

## Postgraduate Clinical Education of Physician Assistants

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**Purpose:** Physician assistant (PA) postgraduate clinical training programs have existed since 1971. There are anecdotal reports of increasing numbers of programs available in the United States, although a reliable means of identifying and tracking such programs has not been available. The purpose of this study was to describe the current state of postgraduate, clinical educational programs for PAs based on defined criteria for study inclusion and to propose the use of these criteria for use by future investigators to determine trends in program development.

**Methods:** All programs potentially meeting the study criteria for postgraduate PA clinical programs, including programs actively enrolling PAs and that provide didactic and clinical instruction of 6 or more months duration, were contacted to participate in an online survey.

**Results:** A total of 49 programs (42 nonmilitary) programs were included with 22 nonmilitary programs opening for enrollment in or after 2008. Most programs enrolled one or two PAs annually. All respondents of nonmilitary programs indicated that a certificate of completion was provided and no academic credit or degree was offered. A variety of didactic and clinical instructional methods were used. Most sites also provided clinical rotations for PA students, and many required PA residents to participate in student teaching. Although few programs have been accredited by the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), most programs are pursuing, or plan to apply for, accreditation. **Conclusions:** The results of this survey provide an up-to-date report on the status of PA postgraduate clinical training programs. The investigators recommend future studies use the same criteria for inclusion to establish future trends in program development.

### INTRODUCTION

Postgraduate physician assistant (PA) clinical training programs, residencies, or fellowships have existed for over 40 years.<sup>1</sup> However, a consistent method of identifying and investigating such programs has not been developed. Without an accepted definition of *postgraduate, clinical education programs*, data surrounding the existence, characteristics, and effectiveness of these programs cannot be investigated in any reproducible manner. The purpose of this study

was twofold: (1) to describe the current state of postgraduate clinical education programs for PAs and (2) to propose a common definition to facilitate future study of these programs and establish trends in program development.

During the May 1988 American Academy of Physician Assistants (AAPA) Conference in Los Angeles, a group of postgraduate PA directors met to establish a national organization of postgraduate PA programs.<sup>1</sup> Bylaws were written and accepted

#### Feature Editor's Note:

In this article, the authors bring us up-to-date on the current status of postgraduate residency training and suggest criteria that can be used to define what residency training is and which types of programs should be considered residency training.

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and the Association of Postgraduate Physician Assistant Programs (APPAP) was created to support programs providing postgraduate education of PAs. Membership in the APPAP was, and continues to be, voluntary. The original group of eight members represented six specialties. Today, there are 50 APPAP member programs representing 17 specialties.<sup>2</sup> APPAP membership has traditionally been used to identify PA postgraduate programs and trainees for the purpose of educational research. However, the authors recognize that members of APPAP may represent variable types of educational programs and that nonmember programs exist. We sought to examine all clinical training programs irrespective of APPAP membership status.

A study by Wiemiller and colleagues conducted in 2008 was the first study undertaken that attempted to identify all postgraduate PA programs including non-APPAP member programs.<sup>3</sup> This study identified 55 “postgraduate programs” through various search engines and 28 of the programs verified their information. The investigators described programs using either a clinical internship model, used by hospital-affiliated programs (27%), or an academic model, used by university and medical centers (50.9%). These terms, internship and academic model, had been used by earlier investigators but without specific definitions or criteria to distinguish them. The study also identified whether programs offered an academic (master’s) option (five programs), or a certificate of completion (43 programs), if any. Investigators were able to determine that five of the programs were inactive at the time of their survey and two had closed. Since approximately half of the identified programs did not verify the publically available data, it is possible that additional

programs could have been inactive or closed for enrollment at that time, without this information being made publically available. Since the investigators sought to include all postgraduate PA programs, the study data were inclusive of various types of educational programs.

Because of a perceived recent increase in the number of postgraduate clinical training programs and the desire to track data regarding this specific type of education program, we sought to undertake a new study of postgraduate PA educational programs using a specific definition for inclusion to identify those programs fitting the clinical residency model. We anticipate that this study will serve as a foundation for future program investigation and will allow for the determination of program development trends for clinical residencies.

### METHODS

Postgraduate PA training programs were identified through the APPAP website, a list provided by Wiemiller that included participants of the 2008 study as well as additional programs that had been identified after this study, and by using online search engines using the words “physician assistant” or “advanced practitioner” followed by “residency” or “fellowship.”

Based on consensus opinion of the study investigators, the following criteria were established for inclusion:

- Program of at least 6 months duration
- Provision of a formal didactic curriculum and onsite clinical instruction
- Current PA enrollment of graduates of a program accredited by the Accreditation Review Commission

on Education for the Physician Assistant (ARC-PA)

Programs were contacted by phone to obtain their email addresses if the address was not available on their websites. In April 2011, an email was sent to all programs identified with a description of the study objectives and providing a hyperlink to a SurveyMonkey survey.<sup>4</sup> A follow-up email was sent to nonresponders two weeks after the original request. In order to optimize program responses, all programs not responding by email were contacted by phone.

The survey instrument included questions regarding demographic information such as the name and title of the person completing the survey, program location, the program’s current status of enrollment, number of PAs currently enrolled, maximum enrollment, program length, specialty, year of program inception, and sponsoring institution. Additional questions assessing academic affiliations and coordination with physician graduate medical education programs were also included. Respondents also reported on program tuition or stipend, benefits offered, didactic and clinical instruction provided, and ARC-PA accreditation status or intent. Nurse practitioner (NP) enrollment and opportunities for training within the program were also noted. Descriptive information is presented with percentages for the categorical data.

### RESULTS

A total of 61 surveys were completed. Forty-nine responses (80%) were deemed eligible for inclusion representing seven military and 42 non-military programs. Review of the nonmilitary programs revealed that the most common specialties repre-

sented were emergency medicine (n = 8), general surgery (n = 6), other surgical subspecialties (n = 9), and critical care or critical care and trauma (n = 8). One respondent indicated multiple specialties. (See Table 1.)

*Nonmilitary Programs*

Mean enrollment was 2.5 trainees with most (71%, n = 30) programs enrolling one or two PAs. (See Table 2.) Five programs were open to enrollment by NPs as well as PAs, although none had NPs enrolled at the time of the survey. Most programs (83%, n = 30) were sponsored by an academic health center, while only 14% (n = 5) were at a community hospital, and only one was at an outpatient health center. Of those not at an academic health center, four indicated that they had an academic affiliation. Most (n = 22) began enrollment in 2008 or later.

Most programs were 12 months in duration (83%, n = 34). All respondents (n = 40) awarded a certificate of completion. No programs reported offering a degree or academic credit. All programs offered a stipend, most commonly \$40,000–\$60,000 (n = 31). Common benefits included malpractice insurance, medical insurance, paid leave, paid CME, parking, and others. (See Table 3.)

Most programs (68%) provided clinical training at only one or two sites (25 of 37 responding). Two programs indicated that their program provided training at more than four sites. Three programs reported being coordinated with a physician residency/fellowship program. Ninety-eight percent (n = 40) provided PA student rotations. The majority of programs provide clinical instruction via case presentation, teaching rounds, patient care conferences, advanced cardiac life-support

**Table 1. Program Specialties (Nonmilitary)**

Specialties	Program Responders (n = 40)
Emergency medicine	17.5% (7)
Surgery: general	15.0% (6)
Surgery: cardiovascular	7.5% (3)
Surgery: orthopedics	7.5% (3)
Surgery: neurosurgery	2.5% (1)
Surgery: transplant	2.5% (1)
Surgery: urology	2.5% (1)
Critical care	10.0% (4)
Critical care and trauma	7.7% (3)
Psychiatry	7.7% (3)
Hospitalist	5.0% (2)
Neonatology	5.0% (2)
Dermatology	2.5% (1)
Oncology	2.5% (1)
Otolaryngology	2.5% (1)
Ob/Gynecology	2.5% (1)

**Table 2. Physician Assistant Enrollment (Nonmilitary Programs)**

Number of PAs	Current Enrollment (n = 42)	Maximum Enrollment (n = 42)
1	38.1% (16)	14.3% (6)
2	33.3% (14)	45.2% (19)
3	7.1% (3)	7.1% (3)
4	11.9% (5)	9.5% (4)
5	2.4% (1)	2.4% (1)
6	2.4% (1)	11.9% (5)
10	0% (0)	4.8% (2)
11	2.4% (1)	0% (0)
12	2.4% (1)	2.4% (1)
15	0% (0)	2.4% (1)
<b>Total PAs</b>	<b>107</b>	<b>151</b>

courses, and morbidity and mortality conferences. Most required in-house call. PA residents were required to provide instruction of PA students in 19 programs, while 12 programs required instruction of other types of trainees. (See Table 4.)

Common types of didactic curricular methods included lectures, required article and textbook readings, attendance at patient care conferences, journal clubs and grand

rounds, as well as skills lab instruction. Fewer programs required PA residents to give presentations at journal clubs, write publishable works, or conduct research. (See Table 5.)

Five programs reported being accredited by the ARC-PA. One program indicated that they had already submitted accreditation application material, 12 programs indicated that they were actively working on apply-

**Table 3. Compensation Provided by Nonmilitary Programs**

Stipend (annual equivalent)	Programs Responding (n = 41)		
None	0% (0)		
< 25,000	2.4% (1)		
25,000–39,999	0% (0)		
40,000–49,999	43.9% (18)		
50,000–59,999	31.7% (13)		
60,000–69,999	19.5% (8)		
70,000–79,999	2.4% (1)		

  

Benefits	Paid	Optional	Not available
Malpractice insurance	41	1	0
Vacation leave	40	1	0
Sick leave	37	1	2
Medical insurance	32	8	2
Paid CME (outside of program)	31	1	8
Scrubs	30	2	8
Lab coats	29	2	8
Dental insurance	28	12	2
Parking	25	9	6
Family medical insurance	18	19	2
Life or disability insurance	23	12	6
Retirement plan contribution by employer	14	9	16
Tuition assistance	8	4	25

ing, and 15 planned to do so within the next 5 years.

*Military Programs*

Seven military programs responded. All were 18 months in duration. Specialties included emergency medicine (n = 3), orthopedics (n = 3), and surgery (n = 1). All sites provided PA student rotations, and six were in coordination with physician residency/fellowship programs. Six programs offered a clinical doctoral degree.

**DISCUSSION**

In reviewing the literature, no definition of postgraduate clinical PA education had been previously established or proposed.<sup>3,5,6</sup> Most of the prior studies relied on voluntary APPAP membership data for inclusion. In 2008, Wiemiller attempted

to identify all postgraduate PA programs irrespective of APPAP membership status. While this study was the first to attempt a broad-scale investigation of all postgraduate PA programs, analysis and accurate comparison of trends of clinical residency programs over time are somewhat limited given the inclusion of programs that had provided nonresidency types of educational experiences, such as those primarily academic in nature or programs that had closed.

In this study, we establish criteria for defining postgraduate clinical programs in order to identify programs for inclusion that met specific criteria and sought to study those programs with active PA enrollment. Based on this definition, a total of 49 programs met inclusion criteria as an active postgraduate PA

program providing clinical and didactic training of at least 6 months in duration. Forty-two were nonmilitary while seven were provided by the military. A separate analysis of military and nonmilitary program descriptors was performed, since a distinct applicant pool exists for military programs.

We found that most programs were generally small, enrolling only one or two PAs. Current postgraduate enrollment of nonmilitary programs is found to be at 109, although 149 positions are available. These data reveal the small number of postgraduate positions available to the PA population as a whole. The cause of having unfilled positions — approximately 30% of the total available — was not established. Approximately 6,600 PA students graduate each year

**Table 4. Clinical Instruction Provided to PA Residents (Nonmilitary Programs)**

Type of Activities	Required	Optional	Not available
Case presentations	40	0	0
Teaching rounds	39	1	0
Patient care conferences	36	4	0
Advanced cardiac life support	30	5	5
PA presentation at patient conferences	27	9	4
M&M conferences	26	13	1
In-house call	25	7	7
Elective rotations	24	5	10
Instruction of PA students	19	12	9
Instruction of other trainees	12	15	12

**Table 5. Didactic Instruction Provided by Nonmilitary Programs**

Type of Activities	Required	Optional	Not available
Live lectures	37	0	0
Article reading	34	3	0
Textbook readings	32	5	0
Patient care conferences	31	6	0
Grand rounds	31	5	1
Skills lab	25	7	4
Journal club attendance	20	13	3
Online lectures	17	13	5
Presentations by PA at journal club	12	19	5
Writing publishable works	7	25	5
Conducting research	4	26	7

with an estimated 83,466 clinically practicing PAs.<sup>8,9</sup> Although postgraduate clinical training programs may enroll PAs already in practice, even if all enrollees were new graduates, the percentage of those pursuing postgraduate clinical training following entry-level education would remain less than 2%.

While prior reports have described an academic model for postgraduate programs, using our inclusion criteria we found that all programs provided only a certificate of completion, and none offered an academic degree or credit. It is not clear to us if these earlier reports

of academic programs included programs that currently exist but that our study excluded, or whether such programs have or are closing. Since the profession has now established the master's degree as the terminal degree, there may no longer be a need for academic programs that may have previously provided a credential that was sought by PAs at that time. While most military postgraduate clinical programs now offer doctorate degrees, no such civilian programs were identified.

#### *Program Curriculum*

Most programs provided a wide variety of didactic and clinical instruction. The availability and requirement of trainees to participate in these formal instructional methods as part of a formal curriculum is a distinguishing feature of postgraduate clinical training programs as compared to traditional continuing medical education (such as attending medical conferences) that most PAs are likely to participate in once becoming employed. The effect of these planned learning opportunities has yet to be studied in this professional population.

Of particular interest was the finding that nearly all military and non-military program sites also provide clinical rotations for PA students and some programs are run in coordination with physician residency programs. The effect of collaborative learning environments and the requirement by many programs for PA residents to teach students is of further interest. The type of instruction provided by PA residents to students was not specified, but could include activities such as providing lectures, providing skills instruction, or participating in clinical precepting. Given the significant shortage of clinical preceptors, we would be interested in further pursuing the immediate and long-term effect of PA residents providing teaching to students.

While a few programs allow NPs to participate in their training program, none had NPs enrolled at the time of study. How these programs may differ from programs that exclusively enroll PAs would be of great interest, particularly related to program administration and curricular content. Since the ARC-PA requires that postgraduate PA programs must have a PA or physician serve as the program director,<sup>10</sup> those programs seeking to meet accreditation standards would be required to address this issue. Questions also arise as to whether curricular modifications would be needed to address professional development of nursing competencies within such a program that included NPs, as well as the potential positive effect of inter-professional training of PAs and NPs. The effect of training both NPs and PAs within the same program was not investigated here but would be a topic of interest for future study.

### *Accreditation*

At the present time, only five nonmilitary programs and one military pro-

gram are accredited by the ARC-PA. Accreditation has been a subject of debate for some time among PA educators and clinically practicing PAs, as concerns surface regarding the potential effect on employment requirements. While the ARC-PA maintains that postgraduate training is optional, approximately three-fourths of postgraduate nonmilitary PA programs have plans to pursue or are currently pursuing accreditation. Another third of the military programs is following suit. At this time, it remains to be seen whether this trend will bear out and, if so, whether accreditation will affect the growth of, or desirability of pursuing, postgraduate education.

### *Program Trends*

The majority of programs opened to enrollment within the last few years. Since the specific programs included in the 2008 Wiemiller study were not available for comparison, we do not know if any of these new programs may have been included in their analysis and how many prior programs may now be inactive or have closed. From our anecdotal experience, we are aware that programs (especially small programs) may not necessarily enroll PAs each year. Programs may elect to only enroll PAs when those applicants meet strenuous selection criteria. Other programs may be unable to recruit candidates due to funding limitations. We are particularly interested in the latter reason for inactivity, as it may have been a particularly relevant issue in recent years, due to economic issues facing many health care facilities. How programs are funded and the economic effects of providing this type of training for PAs require further investigation. We anticipate the results of this study will provide a baseline to examine future trends in program enrollment status.

### *Study Limitations*

Since the primary goal of this study was to establish the current state of postgraduate clinical PA education, an extensive effort was made to identify all programs meeting inclusion criteria. However, not all programs may have been identified for possible inclusion, and only programs that elected to complete the survey were included. In attempting to accurately characterize the current state of postgraduate education, one of the criteria was in fact active enrollment of a PA. Programs that were currently inactive for a variety of reasons were excluded. Yet another factor that should be considered in a future study is how to better analyze or determine "individual" programs that share a common sponsoring institution. Finally, in establishing a baseline assessment of postgraduate clinical PA education, additional questions arise that are beyond the scope of this study.

### *Future Directions*

For future investigations, we propose that a uniform definition be used so that accurate comparisons and analysis can truly be made. As such, postgraduate clinical PA program criteria should include programs for graduates of ARC-PA accredited entry-level PA programs that are a minimum of 6 months of full-time training and that provide on-site clinical instruction as well as required didactic curriculum. Lastly, depending on the nature of future studies, consideration should also be given to the active, inactive, or closed status of programs for the most accurate data.

## CONCLUSIONS

Our results identified 42 nonmilitary and seven military programs with active PA enrollment in 2011 with a diverse array of onsite clinical and

didactic opportunities for the PA postgraduate resident. Over the last 4 years, there have been many new postgraduate clinical training programs enrolling PAs. Accreditation by the ARC-PA has not been attained by the majority of programs, although most programs are pursuing accreditation or have plans to do so. Our study limitations included an inability to ascertain whether we had obtained data and information from all active programs, possibly underestimating programs that may not have current enrollment, and whether there may be one or more programs at a single institution. Despite these limitations, our study confirms the growth of postgraduate clinical training programs available to PAs. We pose a number of questions evoked by our study results and encourage other investigators to pursue these questions while using standardized criteria for program inclusion.

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