



Short communication

Effectiveness of institutional Introductory Pharmacy Practice Experiences at achieving instructional objectives

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Abstract

Objective: To assess the effectiveness of four hospital-based, faculty-facilitated, Introductory Pharmacy Practice Experiences (IPPEs) at meeting instructional objectives related to the Accreditation Council for Pharmacy Education (ACPE) standards.

Methods: A pre-test and a post-test were administered to students to assess their acquisition of basic institutional pharmacy knowledge and perceptions of their ability and interest in hospital pharmacy practice. The test included demographic, open-ended, and multiple-choice questions designed to assess objectives in line with ACPE standards. Students' pre-test and post-test scores were compared using paired *t*-tests. Differences in test scores and perceptions were assessed based on year and work experience.

Results: Analysis of 88 students from year one and 84 students in year two showed significant improvement in test scores from pre-test to the post-test in year one (71.4% vs. 77.0%, $p < 0.01$) and year two (68.4% vs. 81.7%, $p < 0.001$). In year one, students with prior hospital experience (30%) scored significantly higher on the pre-test but not the post-test. In year two, no difference in scores was observed for students with prior hospital experience (23.8%) compared to those without. Students reported improved confidence in their knowledge of hospital pharmacy practice at the conclusion of IPPE ($p < 0.001$ in both years). Students' likelihood of pursuing a career in hospital pharmacy did not change after institutional IPPE ($p = 0.184$ in year one, $p = 0.075$ in year two).

Conclusions: The institutional IPPE program was successful at improving students' knowledge in basic hospital pharmacy practice. Institutional IPPE improved students' confidence but did not change their perceived career path.

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Introduction

Pharmacists are widely regarded as medication experts and can provide evidence-based, cost-effective patient care. The Accreditation Council for Pharmacy Education (ACPE) describes their vision of future pharmacy practice as one where pharmacists ensure optimal medication therapy

outcomes for patients.¹ They further recommend that pharmacy education prepares students for the delivery of patient-centered care that optimizes medication use, improves therapeutic outcomes, and promotes public health initiatives.¹ However, along with recognition of the pharmacist as a medication expert comes the additional accountability for patient health outcomes, and hopefully, public recognition of the pharmacist's ability to manage medications, improve cost-effectiveness, and patient outcomes.¹

As a result, ACPE has increased emphasis on experiential education, specifically Introductory Pharmacy Practice Experiences (IPPEs). IPPEs have been defined as "practice experiences offered in various practice settings

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during the early sequencing of the curriculum for purposes of providing transitional experiential activities and directed exposure to pharmaceutical care.”² Guideline 14.4 of the ACPE standards recommends that IPPE include a total of 300 hours, of which, 150 hours be equally divided between community and institutional settings.¹ While obtaining community IPPE hours is feasible for many schools, institutional IPPE hours are much more difficult to secure due to the smaller number of hospitals willing to participate. The Mercer University College of Pharmacy developed a unique approach to securing institutional sites for Advanced Pharmacy Practice Experiences (APPE) and IPPEs, which included strategically placing pharmacy practice faculty members at four local hospitals to facilitate these experiences.

There are several descriptions of institutional IPPE programs in the literature, each with varying designs and structure, but all with a goal to increase the preparedness of students for APPEs. Some institutional IPPE programs have involved students’ working with interprofessional patient care teams, while others have incorporated direct patient care activities such as patient interviews and provision of medication reconciliation services.^{3–9} These programs have typically developed IPPE objectives based on competencies derived from their curriculum committee’s interpretation of ACPE standards. Some of these programs have utilized assessment tools to evaluate students’ self-assessment of IPPE and knowledge gained, faculty’s assessment of students’ performances on IPPE, and students’ readiness for experiential rotations.^{3–9}

Current assessment of institutional IPPE in the literature includes mostly subjective data relying on students’ and faculty’s perceptions of competency.^{4–8} A longitudinal IPPE paired third-year students with faculty and APPE students to interview patients and to evaluate and present patient cases. Students were surveyed before and after IPPE to assess their perceptions of achieving 21 competencies developed by the school’s curriculum committee. Students reported significant improvement following IPPE in the scores for 15 of 21 competencies.⁴ Another patient care-centered IPPE involved third-year students providing medication reconciliation services at a local health system. Students improved their ability to perform medication reconciliation and reported positive attitudes about the medication reconciliation process and awareness about its importance.⁵ In a College of Pharmacy, an extensive block IPPE program was developed utilizing the ACPE competencies as a backbone for the IPPE syllabus and learning objectives. The authors reported that student journal entries and student and preceptor perceptions survey data indicated IPPE competencies were being achieved.⁹ In another report, first-year, second-year, and third-year IPPE students were integrated with APPE students on an internal medicine rotation. Students were surveyed on their attitude and perceptions before and after IPPE and reported improvement in their ability to describe the role of the clinical

pharmacist, describe how a pharmacist interacts with patients, locate information in a medical record, locate the answers to drug information questions, evaluate the medical literature, and counsel patients.^{6,7} Lastly, in a report evaluating faculty perceptions, faculty assessed students who completed a four-week IPPE course prior to APPE more favorably on a 5-point Likert scale, compared with students who had not taken the IPPE course.⁸ Though these reports provide valuable information about preceptors, faculty, and students perceptions of IPPE, they are limited in their ability to demonstrate objectively what students have learned.

In an effort to more accurately characterize our students’ achievement of institutional IPPE instructional objectives, an assessment tool was designed to evaluate their acquisition and application of basic hospital pharmacy practice knowledge. During the 2009 and 2010 academic years, institutional IPPE at the Mercer University College of Pharmacy was conducted longitudinally during the third professional year.

Rationale and objectives

Institutional IPPE is critical in the development and application of key skills required to be a pharmacist. Several pedagogical articles on institutional IPPE have reported improvement in students’ perceptions of their abilities,^{4–7} but there is still a paucity of reports that quantitatively assess students’ knowledge after institutional IPPE. The purpose of this study was to quantitatively assess the effectiveness of institutional IPPE at meeting instructional objectives in line with ACPE standards Appendix D by evaluating students’ performance on a pre-test compared with a post-test knowledge-based assessment. Secondary objectives included assessing students’ baseline hospital experience, determining the impact of IPPE on students’ confidence in basic hospital pharmacy practice and their likelihood of pursuing a career in hospital pharmacy, and to determine if previous hospital experience resulted in higher pre- or post-test scores.

Methods

Third professional year student pharmacists were sent out in groups of four to six students to one of four local hospitals for a half-day per week, for four consecutive weeks. Students completed a total of 16 hours of institutional IPPE (a four-week block) in either the fall or spring semester of their third professional year. In order to evaluate students’ performance on institutional IPPE competencies derived from the ACPE standards Appendix D, an assessment tool that provided both qualitative and quantitative measurements was designed by IPPE faculty. Students were asked about their baseline hospital pharmacy experience, confidence in knowledge of hospital pharmacy practice, and their likelihood of pursuing a career in hospital pharmacy practice in the qualitative questions. The quantitative section

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