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A VISION OF PHARMACY'S FUTURE ROLES, RESPONSIBILITIES, AND MANPOWER NEEDS IN THE UNITED STATES

American College of Clinical Pharmacy

ACCP WHITE PAPER

A Vision of Pharmacy's Future Roles, Responsibilities, and Manpower Needs in the United States

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Executive Summary

Purpose

This White Paper examines the pharmacy profession's future. It discusses pharmacy's changing philosophy of practice, factors influencing the evolution of professional roles and responsibilities, preparation for future roles, future leadership and management needs, workforce manpower projections, and qualifications for practice. The paper projects a vision for this future and provides recommendations to the profession and to the American College of Clinical Pharmacy (ACCP).

Toward a Unified Philosophy of Practice

The time has come to unify the profession in pursuit of its patient care mission. Pharmacy is maturing as a clinical profession and presently is well positioned to transform itself from a product-oriented to a patient-oriented profession. At the root of this change is a movement to revisit the true focus of the profession—namely, the patient. The profession as a whole now must unequivocally dedicate itself to a philosophy of practice that clearly identifies the patient as its primary beneficiary. We suggest that inculcation

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of this new philosophy will require a rational, practical, and inclusive approach that engages all segments of the profession.

Issues Influencing Change in Pharmacist Roles and Responsibilities

Pharmacists gradually are embracing changing professional roles. However, several factors may serve to impair the adoption of new roles, including lack of consensus regarding the profession's goals, resistance to broadening the pharmacist's responsibilities beyond dispensing functions, lack of professional competence and/or self-confidence, the false impression that managed care invariably will decrease pharmacist demand, dissension surrounding adoption of the doctor of pharmacy as the sole professional degree, work environments that provide little or no opportunity for patient-centered practice, lack of reimbursement for pharmacists' clinical services, and underdevelopment of practitioners' interpersonal skills. Factors that appear likely to promote changing professional roles include opportunities to positively impact patients' drug therapy outcomes through disease state management, expanded use of technology and technicians in the dispensing process, increased demand for drug information among health professionals and consumers, new opportunities for creating tailored drug therapy as the field of pharmacogenomics is better understood, and expanded practice roles in community, ambulatory, long-term care, and home care settings. Regardless of the issues confronting future practitioners, it is clear that we will be called upon to provide evidence that justifies these new professional roles.

Preparing for Future Pharmacist Roles

A number of steps should be considered as pharmacy prepares to shift toward a profession-wide, patient-centered practice model. More effective collaboration between pharmacy educators and the profession will be necessary to improve experiential education, develop new patient-centered practice models, and increase student professionalization. Pharmacy practice systems must be revised to support a level of patient care that genuinely impacts health outcomes. The time has come to accept the proven health care benefits of pharmacists' clinical activities and move forward to confidently promote these patient care roles to patients, payers, health care system administrators, and politicians. A broad-based, inclusive planning process involving all pharmacy organizations and associations will be necessary to address the profession's vast retraining needs. In this regard, pharmacy faculty and clinical practitioners must make the commitment to provide the expertise and cooperation necessary to develop efficacious education and training programs that can enhance the clinical practice abilities of community pharmacists. There is a need for community and institutional pharmacy leaders and managers to commit themselves to pharmacy's patient-centered philosophy of practice as they address the challenges associated with establishing new patient care roles. Increasing the recruitment and utilization of well-trained pharmacy technicians to carry out appropriate dispensing functions under pharmacist supervision will be critical to the successful development of new pharmacist practice roles. Clinical pharmacy would benefit from increased involvement in political advocacy at the state and national levels; this might be accomplished best by working synergistically with those national pharmacy organizations and associations that have well-established political links to important decision-makers. Pharmacy educators can strengthen their efforts to develop students' abilities to collaborate with other health care professionals, function in a team environment, and supervise technical personnel. Continued expansion of residency programs in all sectors of practice will be necessary to meet future needs for clinically trained pharmacists. Flexible and innovative approaches to residency training may provide practical and cost-effective mechanisms for some experienced baccalaureate-

educated pharmacists who seek retraining. Schools and colleges of pharmacy have done a good job in effecting broad-based curricular revision but have not yet focused on optimizing the integration of general and professional education to better prepare patient-centered pharmacists.

Providing Necessary Leadership and Management for the Future

The future health care environment may hold many opportunities for pharmacists if the leadership and management of the profession can respond quickly to focus the profession's efforts on improving patients' drug therapy outcomes. The role of future pharmacy leaders will be to establish innovative working environments by projecting a unifying vision for the profession and providing mentoring to pharmacy managers and staff. *All* pharmacists must become agents of change. Pharmacy managers who have assembled successful pharmacy teams will be better able to produce data that justify current and future pharmacist roles. All future pharmacists will require greater leadership and management abilities.

Forecasting Manpower Needs

Future demand for pharmacists remains an unresolved issue for the profession. Both future surpluses and shortages of pharmacists have been predicted. Once technology, new centralized dispensing systems, and technicians are widely utilized to increase drug distribution efficiencies, it is likely that the need for pharmacists engaged solely in distribution will decrease. Thereafter, future manpower needs no doubt will be affected by the profession's success in redefining and transforming itself into a discipline that provides care and impacts patient outcomes. If a majority of pharmacists become involved in collaborative drug therapy (both patient-specific and population-based), disease management, and other evolving areas of practice, then manpower demands likely will increase. If pharmacists' professional roles remain unchanged, manpower requirements will be determined primarily by cost-driven changes in drug distribution management. These changes eventually could produce an environment that requires fewer pharmacists to support the future health care system successfully. To address academic pharmacy's manpower problem, there is a need for the academy to recruit new graduates into

academic career tracks more effectively, promote expansion of residency and fellowship programs, place increased emphasis on the mentoring of new faculty, and incorporate formal pedagogical instruction into postgraduate training programs.

Qualifications for Pharmacy Practice

The requisite education and credentialing of pharmacists will be important issues as the profession pursues patient-centered practice roles. We believe that the credentialing issue—in particular the controversy associated with certification—has the potential to spark the same level of discussion that occurred during the “B.S. versus Pharm.D.” controversy. Certainly one must hope that the credentialing/certification issue will not result in the marked polarization that was spawned by the entry-level degree controversy. However, there is still confusion within the profession concerning contemporary education and credentialing. A coordinated national strategy to clarify pharmacist credentialing clearly is needed. The current proliferation of credentialing processes and certification programs that do not undergo rigorous review and assessment has the potential to undermine pharmacists’ credibility with providers, the public, and payers. We believe that credentialing within the pharmacy profession should meet rigorous national standards. *Pharmacist certification* would be administered best through a coordinated national certification board that assures assessment of knowledge and skills while also validating the appropriate level of training or experience. We further suggest that the entire voluntary *pharmacist credentialing* process (including certification and perhaps postgraduate training) should be coordinated by a national, broad-based credentialing coalition or governing body. Finally, the profession is encouraged to study and assess the value of certification.

A Vision for the Future

The White Paper authors were asked to develop a vision of pharmacy as it might exist at the conclusion of the first decade of the 21st century. Like all visioning efforts, much of what we expect may not come to pass; new, unforeseen developments may profoundly influence the future of the pharmacy profession. However, we offer the following predictions of how events affecting pharmacy may unfold during the next decade:

- Health care will place increasing emphasis on drug therapy to improve patient outcomes and quality of life. Prescription drug use will continue to rise, creating greater risk of drug-related morbidity.
- Society will become increasingly technology literate and technology driven. Technology will be deployed fully to dispense most prescriptions, provide drug information to patients, and facilitate the exchange of patient-specific data among and within health care systems.
- Pharmacy will transform itself from a primarily product-centered profession to a patient care-oriented profession.
- Patient care rendered by pharmacists, including those not directly involved with drug product distribution, will be reimbursed by payers.
- Corporate pharmacy and independent pharmacy owners will find pharmacists’ patient care services to be profitable and will commit resources to this market, including enhanced use of technology and technicians.
- State boards of pharmacy and governmental legislation will enable and facilitate pharmacists’ patient care activities, both individually and in collaboration with other health care professionals.
- Technician certification will be mandated to protect the public.
- Pharmacy education will prepare graduates for increasingly complex patient and population drug therapy management and problem-solving, and supervision of prescription dispensing and processing by technicians and automated technology.
- Pharmacy schools will experience an unprecedented increase in graduates due to a continued rise in demand for pharmacists, popularity of health care careers, and an increased visibility of pharmacists’ patient care roles in the 21st century.
- Appropriate credentials that document clinical practice abilities will be a prerequisite for all pharmacists that provide patient care services. Eventually, residency training will be an expectation of most entry-level pharmacists.

Recommendations

The White Paper recommendations have been divided into two categories: (1) recommended actions for the entire profession, and (2)

recommendations for ACCP and its membership. The recommendations reflect the analyses, forecasts, assessments, and opinions offered in the body of the paper.

Recommendations for the Pharmacy Profession

1. Adopt a unifying philosophy of practice that establishes the patient as the primary beneficiary of the profession, with the pharmacist accepting shared responsibility with other health care professionals for patient care.
2. Capitalizing on the collective strengths of national pharmacy organizations, develop a coordinated strategy to secure financial compensation for pharmacists' patient care services that are not directly related to drug distribution.
3. Create a profession-wide strategy for both the development and use of technology. This strategy should engage pharmacy education and all venues of pharmacy practice to enhance pharmacists' training in, and use of, technology in prescription processing and distribution, drug information, and drug therapy management.
4. Work with professional regulators and state legislators to revise pharmacy practice acts to enable shared responsibility for direct patient care, use of appropriate technology and technical support personnel, and collaborative drug therapy management.
5. Develop credible, coordinated certification and credentialing processes whereby all qualified pharmacists can demonstrate patient care competence.
6. In academia, focus not only on manpower, but also (perhaps even more) on professional empowerment. Pharmacy educators must maintain high expectations for performance of both general and professional educational outcomes; contribute to the development of new post-licensure education and training programs that help existing practitioners "retool"; promote continued expansion of residency programs, including nontraditional programs (mini-residencies); and assume leadership roles in technician training and certification.
7. Foster collaborative efforts by professional organizations, academia, and health care systems to develop new models of pharmacy practice in the community practice setting.

Recommendations for ACCP

1. Collaborate closely with other national pharmacy organizations and assume a leadership role in the profession's adoption of a unifying philosophy of practice.
2. Place increased emphasis on the development of leadership abilities among the rank-and-file membership.
3. Embrace community pharmacy and seek to assist community practitioners in acquiring additional knowledge, skills, and attitudes that can expand pharmacists' impact on patient outcomes.
4. Encourage colleges and schools of pharmacy to explore how current doctor of pharmacy programs can better prepare graduates for contemporary generalist practice.
5. Encourage the National Association of Boards of Pharmacy (NABP) and individual state boards of pharmacy to continue their efforts toward creating licensure exams that are more reflective of pharmacists' patient care responsibilities.
6. Support, and assist in the development of, certificate programs and certification processes that provide for appropriate assessment of knowledge and skills while also validating adequate levels of experience.
7. Oppose pharmacist certification that lacks unique (differentiating) and definable knowledge domains, or adequate assessment of clinical training or experience.
8. Work inclusively with other pharmacy organizations/associations and the Council on Credentialing in Pharmacy to establish a cohesive and coherent plan for pharmacist credentialing.
9. Explore the feasibility of engaging in cooperative political advocacy efforts with community pharmacy organizations and trade associations for the purpose of pursuing agendas of mutual professional interest (e.g., reimbursement for pharmacists' clinical activities that improve patient outcomes).

OUTLINE

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Introduction and Purpose

... the great need is to look at pharmacy from the point of view of the patient—that is, unless we come up with something which deals with people, not pharmacists, not research laboratories, not physicians, not nurses, not drug store proprietors, not the system, et cetera, we really have not added much...

Millis, summarizing the first day of the Millis Commission's deliberations in September, 1973¹

It's deja vu all over again!

Yogi Berra, circa 1960²

As these quotations suggest, the issues currently confronting the pharmacy profession are not new. Despite a vivid realization that it must redefine itself as a patient-centered profession, pharmacy's longstanding focus on product has continued throughout the last quarter of the 20th century. However, it is apparent that the changes in United States health care delivery, financing, education, and management systems that transpired during the 1990s have now finally set the stage for

meaningful transformation of the profession. This paper presents a vision for the future in an attempt to facilitate that transformation.

In the fall of 1997, ACCP President Jerry Bauman charged a subcommittee of the ACCP Clinical Practice Affairs Committee with developing a White Paper on pharmacy manpower for the future that would "consider such things as likely future roles and responsibilities of pharmacists; the number of practitioners required to fulfill these roles and responsibilities; requisite education and training, and continuing education and training; types and numbers of supportive personnel required; and other issues identified by the committee." President Bauman's intent was to provide for ACCP and the profession an analytical and potentially provocative vision of pharmacy's future as it enters the new millennium. The purpose of this document is not only to provide leadership within the profession, but also to lend guidance to ACCP as it pursues in the future a variety of issues with other organizations. What follows is the subcommittee's best effort to address its task, relying on analyses of information available during its 2-year deliberations.

It is interesting to note that evolving controversies surrounding manpower availability have served as a primary stimulus for much of pharmacy's recent widespread dialogue concerning the future of the profession. Indeed, manpower issues were a major driving force behind ACCP's development of this White Paper, and we devote a section of the paper to this issue alone. This is certainly not a new phenomenon; past manpower problems have prompted segments of the profession to take pause and give due consideration to the future scope of pharmacy's role in health care.^{3, 4} And, therein lies the most important principle in addressing pharmacy manpower: although quantitative manpower availability is a critical issue that inexorably gains the entire profession's attention, it is only a symptom of more substantive problems that lie at the heart of the issue. In our estimation, *quantitative* manpower dilemmas can be addressed only through serious efforts that achieve commitment to the *qualitative* components of pharmacy's professional mission. Once this is accomplished, solutions to the manpower problem can be sought through appropriate strategic planning to operationalize the mission. Whereas in the past such determining and planning of mission may have

been optional for many segments of pharmacy, the unfolding economic and political health care environment of the 21st century has positioned the entire profession at a crossroads. Previous published exhortations notwithstanding,⁵⁻⁷ the time has come for concerted, unified action by all stakeholders. It is in this context that the White Paper's observations, analyses, and recommendations have been developed.

Toward a Unified Philosophy of Practice

The pharmacist has lost his professional standing primarily because the patient cannot visualize him as a tradesman and a professional simultaneously.

The Dichter Report, 1973⁸

The most truthful thing I can say about pharmacy practice is this: it is an occupation psychically bound to the act of providing medications to patients, but which knows that it must find a new reason for being.

Zellmer, 1996⁹

Thus, we see today a major proportion of pharmacists in both community and health-system settings who perform solely or primarily distributive functions, the uneven adoption since the 1970s of clinical tasks, and much talk about, but scant performance of, pharmaceutical care functions by either health-system or community pharmacists.

Holland and Nimmo, 1999¹⁰

Throughout its modern history, pharmacy has struggled to balance the profession's seemingly dual mercantile and professional missions. The Dichter report, commissioned by the American Pharmaceutical Association (APhA) in 1972 to analyze consumers' perceptions of pharmacists, noted that this model of merchant-professional was in agreement with no other profession's credo and therefore was potentially dysfunctional.⁸ Pharmacy is the only health care profession that is reimbursed primarily through sale of a product rather than for provision of patient-specific service.¹¹ The profession's movement toward patient-centered practice in the 1960s, 1970s, and 1980s resulted in promulgation of the principles of clinical pharmacy practice, drug information services, and eventually, pharmaceutical care.¹² In the early 1990s, the provision of pharmaceutical care was endorsed broadly by the profession, including pharmacy educators, as its new professional mission.¹³ However, continued high

demand for product-oriented practitioners, combined with the absence of viable reimbursement systems for nondistributive patient care services, made the implementation of patient-centered practice impractical for the profession as a whole...*until now.*

Today, it is apparent that technology-driven, cost-effective systems for managing the drug distribution process are a reality, and these systems will be refined and widely implemented in the near future.⁵ Technical support personnel are becoming more extensively deployed in pharmacies, and the involvement of pharmacy technicians in the drug distribution process will be increased if the steps necessary to assure public safety are accomplished.¹⁴ These developments gradually will relieve the demand on pharmacists to dedicate the majority of their time solely to distributive functions. Reimbursement of pharmacists for direct patient care services unrelated to the distribution of a product is now occurring, and concerted efforts to increase the number of pharmacists able to successfully secure this compensation are under way.¹⁴⁻¹⁶ Although admittedly slow to evolve, reimbursement for pharmacists' patient care services most likely will have unprecedented impact on the profession during the 21st century. As suggested by Sleath and Campbell in their provocative essay on the sweeping changes in pharmacy, "If large [retail pharmacy] corporations...perceive pharmaceutical care as a profitable market and commit resources to expand the area, the practice of pharmacy could be changed almost overnight."¹⁷

With this backdrop, we believe that the time is at hand to unify the profession in pursuit of its patient care mission. Further suggesting that a profession-wide dialogue regarding pharmacy's mission is appropriate at this time, recently published papers from diverse segments of the profession have focused on the need to implement broad changes in practice.^{10, 14, 18-21} The divisiveness that resulted from pharmacy's pursuit of patient-centered practice was nonproductive for the profession as a whole.¹⁷ One source of this divisiveness was the controversy surrounding adoption of a single professional practice model and the moniker assigned to that model. Nimmo and Holland concisely summarize the major practice models that have engaged the profession for the past four decades, namely (1) the drug information practice model, (2) the self-care practice model, (3) the clinical pharmacy practice model, (4) the

pharmaceutical care practice model, and (5) the distributive practice model.¹⁸ These authors also point out that pharmacy's transition to a new patient-centered role "will not be instantaneous but will continue for an indefinite period to include a shifting balance of the five practice models."²⁰ The 1999 White Paper from the National Association of Chain Drugstores (NACDS), APhA, and the National Community Pharmacists Association (NCPA) echoes this view: "While some say that the pharmacist's role has been 'redefined' from medication dispenser to patient care provider, it is more accurate to say the role has been *expanded*."¹⁴ Hence, it appears that the transformation of pharmacy from a product-oriented to a patient-oriented profession should necessitate the coexistence of several concurrent practice models during this period of transition. Nonetheless, we believe that this evolutionary process probably will result eventually in the emergence of a single practice model, although one that may be actualized differently within a variety of settings.

Given this likelihood, there is clearly no purpose in continuing to debate the terminology that should be properly applied to this evolving patient-oriented practice while we still find ourselves in a transitional period. Be it "clinical pharmacy," "pharmaceutical care," "disease state management," "total pharmacy care," or any of the myriad of other descriptors, what remain most important are the purpose and end result of pharmacy's professional activities. Weaver and colleagues captured this idea well in a recent review by stating, "...clinical pharmacy was a means, rather than the end, to achieve the professional shift that was needed."²² And, unfortunately, many members of the profession involved in the clinical pharmacy and pharmaceutical care movements have failed to appreciate this seminal principle—it is not really about *what* we do, but rather, about *why* we do it.

Based on the foregoing, we propose that the profession's leading organizations and trade associations come together to redefine, and reach consensus on, a unifying philosophy of practice for the pharmacy profession. Cipolle, Strand, and Morley²³ offer the following characterization of practice philosophy:

A philosophy of practice is a set of values that guides behaviors associated with certain acts. ...A philosophy defines the rules, roles, relationships, and responsibilities of the practitioner. Any philosophy of practice that is to be taken seriously must reflect the functions

and activities of the practitioner—both esoteric and common, appropriate and questionable—and also critically provide direction toward the formation of a consistent practice. How a practitioner practices from day to day should reflect a philosophy of practice. A philosophy of practice helps a practitioner make decisions, determine what is important, and set priorities over the course of the day. Ethical dilemmas, management issues, and clinical judgements are all resolved with the assistance of a practitioner's philosophy of practice. This is why the philosophy of practice must be well understood and clearly articulated, so it is explicit and relied on in the face of difficult problems.

In our estimation, the pharmacy profession has no such consensus philosophy of practice. Although pharmaceutical care was adopted by the profession as pharmacy's practice mission, the philosophy behind this practice has not been embraced by the profession as a whole. Common misconceptions exist among practitioners, including the all-too-often-heard proclamation that "*all* pharmacists practice pharmaceutical care." Obviously, as noted by Holland and Nimmo, this is not the case. Data recently gathered by Arthur Andersen, LLP, for NACDS indicate that community chain pharmacists are spending more than two-thirds (68%) of their time engaged in processing orders and prescriptions, managing inventory, and performing administrative activities.²⁴ This study found that only 2% of community chain pharmacists' time was devoted to activities involving disease management. Sleath and Campbell observe that "the profession has a long way to go in its efforts to convince the public (or itself) that the patient rather than the drug product is the social object of the profession."¹⁷

It is noteworthy that the NACDS-APhA-NCPA White Paper on implementing change in community pharmacy *practice* [emphasis is ours] never employs the term "pharmaceutical care," opting instead to use the terms "patient care," "direct patient care," and "patient care services." Nonetheless, the NACDS-APhA-NCPA White Paper supports the vision of patient-oriented practice, indicating that the "concept of the pharmacist as a patient care provider is gaining acceptance in the health care community."¹⁴ The White Paper emphasizes the continued dual role of pharmacists as managers of both dispensing and patient care, and suggests that if pharmacy is to succeed in this capacity, the profession must

become united by establishing common goals that meet public need. We agree.

Whereas adoption of the pharmaceutical care mission was a laudable step for pharmacy, this alone has not transformed professional practice. Ironically, the tenet of pharmaceutical care may be experiencing significant erosion due to its implementation because this implementation has been inconsistent. When most practicing pharmacists are unable to achieve the mission set forth for pharmacy as a whole, one must question the profession's credibility. Despite the fact that meaningful, patient-centered care that impacts patient outcomes is performed by pharmacists in a variety of settings today, we still fall short of implementing this practice model to the full benefit of society. Indeed, to the majority of consumers, pharmaceutical care is at best imperceptible, and at worst nonexistent.²³ This is particularly significant in the community hospital and community pharmacy sectors where pressures of manpower shortages, inadequate technological resources and support personnel, diminished financial support due to managed care policies and inefficient third party benefit designs, and the mismatch between practice regulations and needed practice empowerment have made the implementation of pharmaceutical care impractical.¹⁴ The landmark Millis Commission Report, perhaps the most holistic and comprehensive study of pharmacy to date, implored the profession to redefine itself to improve patient care, "Eventually, perhaps the definition will describe the practice of the vast majority of pharmacists who should be deeply involved with people and their health as they are met through drugs."²⁵ But try as we might, it will not be possible to meet society's drug therapy needs without engaging all sectors of the profession and mounting the support necessary to involve the "vast majority" of pharmacists, as the Commission suggested. At present, most pharmacists not only are prevented from rendering pharmaceutical care, but have adopted a jaundiced view of the profession's ability to achieve this vision. We no longer can accept the mismatch between what we espouse and what we are able to accomplish.

Pharmacy's leadership must rally the profession to revisit, and forever affirm, its philosophy of practice. That is, the profession as a whole must dedicate itself unequivocally to a philosophy of practice that clearly identifies the patient as the primary beneficiary of the profession. Once this philosophy is embraced wholeheartedly by the

profession's respective organizational leaders, each sector of the profession should participate collaboratively to plan both strategically and realistically to promote the evolution of practice models that consistently will support this philosophy. This cannot be a "revolutionary" or exclusionary process. Rather, the current environment demands a rational, practical, and inclusive approach that will engage all segments of the profession. Whether considering institutional, community, managed care, or other sectors of the pharmacy profession, an uneven commitment to the transformation and implementation of patient-centered practice models is not acceptable. However, as these practice models evolve, it must be realized that different segments of the profession will progress at different rates and perhaps along different paths. Whether practitioners choose to label their activities as clinical pharmacy, pharmaceutical care, or disease management should be immaterial to the success of this endeavor. Pharmacy's leadership will be confronted with the challenge of valuing the initial differences among various approaches that may be necessary to implement patient-centered care in diverse practice settings while at the same time seeking to achieve solidarity through a shared philosophy of practice.

Issues Influencing Change in Pharmacist Roles and Responsibilities

The future will not permit use of the full-trained [sic] pharmacist in procedures and tasks that do not require the level of his knowledge and skill.

The Millis Commission, 1975²⁵

...much of what pharmacists will do or not do during a workday is driven by their professional values—by what is important and what obligations are to be met—rather than by some carefully defined list of tasks.

Nimmo and Holland, 2000²¹

Numerous factors will influence the pharmacy profession's ability to accomplish the changes necessary to implement a profession-wide shift in practice philosophy and activities. Concerted and unified efforts from within the profession are a definite prerequisite to change, as has been noted. However, forces external to the profession also will have profound influence on pharmacy's future.

Fortunately, pharmacists gradually are

embracing changing definitions of their professional roles. All segments of the pharmacy profession—practice, research, industry, and academia—are welcoming and accepting change. An underlying premise of this White Paper is that pharmacists' roles and responsibilities should change and that the result of appropriate, ongoing change will determine pharmacist manpower needs over the next decade.

Factors that Oppose Changing Pharmacist Roles

Multiple factors are perceived to be barriers to any change in pharmacists' professional identity. Some of these also have been delineated in an earlier ACCP White Paper, "Clinical Pharmacy Practice in the Noninstitutional Setting."²⁶ Although it is not the intent of this paper to reiterate all barriers to changing professional roles for pharmacists, several key points deserve discussion.

First, the many differing attitudes and goals of individual pharmacists often contribute to a lack of professional cohesiveness. In fact, the goals of different pharmacists and pharmacy organizations are often at odds with one another. Examples include past debates concerning the entry-level Pharm.D. degree and current controversies surrounding certification and credentialing. Lack of consensus on goals, and the lack of a clear, focused definition of "who we are and where we are headed," are strong forces that can impair effective change.

Second, Donald Brodie observed the following in 1981:

"...we must remember that our profession lends itself exceptionally well to the practice of technique. Some would say that we are victims of our own technique. Consumers often see only a bottle of pills. Many of our practitioners see the boundaries of their professional responsibility circumscribed by the practice of technique—the dispensing of medicine."²⁷

Through much of the 20th century the profession was served well by its strong identification with product dispensing, but at this point an exclusive emphasis on dispensing is detrimental to the efforts to change pharmacists' roles. The boundaries of the profession are not static and circumscribed but dynamic and ever evolving. This is disconcerting to some members of the profession, for with a dynamic boundary we are never in complete command of the knowledge necessary to practice with optimal effectiveness and therefore must commit ourselves to lifelong

learning. This is *not* to say that the accurate dispensing of drugs and devices should be the responsibility of some other profession, but that the responsibilities of the profession must expand beyond an exclusive identification with dispensing. Indeed, the recent report released by the National Academy of Science's Institute of Medicine (IOM) should serve as impetus for all sectors of the profession to take action toward reducing medical errors.²⁸ The IOM report estimates that approximately 7,000 patients die each year from medication errors. As has been noted by others, preventable drug-related morbidity can be reduced by involving pharmacists in the provision of direct patient care.²⁹

Third, the competence and confidence levels of some segments of the pharmacy workforce are factors opposing pharmacist role redefinition. For example, when Knapp and colleagues evaluated prescription intervention rates among community pharmacies, intervention rates ranged from 0–4.1% of prescriptions.³⁰ This variability may have been due to insufficient self-confidence among the community pharmacists in the study, or it could reflect that those pharmacists who accomplished no interventions lacked the clinical competence to conduct such interventions. Alternatively, it could indicate that prescription interventions were not a high priority in the practice settings included in the evaluation. Unfortunately, if *any* of these suppositions are true, they suggest that the largest segment of our profession (community pharmacists) is not consistently and effectively making professional interventions a core professional value. Stated another way, the lack of prescription interventions may be a significant obstacle if community pharmacists are to play a major role in improving drug-related outcomes. Confidence level and self-image are important prerequisites for pharmacists who seek to perform health care functions that traditionally have been carried out by other health professionals. However, many pharmacists choose not to intervene in a patient's drug therapy because they do not believe that they have a role in disease prevention and health promotion initiatives, such as immunizations and smoking cessation; they feel incompetent to monitor the necessary clinical or laboratory parameters pertinent to drug therapy; they possess unfounded fear that there is increased risk of professional liability associated with prescription interventions; or they believe that

their duty to counsel is completed after asking the patient, "Did your physician tell you how to take this medicine?"

Fourth, some assert that corporate or managed health care is associated with a decrease in number of pharmacy positions. When the relationship between staff size and full-time equivalent (FTE) changes was evaluated in the Pharmacy Manpower Project under the hypothesis that increased managed care penetration was associated with decreased pharmacy staff size and job loss, the hypothesis was rejected.³¹ Managed health care systems have *increased* demand for pharmacists by providing more jobs in areas such as data analysis, pharmacy benefit management, formulary construction and maintenance, development of system-wide clinical pathways, drug information, disease-specific clinics, prevention services, and automation.³² Managed care systems typically utilize sophisticated information technology and possess greater access to patient-specific data to support expanded pharmacist roles.³³

Fifth, dissension about whether or not to implement the entry-level Pharm.D. degree occupied pharmacy organizations and pharmacists for too long. Regardless of the pros and cons of the ultimate decision, one thing seems evident: the all-Pharm.D. controversy occupied the pharmacy profession's intellectual and political energies for so long that some members of the profession "took their eyes off" other issues that were critical to the survival and advancement of the profession.

Sixth, business interests (i.e., the bottom line) often are cited as factors opposing professional advancement of pharmacists. Pharmacists complain that the volume and time demands of dispensing prescriptions preclude using drug therapy knowledge to help patients. However, pharmacists have options with respect to the setting in which they choose to practice their profession. Perhaps the current shortage of pharmacists in high-volume, chain drug store settings is an indication that pharmacists are not amenable to the requirement of high-volume drug dispensing at the expense of time spent using professional knowledge to help patients. Further exacerbating this situation is the current low-unemployment economic environment that has created a concomitant shortage of available pharmacy technicians. Should it persist, this technician shortage might drive more pharmacists away from some community pharmacy

settings.

Seventh, lack of reimbursement for pharmacists' patient care services is impeding development of new, expanded practice roles. Most prescription benefit programs are designed to provide reimbursement only for the provision and cost of prescription drugs. Pharmacist activities that have been shown to improve patient outcomes and/or lower health care costs in most cases are excluded from patients' health care benefits.¹⁴ Without remuneration for both product *and* service, the majority of pharmacists have focused their efforts on distribution of product. This is clearly a major impediment in the community pharmacy setting, where marginal reimbursements for dispensing have necessitated continued increases in prescription volume. In addition, although a majority of recently surveyed health-system pharmacists indicated that they are involved in provision of pharmaceutical care, only 16% said that they are reimbursed for such services.³⁴

Finally, the interpersonal skills of pharmacists perhaps are underdeveloped and undervalued. These skills are crucial to success in many interactions with patients and other health care professionals. Pharmacy education in some instances may have neglected the link between communication ability, human relations skills, and effective professional practice. Fortunately, this is changing. Pharmacy schools increasingly are using personal interviews in selecting candidates; mandating course work in communications, negotiation, persuasion, and teamwork; and requiring team projects and verbal presentations throughout the professional curriculum.⁵

Factors that Promote Changing Pharmacist Roles

Multiple factors can prompt changes in professional roles. The anticipated growth in the number of drugs prescribed is arguably a factor that should stimulate increased future demand for pharmacists. Also, with increased prescribing comes more frequent medication-related problems, a major area of need for pharmacist intervention.³⁵ Throughout the past 30 years, numerous publications have detailed the significant health care problems associated with drug-related morbidity and mortality.³⁶⁻⁴⁷ For each \$1 spent on medications in nursing homes, \$1.33 is expended for drug-related problems.⁴⁸ More than 70% of medication expenditures occur in the ambulatory setting where, coincidentally,

about 60% of pharmacists practice.⁴⁹ A community pharmacy study described the analysis of more than 600 interventions from more than 93,000 prescriptions obtained under a capitated, managed care Medicaid contract.³¹ In this study, product selection interventions resulted in a \$20.17 reduction in cost/prescription, whereas interventions directed toward clinical problem resolution resulted in a range of savings from \$1188–\$1755/intervention. Opportunities for medication interventions exist in virtually all practice settings. Pharmacists routinely must conduct patient counseling, become more actively involved in patient drug therapy decision-making, and consistently intervene to prevent and resolve drug-related problems.

Second, a small percentage of patients (e.g., patients with chronic diseases, such as diabetes or asthma) account for a high percentage of health care costs. Disease state management (DSM) for patients with chronic medical conditions that contribute to high resource utilization increasingly is being conducted through an interdisciplinary collaboration of health care professionals including nurses, primary care physicians, specialist physicians, and pharmacists. Disease state management can occur in either the inpatient or ambulatory care environment. Additionally, patients with chronic diseases visit pharmacies often for prescription and over-the-counter medications. Community pharmacies—and pharmacists—can serve as potential “ambulatory clinic sites” where pharmacy professionals assess and monitor patients with chronic diseases during their pharmacy visits.

A third factor promoting changes in pharmacists’ professional roles is the increasing recognition of the need to impact clinical, economic, and humanistic patient outcomes. Assessment of these patient outcomes requires data collection and analysis. As key collaborators in the DSM process, pharmacists are well positioned to apply the scientific method effectively to outcomes analysis. Accreditation processes for hospitals and health plans (e.g., the National Council on Quality Assurance [NCQA] and the Joint Commission on Accreditation of Healthcare Organizations [JCAHO]) require data collection and analysis in areas such as care processes and outcomes. Typically, data must be integrated from several sources to document the performance of the organization. Again, pharmacists are well positioned to provide and analyze the data critical to this documentation.

Fourth, the expanding use of automation and information technologies, and the use of support personnel, allow pharmacists to shift focus from the drug product (and the knowledge and skill that its compounding and/or dispensing requires) to drug-related problems, care processes, outcomes, and so forth. Although some pharmacists fear increased use of technology and support personnel, this assistance can promote change by allowing pharmacists to focus on the patient.

Fifth, the ability to retrieve, analyze, and apply published literature to medication-related problems can create expanded roles for pharmacists. Health care professionals always will need current information about new drugs, devices, and medical advances, particularly in view of the rapid pace of new drug development. Likewise, increasingly sophisticated consumers now are seeking more information about their drugs and expect to participate in their own care. Roles exist for pharmacists in Internet-based professional and consumer education, and in health professional continuing education. Pharmacist roles also are expanding to include direct delivery of patient-focused information and education.

Pharmacogenomics—the application of principles of pharmacogenetics to the development of optimal regimens for treatment or prevention of disease—also may result in new pharmacist roles.^{50, 51} It is likely that knowledge of a particular patient’s genetic profile will be used in the future to individualize drug selection and dosing, or to predict adverse effects. Pharmacists may be required to assist in the interpretation of diagnostic genetic tests and to use their knowledge of pharmacokinetics and pharmacodynamics to optimize drug therapy for a specific patient. The greater degree of complexity associated with this mode of drug selection may further increase pharmacists’ roles on the patient care team. In addition, one would expect that the evolution of pharmacogenomics will increase the need for patient and health care provider education regarding drug therapy.^{51, 52}

For the past several years, pharmacists’ practice settings have been shifting away from the acute care and traditional community practice environment toward long-term, ambulatory, and home care settings. Changing models of pharmacy practice in these settings are providing new, expanded opportunities for pharmacists in the areas of continuity of care, disease state management, and preventive care.

Other issues also may influence both current and potential roles of pharmacists in the future. It is important to note that some issues have the potential either to impair or promote redefinition of the pharmacist's professional role, depending on the perspective from which the individual may choose to view a given issue.

Justifications for Changing Pharmacist Roles

Patient outcomes are frequently suboptimal because of drug-related problems. Pharmacists are often the health care professionals who have the greatest knowledge and skills to prevent, detect, monitor, and resolve drug-related problems. Pharmacists remain highly trusted and readily accessible to the public. Furthermore, as costs of drug therapy increase at an untoward rate, health care delivery systems and technology continue to evolve, and interdisciplinary practice becomes more common, many pharmacists likely will find themselves engaged in direct patient care.

Expanding and retaining desirable roles (i.e., those that are useful to both patients and to the health care system) will require proactive development and implementation. Pharmacists must continue to justify their positions through documentation of clinical interventions and patient outcomes; education of patients, health professionals, and payers; collaboration with other health providers; and dissemination of professional accomplishments through publication. Pharmacists also must seek to highlight best practices, thereby establishing quality performance expectations and increasing the practice levels of pharmacy generalists and specialists.

Can pharmacists change? We believe they can. A growing number of pharmacists are proactively changing their practices, participating in research, and educating students and other health care professionals. Clinical pharmacy remains at the forefront of these initiatives. But, *how* will the profession prepare for this change? We consider some possibilities.

Preparing for Future Pharmacist Roles

[We must] work to solve the challenges of attaining adequate numbers of pharmacists to manage the increasing prescription volume, and adequate support help for dispensing functions, so pharmacists may devote an appropriate amount of time to direct patient care.

NACDS-APhA-NCPA White Paper, 1999¹⁴

...the continued requirement for pharmacists to maintain ownership and oversight of drug distribution requires that we re-think the linkage of the systems of pharmaceutical care and dispensing."
Cohen, 1999⁵³

Pharmacy education has a responsibility of preparing not only for the present but also for the future, even innovating for the future and guiding the course of the profession.

Alan Brands, 1969⁵⁴

Whereas forecasting the future may be impossible, preparing for the future is possible if one gathers and analyzes information based on knowledge of past and present trends. Germane to the themes of this White Paper are some important observations that should be considered as pharmacy prepares to shift toward a profession-wide, patient-centered practice model.

Observation No. 1

Revising the goals, content, and processes of pharmacy education will not in and of itself change practice.⁷ Although pharmacy educators have a responsibility to prepare their graduates for evolving professional roles, academia alone cannot create these roles in sufficient number to impact broadly on the practice of pharmacy. Academia can help to innovate, but any sustainable change in pharmacy practice ultimately must be driven and maintained by the practice community. Indeed, past efforts to educate and prepare graduates better for new professional activities have, ironically, distanced academia from the profession it serves.¹⁷ In the absence of an empowering practice environment, new graduates eventually become disenchanted by the mismatch between what they are "taught" and what they actually "do"; and more mature members of the profession grow increasingly convinced that the academy has lost touch with the real world. "Overeducated and underutilized" has served at times as a mantra for the profession.

Implications

Pharmacy educators must work more closely with the profession, particularly in the areas of experiential education, development of new patient-centered practice models, and student professionalization. Likewise, involving pharmacist leaders from the community who are willing to serve as adjunct faculty can promote leadership development and enhance profes-

sionalization among the student body. Colleges also must seek to collaborate with health systems and organizations to finance and develop demonstration projects that explore new, evolving models of pharmacy practice. Exposing students to these practices may foster further development and propagation of successful models in years to come. However, it is important that academia recognize that a substantial period of time may be required to develop empowering practice environments that globally impact the profession. In the interim, pharmacy school faculty and administrators should make every attempt to ease student frustrations with the mismatch between education and practice, while still maintaining their resolve to prepare graduates for future patient care roles.

Observation No. 2

A revolutionary practice mission will not revolutionize practice if it cannot be implemented. As noted previously, since the profession-wide endorsement of the pharmaceutical care mission, the vast majority of pharmacists' practices have undergone little change.^{7, 14, 24}

Implications

Practitioners should recognize that new roles can be achieved only if a new practice model is established that is aligned with the new professional mission. This requires investment in the new mission by all segments of the profession. As a reality check, pharmacists and pharmacy students must be made aware of the fact that traditional pharmacist activities, including patient education and counseling, do not *alone* constitute pharmaceutical care. Professionals must work together patiently, honestly, and meaningfully to revise pharmacy's practice systems to support a level of patient care that genuinely affects patients' drug therapy outcomes.

Observation No. 3

Patient-centered, clinical services have a positive impact on patient outcomes and health care costs.⁵⁵⁻⁶¹ The efficacy of the clinical patient care activities provided by pharmacists has been demonstrated convincingly in institutional, ambulatory, and community pharmacy settings (Table 1). These data provide ample evidence that pharmacists' patient care activities can be

fiscally and medically prudent, regardless of practice setting.

Implications

The time has come to accept that adequate data have been generated to validate the benefits of pharmacists' clinical activities. All sectors of the profession (academia, clinical, community, institutional) now must move forward in a unified fashion to confidently advocate and market pharmacy's patient care roles to patients, payers, health care system administrators, and politicians. Meanwhile, additional randomized, controlled studies are needed to rigorously analyze the true costs of pharmacists' clinical patient care activities and to document the relative outcomes produced by these activities compared to those of traditional medical care.⁶² These data will be invaluable to the profession as it seeks to establish its place in our increasingly competitive health care environment.

Observation No. 4

Approximately 90% of practicing pharmacists hold the baccalaureate pharmacy diploma as their sole degree and have been involved primarily in dispensing prescriptions.⁶³ Inadequate mechanisms are currently available to accomplish the retraining necessary for these practitioners to fulfill new clinical practice roles.

Implications

This observation leads us to the undeniable conclusion that profession-wide retraining will be needed for pharmacists to assume true patient care roles. We believe that some segments of the profession may have underestimated the importance and enormity of this task. A broad-based, inclusive planning process involving all pharmacy organizations and associations must be initiated to address this issue.

Observation No. 5

Collectively, the clinical pharmacy practice community (including ACCP) and pharmacy education possess the expertise necessary to create new, practical, and valid means of retraining pharmacists for emerging patient care roles.⁶⁴ However, these sectors of the profession have not yet fully committed to partnering with community pharmacy to create effective, appropriately rigorous retraining mechanisms.

Table 1. Selected peer-review publications that document the benefits of pharmacists' clinical practice activities.

Category	Publication	Summary
Ambulatory Care	McKenney JM, Slining JM, Henderson HR, Devins D, Barr M. The effect of clinical pharmacy services on patients with essential hypertension. <i>Circulation</i> 1973;48:1104-11.	Important publication of an early, controlled clinical study demonstrating ability of clinical pharmacy services to effect significant improvement in patients' knowledge of hypertension, number of normotensive patients, and compliance with prescribed therapy.
	Chiquette E, Amato MG, Bussey HI. Comparison of an anticoagulation clinic with usual medical care. <i>Arch Intern Med</i> 1998;158:1641-7.	Comparative trial showing that a clinical pharmacist-run anticoagulation clinic improved anticoagulation control, reduced bleeding and thromboembolic event rates, and saved \$162,058/100 patients annually through reduced hospitalizations and emergency room visits.
Community Pharmacy	Munroe WP, Kunz K, Dlamady-Israel C, Potter L, Schonfeld WH. Economic evaluation of pharmacist involvement in disease management in a community pharmacy setting. <i>Clin Ther</i> 1997; 19:113-23.	Controlled study showing that pharmacist intervention in the community pharmacy setting reduced substantially monthly health care costs in patients with hypertension, hypercholesterolemia, diabetes, and asthma. Savings ranged from \$143.95/patient/month to \$293.39/patient/month.
	Bluml BM, McKenney JM, Cziraky MJ. Pharmaceutical care services and results in project ImPACT: hyperlipidemia. <i>J Am Pharm Assoc</i> 2000; 40:157-65.	Multi-site observational study demonstrating pharmacists' abilities to promote patient persistence (93.6%) and compliance (90.1%) with dyslipidemic therapy. Among 397 evaluable patients followed for a mean of 24.6 months, 62.5% reached and were maintained at their NCEP lipid goal by the end of the study.
	Cipolle RJ, Strand LM, Morley PC, ed. Outcomes of pharmaceutical care practice. In: <i>Pharmaceutical care practice</i> . New York: McGraw-Hill, 1998: 205-35.	Observational study involving provision of pharmaceutical care to 5480 patients during a 12-month period. The authors found significant improvement in attaining therapeutic goals and reducing the level of patient complexity due to resolution of drug therapy problems. Among a cohort of 249 patients aged > 65 years, every dollar invested in providing pharmaceutical care produced a potential savings to the health care system of over \$11.
Inpatient Care	Bond CA, Raehl CL, Franke T. Clinical pharmacy services and hospital mortality rates. <i>Pharmacotherapy</i> 1999;19:556-64.	Evaluation of the association between clinical pharmacy services and mortality rates (adjusted for severity of illness) for Medicare patients in 1029 U.S. hospitals. Services significantly associated with lower mortality rates were clinical research, drug information, drug admission histories, and participation on a cardiopulmonary resuscitation team.
	Leape LL, Cullen DJ, Clapp MD, et al. Pharmacist participation on physician rounds and adverse drug events in the intensive care unit. <i>J Am Med Assoc</i> 1999;282:267-70.	Controlled study showing that pharmacist participation in physician rounds in a medical ICU decreased the rate of preventable adverse drug effects due to ordering errors by 66%. The pharmacist's prospective interventions consisted primarily of order correction/clarification, provision of drug information at the time of therapeutic decision-making, and recommendation of alternative therapy. Nearly all recommendations (99%) were accepted by physicians.

Table 1. (continued)

Category	Publication	Summary
	McMullin ST, Hennenfent JA, Ritchie DJ, et al. A prospective, randomized trial to assess the cost impact of pharmacist-initiated interventions. <i>Arch Intern Med</i> 1999;159:2306-9.	Prospective study demonstrating that patients randomized to receive clinical pharmacist intervention had drug costs that were 41% lower than those in the control group. Interventions typically involved streamlining therapy to less expensive drugs, discontinuing unnecessary agents, and modifying route of administration. This extrapolated to an annual saving for this 1200-bed teaching hospital of approximately \$394,000.
Managed Care	Borgsdorf LR, Miano JS, Knapp KK. Pharmacist-managed medication review in a managed care system. <i>Am J Hosp Pharm</i> 1994;51:772-7.	Retrospective study of a pharmacist-managed medication review clinic in a staff model HMO. Analysis of patients referred to the pharmacist for this service revealed reductions in the number of unscheduled physician visits, urgent care visits, emergency room visits, and hospital days. Savings associated with this service were calculated to be \$644/patient/year.
Economic Impact	Schumock GT, Meek PD, Ploetz PA, et al. Economic evaluations of clinical pharmacy services—1988-1995. <i>Pharmacotherapy</i> 1996; 16:1188-1208.	Literature review of economic assessments of clinical pharmacy services published between 1988 and 1995 found that 89% of the 104 studies reviewed described positive economic impact of the clinical services evaluated. Among those studies analyzing cost versus benefit, the mean benefit:cost ratio was 16.70:1.
	Bond CA, Raehl CL, Franke T. Clinical pharmacy services, pharmacist staffing, and drug costs in United States hospitals. <i>Pharmacotherapy</i> 1999; 19:1354-62.	Study examining the relationships and associations among clinical pharmacy services, pharmacist staffing, and drug costs in 934 U.S. hospitals. Based on multiple regression analysis, increased clinical pharmacy staff levels were associated with decreased drug costs. Specific clinical pharmacy services associated with lower drug costs were in-service education, drug information services, drug protocol management, and admission drug histories. For each dollar spent on clinical pharmacist salaries, drug costs were reduced by \$23.80-\$83.23, depending on the services provided.

Implications

Pharmacy faculty and clinical practitioners must make the commitment to provide the expertise and cooperation necessary to develop efficacious education and training programs that can enhance the clinical practice abilities of community pharmacists. The ACCP's involvement in community pharmacy training and certification is essential. We believe that the clinical pharmacy community, working collaboratively with academia, is both ready and able to begin this task.

Observation No. 6

Community pharmacy, and to some extent institutional pharmacy, face serious challenges in establishing patient care practice roles. Barriers to change include rapidly increasing prescription volume; limited opportunity to appropriately deploy pharmacy technicians in the drug distribution process due to legal prohibitions; inability to fully employ technology due to its expense; lack of access to patient-specific data; inefficient and restrictive pharmacy benefit programs; lack of reimbursement for non-

distributive services; workforce dissatisfaction; a relative paucity of clinical education and practice models in community pharmacies; and shortages of both traditionally prepared practitioners and clinical pharmacists.^{14, 56}

Implications

We believe that it is essential that academia and clinical pharmacy recognize the significant challenges facing community and institutional pharmacy. It is equally important that community and institutional pharmacy leaders commit themselves to pharmacy's patient-centered philosophy of practice as they address these challenges. Finally, pharmacy educators and clinicians should begin immediately to work cooperatively with community and institutional pharmacy to assist in development of new education and practice models, share data on the cost-effectiveness of clinical pharmacy services, and develop new types of training programs.

Observation No. 7

Pharmacy technician training is not standardized and remains inconsistent across the profession.^{14, 25, 65} Given this potentially uneven preparation of technicians, a valid certification process is necessary to ensure that technicians possess the knowledge and skills required to perform competently. Although more than 54,000 pharmacy technicians currently are certified by the Pharmacy Technician Certification Board (PTCB), this represents a significant minority of the total workforce of more than 150,000 pharmacy technicians employed in the community or institutional setting.⁶⁶⁻⁶⁸ Even if it were universally permitted by law, many pharmacists would hesitate to delegate distributive functions to technicians due to a lack of confidence in the competence of some support personnel.

Implications

Pharmacists must advocate the recruitment and utilization of well-trained, nationally certified pharmacy technicians who can be deployed in appropriate dispensing roles, under pharmacist supervision. The term "pharmacy technician" should be applied only to those individuals who have completed minimum training requirements and who are certified by the PTCB.⁶⁹ Standardized training of pharmacy technicians should be a high priority for the

profession to ensure public safety, and pharmacy employers must be encouraged to employ only nationally-certified technicians.⁶⁵ Pharmacy education should consider expanding its role in the standardization and validation of technician training. We agree with the Millis Commission's assertion:

"The definition of that [technician] training will be the joint responsibility of the pharmacy profession, pharmacy education, and the state boards of pharmacy. The general supervision of training, however, should be the responsibility of the colleges of pharmacy... the pharmacy colleges must play a significant and active role in the curriculum design, in the setting of standards, and in supervising the teaching of pharmacy technicians."²⁵

Observation No. 8

Despite its position as a highly trusted profession, pharmacy has been unable to advocate its patient care role effectively with political decision-makers.⁷ In particular, we believe that the clinical pharmacy community has maintained a relatively low degree of visibility on state and national political landscapes. This observation notwithstanding, national community pharmacy organizations and trade associations appear to possess greater strength in these arenas.⁷⁰

Implications

We suggest that this is an opportunity for pharmacy organizations to work together synergistically on state and national political advocacy efforts that both strengthen and unify the profession's message regarding pharmacists' contributions to patient care.

Observation No. 9

Although attempting to prepare graduates for the collaborative roles necessary to share responsibility for drug therapy with other health care professionals, the vast majority of pharmacy schools are not yet delivering interdisciplinary didactic course work.⁶³ There is also a relative underemphasis on team-building and interdisciplinary health management skills in the typical pharmacy curriculum. Similarly, acquisition of the abilities necessary to collaborate with and manage pharmacy technicians is not a component of most current program curricula.

Implications

If pharmacists are to be skilled in working collaboratively with other health care professionals, then a portion of their educational experience, including didactic learning, should be conducted in interdisciplinary settings. Whereas most experiential rotations today are interdisciplinary, this could change in the future if increasing numbers of pharmacy practice experiences are conducted in the community pharmacy and managed care settings. The Millis Commission made the following recommendation: "Because pharmacists must practice in association with other health workers, pharmacy education demands an environment in which other health professionals are being educated and other health professions are being practiced."²⁵ Similarly, if students will be expected to supervise and manage pharmacy technicians, then learning to work with them also should be an objective of the pharmacy curriculum.

Observation No. 10

Current residency training opportunities are inadequate to meet both contemporary quantitative and qualitative needs. Although the past 20 years have produced significant progress in the development of postgraduate clinical training programs, the vast majority of these programs are restricted to institutional and clinic practice settings. It has been estimated that approximately 5% of the pharmacy workforce has completed residency training.⁷¹

Implications

Clearly, there is currently an inadequate supply of clinically trained pharmacists to deliver widespread patient care. As pharmacy's professional roles change, there will be both an enhanced need within the profession, and an acute demand among graduates, for residency training. Academia and practitioners must continue to place high priority on the development and expansion of pharmacy residency training. We agree with Ray's recommendation that every effort should be made to preserve the current levels of pharmacy residency reimbursement that are secured through Medicare.⁷¹ In addition, expansion of residency training in the community pharmacy setting should be pursued aggressively through partnerships among community pharmacy, clinical pharmacy, and academia. Flexible and

innovative approaches to the development of residency programs in the community pharmacy setting (e.g., mini-residencies) may provide practical and cost-effective alternatives for those experienced baccalaureate-educated pharmacists who seek retraining.

Observation No. 11

Pharmacy education has engaged in widespread curricular change to better prepare graduates to assume increased responsibility for patient care.⁷ Whereas considerable emphasis has been placed on expanding and integrating course work in the basic and applied sciences, information technology, literature evaluation, and population-based management, less attention has been devoted to the development and growth of pharmacists as professionals.⁵⁵

Implications

Pharmacy education should seriously consider placing renewed emphasis on the integration of general education outcomes (e.g., critical thinking, decision-making, valuing and ethics, communication, social interaction and citizenship, self-learning) with professional outcomes to prepare truly patient-centered, caring pharmacy professionals.⁷² By integrating and building on the perspectives and skills obtained from the liberal arts, the pharmacy curriculum will produce graduates able to function as professionals and informed citizens in a changing society and health care system.⁷³

The foregoing observations are not intended to offer a comprehensive list of all factors that will impact the preparation of pharmacists for future professional roles. However, they do provide opportunities for increased thought and dialogue among the profession as it seeks to plan strategic action for the future.

Providing Necessary Leadership and Management for the Future

...one gets the feeling that everything has already been said, and I can well imagine a pharmacist back in 1776, or even Galen before that, arguing about the need for change in pharmacy. We constantly seem to be wandering in the wilderness seeking our true identity.

William Kinnard, 1976⁷⁴

Let's dedicate ourselves to remaking this occupation of ours into a profession that gives

people what they want and need. This is not an agenda that we can assign to someone else. Each of us must take personal responsibility for making this happen.

Zellmer, 1996⁹

As we noted earlier in this paper, pharmacy has suffered from a fractionated vision of the profession due to the conflicting perspectives of different practitioner groups. Although a unified vision for all segments of the profession likely will occur with time, the changes in pharmaceutical education and in the health care and pharmaceutical industries are focusing pharmacists' efforts on utilizing their advanced pharmacologic knowledge to improve patient outcomes. The implementation of entry-level Pharm.D. programs has provided an opportunity to increase the consistency of pharmacists' abilities, regardless of their practice setting. The expansion of pharmacists' outpatient roles to include collaboration with other health care professionals in disease state management is an effort to improve patient outcomes and to control spiraling pharmaceutical and health care costs. The increased use of automation and the emphasis on the value of the pharmacist's unique knowledge and skills are other factors that may result in expansion of pharmacists' roles. The future health care environment may hold many opportunities for pharmacists if the leadership and management of the profession can respond quickly to focus the profession's efforts on improving patients' drug therapy outcomes.

Leadership

The role of future pharmacy leaders will be to establish an innovative working environment by projecting a unifying vision for the profession and providing mentoring to pharmacy managers and staff. Pharmacy leaders must emphasize the responsibilities of the pharmacist to ensure the safe use of drugs by demonstrating a commitment to serving the drug-related needs of patients and other health care professionals.⁷⁵ Pharmacy leaders can provide direction to all health professions in improving drug-related outcomes. If future pharmacy leaders can embrace the objectives of health care reform (i.e., improved patient outcomes at an affordable cost to the patient and society) and proactively direct pharmacists' efforts to improve the medication use system, the profession will be well-positioned to adapt to future challenges.⁷⁶ Pharmacy does

not require visionary "giants." In fact, future challenges will require that pharmacy leaders capitalize on the diversity of the pharmacy profession and accept responsibility for developing leaders from within its organizations. Pharmacy should attempt to foster an organizational and professional culture characterized by collaboration, teamwork, and empowerment.⁷⁷

Accomplishing the necessary transformation in professional philosophy and roles will require that pharmacy's leadership engage in eight critical processes. First, pharmacy leaders must establish a sense of urgency to identify and seize major opportunities for the profession. Second, leaders must form a coalition to lead the change. Third, they must create a vision and develop strategies to achieve it. Fourth, they must communicate the vision and use examples from early coalitions that engage other pharmacists in achieving the vision. Next, they need to empower others to act on the vision by removing obstacles, encouraging risk-taking and nontraditional ideas, and changing systems that undermine the vision. Sixth, pharmacy leaders must plan for and create visible short-term accomplishments, and then recognize and reward pharmacists who are involved in achieving these initial outcomes. Seventh, leaders will need to consolidate improvements and produce more change by utilizing their increased credibility in the system. Even small improvements that occur with change will encourage pharmacists to follow leaders who want to make a difference. Sustaining the process by hiring, promoting, and developing pharmacists who can implement the vision will also be important. Finally, effective new behaviors must be institutionalized and promoted. It is important that pharmacists realize that new behaviors can be instrumental in achieving success.⁷⁸

Management

Future pharmacy management training must be experience-based, rather than conceptual or global.⁷⁹ Due to the rapid pace of change in health care, pharmacy managers must act with both speed and effectiveness. The profession cannot afford untapped resources. All pharmacists must become agents of change.⁷⁹ A single pharmacy manager in a complex department is wholly inadequate to implement all of the changes necessary. Although the manager must be in charge (e.g., providing guidance for multiple initiatives), he or she also

must exhibit trust, encourage new ideas, and delegate responsibilities to achieve the vision.⁷⁵ Frequent, sincere reinforcement and recognition will encourage excellent performance. Pharmacy managers must develop collaborative teams to achieve optimal outcomes.⁷⁹

A team's performance is a function of team member abilities and motivations.⁸⁰ Pharmacy managers can create a stimulating work environment by providing good clinical practice opportunities, productive pharmacist relationships with physicians and nurses, competitive compensation and benefits, and professional opportunities, such as teaching students or residents and attending professional meetings.⁸⁰ Managers should attempt to hire personnel who share the vision of the department's leaders. Although a pharmacy manager can provide support for the team's activities, team members must sometimes stretch their capacity in order to achieve extraordinary results.⁷⁵

Pharmacy managers who have assembled a high-performing pharmacy team with clear goals can work with the team to produce data that justify current and future pharmacist roles. By working with leaders in the department and organization, effective pharmacy managers develop an understanding of the information that key decision-makers need to approve future projects. Managers who communicate effectively with all team members can focus their energies toward achieving the identified goals.

Meeting the Leadership and Management Challenges of the Future

Whereas pharmacists are among America's most trusted professionals due to their ability to develop effective relationships with their patients, pharmacists have not routinely displayed the leadership abilities necessary to establish effective interprofessional relationships and assume positions as full-fledged members of the health care team. Although not all pharmacists will find themselves in formal leadership positions, they should possess leadership skills. Pharmacists of the future must effectively demonstrate their value in reducing drug-related morbidity and mortality, and in improving drug-related patient outcomes. This will require leadership abilities that may not have been well-honed in most traditional, noninterdisciplinary pharmacy practice environments. Hence, future pharmacists will require increased

mentoring to develop the leadership and management skills necessary to successfully demonstrate pharmacists' value in the interdisciplinary health care environment. Able pharmacy leaders and managers increasingly will become responsible for assembling pharmacist teams and providing them with the necessary direction to achieve these goals.

Forecasting Manpower Needs

Manpower demand studies have a long history of inaccuracy, especially at times when the workforce and nature of the work are undergoing rapid change.

Wells, 1999⁸¹

No one understands why we have these swings in demand and supply. Since 1990, we've gone through a shortage, a slight surplus, and now it appears we're back in an era of shortage.

Knapp, 1999⁸²

Future demand for pharmacists remains an unresolved issue for the profession. Both future surpluses⁸³ and shortages⁶ of pharmacists have been predicted. The most controversial of these predictions was rendered in a 1995 report of the Pew Health Commissions that projected a surplus of 40,000 pharmacists by the year 2005.⁸³ This report generated widespread dialogue concerning manpower throughout the profession and among pharmacy academicians.

Recent pharmacy workforce statistics⁴⁹ indicate that pharmacists held approximately 185,000 jobs in 1998. About 60% worked in community pharmacies that were either independently owned or part of a drug store chain, a grocery store, department store, or mass merchandiser. Most community pharmacists were salaried employees, but some were self-employed owners. About 25% worked in hospitals, and the remaining 15% worked in clinics, managed care organizations (MCOs), mail-order pharmacies, long-term care, pharmaceutical wholesalers and manufacturers, home health care agencies, academic institutions, the federal government, or other pharmacy-related environments. About 20% of the pharmacy workforce is engaged in part-time employment.

Future manpower needs will undoubtedly be influenced by a variety of developments, several of which are likely to increase the demand for pharmacists. The continued rise in America's prescription drug use is projected to result in the

dispensing of 3.5–4 billion prescriptions annually by the year 2005, an increase of as much as 44% from the estimated 2.8 billion prescriptions that were dispensed in 1999.^{14, 82} If Medicare offers an outpatient prescription drug benefit, this would improve access to prescription drugs for the one-third of beneficiaries who currently lack coverage, further fueling the increase in future prescriptions.⁸⁴ To accommodate rising prescription demand and to enhance market share, chain pharmacies are increasing the number of chain outlets and expanding store operating hours.⁸⁵ As we enter a new millennium, women will outnumber men among the pharmacist workforce, primarily as a consequence of the increased number of female pharmacy graduates and the retirement or death of the relatively large cohort of post-World War II male pharmacists. The U.S. Bureau of Health Professions projects that by the year 2003 the majority of pharmacists will be women.⁸² As women traditionally have been more likely to engage in part-time employment during their professional careers, it is anticipated that this gender shift will contribute further to an increase in pharmacist demand. Although there are data indicating that the impact of the increased part-time force has been counterbalanced by a sizable cadre of moonlighting pharmacists,^{86, 87} it seems unlikely that the number of moonlighters will keep pace with the expected growth of the part-time female pharmacy workforce. In addition, relative job dissatisfaction and decreased employee retention may contribute to a shortage of pharmacists in selected areas of practice, particularly in the chain pharmacy sector.⁸⁵ Other factors likely to drive an increased demand for pharmacists during the next 5 years include evolving roles for pharmacists in MCOs, where pharmacists are participating in management of drug utilization among “high utilizer” populations and analyzing data that address specific MCO performance outcomes^{31, 88}; increasing employment of pharmacists by the pharmaceutical industry to pursue research involving drug development, disease management, outcomes measurement, and pharmacoeconomics⁴⁹; increasing job opportunities in long-term, ambulatory, and home care settings, as pharmacy services continue to shift toward these sectors^{89, 90}; and creation of new roles for pharmacists in the online telehealth environment, including Internet-based drug purchasing and online patient counseling, a heretofore uncharted

landscape for pharmacy practice.⁹¹

Factors that may contribute to future decreases in pharmacist demand include an anticipated increase in number of pharmacy school graduates; expanded use of automated dispensing systems, mail-order prescription services and pharmacy technicians; and an eventual downsizing of the dispensing pharmacy workforce due to increased managed care penetration.^{5, 49} However, recent data suggest that the short-term effect of managed care on the institutional pharmacy workforce has been negligible.³¹ Whereas the influence of expanded managed care penetration on the pharmacy workforce as a whole is controversial, it appears that the number of pharmacists required to manage the drug distribution process will decrease in the long term.⁵

Taking the foregoing trends into account, short-term predictions for pharmacist demand have been published. The U.S. Bureau of Labor Statistics (BLS) estimates that employment of pharmacists will increase 0–9% between 1998 and 2008, a rate slower than the average for all occupations in the U.S.⁴⁹ The BLS predicts that during this period automated drug dispensing and increased use of technicians will help pharmacists fill prescriptions. It also notes that growth of pharmacist employment in hospitals is expected to be slow, reflecting continued reduction in hospital stays, downsizing, and consolidation of departments. On the other hand, the BLS suggests that the increased number of prescription drugs used by middle aged and elderly people could increase demand for pharmacists in all practice settings. The BLS also acknowledges that cost-conscious insurers and health systems will continue to explore the roles of pharmacists in primary and preventive health services. This is based on their realization that the expense of using drug therapy to treat diseases and conditions is often considerably less than the potential costs for patients whose conditions go untreated, and that pharmacists can play an important role in reducing the expenses resulting from unexpected complications due to adverse drug events or drug interactions.

Based on a study of the pharmacy manpower issue conducted by the Pharmacy Manpower Project, Knapp recently analyzed the impact of managed care on future demand for pharmacists and pharmacy services.³¹ Unlike the BLS outlook, this analysis predicts that there will be a steadily increasing demand for pharmacists and their services. Although unable to validate the

downsizing of the pharmacy workforce predicted by the 1995 Pew Health Professions Commission's report,⁸³ Knapp calls for pharmacists to continue documenting their value to the health care system and participating in activities that improve patient outcomes.³¹

From a manpower perspective, is pharmacy "short-handed" or just "short-sighted"? A federal study is under way to address this question. The Healthcare Research and Quality Act of 1999 requires the Health and Human Services Department to study the pharmacist workforce supply and report its findings to Congress in December 2000. Meanwhile, we believe that the projections of the BLS, the Pharmacy Manpower Project, and the Pew Commission are not necessarily at odds with one another. While we have long been disturbed by the relative lack of data to support the Pew Commission's manpower forecast, we recognize that pharmacy has been relatively slow to embrace new technologies in the areas of information, communications, and robotics that were anticipated by the Pew report.⁹¹ The profession also continues to struggle with developing expanded roles for technicians in the drug distribution system.¹⁴ However, once technology, new centralized dispensing systems, and technicians are widely utilized to increase drug distribution efficiencies, it is probable that the need for pharmacists engaged solely in distribution will decrease. The wisdom of Pew's suggested downsizing of pharmacy school classes by 2005 has been called into question by current manpower trends. Nonetheless, it is not impossible that Pew's predictions might yet coincide with the emergence of a new era of decreased pharmacist demand—a trend that would be consistent with the slower-than-normal growth in pharmacist jobs through 2008 that recently was forecast by the BLS. Thereafter, future manpower needs no doubt would be affected by the profession's success in redefining and transforming itself into a discipline that provides care and impacts patient outcomes.

Recent demonstration projects, including the Mississippi Medicaid Disease State Management Program, may be instrumental in providing necessary documentation of the contributions that pharmacists can make toward more effective and cost-efficient care.^{14, 15} In addition, recently published data indicate that pharmacists in managed care and integrated health systems have broadly expanded their ambulatory care functions, including using pharmacoeconomic

data to make formulary decisions, conducting medication management programs, tracking adverse drug reactions, providing written information with each new prescription, monitoring patient outcomes, and monitoring compliance with medication use.⁹² Such continued expansion of pharmacist responsibilities could produce a demand for "nondispensing" pharmacists that would seriously challenge the profession's manpower resources for the foreseeable future^{6, 56} (though this possible increase in demand may be mitigated somewhat by enhanced clinical efficiencies enabled by new technologies such as artificial intelligence applications for streamlining and monitoring drug therapy). Regardless, if pharmacists' current professional roles remain unchanged, manpower requirements will be determined primarily by cost-driven changes in drug distribution management. Such changes eventually could produce an environment that requires fewer pharmacists to successfully support the future health care system. In view of these uncertainties, it seems to us that academia should carefully assess the nation's future pharmacy manpower needs before seeking to adjust pharmacy school enrollments. Clearly, these potential manpower trends should serve as a wake-up call for the entire profession.

Finally, academic pharmacy is facing its own manpower problem.⁹³ Expanding pharmacy workforce needs, increasing numbers of pharmacy schools, rising numbers of doctor of pharmacy students, and relatively static supply of faculty training programs (Ph.D. programs, residencies, and fellowships) are contributing to an inadequate supply of faculty to meet the current demand. The number of faculty departing academia to pursue careers in the pharmaceutical industry appears to be increasing, at least in the short term.⁹³ It has been recommended that the academy increase efforts to recruit new graduates and experienced practitioners into academic career tracks, support the growth of clinical residency programs to meet the rapidly increasing need for clinical practitioner faculty, promote expansion of fellowship programs to increase the supply of academic clinical scientists, and establish effective mentoring processes for new faculty.^{64, 93} In addition, we suggest that formal instruction in didactic and experiential teaching be incorporated into clinical residency and fellowship training, particularly in those programs that are affiliated with schools of pharmacy.

Qualifications for Pharmacy Practice

Students prepared at the entry level are general practitioners who coordinate and render pharmaceutical care. A system of pharmaceutical care requires the participation of both generalists and specialists.

The Commission to Implement Change in Pharmaceutical Education, 1991⁹⁴

The issue of credentialing in pharmacy is of critical importance because it has the potential to elevate the profession to new levels or to mire it in divisiveness.

Bertin, 1999⁹⁵

Any system that assesses and recognizes practitioner competence must be based on a valid and reliable method of assessing capability. That such systems are possible is verified by the existence of specialty certification mechanisms which use experience and examinations as assessment tools.

The Commission to Implement Change in Pharmaceutical Education, 1993⁹⁶

Requisite education and credentialing of pharmacists will be important issues as the profession pursues patient-centered practice roles. As recounted earlier, the debate surrounding the most appropriate degree for entry into the profession has been resolved as we begin a new century. However, emerging controversies surrounding postgraduate credentialing processes now threaten to embroil the profession in renewed debate. We believe that the credentialing issue—in particular the controversy associated with certification—has the potential to spark the same level of discussion that occurred during the “B.S. versus Pharm.D.” controversy. Certainly one must hope that the credentialing/certification issue will not result in the marked polarization that was spawned by the entry-level degree controversy. Because there is still confusion within the profession concerning contemporary education and credentialing, we have taken the liberty of summarizing the current status of each below (Figure 1) and then concluding with an editorial viewpoint on credentialing.

Curricular Preparation and Licensure

Curriculum Standards and Guidelines

“Accreditation Standards and Guidelines for the Professional Program in Pharmacy Leading to

the Doctor of Pharmacy Degree” (Standards 2000) were adopted by the American Council on Pharmaceutical Education (ACPE) in 1997, setting the stage for the final steps of a 10-year accreditation revision process that resulted in implementation of the doctor of pharmacy as the sole professional degree.⁹⁷ Standards 2000 state as follows:

“The professional program in pharmacy should promote the knowledge, skills, abilities, attitudes, and values necessary to the provision of pharmaceutical care for the general practice of pharmacy in any setting.”⁹⁷

Colleges of pharmacy are expected to prepare *generalist practitioners of pharmacy* for both contemporary practice and for emerging practice roles. The ACPE standards acknowledge that colleges should educate and train pharmacists for both patient-specific and population-based pharmaceutical care. Contained within Standards 2000 are 18 professional competencies that graduates should achieve through the professional curriculum. Outcome expectations for student performance in these professional competencies are expected to be determined and assessed by each institution.

Disease state management is one of the professional practice competencies included in Standards 2000, although no specific disease states are required for inclusion in the curriculum. With respect to experiential education, introductory practice experiences are to be offered to all students during the “early sequencing” of the curriculum. This expansion of the experiential curricula will provide students with an early exposure to practice environments that is likely to reinforce the relevance of didactic content and also to set the stage for early professionalization. Institutions also are expected to provide advanced pharmacy practice experiences in both ambulatory and inpatient settings including primary, acute, chronic, and preventative care among patients of all ages. The guidelines further call for core (required) advanced practice experiences that provide substantial experience in the community pharmacy setting, hospital/institutional practice, and acute care of general medicine patients.

Licensure

Licensure is the national, uniform, mandatory process whereby regulatory and governmental bodies (the National Association of Boards of Pharmacy [NABP] and the respective individual

state boards of pharmacy) determine by examination (e.g., NAPLEX) whether an individual has the required education and skill to practice pharmacy. The boards of pharmacy in turn rely on ACPE to review and accredit the curricula offered by schools and colleges of pharmacy. The professional degree programs in pharmacy provide sufficient knowledge, skills, and practice experience for graduates to fulfill the professional competencies required of general practice.⁹⁴ Thus, these professional curricula satisfy the educational requirements for licensure of pharmacists. Professional degree programs, by themselves, do not provide graduates with the skills and experience needed to deliver specialty practice-based care, thus creating a need for post-licensure credentialing options.⁹⁴ In addition, it appears to us that current licensure examinations are not adequately directed toward the clinical competencies needed to provide care and conduct collaborative drug therapy management.⁹⁸ Hence, continued revision and updating of licensure examinations will be necessary to ensure that future graduates are sufficiently competent to fulfill evolving practice roles. As the profession examines future means to ensure

professional competence in evolving clinical roles, it also should assess the need for periodic re-licensure.

Post-Licensure Credentialing

Lack of understanding of the terminology associated with the credentialing process has contributed to significant confusion regarding credentialing.⁹⁵ A *credential* is evidence of an achievement, including documentation of licensure to practice; residency or fellowship training; or completion of specific training courses. *Credentialing* commonly refers to the review of an individual's credentials, often for the purpose of determining practice privileges; this term also may be used to describe simply the process of awarding a credential. *Licensure* is a form of mandatory credentialing. *Certification* is a voluntary process, usually established by a professional, nongovernmental agency, that is designed to evaluate an individual's training, experience, knowledge, and skill level beyond that required for licensure. Certification usually is focused in an area of practice that is defined more narrowly than the domain(s) tested during

Education and Training			Governmental Licensing		Professional Certification		
Educational Program	Credential	Accrediting Agency	Credential	Licensing Agency		Credential	Certifying Agency
Entry-Level Pharmacy Education	B.S. Pharm.D.	ACPE	Registered Pharmacist	State Board of Pharmacy	SPECIALTY PRACTICE	BCNP—Board Certified Nuclear Pharmacist	BPS
Continuing Professional Education	Certificate of Attendance	ACPE				BCNSP—Board Certified Nutrition Support Pharmacist	BPS
Certificate Program	Certificate of Completion	ACPE				BCOP—Board Certified Oncology Pharmacist	BPS
Residency	Residency Certificate	ASHP				BCPS—Board Certified Pharmacotherapy Specialist	BPS
Fellowship	Fellowship Certificate	ACCP Peer Review Program				BCPP—Board Certified Psychiatric Pharmacist	BPS
						BCPS with added qualifications in Infectious Diseases, Cardiology	BPS
						CGP—Certified Geriatric Pharmacist	CCGP
						DSM—Anticoagulation	NISPC
						DSM—Asthma	NISPC
						DSM—Diabetes	NISPC
			DSM—Dyslipidemia	NISPC			
			SUPPORT PERSONNEL		CPhT—Certified Pharmacy Technician	PTCB	

Figure 1. Summary of current education/training, licensing, and certification credentialing processes in pharmacy. Interdisciplinary certification is not included here. ACPE = American Council on Pharmaceutical Education; ASHP = American Society of Health-System Pharmacists; ACCP = American College of Clinical Pharmacy; BPS = Board of Pharmaceutical Specialties; CCGP = Commission for Certification in Geriatric Pharmacy; DSM = Disease State Management; NISPC = National Institute for Standards in Pharmacist Credentialing; PTCB = Pharmacy Technician Certification Board.

initial licensure. *Certificate programs* are defined by ACPE as "...structured and systematic postgraduate continuing education experiences for pharmacists that are generally smaller in magnitude and shorter in time than degree programs, and that impart knowledge, skills, attitudes, and performance behaviors designed to meet specific pharmacy practice objectives."⁹⁹

Credentialing Options

Excluding pharmacist licensure, postgraduate credentials are obtained on a strictly voluntary basis. Pharmacists may elect to obtain credentials at the disease, generalist, or specialist levels. Post-licensure credentialing programs should be subject to national standards. Training programs also may be guided by national standards, such as those used in the accreditation of residency programs. Although pharmacy has a national accrediting body for pharmacy residencies (The Commission on Credentialing within the American Society of Health-System Pharmacists [ASHP]), many pharmacy residency training programs are not accredited; therefore, they do not undergo national peer review.^{100, 101} Whereas some pharmacy fellowship programs are subjected to voluntary peer review through ACCP, most pharmacy fellowship programs do not undergo national peer review.¹⁰¹ The recent proliferation of post-licensure disease-specific credentialing programs, often not subject to national standards, has created concern about program quality, consistency, and value. Confusion is rampant, as neither pharmacists nor the public clearly can define the minimal standards for these programs.

General Elements of Post-Licensure Certification

Voluntary certification has emerged as the highest demonstrated professional level of achievement in pharmacy practice. Certification provides public identity for those pharmacists who have demonstrated knowledge deemed important by professional peers. Pharmacy, like all professions, endorses certification as a means of elevating professional standards. Certification can be used both to expand the professional influence of pharmacy within health care systems and to protect professional boundaries. Certification of licensed pharmacists may be a means of verifying advanced professional knowledge and skills. Certification processes usually are established by professional, nongovernmental agencies.⁹⁹ In addition to

evaluating an individual's knowledge, the certification process also should document the individual's formal training, professional experience, and clinical skills. The individual seeking certification usually is assessed using a national standard that is more rigorous than that required for entry into the profession by licensure. Certification bodies should not provide the training or education required for certification examinations. Instead, independent professional, academic, or corporate entities are best suited to provide preparatory materials and courses.

Specialist Pharmacist Certification. In 1976, the APhA established the Board of Pharmaceutical Specialties (BPS) to recognize specialty practice areas, define knowledge and skill standards for recognized specialties, evaluate the knowledge and skills of individual pharmacist specialists, and serve as a source of information and coordination for pharmacy specialties.¹⁰² The BPS has recognized five specialty practice areas: nuclear pharmacy, nutrition support pharmacy, oncology pharmacy, pharmacotherapy, and psychiatric pharmacy. Board certification by the BPS indicates that a pharmacist has demonstrated an advanced level of education, experience, knowledge, and skills—beyond that required for licensure—in a specialty practice area. Board of Pharmaceutical Specialties certification is the only such designation within pharmacy that recognizes advanced, specialized skills and knowledge against an established national standard. Four eligibility criteria are defined for BPS recognized specialties: an entry-level pharmacy degree, an active pharmacy license, additional training within the respective specialty area, and successful completion of the specialty certification examination.¹⁰² Whereas the specialized education or experience required for certification varies among the BPS specialties, all require either several years of prior specialty practice experience or completion of specialty residency or fellowship training. The BPS requires recertification every 7 years, with each specialty having separate requirements for the recertification process. As of January 2000, more than 2900 pharmacists have been certified by the BPS.¹⁰²

Added Qualifications within a Recognized Pharmacy Specialty. The BPS also recognizes focused areas within established pharmacy specialties. Demonstration of enhanced training

and experience within one segment of a BPS-sanctioned specialty practice area is recognized by the designation "Added Qualifications."¹⁰² This designation denotes further differentiation *within a specialty*. Unlike the medical profession, pharmacy does not require such subspecialty differentiation through separate board examinations. To establish a new area of Added Qualifications, a group first must petition the BPS to recognize the desired subspecialty. If this petition is approved, individuals wishing to be considered for Added Qualifications must submit a portfolio that documents their enhanced experience and training. If the committee of the Specialty Council believes the portfolio meets established requirements, individuals receive a new BPS Certificate recognizing their status as "Board Certified with Added Qualifications." The Added Qualifications practice area first recognized by the BPS was Infectious Diseases within the specialty of Pharmacotherapy, approved by the Board in 1999.

Generalist Pharmacist Certification. The APhA proposed a certification program in "pharmaceutical care" in the late 1990s, although the program has not yet been developed. This was intended to be an advanced generalist designation but not as intensive as the pharmacotherapy specialty or other specialty certification processes performed by the BPS. Another generalist certification program was developed for pharmacists in geriatric pharmacy practice. The Commission for Certification in Geriatric Pharmacy (CCGP) was established by the American Society of Consultant Pharmacists (ASCP) in 1997.¹⁰³ This national voluntary certification program requires successful completion of a written examination. To be eligible to take the CCGP certification examination, the pharmacist must hold a current license and possess a minimum of 2 years of practice experience. According to CCGP, no special training or clinical experience in geriatrics is required, although a review course is available on the ASCP Web site, and numerous continuing education programs can help pharmacists prepare for the exam.^{103, 104} Domains included in the geriatric pharmacy practice exam are patient-specific activities, disease-specific activities, and quality improvement and utilization management activities.¹⁰³

Interdisciplinary Certification. Most certification processes in health care emerged within individual health care disciplines. This is also

true for pharmacy. During the past 2 decades, however, interdisciplinary certification involving two or more health care disciplines emerged. The American Academy of Pain Management provides voluntary certification for interdisciplinary pain practitioners.¹⁰⁵ Practitioners from medicine, pharmacy, nursing, psychology, counseling, physical therapy, chiropractic, and social work have been accorded voluntary certification as interdisciplinary pain managers. The National Certification Board for Diabetes Educators designates qualifying health care practitioners as Certified Diabetes Educators (CDE).¹⁰⁶ The CDE designation assures the public that the individual demonstrated excellence in diabetes education. The American Board of Applied Toxicology (ABAT) provides voluntary certification of nonphysician specialists in applied clinical toxicology.¹⁰⁷ Certified individuals are designated as ABAT Diplomates (DBAT). The American Board of Clinical Pharmacology (ABCP) provides voluntary certification for nonphysicians in applied pharmacology.¹⁰⁸ On successful completion of professional requirements and certification exams, the ABCP issues a certificate that designates the individual as "Accredited in Applied Pharmacology."

Disease-Specific Credentialing

Disease-specific credentialing is designed to document a pharmacist's ability to provide disease-specific care beyond the dispensing of medications.¹⁰⁹ The National Institute for Standards in Pharmacist Credentialing (NISPC) serves as the credentialing body for this process. The NISPC was formed by NABP, NCPA, and NACDS in June 1998; the APhA joined the group in 1999. Pharmacists who desire to be credentialed voluntarily in one of four disease states must pass an NABP disease state management exam. Currently, disease state management exams are available for anticoagulation, asthma, diabetes, and dyslipidemia. The exams are designed to serve as standardized assessment tools that measure the application of knowledge and judgment of pharmacists providing disease state management. The NABP creates and administers the disease state management exams, which were offered in more than 20 states in 1999. Pharmacists may elect to become credentialed in more than one disease state and combine disease-specific credentialing with other continuing education activities.

Whereas disease state management exams assess knowledge and skills related to management of each respective disease state, they cannot assess clinical training or experience. Because training and experience are certainly important prerequisites for the provision of patient care, other certification processes (e.g., BPS certification) require validation of these prerequisites. The NABP maintains a database on its Web site that allows the public and third-party payers to verify pharmacists' disease-specific credentials obtained through NISPC.¹¹⁰ Successful completion of a disease state management exam qualifies the pharmacist to apply for a provider number and receive payment for disease-specific clinical services in a pilot Medicaid waiver program in Mississippi. Eligibility to sit for any of the disease state management examinations is limited to possession of an active license issued by a board of pharmacy in a jurisdiction that administers the exam; no prior clinical experience is required. The NABP disease state management exam qualifications do not require additional preparation beyond the education required for licensure; although, review courses are offered by professional organizations and schools and colleges of pharmacy. The disease state management objectives and standards, available on the NABP Web site, include collection of patient data and documentation of care.¹¹⁰

To obtain input on disease management certification value and process, NISPC convenes a Payer Advisory Panel and a Standards Board.¹¹⁰ According to the NISPC, both advisory groups have affirmed the value of pharmacist credentialing in "high-cost clinical conditions." The Payer Panel recognized the importance of outcomes assessment and the need for a clearly defined menu of services to be provided by credentialed pharmacists. They also recommended creation of a credentials database accessible to payers, physicians, and other collaborating health care providers as previously described.

Certificate Programs

In late 1998, national professional organizations and the NABP asked the ACPE to assume overall responsibility for developing guidelines for certificate programs and their providers. The "Standards and Quality Assurance Procedure for ACPE-Approved Providers of Continuing Pharmaceutical Education Offering Certificate

Programs in Pharmacy" were adopted by the ACPE Board of Directors in June 1999 and became effective in January 2000, following an implementation/transition period.⁹⁹ Thus, the ACPE extended its purview to include oversight of providers of all voluntary pharmacy certificate programs in addition to providers of general pharmacy continuing education programs. These new ACPE standards provide a list of 24 professional competencies that may be used for guiding the organization and for development of certificate program content. The standards also require the certificate program to include practice experiences, simulations, and/or innovative activities to ensure demonstration of the stated professional competencies. Unlike traditional *continuing education provider* standards, ACPE *certificate program provider* standards require that providers of certificate programs conduct summative evaluations of participant learning. Generally, certificate programs are expected to require a minimum program length of 15 contact hours or 1.5 CEUs. A special ACPE certificate program logo identifies certificate programs that are delivered by ACPE-approved providers. Because ACPE approves the provider of the program and not individual participants, each participant is awarded a certificate of completion. The certificate of program completion does not imply certification of the individual. This is analogous to the recognition of residency program graduates; residents are awarded certificates of completion, but the individual resident practitioner is not certified.

Council on Credentialing in Pharmacy

The Council on Credentialing in Pharmacy (CCP) was formed in 1998 by a consortium of organizations dedicated to providing leadership, standards, public information, and coordination of voluntary pharmacy credentialing programs.¹¹¹ The CCP was established by 11 founding member organizations: the Academy of Managed Care Pharmacy, the American Association of Colleges of Pharmacy, the American College of Apothecaries, ACCP, ACPE, APhA, ASCP, ASHP, BPS, CCGP, and the Pharmacy Technician Certification Board. The Council is dedicated to ensuring that pharmacist credentialing is a credible process that is understood by all stakeholders, including patients, payers, other health professionals, and the quality assurance leadership in hospitals and health systems.¹¹² The CCP is attempting to establish a more

coordinated approach to guide the profession through the development of new, voluntary, post-licensure certification processes. The Council also hopes to determine and clarify the relationships among the profession's various credentialing activities.¹¹¹

Views on Credentialing

A coordinated national strategy to clarify pharmacist credentialing processes clearly is needed. The proliferation of credentialing processes and certification programs that do not undergo rigorous review and assessment and that may not require prior training or experience could undermine pharmacists' credibility with providers, the public, and payers. We strongly support the continued evolution of post-licensure pharmacist credentialing. However, we believe that credentialing within the pharmacy profession should meet rigorous national standards. Therefore, *pharmacist certification* would be administered best through a coordinated national certification board that assures assessment of knowledge and skills while also validating the appropriate level of training or experience. Logically, this certification board would include BPS to conduct specialist certification and an analogous body to carry out nonspecialist certification. We further suggest that the entire voluntary *pharmacist credentialing* process (including certification and perhaps postgraduate training) should be coordinated by a national, broad-based credentialing coalition, such as the CCP (should it choose to assume this role) or an alternate governing body as depicted in Figure 2. We recommend that this proposed model for pharmacist credentialing be explored further in a future ACCP thought paper. Finally, the subcommittee also endorses pharmacist participation in national interdisciplinary certification processes as previously described (e.g., CDE).

It is important to recognize that many of the newly emerging credentialing mechanisms are intended to serve primarily as a temporary "bridge" to the future. That is, effective retraining processes will be required by many of today's pharmacists as they prepare to "retool" to assume new patient care roles. However, it is reasonable to expect that future doctor of pharmacy graduates will possess the abilities necessary to enter the profession as effective generalist practitioners and should not require retooling. The profession should be prudent in

its approach to developing and managing these retraining processes; creating a plethora of "extra" postgraduate certificates that all pharmacists would be required to complete to engage in clinical practice should be avoided. Structured and systematic postgraduate education experiences (i.e., certificate programs) should provide much of the retraining that will be needed by the current pharmacist workforce. Therefore, we favor development of well-designed certificate programs that pharmacists can complete as part of a nonspecialist certification process (as discussed previously). Such nonspecialist certification could serve as a basis for the credentialing of today's nonspecialist pharmacists who desire access to particular practice privileges or reimbursement. More importantly, we hope that this process might help the profession to establish new and more appropriate domains of the professional knowledge, skill, and experience to be tested in future licensing exams.

We view disease-specific credentialing processes (such as those administered by NISPC), as currently constituted, in a mixed light. On the positive side, such programs can improve the practitioner's knowledge base, may allow pharmacists to have increased impact on patient care outcomes, and may provide a basis on which to qualify for reimbursement from

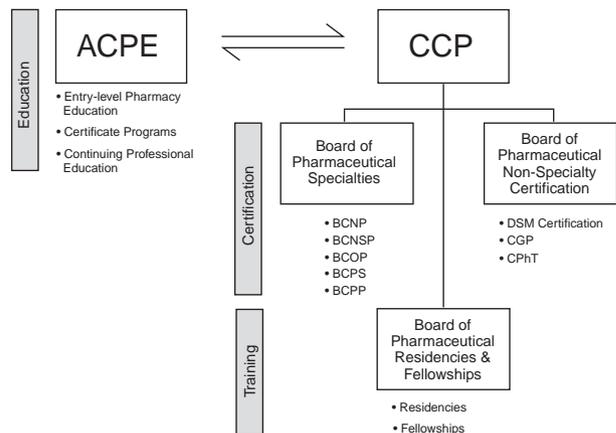


Figure 2. Proposed model for coordination of pharmacy credentialing. ACPE = American Council on Pharmaceutical Education; CCP = Council on Credentialing in Pharmacy; BCNP = Board Certified Nuclear Pharmacist; BCNSP = Board Certified Nutrition Support Pharmacist; BCOP = Board Certified Oncology Pharmacist; BCPS = Board Certified Pharmacotherapy Specialist; BCPP = Board Certified Psychiatric Pharmacist; DSM = Disease State Management; CGP = Certified Geriatric Pharmacist; CPHT = Certified Pharmacy Technician.

some payers. On the negative side, these programs are limited in scope, require no clinical training or clinical experience, and may fragment patient care. Furthermore, if a pharmacist's disease management abilities are limited to only selected diseases, he or she may not be able to impact fully the number of patients that health care payers expect. We also are concerned that a pharmacy practitioner could be credentialed in an area of *disease management* without having acquired any prior clinical patient care experience. In our view, this could compromise patient care.

The role of generalist pharmacist certification remains to be determined. As it has not yet been developed, a pharmaceutical care certification cannot be evaluated. However, pharmaceutical care is a *philosophy of practice* that the Commission to Implement Change in Pharmaceutical Education characterized as follows:

“Pharmaceutical care focuses pharmacists' attitudes, behaviors, commitments, concerns, ethics, functions, knowledge, responsibilities, and skills on the provision of drug therapy with the goal of achieving definite outcomes toward the improvement of a patient's quality of life. These outcomes of drug use are: (1) cure of a disease; (2) elimination or reduction of symptoms; (3) arresting or slowing a disease process, (4) prevention of disease; and (5) desired alterations in physiological processes, all with minimum risk to patients. Just as it is generally assumed that physicians are primarily involved in medical care and nurses in nursing care, pharmacists are the primary providers of pharmaceutical care.”¹³

It appears that it would be virtually impossible to describe a *unique* set of knowledge and skills that would encompass the domains for certification of pharmaceutical care. Even if such a set of domains were defined, the breadth of such a certification program would be enormous, presumably approaching the outcome expectations for the doctor of pharmacy degree. Furthermore, it is inconceivable to us that the profession or public would find value in certifying a philosophy of practice—to follow the analogies from the previous quotation, medicine has no “medical care” certification and nursing does not certify “nursing care.” On the other hand, if it is clinical skills and selected drug- and disease-specific knowledge that are desired, it is conceivable that appropriately focused and

standardized certificate or training programs could be designed to meet practitioner needs effectively.

Our impression is that the CCGP certification process involves pharmacists actively practicing in geriatric and long-term care settings. However, we still view the absence of any explicit requirement for prior clinical training or clinical practice experience as a potential weakness of this certification process, as noted for the disease-specific programs.

As a final caveat, we encourage those involved in current and future pharmacy certification processes to study and assess the value of certification. While acknowledging the potential benefits of certification, we are aware of no published data that have examined the effects of any pharmacy certification process on patient outcomes, including technician certification, specialist pharmacist certification, or generalist pharmacist certification. Until such data are available, it may be difficult to convince pharmacists, other health professionals, payers, or the public of the benefits of certification. In this regard, we believe that mechanisms should be explored to include BPS-certified clinical specialists in the national NABP database (or analogous credentialing directory) that currently catalogs pharmacists who have been credentialed in disease management. This would allow ready identification of those specialty-certified and disease-certified practitioners who could be available to participate in patient outcomes studies or pilot reimbursement programs (e.g., Mississippi Medicaid waiver program).

A Vision for the Future

The future ain't what it used to be.

Yogi Berra, 1974²

Our subcommittee was charged to address the many factors likely to impact future qualitative and quantitative manpower needs, and to develop a vision of pharmacy as it might exist at the conclusion of the first decade of the 21st century. The list below, to a great extent, is based on the information, analyses, and forecasts stated in this paper. As is the case in all visioning efforts, much of what we expect may not come to pass; new, unforeseen developments may influence profoundly the future of the pharmacy profession. However, we offer the following predictions of how events affecting pharmacy may unfold during the next decade:

1. Health care will place increasing emphasis on drug therapy to improve patient outcomes and quality of life. Prescription drug use will continue to rise, creating greater risk of drug-related morbidity.
2. Society will become increasingly technology literate and technology driven. Technology will be deployed fully to dispense most prescriptions, provide drug information to patients, and facilitate the exchange of patient-specific data among and within health care systems.
3. Pharmacy will transform itself from a primarily product-centered profession to a patient care-oriented profession.
4. Patient care rendered by pharmacists, including those not directly involved with drug product distribution, will be reimbursed by payers.
5. Corporate pharmacy and independent pharmacy owners will find pharmacists' patient care services to be profitable and will commit resources to this market, including enhanced use of technology and technicians.
6. State boards of pharmacy and governmental legislation will enable and facilitate pharmacists' patient care activities, both individually and in collaboration with other health care professionals.
7. Technician certification will be mandated to protect the public.
8. Pharmacy education will prepare graduates for increasingly complex patient and population drug therapy management and problem-solving, and supervision of prescription dispensing and processing by technicians and automated technology.
9. Pharmacy schools will experience an unprecedented increase in graduates due to a continued rise in demand for pharmacists, popularity of health care careers, and an increased visibility of pharmacists' patient care roles in the 21st century.
10. Appropriate credentials that document clinical practice abilities will be a prerequisite for all pharmacists who provide patient care services. Eventually, residency training will be an expectation of most entry-level pharmacists.

Recommendations

Put as much energy into long-term planning for pharmacy as is put into short-term strategizing. Let's begin to outline, through our professional

organizations, what we can achieve over a generation or two, not just within the next 12 months. Let's see if we can coordinate the planning efforts of national and state practitioner organizations and the academic community.

Zellmer, 1996⁹

In developing this White Paper, our subcommittee was asked to provide recommendations for action by the profession. These recommendations have been divided into two categories: (1) recommended actions for the entire profession, and (2) recommendations for ACCP and its membership. The recommendations reflect the analyses, forecasts, assessments, and opinions offered in the body of the paper. We expect that not all of the suggested actions will be deemed possible, or in some cases, even appropriate. However, we do hope that the recommendations herein will promote further thought and dialogue among the profession in general, and the clinical pharmacy community in particular.

Recommendations for the Pharmacy Profession

1. Adopt a unifying philosophy of practice that establishes the patient as the primary beneficiary of the profession, with the pharmacist accepting shared responsibility with other health care professionals for patient care.
2. Develop a coordinated strategy by capitalizing on the collective strengths of national pharmacy organizations to secure financial compensation for pharmacists' patient care services that are not directly related to drug distribution.
3. Create a profession-wide strategy for both the development and use of technology. This strategy should engage pharmacy education and all venues of pharmacy practice to enhance pharmacists' training in, and use of, technology in prescription processing and distribution, drug information, and drug therapy management.
4. Work with professional regulators and state legislators to revise pharmacy practice acts to enable shared responsibility for direct patient care, use of appropriate technology and technical support personnel, and collaborative drug therapy management.
5. Develop credible, coordinated certification and credentialing processes whereby all qualified pharmacists can demonstrate

- patient care competence.
6. Focus, in academia, not only on manpower, but also (perhaps even more) on professional empowerment. Pharmacy educators must maintain high expectations for performance of both general and professional educational outcomes; contribute to the development of new post-licensure education and training programs that help existing practitioners "retool"; promote continued expansion of residency programs, including nontraditional programs (mini-residencies); and assume leadership roles in technician training and certification.
 7. Foster collaborative efforts by professional organizations, academia, and health care systems to develop new models of pharmacy practice in the community practice setting.

Recommendations for ACCP

1. Collaborate closely with other national pharmacy organizations and assume a leadership role in the profession's adoption of a unifying philosophy of practice.
2. Place increased emphasis on the development of leadership abilities among the rank-and-file membership.
3. Embrace community pharmacy and seek to assist community practitioners in acquiring additional knowledge, skills, and attitudes that can expand pharmacists' impact on patient outcomes.
4. Encourage colleges and schools of pharmacy to explore how current doctor of pharmacy programs can prepare graduates better for contemporary generalist practice.
5. Encourage NABP and state boards of pharmacy to continue their efforts toward creating licensure exams that are more reflective of pharmacists' patient care responsibilities.
6. Support, and assist in the development of, certificate programs and certification processes that provide for appropriate assessment of knowledge and skills while also validating adequate levels of experience.
7. Oppose pharmacist certification that lacks unique (differentiating) and definable knowledge domains, or adequate assessment of clinical training or experience.
8. Work inclusively with other pharmacy organizations, associations, and CCP to establish a cohesive and coherent plan for pharmacist credentialing.
9. Explore the feasibility of engaging in cooperative political advocacy efforts with community pharmacy organizations and trade associations to pursue agendas of mutual professional interest (e.g., reimbursement for pharmacists' clinical activities that improve patient outcomes).

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