RESEARCH

Comparison of Introductory Pharmacy Practice Experiences Among US Pharmacy Programs

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Objective. To identify the various IPPE designs utilized by US pharmacy programs.

Methods. A 20-question survey was developed and distributed to experiential affairs professionals at 129 pharmacy institutions nationwide addressing school demographics and IPPE design. Results were analyzed in aggregate.

Results. Ninety-three schools responded (72%). Eighty-nine percent of those reported beginning IPPE experiences in the first professional year, although there was a great variation regarding whether the IPPE was held while didactic classes were in session or during school breaks. The number of required practice experiences varied. Institutions prohibited students from completing rotations in the same pharmacy chain (72%) or hospital (70%) where employed, and from completing 2 rotations at the same site (62%). Fifty-seven percent utilized faculty members as preceptors. 51% allowed a maximum of 2 students per preceptor per practice experience.

Conclusion. While clear trends existed in IPPE curricula, institutions incorporated aspects that addressed unique needs. Further research can determine the benefits and drawbacks of different IPPE designs.

Keywords: Experiential education, IPPE, curricular placement

INTRODUCTION

Introductory pharmacy practice experiences (IPPEs) were first referenced by the Accreditation Council for Pharmacy Education (ACPE) Accreditation Standards as a component of the curriculum leading to the doctor of pharmacy degree in 1997.[1] Updates to the ACPE accreditation Standards in 2007 and 2011 further specified IPPE requirements.[2,3] Specifically, Guideline 14.4 from 2011 focused directly on IPPEs and states that these experiences "should begin early in the curriculum, be interfaced with didactic course work that provides an introduction to the profession, and continue in a progressive manner leading to entry into the advanced pharmacy practice experiences."[3] ACPE requires at least 300 hours of IPPE experience, with 150 of those hours balanced between community and institutional settings.[3] ACPE also specifically states that the IPPEs may use various formats, including shadowing of practitioners or students on advanced pharmacy practice experiences, interviews with real patients, simulation, service learning, or real practice experiences in community, institutional, or long-term care pharmacies.[3] These broad guidelines allow pharmacy programs flexibility and individualism in developing IPPE programs in order to meet the specific needs and objectives of the institution.

Large variances exist in the implementation of IPPEs at individual pharmacy programs because of the inherent flexibility within the ACPE Standards. Research evaluating the design of IPPE programs among pharmacy programs across the United States is limited. A survey of IPPE programs in the United States published in 2008 investigated IPPE grading methods, site selection, and prerequisites and found that 10% of programs began IPPEs before the first professional year, and another 10% offered them after the third professional year prior to advanced practice experiences.[4] While useful, this study suffered from a low response rate (46/91 programs) and was conducted within the first year that the 2007 ACPE standards update went into effect, in which more specific requirements of IPPE experiences were expected of all pharmacy programs. Additionally, institutions such as Auburn University Harrison School of Pharmacy and Southern Illinois University-Edwardsville School of Pharmacy published self-studies describing and analyzing the design of their IPPE programs.[5,6] While these self-studies are useful in reviewing individual institutions' IPPE design, it is not possible to extrapolate the findings

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in these reports to determine common practices or more effective practices.

The purpose of our study was to evaluate, compare, and contrast the design of IPPE programs among colleges and schools of pharmacy across the United States. A better understanding of how IPPEs have been designed and integrated into doctor of pharmacy curricula can assist decision-makers in their ongoing assessment of individual IPPE programs. It may also help identify unique components of individual IPPE programs and help guide IPPE development in new pharmacy institutions.

METHODS

A 20-question survey was developed to collect data regarding key elements of IPPE programs. Questions focused on integration into the curriculum (the academic year that IPPEs began, when they fell within the academic calendar, and the day(s) of the week they occurred), programmatic requirements (the number of rotations, hours, and documentation required), and logistics (maximum distance to IPPE sites, maximum number of students per preceptor, use of faculty as IPPE preceptors, and possibility for students to perform 2 or more rotations at the same site or at sites where they were employed). Demographic data was collected to identify trends and differences between private and public schools, the influence of class size, and regional differences among schools. To ensure the integrity of the answers collected matched the intent of the questions, open-response comment fields were available for many questions and at the conclusion of the survey. The survey was reviewed and approved by the Western New England University Institutional Review Board in January 2013.

The survey was entered into an online service (Survey Monkey, Portland, OR) and an invitation to complete the survey was distributed via e-mail on February 4, 2013 to the assistant/associate dean of experiential affairs (or equivalent) to all 129 doctor of pharmacy programs with ACPE institutional status as of January 1, 2013.[7] When initial contacts from each institution failed to respond after 4 days, an attempt was made to identify a secondary contact, who was then sent the survey. Lastly, for nonresponding institutions, the membership list of the American Association of Colleges of Pharmacy's Experiential Education Special Interest Group was examined to identify individuals who might be able to respond to the survey.

Respondents were not required to complete all survey questions in order to be included in the data analysis. If there were duplicate survey responses from the same institution, the one with the most complete answers was used, with the remaining response(s) discarded. After ensuring there were not multiple surveys completed from the same institution, all data was made anonymous and was analyzed in aggregate. Chi-square and *t* tests were used to evaluate differences in categorical and continuous data, respectively.

RESULTS

One hundred nine surveys were completed by representatives of 93 pharmacy programs. Data from 16 surveys was omitted to remove duplicate responses from a school, resulting in a net response rate of 72% (93/129). The demographic characteristics of these programs are presented in Table 1. A good respondent sample (>60% response rate) was received for all geographic regions, as classified by the US Census (Table 1).[8]

Among respondents, a large majority (89%) of pharmacy programs began IPPEs during the first professional (PY-1) year, with the remaining schools starting IPPEs during the second professional (PY-2) year. Forty-three percent held their IPPEs throughout the semester/quarter/trimester when didactic classes were in session. In 26% of programs, IPPEs took place only during summer and/or winter recesses. In addition, 26% of schools allowed IPPEs to take place at various times throughout the calendar year (Figure 1). The remaining programs held IPPEs at the beginning or end of the academic term (3%) or were classified as other (one program allowed students to choose when to complete IPPEs; another had a dedicated block of time in the middle of the semester). Nationally, IPPEs were held on each day of the week, though weekend days (31%-32%) were less common than

Table 1. Demographics of Pharmacy Programs Responding to the Survey

Variable	Number of responses received/schools surveyed (%)
Program Type	
4-year, public school	43/62 (69%)
4-year, private school	41/54 (76%)
3-year, public school	1/1 (100%)
3-year, private school	8/12 (67%)
Class Size	
Less than 100	39/62 (69%)
100-149	34/37 (92%)
150-199	11/16 (69%)
200-249	6/9 (67%)
250 or more	3/5 (60%)
Geographic region	
Northeast	20/26 (77%)
South	34/46 (74%)
Midwest	22/29 (76%)
West	16/26 (61%)
Puerto Rico	1/1 (100%)

weekdays (range: 83%-93%), with no programs holding their IPPE experiences exclusively on weekend days.

Although the number of IPPE rotations a school required varied (range: 2-11), having 2 (27%) or 3 (20%) rotations was most common (Figure 2). There were no significant differences between demographic variables (public vs private programs, program length, program size) in the number of required rotations. Seventy-eight percent of programs required their students to document IPPE hours, with three-fourths of those schools utilizing an online documentation system. Ninety-one percent of schools required preceptors to confirm hours, with 76% requiring a one-time confirmation at the completion of the rotation and 15% requiring weekly hour confirmation. The preceptor orientation offered by programs varied widely, though an annual preceptor orientation program (38%) was most common; 24% of programs only offered orientation for new preceptors. Furthermore, almost every program (99%) reported that preceptors were subject to student evaluations.

Ninety-two percent of programs set a maximum distance that a student could travel to an IPPE site, with distances generally ranging from 20 to 90 miles with a median distance of 60 miles. Among programs setting a maximum distance, 73% reported having some students traveling 50 miles or more to get to an IPPE rotation. Two-thirds of responding pharmacy programs limited the number of IPPE students per individual preceptor to 2 or less, and 16% of programs reported that the maximum number of students an individual preceptor could be assigned to per IPPE rotation was one student (Figure 3). As with the number of required rotations, there were no significant differences between demographic variables (public vs private programs, program length, program size) for the maximum number of students per IPPE preceptor. Most programs prohibited students from completing rotations in the same pharmacy chain (72%) or hospital (70%) where they were employed, and 83% stated that they would not allow a student to have an IPPE in the specific pharmacy store they currently worked in. The majority of programs (77%) also did not allow students to complete a second IPPE rotation at the same site where they had completed a previous IPPE rotation, though 15% of programs had this stipulation for noninstitutional experiences only. Finally, slightly more than half (57%) of responding pharmacy programs utilized full-time faculty members as IPPE preceptors, though 9% and 1% of programs only utilized full-time faculty members as IPPE preceptors at institutional or community settings, respectively.

DISCUSSION

In this study, we assessed and compared IPPE design at pharmacy programs across the United States. Despite the freedom given to programs by the ACPE Standards regarding IPPE implementation, it was a little surprising that significant variations in IPPE design existed between individual programs. As IPPEs are still a relatively new

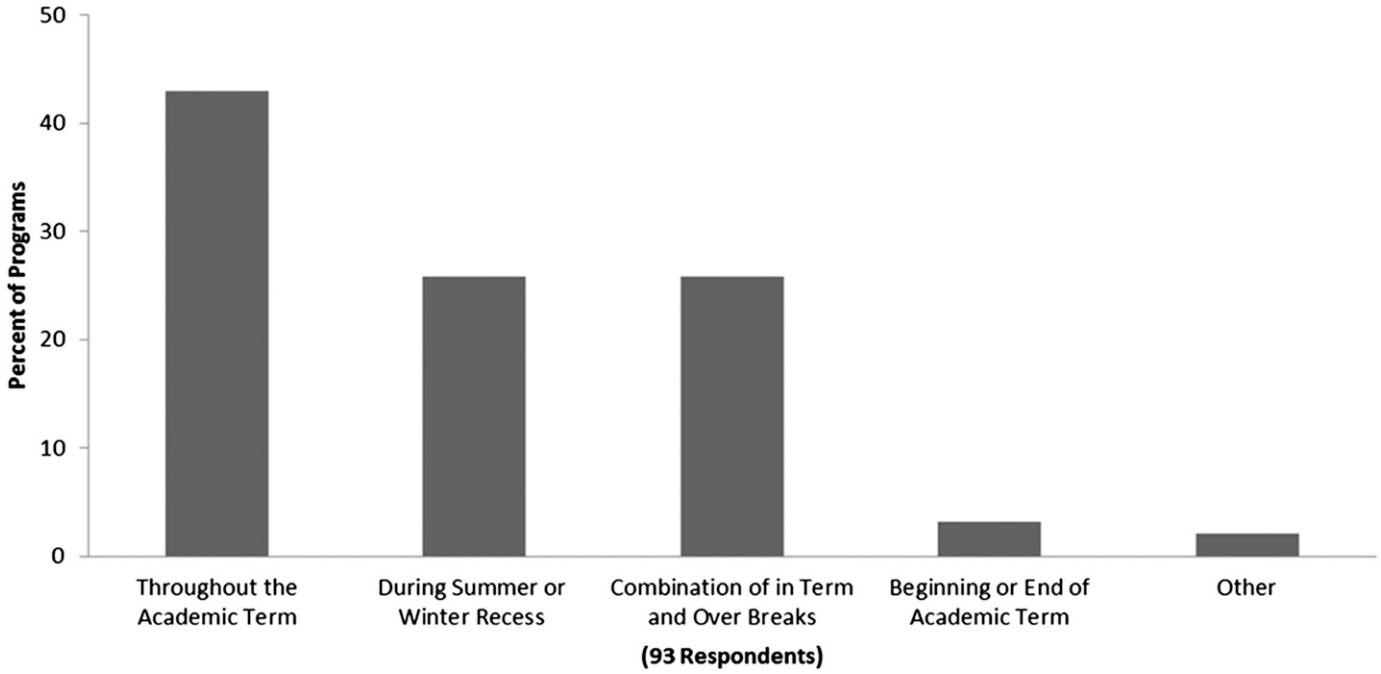

Figure 1. When Introductory Pharmacy Practice Experiences are Held.

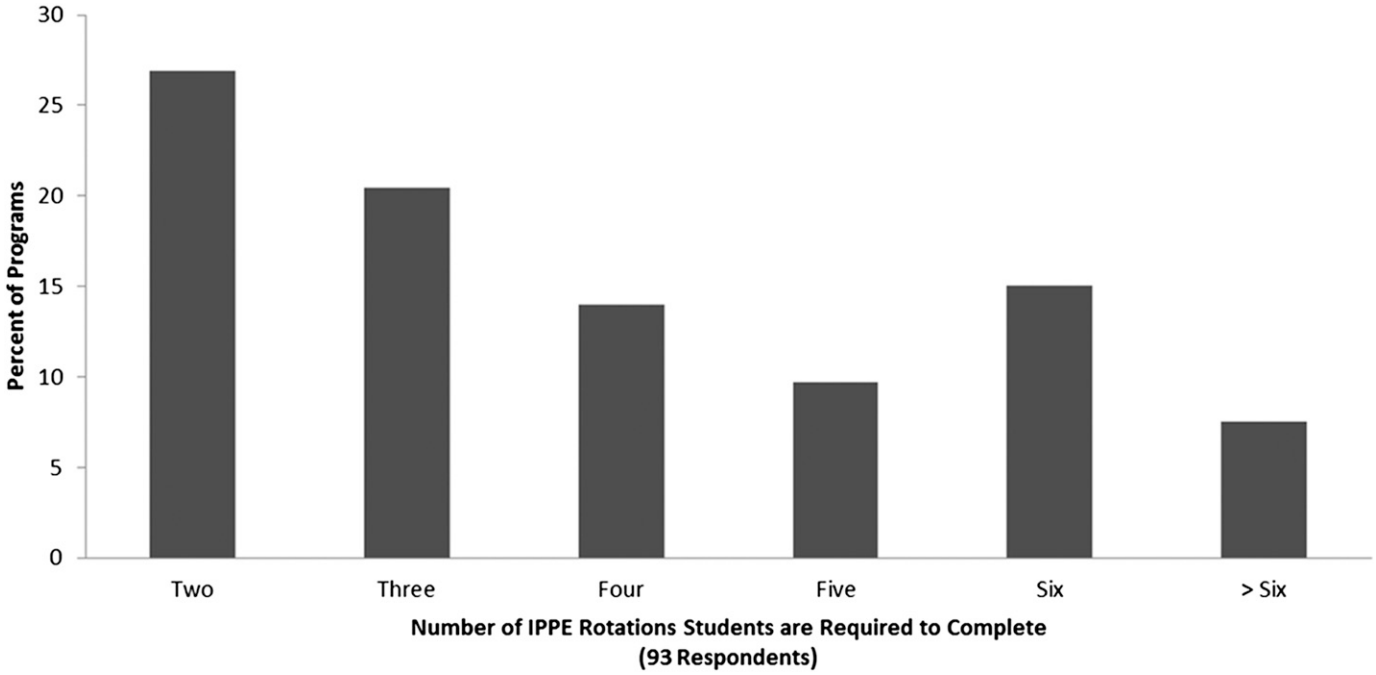

Figure 2. Number of Introductory Pharmacy Practice Experiences Required.

ACPE requirement, the results of this study may provide valuable insight into the commonality among IPPE design in doctor of pharmacy programs and could be useful to experiential affairs professionals as they assess and optimize their individual IPPE programs. Established pharmacy schools could benefit from the information as they assess and optimize their experiential structure, and emerging programs could gain insight into the current national IPPE trends while they decide how to design their programs.

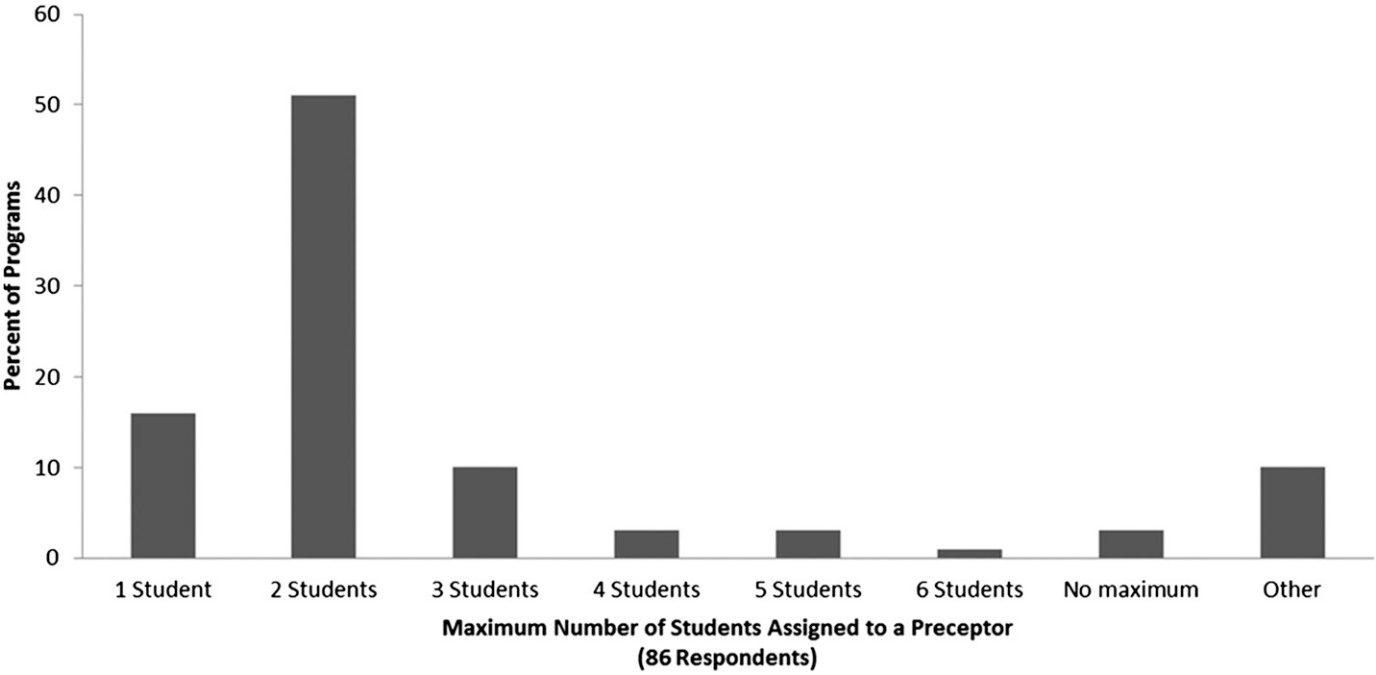

Figure 3. Number of Students Assigned to an Individual Preceptor per Rotation.

A large majority of pharmacy programs began IPPEs in the first professional year, either throughout the semester/trimester/quarter, or both during the academic session and at summer or winter break. Thus, most programs were incorporating their IPPE experiences longitudinally rather than having IPPEs only at the beginning or end of a semester. There were a number of advantages to this, namely that students would be better able to integrate what they learned in the classroom with real-life experiences and observe how a site operates over a longer period of time. These discoveries were consistent with the recommendations of ACPE that programs initiate experiential education early in the curriculum and provide longitudinal structure for student learning.[3]

The number of IPPE rotations required by schools varied widely, though requiring 2 rotations was most prevalent. A low number (2 or 3) of IPPE rotations could allow students to spend a significant amount of time with an individual preceptor, building a relationship and perhaps even leading to outside mentoring. However, requiring fewer IPPEs may not give students adequate exposure to different practice sites. Requiring more rotations eliminates this problem, but may not provide enough time for students to acquire proper training at any individual site. Finding the balance between number of rotations and time spent at each rotation is a challenge. Programs may decide to have a certain amount of IPPE rotations based on the number of experiential sites they have available; whereas, programs facing challenges in securing an adequate number of IPPE sites within a reasonable distance may be forced to create an IPPE program with fewer required rotations.

Many pharmacy programs required students to drive 50 miles or more to their IPPE rotations. Unlike APPE rotations, IPPE rotations often take place while students are taking didactic classes, either after those classes end for the day on multiple days per week or for a full work day once weekly. Driving this distance in addition to keeping up with class work places more stress on students and subtracts from the amount of time they have to study for other classes. It may also lead to student claims of unequal treatment when some have to travel 20 miles or less to their IPPE, while others may have to drive up to 120 miles round trip. These issues can be mitigated by holding IPPEs outside of the dedicated academic session, but in doing so, the longitudinal experience favored by ACPE may be diminished.[3]

More than half of pharmacy programs used full-time faculty members as preceptors for IPPE students, which is advantageous in that faculty members are likely to be involved and invested in the education of the student and be more in tune with the didactic foundation of each level of pharmacy student. The advantage of using non-faculty member preceptors, however, is that they are generally full-time practitioners who bring a "real-world" voice to pharmacy students. They also have the ability to hire a student as an intern or staff member following graduation.

Although ACPE does not specify an exact ratio of student to preceptors, it does state in Guideline 14.1 the ratio should be "adequate to provide individualized instruction, guidance, supervision, and assessment."[3] Half the programs from the study placed a maximum of 2 students per preceptor and only a few programs allowed 4 or more students to a preceptor per rotation. Having fewer students can allow for more individualized attention between student and preceptor. However, the student to preceptor ratio during any IPPE rotation should not be looked at in isolation, as some programs that use longitudinal IPPE rotations schedule preceptors to supervise multiple students, but stagger student time at the site so the preceptor is supervising fewer students at any one time.

All programs reported that they held orientations for preceptors in one form or another, an improvement from the 71% of programs that had structured preceptor training programs reported previously.[4] The ACPE Guideline 14.1 requires schools of pharmacy to ensure that preceptors receive "orientation (especially for first time preceptors prior to assuming their responsibilities), ongoing training, and development."[3] Most schools expressed that their preceptors had orientation or development on an annual basis, but one quarter of schools only held orientation for new preceptors.

ACPE Standards require that consideration be made "to avoid circumstances or relationships that could adversely affect the student/teacher relationship and the desired outcomes."[3] We found that nearly a third of schools allowed students to complete IPPEs at the hospital or community pharmacy chain at which they currently or previously worked, and 8% allowed students to complete their IPPE at the individual community pharmacy store where they were currently employed. Programs that allowed students to complete IPPEs at their site of employment may have done so because of limited site availability and/or difficulties identifying where students were employed when assigning sites. Allowing students to complete IPPEs where they are employed may lead to some pitfalls, including students being treated as employees rather than students (hindering their experience and opportunity to learn) and potential conflicts of interest when assigning final grades (though pass/fail grading may minimize this issue).

Several potential limitations of this study existed that merit mention. One limitation was the potential

for respondents to misinterpret the intent of a survey question. To minimize the potential for misinterpretation of questions, the survey was reviewed by multiple faculty members and experiential affairs personnel at our home institution prior to survey release. Further, a comment section was added to any questions that had variability in interpretation, and a comment section was also added at the end of the survey. All comments were reviewed, and no patterns of question misinterpretation were detected. Nonetheless, the results of the survey question designed to assess the maximum distance a student might have to travel to an IPPE site should be interpreted with caution because it was not explicit as to whether this distance represented the maximum distance from campus or the maximum distance from a student place of residence (eg, a student residing 40 miles north of campus might travel 30 miles further north to an IPPE site; different survey respondents might consider this student to have traveled either 30 miles or 70 miles to the IPPE site). Also, the survey did not capture the rationale as to why programs structured their IPPE in the manner they did, nor did it measure the quality of the experience for students. Moreover, programs operating outside of the norms observed in these findings may offer highly regarded IPPEs. Lastly, some programs may have been hesitant to contribute information to this study, as they may be competing with other programs for IPPE placements for their students.

CONCLUSION

Pharmacy programs in the United States employ a variety of programs to satisfy current ACPE Standards for IPPEs. This study found sizeable variations in the number of rotations, rotation scheduling, and preceptor to student ratios. With a new set of accreditation standards proposed for implementation in 2016,[9] this research allows experiential affairs professionals at colleges and schools of pharmacy to better understand national trends in IPPE programming, and may spark new ideas for modifying their experiential offerings as the new standards are implemented. Topics for further research could include: evaluations of perceived benefits of IPPEs by faculty members, students, and preceptors; grading scales used for IPPEs; the content students learn during IPPEs; the selection process for assigning students to IPPE sites; and the benefits and drawbacks of how IPPE rotations are integrated into the curriculum.

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