Experiences in Teaching and Learning

"It's like rotations, but in the classroom": Creation of an innovative course to prepare students for advanced pharmacy practice experiences

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ABSTRACT

Background and purpose: The purpose of this article is to discuss the course development and results of a survey assessing students' perceived confidence in performing various skills after completion of this course.

Educational activity and setting: The course was taught using a model in which all activities performed by students took place in a fictitious health system. The course was created to give students the opportunity to learn in an environment that closely mimicked advanced pharmacy practice experiences (APPEs) while in the didactic setting. Higher order active learning activities and case-based exams were utilized in the course. Students' perceived level of confidence in performing skills practiced in the course was assessed via survey after completion of each semester of the course and after the first introductory pharmacy practice experience (IPPE). Course coordinators hypothesized that this course design would improve students' perceived level of confidence in performing skills utilized in the clinical practice setting.

Findings: Survey data from two class cohorts were analyzed. Students' perceived level of confidence in performing skills necessary in clinical practice increased as a result of the course.

Discussion: This course provided students an opportunity to experience an APPE environment while still in the didactic setting. The course design meets the Center for the Advancement of Pharmacy Education (CAPE) outcomes and aids in making students "APPE-ready" prior to the start of the P4 year.

Summary: This unique and innovative course format allowed students to integrate knowledge learned in previous courses and apply it in a manner like what is expected in the clinical setting.

Background and purpose

Designing a curriculum that empowers the student to take responsibility for learning and become a self-directed learner is a goal addressed in the curricula of colleges of pharmacy. The Accreditation Council for Pharmacy Education's (ACPE) Standards 2007 v2.0 state, "The development of critical thinking and problem-solving skills through active learning strategies and other high level pedagogical strategies should be supported throughout the curriculum. Active learning strategies include the application of computer and other instructional technologies, laboratory experiences, case studies, guided group discussions, simulations, and other practice-based exercises."[1] Standards 2007 v2.0 further state, "where appropriate, these techniques should involve actual or simulated

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patients...."[1]

Giving the student the opportunity to apply therapeutic concepts learned in the classroom with a virtual patient case allows development of clinical judgment and reasoning skills without consequence to the patient. Students are also able to develop their ability to make patient-specific recommendations using evidenced-based medicine.[2] Using virtual cases also reinforces previously learned material and promotes an active learning environment.[3] Nursing students have reported that these types of teaching techniques helped to improve their clinical thinking skills.[3] Simulated and virtual patients are also used throughout other professional curricula. Colleges of medicine are expected to provide student opportunities for lifelong learning, which includes independent analysis and synthesis of relevant information.[4] The published literature has found that students that participate in courses with simulation perform better in their assessments.[5] Faculty in colleges of nursing have also published experience with simulated teaching and reported improvements in clinical decision-making and leadership skills amongst their students.[2] Benedict et al.[5] published a study regarding the promotion of self-directed learning using virtual patient cases. In this study, patient case simulations created with a virtual patient software were used in order to replace the traditional lecture. The use of the virtual patient case was supported by the students and was as effective as traditional teaching methods for the promotion of self-directed learning in the didactic curriculum. Eighty-four percent of students in the study by Benedict et al.[5] agreed that completing the virtual patient cases allowed them to become better self-directed learners. The results of the Benedict et al.[5] study were similar to other studies that utilized virtual patients or patient simulations in the classroom.[6–8]

Faculty of colleges and schools of pharmacy are expected to develop teaching methods that enable students to go from being dependent on the professor for their learning, to being active, self-directed, lifelong learners.[1] The mission of the Chicago State University College of Pharmacy (CSU-COP) is "the development of student and faculty scholars who will impact the health care needs of people in the region, state and the nation," in part by "offering a curriculum that cultivates analytical thinking, ethical reasoning and decision-making, intellectual curiosity,…and providing programs and services that promote a supportive atmosphere for life-long learning and continued personal and professional development for students…."[9] In an effort to implement these strategies, course coordinators developed a unique course for third-year pharmacy students. The college of pharmacy curriculum was intentionally created to have each course build upon previous courses; thus, the course coordinators of Disease and Medication Therapy Management (DMTM) created this course with the intent of integrating knowledge and skills learned from previous courses into the DMTM course series in a manner that would allow for the application of knowledge and skills in a guided manner. No studies have previously reported a skills-based course delivered in this magnitude. The goal was to provide students with an opportunity to experience what occurs on advanced pharmacy practice experiences (APPEs) while still in the classroom setting. This article describes the development of the DMTM course, a required course for third-year pharmacy students in which virtual patients and a virtual health system were utilized to foster student learning. The paper further discusses the results of a survey designed to assess students' perceived level of confidence in performing clinical skills required in the clinical setting.

Educational activity and setting

Third-year pharmacy students are required to take DMTM for the entire didactic year. Coursework completed prior to the third-year included the basic sciences, literature evaluation and research methodology, therapeutics, skills-based patient care courses, and community, public health, and institutional introductory pharmacy practice experiences (IPPEs). DMTM I is a three-credit hour course, while DMTM II is a two-credit hour course. CSU-COP utilizes a letter grade system for all courses. During the fall semester of P3 year, in addition to taking the DMTM course, students were enrolled in pharmacy management, therapeutics, electives, and advanced community IPPEs. During the spring semester, students were enrolled in health economics, complementary alternative medicine, therapeutics, and electives. The objectives of the DMTM courses were created to not only meet the curriculum outcomes, but to also mirror skills that students would need to perform on APPEs and as a practicing pharmacist. Thus, the course is highly application-based (Table 1). The coordinators began developing this course approximately five months prior to its initial implementation.

Table 1
Learning objectives for disease and medication therapy management (DMTM) course.

1. Interpret information obtained from a simulated patient environment to:
   a. Identify normal and abnormal findings
   b. Assess changes in a patient's status related to drug therapy
   c. Evaluate disease progression and/or patient risk for disease development or complications
   d. Evaluate therapeutic, sub-therapeutic, and toxic responses to drug therapy
   e. Determine appropriate follow-up care
2. Discuss treatment option considerations for unique patient populations.
3. Create a patient specific care plan for the acute and chronic management of disease manifestations.
4. Analyze the appropriateness of evidence based medicine in the management of a patient.
5. Document patient findings in oral and written form.
6. Defend patient care plan rationales in oral form.
7. Critically evaluate clinical trials for their application into patient care.
8. [a] Integrate culturally competent care practices into the provision of patient care.

[a] Note: This learning objective was added in 2011.