

# Charting a new path forward for pharmacy residency expansion

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## Abstract

A core component of the vision of the American College of Clinical Pharmacy (ACCP) for the profession is that most pharmacists will provide direct patient care. Residency training programs are considered a prerequisite to meet the standards and competencies required for pharmacists providing direct patient care. Barriers to residency training expansion are numerous and include, but are not limited to, lack of funding, challenges in meeting accreditation standards for residency programs, limited practice sites, and lack of qualified preceptors. The demand for postgraduate year one (PGY1) and postgraduate year two (PGY2) pharmacy residency training has exceeded position availability over the past 10 years. The American Society of Health-System Pharmacists (ASHP) Foundation Pharmacy Forecast 2021 predicts pharmacy expansion within ambulatory care, population health, specialty pharmacy, and home care. To promote pharmacy residency expansion and maintenance of pharmacy residency quality, this commentary makes four recommendations with specific actions for consideration: develop preceptors and promote board certification, promote and foster innovation in residency training, expand residency training to address health equity with a focus on rural/underserved areas, and expand nontraditional residency training programs.

## KEYWORDS

pharmacy residency, postgraduate training, workforce

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## 1 | BACKGROUND

A core component of the vision of the American College of Clinical Pharmacy (ACCP) is that most pharmacists will provide direct patient care. The primary method to achieve the requisite knowledge, skills, and attitudes for providing this care is postgraduate residency training.<sup>1-3</sup> With a projected shortage of health care providers, clinical

pharmacists providing comprehensive medication management (CMM) need to be integrated into patient care teams.<sup>4</sup> Completion of pharmacy residency training permits clinical pharmacists to (1) acquire the necessary knowledge, skills, and experience to evaluate patients/drug therapies and provide pharmacotherapeutic monitoring; and (2) practice at the height of their ability in optimizing medication therapies and patient outcomes.

Unfortunately, barriers to residency training expansion are numerous and include, but are not limited to, lack of funding, challenges in meeting accreditation standards for residency programs, limited practice sites, and lack of qualified preceptors.<sup>5-10</sup> Addressing the pharmacy residency gap will be critical to meet the demand for highly trained clinical pharmacists who can contribute to the quadruple aim of health care: improving the patient experience, reducing health care costs, improving health care outcomes, and improving provider well-being.<sup>11</sup>

In this ACCP commentary, we explore the barriers to pharmacy residency expansion, discuss innovative solutions, and provide recommendations to increase the number of postgraduate residency training opportunities available to pharmacists.

## 2 | PAST AND CURRENT LANDSCAPE FOR PHARMACY RESIDENCY TRAINING

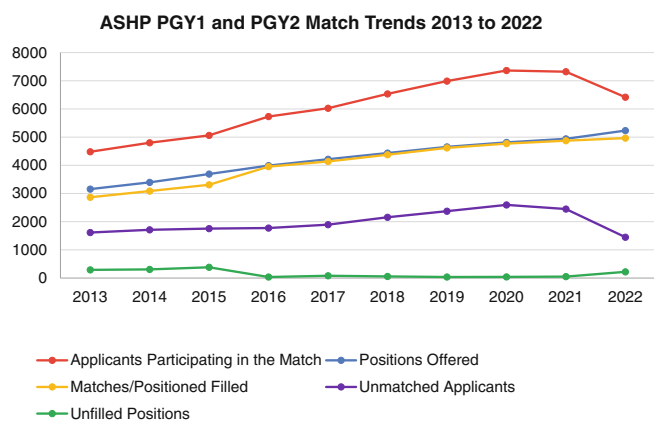
The American Society of Health-System Pharmacists (ASHP) Foundation Pharmacy Forecast 2021 predicts pharmacy expansion within ambulatory care, population health, specialty pharmacy, and home care.<sup>12</sup> The demand for postgraduate year one (PGY1) and postgraduate year two (PGY2) pharmacy residency training has exceeded position availability over the past 10 years, with applicant volume increasing from 4480 in 2013 to 6417 in 2022 and peaking in 2020 at 7364 (Figure 1).<sup>13</sup> Positions offered have also sharply increased, from 3156 in 2013 to a peak of 5232 in 2022, a 40% increase since 2013. However, these increases have not matched the increase in overall demand, nor will they fulfill the projected demand for pharmacy residency training moving forward.<sup>5,12,14-16</sup>

The ASHP residency directory maps demonstrate a heavy concentration of residency programs in large urban areas at academic

medical centers and large health systems, with few programs in rural sites, and historically, residency accreditation standards have focused heavily on pharmacy services provided in traditional pharmacy practice settings.<sup>17-21</sup> Health equity, defined as “the state in which everyone has the opportunity to attain their full health potential, and no one is disadvantaged from achieving their potential because of social position or other socially determined circumstances,” has been proposed as an addition to the quadruple aim of health care, making it the quintuple aim.<sup>22</sup> Factors that contribute to disparities in health equity, including social determinants of health, can be reflected in the geographic locations of existing pharmacy residency programs. Expanding residency programs with a concentration on achieving health equity in rural populations for whom CMM may traditionally not have been available holds great promise.

Given the current landscape, where demand for pharmacy residencies does not match supply, nonresidency-trained pharmacists are common in practice. Nontraditional residency programs allow pharmacists to develop specific skills and increase their qualifications while allowing participants to continue working in their current role. Nontraditional residency programs targeting early to mid-career pharmacists are an opportunity to recruit and develop a future workforce outside recent pharmacy graduates and may, unlike traditional pharmacy residencies, extend to 24–36 months in length.<sup>23</sup> Unfortunately, it is difficult to determine the true extent and presence of nontraditional residency programs because they are difficult to identify in the residency directory. Similarly, postgraduate and postresidency clinical development has varied, with little to no standardization outside the general continuing education requirements at the state level.

Expansion of residency training requires an ample supply of eligible and qualified preceptors and residency program directors (RPDs). Pharmacists must have sufficient experience in their practice area and meet several qualifications to fulfill eligibility criteria as preceptors and RPDs (Table 1).<sup>24</sup> The limited capacity of postgraduate and residency training has led to a shortage of qualified preceptors and program directors for pharmacy residency programs. Although the requirements vary across specialties, board certification contributes to developing an advanced practice for pharmacists after training and has become the standard for demonstrating maintenance of competence.<sup>25</sup> Currently, the Board of Pharmacy Specialties (BPS) certifies pharmacists in 14 specialty areas. Active certifications had grown to over 54 000 as of December 2021.<sup>24-31</sup> Data from 2015 to 2021 show a 46% increase in new and a 119% increase in retained certifications. This compares with a 20% increase in PGY1 matches and a 22% increase in PGY2 matches from 2017 to 2022.<sup>13</sup> Board certification helps satisfy both preceptor and RPD eligibility criteria and is the preferred credential by ACCP.<sup>32,33</sup> Specialties recognized by BPS require significant practice experience in the specialty area; the duration of required experience varies by the qualification pathway (see Table 1).<sup>24</sup> Specialty examination passing rates are considerably lower for pharmacists qualifying via the practice experience pathway than for pharmacists with residency training, potentially limiting the number of preceptors needed to support residency expansion (see Figure 2).<sup>34</sup>



**FIGURE 1** ASHP match trends past 10 years<sup>13</sup>

**TABLE 1** Duration of practice experience required for BPS specialty eligibility<sup>34</sup>

Specialty	PGY1 pathway	PGY2 pathway	Practice experience Pathway <sup>a</sup>
Ambulatory Care Pharmacy	1 year	No additional experience required	4 years
Cardiology Pharmacy	2 years	No additional experience required	4 years
Compounded Sterile Preparations Pharmacy	N/A	N/A	4000 hr
Critical Care Pharmacy	2 years	No additional experience required	4 years
Emergency Medicine Pharmacy	2 years	No additional experience required	4 years
Geriatric Pharmacy	N/A	N/A	2 years
Infectious Diseases Pharmacy	2 years	No additional experience required	4 years
Nuclear Pharmacy	N/A	2000 hr (same requirement for those completing internship)	4000 hr
Nutrition Support Pharmacy	N/A	No additional experience required	3 years
Oncology Pharmacy	2 years	No additional experience required	4 years
Pediatric Pharmacy	2 years	No additional experience required	4 years
Pharmacotherapy	No additional practice experience required	N/A	3 years
Psychiatric Pharmacy	2 years	No additional experience required	4 years
Solid Organ Transplantation Pharmacy	2 years	No additional experience required	4 years

Abbreviations: N/A, not applicable; PGY1, postgraduate year one; PGY2, postgraduate year two.

<sup>a</sup>Practice experience must include ≥50% of time in the specialty area.

### 3 | RECOMMENDATIONS FOR PHARMACY RESIDENCY EXPANSION AND MAINTENANCE OF PHARMACY RESIDENCY QUALITY

#### 3.1 | Recommendation 1: Develop preceptors and promote board certification

To improve specialty examination preparedness and increase the number of board-certified residency preceptors, *we believe employers, professional organizations, and other stakeholders should create preparatory courses and professional development programs that target pharmacists using the practice experience pathway and align with content outlines for the BPS specialties.* For example, ACCP has several resources available to help pharmacists prepare for specialty examinations.<sup>35</sup> Ideally, these preparatory courses and programs should be offered in conjunction with residency training, where pharmacists from the various pathways learn from one another and are encouraged to sit for the BPS specialty examination upon completion.<sup>36</sup>

However, for some pharmacists, board certification may not be feasible (e.g., a BPS-recognized specialty may not exist). For this reason, *we believe increasing the diversity of certification and training programs for potential preceptors will strengthen and support a pipeline of high-quality preceptors, allow for expansion of residency opportunities, and add value to their programs.* One novel example is the nationally recognized NCPA (National Community Pharmacists Association) Innovation Center/CPESN (Community Pharmacy Enhanced Services Network) Community Pharmacy Fellowship. The core curriculum for

this 1-year program focuses on three areas: practice transformation, management, and patient care.<sup>37</sup> Similarly, the ACCP Academy offers certificate programs in Leadership and Management, Research and Scholarship, and CMM that provide targeted learning opportunities for pharmacists and administrators.<sup>38</sup> Such programs can benefit the practice site, develop strong preceptors, support residency expansion, and ultimately improve access to and quality of patient care.

#### 3.2 | Recommendation 2: Promote and Foster innovation and quality in residency training

*Pharmacy leaders must consider defining new opportunities in postgraduate training through a proactive lens, ensuring educational development focuses on “transferable” skills that equip graduates to become pharmacy trailblazers.*

Health care has changed drastically over the past several years at a fast and unpredictable pace. Some have described it as living in a volatile, uncertain, complex, and ambiguous (VUCA) health care world that requires different thinking and strategies to prepare the next generation of pharmacists.<sup>39</sup> To identify future needs in postgraduate pharmacy education and thrive in a VUCA world, a forward-thinking formula is required to understand the transferable skills necessary for each component of the VUCA acronym and map them to the skills employers are currently seeking (Table 2).<sup>40–43</sup> *For the pharmacy profession to be proactive, our postgraduate training competencies must align with these transferable skills.* Table 2 shows the competencies highlighted in the ASHP PGY1 and PGY2 competency areas in a

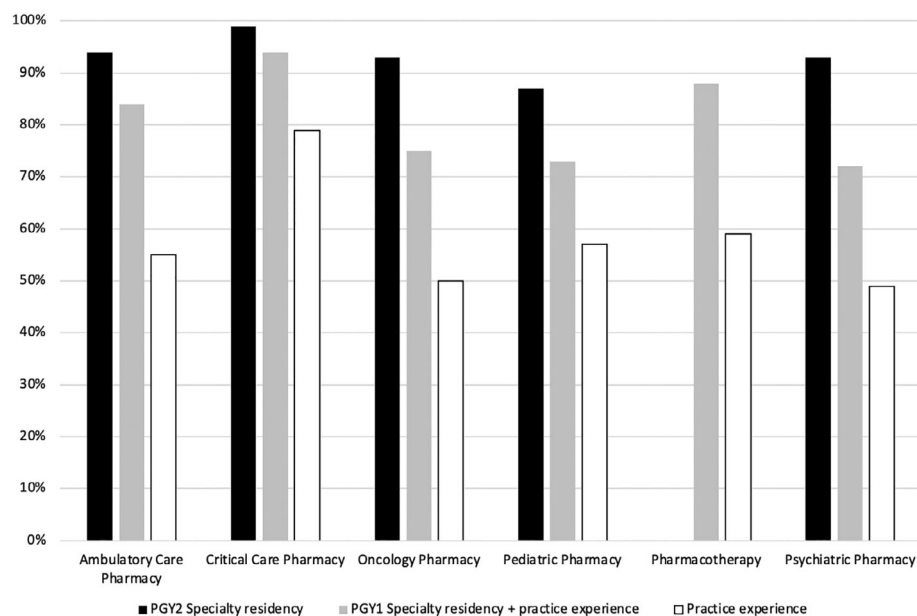
VUCA world.<sup>44-47</sup> Most of the transferable skills mapped to ASHP postgraduate competencies are in collaboration, communication, critical thinking, and information access and analysis. Notable areas of improvement for future postgraduate training include the development of curiosity, growth mindset, entrepreneurial mindset, and agility and adaptability. For example, implementation science has been suggested to be an important driver in advancing practice and could facilitate the development of these transferable skills. Therefore, incorporating the principles of implementation science into current and future residency training may be an opportunity to enhance the development of these skills.<sup>48</sup>

Current postgraduate training programs focus on developing more routine expertise that emphasizes solving routine problems encountered in practice, is highly efficient, and draws on what has been learned over time such that it becomes automatic. The current structure trains residents and models in the behaviors necessary to follow in the footsteps of their preceptors and RPDs, even if the modeled experiences or practices aren't available, sustainable, or even needed at the completion of training. However, there is a need for graduates to maintain high efficiency with a high level of innovation, a hallmark trait of the master adaptive learner. With the new requirements for professional competence, the criteria that guide postgraduate training must therefore evolve and accommodate. In postgraduate training, we often miss valuable learning opportunities when we become overly focused on the clinical work and routine expertise. There is a need to create a new kind of learner equipped with the knowledge, skills, and attitudes to tackle clinical challenges that have not yet been defined while ensuring quality patient-centered care. *Postgraduate training must be transformed to better connect with pharmacy curricula and develop the skill sets that allow graduates to create the future of pharmacy in a VUCA world.* Medicine has made a strong case for developing adaptive expertise or a master adaptive learner across all learning stages.<sup>49</sup> This conceptual model is a metacognitive,

self-regulated learning approach, fostering adaptive expertise so that clinicians are better prepared to innovate novel solutions in response to the rapidly evolving health care environment. Clinical pharmacists need a balance of both routine and adaptive expertise and must have the metacognitive skill set required for accurate self-assessment and practice with a flexible, growth mindset prepared for future learning. Postgraduate training must align with these needs and expectations.

### 3.3 | Recommendation 3: Expand residency training to address health equity with a focus on expansion in rural/underserved areas

Currently, residency training does not prioritize specific competencies focused on achieving health equity. Use of adaptive expertise in response to the COVID-19 pandemic has led to the provision of innovative clinical services that can serve as target areas for expanding pharmacy services and residency training: public health, telehealth, and community-based pharmacy services.<sup>50,51</sup> The pandemic has highlighted unmet public health needs and the pharmacist's expanded role in improving public health, potentially creating opportunities for public health residencies.<sup>52</sup> Use of telehealth and community-based pharmacy services has increased access to medications and pharmacy services to patients who have more barriers to health care access, such as those residing in rural and underserved communities and those with opioid use disorder.<sup>53,54</sup> Consequently, expansion of pharmacy services using telehealth, community-based programs, and community pharmacy practice will increase access to clinical pharmacy services and provide opportunities to expand residency training while promoting important public health initiatives. *Targeting expansion of residency training in rural community hospitals holds great benefit.* This may be accomplished by using existing rural grant funding and/or



**FIGURE 2** Board certification passing rates by eligibility pathway, 2015–2018.<sup>34</sup> PGY1, postgraduate year one; PGY2, postgraduate year two

**TABLE 2** Developing postgraduate pharmacy training for thriving in a VUCA world

Acronym components	Skills needed for VUCA World <sup>15</sup>	The future of work skills desired by Employers <sup>5,16,17</sup>	Required PGY1-related competency area (objective [corresponding to community and/or managed care objective]) <sup>18-20</sup>	Required PGY2-related competency Area <sup>21</sup>
Volatile “Speed of Change”	Embrace change Visioning Values Leadership	Strategic planning/project management Leading by influence (change leadership) Resilience/grit/growth mindset Initiative Entrepreneurial mindset Empathy Quality improvement	Quality Improvement (Objectives R2.1.2 [R3.1.1], <sup>19</sup> R2.2.4 [R3.1.1, <sup>19</sup> R2.1.2], <sup>20</sup> R3.2.4 [R2.2.1] <sup>19,20</sup> ) Personal/Interpersonal Leadership (Objective R3.1.1 [R2.2.3] <sup>19,20</sup> ) Change Management (Objective R3.2.3 [R2.1.2] <sup>20</sup> )	Quality Improvement (Objectives 2.1.2, R2.2.4, R3.2.4) Personal/Interpersonal Leadership (Objective R3.1.1)
Uncertain “Extent to Confidently Predict the Future”	Scenario planning Lifelong learning Innovation/creativity	Problem solving Curiosity	Problem Solving (Objectives R1.3.1, R2.2.1 [R3.1.1, <sup>19</sup> R3.4.1] <sup>20</sup> ) Innovation/Creativity (Objective R2.2.2 [R3.1.1, <sup>19</sup> R3.2.1, <sup>19</sup> R3.4.1] <sup>20</sup> )	Problem Solving (Objectives R1.3.1, R2.2.1) Innovation/Creativity (Objectives 2.2.1, R2.2.2, R2.2.5)
Complex “Factors That Need to Be Taken Into Account”	Communication Collaborative teams	Communication Teamwork/ collaboration Social/cultural awareness	Collaboration (Objectives R1.1.1, R1.1.2) Social/Cultural Awareness (Objective R1.1.4) Communication (Objectives R1.1.6, R1.1.7, R2.2.5 [R3.3.4, <sup>19</sup> R3.1.5, <sup>20</sup> R3.3.2, <sup>20</sup> R3.4.4], <sup>20</sup> R4.1.3 [R3.4.4] <sup>20</sup> )	Collaboration (Objectives R1.1.1, R1.1.2) Social/Cultural Awareness (Objective R1.1.4) Communication (Objectives R1.1.6, R1.1.7, R2.2.6, R4.1.3)
Ambiguous “Decision Making with Incomplete or Contradicting Information”	Adaptability Agility Critical thinking Creativity	Critical thinking Self-awareness/emotional intelligence Accessing and analyzing information Agility Adaptability Digital fluency	Critical Thinking & Accessing and Analyzing Information (Objectives R1.1.3, R1.1.4, R1.1.5, R2.2.1 [R3.1.1, <sup>19</sup> R3.4.1], <sup>20</sup> R2.2.2 [R3.1.3, <sup>19</sup> R3.4.1] <sup>20</sup> ) Self-Awareness (Objectives R3.1.2 [R2.2.2]) <sup>19,20</sup>	Critical Thinking & Accessing And Analyzing Information (Objectives R1.1.3, R1.1.4, R1.1.5, R2.2.1, R2.2.2) Digital Fluency (Objective R1.3.3) Self-Awareness (Objectives R3.1.2, R3.2.2)

Abbreviations: PGY1, postgraduate year one; PGY2, postgraduate year two; VUCA, volatile, uncertain, complex, and ambiguous.

targeting rural health care leaders, with strong marketing plans demonstrating the benefit of pharmacy residency training on health care access and outcomes in underserved areas. This will advance clinical pharmacy services, as shown in a model using residents from a broad health systems perspective.<sup>55</sup> Health systems can then include residents as a core departmental operation rather than a parallel operation to daily clinical services, thereby promoting expansion of clinical care.<sup>56</sup> Maximizing pass-through funding for PGY1s and developing administrative frameworks to support multisite training are critical to success and can close the gap to populations for whom the provision of CMM by a clinical pharmacist is currently not equitable. *CMM can be imperative to practitioners, particularly in geographic areas of anticipated pharmacy growth, including rural health sites and critical access hospitals, as well as in areas of specialty practice such as ambulatory care, population health, specialty pharmacy, and home care, to ensure health equity.*

### 3.4 | Recommendation 4: Promote expansion of nontraditional residency training programs

*Content related to pharmacy curricula, accreditation standards, and board certification needs to be aligned and sufficiently flexible to accommodate innovation and expansion specifically for nontraditional residency training programs. The skills necessary to become adaptive experts should be consistent with expectations across the spectrum of clinical pharmacy training and credentialing of specialists. Residency accreditation standards, which emphasize traditional pharmacy practice settings and timelines, should continue to become more flexible to accommodate innovative residency programs in nontraditional pharmacy practices. Expanding nontraditional residency programs will allow a targeted focus on early to mid-career pharmacists and provide an opportunity to recruit and develop a future workforce that is currently untapped. Health care facilities should consider the opportunity to*



**TABLE 3** Summary of recommendations and actions

Recommendations	Actions
<i>Develop preceptors and promote board certification</i>	<ul style="list-style-type: none"> <li>Professional organizations and other stakeholders should create preparatory courses and professional development programs that target pharmacists using the practice experience pathway and align with content outlines for the BPS specialties</li> <li>Increasing the diversity of certification and training programs for potential preceptors will strengthen and support a pipeline of high-quality preceptors, allow for expansion of residency opportunities, and add value to programs</li> </ul>
<i>Promote and foster innovation in residency training</i>	<ul style="list-style-type: none"> <li>Pharmacy leaders must consider defining new opportunities in postgraduate training through a proactive lens, ensuring educational development focuses on “transferable” skills that equip graduates to become pharmacy trailblazers</li> <li>Postgraduate training competencies should be aligned with transferable skills of innovation</li> <li>Postgraduate training should be transformed to better connect with pharmacy curricula and develop the skill sets that allow graduates to create the future of pharmacy in a volatile, uncertain, complex, and ambiguous (VUCA) world</li> </ul>
<i>Expand residency training to address health equity with a focus on expansion in rural/underserved areas</i>	<ul style="list-style-type: none"> <li>Target expansion of residency training in rural community hospitals</li> <li>Promote comprehensive medication management (CMM), particularly in geographic areas of anticipated pharmacy growth, including rural health sites and critical access hospitals, as well as in areas of specialty practice such as ambulatory care, population health, specialty pharmacy, and home care, to ensure health equity</li> </ul>
<i>Promote expansion of nontraditional residency training programs</i>	<ul style="list-style-type: none"> <li>Align pharmacy curricula, accreditation standards, and board certification and make them sufficiently flexible to accommodate innovation and expansion</li> <li>Expand nontraditional residency programs to allow a targeted focus on early to mid-career pharmacists; will provide an opportunity to recruit and develop a future workforce</li> <li>Promote flexibility of residency training to allow a timeline outside the traditional 1-year program; will allow individuals and programs to tailor training to specific needs</li> </ul>

develop nontraditional residency programs as an investment in current non residency-trained pharmacists within their organizations in order to promote the future of CMM. *Flexibility of residency training to allow a timeline outside the traditional 1-year program will allow individuals and programs to tailor training to specific needs.*

## 4 | CONCLUSION

Pharmacy residencies are an important component in the training of clinical pharmacists. The desire for postgraduate pharmacy residency training exceeds position availability and must be expanded to meet the need for competent practitioners providing CMM. Expansion opportunities should focus on preparing residents to be innovative, master adaptive learners who are flexible to current and future health care needs. Residency training expansion should focus on improving health equity, especially in rural areas. Flexibility in accreditation standards may be necessary to accommodate the growth and changes predicted in pharmacy practice models. Hybrid accreditation and harmonized standards may be useful in increasing accreditation capacity and allowing for innovation of programs that may not fit the current models as the need to grow residency programs continues (Table 3).

## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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