

# ACCP WHITE PAPER

## Value of Conducting Pharmacy Residency Training— The Organizational Perspective

American College of Clinical Pharmacy

Kelly M. Smith, Pharm.D., Todd Sorensen, Pharm.D., Kathryn A. Connor, Pharm.D.,  
Paul P. Dobesh, Pharm.D., James D. Hoehns, Pharm.D., Kristine B. Marcus, B.S.,  
Steven E. Pass, Pharm.D., Amy L. Seybert, Pharm.D., and Nancy L. Shapiro, Pharm.D.

With the continuing evolution of pharmacy as a clinical profession, the need to prepare well-trained clinicians beyond the knowledge gained from a doctor of pharmacy degree program is magnified. Such training is afforded by pharmacy residency programs, which have expanded from hospital sites to practice settings as diverse as managed care organizations and public health departments. Although the resident benefits from the intensive training program, the sponsoring institution also derives many benefits from hosting the residency. Fundamentally, residents are licensed pharmacists who provide several contributions to the organization at generally a much-reduced direct cost. Federal funding for graduate medical education, often referred to as Medicare pass-through funds, is a common source of support for the conduct of postgraduate year one residency programs in health system settings; other sources of funding may be found in organizational and academic outlets. Residents may be integral in expanding the revenue of an organization by serving as patient care providers, developing or enhancing services, and billing for services delivered. By virtue of the roles they can assume, residents can facilitate the redeployment of existing pharmacists to other areas, tasks, or projects, thus expanding the capabilities of the department. Increasing the capacity to conduct experiential education for pharmacy students, and the compensation for such activity, can be an additional benefit. Practice sites that conduct residency training often experience a greater degree of employee satisfaction and higher employee retention rates. Engaging in quality improvement and assessment activities, assisting in staff development, and supporting innovative approaches to care are additional activities that pharmacy residents can support. This primer from the American College of Clinical Pharmacy was developed to highlight the value an organization can realize by conducting pharmacy residency training.

**Key Words:** pharmacy residency, residency value, residency capacity, justifying residency training, clinical pharmacy.  
(*Pharmacotherapy* 2010;30(12):490e–510e)

Pharmacy residencies emanated from advanced training programs in university hospitals, most notably hospital internships that began in the

1930s. The development of such residency programs led to the establishment of an accreditation process for pharmacy residencies in

1962, administered by the American Society of Health-System Pharmacists (ASHP). Four years later, residency training in community settings was stimulated by the launch of the Community Pharmacy Residency Program by the American Pharmacists Association (APhA). Contemporary training models continue to support the delivery of such postgraduate training, but in a host of additional practice settings (e.g., health departments, managed care organizations, physician office practices). Even though the number of ASHP-accredited programs surpassed 1000 and the number of residency positions exceeded 2000 in 2009, it has been posited that this current scope of residency training is insufficient to prepare pharmacists to meet the needs of medication use systems in the evolving U.S. health system. The American College of Clinical Pharmacy (ACCP) asserts that formal postgraduate pharmacy residency training should be required for a pharmacist to enter direct patient care practice by 2020.<sup>1</sup> Similarly, ASHP has described a vision in which 90% of new pharmacists entering hospital and health system practice will have completed an ASHP-accredited residency by 2015.<sup>2</sup> Increasing the profession's capacity to prepare pharmacists through residency training is critical to achieving this vision.

Expansion in pharmacy residency training capacity can occur through both the development of new programs and the growth of existing programs. Given the economies of scale and the benefit of experience gained from conducting training, ACCP encourages existing program directors to increase the number of residency positions to maximize their training capacity.

Organizations that conduct residency training are committed to the value it brings to each resident; however, their commitment to providing this education is not entirely altruistic. There must also be a value realized by the organization to engage in this work.

This document is from the 2008 Task Force on Residencies: Kelly M. Smith, Pharm.D., FASHP, FCCP, BCPS (Chair); Todd Sorensen, Pharm.D. (Vice-Chair); Kathryn A. Connor, Pharm.D., BCPS, BCNSP; Paul P. Dobesh, Pharm.D., FCCP, BCPS; James D. Hoehns, Pharm.D., BCPS; Kristine B. Marcus, R.Ph., BCPS; Steven E. Pass, Pharm.D., FCCM, BCPS; Amy L. Seybert, Pharm.D., B.S.; and Nancy L. Shapiro, Pharm.D., BCPS. Approved by the American College of Clinical Pharmacy Board of Regents on October 16, 2009.

Address reprint requests to the American College of Clinical Pharmacy, 13000 W. 87th St. Parkway, Suite 100, Lenexa, KS 66215; e-mail: accp@accp.com; or download from <http://www.accp.com>.

Administrators may find the costs (e.g., salary, fringe benefits, travel, accreditation, preceptor time and training) incurred in the conduct of residency training daunting, but when the overall value proposition of residency training to the organization is analyzed, the perspective may shift substantially. Residents are licensed pharmacists who represent the potential to facilitate capacity building in virtually any departmental or organizational effort, and they generally do so at a dramatically reduced direct cost to the organization.

The 2008 ACCP Task Force on Residencies was convened to cull the professional literature and the residency-training environment and assemble a document to assist administrators in justifying the expansion of existing—or the development of new—pharmacy residency programs. Points of justification are presented as value realized by the organization, including external funding sources; expanded revenue opportunities; staff recruitment, development, and satisfaction; capacity building for the delivery of education and scholarship; and support of innovation (Figure 1).

### External Funding

Funds to support the conduct of pharmacy residency training are available at the federal, state, and local levels, and several of the opportunities available for this support are described.



Figure 1. Value from pharmacy residency training.

## Federal Funding

In addition to providing payment to hospitals for care received by Medicare beneficiaries, the Centers for Medicare and Medicaid Services (CMS) provides payments to hospitals to support graduate medical education (GME). Commonly referred to as Medicare “pass-through” funds,<sup>3</sup> these payments generally support physician postgraduate training in medical residency programs, with some funds allocated for other health professionals, including pharmacy residents. These funds, which compensate providers (e.g., hospitals) for costs incurred from approved educational activities, fall into two categories for which different payment policies apply.<sup>4</sup> The first category represents payments CMS makes to hospitals for residents who are training in medicine, dentistry, osteopathy, and podiatry. The second category includes approved “nursing and allied health education programs” operated by the provider (e.g., pharmacy residency programs). The costs of these programs are excluded from the definition of inpatient hospital operating costs, as well as the calculation of payment rates for hospitals reimbursed under the prospective payment system that are subject to the “rate-of-increase” ceiling. These costs, identified separately, are “passed through” (that is, paid separately on a reasonable cost basis). On a practical level, it is favorable to GME reimbursement for a pharmacy residency to be included in this second category because it is not subject to the limits in reimbursement that affect programs in the first category.

Certain requirements must be met for a pharmacy residency program to be eligible for GME funds from CMS. When the Task Force was convened, only ASHP-accredited postgraduate year one (PGY-1) pharmacy residency positions were eligible. This limitation in funding eligibility was invoked in 2003, when funding was retracted for postgraduate year two (PGY-2) pharmacy residency programs.<sup>4</sup> An additional element for funding eligibility is that the provider’s allowable educational costs cannot include costs that represent a redistribution of costs from an educational institution to a provider. Nor can it include costs that *have been, or are currently, provided* through community support.<sup>5</sup> For example, if a pharmacy residency was previously or is currently receiving financial support from a college of pharmacy (COP), this cost cannot then be shifted to the provider. In

addition, CMS views “community support” as any funding that is non-Medicare (other than payments made for providing services to individual patients), including state and local government appropriations. Certain grants, gifts, and endowments are not viewed as community support and are allowable (section 1134 of the Act).

Two categories of allied health postgraduate educational programs may be eligible for CMS pass-through payments: “provider-operated programs” and certain “non-provider-operated programs.”<sup>5</sup> Provider-operated programs include traditional hospital-based PGY-1 pharmacy residency programs. The provider must incur the training costs, have direct control of the curriculum, control the administration of the program, employ the teaching staff, and issue the certificate for successful completion of the training program. Non-provider-operated programs include programs administered by an educational institution that is related to the provider by common ownership or control. For example, a hospital (or group of hospitals in a community) may create an educational foundation to administer postgraduate training programs (medical and/or allied health) in an effort to improve efficiency and minimize duplicative administrative functions. A pharmacy residency program operated by such a foundation would be viewed as a non-provider-operated program. Similarly, a non-provider-operated program would have to incur the training costs, control the curriculum, etc., as noted above. In general, receiving CMS pass-through payments for a provider-operated program is more straightforward.

Both the CMS regulations pertaining to GME funds and the process for requesting them are rather complex. Enlisting the support and expertise of individuals at the practice site who are responsible for generating the Medicare cost report is essential. Included in this annual cost report are data on total gross charges, gross and net revenue, expenses, payer mix, and patient visits. A request for GME funds for a pharmacy residency will be included in the Medicare cost report. Payment for a provider’s net cost for allied health educational activities is determined on a reasonable cost basis,<sup>6</sup> including trainee stipends, compensation of instructors, and other costs of clinical training. Net costs reported to CMS for Medicare pass-through funds are subject to apportionment for Medicare use,<sup>7</sup> a process meant to ensure that the cost of services for non-

Medicare beneficiaries is not borne by CMS. This adjustment reflects the varying Medicare patient load among providers. Therefore, a residency program at a provider with a higher Medicare patient load will be eligible for a higher amount of Medicare pass-through funds (see Table 1). Readers are encouraged to review Appendix 1, as well as the article by Miller and Woller, which provides an excellent overview of GME reimbursement for pharmacy residents.<sup>3</sup>

Although not eligible for CMS funding, training conducted in federal facilities may have additional resource opportunities. The Veterans Affairs Medical Centers (VAMCs) trained 22% of all pharmacy residents in the United States in 2008–2009. This number is expected to grow after the office's issuance of a funding request for an additional 80 residency positions through the year 2014.<sup>8</sup> With programs at 89 of the 155 VAMC locations, funding for all pharmacy residency positions emanates from the VA Central Office in Washington, D.C. All VAMC residency programs must be accredited by ASHP to be eligible for VA funding, which includes resident stipends and excludes related travel expenses.

#### State and Local Sources

Local partnerships may be identified for

collaborations that support residency education, which results in program cost sharing (Table 2). COPs are frequently supporters of postgraduate residency training.<sup>9</sup> In 2002, the American Association of Colleges of Pharmacy (AACCP) asserted that pharmacy residency training should be included in the mission of all member institutions, thus emphasizing the support of academic pharmacy for residency training.<sup>10</sup> An investment in residency training can yield future dividends to the academic organization beyond the short-term support of educational and research missions. For example, residents who eventually become faculty members are more likely to have acquired training and experience in teaching methods during their residency.<sup>11</sup> As a result, COPs may be simultaneously supporting the development of their future faculty members when they participate in residency training.

State pharmacy associations may also be interested in supporting and promoting residency education, to advance the level of pharmacy practice in the state or possibly to support legislative advocacy efforts. Grants from the pharmaceutical industry, professional pharmacy societies, and other educational foundations are other sources to consider.<sup>9</sup> Individuals seeking financial support for residency training should recognize that funds may be available from

**Table 1. Sample Budget of Total Education Costs for a PGY-1 Pharmacy Residency with Two Pharmacy Residents**

Cost Item	Calculation	Cost (\$)
<i>Direct costs</i>		
Resident		
Salary + benefits	$(\$42,000 + 25\% \text{ benefits}) \times 2$ persons = \$52,500/person	105,000
Travel	\$2000	2000
Research poster preparation	\$600	600
ASHP annual accreditation fee	\$2650	2650
Teaching time		
Program director	(20% of salary + benefits) <sup>a</sup>	24,551
Administrative time for program director	(5% of salary + benefits)	6137
Clinical pharmacy specialist (rotation preceptor)—teaching time	$(25\% \text{ salary} + \text{benefits}) \times 2$ preceptors	61,377
Clinical pharmacy staff (rotation preceptor)—administrative time	$(5\% \text{ salary} + \text{benefits}) \times 2$ preceptors	12,276
Preceptor travel to residency conference/recruitment		4000
<i>Total direct costs</i>		218,591
<i>Indirect costs</i>	(30% of total direct costs) <sup>b</sup>	72,945
<i>Total educational costs</i>		316,095
Anticipated Medicare reimbursement	Hospital has 53% of patient load with Medicare patients (total education costs $\times$ Medicare patient load)	167,530

<sup>a</sup>Time in which staff is directly involved with teaching residents.

<sup>b</sup>This percent is derived from the Medicare step-down method for determining cost.

ASHP = American Society of Health-System Pharmacists; PGY-1 = postgraduate year one.

**Table 2. Sample Budget for a PGY-1 Community Pharmacy Residency**

Budget Item	Notes	Cost (\$)
<b>Expenses</b>		
Resident – salary + benefits	\$40,000 + 20% benefits	48,000
Resident – travel	Stipend for one national meeting	1000
ASHP accreditation fee	Fee assessed for one program with one site	2875
Program director, admin effort	(5% of salary + 25% benefits)	5750
Preceptor(s), teaching effort	(20% of salary + 25% benefits)	21,000
Marketing and recruitment expenses	Printed marketing materials, travel to national meeting	2000
	<i>Total direct costs</i>	80,625
<b>Revenues and Net Savings</b>		
Patient care revenues	Based on 10 encounters per week	24,000
Net staffing contribution	Based on 20% staffing contribution; net difference between resident salary and staff pharmacist salary	16,650
Compensation from Pharm.D. program for teaching effort	2 × 1-month rotation; \$1000/rotation Resident laboratory teaching at college \$1000	3000
	<i>Total revenues/Net savings</i>	43,650
Indirect costs	(30% of total direct costs, if considered by the institution)	24,187
	<i>Net costs</i>	61,162

admin = administrative; ASHP = American Society of Health-System Pharmacists; PGY-1 = postgraduate year one.

certain organizations even if there is no routine call for applications; thus, directly communicating with representatives from these organizations can be productive.

Some state Medicaid programs provide support to learners in the health professions; they should be contacted to determine potential eligibility. An example is the Medical Education and Research Costs Fund established in Minnesota in 1996.<sup>12</sup> The purpose of this fund is to compensate hospitals and clinics for a portion of the costs of clinical training. The program was developed to address costs that had traditionally been covered by teaching facilities charging higher rates for patient care but that had become difficult to recoup as third-party payers reduced payments to teaching facilities. The amount of funds received is related to the amount of public program revenue received by the institution. For the COP at the University of Minnesota, this program generates between \$5000 and \$25,000 per resident full-time equivalent (FTEs) per year.

### Expanded Revenue Opportunities

Pharmacy residents play a key role in assisting an organization in meeting its goals with respect to medication use, safety, and the delivery of medication therapy management (MTM) services. The primary role of a resident is certainly as a

“learner”; however, because this learning is inextricably intertwined with the delivery of pharmacy services through experience-based learning, it is difficult to draw the line between the learning activities (which require dedicated resources) and the services provided (which add to the department’s or organization’s cumulative resources). Nonetheless, the services provided by residents yield opportunities for revenue enhancement.

### Clinical Service Contributions

Residents contribute to the underlying mission of an organization by providing patient care (e.g., patient care rounds, target drug monitoring, patient monitoring), as well as by extending pharmacy services, conducting research, providing education, facilitating leadership/management activities, and engaging in community service. One of the most common forms of such contributions is direct participation in the medication use system (e.g., pharmacist staffing, distributive activities). The importance of staffing to the growth of a resident is highlighted by specific requirements within the ASHP accreditation standards, including training outcomes for the ability to manage and improve the medication use system as well as use medical informatics. A specific goal that PGY-1 residents

must achieve is preparing and dispensing medications following existing standards of practice and an organization's policies and procedures. A 2000 survey characterized the average distributive requirement as an average of 8 hours/week (range 3.5–16 hours/week) for both PGY-1 and PGY-2 specialty residents.<sup>13</sup> This same investigation revealed that the activities performed by residents to cultivate this skill set were not solely represented by direct participation in traditional drug distribution activities. Duties performed will depend on the practice model employed by the organization, as well as specific institutional needs. For example, in a health system practice model that incorporates floor-based decentralized pharmacists with direct patient care responsibilities (e.g., rounding, therapeutic drug monitoring, collaborative practice), residents may be expected to fulfill pharmacist shifts in either the central pharmacy or decentralized areas or in some combination of both.

Staffing requirements can be tailored not only to meet the training needs of the resident, but also to help address the critical components of the scope of services delivered by a pharmacy department, which may include expectations for residents to provide staffing on evenings and weekends—times for which securing staff pharmacist coverage may be challenging. Residents also often fulfill service obligations during holidays. In rare instances, residents may also help cover night shifts or sick calls, as long as such events do not adversely affect the educational experience of the resident or violate the guidelines related to duty hours. Engaging residents in traditional pharmacist roles can also assist in justifying the cost of providing residency training. Any shift completed by a resident is one less shift provided by a staff pharmacist; thus, one cost-justification approach is to calculate the direct replacement of pharmacist wages for shifts fulfilled by residents. For example, if a group of four pharmacy residents typically staffs 32 hours a week and pharmacist wages average \$50/hour, the net gain to the department over 12 months (excluding 1 month of orientation and training) is \$17,600. This amount may increase when pay differentials for evenings and holidays are considered.

Pharmacy residents can also serve as service extenders by providing a host of other patient care services, such as completing high-cost drug review (e.g., prior approval), providing antimicrobial stewardship, conducting

medication reconciliation, providing MTM services, documenting patient interventions, charging for services, and completing discharge histories. Acute care institutions often struggle to provide high-level care at all times, particularly on evenings, weekends, and holidays. One pharmacy department reported its experience with optimizing patient outcomes through a 24-hour on-call policy. All pharmacy residents in this program provided guidance on serum drug concentrations, pharmacokinetic monitoring, drug information, drug therapy evaluation, and emergency patient treatment, and they obtained medication histories in conjunction with their distributive responsibilities.<sup>14</sup> Other organizations have implemented around-the-clock on-call programs in which residents are available for consultation by telephone or pager. Another example of residents contributing to expanded service capacity is their integration with teams responding to medical emergencies. A recent survey identified that when considering required and optional medical emergency response patterns, the extent of participation by pharmacy residents in medical emergencies exceeded that of their staff pharmacist colleagues.<sup>15</sup>

Pharmacists, including pharmacy residents, may be able to directly bill for clinical services, particularly in the outpatient setting. Opportunities include Medicare Part D, certain state Medicaid programs, and local programs. One example is the Iowa Medicaid Pharmaceutical Case Management Program. As licensed pharmacists, pharmacy residents are able to see eligible patients and directly bill for their services, contributing to the patient care revenues generated by an organization. The additional service capacity that can increase opportunities for clinical revenues may expand to other areas. For example, one program created learning opportunities for pharmacy residents in a long-term care project, serving as consultants, which provided additional revenue to the program.<sup>16</sup>

#### Administrative Service Support

Pharmacy residents contribute to organizational and departmental leadership and management activities and may serve on committees, become involved in formulary review, or have chief or lead resident responsibilities that limit the administrative role of the pharmacy staff.<sup>17</sup> In 1982, Schneider and

colleagues prepared a cost-justification evaluation of a hospital pharmacy residency training program.<sup>18</sup> The contributions of pharmacy residents were tabulated and compared with the cost of the program to the hospital (i.e., salaries, fringe benefits, and training expense). Residents' activities that benefited the organization included the provision of administrative support, the completion of special projects, scheduling staff assignments, and coordinating educational programs. Resident contributions exceeded costs of training by a 1.3:1 ratio. Another important organizational contribution residents provide is support of the residency program recruitment process.<sup>19</sup> Other service roles may include contributions to professional and community service activities (e.g., local health screenings, brown-bag activities, immunization drives).

Although not well quantified in the literature, the overall contributions of residents in achieving departmental or organizational goals can be extrapolated from the value of staff pharmacists. The Task Force believes that an appropriate means by which to consider this is an evaluation of the "multiplier effect" that residents can have on the impact of pharmacy services within the organization. Residents' contributions often extend the overall work by core pharmacy staff by taking on projects, assuming certain patient care roles so that staff can have the flexibility to accept short- or long-term assignments within the organization, and enhancing educational efforts to both pharmacy and non-pharmacy audiences. To evaluate the return on investment of hosting pharmacy residents, one must consider the full value of the services delivered by pharmacy residents both directly and indirectly, divided by the direct and indirect costs associated with providing this educational experience. To accurately define the numerator in this equation, the full scope of the incremental increase in service capacity within the organization must be considered—which includes not only the services directly delivered by residents, but also the indirect impact of results realized through the enhanced capacity of staff secondary to a resident's presence.

#### Additional Revenue Opportunities

The presence of residents may increase the capacity of the pharmacy department to take on externally funded projects, such as postmarketing surveillance, formulary review work, or delivery of after-hours services to remote institutions. In

some cases, the work related to these projects may be completed directly by residents, or staff pharmacists may complete the work because of the increased flexibility in their time secondary to the contributions of a resident. For example, one institution received a contract for the development and ongoing maintenance of a series of therapeutic class monographs provided within a Web-based formulary management tool. The development and maintenance of the monographs, completed by residents and overseen by preceptors, created a positive learning experience for residents and an important revenue opportunity for the department. Similarly, another program developed a mechanism for supplementing funds by requiring residents to write articles for a column in a medical journal, an activity that also provided excellent medical writing opportunities for the trainees.<sup>20</sup>

Other institutions have integrated residents into compensated activities that provide de-identified patient data or "purchasing data" from expert panels, manufacturers, or independent researchers evaluating medication use patterns or conducting postmarketing surveillance. The preceptor identifies projects acceptable to the site and seeks institutional review board or other necessary approval to complete the work; residents can assist with efforts to collect and report the data. Finally, some programs have had pharmacy residents assist with sponsored clinical research activities. One organization has used pharmacy residents as sub-investigators on drug protocols. Residents assist in identifying potentially eligible patients in addition to other study-related functions, allowing the site to increase its research capacity and, subsequently, its research revenues.

#### Indirect Revenues

The previous section addressed many of the direct service contributions made by residents and some of the revenues realizable from these activities. The following section presents examples of opportunities in which the addition of pharmacy residents can indirectly enhance organizational revenues, an important consideration when completing a global analysis of the value that residency training can bring to an organization.

#### Increased Capacity of Medical Providers

Clinical pharmacy services provided by staff

pharmacists or residents have the potential to increase the efficiency of other providers, allowing the medical staff opportunities to increase the number of billable visits. Some ambulatory care clinics have considered how delegating activities such as medication refill authorizations and non-billable work (e.g., telephonic patient follow-ups) by medical staff to pharmacists may contribute to overall clinic revenues. For example, in a medical clinic with six FTEs of physician staff, if the clinic is able to achieve one additional billable encounter per week for each physician FTE, it could generate an additional \$45,000 in revenue (based on an average of \$150 per physician encounter). Pharmacy residents working in collaboration with a pharmacist preceptor in this environment can substantially contribute to creating this positive revenue for the practice.

#### Enhanced Revenues from Pay-for-Performance Contracts

Many studies have documented the enhanced achievement of clinical indicators when pharmacists participate in the care provided by an interprofessional team. The impact of this may more frequently result in enhanced revenues for ambulatory practice settings because of the incentive payments realized through pay-for-performance contracts. Although pharmacists and/or residents do not directly generate these enhanced revenues, their contribution to services delivered by a team can play a considerable role in achieving performance benchmarks. For example, certain pay-for-performance contracts provide incentive payments for reaching a percentage of patients who have achieved clinical goals for blood pressure, A1c, and cholesterol. Pharmacy residents, working with a preceptor and directly managing the treatment of patients with diabetes, may increase the likelihood of the practice reaching its prescribed benchmark. In the inpatient setting, institutions more frequently see payments withheld for adverse events (e.g., nosocomial infections) or early readmissions. The presence of pharmacy residents likely enhances the ability of a pharmacy department to help prevent these undesirable events; this contribution to the capacity of the department should be considered when evaluating the value of residency education to the institution.

#### Payments for Pharm.D. Education

Some COPs may pay affiliated organizations

for providing introductory or advanced pharmacy practice experiences (IPPEs/APPEs). The presence of pharmacy residents will likely bolster the organization's teaching capacity, increasing the number of Pharm.D. students hosted and, in turn, resulting in higher payments from the school.<sup>21</sup> Beyond the experiential setting, some schools may provide a salary offset to a sponsoring organization for residents who serve as teaching assistants in didactic courses.

#### Contribution of Residency Training to Quality and Cost Indicators

Safe, effective, and rational use of medications leads to improved patient outcomes and reduced costs. Outcomes may include reduced hospital admissions and diagnostic testing, fewer prescribing errors, lower morbidity and mortality, decreased length of stay, prevention of adverse drug events, and increased efficiency and health education. The patient care efforts of pharmacy residents may enhance the achievement of such goals. Common patient care activities range from providing interventions; preventing, diagnosing, and managing adverse drug events; and monitoring patients to participating in collaborative practice agreements and exercising prescriptive authority (see "Clinical Service Contributions").

Although the primary value of a residency program stems from the perceived long-term benefits to the patients and the profession, evidence suggests that even during training, pharmacy residents provide cost-beneficial clinical services. Several studies show the positive impact of pharmacy residents on drug costs,<sup>22-24</sup> prescribing errors,<sup>22</sup> adverse events,<sup>25</sup> and length of stay.<sup>22</sup>

Terceros and colleagues showed the positive impact of a pharmacy resident in reducing the hospital length of stay and producing drug-related cost savings. In that study, a pharmacy resident prospectively evaluated pharmacy interventions in patients admitted to a general medicine unit for 1 month and found that the net drug-related cost savings totaled \$2087, compared with patients admitted to a team that did not include a pharmacy resident. Most interventions prevented adverse drug events and prescribing errors and significantly lowered the mean length of stay ( $p=0.008$ ).<sup>22</sup> The impact of a PGY-1 resident in an assisted living facility was prospectively evaluated in the context of MTM activities for 184 days. The pharmacy resident



made 125 recommendations to primary care providers, 72 of which were addressed (90.3% of these were accepted). The resulting net cost-benefit was \$1550, with a benefit-to-cost ratio of 1.7 and a return on investment of 70%.<sup>23</sup>

Hospital pharmacy residents also provide cost-beneficial clinical services, as noted in a 1993 Canadian study.<sup>24</sup> Interventions made by three hospital pharmacy residents and the corresponding workload of these individuals during a 4-week period were used to compare the cost of a resident providing direct patient care services with the cost of a staff pharmacist. The balance of the residents' salaries and the partial salaries of any pharmacists spending time with the residents were also included. The investigators determined that 52% of the residents' efforts were spent on education-related activities and 32% on clinical services. Of the interventions evaluated by a physician review panel, 76% were considered to have a positive impact on patient care, yielding a cost-to-benefit ratio of 1.4 to 1 in favor of the residents. A study by Arroyo and colleagues showed that the integration of a pharmacy resident into a health care team in a medical oncology intensive care unit optimized therapy, reduced costs, prevented adverse events, and produced health care education.<sup>25</sup> This Spanish study of 672 patients over 8 months noted that the costs saved by integrating the resident amounted to 3133 euros per month (around \$4091 in U.S. dollars).

Silva and colleagues studied the use of personal digital assistants to document pharmacists' cognitive services and estimate potential reimbursement, determined by quantifying the hypothetical reimbursement for each intervention (e.g., allergy or disease state contraindications, antimicrobial regimen changes, drug interactions, elimination of duplicate therapy, therapeutic consultations).<sup>26</sup> For 6 months, four health system pharmacy residents and four clinical pharmacists recorded 7319 interventions, with estimated clinical service revenues of \$360,000.

Supportive examples can also be found in ambulatory settings. Kent and colleagues showed that the revenues for services exceeded their costs in a wellness center when performed by a pharmacist, a pharmacy resident, or a pharmacist-pharmacy resident combination.<sup>27</sup> Furthermore, two of the services (blood pressure and glycosylated hemoglobin monitoring) had a net financial gain only when a resident provided the service. This study involved a retrospective review of 1181 pharmacy wellness center records

over 24 months at an independent community pharmacy.

### Staff Recruitment, Development, and Satisfaction

Residents can have both a direct and indirect impact on pharmacy staff recruitment, retention, and development.

#### Recruitment

Residency programs can serve as an internal "feeder system" for new and vacant positions within the institution by providing a known talent pool of local candidates prepared to contribute immediately to that particular work environment. When there is a sustained shortage of pharmacists to fill vacancies, investing in the growth of internal employees to fill the pipeline becomes particularly desirable. It is more costly to recruit, orient, and provide shift-specific training for an outside candidate. In a 2006 article on human resources management, Weber shared that The University of Pittsburgh Medical Center estimated that it cost the institution \$65,000 to hire and train a pharmacist, regardless of his or her experience.<sup>28</sup> Outside candidates generally also require a longer training period, which further delays the fulfillment of open shifts.

The mere existence of a residency program is also a surrogate marker of excellence and may attract other highly skilled employees. Employment in a setting in which teaching is a focus or residency programs are conducted has been promoted to students as the sign of a quality work environment. Having a residency program at the worksite promotes the personal and professional development of the pharmacists involved in educating the residents. Pharmacists may be attracted to a department that provides the opportunity to train residents because they gain job satisfaction from "paying it forward," sharing their practice experience and mentoring a future generation of pharmacists.

In a joint ASHP/AACP survey of hospitals' capacity to host pharmacy students for experiential training, there was a significant relationship between an ASHP-accredited residency being in place and the site's participation in providing experiential training. Of the hospitals with residency programs, 66% stated that residents were preceptors for IPPEs and APPEs.<sup>29</sup> Residents expand the preceptor

base, allowing the site to accommodate more students for introductory or advanced experiential requirements, which in turn may increase the organization's exposure to soon-to-be graduates and positively affect recruitment efforts.

### Job Satisfaction and Retention

When a residency program is in place, the level of practice is raised for all pharmacists working at that site. Because accreditation processes for residencies evaluate the learning environment, the site is held accountable for its practice model, services, and facilities as outlined in ASHP standards. This peer-reviewed, learning-focused environment is more likely to promote workplace energy, practice reflection and innovation, and dedication to quality improvement. Resident projects that advance or improve patient care or departmental functions may enhance the job satisfaction and advancement of the pharmacists working at those sites. Recruitment of current residents may increase retention and loyalty because it demonstrates to the staff the employer's commitment to the growth of its employees.<sup>30</sup> Recently graduated residents are usually eager to help develop near-peers and may look for a worksite with an opportunity to participate in residency education.

### Staff Development

Residency training also provides a mechanism for staff development. Residents are responsible for delivering education as part of their learning objectives, which, in many programs, occurs through regular presentations as part of departmental inservice or continuing education programming. In some cases, residents may be responsible for the planning and organization of these programs. In addition, residents' main projects or administrative responsibilities may involve staff development or training programs for pharmacists, technicians, or students. Once competent in the responsibilities of a given position, the resident may also train new hires. Although residents may primarily be responsible for the training of technicians and interns, they may also be involved in the shared training of pharmacists.

The collateral benefits of residents as learners may affect other staff members as well. Preceptors are required to improve their own skill set and knowledge base continually so that

they can be effective teachers. Through contact with residents, staff members may choose to pursue a course of advanced training or certification that they would not have otherwise considered. Residents may establish certification and credentialing program study groups and thus may benefit fellow residents and pharmacists alike.

### Increased Capacity to Deliver Education and Scholarship

Residency programs allow residents to lead a plethora of educational programs, resulting in the education of pharmacists, pharmacy technicians, nurses, physicians, and other individuals in the organization. ASHP has established goals related to teaching skills within its accreditation standards for both preceptors and residents. Part of the ASHP residency training requirements includes the resident's ability to provide education to various groups, in both large and small formats. The benefits of this increased capacity to deliver staff learning opportunities are described above.

Another outcome of this expectation for residents to engage in teaching activities is that pharmacy residents may have formal COP didactic or experiential teaching responsibilities and may be involved in leading lectures, small group discussions, and laboratory sessions and in precepting students and residents. A recent survey determined that one of the elements reflective of a satisfactory relationship between COPs and academic medical centers was student-resident integration.<sup>31</sup> Another survey finding was that residents provide a variety of teaching activities such as leading small groups, instructing large classes, precepting students, leading weekly conferences, facilitating clinical examinations, assisting the primary preceptor, and discussing the role of residency training in educational sessions. COP-affiliated residency programs increase the capacity of organizations to provide experiential education, both at the introductory (IPPE) and advanced (APPE) level. Residents support the expansion of experiential training at sites by conducting student educational discussions, patient reviews, and evaluation processes involved with these experiences; serving as initial facilitators for students as they perform their patient care duties; and fulfilling other preceptor roles.

Some college-affiliated programs offer elective academic rotations for the residents to complete,

whereas others feature teaching skill development programs (e.g., teaching certificate programs) in their structure. These programs often include formal seminars on teaching-related topics as well as small group and didactic evaluated teaching and the submission of a teaching portfolio.<sup>32</sup> These teaching skill development programs are often designed to prepare residents for formal teaching positions. However, new faculty, preceptors, and other practitioners may also benefit from enrolling and cultivating their abilities to teach in the practice setting. Faculty members also benefit from resident-delivered activities. Precepting residents is a desirable activity for many clinical faculty members, as residents can broaden their level of teaching and bring the discussions to a higher level of clinical expertise and challenge. Scholarship capacity also expands by creating faculty-resident collaborations on scholarly efforts or freeing faculty members from clinical service to focus on their own scholarly endeavors.

According to the ASHP residency accreditation standards, residents are required to cultivate their own project management skills. Such skill development may take the form of formal research, continuous quality improvement initiatives, medication use evaluations, or practice service implementation (e.g., protocol implementation with measurement of impact, or quality assurance initiatives) that benefits the host organization. Engaging other pharmacists in resident projects can subsequently develop residents' own research abilities.

### Support of Innovation

The Institute of Medicine (IOM) has issued several reports emphasizing the need for improved health care education. The IOM has also recognized that although many health care professionals are expected to work within interdisciplinary teams, they have often not been prepared to do so. The purpose and design of pharmacy residency programs are well suited for both of these roles, as residents often work in collaboration with their health care colleagues to provide patient care. Organizations that host residency programs are often a laboratory for innovations in patient care delivery.

### Establishment of New Services

Pharmacy residents can be instrumental in establishing patient care efforts in new patient

populations or practice settings. Supporting this, residents may conduct a needs assessment related to a new service or provide limited services when the service is initially established. Such an approach has been successful in emergency departments, where the assessment of need or provision of initial limited services has led to a call for establishing a newly funded position and often the subsequent hiring of the resident graduate for the new position.<sup>33</sup> Opportunities also exist to engage residents in establishing new services in the community and ambulatory setting. Efforts have included establishing immunization programs, MTM initiatives, medication adherence clinics, and specialty clinics (e.g., lipid management, chronic pain, solid-organ transplantation).

These innovations are often recognized nationally by professional organizations. Over a 6-year period, four recipients of the ASHP Best Practices Award were recognized for establishing or expanding pharmacy services that involved residents. Most of these pertained to ambulatory clinics in which residents contributed substantially to the services provided and whose role was integral in the ability of the pharmacy department to develop those services. Another example is an institution that was able to implement a pharmacist in a renal dialysis unit by receiving a grant to fund a resident position.

Additional examples can be found with the winners of the AACP Crystal Apple awards. This award was designed to increase the capacity and enhance the quality, efficiency, and effectiveness of professional experience programs and to improve pharmacy education and practice. In the 2 years since the program's inception, most of the award recipients have engaged pharmacy residents through COP collaboration to achieve these goals.

For organizations seeking support for residency program development, abstracts presented at national meetings for regional residency conferences can be a source of ideas and experience. Recent abstracts have featured several resident-led initiatives around disease management (e.g., diabetes, lipids, blood pressure, renal care, chronic pain, chronic lung disease, osteoporosis, anticoagulation), medication reconciliation, procedural interventions, medication adherence monitoring, and adverse drug event monitoring. Many examples of innovative resident projects designed to improve the quality of patient care can also be found in the literature.<sup>15, 34-41</sup>

## Other Resources

Throughout this document, the Task Force has brought together several sources of information—published, anecdotal, and hypothetical—describing the value of residency education from the perspective of a sponsoring organization. Individuals taking responsibility for developing a value assessment for either initiating or expanding a residency program (see Appendix 2) should seek other sources of information that will not only support efforts in justifying residency positions, but also inform them about the educational goals and objectives that must be met to ensure residency program quality. ASHP resources include the organization's Web site, the staff within the Accreditation Services Division, the biannual ASHP National Residency Preceptors Conference (with proceedings published in the *American Journal of Health-System Pharmacy*), and other national meeting materials posted on the ASHP Web site. APhA also provides resources to organizations, particularly those seeking to establish community pharmacy residencies, through the APhA Web site and through staff support. Many national organization meetings hosted by ACCP, ASHP, and APhA include presentations and workshops related to residency programs and their development. Finally, individuals looking to take a leadership role with the expansion of residency training are highly encouraged to seek networking opportunities in their local area with pharmacists who have been involved in residency training and can provide a local source of information and support.

## Future Directions

Although this document assists individuals in justifying the expansion or development of residency positions, new models for delivery of practice-based education may need to be considered to provide the profession with the number of positions required to achieve ACCP's vision of residency training as a prerequisite for direct patient care. Specifically, the medical model of experiential teaching should be explored. A hierarchical approach—from the attending pharmacist to the PGY-2 resident to the PGY-1 resident to APPE and IPPE students—would allow learners to observe modeling and be coached by pharmacists at various stages of experience.<sup>42</sup> Clinical pharmacists currently committed to APPE and IPPE training may be partly relieved of these responsibilities by

including residents in the training of IPPE students. This may allow the clinical pharmacist to mentor additional residents and increase overall training capacity. Although preceptor qualifications and state board regulations may influence the ability to pursue such a model, the Task Force encourages institutions that may have used such a model to share their experiences and report associated educational outcomes.

## Conclusion

If the vision for residency training as a prerequisite for direct patient care is to become a reality, the pharmacy practice community must embrace responsibility for delivering quality residency training. In doing so, the profession will not only support the development of outstanding practitioners poised to meet the medication use needs of the U.S. health care system, but also simultaneously advance the current contributions of pharmacy programs to the delivery of safe and effective patient care. The value realized by a sponsoring organization involved in delivering residency training is broad in scope and, as a result, somewhat challenging to quantify. However, several forms of evidence support residency education as an initiative that provides a win-win partnership between resident learners and host organizations and that ultimately benefits the profession as a whole and its mission to serve the drug-related needs of society.

## Acknowledgments

The Task Force would like to thank Jill S. Burkiewicz, Pharm.D., BCPS, and Curtis E. Haas, Pharm.D., FCCP, BCPS, for their assistance with this document.

## References

1. Murphy JE, Nappi JM, Bosso JA, et al. ACCP position statement. American College of Clinical Pharmacy's vision of the future: Postgraduate pharmacy residency training as a prerequisite for direct patient care. *Pharmacotherapy* 2006;26:722–33.
2. American Society of Health-System Pharmacists. ASHP Health-system Pharmacy 2015 initiative. Available from [www.ashp.org/Import/PRACTICEANDPOLICY/2015Initiative.aspx](http://www.ashp.org/Import/PRACTICEANDPOLICY/2015Initiative.aspx). Accessed February 10, 2010.
3. Miller DE, Woller TW. Understanding reimbursement for pharmacy residents. *Am J Health Syst Pharm* 1998;55:1620–3.
4. Medicare Program (U.S.). Changes to the hospital inpatient prospective payment systems and fiscal year 2004 rates. Federal Register. August 1, 2003;68:45423.
5. Anonymous. Cost of approved and nursing and allied health education activities, 42 C.F.R. Sect. 413.85 (2006).
6. Anonymous. Adequate cost data and cost finding. 42 C.F.R. Sect. 413.24 (2006).

7. **Anonymous.** Apportionment of allowable costs. 42 C.F.R. Sect. 413.50 (2006).
8. **American Society of Health-System Pharmacists.** No accreditation? No funding says VA. *InterSections* 2009;Winter:10-1.
9. **American Society of Health-System Pharmacists.** Proceedings of the 2008 ASHP National Residency Preceptors Conference. *Am J Health Syst Pharm* 2009;66:e51-5.
10. **Lee M, Bennett M, Chase P, et al.** Final report and recommendations of the 2002 AACP task force on the role of colleges and schools in residency training. *Am J Pharm Educ* 2004;68(Suppl 2):1-19.
11. **McNatty D, Cox CD, Seifert CF.** Assessment of teaching experiences completed during accredited pharmacy residency programs. *Am J Pharm Educ* 2007;71:88.
12. **Minnesota Department of Health [Internet].** Medical education and research costs (MERC). St. Paul, MN: Minnesota Department of Health, 2009. Available from [www.health.state.mn.us/divs/hpsc/hep/merc/](http://www.health.state.mn.us/divs/hpsc/hep/merc/). Accessed February 10, 2010.
13. **Jennings HR, Empey PE, Smith KM.** Benchmarking ASHP-accredited residencies: a survey of program stipends, benefits, staffing practices and organization. *Am J Health Syst Pharm* 2000;57:2080-6.
14. **Smith KM, Hecht KA, Armitstead JA, Davis GA.** Evolution and operation of a pharmacy residency on-call program. *Am J Health Syst Pharm* 2003;60:2236-41.
15. **Toma MB, Winstead PS, Smith KM, Lewis DA, Clifford TM.** Pharmacy resident participation in cardiopulmonary resuscitation events. *Am J Health Syst Pharm* 2007;64:747-53.
16. **Horning KK, Hoehns JD, Doucette W.** Adherence to clinical practice guidelines for 7 chronic conditions in long-term care patients who received pharmacist disease management services versus traditional drug regimen review. *J Manag Care Pharm* 2007;13:28-36.
17. **Burkiewicz JS, Bruce SP.** Chief resident in pharmacy residency programs. *Am J Health Syst Pharm* 2007;64:754-61.
18. **Schneider PJ, Bowman DM, Bourret JA, Ngu BQ, Ouellette SM, Smeek DM.** Cost justifying a pharmacy residency program. *Am J Hosp Pharm* 1982;39:1517-20.
19. **Ramsey EZ, Miller AD, Armitstead JA, Smith KM.** Using pharmacy residency recruitment as a practical learning experience for existing residents. *Am J Health Syst Pharm* 2009;66:329-32.
20. **Smith KM, Romanelli F.** Use of an electronic survey to assess the training and practice experiences of pharmacy residency graduates. *Am J Health Syst Pharm* 2005;62:2283-8.
21. **Smith KM, Phelps PK, Mazur JE, May JR.** Relationships between colleges of pharmacy and academic medical centers. *Am J Health Syst Pharm* 2008;65:1750-4.
22. **Terceros Y, Chahine-Chakhtoura C, Malinowski JE, Rickley WF.** Impact of a pharmacy resident on hospital length of stay and drug-related costs. *Ann Pharmacother* 2007;41:742-8.
23. **Maack B, Miller DR, Johnson T, Dewey M.** Economic impact of a pharmacy resident in an assisted living facility-based medication therapy management program. *Ann Pharmacother* 2008;42:1613-20.
24. **Yoshida E.** Workload and cost-benefit of hospital pharmacy residents. *Can J Hosp Pharm* 1993;46:147-54.
25. **Arroyo CC, Aquerreta I, Ortega EA, Goni ZO, Giraldez DJ.** [Clinical and economic impact of the pharmacy resident incorporation into the healthcare team]. *Farm Hosp* 2006;30:284-90. Spanish.
26. **Silva MA, Tataronis GR, Maas B.** Using personal digital assistants to document pharmacist cognitive services and estimate potential reimbursement. *Am J Health Syst Pharm* 2003;60:911-5.
27. **Kent K, McDonough RP, Dinges B, Doucette WR.** Retrospective financial analysis of wellness center from an independent community pharmacy perspective. *J Am Pharm Assoc* 2006;46:447-52.
28. **Weber RJ.** Human resources management for the pharmacy director. *Hosp Pharm* 2006;41:1206-14.
29. **Anonymous.** Capacity of hospitals to partner with academia to meet experiential education requirements for pharmacy students. *Am J Pharm Educ* 2008;72:117.
30. **American Society of Health-System Pharmacists.** ASHP guidelines on the recruitment, selection, and retention of pharmacy personnel. *Am J Health Syst Pharm* 2003;60:587-93.
31. **Smith KM, Patton LR, Cannon BC, Romanelli F.** Status of teaching skill development programs (TSDPs) in pharmacy residencies [abstract]. *Am J Pharm Educ* 2008;72:Article 72.
32. **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;69:126-32.
33. **Weant KA, Sterling E, Winstead PS, Armitstead JA, Boggs R.** Establishing a pharmacy presence in the ED. *Am J Emerg Med* 2006;24:514-5.
34. **Smith KM, Lawson AP, Tuteja S.** Effect of internal reporting criteria on suspected adverse drug reactions submitted to MedWatch. *Am J Health Syst Pharm* 2006;63:949-52.
35. **Smith KM, Trapskin PJ, Empey PE, Hecht KA, Armitstead JA.** Internally developed online adverse drug reaction and medication error reporting systems. *Hosp Pharm* 2006;41:428-36.
36. **Sterling ES, Romanelli F, Martin CA, Hoven AD, Smith KM.** Impact of a pharmacy-initiated HIV admission note on medication errors within an academic hospital. *Hosp Pharm* 2005;40:874-81.
37. **Trapskin PJ, Smith KM, Armitstead JA, Davis GA.** Use of an audience response system to introduce an anticoagulation guide to physicians, pharmacists and pharmacy students. *Am J Pharm Educ* 2005;69:190-7.
38. **Vincent WR, Martin CA, Winstead PS, Smith KM, Gatz J, Lewis DA.** Effects of a pharmacist-to-dose computerized request on promptness of antimicrobial therapy. *J Am Med Assoc* 2009;302:47-53.
39. **Weant KA, Smith KM, Lewis DA.** Assessment of prescriber compliance with established heart failure guidelines at a major medical center. *Hosp Pharm* 2005;40:680-6.
40. **Yam FK, Akers WS, Ferraris VA, et al.** Interventions to improve guidelines compliance following coronary artery bypass grafting. *Surgery* 2006;140:541-2.
41. **Zarbock SD, Steinke D, Hatton J, Magnuson B, Smith KM, Cook AM.** Successful enteral nutritional support in the neurocritical care unit. *Neurocrit Care* 2008;9:210-6.
42. **Allen DD, Smith KM.** A hand and glove approach to pharmacy experiential education and residency training. *Am J Pharm Educ* 2010;74(4):Article 65.

## Appendix 1. Frequently Asked Questions About Medicare Pass-through Funding for Pharmacy Residencies

---

**Question:** What is Medicare pass-through funding (PTF)?

**Answer:** Medicare PTF is a source of federal funding to underwrite the cost to a site to conduct residency training. Designed to support institutional costs of providing care to the Medicare patient population, PTF primarily underwrites training in medicine and podiatry. Although no longer an option for postgraduate year two (PGY-2) programs, PTF is currently available to support accredited postgraduate year one (PGY-1) pharmacy residency programs.

**Question:** Which programs are eligible for PTF?

**Answer:** Sites are eligible for PTF if they sponsor a provider-operated program, characterized as follows: directly incurring the training costs, controlling the curriculum, administering the program, employing the teaching staff, and providing and controlling both clinical training and classroom instruction.<sup>1</sup> The Center for Medicare and Medicaid Services (CMS) currently limits reimbursement to provider-operated programs delivered by hospitals. Despite the relatively large number of programs that may be eligible for PTF, a 1998 survey revealed that only 44% of pharmacy residency programs had applied for such funding.<sup>2</sup>

**Question:** What is a Medicare cost report?

**Answer:** Formally termed the *Hospital Cost Report* (CMS-2552-96), the Medicare cost report is a large annual financial report that a Medicare-certified institutional provider (i.e., hospital) is required to submit to a Medicare fiscal intermediary (FI). Included in this cost report are data on total gross charges, gross and net revenue, expenses, payer mix, and patient visits. A request for graduate medical education funds for residency training should be included in this Medicare cost report. Hospital Cost Report data files since 1996 are available for downloading from the CMS Web site at <http://www.cms.hhs.gov/CostReports/> free of charge, or they may be purchased on DVD.

**Question:** What is a Medicare FI?

**Answer:** Medicare FIs are private companies that serve as CMS agents to facilitate the administration of Medicare program rules.<sup>3</sup> As required by section 911 of the Medicare Prescription Drug Improvement and Modernization Act of 2003, CMS is replacing its current claims payment contractors (FIs and carriers) with new contract entities called Medicare Administrative Contractors (MACs). There are 15 regional MACs, which will cover most Part A and Part B services (i.e., A/B MACs).<sup>4</sup> Therefore, MAC is the current term used to denote what was traditionally described as an FI. The MAC is the hospital's point of contact for questions pertaining to the Medicare cost report, claims, and payment; also, the MAC audits and approves financial transactions for Medicare programs.

**Question:** Which local resources can assist in managing the PTF process?

**Answer:** Many larger hospitals employ a Medicare reimbursement specialist in the accounting or finance division who is familiar with the institution's Medicare cost report and the processes related to it. Smaller sites may contract with an outside agent to provide similar services by preparing and submitting the Medicare cost report. Residency program directors should keep the institution's Medicare reimbursement specialist regularly apprised of costs related to the pharmacy residency, anticipated financial changes, and any change in accreditation status.<sup>5</sup>

**Question:** At which point in the residency implementation process should Medicare PTF be sought?

**Answer:** Pharmacy residency programs must be accredited by the American Society of Health-System Pharmacists (ASHP) to be eligible for PTF. The residency accreditation process often takes at least 12 months. However, all expenses incurred from the date the program applied for accreditation until the date accreditation was granted are eligible for reimbursement. The local Medicare reimbursement specialist can submit an amended hospital cost report to seek Medicare PTF for that period. Therefore, the earlier the initial application for accreditation is submitted, the earlier the program is eligible for Medicare pass-through reimbursement.

**Question:** How long may it take from filing a Medicare cost report until reimbursement?

**Answer:** The hospital must submit the Medicare cost report no later than 5 months after fiscal year-end. The MAC then has 60 days to determine a tentative settlement review related to the cost report. Reimbursement from Medicare will usually begin within 1–2 months from the date of the tentative settlement review. The hospital will then receive a payment each month specifically for the allowable Medicare pass-through costs. Any monies due to or from Medicare will be adjusted at the time of final audit by the MAC. Some hospitals may have a 2-year audit time before final costs are settled with the MAC. Although it may take quite some

---

**Appendix 1. (continued)**

---

time to receive PTF after initial residency start-up, program directors should not discount this important funding source, but rather should be prepared for quite a delay in the process until initial payment.

**Question:** Which program costs of the pharmacy residency are eligible for reimbursement?

**Answer:** Program costs that should be acceptable for PTF reimbursement include the following: trainee stipends, teacher (e.g., preceptor) salaries, resident travel stipend, research poster preparation, annual ASHP accreditation fee, photocopying services, and dues and subscriptions. Reimbursements for teacher salaries are only allowable for the portion of the preceptor's time spent directly related to the residency program (e.g., teaching and administrative). These direct costs, in addition to indirect costs, will be subject to Medicare apportionment based on the hospital's ratio of Medicare patient-days to total patient-days. Thus, the larger the Medicare population the institution serves, the greater the potential value of PTF. For example, if your institution's ratio of Medicare patient-days to total patient-days is 47%, then you will be eligible for 47% of the direct costs of the program to be reimbursed by PTF.

**Question:** What portion of the resident's work time can be included in the Medicare cost report?

**Answer:** The time the resident spends within the hospital performing approved program activities will count as allowable time on the Medicare cost report. In contrast, if a resident spends time providing services in an affiliated clinic or pharmacy that is physically located off premises, it is possible (but not certain) that this time will not be eligible for pass-through reimbursement, depending on how the hospital's Medicare cost report is structured. In general, time spent outside the hospital, even for approved program educational activities, will not be eligible for Medicare PTF.

**Question:** Can the costs of a residency program be shared between more than one provider (e.g., be divided between two Medicare cost reports)?

**Answer:** Yes, provided there are adequate time studies and no "double-counting" of reported program costs.

**Question:** What key requirements must be met before a MAC will approve PTF for a pharmacy residency?

**Answer:** In addition to the essential element of a provider-operated PGY-1 program that is accredited by ASHP, the program must not represent a *redistribution of costs*. CMS defines this term as "an attempt by a provider to increase the amount, or to expand the types, of the costs of educational activities that are allowed for Medicare payment purposes by claiming costs that previously were not claimed by the provider and were considered costs of an educational institution."<sup>6</sup>

**Question:** What variables affect the amount of PTF an institution may receive?

**Answer:** Both direct and indirect costs can be captured in PTF. Indirect costs are unique to each hospital because they are derived from the Medicare step-down method for allocating cost. Both direct and indirect costs must undergo Medicare apportionment, a reflection of the extent (e.g., patient-days) of Medicare-related services provided by the institution.

**References**

1. **Anonymous.** Medicare Program. Changes to the hospital inpatient prospective payment systems and fiscal year 2004 rates. Federal Register. August 1, 2003;68:45423.
  2. **Cortese Anecchini LM, Letendre DE.** Funding of pharmacy residency programs-1996. Am J Health Syst Pharm 1998;55:1618-9.
  3. **Randall DA.** The role of the Medicare fiscal intermediary and the regional home health intermediary, part 1. J Nurs Adm 1992;22:47-53.
  4. **U.S. Department of Health and Human Services.** Centers for Medicare and Medicaid Services. Available from [www.cms.hhs.gov/MedicareContractingReform/Downloads/MACJurisdictionFactSheet.pdf](http://www.cms.hhs.gov/MedicareContractingReform/Downloads/MACJurisdictionFactSheet.pdf). Accessed June 5, 2009.
  5. **Miller DE, Woller TW.** Understanding reimbursement for pharmacy residents. Am J Health Syst Pharm 1998;55:1620-3.
  6. **Anonymous.** Cost of approved nursing and allied health education activities, C.F.R. Sect. 413.85, 2006.
-

## Appendix 2. Sample Business Plan to Create a Residency Program

*Scenario: Hospital C, member of a network of community hospitals, proposes to develop a postgraduate year one (PGY-1) pharmacy residency program.*

### Pharmacy Residency Business Plan

#### Hospital C

##### Overview

Pharmacy residency training has long been recognized as the premier mechanism for the clinical and administrative training of pharmacists. The purpose of a pharmacy residency is to prepare pharmacists for clinical practice by providing intensive exposure to a wide range of patients during a 12-month period. A central theme of any pharmacy residency program in a community health care system is the improvement of clinical services and optimization of patient outcomes as the primary objective.

The benefits of pharmacy residency training are not limited to the resident. Institutions that assume the responsibility of training pharmacy residents gain the benefit of additional pharmacist staffing, expanded clinical programs, enhanced patient care services, and increased clinical pharmacy savings in exchange for nominal salaries (stipends). Because of residents' contributions to pharmacy staffing and clinical pharmacy interventions, Hospital C will realize additional cost-avoidance savings. In addition, the Centers for Medicare and Medicaid Services (CMS), which manages the Medicare program, reimburses for certain expenses associated with the training and education of health care professionals including pharmacists, further improving the cost-to-benefit ratio of resident training.

Currently, only two institutions within our health network have pharmacy residency training programs. Developing a PGY-1 pharmacy residency program is an opportunity for Hospital C to further its image as a leader within the network; hence, a PGY-1 pharmacy residency program should be considered a critical part of Hospital C's strategic plan to retain and recruit pharmacists, reduce patient care costs, and benefit patient care.

##### Background

Pharmaceutical and supply costs represent major unrecoverable expenditures in a fixed reimbursement setting. The current health care environment requires acute care institutions and health care providers to maximize patient care services through the judicious and appropriate use of resources. Leading health care institutions have recognized that well-designed clinical pharmacy programs can help contain costs and have long included pharmacy residency training in their program models. Since the restructuring of pharmacy education in the mid-1990s, pharmacy residency training has become an increasingly sought-after and important pharmacist credential. In recent years, the number of applicants has exceeded the number of available programs. Today, the American Society of Health-System Pharmacists (ASHP) maintains accreditation standards for residency training to ensure broad applicability in any pharmacy practice setting. These standards are continually reviewed and revised to keep pace with the dynamics of the profession. ASHP has formed partnerships with other pharmacy associations (e.g., American College of Clinical Pharmacy [ACCP], Academy of Managed Care Pharmacy [AMCP], American Pharmacists Association [APhA]) for the accreditation of residencies.

PGY-1 pharmacy residency programs have been in place for 10 years at **Hospital A** (four residents) and for 3 years at **Hospital B** (two residents), both affiliates of the health network system. Residents at these programs have been integrated into the clinical and staff pharmacy model and are responsible for providing inpatient drug distribution, decentralized patient care services/interventions, and administrative activities including policy development and formulary maintenance. At **Hospital C**, the clinical pharmacy program consists of a clinical pharmacy manager, a clinical pharmacy specialist, and four clinical-staff pharmacists. Creating a pharmacy practice residency program would add two members to the clinical model and allow an expansion of clinical pharmacy services, including increased clinical pharmacy interventions. During the previous fiscal year, the clinical pharmacy program at **Hospital A** was responsible for \$1,726,375 in pharmaceutical and supply cost avoidance and documented 10,404 clinical patient interventions resulting in an estimated \$283,888 savings through cost avoidance or improved patient outcomes.

##### Rationale and Benefits to Hospital C

Creating a PGY-1 pharmacy residency program provides Hospital C yet another avenue to improve the health of the communities it serves and parallels the strategic plan of the organization. This residency program will allow the Department of Pharmacy to improve and enhance services in clinical, operational, and financial performance. This opportunity will result in increased clinical pharmacy activities including inpatient drug distribution, decentralized patient care services, and administrative activities and formulary maintenance. Expansion of clinical pharmacy services into new patient care areas would also be possible,



**Appendix 2. (continued)**

allowing increased clinical pharmacy interventions, improved pharmaceutical use, and improved adverse drug reaction surveillance and avoidance. The combination of improved patient care and judicious resource use would be expected to result in an increased cost savings to the institution. In addition, as Hospital C continues to recruit new physician leaders from academic institutions, providing collaborative opportunities with the medical staff will become paramount. A pharmacy residency-training program will allow the Department of Pharmacy to continue to establish and foster physician relations similar to those in academic institutions, consequently increasing multidisciplinary interactions and improving patient care and safety. Furthermore, personnel recruitment in the Department of Pharmacy has often been difficult for Hospital C. An in-house pharmacy residency program would enhance the institutional image of being the work environment of choice and provide the department with a renewable supply of clinically trained pharmacists well oriented to the Hospital C system in the event of personnel turnover or departmental service expansion. Finally, Hospital C is continually looking for opportunities for strategic growth, both nationally and locally. The development of a pharmacy residency program would allow Hospital C to become one of only three health network institutions to participate in resident training, thus increasing its image as a network leader. On a regional level, Hospital C would be recognized as the only community hospital site for resident training in the area, thereby furthering its image of being the region's leading provider of pharmaceutical care.

**Pharmacy Residency Mission**

In partnership with our physicians and hospital staff, the primary mission of the pharmacy residency program at Hospital C is to provide traditional and innovative therapies, ensuring optimal patient care while upholding the mission and vision of Hospital C. The pharmacy residency program as a division of the clinical pharmacy program will strive to provide cost-effective patient care consistent with clinical quality and safety standards.

**Activities of the PGY-1 Pharmacy Resident**

- Provide centralized medication distribution services to inpatients.
- Participate in decentralized clinical pharmacy programs including:
  - Renal Dosage Adjustment Service
  - IV to PO Dosage Adjustment Service
  - Pharmacokinetic Monitoring Service
  - Smoking Cessation Counseling Program
  - Adverse Drug Event Monitoring/Reporting/Prevention
  - Toxic Laboratory Monitoring
  - Patient Home Medication Review
  - Inpatient/Discharge Medication Counseling
  - Target Patient Profile Review
- Participate in multidisciplinary patient care activities including:
  - Patient Care Rounds with Physicians
  - Nursing Care Plans
- Develop policy and procedures for Department of Pharmacy and patient care topics as needed.
- Develop seminars and training mechanisms targeted to physicians as needed.
- Develop seminars and nursing in-services on clinical and operational topics as needed.
- Develop seminars and pharmacy in-services on clinical and operational topics as needed.
- Be a resource center for nurse or physician drug information/therapeutic inquiries.
- Complete regular pharmacy formulary surveillance and participate in the annual formulary review.
- Complete medication use evaluations, ensuring appropriate and cost-effective pharmaceutical use.
- Participate in institutional and medical staff committees.
- Create new cost-savings initiatives to be added annually to Hospital C.
- Complete a pharmacy-initiated service or research project annually.
- Assist clinical pharmacy manager with supervision and teaching of doctor of pharmacy students.
- Increase participation in community outreach programs.
- Promote Hospital C locally and nationally through state and national pharmacy presentations.

**Funding of Pharmacy Residency Programs**

CMS reimburses a portion of the expenses associated with the training and education of health care professionals. Currently, the costs of PGY-1 pharmacy residency programs are

**Appendix 2. (continued)**

reimbursable under rules different from those that apply to medicine, osteopathy, dentistry, and podiatry residency programs. Direct costs of medical education (e.g., allocated overhead costs, salaries of residents) are excluded from the Medicare definition of inpatient operating costs covered by the prospective pricing system (PPS). Thus, the direct costs of approved medical education activities are not included in hospital-specific, regional, or national payment rates to hospitals under the PPS, but they continue to be reimbursed on the basis of reasonable costs. These expenses are often referred to as graduate medical education (GME) costs and are sometimes called GME pass-through costs because they are not reimbursed on the basis of the PPS but, rather, they pass through the PPS, thus avoiding the reimbursement limitations imposed by the PPS.

The Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1985 changed the way CMS pays for the direct costs of education for medical, osteopathic, dental, and podiatric interns and residents, superseding a July 1985 regulation amendment that tied payments to Medicare use. In general, this change reduced the amount of reimbursement hospitals could receive for medical education. However, this change applied only to medical, osteopathic, dental, and podiatry internship and residency programs, not to pharmacy residency programs and other “recognized professional and paramedical educational and training programs.” Pharmacy residency programs continue to be reimbursed by CMS on the basis of the older rules for direct costs of medical education in place before 1985. Medicare reimbursement for accredited pharmacy residency programs is much more straightforward than reimbursement for medicine, osteopathy, and dentistry programs.

To determine a hospital’s Medicare reimbursement for the direct costs of medical education, multiply the hospital’s average direct cost of medical education per resident by the number of full-time-equivalent residents, and multiply that product by the proportion of total inpatient-days used by Medicare patients. The Medicare regulation on the cost of educational activities specifically identifies pharmacy residencies accredited by ASHP as approved programs for pass-through reimbursement of educational costs. For this purpose, a hospital’s total cost includes trainee stipends, compensation of preceptors (salaries), and other direct and indirect costs of the activities.

**Start-up Costs**

The start-up costs of a PGY-1 pharmacy residency at Hospital C would include only a small financial commitment. Specifically, the initial recruitment of residency applicants involves participation at the ASHP Midyear Clinical Meeting (MCM), which occurs annually in December. Thousands of pharmacists, current residents, and prospective residents participate in this event. As part of this meeting, residency programs are allowed to present their programs and interview candidates during designated times. After recruitment, additional start-up costs would include the purchase of equipment and materials such as laptop computers.

<b><u>Initial Start-up Costs</u></b>	
ASHP MCM recruitment booth fee	\$450
Travel to ASHP MCM	\$3000
Laptops × 2	\$3000
<b>Total start-up costs</b>	<b>\$6450</b>
MCM = Midyear Clinical Meeting.	

**Annual Financial Impact to Hospital C**

Medicare will reimburse a portion of the annual direct and indirect costs associated with pharmacy practice residency training by GME pass-through based on the Medicare patient-days at Hospital C (60%). Projected support of a pharmacy practice residency program for the first year will cost Hospital C about \$103,950 in new direct educational expenses; however, 60% of these expenses will be reimbursed retroactively from Medicare. In addition, preceptor time (pharmacist salaries) will now be eligible for 60% reimbursement by GME pass-through, thereby effectively reducing current pharmacy staff expenses incurred by Hospital C. Finally, incorporating pharmacy residents into the Hospital C staffing model is expected to reduce the use of pool pharmacy employees, resulting in a staffing cost avoidance of \$33,280.

## Appendix 2. (continued)

<b>New Expenses to Hospital C (Direct Educational Costs)</b>			
<b>Two residents</b>			
Salary and benefits <sup>a</sup>			\$91,000
Travel to ASHP MCM			\$3000
Travel to regional residency conference			\$1000
<b>Recruiting efforts and accreditation costs</b>			
Travel to ASHP MCM (2 preceptors)			\$4000
ASHP MCM recruitment booth fee			\$450
Travel to regional residency conference (2 preceptors)			\$3000
Accreditation fee			\$1500
<b>Total new cost</b>			<b>\$103,950</b>
<b>Existing Hospital C Expenses Eligible for Medicare Reimbursement (Indirect Educational Costs)</b>			
	Hours/		
Teaching and administrative time <sup>b</sup>	Year	Time (%)	Cost
Director of pharmacy/ pharmacy manager	160	7.7	\$12,000
Clinical pharmacy manager	520	25.0	\$32,500
Clinical pharmacy specialist	480	23.1	\$28,500
Clinical-staff pharmacist #1	230	11.1	\$12,938
Clinical-staff pharmacist #2	230	11.1	\$12,938
Clinical-staff pharmacist #3	230	11.1	\$12,938
Clinical-staff pharmacist #4	230	11.1	\$12,938
<b>Total existing costs eligible for Medicare reimbursement</b>			<b>\$124,750</b>
<b>Reimbursement</b>			
<b>Medicare reimbursement</b>			
	Cost	Medicare reimbursement (%)	Reimbursement (\$)
Medicare cost basis			
Direct educational costs × Medicare patient load	\$103,950	60	\$62,370
Indirect educational costs × Medicare patient load	\$124,750	60	\$74,850
<b>Total Medicare reimbursement</b>			<b>\$137,220</b>
Staffing contribution by residents			
Staffing cost avoidance = 8 hours/week × 2 residents			\$33,280
<b>Overall Financial Impact</b>			
<b>Total new cost</b>		–	\$103,950
<b>Total reimbursement from Medicare</b>		+	\$137,220
<b>Staffing cost avoidance</b>		+	\$33,280
			<b>Net annual financial impact \$66,550</b>

<sup>a</sup>Benefits are estimated at 30% of salaries and 3% annual increase

<sup>b</sup>Pharmacy department facility costs have not been included.

**Benefits**

- People
  - Enhances image of work environment of choice for Department of Pharmacy
  - Improved pharmacist recruitment
  - Renewable supply of clinically trained pharmacists in case of personnel turnover or service expansion
- Performance
  - Enhanced clinical pharmacy services
  - Enhanced operational and financial performance
  - Increased cost savings/cost avoidance realized by Hospital C
  - Expansion of clinical pharmacy services into new patient care areas
  - Increased clinical pharmacy interventions
  - Increased pharmacy-initiated patient care services
  - Enhanced pharmaceutical use
  - Enhanced patient care and safety
  - Contribution to inpatient drug distribution
  - Increased participation in community outreach programs

**Appendix 2. (continued)**

---

- Physician Relations
  - Establish and foster new partnerships with medical staff
  - Expanded multidisciplinary opportunities and services
  - Enhanced clinical quality and safety of patient care
- Strategic Growth
  - Expanded clinical services within Hospital C
  - Become only community hospital site for residency training
  - Increase institution's association with colleges of pharmacy
  - Enhance image as the region's leading provider of pharmaceutical care
  - Become one of only three network institutions with pharmacy residency programs
  - Enhance image as a leading institution within health network

**Potential Obstacles**

- Office space in the pharmacy
- Need to develop preceptor skills of clinical staff pharmacists

**Timeline***August*

- ASHP MCM recruitment fee
- ASHP National Residency Preceptors Conference

*October*

- Pharmacy practice residency approval
- Residency Policy and Procedure Manual development
- Begin position advertising and recruitment.

*December*

- Recruitment at ASHP MCM
- Follow-up correspondence sent to prospective applicants after ASHP MCM

*January*

- Accept applications from prospective candidates.

*February*

- Interview prospective candidates on-site.

*March*

- Offer resident positions.

*July*

- Residency begins—Year One
- Submit application for accreditation to ASHP.
- Submit program to Resident Matching Program.

*December*

- Recruitment at ASHP MCM—Year Two
- Follow-up correspondence sent to prospective applicants after ASHP MCM—Year Two

*January*

- Accept applications from prospective candidates—Year Two

*February*

- Interview prospective candidates on-site—Year Two

*March*

- Offer resident positions through Resident Matching Program—Year Two
- Resident Matching Program results—Year Two
- ASHP on-site accreditation process

*May*

- ASHP accreditation approval—retroactive for all of Year One
- Submission to Medicare for GME pass-through reimbursement—retroactive for all of Year One
- Establish Medicare GME pass-through reimbursement for Year Two+

*July*

- Residency begins—Year Two

**Conclusion**

Pharmacy residency training is directly aligned with the strategic goals, mission, and vision of Hospital C. Such training would provide a unique opportunity for Hospital C to improve patient care delivered by the Department of Pharmacy as well as to enhance the health care provided to the communities Hospital C serves. A PGY-1 pharmacy residency program would allow Hospital C to continue as a leader within the health network and advance its image as the region's leading provider of pharmaceutical care. This program should be considered a critical

---

**Appendix 2. (continued)**

---

part of Hospital C's strategic plan for pharmacist recruitment and retention, reduction of patient care costs, enhanced patient care, and strategic pharmacy growth.

**Acknowledgment**

Adapted from materials provided by Heath R. Jennings, Pharm.D.

---