

COMMISSION TO IMPLEMENT CHANGE IN PHARMACEUTICAL EDUCATION

A Position Paper

ENTRY-LEVEL EDUCATION IN PHARMACY: A COMMITMENT TO CHANGE

For Your Information

The AACP Board of Directors has voted to receive, endorse with comment, and forward this Position Paper to the House of Delegates. While Board members have added comments in three places within the report in an effort to clarify language or intent in the Position Paper, they concluded that there are no substantive changes required. This is the third document in a series of efforts which the Commission has carried out in fulfilling its charge to assist pharmaceutical education's strategic planning activities. This Position Paper addresses the length of the curriculum and the title of the degree awarded for entry into practice.

The Commission has identified several related and important issues on which it plans to spend time and offer its views in the future. The issues currently being considered by the Commission are that of the role and responsibility of pharmaceutical education in developing and promoting new knowledge through the scientific process, including graduate education, and postgraduate professional education, training, and credentialing.

Opportunities for member comment on the content of the Position Paper include submission of comments in writing to the AACP Board of Directors through the Executive Director and directly at the Bylaws and Policy Development Committee Open Hearing during the Annual Meeting and/or on the floor of the House of Delegates.

The Board also reserves the right to seek more information itself regarding all Commission reports to the House of Delegates. This may be achieved by requesting written comment, through open hearings, private or public meetings with various interested groups, or through other means.

Any questions about this process may be directed to Executive Director Carl Trinca. Questions about the content of Commission background and position papers may be directed to Richard Penna, staff liaison to the Commission.

Preamble

In this paper, the AACP Commission to Implement Change in Pharmaceutical Education addresses the standards of educational quality necessary for the entry-level curriculum for pharmacy students, the length of that curriculum, and the title of the degree granted for completing the curriculum. In reaching its conclusions, the Commission reviewed a variety of published literature, including the reports and studies cited herein and referenced in Appendix A. Based on that review and our own assessment of the state of the American health care system, the needs of society, and the potential of the pharmacy profession to contribute to the best use of medicines, the Commission offers the following position paper, including recommendations for policies and actions, to the American Association of Colleges of Pharmacy.

I. Entry-Level Education

Rationale

Drug therapy is the most frequently used form of medical intervention in any practice setting. Its use has grown dramatically as the population has aged, the prevalence of chronic disease has increased, and the range of effective medications has broadened. While appropriate drug therapy is safer and more cost-effective than other medical alternatives, there is no question that the personal and economic consequences of inappropriate drug therapy are enormous (1).

In Background Paper I (Appendix B), the Commission spelled out its belief that the mission of pharmacy practice is to deliver pharmaceutical care. Pharmacy, by addressing this mission, is in an excellent position to fulfill the societal need for professionals to assure the safe and effective use of drugs. To meet this need requires that pharmacists assume greater responsibility than they do currently for the management of drug therapies in the patients they serve. This responsibility goes well beyond the traditional dispensing activities that have been the mainstay of pharmacy practice for years. While supervision of the drug distribution process must remain the responsibility of pharmacists, the direct involvement of pharmacists in the mechanics of drug product distribution will decrease substantially over time.

Moreover, these greater responsibilities go well beyond patient counseling because, in addition to the recent well-deserved emphasis on this function, pharmaceutical care requires an even larger commitment and willingness to share responsibility for the outcomes of drug therapy in patients. Thus, pharmacists' responsibilities must be expanded to include monitoring therapeutic progress, consulting with prescribers, and collaborating with other health care practitioners on behalf of patients.

In short, the profession of pharmacy requires entry-level practitioners who are knowledgeable, competent, and willing to embrace and deliver pharmaceutical care.

Background Paper II (Appendix C) describes in detail the curricular outcomes and content required to prepare entry-level graduates to deliver pharmaceutical care. The educational processes essential to reach the desired curricular outcomes also are described in that paper. The Association adopted both Background Papers I (2) and II (3), thus both endorsing the concepts of pharmaceutical care as the mission of pharmacy practice and ratifying the curricular outcomes, competencies, and educational processes necessary to educate pharmacy students to fulfill this mission.

Educational Quality -- The Commission believes that the curricular outcomes, content, and process described in Background Paper II represent a substantial increase in the quality of pharmaceutical education. Consequently, it believes that the standard against which entry-level programs should be measured (as an indication of their quality) is the standard as articulated in Background Paper II.

The Commission concludes that AACP must advocate the outcomes, competencies, content, and process contained in Background Paper II before the American Council on Pharmaceutical Education (ACPE) for incorporation into the revised entry-level program accreditation standards that the Council is currently developing.

Length of the Entry-Level Curriculum -- The Commission firmly believes that pharmacy students can be educated and trained to assume responsibility, authority, and accountability for pharmaceutical care. However, pharmacy students will not be able to meet fully the demands of this role without educational preparation more extensive and intensive than existing entry-level curriculums provide.

The Commission concludes that it is not reasonable to expect that a typical school or college of pharmacy can educate entry-level pharmacists as described in Background Papers I and II within the constraints of a five-year entry-level program. Although the Commission recognizes that efficiencies can be achieved in most curriculums, it is not likely that even the most sophisticated and efficient five-year curriculum could accomplish the educational objectives that AACP has adopted. Therefore, the Commission concludes that at least one additional academic year of professional education is necessary.

This additional year is not just another year of clinical experience appended to existing baccalaureate programs. It is additional time needed throughout the program to accomplish the changes in pharmaceutical education necessary to produce an entry-level graduate who can perform capably in the health care system. Thus, schools and colleges must reconceptualize and reconstruct their curriculums to meet the challenge of providing pharmaceutical care.

The necessity to reconceptualize and reconstruct curriculums applies to both existing baccalaureate and doctor of pharmacy entry-level programs. Most, if not all, existing entry-level Pharm.D. curriculums were developed at a time when pharmaceutical care was not an integral part of the mission of pharmacy practice. Therefore, schools and colleges offering entry-level Pharm.D. programs must also reexamine and modify their curriculums to assure that graduates are prepared appropriately to provide pharmaceutical care in any practice setting.

Title of the Entry Degree -- Since the Commission is convinced that additional time beyond the baccalaureate is needed for the entry-level degree program, it is also convinced that a new degree title is necessary. Conferring the baccalaureate degree after completion of five years of college work (often including several months of summer experiential education) is now less than adequate recognition of our graduates. A longer educational program demands a new title.

The Commission concludes that the title, Doctor of Pharmacy, should be granted to the graduates of the reconceptualized and reconstructed entry-level program for entry-level pharmacy practitioners.

Although some argue that a more appropriate title for this length of curriculum might be a master's degree, the doctor of pharmacy degree has already become established within the profession; over half of all schools and colleges of pharmacy offer it as an entry-level degree. To recommend another title would further cloud an issue already confusing to not only the profession but also to the constituencies that it serves. The doctor of pharmacy title also conveys the educational message intended: that education for the proper provision of pharmaceutical care demands a doctoral-level curriculum.

Need for Curricular Change -- These conclusions pertaining to the length and title of the entry-level degree program are neither radical nor surprising. They stem logically from the policies adopted in 1990 and 1991 by the Association and echo the call by the profession for pharmacists prepared to deliver pharmaceutical care in any setting -- to help prescribers and patients make the best use of medicines.

It is the concept of pharmaceutical care, in all of its ramifications, that is revolutionary. It envisions pharmacists as activists on behalf of patients, working before dispensing to assist prescribers in appropriate drug choices, and working after dispensing to help patients achieve the desired outcomes of their therapy. It envisions pharmacists as competent, caring, and committed to the well-being of their patients.

The educational revolution that must be implemented to reach these challenges (which AACP has already accepted) will be significant. It will require not only major curriculum revision and restructuring, but also a major commitment to faculty development to prepare teachers to educate pharmacists in a different way. The type and depth of didactic and experiential material to be included will be different. The amount and allocation of educational resources will have to change. Teaching methods will require redeployment of faculty, residents, fellows, preceptors, clerkship supervisors, and teaching assistants (student and graduate) to staff the greatly expanded use of non-lecture instructional techniques.

Time Frame -- Because of the scope of change necessary, the Commission finds it unrealistic at this time to set a date by which all schools and colleges must have *implemented* entry-level doctoral programs. Rather, the Commission believes that the most important immediate step to be taken is for schools and colleges to embrace the goals and objectives set forth in this report and to begin immediately to plan for their implementation.

The Commission concludes that all schools and colleges should have such plans in place by the end of the 1994/95 academic year, with implementation to follow as rapidly as possible.

The 1994/95 academic year was selected because it provides time for planning and because of its relationship to the American Council on Pharmaceutical Education's (ACPE) schedule for the revision of the entry-level accreditation standards and guidelines. By the close of the 1994/95 academic year, the ACPE will have published a draft of its revised standards and guidelines. As a result, planners in schools and colleges of pharmacy will have a good picture of what the standards may encompass. ACPE indicates that it will adopt its final standards and guidelines in June, 1997. Schools and colleges that have their plans in place by the end of the 1994/95 academic year, and/or are implementing them, will generate a wealth of experience that will assist pharmaceutical education to influence the final stages of the standards development and approval process.

Profession's Support for Pharmaceutical Care

There is substantial evidence that a broad societal need exists for pharmaceutical care. Recently the U.S. Congress enacted the Medicare Catastrophic Coverage Act (since repealed) and the Omnibus Budget Reconciliation Act of 1990 which require pharmacists to influence the use of medication by prescribers and patients. Moreover, the U.S. Department of Health and Human Services Office of Inspector General identified this need as part of its discussion on the clinical role of the community pharmacist (4). The evidence documenting the tragic results in the form of drug-related morbidity and mortality when this need is not met (1) provides a perspective on the enormity of pharmacists' responsibilities.

The profession of pharmacy is recognizing that it is positioned well to influence the drug use process and that its future rests on managing the rational and appropriate use of drugs. Recent actions by several professional pharmaceutical organizations support this conclusion.

- 1985 -- The American Society of Hospital Pharmacists (ASHP) sponsored a conference on the Directions for Clinical Practice in Pharmacy (5). A major conclusion of that conference was:

The fundamental purpose of the profession of pharmacy is to serve as a force in society for safe and appropriate use of drugs.

- 1989 -- The second Pharmacy in the 21st Century Conference was sponsored by all major national professional organizations in pharmacy (6). Several conclusions of that conference address issues related to pharmaceutical care, including:

There is a need for pharmacy to develop standards for pharmaceutical care (95%*).

There is a need for pharmacists to be able to manage pharmaceutical care (92%*).

There is a need for pharmacists to receive feedback on the patient's therapeutic outcomes (88%*).

There is a need for pharmacists to accept potentially greater liability as they fulfill their responsibilities in pharmaceutical care (87%*).

There is a need for pharmacists to become the primary source of drug knowledge (86%*).

Pharmacists must have access to the medical database for the patients they serve (83%*).

The evolving health care systems offer opportunities for pharmacists to add new, creative services that respond to needs of patients (80%*).

There is a need for pharmacy schools to improve clerkships and externships which deliver pharmaceutical care in the community setting (74%*).

- 1990 -- The American Pharmaceutical Association (APhA) Board of Trustees introduced for comment a mission statement for the pharmacy profession. It was adopted by the APhA House of Delegates in 1991. The mission statement reads:

The mission of pharmacy is to serve society as the profession responsible for the appropriate use of medications, devices, and services to achieve optimal therapeutic outcomes.

- 1990 -- The Joint Commission of Pharmacy Practitioners (JCPP) drafted a mission statement for pharmacy practice that reads:

The mission of pharmacy practice is to help people make the best use of medications.

The background to the JCPP statement elaborates on the role of pharmacists to ensure the appropriate use of medications and accept responsibility for the outcomes of drug therapy.

- 1991 -- The American Society of Consultant Pharmacists (ASCP) adopted the JCPP mission statement for pharmacy practice.

* Percentage of conference participants rating issue as "important."

- 1991 -- NARD, the national association representing independent pharmacy, endorsed the JCPP mission statement. Moreover, the association's mission statement says:

We are committed to high-quality pharmaceutical care and to restoring, maintaining, and promoting the health and well-being of the public we serve.

- 1991 -- The American College of Clinical Pharmacy (ACCP) submitted comments to the American Council on Pharmaceutical Education about the latter's proposal to revise the accreditation standards for pharmaceutical education. Among the comments offered by ACCP is the following:

There will be increasing opportunities and societal mandates for pharmacists to take a more responsible role in managing the therapeutic outcomes of patients. It may be years until these opportunities are realized fully on a national basis. However, appropriately trained pharmacists can make a meaningful difference in the care of patients. A high priority must be assigned to advancing pharmacy education and training.

- 1991 -- The June 1991 ASHP Annual Meeting was devoted to the theme of pharmaceutical care; and the September 1991 American College of Apothecaries Annual Conference will be devoted to the theme:

Present Tense - Future Perfect - with Patient-Oriented Pharmacy Care

- A number of consortia of state pharmaceutical associations, state societies of hospital pharmacists, and schools/colleges of pharmacy are adopting mission statements for pharmacy practice similar to those above. All incorporate the philosophy of pharmaceutical care.

Support for Change in Pharmaceutical Education

Within the Profession -- Support within the profession is strong and growing for changes in pharmaceutical education, especially related to the doctoral entry degree.

- 1977 -- The American Pharmaceutical Association House of Delegates adopted policy supporting a single, doctoral entry degree in pharmacy (7).
- 1978 -- The American College of Apothecaries supported the doctor of pharmacy degree as the "first degree upon which licensure is granted." (8)
- 1980 -- The American Society of Hospital Pharmacists adopted policy supporting the Pharm.D. degree as sole entry degree (9).
- 1984 -- The APhA Task Force on Pharmacy Education (10) recommended that:
a six-year professional degree with an enhanced professional competency evolve as the desired goal with the intent that it become the sole entry level for the practice of pharmacy.
- 1991 -- The Academy of Students of Pharmacy House of Delegates voted to support a new doctor of pharmacy degree as the sole entry degree in pharmacy.
- 1991 -- The National Pharmaceutical Association and the Student National Pharmaceutical Association both announced support for the Pharm.D. as the sole entry degree.
- 1991 -- The American Society of Hospital Pharmacists reaffirmed its support of the entry doctoral degree as the sole entry degree for the profession.
- 1991 -- The American Society of Consultant Pharmacists adopted a policy supporting the Pharm.D. as the entry degree granted to all graduates of U.S. pharmacy schools.

A number of state pharmaceutical associations and/or societies of hospital pharmacists (e.g., Arkansas, California, Florida, Iowa, Illinois, Maryland, Minnesota, Ohio, and Utah) have adopted similar positions.

Notwithstanding this strong support for the entry Pharm.D. degree from within the profession, some organizations have not yet totally embraced such a policy. NARD, representing independent pharmacy, adopted a position favoring a uniform, entry-level doctor of pharmacy degree contingent upon automatic "grandfathering" of that degree to all practicing pharmacists. Further, the association recommended that "ACPE take steps necessary to ensure that the total time necessary to earn the entry-level degree and to obtain licensure not exceed the length of time now required for training and licensure, including experiential training."

The American College of Clinical Pharmacy (ACCP) Board of Regents, in February 1991, adopted a position in which the College "believes that Baccalaureate degree programs of pharmacy schools and colleges can adequately prepare graduates for contemporary pharmacy practice, and that societal expectations for pharmacy services do not justify training all pharmacists at the Doctor of Pharmacy level." However, the position states further that, "the present and future societal needs for sophisticated clinical pharmacy services require that pharmacy educate and train an increased number of pharmacists at the Doctor of Pharmacy level."

The National Association of Chain Drug Stores, a trade organization of corporations that own drug stores, supports the existing structure of pharmaceutical education which provides for two entry degrees: the baccalaureate and the doctor of pharmacy.

Within Pharmaceutical Education -- Background Papers I and II outline significant changes that are occurring in pharmacy practice and the changes in pharmaceutical education that are necessary to accommodate these practice changes. AACP's acceptance of these papers demonstrates pharmacy educators' recognition of these changes.

AACP's current position related to the entry degree is that it supports both the baccalaureate and the doctor of pharmacy as entry degrees in pharmacy. The Association last considered the question of the length and title of the entry degree in 1985. Pharmacy practice has evolved substantially since that time. Now that AACP has adopted pharmaceutical care as the practice philosophy on which practitioner education must be based (Appendix C), the Commission believes that it is time for AACP to embrace the doctor of pharmacy as the sole entry degree for practice.

BASED ON THE REASONING PRESENTED ABOVE, THE COMMISSION PROPOSES THAT THE ASSOCIATION ADOPT THE FOLLOWING POLICY STATEMENTS:

- 1. The American Association of Colleges of Pharmacy supports the inclusion of the educational outcomes, competencies, and processes contained in Background Paper II in the revised accreditation standards and guidelines of the American Council on Pharmaceutical Education.*
- 2. The American Association of Colleges of Pharmacy supports an entry-level educational program for pharmacy practice that is at the doctoral level, is at least four professional, academic years in length, and follows preprofessional instruction of sufficient quality and length (two-year minimum) to prepare applicants for doctoral level education.*
- 3. The American Association of Colleges of Pharmacy supports the doctor of pharmacy (Pharm.D.) degree as the sole degree for entry into pharmacy practice.*
- 4. The American Association of Colleges of Pharmacy urges individual faculties to immediately commit to developing plans, including appropriate evaluation components, for implementing an entry-level doctor of pharmacy program; these plans should be completed by the end of the 1994/95 academic year.*
- 5. The American Association of Colleges of Pharmacy urges schools and colleges of pharmacy that currently offer doctor of pharmacy programs to examine, analyze, and revise as appropriate, their doctor of pharmacy curriculums to assure that they are based on and reflect the philosophy of pharmaceutical care.*
- 6. The American Association of Colleges of Pharmacy urges schools and colleges of pharmacy to commit themselves to the implementation of their plans as soon as possible.*

II. Implementing Change

The Planning Process

Each school or college of pharmacy will need to develop a plan to achieve its goal to develop a Pharm.D. curriculum suitable for all students desiring to enter pharmacy practice. The planning process should include the following elements:

- Develop a statement of mission and goals that clearly outlines the purposes of the school and its curriculum.
- Design and plan a curriculum that will achieve the outcomes and incorporate the teaching methods described in Background Paper II.
- Identify the physical and financial resources needed.
- Identify the faculty necessary to carry out the curriculum.
- Identify clerkships, externships, and other types of experiences (e.g. laboratories) that will be required.
- Develop plans to obtain the resources necessary to achieve goals.
- Identify the barriers that are impeding or may impede movement toward the goal.

- Develop plans to resolve those barriers.
- Identify unique strengths of the program that may contribute to pharmaceutical care.
- Initiate the process of seeking support from pharmacists in the state.
- Initiate the process of seeking support from the public (e.g., labor unions, consumer groups).
- Initiate the process of securing university administration and state higher education approval of the change in degree offered.
- Develop a timetable for implementing the plan.
- Develop procedures and criteria to monitor and evaluate progress.
- Revise plans as necessary.

Because of the unprecedented changes called for in Background Paper II, it is reasonable to expect that the rates at which schools will be able to implement change in any given area will differ. It follows that schools should assist one another in developing and implementing their plans.

AACP's Role in Implementing Change -- AACP must assist this process by providing technical assistance, on request, to institutions to facilitate their planning and implementation activities. AACP must provide for the sharing of plans and solutions among institutions. This latter activity should also include sharing data on curricular experimentation and the results of pilot studies. AACP should convene regional meetings of schools to facilitate this exchange on a timely and efficient basis. Moreover, the Association should plan activities at its annual meetings such as poster and special sessions in which schools may demonstrate their plans and report on their progress in implementing them.

AACP should investigate the feasibility of identifying and assembling a cadre of educational experts to assist faculties with specific planning, curricular design, or other needs. The Association must be available to support schools' plans before university and state official bodies.

Issues and Barriers to Change in Pharmaceutical Education

Barriers -- The substantial changes in the nature and scope of the entry-level program proposed in Background Paper II are certain to generate major issues to be faced and barriers to be overcome for schools and colleges of pharmacy. Some of the barriers likely to be of major importance include the sufficiency of resources (e.g., financial, faculty, training sites), the impact of these changes on related programs (e.g., graduate education, research, residencies and fellowships), and the implications for alumni and current practitioners of the change in entry-level degree title. While each of these issues is significant and complex, each can be dealt with given appropriate planning and sufficient time to obtain resources.

Barriers are a function of the time within which they must be overcome and, within pharmaceutical education, a function of the size of the enterprise, especially the number of students to be involved in the program. One way of dealing with these barriers is to allow sufficient time for planning and acquisition of resources. Careful estimates of both the ultimate class size and transition-period class size are necessary to project resource requirements accurately.

- Resource sufficiency - Budget

Although some data exist on the cost of educating current B.S. and Pharm.D. students, the curricular program called for in this Paper is substantially different, complicating financial projections. Significant planning is necessary to develop a curriculum and articulate a plan that will serve as the basis for a budget that can be advocated to internal and external bodies.

- Resource sufficiency – Faculty

A curriculum as envisioned in this Paper undoubtedly will require additional faculty in clinical practice as well as the clinical, basic, social, and administrative sciences. Efforts will be required to develop current faculty as well as recruit new faculty to challenging teaching and research positions in pharmaceutical education.

- Resource sufficiency - Physical, including facilities and experiential sites

A reconstituted curriculum may require different configurations in classrooms or laboratories. There may be a need for additional experiential sites focusing on different types of practice experiences. Resources will be required for preceptor development.

- Impact on other school programs

Restructuring a curriculum to offer a Pharm.D. degree may affect research and graduate education. In addition, schools may wish to develop post-Pharm.D. education and training programs such as residencies and fellowships. Curricular flexibility will be needed to prepare students for these various career options while offering time for existing faculty to continue to pursue research. Schools that currently offer post-B.S. Pharm.D. programs will need to plan how existing faculty and resources can be effectively utilized in advanced education, research, and training programs.

- Implication for alumni and other current practitioners

Planners must recognize that anxiety exists among practitioners related to degree changes. Faculties should give consideration to nontraditional paths to earning a Pharm.D. degree, improvement of curricular-based continuing education, and discussions with professional organizations on issues of experience equivalency with academic competencies.

While these barriers raise significant considerations for change, they must not prevent faculties from establishing and moving toward their goals. Goals are to be achieved; barriers are to be overcome. The goals set out in this report are so important that all possible energies must be applied toward their accomplishment.

Curricular Flexibility -- Currently, there is considerable diversity among the schools and colleges of pharmacy in the configuration, organization, and content of their curriculums. It is important that this diversity be maintained and encouraged. As a result, flexibility in specific institutions in curricular configuration, content, and process is especially important when curriculums are undergoing major change in a large number of schools. It is at these times that curricular experimentation contributes the most to the achievement of education's goals.

Moreover, curriculums must provide sufficient time for electives so that students may gain some appreciation of the spectrum of career options in general practice, specialties, and research. Flexibility also allows schools to feature the strengths of their faculties. For example, some schools may wish to emphasize nuclear pharmacy, others industrial pharmacy, and still others, long-term-care pharmacy.

The Commission believes that the entry curriculum in pharmacy will require at least one year more than is currently required in the baccalaureate curriculum. For most schools, this will mean six years. However, specific curricular configurations may result in longer time in some schools.

A limited number of schools now offer a baccalaureate in pharmaceutical sciences (which does not qualify recipients to practice) so that students interested in pursuing graduate education may do so without completing the practice segments of their pharmaceutical education. This option deserves serious study and analysis, and those schools and colleges that currently offer such programs should perform the necessary analyses to assist other schools that may be considering it. (A subsequent background paper will address the responsibilities of pharmaceutical education in the areas of graduate pharmaceutical education, postgraduate education, and training and research.)

Necessity of a Strong Science Base --The outcomes of drug therapy are manifestations of physical, chemical, biological, and psycho-social interactions within human systems. These interactions are so complex as to require individual attention to each patient -- indeed each occasion of therapy. Furthermore, patient care itself is provided within increasingly complex management and information systems.

The provision of pharmaceutical care to patients requires an understanding of the chemistry of drug entities, the delivery characteristics of dosage formulations, the disposition of drugs within the body, and the physiologic and pharmacologic outcomes of drugs' interactions with the biologic organism. What makes pharmacists unique among health care providers is a detailed and comprehensive understanding of the implications of these physical, chemical, and biological interactions on the outcomes of drug therapy.

The sciences which provide the foundations of our understanding of these complex physical, chemical, and biological processes are expanding and evolving at an increasingly rapid rate. The advances in our understanding and the application of pharmaceutical biotechnology have provided new molecules to treat diseases that were previously intractable to drug therapy. Drug delivery systems have been designed and developed to release their active ingredients to achieve desired concentration profiles of drugs within the circulation or target organs. The design of new molecules has been greatly enhanced as more receptors have been isolated, characterized, and cloned. These advances have taken place in research environments where traditional disciplinary boundaries have been blurred or recombined into new entities. It is important that the curriculum reflect this broad, multidisciplinary science base and that it not be restricted by territorial and disciplinary boundaries.

Pharmaceutical care also includes shared responsibility for the clinical, human, and economic outcomes of care. Provision of pharmaceutical care requires an understanding of human behavior at psychological, sociological, economic, and political levels. Such understanding is necessary for pharmacists to comprehend the drug use process adequately; to solve problems intelligently; to communicate with patients and colleagues; to plan, organize, control, and evaluate pharmaceutical care systems; and to participate in policy formulation.

Furthermore, application of fundamental knowledge in any area to specific therapeutic problems requires an appreciation and understanding of clinical sciences (e.g. pathophysiology, clinical biochemistry, and clinical pharmacology). Such understanding is necessary not only for pharmacists to comprehend their patients medically, but also to exchange clinical information with colleagues.

[Board of Directors' comment: The Board of Directors believes that a strong scientific component in the entry-level curriculum is necessary in order to stimulate adequate numbers of pharmacy students to enter graduate education. This outcome can be achieved through providing flexibility in the curriculum to give students opportunities to do undergraduate research and to take elective courses that focus on research and research methods.]

Issues and Barriers Involving Pharmacy Practice

Pharmacy Practice -- Many issues and barriers result from efforts to change the status quo in pharmacy practice; they are problems associated with advancing the delivery of pharmaceutical care in several practice areas, especially the community pharmacy environment. Economic ("the public won't pay for it"), logistic ("pharmacists don't have patient data"), interprofessional ("physicians won't stand for it"), and competence ("pharmacists can't do it") barriers frequently are cited. While pharmaceutical educators must be concerned about barriers that affect the delivery of pharmaceutical care, they are supported by the facts that the profession has adopted pharmaceutical care as its mission and that pharmaceutical education has adopted pharmaceutical care as the philosophy of pharmacy practice on which practitioner education must be based. Consequently, problems, barriers, and other issues related to the delivery of pharmaceutical care in any environment must be dealt with as means of improving and promoting pharmaceutical care in pharmacy practice. Their existence must not serve as a barrier to the evolution of pharmaceutical education toward a doctoral entry degree. These issues are not *barriers* to the evolution of pharmaceutical education; they are *reasons* why education must move to a single entry-level doctoral degree.

Model practice environments are essential components of a curriculum designed to produce pharmaceutical care practitioners. Thus, pharmaceutical educators must actively assist practitioners to design, test, and develop practice models that efficiently and comprehensively deliver pharmaceutical care in all practice environments, particularly in ambulatory care and community pharmacy settings.

AACP Committees on Professional Affairs have recognized the responsibility of pharmaceutical education to stimulate change in pharmacy practice (11,12). The 1990 Committee cited the enormous changes made in institutional pharmacy practice in the 1970s through the introduction of clinical pharmacy clerkship and externship experiences. The Committee reasoned that a similar effect could be achieved in the 1990s in the ambulatory (community pharmacy) environment. However, it recognized that, in the 1970s, capitation funds greatly facilitated the development of clinical experiential education in institutions. The Committee concluded:

While fiscal constraints are major barriers to the expansion of clinical training into ambulatory care, they are not absolute ones. The Committee believes that there are numerous creative means to achieve this goal and encourages dialogue within the Council of Deans during which strategies implemented by various schools could be discussed, compared, and evaluated (12).

Clearly, experiential education is a powerful tool for stimulating change in education and practice. It must be applied in all environments, especially in community pharmacy. Equally as clear, it may be considerably more difficult to institute clinical clerkships in ambulatory settings due to the lack of funding and the lack of full appreciation among community practitioners that it is in their best interests to foster the teaching of pharmaceutical care. To achieve those changes that are required in new curriculums, educators must cooperate with practitioners to stimulate, develop, and evaluate new practice models that enhance the delivery of pharmaceutical care in the ambulatory/ community pharmacy setting.

Adopting pharmaceutical care as the philosophy and mission of pharmacy practice means major changes in practice as it shifts from delivering pharmaceutical products and services to providing pharmaceutical care.

The Commission concludes that pharmaceutical educators share a major responsibility with other leaders in the profession to develop strategic plans for the profession locally and nationally.

At the state or national level, educators and practitioners must (1) develop mission statements for pharmacy practice that embrace the philosophy of pharmaceutical care; (2) ensure that practitioners comprehend the full scope of practice that is inherent in pharmaceutical care; and, (3) devise and implement the necessary strategies to establish, foster, and maintain a momentum for evolution within practice toward its mission. Efforts of this type already are underway in a number of states such as Arizona, California, Indiana, North Carolina, and Texas.

State or regional activities offer the potential of providing assistance back to the schools in the form of greater cooperation in curriculum revision, identifying clerkship sites and faculty, and securing support for resources from higher administration and state governments.

Postgraduate Professional Education and Training -- Just as experiential education within the professional curriculum can serve as a means of influencing change in pharmaceutical education and practice, so too can postgraduate education and training have similar effects. Postgraduate education and training is defined (13) as:

a structured and systematic educational and training experience which generally occurs after licensure and which is directed toward some predetermined educational outcome relative to the knowledge and skills required for the delivery of pharmaceutical services.

Included within the variety of activities that constitute postgraduate education and training are:

- residency programs;
- fellowship programs;
- certificate programs; and
- mid-career education and training programs.

As pharmaceutical care becomes established in all practice settings, practitioners with expanded competencies beyond the entry level will be in demand to organize and provide care in selected practices. Residency programs are proven methods of preparing such practitioners. Pharmaceutical education must undertake the joint responsibility to plan and develop such residencies in those areas where the need for change is great, such as ambulatory care, including community pharmacy practice. Residencies facilitate evolution within the profession by exploring the need for pharmaceutical care in various environments and preparing practitioners with unique skills and competencies to provide such care. While limited, experience demonstrates that cooperative efforts among professional organizations, schools, and practice groups can result in planning, implementing, and supporting residencies in several sectors of community pharmacy.

The Commission intends to elaborate on the need for change in this area and will provide additional recommendations in a future paper.

Addressing Mid-Career Practitioners -- Change creates opportunities as well as problems. As pharmacy has changed and evolved over the past two decades, many opportunities have been created for service in new, untried areas of health care. The profession has responded well to opportunities in, for example, hospital pharmacy, long-term care, and home care. Change is not abating in health care and in the profession! Opportunities for new career paths in the profession continue to increase and pharmaceutical education must find ways to make it possible for both new and mid-career practitioners to acquire the necessary competencies to practice in these areas. Certificate programs, mid-career education and/or training programs, and nontraditional degree programs should be developed by schools and colleges of pharmacy and made available to practitioners.

As the profession moves toward doctoral entry-level education, practitioners with baccalaureate degrees have expressed concern that they would be placed at a professional disadvantage. For example, many residency programs require a Pharm.D. degree for admission. Frequently, position advertisements list a Pharm.D. degree as a prerequisite. However, baccalaureate practitioners often acquire, through practice experience, competencies equivalent to competencies of entry Pharm.D. practitioners.

During its 1991 Annual Meeting, the American Pharmaceutical Association adopted a policy that it join with other groups including those in pharmaceutical education to discuss issues related to equivalency among practitioners. The 1992 AACP Committee on Professional Affairs will consider this issue. This is an extremely important matter which must be addressed immediately. It may be possible, for example, for the profession to develop a portfolio system in which practitioners keep experience and outcome data which can be used to verify increases and improvements in competencies. Position announcements would then require a specific degree or equivalent that could be verified through portfolios which demonstrate competencies and accomplishments of applicants.

Pharmaceutical education shares in the opportunities brought by change. Mid-career pharmacists who wish to sharpen their existing competence or develop new areas of competence may constitute a new or significantly expanded market for educational service and possibly an important source of revenue for colleges and schools who are revising their curriculums. Furthermore, experienced practitioners are valuable and indispensable resources in the education of entry-level practitioners.

Mid-career practitioners, in many respects, are critical to the success of pharmaceutical education. Experienced practitioners in managerial positions can influence practice decisions related to the delivery of pharmaceutical care in specific practices. They can create environments favorable to the delivery of pharmaceutical care. Because mid-career practitioners are frequently in key positions in the profession, they can become agents of change within pharmacy practice and facilitate change in pharmaceutical education. Pharmacy faculty must seek out and work with mid-career practitioners to develop effective partnerships related to changes in the entry-level curriculum, experiential education, and the educational needs of practitioners.

[Board of Directors' comment: The Board understands that the Commission to Implement Change in Pharmaceutical Education will elaborate on issues related to midcareer practitioners, including postgraduate professional education, credentialing, and degree equity in a subsequent paper.]

III. Evaluation

The Commission is proposing unprecedented changes in pharmaceutical education. While the Commission believes that these changes are necessary in order for the profession to fulfill its mission to provide pharmaceutical care, it believes that change in education and practice must be monitored and evaluated. Therefore, the Commission urges AACP, as it participates in national, professional strategic planning activities, to build into such efforts a variety of procedures for evaluating change. Among the questions that should be addressed are:

- Is pharmaceutical care being provided to patients?
- Are schools educating students to provide pharmaceutical care?
- Are candidates for licensure being evaluated for their abilities to provide pharmaceutical care?

In order to answer these questions for the profession, it is necessary to establish a baseline with periodic assessments to determine the rate of progress toward achieving the profession's goals. Similarly, AACP should work with schools to devise evaluation elements in their strategic plans to determine whether change is occurring in each institution and within practice areas served by the institution.

RECOMMENDATIONS FOR AACP ACTION

To facilitate the process of implementing needed change in pharmaceutical education, the Commission offers the following recommendations for AACP action:

1. *AACP must assist schools and colleges of pharmacy to develop and implement their plans for the entry-level doctor of pharmacy degree.*
[Board of Directors' comment: The Board interprets this recommendation to include AACP assistance to schools and colleges of pharmacy in securing the necessary resources to implement their plans.]
2. *AACP, schools and colleges of pharmacy, and faculty must exert leadership in developing national, state, and/or regional strategic plans focusing on the delivery of pharmaceutical care in all practice settings.*
3. *AACP must work with individual schools and colleges, individual practitioners, and national professional organizations to develop and implement programs that provide practitioners with opportunities to acquire competencies that enable them to deliver pharmaceutical care. 4.AACP must build evaluation components into its strategic planning activities to assess global changes in the education of students to deliver pharmaceutical care. Further, as AACP participates with other professional groups in developing and implementing strategic plans for the profession, it must build into such plans evaluation components to assess changes in the provision of pharmaceutical care and in the assessment of competencies at licensure to provide pharmaceutical care. In addition, AACP must assist member schools to include evaluation elements in their plans to change their curriculums.*

IV. Conclusion

These are times of enormous change in health care and in the pharmacy profession. At no time in its recent history has the profession been faced with such challenges and opportunities. Through its own strategic planning activities, the profession has identified the major role which it must play in the health care of people. Pharmaceutical education has participated actively in that analysis and planning process. As the profession has outlined its mission, pharmaceutical education, likewise, has developed its mission. As the profession has articulated pharmaceutical care as the major contribution it has to offer to society, pharmaceutical education has developed the outcomes, competencies, content, and process of the educational curriculum that is required to prepare students to render pharmaceutical care at the entry level. Schools and colleges of pharmacy must examine their existing curriculums and restructure them to be consistent with this strategy.

Individual faculties must immediately commit to the goal of implementing the doctor of pharmacy degree as the only entry-level degree for the practice of pharmacy.

Now is the time for a commitment to change!

References

1. Manasse, H.R. Jr., Medication Use in an Imperfect World: Drug Misadventuring as an Issue of Public Policy, parts 1 and 2, *Am.J.Hosp.Pharm.*, 46,929-44;1141-52, 1989.
2. Action by the AACP House of Delegates, AACP Annual Meeting, Salt Lake City, Utah, July 1990.
3. Action by the AACP House of Delegates, AACP Annual Meeting, Boston, Massachusetts, July 1991.
4. The Clinical Role of the Community Pharmacist, DHHS Office of Inspector General, November 1990.
5. Directions for Clinical Practice in Pharmacy: Proceedings of an Invitational Conference conducted by the ASHP Research and Education Foundation and the American Society of Hospital Pharmacists, *Am.J.Hosp.Pharm.*, 42,1287-1342, 1985.
6. Cocolas, G.H., ed., Conference on Pharmacy in the 21st Century, *Am.J.Pharm.Ed.*, 53(suppl), 1989.
7. APhA Policy Committee on Professional Affairs, *Am.Pharm.*, NS17,457-465, 1977.
8. Voice of the Pharmacist, Vol. XX, July 1978.
9. ASHP Board of Directors, *Am.J.Hosp.Pharm.*, 37,1220, 1980.
10. The Final Report of the Task Force on Pharmacy Education, American Pharmaceutical Association, Washington, DC, 1984.
11. Burelle, T.N., Chair Report of the AACP Committee on Professional Affairs, *Am.J.Pharm.Ed.*, 53,418-20, 1989.
12. Eckel, F.M. Chair Report of the Committee on Professional Affairs, *Am.J.Pharm.Ed.*, 54,413-17, 1990.
13. Penna, R.P., Chair Report of the AACP Postgraduate Education and Training Conference, *Am.J.Pharm.Ed.*, 50,73-76, 1986.

Appendix A

The following documents, among others, were consulted by the Commission in the preparation of the background documents and position paper on the entry-level degree in pharmacy:

1. General Report of the Pharmaceutical Survey, 1946-49, American Council on Education, Washington, DC (Elliott Survey).
2. Pharmacists for the Future: The Report of the Study Commission on Pharmacy, American Association of Colleges of Pharmacy, Health Administration Press, Ann Arbor, MI, 1975.
3. The Final Report of the Task Force on Pharmacy Education, American Pharmaceutical Association, Washington, DC, 1984.

4. Directions for Clinical Practice in Pharmacy: Proceedings of an Invitational Conference Conducted by the ASHP Research and Education Foundation and the American Society of Hospital Pharmacists, *Am.J.Hosp.Pharm.*, 42,1287-1342, 1985 (Hilton Head Conference).
5. Pharmacy in the 21st Century Conference, *Am.J.Pharm.Ed.*, 53,1S-78S, 1989(suppl).
6. The Clinical Role of the Community Pharmacist, DHHS Office of Inspector General, Washington, DC, 1990.
7. An Assessment of Future Educational Needs for Community Pharmacists, SRI International, Menlo Park, CA, 1990. (With regard to this reference, the Commission requested and was provided a personal presentation by one of the report authors concerning their methodology, findings, and conclusions.)