EDUCATION BRIEF

Successful Remediation of an Advanced Pharmacy Practice Experience for an At-risk Student

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Objective. To describe a successful remediation for an Acute Care Medicine advanced pharmacy practice experience (APPE) in a student with multiple learning deficits.

Methods. A literature review of pharmacy and medical experiential remediation was conducted to identify best practices to implement prior to designing the remediation for our student case. Based on this search and experience as preceptors, a three-phase remediation was designed: one week for assessment, two weeks for development of learning skills and strategies and six weeks for an on-campus APPE. Success of the remediation was determined by student performance, as defined by the APPE preceptor, in all relevant 2013 Center for the Advancement of Pharmacy Education (CAPE) educational outcomes.

Results. Baseline assessment indicated that the student was below minimal competency in six of 13 relevant 2013 CAPE educational outcomes. Upon completion of the three-part remediation, the student repeated the Acute Care Medicine APPE, achieving better than minimal competency in all 13 outcomes. The student demonstrated significant improvement in nine of 13 CAPE educational outcomes.

Conclusion. This student case provides a novel and successful blueprint for remediation of APPE. However, more evidence-based literature is needed to guide educators in experiential remediation.

Keywords: remediation, APPE, experiential education

INTRODUCTION

The Doctor of Pharmacy (PharmD) curriculum generally consists of an intensive didactic education followed by experiential education rotations. Once pharmacy students enter their advanced pharmacy practice experiences (APPE), they are expected to be self-learners who can perform adequately as health care providers.¹ However, some students have more difficulty with the program, which may lead to failure of a course or rotation. Standard 17 of the Accreditation Council for Pharmaceutical Education (ACPE) accreditation standards for the entry-level PharmD degree (Standards 2016) states that a school must have policies in place regarding academic progression and remediation.² An academic remediation is a tool used to improve a student's identified knowledge and skills deficiencies to the expected competency level to prevent student dismissal from the program.³

Remediation approaches in the pharmacy curriculum can include course repetition and individualized remediation

plans, including a student-directed remediation, summer re-study programs and reduced load programs. The approach to remediation should include early identification of academic performance problems, a plan that incorporates strategies to improve the student's approach to learning and facilitation of self-directed learning.¹ In addition, a student's remediation plan should be developed with the student, should establish a timeline with intermediate goals, and should follow up with feedback.⁶

Development of remediation plans in experiential courses can be uniquely challenging. While a remediation plan for a didactic course often culminates in a written assessment, this is often not possible or appropriate for an experiential course. Failure, remediation, and repetition of experiential courses is further complicated by scheduling and timing. Although, it is generally recognized that students should not remediate or repeat a rotation with the preceptor or practice site for which the student failed the course, there is no consensus on when the course should be repeated. It is not uncommon for a student to fail a course and immediately continue to the next rotation in sequence, with the expectation that the student will repeat the course at the end of their sequence. Development of an experiential remediation plan is further complicated by

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the fact that the experiential faculty are reliant upon the judgment and assessment of the student by volunteer and faculty preceptors.

The most detailed remediation program in the body of literature reviewed was implemented at Butler University College of Pharmacy and Health Sciences (BUCOPHS) and includes both a remediation process and early warning system.¹⁻⁶ In their program, remediation starts with early identification of specific performance problems by preceptors, rather than after the final grade has been assigned. BUCOPHS's Office of Experiential Education identifies students at-risk from midpoint evaluation results and through preceptor referral of the student. Once the at-risk student is identified, it is first determined if the performance issue is isolated or ongoing. This helps determine if the remediation plan should include longitudinal monitoring or a more comprehensive remediation on campus.

The first step in a remediation plan is to identify the root cause of performance deficits. The most common performance deficits identified by preceptors are professionalism, time management, communication, punctuality, work ethic, organization, and knowledge deficits.³⁻⁵ When professionalism or work ethic are issues for a student, faculty should consider causes such as unclear preceptor expectations, lack of student self-awareness, or personal stressors outside of the school.⁵ For punctuality issues, faculty should consider student commitments and stressors outside of school or a lack of student self-awareness. Potential causes of time management and organization deficits may result from a lack of accountability, underdeveloped metacognition, generalized anxiety, or performance anxiety. Apparent knowledge deficits, may be more specifically caused by lack of adequate student preparation, weak critical thinking skills, inefficient use of drug information resources or learning disabilities.

Once causes for student performance deficits are identified, appropriate learning activities should be selected. Although literature is limited, some effective learning activities and strategies have been described in detail.^{3,4} Written reflection and debriefing may be useful in addressing deficits in self-awareness or metacognition. Timeliness issues due to a lack of accountability may be addressed by leveraging in-person appointments instead of virtual interactions. When major knowledge deficits are identified, colleges may prescribe an on-campus remediation block with assignments on specific topics, including patient cases, drug information questions, quizzes, and meetings with multiple faculty for topic discussions.³ Lastly, if student performance is suffering due to personal stressors or outside commitments, it is critical that faculty and staff direct those students to appropriate resources for assistance.

Although the processes and activities described thus far give experiential programs a menu of effective tools from which to choose, the general body of literature remains lacking for methods to operationalize these tools for a specific student. This is especially challenging given the nature of experiential education. Furthermore, existing literature addresses remediation strategies for deficits in some CAPE educational outcomes (most notably 1.1 Learner, 4.1 Self-Aware, and 4.4 Professional) but not all. As a newly established pharmacy college, our experiential team used the existing body of knowledge and our own experiences to develop a novel remediation plan for a student that failed an APPE course because of deficits in multiple performance areas.

METHODS

At the University of North Texas System College of Pharmacy (UNTSCP), students complete seven 6-week APPE in their fourth professional year. Consistent with other colleges, four core APPE rotations are required: Acute Care Medicine, Ambulatory Care, Community, and Hospital/Health-System. Student grades are primarily determined by the preceptor's evaluation of the student at the end of the rotation. At UNTSCP, all experiential student evaluations share common elements of performance. Additionally, these elements of performance are mapped to 2013 CAPE educational outcomes. Elements of performance are graded on a rubric developed by the Texas Consortium of Experiential Programs, in which a rating of 3.5 indicates minimum competency (Table 1). Although individual activities (eg., journal clubs, SOAP notes, etc.) are not factored into the mathematical calculation of the grade, these activities are mapped to the evaluation and preceptors are instructed to use performance on these activities to guide their evaluation of the student.

This case involves a student in their fourth professional year, who experienced significant difficulties in multiple early APPE rotations and eventually received a failing grade for Acute Care Medicine APPE in rotation block 5.

The student performed marginally on the first rotation, Ambulatory Care APPE, with nine of 24 performance elements at a rating of 3 or 3.5. The student later voluntarily withdrew from their second rotation (critical care) prior to the midpoint evaluation based on poor anticipated performance. Before finalizing the decision to withdraw, the preceptor and an experiential faculty member met with the student to discuss a plan for success going forward. At that time, the student agreed to a plan in which they would seek assistance from a tutor and follow up with their health care provider regarding some recent anxiety

Table 1. Texas Consortium of Experiential Programs (TCEP) Grading Rubric

Rating	Short Description	Detailed Description of Student Performance
5	Excellent	Student has excelled in performing competency (has always exceeded expectations and can function independently).
4.5	Very good	Student performed competency very well and has met expectations with minimal to no guidance from preceptor (can perform independently 90% of the time).
4	Good	Student has met expectations and can complete task in a supervised situation with limited guidance from preceptor (can perform independently $\geq 80\%$ of the time).
3.5	Minimal competency	Student has met expectations but requires occasional guidance from preceptor (can perform independently $\geq 70\%$ of the time).
3	Needs improvement	Student requires significant guidance from preceptor (can perform independently $< 70\%$ of the time).
2	Significant deficits exist	Student requires significant guidance from preceptor, and preceptor must often complete activity for student (can perform independently $< 50\%$ of the time).
0	Unacceptable	Student does not function independently and requires direct supervision by preceptor at all times.

issues. Following their withdrawal from the Critical Care APPE, the student's ongoing performance on APPE was monitored by the Office of Experiential Education (OEE). The student was successful in the subsequent Hospital and Community Management APPE. However, the student once again began experiencing difficulties at the onset of rotation block 5, Acute Care Medicine APPE. Early in the APPE, a faculty member from the OEE began meeting with the preceptor on a weekly basis to discuss the student's performance. Additionally, the student received an unsatisfactory midpoint evaluation from the

preceptor at the beginning of week 4. Despite interventions by the OEE and preceptor, the student ultimately failed the rotation because of unacceptable performance in multiple areas (Figure 1). Elements rated as unacceptable on the final evaluation included: application of knowledge, synthesis of recommendations, problem solving and judgment, confident and assertive communication, accountability, time management, and punctuality. These correspond to 1.1 Learner, 3.1 Problem Solver, 3.2 Educator/3.6 Communicator, 4.1 Self-aware, and 4.4 Professionalism of the CAPE 2013 educational outcomes, respectively.

Figure 1. Preceptor Evaluation of Student on Acute Care Medicine APPE (Student's First Attempt).

The OEE proposed a remediation plan customized to the student, which incorporated partial student direction, reduced workload to focus on specific activities, and a review of the student's approach to learning completed in two parts (Figure 2). The plan involved three phases: a one-week on-campus assessment period, a two-week off-rotation on-campus development period, and a six-week on-campus APPE in academia. All three parts were completed with an experiential director with experience in Acute Care Medicine, who volunteered to serve as the experiential faculty mentor/preceptor to the student. A higher education non-faculty learning specialist was also involved in the remediation. Assuming successful completion of the remediation, the student would then be allowed to resume the APPE sequence, starting with re-enrollment in the Acute Care Medicine APPE.

The student met with the non-faculty learning specialist and with the experiential faculty mentor on multiple occasions throughout the week-long assessment period. To obtain a baseline assessment, the student performed core rotation activities one-on-one with the experiential faculty mentor, including a journal club, topic discussion, and patient presentation. Activities were chosen that mapped directly back to the elements of performance and corresponding CAPE outcomes in which the student performed poorly. Furthermore, activities were performed one at a time, to allow for the student's best possible work. Debrief sessions were held following each activity, primarily focusing on strengths, opportunities, and barriers to success. During the assessment phase, the student demonstrated sufficient foundational knowledge,

was motivated to learn, and performed above average on assignments related to narrow-focused topics. However, the student struggled with complex assignments that encompassed broad topics and required high order synthesis. Critical barriers to success included a lack of structured learning strategies, an apparent external locus of control, diminished self-confidence, and anxiety toward APPE in general.

During week two and three, the student was given assignments designed to mimic those activities required for successful completion of Acute Care Medicine and Ambulatory Care APPE. In all, the student completed five topic discussions, two journal clubs, and a SOAP note for a complicated patient with multiple life-threatening problems. Content areas were chosen with the student, considering the student's perceived deficits and interests, as well as learning needs identified from preceptor evaluations. Assignments were of graduated difficulty and complexity to help the student develop their own learning strategies and increase their confidence level. For example, initial student-led topic discussions covered a therapeutic drug class (cephalosporins, antidepressants) or therapeutic principles (use of anti-infectives). Later student-led topic discussions integrated pathophysiology, pharmacology, and therapeutics in disease states requiring complex pharmacotherapy (ie, pneumonia, anxiety and depression, and cellulitis). Debrief sessions were conducted following completion of each activity to promote self-awareness and metacognition. The student struggled initially with meeting deadlines, but this was resolved after early debrief sessions. Weekly interactive discussions with the faculty mentor covered topics of personal and professional development. The student was also encouraged to seek counseling for his anxiety during the remediation period. The total time commitment by the experiential faculty member for the remediation was ~10 to 12 hours per week, including design of the learning plan. Remediation activities, performance, and progress were tracked by the experiential faculty mentor on the experiential file share.

The final component of the remediation was a six-week on-campus APPE in academia with the same experiential faculty mentor/preceptor. Instead of placing the student back into the previously scheduled APPE sequence, one of the student's elective APPEs was moved and replaced with an on-campus academia APPE with the experiential director. The decision to modify the student's schedule was made to maximize the time for remediation and prevent unnecessary delays in graduation. The on-campus academia APPE allowed the student to practice habits, skills, and strategies developed earlier in the remediation, in a controlled environment. Throughout the on-campus APPE, the student was given assignments of varying difficulty and complexity. Assignment and

Figure 2. APPE Remediation Timeline.

methods were selected to address deficits in specific CAPE outcomes (Table 2). Activities included development and presentation of a didactic class session, topic discussions on metacognition and remediation, and developing and delivering an in-service on business intelligence software. All assignments were completed on time and at an appropriate level of competency. At the conclusion of the rotation, the student completed a written reflection on the entire experience. Success of the remediation was defined as completion of the Acute Care Medicine APPE with a satisfactory grade. Degree of success was quantified by measuring performance improvement in all relevant 2013 CAPE education outcomes.

RESULTS

In the student's second attempt of Acute Care Medicine APPE, improvement was demonstrated in all six educational outcomes that were deemed below minimal competency prior to the remediation (Figure 3). The largest degrees of improvement were seen in those performance elements related to 1.1 Learner, 3.1 Problem Solver, and 4.1 Self-aware. Furthermore, the student demonstrated improvement in three additional educational outcomes: 2.1 Caregiver, 2.2 Manager, and 4.4 Professional. There was no evident decrease in performance in other areas of the preceptor evaluation and preceptor comments did not indicate any need for concern. Following successful completion

of the Acute Care Medicine APPE, the student completed their Critical Care APPE, performing at or above expectations on preceptor evaluations. Overall, the remediation process for this student was deemed to be a success.

Furthermore, the student's written reflection, as assessed by the experiential director, demonstrated a level of critical reflection, with significant development in areas of self-awareness, self-direction, and metacognition. Student feedback indicated that the most helpful aspect of the remediation was having a dedicated mentor that was invested in the student's success, while the least useful was meeting with the non-faculty learning specialist during the first week of the remediation.

DISCUSSION

There is a clear need for experiential course remediation procedures, yet there is little published literature to guide experiential programs in developing specific remediation plans. Our case study provides one example of a successful remediation following an experiential course failure in a student with multiple performance deficiencies (Table 3). Although this remediation process involved significant time commitment by a single faculty member (~100 hours over 9 weeks) and delayed the student's graduation date by an additional 3 weeks, it was ultimately successful in advancing the student through the remainder of the curriculum and more importantly, in developing an appropriate level of competency.

There are multiple critical elements that made this remediation successful. The early assessment phase, as recommended by Bodenberg and colleagues, was helpful in determining the actual root cause of this student's performance deficits.³ Although the student appeared to have knowledge deficits based on preceptor evaluations, the faculty mentor was able to determine that the student's primary deficits were related more to their lack of process in completing assignments, lack of purposeful learning strategies, and increasing anxiety concerning experiential rotations.

Use of a dedicated experiential faculty member for the duration of the 9-week remediation experience and involvement of the student in the learning plan cultivated a trusting mentor/mentee relationship. This approach likely reduced student anxiety, allowing the student to perform at a higher level than previous rotations. Although labor intensive, use of a single dedicated faculty member ensured continuity of the entire process. The student did not respond well to scheduled meetings with the non-faculty learning specialist. This is likely due to the experiential nature of a rotation's clinical environment, whereas the learning specialist's primary area of expertise is didactic classroom learning.

Table 2. Activities and Methods to Address Deficits in Specific CAPE Outcomes

CAPE Outcome	Activities and Methods Used
1.1 Learner	Topic discussions in didactic content areas, sessions with learning specialist
3.1 Problem Solver	Progressively diminishing directions and guidance for assignments
3.2 Educator	Topic discussions, in-service, didactic teaching
3.6 Communicator	Communication mentoring
4.1 Self-Aware	Activity debriefing and written reflection
4.3 Innovator	Development of a didactic class session
4.4 Professional	Discussion of professional standards, including accountability and timeliness

Figure 3. Improvement in student performance on Acute Care Medicine APPE. The figure illustrates the comparison of student performance on preceptor evaluation of the Acute Care Medicine APPE conducted prior to and after the remediation, using relevant CAPE educational outcomes. Educational outcomes with the greatest change include 1.1 Learner, 3.1 Problem Solver, and 4.1 Self-aware.

The most unique element of the remediation plan was the inclusion of an APPE rotation as part of the remediation. The academia APPE elective allowed the student to test what they learned in the first half of the remediation in a controlled environment, while preventing unnecessary delays in graduation. The project-based nature of the academia APPE enabled the preceptor to assign projects of increasing difficulty and complexity to help build student learning skills and confidence. For students who have already used their electives or are close to graduation, experiential faculty will need to evaluate the risks and benefits of enrolling the student in an additional APPE academia elective. Students with broad and complex deficits may benefit more

than those students with focal deficits in a single competency area.

There are limitations to the case described, most notably, that this approach was designed for a single student's experience. While the remediation plan described may easily apply to some students, it may not apply to others. Another limitation is the use of different preceptors before and after the remediation. Inter-rater reliability testing was not feasible for this case. However, based upon review of both preceptors' historical grading, the authors are confident that the post-remediation Acute Care Medicine APPE presented comparable difficulty to the Acute Care Medicine APPE that the student failed earlier in the academic year. Though not necessarily

Table 3. Tips for Successful Remediation of an Advanced Pharmacy Practice Experience (APPE)

Experiential faculty should be present during the final preceptor evaluation to discuss next steps and provide support for both the preceptor and student.
Student should be removed from the next rotation block to allow adequate time for the remediation.
A dedicated experiential faculty member should lead and coordinate the remediation.
An assessment of the student's learning methods, knowledge, and abilities should be conducted.
When assessing the student's best possible performance, one activity should be assigned at a time.
When assessing time management and organization, multiple activities should be assigned simultaneously.
Students should be encouraged to focus on learning from mistakes and continued growth.
Experiential faculty should refer students to proper support resources to address outside factors affecting student success. Student should be given adequate time to use and benefit from support resources.
Experiential faculty should consider converting an APPE elective as a component of the remediation for students with complex or multifactorial deficits.

a limitation, it is important to note that the second preceptor was aware of the student's previous course failure and had access to the student's preceptor assessments. Lastly, the time commitment required by faculty may be prohibitive depending on the institution's experiential model.

CONCLUSION

As observed in other reports, failure of experiential courses tends to be multifactorial and extends beyond simple knowledge deficits. Our own experience, much like this case, suggests that failures typically result from a combination of higher order development deficiencies and/or student psychosocial issues. Although they are often time and labor intensive, long-duration remediation plans with dedicated faculty resources are vital to advancing these students to the appropriate level of competency. This case study also suggests a benefit to repurposing of elective rotations to bridge the gap between the initial remediation and continuation of the student's APPE sequence. Since the initial writing of this article, our pharmacy college has adapted the remediation process described here as a model framework for experiential course remediation. In the current process, the academia APPE component may or may not be included depending on the breadth and depth of the student's deficits. To date, four at-risk students have successfully remediated APPE

failures through this framework. For students with deficiencies in patient care competencies, time at a practice with a faculty preceptor can be incorporated into the remediation as well. Additionally, the institution has modified this method in remediation of IPPE course failures with success. Despite the successes described, more evidence-based research is needed to support development of experiential remediation plans.

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