

Teaching Sterile Compounding in the Pharm.D. Curriculum

Gina Peacock, Ph.D.
Bernard J. Dunn School of Pharmacy
Shenandoah University

Program objectives covered in this presentation

- The pharmacy educator will be able to describe important educational competencies for sterile compounding training.
- The pharmacy educator will be able to describe different approaches to teaching sterile compounding to pharmacy students.



How to make labs clinically relevant

- Begin and end with the patient (start with an order/case and end with a preparation) .
- Present "real-world" problems/questions even if they are somewhat simplified.
- Discuss potential errors and consequences of those errors.
- Encourage problem-solving and brainstorming by asking questions when a problem occurs.
- When possible share your experiences (good and bad) with students.
- Facilitate learning from mistakes that occur.

Challenges

- Curriculum hours
- Facilities
- Number of students vs. instructors
- Supplies

PHAR 713: Sterile Compounding Laboratory

- Sterile Compounding is a one-hour course that utilizes lectures and laboratory exercises to instruct students in sterile compounding and quality assurance.
- Upon successful completion of Pharmacy Practice Laboratory, students will be able to:
 - Describe the regulations and guidelines that apply to sterile compounding.
 - Describe and perform proper aseptic drug preparation and transfer techniques for injectable drugs and other sterile preparations.
 - Describe appropriate quality control methods and procedures used in sterile compounding.
 - Perform calculations related to sterile compounding, parenteral product preparation and administration.

Components of USP <797> covered in PHAR 713: Sterile Compounding Lab

- Definitions
- Responsibility of compounding personnel
- Appropriate cleansing and garbing
- Environment
- Risk levels and immediate-use CSPs
- Single-dose and multiple-dose containers
- Training and evaluation of aseptic manipulation skills
- Compounding TPNs
- Hazardous drugs
- Quality Control
- Stability and compatibility
- Labeling, storage and beyond-use dating

Approaches or methods for teaching sterile compounding

- Lectures and videos
- Written lab exercises
- Compounding assessments (peer and instructor)
- Written assessments
- Media fill assessment

Approaches or methods for teaching sterile compounding

- Workbooks and videos
 - ASHP's Compounding Sterile Preparations
 - ASHP's Safe Handling of Hazardous Drugs



- Lectures
 - Short pre-lab or full length

Approaches or methods for teaching sterile compounding

- Written and hands-on lab exercises (sterile transfer, reconstitution, ampule, TPN, chemotherapy)
 - Medication order with patient information
 - Calculations
 - Questions
 - Clinical/ dosing
 - Stability/ compatibility
 - Examples
 - [PHAR 713: Sterile Transfer Exercise](#)
 - [PHAR 713: Reconstitution Exercise](#)
 - [PHAR 713: Ampules Exercise](#)
- Lab open for practice

Approaches or methods for teaching sterile compounding

- Compounding assessments (peer and instructor)
 - [Sample assessment checklist](#)
 - PHAR 713 includes a midterm and final assessment of technique
- Written assessments
 - [PHAR 713 Written Final Exam](#)

Approaches or methods for teaching sterile compounding

- Media fill assessment
 - Make four 2 mL transfers from growth media vial to empty sterile vial.
 - Incubate for 14 days at 25°C
 - Visually inspect for turbidity



Question for program objective 2

- All of the following are important competencies for sterile compounding training in the PharmD curriculum EXCEPT:
 - a. Performing calculations
 - b. Demonstrating IV administration techniques
 - c. Assigning appropriate beyond-use dates
 - d. Demonstrating proper aseptic technique

Question for program objective 2

- Which of the following are components of USP <797> that should be included in a sterile compounding course:
 - I. Handling hazardous drugs
 - II. Assessment of aseptic technique
 - III. Quality assurance
 - a. I only
 - b. III only
 - c. I and II
 - d. II and III
 - e. I, II, and III

Question for program objective 3

- All of the following are appropriate methods for teaching sterile compounding EXCEPT:
 - a. Aseptic technique assessment checklists
 - b. Lectures on guidelines and regulations
 - c. Training only during APPE rotations
 - d. Written lab exercises that include interpreting orders and calculations