BRIEF

Design and Assessment of a Pharmacy Student–Delivered Preceptor Development Program

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Objective. To design and assess the use of a pharmacy student–delivered preceptor development program.

Methods. A student-delivered preceptor development program was developed to ensure all preceptors received documented preceptor development. A menu of discussion topics and associated teaching sheets were created by the school’s office of experiential education. On each rotation, advanced pharmacy practice experience (APPE) students led discussions with their preceptors on a topic chosen by the preceptor and submitted documentation of the education. Preceptors answered a survey related to the amount of information and time required for the program, their preference for different formats of preceptor development, one important thing they learned through the program, and future development topics of interest. Students were interviewed regarding their perceptions and use of the program.

Results. A novel student–delivered preceptor development program resulted in documentation of preceptor development for all APPE rotations. Seventy-nine preceptors (31% response rate) participated in the survey. In their responses, preceptors generally agreed that they were able to customize their development and incorporate what they learned into practice, and that the program had a convenient format and was valuable for preparing students to be future preceptors. Students reported that the program improved their confidence in communicating with a supervisor and prepared them for precepting.

Conclusion. As student–delivered preceptor development program improved documented preceptor development. The program allowed preceptors to customize development opportunities in a convenient format. It was perceived positively by preceptors who would recommend the program to other schools of pharmacy.

Keywords: preceptor development, pharmacist extenders, experiential education

INTRODUCTION

Preceptors are vital for helping students mature into skilled pharmacists, inevitably shaping the future of pharmacy practice. With experiential education encompassing 30% of a pharmacist’s education, the development of preceptors is important to Doctor of Pharmacy (PharmD) programs.1,2 Preceptor education and development fall under Standard 20 of the Accreditation Council for Pharmacy Education (ACPE) Accreditation Standards 2016.3 In a recent study describing one school’s needs assessment for preceptor development, preceptors reported wanting the ability to choose preceptor development topics and wanting frequent sessions delivered via various formats including live at the practice location.4 Despite the importance of preceptor development, the best delivery method for this development has yet to be identified.5,6

Many challenges are associated with preceptor development, including time constraints, travel for in-person education, cost, lack of interest, and varied topic needs for different preceptors.5 Pharmacy schools also experience barriers with assessing the compliance of continuing professional development and having limited resources, which makes creating variation in the type of education and delivery format difficult.2,7 These challenges prompted the Office of Experiential Education at the North Dakota State University School of Pharmacy to explore the implementation of student-delivered preceptor development and its potential benefits for students, preceptors, and pharmacy programs.
METHODS  

The program was created in response to a lack of documented preceptor development on all active preceptors, which was a finding from a self-study survey by the School of Pharmacy that was used to prepare for an ACPE accreditation. The university uses volunteer preceptors, and the state of North Dakota does not require a Board of Pharmacy–issued preceptor license. Preceptors had received information about development opportunities, but participation was difficult to track. Many preceptors also precepted for other schools of pharmacy or residency programs where they completed preceptor development that may not have been accounted for in the North Dakota State University system.

Rather than develop a robust documentation system requiring preceptors to input information, the university faculty developed and piloted a training program focused on the Pharmacists’ Patient Care Process (PPCP). A one-page document describing the PPCP was developed by the university’s office of experiential education. The program was introduced to all APPE students in fall 2019. Students were instructed to lead one PPCP training as part of the preceptor development program per rotation. During the 2019-2020 year, APPE students delivered PPCP-focused training to preceptors for three five-week rotations. In spring 2020, the COVID-19 pandemic negatively impacted students’ abilities to deliver education to preceptors in person, and, thus, participation in the program became optional.

This study aimed to describe and assess a novel student–delivered preceptor development program conducted during 2020-2021. The primary objective of the program was to ensure that all preceptors received customized, documented training during each APPE they facilitated. This objective needed to be achieved without additional financial resources from the school and with minimal impact on voluntary preceptor workload. A secondary objective was to increase student exposure to precepting topics for future precepting opportunities.

The student’s office of experiential education consists of 2.05 faculty full-time equivalents (FTE) and 2.0 staff FTEs dedicated to experiential education for an average of 85 students per program year. Preceptor development delivered by the office of experiential education has been previously described. The APPE students were required to complete eight of nine available five-week block rotations, which included ACPE-required rotations plus rural pharmacy practice and three electives.

In 2020-2021, changes to the piloted student–delivered preceptor development program at North Dakota State University, a single institution, included expanding the training from PPCP training only to a menu of options, which allowed preceptors to customize their learning. Twelve additional one-page trainings were created by the office of experiential education with the help of academic APPE students. Topics were based on the ACPE Guidance for Standards 2016 preceptor preparation, including guidance regarding student’s prior didactic experience and assessment/grading systems. Other topics were identified by the office of experiential education based on frequent preceptor questions. These topics included how to view student evaluations of a preceptor, how to challenge the all-star student, the incidence weather policy, and topics by preceptor request, such as layered learning and student and preceptor well-being.

The student-delivered preceptor development program was listed as a required activity in APPE syllabi. Student training included a short recording describing the training and a written overview of training details and deadlines. APPE students were instructed to read the training content created by the office of experiential education, explore additional resources if applicable (included in seven of 12 trainings), and lead a discussion lasting no more than 10-15 minutes with their preceptor about the topic at a convenient time during the rotation. An assessment of learning was built into each training module. Students could repeat topics from one rotation to the next. Contact information for faculty in the office of experiential education was provided so students could ask questions if needed. A report was run in the rotation management system after each rotation and follow-up via email was conducted if no report of student–delivered preceptor development training was uploaded by the student.

The preceptor responsibilities included choosing a topic from the list, working with the student to identify a convenient time for the discussion, completing the multiple-choice or open-ended assessment question, and signing the form that the student would upload into the rotation management system. Information about the training was communicated to preceptors in a biannual newsletter, during site calls/visits, and an information sheet was provided to students for preceptors.

After conducting the student–delivered preceptor development program for a full year, the office of experiential education conducted an electronic survey of all the university’s active preceptors in June 2021 via Qualtrics (Qualtrics International Inc). Demographic questions included the number of students precepted during 2020-2021 and the type of rotation(s) precepted. Preceptors answered two multiple-choice questions related to the amount of information and time commitment required for the program and ranked their preference for seven different formats of preceptor development (most preferred was
RESULTS

Approximately 6% of 2020-2021 APPE preceptors were faculty (n=17), and the remaining 94% were adjunct volunteer preceptors (n=254). The majority of the 2020-2021 APPE rotations (n=520, 77%) had a 1:1 student to preceptor ratio, with the remaining rotations being 2:1 (n=158). Of the 2:1 student to preceptor ratio rotations, 63% (n=100) were precepted by faculty preceptors.

The student–delivered preceptor development training program resulted in documentation of preceptor education for all completed North Dakota State University 2020-2021 APPEs (N=678 rotations). For each rotation, the APPE preceptor of record or preceptor designee completed the program (N=271 different individuals). Two pharmacists other than the North Dakota State University registered preceptors completed the education, and, when precepting in teams (n=7), only one preceptor of the group completed an SDPD training. Thus, in total, nine APPE preceptors of record (3%) did not sign off on a training, but for all the APPE rotations, an individual who had completed the preceptor development program supervised the student.

Preceptors or designees (N=271) most commonly completed one training topic (n=135, 49.8%). Because some preceptors took on multiple students throughout the year, other preceptors documented two unique trainings (n=61, 22.5%), three unique trainings (n=35, 12.9%), or up to eight unique trainings (n=2, 0.7%). Students were only required to upload one training per rotation, so preceptors may have completed additional trainings that were not documented.

When reviewed by rotation type, preceptors of acute care rotations (n=86) were most likely to receive training related to students’ use of a new electronic health record system (EHR Go, Archetype Innovations LLC) in the didactic curriculum (n=12, 14.0%). Preceptors of ambulatory care rotations (n=92) were most likely to receive training on the inclement weather policy (n=19, 20.7%); preceptors of institutional rotations (n=96) were most likely to receive training related to guidance regarding students’ prior didactic knowledge of aseptic technique (n=17, 17.7%); and preceptors of community rotations (n=113) were most likely to receive training related to ideas for challenging the all-star student (n=22, 19.5%). The most frequently completed training included challenging the all-star student (n=98, 14.45%) and the inclement weather policy (n=90, 13.27%) (Table 1). Self-assessment questions were completed in 70.5% (n=478) of completed trainings.

 Seventy-nine of 255 active APPE preceptors (31% response rate) completed a survey in June 2021 to capture

<table>
<thead>
<tr>
<th>Preceptor education topic</th>
<th>Training completed, No. (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>How to challenge the all-star student</td>
<td>98 (14.5)</td>
</tr>
<tr>
<td>Inclement weather policy</td>
<td>90 (13.3)</td>
</tr>
<tr>
<td>How to provide effective feedback</td>
<td>82 (12.1)</td>
</tr>
<tr>
<td>Pharmacists’ Patient Care Process</td>
<td>76 (11.2)</td>
</tr>
<tr>
<td>EHR Go*</td>
<td>66 (9.7)</td>
</tr>
<tr>
<td>Student and preceptor well-being</td>
<td>58 (8.6)</td>
</tr>
<tr>
<td>Layered learning</td>
<td>57 (8.4)</td>
</tr>
<tr>
<td>How to view student evaluations in rotation management system</td>
<td>50 (7.4)</td>
</tr>
<tr>
<td>Student didactic experience with aseptic technique</td>
<td>39 (5.8)</td>
</tr>
<tr>
<td>APPE remediation policy</td>
<td>30 (4.4)</td>
</tr>
<tr>
<td>Student didactic experience with IPE &amp; opportunities to implement on rotations</td>
<td>26 (3.8)</td>
</tr>
<tr>
<td>Preceptor’s choice</td>
<td>6 (0.9)</td>
</tr>
</tbody>
</table>

Abbreviations: APPE=advanced pharmacy practice experience; IPE=interprofessional education.

* EHR Go is an educational electronic health record learning platform.
their perceptions and investment in the program. Preceptors most frequently had two APPE students during the academic year (n=21, 27%) and were commonly associated with an advanced community rotation (n=22, 20%) or institutional rotation (n=16, 15%). Preceptors most frequently reported spending five to 10 minutes per training (n=38, 49%), with the vast majority expressing that the training provided the right amount of information (n=70, 89%). Most preceptors surveyed (n=51, 65%) agreed or strongly agreed that the program allowed them to customize their training based on their individual needs and that they were able to incorporate what they learned in the program into their practice/precepting (n=54, 68%) (Table 2).

Preceptors ranked the student–delivered preceptor development program as their most preferred preceptor development opportunity (mean ranking = 2.8, SD = 1.8) over electronic newsletters (mean = 3.0, SD = 2.0), recorded webinars (both university-specific [mean = 3.4, SD = 1.6] and general precepting [mean = 3.7, SD = 1.9] webinars), short recorded PowerPoint presentations (mean = 4.4, SD = 1.6), live in-person (mean = 5.3, SD = 1.7), and live teleconference training (mean = 5.3, SD = 1.8). Preceptors commented that rotation customization (n=14) or policies (n=12) were the most important things learned and that, going forward, they would like more training on curriculum (n=12) and clinical (n=6) updates.

Table 2. Preceptor Responsesa to Perceptions of the Student-Delivered Preceptor Development Program

<table>
<thead>
<tr>
<th>Response</th>
<th>Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SDPD allowed me to customize my preceptor development based on my individual needs.</td>
<td>3.7 (0.8)</td>
</tr>
<tr>
<td>I was able to incorporate what I learned in SDPD into practice/precepting.</td>
<td>3.7 (0.7)</td>
</tr>
<tr>
<td>SDPD offered a convenient format for preceptor development.</td>
<td>4.0 (0.7)</td>
</tr>
<tr>
<td>I learned something new during SDPD.</td>
<td>3.7 (0.9)</td>
</tr>
<tr>
<td>The SDPD met my preceptor development needs.</td>
<td>3.5 (0.9)</td>
</tr>
<tr>
<td>I would recommend the SDPD model to other schools of pharmacy for preceptor development.</td>
<td>3.7 (0.9)</td>
</tr>
<tr>
<td>I think it is valuable for APPE students to discuss precepting topics such as in SDPD to better prepare students to be future preceptors.</td>
<td>4.2 (0.64)</td>
</tr>
</tbody>
</table>

Abbreviations: SDPD = student-delivered preceptor development; APPE = advanced pharmacy practice experience.

Eighty-six students participated in the student–delivered preceptor development program. Students completed anywhere from eight unique trainings (n=8, 9.3%) down to two unique trainings (n=3, 3.5%), with five unique trainings as the most common (n=22, 25.6%).

The focus group included six (7%) individuals who participated in the 2020-2021 program and was facilitated three months after graduation. Although the alumni reported that the assignment instructions were unclear, they believed the program helped them grow in confidence and prepared them for future precepting roles. In addition, they appreciated that the assignment was not time-consuming but felt they would learn more if the assignment options were broadened or if they were able to choose the teaching topic. Lastly, they expressed concern about preceptors being less engaged in the process and perceived that NDSU School of Pharmacy nonalumni preceptors found the teaching more helpful than NDSU alumni preceptors.

DISCUSSION

The student–delivered preceptor development program was used to verify that, for all APPE rotations, a preceptor or preceptor designee received customized, documented training without additional financial resources from the school and with minimal impact on voluntary preceptor workload. The most requested trainings by preceptors included how to challenge high-performing students, information on the inclement weather policy, how to provide effective feedback, and information on the PPCP. All 2020-2021 APPE rotations were supervised by an individual who received their choice of documented preceptor development at the time of precepting. Preceptors reported that they spent less than 10 minutes on each training, appreciated the ability to choose their training, and used what they learned in practice or precepting.

Results from a student focus group found that students who facilitated the program while on rotation felt the training provided a unique way to connect with their preceptor. They also reported developing confidence and skills in talking to a supervisor. Students also noted that the instructions for providing student–delivered preceptor development training could have been improved.

In a published paper focused on excellence in experiential education, Boyce and colleagues suggested that students on experiential rotations could be used as extenders of pharmacy practice. In examples they provided, students have played valuable roles in identifying cost-saving strategies, providing services such as medication reconciliation, and facilitating different types of patient education. Similarily, the current study used students as...
extenders of the OEE by facilitating preceptor development through a no-cost student–delivered preceptor development program with a small time commitment. Boyce and colleagues also highlighted topics that preceptors should have knowledge of, including the school or college of pharmacy’s mission, goals, and values; program-specific policies; and systems training for any databases required for use by the school or college. The authors also recommended that schools and colleges provide preceptors with opportunities for continuous professional development. This study provides an example of a preceptor development program that is easily reproducible and transferable for use by offices of experiential education at other schools and colleges. Trainings can be modified to meet the needs of other institutions and are available upon request.

Considerable published literature exists regarding the use of peer teaching with students in the health sciences. However, limited literature has been published on the use of reverse peer teaching, in which junior students teach senior students, faculty, or preceptors. In 2014, Wirth and colleagues conducted a study of an education model in which medical students educated medical residents using a short presentation on a surgical topic during morning rounds. An examination and a perception questionnaire were used to evaluate the model. Researchers reported that medical students were able to teach residents with the same effectiveness as a chief resident, the residents felt their surgical knowledge grew as a result of the teachings, and there was significant improvement in examination scores. Similarly, Clarke and colleagues described how reverse mentoring may be valuable to the health sciences. The researchers defined reverse mentoring as a brief but specific and focused relationship and suggested that junior health professionals may be ideal candidates to mentor senior clinicians in the use of new technologies, current trends in the field, and how to navigate changes to workplace culture.

Several limitations to the current study exist. The study was completed at one institution during a pandemic. When not in a pandemic, frontline preceptors may have more time to focus on preceptor development, but this program ensured that all APPE students were supervised by an individual that received preceptor development. Even prior to the pandemic many preceptors had insufficient time, so a student–delivered preceptor development program may offer a convenient format for preceptors even after the pandemic. The majority of preceptors were located in North Dakota and Minnesota, but 9% (n = 25) of preceptors who took APPE students during 2020-2021 were located out of area (Arizona, South Dakota, Texas, Hawaii, Indiana, Wisconsin, Montana, Colorado, Nebraska, and Washington DC), providing some diversification to the findings. The focus group included only a small percentage (7%) of the university’s 2021 PharmD class. Perceptions of the project may have been different if a larger number of individuals had participated in the focus group.

Although some may question whether it is appropriate for students to deliver preceptor training, especially related to student issues such as remediation or feedback, students are routinely expected to educate pharmacy staff on new drugs or guidelines that they may not have experience with. Further, preceptors determined the topic and could avoid anything they were uncomfortable discussing with the student. These topics may also provide an opportunity for the preceptor and student to discuss expectations and consequences prior to the final evaluation. Additionally, many alumni go on to be preceptors, and such a program gives them exposure to these topics prior to precepting students. As such, the program should be used as part of a larger menu of preceptor development offerings to ensure all preceptors are receiving some form of preceptor development. Further, as many trainings included additional resources pertaining to the topic, preceptors could engage in self-directed learning if desired.

Since the student–delivered preceptor development program was introduced, it has been expanded to add a limited menu of options as an introductory pharmacy practice experience (IPPE) assignment for 2021-2022. The training IPPE students are to deliver is related to the School of Pharmacy’s recent change in sequencing of community and institutional IPPE and the associated coursework that students complete prior to each type of IPPE rotation. This was deemed an appropriate topic for IPPE students to be qualified to deliver preceptor trainings on. Additionally, there are plans for adding new trainings to the APPE menu. Finally, although students received verbal and written information about the assignment prior to delivering the training to preceptors, the feedback from the focus group prompted the addition of more measures to ensure students have a thorough understanding of the importance of and expectations for the assignment.

Understanding the student-focused outcomes of the project should continue to be assessed but remain challenging due to the many variables involved. Further work to determine how to best evaluate student outcomes remains an important consideration in designing effective preceptor development programs.

CONCLUSION

The student–delivered preceptor development program allowed APPE preceptors to receive customized, documented preceptor development. Both preceptors and
students found benefit in the program, with preceptors appreciating the customization and applicability toward their precepting, and students appreciating connecting with their preceptors and gaining communication skills. The authors recommend the student–delivered preceptor development model and use of students on experiential rotations as extenders of pharmacy practice to augment existing preceptor development programs at other schools of pharmacy.

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REFERENCES