PHMT A080N: STERILE AND NON-STERILE COMPOUNDING

Item	Value
Curriculum Committee Approval Date	12/04/2024
Top Code	122100 - Pharmacy Technology
Units	0 Total Units
Hours	36 Total Hours (Lecture Hours 9; Lab Hours 27)
Total Outside of Class Hours	0
Course Credit Status	Noncredit (N)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	Yes; Repeat Limit 99
Open Entry/Open Exit	No
Grading Policy	P/NP/SP Non-Credit (D), • Letter Non-Credit (L)

Course Description

This noncredit course equips students with essential skills in sterile and non-sterile compounding practices necessary in the pharmacy technician profession. Students will learn to apply aseptic techniques, navigate relevant regulations, and perform accurate calculations and labeling to ensure patient safety. The course includes hands-on experience in compounding procedures, emphasizing the importance of precision and quality assurance. This course is part of the Certificate of Completion – Pharmacy Technician. Not Transferable.

Course Level Student Learning Outcome(s)

1. Demonstrate proper techniques and procedures for sterile and non-sterile compounding, ensuring accurate preparation, labeling, and documentation of compounded medications.

Course Objectives

- 1. Define sterile and non-sterile compounding and their distinct applications.
- 2. Explain the importance of compounding in meeting patient needs and addressing drug shortages.
- 3. Identify relevant regulations and guidelines governing compounding practices (e.g., USP for sterile compounding).
- 4. Describe the principles of aseptic technique and its critical role in sterile compounding.
- 5. Discuss common ingredients and dosage forms used in both sterile and non-sterile compounding.
- 6. Demonstrate proper aseptic technique for maintaining a sterile environment during sterile compounding procedures.
- 7. Perform basic calculations required for non-sterile compounding, including dosage adjustments and conversions.
- 8. Utilize appropriate measuring tools and techniques for accurate preparation of compounded medications.
- 9. Apply proper labeling practices for compounded medications, ensuring all necessary information is included.
- 10. Identify potential risks associated with compounding and strategies for minimizing contamination.
- 11. Develop a strong commitment to patient safety and medication quality in the compounding process.
- 12. Foster a culture of aseptic practices and prioritize maintaining a sterile environment.
- 13. Demonstrate a willingness to continuously learn and stay updated on compounding regulations and best practices.
- 14. Cultivate a sense of professionalism and responsibility when assisting with compounding activities.

Lecture Content

Importance of Compounding in Pharmacy Addressing unmet patient needs through customized medications Addressing drug shortages and medication discontinuations Expanding treatment options with different dosage forms Sterile vs. Non-Sterile Compounding Differentiating between sterile and non-sterile compounding processes Understanding applications for each type of compounding Regulatory Considerations FDA regulations State Board Pharmacy Guidelines Good Compounding Practice (GCP) Introduction to USP for sterile compounding USPandguidelines. Recordkeeping and documentation requirements Principles of Aseptic Technique Aseptic Technique for Sterile Compounding Importance of aseptic technique in preventing contamination Maintaining a sterile environment (garbing, cleaning, workspace) Aseptic transfer techniques for sterile products The role of the Cleanroom Sterile Compounding Procedures Equipment and supplies for sterile compounding Use of Personal Protective Equipment (PPE) Demonstrations of basic sterile compounding techniques (e.g., reconstitution, IV admixture, injection, infusion) Aseptic handling of sterile products Practice Aseptic Technique Evaluation Practice aseptic technique under supervision Instructor evaluation and feedback on aseptic practices Calculations for Non-Sterile Compounding Review of basic math principles relevant to compounding Performing dosage calculations for non-sterile preparations Concentration conversions and unit adjustments Non-Sterile Compounding Procedures Common dosage forms used in non-sterile comp ounding (capsules, creams, ointments, solutions, suspensions, and powders) Measuring, mixing, and packaging Utilizing appropriate equipment for non-sterile compounding Proper handling of non-sterile ingredients Labeling for Compounded Medications Legal requirements for labeling compounded medications Understanding all necessary information on compounded medication labels Quality Assurance Documentation Maintaining Compounding Records Importance of accurate documentation in the compounding process Recording compounding steps, ingredients used, and expiration dates Quality Control Procedures Ensuring the quality and accuracy of compounded medications Sterility testing (basic principles) and expiration dating Inventory Control and Waste Management Proper storage and handling of compounding ingredients Safe disposal of hazardous materials and expired medications Aseptic Technique Breaches and Interventions Identifying potential breaches in aseptic technique Strategies for preventing and managing contamination risks Problem-Solving in Sterile Compounding Troubleshooting common issues encountered during sterile compounding procedures Maintaining a sterile environment in challenging situations Practical Application and Laboratory Experience Hands-on non-sterile compounding lab Hands-on sterile compounding lab Case study and problem-solving exercise

Lab Content

Aseptic Techniques and Sterile Compounding Garbing and handwashing: demonstrate proper use of PPE and handwashing for aseptic technique Sterile dosage form preparation: IV admixture and reconstitution

of injectable medications Aseptic technique evaluation: hands-on practice with peer and instructor feedback Non-Sterile Compounding Procedures Weighing and measuring: accurately measure ingredients using balances and volumetric tools Preparation of dosage forms: mix creams, filling capsules, and prepare solutions and suspensions Labeling and documentation: create accurate labels and required compounding records Quality Assurance and Risk Management Contamination control: identify contamination risks and implementing corrective actions Product verification: inspect compounded medications for accuracy and quality Compounding Math and Calculations Dosage adjustments: weight-based dosing and concentration conversions Alligation and dilution: prepare solutions at specified concentrations Practical Application and Problem-Solving

Method(s) of Instruction

- Enhanced NC Lect (NC1)
- Enhanced NC Lab (NC2)

Instructional Techniques

Lecture and direct instruction Digital presentations Classroom discussions Individual and group projects and/or presentations Clinical simulations and demonstrations Demonstration and practice of problem solving Oral pair and group work Instructor written and oral feedback Problem solving activities Interactive quizzes and games Medication review exercises Case studies Reading assignments Videos

Reading Assignments

Students will spend approximately 1 hour per week reading from the assigned textbook and additional instructional material provided by the instructor.

Writing Assignments

Analyze a provided case study involving a compounding error related to aseptic technique and will write a 1-2 page report addressing the following: identify the root cause of the error, discuss the implications for patient safety, suggest corrective actions to prevent future occurrences.

Out-of-class Assignments

Create a checklist of all necessary equipment and supplies needed for a specific sterile compounding procedure (e.g., IV admixture). This checklist should include appropriate Personal Protective Equipment (PPE), measuring tools, and aseptic technique requirements.

Demonstration of Critical Thinking

Analyze a provided case study involving a compounding error related to aseptic technique and will write a 1-2 page report addressing the following: identify the root cause of the error, discuss the implications for patient safety, suggest corrective actions to prevent future occurrences.

Required Writing, Problem Solving, Skills Demonstration

Analyze a provided case study involving a compounding error related to aseptic technique and will write a 1-2 page report addressing the following: identify the root cause of the error, discuss the implications for patient safety, suggest corrective actions to prevent future occurrences.

Eligible Disciplines

Pharmacy technology: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Bonnie S. Bachenheimer. Manual for Pharmacy Technicians, 5th ed. ASHP Publications, 2019 Rationale: Industry standard manual for pharmacy technicians. Has not been updated more recently.