Short communication

An introductory pharmacy practice experience using simulated patient care activities in a pharmaceutical care laboratory environment

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Abstract

Objective: To describe an introductory pharmacy practice experience (IPPE) using simulated and actual patient care activities in a pharmaceutical care laboratory environment.

Design: A pharmaceutical care laboratory course was identified as having pre-existing learning objectives and activities that included 19 of the 21 suggested IPPE activities in Appendix C of the Accreditation Council for Pharmaceutical Education (ACPE) Standards Version 2.0. Course activities were further developed to meet the accreditation standard guidelines for classification as an IPPE. Learning activities and an authentic learning environment were used for students to practice simulated and actual patient-centered care.

Assessment: Rubrics and checklists were used to assess student competence. Reflective discussions and reflection papers were used to evaluate student perceptions of simulation and overall course effectiveness. Longitudinal evaluation of the IPPE has shown consistent student performance over time.

Conclusion: Simulated and actual patient-centered care activities are valuable to providing students with meaningful learning experiences and can be integrated into pharmaceutical care laboratory environment to meet IPPE requirements.
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Keywords: Pharmaceutical care laboratory; Simulation; Introductory pharmacy practice experience; Experiential education; IPPE

Introduction

The benefits of simulation are strongly supported by the health sciences literature. Benefits include allowing students to practice clinical skills without patient risk, addressing gaps in clinical knowledge by allowing the practice of specialized skills, and enhancing knowledge, clinical performance, self-efficacy, and confidence.[1–13] In pharmacy education, simulation has been used in the training of advanced cardiac life support, application of pharmacology, medication therapy management, injection administration, physical assessment, and communication. These simulations involve high-fidelity mannequins, specialized task trainers, standardized patients, and mock patient encounters through case-based simulation.[14–24] Simulation has been shown to improve student knowledge,[17,20] clinical skill,[15,17,19,21–23] confidence,[14,15,19,24] and decrease anxiety[15] prior to actual practice experiences.

Rationale and objective

The Accreditation Council for Pharmacy Education (ACPE) states introductory pharmacy practice experiences (IPPE) must account for a minimum of 5% of a doctor of pharmacy curriculum and provides guidance on effective learning activities.[25] In 2010, ACPE revised its standards by stating that up to 20% of a college or school of pharmacy's

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IPPE hours may be met through the use of simulated patient care activities. Simulation is defined by ACPE as "an activity or event replicating pharmacy practice" that "should clearly connect the pharmacy activity or delivery of a medication to a patient whether simulated patient, standardized patient, or virtual patient."[25] The literature reports less than 30% of schools of pharmacy utilize simulation to meet IPPE requirements.[26] The only reports of using simulation to meet IPPE requirements have been a newly created simulation course and a hybrid model in which an IPPE was divided into didactic and outreach activities.[27,28]

North Dakota State University's College of Pharmacy, Nursing, and Allied Sciences pharmacy program preceptor and student feedback have revealed that it can be challenging for practice sites to consistently provide students with both equal opportunities for skill development as well as specific, structured feedback for improvement of complex practice skills during traditional institutional and community IPPEs. To enhance early experiential learning, the pharmacy program curriculum committee evaluated options for using simulation to meet a portion of the IPPE requirements as outlined by ACPE's Standards Version 2.0.[25]

The purpose of this article is to describe the curricular design of an IPPE which incorporated actual and simulated patient care activities using the IPPE guidelines in the ACPE Standards Version 2.0 and is supported by the 2013 Center for the Advancement of Pharmacy Education Educational Outcomes.[25,29]

Materials and methods

A pharmaceutical care laboratory course was identified as having pre-existing learning activities that included 19 of the 21 suggested IPPE activities in Appendix C of the ACPE Standards Version 2.0. These activities were further developed to meet the Accreditation Standard guidelines for classification as an IPPE.[25] This required course was part four of a four-semester laboratory series designed to teach and assess practical application of the skills necessary to become a general entry-level pharmacist.

The course was taught by four licensed pharmacist faculty members in a simulated pharmacy environment. The simulated laboratory environment is a 2500 ft^2 licensed pharmacy within the College of Pharmacy with student learning areas devoted to over-the-counter medications, dispensing and consultation, nonsterile compounding, and sterile compounding. A total of 87 students were enrolled in the laboratory course during the second semester of the third professional year of the four-year PharmD curriculum. Students participated in weekly two-hour simulated or actual patient care activities throughout the 16-week course.

Students received a total of 308 hours of IPPE upon completion of the professional pharmacy curriculum. Of these 308 hours, 30 hours (9.7%) were achieved in Pharmaceutical Care Laboratory IV/IPPE IV (Table 1) as their final IPPE prior to advanced pharmacy practice

Table 1

Simulated and actual patient care activities and corresponding introductory pharmacy practice experience (IPPE) hour(s) credit

Medication therapy management	4[a]
Injection administration	4
Blood pressure assessment	1
Electronic medical records	4
Dispensing and consultation	6
Sterile compounding	3
Nonsterile compounding	3
Human patient simulator	2
Medication errors	1
Point-of-care testings	2

[a] Two hours simulated and two hours actual patient care.

experiences (APPEs). In this course, pre-existing learning activities were further developed to ensure each focused on provision of care to a real or simulated patient and included objectives that are difficult to achieve in other IPPEs but require an introductory experience and/or simulation prior to APPEs. Each activity provided hands-on opportunities to enhance student learning, included detailed assessment of student learning with feedback, and was supervised by licensed pharmacist faculty members. Activities were mapped to the ACPE Standards Version 2.0 Appendix C (Table 2).[25] Learning objectives were designed around the highest level of Bloom's Taxonomy (Table 3).[30] Each activity was also mapped to the newly released 2013 CAPE Educational Outcomes domains and subdomains (Table 4).[29] Descriptions of each simulated patient care activity follow.

Medication therapy management

Simulated medication therapy management (MTM) activities provided opportunities for students to perform comprehensive medication reviews (CMRs) and to interpret findings to identify medication-related problems. When learning the process of providing MTM, students provided a CMR for a peer acting as a patient using faculty-developed simulated patient health information. Students reviewed the patient information for drug therapy problems, conducted a detailed patient interview, provided the patient with documentation in accordance with the Centers for Medicare and Medicaid Services, communicated findings with a prescriber via paper documentation, and outlined their findings in a SOAP note format. The acting patient used a detailed script developed by the faculty to portray patient-specific information during the interview. Following the simulation, students provided MTM services to a University faculty or staff member within the laboratory. These patients volunteered to receive free MTM services and the cases were not simulated.

Students' interview skills and ability to identify drug therapy problems were assessed using faculty-developed rubrics. Faculty provided immediate feedback to each student including two strengths and two weaknesses.