BRIEF

Factors That Influence Students’ Selection of Advanced Pharmacy Practice Experience

Vicky Shah, PharmD, Kristina Powers, PharmD, Kristin Veltri, PharmD, Erika Zarfoss, PharmD
Wilkes University Nesbitt School of Pharmacy, Wilkes-Barre, Pennsylvania
Submitted September 27, 2018; accepted August 16, 2019; published February 2020.

Objective. To determine factors influencing Doctor of Pharmacy (PharmD) students’ selection of advanced pharmacy practice experiences (APPEs) in one school of pharmacy.

Methods. In their final year, PharmD students are required to complete a minimum of 1440 hours of experiential education, including ambulatory, community, inpatient general medicine, and hospital/health system APPEs, and elective APPEs. Third-year (P3) and fourth-year (P4) PharmD students were invited to complete an anonymous online survey to determine what factors impacted their decision process when selecting their required experiences. Students selected up to five factors that most influenced their selection of APPEs. Factors included areas of interest, size of institution, location, future employment, preceptor reputation, rotation hours, faculty rotation, non-faculty rotation, peer recommendation, cost/housing, level of difficulty, size of institution, and whether the site offered a residency program.

Results. Of the 143 students enrolled, 100% responded to the survey. Students in both classes (71 P3 and 72 P4 students) selected location as the number one factor that influenced their decision when selecting required APPEs. Cost/housing was the second most important factor overall for P3 students, while peer recommendation was the second most important factor overall for P4 students.

Conclusion. Location was the driving factor behind P3 and P4 pharmacy students’ selection of APPE sites. Schools should consider establishing more APPE sites that offer housing to reduce cost. Further research into the factors that influence ranking on APPE electives is warranted.

Keywords: advanced pharmacy practice experience, experiential

INTRODUCTION

Advanced pharmacy practice experiences (APPEs) are an integral part of the Doctor of Pharmacy (PharmD) curriculum, allowing students to develop clinical skills while experiencing different areas of pharmacy practice. According to the Accreditation Council for Pharmacy Education (ACPE) 2016 Accreditation Standards and Key Elements for the Professional Program Leading to the Doctor of Pharmacy (PharmD) degree (“Standards 2016”), the primary goal of the APPE curriculum is to prepare practice-ready pharmacy graduates.

The PharmD program at the Wilkes University Nesbitt School of Pharmacy consists of four years of professional study. The school requires students to have completed two years of prerequisite courses prior to starting the program. However, transfer students are admitted directly into the four-year professional program.

The final academic year of the PharmD program (36 weeks or 1440 hours) consists entirely of full-time clinical experiences set in various practice environments. Students are required to complete seven APPE blocks, including four required by ACPE (community pharmacy, ambulatory patient care, health/hospital pharmacy, and inpatient general medicine patient care) and three elective experiences. The APPEs provide opportunities for students to gain experience in many aspects of pharmacy and gain critical insight into their future career interests. Therefore, the selection of APPEs is important as it may have a large impact on a student’s professional career after graduation. With many diverse experiences available to fulfill each of the required APPEs, students must make their decision of which APPE site to choose based on the factors most important to them.

Nesbitt School of Pharmacy students rank their selection of APPEs using a list provided on E*Value (Medhub, Minneapolis, MN), an electronic database for experiential planning. The E*Value Optimization Scheduling (EVOS) system is then used to create the student’s academic
schedule. The method the system uses for assigning APPEs is not random, but rather mathematical and linear. The goal of the EVOS system is to create a schedule that will provide the highest possible level of student satisfaction given the number of students, time constraints, and APPEs available.

While students have a large amount of input into the selection process, they are not always assigned their first choice for each of their APPEs. Thus, a better understanding of the factors behind students’ selection of APPEs would help to determine whether intervention, eg, housing assistance, changes in faculty, is needed to make alternate APPE sites more desirable. Selection factors have been investigated in other health professions; however, published information regarding the impact of certain factors on selection of rotations is lacking. Love and colleagues investigated factors influencing medical students’ selection of an emergency medicine residency. Top factors for students selecting the program included interview experience, personal experience working with residents, reputation of the program, and length of the program. Because the authors believed location would be an important factor to students, the factor was further broken down into aspects including geographic location, desire to be near a family member, and community support of lifestyle. Little is known regarding pharmacy students’ perceptions about experiential education options and the process for selecting APPEs as few institutions have completed studies in this area. One of the few studies was conducted by the Union University School of Pharmacy and looked at factors surrounding choice of introductory pharmacy practice experience (IPPE) and APPE sites. In both IPPE and APPE selection, driving distance to the site was found to be the top factor in decision making.

Learning outcomes for required APPE sites are standardized; however, other aspects of the experience, including institution, preceptor, location, and specific activities, vary. Students may also rely on their own experience during IPPEs, recommendations from peers or faculty members, and consider perceived level of difficulty of the experience in making decisions related to APPE selection. Students may also communicate with and seek input from peers. Also available to Wilkes University pharmacy students is the opportunity to complete a matrix, ie, multiple APPE experiences at one site, which is only offered at certain institutions. The cost burden of completing specific APPEs may also play a role in selection as stipends and/or affordable housing are not universally available. Some of the APPE sites affiliated with Wilkes University have provided inexpensive or discounted housing, costing students only $200-$300 for the full rotation. However, other APPE sites provide no discounted housing and the distance to the site is too far from the school to commute, resulting in some students paying up to $800 for housing during the rotation.

Some schools of pharmacy offer “rotation fairs” for students to provide them an opportunity to converse with others who have previously completed APPEs. The poster fair at Wilkes University is an annual event coordinated by a collaboration of the director of experiential programs for pharmacy practice and members of the Rho Chi National Honor Society. Fourth-year students completing an APPE at the site or who have previously completed the experience, are invited to discuss the site at the poster fair. Fourth-year students present an informational poster to third-year students about the APPE and are able to answer any questions students may have. This informal session provides students the opportunity to ask questions and gain peer opinions prior to submitting their choices for APPEs.

The purpose of this research was to determine factors influencing students’ APPE selections at one school of pharmacy. Gathering insight into the factors most important to pharmacy students in APPE selection will allow experiential coordinators to better understand preferences which will assist the experiential department in gauging future APPE opportunities.

METHODS

The research was approved by the Wilkes University Institutional Review Board (IRB). A survey was developed to assess the factors influencing pharmacy students’ selection of the four ACPE required APPEs (ambulatory, community, inpatient general medicine, and hospital/health system). The survey was developed using a randomly selected focus group of 10 pharmacy alumni from the class of 2017. Alumni were asked to list any factors they could recall that influenced their decisions when ranking APPE sites. Responses were collated to be used as options for selection factors in the final survey instrument. The survey instrument (Appendix 1) was created using Survey Monkey (SVMK, San Mateo, CA), an online survey tool. The survey instrument allowed students to rank up to five factors in order of preference from an alphabetized list of 17 factors that most impacted their decision to select each of the four required APPEs. Additionally, the survey asked students about their interest in pursuing postgraduate training (a residency program) upon graduation, whether they preferred to complete APPEs at different sites or all at the same location (matrix), and whether the school’s annual APPE poster fair was helpful to them in finalizing their selections.

The study population included all third-year (P3) and fourth-year (P4) pharmacy students enrolled in the Nesbitt School of Pharmacy during the 2017-2018 academic year. A cover letter and link to the survey were sent via email to 72 fourth-year students in October 2017, about halfway
through their APPEs, and to 71 third-year students in February 2018, one week after selecting their APPEs. The cover letter explained that the survey was voluntary and participation was anonymous, and that completion of the survey would serve as the student’s informed consent to participate. In both administrations, a reminder email was sent on day five and the survey remained open for two weeks.

Survey data were analyzed by assigning weighted point values to responses in relation to where the given factor was ranked. The top ranked factor was assigned a value of 5; second-ranked, 4; third-ranked, 3; fourth-ranked, 2; and fifth-ranked, 1. The point value (1-5) was multiplied by the total number of times that factor was chosen by a student to yield a weighted value for the selection factor. The sum of values for the factor in each given ranking was used for comparison.

RESULTS

Of the 143 students invited to participate in this study, 100% completed the survey. The majority of the students were female (43 [60%] P4 students and 48 [68%] P3 students). Twenty (28%) of the P4 students and eight (11%) of the P3 students were from states other than Pennsylvania.

The top five factors selected by the P4 and P3 students combined were location (24.79%), peer recommendation (10.63%), cost/housing (10.59%), preceptor reputation (8.35%), and future employment possibility (6.83%), respectively (Table 1). While many of the factors were selected by both P3 and P4 students, level of difficulty was selected by substantially more P4 students as a factor that influenced their selection of APPEs, while substantially more P3 students felt the possibility of future employment was more of an influential factor in their choice of APPEs. Another major difference between the two classes was the order of their top five rankings as P3 students ranked cost/housing higher and peer recommendation lower on their list compared to P4 students.

When P3 and P4 students’ responses to the four ACPE required experiences were compared, many similarities

| Factor                                      | P4 Class, No. (%) n=72 | P3 Class, No. (%) n=71 | Combined Classes, No. (%) N=143 |
|---------------------------------------------|------------------------|------------------------|---------------------------------|
| Areas of interest in specialty              | 258 (6.7)              | 217 (6.5)              | 475 (6.6)                      |
| Cost/housing                               | 339 (8.8)              | 425 (12.7)             | 764 (10.6)                     |
| Faculty rotation site                       | 183 (4.8)              | 210 (6.3)              | 393 (5.4)                      |
| Future employment possibility               | 247 (6.4)              | 246 (7.3)              | 493 (6.8)                      |
| Had an IPPE at the site                    | 99 (2.6)               | 118 (3.5)              | 217 (3.0)                      |
| How many students the site takes at a time  | 30 (8)                 | 13 (0.37)              | 43 (0.6)                       |
| during a given rotation                    |                        |                       |                                |
| Level of difficulty                        | 273 (7.1)              | 200 (5.95)             | 473 (6.6)                      |
| Location                                   | 888 (23.0)             | 900 (26.8)             | 1788 (24.8)                    |
| Non-faculty rotation site                  | 45 (1.2)               | 38 (1.1)               | 83 (1.2)                       |
| Peer recommendation                        | 456 (11.8)             | 311 (9.3)              | 767 (10.6)                     |
| Preceptor reputation                       | 366 (9.5)              | 237 (7.1)              | 603 (8.4)                      |
| Residency is offered there                 | 132 (3.4)              | 94 (2.8)               | 226 (3.1)                      |
| Rotation activities (journal club, MTM,     | 95 (2.5)               | 88 (2.4)               | 183 (2.5)                      |
| rounding, etc)                              |                        |                       |                                |
| Rotation hours (eg: 8:00 am-4:30 pm)        | 81 (2.1)               | 47 (1.4)               | 128 (1.8)                      |
| Size of institution                        | 162 (4.2)              | 134 (4.0)              | 296 (4.1)                      |
| Teaching site (ie, medical students, PA students) | 124 (3.2) | 65 (1.9)               | 189 (2.6)                      |
| Wilkes alumni preceptor                    | 76 (2.0)               | 17 (1.5)               | 93 (1.3)                       |

Abbreviations: P4= fourth year professional pharmacy student, P3= third year professional pharmacy student, APPE= advanced pharmacy practice experience, IPPE= introductory pharmacy practice experience, MTM= medication therapy management, PA= physician assistant

Scores were obtained by a point system where items ranked 1 were given 5 points, ranked 2 were given 4 points and so on. All points were tabulated per each rotation and as an overall score

* Indicates factors in top five rankings overall
* Indicates factors in top five rankings overall for P4 students
* Indicates factors in top five rankings overall for P3 students

Total point value was 7214 when combining four required APPEs and all factors
DISCUSSION

The purpose of this research was to determine factors influencing APPE selection at one school of pharmacy. Because we knew from anecdotal feedback and previous research that student selection of practice experiences is based on a variety of factors, we asked students to rank up to five factors in their selections process for each of the four required APPEs. The results showed that students had a clear preference for certain decision factors, with similar top factors affecting their choice of each of the four required APPEs. Overall, in the comparison of P3 and P4 classes, the top five factors were similar; however, the order in which the factors were ranked was different within the top five.

For each of the four required APPEs, site location was the most important factor in students’ choices. While students clearly valued where the APPE was located, it was unclear which location was the most desirable for students, ie, students’ location preference may be influenced by a desire to live at home, with a relative, or on-campus. Knowing that location is a major factor for students in the selection of APPEs, institutions may consider administering a survey to better gauge the desired location of sites for their students. Nearly 75% of Wilkes University rotation sites are located within a 50-mile radius of the university. The factor of cost/housing may be influenced by whether a student lived out of state prior to starting pharmacy school. The P3 class had fewer students who lived out of state and, possibly as a result, the class ranked the factor of cost/housing higher overall than did P4 students. Future studies may attempt to determine the maximum distance students are willing to travel for APPEs.

Peer recommendation was the second highest-rated selection factor overall. In the P4 class, peer recommendation was the second overall selection factor, while P3s ranked this as third. This may be because P4s had already completed a portion of their APPE experiences at the time of the survey and were able to determine the usefulness of the recommendations their peers had made to them. Over 80% of P3 and P4 students either agreed or strongly agreed attending the APPE poster fair was helpful in their selection of APPEs. The ability of an institution to facilitate these peer recommendations in settings such as the poster fair can also help students to make these decisions.

While the results obtained from this study were very beneficial to the experiential team, the study had a few limitations. One limitation of the study was that students were encouraged to rank up to five factors influencing selection, but not required to rank five. Although this meant that some students may have ranked fewer than five factors, this method was acceptable because students may not have considered five factors when finalizing their decision. Additionally, the study focused solely on the four required APPEs and did not ask students for factors that influenced their selection of elective APPEs. The scope of a future study should be required to include elective APPEs. Timing of the surveys was also a limitation as P4 students completed the survey in October, about halfway through their APPEs, while P3 students completed the survey in February, immediately after submitting their preferences for APPEs, which they would start in the fall. Because the P4 students had already experienced four APPEs prior to taking the survey, their perceptions may have been different than those of P3s who had just ranked their APPEs. Any institution that wishes to complete a similar survey is encouraged to administer the survey prior to the start of APPEs but after P3 students have had sufficient time to submit their preferences for APPEs.
While this information will be useful for the Wilkes University Nesbitt School of Pharmacy Experiential Department to better adapt to the interest of our students, the external usefulness (generalizability) of our results may be limited. Smaller institutions may be better able to meet the requests of students and create or adjust APPEs to student preferences. However, this information may not be applicable to larger institutions where satisfying requests of more students becomes increasingly difficult. Even though all the data may not be extrapolated to larger institutions, knowledge gained from this survey could guide larger institutions in offering more sites, which may be preferred by students.

Though students have at least some latitude with regards to the selections they make, it is unclear if these selections meet expectations upon completion. Further research may include a survey sent to students upon completion of their APPEs to determine how the experiences compared to their expectations when ranking APPE sites, and whether there were other factors they would have used if it were possible to repeat the selection process.

CONCLUSION

Overall, this study provided data that can be used by PharmD programs to better plan APPEs in the future, especially at smaller institutions. This data may provide experiential offices with important insight into how students select APPEs, helping them to better align with student preferences. The main finding of our study was that location appears to be the primary factor in students selecting APPEs. Further research into the proximity should be performed to identify the specific locations students desire as well as the student demographics that influence location preferences.

REFERENCES

1. Accreditation Council for Pharmacy Education. Accreditation Standards and Key Elements for the Professional Program in Pharmacy Leading to the Doctor of Pharmacy Degree (“Standards 2016”). Published February 2015. https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf. Accessed August 15, 2019.
2. MedHub. Evalue features - MedHub. 2018. http://www.medhub.com/evalue/evalue-features/. Accessed August 15, 2019.
3. Love JN, Howell JM, Hegarty CB, et al. Factors that influence medical student selection of an emergency medicine residency training Program: implications for training programs. Academic Emergency Medicine. 2012;19:455-460.
4. Stephens M, King SR, Randolph D, et al. Assessment of factors that influence student preferences for introductory and advanced pharmacy practice experience sites. 2012. https://www.uu.edu/programs/pharmacy/studentlife/posters/APPE_IPPE_Selection2012.pdf. Accessed August 15, 2019.
Appendix 1. Survey Questions

Survey questions:
Are you interested in completing a residency upon graduation?
   Yes
   No
   Unsure at this time
Which of the following are you interested in pursuing a career in?
   Academia
   Ambulatory Care
   Community
   Hospital
   Industry
   Long Term Care
   Managed Care
   Unsure at this time. Hope to determine this after completing APPEs
   Other (please specify)
Do you prefer to have all of your APPEs at different sites or at the same location (matrix)?
   Different Sites
   Matrix
   It doesn’t matter
The rotation fair was helpful and allowed me to finalize my APPE selection
   Strongly Agree
   Agree
   Disagree
   Strongly Disagree
I was not able to attend the APPE rotation fair
   N/A
Please rank the following on the factors that influenced your Ambulatory Care APPE selection
Factors:
   Areas of interest in specialty
   Cost/housing
   Faculty rotation site
   Future employment possibility
   Had an IPPE at the site
   How many students the site takes at a time during a given rotation
   Level of difficulty
   Location
   Non-faculty rotation site
   Peer recommendation
   Preceptor reputation
   Residency is offered there
   Rotation activities (Journal Club, MTM, Rounding, etc.)
   Rotation hours (ex: 8:00-4:30pm)
   Size of institution
   Teaching site (ie. medical students, PA students)
   Wilkes alumni preceptor
Please rank the following on the factors that influenced your Community APPE selection
Factors: [see above question]
Please rank the following on the factors that influenced your Internal Medicine APPE selection
Factors: [see above question]
Please rank the following on the factors that influenced your Institutional APPE selection
Factors: [see above question]