

COMMUNITY PHARMACY

Educating Students for Practice: Educational Outcomes and Community Experience

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The education of pharmacists in the United States integrates classroom and experiential learning. Two organizations played a key role in determining the current education of pharmacy students. They are the Accreditation Council for Pharmacy Education and the American Association of Colleges of Pharmacy. The curriculum offered today provides opportunities for students to learn and achieve ability-based outcomes in both didactic and experiential courses. This review of pharmacy education focuses generally on the national leadership of pharmacy education both past and present and specifically on outcomes of practice that students are expected to achieve. Included in the discussion are recommendations for how preceptors in a community practice model can build on the college curriculum by recognizing and incorporating ability-based outcomes into their activities of the introductory and advanced practice courses.

Keywords: curriculum, ability-based outcomes, introductory pharmacy practice experience, advanced pharmacy practice experience, community pharmacy

INTRODUCTION

The education of pharmacists in the United States has developed from sole reliance on apprenticeships to a professional curriculum that combines and integrates classroom and experiential learning. The organizations playing a role in this change include the colleges and schools of pharmacy in the United States, the Accreditation Council for Pharmacy Education (ACPE), the American Association of Colleges of Pharmacy (AACP), and other national practitioner organizations. Pharmacy educators strive to develop pharmacy practitioners capable of providing pharmaceutical care, managing systems, promoting wellness, and protecting the public's health. This can be accomplished by creating curricula that include introductory and advanced practice experiences in pharmacy, giving students the opportunity to practice and refine what they have learned in the classroom. This article discusses educational philosophy and practices and the development of abilities-based outcomes. Included in the discussion are recommendations for how preceptors in the community can build on the college curriculum by incorporating ability-based outcomes into the activities of the introductory and advanced practice experience courses. Pharmacists should emerge from pharmacy

school with an ability to meet the needs of the profession and those who are served by the profession.

PHARMACY EDUCATION AND PRACTICE Leadership in Pharmacy Education

In 1989, there were 2 degree programs that satisfied the educational requirements for taking the pharmacist licensure examination in any US state; the baccalaureate degree and the doctor of pharmacy degree. Degree program availability varied across campuses. It was apparent to the leaders in the profession that practitioners with a common, standard base of knowledge and skills developed over the course of a professional doctoral-level curriculum was important to the future of the profession and the ability of pharmacists to meet the increasingly complex health care needs of society. The American Association of Colleges of Pharmacy (AACP) is the national organization whose members include the colleges and schools of pharmacy with accredited professional degree programs, and their administrators, faculty members, and professional staff members. AACP provides leadership in advancing and enhancing the quality of education and training at its member institutions. The Accreditation Council for Pharmacy Education (ACPE) is the national accrediting body for professional degree programs and continuing professional education programs in pharmacy. ACPE is an independent agency whose Board of Directors comprises 3 educators appointed by the AACP, 3 practitioners appointed by the American Pharmacists Association

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(APhA), 3 regulators appointed by the National Association of Boards of Pharmacy (NABP), and 1 appointee from the American Council on Education (ACE). ACPE is the organization charged with developing and implementing standards for educational programs and for assuring the quality of those programs. ACPE works together with AACP to promote excellence in pharmacy education.

Pharmacy Education Prior to 1990

The curriculum for the baccalaureate in pharmacy degree offered from the 1960s to the 1990s prepared students for practice as generalist pharmacists, able to adapt to practice in any number of professional settings, such as community or hospital. Students were required to complete multiple basic, applied, and pharmaceutical science laboratories during the course of their education in addition to their didactic courses. Courses such as pharmacology, pharmaceutical sciences, compounding and dispensing laboratories, and therapeutics were highlighted courses in the curriculum. Educational opportunities in direct patient care were available in limited numbers and often revolved around pharmacy operations, management, and dispensing responsibilities.

Changes in Pharmacy Education

The AACP Commission to Implement Change in Pharmaceutical Education was convened in 1989 to develop a series of recommendations to guide pharmacy education as it evolved to meet the changing demands of the profession, the health care system, and society. The Commission studied the evolving mission of pharmacy practice, derived a mission of pharmacy education, and made recommendations for curriculum length and degree title.¹⁻³ The completed works of the AACP Commission were forwarded to ACPE for use in the revision of the Standards and Guidelines for the Accreditation of Professional Degree Programs. Standards adopted in June 1997 by ACPE and implemented in 2000 reflect the suggestions and direction provided by AACP.⁴

During the same time period, AACP acted on the recommendations of its own Commission. In 1992, AACP voted to adopt pharmaceutical care as the philosophy of pharmacy practice, confirmed that the preparation of pharmacists capable of providing pharmaceutical care was the mission of pharmacy education, and voted to support the Doctor of Pharmacy (PharmD) as the sole professional degree program in pharmacy. The PharmD program was defined as an educational curriculum that included at least 4 academic years of professional study following a minimum of 2 academic years of pre-professional, collegiate-level study.³ Subsequently, AACP began a series of initiatives under the Center for the Advancement

of Pharmaceutical Education (CAPE) to assist member colleges and schools with the curricular change and quality improvement processes.

Initiatives under CAPE fell into 3 areas: the development and recognition of teaching excellence, establishment of nontraditional educational programs for baccalaureate-degreed pharmacists to earn the PharmD degree, and development of a framework of educational ability-based outcome statements that represented knowledge and skills a practicing pharmacist should have. These ability-based outcomes have become a cornerstone for building the curricula of many colleges and schools of pharmacy. These outcomes provide a guide to pharmacy administrators and faculty members in assessing student competency to practice and in evaluating curricula. The original outcome statements were organized into 5 professional ability-based outcomes and 7 general abilities. The professional abilities required by practicing pharmacists as articulated by CAPE include: provide pharmaceutical care, manage the practice, manage medication use systems, promote public health, and provide drug information and education. The 7 general abilities important in the context of professional practice include critical thinking, communication, ethical decision making, contextual awareness, social responsibility, social interaction, and self-learning. All 12 ability-based outcomes statements were included in the original 1994 version of the CAPE Educational Outcomes and the 1998 revision.⁵

DOCTOR OF PHARMACY CURRICULUM

Current Guidelines and Practice

The PharmD curriculum includes the integration of science content and skills development with patient care applications. Introductory experiential education courses have been added early in the curriculum and experiential education is now threaded throughout the curriculum. Colleges and schools have included in the didactic classroom components of the curriculum courses that address practice management, public health, professionalism, and diversity, and have in general, increased the contact hours required for therapeutics courses. ACPE standards and guidelines require that a variety of advanced practice experiences be provided in the final year of the professional degree curriculum.⁴

In June 2005, ACPE issued a draft revision of the accreditation standards and guidelines for pharmacy degree programs.⁶ The draft revised standards indicate that the colleges and schools will provide a sound scientific foundation in order that students achieve professional competencies required. This includes offering courses in biomedical, pharmaceutical, social, behavioral, administrative, and clinical sciences. The draft standards and

guidelines also explicitly state that “[s]cientific knowledge, practice skills and abilities and professional behaviors and attitudes must be integrated and applied, reinforced and advanced throughout the curriculum, including the pharmacy practice experiences.”⁶

Expected Outcomes

An ability-based outcome is a clear statement of what the student is expected to be able to do within a particular learning environment, describing a specific activity, behavior, or performance that involves the integration of knowledge, skills, and attitudes and can be observed and measured.⁷ Examples of ability-based outcomes include:

- Document pharmaceutical care activity in a patient profile or medical record to facilitate communication and collaboration among health-care providers.
- Develop strategies for reimbursement of pharmacy services, such as medication therapy management and chronic illness plans.
- Implement disease detection and prevention health care services (eg, smoking cessation, weight reduction, diabetes screening, blood pressure screening, immunization services) to prevent health problems and maintain health.

These ability-based outcomes provide guidance to faculty members and preceptors in designing and delivering the curriculum and in assessing student progress and achievement. By focusing on facilitating student development of abilities rather than solely on the delivery of content, faculty members are making the shift from teacher-centered to student-centered instruction.

In 2003, the AACP Board of Directors committed to a review and revision of the original CAPE Educational Outcomes, which described the desired terminal outcomes of a pharmacy curriculum. The result of the revision process was Educational Outcomes 2004.⁸ Educational Outcomes 2004 is an organizing framework to facilitate the integration of general abilities; legal, ethical, social, economic, and professional issues; emerging technologies; and evolving pharmaceutical, biomedical, sociobehavioral, and clinical sciences across the major practice functions of: patient-centered and population-based pharmaceutical care; systems management; and health promotion, disease prevention, and public health. The framework provides structure and guidance for curriculum development by including emerging components of contemporary pharmacy practice and setting expectations for interprofessional collaboration, scientific grounding, evidence-based practice, appropriate use of technology, and integration of fundamental general abilities in thinking, communication, ethics, social and contextual awareness,

social responsibility, social interaction, professionalism, and life-long learning into professional contexts. These areas will now become the focus of curricula in educating and training pharmacy students to practice for the future. The CAPE Educational Outcomes are listed in Appendix 1.

Experiential Education

The accreditation standard for pharmacy practice experiences (ie, draft Standard No. 14. Curriculum Core: Pharmacy Practice Experiences) states that “the college or school must provide a continuum of pharmacy practice experiences throughout the curriculum, from introductory to advanced levels, to support the achievement of the stated professional competencies. . .”⁶ ACPE expects that these experiences are directed by qualified professionals and provide interactions with diverse patient populations. The objectives of these experiential education courses must be based on abilities and quantifiable for assessment purposes.

Introductory pharmacy practice experiences. The introductory professional practice experiences are expected to begin early and be offered in a variety of settings. These experiences should enable students to incorporate the information learned in the classroom to their practice. Colleges and schools should ensure that courses are encouraging active student learning and provide an opportunity for developing basic practice skills.⁶

Colleges and schools have developed a variety of ways to incorporate the introductory practice experience into their curriculum. One model is to incorporate student visits in the second and third year of pharmacy school to conduct patient counseling on nonprescription medications.⁹ A model used by Nova Southeastern University is to place students in the second year of the professional curriculum in a community pharmacy and require that they integrate themselves into the practice as well as develop patient interviewing skills and techniques. In this model the abilities-based outcomes desired in a practitioner are used to guide development of activities and in the evaluation of student performance.

It is important for preceptors to work with the college or school of pharmacy with which they are affiliated to gain a clear understanding of the outcomes students should achieve while completing a particular course or experiential rotation. These will vary, but in the introductory practices, many schools expect development of basic skills in technical areas, basic knowledge of pharmacology, and improved student communication skills with regard to interactions with patients and health care professionals.

Advanced pharmacy practice experiences. Advanced pharmacy practice experiences (APPEs) are

implemented in the final academic year and include “core experiences in inpatient and ambulatory care settings, especially community pharmacy.”⁴ These courses should enable students to expand on the skills learned in the introductory practice experiences and prepare students to take responsibility as the pharmacist.

APPEs vary in length and outcomes from school to school. The settings for APPEs in the community generally include chain and independent pharmacies, community health centers, and clinics associated with health centers or hospitals.¹⁰

Advanced practice experiences in community settings are under development for all colleges and schools of pharmacy as the practice of pharmacy changes with expanding technology options and the increasing demands of the health care system and the public. Zarembski, Boyer, and Vlases found that students in community APPEs were most frequently engaged primarily in dispensing prescriptions at these sites.¹¹ The ACPE standards require that “students devote some time to other activities that foster the development of professional care competencies.”⁴ Preceptors reported that students were less often involved in designing and implementing drug therapy plans. This did not vary from independent to chain pharmacist practice. The outcomes of community APPEs should include the student’s ability to provide all aspects of pharmaceutical care. Preceptors identified barriers such as third-party billing and lack of staff, patient lack of interest, and private areas that impede student involvement in development and implementation of drug therapy plans.¹¹ Colleges and preceptors will have to overcome these barriers to provide the opportunities for students to achieve the outcomes expected. The subsequent articles in this supplement will help preceptors navigate these barriers and will provide concrete examples of how to design rotation activities to meet students’ educational needs.

SUMMARY

Pharmacy education has made extensive changes over the last 40 years. Many individuals from multiple organizations combined their knowledge, skills, and foresight to bring pharmacy education into the 21st century. Their foresight and commitment to change created a PharmD curriculum that is based on educating pharmacists to provide healthcare in a changing environment. There are over 90 colleges and schools of pharmacy in the United States with professional degree programs recognized by ACPE.¹² All programs must meet the same standards to achieve accreditation, but there are numerous acceptable approaches to meeting those standards and achieving the outcomes desired. This variability results

from the expectations that colleges and schools continuously assess the quality and effectiveness of their programs and innovate and experiment with strategies to improve program quality.⁴ Experiential education allows students to develop the abilities described by ACPE,⁸ establishing a foundation of skills that will be essential for pharmacists of the future. Introductory and advanced experiences in community pharmacy and other areas must be exemplary practices. Colleges and preceptors must work in collaboration to overcome barriers to provision of pharmaceutical care and provide the opportunities for students to achieve the outcomes expected.

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Appendix 1. CAPE Educational Outcomes⁸

1. Pharmaceutical Care: Provide pharmaceutical 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, economic, and professional issues, emerging technologies, and evolving pharmaceutical, biomedical, sociobehavioral, and clinical sciences that may impact therapeutic outcomes.

- a. Provide patient-centered care
 - i. Design, implement, monitor, evaluate, and adjust pharmaceutical care plans that are patient-specific and evidence-based.
 - ii. Communicate and collaborate with prescribers, patients, care givers, and other involved health care providers to engender a team approach to patient care.
 - iii. Retrieve, analyze, and interpret the professional, lay, and scientific literature to provide drug information to patients, their families, and other involved health care providers.
 - iv. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.
 - v. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact patient-specific therapeutic outcomes.
- b. Provide population-based care.
 - i. 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.
 - ii. Communicate and collaborate with prescribers, population members, care givers, and other involved health care providers to engender a team approach to patient care.
 - iii. Retrieve, analyze, and interpret the professional, lay, and scientific literature to provide drug information to other health care providers and to the public.
 - iv. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.
 - v. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact population-based, therapeutic outcomes.

2. Systems Management: 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.

- a. Manage human, physical, medical, informational, and technological resources.
 - i. Apply relevant legal, ethical, social, economic, and professional principles/issues to assure efficient, cost-effective utilization of human, physical, medical, informational, and technological resources in the provision of patient care.
 - ii. Communicate and collaborate with patients, prescribers, other health care providers, and administrative and supportive personnel to engender a team approach to assure efficient, cost-effective utilization of human, physical, medical, informational, and technological resources in the provision of patient care.
 - iii. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.
 - iv. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact management of human, physical, medical, informational, and technological resources in the provision of patient care.
- b. Manage medication use systems.
 - i. Apply patient- and population-specific data, quality assurance strategies, and research processes to assure that medication use systems minimize drug misadventuring and optimize patient outcomes.
 - ii. Apply patient- and population-specific data, quality assurance strategies, and research processes to develop drug use and health policy, and to design pharmacy benefits.
 - iii. Communicate and collaborate with prescribers, patients, caregivers, other involved health care providers and administrative and supportive personnel to identify and resolve medication use problems.
 - iv. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.
 - v. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may impact medication use systems, to develop use and health policy, and to design pharmacy benefits

3. Public Health: 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.

- a. Assure the availability of effective, quality health and disease prevention services.
 - i. Apply population-specific data, quality assurance strategies, and research processes to develop identify and resolve public health problems.
 - ii. Communicate and collaborate with prescribers, policy makers, members of the community and other involved health care providers and administrative and supportive personnel to identify and resolve public health problems.

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- iii. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.
 - iv. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may affect the efficacy or quality of disease prevention services to amend existing or develop additional services.
- b. Develop public health policy
- i. Apply population-specific data, quality assurance strategies, and research processes to develop public health policy.
 - ii. Communicate and collaborate with prescribers, policy makers, members of the community and other involved health care providers and administrative and supportive personnel to develop public policy.
 - iii. Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.
 - iv. Maintain professional competence by identifying and analyzing emerging issues, products, and services that may affect public health policy, to amend existing or develop additional policies.
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