

7-13-2016

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Recommended Citation

Gibson MJ, Sullivan D, Tubbs C, Mirtallo J, Kelley K. Assessment of Barriers to Providing Introductory Pharmacy Practice Experiences (IPPEs) in the Hospital Setting. *Inov Pharm*. 2016;7(2): Article 19. <http://pubs.lib.umn.edu/innovations/vol7/iss2/19>

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Assessment of barriers to providing introductory pharmacy practice experiences (IPPEs) in the hospital setting

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Abstract

Objectives: The primary objective of the study is to identify the barriers to providing Introductory Pharmacy Practice Experiences (IPPEs) in the hospital setting.

Methods: Potential barriers to IPPEs were identified via literature review and interviews with current IPPE preceptors from various institutions. Based on this information, an electronic survey was developed and distributed to IPPE preceptors in order to assess student, preceptor, logistical and college or school of pharmacy related barriers that potentially exist for providing IPPE in the hospital setting.

Results: Sixty-eight of the 287 eligible survey respondents (24%) completed the electronic survey. Seventy-six percent of respondents agreed or strongly agreed that available time was a barrier to precepting IPPE students even though a majority of respondents reported spending a third or more of their day with an IPPE student when on rotation. Seventy-three percent of respondents disagreed or strongly disagreed that all preceptors have consistent performance expectations for students, while just 46% agreed or strongly agreed that they had adequate training to precept IPPEs. Sixty-five percent of respondents agreed that IPPE students have the ability to be a participant in patient care and 70% of preceptors believe that IPPE students should be involved in patient care.

Conclusions: Conducting IPPEs in the institutional setting comes with challenges. Based on the results of this study, experiential directors and colleges/schools of pharmacy could make a positive impact on the quality and consistency of IPPEs by setting student expectations and training preceptors on appropriate and consistent expectations for students.

Keywords: experiential learning, introductory pharmacy practice experiences, preceptorship, hospitals, healthcare systems

INTRODUCTION

Pharmacy education has moved to a model of providing experiential education earlier in the curriculum.¹ Beginning in 2007, the importance of early experiential education was acknowledged by the Accreditation Council for Pharmacy Education (ACPE) when new standards introduced the requirement for introductory pharmacy practice experience (IPPE) of 300 hours within the first 3 years of the pharmacy curriculum. IPPE must begin early in the pharmacy curriculum and continue progressively prior to entry into advanced pharmacy practice experiences (APPE). Of the 300 hours, a minimum of 150 hours must be balanced between the institutional health-system and the community setting (i.e. 75 hours in each).² Early practice experiences provide the foundation for students to develop an understanding of pharmacy practice prior to beginning APPE. In addition, these experiences offer students opportunities to interact directly with patients and other caregivers. Experiences are meant to

progressively build upon each other to prepare the pharmacy student for success in APPE. These standards for experiential education challenge colleges and schools of pharmacy, as well as pharmacy practice sites, to provide pharmacy students exposure to contemporary practice models, ethics, interprofessional interactions, and direct patient care activities.

In the environment of rapid growth of colleges or schools of pharmacy, there is an increasing responsibility for both Doctor of Pharmacy (PharmD) experiential programs and pharmacist preceptors to provide meaningful experiences for pharmacy students. This growth has had a particularly profound impact in the institutional or health system setting where the minimum requirement of 75 hours challenges colleges/schools of pharmacy to find rotation sites and increases the demand for preceptors at these sites. This is especially challenging in the environment of an evolving healthcare system that may have seen a decrease in resources due to the uncertainty of reimbursement in the healthcare setting. As hospitals reexamine the allocation of their personnel resources to meet these challenges, there could be a negative impact on the quantity and quality of experiential education for pharmacy students.

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Previous studies have examined the development, implementation, and assessment of IPPEs in various settings of pharmacy practice, including the impact of IPPEs on vaccination administration,^{3,4} interdisciplinary interactions,⁵ professionalism and various learning modules.⁶ Recently, Devine et al. identified trends and challenges in the implementation of IPPE programs over the last 5 years.⁷ This study demonstrated that understaffed programs, competition amongst experiential sites, difficulty in conducting site visits, training of preceptors, assessments of programs, and documentation of site requirements were all challenges for IPPE programs. In addition, Galinski et al. surveyed the assistant/associate deans of experiential departments at colleges and schools of pharmacy to gain an understanding of IPPE designs of pharmacy programs in the United States.⁸ The authors found variability in IPPEs amongst the pharmacy schools and concluded that more research is necessary to evaluate perceived benefits of IPPEs. The body of existing research on IPPEs is limited. Understanding the barriers to providing IPPEs will help both hospitals and colleges or schools of pharmacy work cohesively to eliminate the barriers, allowing pharmacy students to have meaningful experiences better preparing them for the challenges of APPEs. Challenges and barriers to providing IPPEs for students in the hospital setting have not been well researched, especially from the perspective of the experiential site. Darbishire et al. explored commonalities amongst IPPE programs, describing noncompliance with IPPE standards and identifying that further exploration is necessary to determine specific barriers to meeting these standards.⁹ As a point of contrast, barriers to APPE or general experiential education have been well defined within the pharmacy literature. APPE barriers include, competing priorities of preceptors,^{10,11} logistical issues,^{10,11} student readiness,¹¹ site capacity,¹² student onboarding,^{10,12} preceptor payment methods,¹² and lack of assessment tools.¹⁰ This study attempts to shed light on the barriers that limit the quality and quantity of IPPEs, specifically in the institutional setting. The information obtained from this study will assist colleges/schools of pharmacy and hospitals that provide IPPEs to pharmacy students by providing information necessary to improve the experiences.

METHODS

The study was approved by The Ohio State University Institutional Review Board. A literature search was conducted to determine previously identified barriers to the provision of IPPEs and APPEs. A sample of 7 IPPE preceptors from 5 different health systems were interviewed to confirm published barriers and to identify unpublished barriers to providing IPPEs in the hospital setting. The preceptors were asked if the published barriers to APPE (i.e. student readiness, competing priorities of preceptors and logistical issues) also existed for IPPEs. The preceptors were asked to provide

examples of barriers to IPPEs and to brainstorm other potential barriers that may exist. Using common themes from the literature^{10,11} and preceptor interviews, a 20-question survey was developed by a committee comprised of members from The Ohio State University College of Pharmacy and The Ohio State University Wexner Medical Center. A small group of experts tested the survey and provided feedback, which was incorporated into the final survey. Questions were categorized into 5 different groups: student related barriers, preceptor related barriers, operational and logistical barriers, college of pharmacy barriers, and demographics. A 5-point Likert scale was used (1 = Strongly Disagree and 5 = Strongly Agree) to assess perceptions and beliefs of IPPE preceptors. The sample frame consisted of institutional setting preceptors who had previously taken experiential students from The Ohio State University College of Pharmacy.

The Ohio State University College of Pharmacy's Doctor of Pharmacy program includes six, one credit hour IPPE courses that students take, one in each semester of the first three years of the program. Students are engaged in a total of 377 hours of IPPE activities. Specifically, for the institutional setting, students complete one, intensive 40 hour experience at the end of the P2 year and then are engaged in a longitudinal institutional IPPE (40 hours) during the P3 year.

A roster of experiential preceptors (n=331) in the hospital setting was obtained from The Ohio State University College of Pharmacy Experiential Department. The roster contained the email addresses for all pharmacists from 78 different hospitals who precept pharmacy students from The Ohio State University on introductory and advanced pharmacy practice experiences (the survey data was collected via an electronically delivered Qualtrics® survey (Qualtrics Labs Inc., Provo, Utah)). All preceptors were sent an email on February 12th, 2015 to explain the purpose of the survey, respondent's role, time commitment, and the assurance of anonymity. The email contained a link and instructions to take the electronic survey. The respondents were assured that their responses would only be presented in aggregate. Reminder emails were sent to preceptors who had not yet responded to the survey on February 20th, February 28th, and March 7th to increase response rate. The survey was closed on March 13th. Survey responses were analyzed via Excel and Qualtrics®. Respondents were asked if they were preceptors for only IPPEs, both IPPEs and APPEs, or only APPEs. If the respondents were preceptors for IPPEs or both IPPE and APPE preceptors, they were given access to the remainder of the survey. If respondents were preceptors only for APPEs, the survey ended and the preceptors were not able to answer the remaining questions on the survey. Survey respondents were asked to disclose demographic information regarding their

current position, training, and information regarding practice site.

RESULTS

One hundred twelve surveys were completed by survey respondents from 26 different practice sites, resulting in an overall response rate of 34% (112/331). Of the 112 respondents, 44 indicated that they precept only APPE students thus excluding them from the sample. Sixty-eight of the 287 eligible survey recipients (24%) were preceptors for IPPE students and were given the opportunity to complete the remaining survey. The preceptor and health system demographics are represented in Table 1 and 2. Although the response rate was low (34%), the bed size and institution type of the respondents are similar to the overall population (Table 2), indicating that the sample is representative. Respondents described themselves as staff pharmacists (37%), specialty pharmacists (31%), and pharmacy administrators (18%). Forty-five percent of respondents had no post-graduate training, 28% were PGY-2 trained, and 24% were PGY-1 trained. Sixty-eight percent of respondents represented hospitals that were academic medical centers and 60% of the respondents were affiliated with hospitals that had at least 600 licensed beds.

The questions and responses for the remaining 4 categories (i.e. student related barriers, preceptor related barriers, operational and logistical barriers, and college of pharmacy barriers) are shown in Table 3. When asked about knowledge barriers at the student level, over half of the respondents agreed or strongly agreed that knowledge of pharmacotherapy (58%), knowledge of pharmacy practice (53%), and understanding of hospital pharmacy practice (53%) are barriers to learning for students during IPPEs. Respondents agreed or strongly agreed that several characteristics are barriers to learning: ethics (56%), maturity level (56%), and professionalism (47%) of the student. Sixty-five percent of preceptors agreed that IPPE students have the ability to be a participant in patient care and 70% of preceptors reported that IPPE students should be involved in patient care. One fourth of respondents spend at least half of their day precepting and 62% of respondents spend at least 30% of their day precepting, when IPPE students are on rotation.

Seventy-six percent of preceptors agreed or strongly agreed that available time for precepting was a barrier to precepting IPPE students. Only 30% of preceptors believe that the amount of training necessary for precepting IPPE students was a barrier. Overall, the majority (61%) of respondents agreed or strongly agreed that they understand the performance expectations of the IPPE student. However, respondents were asked if all preceptors have consistent expectations for students during IPPEs and 54% disagreed and 19% strongly disagreed with this statement. Only 7% of

preceptors agreed or strongly agreed that all preceptors have consistent expectations for IPPE students. In addition, only 46% of preceptors agreed or strongly agreed that they were provided with adequate education on how to precept IPPE students.

For the questions regarding the operational and logistical barriers to precepting IPPE students, 71% of the preceptors disagreed or strongly disagreed that the geographical distance to the colleges of pharmacy was a barrier. Forty-four percent of respondents agreed or strongly agreed that the process for scheduling students was a barrier. Sixty-four percent of preceptors believe that they are supported by the college of pharmacy for which they precept IPPE students. Over half of the preceptors reported an understanding of the goals and objectives of IPPEs (61%) and an understanding of the curricular structure of the PharmD program for which they precept (52%). However, only 40% of preceptors strongly agreed or agreed that they understand how the curricular structure of the PharmD program aligns with IPPEs.

DISCUSSION

This study identifies the barriers to providing IPPEs in the institutional setting. One of the most interesting findings is the amount of time that preceptors spend precepting IPPE students. Approximately two-thirds of preceptors reported spending at least one third of their day precepting on the days when IPPE students are present. In addition, over three-fourths of preceptors believe that available time for precepting IPPE students is a barrier. However, preceptors' interpretation of what constitutes precepting could vary, thus altering the meaning of these results. It is unknown if preceptors are defining time as time spent with the student while performing their daily functions or if it is defined as time providing direct interaction/instruction to the student. Regardless, ways to incorporate students into the precepting workflow of the pharmacist must be developed. Creating a model where the pharmacist is able to perform daily activities without significant interruption, while at the same time allowing the student to meet the goals of IPPEs set by ACPE, would be the optimal situation. Many institutions are evaluating the efficient use of pharmacy resources. The resources required to precept students could potentially be challenged by leadership within a Department of Pharmacy or administrators of the organization. More research on the increased workload that precepting requires should be conducted to provide greater insight in this area.

Greater than 50% of preceptors agreed that the student's knowledge of pharmacotherapy, understanding of hospital pharmacy, work ethic, and maturity were all barriers to learning during IPPEs. When interpreting these results, it is important to remember that the purpose of IPPEs is to expose students to pharmacy practice and to develop an

understanding of pharmacy practice. The majority of preceptors believe that the knowledge and understanding of pharmacy practice is a barrier, when in reality gaining an understanding of pharmacy practice is the goal of IPPEs. When the preceptors were asked if they understood the goals and objectives of IPPEs, over 60% agreed that they had an understanding. O'Sullivan et al. demonstrated that there was not always good consensus across colleges and schools of pharmacy on activities performed on APPE.¹³ If 40% of preceptors did not have agreement on understanding the goals of IPPEs, there is potential that the activities of IPPEs may need to be better defined. More research in this area is necessary to confirm that preceptors understand the activities that experiential students should be performing on IPPEs. It is possible that the preceptors have higher expectations of student performance than the expectations that ACPE or the colleges or schools of pharmacy require for IPPEs. Alignment of the expectations of the preceptors with the goals of ACPE and the colleges or schools of pharmacy may be necessary.

Preceptors were asked if they understood the expectations for the student during IPPEs and if all preceptors have consistent expectations for students. The majority of preceptors agreed (61%) that they understood the expectations of the students, yet only 11% of the preceptors believed that all preceptors have consistent expectations for IPPE students. This suggests that the colleges and schools of pharmacy are setting the expectation, but preceptors do not believe their colleagues are holding the students to similar standards. This indicates a need to provide consistent education to preceptors about the expectations and to consequently confirm that preceptors are holding students accountable for expectations at the appropriate level of student development at the time of the rotation.

Despite the barriers that exist to providing IPPEs in the institutional health-system setting, there were many positive results associated with IPPEs. The majority of preceptors (65%) believed that IPPE students have the *ability* to be a participant in patient care and 70% of preceptors believe that IPPE students *should be* involved in patient care. These responses demonstrate that respondents believe students have a role within the hospital setting, even during the earlier stages of the educational process.

The findings of this study reveal that operational and logistical barriers are less of a concern relative to other barriers. For all the questions asked, less than 50% of respondents agreed that scheduling of students, operational logistics (i.e. HIPAA training, badge access, etc.), different structures of IPPEs, and appropriate access to the medical record were barriers to providing IPPEs. Considering the fact that less than 25% of preceptors considered themselves

pharmacy administrators, one could hypothesize that many of the respondents are not as closely connected to some of these potential barriers (i.e. scheduling, HIPAA training, access barriers, etc.). It is possible that some of these barriers are resolved prior to the student and preceptor interaction during the IPPE. In order to determine if administrators or preceptors without administration roles had different opinions, the subgroup responses to preceptors who described themselves as pharmacy administrators were analyzed. After analyzing the results of the pharmacy administrators (n=12), only different structures of IPPEs for colleges or schools of pharmacy had over 50% agreement as being a barrier to providing IPPEs. According to the results of this survey, there was not significant agreement amongst respondents that the proposed operational and logistical barriers are truly barriers to providing IPPEs.

Respondents were also asked to rate agreement with statements that related to colleges or schools of pharmacy for which they precept students. Overall, respondents believe that they are supported as an IPPE preceptor by the colleges or schools of pharmacy. Fifty-one percent of preceptors agreed/strongly agreed they have an understanding of curricular structure of the PharmD program yet only 39% agreed that they understood how the curricular structure of the PharmD aligns with IPPEs. There is opportunity for colleges or schools of pharmacy to educate preceptors on the curriculum and how IPPEs relate.

There are several limitations to this study. First, the preceptors in this survey all practiced at institutional health-system sites located only in Ohio and precepted The Ohio State University students. Second, the overall response rate was low, and even though the sample is representative of the type and size of practice settings used by this college for IPPE experiences, the respondents may not be representative of the entire population of IPPE preceptors. Pharmacy practice and experiential programs may vary considerably across geographical areas limiting the generalizability of these results. Third, there is the potential that some of the respondents and authors could have a close working relationship and although assured anonymity, would not want to risk offending anyone with a negative response to some of the questions.

CONCLUSIONS

The purpose of this study was to determine barriers to providing IPPEs in the institutional health-system setting. The most commonly reported barriers include student knowledge, available time for precepting, variability amongst preceptor expectations, and a poor understanding of the alignment between IPPEs and the PharmD curriculum. The results of this survey demonstrated similarities between barriers for IPPEs and reported barriers for APPEs (i.e. student

readiness, available time for precepting).¹¹ Despite these barriers, preceptors believe that IPPE students have the ability and should participate in patient care activities. Previous work in this area focused on the college or school perspective. This work presents the preceptor point of view and can assist schools and ACPE on the practical considerations of training early experience students in the institutional setting. Other institutions and colleges or schools of pharmacy could utilize this data tool to gain information on the perceptions of preceptors about the barriers that exist within organizations that host IPPEs. Next steps based on this research include addressing the additional workload that precepting IPPE students creates and providing training for preceptors on the expected performance level of students involved in institutional IPPEs.

Conflict of Interest/Disclosures

The authors of this paper do not have any financial disclosures or conflicts of interest to report.

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Table 1- Demographics of preceptors responding to the IPPE survey

Current Position	No. (%)
PGY-1 Pharmacy Resident:	1(2)
PGY-2 Pharmacy Resident:	4(6)
Staff Pharmacist:	24(37)
Specialty Pharmacist:	20(31)
Pharmacy Administration:	12(18)
Other:	4(6)
Post-graduate training	
No post-graduate training:	30 (45)
PGY-1 residency training:	16(24)
PGY-2 residency training:	19(28)
Post PGY-2 residency training:	2(3)

Table 2 - Demographics of health systems of respondents to the IPPE survey

Bed Size	Respondents	Recipients
1-200	14(21)	76(23)
201-400	9(13)	77(23)
401-600	4(6)	48(15)
>600	40(60)	130(39)
Institution type		
Community hospital	17(26)	70(21)
Academic medical center	45(68)	244(74)
Government hospital	1(1.5)	14(4)
Long-term care facility	1(1.5)	3(1)
Other	2(3)	0

Table 3 – Student, preceptor, operations and logistics, and college or school of pharmacy barriers

Student Related Barriers						Total Responses
To what degree does each statement below represent a barrier to learning for students during Introductory Pharmacy Practice Experiences (IPPE):	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	
The student's knowledge level of pharmacotherapy	6%	23%	13%	47%	11%	62
The student's knowledge level of hospital pharmacy practice	5%	21%	21%	39%	13%	61
The student's understanding of hospital pharmacy practice	3%	21%	19%	45%	11%	62
The work ethic of the student	2%	16%	26%	44%	13%	62
The professionalism of the student	2%	23%	29%	35%	11%	62
The maturity level of the student	0%	15%	29%	47%	10%	62
Preceptor Related Barriers						Total Responses
To what degree does each statement below represent a barrier to precepting students during IPPE:	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	
IPPE students have the ability to be a participant in patient care	0%	19%	16%	49%	16%	63
IPPE students should be involved in patient care	5%	10%	16%	49%	21%	63
To what degree does each statement below represent a barrier to precepting students during IPPE:	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Total Responses
Available time for precepting IPPE students	0%	13%	11%	46%	30%	63
The amount of training necessary for pharmacy staff to precept IPPE students	8%	35%	27%	22%	8%	63
Variation of how pharmacy is practiced between preceptors is a barrier to providing IPPE	8%	38%	22%	25%	6%	63
All preceptors have consistent expectations for students during IPPE	19%	54%	16%	11%	0%	63
The hospital where I work supports me as a preceptor in providing IPPE	2%	5%	16%	51%	27%	63
I understand the student's performance expectations for the IPPE	3%	15%	21%	54%	7%	61
I am provided with adequate education on how to precept students during IPPE	5%	22%	27%	43%	3%	63
Operations and Logistic Related Barriers						Total Responses
Please rate your agreement with each of the following statements related to the Operations and Logistics of precepting pharmacy students.	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	
The process for scheduling students is a barrier to providing IPPE	8%	27%	21%	34%	10%	62
The geographical distance of the college/school of pharmacy to the hospital is a barrier to providing IPPE	27%	44%	16%	11%	2%	63

Orientation logistics (i.e. HIPAA training, badge access, etc.) are a barrier to providing IPPE	13%	39%	13%	27%	8%	62
Different structures of IPPE for different colleges/schools of pharmacy is a barrier to providing IPPE	8%	21%	35%	27%	10%	63
IPPE students have the appropriate access to the electronic medical record to review patient information and participate in patient care.	11%	27%	24%	29%	8%	62
College and School of Pharmacy Related Barriers						
Please rate your agreement with each of the following statements related to the college(s) or school(s) of pharmacy for which you precept students.	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Total Responses
I understand of the goals and objectives of the IPPE	0%	18%	21%	57%	3%	61
I understand of the curricular structure of the PharmD program that I precept for	3%	26%	19%	47%	5%	62
I understand how the curricular structure of the PharmD program aligns with the IPPE	3%	33%	25%	33%	7%	61
I am provided sufficient explanation of my expectations as the preceptor during IPPE	3%	29%	21%	45%	2%	62
I am supported as a preceptor in providing IPPE	2%	10%	25%	52%	11%	61

IPPE – Introductory Pharmacy Practice Experiences