professional standards governing operations of pharmacies (for example, prepackaging, difference between compounding and manufacturing)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)

Task Number 55

Place routine and emergency orders.

Definition

Placement of orders should include

- pharmaceuticals
- DME
- devices
- supplies, including hazardous products and devices

and should entail

- following pharmacy-specific procedures for routine and emergency orders
- expediting routine and emergency orders in compliance with legal, regulatory, professional, and manufacturers' requirements
- prioritizing orders
- verifying all orders prior to submission
- following through to ensure appropriate medications and/or devices are received in a timely fashion.

See PTCB 2.15.
See ASHP 3.5.

Process/Skill Questions

- What are the advantages and disadvantages of each of the common methods of inventory control (e.g., prime vendor, just-in-time)?

- What are the types of inventories that must be maintained to meet state and federal law?
- What are the steps in each of the common methods for placing orders?
- What are the typical procedures or avenues available to expedite emergency orders/prescriptions?
- Why should pharmacy staff know the different methods available to fill emergency orders and prescription medications?

HOSA Competitive Events (High School)

Health Science Events

- Medical Law and Ethics
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.2. Knowledge of pharmaceutical industry procedures for obtaining pharmaceuticals
- II.6. Knowledge of par and reorder levels and drug usage
- II.9. Knowledge of the use of DEA controlled substance ordering forms
- II.12. Knowledge of products used in packaging and repackaging (for example, child-resistant caps and light-protective unit-dose packaging)
- II.22. Knowledge of policies, procedures, and practices regarding storage and handling of hazardous materials and wastes (for example, Materials Safety Data Sheet [MSDS])
- II.23. Knowledge of medication distribution and control systems requirements for controlled substances, investigational drugs, and hazardous materials and waste

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Task Number 56

Receive and verify purchases.

Definition

Receiving purchases may include

- pharmaceuticals
- DME
- devices
- supplies.

Verification should include checking the received order against specifications on the original purchase order.

See ASHP 3.18.

Process/Skill Questions

- What general tasks are involved in receiving, verifying, and returning ordered goods?
- What documentation should accompany the receipt of any DME, devices, or supplies?
- What are the common methods for handling back-ordered medications?
- Why is it so important to deter theft and/or medication diversion?
- What should be done if the amount received does not equal the amount recorded on the invoice?
- Why is it important to inspect goods before placing them into inventory?
- What is the policy for accepting partial deliveries?

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.1. Knowledge of drug product laws and regulations and professional standards related to obtaining medication supplies, durable medical equipment, and products (for example, Food, Drug and Cosmetic Act; Controlled Substances Act; Prescription Drug Marketing Act; USP-NF; NRC standards)
- II.2. Knowledge of pharmaceutical industry procedures for obtaining pharmaceuticals
- II.7. Knowledge of inventory receiving process
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)

Task Number 57

Place purchases in inventory.

Definition

Placement should involve arranging the following under proper storage conditions

- pharmaceuticals
- DME
- devices
- supplies (including hazardous materials and investigational products).

See PTCB 4.6.
See ASHP 3.19.

Process/Skill Questions

- What are the critical points of state regulations that pertain to the handling of hazardous waste and infection control?
- What typical procedures are used for the inventory and storage of atypical products (e.g., biologics, interferons, human immunodeficiency virus [HIV] medication, investigational medications, non-formulary products)?
- What storage conditions are needed for various drugs?
- What are the appropriate temperature ranges for pharmacy medication refrigerators and freezers?
- What actions should be taken if a refrigerator and/or freezer is out of the correct temperature range?
- Why are storage conditions for medications important?
- What are periodic replenishment participating provider (PAR) levels and their role in inventory management?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.1. Knowledge of drug product laws and regulations and professional standards related to obtaining medication supplies, durable medical equipment, and products (for example, Food, Drug and Cosmetic Act; Controlled Substances Act; Prescription Drug Marketing Act; USP-NF; NRC standards)

- II.7. Knowledge of inventory receiving process

- II.13. Knowledge of risk management opportunities (for example, dress code, personal protective equipment [PPE], needle recapping)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.20. Knowledge of preparation, storage requirements, and documentation for medications compounded in anticipation of prescriptions or medication orders
- II.21. Knowledge of repackaging, storage requirements, and documentation for finished dosage forms prepared in anticipation of prescriptions or medication orders
- II.22. Knowledge of policies, procedures, and practices regarding storage and handling of hazardous materials and wastes (for example, Materials Safety Data Sheet [MSDS])
- II.23. Knowledge of medication distribution and control systems requirements for controlled substances, investigational drugs, and hazardous materials and waste

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Task Number 58

Distribute non-patient-specific inventory.

Definition

Distribution should include

- pharmaceuticals
- DME
- devices
- supplies (e.g., crash carts, nursing station stock, automated dispensing systems).

See PTCB 4.6.
See ASHP 3.19.

Process/Skill Questions

- How are electronic devices used in drug distribution and in the delivery of direct patient care?

- What are the legal labeling requirements for non-patient-specific distribution of pharmaceuticals?
- What is the difference between compounding and manufacturing of bulk pharmaceuticals?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3434.02 — Automatic drug dispensing systems

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.1. Knowledge of drug product laws and regulations and professional standards related to obtaining medication supplies, durable medical equipment, and products (for example, Food, Drug and Cosmetic Act; Controlled Substances Act; Prescription Drug Marketing Act; USP-NF; NRC standards)
- II.13. Knowledge of risk management opportunities (for example, dress code, personal protective equipment [PPE], needle recapping)
- II.17. Knowledge of legal and regulatory requirements and professional standards governing operations of pharmacies (for example, prepackaging, difference between compounding and manufacturing)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)
- II.20. Knowledge of preparation, storage requirements, and documentation for medications compounded in anticipation of prescriptions or medication orders
- II.21. Knowledge of repackaging, storage requirements, and documentation for finished dosage forms prepared in anticipation of prescriptions or medication orders
- II.22. Knowledge of policies, procedures, and practices regarding storage and handling of hazardous materials and wastes (for example, Materials Safety Data Sheet [MSDS])
- II.23. Knowledge of medication distribution and control systems requirements for controlled substances, investigational drugs, and hazardous materials and waste

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-490 — Automated devices for dispensing and administration drugs

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Task Number 59

Review inventory for possible removal of items.

Definition

Review should include pharmaceuticals, DME, devices, and supplies that are

- expired
- discontinued
- slow-moving/out-of-rotation
- recalled.

See PTCB 4.6.
See ASHP 3.2.

Process/Skill Questions

- What are the differences among expired, discontinued, and recalled items?
- What are reasons for discontinuing or recalling items?
- How are recalled drugs identified?
- What is the standard procedure for inspecting nursing units for expired, discontinued, or recalled medications?
- What are the three drug-recall classes?
- Who issues recalls on medications and/or medical equipment?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.1. Knowledge of drug product laws and regulations and professional standards related to obtaining medication supplies, durable medical equipment, and

products (for example, Food, Drug and Cosmetic Act; Controlled Substances Act; Prescription Drug Marketing Act; USP-NF; NRC standards)
- II.11. Knowledge of policies, procedures, and practices for inventory systems
- II.14. Knowledge of the FDA's classifications of recalls
- II.15. Knowledge of systems to identify and return expired and unsalable products
- II.16. Knowledge of rules and regulations for the removal and disposal of products
- II.17. Knowledge of legal and regulatory requirements and professional standards governing operations of pharmacies (for example, prepackaging, difference between compounding and manufacturing)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)
- II.22. Knowledge of policies, procedures, and practices regarding storage and handling of hazardous materials and wastes (for example, Materials Safety Data Sheet [MSDS])
- II.23. Knowledge of medication distribution and control systems requirements for controlled substances, investigational drugs, and hazardous materials and waste
- II.24. Knowledge of the written, oral, and electronic communication channels necessary to ensure appropriate follow-up and problem resolution (for example, product recalls, supplier shorts)
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

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Task Number 60

Manage changes in product availability.

Definition

Management should include monitoring changes (e.g., formulary changes, recalls, shortages) and communicating changes to

- pharmacy staff
- patient/patient's representative
- physicians
- other healthcare professionals.

Process/Skill Questions

- How is the function and operation of formularies and preferred drug lists described?
- What are reasons for changes in product availability?
- How should the pharmacy technician communicate changes in product availability to patients, caregivers, and/or healthcare professionals?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.5. Knowledge of formulary or approved stock list
- II.8. Knowledge of bioavailability standards (for example, generic substitutes)
- II.14. Knowledge of the FDA's classifications of recalls
- II.22. Knowledge of policies, procedures, and practices regarding storage and handling of hazardous materials and wastes (for example, Materials Safety Data Sheet [MSDS])
- II.23. Knowledge of medication distribution and control systems requirements for controlled substances, investigational drugs, and hazardous materials and waste
- II.24. Knowledge of the written, oral, and electronic communication channels necessary to ensure appropriate follow-up and problem resolution (for example, product recalls, supplier shorts)
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

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Task Number 61

Explain policies and procedures to deter theft and/or drug diversion.

Definition

Explanation should include

- restricting all access to drugs (e.g., receipt, storage, preparation, dispensing, distribution, administration) to authorized personnel only
- ensuring that prescription drugs are dispensed only by a licensed pharmacist

- making regular physical counts of all inventories (e.g., retail pharmacy, nursing units)
- following legal requirements, retail or institutional policies, and professional standards
- monitoring implementation of policies and procedures
- using tamper-proof labeling and sealing devices.

See PTCB 5.1.
See ASHP 2.4.

Process/Skill Questions

- What is the relationship between the prevalence of chemical dependency and medication diversion?
- What methods are used to deter theft and/or medication diversion?
- What methods are used to report theft and/or medication diversion?

HOSA Competitive Events (High School)

Health Science Events

- Medical Law and Ethics
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.22. Knowledge of policies, procedures, and practices regarding storage and handling of hazardous materials and wastes (for example, Materials Safety Data Sheet [MSDS])
- II.23. Knowledge of medication distribution and control systems requirements for controlled substances, investigational drugs, and hazardous materials and waste
- II.24. Knowledge of the written, oral, and electronic communication channels necessary to ensure appropriate follow-up and problem resolution (for example, product recalls, supplier shorts)
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

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Task Number 62

Assist with the maintenance of a record of controlled substances received, stored, and removed from inventory, under the supervision of a pharmacist.

Definition

Assistance should adhere to the following as they relate to receipt, storage, and removal from inventory:

- State and federal laws and regulations related to controlled substances (i.e., Virginia Drug Control Act, Virginia Board of Pharmacy regulations, U.S. Controlled Substances Act regulations of the DEA, Prescription Drug Marketing Act, and Drug Quality and Security Act)
- Professional standards, including the USP-NF and Nuclear Regulatory Commission (NRC) standards
- Retail or other pharmaceutical facility policies and procedures
- Automated control system requirements, as appropriate

See PTCB 2.3, 2.4.
See ASHP 3.22.

Process/Skill Questions

- What procedures are used for the return or destruction of controlled substances?
- What are the features of record-keeping systems (e.g., perpetual inventory) used for controlled substances?
- Why is it important to maintain records for controlled substances?
- What storage systems exist for controlled substances?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3404 — Inventories of controlled substances required of certain persons; contents and form of record

HOSA Competitive Events (High School)

Health Science Events

- Medical Law and Ethics
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.1. Knowledge of drug product laws and regulations and professional standards related to obtaining medication supplies, durable medical equipment, and products (for example, Food, Drug and Cosmetic Act; Controlled Substances Act; Prescription Drug Marketing Act; USP-NF; NRC standards)
- II.7. Knowledge of inventory receiving process
- II.11. Knowledge of policies, procedures, and practices for inventory systems
- II.14. Knowledge of the FDA's classifications of recalls
- II.16. Knowledge of rules and regulations for the removal and disposal of products
- II.17. Knowledge of legal and regulatory requirements and professional standards governing operations of pharmacies (for example, prepackaging, difference between compounding and manufacturing)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)
- II.20. Knowledge of preparation, storage requirements, and documentation for medications compounded in anticipation of prescriptions or medication orders
- II.21. Knowledge of repackaging, storage requirements, and documentation for finished dosage forms prepared in anticipation of prescriptions or medication orders
- II.24. Knowledge of the written, oral, and electronic communication channels necessary to ensure appropriate follow-up and problem resolution (for example, product recalls, supplier shorts)
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-240 — Manner of maintaining records, prescriptions, inventory records

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Task Number 63

Perform required inventories.

Definition

Performance should include

- regular, systematic inventories of pharmaceuticals, durable medical equipment, devices, and supplies
- documentation through maintenance of associated records
- adherence to legal and regulatory requirements and professional standards.

See PTCB 3.5.
See ASHP 3.19.

Process/Skill Questions

- What are some reasons for maintaining inventories for specific drugs or drug classes?
- Why is it important for a pharmacy to comply with inventory requirements?
- What are the advantages and disadvantages of procedures for maintaining inventory records?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3404 — Inventories of controlled substances required of certain persons; contents and form of record

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.1. Knowledge of drug product laws and regulations and professional standards related to obtaining medication supplies, durable medical equipment, and products (for example, Food, Drug and Cosmetic Act; Controlled Substances Act; Prescription Drug Marketing Act; USP-NF; NRC standards)
- II.10. Knowledge of regulatory requirements regarding record-keeping for repackaged products, recalled products, and refunded products
- II.11. Knowledge of policies, procedures, and practices for inventory systems
- II.14. Knowledge of the FDA's classifications of recalls

- II.17. Knowledge of legal and regulatory requirements and professional standards governing operations of pharmacies (for example, prepackaging, difference between compounding and manufacturing)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)
- II.20. Knowledge of preparation, storage requirements, and documentation for medications compounded in anticipation of prescriptions or medication orders
- II.21. Knowledge of repackaging, storage requirements, and documentation for finished dosage forms prepared in anticipation of prescriptions or medication orders
- II.24. Knowledge of the written, oral, and electronic communication channels necessary to ensure appropriate follow-up and problem resolution (for example, product recalls, supplier shorts)
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-240 — Manner of maintaining records, prescriptions, inventory records

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Task Number 64

Maintain record-keeping systems for inventory activities.

Definition

Maintenance should include record-keeping systems for

- receipt and dispensing or other distribution of controlled substances
- repackaging
- bulk compounding
- recalls and returns of pharmaceuticals, DME, devices, and supplies
- syringes
- exempt narcotics
- hazardous materials.

See PTCB 2.6.
See ASHP 3.19.

Process/Skill Questions

- What are the differences and similarities among record-keeping systems for repackaging, bulk compounding, recalls, returns, syringes, and exempt narcotics?
- What are the basic record-keeping requirements for hazardous materials?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3404 — Inventories of controlled substances required of certain persons; contents and form of record

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Pharmacology

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.10. Knowledge of regulatory requirements regarding record-keeping for repackaged products, recalled products, and refunded products
- II.14. Knowledge of the FDA's classifications of recalls
- II.16. Knowledge of rules and regulations for the removal and disposal of products
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)
- II.20. Knowledge of preparation, storage requirements, and documentation for medications compounded in anticipation of prescriptions or medication orders
- II.21. Knowledge of repackaging, storage requirements, and documentation for finished dosage forms prepared in anticipation of prescriptions or medication orders
- II.22. Knowledge of policies, procedures, and practices regarding storage and handling of hazardous materials and wastes (for example, Materials Safety Data Sheet [MSDS])
- II.23. Knowledge of medication distribution and control systems requirements for controlled substances, investigational drugs, and hazardous materials and waste
- II.24. Knowledge of the written, oral, and electronic communication channels necessary to ensure appropriate follow-up and problem resolution (for example, product recalls, supplier shorts)
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-240 — Manner of maintaining records, prescriptions, inventory records

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Task Number 65

Compound medications in anticipation of prescription/medication orders.

Definition

Compounding should include

- assembling and maintaining equipment, raw materials, and procedures needed for compounding item of medication
- following pharmacy's procedures for bulk compounding, including verifying, packaging, and labeling
- determining sterile vs. non-sterile preparation
- storing completed compounded product
- logging the information as required by the pharmacy (e.g., state/federal laws) and/or manufacturer
- following USP standards and state and federal regulations.

See PTCB 3.6, 3.7.
See ASHP 3.16, 3.17.

Process/Skill Questions

- What are the procedures used to compound medications?
- Why is it important to document the preparation of all bulk, unit dose, and special doses of medications prepared for immediate use or in anticipation of future use?
- Why is it critical to use aseptic technique in compounding certain medication orders?
- What laws, regulations, and policies govern the area/equipment used when compounding sterile and non-sterile medications?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §54.1-3410.2 — Compounding; pharmacists' authority to compound under certain conditions; labeling and record maintenance requirements

HOSA Competitive Events (High School)

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.4. Knowledge of dosage forms
- II.20. Knowledge of preparation, storage requirements, and documentation for medications compounded in anticipation of prescriptions or medication orders
- II.21. Knowledge of repackaging, storage requirements, and documentation for finished dosage forms prepared in anticipation of prescriptions or medication orders
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

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Task Number 66

Discuss quality assurance tests on compounded medication.

Definition

Discussion should include testing

- bacterial growth
- sodium potassium and dextrose levels in total parenteral nutrition (TPN)
- radioactivity.

See PTCB 5.1.
See ASHP 3.16, 3.17, 4.8.

Process/Skill Questions

- What are the procedures used to test for bacterial growth and particulate matter in compounded medications?
- What types of record-keeping systems exist for quality assurance of compounded medications?
- What are the legal and regulatory requirements related to quality assurance of compounded medications?

HOSA Competitive Events (High School)

Health Professions Events

- Clinical Specialty
- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.17. Knowledge of legal and regulatory requirements and professional standards governing operations of pharmacies (for example, prepackaging, difference between compounding and manufacturing)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.20. Knowledge of preparation, storage requirements, and documentation for medications compounded in anticipation of prescriptions or medication orders
- II.21. Knowledge of repackaging, storage requirements, and documentation for finished dosage forms prepared in anticipation of prescriptions or medication orders
- II.24. Knowledge of the written, oral, and electronic communication channels necessary to ensure appropriate follow-up and problem resolution (for example, product recalls, supplier shorts)
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

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Task Number 67

Repackage finished dosage forms for dispensing.

Definition

Repackaging should include the following:

- Labeling the product for dispensing
- Selecting the type of container
- Determining the expiration date
- Adhering to storage requirements
- Using resources to determine repackaging standards (e.g., USP-NF)

See PTCB 2.12, 6.5.
See ASHP 3.1, 4.8.

Process/Skill Questions

- How are expiration dates determined for repackaged medications?
- Why are there special container requirements for certain medications?
- What are the central issues surrounding the storage requirements of repackaged medications?
- What resources contain information about repackaging requirements?
- How many medications should be repackaged at a time?

HOSA Competitive Events (High School)

Health Professions Events

- Clinical Specialty
- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.1. Knowledge of drug product laws and regulations and professional standards related to obtaining medication supplies, durable medical equipment, and products (for example, Food, Drug and Cosmetic Act; Controlled Substances Act; Prescription Drug Marketing Act; USP-NF; NRC standards)
- II.4. Knowledge of dosage forms
- II.17. Knowledge of legal and regulatory requirements and professional standards governing operations of pharmacies (for example, prepackaging, difference between compounding and manufacturing)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)
- II.20. Knowledge of preparation, storage requirements, and documentation for medications compounded in anticipation of prescriptions or medication orders
- II.21. Knowledge of repackaging, storage requirements, and documentation for finished dosage forms prepared in anticipation of prescriptions or medication orders
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-355 — Pharmacy repackaging of drug; records required; labeling requirements

Task Number 68

Identify quality assurance reports related to nursing units, products, and/or supplies.

Definition

Identification should include

- reviewing the U.S. Food and Drug Administration's (USFDA) *Orange Book* equivalence formulary revision
- reviewing how to perform nursing unit audits
- evaluating the performance of wholesalers.

See PTCB 2.8.
See ASHP 3.10, 4.8.

Process/Skill Questions

- What are some examples of common drug misadventures related to products and/or supplies?
- How does the pharmacy technician in a practice setting play an integral role in preventing drug misadventures?
- Which daily tasks of the pharmacy technician require special attention to accuracy and double-checking to assure that medical misadventures do not occur?
- Why is it important for the pharmacy technician to be detail-oriented in daily tasks to ensure that medical misadventures do not occur?

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.17. Knowledge of legal and regulatory requirements and professional standards governing operations of pharmacies (for example, prepackaging, difference between compounding and manufacturing)
- II.18. Knowledge of legal and regulatory requirements and professional standards (for example, FDA, DEA, state board of pharmacy, JCAHO) for preparing, labeling, dispensing, distributing, and administering medications
- II.19. Knowledge of medication distribution and control systems requirements for the use of medications in various practice settings (for example, automated dispensing systems, bar coding, nursing stations, crash carts)
- II.25. Knowledge of quality assurance policies, procedures, and practices for medication and inventory control systems

Task Number 69

Communicate with representatives of pharmaceutical and equipment suppliers.

Definition

Communication involves using written, oral, and electronic communication channels to ensure follow-up and resolution of problems such as product recalls and supplier shorts.

Process/Skill Questions

- What is the role of pharmaceutical sales representatives or professional medical representatives (PMR) in practice settings?
- What are the advantages and disadvantages of direct purchasing?
- Are pharmaceutical and equipment suppliers allowed in the pharmacy area? Why, or why not?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

II. Maintaining Medication and Inventory Control Systems

- II.3. Knowledge of purchasing policies, procedures, and practices
- II.24. Knowledge of the written, oral, and electronic communication channels necessary to ensure appropriate follow-up and problem resolution (for example, product recalls, supplier shorts)

Participating in the Administration and Management of Pharmacy Practice

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Task Number 70

Collect productivity information.

Definition

Collection should involve

- recording information in a log system
- reviewing or analyzing reports to identify peak times
- using the report results to address appropriate scheduling of personnel.

Collection of productivity information should include

- the number of prescriptions filled
- fill times
- money collected
- rejected claims status
- use of automated dispensing machines
- fuse of low hoods (e.g., laminar and vertical).

See PTCB 2.6, 2.12, 3.3, 8.1, 8.2, 8.3, 8.4.

Process/Skill Questions

- How can information from productivity reports be used to create a personnel schedule?
- How can information from daily reports be used to improve the fiscal management of the pharmacy?
- How can information from various pharmacy reports be used to enhance efficiency within the pharmacy setting?
- How are disease management services reimbursed?
- How often must HEPA filters be certified?
- Which type mortar and pestle is used for mixing?
- Who is responsible for the transportation of hazardous materials?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.4. Knowledge of productivity, efficiency, and customer satisfaction measures

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Task Number 71

Participate in continuous quality improvement programs and patient safety activities.

Definition

Participation should include

- establishing that patient safety is always first
- participating in internal audits (e.g., regarding medication misadventures, delivery, and processes)
- reviewing technology available to enhance patient safety
- keeping current with state and federal regulations that pertain to quality assurance
- keeping current with the FDA MedWatch program and other documentation of adverse events
- completing medication misadventure reports, as needed
- administering customer satisfaction surveys
- reviewing other methods of enhancing customer satisfaction
- identifying areas at high risk for misadventures (e.g., nosocomial infections, age-related errors [pediatrics and elderly])
- encouraging patients to ask questions before they leave a doctor's office
- advising patients to keep copies of their health records.

See PTCB 3.4, 5.1.
See ASHP 4.2, 4.4, 4.8.

Process/Skill Questions

- How can information from reports help to enhance patient safety?
- What are the steps for creating a customer satisfaction survey? What elements should a survey contain?
- What practices can be used to ensure or enhance customer satisfaction and patient safety?
- How do state regulations help to enhance patient safety?
- How can documentation of adverse events help to improve patient safety?
- What is MedWatch, and what is its purpose?
- What is the process for reporting adverse reactions to the MedWatch program?
- What is considered a *medication misadventure*?
- What is an *audit*?
- How is patient safety maintained?
- What technology is available for reviewing patient records to maintain patient safety?
- Where are state and federal regulations pertaining to patient safety/quality assurance posted/updated?

HOSA Competitive Events (High School)

Health Science Events

- Medical Law and Ethics
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.4. Knowledge of productivity, efficiency, and customer satisfaction measures
- III.10. Knowledge of quality improvement standards and guidelines
- III.11. Knowledge of state board of pharmacy regulations
- III.35. Knowledge of procedures to document occurrences such as medication errors, adverse effects, and product integrity (for example, FDA Med Watch Program)

Task Number 72

Generate quality assurance reports.

Definition

Generation should include

- identifying the occurrence (e.g., medication errors, adverse drug events, product integrity)
- selecting a report for the circumstances
- inputting needed data
- using technology to generate the report
- using reference materials as needed (e.g., FDA MedWatch Program).

See PTCB 3.4, 5.1.
See ASHP 3.11.

Process/Skill Questions

- What quality assurance reports are common to all types of pharmacy settings?
- How may quality assurance reports differ from one pharmacy setting to another?
- How should quality assurance reports be used?
- Why is it important to use reference resources such as the FDA MedWatch Program?
- What could be the results in a pharmacy if there were no quality-assurance reporting?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.35. Knowledge of procedures to document occurrences such as medication errors, adverse effects, and product integrity (for example, FDA Med Watch Program)

Task Number 73

Maintain the practice setting for compliance with federal, state, and local laws, regulations, and professional standards.

Definition

Maintenance should involve ensuring that the pharmacy practice is in compliance with

- federal laws and regulations (e.g., FDA, Occupational Safety and Health Administration [OSHA])
- state/local laws and regulations (e.g., Virginia Board of Pharmacy, Virginia Drug Control Act)
- professional standards (e.g., The Joint Commission, Pharmacy Technician Certification Board [PTCB]),

and should include monitoring of

- FDA recalls
- OSHA regulations (e.g., those related to storage/handling hazardous materials [HAZMAT] and procedures to follow in case of exposure)
- The Joint Commission standards for personnel, facilities, and equipment/supplies
- safety data sheets (SDS)
- Virginia Board of Pharmacy regulations related to the physical plant
- safety items (e.g., fire extinguishers and smoke detection devices).

See PTCB 2.2, 2.5.
See ASHP 2.2.

Process/Skill Questions

- What are the basic steps in the recall process? How might the process differ from one recall to another?
- What are the storage requirements for inventory to be dispensed to the public?
- How would a pharmacy technician implement a process for continual monitoring to ensure that no products on the shelf have expired?
- What are the necessary steps for the storage and handling of hazardous substances?
- What are the considerations for monitoring personnel compliance with laws and regulations?
- What are the considerations for monitoring facilities?

HOSA Competitive Events (High School)

Health Science Events

- Medical Law and Ethics
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.1. Knowledge of the practice setting's mission, goals and objectives, organizational structure, and policies and procedures
- III.8. Knowledge of legal and regulatory requirements for personnel, facilities, equipment, and supplies (for example, space requirements, prescription file storage, cleanliness, reference materials, storage of radiopharmaceuticals)
- III.9. Knowledge of professional standards (for example, JCAHO) for personnel, facilities, equipment, and supplies
- III.12. Knowledge of storage requirements and expiration dates for equipment and supplies (for example, first-aid items, fire extinguishers)
- III.13. Knowledge of storage and handling requirements for hazardous substances (for example, chemotherapeutics, radiopharmaceuticals)
- III.15. Knowledge of procedures for the treatment of exposure to hazardous substances (for example, eyewash)
- III.24. Knowledge of documentation requirements for routine sanitation, maintenance, and equipment calibration
- III.27. Knowledge of security procedures related to data integrity, security, and confidentiality
- III.35. Knowledge of procedures to document occurrences such as medication errors, adverse effects, and product integrity (for example, FDA Med Watch Program)

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-110 — Pharmacy permits generally
18VAC110-20-240 — Manner of maintaining records, prescriptions, inventory records

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Task Number 74

Evaluate written policies and procedures for environmental quality, sanitation management, handling of hazardous waste, and infection or exposure control.

Definition

Evaluation should include

- pharmacy, clean room, anteroom, hood, cabinet, and personnel sanitation requirements (e.g., cleaning counting trays, countertop, and equipment; hand washing)
- personnel training in identification, handling, storage, and disposal requirements for hazardous products and waste (e.g., needles, chemotherapeutics, radiopharmaceuticals, biologics, volatile or caustic chemicals, P-list and U-list products)
- designation of personnel, access, and activities for ISO Class 5 and 7 areas
- procedures to follow for accidental exposure to hazardous substances (e.g., eyewash, chemotherapy spill kit, SDS, post exposure report)
- Environmental Protection Agency (EPA), OSHA, and National Institute for Occupational Safety and Health (NIOSH) requirements for training, handling, disposing, and transporting of hazardous waste incorporated into policy
- designated standard operating procedure (SOP) for cleaning all pharmacy areas including sterile compounding areas, carts, shelves, workstations, surfaces, floors, and walls to include materials and equipment used, frequency, responsible personnel, and training, monitoring, and documenting requirements
- review of maintenance processes for equipment (e.g., laminar flow hoods, biological safety cabinets) and supplies used to ensure safety (e.g., body showers, personal protective equipment [PPE])
- quality assurance measures performed to ensure purchase, storage, handling, and sanitation of hazardous materials meet regulatory requirements and USP guidelines.

See PTCB 2.1, 2.2, 2.11, 3.1, 3.2, 3.6, 5.2.
See ASHP 5.6.

Process/Skill Questions

- Why is it important for the pharmacy practice that all staff handle, store, and dispose of hazardous waste correctly?
- What is *aseptic technique* and its role in infection control?
- What are the differences among sanitation management, infection control, and exposure control?
- What methods are used in the pharmacy to ensure infection and exposure control? Why is each important?
- Why is it personally important for pharmacy staff to handle, store, and dispose of hazardous waste correctly?
- Why are post-exposure reporting procedures important to the pharmacy and staff?
- Where are procedures for handling and processing investigational drugs found?

- How do pharmacy organizations such as the American Society of Health-System Pharmacists (ASHP) aid pharmacies in achieving and maintaining training requirements for sanitation and exposure control?
- What are *REMS*, and what is their role in proper handling of pharmaceuticals?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.12. Knowledge of storage requirements and expiration dates for equipment and supplies (for example, first-aid items, fire extinguishers)
- III.13. Knowledge of storage and handling requirements for hazardous substances (for example, chemotherapeutics, radiopharmaceuticals)
- III.14. Knowledge of hazardous waste disposal requirements
- III.15. Knowledge of procedures for the treatment of exposure to hazardous substances (for example, eyewash)
- III.18. Knowledge of infection control policies and procedures
- III.19. Knowledge of sanitation requirements (for example, handwashing, cleaning counting trays, countertop, and equipment)
- III.23. Knowledge of purpose and function of pharmacy equipment

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Task Number 75

Perform routine sanitation, maintenance, and calibration of equipment.

Definition

Performance should be composed of routine activities involved in the upkeep of technology used in the preparation, delivery, and administration of medication (e.g., laminar flow hoods, robotics,

Baker cells, automated dispensing equipment, balances, refrigerators, automated TPN equipment, infusion pumps). Performance should include the following activities:

- Cleaning equipment according to pharmacy policy to ensure infection control
- Maintaining equipment according to pharmacy and manufacturers' specifications
- Calibrating equipment (e.g., refrigerator temperatures and other settings) according to pharmacy and manufacturers' specifications
- Documenting all such activities according to pharmacy policy and industry standards

See PTCB 2.6.
See ASHP 4.2.

Process/Skill Questions

- What documentation is critical for the calibration and routine management of pharmacy equipment?
- Why must calibration and routine management activities be documented?
- What is involved in the sanitation of pharmacy equipment?
- What could happen if calibration and management are not carried out routinely and accurately?
- What could happen if the equipment is not sanitized routinely and properly?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.12. Knowledge of storage requirements and expiration dates for equipment and supplies (for example, first-aid items, fire extinguishers)
- III.13. Knowledge of storage and handling requirements for hazardous substances (for example, chemotherapeutics, radiopharmaceuticals)
- III.17. Knowledge of laminar flow hood maintenance requirements
- III.19. Knowledge of sanitation requirements (for example, handwashing, cleaning counting trays, countertop, and equipment)
- III.20. Knowledge of equipment calibration and maintenance procedures

- III.22. Knowledge of technology used in the preparation, delivery, and administration of medications (for example, robotics, Baker cells, automated TPN equipment, Pyxis, infusion pumps)
- III.23. Knowledge of purpose and function of pharmacy equipment

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-415 — Quality Assurance

Task Number 76

Use manual or computer-based information systems to perform job-related activities.

Definition

Use should include

- generating reports and labels
- tracking drug use for inventory purposes
- maintaining patient profiles
- maintaining medication administration records
- identifying drug to drug interactions
- recording other drug-use methods.

See PTCB 9.1, 9.2.
See ASHP 3.13.

Process/Skill Questions

- What reports and labels could a pharmacy technician need to generate?
- What messages could a computer generate during the prescription-fill process?
- What formerly manual pharmacy tasks are now generally computerized? What are the pros and cons of manual and computerized process?
- What records must be kept in most pharmacy settings? Why is each important?
- How could computer-based information systems vary from one pharmacy setting to another?
- How could a computer-based information system assist in quality improvement?
- What could the results be if information is entered incorrectly into a pharmacy information system?
- How could a pharmacy technician keep current with the latest innovations in pharmacy information systems?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.26. Knowledge of manual and computer-based systems for storing, retrieving, and using pharmacy-related pharmacy information (for example, drug interactions, patient profiles, generating labels)
- III.34. Knowledge of information sources used to obtain data in a quality improvement system (for example, the patient's chart, patient profile, computerized information systems, medication administration record)

Task Number 77

Maintain automated dispensing technology.

Definition

Maintenance should include

- using software for automated dispensing technology in accordance with manufacturers' instructions
- performing upgrades and other activities needed to keep software current
- upholding and complying with software licensure in accordance with manufacturers' policies and legal requirements
- keeping current on emerging technologies in the automated dispensing technology field.

See PTCB 6.7, 9.1.
See ASHP 2.1, 3.13.

Process/Skill Questions

- What software is available for automated dispensing technology? What are the pros and cons of each?
- What procedures should be followed to keep software current?
- Why must software licenses be kept up-to-date?
- Why is it important for a pharmacy technician to keep current on pharmacy-related software?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Task Number 78

Conduct staff training and continuing education for pharmacy-assisting tasks.

Definition

Conducting staff training and continuing education should include

- the role of the pharmacy technician in assisting other staff (e.g., nurses in a hospital) with proper policies and procedures with equipment, supply allocation, and other similar situations
- the importance of the pharmacy technician in providing and participating in cross-training
- the roles and responsibilities of all pharmacy personnel in training and continuing education.

See ASHP 2.1.

Process/Skill Questions

- What are the differences among staff training, in-service training, and continuing education? Why is each important?
- What are the roles of a pharmacy technician in training and continuing education?

- How should a pharmacy technician develop a performance evaluation that illustrates employee understanding of the training material? What components are important to have in the performance evaluation?
- How should a pharmacy technician develop an employee evaluation to assist with improving training procedures and techniques? What components are important to have in the employee evaluation?

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.3. Knowledge of principles of resource allocation (for example, scheduling, cross training, workflow)
- III.7. Knowledge of roles and responsibilities of pharmacists, pharmacy technicians, and other pharmacy employees
- III.36. Knowledge of staff training techniques
- III.37. Knowledge of employee performance evaluation techniques
- III.38. Knowledge of employee performance feedback techniques

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Task Number 79

Aid in establishing, implementing, and monitoring policies and procedures.

Definition

Aid should include

- an explanation of the term *policy*
- an explanation of the term *procedure*
- an explanation of the distinction among the terms *establishing*, *implementing*, and *monitoring*
- a description of the pharmacy technician's role in establishing, implementing, and monitoring policies and procedures
- identification of policies and procedures with which the pharmacy technician may be involved.

Process/Skill Questions

- How should a pharmacy technician develop a method for obtaining employee feedback to improve policies and procedures?
- How might policies and procedures differ among pharmacy settings?
- How might a policy or procedure for one area of the pharmacy technician class be developed (e.g., processing prescriptions)?

HOSA Competitive Events (High School)

Health Science Events

- Medical Law and Ethics
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.38. Knowledge of employee performance feedback techniques

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Task Number 80

Maintain patient and data confidentiality in the administrative and management environment.

Definition

Maintenance should include

- identifying communication and information that should be kept confidential
- identifying methods for ensuring the confidentiality of communication and information
- explaining the importance of patient and data confidentiality
- adhering to HIPAA security and privacy standards for healthcare transactions.

Process/Skill Questions

- What is the distinction between patient confidentiality and data confidentiality? What are examples of each in the context of a pharmacy setting?
- What potential harm to the patient could result if confidentiality is not maintained in the administrative and management environment of the pharmacy? What potential harm to the pharmacy could result?
- What is the importance of HIPAA in pharmacy administration and management?
- What are examples of protected health information (PHI)?

Code of Virginia Statutes Related to Pharmacy Technicians

Va. Code §32.1-127.1:03 — Patient health records privacy

HOSA Competitive Events (High School)

Health Science Events

- Medical Law and Ethics
- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

I. Assisting the Pharmacist in Serving Patients

- I.73. Knowledge of confidentiality requirements

III. Participating in the Administration and Management of Pharmacy Practice

- III.27. Knowledge of security procedures related to data integrity, security, and confidentiality

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Task Number 81

Maintain required registration(s), license(s), and/or certification(s).

Definition

Maintenance should include the following:

- Identification of state regulations in Virginia (e.g., from Virginia Board of Pharmacy)
- Identification of national certification requirements, such as the PTCB
- Identification of state and federal requirements regarding the physical plant (e.g., DEA, Virginia Board of Pharmacy licensure)

Process/Skill Questions

- What are the requirements for registration for pharmacy technicians in Virginia?
- What are the responsibilities of pharmacy technicians in Virginia?
- What licenses are required for a pharmacy in Virginia to be compliant with state and federal regulations?
- What is the difference between a license and a certification?
- What important roles do licensure and certification play in the credentials of a pharmacist?
- What are the requirements for the renewal of a given certification or registration?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.6. Knowledge of required operational licenses and certificates
- III.7. Knowledge of roles and responsibilities of pharmacists, pharmacy technicians, and other pharmacy employees
- III.11. Knowledge of state board of pharmacy regulations

Virginia Administrative Code Regulations Governing the Practice of Pharmacy

18VAC110-20-105 — Renewal and reinstatement of registration
18VAC110-20-106 — Requirements for continued competency

Task Number 82

Implement safety, security, and loss-prevention policies and procedures.

Definition

Implementation should include

- emergency policies and procedures during loss of electricity or national disaster
- accessibility policies to comply with the Americans with Disabilities Act (ADA)
- cash-handling procedures to prevent internal and external theft
- policies and procedures to prevent internal and external drug loss (drug diversion).

Process/Skill Questions

- What role does a pharmacy technician play in assisting patients in the event of an electrical power outage?
- What are methods to prevent the loss of drugs through theft and diversion?
- What is a disaster plan? Why is it important for a pharmacy to have a disaster plan?
- What are ADA-related accessibility issues commonly faced by pharmacies? How could these issues vary from one pharmacy setting to another?

HOSA Competitive Events (High School)

Health Science Events

- Pharmacology

Health Professions Events

- Pharmacy Science

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.13. Knowledge of storage and handling requirements for hazardous substances (for example, chemotherapeutics, radiopharmaceuticals)
- III.14. Knowledge of hazardous waste disposal requirements
- III.15. Knowledge of procedures for the treatment of exposure to hazardous substances (for example, eyewash)
- III.16. Knowledge of security systems for the protection of employees, customers, and property
- III.18. Knowledge of infection control policies and procedures
- III.25. Knowledge of the Americans with Disabilities Act requirements (for example, physical accessibility)
- III.27. Knowledge of security procedures related to data integrity, security, and confidentiality
- III.28. Knowledge of downtime emergency policies and procedures
- III.29. Knowledge of backup and archiving procedures for stored data and documentation
- III.30. Knowledge of legal requirements regarding archiving
- III.35. Knowledge of procedures to document occurrences such as medication errors, adverse effects, and product integrity (for example, FDA Med Watch Program)

Task Number 83

Maintain inventory of operational supplies.

Definition

Maintenance should include

- explaining and accurately following the procedure for the procurement of supplies and inventory
- explaining the importance of appropriate supply inventory levels and the need to avoid hoarding supplies
- identifying supplies that have been under-ordered or over-ordered and describing the procedures for balancing drug inventory.

See PTCB 3.19.

Process/Skill Questions

- How should a pharmacy technician handle a situation in which a drug or supply is not available to the pharmacy on a short-term basis or a long-term basis?

- What are methods for systematically checking for expiration dates and ordering of needed supplies?
- What are the methods to determine whether supplies have been over ordered and identify procedures for balancing the inventory?

Pharmacy Technician Certification Board (PTCB) Examination Required Knowledge

III. Participating in the Administration and Management of Pharmacy Practice

- III.12. Knowledge of storage requirements and expiration dates for equipment and supplies (for example, first-aid items, fire extinguishers)
- III.21. Knowledge of supply procurement procedures

Describing the Opioid Crisis

Task Number 84

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

Definition

Description should include

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

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- Creative Problem Solving
- Public Service Announcement

Task Number 85

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

Definition

Description should include

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

- the development of curricula and educational standards regarding opioid addiction.

Resource: The Opioid Crisis Among Virginia Medicaid Beneficiaries

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- Creative Problem Solving
- Public Service Announcement

Task Number 86

Define the pharmacological components and common uses of opioids.

Definition

Definition should include

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

Resource: Prescription Pain Medications, National Institute on Drug Abuse for Teens

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Examining the Key Factors of Drug Addiction

Task Number 87

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 88

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 89

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 90

Describe the treatment models of addiction therapy.

Definition

Description should include

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

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

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

Health Professions Events

- Clinical Nursing

Task Number 91

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

Definition

Description should include

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

Resources:

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

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pharmacology

Understanding Pain Management Protocols

Task Number 92

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 93

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 94

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 95

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

Definition

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

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

Resource: Drugs and Your Body, Scholastic

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Teamwork Events

- HOSA Bowl

Task Number 96

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 97

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

Definition

Explanation should include

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

Process/Skill Questions

- When should risk factors regarding opioids be reviewed with the patient?
- What are the options when treating patients with a history of substance abuse?

- What government regulations and policies are in place to improve the safe administration of opioids?

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology
- Knowledge Test: Pharmacology

Teamwork Events

- Creative Problem Solving
- HOSA Bowl

Task Number 98

Describe the withdrawal and tapering side effects of opioid use.

Definition

Description should include

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

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Task Number 99

Describe storage and disposal options for opioids.

Definition

Description should include

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

Resources:

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

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Task Number 100

Explain community resources for education about opioid use.

Definition

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

- risks
- benefits
- side effects
- tolerance
- signs of sedation or overdose
- naloxone, including its storage and disposal.

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Knowledge Test: Pharmacology

Health Professions Events

- Clinical Nursing

Working with Patients and Caregivers

Task Number 101

Describe key communication topics involving opioids for patients.

Definition

Description should include

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

Process/Skill Questions

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

HOSA Competitive Events (High School)

Health Science Events

- Medical Spelling
- Medical Terminology

Health Professions Events

- Clinical Nursing

Task Number 102

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

Receive prescription or medication orders.	English: 11.2, 12.2 Mathematics: A.1, A.4
Assist in obtaining information from a patient/patient's representative, at the direction of the pharmacist.	English: 11.1, 11.5, 12.1, 12.5 History and Social Science: GOVT.16
Record data to assist the pharmacist in monitoring patient outcomes.	English: 11.6, 11.7, 12.6, 12.7
Assist the pharmacist in collecting data.	English: 11.5, 12.5
Confirm a prescription or medication order.	English: 11.6, 11.7, 12.6, 12.7
Generate a patient profile.	English: 11.5, 12.5
Process a prescription or medication order.	English: 11.5, 12.5 Mathematics: A.1, A.4, COM.1
Compound a prescription or medication order.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science: GOVT.16 Mathematics: A.1, A.4
Provide medication to a patient/patient's representative.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7

Assist with data collection and analysis for quality assurance and for patient safety activities.	English: 11.3, 11.5, 11.6, 11.7, 11.8, 12.3, 12.5, 12.6, 12.7, 12.8 History and Social Science: GOVT.16 Mathematics: COM.1
Perform billing and accounting functions for pharmacy functions and goods.	English: 11.5, 11.6, 11.7, 11.8, 12.5, 12.6, 12.7, 12.8 Mathematics: A.1, A.4, COM.1
Communicate with third-party payers to determine coverage, rejected claims, or prior authorizations.	English: 11.1, 11.5, 12.1, 12.5 History and Social Science: GOVT.16
Provide supplemental information, as permitted by state law and regulations.	English: 11.5, 12.5 History and Social Science: GOVT.9
Communicate with a patient to determine whether the patient needs/wants counseling with the pharmacist.	English: 11.1, 12.1 History and Social Science: GOVT.7, GOVT.8, GOVT.9
Perform screening functions for drug administration under appropriate supervision, as permitted by state law and regulations.	English: 11.1, 11.5, 11.6, 11.7, 12.1, 12.5, 12.6, 12.7 History and Social Science: GOVT.11, GOVT.16
Identify pharmaceuticals, durable medical equipment, devices, and supplies to be ordered.	English: 11.5, 12.5
Place routine and emergency orders.	English: 11.1, 11.5, 11.6, 11.7, 12.1, 12.5, 12.6, 12.7
Receive and verify purchases.	English: 11.5, 12.5 Mathematics: COM.1
Place purchases in inventory.	
Distribute non-patient-specific inventory.	
Review inventory for possible removal of items.	English: 11.5, 12.5
Manage changes in product availability.	English: 11.5, 12.5
Explain policies and procedures to deter theft and/or drug diversion.	English: 11.5, 12.5 History and Social Science: GOVT.9
Assist with the maintenance of a record of controlled substances received, stored, and removed from inventory, under the supervision of a pharmacist.	English: 11.5, 11.8, 12.5, 12.8

	History and Social Science: GOVT.7, GOVT.8, GOVT.9, GOVT.15
Perform required inventories.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7
Maintain record-keeping systems for inventory activities.	English: 11.6, 11.7, 12.6, 12.7 Mathematics: COM.1
Compound medications in anticipation of prescription/medication orders.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 History and Social Science: GOVT.9
Discuss quality assurance tests on compounded medication.	English: 11.1, 12.1
Repackage finished dosage forms for dispensing.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7
Identify quality assurance reports related to nursing units, products, and/or supplies.	English: 11.5, 12.5 History and Social Science: GOVT.9
Communicate with representatives of pharmaceutical and equipment suppliers.	English: 11.1, 12.1 History and Social Science: GOVT.16
Collect productivity information.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7
Participate in continuous quality improvement programs and patient safety activities.	English: 11.5, 12.5 History and Social Science: GOVT.7, GOVT.8 Mathematics: PS.8*, PS.9*
Generate quality assurance reports.	English: 11.1, 11.5, 12.1, 12.5 History and Social Science: GOVT.7, GOVT.8 Mathematics: COM.10, COM.11
Maintain the practice setting for compliance with federal, state, and local laws, regulations, and professional standards.	English: 11.5, 11.8, 12.5, 12.8 History and Social Science: GOVT.7, GOVT.8, GOVT.9, GOVT.15, GOVT.16

Evaluate written policies and procedures for environmental quality, sanitation management, handling of hazardous waste, and infection or exposure control.	English: 11.5, 12.5 History and Social Science: GOVT.7, GOVT.8, GOVT.9, GOVT.14, GOVT.15
Perform routine sanitation, maintenance, and calibration of equipment.	English: 11.6, 11.7, 12.6, 12.7
Use manual or computer-based information systems to perform job-related activities.	English: 11.5, 11.6, 11.7, 12.5, 12.6, 12.7 Mathematics: COM.7
Maintain automated dispensing technology.	English: 11.2, 11.5, 12.2, 12.5
Conduct staff training and continuing education for pharmacy-assisting tasks.	English: 11.5, 12.5 History and Social Science: GOVT.16
Aid in establishing, implementing, and monitoring policies and procedures.	English: 11.5, 12.5
Maintain patient and data confidentiality in the administrative and management environment.	English: 11.5, 12.5 History and Social Science: GOVT.11, GOVT.16
Maintain required registration(s), license(s), and/or certification(s).	English: 11.5, 12.5 History and Social Science: GOVT.8, GOVT.9, GOVT.11
Implement safety, security, and loss-prevention policies and procedures.	English: 11.5, 12.5 History and Social Science: GOVT.8, GOVT.9
Maintain inventory of operational supplies.	English: 11.5, 12.5 History and Social Science: GOVT.16
Describe the history and current state of the opioid crisis in the United States.	English: 11.5, 12.5 History and Social Science: VUS.13, VUS.14
Describe the history and current state of the opioid crisis in Virginia.	English: 11.5, 11.8, 12.5, 12.8 History and Social Science: GOVT.8, GOVT.9, GOVT.11, GOVT.15, GOVT.16, VUS.13, VUS.14
Define the pharmacological components and common uses of opioids.	English: 11.5, 11.8, 12.5, 12.8

Examine the science of addiction.	English: 11.5, 12.5
Explain prevention and early intervention strategies.	English: 11.5, 11.8, 12.5, 12.8 History and Social Science: GOVT.7
Identify addiction and its behavioral elements, as defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).	English: 11.5, 11.8, 12.5, 12.8
Describe the treatment models of addiction therapy.	English: 11.5, 12.5
Describe the medication management antidote used to prevent fatal opioid overdoses.	English: 11.5, 11.8, 12.5, 12.8 History and Social Science: GOVT.7, GOVT.8, GOVT.9
Explain the science of physiological and mental pain.	English: 11.5, 12.5
Describe the diagnostic tools used in developing pain management plans.	English: 11.5, 12.5
Describe pain treatment options available to various populations of patients.	English: 11.5, 11.8, 12.5, 12.8
Describe the effects of opioid dependency on the human body systems.	English: 11.5, 12.5 History and Social Science: WHII.4
Explain the mechanism and physical effects of opioids on the human body.	English: 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: 11.5, 12.5
Describe the withdrawal and tapering side effects of opioid use.	English: 11.5, 12.5
Describe storage and disposal options for opioids.	English: 11.5, 11.8, 12.5, 12.8 History and Social Science: GOVT.7, GOVT.8, GOVT.9
Explain community resources for education about opioid use.	English: 11.5, 12.5
Describe key communication topics involving opioids for patients.	English: 11.5, 12.5
Describe communication topics for caregivers and family members.	English: 11.5, 12.5

Acronym Glossary

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HOSA Information

Health Occupations Students of America (HOSA), the co-curricular student organization for Health and Medical Sciences, provides many opportunities for students to apply the knowledge, skills, and processes learned in a variety of courses. Information about how HOSA competitive events relate to the Pharmacy Technician II course appears elsewhere in this document.

For additional information about the student organization, see the national HOSA Web site at http://www.hosa.org/ and the Virginia HOSA website at http://www.vahosa.org/.

Teacher Resources

American Association of Pharmacy Technicians, et al. *Model Curriculum for Pharmacy Technician Training*. 2d ed. Bethesda, Md.: American Society of Health-System Pharmacists, 2003-2009.

Askew, Gail, and Marilyn Smith-Stoner. *Assisting in the Pharmacy*. Orange, Calif.: Career Publishing, 2001.

Baker, Kenneth R. *Medication Safety: Dispensing Drugs Without Error*. 1st ed. Cengage, 2013. ISBN-13: 9781111539467

Ballington, Don A. *Pharmacy Practice for Technicians.* 2d ed. St. Paul: EMCParadigm, 2003.

———, and Mary M. Laughlin. *Pharmacy Calculations for Technicians.* St. Paul: EMCParadigm, 2003.

Career Prospects in Virginia. *Pharmacy Technicians*.

Code of Virginia. §32.1-127.1:03. "Patient health records privacy."

———. §54.1, Chapter 33. "Pharmacy."

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Effective Communication Practices for Healthcare Professionals—DVD. 1st ed. Crosstown Productions. Cengage 2011. ISBN-13: 9781111128807

Helms, Joel R. *Mathematics for Health Sciences: A Comprehensive Approach*. 1st ed. Cengage, 2010. ISBN-13: 9781435441101

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Moini, Jahangir. *Laboratory Procedures for Pharmacy Technicians*. 1st ed. Cengage, 2010. ISBN-13: 9781418073947

Moini, Jahangir. *Pharmaceutical Calculations for Pharmacy Technicians: A Worktext.* 2nd ed. Cengage, 2013. ISBN-13: 9781133131342

Moini, Jahangir. *The Pharmacy Technician*. 2nd ed. Cengage, 2011. ISBN-13: 9781435499591

Perspective Press. *The Pharmacy Technician*. 4th ed. Englewood, Colo.: Morton, 2010. ISBN-13: 9780895828286

Pharmacy Technician Certification Board. Y*our Guidebook to PTCB Certification*. Washington, D.C.: PTCB, 2003.

Pickar, Gloria D. RN, EdD, and Amy Pickar Abernethy, MD. *Dosage Calculations.* 9th ed. Cengage, 2013. Includes Premium Website Printed Access Card. ISBN-13: 9781439058473

Powers, Mary F., and Janet B. Wakelin. *Pharmacy Calculations.* 3rd ed. Englewood, Colo.: Morton, 2010.

Quiett, Linda. *Clerical and Data Management for the Pharmacy Technician*. 1st ed. Cengage, 2012. ISBN-13: 9781439057810

Schafermeyer, Kenneth W., and Eric H. Hobson. *The Community Retail Pharmacy Technician Training Manual.* 6th ed. Alexandria, VA: National Association of Chain Drug Stores and National Community Pharmacists Association, 2008.

United States Department of Health and Human Services. Centers for Medicare and Medicaid Services. Health Insurance Portability and Accountability Act of 1996.

———. Department of Health and Human Services. Food and Drug Administration.

———. Department of Health and Human Services. Food and Drug Administration. MedWatch.

———. Department of Health and Human Services. Food and Drug Administration. Center for Drug Evaluation and Research. Office of Pharmaceutical Science. Office of Generic Drugs. *Electronic Orange Book.*

———. Department of Justice. Americans with Disabilities Act. ADA Home Page.

———. Department of Labor. Occupational Safety and Health Administration.

———. Drug Enforcement Administration. Controlled Substances Act.

Virginia Board of Pharmacy. Regulations. 18 VAC 110-20-10 et seq.

———. Virginia Laws and Regulations for Pharmacy Technicians.

———. Pharmacy Technician Certification Board (PTCB).

———. American Association of Pharmacy Technicians (AAPT).

———. National Pharmacy Technician Association (NAPTA).

———. American Society of Health System Pharmacists (ASHP)

Virtual Medication Safety for Technicians. CD-ROM, 1st ed. Delmar Cengage Learning. ISBN-13: 9781111543624

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

- Certified Pharmacy Technician (CPhT) Examination
- Certified Pharmacy Technician (ExCPT) Examination (NHA)
- College and Work Readiness Assessment (CWRA+)
- National Career Readiness Certificate Assessment
- Nationally Registered Certified Pharmacy Technician (NRCPhT) Examination
- Workplace Readiness Skills for the Commonwealth Examination

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

- Introduction to Health and Medical Sciences (8302/36 weeks)
- Introduction to Health and Medical Sciences (8301/18 weeks)
- Pharmacy Technician I (8305/36 weeks, 140 hours)

Career Cluster: Health Science	
Pathway	**Occupations**
Health Informatics	**Medical Information Technologist** **Medical, Health Services Manager**
Support Services	**Communications Equipment Operator** **Medical, Clinical Laboratory Technologist** **Records Processing Assistant**
Therapeutic Services	**Pharmacy Technician**