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Educational outcomes associated with early immersion of second-year student pharmacists into direct patient care roles in health-system practice

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ABSTRACT

Background and purpose: To assess the educational impact of engaging second professional year student pharmacists in active, direct patient care experiences in health system practice.
Educational activity and setting: Student pharmacists in their second professional year completed a redesigned, skill-based four-week introductory pharmacy practice experience in health system practice. The immersion consisted of experiences in both operational and clinical pharmacy environments. Students were assessed with skill development checklist assessments. Pre-post surveys were also collected. Data were analyzed using a mixed methods approach.
Findings: Twenty-eight student pharmacists were included; of those, 26 completed both surveys (92.9% response rate). Survey results revealed significant increases in 81.8% of operational and 100% of clinical self-efficacy statements ($p < 0.05$) and positive perceptions of the program overall. Overall, findings suggested that student pharmacists developed skills in health system practice while identifying additional areas for emphasized learning.
Summary: Student pharmacists engaged in early, hands-on, direct patient care experiences enhanced their skill development in operational and clinical pharmacy practice.

Background and purpose

The involvement of student pharmacists in direct patient care roles is important from a student educational development perspective and an organizational performance perspective. From an educational development perspective, engagement of student pharmacists to assume direct patient care roles is vital to the future of pharmacy practice. Pharmacy curriculum accreditation standards "have been refined to ensure that graduating students are practice-ready and team-ready, that is, prepared to directly contribute to patient care working in collaboration with other healthcare providers."[1] From an organizational performance

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perspective, student pharmacists provide the opportunity to advance practice by extending pharmacists' contact with patient care.[2]

A number of studies have evaluated the educational and/or organizational impact of engaging student pharmacists in health-system pharmacy practice.[3–8] The majority of these studies involved third or fourth professional year student pharmacists completing introductory and advanced pharmacy practice experiences (IPPEs and APPEs, respectively). One recent feasibility study included a cohort of second professional year student pharmacists who assisted one academic medical center by performing medication histories for medically complex patients for a total of 15 hours over the course of an academic semester.[9] This study demonstrated that early immersion facilitates student development of personal strategies for pharmacy practice, promotes understanding of the role of pharmacists, and fosters an appreciation for the complexity of real-world practice.[9]

A comprehensive literature search revealed a dearth of literature examining early, frequent and longitudinal student immersion in clinical practice environments or in operational health-system pharmacy roles such as preparation and dispensing of sterile and non-sterile products. Most importantly, there is a lack of data from clinical education environments evaluating a standardized assessment of skill development in these learners as they progress toward competency.

The objective of this study was to examine the educational impact of a redesigned IPPE engaging second professional year student pharmacists in active and direct patient care experiences in health-system practice. This study also aimed to specifically assess skill development of these early learners in both the operational and clinical practice environments.

Educational activity and setting

Second professional year student pharmacists in a doctor of pharmacy degree program were required to complete a four-week IPPE in health-system practice directly following completion of first year coursework. In May and June 2015, this IPPE at one 840-bed academic medical center was redesigned to engage learners in direct patient care activities.[10] The experience described in this manuscript is based on collaboration between the school of pharmacy and the academic medical center and has been previously described in detail elsewhere.[11,12] In brief, the memorandum of understanding for this collaboration acknowledges that student pharmacists are vital components to the delivery of high-quality, interdisciplinary team-based patient care. This collaborative relationship values and prioritizes the engagement of student pharmacists in organizational patient care initiatives, which led to the development and evaluation of the redesigned IPPE.

Introductory pharmacy practice experience design

Traditional pharmacy curriculum in the United States includes three years of didactic coursework prior to one year of experiential practice, and most include a couple of short-term, shadowing based practice experiences prior to the fourth year, termed as introductory pharmacy practice experiences (IPPEs). Table 1 depicts the IPPE in the redesigned experience compared to the traditional IPPE. Prior to both IPPEs, all student pharmacists completed the first two semesters of the doctor of pharmacy degree program, attended an orientation at the academic medical center, and completed required training to help appropriately adapt to the new learning environment. Prior to the redesigned IPPE, student pharmacists were also required to complete various online training modules to obtain access to the electronic medical record (EMR) and medication history training. During the medication history training, student pharmacists completed one-on-one medication history interview training with pharmacy postgraduate residents who modeled the history and documentation process.

The traditional IPPE engaged student pharmacists in several shadowing opportunities in operational and administrative areas of health-system practice with very limited time to engage in direct patient care, clinical practice, or demonstrate progression toward competence in performing key practice-related activities. As detailed in Table 1, this experience was restructured to involve two-week experiences in both operational and clinical pharmacy environments. One cohort of student pharmacists spent the first two weeks in the operational pharmacy environment and then the second two weeks in the clinical pharmacy environment. The other cohort started in the clinical pharmacy environment first. These two-week experiences emphasized engagement of student pharmacists in performing the medication use process in the operational environment and performing a comprehensive medication management process in the clinical environment.

Several individuals participated in the delivery of this IPPE including operational and clinical pharmacy managers, clinical pharmacists, postgraduate pharmacy residents, pharmacy technician managers, and pharmacy technicians. Roles for each member of the implementation team and pharmacy staff perceptions regarding organizational readiness for early immersion of student pharmacists in health-system practice have been described in detail elsewhere.[10] In brief, for the two weeks each student pharmacist spent in an operational environment, each student pharmacist was assigned to a pharmacy technician manager or pharmacy technician. For the two weeks each student pharmacist spent in a clinical environment, each student pharmacist was assigned to one clinical pharmacist who had prior experience with precepting student pharmacists on APPEs and/or postgraduate residents. Clinical service lines that incorporated IPPE student pharmacists included medicine, heart and vascular, surgery, and oncology. Student pharmacists were assigned to these clinical pharmacists regardless of other assigned learners, meaning that some were completing their experience concurrently with another student pharmacist on APPE and/or postgraduate resident (range of one to three pharmacy learners per service).

During their time in the operational environment, student pharmacists concentrated on skill development in sterile and non-sterile product preparation and dispensing. The curriculum has a course sequence related to sterile and non-sterile product preparation, but is limited in frequency of students completing preparations. The operational environment had three skill development assessment checklists that student pharmacists were required to complete prior to the completion of their experience. One skill