Pharmaceutical Care is the practice in which a pharmacist takes responsibility for managing a patient’s medication by utilizing the patient care process. A Classroom Assessment Technique (CAT) is a formative assessment tool used by instructors to gauge student learning and to provide students a chance to self-assess their own learning. Teaching the patient care process provides many opportunities to assess students using CATs as they learn each component of the process.

**Introduction**

To create a series of classroom assessment techniques (CATs) designed to provide students low-stakes, individualized practice opportunities and give timely feedback to instructors and students regarding learning of key concepts.

**Methods and Design**

First year pharmacy students in the course Foundations of Pharmaceutical Care participated in a series of four CATs during the semester.

- Students completed the CATs online during the final minutes of designated class sessions (Figure 1). They accessed the CATs via course management systems, where they followed a link to complete the activity in Qualtrics.

**Results**

CAT #1: Obtaining a patient’s medication experience

Only 39% (64/163) were able to write three, open-ended questions to elicit the medication experience of the 99 that needed improvement, 99% (98 students) struggled with making them open-ended, not their content.

CAT #2: Writing goals of therapy

Only 6% (10/161) wrote an appropriate goal of therapy. Of the 151 who needed improvement, 97% (146 students) struggled with the same issue (timeframe).

CAT #3: Identifying and writing drug therapy problems

KS is a 22-year-old female with asthma who is experiencing increased wheezing despite adherence to her low-dose inhaled corticosteroid.

1. What is the drug-related issue (IESC)?
2. Which of the 7 drug therapy problem categories describes this problem?
3. State the drug therapy problem (DTP).
4. Identify the patient’s related need (IERS).
5. Identify the pharmacy practice opportunities (IPSO).

98% of students correctly responded Effective. 93% of students correctly responded Dose Too Low. 82% of students wrote a DTP addressing the problem, the drug therapy and their relationship.

Example: KS is experiencing increased wheezing due to the dose of her inhaled corticosteroid being too low.

**Instructor Action**: Most students were able to correctly identify the drug-related need and drug therapy problem category, but needed more practice and guidance stating the drug therapy problem. Instructors created additional practice opportunities.

**CAT #4: Identifying therapeutic alternatives to resolve drug therapy problems**

In the first example, 86% (132/153) wrote two satisfactory alternatives for a dose too high problem. However in the second example, only 47% (72/153) wrote satisfactory responses for a problem of needing additional therapy.

Student Survey Responses (n=131)

- 84% agreed or strongly agreed the CATs were relevant to the course material.
- 81% agreed or strongly agreed the CATs were easy.
- 58% agreed or strongly agreed the CATs facilitated their learning.
- 57% agreed or strongly agreed the CATs helped evaluate their mastery of the given topic.

**Discussion**

- CATs provided an opportunity for individual practice in a course focused on group work and active learning.
- The CATs served as small, impactful checkpoints which provided feedback instructors could use to inform future teaching decisions.
- By looking at the four CATs as a series of activities, instructors could determine if the most relevant skills were being assessed and whether other CATs should be incorporated to cover additional aspects of the course.
- The CATs required students to construct written responses, a more challenging task than providing answers or selecting single responses. The use of CATs provided a wider range of activities for students with a variety of learning styles and preferences.
- Future iterations of the course will include the addition of a 5th CAT and explore the role of providing more feedback for students.

**Implications**

In classrooms where application of lecture content is done in small groups, a series of CATs can be created with minimal resources and used to give students individual practice with concepts and formative feedback, as well as a simple way to provide instructors information about individual student performance without creating additional assignments or formal assessments.

**References**

4. Qualtrics (Qualtrics Ltd Inc.: Provo, UT).