

## AACP REPORTS

### **Academic Pharmacy's Role in Advancing Practice and Assuring Quality in Experiential Education: Report of the 2003-2004 Professional Affairs Committee**

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According to the Bylaws of the AACP, the Professional Affairs Committee is to study issues associated with professional practice as they relate to pharmaceutical education, and to establish and improve working relationships with all other organizations in the field of health affairs. The Committee is also encouraged to address related agenda items relevant to its Bylaws charge and to identify issues for consideration by subsequent committees, task forces, commissions, or other groups.

Consistent with a theme of examining AACP's role in promoting quality and making pharmaceutical care a reality in all practice settings, the Professional Affairs Committee was asked to focus on how AACP might foster organizational improvement and success among its institutional members in establishing a standard of pharmacy practice through improved development and evaluation of experiential learning and experiential learning sites. President-elect Robert A. (Buzz) Kerr specifically charged the 2003-04 AACP Professional Affairs Committee to:

- Review "Approaching the Millennium," the 1997 Report of the AACP Janus Commission,<sup>1</sup> which focused on the academy's dual responsibility of educating graduates capable of providing pharmaceutical care and enabling the profession to achieve its vision of providing pharmaceutical care in all settings. Consider the recommendations of this report related to the evaluation of the comprehensive system of education/practice partnerships and interprofessional relationships that support quality professional experiential education. Identify key suggestions and information to forward for consideration by ACPE in the accreditation standards and guidelines revision

process related to pharmacy practice experience education, services, and facilities.

- Suggest appropriate professional experience program assessment measures or quality indicators that guide institutions in responding to "How do you know if you have a quality professional experience education program?" Students' experiential education should occur in settings with the "highest" or "exemplary" standards of pharmaceutical care practice. How do you recognize "exemplary" pharmaceutical services? The committee should suggest institutional research elements needed to provide evidence of a quality experiential education program and its elements (ie, the learning experiences, the practice environment, and the practitioner-educators).

Background information and resource materials were distributed to committee members prior to a conference call on September 26, 2003. During the conference call the Committee shared preliminary views and discussed their approach to the charge. They decided to begin with identifying quality elements of the components of advanced practice experience which would suggest the areas of focus for the academy in assisting the profession to achieve the implementation of pharmaceutical care as the universal practice performance standard.<sup>1</sup> There was agreement that quality in experiential education is a result of the preceptor (practitioner-educator), the learning experiences (collaboratively designed by student, college and practitioner), and the practice environment. Committee members met on November 14-15, 2003, to discuss their preliminary work on quality indicators and to formulate recommendations for the

academy. The Committee completed its work through conference calls and electronic communications.

The Committee agreed to the following structure for their response to the charge. That is, this report is intended to:

A. Identify criteria for evaluating the quality of the practice environment (training sites) in which the educational experiences are conducted, the practitioner educators (preceptors), and advanced professional experiential education core learning experiences. Specifically, if called on to describe a quality professional experience education program, what would we say? What is the evidence on which to base the assertion of quality? It was felt that this question was key to identifying the assessment measures that guide institutions in assuring quality and identifying possible gaps in current standards.

B. Suggest strategies, resources, and services that AACP can offer to members to foster improvement toward quality in experiential education. Make recommendations relative to assuring quality in experiential education for consideration by ACPE in the standards revision process. Identify elements of a quality practice site consistent with the academy's and profession's shared vision for providing pharmaceutical care in all practice settings and suggest strategies that AACP and individual member institutions can adopt to enhance quality in practice through the education/practice partnerships and interprofessional relationships that support quality experiential education.

## **BACKGROUND**

President Kerr requested that the Committee review the Report of the AACP Janus Commission<sup>1</sup> in the context of enhancing quality in practice through the practice/education partnerships that serve as the foundation for experiential education. This Commission was appointed by 1995–96 AACP President Mary Anne Koda-Kimble and was charged to identify, analyze, and predict changes in the health care environment that were most likely to influence pharmacy practice, education, and research. Furthermore, the Commission was charged to educate the academy about the threats and opportunities that such environmental changes present. The Commission's recommendations focused on meeting the pharmaceutical education challenges posed by far-reaching and rapid changes in the health care environment. The Commission suggested an aggressive approach for the academy, working in collaboration with the profession of pharmacy to promote the delivery of pharmaceutical care and foster enhanced practice/education partnerships. In their view, the academy must lead the effort to implement pharma-

ceutical care within the health care system by “(a) continually refining the product and processes of pharmaceutical education at least as rapidly as the environment in which our graduates will practice is changing and (b) by influencing that health care environment through communication and involvement with it and conducting research relevant to it.” Just three years prior, the AACP membership had committed to pharmaceutical care as the mission of pharmacy practice and to the education and training of pharmacy practitioners to provide pharmaceutical care as the mission of pharmaceutical education. As stated in the 1997 Janus Commission Report, “The concept of pharmaceutical care is widely embraced as pharmacy's mission in health care... however the philosophy has not yet been translated into universal practice performance.”<sup>1</sup>

The 2001–02 Professional Affairs Committee recognized the potential for change in practice related to the changes in educational preparation of today's graduates.

The educational preparation of pharmacists has changed significantly. The baccalaureate degree in pharmacy is not eligible for accreditation after 2004. The PharmD curriculum has changed pharmacy graduates. More mature students from diverse backgrounds are enrolled in a doctoral program that offers enhanced depth and breadth of pharmaceutical and health care education and experiences. This combination has created graduates with a different level of professional confidence and vision for practice—minimizing drug misadventures through assessment, counseling and follow-up to optimize appropriate use and outcomes of drug therapy (pharmaceutical care)—in all settings.<sup>2,3</sup>

The academy bears responsibility to ensure that the curriculum is a dynamic and evolving program of learning experiences (both didactic and experiential), responsive to developments in science, technology, practice and public policy. Therefore, each individual school must implement a continuous quality improvement process that includes self-study, outcomes assessment and curricular revisions as appropriate to ensure that graduates are prepared to lead advances in practice and adapt to change throughout their professional career.<sup>3</sup>

Experiential education in the Doctor of Pharmacy curriculum has evolved in scope and depth to include both introductory and advanced practice experience. Advanced Practice Experience (APE) offers significant opportunity for education to exert influence in the healthcare environment. The comprehensive system of education/practice partnerships and interprofessional relationships that support quality professional experiential education also contribute to exemplary patient care. This report is focused on quality indicators in APE as an important means for the

profession to achieve its vision of providing pharmaceutical care in all settings. Through communication, shared vision, involvement and investment (eg, shared faculty positions), training, and professional development for preceptors (both as educators and practitioners), the academy can influence change in practice which will meet not only the need for educating our students, but contribute to the societal need for patient-centered quality care.

### **PROGRAMMATIC QUALITY**

In making recommendations for ensuring exemplary standards in APEs, this report draws heavily upon previous work examining pharmacy practice experiential education. In 1994, Campagna and colleagues proposed Standards and Guidelines for Pharmacy Practice Experience Programs.<sup>4</sup> This comprehensive paper offers 29 standards and considerable detail in regard to developing, managing and evaluating experiential programming. While this remains a valuable reference (key components remain consistent with current needs), consideration should be given to reviewing and updating this document on a periodic basis.

An analysis by Harralson in 2003 provides insight to the current financial, personnel, and curricular status of APE programs as well as comparisons to previous reports.<sup>5</sup> The results strongly indicate a need for accurate assessment of the level of institutional investment in personnel and financial resources in experiential education. The study found that the majority of experiential program directors are within their first five years of licensure, have limited administrative training and limited resources with which to develop new programming. Although experiential training accounts for more than 25 percent of most pharmacy curricula, financial support (total cost as percent of expense budget) varied widely among colleges/schools of pharmacy (range from 1 to 27 percent). While individual programs differ in governance (public or private), size, and mission, some characterizations of APEs at the national level can be made. About 82 percent of colleges/schools use some faculty jointly funded with a practice site, while up to 60 percent of total rotations nationally are taught by adjunct or volunteer faculty.<sup>5</sup> Concerns regarding these findings have been reiterated in recent AACP publications including the report of the 2002–2003 Professional Affairs Committee<sup>6</sup> and the Pharmacy Practice Section/Professional Experience Programs Special Interest Group Preceptor Development Task Force Report for the Development of Pharmacy Practice Preceptors.<sup>7</sup>

Given dynamic change in the practice environment and curriculum, opportunities for building quality assurance and addressing challenges continue to evolve, but the need for investment and leadership remains constant.

Articulating the college or school vision for leading practice change is a shared leadership responsibility of the dean and the faculty/administrators who function at the academic/practice interface. The academic leaders "...who support practice faculty and initiatives at the academic/practice interface facilitate the academic/practice partnerships, garner resources, negotiate financial arrangements, cultivate opportunities, appoint personnel, and drive the shared vision."<sup>6</sup>

Colleges and schools of pharmacy are in a unique position to promote the profession through community involvement, student service activities, and alliances with state boards of pharmacy and professional organizations. Providing support for state initiatives toward the development of collaborative practice agreements and immunization privileges to expand pharmacists' scope of practice is one such example. Coordinated efforts are essential for continued success and provide positive examples for students, improve patient care and ultimately enhance experiential education opportunities.

Self-study, assessment, benchmarking and program monitoring to ensure quality require good data. Colleges and schools of pharmacy need accurate individual and pooled measures of resource investment in the experiential education component of their programs. Additionally, accreditation standards and guidelines for this significant portion of the professional curriculum should be easily identifiable.

**Recommendation 1.** AACP should collect data through its institutional research service that provide evidence of resources allocated to the experiential instructional component of the Doctor of Pharmacy program to assist colleges/schools of pharmacy in program assessment.

**Recommendation 2.** AACP should recommend that a new standard specific to experiential education be included in the ACPE standards revision.

**Suggestion 1.** Colleges and schools of pharmacy should allocate resources sufficient to achieve quality standards in experiential education.

### **PRACTICE ENVIRONMENT**

The expectations of colleges/schools of pharmacy, consistent with ACPE accreditation standards, are that pharmacy student training will take place in exemplary pharmacy practice sites. The evolution of progressive, patient-focused pharmacy practice has and continues to occur in part due to collaborative and mutually supportive relationships between colleges/schools of pharmacy and health care facilities. It is the ideal that all pharmacy students are assigned to diverse practice settings where

highly professional and patient-focused pharmacy services are provided.

With the implementation of the entry level PharmD degree by all colleges/schools of pharmacy, there has been a dramatic increase in the number of experiential sites needed to meet curricular requirements and accreditation standards. In addition, the increased enrollment of pharmacy students, both as a result of new pharmacy programs and increased class sizes at existing colleges/schools, has increased the demand and competition for exemplary sites. Concurrently, financial pressures, resulting from declining reimbursement for traditional pharmacy services in community pharmacy and hospitals, as well as the lack of pharmacist compensation for direct patient care services, have made it difficult to maintain let alone expand progressive pharmacist services. The shortage of pharmacists, both as practitioners and educators, has further complicated the ability of the health care system to support advanced experiential education in all settings.

Despite continued documentation of the value of patient-focused pharmacist services in acute care, community and ambulatory care settings, and many new non-traditional practice settings where the value of pharmacist education and training is sought (creating new educational needs and opportunities), many colleges/schools of pharmacy today are challenged to sustain let alone grow the number of exemplary practice sites that provide experiential education. To further complicate the situation for public institutions, state support for higher education has decreased significantly over the past several years thereby limiting opportunities for shared investment in innovative practice models. The passage of federal and state legislation that provides payments for medication management services could provide the financial incentives to more rapidly shift to a pharmaceutical care model. Such a shift could foster new partnerships between the pharmacy practice and academic communities to increase the number of exemplary practice sites.

While the settings in which experiential education occurs are becoming more diversified, hospitals and related health systems continue as an important setting for pharmacy student training. Many public university colleges/schools of pharmacy work closely with the pharmacy services within their academic health centers. Many private colleges/schools also have close working relationships with academic medical centers where there is no college of pharmacy within the institution. When dealing with academic health centers, there traditionally has been similarity in missions related to education, patient care and research. A survey, conducted by the University Health System Consortium (UHC) in 1995,

showed significant variability in the structure and nature of the relationships between hospitals and colleges.<sup>8-10</sup> While offering numerous suggestions for improving relationships between sites and colleges, the common themes evolved around effective communication and positive relationships between Directors of Pharmacy, Pharmacy Practice Chairs and Deans.

Given the challenges that have evolved since the mid 1990s for both hospitals and colleges, the growth in student training now provided in community based hospitals, and other issues noted previously in this paper, it would suggest that models of success and how challenges in these relationships have been addressed should be evaluated and shared at professional meetings and in publications. One example is a synergistic partnership that was developed between the University of Utah College of Pharmacy and the Pharmacy Department at the University Hospitals and Clinics in response to the growth and financial impact of managed care in the Salt Lake Valley in the 1990s.<sup>11</sup> In addition to training of students, other models have been implemented for post-graduate residency training that benefit the colleges/schools of pharmacy and institutions as well as students and residents.<sup>12</sup>

Since the majority of graduating students practice in community pharmacy there has been increasing attention by colleges/schools of pharmacy to develop and support community pharmacy practice models that provide progressive patient care services. The challenges of evolving the role of the community pharmacist into the dual role of both dispensing and patient care are well articulated in the white paper written jointly by NACDS, APhA and NCPA.<sup>13</sup> This paper outlines strategies and action steps needed to advance community pharmacy including recommendations involving the academic community. These include:

- Increase the number of quality community pharmacy experiential training sites for PharmD students commensurate with the number of students necessary to populate the field.
- Continue to develop shared faculty positions between community pharmacy and pharmacy colleges/schools.
- Develop a model program for community practice experience.
- Develop community pharmacy residency programs.

Results from a 2003 survey of community pharmacy preceptors and experiential coordinators conducted by ACPE concluded that "the nature and extent of pharmaceutical care services to which students are exposed in community pharmacy practice experiences in relation to those called for in Standards 2000 are emerging, but further

improvement is needed.<sup>14</sup> The improvement may in part reflect the growth in shared faculty positions between colleges and community pharmacy organizations, and the growth of community pharmacy residency programs. Other opportunities exist for academia and community pharmacy practitioners to address the nonacademic challenges identified in the white paper that will advance the role of community pharmacy and in turn student experiences.

Similar opportunities and challenges exist for colleges/schools to partner with pharmacy practitioners in advancing practice in other practice settings. ASCP has published a policy statement on the inclusion of geriatrics in the pharmacy school supporting the development of clerkship training as well as residency and fellowship training consistent with a continuum of care for the elderly population.<sup>15</sup> Other practice areas include home care, managed care, nuclear pharmacy, poison centers and numerous acute and ambulatory care specialty practice areas. Growing employment of pharmacists in the pharmaceutical industry, medical communications companies, and government agencies create new and unique opportunities for experiential education of pharmacy students.

Meeting the experiential educational needs of today's students to address the practice needs of tomorrow will require a renewed effort by both the academic and practice communities.

### **Exemplary APE Practice Sites**

In spite of the challenges, the papers cited previously along with the collective experience of Committee members enable one to identify practice characteristics that most likely will foster and sustain quality APEs. The characteristics may be divided into three general categories – organizational philosophy and values, site resources, and college resources.

#### **Organizational Philosophy and Values:**

- The mission statement (or similar statement of organizational values) of the practice site identifies education as a priority.
- The management staff of the practice site is supportive of professional staff involvement in education of pharmacy students.
- The practice environment nurtures and supports pharmacist and student interaction with patients.
- An affiliation agreement between the site and the college/school has been executed to define responsibilities, commitments and expectations.

#### **Site Resources That Foster Positive Educational Experiences:**

- The practice site meets or exceeds all legal and

professional standards required to provide pharmaceutical care.

- The practice environment is designed (space, privacy and access to patient information) such that practitioners and students can interact with patients in a manner that supports provision of pharmaceutical care and attainment of student learning objectives.
- Practitioners and students have access to current and robust biomedical and drug information resources.
- Patient and pharmacy information systems provide students access in a manner that allows them to support preceptor directed provision of pharmaceutical care and other activities consistent with college/school learning objectives while meeting security and confidentiality requirements.
- Students and preceptors have access to intranet and/or Internet based resources that facilitate college/site communications in support of the expectations/learning objectives and evaluation of students.
- The patient population at the practice site is accessible to the students and consistent with the learning objectives for the type of rotation.
- The practice site affords the student an appropriate level of patient encounters to ensure proficiency in providing pharmaceutical care to patients with confounding conditions.
- The site and preceptor supports and fosters an active learning experience for pharmacy students.
- The site provides for direct interaction between pharmacy students and other health care professionals (eg, physicians, nurses, dieticians, etc) When appropriate, pharmacy students are engaged in interprofessional education with students of other health professions.
- The practice site demonstrates the willingness to adapt rotational experiences to each student's knowledge, experience and skills sets.
- The site demonstrates a commitment to continuous quality improvement that leads to medication system improvements, staff development, and enhanced medication safety.

#### **College Support of Practice Site and Student Learning Experiences:**

- The college/school of pharmacy actively supports the site in the development and provision of patient focused pharmaceutical care services. This may include but is not limited to providing preceptor education and training, faculty that support

provision of pharmaceutical care and pharmacy services, resource support that enables site-based preceptors to enhance their service and related teaching responsibilities, access to college based resources (faculty, drug information resources, research collaboration, etc), and collaboration on other teaching and scholarly endeavors including resident/fellow training, research, staff development and competency assessment, etc.

- The college/school supports site-based education and training programs that mutually benefit both organizations (eg, sponsoring ASHP Residency Learning System (RLS) training for sites with residency programs).
- The college/school demonstrates an ongoing commitment to monitor the quality of the educational experience provided by sites.
- There is ongoing feedback to sites and preceptors on an individual basis. The college/school incorporates site assessment findings into administrative and faculty efforts to enhance the overall experiential learning experience.
- Site and preceptor input is invited and utilized when changes in experiential education or curriculum are being considered.
- The college/school delineates clearly the responsibilities and benefits of practitioner appointments, with or without direct salary support.

**Recommendation 3.** AACP should advocate for payment for medication therapy management services provided by a pharmacist.

**Recommendation 4.** AACP should partner with national practitioner organizations to plan strategies for the development of exemplary practice sites and preceptors.

**Suggestion 2.** Colleges and schools of pharmacy should continually engage with state boards and practitioner associations at the local level through development of committees/task forces to enhance the quality of experiential education.

## **PRACTITIONER EDUCATORS**

Although colleges/schools of pharmacy have expanded their full-time clinical faculty in recent years, full-time faculty teach less than one-third of the APE rotations nationwide.<sup>5</sup> Following longstanding tradition in the health care professions, the experiential component of pharmacy education today relies heavily on volunteer and adjunct faculty to provide practical experience in the health care setting. The typical APE program utilizes a network of 250 adjunct or volunteer faculty

based at 150 affiliated sites.<sup>5</sup> Adjunct and volunteer practitioner faculty provide the majority of APE rotations at most colleges/schools of pharmacy and are crucial for the success of academic programs.

## **Identifying, Developing and Maintaining Exemplary Preceptors**

There is general agreement that a quality APE depends on a complex interplay of the practice environment, well-crafted learning objectives, and preceptor teaching effectiveness. Student factors, such as motivation, enthusiasm and interest, also play an essential role. Although many factors for a successful APE are important, preceptor teaching effectiveness is arguably the least well understood. Despite the fact that experiential directors cite “finding, developing, and maintaining both sites and preceptors” as their most pressing concern,<sup>5</sup> the pharmacy literature in this area is limited. The literature with respect to medical student training, however, offers some insight and in many respects is directly applicable to pharmacy students.

The continually increasing need for introductory and APE training sites and qualified preceptors, combined with decreasing supplies of both, has created a crisis for many experiential program directors. Much, if not all, of their time is devoted to identifying and maintaining an adequate supply of quality preceptors. Although not always realized, the goal of every experiential program is to identify, train and maintain quality preceptors. The process for identifying preceptors is institution-specific. The minimum requirements and qualifications established by colleges and schools of pharmacy for preceptors involve several attributes, many of which are demographic in nature. Attributes and attainments commonly considered in recruiting and retaining APE preceptors are listed in Table 1. Minimally, preceptors must have a pharmacy degree, be licensed to practice, technically competent, non-discriminatory, and have an interest in educating others. Advanced training or certification, professional and/or community service involvement, and philosophies congruent with institutional missions are also desirable qualifications.

In addition to personal characteristics, there are several institution-specific factors that may directly affect experiential programming such as private vs public funding, affiliation with academic health centers, number of students per class, number of clinical faculty, and state board requirements. Most colleges/schools have developed an application process for preceptors in an attempt to identify characteristics of specific importance to the institution. Preceptors may be asked a variety of questions in order to ascertain professional, personal and educational interests. Interviews are typically not undertaken and if so, the

Table 1. Preceptor Attributes and Attainments

Degree(s)	BS Pharmacy PharmD MS, MBA, MPH, or other advanced degree
Postgraduate training	Residency Fellowship
Personal motivation	Willingness/interest in educating students
Professional competence	Practical experience ( $\pm$ designated time period) Continuing professional education (preceptor-specific requirements) Certificate programs Certification (CPR/ACLS, CDE, BCPS, CDM, CGP, CACP, AE-C, etc.)
Compliant with nondiscriminatory policy	Gender, race, religion, etc. Physical restrictions College/school/program
Extracurricular activities and leadership	Involvement with professional organizations (state and/or national) Community service
Active licensure	No state board or other legal violations ( $\pm$ designated time period)
Practice activities	Interaction with patients and/or health care providers
Technologic proficiency	
Individual or corporate requirements for participation	Volunteer, need for financial remuneration, in-kind benefits, other

Table 2. Preceptor Characteristics That Promote Teaching Effectiveness<sup>16-18</sup>

Approachable and establishes a good learning environment.
Available to the student for interaction and discussion.
Treats the student with trust and respect in their interactions.
Demonstrates interest and enthusiasm in teaching.
Explains the decision-making process to the student and asks questions that promote learning.
Stimulates the student to learn independently and allows autonomy that is appropriate to the student's level of experience and competence.
Regularly provides meaningful feedback to the student, both positive and negative, in a timely manner.
Is a good role model for the student and inspires student confidence in preceptor's technical skills.
Aware of the clerkship goals and objectives and seeks to meet them.

\*Adapted from Copeland,<sup>16</sup> Elnicki,<sup>17</sup> and Mazor.<sup>18</sup>

process is informal in comparison to faculty recruitment. The true depth or potential for teaching effectiveness may not be fully appreciated by these screening methods.

From an administrative perspective, mutually beneficial relationships between colleges/schools of pharmacy and preceptors are essential. In many instances these relationships may need to extend to the level of the site or parent institution because of administrative or other issues (eg, HIPAA, liability). Each relationship should include a clear description of expectations, feedback, communication and professional development mechanisms. Assessment strategies that are timely, easy to administer and compile should be incorporated throughout. Use of standardized instruments would be ideal.

### Quality Assessment

Although it may not be possible to assess on an a priori basis, the long-term viability of a preceptor requires

an acceptable level of teaching effectiveness. This effectiveness may best be thought of as a set of preceptor characteristics that are most conducive to effective learning (Table 2).<sup>16-18</sup>

The “perceived” effectiveness of preceptors may also depend, to some extent, on characteristics of the observer. In one study of clinical teaching effectiveness, student outcomes showed several interesting differences when compared in terms of pre-clerkship GPA, age, and undergraduate major.<sup>19</sup> In this study, younger medical students, those with lower grades, and those from primarily science backgrounds tended to focus on issues such as preceptor availability, adherence to schedules, and time off. Students who were older, who had better grades, and who were enrolled in non-science majors focused on issues such as being directed toward important reading and allowance for an appropriate level of autonomy.

Given the difficulty in determining whether a new preceptor will exhibit the qualities that are thought to be associated with teaching effectiveness, perhaps more effort should be directed toward an ongoing assessment plan for preceptors. The obvious benefits of this approach would be to acknowledge skilled preceptors and to work with those who need improvement. Provision of timely feedback to preceptors is as essential as it is for students.

What methods exist to evaluate the teaching effectiveness of preceptors? Student evaluations are often criticized as being subjective, however much may depend on instrument design. It may be beneficial to develop a list of standardized questions designed to solicit factual-based responses. In addition the use of a clearly defined rubric to facilitate preceptor rating may enhance objectivity of response. Individual item and overall score analyses could be used to rank preceptors objectively. An additional benefit from a concerted, more thoughtful approach to preceptor assessment is that some of the information obtained could be used during the rotation selection process (ie, link personalities and interests) and to develop preceptor training programs.

Many colleges/schools utilize site visits to directly observe and evaluate site and preceptor qualifications. A list of specific questions, similar to those contained on the preceptor evaluation, can be used to facilitate discussions with preceptors, students, other healthcare providers, staff and patients. Faculty, staff or other designated individuals can be trained to conduct these interviews to ensure objectivity. Standardization of this process and assessment tool in concert with preceptor evaluations would be potentially powerful. Similarity of questions would allow for comparisons between student and assessor perceptions.

Consideration should be given to the development of standardized assessment instruments for use at all colleges/schools. Additional (institution-specific) items can be added at the level of the individual institution. Standardization would afford the opportunity for national comparisons, the data from which would be incredibly valuable in light of the different curricula and programmatic structures (3-year vs 4-year, single campus vs multi-campus, traditional vs web-based and nontraditional programs).

Similar to didactic teaching, peer evaluation of preceptors has also been suggested. Again guidelines and instruments developed in concert with those previously mentioned may be useful if additional information becomes necessary or requested by the preceptor. Self-assessments can also be undertaken, and are a wonderful

means of reflection and personal development. Use of existing instruments should be sufficient for self-reflection efforts.

### **Training and Development**

Another area of tremendous interest is preceptor training programs. Presently colleges/schools across the country are struggling to develop programs that will sufficiently meet the needs of all preceptors (including clinical faculty). Resources and barriers such as preceptor availability plague these efforts. To this end the recent report by the Pharmacy Practice Section/Professional Experience Programs Special Interest Group Preceptor Development task force outlines the need for a more coordinated effort toward preceptor development.<sup>7</sup>

The task force report provides nine recommendations, including the need for a national preceptor training program to address individual skill sets from the very basic, entry-level to the more seasoned, veteran preceptor. The development of certificate programs and utilization of technology was suggested to further meet the needs of preceptors and overcome barriers such as availability and travel. Lastly, coordination of efforts among colleges/schools was encouraged in order to ease burdens, foster collegiality and ensure standardization. Additional goals include developing a database of preceptors to facilitate the efforts of experiential program directors and standardized quality assurance measures. These recommendations have cost implications in terms of time invested and resources, both physical and financial (Table 3).

Unfortunately for many preceptors, barriers such as time constraints, academic expectations, and economic factors such as resources or administrative support overshadow interest. Commitment to identifying and working through these barriers is essential. Standardized methods for addressing barriers may not be possible for most are institution-specific. However, commonalities across institutions are probable, therefore it may be beneficial to develop a central database or discussion board for collection and dissemination of successes and failures.

Despite the existence of standards and guidelines, colleges/schools of pharmacy continue to struggle with respect to their experiential education departments in part because of the dramatic changes that have occurred in the profession (ie, pharmacist shortage) and the general decline in capacity of available health care resources. The development of national accreditation standards, assessment tools and a preceptor training program would spearhead advancement. In order for the profession to move forward, coordinated efforts are necessary. Task forces should be constituted to revise the previously developed

Table 3. Resource Commitments

Financial support	Experiential education program budget, preceptor training, preceptor compensation, etc.
Administrative support	College/school of pharmacy backing Staff
Technology	College/school of pharmacy Preceptor/site
Preceptor development	Reference materials and other resources Training programs Orientation to institution, program and process Instruction on how to be an effective preceptor/educator Time management skills Mentoring programs (peer support)

Standards and Guidelines<sup>4</sup> and review existing preceptor criteria and assessment tools to facilitate standardization. All of these efforts would be the first step in the development of a toolkit for experiential program directors. Steady progress toward these goals may help ensure quality education and in part the future success of the profession. To quote Dr. Marilyn Speedie "...by reaching beyond ourselves, we will indirectly be more effective in advancing our own agenda."<sup>20</sup> Although made in reference to interprofessional education, the sentiment is also applicable to experiential programs.

**Recommendation 5.** AACP should assist in the development of national standards for preceptors.

**Recommendation 6.** AACP should facilitate development of standard assessment instruments for preceptor evaluation and quality assurance for use at all colleges/schools of pharmacy.

**Recommendation 7.** The AACP PEP SIG should produce and maintain an annotated bibliography of resources available for professional experience program directors.

**Suggestion 3.** Colleges/schools of pharmacy should have an ongoing program in teaching effectiveness for the professional experiential program that includes these elements: delineation and clarification of expectations; assessment with feedback to site and preceptor; professional development for preceptors.

## LEARNING EXPERIENCES

### General Concepts About Exemplary Learning Experiences

Experiential education relies on the student being placed in an active learning environment as the major source of learning.<sup>21,22</sup> However, while the learner's experience is the major source of learning, it requires considerable planning to create authentic and meaningful learning

experiences that enable the learner to acquire the knowledge, skills, and attitudes required in professional practice. An exemplary learning experience forces the learner to become explicitly aware of the experience. Indeed, one of the principle roles of the experiential preceptor is to help the learner to reflect on the experience and relate it back to theories previously learned in the classroom.

Experiential learning is often described as a cycle where the learner personally engages in an authentic "real life" experience, reviews the experience with a knowledgeable role model, relates the experience to previous knowledge, becomes aware of performance gaps, and identifies future learning needs (see Figure 1).<sup>21,23,24</sup> While experiential learning values the learner's own experiences and fosters increasing learner independence, it requires a commitment by the learner to the process. The preceptor is responsible for planning for the experience, increasing the learner's awareness of the experience, and providing feedback regarding the learner's performance.

Exemplary APEs are, arguably, the key to achieving excellence in pharmacy education.<sup>24,25</sup> As such, they should focus on solving problems for individual patients as well as improving the care for populations of patients. It is only through these experiences that pharmacy students integrate

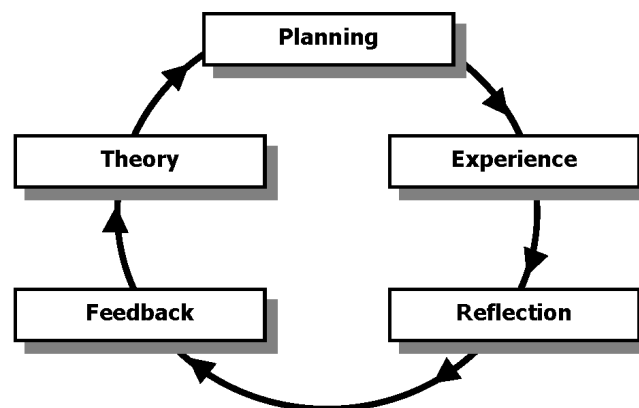


Figure 1. Experiential learning cycle<sup>21,23,24</sup>

the skills—therapeutic decision-making, empathy, and professionalism—needed to be effective practitioners.

There are numerous challenges and potential pitfalls to experiential education. Advanced practice experiences, in particular, are often criticized for being haphazard, inconsistent, and intellectually lax.<sup>21,23</sup> Many APEs lack clear learning objectives leaving students and preceptors unsure of the performance expectations. Preceptors often lack formal training in educational psychology, teaching methodology, and performance evaluation. Further, many of the seemingly best preceptors are assigned heavy student loads at a time when they face increasing patient care responsibilities as well as demands to participate in administrative tasks and engage in research. Additionally, many practice settings lack sufficient privacy and space in which meaningful encounters between students, patients, and preceptors can occur. It is therefore not surprising that preceptors frequently have students passively observing them perform their work or use students to carry out merely technical tasks. Actively engaging students by giving them one or more substantive responsibilities related to patient care requires considerable time and commitment from the preceptor. The outcome statements developed by the Association's Center for the Advancement of Pharmaceutical Education (CAPE) provide a guide for defining performance outcomes of exemplary Experiential Education Programs.<sup>26</sup> The CAPE outcomes have been used to create standardized assessment criteria for community pharmacy APEs, allowing for the evaluation of specific outcomes that are linked to learning activities occurring during the clerkship.<sup>27</sup> This approach could be implemented for all APEs within a professional experience program. Using standardized CAPE-based performance outcomes that are reviewed and updated periodically would enable programs to document the achievement of all required clerkship objectives for each student prior to graduation. For a suggested framework linking activities/performance objectives to CAPE outcomes see Appendix 1. Two sets of activities/performance objectives are presented (ie, those that are recommended to be required and those recommended to be value-added).

### **Value of Multiple Required Practice Experiences**

An exemplary experiential learning program provides the learner with multiple opportunities to observe best practice behaviors by preceptors in a variety of settings and, more importantly, to model and repeatedly practice newly acquired skills. Currently, ACPE accreditation standards recommend that APEs take place “in a variety of practice settings” and that core experiences “develop pharmaceutical care capabilities in inpatient and

ambulatory settings.” In reference to the doctor of pharmacy curricula offered by colleges/schools of pharmacy, the guidelines state they should “offer a curriculum in pharmacy intended to prepare its graduates to become generalist practitioners of pharmacy.”<sup>28</sup> These criteria are designed to ensure that students are exposed to diverse practice settings. They also presume this will lead to the acquisition of skills needed to be a competent generalist practitioner, capable of functioning in a variety of practice settings. However, current accreditation standards do not define a process for ensuring that pharmacy graduates have demonstrated and achieved the desired competencies and outcomes in diverse practice settings.

Several surveys of pharmacy practice activities in diverse pharmacy settings including acute care (institution/hospital) and chronic care (ambulatory/community) suggest that practice activities vary between settings.<sup>29-34</sup> With diverse practice responsibilities comes the need for knowledge and skills unique to each setting. In order for students to be able to succeed in diverse settings, they must obtain and demonstrate the knowledge, skills and attitudes needed for these settings. APEs currently offer students the opportunity to practice these skills in a variety of settings, but likely do not ensure that students have achieved and demonstrated all of the desired programmatic outcomes in each area (acute care and chronic care settings). This goal could be accomplished by requiring students to demonstrate and be evaluated on all the pre-defined CAPE outcomes in both an acute and a chronic care setting, independently. This approach should document the student's ability to perform in each setting, and would result in a student who is better prepared to practice in diverse settings.

**Recommendation 8.** AACP should advocate for ACPE accreditation standards which ensure that every student has multiple opportunities to perform pharmaceutical care activities (as defined by CAPE) in a variety of settings (including acute care, long-term care, home care and community/ambulatory care). Students must be formally evaluated on their ability to perform each of the pharmaceutical care performance outcomes in both one acute care and one chronic care setting independent of each other.

### **Portfolios to Track Student Performance/Document Educational Outcomes**

Portfolios have increasingly been used in medical, nursing, and pharmacy education as a means to document student experiences in a systematic manner as well as to identify learning needs and gaps.<sup>35-37</sup> A well-designed portfolio-based assessment system is an integrated, holis-

tic approach to validating student performance and assuring competence. An attractive feature of using portfolios to document and assess student performance is that it includes a breadth of evidence related to a variety of experiences and takes into account multiple perspectives. A portfolio can be used by the learner and advisors to identify the student's strengths and weaknesses in order to develop an appropriate educational plan. Portfolio-based documentation systems have been adopted by a handful of institutions and credentialing bodies to ensure competency.<sup>38-40</sup> In pharmacy, portfolios are commonly used by residency training programs to track the learner's progress and to ensure that all of the learning objectives have been met.<sup>41</sup> In this context, portfolios are also extremely valuable during the residency accreditation process.

An experiential learning portfolio is a tangible record of what the learner has done.<sup>21,37</sup> In most cases, the learner is responsible for developing and maintaining the portfolio by documenting their learning, either during the experience or shortly thereafter, and then storing these documents in a systematic manner. A portfolio may include logbook entries, case descriptions, SOAP notes, research projects, presentation handouts, commentaries on research articles or books, and written evaluations from preceptors.<sup>37,42-44</sup> A portfolio should contain all documents relevant to the period of training and should be used to provide periodic feedback to the learner. For example, a portfolio containing all of the documents related to a student's APEs could be used by the professional experience program director or an advisor to track student performance as well as guide the selection of future learning experiences (eg, electives). A portfolio would also be an invaluable tool to assure that a student has met the requirements for graduation.<sup>45</sup>

There are several potential drawbacks to creating a portfolio-based experiential learning documentation system. Building and maintaining a portfolio is time consuming.<sup>21,37</sup> It requires a diligent effort on the part of the student, preceptors, advisors, and experiential learning staff. If preceptors and advisors fail to regularly inquire about the student's portfolio and use it in any meaningful way, the student will quickly abandon any effort to build or maintain it. It is not always practical or desirable to immediately document every learning experience. Indeed, some students complain that too much emphasis on documenting the experience can interfere with learning.<sup>46</sup> Portfolios can grow to become rather large, unwieldy tomes filled with a haphazard collection of indiscriminate documents. Portfolios have little value if the information is not readily accessible, easily retrievable, and well organized. Web-based portfolios have the

potential to overcome these barriers.<sup>47</sup> Students, faculty, preceptors, and the Professional Experiential Program Director could easily post and retrieve information on a web-based system. Unfortunately, portfolio software is not yet commercially available. Ideally, portfolio software designed for use by colleges and schools of pharmacy should be explicitly linked to the CAPE outcomes and would be able to generate reports that provide supporting documentation for ACPE accreditation. Given that the portfolio would contain personal information regarding a student's performance, there are several issues that must be addressed before such a software system could be used to track student progress.

**Recommendation 9.** AACP should meet the needs of colleges/schools of pharmacy through the development of a web-based Professional Experience Program portfolio documentation system.

**Suggestion 4.** Colleges and schools of pharmacy should ensure that their Professional Experience Programs (PEP) have a minimum set of explicitly stated performance outcomes based on the CAPE Educational Outcomes that are required for graduation (see Appendix 1). Preceptor faculty and students should document progress toward attaining these outcomes using a portfolio system that is readily accessible to the student, preceptor faculty, and PEP director. The PEP director or an appropriately trained designee should review each student's portfolio semi-annually to ensure they have achieved adequate progress.

### **Biannual Audit to Match Capability of Practice Sites with Outcome-Based Learning**

An important component of curricular development and assessment is determining if course content and learning experiences exist which enable students to achieve desired curricular outcomes.<sup>48</sup> One approach to this assessment process is known as curricular mapping. This process enables educators to better understand the curriculum by linking learning outcomes to learning opportunities.<sup>49</sup> Medical colleges along with colleges/schools of pharmacy have used curriculum mapping processes in order to better understand how and where curricular outcomes are achieved, and to identify gaps or areas of need within the curriculum as whole.<sup>50-52</sup> Since a significant portion of the pharmacy curriculum consists of experiential education, either in the form of Introductory Practice Experiences (IPEs) or APEs, a similar mapping process could be carried to better understand the outcomes achieved in this component of the curriculum, and ensure these outcomes are met.

The experiential education component of the pharmacy curriculum exposes students to real-life opportunities to develop and demonstrate knowledge, skills and attitudes unlike the classroom setting. These experiences should have clearly defined outcomes, and a process for ensuring that opportunities exist to achieve these outcomes during the IPE and APEs should be in place.<sup>53</sup> One approach would be to perform a systematic inventory or “mapping” of all clerkship offerings for the purpose of defining the experiences and outcomes achieved at each site. This information could then be used to evaluate whether gaps exist relative to the desired outcomes of the program as a whole. Dirks et al presented one approach to this process using an experiential education review council (EERC) to categorize APEs, with a goal of ensuring that programmatic outcomes are met.<sup>54</sup> A variety of methods could be employed to achieve this goal, and regardless of the process, this exercise would provide colleges/schools several benefits. First, it would improve the overall quality of the curriculum by allowing PEP Directors to document that opportunities exist for students to achieve desired performance outcomes of the program. The information could also be used to design clerkship assignments for individual students that cover all of the required curricular and/or performance-based outcomes that would improve the consistency of clerkship experiences from student to student. Another important benefit of this process is it would allow for identifying and better defining the resources (ie, sites, preceptors, site support) required to address areas of deficiency or “gaps” detected during the mapping process. A specific plan describing the resources required could be developed and presented to administrators to assist in resource allocation.<sup>55</sup> While the initial process of defining learning experiences for each site and mapping performance-based outcomes achieved could be rigorous and time consuming, future assessment of experiential education programs could be more easily achieved as new sites are developed and incorporated. These efforts could result in improved continuous quality assurance of learning experiences during experiential education.

**Suggestion 5.** Colleges and schools of pharmacy should perform a bi-annual inventory/mapping of PEPs for the purpose of determining whether the learning experiences offered by sites enable students to achieve the CAPE-based performance outcomes. PEP directors should use this information to identify gaps in the PEP. They should also use this information to provide a biannual report documenting specific areas of needs and resources required (ie, sites, preceptors, site support) to address these deficiencies/gaps. This report should be reviewed and approved by the dean.

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Appendix 1. Criteria for Evaluating the Quality of Professional Experiential Education Core Learning Experiences<sup>4,26,55</sup>

The following is a proposed list of required activities that all students should engage in during their professional experiences in the Doctor of Pharmacy curriculum based on the major educational outcomes outlined in the 1998 Center for the Advancement of Pharmaceutical Education (CAPE) Education Outcomes.<sup>26</sup> Additional proposed value-added activities, listed in the right hand column, are not required for graduation. However, opportunities to perform, observe, and/or discuss these value-added activities should be available to all students in the curriculum (either during classroom-based coursework or experiential elective coursework). Refer to Appendix 2 for a list of “core disease states.”

In this suggested model, every student should be given at least two opportunities to perform or observe each of the activities outlined in this document in at least two different practice settings. In order to build proficiency and mastery, some activities should be performed repeatedly. Started in the first professional year, students should continuously maintain a professional experience portfolio (preferably web-based) that documents all professional experience activities and preceptor evaluations. All faculty and preceptors should have access to each student’s professional experience portfolio. Student progress toward obtaining the necessary experience to meet these minimum requirements should be periodically assessed by faculty (or staff) in the school’s office of experiential learning. The student’s portfolio would serve as the primary documentation for determining whether the student has engaged in the required activities necessary for graduation. At least two preceptor’s evaluations would be required to determine if the student had met acceptable performance standards for each activity.

Outcome	Minimum Required Activities/Performance Objectives	Value-Added Activities/Objectives
<b>I. Provide Pharmaceutical Care</b>	<b>A. Engage in patient management activities necessary to achieve optimal patient outcomes</b> <ul style="list-style-type: none"> <li>• Collect accurate and comprehensive drug information from appropriate sources. <b>Performs</b></li> <li>• Collect accurate and comprehensive information to be used in monitoring therapeutic outcomes. <b>Performs</b></li> <li>• Identify the patient's primary complaint(s) and reason(s) for seeking medical care. <b>Performs</b></li> <li>• Identify appropriate information in profiles or medical records that will affect drug dose and schedule. <b>Performs</b></li> <li>• Review patient profiles or medication administration records to determine the adequacy of patient therapeutic self-management. <b>Performs</b></li> <li>• Employ clinical and physical assessment skills to determine the adequacy of patient therapeutic self-management and to evaluate therapeutic effectiveness or potential drug-related problems in the patient. <b>Performs</b></li> <li>• Interview the patient/caregiver to help determine the adequacy of patient therapeutic self-management. <b>Performs</b></li> <li>• Develop a plan to influence patients to effectively manage their therapy and reinforce appropriate behaviors. <b>Performs</b></li> <li>• Communicate orally and in writing an analysis of patient therapeutic self-management problems to the patient's physician or other relevant health care providers. <b>Performs</b></li> <li>• Communicate alternative dosage strategies to the prescriber to help resolve specific patient therapeutic self-management problems. <b>Performs</b></li> <li>• Communicate evidence of efficacy or potential for drug-related problems to the patient and/or caregiver and prescriber. <b>Performs</b></li> <li>• Communicate alternative therapeutic strategies to the prescriber to correct or prevent drug-related problems. <b>Performs</b></li> <li>• Recommend revisions of therapeutic plans based upon changes in patient status. <b>Performs</b></li> </ul>	<ul style="list-style-type: none"> <li>• Relate the major components of the American health care system and their relationship to the delivery of pharmaceutical care.</li> <li>• Relate the chemical and/or biochemical structure of drugs to their therapeutic action.</li> <li>• Evaluate the suitability of an extemporaneously compounded prescription formulation for the administration of a desired drug.</li> <li>• Evaluate the suitability of a container for a given drug product based upon the chemical and physical properties of the drug.</li> <li>• Recognize any special packaging required for a given dosage form including any additional apparatus necessary for its administration.</li> <li>• Evaluate the physical and chemical stability of a given formulation.</li> <li>• Facilitate the resolution of ethical dilemmas in the provision of optimal pharmaceutical care.</li> <li>• Compile and update literature for ready reference in the provision of patient care.</li> </ul>

Outcome	Minimum Required Activities/Performance Objectives	Value-Added Activities/Objectives
<p><b>I. Provide Pharmaceutical Care (continued)</b></p>	<ul style="list-style-type: none"> <li>• Integrate patient and drug information with drug dosing methods to calculate appropriate dosage adjustments. <b>Performs</b></li> <li>• Explain dosage recommendations and associated rationale to other health care team members. <b>Performs</b></li> <li>• Evaluate research studies and interpret statistical data. <b>Performs (clinic trials related to most commonly encountered disease states)</b></li> <li>• Assess physical and chemical data. <b>Performs - (core disease states)</b></li> <li>• Evaluate laboratory test results and pharmacokinetics data. <b>Performs - (core disease states)</b></li> <li>• Research the literature related to medical goods and devices in order to select or recommend the most appropriate device for an individual patient. <b>Performs - (core disease states)</b></li> <li>• Obtain patient information relevant to the selection of a particular device. <b>Performs - (core disease states)</b></li> <li>• Communicate pertinent information from the patient's medical record. <b>Performs</b></li> <li>• Make referrals to other health care agencies or professionals where indicated. <b>Performs</b></li> <li>• Assess the ability of the patient or caregiver to use the necessary medical goods or devices. <b>Performs - (core disease states)</b></li> <li>• Determine which of the available medical devices or products in the market place meets the patient's or caregiver's needs. <b>Performs - (core disease states)</b></li> <li>• Apply knowledge of the pathophysiology of a specific disease to prevent medication-related problems. <b>Performs</b></li> <li>• Relate psychosocial aspects of illness and health to the management of therapy-related problems. <b>Performs - difficult to evaluate</b></li> <li>• Apply basic principles of nutrition to the management of patient health. <b>Performs</b></li> <li>• Evaluate patient characteristics that may influence the choice of a drug delivery system. <b>Performs</b></li> <li>• Use appropriate methods of patient education to review indications, adverse effects, dosage, storage, and administration techniques. <b>Performs</b></li> <li>• Use effective written, visual, verbal, and nonverbal communication skills when providing medication self-management counseling to patients and/or caregivers. <b>Performs</b></li> <li>• Demonstrate proper administration technique for a given drug delivery system. <b>Performs - (core disease states)</b></li> <li>• Explain any action that should be taken in the event of a missed dose. <b>Performs</b></li> <li>• Advise patients on how to avoid potential interactions with other therapies. <b>Performs</b></li> <li>• Explain signs and symptoms associated with the common and/or severe adverse reactions to a therapy. <b>Performs</b></li> <li>• Explain the significance and frequency of adverse drug reactions and interactions associated with a given therapy. <b>Performs</b></li> <li>• Encourage patients/caregivers to contact the pharmacist for further information or advice regarding therapy. <b>Performs</b></li> </ul>	<ul style="list-style-type: none"> <li>• Identify manual, audiovisual, and/or computerized sources of patient education information on medical devices and goods appropriate to the specific patient's or caregiver's needs.</li> </ul>

Outcome	Minimum Required Activities/Performance Objectives	Value-Added Activities/Objectives
<p><b>I. Provide Pharmaceutical Care (continued)</b></p>	<ul style="list-style-type: none"> <li>• Demonstrate the proper use of the medical goods and devices to help ensure that the patient or caregiver can effectively implement the use of the medical goods and devices. <b>Performs - (core disease states)</b></li> <li>• Ensure that equipment specific requirements for maintenance, testing, etc., are effectively communicated to the patient or caregiver. <b>Performs - (related to most commonly encountered disease states)</b></li> </ul> <p><b>B. Engage in drug delivery and product management activities necessary to achieve optimal patient outcomes</b></p> <ul style="list-style-type: none"> <li>• Evaluate the acceptability of prescription order transmission and legitimacy of source. <b>Performs</b></li> <li>• Determine the validity of the patient-prescriber relationship. <b>Performs</b></li> <li>• Clarify, add, and/or correct prescription order information when necessary. <b>Performs</b></li> <li>• Select a drug delivery system that will provide optimal therapeutic benefit to individual patients <b>Performs</b></li> <li>• Recognize patient characteristics that require alteration of product packaging. <b>Performs</b></li> <li>• Assess the appropriateness of product packaging for a particular patient. <b>Performs</b></li> <li>• Correctly count, measure, and/or mix preformulated products. <b>Performs</b></li> <li>• Correctly label the finished prescription. <b>Performs</b></li> <li>• Use correct gravimetric and volumetric measuring procedures to obtain the desired quantity of any formulation component. <b>Perform but too broad - need to develop list of products all students must know to compound</b></li> <li>• Use good compounding practices in the extemporaneous production of a patient-specific drug delivery system. <b>Perform but too broad - need to develop list of products all students must know to compound</b></li> <li>• Identify physical and chemical incompatibilities among components of a given formulation. <b>Performs for IV admixtures</b></li> <li>• Recommend appropriate alternatives to avoid physical and chemical incompatibilities among components of a given formulation. <b>Performs for IV admixtures</b></li> <li>• Use aseptic technique and/or sterilization methods that are appropriate for the pharmaceutical product based on established risk levels. <b>Performs</b></li> <li>• Use aseptic technique to prepare sterile pharmaceutical dosage forms. <b>Performs</b></li> </ul> <p><b>C. Engage in practice management activities necessary to achieve optimal patient outcomes</b></p> <ul style="list-style-type: none"> <li>• Record all patient information accurately, legibly, and succinctly. <b>Performs</b></li> <li>• Observe legal and ethical guidelines for protecting the confidentiality of patient information. <b>Performs</b></li> <li>• Consolidate and organize information that is already in the patient's medical record to facilitate its review. <b>Performs</b></li> <li>• Record the patient care plan. <b>Performs</b></li> </ul>	

Outcome	Minimum Required Activities/Performance Objectives	Value-Added Activities/Objectives
<p><b>I. Provide Pharmaceutical Care (continued)</b></p>	<ul style="list-style-type: none"> <li>● Record actions taken and recommendation made to achieve desired therapeutic outcomes. <b>Performs</b></li> <li>● Document the effectiveness and adverse effects attributed to drug therapy. <b>Performs</b></li> <li>● Exhibit empathy and a caring attitude when dealing with patients. <b>Performs</b></li> <li>● Respect the dignity and autonomy of individual patients. <b>Performs</b></li> <li>● Dress and speak in ways that convey a professional image. <b>Performs</b></li> <li>● Maintain personal self-control and professional decorum. <b>Performs</b></li> </ul>	
<p><b>II. Manage the Practice</b></p>	<ul style="list-style-type: none"> <li>● Apply management principles related to purchasing and inventory control. <b>Performs</b></li> <li>● Ascertain product availability and time required to obtain product from vendor. <b>Performs</b></li> <li>● Determine if a reasonable length of expiration time remains when products arrive from the vendor. <b>Performs</b></li> <li>● Determine if proper storage and shipment procedures have been followed by the vendor. <b>Performs</b></li> <li>● Identify alternative actions if product quality is compromised. <b>Performs</b></li> <li>● Assess bioequivalence and therapeutic equivalence recommendations embodied in institutional, state and federal formularies, and documents. <b>Performs</b></li> <li>● Evaluate pricing information, including relevant pricing structures for products under consideration. <b>Observes</b></li> <li>● Evaluate characteristics of the product(s) under consideration that may impact cost and/or therapeutic outcome. <b>Performs</b></li> <li>● Determine the availability of pharmaceutical alternatives. <b>Performs</b></li> <li>● Determine the availability of generic counterparts to brand name products. <b>Performs</b></li> <li>● Determine which drugs require special storage conditions and insure that these drugs are properly stored. <b>Performs</b></li> <li>● Properly dispose of/return those drug products that have expired and/or exceeded their reasonable shelf life. <b>Performs</b></li> <li>● Comply with federal, state, and local laws and related regulations that affect the practice of pharmacy. <b>Performs</b></li> <li>● Apply principles of personnel management to train, develop, supervise, and motivate support staff. <b>Performs</b></li> <li>● Apply principles of personnel management to recruit, hire, retain, and evaluated support staff. <b>Observes</b></li> <li>● Use policies and procedures that improve the efficiency and effectiveness of a given drug distribution system. <b>Performs</b></li> </ul>	<ul style="list-style-type: none"> <li>● Establish a mission statement with component goals and actions.</li> <li>● Develop a strategic plan to achieve the identified goals.</li> <li>● Predict future patient care needs and professional service opportunities.</li> <li>● Formulate and evaluate strategies to adapt to change.</li> <li>● Identify actual and potential personnel, technological, financial, or regulatory changes that may impact the practice of pharmacy.</li> <li>● Evaluate the achievements of a practice in relation to the established mission, fiscal resources, and customer needs.</li> <li>● Perform simple testing procedures to evaluate physical and chemical stability.</li> <li>● Communicate an evaluation of drug product quality to the patient and/or other health care professionals.</li> <li>● Continually review the operational functioning of the pharmacy and recommend strategic changes to improve the quality of care provided.</li> <li>● Identify alternative actions if product quality is compromised.</li> <li>● Use appropriate references for the evaluation of drug product quality.</li> <li>● Resolve ethical dilemmas that develop in management of the pharmacy practice setting.</li> <li>● Ascertain dependability of the vendor.</li> <li>● Select the most cost-effective source of a given product.</li> </ul>

Outcome	Minimum Required Activities/Performance Objectives	Value-Added Activities/Objectives
<p><b>II. Manage the Practice (continued)</b></p>		<ul style="list-style-type: none"> <li>● Apply relevant regulations to product selection from among multi-source drug products.</li> <li>● Perform simple testing procedures to evaluate physical and chemical stability.</li> <li>● Communicate an evaluation of drug product quality to the patient and/or other health care professionals.</li> <li>● Evaluate the validity of experimental designs, analytical methods, and statistical analyses used in bioavailability studies.</li> <li>● Evaluate in vitro dissolution and in vivo data obtained from relative and absolute bioavailability studies.</li> <li>● Evaluate the validity of relevant bioequivalence studies.</li> <li>● Evaluate in vivo-in vitro correlations where appropriate.</li> <li>● Evaluate the quality control record of manufacturers.</li> <li>● Consider other factors that are indicative of a manufacturer's attention to quality and address their potential impact on the manufacturer's ability to replicate the product and ensure reliability.</li> <li>● Predict the likelihood of liability that may arise from errors of omission or commission in professional practice situations involving civil law.</li> <li>● Monitor compliance with policies and procedures for inventory management.</li> <li>● Develop appropriate position descriptions for a given drug distribution system.</li> <li>● Identify deficiencies in facilities design and equipment at an existing practice site.</li> <li>● Apply relevant regulations and guidelines during the design of facilities to fulfill a specific practice mission.</li> <li>● Develop/specify information system needs and implement an information management system that meets legal, business, archival, and patient care needs.</li> <li>● Apply principles of fiscal management.</li> <li>● Recognize professional practice situations that may give rise to liability under civil law.</li> </ul>

Outcome	Minimum Required Activities/Performance Objectives	Value-Added Activities/Objectives
<p><b>III. Manage Medication Use Systems</b></p>	<ul style="list-style-type: none"> <li>• Develop drug use evaluation criteria and/or indicators based on analysis of the literature. <b>Performs</b></li> <li>• Identify appropriate drug use criteria and indicators developed by regulatory agencies. <b>Performs</b></li> <li>• Collect data for a drug utilization review. <b>Performs</b></li> <li>• Compile and evaluate data necessary to review therapeutic and/or generic classes of drugs and new products for formulary consideration. <b>Performs</b></li> <li>• Identify and report medication errors and adverse drug reactions to appropriate individuals and organizations. <b>Performs</b></li> <li>• Manage the incidence of medication errors and adverse drug reactions. <b>Performs</b></li> <li>• Recommend actions to minimize the occurrence of adverse drug reactions and medication errors. <b>Performs</b></li> <li>• Apply criteria to collected drug utilization review data. <b>Performs</b></li> <li>• Implement corrective actions to improve drug use. <b>Observes</b></li> <li>• Monitor prescriber and pharmacist compliance with formulary standards. <b>Performs</b></li> <li>• Implement corrective action if variances from the formulary standards occur. <b>Performs</b></li> <li>• Apply elements of continuous quality improvement to pharmaceutical care. <b>Performs</b></li> <li>• Use appropriate critical pathways, clinical practice guidelines, and disease management protocols in the delivery of pharmaceutical care. <b>Performs</b></li> <li>• Apply principles of pharmacoeconomics in making pharmaceutical care decisions. <b>Performs</b></li> <li>• Apply principles of humanistic outcomes in determining impact of pharmaceutical care services on patient's quality of life. <b>Performs</b></li> </ul>	<ul style="list-style-type: none"> <li>• Identify appropriate drugs for DUE review.</li> <li>• Compile and evaluate drug use data across patients and prescribers within the system.</li> <li>• Develop therapeutic interchange guidelines.</li> <li>• Use appropriate structure, process, and outcome measures to evaluate the quality of pharmaceutical care.</li> <li>• Document quality assurance activities according to the specifications of relevant accrediting and regulatory bodies.</li> <li>• Use report cards in assessing the quality of health care.</li> <li>• Evaluate information obtained from adverse drug reaction and medication error reporting systems to identify preventable causes.</li> <li>• Communicate with managers and caregivers regarding formulary decisions.</li> </ul>
<p><b>IV. Promote Public Health</b></p>	<ul style="list-style-type: none"> <li>• Advise patients on the need for further medical evaluation. <b>Performs</b></li> <li>• Assess the needs of a target population relative to disease prevention/detection. <b>Performs</b></li> <li>• Select and implement an appropriate strategy to prevent (eg, immunizations) or detect (eg, blood cholesterol screening) disease in a target population. <b>Performs</b></li> </ul>	<ul style="list-style-type: none"> <li>• Identify and evaluate common emergencies including those requiring CPR.</li> <li>• Describe legal and ethical implications of intervention in emergency situations.</li> <li>• Assist individuals in obtaining emergency transportation to a medical facility.</li> <li>• Describe legal and ethical implications of intervention in poisoning/drug overdose situations.</li> <li>• Evaluate the impact of the program on the target population</li> <li>• Determine urgency of the situation and necessity to summon emergency medical service personnel.</li> <li>• Apply appropriate emergency care in relationship to available personnel, equipment, and facilities.</li> </ul>

Outcome	Minimum Required Activities/Performance Objectives	Value-Added Activities/Objectives
<p><b>IV. Promote Public Health (continued)</b></p>		<ul style="list-style-type: none"> <li>• Apply effective communication techniques when responding to requests for information on poisoning and drug overdose.</li> <li>• Consult appropriate resources for identification of the symptoms, signs, and management of a specific poisoning or drug overdose.</li> <li>• Provide recommendations for management and/or refer patients for further medical evaluation.</li> <li>• Assist individuals in obtaining emergency transportation to a medical facility.</li> </ul>
<p><b>V. Provide Drug Information and Education</b></p>	<ul style="list-style-type: none"> <li>• Determine the nature and specific aspects of the request by obtaining appropriate background information and establishing the urgency of the response. <b>Performs</b></li> <li>• Recognize the type of content that is available in general (tertiary), secondary, and primary information sources. <b>Performs</b></li> <li>• Apply knowledge of the content of general (tertiary), secondary and primary information sources. <b>Performs</b></li> <li>• Use abstracting and indexing services to access necessary information. <b>Performs</b></li> <li>• Use computerized programs for monitoring and identifying adverse reactions, drug interactions, etc. <b>Performs</b></li> <li>• Consult personal and organizational sources of information. <b>Performs</b></li> <li>• Evaluate information obtained from available sources. <b>Performs</b></li> <li>• Provide accurate information applicable to the question/case. <b>Performs</b></li> <li>• Use appropriate written and verbal communication techniques to respond to information requests. <b>Performs</b></li> <li>• Document responses to information requests. <b>Performs</b></li> <li>• Identify the educational needs and background of the intended audience. <b>Performs</b></li> <li>• Choose appropriate media to communicate effectively. <b>Performs</b></li> <li>• Choose health education strategies that are appropriate to the type of health care education program. <b>Performs</b></li> <li>• Use health education strategies effectively. <b>Performs</b></li> <li>• Demonstrate effective oral and written communication tailored to the individual needs of the audience and type of setting. <b>Performs</b></li> </ul>	<ul style="list-style-type: none"> <li>• Choose health education strategies that are appropriate to the type of health care education program.</li> <li>• Evaluate the impact of an educational program on the behaviors/performance of program participants.</li> </ul>

Appendix 2. Core Disease States

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Acne	Hypertension
Alopecia	Hypothyroidism
Allergic Rhinitis	Infections, Immunocompromised Host
Anemia, Iron Deficiency	Influenza (Treatment)
Anemia, Macrocytic	Insomnia / Sleep Disorder
Arthritis, Osteoarthritis	Lipid Disorder (Dyslipidemia)
Arthritis, Rheumatoid	Menopausal Symptoms
Asthma	Nausea / Vomiting
Atrial Fibrillation	Osteoporosis
Benign Prostatic Hyperplasia	Otitis, Media or Externa
Cancer, Breast	Pain Management
Cancer, Lung	Peptic Ulcer Disease
Cancer, Prostate	Pharyngitis / URI
COPD	Pneumonia
Common Cold	Pregnancy, Drug Use During
Congestive Heart Failure	Renal Failure, Acute
Constipation	Renal Failure, Chronic
Coronary Artery Disease / Angina	Seizure Disorder
Depression	Sinusitis
Diabetes	Smoking Cessation
Diarrhea	Urinary Tract Infection
Erectile Dysfunction	Vaccinations, Adult
Gastroesophageal Reflux Disease	Vaccinations, Pediatric
Human Deficiency Virus (HIV)	