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Short communication

A bridge to reality: Utilization of a clinical skills and simulation center in a large college of pharmacy

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Abstract

This article describes the implementation and assessment of simulation activities at a College of Pharmacy, including strategies to incorporate simulation for large class sizes without undergoing major curricular revision. The activities were developed to create a simulated environment for students to apply clinical skills and knowledge to enhance learning prior to advanced pharmacy practice experiences. Preliminary assessment suggests a positive impact of the activities on students' confidence in their knowledge and skills. This report is intended to offer other Schools or Colleges of Pharmacy considerations for use of a clinical skills and simulation center.

Keywords: Simulation; Standardized patient; Pharmacy curriculum; Education; Clinical skills

Introduction

In order for graduating pharmacy students to succeed among the health professions, pharmacy education must prepare students to be competent in critical thinking, problem solving, communication skills, therapeutic knowledge, and patient management. The Accreditation Council for Pharmacy Education (ACPE) recommends that a variety of assessments be utilized to allow students to develop the knowledge and skills required for pharmacy practice.[1] Human patient simulation activities are one of the methods used to portray an interactive learning environment in controlled and standardized situations to assess student competencies.[2,3] Patient simulations allow students to receive not only constructive feedback and evaluation but also increase their confidence and abilities in a variety of simulated training scenarios.

Midwestern University Chicago College of Pharmacy is a Doctor of Pharmacy (PharmD) degree program that requires six years of coursework. The first two years of prerequisite coursework are completed at another college followed by a four-year, quarter-based pharmacy curriculum. Our college enrolls 214 PharmD students per class per academic year. Prior to students completing six full-time Advanced Pharmacy Practice Experiences (APPEs) during their fourth professional year, students must complete 12 credit hours of Introductory Pharmacy Practice Experiences (IPPEs) during the first three professional years. The use of the clinical skills and simulation center (CSC) provides students the opportunities to encounter human patient simulation activities in a safe educational environment prior to their APPEs.

The use of simulation within health care education has increased across the disciplines. Both advantages and disadvantages of simulation as an educational tool have been identified. Part of best practices in using simulation is ensuring that simulated activities are well integrated into curricula where they

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are best suited and not considered distinctive components.[4] Many health profession programs such as dental, medical, physician assistant, and nursing have embraced simulation in their curricula. Simulation activities have offered many opportunities for students to learn effective communication, interviewing techniques, and clinical skills. Current literature provides descriptions of structure, implementation, and challenges involving the use of a simulation center; however, many articles are limited to single courses or activities that do not address large class size.[5–8] In this article, we describe how our college developed a variety of scenarios and experiences throughout the pre-APPE curriculum that incorporated use of the CSC with large class sizes.

Clinical skills and simulation center

The current CSC provides eight fully equipped clinical examination rooms, an eight-station faculty viewing room, and two customized simulation bays that are utilized by all four health profession colleges on campus. The simulation bays are equipped with high-fidelity mannequins (adult, child, and infant) that use a software program to simulate a variety of physiological states including arrhythmias and cardiac arrest. Skills that can be practiced on the mannequins include but are not limited to the components of cardiopulmonary resuscitation (CPR), advanced airway and intravenous line placement, intravenous drug delivery, and defibrillation. In addition, a graphical interface provides simulated telemetry monitoring with electrocardiographic, respiratory, and hemodynamic variables to simulate physiological real-time, dynamic responses to interventions such as rescue breaths, chest compressions, defibrillation, or vasoactive drugs. In addition to the mannequins, the CSC also provides other equipment necessary to perform the functions of basic and advanced cardiovascular life support (BLS and ACLS, respectively). This includes items such as an automated external defibrillator (AED), a bag-valve mask, and a "crash cart" stocked with medications, intravenous fluids, needles, and syringes.

The CSC also has a staff of approximately 70 standardized patients (SPs) who are trained to portray a given patient scenario as students conduct an interview and/or physical exam. The SPs are also trained to provide written and verbal feedback to students about their interpersonal communication skills and evaluate step-by-step performance of certain physical assessment techniques, such as blood pressure measurement. SPs are selected to fit the needs of the specific case. Faculty may request an age range and gender. A few weeks prior to each encounter, the responsible faculty member meets with the selected SPs to review the specifics of the case.

Initiation of CSC use in the pharmacy program

The Dean tasked a committee to develop a plan to incorporate the use of the center in Fall 2012. In Fall 2012, our College began to utilize the CSC, starting with a required IPPE course in which only approximately one-third of the third professional year class was enrolled per quarter. Major goals for students participating in clinical skills and simulation activities were to apply didactic knowledge in a realistic learning environment, reinforce communication skills through practical experience, practice engaging in positive patient–provider relationships, and effectively function in challenging health care environments. After initial success in the IPPE course, utilization of the CSC was incorporated into additional required and elective courses in the second and third professional years of the pharmacy curriculum to allow assessment of students' progress toward the previously stated goals. Courses that have used the clinical skills and simulation center are included in Table 1.

Utilization of the CSC

In total, 13 courses have utilized the simulation center for various assessments. Below are examples of activities from five of these courses, three required and two elective.

Introductory Pharmacy Practice Experience III—Clinical

The Introductory Pharmacy Practice Experience III: Clinical (IPPE3) course is the third course in the sequence of introductory practice experiences, focusing on clinical practice. Preceding IPPE courses include experiences in community and institutional health systems. During their third professional year, all students are enrolled in the IPPE3 course for one of three quarters, with approximately one-third of the class enrolled each quarter. During IPPE3, students complete CPR and immunization training and receive instruction about a variety of patient care activities to help them prepare for their site visits. During the last week of the quarter, students return to campus for reflection and wrap-up activities. In Fall 2012, an evaluation of patient care skills, utilizing the CSC, was added to this course.

The patient care skills activity was based on the scenario of a patient presenting to the pharmacy inquiring about over-the-counter (OTC) medication for a self-care condition (seasonal allergies, cold, heart burn, pain, or fever). Each quarter, two scenarios for the same self-care condition were utilized. Prior to the encounter, students were notified of the self-care condition and had electronic access to the evaluation rubrics and OTC package labeling for the products that could be recommended. During the encounter, students individually interviewed an SP and then counseled the patient about appropriate pharmacologic and non-pharmacologic therapy (12–13 minutes). The packets of OTC products were available in the simulation rooms for students' reference. Certain products were more appropriate than others were for each patient scenario based on the patient's history, medications, and/or allergies. After the patient encounter, students returned to a classroom to electronically prepare a "Subjective, Objective, Assessment, Plan" (SOAP) note. After this activity,