



Striving for excellence in experiential education

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Abstract

High-quality experiential education builds on didactic education to enable graduates to meet the full spectrum of entry-level pharmacy-related roles and responsibilities, including lifelong learning and professional development. The 2019 Educational Affairs Committee A, an ACCP standing committee, was charged to review and update the 2008 ACCP white paper and position statement on quality experiential education. The main objective of this white paper is to provide colleges and schools of pharmacy (C/SOPs) and affiliated partners in experiential education with practices expected to assist in achieving excellence in experiential education and fulfilling the goal of developing fully competent practice- and team-ready pharmacy graduates.

KEYWORDS

clinical pharmacist, experiential education, preceptors

1 | INTRODUCTION

The American College of Clinical Pharmacy (the College, ACCP) and its members recognize the need to strive for excellence in experiential education and continue the direction set by the College's 2008 white paper and position statement on quality experiential education.^{1,2} High-quality experiential education builds on didactic education to enable graduates to meet the full spectrum of entry-level pharmacy-related roles and responsibilities, including lifelong learning and professional development. The 2008 white paper provided a solid

foundation for excellence in experiential education and contains recommendations that are relevant today.¹ Subsequent changes in the 2016 Accreditation Standards from the Accreditation Council for Pharmacy Education (ACPE) (2016 ACPE Standards), the 2013 educational outcomes from the Center for the Advancement of Pharmacy Education (CAPE) of the American Association of Colleges of Pharmacy (AAP), the 2016 update to the interprofessional core competencies from the Interprofessional Education Collaborative core competencies, and the movement to the use of the AACP entrustable professional abilities (EPAs) in pharmacy education provide the setting for an update.³⁻⁷ In this same time interval, numerous advances in higher education, pharmacy practice, and health care have also been evident. Educational research has driven the widespread acceptance and use of evidence-based methods of instruction such as active learning strategies, collaborative and cooperative learning, problem- and team-based learning, the flipped classroom, distance delivery, blended and online learning, simulated patients and health care

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providers, standardized testing and assessment, objective structured clinical examinations (OSCEs), and other performance-based assessments. Pharmacy practice advances continue with the passage of laws, regulations, and payment structures that enhance the pharmacist's ability to engage in team-based comprehensive medication management. Pharmaceutical compounding is now more highly regulated and scrutinized after the adoption of additional US Pharmacopeia (USP) regulations. Advances in health care include increased emphasis on interprofessional collaboration, expansion of roles of pharmacists and other non-physician health care providers, and growing use of expensive therapies (eg, biologics, genetic therapy). These advances all affect the expectations, design, and delivery of experiential education.

The 2019 Educational Affairs Committee A, an ACCP standing committee, was charged to review and update the 2008 ACCP white paper and position statement on quality experiential education.^{1,2} Members of the committee were intentionally selected to provide a broad range of perspectives and included individuals engaged in experiential education as program administrators or preceptors; a student, a resident, and a new practitioner; and experienced clinical pharmacy practitioners from public and private institutions with or without full-time academic appointments.

The main objective of this white paper is to provide colleges and schools of pharmacy (C/SOPs) and affiliated partners in experiential education with practices expected to assist in achieving excellence in experiential education and fulfilling the goal of developing fully competent practice- and team-ready pharmacy graduates. This white paper includes recommended and encouraged practices. Recommended practices are considered essential for all experiential education programs and, as a whole, are anticipated to lead to excellence in experiential education. Encouraged practices are not currently considered essential but are anticipated to enhance the quality of experiential education. Many of these recommended and encouraged practices also extend prior recommendations or standards.

2 | OUTCOMES, PREPAREDNESS, AND READINESS

2.1 | Learning outcomes

The 2016 ACPE Standards represent a major revision in learning outcomes through reorganization of the standards, incorporation of the 2013 CAPE educational outcomes, and incorporation of updates owing to enhancements in pharmacy education and practice.³ Major changes include an increased focus on developing practice- and team-ready graduates through “the (1) development of students' professional knowledge, skills, abilities, behaviors, and attitudes, including scientific foundation, knowledge application, and practice competencies, (2) manner in which programs assess students' acquisition of knowledge and application of knowledge to practice, (3) mastery of skills and achievement of competencies, and (4) importance of both

curricular and co-curricular experiences in advancing the professional development of students.”³

The College endorses the 2016 ACPE Standards and the educational outcomes provided therein, as evidenced by prior ACCP white papers and position statements on developing pharmacy students' abilities in interprofessional collaboration,⁸ cultural competence,^{9,10} and professionalism.^{11,12} The College was also involved in creating the Pharmacists' Patient Care Process,¹³ another component of the 2016 ACPE Standards.³ Building a solid foundation of abilities in graduates from Pharm.D. programs, as described in the 2016 ACPE Standards, will enable graduates to more adequately fulfill current and future roles and responsibilities in postgraduate training and practice as pharmacists.

The four domains of educational outcomes in the 2016 ACPE Standards and the 2013 CAPE educational outcomes are as follows: Standard 1—Foundational Knowledge, Standard 2—Essentials for Practice and Care, Standard 3—Approach to Practice and Care, and Standard 4—Personal and Professional Development.^{3,5} Additional pertinent outcomes included in the 2016 ACPE Standards are the Pharmacists' Patient Care Process (included in Standard 10) and Interprofessional Education (Standard 11 and included in Standard 3).³ Curricular outcomes related to experiential education are also covered in the 2016 ACPE Standards in the pre-advanced pharmacy practice experience (pre-APPE) curriculum (Standard 12) and the advanced pharmacy practice experience (APPE) curriculum (Standard 13).

Educational outcomes are to be progressively developed, integrated, and applied in the didactic and experiential components of the Pharm.D. curriculum and co-curriculum. Didactic, discussion, and laboratory courses generally introduce and develop these outcomes through lectures, online modules, readings, and interactive classroom activities and then further develop these abilities through discussion, simulated practice, assessment, feedback, and evaluation. Introductory pharmacy practice experiences (IPPEs) develop these outcomes through highly supervised practice activities in actual health care settings. Structured simulations can also be used to provide learning opportunities for developing specific abilities, particularly in settings that may be difficult to provide in actual practice because they rarely occur or because of experiential site or state pharmacy regulation limitations.⁴ The co-curriculum complements the formal curriculum and supports student development, focusing on the outcomes in Standards 3 and 4. APPEs are a culmination of the educational program, with further development in the breadth and depth of the outcomes through supervised provision of pharmacy services and other activities in health care and related settings. The goals of the curriculum as a whole and the focus of APPEs are to develop graduates who are not only ready to enter traditional pharmacy practice roles and postgraduate training and education programs, but also prepared to enter or create nontraditional and new roles.

The College recommends that C/SOPs strive for excellence in experiential education through curricular design and delivery that fully integrates the experiential curriculum with both the didactic curriculum and the co-curriculum in a progressive manner to enable the stu-

dent to develop the educational outcomes from the 2016 ACPE Standards and the 2013 CAPE educational outcomes.

2.2 | Entrustable professional activities

The AACP EPAs are a collection of statements derived from educational outcomes that explicitly describe a professional's work activities rather than focus on the professional's underlying knowledge, skills, and attitudes.¹⁴⁻¹⁶ The EPA statements, one of the most notable developments over the past decade in health professions education, were developed to guide experiential learning in medical training.¹⁴ The EPAs describe the professional activities that physicians completing internal medicine residencies should be entrusted to competently perform by the end of their training program. The EPA statements have now been developed for several medical specialties as well as for veterinary medicine and pharmacy.^{15,17} Fifteen core EPAs for new pharmacy graduates were developed by the AACP academic affairs committee and endorsed by the AACP board of directors in 2016 after input from 10 pharmacy organizations (including ACCP) and 25 individuals recognized as leaders in pharmacy.¹⁵⁻¹⁷

The 15 core pharmacy AACP EPA statements, the educational outcomes from the 2016 ACPE Standards, and the 2013 CAPE educational outcomes are similar, but serve different purposes. The educational outcomes describe the foundational abilities (knowledge, skills, and behaviors) that a pharmacist must possess. The AACP EPA statements describe the specific units of work or professional activities associated with these educational outcomes. For example, educational outcome 3.1 indicates that students should be "able to identify problems; explore and prioritize potential strategies; and design, implement, and evaluate a viable solution."^{3,5} In the corresponding EPA statement in the Patient Care Provider domain, students are expected to establish patient-centered goals and create an evidence-based and cost-effective care plan for a patient in collaboration with the patient, caregiver(s), and other health professionals.¹⁵ Educational outcome 3.1 indicates that students should be able to identify problems, explore strategies, and implement solutions, whereas the corresponding EPA statement describes the specific work tasks of establishing patient-centered goals and developing a care plan—which demonstrate meeting the educational outcomes. Used together, the AACP EPAs and the CAPE educational outcomes have the potential to more completely guide learning and development during experiential education than either alone.

One key concept embedded in using the EPAs to guide experiential learning activities is the element of trust.^{14,16,17} The supervisor's or preceptor's degree of trust in the learner's ability to perform the task determines the level of autonomy granted to the learner.^{16,18} Students and residents are expected to develop their abilities and competency over time with repeated practice and feedback. Learners initially observe the preceptor modeling the activity (Level 1) before being granted very limited autonomy to perform the task under direct supervision with ongoing feedback (Level 2). As the preceptor's trust

increases, learners are allowed to perform the activity without direct supervision. At this stage, the preceptor provides reactive supervision (Level 3) whereby learners are expected to perform the task on their own. The activity is reviewed with the learner immediately or soon after to provide feedback and address any errors or omissions. If the learner makes repeated or significant errors, the learner's level of entrustment reverts back to direct supervision (Level 2) until trust is reestablished. Residents and possibly the rare student should progress with practice and feedback toward intermittent supervision (Level 4), where the preceptor no longer reviews the outcome of each activity but instead engages in an end-of-day or end-of-week debrief with the learner. Finally, as a trainee/pharmacist gains considerable experience, a supervisor or preceptor sets a general direction (Level 5) and expects the learner (resident or pharmacist) to determine the best ways to achieve the goals. Supervision at this level is sporadic (eg, weeks or months), and the learner is expected to be self-directed.

In Pharm.D. programs, the minimum expectation is the attainment of Level 3 of entrustment for all 15 core EPA statements at the time of graduation. A Level 4 of entrustment may be reasonable for only a few select EPAs or for students with truly exceptional abilities and competence. Achieving a Level 4 or 5 of entrustment is generally more appropriately the goal of residency or fellowship training and experience as a pharmacist. Therefore, it is very important that preceptors have reasonable understanding and expectations of these levels in order to appropriately evaluate student performance and make appropriate entrustment decisions regarding the EPAs.¹⁹

Many C/SOPs have begun to implement the EPAs in their experiential curriculum or across their curriculum as a whole, with some programs setting minimum levels of entrustment as milestones for student progression.²⁰⁻²² Using principles of backward design, EPA development should be sequenced over time to build the learner's knowledge (didactic lessons), skills (practice labs/simulations), and experiences (IPPEs/APPEs) such that each EPA can eventually be performed without direct supervision.¹⁵

The EPAs have proven benefits for both learners and preceptors. For learners, they provide a clear picture of the core responsibilities and activities they will be entrusted with as a pharmacist, which also increases the relevance of the prerequisite instruction and foundational experiences.^{18,23} As a result, students become motivated to perform at the level to become entrusted and gain more autonomy.¹⁸ Preceptors find that the EPA statements are relevant to practice and define pharmacist work in all practice settings.²⁴ Preceptors also find it easier to evaluate students using the work-based construct of the EPAs than to evaluate the strengths and deficits in the student's underlying knowledge, skills, and attitudes.²⁵ Further research is needed to determine the impact of fully or partially incorporating the EPAs into educational programs on overall student development and competence. In summary, the EPA statements appear to provide both a definitive set of activities and a structure that guide student development and assessment in meeting the requisite educational outcomes.

The College recommends that C/SOPs adopt the AACCP EPA core statements and incorporate the EPAs into the curriculum as a whole and specifically into activities and assessments in IPPEs and APPEs, including setting appropriate entrustment milestones and remediation plans for progression. In addition, the College recommends that each C/SOP determine the threshold level of entrustment to demonstrate APPE readiness and after they successfully complete each type or phase of IPPEs and APPEs. The College considers incorporation of the EPAs into the entire pharmacy curriculum a primary component of striving for excellence in experiential education as well as in the curriculum as a whole.

2.3 | APPE preparedness

A primary goal of the pre-APPE curriculum, which includes didactic courses and IPPEs, and co-curriculum is to prepare students for APPEs.³ Therefore, C/SOPs need to ensure that each student has demonstrated the requisite abilities (knowledge, skills, and behavior) for entry into APPEs. C/SOPs should also strive to determine students' likelihood of success in APPEs. Successful completion of all courses in the pre-APPE curriculum is an important criterion but may or may not fully indicate APPE readiness, depending on the manner in which assessments of preparedness are incorporated into didactic courses and IPPEs. The EPAs should also be considered to assess pre-APPE readiness.²⁶ The level of entrustment can change as students move through the pre-APPE curriculum, with a likely target of a Level 2 of entrustment in most or even all 15 core EPAs before entry into APPEs. Assessments for APPE readiness should be completed in a timely manner to allow for additional preparation, remediation, and reassessment, when needed.

Confirmation of preparedness to enter APPEs should be based on assessments of knowledge, skills, and behaviors - including the application of knowledge in simulated and real scenarios. APPE preparedness assessments have included multiple-choice examinations (eg, milestone examinations, Pharmacy Curriculum Outcomes Assessment [PCOA] results), simulated experiences or examinations (eg, laboratory courses, OSCEs), and capstone courses.²⁷⁻³⁰ Multiple-choice examinations can provide reliable assessments of knowledge and, if written appropriately, application and problem-solving.³¹ Well-designed simulations, simulated patients or practitioners, OSCEs, in-class role play, patient cases, and laboratory activities are useful in assessing a broad spectrum of abilities pertinent to practice-based activities.²⁸ These activities and assessments can effectively be embedded throughout the pre-APPE curriculum to enhance efficiency and student accountability. Assessments that use simulated patients or simulated practitioners allow for assessments of competence in problem solving, skills, knowledge application, communication, non-verbal interaction, and other skills and behaviors. Assessments using simulated patients or practitioners also allow students to become more confident in situations they may encounter during APPEs.²⁸ Some C/SOPs have found that the results from select APPE preparedness assessments correlate with performance on APPEs and/or

pharmacy licensure examinations.³¹ Ideally, pre-APPE assessments should be reliable and valid and help predict APPE performance.

The College recommends that all C/SOPs develop a multifaceted program to assess student preparedness to enter APPEs through assessments of knowledge, skills, and behaviors across the curriculum. The College encourages C/SOPs to adopt a Level 2 of entrustment in core APPEs as part of ensuring APPE readiness.

2.4 | Graduation readiness

Graduation readiness is traditionally demonstrated by having students successfully complete all curricular and other program requirements, given the assumption that the curriculum is designed to enable students to meet all the required educational outcomes. However, this assumption may not be completely accurate, depending on the design of the curriculum and associated assessments of student abilities. On graduation, all students should be able to demonstrate the abilities (knowledge, skills, and attitudes) necessary to become a general pharmacist practitioner in contemporary pharmacy practice settings. If the EPAs are fully used by a C/SOP, additional validation will be provided if all students are at a Level 3 on each required EPA competency. All students should meet a minimum threshold of graduation readiness, regardless of postgraduate career plans.

APPEs and APPE capstone courses not only provide an excellent opportunity to fully develop the abilities expected for graduation readiness but also allow excellent opportunities to assess these abilities to ensure graduation readiness. Upon entering APPEs, students should be aware of their strengths and areas in need of improvement through performance assessments in didactic courses, IPPEs, and APPE preparedness. Preceptors should work with each student to assess the student's baseline abilities and then develop plans to enhance the areas identified for improvement and continue to develop the areas of strength. APPEs are generally associated with increased intensity and incorporation of students into health care settings compared with the pre-APPE curriculum. This results in opportunities to markedly enhance practice-based abilities, particularly intra- and interprofessional collaboration, patient safety and patient care, cultural competence, data and information collection, assessment and planning, and professionalism.⁸⁻¹² Assessments and evaluations of students during APPEs should guide students toward meeting the goals of graduation readiness, where the student can perform the requisite tasks autonomously with guidance and feedback as needed and be entrusted at Level 3 for all 15 core EPAs at the end of APPEs, as noted earlier. Knowledge-based assessments (eg, home grown, proprietary, PCOA) at or near the end of APPEs have been used by some C/SOPs to determine graduation readiness. Students not meeting the criteria for graduation readiness should be provided with specific feedback on the improvements needed, followed by opportunities for practice and reevaluation in a timely manner that will hopefully not delay graduation.

In striving for excellence, APPEs, IPPEs, and other components of the curriculum and co-curriculum should encourage and enable

students to develop abilities that extend beyond the minimum expectations in order to meet career goals and future changes in the profession and health care. For example, students should be encouraged to seek additional learning opportunities to help prepare for postgraduate training and/or practice in specialty settings. Preceptors and programs should create these experiences through core or elective APPEs, when possible.

Graduation readiness also involves developing and pursuing career plans. During APPEs, students should be provided with opportunities to explore career options, practice interviewing, prepare and review curriculum vitae, practice presentations, and get involved in projects or research. For example, C/SOPs have developed specific postgraduate training tracks to enhance student preparation and strength of application for residency or fellowship placement.³² Enhancing graduation readiness can also involve licensure examination preparation or assessments that are incorporated into APPEs or provided in a concentrated program after APPEs, but before graduation.³³

The College recommends that C/SOPs develop criteria and methods to ensure the graduation readiness of all students. The College encourages setting the threshold of a Level 3 of entrustment for all 15 core EPAs as one requirement or expectation for graduation.

3 | IPPES AND APPEs

3.1 | Introductory pharmacy practice experiences

IPPEs should start in the first year of the curriculum. Each C/SOP is expected to have no less than 300 hours of experiential learning during IPPEs, with at least 150 hours to be split between community pharmacy and institutional health-system pharmacy settings.³ Up to 60 hours of the total 300 hours can come from structured simulated experiences during IPPEs, but these hours cannot count toward the 150 community and institutional IPPE hours.³ Each C/SOP should develop specific learning outcomes for each IPPE and for IPPEs as a whole. These learning outcomes should encompass almost the full range of the expected learning outcomes for the Pharm.D. program – including the development of foundational knowledge, essentials for practice and care, approach to practice and care, and personal and professional development.³ Students' abilities should be integrated within the didactic curriculum and developed progressively as they advance through IPPEs. The expected level of competency should be set to allow students to advance to APPEs and perform well and develop their abilities during APPEs. As noted earlier, a Level 2 of entrustment is an appropriate target for all 15 core EPAs at the end of the pre-APPE curriculum. IPPEs should also introduce or expose students to settings similar to those they will experience in their core APPEs, going beyond community and health-system settings to include inpatient general medicine and ambulatory care settings. C/SOPs are encouraged to look beyond documentation of the required number of hours and to comprehensively evaluate students' readiness for APPEs. If needed, C/SOPs should exceed the

requirement of 300 hours for IPPEs in order to develop abilities to the extent required for entry into APPEs.

Student participation in direct patient care during IPPEs is essential and should include “interaction with practitioners and patients to advance patient welfare in authentic practice settings ... and exposure to both medication distribution systems and high-quality, inter-professional, team-based patient care.”³ IPPEs can occur in many different practice settings, exposing students to highly intraprofessional and interprofessional environments and direct patient care.³

Most IPPE activities should focus on active student participation in pharmacy practice activities. Shadowing and observing are only recommended during introduction to settings or in settings where active participation is not appropriate. C/SOPs should provide guidelines on appropriate IPPE activities that support active student participation in patient care activities. For example, students can use and extend the following abilities learned in the didactic curriculum: collecting patient histories, assessing vital signs, educating patients, and retrieving and analyzing the literature to answer drug information questions.

Student participation may be limited by the state board of pharmacy licensing requirements and inadequate preceptor understanding of the expectations of students on IPPEs. C/SOPs are encouraged to work with their state board(s) of pharmacy to expand the roles for pharmacy interns and to fully orient preceptors and sites to the expectations and roles for students on IPPEs. The College recommends the development of more standardized national requirements for pharmacy intern licensure and the application of intern hours obtained during IPPEs and APPEs.

The College recommends that C/SOPs develop an IPPE curriculum that has a defined set of outcomes, starts in the first year, is fully integrated into the didactic curriculum and co-curriculum, focuses on student participation in patient care settings, and provides exposure to settings that students will experience during their core APPEs.

3.2 | Advanced pharmacy practice experiences

APPEs are the culminating experience of the Pharm.D. curriculum. Students are required to complete at least 1440 hours of experiential learning in APPEs.³ Students must also complete 160 hours in each of the four core APPEs: community pharmacy, ambulatory care, health care system pharmacy, and inpatient general medicine settings. Completion of elective APPEs fulfills the remaining APPE requirements and provides opportunities to expand students' abilities and exposure to other career pathways. Elective APPEs should be offered in direct patient care settings and other settings related to pharmacy and health care (eg, research, academic, regulatory affairs, pharmaceutical industry, managed care, pharmacy benefit management, professional organization, professional communications, continuing education, government and health care agencies, and international pharmacy and health care settings).

The goals of the curriculum and APPEs are to produce practice-ready graduates. APPEs should hone “practice skills, professional judgment, behaviors, attitudes and values, confidence, and sense of

personal and professional responsibility required for each student to practice independently and collaboratively in an interprofessional, team-based care environment.”³ Therefore, students should be provided with opportunities to participate in providing direct patient care as part of an interprofessional team during core and elective APPEs.^{3,34} Expectations of the APPE curriculum are fully described in the 2016 ACPE Standards and include “(1) direct patient care, (2) interprofessional interaction and practice, (3) medication dispensing, distribution, administration, and systems management, and (4) professional development.”³

APPEs should focus on active participation by students, with very little observation except in situations in which students should not participate. Direct patient care should serve as the primary focus for APPEs. C/SOPs should develop a broad spectrum of core and elective APPEs that focus on direct patient care in a variety of settings, serve a broad diversity of patients, and provide opportunities for interprofessional collaboration.³

Interprofessional education (IPE) is common in didactic curricula and IPPEs, but less so in APPEs.³⁵ Therefore, C/SOPs should target sites and preceptors already involved in interprofessional collaboration as well as encourage other sites and preceptors to enhance interprofessional collaboration within their settings across the experiential curriculum. C/SOPs should also provide preceptors and sites with examples of activities that students can and should be responsible for providing, with appropriate oversight (eg, medication history taking, medication reconciliation, immunizations, smoking cessation, patient counseling, and health screenings). With direction and review of pertinent protocols and pathways, students can also serve as pharmacist extenders and assist in anticoagulation monitoring, antimicrobial stewardship, renal drug dosing, drug monograph preparation, educational in-services, and numerous other pharmacy-based services.

Each C/SOP should develop specific activities that are associated with each type of APPE. Examples of activities are provided in the 2016 ACPE Standards and the list of AACP EPA core statements.^{3,17} In addition, an AACP task force survey on the essential elements of APPEs found consensus on the essential elements for community, ambulatory care, and inpatient internal medicine APPEs, but not for the health-system APPE.³⁶ Approaches to structuring health-system APPEs include (1) a focus on the pharmacy operations and distributions aspects of the medication use process, (2) a focus on pharmacy administration and management, and (3) exposure to clinical pharmacy responsibilities blended with other pharmacy operations. Approaches 1 and 2 focus more on activities outside direct patient care, whereas Approach 3 emphasizes direct patient care activities. Design of the health-system APPE should consider the outcomes expected of the curriculum and those expected to be developed during the health-system IPPE. C/SOPs have been concerned that requiring students to have mandatory sterile compounding experience would be impractical, given the rigorous training and certification requirements at hospital sites before individuals can participate in these activities.³⁶ Although USP <797> and <800> are important regulations for students to gain exposure to, the impracticality of the actual training experience limits the ability to realistically require this experience for

all students in all C/SOPs. However, students should be provided opportunities in core or elective APPEs to gain experience in sterile compounding.

The College recommends that C/SOPs develop APPEs that enable students to have defined responsibilities and the autonomy to further develop their patient care and other pharmacy practice abilities in settings that enhance student abilities, meet accreditation standards, address student needs to explore career options, and provide access to direct patient care, interprofessional collaboration, diverse patient populations, and contemporary and emerging practice environments. The College affirms that the main goal of APPEs is to prepare practice-ready graduates.

3.3 | Instructional methods and structures for experiential education

Active learning methods have improved student learning and performance in didactic courses.³⁷⁻³⁹ By design, practice-based activities in IPPEs and APPEs involve active learning methods, repetition, and assessment and guidance from preceptors. For the development of core outcomes and abilities, experiential education should focus on pertinent practice-based activities with minimal focus on observation or shadowing. Innovative, yet realistic instructional models should be incorporated into IPPEs and APPEs. For example, by allowing students to round independently and interact with other health care professionals and assume select, guided responsibilities for patient care if a preceptor is unavailable to round, students can assume the pharmacist role under the indirect supervision of a preceptor.³⁴

Instructional methods such as the layered learning practice model (LLPM), intentional IPE, and simulations in experiential settings also appear to enhance student learning. The LLPM is an effective structure to use in experiential education. This model includes having a student precepted by a trained pharmacy resident, with both being precepted by an “attending” pharmacy practitioner/preceptor.⁴⁰ The model can also be expanded to include an IPPE student, who is then “co-precepted” or mentored by an APPE student. The LLPM engages the student in active learning through direct patient care activities while expanding pharmacist-directed patient care services and enhancing the resident's precepting abilities.^{40,41} Given their recent experience as students themselves, residents are often seen as “near-peers” by students, which can be leveraged in a shared preceptorship model.⁴² The LLPM has successfully been implemented in ambulatory, acute, and critical care settings, increasing the quantity and quality of direct patient care services provided.^{40,43-46} The LLPM may be helpful in the need to precept a growing number of learners without negatively affecting the learning experience.^{43,44} Potential benefits of the LLPM include establishing meaningful learning experiences, increasing preceptor efficiency and effectiveness, expanding pharmacist patient care services, developing learners as members of a practice community, and improving practice readiness.^{41,45,47,48} Best practices for an effective LLPM include the following key characteristics: shared leadership between the C/SOP and the health system; a systematic

approach to prioritizing practice needs; good communication between all parties involved in the LLPM; adequate resources to support the model; commitment by both the school and the health system; and ongoing evaluation and program improvement.⁴¹

Intentional IPE activities and assessments must be incorporated into IPPEs and APPEs to enable students to achieve interprofessional outcomes, competencies, and EPAs.^{6,8,17,35} Instructional methods for IPE should begin with didactic content and simulations in the pre-APPE curriculum. IPE activities during IPPEs and APPEs should involve other health professional students and practitioners in an interactive, relevant manner to develop interprofessional abilities and enhance patient care.³⁵ C/SOPs should identify IPPE and APPE sites and preceptors who support IPE and are willing to provide intentional IPE activities and assessments of student performance during these activities.

Simulation can be incorporated to partly fulfill IPPE requirements, as described earlier.^{3,49} Examples of appropriate simulations within IPPEs include managing high-risk scenarios (eg, contributing to medical emergency management), assisting with restricted activities (eg, compounding sterile products), and performing rare types of patient care activities (eg, managing of rare/serious medication adverse effects).⁴

The College recommends the use of instructional methods during IPPEs and APPEs that include active learning through student engagement in meaningful patient care and other pharmacy services and, when possible, use of the LLPM and engagement in IPE activities.

3.4 | Students as extenders and enhancers of pharmacy services

Adding IPPE and APPE students to a practice setting can increase value by extending and enhancing pharmacy practices, with the additional benefit of enhancing students' learning experiences.⁵⁰ After integration into active roles on the health care team, students have significantly contributed to patient care in a variety of clinical settings.⁵¹⁻⁵⁴ A primarily student-driven transitions-of-care program reduced 30-day readmission rates for patients with cardiovascular-related diagnoses.⁵⁵ Student interventions have also contributed to cost-savings.⁵⁶⁻⁵⁸ Students can support existing services such as medication reconciliation, anticoagulation dosing and monitoring, and antimicrobial stewardship, providing immunizations, conducting medication therapy management, providing insulin teaching, performing discharge counseling, and participating in therapeutic drug monitoring programs or protocols.³⁴ Students should primarily be assigned to tasks and activities that meaningfully enhance patient care and/or pharmacy services as well as develop students' pertinent abilities. With guidance, students can provide recommendations to other health care providers that are appropriate and have a high acceptance rate.^{34,59-62}

However, adding IPPE or APPE students may also increase overall pharmacist and technician workload and make it more challenging to meet institutional expectations for patient care and other pharmacy

services.⁶³ Institutional resources are also needed for onboarding, providing space and access to equipment, and other logistic issues. However, preceptors may not consider these issues major barriers to integrating students into pharmacy services.⁴⁸ C/SOPs can help institutions and preceptors overcome these perceived barriers by providing sites and preceptors with well-developed expectations of students, examples of tasks and activities in which students can effectively be used, and assistance in addressing any logistic needs and sharing literature on the impact of pharmacy students' contributions during IPPEs and APPEs.⁵⁰

Hence, students should be given a thorough orientation of the expectations, schedules, and pertinent activities related to their responsibilities to provide these services, preferably within the first few days of starting the IPPE or APPE, to improve their efficiency and fully familiarize them with the experience.⁴⁸ Systems to document student contributions can provide useful data on the extent and impact of student activities and interventions as well as valuable data on how to optimize the use of students as extenders or enhancers of pharmacy services.^{51,53,54,57-61} Student performance in these activities needs to be closely monitored and reviewed with the student to optimize patient outcomes and the student's experience.

The College recommends that students be incorporated into IPPEs and APPEs in a structured, developmental manner that extends and/or enhances pharmacy services and enriches students' pertinent abilities.

4 | MANAGEMENT AND ADMINISTRATION OF THE EXPERIENTIAL PROGRAM

4.1 | Administrative structure and leadership

The 2016 ACPE Standards provide very useful general criteria related to administering the experiential program within the Pharm.D. curricula.³ These criteria allow for considerable flexibility in administrative structure and staffing to manage and support the experiential program, but provide no specific recommendations on staffing levels.

Delivery of high-quality experiential programs is related to many factors, starting with a highly functional administrative structure and team. The administrative structure can be organized to best fit the administrative and curricular structure of the C/SOP and to fully support the needs for providing IPPEs and APPEs. In general, the administrative structure should manage IPPEs and APPEs within the same or closely aligned administrative units to enhance progressive student development and effective coordination of program delivery. A main experiential administrative unit can be split into subunits according to type of IPPE and APPE (eg, community, health system, or clinical). However, it is likely more efficient to manage preceptors, sites, affiliation agreements, and student onboarding requirements (eg, vaccinations, tuberculosis testing, background checks, drug screens) in a central office than to separate these by type of experiential course - particularly in C/SOPs where preceptors and sites are shared across

IPPEs and APPEs. Other models may be more appropriate for C/SOPs with multiple campuses, decentralized experiential education delivery models, or nontraditional curricula and can be very effective if communication and coordination across units is ensured.

Administrative leaders must “have credentials and experience that have prepared them for their respective roles and collectively have the needed backgrounds to effectively manage the educational program.”³ Administrators of experiential programs will likely have a very broad set of responsibilities and therefore need a broad spectrum of abilities. These responsibilities will most likely include guiding the development of and overseeing the experiential curriculum, providing quality assurance of the experiential program, providing general support for students on APPEs or IPPEs, creating criteria for selecting and ensuring the continuing quality of preceptors and sites, ensuring the provision of preceptor development, guiding the development and revision of student evaluation tools and rubrics, managing the placement of students, participating in the design and assessment of the experiential curriculum, assisting in the management of any end-of-curriculum assessments or student development programs, ensuring the experiential program meets accreditation standards, and interacting and communicating effectively with students, preceptors, faculty, and administrators on matters related to the experiential curriculum as well as the curriculum as a whole. The College encourages C/SOPs to appoint lead administrators of experiential programs who meet the criteria of being associate or full professors, having at least 5 years of direct experience as a preceptor in IPPEs and/or APPEs, and having completed a residency or equivalent work experience. Faculty who are assigned responsibility as a coordinator or director for courses or subcomponents of the experiential program should have prior experience as an IPPE or APPE preceptor and/or as a pharmacist in a pharmacy practice setting that is pertinent to their responsibilities. Administrative assistant staffing is essential for effective and efficient delivery of the experiential program. Staff will need to have strong organization, computer, and communication skills. The College encourages the use of preceptor advisory committees to gather input on the wide range of issues pertinent to experiential education, student preparation, and preceptor roles, training, and development.

External organizational structures, such as experiential consortia or local/regional groups, can be greatly help deliver experiential programs in regions or states where experiential sites and preceptors are largely shared among C/SOPs.^{36,63-65} These external structures can focus on strategies that enhance use, efficiency, and expansion, such as developing a calendar of standardized start and stop dates for APPEs and possibly IPPEs to enable better use of sites and preceptors, adopting standard evaluation forms to enhance consistency in grading and decrease preceptor workload, and standardizing regional preceptor training programs for efficiency and consistency.

The College recommends the use of experiential education management systems to assist in administering and delivering the experiential program. These systems assist in assigning IPPEs and APPEs; managing and tracking students, sites, and preceptors; providing access to student and site/preceptor evaluations; providing repositories for documents and other materials for students and preceptors,

including access to modules for student reflections and/or portfolios; and facilitating curricular and/or EPA mapping.

Included among the many methods of assigning students to IPPEs and APPEs are systems that are random, that include some personal preferences and/or academic performance ranking, and that involve longitudinal or tracked experiences within a single health care system.⁶⁶ Students should be made fully aware of the process and any factors that allow for preferences or order of selection. It is also important to avoid any conflicts of interest or situations that could lead to a distinct advantage or disadvantage to a particular student at a site or with a preceptor (eg, students should not be assigned to a site where they have been a pharmacy intern or technician or to a site that has a family member or friend as an owner, manager, or staff member). Most importantly, student assignment to IPPEs and APPEs should meet program requirements and provide high-quality experiences that enhance student development.

Use of portfolios and reflections varies across C/SOPs. Portfolios may be labor-intensive for students, preceptors, and faculty. However, they provide several advantages if used during IPPEs and APPEs. Student reflection and self-assessment, with some guidance, can provide an environment for developing lifelong learners and promoting continuing professional development. In addition, portfolios provide a collection of work, including successes. Pharm.D. curricula are intensive and do not readily provide opportunities to reflect on or assess prior activities or work. Portfolios and reflections can enable students to evaluate and reconsider prior actions and future career choices.

4.2 | Preceptors

Preceptors and their practice site can have a major impact on the quality of experiential education. Student activities should be supervised by a qualified preceptor, usually a licensed pharmacist with experience and expertise in the setting for the IPPE or APPE. Non-pharmacy preceptors can be used as co-preceptors in required or elective experiences or as primary preceptors in elective experiences that focus on unique clinical practice settings or nonclinical settings (eg, research, academic, regulatory, pharmaceutical industry, professional organization, governmental agencies, communications, continuing professional education) as long as criteria and support systems are in place. The preceptor should be readily accessible to answer student questions and provide feedback and assessment in a continuous manner. When the primary preceptor is not available, appropriate individuals should be identified for support and monitoring. Adequate interaction with and supervision of a student by a preceptor provides a foundation on which to assess student performance and recommend plans for improvement, when needed. The student's knowledge level and skill set as well as the activities required by the rotation should determine the amount of interaction and supervision needed to achieve educational goals and outcomes and meet service expectations.

The 2016 ACPE Standards state that “a sufficient number of [qualified] preceptors (practice faculty or external practitioners) to

effectively deliver and evaluate students” should be in place and that the ratio should allow for individualized student mentoring and targeted professional development.³ Factors such as site requirements, state board of pharmacy regulations, preceptor responsibilities, resident use as preceptors, and oversight of other trainees should be considered when determining ratios. The College recommends student-to-preceptor ratios of 3:1 or less for IPPEs and 2:1 or less for APPEs, as provided in the 2016 ACPE Guidance for Standards.⁴

C/SOPs should have formal criteria for preceptor recruitment, performance, and evaluation and should review preceptors at least annually to ensure satisfactory performance.³ In addition, some state boards of pharmacy require preceptors to register and maintain an additional license or certification as a preceptor.⁶⁴ In these states, preceptors should complete and maintain the required training and/or registration/licensure before becoming involved in the education of students in the practice area. Preceptors should have the proper credentials, including an active license, and sufficient expertise for their practice area. Similar to preceptor qualifications for resident training, preceptors of direct patient care experiences (eg, inpatient internal medicine, ambulatory care) should have completed a postgraduate year 1 (PGY1) residency and at least 6 months of experience at their current practice site before becoming a primary preceptor. Preceptors in specialty practice areas should have completed a PGY1 residency followed by a PGY2 in the specialty area and have at least 6 months of practice experience in the area. In the absence of a residency, preceptors should have at least 3 years of pharmacy practice experience in the area.⁶⁷ In addition, certification by the Board of Pharmacy Specialties (ambulatory care, cardiology, compounded sterile products, critical care, geriatric, emergency medicine, infectious disease, nuclear, nutrition, oncology, pediatrics, pharmacotherapy, psychiatry, solid organ transplantation, or others as available) is recommended. If preceptors do not meet these qualifications, C/SOPs should assess and ensure that preceptors have satisfactory experience to provide quality experiences. Preceptors should maintain competencies that include, but are not limited to, effective communication, leadership, and management skills; a practice philosophy that emphasizes improving patient outcomes; and service as a role model while maintaining a commitment to excellence in scholarly teaching and self-directed learning. The College recommends the development of preceptor selection criteria, expectations, and quality assurance assessments.

Pharmacists in postgraduate training programs can also serve as preceptors, preferably as co-preceptors under the guidance of more experienced preceptors in the LLPM, as described earlier. State licensing regulations may require residents be co-preceptors under a certified or licensed preceptor. The ASHP required competency areas, goals, and objectives for PGY1 pharmacy residency programs recognize four preceptor roles that pharmacy residents can use: direct instruction, modeling, coaching, and facilitating.⁶⁷ Residents can begin develop these precepting skills and receive specific guidance, assessment, and feedback from the primary preceptor—preparing them to advance to the role of primary preceptors after completing postgraduate training.

Preceptors should be oriented to the C/SOP mission, goals, and values and be given specific information regarding the rotation objectives. Preceptors should become familiar with the systems in place to address student issues related to poor attendance, lack of professionalism, and other inappropriate actions or misconduct. Preceptors should be trained on any electronic systems they will use to record grades, post information, or access any reflections or other work completed by the student. Additional information and training should be provided on the grading rubrics used to evaluate students.

C/SOPs should provide support for preceptors' continuous professional development of educational and instructional skills, with updates offered every 1 to 2 years. Preceptors should have access to the current literature through an academic-based library system. Ideally, new preceptors should be provided with opportunities to co-precept with a more experienced colleague before precepting on their own. The College recommends that C/SOPs establish ongoing preceptor orientation and development programs that meet the guidelines outlined in the ACCP white paper on pharmacy practice faculty and preceptor development.⁶⁸

Meaningful incentives and peer recognition for involvement and excellence in teaching can attract and help retain qualified preceptors. C/SOPs should develop and have clear guidance for attaining and using academic titles and appointments associated with precepting and a transparent preceptor recognition program. Academic titles and criteria to attain these titles should be guided by C/SOP and university policies and publicized to all preceptors during onboarding and through ongoing communications. At a minimum, active preceptors should receive an annual communication from the C/SOP recognizing their participation in training future pharmacists and providing service to the C/SOP. Annual recognition of preceptor excellence from the pool of adjunct/volunteer faculty can have a singular focus or can represent a combination of components such as teaching, practice, scholarship, and/or service. Depending on local norms and the goal of the award, a variety of methods and inputs can be used to select awardees and may include student, peer, faculty, and/or office of experiential education perspectives. Nomination and selection criteria should be delineated clearly and communicated to all stakeholders. Awards need not be financial, though a moderate professional stipend toward attendance at a professional meeting, membership, or certification would support the ongoing development of preceptorship and practice. In-kind rewards such as textbooks, library access, or school logo or spirit items are also desirable to many preceptors. A preceptor advisory committee would also provide recognition to preceptors, enhance preceptor provision of feedback and buy-in, and help develop a robust group of preceptors. The College recommends developing a program that recognizes preceptors who display excellence in providing experiential education.

4.3 | Experiential sites

C/SOPs should develop and use criteria for selecting and evaluating sites for IPPEs and APPEs that are consistent with the program's

learning outcomes, the design of the curriculum, and the 2016 ACPE Standards and ACPE Guidance for Standards.^{3,4} IPPE and APPE sites should be licensed and accredited by appropriate licensing and accrediting bodies. Requirements for patient care sites include the availability of enough resources to provide appropriate patient care and student training. These sites should provide routine student access to model preceptors and practitioners, other health professionals and patients, medical and pharmacy records, space to prepare and perform needed functions, drug information resources, and any other needed technology. Sites should also allow pharmacy students to actively participate in delivering patient care. Highly desirable attributes of patient care sites include placing an emphasis on shared decision-making, transitions and continuity of care, and inter-professional collaboration. Sites that have adopted the Pharmacists' Patient Care Process or that are involved in postgraduate training are also desirable. When selecting sites for noncore or elective IPPEs or APPEs that do not focus on direct patient care, there is more flexibility. However, these sites should be appropriately licensed or accredited, have adequate resources to support experiential education, provide opportunities for direct student involvement, and provide access to needed resources. All IPPE and APPE sites should highly support experiential education for pharmacy students, which includes having a well-developed onboarding and orientation system. The site and C/SOP should work together to ensure the establishment of clear parameters for supervisory and communication chains of command, applicable policies and protocols, local norms of practice, and how the student's learning experience and contributions to patient care fit into the whole scope of practice and prevailing practice model.

The spectrum of site selection for IPPEs and APPEs is also very important in ensuring high-quality experiential education. High-quality sites should be selected for all core IPPEs and APPEs. C/SOPs should select APPE sites that provide a wide variety of opportunities for elective experiences in acute, community, ambulatory, and long-term care. In addition, when selecting IPPE sites and, particularly, APPE sites, it is important to ensure that students are exposed to diverse patient populations with respect to age, gender, race, socioeconomic factors, and type of diseases and disorders. Highly desirable elective experiential opportunities include those in telehealth/telepharmacy, specialty pharmacy, global or international health care and pharmacy practice, and emerging practice models.

Site recruitment is an ongoing process. Sites and pharmacy practitioners often participate in the experiential education of future pharmacy professionals because of their desire to give back to the profession.⁶⁹ Training students also challenges pharmacists to continue developing their own knowledge. Effort should be made to continually augment experiences in the APPE program, given that schools often report difficulty in obtaining sufficient quality training sites, particularly for health-system, ambulatory care, and inpatient general medicine experiences.^{70,71} Experiential education leadership should review individual policies and procedures and streamline activities such as the preceptor application process, the methods used to determine preceptor availability, and the student evaluation process to provide a user-friendly environment for preceptors.⁷² Each experiential

education office should maximize its interaction with training sites and preceptors through regular involvement in state and local meetings and visits to training sites.⁷²

Site use can be enhanced through block or sequential scheduling and/or through institutional or clinical track programs. These options may enable students to complete most or all required and elective APPEs at one health system.⁷³⁻⁷⁷ The C/SOP and the experiential site can use an application and/or interview process to best match students to a site.^{73,74,76,77} Advantages of the experiential site include a more efficient onboarding procedure (eg, general orientation is needed only once), increased preceptor collaboration, scheduling of prerequisite rotations before more complex experiences (eg, inpatient internal general medicine before a critical care rotation), more efficient use of teaching resources, and increased preceptor satisfaction. Student advantages include less time spent orienting to the practice site and technology, allowing for increased participation in patient care and medication use responsibilities and opportunities to engage in research and give presentations. These types of experiences allow for increased student mentoring, including goal setting, residency and job application preparation, and other career planning.^{34,73,74,76,77} In addition, students gain knowledge of residency program requirements and activities. Institutions with postgraduate training programs can also gauge each student's suitability as a potential applicant for their residency program.

An experiential education site coordinator can serve as a liaison between the site and the C/SOP and be very helpful in coordinating student and preceptor schedules at the institution to ensure the best use of resources to accomplish student training and patient care activities in addition to facilitating student onboarding, preceptor training, and affiliation agreements between the C/SOP and the practice site.^{70,78} The Joint Commission standards require that health care systems' human resources departments treat students as employees, which leads to more complex and time-consuming paperwork and onboarding requirements.⁷⁹ The site coordinator can ensure that all site requirements (ie, occupational health, human resources, information technology) are completed appropriately before the rotation begins. The site coordinator may partly or wholly be funded by the C/SOP.

Compensation for providing experiential education continues to be inconsistent and ever-changing and is affected by budget, tradition, need, site availability, and philosophic approach. Tighter organizational budgets in pharmacies often lead to decreased commitments to participate in experiential education or increased constraints on the types of learning support and opportunities provided for IPPEs and APPEs. Some C/SOPs have provided compensation for student placements, including direct payment to the site on either a set fee per student or a flat rate for a contractual period. These funds are often used for preceptor professional development, travel to professional meetings, and resources for practice or scholarship. Less commonly, compensation is provided directly to the preceptor. Other C/SOPs do not pay sites or preceptors for providing experiential education. The consequences of providing or not providing compensation to experiential sites are unclear. However, increased competition among C/SOPs for fewer

sites may eventually result in increased provision of compensation. The College encourages C/SOPs to transition from payment systems to sites or individual preceptors to a model of reinvestment in preceptor continuous professional development and advancement, as noted in the 2016 AACP policy statement.⁸⁰ Furthermore, the College encourages C/SOPs in the same geographic region to collaborate with each other and/or through their consortium in coordinating and providing compensation for and resources to their shared preceptors and sites.

4.4 | Quality assurance of the experiential program

A quality assurance system is paramount to developing and maintaining a high-quality experiential program.⁸¹ Important initial steps are development of the criteria, standards, and expectations of preceptors and sites and development of the quality assurance methods and procedures. These criteria, standards, and expectations should be used in initially selecting sites and preceptors, provided to sites and preceptors, and used in ongoing quality assurance. Site visits should be used, when possible, to evaluate sites, preceptors, and the IPPEs and APPEs provided at the site. However, on-site evaluations may not always be possible and may be a major area of concern for many institutions.^{76,82} Virtual site visits may be useful, particularly in performing quality assurance of distant sites and preceptors.⁸³ Site and preceptor evaluations by experiential office personnel should be performed before placing students at the site and then annually, but no less than once every 3 years. Student evaluations of the site, the preceptor(s), and the learning experience after each IPPE and APPE should also be performed and can provide additional valuable information. The College recommends ongoing quality assurance assessments each year.

Continuous quality assurance of preceptors is needed to ensure standardization of key components within the same type of rotation across all sites and to promote consistent assessment of student performance.³ Expected course expectations and outcomes can be facilitated and achieved through an assessment of all sites. The abilities of non-faculty preceptors should be evaluated on four elements: facilitating learning, communicating effectively, serving as a professional role model and mentor, and positively representing and advancing the profession.⁴

Core elements of quality assurance of the experiential educational program include demonstration that IPPEs and APPEs meet the expected outcomes in student abilities in addition to assessments of IPPE and APPE course syllabi, curricular mapping, IPPE and APPE sequencing, and course and site evaluations by students.³ Moreover, quality assurance should extend to additional measures of the organization, including administration and delivery of experiential education, assessments of the quality of students' learning experiences in each type of IPPE and APPE, extent of student roles and engagement in IPPEs and APPEs, overall quality and quantity of sites and preceptors, standardization across sites and among preceptors, and staffing levels at experiential sites and in the C/SOP experiential office(s).^{3,36,71,81,82} C/SOPs are encouraged to include preceptors in ongoing and periodic

comprehensive reviews of the experiential education program. The College also recommends a comprehensive review of the experiential program every 3 to 5 years using input from students, preceptors, site and preceptor evaluators, and experiential office administrators and staff.

5 | SUMMARY OF RECOMMENDATIONS

- **Outcomes:** Striving for excellence in experiential education requires curricular design and delivery that fully integrates the experiential curriculum with both the didactic curriculum and the co-curriculum in a progressive manner to enable the development of the educational outcomes from the 2016 ACPE Standards.
- **EPAs:** The College recommends that C/SOPs adopt the AACP EPA core statements and incorporate the EPAs into the curriculum as a whole - specifically into the activities and assessments for IPPEs and APPEs, including setting appropriate entrustment milestones and remediation plans for progression. In addition, the College recommends that each C/SOP determine the threshold level of entrustment expected to demonstrate APPE readiness and successful completion of each type or phase of IPPEs and APPEs. The College considers incorporation of the EPAs into the entire pharmacy curriculum a primary component of striving for excellence in experiential education and in the curriculum as a whole.
- **APPE readiness:** The College recommends that all C/SOPs develop a multifaceted program to assess student readiness to enter APPEs through assessments of knowledge, skills, and behaviors across the curriculum. The College encourages C/SOPs to adopt a Level 2 of entrustment in core APPEs as part of ensuring APPE readiness.
- **Graduation readiness:** The College recommends that C/SOPs develop criteria and methods to ensure the graduation readiness of all students. The College encourages setting the threshold of a Level 3 of entrustment for all 15 core EPAs as one requirement or expectation for graduation.
- **IPPEs and APPEs:** The College recommends that C/SOPs develop an IPPE curriculum that has a defined set of outcomes, starts in the first year, is fully integrated with the didactic curriculum and co-curriculum, focuses on student participation in patient care settings, and provides exposure to settings that students will experience during their core APPEs. The College also recommends that C/SOPs develop APPEs that enable students to have defined responsibilities and autonomy that further develop their patient care and other pharmacy practice abilities in settings that enhance student abilities, meet accreditation standards, address student needs to explore career options, and provide access to direct patient care, interprofessional collaboration, diverse patient populations, and contemporary and emerging practice environments. The College affirms that the main goal of APPEs is to prepare practice-ready graduates.
- **Instructional methods and structures:** The College recommends the use of instructional methods during IPPEs and APPEs that include active learning through engagement in meaningful patient

care and other pharmacy services; use of the LLPM, when possible; and engagement in IPE activities.

- Students as extenders and enhancers of pharmacy services: The College recommends that students be incorporated into IPPEs and APPEs in a structured, developmental manner that extends and/or enhances pharmacy services and enriches students' pertinent abilities.
- Administration: The College encourages C/SOPs to appoint lead administrators of experiential programs who meet the criteria of being associate or full professors, having at least 5 years of direct experience as a preceptor in IPPEs and/or APPEs, and having completed a residency or equivalent work experience. The College encourages the use of preceptor advisory committees to gather input on the wide range of issues pertinent to experiential education, student preparation, and preceptor roles, training, and development. The College recommends the use of experiential education management systems to assist in administering and delivering the experiential program.
- Preceptors: The College recommends student-to-preceptor ratios of 3:1 or less for IPPEs and 2:1 or less for APPEs, as provided in the 2016 ACPE Guidance for Standards.⁴ In addition, the College recommends the development of preceptor selection criteria, expectations, and quality assurance assessments. Moreover, the College recommends that C/SOPs establish ongoing preceptor orientation and development programs that meet the guidelines outlined in the ACCP white paper on pharmacy practice faculty and preceptor development.⁶⁸ The College recommends routine assessment of preceptor performance and development of a program that recognizes preceptors who display excellence in providing experiential education.
- Sites: The College encourages C/SOPs to transition from payment systems to a model of reinvestment in preceptor continuous professional development and advancement, as noted in the 2016 AACP policy statement.⁸⁰ Furthermore, the College encourages C/SOPs in the same geographic region to collaborate with each other and/or through their consortium in coordinating and providing compensation and resources to their shared preceptors and sites.
- Quality assurance: The College recommends ongoing, annual quality assurance assessments. The College also recommends a comprehensive review of the experiential program every 3 to 5 years using input from students, preceptors, site and preceptor evaluators, and experiential office administrators and staff.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

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REFERENCES

1. American College of Clinical Pharmacy, Haase KK, Smythe MA, et al. Quality experiential education. *Pharmacotherapy*. 2008;28:1547.
2. American College of Clinical Pharmacy, Haase KK, Smythe MA, Orlando PL, Resman-Targoff BH, Smith LS. ACCP position statement: Ensuring quality experiential education. *Pharmacotherapy*. 2008;28:1548-1551.
3. Accreditation Council for Pharmacy Education (ACPE). Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree: ("Standards 2016"). Chicago: ACPE [cited 2020 Mar 25]. Available from: <https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf>.
4. Accreditation Council for Pharmacy Education (ACPE). Guidance for the accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree: ("Guidance for Standards 2016"). Chicago: ACPE [cited 2020 Mar 25]. Available from: <https://www.acpe-accredit.org/pdf/GuidanceforStandards2016FINAL.pdf>.
5. Medina MS, Plaza CM, Stolte SK, et al. Center for the Advancement of Pharmacy Education 2013 educational outcomes. *Am J Pharm Educ*. 2013;77:162.
6. Interprofessional Education Collaborative (IPEC). Core competencies for interprofessional collaborative practice: 2016 update. Washington, DC: IPEC [cited 2020 Mar 25]. Available from: <https://www.ipecollaborative.org/resources.html>.
7. Haines ST, Pittenger AL, Stolte SK, et al. AACP special report: Core entrustable professional activities for new pharmacy graduates. *Am J Pharm Educ*. 2017;81:S2.
8. Murphy JE, Liles AM, Bingham AL, et al. ACCP white paper: Interprofessional education: Principles and application. An update from the American College of Clinical Pharmacy. *J Am Coll Clin Pharm*. 2018;1:e17-e28.
9. American College of Clinical Pharmacy, O'Connell MB, Rodriguez de Bittner M, et al. Cultural competency in health care and its implications for pharmacy part 3A: Emphasis on pharmacy education, curriculums, and future directions. *Pharmacotherapy*. 2013;33:e347-e367.
10. American College of Clinical Pharmacy, O'Connell MB, Jackson AN, et al. Cultural competency in health care and its implications for pharmacy part 3B: Emphasis on pharmacy education policy, procedures, and climate. *Pharmacotherapy*. 2013;33:e368-e381.
11. American College of Clinical Pharmacy, Roth MT, Zlatic TD. Development of student professionalism. *Pharmacotherapy*. 2009;29:749-756.
12. American College of Clinical Pharmacy (ACCP). Tenets of professionalism for pharmacy students. *Pharmacotherapy*. 2009;29:757-759.
13. Joint Commission of Pharmacy Practitioners (JCPP). Pharmacists' patient care process. 2014 [cited 2020 Mar 25]. Available from: https://www.accp.com/docs/positions/misc/JCPP_Pharmacists_Patient_Care_Process.pdf.
14. Ten Cate O. Entrustability of professional activities and competency-based training. *Med Educ*. 2005;39:1176-1177.
15. Haines ST, Gleason BL, Kantorovich A, et al. Report of the 2015-2016 Academic Affairs Standing Committee. *Am J Pharm Educ*. 2016;80:S20.

16. Pittenger AL, Copeland DA, Lacroix MM, et al. Report of the 2016-17 Academic Affairs Standing Committee: Entrustable professional activities implementation roadmap. *Am J Pharm Educ.* 2017;81:S4.
17. Haines ST, Pittenger AL, Plaza CM. Describing entrustable professional activities is merely the first step. *Am J Pharm Educ.* 2017;81:18.
18. Haines ST. Entrustable professional activities: What, why, who, when, how, and what now? *J Am Coll Clin Pharm.* 2019;2:95-97. <https://doi.org/10.1002/jac5.1083>.
19. Ten Cate O, Chen HC, Hoff RG, Peters H, Bok H, van der Schaaf M. Curriculum development for the workplace using entrustable professional activities (EPAs): AMEE Guide No. 99. *Med Teach.* 2015;37:983-1002.
20. Pittenger AL, Chapman SA, Frail CK, Moon JY, Undeberg M, Orzoff JH. Entrustable professional activities for pharmacy practice. *Am J Pharm Educ.* 2016;80:57.
21. Jarrett JB, Brenebrock LA, Goliak KL, Meyer SM, Shaughnessey AF. Entrustable professional activities as a novel framework for pharmacy education. *Am J Pharm Educ.* 2018;82:6256.
22. Rhodes LA, Marcinia MW, McLaughlin J, Melendez CR, Leadon KI, Pinelli NR. Exploratory analysis of entrustable professional activities as a performance measure during early pharmacy practice experiences. *Am J Pharm Educ.* 2019;83:6517.
23. Pittenger AL, Gleason BL, Haines ST, Neely S, Medina MS. Pharmacy student perceptions of entrustable professional activities. *Am J Pharm Educ.* 2019;7274.
24. Haines ST, Pittenger AL, Gleason B, Medina MS, Neely S. Validation of the entrustable professional activities of new pharmacy graduates. *Am J Health Syst Pharm.* 2018;75:1922-1929.
25. Ten Cate O, Scheele F. Competency-based postgraduate training: can we bridge the gap between theory and clinical practice? *Acad Med.* 2007;82:542-547.
26. VanLangen K, Meny L, Bright D, Seiferlein M. Faculty perceptions of entrustable professional activities as a framework for APPE readiness. *Am J Pharm Educ.* 2019;83:7501.
27. Vyas D, Bhutada NS, Feng X. Patient simulation to demonstrate students' competency in core domain abilities prior to beginning advanced pharmacy practice experiences. *Am J Pharm Educ.* 2012;76:176.
28. Ragan RE, Virtue DW, Chi SJ. An assessment program using standardized clients to determine student readiness for clinical practice. *Am J Pharm Educ.* 2013;77:14.
29. Gilliam E, Nuffer W, Thompson M, Vande GJ. Design and activity evaluation of an advanced-introductory pharmacy practice experience (aIPPE) course for assessment of student APPE-readiness. *Curr Pharm Teach Learn.* 2017;9:595-604.
30. Smith JN, Scholtz JM. Impact of a simulated electronic health record on pharmacy students' perceptions of preparedness for clinical practice. *Curr Pharm Teach Learn.* 2018;10:1624-1630.
31. Mészáros K, Barnett MJ, McDonald K, et al. Progress examination for assessing students' readiness for advanced pharmacy practice experiences. *Am J Pharm Educ.* 2009;73:109.
32. Coons JC, Benedict N, Seybert A, et al. A pharmacotherapy scholars program to provide intensive training to enhance pharmacy students' postgraduate readiness. *Am J Pharm Educ.* 2019;83:7327.
33. Lahoz MR, Belliveau P, Gardner A, Morin A. An electronic NAPLEX review program for longitudinal assessment of pharmacy students' knowledge. *Am J Pharm Educ.* 2010;74:128.
34. American College of Clinical Pharmacy, Rathburn RC, Hester EK, et al. Importance of direct patient care in advanced pharmacy practice experiences. *Pharmacotherapy.* 2012;32:e88-e97.
35. Grice GR, Thomason AR, Meny LM, Pinelli NR, Martello JL, Zorek JA. Intentional interprofessional experiential education. *Am J Pharm Educ.* 2018;82:204-208.
36. Danielson J, Besinque KH, Clarke C, et al. Essential elements for core required advanced pharmacy practice experiences. *Am J Pharm Educ.* 2019;83:6865.
37. Bonwell CC, Eison AJ. Active learning: creating excitement in the classroom. Washington, DC: George Washington University Press; 1991. ASHE-ERIC Higher Education Report 1.
38. Lucas KH, Testman JA, Hoyland MN, Kimble AM, Euler ML. Correlation between active-learning coursework and student retention of core content during advanced pharmacy practice experiences. *Am J Pharm Educ.* 2013;77:171.
39. Freeman S, Eddy SL, McDonough M, et al. Active learning increases student performance in science, engineering, and mathematics. *Proc Natl Acad Sci USA.* 2014;111:8410-8415.
40. Loy BM, Yang S, Moss JM, Kemp DW, Brown JN. Application of the layered learning practice model in an academic medical center. *Hosp Pharm.* 2017;52:266-272.
41. Pinelli NR, Eckel SF, Vu MB, Weinberger M, Roth MT. The layered learning practice model: Lesson learned from implementation. *Am J Health Syst Pharm.* 2016;73:2077-2082.
42. Havrda DE, Engle JP, Anderson KC, et al. ACCP guidelines for resident teaching experiences. *Pharmacotherapy.* 2013;33:e147-e161.
43. Bates JS, Buie LW, Lyons K, et al. A study of layered learning in oncology. *Am J Pharm Educ.* 2016;80:68.
44. Bates JS, Buie LW, Amerine LB, et al. Expanding care through a layered learning practice model. *Am J Health Syst Pharm.* 2016;73:1869-1875.
45. Kasper B, Brownfield A. Evaluation of a newly established layered learning model in an ambulatory care practice setting. *Curr Pharm Teach Learn.* 2018;10:925-932.
46. Sin JH, Li H, Jandovitz N, King M, Tsapepas DS. Dynamic interplay of pharmacy learners during a solid organ transplantation learning experience. *J Pharm Pract.* 2018;31:347-352.
47. Cobough DJ. Layered learning: The confluence of pharmacy education and practice. *Am J Health Syst Pharm.* 2016;73:2035.
48. Ignoffo R, Chan L, Knapp K, et al. Efficient and effective precepting of pharmacy students in acute and ambulatory care rotations: A Delphi expert panel study. *Am J Health Syst Pharm.* 2017;74:1570-1578.
49. Lin K, Travlos DV, Wedelin JW, Vlasses PH. Simulation and introductory pharmacy practice experiences. *Am J Pharm Educ.* 2011;75:209.
50. Whalen K, Aistrope D, Ausili J, et al. The report of the 2016-2017 Professional Affairs Standing Committee: Formally embracing and engaging preceptors in the academy - The time has come. *Am J Pharm Educ.* 2017;81:S16.
51. Sauer BL, Heeren DL, Walker RG, King JH, Musallam NA. Computerized documentation of activities of PharmD clerkship students. *Am J Health Syst Pharm.* 1997;54:1727-1732.
52. Pham DQ. Evaluating the impact of clinical interventions by PharmD students on internal medicine clerkships: the results of a 3 year study. *Ann Pharmacother.* 2006;40:1541-1545.
53. Hall DL, Schonder KS, Pater KS, McGivney MS, Meyer SM. Using the pharmacist interaction tracking tool for capturing student-patient interactions in direct and simulated patient care activities. *Am J Pharm Educ.* 2016;80:105.
54. Bio LL, Patterson BJ, Sen S, et al. Variables affecting pharmacy students' patient care interventions during advanced pharmacy practice experiences. *Am J Pharm Educ.* 2016;80:116.
55. Shaver A, Morano M, Pogodzinski J, Fredrick S, Essi D, Slazak E. Impact of a community pharmacy transitions-of-care program on 30-day readmission. *J Am Pharm Assoc.* 2019;59:202-209.
56. Briceland LL, Kane MP, Hamilton RA. Evaluation of patient-care interventions by PharmD clerkship students. *Am J Hosp Pharm.* 1992;49:1130-1132.
57. Brockmiller H, Abel SR, Koh-Knox CP, Birk CW. Cost impact of PharmD candidates' drug therapy recommendations. *Am J Health Syst Pharm.* 1999;56:882-884.

58. Jones JD, Jackson SH, Gomez A, Hollinger C, Rivers G. Evaluation of pharmacy students' clinical interventions on a general medicine practice experience. *Pharm Pract (Granada)*. 2011;9:11–15.
59. Slaughter RL, Erickson SR, Thomson PA. Clinical interventions provided by doctor of pharmacy students. *Ann Pharmacother*. 1994;28:665–670.
60. Lundquist LM, Moye PM. Resident physicians' acceptance of pharmacy students' pharmacotherapy recommendations during an ambulatory care advanced pharmacy practice experience. *Am J Pharm Educ*. 2009;73:145.
61. Divall MV, Zikaras B, Copeland D, Gonyeau M. School-wide clinical intervention system to document pharmacy students' impact on patient care. *Am J Pharm Educ*. 2010;74:14.
62. Packard K, Gibu M, Teply R, Hilleman D, Qi Y. Pharmacy student intervention acceptance on a cardiology rotation. *Pharm Educ*. 2014;14:64–69.
63. Assemi M, Corelli RL, Ambrose PJ. Development needs of volunteer pharmacy practice preceptors. *Am J Pharm Educ*. 2011;75:10.
64. Duke LJ, Unterwagner WL, Byrd DC. Establishment of a multi-state experiential pharmacy program consortium. *Am J Pharm Educ*. 2008;72:62.
65. Brackett PD, Byrd DC, Duke LJ, et al. Barriers to expanding advanced pharmacy practice experience site availability in an experiential education consortium. *Am J Pharm Educ*. 2009;73:82.
66. Taylor RA, Wisneski SS, Kaun MA, Partelano P, Williams J, Goldman MP. Sequential advanced pharmacy practice experiences at one institution for students from three pharmacy schools. *Am J Health Syst Pharm*. 2014;71:140–144.
67. American Society of Health-Systems Pharmacists (ASHP). Required competency areas, goals, and objectives (CAGO) for postgraduate year one (PGY1) pharmacy residency programs. Approved March 8, 2015; Guidance version April 2016.
68. Haase KK, Crannage EF, Orlando PL, et al. ACCP white paper: Pharmacy practice faculty and preceptor development. *J Am Coll Clin Pharm*. 2020;4. In press.
69. Gibson MJ, Bradley-Baker LR, Bush CG, Nelson SP. Reassessment of health-system capacity for experiential education requirements. *Am J Pharm Educ*. 2017;81:6014.
70. Brackbill ML, Weist P, Coffey WL. Standardization of rotation schedules for pharmacy students' advanced practice rotations and potential impact on rotation site availability. *Educ Health (Abingdon)*. 2009;22:226–230.
71. Danielson J, Eccles D, Kwasnik A, Craddick K, Heinz AK. Status of pharmacy practice experience education programs. *Am J Pharm Educ*. 2014;78:72.
72. Tofade TS. Strategies to grow an experiential learning program – The role of administrators. *Curr Pharm Teach Learn*. 2016;8:429–436.
73. Bodenbergs M, Linn B, Sprunger T, Shepler B. Using institutional track programs and block scheduling to help students prepare for postgraduate residency training. *Am J Health Syst Pharm*. 2015;72:1969–1973.
74. Frasiolas JE, Wright K, Dzierba AL. Evaluation of a longitudinal advanced pharmacy practice experience. *Am J Pharm Educ*. 2017;81:52.
75. Tofade TS, Brueckl M, Ross PA. Clinical track program expansion increases rotation capacity for experiential program. *Am J Pharm Educ*. 2017;81:5937.
76. O'Sullivan TA, Sullivan L, Webber K, Weber SS. A pilot comparison of student outcomes between longitudinally and traditionally placed advanced pharmacy practice experiences. *Am J Pharm Educ*. 2019;83:7143.
77. Bodenbergs M, Linn B, Sprunger T, Shepler B. Preceptor perceptions of block scheduling and institutional track programs to prepare APPE students for residency or hospital careers. *Curr Pharm Teach Learn*. 2018;10:997–1003.
78. Hatton RC, Weitzel KW. Complete-block scheduling for advanced pharmacy practice experiences. *Am J Health Syst Pharm*. 2013;70:2144–2151.
79. Danielson J, Kraus C, Jefferson CG, Cleven AJ, Rice LE, O'Sullivan TA. Third-party onboarding organizations as gatekeepers for student placement decisions. *Am J Pharm Educ*. 2018;82:6275.
80. Worrall CL, Aistrope DS, Cardello EA, et al. Priming the preceptor pipeline: Collaboration, resources, and recognition: the report of the 2015-2016 Professional Affairs Standing Committee. *Am J Pharm Educ*. 2016;80:519.
81. Cox CD. Quantity vs quality in experiential education. *Am J Pharm Educ*. 2016;80:36.
82. Danielson J, Craddick K, Eccles D, Kwasnik A, O'Sullivan TA. A qualitative analysis of common concerns about challenges facing pharmacy experiential education programs. *Am J Pharm Educ*. 2015;79:06.
83. Clarke CL, Schott KA, Arnold AD. Preceptor perceptions of virtual quality assurance experiential site visits. *Am J Pharm Educ*. 2018;82:6438.

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