

ACCP POSITION STATEMENT

American College of Clinical Pharmacy's Vision of the Future: Postgraduate Pharmacy Residency Training as a Prerequisite for Direct Patient Care Practice

American College of Clinical Pharmacy

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The strategic plan of the American College of Clinical Pharmacy (ACCP) presents a vision for the future of the pharmacy profession that includes the following statement: “Formal, postgraduate residency training will become mandatory before one can enter practice.”¹ In this article, we articulate the foundation of ACCP’s future vision for residency training by providing a rationale for requiring residency training before entering practice; examining existing evidence that addresses the value of residency training; defining the current and future roles of residency training in preparing pharmacists to enter clinical practice; evaluating

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the state of residency training in the United States against future practice needs, taking into account the influence of current and future pharmacy manpower on mandatory residency training; and recommending future actions for the profession and for ACCP that will be necessary to achieve this vision.

To advance the premise that residencies should be a prerequisite for all pharmacists who will provide direct patient care, we have made the following assumptions:

- Pharmacists engaged in clinical practice must assume responsibility and accountability for managing drug therapy in direct patient care settings.² Direct patient care involves the pharmacist’s observation of the patient and contributions to the selection, modification, and monitoring of patient-specific drug therapy. This is often accomplished within an interprofessional team or through collaborative practice with another health care provider.
- Provision of direct patient care by virtually all pharmacists will be the standard of pharmacy practice in all patient care settings by 2020.
- Pharmacists will be consistently recognized by payers as health care providers and will be compensated for direct patient care services

in both community and institutional practice settings.

- Postgraduate residency training in the health professions will continue to receive funding through the Centers for Medicare and Medicaid Services (CMS), and pharmacy residencies will remain eligible for this support.
- Given that provision of direct patient care will be the standard for future pharmacy practice, requiring completion of residency training to enter practice will remove residencies from their current “optional” status. Hence, all graduates wishing to pursue a practice career will seek residency training.
- If residency training is not required in the future but remains optional for entry into pharmacy practice, graduates will attempt to pursue practice without first completing a residency.
- A major impetus for residency training in medicine is privileging and payment. Although physician residency training is not required for medical licensure, institutions and other health care organizations will not credential a physician who is not at least board eligible (i.e., has completed appropriate residency training), and third-party payers will often not recognize them for payment.
- Even if state boards of pharmacy do not require residency training as a prerequisite for direct patient care practice, payers and employers can provide powerful incentives to meet this requirement. This could be accomplished by basing pharmacist eligibility for practice privileges and payment on professional credentials that document appropriate education and training.
- The profession will need to develop a coherent system of multiyear postgraduate training. The recommendations of the 2002 American Association of Colleges of Pharmacy (AACCP) Task Force on the Role of Colleges and Schools in Residency Training are consistent with this view.³ The system should provide for a first year of residency training (postgraduate year 1 [PGY1]) that enables entry-level practitioners to enhance and broaden their competencies, and advanced-level (PGY2, etc.) specialized residencies that promote development of the abilities necessary to provide patient care in specialized settings or to special patient

populations. The PGY1 residency should be the minimum prerequisite for practice in direct patient care settings.

- Current practitioners will seek mechanisms for developing the skills necessary to provide direct patient care. These individuals could have an impact on residency demand (i.e., they may wish to pursue residency training). However, we believe that this impact will probably be small because employers are likely to provide alternate methods for developing clinical abilities.
- Contemporary doctor of pharmacy curricula, although more clinically intense than previous 5-year professional baccalaureate degree programs, do not produce graduates with the ability levels necessary to manage complex drug therapy. Revision of educational outcomes and accreditation standards and guidelines will continue to attempt to address this challenge.^{4, 5} However, it is likely that the demands of drug therapy management, evidence-based therapeutic decision making, and expansion of pharmacists’ practice roles will outpace innovations in pharmacy education. Therefore, we anticipate that residency training will continue to be both desirable and necessary for pharmacy graduates who are called on to assume direct patient care roles.

Recommendation 1

By 2020, residency training should become a prerequisite for entry into pharmacy practice. This will be accomplished most effectively if employers and payers establish appropriate pharmacist credentialing expectations and privileging systems, rather than through professional regulation. Professional pharmacy organizations should work toward achieving consensus on this vision.

Background

We have chosen the year 2020 as a potential target date because the Pharmacy Manpower Project⁶ formulated its projected estimates of pharmacy workforce needs in the United States for that year. Using the Project’s defined pharmacist functions and projections allows quantitative and qualitative discussion of the profession’s future functional needs relative to the availability of residencies. In addition, in view of the time needed to prepare for full implementation,

we believe it is unlikely that such a mandate could be adopted before 2020.

Developing a Mandate

An emerging mandate to increase the number of pharmacy students pursuing residencies has been developing for some time. Indeed, ACCP and the American Society of Health-System Pharmacists (ASHP) have worked together to advance the principle that accredited residency training should be a requirement for clinical practitioners. In 2003, ACCP and ASHP announced they would pursue collaboration to increase the number of residencies, in keeping with ACCP's strategic objectives to increase "the total number of accredited residency positions...to 3000" and to "at least double the number of students who pursue residency training" by the end of 2007.⁷

The ACCP has been a longtime advocate of residency training for pharmacists. For example, in 1990, ACCP's former executive director, Robert Elenbaas, recounted the history of residency training and suggested opportunities that existed at the time for enhancing these programs.⁸ In 1992, ACCP provided commentary on its views regarding pharmacy education and residency training, advocating an increase in the number of residencies.⁹ The current ACCP strategic plan calls for a rapid expansion of residency positions in the near future.¹ Further, the 2000 ACCP White Paper on pharmacy roles and manpower needs concluded the following: "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."¹⁰

As the accrediting body for pharmacy residencies, ASHP has long advocated residency training for pharmacists. It has also worked with a number of organizations to develop residency program standards, including collaboration with ACCP to develop the pharmacotherapy practice residency standards. The ASHP has also developed partnerships with the American Pharmacists Association (APhA) and the Academy of Managed Care Pharmacy (AMCP) in developing residency accreditation standards for community pharmacy and managed care residencies, respectively. Further, ASHP has developed formal policy in this area, including Education and Training Position 0005: Residency Training for Pharmacists Who Provide Direct

Patient Care.¹¹ The policy calls for ASHP "to recognize that optimal direct patient care by a pharmacist requires the development of clinical judgments, which can be acquired only through experience and reflection on that experience; further, to establish as a goal that pharmacists who provide direct patient care should have completed an ASHP-accredited residency or have attained comparable skills through practice experience."¹¹

Value of Residency Training

Postgraduate residency training has been well accepted as an integral part of education within the medical profession. Controversy does exist within other health care professions, such as pharmacy and dentistry, as to whether residency training should be a mandatory prerequisite for practice. One of the central questions in this controversy is whether there is sufficient value obtained from completing a residency. Many perspectives must be weighed when considering the value of residency training. These include the views of patients, providers, employers, payers, the profession, society as a whole, and the individuals completing residency training. In view of the significant time commitment on the part of the resident, delineating the added value of residency training seems justified.

Residency training is not required for practice in pharmacy and dentistry, so there must be some perceived benefit of entering residency training on the part of students in these health care disciplines. In an analysis of students entering general practice residencies in dentistry, respondents ranked the desire for additional experience and further education as top reasons for pursuit of graduate dental training.¹² Survey data indicate that factors motivating pharmacy students to pursue residency training include a desire to gain additional knowledge, experience, and specialized training, as well as the realization that new and challenging roles for pharmacists in the future will require further training.¹³ Residents and fellows polled in this same survey expressed the desire for earlier introduction of information about residencies during their degree programs. In other health professions, additional factors involved in seeking residency training include enhanced marketability and the desire to secure better employment opportunities.¹⁴ Pharmacists who completed community pharmacy residency programs found that their training in leadership and in developing

innovative patient care services had the greatest impact on their careers.¹⁵ At present, it appears that students perceive the primary benefits of residency training to be increased knowledge and experience, as well as enhanced ability to obtain a desirable position.¹⁶

The positive outcomes of postgraduate pharmacy training for the residents is increasingly recognized within the pharmacy profession, including development of practice and problem-solving skills, enhanced employment opportunities, exposure to the many aspects of pharmacy practice, professional networking, exploration and development of new roles for pharmacists, and experience in the education of pharmacy students.^{9, 17-21} The impact of postgraduate pharmacy education and training on the profession's advancement is well documented. For example, progressive clinical services in hospitals are found to be implemented more often if the director of pharmacy has an advanced degree or residency training.²² Two surveys assessing the activities of residency-trained pharmacists reveal other contributions to the profession.^{23, 24} Those who completed residency training were more likely to be active within national pharmacy organizations by maintaining memberships in multiple professional organizations, holding elected offices, and attending and delivering presentations at meetings. In addition, residency graduates were more likely to publish newsletter articles, book chapters, and original research articles. As a consequence, these individuals were also more involved in lifelong learning to maintain professional competency.

Pharmacy residencies provide additional value by incorporating education and training that cannot be included in the professional degree program. With the expanding number and complexity of available drugs, and the continued biomedical knowledge explosion, today's graduate is confronted with increasingly complicated drug therapy-related issues. With a critical need to acquire knowledge, a continuously expanding body of literature to evaluate, and the finite duration of the professional curriculum, imbalances may be created in attempting to fully address a student's educational needs. Educational outcomes achieved at only a foundational level in the didactic and experiential portions of the doctor of pharmacy curriculum can be practiced and accomplished in greater depth through residency training. This would

alleviate the tendency to "overload" the professional curriculum and thereby minimize unrealistic outcome expectations of doctor of pharmacy students.²⁵⁻²⁷

Quantifying the benefits of residency training for any of the health care professions becomes more difficult in terms of the impact of training on professional competency, patient outcomes, and society in general. Intuitively, practitioners with the ability to provide broad, in-depth services to a diverse patient population in a variety of practice settings should have an obvious beneficial impact on patient care.¹⁴ However, the evidence of positive effects of residency training on provision of care include only anecdotal evidence that patient outcomes are enhanced when medical residents are involved.²⁸ Nonetheless, residency training does appear to be an efficient way for practitioners to develop new skills, as well as refine existing skills. A survey of medical residency directors revealed that competency in commonly used clinical skills was expected in 77% of first-year residents within the first 3 months of residency training.²⁹ This suggests that appropriate levels of training intensity and expectations can achieve desired clinical competence within a limited time frame.

The effects of dental residency training on professional competence and ability have been assessed in a variety of dental practice activities.^{30, 31} Residency-trained practitioners demonstrate enhanced clinical skills in most practice areas when compared with practitioners who have not completed residency training. In addition to entering specialty practice more often, dentists who have completed residency training tend to perform more complex procedures and refer their patients to specialists less often. Enhanced confidence in treating patients in more complex environments and situations is also associated with dental residency training.³¹ Emergency medicine physicians who have undergone residency training have fewer malpractice claims and account for significantly less malpractice indemnity than do those who are not residency trained.³²

The issue of developing a competence level appropriate for entry into contemporary pharmacy practice will become increasingly more critical. Expanded technician responsibility and advances in technology continue to drive pharmacists away from traditional dispensing activities and into direct patient care roles. An

increasing number of new graduates are promptly inserted into often-complex patient care situations. However, some employers find it necessary to train new graduates for several months before placing them in independent, direct patient care roles. Simultaneously, an increasingly complicated drug therapy landscape is creating societal need for highly trained pharmacists who can manage the care of patients and collaborate with other health professionals in very complex situations. Residency training represents an important step in preparing pharmacy graduates to assume direct patient care roles. Through repetition, preceptor guidance, and appropriate feedback, residency experience allows the new practitioner to develop patient care abilities beyond the level achievable in a professional degree program alone. Indeed, there is a vast difference between proficiency in patient care abilities and the minimum competencies tested by current pharmacy licensing examinations. We believe that the education and training obtained during residency experiences provide the most effective and efficient means for new graduates to move beyond the level of minimum competency and to achieve proficiency in patient care abilities.

The evidence supporting our position that residency training is a necessary prerequisite for pharmacists engaged in direct patient care is limited, and minimal data are available from pharmacy-specific sources. Convincing evidence supporting the value of pharmacy residency training in achieving improved patient outcomes would certainly be helpful in making the case. However, evidence is more than simply a collection of experimental data; it also comprises the experience and judgment of learned individuals. In that context, we find the evidence supporting residency training to be compelling. Based on our collective experience and judgment, and the relevant data available, we conclude that the time has come to embrace residency training as a mandatory prerequisite for entry into direct patient care practice. Although universal acceptance of the role of pharmacists in managing drug therapy is not yet a reality, we believe this will be achieved in the time frame outlined above. As the transition to this role occurs, more widespread acknowledgment of the benefits of postgraduate residency training will contribute to an increasingly convincing case that this training is essential for all pharmacists entering practice as direct patient care providers.

Recommendation 2

All pharmacy residency programs should be accredited based on appropriate and regular standards-based review.

Background

To ensure quality, ACCP believes strongly that all residency programs should undergo formal, standards-based peer review and thereby receive and maintain accreditation. Although ACCP was not formally involved in residency accreditation until recently when it joined the ASHP Commission on Credentialing (COC),³³ ACCP has been an active proponent of residency training for more than 20 years. The ACCP also conducts a voluntary peer review process for pharmacy research fellowship training programs, reflecting further the belief that all postgraduate training programs should undergo regular peer review for the purpose of maintaining quality assurance.

The federal government requires that residency programs supporting training in pharmacy and medicine be accredited to be eligible for funds from the CMS. Currently, the COC is the federally recognized accrediting body for pharmacy residency programs. The COC accreditation process ensures that programs meet or exceed established residency standards. We believe that support by national pharmacy organizations of universal accreditation for all pharmacy residency programs will strengthen efforts to make residency training a prerequisite to direct patient care practice.

Recommendation 3

Residencies should be accredited as either entry-level postgraduate year 1 (PGY1) or advanced-practice level (PGY2) or beyond.

Recommendation 4

The PGY1 residency training should be a minimal requirement for academic appointment as an adjunct clinical faculty member or preceptor. Individuals entering research fellowship training programs should have completed at least a PGY1 residency.

Background (Recommendations 3 and 4)

Accreditation standards and processes are now in place for both PGY1 and PGY2 advanced

focused practice.^{34, 35} These will go into effect on January 1, 2007, and will replace the former standards and terminology of pharmacy practice and specialized residencies. Definitions of PGY1 and PGY2 pharmacy residencies were set forth by the COC and endorsed by the Council on Credentialing in Pharmacy.³⁶ One of the major reasons for introducing these new definitions was to help clarify the terminology associated with contemporary pharmacy residency training.³⁶

In 2004, 1200 residents completed ASHP-accredited programs (931 pharmacy practice residents and 269 specialized residents); there were 442 accredited pharmacy practice residency programs and 271 accredited specialized residency programs.³⁷ In 2005, there were 770 total programs (482 pharmacy practice and 288 specialized residency programs). The number of programs, particularly in pharmacy practice, continues to grow.

Entry Level (PGY1)

Goals and objectives for PGY1 residencies are broad in nature. They foster the development of clinical competency to meet the increasing need for pharmacy clinicians who can render direct patient care. The PGY1 program “enhances general competencies in managing medication-use systems and supports optimal medication therapy outcomes for patients with a broad range of disease states.”³⁴

The ASHP COC currently also maintains standards for three programs that are more site specific in nature. These jointly sponsored programs, which are currently under review, are the following: Pharmacy Practice (with Emphasis in Community Care), Managed Care Pharmacy Practice, and Managed Care Pharmacy Systems. The first program is jointly endorsed by ASHP and APhA; the other two programs are jointly endorsed by ASHP and AMCP. These programs differ from the general PGY1 standards in that they specify certain site-specific objectives. For example, the “emphasis in community care” residency includes the following:

- More business management experience
- A greater focus on wellness and prevention
- A community pharmacy as the major practice site

To ensure that today’s professional degree students receive clinical instruction from qualified preceptors, the task force believes that a PGY1 or one of the current site-specific residencies (or equivalent experience) should be

a minimal requirement for an academic appointment as an adjunct clinical faculty member or preceptor at schools or colleges of pharmacy. To provide fellows with adequate foundational clinical abilities and experience, PGY1 residency training should serve as a prerequisite for entry into most research fellowship training programs, particularly for those fellowships that focus on translational research.

Advanced Level (PGY2)

A PGY2 residency is in a focused or recognized specialty area of pharmacy practice and embraces the concept that additional knowledge and experience are required for practitioners with responsibility and accountability for optimal patient outcomes in focused areas of practice. Therefore, these residencies must provide trainees with greater opportunities to function independently and to integrate their accumulating knowledge and experience into the care of specialized or complex patient populations.

In PGY2 residency programs, the resident should continue to increase the ability levels that were initially developed during the PGY1 experience. Also, residents are expected to acquire additional depth of knowledge in one or more specialized areas to the degree that “in practice areas where board certification exists, graduates are prepared to pursue such certification.”³⁵

There are currently approved goals and objectives in 16 designated focus areas for PGY2 residencies³⁸:

- Clinical pharmacokinetics
- Critical care
- Drug information
- Geriatric pharmacy
- Infectious diseases pharmacy
- Internal medicine pharmacy
- Nuclear pharmacy
- Nutrition support pharmacy
- Oncology pharmacy
- Pediatric pharmacy
- Pharmacotherapy pharmacy
- Pharmacy practice management
- Primary care pharmacy
- Psychiatric pharmacy
- Medication use safety
- Advanced area of practice

Advanced area of practice PGY2 standards were created by ASHP to provide criteria for training experiences in an area of practice for which

specific PGY2 residency goals and objectives do not exist.

Recommendation 5

All PGY2 residencies should require previous completion of a PGY1 residency, although advanced practice residencies may be offered as 2-year programs in which general pharmacy practice (PGY1) training is the major focus of the first year.³⁹ In addition, other training models (combining residency and fellowship experiences, or residency and graduate degree programs) incorporating PGY1 and PGY2 training into programs of more than 2 years' duration should be considered.

Background

The ASHP advocates that the first year of postgraduate residency training (PGY1) should be a pharmacy practice residency, whereas a second-year residency (PGY2) should be an advanced training experience that is intended to develop levels of practice abilities and knowledge extending beyond those of a PGY1 residency. All advanced practice residencies are now considered second-year (PGY2) programs, designed to follow a residency in pharmacy practice (PGY1). Although discouraged by the ASHP COC for many years, a fairly significant number of directors of advanced residency programs in specialized areas have accepted applicants immediately after graduation, presumably due to the paucity of applicants who have previously completed a pharmacy practice residency. Thus, these "specialized" residents are not completing 2 years of postgraduate training. The task force understands that one reason behind this has been the limited availability of candidates willing to complete 2 years of residency. Nevertheless, we believe that this is not a sound approach to ensuring that the necessary postgraduate training outcomes are achieved. Clearly, as PGY1 programs become mandatory for entry into direct patient care practice, more qualified candidates will seek PGY2 residency training.

The task force believes that only candidates who have first completed PGY1 training should be considered for entry into programs intended to develop specialized practitioners. However, this statement is not meant to preclude the development of programs designed to create advanced practitioners over a 2-year period, in which PGY1 goals and objectives are the major focus of the first year.

Finally, training programs of more than 2 years' duration should also be considered, including models that combine PGY1 and PGY2 clinical training with research fellowship training or graduate degree programs. Such models may be particularly well suited to successfully preparing clinical scientist-educators for entry into academic clinical pharmacy positions.

Recommendation 6

Instruction in teaching methods should be made available to residents as part of their overall training. These programs should be developed and endorsed by practitioner organizations and AACP. New full-time clinician-educator faculty appointed to the rank of assistant professor should have completed at least 2 years of postgraduate residency training.

Background

The current shortage of pharmacists in all areas of practice has led to an increase in the number of new pharmacy schools, as well as an increase in the number of students admitted to existing schools. This has created a significant demand for additional clinical pharmacy faculty. This demand is, of course, exacerbated by a shortage of qualified applicants.³

It is in the best interest of patients, society, and the profession for future pharmacists to be trained by skilled clinician-educators. To positively affect patient care, teach effectively, and engage in scholarship, full-time clinician-educator faculty should have at least 2 years of postgraduate residency training, including a residency in a recognized specialty or other focused area of practice, in addition to general PGY1 training. This recommendation is consistent with recommendations made by the Accreditation Council for Pharmacy Education in their Draft Revision of Standards 2000 and Proposed Guidelines.⁵ Guideline 25.1 in the draft states that "Pharmacy practice faculty should possess additional professional training (residency, fellowship, and/or equivalent experience) and credentials (e.g., specialty certification) relevant to their practice and teaching responsibilities."

Residency training is essential in the development of skilled clinicians. Providing teaching experience is critical to developing competent educators—not just adjunct or full-time faculty, but also those clinicians who provide education to other health professionals

as a routine activity within their practice. Therefore, residency training for prospective educators (including those who will serve as future preceptors for students and residents) should include appropriate opportunities to develop skills in experiential and didactic teaching. Instruction in teaching is currently provided in a number of residency programs.⁴⁰⁻⁴³ The pedagogic curricula found in today's residency programs are variable but usually focus on key areas such as acquiring presentation skills, teaching in experiential settings, and achieving academic success. The development of standard teaching objectives that could be recommended for inclusion in PGY1 and PGY2 residency standards merits serious consideration. Residency curricula designed to develop teaching skills may also increase interest in academia among residents. At a minimum, such programs will help prepare residency graduates for future roles as preceptors for schools of pharmacy. Some of the other training models, such as those combining residency and fellowship experiences or residency and graduate degree programs, may be of considerable value in creating new faculty for the academy.

Accomplishing the Vision

Meeting Future Residency Needs

Approximately 1700 (\pm 100) residency positions are available in the United States (about 70% pharmacy practice residency positions and 30% specialized residency positions), including both accredited and nonaccredited residency programs. December 2005 statistics indicate that there were 770 accredited and pending accreditation programs in 2005-2006 (482 pharmacy practice and 288 specialized residencies) (Teeters J, Director, ASHP Accreditation Services Division, personal communication, February 2006). Pending programs are those that have applied for accreditation and are awaiting an on-site survey assessment. In 1997, there were 380 accredited and pending pharmacy residency programs (231 pharmacy practice and 149 specialized residencies) (Teeters J, personal communication, January 2005). The increase in programs and positions represents steady growth. However, at the current rate of growth, there will not be enough positions available in 2020 to support the demand that will be created if residency training is mandatory after graduation. Today, about 20% of pharmacy graduates enter residency training,

and the number of applicants exceeds available positions.⁴⁴ Hence, it appears that there will be continuing stimulus for the development of new programs over time, as long as interest exceeds availability and financial support for expansion is available. However, a "quantum leap" in residency expansion will be necessary in the near future if mandatory postgraduate residency training is to become a reality.

At present, there are about 8000 pharmacy graduates/year. The task force expects this number to grow to at least 10,000 by 2020. The Pharmacy Manpower Project report⁶ suggests the following numbers of pharmacists will be needed in the United States by the year 2020:

- 100,000 for order fulfillment. We consider these pharmacists to be those who are not involved in direct patient care but who oversee and participate in the drug distribution process, including oversight of technicians and automated dispensing systems. These pharmacists would be charged with ensuring the safety of the drug-dispensing process. They may be required to have system engineering backgrounds as well as pharmacy skills.
- 165,000 pharmacists who provide primary care services. We envision that these individuals would practice in community pharmacies and other ambulatory care settings.
- 130,000 pharmacists who provide secondary and tertiary care services. We anticipate that these individuals will practice in hospitals and higher intensity ambulatory settings (e.g., referral clinics in tertiary care centers).
- 22,000 pharmacists for non-patient-related activities (i.e., pharmacists in management, pharmaceutical industry, and other positions).
- 3250 faculty.

The above estimates for 2020 yield a total of 420,250 pharmacists. The percentage of the workforce distributed to each job category above can be used to estimate the approximate number of PGY1 residencies that will be needed, assuming that the 100,000 order-fulfillment pharmacists would not be required to complete residency training as a prerequisite to practice. This leaves 320,250 others who fall into a category that requires completion of a residency (managers would be expected to complete a residency in addition to other training, perhaps a PGY2 residency in administration or completion of a business management degree). These

320,250 pharmacists represent about 75% of the total projected workforce, based on the Pharmacy Manpower Project model. The percentage of secondary and tertiary care pharmacists (~30%) that will be needed provides an estimate of the number of PGY2 residencies that may be required as well.

Thus, approximately 75% of the 10,000 annual graduates would complete a PGY1 residency in order to fulfill the need for pharmacists envisioned by the Pharmacy Manpower Project. We realize that this estimate may be initially affected by current practitioners who could claim a higher percentage of a specific practice category, but we believe that this figure is a reasonable target for planning purposes. Assuming that there will be a need for 7500 PGY1 pharmacy practice residencies in 2020, and that there are about 1250 such positions available today, an annual growth rate of 415 new positions/year would be required (over the next 15+ yrs), assuming a straight-line increase. Of course, growth could be variable rather than constant. For example, if federal funding for residency training is increased, or if payment systems allow for billing of resident services, there might be a more rapid increase in residency positions. Also, as the number of residency-trained pharmacists increases, there may be periods of enhanced growth because these individuals will be eligible to direct new residency programs. Growth may also occur within individual programs because once a new program is accredited, the number of residents in the program can be increased without seeking additional accreditation. That is, a program with one pharmacy practice residency position could decide to add more positions if desired.

Barriers

Attitudinal Barriers

Some within the profession contend that additional training beyond the current doctor of pharmacy degree is not necessary. They offer the following opinions:

- The doctor of pharmacy degree is designed to educate future pharmacists as more advanced practitioners (compared with the previous baccalaureate degree programs) and to ensure that all pharmacists practice with a similar level of skill.
- The current pharmacy workforce shortage makes widespread postgraduate training

impractical, if not impossible.

- Most pharmacists do not provide direct patient care, nor do most want the responsibility of ensuring optimal patient outcomes.

Professional Education

Although the value of residency training to students is actively promoted in many schools and colleges of pharmacy, it remains a well-kept secret in others. In still others, the role of postgraduate clinical training is at best misunderstood. The philosophy of residency training as a prerequisite for direct patient care practice should be inculcated as a core value of pharmacy education. Schools and colleges of pharmacy must accept the responsibility to educate students early in the curriculum about the role of mandatory residency training as a foundation for continuous professional development. Exposure to current and former residents, examination of current residency standards, primers on resume or curriculum vitae development, and focus sessions describing how to research, apply to, and interview for residency programs can all be effective strategies in altering the culture of pharmacy education to include residency training as a mandatory part of one's professional development.

Acceptance

The profession continues to seek acceptance (by the public) of the pharmacist's role in managing drug therapy. Implementation of drug therapy management services under Part D of the Medicare Modernization Act provides the potential for a significant change in the public's perception of pharmacy practice. However, the profession must continue to pursue the goal of achieving pharmacist provider status under Medicare and other third-party payment systems.

Funding

Residency programs require a reliable infrastructure to ensure financial security and program longevity. Funding of pharmacy residency programs continues to be complicated by the inability to receive universally direct payments for clinical services. However, programs can be supported through a variety of other sources. For example, the sponsoring site, whether a health system, community pharmacy, or university, should allocate some funding to directly support the residency program. This can

be partially offset through resident staffing responsibilities that provide pharmacy services or teaching services that would otherwise be carried out by nonresident pharmacists. Educational grants, although used more commonly to support medical residency programs, are also potential funding sources. Some programs have successfully secured additional institutional funding through pharmacotherapy cost-avoidance by pharmacy residents. Some health systems are eligible for partial reimbursement through CMS for training pharmacy residents, depending on the distribution of Medicare beneficiaries cared for (i.e., so-called pass-through funds). However, this financial resource was reduced in 2004. Advocacy by ACCP, ASHP, and other pharmacy organizations was successful in securing reinstatement of support only for pharmacy practice residencies conducted in hospital settings. It is important to note that CMS considered discontinuation of pharmacy pass-through funding because pharmacists are not required to complete a postgraduate residency training program before they enter hospital pharmacy practice. Advocacy efforts continue in order to restore pass-through funding for second-year specialized (PGY2) residencies.

Unfortunately, funding sources for residency training will be one of the most difficult hurdles to overcome. The profession should strategically approach both public and private sectors to accomplish this end. Efforts must continue toward securing full recognition of pharmacists as health care providers and payment for the clinical services provided by pharmacists. Finally, advocacy initiatives directed toward increasing the share of governmental funding provided for pharmacy residency training at both the PGY1 and PGY2 levels should occupy a high priority on the government affairs agenda of all national pharmacy professional organizations.

Applicants

In 2005, 1548 applicants initially enrolled in the ASHP Resident Matching Program.⁴⁵ Of those, 345 withdrew, presumably to accept specialized residency positions or permanent positions, although no firm data are available to confirm this assumption. The remaining 1203 applicants participated in the March 2005 pharmacy practice match. Of those, 893 were matched to a program, leaving 310 (25.8%) to seek a position outside the match. The number of applicants for the March 2005 match (both

initially paid applicants and those who completed the matching process) was significantly higher than that of the previous year (Teeters J, personal communication, February 2006). The profession should develop mechanisms to assist pharmacy graduates who do not match with programs. Graduates will learn through experience that their choices may be limited if they do not match initially. However, this may actually benefit professional education as students will come to the realization that academic performance during pharmacy school has an impact on their ability to match successfully with a desirable residency program.

Regional Variability

Disparity exists in the numbers of residency programs in states and regions. Also, wide variability exists in the numbers of pharmacy students per state and region. These differences will need to be addressed in the future to ensure that all states benefit from the advances in practice that can occur by the employment of residency-trained individuals.

Building Consensus

The vision of residency training as a prerequisite for pharmacists engaged in direct patient care is not really a revolutionary proposition; rather, we suggest that it is an idea whose time has come. However, differing opinions from within the profession regarding mandatory postgraduate residency training must be heard and discussed meaningfully. Presuming that the philosophic, economic, and operational issues surrounding the future of residency training can be addressed seriously, we are confident that profession-wide consensus can be achieved. We believe that ACCP should take a leadership role in ensuring that all stakeholders within the profession are involved in the dialogue on this issue. Fortunately, virtually all of the profession's national organizations have an interest in postgraduate residency training and share a common vision for the future of pharmacy practice.⁴⁶ We recommend that this shared vision serve as a starting point for discussions on the pros and cons of mandatory residency training as proposed herein.

Conclusion

The need for residency training will persist no matter what political, economic, and practice

climates might exist. Although practice itself may not have progressed as quickly as anticipated since adoption of all-doctoral education, society's expectations of pharmacists have increased. Society's need for pharmacists who can manage patient therapy to ensure safe and effective drug use is undeniable.

Achieving the ACCP's vision of residency training as a prerequisite for providing direct patient care will be an important, but difficult, task. The cooperation of many will be required, and the value of this undertaking to all concerned must be debated and articulated clearly. However, if the profession is to move beyond the rhetoric of vision statements and pharmacy practice definitions, we must implement steps such as these. That is, a serious, consequential approach to making good on our promise to society is in order.

Make no mistake, this will require courage and integrity. The time is now to implement serious measures toward achieving the profession's vision for the future.

References

- American College of Clinical Pharmacy. The strategic plan of the American College of Clinical Pharmacy. ACCP Report 2002;21(10):S1-7.
- American College of Clinical Pharmacy. ACCP defines clinical pharmacy. ACCP Report 2005;24(8):1-2.
- Lee M, Bennett M, Chase P, et al. Final report and recommendations of the 2002 AACCP task force on the role of colleges and schools in residency training. *Am J Pharm Educ* 2004;68(1):article S2.
- American Association of Colleges of Pharmacy, Center for the Advancement of Pharmaceutical Education. Educational outcomes 2004. Available from http://www.aacp.org/Docs/MainNavigation/Resources/6075_CAPE2004.pdf. Accessed July 2, 2005.
- Accreditation Council for Pharmacy Education. Draft revision of ACPE standards 2000 and proposed guidelines. Available from <http://www.acpe-accredit.org/pdf/ACPEDraftRevisedStandardsandGuidelinesJune2005final.pdf>. Accessed July 9, 2005.
- Knapp DA. Professionally determined need for pharmacy services in 2020. *Am J Pharm Educ* 2002;66:421-9.
- American College of Clinical Pharmacy. ACCP, ASHP to pursue collaboration to increase number of residencies. ACCP Report 2003;22(6):2.
- Elenbaas RM. Trends and opportunities in residency and fellowship training. *J Pharm Pract* 1990;3:110-15.
- American College of Clinical Pharmacy. Pharmaceutical education. A commentary from the American College of Clinical Pharmacy. *Pharmacotherapy* 1992;12:419-27.
- The 1997-1999 American College of Clinical Pharmacy Clinical Practice Affairs Subcommittee A. A vision of pharmacy's future roles, responsibilities, and manpower needs in the United States. *Pharmacotherapy* 2000;20:991-1022.
- American Society of Health-System Pharmacists. Residency training for pharmacists who provide direct patient care. Policy position 0005. Available from http://www.ashp.com/bestpractices/education/Educ_Positions.pdf. Accessed July 2, 2005.
- Gogan CM, Davis EL. Profile and expectations of students entering general practice residency programs. *Spec Care Dentist* 1990;10:84-8.
- Bucci KK, Knapp KK, Ohri LK, Brooks PJ. Factors motivating pharmacy students to pursue residency and fellowship training. *Am J Health-Syst Pharm* 1995;52:2696-701.
- Garrison RS. General practice residency programs: benefits to residents and patients. *J Dent Educ* 1991;55:534-7.
- Unterwagner WL, Zeolla MM, Burns AL. Training experiences of current and former community pharmacy residents. *J Am Pharm Assoc* 2003;43:201-6.
- Pochop S. Pharmacy practice residency programs. *Am J Health-Syst Pharm* 2005;62:1562-3.
- Letendre DE. Reflections on the future of pharmacy residency programs: an ASHP perspective. *Am J Pharm Educ* 1992;56:298-300.
- American Society of Health-System Pharmacists. Why complete a residency? Available from <http://www.ashp.com/rtp/Seeking/why.cfm?cfid=19134420&CFToken=43337657>. Accessed July 9, 2005.
- Ray MD. Pharmacy residency training: proposal for a fourth wave. *Am J Health-Syst Pharm* 1997;54:2116-21.
- American Association of Colleges of Pharmacy Commission to Implement Change in Pharmaceutical Education. The responsibility for scholarship, graduate education, fellowships, and postgraduate education and training. *Am J Pharm Educ* 1993;57:386-99.
- Narducci WA. Revised CPRP guidelines increase opportunities for postgraduate education in pharmaceutical care. *J Am Pharm Assoc* 1998;38:436-9.
- Raehl CL, Bond CA, Pitterle ME. Pharmaceutical services in U.S. hospitals in 1989. *Am J Hosp Pharm* 1992;49:323-46.
- Herfindal ET, Koda-Kimble M, Bernstein LR, Shimomura SK, Adler DS. Effect of postgraduate training on the careers of University of California PharmD graduates. *Am J Hosp Pharm* 1987;44:536-43.
- Bond CA, Pitterle ME, Raehl CL. Evaluation of recent pharmacy graduates practice patterns, professional lifelong learning, pharmacy organization memberships, and salary. *Ann Pharmacother* 1994;28:21-8.
- Formicola AJ, Myers R. A postdoctoral year for the practice of dentistry: rationale and progress. *J Dent Educ* 1991;55:526-30.
- Bales DJ. One-year postgraduation: a requirement for licensure? *Oper Dent* 1987;12:89-90.
- Formicola AJ. A new format for dental education. *J Am Coll Dent* 2002;69:32-8.
- Griffith CH, Rich EC, Hillson SD, Wilson JF. Internal medicine residency training and outcomes. *J Gen Intern Med* 1997;12:390-6.
- Langdale LA, Schaad D, Wipf J, Marshall S, Vontver L, Scott CS. Preparing graduates for the first year of residency: are medical schools meeting the need? *Acad Med* 2003;78:39-44.
- Handelman SL, Blanford DH, Balzer J. Impact of general practice residency training on dentists and dental practice. *J Dent Educ* 1983;47:615-22.
- Tejani A, Epstein JB, Gibson G, Le N. A survey of the impact of a hospital-based general practice residency program on dentists and dental practice. *Spec Care Dentist* 2002;22:16-22.
- Branney SW, Pons PT, Markovchick VJ, Thomasson GO. Malpractice occurrence in emergency medicine: does residency training make a difference? *J Emerg Med* 2000;19:99-105.
- American College of Clinical Pharmacy. Bauman appointed to ASHP commission on credentialing. ACCP Report 2005;24(3):2.
- American Society of Health-System Pharmacists. ASHP accreditation standard for postgraduate year one (PGY1) pharmacy residency programs. Available from [http://www.ashp.com/rtp/PDF/Postgraduate%20Year%20One%20\(PGY1\).pdf](http://www.ashp.com/rtp/PDF/Postgraduate%20Year%20One%20(PGY1).pdf). Accessed February 7, 2006.
- American Society of Health-System Pharmacists. ASHP accreditation standard for postgraduate year two (PGY2) pharmacy residency programs. Available from [http://www.ashp.com/rtp/PDF/Postgraduate%20Year%20Two%20\(PGY2\).pdf](http://www.ashp.com/rtp/PDF/Postgraduate%20Year%20Two%20(PGY2).pdf). Accessed February 7, 2006.

36. **American Society of Health-System Pharmacists.** Pharmacy residency training in the future: a stakeholders' roundtable discussion. *Am J Health-Syst Pharm* 2005;62:1817–20.
37. **American Society of Health-System Pharmacists.** Residency town hall. MCM 2004. Available from <http://www.ashp.com/rtp/TownhallMCM2004.ppt>. Accessed July 29, 2005.
38. **American Society of Health-System Pharmacists.** PGY2 educational goals and objectives. Available from <http://www.ashp.com/rtp/Starting/PGY2.cfm?cfid=12779186&CFToken=89145964>. Accessed February 7, 2006.
39. **American Society of Health-System Pharmacists.** New ASHP PGY1/PGY2 accreditation standards: frequently asked questions. Available from http://www.ashp.com/rtp/PDF/FAQ_newSTD.pdf. Accessed February 7, 2006.
40. **Page R, Hammer D, Morris K.** Development of a pharmacy resident faculty rotation [abstr]. *Am J Pharm Educ* 2000;(suppl):96S.
41. **Lintner KA, Martin BA.** Development and implementation of a teaching certificate program for pharmacy residents [abstr]. *Am J Pharm Educ* 2002;(suppl):87S.
42. **Haase KK.** Incorporating clinician-educator training into a school of pharmacy-based residency program to cultivate future academicians [abstr]. *Am J Pharm Educ* 2002;(suppl):104S.
43. **Romanelli F, Smith KM, Brandt BF.** Teaching residents how to teach: a scholarship of teaching and learning certificate program (STLC) for pharmacy residents. *Am J Pharm Educ* 2005;69(2):article 20.
44. **Anonymous.** Report to Congress: the pharmacist workforce—a study of the supply and demand for pharmacists. Washington, DC: Department of Health and Human Services, 2000.
45. **American Society of Health-System Pharmacists.** ASHP resident matching program for 2005–2006 positions. Available from <http://www.natmatch.com/ashprmp/>. Accessed July 9, 2005.
46. **Maine LL.** The class of 2015. *Am J Pharm Educ* 2005;69(3): article 56.