INSTRUCTIONAL DESIGN AND ASSESSMENT

Sequencing of Simulation and Clinic Experiences in an Introductory Pharmacy Practice Experience

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Objective. To examine how the intrasemester sequencing of a simulation component, delivered during an ambulatory care introductory pharmacy practice experience (IPPE), affects student performance on a series of 3 assessments delivered during the second professional (P2) year.

Design. At the Jefferson College of Pharmacy (JCP), P2 student pharmacists were randomly assigned to 6 weeks of simulation activities, followed by 6 weeks on site at an ambulatory care clinic or vice versa during either the fall or spring semesters. At the end of each semester, these students completed 3 skills-based assessments: answering a series of drug information (DI) questions; conducting medication adherence counseling; and conducting a medication history. The 2 groups' raw scores on assessment rubrics were compared.

Assessment. During academic years 2011-2012 and 2012-2013, 180 P2 student pharmacists participated in the required ambulatory care IPPE. Ninety experienced simulation first, while the other 90 experienced the clinic first. Students assessed over a 2-year time span performed similarly on each of 3 skills-based assessments, regardless of how simulation experiences were sequenced within the IPPE.

Conclusion. The lack of significant difference in student performance suggests that schools of pharmacy may have flexibility with regard to how they choose to incorporate simulation into clinical ambulatory care IPPEs.

Keywords: experiential, IPPE, ambulatory care, simulation

INTRODUCTION

The Accreditation Council for Pharmacy Education (ACPE) requires that almost one-third of the doctor of pharmacy (PharmD) curriculum consists of experiential education, which is delivered in introductory pharmacy practice experiences (IPPEs), followed by advanced pharmacy practice experiences (APPEs), the latter traditionally delivered in the final year of a pharmacy program. Unlike APPEs that have been in place for many years, colleges and schools of pharmacy have implemented IPPEs differently as their needs dictate and curricula allow. Regardless of how a school incorporates IPPEs into their curriculum, ACPE requires that students participate in them for a minimum of 300 hours.¹

While implementation of IPPEs differs, schools of pharmacy have likely faced similar challenges. First and foremost is the challenge of developing and maintaining capacity to meet the needs of student placement. This

includes accounting for the number of sites, monitoring student-to-preceptor ratios, and maintaining the proper diversity of sites to meet accreditation requirements.²⁻⁵ Along with these challenges, experiential directors must be vigilant about "preceptor burn-out," which could be exacerbated by the need for sites and preceptors to provide students with experiences at both the IPPE and APPE levels. Identifying sites and preventing preceptor burn-out can be particularly challenging when multiple pharmacy schools are using the same preceptor pool.² Schools of pharmacy also are tasked with fitting IPPEs into the curriculum as seamlessly as possible, which may be a significant scheduling challenge.

As of 2011, ACPE allows pharmacy schools to use structured simulation to help meet IPPE goals and objectives. Simulation is defined by ACPE as, "an activity or event replicating pharmacy practice." In the accreditation standards, ACPE further states, "For the purpose of satisfying introductory pharmacy practice experience expectations, simulation may include use of high-fidelity manikins, medium-fidelity manikins, standardized patients, standardized colleagues, role play, and computer-based simulations. Simulation as a component of introductory pharmacy practice

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experiences should clearly connect the pharmacy activity or delivery of a medication to a patient (whether simulated patient, standardized patient, or virtual patient).”¹

Simulation can account for up to 60 hours of the 300-hour requirement.¹ It provides the opportunity for students to participate in controlled activities without the variation naturally present in real life environments.² This control permits a certain level of consistency to be built into an IPPE. Although endorsed as a viable component of IPPE by ACPE, a lack of published evidence pertains to simulation as an effective education component of an IPPE in pharmacy curricula.² A recent survey assessed the status of simulation-based teaching methodologies (referring to the use of high-fidelity manikins and standardized patients) in US schools of pharmacy. Seventy-four out of 88 schools participating in the survey reported using simulation. Several of the 14 schools that reported not using simulation, did report using role play (n=12), partial-task trainers (n=7), and low-fidelity manikins (n=6). Only 29.7% of the schools participating in the survey reported using simulation for IPPEs.⁶

Two schools of pharmacy looked at the effects of participation in simulation activities on knowledge and skills. In 2010, University of Missouri-Kansas City School of Pharmacy described incorporating 9 hours of high-fidelity simulation involving 3 acute care cases into a longitudinal clinical IPPE that students on a satellite campus were completing in the fourth year of a 5-year professional program.⁷ Twenty-eight students participated in the simulation activities, and 27 completed all accompanying assessments. Students completed a quiz prior to participating in each simulation session and again after to assess whether knowledge was improved through participation. Scores on the postsimulation quizzes demonstrated significant improvement in knowledge. Students also completed a 3-month follow-up quiz, which was identical to the postsimulation quiz. Students who participated in the simulation experiences scored significantly higher on the follow-up quiz than students from the school’s main campus who did not participate in the simulation experiences.⁷

Additionally, California Northstate University College of Pharmacy described creating a 3-week, 60-hour simulation-based IPPE designed to teach and assess pre-APPE core domains as identified by ACPE. The activities designed for the course were a model community pharmacy, a model hospital pharmacy, standardized patients, and high-fidelity simulation. Twenty-eight students participated in the simulation IPPE, and 60 students participated in traditional IPPEs and served as the control group. Students enrolled in simulation performed significantly better on quizzes taken after each of the simulation experiences

compared to those taken before. Simulation IPPE students and traditional IPPE students participated in a practical examination, and scores from the 2 groups were compared. The practical examination consisted of a checklist and assessed student performance on 10 pre-APPE core domains. The simulation student scores from the observer checklists were significant with 52%, compared with scores of 44% in the control arm. The authors concluded that the simulation IPPE students were better prepared for the examination, but also noted that the simulation IPPE required a great deal of time and resources.⁸

The Jefferson College of Pharmacy (JCP) uses simulation as a component of an ambulatory care IPPE. During the second professional (P2) year, students assigned to the required ambulatory care IPPE are randomized to experience a 6-week simulation curriculum followed by a 6-week in-clinic experience or a 6-week in-clinic experience followed by a 6-week simulation curriculum. All ambulatory care IPPE students complete 3 assessments during the last week of the semester. The aim of our work was to assess if this intrasemester sequencing of the ambulatory care IPPE had an effect on student performance on the assessments.

DESIGN

Jefferson is a private institution offering a 4-year PharmD curriculum for students who have completed required prerequisite coursework. The JCP curriculum includes 6 IPPEs delivered over the course of the first 3 professional years (Table 1). The decision to use simulation exercises for the ambulatory care IPPE (as opposed to the other 5 IPPEs) was based on the pragmatic need to prioritize use of available ambulatory care practice sites to conduct required ambulatory care APPE rotations without causing preceptor/clinic burn-out or overburdening a site with too many students.

The Dr. Robert and Dorothy Rector Clinical Skills and Simulation Center at Thomas Jefferson University (TJU) was available to provide simulation support for teaching and assessment activities to all of the programs at TJU. The center has dedicated faculty members and staff to implement programs, including those involving high-fidelity and low-fidelity models and standardized patients. Although the college of pharmacy faculty members work closely with the staff at the center to provide simulation experiences in several other courses, these resources were not used for ambulatory care simulation because of the significant cost of using the center on a weekly basis and the need to share the capability/availability of the center with all of the professional programs on campus. Lastly, consensus from ambulatory care faculty members was that the broad definition of “simulation” (as provided by ACPE) enabled

Table 1. Required Introductory Pharmacy Practice Experiences (IPPEs) at Jefferson College of Pharmacy

Students are randomized to complete one of the experiences during the fall semester of the given year and then switch experiences during the spring semester.	
Completed during the first professional year (P1)	<p>Health Care Related Service Learning The purpose of this course is to foster a sense of community involvement and instill a basic understanding of pharmaceutical care in P1 students through health care related service. Health care related community service sites include, but are not limited to: wellness centers, homeless shelters, senior centers and clinics for the underserved.</p> <p>Community Pharmacy The purpose of the course is to instill a basic understanding of community pharmacy practice through site-based experiences.</p>
Completed during the second professional year	<p>Hospital/Institutional Pharmacy The purpose of the course is to instill a basic understanding of hospital pharmacy practice through site-based experiences.</p> <p>Outpatient/Ambulatory Care Clinic The purpose of the course is to instill a basic understanding of ambulatory care pharmacy practice through both site-based and simulated experiences. The course is offered in two individual components. One -half of the course is conducted in ambulatory care settings. The remaining half of the course is conducted in the Pharmacy Practice Simulation Center.</p>
Completed during the third professional year	<p>Inpatient, Direct Patient Care The purpose of the course is to instill a basic understanding of direct inpatient care pharmacy practice through site-based experiences.</p> <p>Selective The purpose of the course is to provide students with an expanded awareness and understanding of potential career opportunities within the pharmacy profession. Through this IPPE, students can explore an area of pharmacy practice in which they have a personal interest. The course is conducted in a variety of pharmacy settings including: investigational drug services, compounding, home infusion, pharmaceutical industry, and pharmacy management</p>

the design of activities that could be carried out in the computer laboratory and model pharmacy that are part of JCP's Pharmacy Practice Simulation Center (computer laboratory space and model pharmacy).

During the summer of 2011, each ambulatory care faculty member participated in a series of meetings, and consensus was established regarding the specific foundational knowledge and skills that should be practiced during simulation in an ambulatory care IPPE. The knowledge and skills identified were based on objectives outlined in the IPPE course syllabus, and ambulatory care faculty members agreed they were applicable across practice sites. All ambulatory care faculty members collaborated to develop and provide peer review for each week's simulation activities.

From fall 2011 through spring 2013, the ambulatory care IPPE consisted of two 6-week experiences: an ambulatory care simulation experience and an on-site ambulatory care clinic experience. During the assigned semester, students were randomly assigned to experience simulation first or clinic first, and then switch assignments (Figure 1). During the simulation, P2 students were led through a series of activities delivered by adjunct

pharmacy instructors in JCP's Pharmacy Practice Simulation Center. The adjunct instructors hired were licensed pharmacists experienced in a variety of outpatient pharmacy practice settings, including community, health-system, and ambulatory care. All adjunct instructors were supervised by a faculty member who completed a post-graduate year 2 (PGY-2) ambulatory care pharmacy residency.

All simulation exercises were conducted individually or in small groups. Simulation activities pertained to cultural competency, "subjective, objective, assessment, and plan" (SOAP) note writing, responses to drug information questions (ie, the "curbside consult"), patient counseling, access to care (eg, navigating insurance formularies, finding medication coupons, navigating patient assistance programs), and transitions in care. A list of activities, as they relate to these topics, can be found in Table 2.

For the onsite clinic experience, students were assigned to a preceptor at an ambulatory care practice site. Under the preceptor's supervision, students participated in pharmacist activities at the site. For both the simulation experience and clinic experience, students were evaluated

Figure 1. Randomization of Introductory Pharmacy Practice Experience (IPPE) students during the fall semester of the second professional year (P2).^a Second-year students switch IPPE assignment during the spring semester.

with a common rubric on professionalism, development of knowledge and skills, written communication, verbal communication, organization and time management, self-directed learning and initiative, reasoning, and problem solving. The adjunct instructors and preceptors indicated whether students were below expectations, met expectations, or exceeded expectations on parameters related to these assessment areas.

During the final week of the semester, when the 2 groups had completed both portions, all students had to complete 3 assessments, which are summarized in Table 3. They included answering DI questions, completing

a medication history, and conducting medication adherence counseling. Using the Rector Center was considered for administering the assessments, but because the decision to incorporate simulation into the ambulatory care IPPE was made after the school budget was approved, it was deemed cost prohibitive to do so. Instead, student pharmacists in their third and fourth professional years (P3 and P4) acted as patients for IPPE students to interact with during the medication history and medication adherence assessments. The P3 and P4 students were familiar with simulating patients and were trained by the investigators a week before the assessments.

Table 2. Summary of Ambulatory Care IPPE Simulation Activities

Week	Activity Focus
1	Cultural Competency <ul style="list-style-type: none"> Utilizing the <i>Worlds Apart</i> series on cross-cultural health care,¹⁰ students watch a video chronicling a patient and then participate in group discussions led by faculty facilitators. Prompt questions surrounding culture and medicine are used to facilitate discussion. Playing off of the patient in the video, students role play as pharmacists and practice responses to the patient's questions and concerns
2	Drug Cost <ul style="list-style-type: none"> Students work through a series of patient cases that require them to explore prescription drug plans, discount drug plans, and patient assistance programs.
3	Medical Documentation <ul style="list-style-type: none"> Based on mock case examples, students prepare proper documentation for a medical record using the subjective, objective, assessment, plan (SOAP) format.
4	Cultural Competency <ul style="list-style-type: none"> Again, utilizing the <i>Worlds Apart</i> series on cross-cultural health care,¹⁰ students watch videos chronicling 2 different patients and their families and then participate in group discussions led by faculty facilitators. Prompt questions surrounding culture and medicine are used to facilitate discussion. Playing off of the patients in the videos, students role play as pharmacists and practice responses to the patients' and families' questions and concerns
5	Drug Information <ul style="list-style-type: none"> Students prepare and practice delivering responses to a series of drug information questions.
6	The Ambulatory Care Visit <ul style="list-style-type: none"> Students complete medication reconciliation with a mock patient (played by faculty members or P3 or P4 students). A SOAP note is written based on information gathered from the initial patient interview. Students assist the patient with a drug information question and with prescription drug coverage.

Table 3. Summary of Skills-based Assessments for the Ambulatory Care Introductory Pharmacy Practice Experience (IPPE)

Assessment	Station Description	Excerpt from Station Materials	Excerpt of Nominal Grading Rubric
Drug Information	Each student was allotted 15 minutes to write a short response to each of 3 drug information questions. Grading for each question (conducted by the same faculty member for 2-year time span for which data was presented) was based on a rubric to allow for partial credit.	Question: A 58-year-old female patient is admitted to the hospital for hip replacement surgery and is to be started on enoxaparin for deep vein thrombosis (DVT) prophylaxis. Her current height is 5'3" and she weighs 120 lbs. Her current SCr = 1.8 mg/dL. Please indicate what the appropriate renally adjusted dose of enoxaparin would be for this patient.	Did the student correctly calculate the ideal body weight? Did the student correctly calculate the creatinine clearance?
Medication History	Each student was given 15 minutes to conduct a medication history with a simulation patient (P3 or P4 student). Grading was completed by the simulation patient immediately after the encounter according to a nominal checklist.	From SP script: Your medications are prescribed by a primary care provider and a cardiologist. You have 1-2 glasses of wine per week. Medication allergies: Sulfamethoxazole/trimethoprim. You break out in a rash when you take this medication. Adverse drug events: None that you can think of. Medications per prescription: Levothyroxine 100 mcg by mouth daily You actually take this before all of your other meds and food since you need to take this on an empty stomach. You get up at 6am and you take this as soon as you get up. For hypothyroidism. Lansoprazole 30 mg by mouth daily You take this at 7am with the rest of your meds for gastroesophageal reflux disease.	Did the student identify the appropriate dose of enoxaparin to be 30 mg subcutaneously daily based on the creatinine clearance? Did the student list an appropriate reference? Asked what prescriptions medications you are taking? Asked you if you recognized each of your medications? Asked you how many times per day you take each medication? Asked what time of day you take each medication? Asked what over-the-counter medications you are taking?

(Continued)

Table 3. (Continued)

Assessment	Station Description	Excerpt from Station Materials	Excerpt of Nominal Grading Rubric
Medication Adherence Counseling	Each student was given 15 minutes to conduct medication adherence counseling with a standardized patient (P3 or P4 student).	Door knocker stem: You are a student pharmacist in an HIV primary care clinic. Your preceptor and attending physician have a patient that they suspect has been non-adherent to her medications because her viral load is still very high with no resistance mutations present. You are asked to talk with the patient specifically to identify if any adherence issues exist and, if so, you are to work with the patient to solve them. Medication reconciliation has already been conducted by your preceptor.	Introduced themselves. They need not use their last name to receive credit.
	Grading was completed by the standardized patient immediately after the encounter according to a nominal checklist.		Treated me in a professional manner. Collected information in a way that seemed organized. Student specifically identified that you have poor adherence to raltegravir. Student appropriately addressed poor adherence to raltegravir (ex. setting an alarm, subscribing to text message service, incorporating evening dose into daily routine, etc).

Training methods were modeled after the procedures used in the Rector Center by their standardized patient trainers. Training was conducted as a group and included a script read-through of the case followed by verbally quizzing each simulation patient on case elements. Next, the simulation patients were led through a reading and discussion of the checklist items used to grade the ambulatory care IPPE students, taking time to ensure that all simulation patients understood key definitions and had the same interpretation of each checklist item. The last part of the training session involved each simulation patient role-playing with the instructor (who played the role of IPPE student) while the other simulation patients observed. After each role-play encounter, the group was walked through the checklist and discussed how to grade each item based on the role-play to ensure reliability in the assessment.

The P2 students were not informed about the nature of each assessment until shortly before the assessment was scheduled to begin. At that point, a sign was placed at each assessment station that contained pertinent information. To ensure academic integrity, students were required to sign a confidentiality form meant to limit information transmitted between student groups. Students had 15 minutes to complete each assessment and the activity was coordinated by a faculty member to ensure timing was monitored. Students who finished their assessment in less than the time allotted were instructed to stay at their station. After the 15 minutes allowed for each assessment had elapsed, 5 minutes were allocated for students to transfer to the next assessment station. During this 5-minute transfer time, the simulation patients conducted their grading via a nominal (yes/no) checklist for the medication adherence and medication history stations (see Table 3 for an example of checklist items). Drug information responses were graded by the same faculty member for the 2-year time span, according to a rubric designed for each DI question (see example in Table 3).

For each of the assessments in this course, a rubric score of greater than or equal to 73% was considered passing. This score was chosen based on the JCP passing standard and was consistent with the passing score used for similar assessments throughout the curriculum during the time period of the study.

The study aimed to evaluate if simulation and clinic sequencing had any effect on student performance on the assessments. To test the null hypothesis that there would be no difference in student performance, regardless of intrasemester sequencing of the ambulatory care IPPE, we employed a retrospective, case control design. Students had already been randomized into 2 groups based on experiencing ambulatory care IPPE simulation first, or by spending time in an ambulatory care clinic first.

Because all students experienced the assessments at the end of the semester, the primary outcome of the evaluation was the comparison of the 2 groups' mean scores on the assessments. Additionally, a comparison of mean scores for student cohorts in the fall and spring semesters was conducted. The assessment was completed by collecting all end-of-semester assessment scores from academic years 2011-2012 and 2012-2013. Two-sided *t* tests were used to assess continuous data. A chi-square test was used to assess nominal data. Statistical analysis was performed using SPSS, v19 (IBM, Somers, NY). The study was reviewed and given exempt status by the TJU Institutional Review Board.

EVALUATION AND ASSESSMENT

One hundred eighty P2 student pharmacists completed all 3 assessments, with 90 students having experienced simulation first and 90 students having an ambulatory-clinic experience first. Respective mean scores for students in the simulation-first group and clinic-first group were: 9.1 and 9.5 out of 15 possible points for the drug information assessment; 14.4 and 14.2 out of 17 possible points for the medication adherence assessment; and 16.2 and 16.4 out of 20 possible points for the medication history assessment. No significant differences were observed in any of the assessment scores between the groups (Table 4). The percentage of students achieving a passing score of $\geq 73\%$ on the DI, medication adherence, and medication history assessments were 38.8%, 71.1%, and 76.6% for the simulation-first group and 35.5%, 76.6%, and 82.2% for the clinic-first group.

When assessed by semester, students in the fall achieved a mean score of 8.6, 15, and 16.5 for the DI, medication adherence, and medication history assessments, respectively. Students in the spring semester achieved a mean score of 10, 13.7, and 16.3 for the DI, medication adherence and medication history assessments, respectively. Students at the end of the spring semester performed significantly better on the DI assessment, and students at the end of the fall semester

performed significantly better on the medication adherence assessment. No significance was observed between semesters for the medication history assessment. Assessment results, by semester, comparing simulation-first to clinic-first cohorts can be found in Table 5.

DISCUSSION

Students assessed over a 2-year time span performed similarly on all 3 assessments regardless of how simulation experiences were sequenced within their ambulatory care IPPE. While spring semester students performed better than fall semester students on the on the DI assessment, the opposite was observed for the medication adherence assessment, and no difference was observed between semesters regarding the medication history assessment. The lack of significant difference in student performance within semesters, combined with a lack of net difference in performance between semesters, suggests that we succeeded in fairly and pragmatically incorporating ambulatory care IPPE simulation into the curriculum.

After we decided to add simulation exercises and assessment to the ambulatory care IPPE, faculty members focused on designing simulation activities and assessments that would best use resources and funds. We hope the data presented, in the context of our curriculum, enables other schools with similar characteristics to pursue adding simulation and its assessment into their IPPE curriculum. Having flexibility regarding simulation sequencing may help institutions incorporate IPPE ambulatory care experiences and meet their experiential education requirements. While we chose to target ambulatory care, the model could be used for an IPPE focusing on a different area of practice and could also feature or integrate other types of simulation such as high fidelity manikins or rigorously trained standardized patients as an institution's financial resources allow.

As we continue to evaluate and revise this experience, a few areas could be improved or expanded. Overall, students did not perform well on the drug information assessment. We hypothesized that there may have been too many questions for the time allotted as many students

Table 4. Assessment Results Comparing Simulation First and Clinic First Experiences

Assessment	Simulation First		Clinic First		<i>p</i> value ^a
	Mean Score (%)	% Students scoring $\geq 73\%$	Mean Score (%)	% Students scoring $\geq 73\%$	
Drug Information	9.1 (60.7)	38.8	9.5 (63.6)	35.5	0.35
Medication Adherence	14.4 (84.8)	71.1	14.2 (83.8)	76.6	0.64
Medication History	16.2 (81)	76.6	16.4 (82)	82.2	0.52
Composite of All 3 Assessments	39.8 (76.5)	68.9	40.2 (77.3)	68.9	0.53

^a*p* value is comparing mean scores

Table 5. Assessment Results Comparing Simulation First and Clinic First Experiences by Semester

Skill-Based Assessment	Fall Semester		Spring Semester		p value ^a
	Mean Score (%)	% Students scoring $\geq 73\%$	Mean Score (%)	% Students scoring $\geq 73\%$	
Drug Information (composite)	8.6 (57.3)	28.4	10 (66.7)	44.6	0.002
Simulation First	8.8 (58.7)	31.1	9.5 (63.3)	44.4	
Clinic First	8.4 (56)	23.3	10.6 (70.7)	44.7	
Medication Adherence (composite)	15 (88.8)	83	13.7 (80.6)	64.1	< 0.001
Simulation First	14.6 (85.9)	77.8	14 (82.4)	64.4	
Clinic First	15.2 (89.4)	90.7	13.3 (78.2)	63.8	
Medication History (composite)	16.5 (82.5)	85.2	16.3 (82)	75	0.85
Simulation First	16.2 (81)	80	16.5 (82.5)	73.3	
Clinic First	16.9 (84.5)	90.7	16.2 (81)	76.6	

^ap value is comparing mean assessment scores in the fall vs spring semester groups

struggled to finish. Second, P2 students take their drug information course during the fall of the P2 year (at the same time as half of the class takes this course) and then continue to complete drug information questions during their IPPEs as well as during a spring laboratory course. Thus, this assessment may not be commensurate with their level of training.

Another potential limitation of our study was using P3 and P4 student pharmacists in place of true standardized patients. While using P3 and P4 student pharmacists as simulation patients might enable other schools to replicate or adapt our IPPE simulation methods, the substitution of student pharmacists for true standardized patients has not been validated. Our faculty members aimed to mitigate this limitation by training the P3 and P4 students in the same manner that true standardized patients are trained at our clinical skills and simulation center. To evaluate the quality of this simulation assessment, we would like to assess the inter-rater reliability of P3 and P4 student pharmacists to true standardized patients and to faculty members. Additionally, we would like to incorporate a formal debriefing and feedback session for students taking the IPPE. Incorporating formalized debriefing and feedback components would create a more meaningful and enriching learning experience for the students.⁹

While our study helps augment research using simulation in IPPEs, it also raises questions requiring further study. For example, even though there was no difference in overall performance on assessments, it would be useful to know if differences exist between rubric areas (eg, communication items, professionalism). Finally, other studies examining the use of simulation in the experiential setting have assessed student perceptions of confidence, as well as preparedness and satisfaction. These are elements we may also consider formally assessing beyond a traditional course evaluation to help determine the overall efficacy of simulation exercises.^{7, 8}

CONCLUSION

Schools of pharmacy may have difficulty finding an adequate number of ambulatory care sites/preceptors for both IPPE and APPE. Our data and experience support being flexible when incorporating simulation into IPPEs and may help schools of pharmacy more comfortably discuss the idea of using a hybrid simulation/practice site model for an IPPE. We encourage those institutions who are “thinking outside the box” regarding their IPPE simulation and sequencing methodologies to assist in providing more insight into this advancing area.

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