Introduction

Compounds prepared extemporaneously by pharmacists in a pharmacy setting typically undergo very little quality control or analytical testing before being dispensed to patients. As a result, it is imperative that the pharmacist prepare these products with a level of precision and accuracy. As educators, it is therefore crucial to ensure that students develop an understanding of this importance while still in pharmacy school. With the decreased emphasis on basic science laboratories in pharmacy schools, it is important to include such topics in the Pharmaceutics or compounding courses. Innovative laboratories therefore must be designed to allow students to better understand these concepts.

Objective

To increase the awareness of the quality issues of compounded pharmaceutical preparations, and to design innovative Pharmaceutics lab sessions to address these issues with pharmacy students.

Methods

- A series of two 3-hour laboratories was designed to prepare and evaluate compounded capsules.
- Students prepared a prescription for four capsules based on the prescription provided.
- The students conducted dissolution testing on the capsules they prepared followed by UV analysis as per the USP monograph.
- Students were surveyed for their thoughts on the value of these laboratory exercises.

Results

- The laboratories were conducted within the Applied Pharmaceutics I course in the second year of a four-year curriculum.
- 54 students completed the laboratories demonstrating competence and an understanding of the objectives outlined.
- Students’ dissolution results varied from approximately 30% - 300% of label claim.
- Students also completed exercises regarding evaluation of tablets, including disintegration, tablet hardness, thickness, friability, tap density and assay.
- The students overall grades for the laboratory included capsule and tablet evaluation, and a conceptual understanding of the issues related to quality.

Conclusions and Implications

- From student feedback, it appeared students gained a better understanding of quality and the possible sources of error in compounding.
- Similar projects can be completed at other schools.
- This type of laboratory series can be applied to additional dosage forms, such as liquids and semi-solids.

References: