

What Makes Physician Assistant (PA) Training Programs Successful at Training Rural PAs?

KEY FINDINGS

- A survey of United States physician assistant (PA) training programs showed that 57.1% of the responding programs considered training rural PAs to be an important program goal.
- Of those rurally oriented programs, just over half actively recruited rural students. Fewer than half used rural background as an admission criterion or required clinical training in a rural location.
- PA training programs that are successful at training PAs who choose rural practice are likely to combine a rural mission, targeted recruitment of rural students, and specific rural clinical training experiences.

INTRODUCTION/BACKGROUND

When the physician assistant (PA) profession first developed in the United States in the late 1960s and early 1970s, it was strongly promoted as an important part of the solution to an impending shortage of primary care providers in rural areas.^{1,2} PA participation in the rural health care workforce was initially quite high; about 27% of all PAs worked in communities of less than 10,000 population in the early 1980s. Federal policy played a key role in establishing and sustaining roles for PAs in rural health care with the creation of the National Health Service Corps and the passage of the Rural Health Clinics Act of 1977.² More recently, while the number of PAs practicing in rural areas has grown along with the profession (there are now over 100,000 certified PAs in the U.S.),³ the proportion practicing in rural settings has declined steadily over the last three decades. Currently, about 15% of all PAs work in rural areas.⁴ Since the rural health workforce has proportionally more primary care providers than the urban workforce, this decline is partially explained by the emergence of roles for PAs in surgical specialties and sub-specialties of internal medicine. In the early 1970's, about 69% of all PAs practiced in primary care.² Though PA education continued to emphasize primary care, by 2015, the proportion had dropped to 22%.⁵ More stringent admissions requirements, increased length of training, cost of training, emerging roles for PAs in specialty medicine, and substantial salary differentials between primary care and specialty PAs may also have affected primary care participation rates among PAs.⁶⁻⁸ However, even though the proportion of PAs serving rural communities has declined, PAs are an important part of the rural health care workforce. They are more likely than primary care physicians to practice in rural areas,⁴ and they work in Federally Qualified Health Centers (FQHCs), Rural Health Clinics (RHCs), and Health Professional Shortage Areas (HPSAs) at high rates.⁹⁻¹¹

While PAs tend to enter primary care and rural care at higher rates than physicians, it is clear from a recent study¹² that PA training programs differ significantly in the proportion of graduates who choose rural practice. Using graduate data from the National Commission on the Certification of Physician Assistants (NCCPA), Larson et al.¹² compared the rural output of 143 PA training programs from 2000 through 2012 and found that 13% of all graduates were in rural practice. However, that proportion varied across programs from zero to well over 50%. Rural PA production was found to be quite concentrated in a few programs. Further analysis of the relationships between rural graduate output and a limited set of publically available program characteristics showed that training programs in rural areas, and those with stated rural missions, tended to have higher rural output. Other program characteristics such as program size, private vs. public ownership, and requiring clinical experience prior to PA training were not linked to high rural output.

The current study extends this work with a more detailed analysis of program characteristics associated with a high proportion of graduates choosing rural practice, including student recruitment and admissions, rurally oriented didactic curriculum, and clinical training in rural settings. Findings that can illuminate “what works” in producing higher proportions of rural graduates will be useful to PA educators committed to a rural mission and to policy makers wishing to support effective use of resources in rural workforce development.

METHODS

A national list of PA programs was developed from the online Physician Assistant Education Association (PAEA) Program Directory during the fall of 2015.¹³ Programs with “continuing,” “provisional,” and “probationary” accreditation were included; programs with “developing-not accredited” accreditation status were excluded. A contact for each program was identified from the program’s website or via Google search. Typically, the contact identified was the program director, but in some cases the contact was an assistant program director, dean, or key faculty member. A final list of 194 programs constituted the study population.

An online survey instrument modeled on instruments used in previous research on rural medical residency programs¹⁴ and rurally oriented nurse practitioner programs¹⁵ was developed and deployed.¹⁶ The survey requested information on the extent to which each program:

- 1) considered training PAs for rural careers a “very important” goal,
- 2) actively recruited students with rural background and/or interests,
- 3) considered rural background/interests in the admissions process,
- 4) incorporated rural content into didactic training,
- 5) provided rural clinical training experiences for their students.

Programs that stated that training PAs for rural careers was a very important program goal were compared to all other programs with respect to their utilization of individual rurally oriented recruitment and admissions activities, rurally oriented didactic training, and rurally oriented clinical training. The use of multiple training activities (e.g. rurally oriented admissions AND rural clinical training opportunities) was also compared.

Data collection occurred from November 5th, 2015 through January 12th, 2016. Individual online survey links were sent to program contacts via Qualtrics on November 5th, 2015. Two follow-up emails with the survey link were sent from Qualtrics during November and four additional follow-up contacts (a combination of phone calls and emails) were made in December and early January. Out of 194 programs surveyed, 173 responded, a response rate of 89.2%.

In addition to the data collected from the survey, program websites, and the PAEA directory, we included an indicator from our previous study¹² of whether or not the program was in the top quintile of PA programs in the proportion of their recent graduates practicing in rural settings. The top quintile included programs with between 21% and 87% of recent graduates in rural settings; the overall mean and median levels of rural graduates in the previous study were 13.0% and 9.1% respectively. Rural productivity information was available for 127 of the programs responding to the current study (not all the programs from the earlier study responded to the current study), allowing comparisons of the program characteristics associated with high and low rural output.

Using procedures approved by the University of Washington's Institutional Review Board, it was determined that human subjects review was not required for this study. Data analysis was conducted using SPSS version 23.0.¹⁷

FINDINGS

RURALLY ORIENTED PROGRAMS

Respondents rated the importance of preparing PAs for practice in rural areas to the goals of their programs. Of the 170 programs that responded to the question, 57.1% (97 programs) replied that preparing their graduates for rural practice was "very important" to meeting the goals of the program. These programs will be referred to as "rurally oriented programs" below. The other 42.9% (73 programs) responded that preparing PAs was either "somewhat important" (61 programs) or "not important" (12 programs) to overall program goals. These programs will be referred to as "non-rurally oriented programs".

RURAL BACKGROUND AND EXPERIENCE IN RECRUITING AND ADMISSIONS

The presence of rurally directed student recruitment and admissions activities in rurally oriented programs and non-rurally oriented programs is described in Table 1. Among rurally oriented programs, 63.2% actively recruited students with rural backgrounds (compared to 11.0% of non-rurally oriented programs, $p < .001$). A somewhat smaller proportion (47.9%) of rurally oriented programs used student rural background as an admission criterion (versus 9.6% of non-rurally oriented programs, $p < .001$). Even fewer rurally-oriented programs (28.1%) considered previous rural clinical experience to be important in the admissions process (versus 9.6% of non-rurally oriented programs, $p = .005$).

RURAL CONTENT IN DIDACTIC EDUCATION

Responses to survey questions about rural content in PA didactic education showed that most (77.9%) rurally oriented programs reported that their didactic curricula specifically addressed rural issues, as did 37.0% of the non-rurally oriented programs ($p < .001$). Most respondents (93.3% of rurally oriented programs, 95.5% of non-rurally oriented programs, $p = .575$) also stated that rural issues were addressed across multiple courses in the didactic phase of PA education. Very few programs overall had a stand-alone course on rural health (8.9% of the rurally oriented programs (8 programs) and 6.1% of the non-rurally oriented programs (4 programs), $p = .513$).

RURAL CLINICAL TRAINING FOR PA STUDENTS

The majority (94.7%) of the responding rurally oriented PA training programs had rural clinical training sites available for their students, as did the majority (74%, $p < .001$) of non-rurally oriented programs. More rurally oriented programs (46.2%) required students to complete a rural clinical rotation than did non-rurally oriented programs (14.8%, $p < .001$). A rural rotation was optional for most other programs (not tabled). About one third (32.3%) of rurally oriented programs required students

Table 1. Characteristics of rurally oriented* and non-rurally oriented PA programs.

	Rurally oriented programs (n=97)	Non-rurally oriented programs (n=73)	Overall (n=170)	p-value
Recruitment & Admissions				
% Recruiting rural students	63.2	11.0	40.5	<.001
% Recruiting students with rural intent	60.0	23.3	44.0	<.001
% Rural background used as admission criterion	47.9	9.6	31.4	<.001
% Rural clinical experience important for admission	28.1	9.6	20.1	.005
Didactic Training				
% Curriculum addresses rural issues	77.9	37.0	60.1	<.001
% Rural issues integrated into one or more courses†	93.3	95.5	94.2	NS
% With stand-alone rural course†	8.9	6.1	7.7	NS
Clinical Training				
% Having rural clinical training sites	94.7	74.0	85.7	<.001
% Requiring rural clinical training††	46.2	14.8	34.5	<.001
% Requiring rural Family Medicine rotation	32.3	5.5	20.7	<.001
% Requiring rural clinical rotation in a medical specialty	26.0	6.9	17.9	.001

* "Rurally oriented" programs are those that indicated that preparing graduates for rural practice was "very important" to meeting program goals.

† Total n=156 due to missing data (90 rurally oriented programs, 66 non-rurally oriented programs)

†† Total n=145 due to missing data (91 rurally oriented programs, 54 non-rurally oriented programs)

to complete rural family medicine training compared with 5.5% of non-rurally oriented programs ($p < .001$). A required rural clerkship in a medical specialty was also reported more frequently in rurally oriented programs (26.0% vs. 6.9%, $p = .001$).

WHICH PROGRAM CHARACTERISTICS ARE ASSOCIATED WITH HIGH PRODUCTION OF RURAL PAs?

When data were matched to previously identified¹² high rural producing and low rural producing PA training programs (see Table 2), we found that programs previously identified as high producing programs (more than 21% of recent graduates in rural settings) were more likely to identify training rural PAs as "very important" to program missions and goals (77.8% vs. 50%, $p = .01$). High rural production PA programs were also more likely than lower producing programs to recruit rural students (77.8% vs. 33.3%, $p > .001$) and require rural family medicine rotations during clinical training (40.7% vs. 16%, $p = .005$). Rural productivity was also higher in programs that utilized multiple rural recruiting and training activities (not tabled).

ARE RURALLY ORIENTED PA PROGRAMS ALSO HIGH RURAL PRODUCTION PA PROGRAMS?

Of the 97 rurally oriented programs identified, we were able to match 70 to the program productivity data from the previous study.¹² Of those 70 rurally oriented programs, only 21 (30%) were also high rural productivity programs. As shown in Table 3, active recruitment of rural students and a didactic curriculum that addresses rural health issues were more common in high rural productivity programs. Otherwise, the "rurally oriented" programs were not more likely to be high rural production programs.

Table 2. Characteristics of PA programs with high rural productivity* and low rural productivity

	High rural productivity programs* (n=27)	Lower productivity program* (n=100)	p-value
% Rurally oriented	77.8	50.0	.010
Recruitment & Admissions			
% Recruiting rural students	77.8	33.3	<.001
% Recruiting students with rural intent	65.4	37.0	.009
% Rural background used as admission criterion	37.0	33.0	NS
% Rural clinical experience important for admission	18.5	23.0	NS
Didactic Training			
% Curriculum addresses rural issues	88.5	52.0	.007
% Rural issues integrated into one or more courses†	100.0	93.6	NS
% With stand-alone rural course†	4.4	8.5	NS
Clinical Training			
% Having rural clinical training sites	100.0	85.0	.032
% Requiring rural clinical training††	48.2	29.4	NS
% Requiring rural Family Medicine rotation	40.7	16.0	.005
% Requiring rural clinical rotation in a medical specialty	18.5	23.0	NS

* Programs with more than 21% of recent graduates working in rural settings are defined as “high rural productivity”. Programs with less than 21% of graduates practicing in rural settings are “lower rural productivity” programs.

† Total n=117 due to missing data (23 high productivity programs, 94 lower productivity programs)

†† Total n=112 due to missing data (27 high productivity programs, 85 lower productivity programs)

CONCLUSIONS

SUMMARY

Results from a survey of active PA training programs (89.2% response rate) indicated that 57.1% of responding programs regarded training PAs for rural practice as “very important” to program goals. However, over one third of those rurally oriented programs did not actively recruit rural residents or students with rural practice intent. Rural residence was used as an admissions criterion in only about half of rurally oriented programs. Almost all rurally oriented programs had rural clinical training sites available to their students (as did the majority of programs that did not consider training rural PAs to be an important program goal). However, only about half of rurally oriented programs required any rural clinical training, and even fewer specifically required clinical training in rural family medicine or rural specialty medicine.

When rural oriented program characteristics were assessed with respect to actual production of rural graduates, we found that high rural productivity programs were more likely to identify training rural PAs as important to program goals, though some programs (22.8%) did not. They were also more likely to actively recruit rural students, to have didactic curriculum specifically

Table 3. Characteristics of rurally oriented PA programs with high rural productivity and low rural productivity.*

	High rural productivity programs (n=21)	Lower productivity program (n=49)	p-value
Recruitment & Admissions			
% Recruiting rural students	90.5	57.1	.007
% Recruiting students with rural intent	75.0	54.0	NS
% Rural background used as admission criterion	47.6	53.1	NS
% Rural clinical experience important for admission	23.8	34.7	NS
Didactic Training			
% Curriculum addresses rural issues†	100.0	71.4	.007
% Rural issues integrated into one or more courses†	91.7	88.6	NS
% With stand-alone rural course††	5.6	10.4	NS
Clinical Training			
% Having rural clinical training sites	100.0	97.7	NS
% Requiring rural clinical training†††	57.1	41.6	NS
% Requiring rural Family Medicine rotation	47.6	28.6	NS
% Requiring rural clinical rotation in a medical specialty	23.8	34.7	NS

* Programs with more than 21% of recent graduates working in rural settings are defined as “high rural productivity”. Programs with less than 21% of graduates practicing in rural settings are “lower rural productivity” programs.

† Total n=69 due to missing data (20 high producing programs, 49 low producing programs)

†† Total n=66 due to missing data (18 high producing programs, 48 low producing programs)

††† Total n=66 due to missing data (21 high producing programs, 48 low producing programs)

oriented to rural health issues, and to require rural family medicine rotations during training. However, it should be noted that none of the program characteristics assessed (with the exception of having rural clinical training sites) were universally present in the high productivity programs, or absent in the low productivity programs. High productivity programs were more likely to require a rural Family Medicine rotation, for example, but less than half of high producers, actually required it (48.2% vs. 29.4%, $p=.005$)

LIMITATIONS

Two key limitations of this study should be borne in mind when interpreting the results. First, the decision of a PA student to train for, and practice in, a rural setting (or not) is primarily an individual decision made in the context of that individual’s training, life experiences, and life goals. This study addresses the prevalence of program characteristics associated with higher levels of production of rural graduates; it does not describe student characteristics. Second, we consciously left the definition of rural to the respondents. It was not realistic to ask our respondents to consider formal geographic/demographic definitions of rurality in responding to the survey. We relied instead on each respondent’s general ideas about what constitutes rurality with respect to their region and program, ideas that may be more applicable to the places their programs serve than formal definitions. Despite these two limitations, the high response rate to the survey (89.2%) mitigates in favor of the generalizability of the results and the robustness of the findings.

MISSION MATTERS – BUT IT’S NOT ENOUGH

Earlier WWAMI RHRC work¹² has shown that a rurally oriented program mission is associated with higher output of graduates who practice in rural areas. The results of this study tell us more about the kinds of specific educational activities that are associated with program success in realizing rural goals. While a majority of PA training programs report that training PAs for careers in rural medicine is an important program goal, a much smaller fraction of those programs appear to take action in the areas of student recruitment and clinical training to realize those goals and actually produce rural graduates. The data presented in this study indicate that more than a notional commitment on the part of a program to training rural PAs appears to be required to produce a high proportion of graduates who enter rural careers, whether reflected in a mission statement (or claim of rural orientation) or not.

POLICY IMPLICATIONS

Over the fifty years since the founding of the PA profession, Federal policy has played a key role in supporting and sustaining roles for PAs in the rural health care workforce.^{1, 2} Much of that policy support was based on the idea that PAs could fill in gaps in the health workforce serving rural and underserved populations in the United States. With that support, and with training programs that emphasized primary care and caring for rural and underserved populations, PAs became important contributors to the rural workforce.^{1, 9, 10, 18, 19} Given the strong legacy of rural, underserved, and primary care missions among PA training programs, it is not surprising that many programs, when asked, assert a commitment to training PAs for rural careers despite evidence of recent decline in PA participation in the rural workforce. The findings of this study may be of use to policy makers interested in sustaining policy support for rurally oriented PA programs, as well rurally oriented PA educators engaged in efforts to renew and actualize that commitment. Programs with high proportions of rural graduates are not distinguished by institutional characteristics (large vs. small, private-public, higher levels of pre-training clinical experience etc.). Rather, they are distinguished by some level of expressed commitment to the rural goal combined with specific rurally oriented recruitment and training activities - especially recruitment policies aimed at rural and rural interested students and rural clinical training experiences.

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