

**ACCREDITATION STANDARDS AND GUIDELINES FOR THE
PROFESSIONAL PROGRAM IN PHARMACY LEADING TO THE DOCTOR
OF PHARMACY DEGREE
ADOPTED: JANUARY 15, 2006**

STANDARDS FOR CURRICULUM

The purpose of the standards in this section is to ensure that the college or school's curriculum provides a thorough foundation in the biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences and prepares graduates with the competencies needed to enter and contribute to the profession of pharmacy throughout their career. Desired curricular content, organization, sequencing, and outcomes, and the type and character of practice experiences needed, are described. In addition, the methods of promoting student learning and development of lifelong learning skills and the need to use assessments to measure, evaluate, and improve student learning and effectiveness are stated. As recommended by the Institute of Medicine for all health care professionals, pharmacists must be educated to deliver patient-centered care as members of an interprofessional team, emphasizing evidence-based practice, quality improvement approaches, and informatics.

Standard No. 9: The Goal of the Curriculum

Standard No. 10: Curricular Development, Delivery, and Improvement

Standard No. 11: Teaching and Learning Methods

Standard No. 12: Professional Competencies and Outcome Expectations

Standard No. 13: Curricular Core—Knowledge, Skills, Attitudes, and Values

Standard No. 14: Curricular Core—Pharmacy Practice Experiences

Standard No. 15: Assessment and Evaluation of Student Learning and Curricular Effectiveness

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Standard No. 9: The Goal of the Curriculum

The college or school's professional degree program curriculum must prepare graduates with the professional competencies to enter pharmacy practice in any setting to ensure optimal medication therapy outcomes and patient safety, satisfy the educational requirements for licensure as a pharmacist, and meet the requirements of the university for the degree.

The curriculum must develop in graduates knowledge that meets the criteria of good science;⁷ professional skills, attitudes, and values; and the ability to integrate and apply learning to both the present practice of pharmacy and the advancement of the profession. Graduates must be able to identify and implement needed changes in pharmacy practice and health care delivery.

Guideline 9.1

In developing knowledge, skills, attitudes, and values in students, the college or school must ensure that the curriculum fosters the development of professional judgment and a commitment to uphold ethical standards and abide by practice regulations. The college or school must ensure that the curriculum addresses patient safety, cultural competence, health literacy, health care disparities, and competencies needed to work as a member of or on an interprofessional team.

Guideline 9.2

The college or school curriculum should encompass the formal educational process, including content, instructional processes, course delivery, and experiential education.

Standard No. 10: Curricular Development, Delivery, and Improvement

The college or school's faculty must be responsible for the development, organization, delivery, and improvement of the curriculum. The curriculum must define the expected outcomes and be developed, with attention to sequencing and integration of content and the selection of teaching and learning methods and assessments. All curricular pathways must have both *required* and *elective* courses and experiences and must effectively facilitate student development and achievement of the professional competencies.

The curriculum for the professional portion of the degree program must be a minimum of four academic years or the equivalent number of hours or credits. The curriculum must include didactic course work to provide the desired scientific foundation, introductory pharmacy practice experiences (not less than 5% of the

⁷ "Good science" implies having the following characteristics: evidence-based, logical, convincing, explanatory, honest, testable, and systematic.

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curricular length) and advanced pharmacy practice experiences (not less than 25% of the curricular length).⁸

Guideline 10.1

On behalf of the faculty, the curriculum committee or equivalent must manage curricular development, evaluation, and improvement to ensure that the curriculum is consistent with the collective vision of the faculty and administration. Student representation should be an integral part of curricular development and improvement. The curriculum must comply with university policies and procedures and the accreditation standards.

Guideline 10.2

The curriculum committee or equivalent must have adequate resources to serve as the central body for the management of orderly and systematic reviews of curricular structure, content, process, and outcomes, based on assessment data. In general, the committee should strive for:

- optimal sequencing, reiteration, and integration of the curricular content and coordinated instruction across organizational lines and faculty disciplines, guided by assessment data and periodic mapping of the components and contents of the curriculum to the expected competencies and outcomes
- awareness by faculty of each other's courses (including content, depth, methodologies used, and relationship to adopted curricular competencies and outcomes)
- application and reinforcement of curricular content (e.g., basic science faculty providing applications and examples relevant to practice, and practice faculty stressing the scientific basis for pharmacotherapy)
- provision of a reasonable and balanced course load for students
- availability of sufficient elective courses (within or outside the college or school) and pharmacy practice experiences to allow students to pursue special interests
- the use of proven teaching and learning methodologies and the introduction and evaluation of innovations to promote optimal learning
- consistency of course syllabi
- standardized allocation of appropriate course credit

Standard No. 11: Teaching and Learning Methods

The college or school, throughout the curriculum and in all program pathways, must use and integrate teaching and learning methods that have been shown through curricular assessments to produce graduates who become competent pharmacists by ensuring the achievement of the stated outcomes, fostering the development and maturation of critical thinking and problem-solving skills, meeting

⁸ Refer to Standards 13 and 14 and Appendices B and C for additional detail and guidance.

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the diverse learning needs of students, and enabling students to transition from dependent to active, self-directed, lifelong learners.

Guideline 11.1

From the earliest stages in the program through the advanced practice experiences, students should be encouraged to assume and assisted in assuming responsibility for their own learning (including assessment of their learning needs; development of personal learning plans, and self-assessment of their acquisition of knowledge, skills, attitudes, and values and their achievement of desired competencies and outcomes). Students should also be encouraged to participate and assisted in participating in the education of others, including patients, care givers, other students, and health care providers.

Guideline 11.2

The development of critical thinking and problem-solving skills should be supported through the application of computer and other instructional technologies, laboratory experiences, case studies, guided group discussions, and simulations and other practice-based exercises. Instructors should employ active learning strategies and encourage students to ask questions wherever possible.⁹ Where appropriate, these techniques should involve actual or simulated patients, pharmacists, and other health care professionals.

Guideline 11.3

Experts in educational methodology and learning, such as instructional designers and educational psychologists, should be consulted to systematically improve educational materials, the assessment processes, and learning activities and outcomes.

Guideline 11.4

Colleges and schools are encouraged to experiment in the design and delivery of the curriculum. Development of innovative program pathways, courses, or teaching methods should be based on sound educational principles or the best evidence in educational practice. The college or school must evaluate the effectiveness of its curricular innovations through its assessment activities.

Guideline 11.5*

For programs employing distance-learning technologies, synchronous or asynchronous¹⁰ delivery techniques should be used, as needed, to keep learners actively participating with the information, instructor, and each other. The outcomes of the distance-learning activities must be appropriate for the student population and achievable through distance

⁹ Active learning is a style of teaching that requires the learner to formulate answers to questions based on acquired knowledge while continuing to search for new knowledge that may provide better, more complete answers. Active learning enhances a student's ability to think in an independent and critical manner.

¹⁰ An example of synchronous delivery is an audiovisual transmission of a lecture from one site to another, where students at participating sites can interact in real time with the lecturer and other students. An example of asynchronous delivery is a Web-based lecture that the student accesses at a later time.

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study. Interaction of students across campuses or program pathways should be stimulated and encouraged. Outcomes that are not appropriate for distance study (such as physical assessment or compounding skills) should be taught using other educational methods.

Standard No. 12: Professional Competencies and Outcome Expectations¹¹

Professional pharmacist competencies that must be achieved by graduates through the professional degree program curriculum are the ability to:

- 1. Provide patient care in cooperation with patients, prescribers, and other members of an interprofessional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, cultural, economic, and professional issues, emerging technologies, and evolving biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences that may impact therapeutic outcomes.**
- 2. Manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel, to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use.**
- 3. Promote health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an interprofessional team of health care providers.**

These professional competencies must be used to guide the development of stated student learning outcome expectations for the curriculum. To anticipate future professional competencies, outcome statements must incorporate the development of the skills necessary to become self-directed lifelong learners.

Guideline 12.1

Graduates must possess the basic knowledge, skills, attitudes, and values to practice pharmacy independently at the time of graduation. In this regard, the college or school must ensure that graduates are competent to:¹²

- *provide patient-centered care*, through the ability to:

¹¹ American Association of Colleges of Pharmacy's, Center for the Advancement of Pharmaceutical Education (CAPE), Educational Outcomes, 2004 (with minor edits)

¹² Adapted from CAPE Educational Outcomes, 2004

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- design, implement, monitor, evaluate, and adjust pharmacy care plans that are patient-specific; address health literacy, cultural diversity, and behavioral psychosocial issues; and are evidence-based
- manage a successful patient-centered practice (including establishing, marketing, and being compensated for medication therapy management and patient care services rendered)
- *provide population-based care*, through the ability to develop and implement population-specific, evidence-based disease management programs and protocols based upon analysis of epidemiologic and pharmaco-economic data, medication-use criteria, medication use review, and risk-reduction strategies
- *manage human, physical, medical, informational, and technological resources*, through the ability to ensure efficient, cost-effective use of these resources in the provision of patient care
- *manage medication use systems*, through the ability to apply patient- and population-specific data, quality improvement strategies, medication safety and error reduction programs, and research processes to minimize drug misadventures and optimize patient outcomes; to participate in the development of drug use and health policy; and to help design pharmacy benefits
- *promote the availability of effective health and disease prevention services and health policy* through the ability to apply population-specific data, quality improvement strategies, informatics, and research processes to identify and solve public health problems and to help develop health policy

To be capable of the above, pharmacy graduates also must be able to:

- communicate and collaborate with patients, care givers, physicians, nurses, other health care providers, policy makers, members of the community, and administrative and support personnel to engender a team approach to patient care
- retrieve, analyze, and interpret the professional, lay, and scientific literature to provide drug information and counseling to patients, their families or care givers, and other involved health care providers
- demonstrate expertise in informatics¹³
- carry out duties in accordance with legal, ethical, social, economic, and professional guidelines
- maintain professional competence by identifying and analyzing emerging issues, products, and services

¹³ Competencies in informatics include basic terminology (data, information, knowledge, hardware, software, networks, information systems, information systems management); reasons for systematic processing of data, information and knowledge in health care; and the benefits and current constraints in using information and communication technology in health care. (*Adapted from recommendations of the International Medical Informatics Association*)

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Standard No. 13: Curricular Core—Knowledge, Skills, Attitudes, and Values

To provide the thorough scientific foundation necessary for achievement of the professional competencies, the curriculum of the professional degree program must contain the following:

- **biomedical sciences**
- **pharmaceutical sciences**
- **social/behavioral/administrative sciences**
- **clinical sciences**

Knowledge, practice skills, and professional attitudes and values must be integrated and applied, reinforced, and advanced throughout the curriculum, including the pharmacy practice experiences.

Guideline 13.1¹⁴

The biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences must be of adequate depth, scope, timeliness, quality, sequence, and emphasis to provide the foundation and support for the intellectual and clinical objectives of the professional degree program. The sciences must provide the basis for understanding the development and use of medications and other therapies for the treatment and prevention of disease.

Guideline 13.2

Where instruction is provided by academic units of the university other than the pharmacy program, these areas must be developed in accordance with the professional degree program's curricular goals and objectives. Appropriate assessment liaison mechanisms must be established to ensure effective instructional delivery and to ensure achievement of the educational objectives of the professional degree program.

Guideline 13.3

The college or school curriculum should address issues that cut across a number of topics, such as communication skills, professionalism, critical thinking, problem-solving, health and wellness, patient safety, teamwork, mathematical skills, and information management.

Guideline 13.4

When content is integrated across disciplines, the core knowledge base and outcomes for each discipline should be provided in adequate depth, scope, and emphasis to ensure attainment of the desired competencies.

¹⁴ See Appendix B: Additional Guidance on the Science Foundation for the Curriculum

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Standard No. 14: Curricular Core—Pharmacy Practice Experiences

The college or school must provide a continuum of required and elective pharmacy practice experiences throughout the curriculum, from introductory to advanced, of adequate scope, intensity, and duration to support the achievement of the professional competencies presented in Standard 12.

The pharmacy practice experiences must integrate, apply, reinforce, and advance the knowledge, skills, attitudes, and values developed through the other components of the curriculum. The objectives for each pharmacy practice experience and the responsibilities of the student, preceptor, and site must be defined. Student performance, nature and extent of patient and health care professional interactions, where applicable, and the attainment of desired outcomes must be documented and assessed.

In aggregate, the pharmacy practice experiences must include direct interaction with diverse patient populations in a variety of practice settings and involve collaboration with other health care professionals. Most pharmacy practice experiences must be under the supervision of qualified pharmacist preceptors licensed in the United States.

Guideline 14.1

Preceptors should hold full, shared, adjunct, or other defined positions in the college or school and should be well versed in the outcomes expected of students and the pedagogical methods that best enhance learning. In this regard, the college or school must ensure that preceptors receive orientation, especially for first-time preceptors prior to assuming their responsibilities, ongoing training, and development. Preceptors should provide close supervision of and significant interaction with students. The student-to-preceptor ratio for the pharmacy practice experiences should be adequate to provide individualized instruction, guidance, supervision, and assessment.

Guideline 14.2

When assigning students to preceptors and practice sites, the college or school should strive to avoid circumstances or relationships that could adversely affect the student/teacher relationship and the desired outcomes.

Guideline 14.3

Students must not receive remuneration for any pharmacy practice experiences (introductory or advanced) for which academic credit is assigned.¹⁵ Other work experiences in pharmacy settings for which no academic credit is awarded (i.e., not a

¹⁵ A professional degree program in an institution that meets the definition and characteristics of “cooperative education” (www.co-op.edu) may apply to ACPE for a waiver of this requirement.

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component of introductory or advanced pharmacy practice experiences) may be required for advancement in the curriculum.

Guideline 14.4¹⁶

The introductory pharmacy practice experiences must involve actual practice experiences in community and institutional settings and permit students, under appropriate supervision and as permitted by practice regulations, to assume direct patient care responsibilities. Additional practice experiences in other types of practice settings may also be used. The introductory pharmacy practice experiences should begin early in the curriculum, be interfaced with didactic course work that provides an introduction to the profession, and continue in a progressive manner leading to entry into the advanced pharmacy practice experiences. The didactic course work itself should not be counted toward the curricular requirement of introductory pharmacy practice experiences.

Guideline 14.5

The organization of the advanced pharmacy practice experiences should provide a balanced series of required (the majority) and elective experiences that cumulatively provide sustained experiences of adequate intensity, duration, and breadth (in terms of patients and disease states that pharmacists are likely to encounter when providing care) to enable achievement of stated competencies as demonstrated by assessment of outcome expectations. Generally, the required and elective experiences should be full-time, provide continuity of care, and be conducted under pharmacist-preceptor supervision and monitoring.

The required advanced pharmacy practice experiences in all program pathways must be conducted in the United States or its territories and possessions (including the District of Columbia, Guam, Puerto Rico, and U.S. Virgin Islands). Required experiences must include primary, acute, chronic, and preventive care among patients of all ages and develop pharmacist-delivered patient care competencies in the following settings:

- community pharmacy
- hospital or health-system pharmacy
- ambulatory care
- inpatient/acute care general medicine

The required advanced pharmacy practice experiences should emphasize the need for continuity of care throughout the health care delivery system, including the availability and sharing of information regarding a patient's condition, medications, and other therapies.

Elective advanced pharmacy practice experiences in other settings (such as research, management, drug information, education, managed care, long-term care, hospice, and

¹⁶ See Appendix C: Additional Guidance on Practice Experiences

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home health care) should complement the required experiences and provide adequate and innovative opportunities for students to mature professionally and in accordance with their individual interests. The college or school may offer elective advanced pharmacy practice experiences outside the United States and its territories and possessions, provided that they support the development of the competencies required of the graduate, and the college or school implements policies and procedures to ensure the quality of the site(s) and preceptor(s).

Guideline 14.6

A quality assurance procedure for all pharmacy practice experiences should be established and implemented to facilitate achievement of stated competencies, provide for feedback, and support standardization, consistency, and inter-rater reliability in assessment of student performance. All practice sites and preceptors should be selected in accordance with quality criteria established and reviewed periodically for quality improvement. The assessment process should incorporate the perspectives of key constituents, such as students, practitioners, prospective employers, and board of pharmacy members.

Standard No. 15: Assessment and Evaluation of Student Learning and Curricular Effectiveness

As a component of its evaluation plan, the college or school must develop and carry out assessment activities to collect information about the attainment of desired student learning outcomes. The assessment activities must employ a variety of valid and reliable measures systematically and sequentially throughout the professional degree program. The college or school must use the analysis of assessment measures to improve student learning and the achievement of the professional competencies.

The college or school must systematically and sequentially evaluate its curricular structure, content, organization, and outcomes. The college or school must use the analysis of outcome measures for continuous improvement of the curriculum and its delivery.

Guideline 15.1

In general, the college or school's evaluation of student learning should:

- use a variety of assessments
- follow a plan that documents how the learning experiences, whether didactic instruction or supervised practice experience, are appropriate for the development of the competencies, as well as the instructional methods (e.g., presentations, demonstrations, discussions) and materials that should be used
- demonstrate and document in student portfolios that graduates have attained the desired competencies, when measured in a variety of health care settings

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- incorporate periodic, psychometrically sound, comprehensive, knowledge-based, and performance-based formative and summative assessments, including nationally standardized assessments (in addition to graduates' performance on licensure examinations) that allow comparisons and benchmarks with all accredited and peer institutions
- use procedures that promote integration, application, and assessment of principles, critical thinking, problem solving, and professionalism, in addition to memorization of facts
- include student self-assessments and faculty and preceptor assessments of student development of the professional competencies and the demonstration of professional behaviors
- promote consistency and reliability of assessments within and among faculty, practice sites and preceptors

Guideline 15.2

A system of evaluation of curricular effectiveness must be developed that, in general, should:

- foster data-driven continuous improvement of curricular structure, content, process, and outcomes
- assess the achievement of the desired competencies and outcomes for each of the biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences, as well as the overall curricular competencies and outcomes that reflect incorporation of all of these sciences in pharmacy practice
- include input from faculty, students, administrators, preceptors, practitioners, state board of pharmacy members, and others
- foster and assess self-initiated student learning
- foster and assess experimentation and innovation
- be responsive to changes in pharmacy practice and educational and practice technologies
- ensure that educational settings and methods of instruction lead to effective and efficient learning experiences
- be evidence-based

Guideline 15.3

The college or school must ensure the credibility of the degrees it awards and the integrity of student work. Formal examinations should take place under circumstances that ensure the correct identity of the student and limit opportunities for academic misconduct.

Guideline 15.4

Student portfolios should be employed to document students' progressive achievement of the competencies throughout the curriculum and the practice experiences. The portfolios

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should be standardized and include student self-assessment, as well as faculty and preceptor assessments of the educational outcomes.

Guideline 15.5

The college or school should have mechanisms to assess and correct underlying causes of ineffective learning experiences. In this regard, the college or school's assessments should include measurement of perceived stress in faculty, staff, and students, and evaluate the potential for a negative impact on programmatic outcomes and morale.