

# Physician Assistants and Title VII Support

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## Abstract

Federal support through Title VII, Section 747 has played an important role in promoting the use of physician assistants (PAs) in primary care and in the growth and institutionalization of PA educational programs in the United States. Federal workforce policy approaches include PAs in strategies to (1) increase the supply of generalist providers, (2) better balance the distribution of providers to rural and medically underserved areas, and (3) improve the diversity of the health workforce. Evidence from several decades shows that, likely because of

Title VII program incentives, PAs have met expectations in terms of practicing in primary care specialties and serving in rural and medically underserved areas. Yet, increasingly, market forces and decreasing federal support for Title VII are affecting these trends, with PAs, like physicians, being drawn to specialty practices.

There is considerable use of PAs in all practice settings in U.S. medicine. For several decades, PA training programs have demonstrated that they are efficient means of preparing clinicians who

provide considerable benefit to society in return for a modest public investment. At the present time, when the climate seems not to favor public subsidy of health professions education, it may be wise for policy makers to consider strategies that address the long-term needs of the health care workforce and the public for primary care clinicians.

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**D**uring the past four decades, physician assistants (PAs) have emerged as important clinicians in the health care workforce in the United States.<sup>1–3</sup> Beginning in the mid-1960s, promoting the training and use of PAs became part of a larger health policy strategy that included expansion of undergraduate medical education and creation of other types of nonphysician providers. In this article, I document the origins of the PA profession and the impact of Title VII grant funds on the creation and expansion of training programs for PA professionals. I describe the contributions of PAs in providing primary care in urban and rural communities and in generalist physicians' offices, and I discuss the importance of the Title VII grant program in the recruitment of underrepresented minorities into health professions training programs. Using examples of selected Title VII grantees, I portray the development of PA curricular innovations and deployment patterns relevant to medicine in the 21st century.

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Issues related to the role that PAs continue to play in the primary care workforce are also discussed.

## Background

Federal funding has been critical to the growth and institutionalization of PA educational programs in the United States (see the Appendix). When PAs were introduced into medical practice in the 1960s, one goal was to improve primary care delivery. The declining number of generalist physicians and the overall shortage of physicians led medical educators and federal health policy makers to envision the PA as a new type of medical generalist. The notion was that PAs could be trained as generalists in a reasonably short time and be deployed rapidly to practice locations in medically needy areas.

Primary care training grants no longer are aimed at general support for PA academic units. At the same time, programs have found it increasingly difficult to meet federal targets for the awarding of funds—for example, meeting grant program requirements for recruitment, retention, and graduation of individuals from underrepresented minority and disadvantaged backgrounds.

## Program funding

By 2006, it was estimated that \$204 million has been spent to fund PA

educational programs since 1972 (P. Preston Reynolds, MD, PhD, former branch chief, Bureau of Health Professions, personal communication, May 15, 2007) (see Table 1). According to the *Twenty-Second Annual Report on Physician Assistant Educational Programs in the United States, 2005–2006*,<sup>4</sup> external financial support for programs was primarily from federal training grants from the U.S. Department of Health and Human Services, Division of Medicine, Bureau of Health Professions (BHP). Thirty-seven out of the 103 programs reporting in this publication received federal funds during the 2005–2006 fiscal year. At this writing, this was the last year that such data were available from the Health Resources and Services Administration (HRSA). The amount of federal support ranged from \$5,000 to \$1,191,000, averaged \$177,408 per program (SD = \$190,903), and accounted for 17.9% of the total budget—higher than the figure (14.1%) reported for the previous year. The remaining 63 programs indicated they did not receive federal grant support in 2005–2006. In addition to federal training grants, 11 programs indicated they received state grants averaging \$141,479 per year, and 7 programs reported financial assistance received from other sources (e.g., clinical income, fund raising, and other grants or partnerships) averaging \$66,429 per

Table 1

**Funding History for Physician Assistant Educational Programs Under Title VII, Section 747, 1972–2006\***

Year	Amount, \$	No. of funded programs	No. of existing programs
1972	6,090,109	40 <sup>†</sup>	22
1973	6,208,999	39 <sup>†</sup>	41
1974	8,129,252	43 <sup>†</sup>	57
1975	5,994,002	40 <sup>†</sup>	58
1976	6,247,203	41 <sup>†</sup>	57
1977	8,171,441	39	58
1978	8,685,074	42	57
1979	8,453,666	42	57
1980	8,262,968	43	60
1981	8,019,000	40	61
1982	4,752,000	34	57
1983	6,752,000	34	57
1984	4,414,850	34	55
1985	4,442,076	37	55
1986	4,548,000	37	56
1987	4,275,000	36	51
1988	4,549,973	37	50
1989	4,445,200	37	51
1990	4,697,680	38	52
1991	4,915,855	40	54
1992	4,915,876	32	55
1993	4,582,575	32	55
1994	6,388,743	46	59
1995	5,706,315	39	62
1996	5,116,367	38	71
1997	5,979,234	38	78
1998	5,934,956	42	96
1999	5,863,453	47	104
2000	4,364,000	39	115
2001	5,594,432	35	122
2002	5,996,045	31	124
2003	6,669,073	43	128
2004	6,572,060	40	131
2005	5,200,090	39	131
2006	2,900,112	26	130

\* Sources: Hooker and Cawley, 2nd Edition, 2003; Shane Rogers, HRSA; Ellie Grant, presentation to the Association of Physician Assistant Programs, Chicago, Illinois, May 2000; KKraditor, AAPA; AAPA Masterfile data.

<sup>†</sup> The authority for these grants was Health Manpower Educational Initiative.

program. The total annual financial support from all sources for the 103 programs reporting averaged \$990,527 per program (median = \$820,000; SD = \$699,010).<sup>4</sup>

Analysis of funding for PA programs between 1984 and 2003 revealed that in 1984, the total mean budget for PA programs was \$276,919, with 35% of the total budget subsidized by federal

funding. The message from HRSA for many years to PA programs was that programs needed to “institutionalize” themselves into their sponsoring organizations and to wean themselves from federal support. In many instances, this is exactly what transpired.

During the first five years of PA program accreditation (1972–1976), 32 of 38 programs (84%) were developed within

academic health center settings with close medical school affiliation or direct sponsorship. The majority of these programs received Title VII funding. Conversely, during the most recent 10-year period (1997–2006), only 10 of 50 programs (20%) had medical school sponsorship or close affiliation.<sup>5</sup> Accreditation standards for PA education do not mandate academic health center or medical school sponsorship. Accredited programs are required to be sponsored by schools of allopathic or osteopathic medicine, colleges and universities with appropriate clinical teaching facilities, or medical education facilities of the federal government. This accreditation latitude has resulted in an increase in the number of newer programs on private university campuses. From 1985 to 1990, federal funding ranged from a high of 41% to a low of 33% of the average program’s total budget.<sup>5</sup> Beginning in the mid-1990s, the number of PA programs increased rapidly, and class sizes grew as well. Despite the continuous demand for PAs, funding has not increased proportionately even for programs that are designed to educate and place PAs in underserved communities. Similarly, Title VII support for PA education has declined despite increases in the cost of educating PAs. One reason for this circumstance may be the inability of programs to meet specific HRSA funding preferences and priorities. The percentage of the average PA program’s budget that was federally funded declined from 31% to 20% during the 1990s, a trend that has continued, suggesting that PA programs rely less on federal support.<sup>5</sup>

### Outcomes and evidence

For PA programs, federal support initially provided a base for basic operations, curriculum development, primary care training innovations, and deployment to medically underserved communities. Later, priorities for funding were established for programs to engage in special activities such as creative recruitment and retention strategies, faculty development efforts, primary care training approaches, and cost-effective operation. But in a broad, policy-oriented sense, federal support for PA education under Title VII funding has most consistently served as an incentive for PAs to contribute to the U.S. health care workforce in the following three areas:

- Providing more professionals to practice generalist/primary care medicine

- Easing provider maldistribution by deployment of PAs to medically underserved communities
- Increasing workforce diversity by the recruitment and retention of disadvantaged and minority individuals to be PAs

Below, I discuss these three areas with the following question in mind: Is there evidence that PA programs that received Title VII funding have provided benefit to society?

### Generalist/primary care practice

As noted, the initial intent of Title VII funding to support PA education was for graduates to enter primary care practice. Throughout the 1980s, the majority of PAs were working with physicians in the primary care areas of family medicine, general internal medicine, or general pediatrics. Perhaps as a result of their training orientation, PAs have been shown to perform effectively as primary care clinicians.<sup>6</sup>

The curricula of most PA programs receiving federal support during this time were designed with the intent that program graduates would become primary care practitioners. An early example of a program that developed a strong primary care curriculum with Title VII funding was the Johns Hopkins Health Associate Program. Its founder had experience in designing training programs for community health workers in South America. Thus, the PA curriculum emerged distinctly different from the traditional medical model, so well established in the adjacent Johns Hopkins School of Medicine. This curriculum was described in *The Art of Teaching Primary Care*.<sup>7</sup>

The MEDEX program at the University of Washington is another Title VII-funded program with an outstanding track record in training for primary care practice. The MEDEX program has developed more than 300 active clinical sites throughout the Pacific Northwest region, with a record of successful placement of students in medically underserved sites. Many students have completed the bulk of their primary care training in these sites. Clinical training activities have consistently received the greatest portion of MEDEX funding in each of the Title VII grants. Placement of students, combined with recruitment

efforts focusing on rural and underserved communities, have resulted in significant numbers of MEDEX graduates choosing primary care careers.<sup>8</sup> During the past 36 years, the MEDEX program has deployed 54% of its more than 1,350 graduates to primary care practices, with 567 (42%) self-reporting service in medically underserved settings. Program officials note that these goals could not have been achieved without federal support, particularly Title VII grant funds, because they were used for recruitment, student support, clinical site visits, new technology, program expansion, and faculty development.<sup>9–10</sup>

The PA program in Texas used Title VII funds to create new clinical rotation sites in rural and underserved areas, including new sites in border communities, and to establish nonclinical rural rotations to help students understand the challenges faced by rural communities.<sup>11–12</sup>

The Duke University PA program has shown 40% to 55% of graduates taking positions in primary care during four, five-year intervals since the 1980s. The University of Iowa, with federal funding continuously from 1974 to 2004, has had 54.6% of its 624 graduates practicing in primary care, many of them in rural communities in that state (David P. Asprey, PhD, PA-C, program director, University of Iowa PA Program, personal communication, February 22, 2007). Other notable PA programs that received Title VII funding over the years with high rates of graduates in primary care practice are those based at the University of California–Davis, University of Texas Medical Branch at Galveston, University of Utah, and Emory University. With the decline in the number of PA programs receiving federal support, it is widely believed that market forces (including higher salaries in specialties and high student debt loads) have come to dominate the practice choices of graduates such that fewer enter primary care and generalist practice settings.

### Maldistribution

Title VII funding continues to provide a crucial pipeline of trained PAs to serve in areas of medical need. Relative to other health professionals, the deployment record of PAs to practices in rural communities and medically underserved areas has been impressive.<sup>13</sup> It has been shown that, at least in some states, PAs

are providing primary care to the underserved in ratios greater than those for doctors in the same area.<sup>14</sup> In a study of Medicare populations, PAs were more likely to be the providers of care to those without private insurance than physicians were.<sup>15</sup> Over time, PA educational programs have been responsive to federal grant initiatives that target service in rural areas, medically underserved areas, and delivery of primary care to needy populations.

Title VII funding is a critical link in addressing the natural geographic maldistribution of health care providers by exposing students to underserved sites during their training, where they frequently choose to practice after graduation. For many years, funding preferences for PA grantees were given to those that could demonstrate track records of (1) placing PA students in health professional shortage areas, (2) exposing PA students to medically underserved communities during the clinical rotation portion of their training, and (3) recruiting and retaining students who are indigenous to communities with unmet health care needs.

More than half of all federally funded PA programs have developed specific curricular content addressing the health and social problems of medically underserved populations. These include people living in inner cities, remote areas, correctional systems, geriatric facilities, or rehabilitation facilities. PA curricula also typically include instruction in topics such as management of persons with human immunodeficiency virus or acquired immunodeficiency syndrome, counseling regarding the risks of adolescent pregnancy, measures to reduce infant mortality, required schedules of pediatric immunization, health behavior to lower the risk of cancer and heart disease, and skills in the management of health problems that occur disproportionately among medically underserved populations. To ensure that students receive adequate clinical opportunities to complement classroom instruction, most PA educational programs have developed links with area health education centers, rural health clinics, community/migrant health centers, and other primary health care agencies within their geographic region. A review of PA graduates from 1990 to 2004 reveals that graduates from

Title VII-supported programs were 67% more likely to be from underrepresented minority backgrounds than were graduates of programs that were not supported by Title VII funding. Additionally, PAs who graduated from programs that received such funding were 49% more likely to work in a rural health clinic.<sup>16</sup>

As PA programs matured and extended their missions to improve health care access, several programs with federal grant support have instituted what are commonly termed *satellite programs*. These ventures are essentially outreach segments of existing programs intended to reach and serve a particular region or population, or to take advantage of particular resources in an area separate from the sponsoring program. Based on the training satellite model used by the University of California–Davis and Stanford University PA programs in the 1970s,<sup>17</sup> the MEDEX Northwest Program at the University of Washington in Seattle initiated satellite programs first in Sitka, Alaska, and later in the Yakima and Spokane, Washington areas. Other examples of successful federally supported satellite programs are the University of Texas–Pan American PA program in Edinburg, Texas, which began as an extension of the PA program of the University of Texas Medical Branch in Galveston<sup>18</sup> and is now a separate, freestanding program, and the Clearfield branch of the Loch Haven University PA program in Loch Haven, Pennsylvania. The quality of the education of satellite programs has been shown to be equivalent to that provided in the base the program,<sup>19</sup> and this factor is a standard for the accreditation of such operations.

Title VII funding has been a critical tool in addressing the natural geographic maldistribution of health care providers by exposing students to underserved sites during their training, where they often choose to practice. Continuation of Title VII support for educating PAs to practice in underserved communities is particularly important, given the market demand for PAs. Without Title VII funding to expose students to underserved sites during their training, PA students are far more likely to practice in the communities where they were raised or the communities where they attend school. Currently, one third of PAs met their first clinical

employer through their clinical rotations (personal communication, K. Marville, vice president for research, American Academy of Physician Assistants, July 15, 2008). Preference continues to be given to applicants that have a high rate for placing graduates in practice settings serving residents of medically underserved communities.

### Diversity

PA programs' success in recruiting and retaining underrepresented minority and disadvantaged students is linked to their ability to creatively use Title VII funds. Over time, these programs have developed model strategies for recruitment and retention. An evidence-based tenet of this approach is that PA students from disadvantaged communities are three to five times more likely to return later to those areas to provide care.<sup>20</sup>

For many years, Title VII funding enabled PA programs to hire faculty whose role was to recruit and support minority students. For example, the University of Iowa PA program used Title VII funds to target recruitment efforts to disadvantaged students, providing shadowing and mentoring opportunities for prospective students, increasing training in cultural competency, and identifying new family medicine preceptors in underserved areas (personal communication, David P. Asprey, PhD, PA-C, director, PA Program, University of Iowa, February 23, 2007). The Pacific University School of PA Studies in Oregon developed a diversity program in response to the changing demographics of the Pacific Northwest region. It increased student enrollments from minority and rural communities by more than 10%, and it more than tripled its enrollment of underrepresented minority students.<sup>21</sup> The University of Texas Southwestern PA program used Title VII funds to develop Web-based and distant learning technology and methodologies to enable students to remain at remote clinical practice sites. Consequently, the University of Texas Southwestern PA program was able to increase recruitment as well as retention of underrepresented minority students from a baseline of 8.3% in 1998 to 30.5% in 2003. The total combined increase in enrollment of disadvantaged and/or underrepresented students during this period was 38.9%, to a high of 55% of disadvantaged and/or underrepresented students in 2004.<sup>22</sup> In

2001, the Arizona School of Health Services PA program used Title VII funds to develop a distance education program to train American Indian students to become PAs.<sup>23</sup> A total of 18 students have successfully completed the program. At Duke, 39% to 56% of each class has had at least one marker for disadvantaged status, with an average through five classes of 44%. Duke increased the number of minority students to 34% during a three-year period through 2003, with 22% of these individuals from underrepresented minority backgrounds.<sup>24</sup> In another PA program, in New York, where more than 90% of the students are ethnic minorities, Title VII funding enabled a focus on primary care training for underserved urban populations by linking with community health centers (CHCs). This partnership also expanded the pool of minority role models that engage in clinical teaching, mentoring, and preceptorship of trainees. Minority enrollment in PA programs was 22.8% of the more than 9,800 students enrolled in 2006, and the 23-year average is 20.3%.<sup>4</sup>

Several other PA programs have been able to use Title VII grants to leverage additional resources to assist students with the added costs of housing and travel that occur during relocation to rural areas for clinical training. Title VII funding also has supported programs operated in historically black colleges and universities. PA programs sponsored by these institutions include Howard University, Charles Drew University, Malcolm X College, and City University of New York/Harlem Hospital. These programs and others continue to provide communities with PA clinicians drawn from the populations they will serve.

### Evaluation

The short review above clearly shows that federal support for the education of PAs represents a policy that has provided substantial benefits for society in meeting service demands.<sup>3,25</sup> Yet, there is controversy regarding Title VII in terms of demonstration of program effectiveness. The General Accountability Office (GAO) and the Office of Management and Budget (OMB) for years have challenged the methods by which the performance of Title VII programs has been assessed. Both the administration of the evaluation tool used by the evaluators, and interpretation of the findings by the evaluators, have been questioned by the

GAO.<sup>26</sup> The issue of the demonstration of successful performance outcomes as requested by the GAO and OMB is not that Title VII programs are ineffective but, rather, that PA programs have not convincingly demonstrated their effectiveness in ways that are politically salient.<sup>27</sup> HRSA has been challenged to develop more outcome-based program evaluation techniques. If Title VII programs are to be assessed adequately, HRSA/BHPr, along with PA professional societies and programs, need to establish a comprehensive evaluation program with measurable outcomes and demonstration of program cost-effectiveness. Although HRSA has published performance goals for Title VII, the concern is that these cannot fully assess the programs' effectiveness because the goals do not apply to all the health professions.<sup>26</sup> Another issue is that HRSA relies in part on grantees' self-reported data. Although reports from grantees are required, grantees often lack the resources for longitudinal tracking and, thus, find it difficult to provide accurate and complete information. Simply put, many PA programs lack the necessary resources to accurately track graduates and determine their practice locations and characteristics.

### Current Status and Future Needs

The relatively small investment made by the federal government through the Title VII program has borne substantial benefit to society. That support, however, is in jeopardy as Title VII programs have

been under considerable assault and funding has been cut markedly in the past several years. Targeted federal support for PA education programs is authorized currently through Section 747 of the Public Health Service Act. The program was reauthorized in the 105th Congress through the Health Professions Education Partnerships Act of 1998, Public Law No. 105-392, which streamlined and consolidated the federal health professions education programs. Support for PA education is now considered within the broader context of training in primary care medicine and dentistry. A continuing question for policy makers is the degree to which they will support primary care health professions education.

Congressional appropriation of PA educational programs through Title VII has promoted the desired boost in PA graduate output into primary care areas, although, of late, market forces have led to more than 64% of the 69,500 practicing PA population choosing to work in specialties<sup>28</sup> (see Table 2). Federal funding has supported expansion of enrollment within existing PA programs and provided start-up funding for more universities, academic health centers, and colleges to establish new PA programs. Yet, oddly, as PA program numbers and enrollment have grown, the number of programs applying for and receiving funding has declined.

The level of federal support for health professions educational programs is dependent on the uncertain future of

congressional appropriations related to Title VII. At times, congressional health policy leaders, whose ideological adversaries are often anxious to cut discretionary federal spending categories, have shied away from continuing health professions education program subsidies. Cuts to the Title VII program have led to a weakening of its ability to influence both PA programs and graduates to counter the market forces that tend to draw practitioners into specialty practices and avoid medically underserved communities. In 2006, the administration proposed a 96% cut below the fiscal year 2005 level of \$300 million for Title VII funding. That same year, 26 PA programs were awarded federal grant support under the Title VII PA Training in Primary Care grant program, the lowest number since the program's inception.

Without Title VII funding, many of the described PA training initiatives would be jeopardized. Institutional budgets and student tuition fees typically are insufficient to meet initiatives designed to prepare trainees to address the special, unmet needs of medically underserved areas or persons living in rural communities. A key aim of Title VII is to help achieve access to health care. Failure to attempt to correct this funding problem will continue the current disparities in medical equity and access to care.

Issues facing PA educational programs are the related forces of the loss or competition for clinical training sites and the need to fund clinical students'

**Table 2**  
**Numbers and Percentages of Physician Assistants (PAs) by Specialty for Selected Years\***

Year (no. of PAs)	% In family practice	% In general internal medicine	% In general pediatrics	% In general surgery	% In surgical specialties	% In medical specialties	% In emergency medicine	% In occupational medicine	% In other specialties
1974 (939)	43.6	20.0	6.2	12.1	6.8	3.9	1.3	1.8	4.3
1978 (3,416)	52.0	12.0	3.3	5.5	6.2	6.3	4.9	2.7	7.1
1981 (4,312)	49.1	8.9	3.4	4.6	7.7	2.7	4.5	3.1	16
1987 (10,692)	38.7	9.5	4.0	8.8	13.8	7.1	6.5	4.1	7.5
1994 (12,281)	37.2	7.7	2.5	2.8	19.1	7.4	8.4	3.1	7.0
1996 (12,701)	39.8	8.3	2.7	3.1	8.3	5.8	7.0	3.0	9.5
2000 (16,547)	36.5	8.8	2.6	2.7	17.4	8.1	9.7	3.5	6.5
2002 (16,835)	32.1	8.4	2.6	2.5	19.2	9.4	10.2	3.0	8.4
2007 (26,192)	24.9	6.9	2.4	2.7	22.2	11.3	10.3	2.4	12.8

\* Data from American Academy of Physician Assistants. 2007 AAPA Physician Assistant Census Report. Alexandria, Va: American Academy of Physician Assistants; 2007.

training, to increase efforts to recruit new faculty members, to strengthen minority recruitment and retention, and to add new clinical training sites and practice affiliations. All of these challenges, linked to expanded enrollments, are dependent on increased financial support from external sources.

It has been suggested that the federal government support the use of PAs as physician substitutes, particularly in urban CHCs, where the proportional use of physicians is higher.<sup>29</sup> There is a projected shortage of medical personnel in CHCs, and one solution to this circumstance would be to increase the availability of primary care PAs. By providing support for PA education, perhaps focused in one or more of the federally recognized primary care specialties, policy makers could ensure a solid supply of primary care providers not only for CHCs but also for other settings in the health system. Expanded legislation could include incentives for CHCs to partner with academic institutions and/or academic health centers to create new PA educational programs and expand existing enrollments. Additional incentives that could aid in the expansion of the supply of PAs could be the specific amendment of Title VII PA training grant awards with the intent to promote the development of satellite programs that would be branches of established PA programs set in medically underserved regions, either inner-city, rural, or other needy areas such as migrant worker communities.

Another consideration is to include PAs, once again, as part of a larger strategy to restructure the nation's health workforce. Given that the nation will require an increased supply of health care providers in the future and that this need will include physicians, PAs, and other health care professionals, new approaches in health workforce policy may be in order. For the last several years, the current supply of PAs, similar to that of physicians, has remained constant, with roughly 4,800 PA graduates in 2005, 2006, and 2007. On the other hand, demand for PA graduates continues to be strong, and the likelihood is that the marketplace demand will continue to increase.

### **PAs and the Primary Care Workforce: Recommendations**

In addressing current health system and societal needs for primary care, there unfortunately has been little planning or coordination between the leaders of the health professions and state-level planners. And yet, evidence shows that primary care, in contrast to specialty care, is associated with more equitable distribution of health and health care.<sup>30</sup> Physician groups have called attention to deficits in the supply of primary care providers and the uncoordinated aspects of America's primary care workforce.<sup>31</sup> Historically, as I have mentioned earlier, there has been federal support for the education of PAs, a policy that has provided substantial benefits for society in meeting service demands.<sup>3</sup> Projections by the U.S. Bureau of Labor Statistics estimate there will be an increasing demand for PAs in the health care workforce through 2012.<sup>32</sup> In view of the likelihood of significant increased demand, there is a strong case for a revision in approaches of public subsidy of health professions education. PAs have been shown to be clinical as well as economic assets to primary care physician practices.<sup>33</sup> Reauthorization legislation for Title VII should include PAs as part of the plan to bolster the primary care workforce. To ensure an adequate supply of PAs, a desirable strategy would be to continue offering financial incentives, such as funding preferences, to PA programs to produce providers who can augment the delivery of primary care services. Another policy approach designed to increase the supply of primary care providers, as well as promote interprofessional practice, would be through demonstration projects where general internal medicine residents, family practice residents, and PA students are trained side by side in primary care medicine. Such programs could be supported through expansion of authority within Title VII legislation or creation of a separate funding channel. They would grant new legitimacy and needed funding support to primary care medical education, a desirable development particularly in light of the declining numbers of newly graduating medical students matching to primary care residency positions.

### **PAs and the Long-Term Needs of the Health Care Workforce**

The role of government, particularly in relation to domestic social programs, often has been to stimulate or support the private sector. This particularly has been the case in the area of health, where considerable federal and state resources have been used to influence private sector activities including medical services delivery.<sup>34</sup> The establishment of Title VII has been a noble effort of the federal government to address problems in medical services delivery. Title VII support for PA educational program has produced the intended outcome—primary care providers who have been shown to care for rural and medically underserved populations. A recent study, using National Ambulatory Medical Care Survey data (1997–2003), found that in outpatient clinics, poorer patients were more likely to see PAs than to see physicians, and that patients in rural areas were more likely to visit PAs than were patients in urban areas.<sup>35</sup>

There is considerable use of PAs in all practice settings in U.S. medicine. For several decades, PA training programs have demonstrated that they are efficient means of preparing clinicians who provide considerable benefit to society in return for a modest public investment. At the present time, when the climate seems not to favor public subsidy of health professions education, it may be wise for policy makers to consider strategies that address the long-term needs of the health care workforce and the public for primary care clinicians.

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## Appendix

### How the Physician Assistant Profession Began and Developed

Following the creation of the pioneering Duke University PA Program, and in the vortex of a period of federal activism in the health sector (e.g., the passage of the Medicare program in 1965), the federal government started promoting the training and utilization of new types of health care professionals including PAs.<sup>1</sup> The means to this end started with the Health Professions Education Assistance Act (PL 88–129), which was an amendment to Public Health Service Act 42 U.S.C. of 1944 and the first of its kind to address the supply of health care professions.<sup>2</sup>

The federal government initially was involved indirectly in PA training. Inclusion of student stipends in the 1964 National Institutes of Health (NIH) grant that Duke used to begin its PA program supported the first groups of trainees through 1968. Several federally-sponsored PA educational programs also began at this time, the first in 1966 at the U.S. Public Health Service Hospital in Staten Island, New York. A bit later, the federal Bureau of Prisons instituted the training of PAs at the Springfield, Missouri prison facility. In 1967, the National Advisory Commission on Health Manpower (then the commonly used term for health workforce policy) recommended the federal government give high priority to the training of new categories of health practitioners, and the following year the National Center for Health Services Research was established and charged to produce a national protocol for evaluation of health manpower innovations.<sup>3</sup> This agency soon thereafter began to fund directly a number of demonstration projects supporting the training of MEDEX PAs and Primex nurse practitioners. The founder of the MEDEX Program obtained federal funding through the then Bureau of Health Manpower to begin his program at the University of Washington in 1968.<sup>4</sup>

After 1970, the federal government became even more involved in health workforce policy. The initial direction was direct funding support to educational programs for training new types of providers and encouraging their incorporation into the health system.<sup>5</sup> Early policy initiatives were included in the Allied Health Professions Personnel Act of 1966 and the Health Manpower Act of 1968 (Public Law 90–490). The readily available group of ex-military medical corpsmen eager to enter the civilian health sector hastened the inception of the PA concept into medical practice. The level of public financial support and attention given to the creation of new health practitioners nurtured a diversity of approaches to the training of PAs. The Comprehensive Health Manpower Act of 1971 (Public Law 92–157) provided the first large provision of federal dollars for PA educational programs and expansion of medical school capacity.<sup>6</sup>

Strand and Carter describe three phases of federal policy in support of primary care training.<sup>7</sup> Phase One began with passage of the Comprehensive Health Manpower Training Act (1971). It focused on developing the capacity for training primary care practitioners, including PAs, through grants to support directly academic units. Requirements for funding included increased trainee enrollment, curricular improvement, and recruitment of disadvantaged students, and encompassed start-up grants, financial distress grants and student loans. The belief was that traditional institutions

## Appendix

## Continued

would require external funding before launching a new PA program. Also intrinsic to this policy was the expectation that these providers upon graduation would assume positions in primary care in rural and medically underserved areas. The NIH Bureau of Health Manpower established an Office of Special Programs to coordinate PA educational program funding activities. Between 1972 to 1975, this Office spent \$11.7 million to train 280 MEDEX PAs and 376 Primex providers.<sup>8</sup> Later, the Health Professions Educational Assistance Act of 1976 (Public Law 94–484) was amended by the Health Services Extension Act (Public Law 95–83) to provide for grants and contracts for PA and non-physician training programs.<sup>9</sup> Thus began a more than 35-year history of inclusion in PHS Title VII funding for PA education through the Physician Assistant Training in Primary Care grant program, first based in the Division of Medicine, then the Division of Primary Care, and most recently back in the Division of Medicine in the Bureau of Health Professions of the Health Resources and Services Administration.

Government support was an important influence in moving the nascent PA profession toward primary care. This policy mandate ultimately re-directed the original conceptualization of PAs by Stead and others. Stead's original notion was that PAs would be trained as generalists and work with physicians in all specialties and settings.<sup>10</sup> The Duke model conceptualized PAs as all-purpose generalist assistants to doctors, including specialists. The widespread publicity garnered by the novel Duke PA program, however, soon caught the attention of federal government health policy makers and other activists in the health care field who were concerned with the then-pressing problem of the physician shortage. Early documents relating to PAs often described them as "assistants to the primary care physicians."<sup>11</sup> This primary care mandate for PAs was based not only on perceptions of health workforce needs, but the belief this approach posed less of a threat to practicing physicians, many of whom were skeptical of this new type of provider. Ultimately, federal policy incentives for PA training programs came to have a significant bearing on the direction of the PA profession in its first and second decades.<sup>12</sup>

Phase Two of federal support for PA education, according to the Strand and Carter construct, was characterized by continuing priorities to recruit learners and graduates to primary care fields through funding for faculty development and additional deployment incentives. The Health Professions Educational Assistance Act (PL 94–484) sought to increase the PA supply and provide more physicians and PAs for underserved areas. Requirements included expansion of enrollment and recruitment of disadvantaged individuals. Funding for PA education continued throughout the 1980s. According to the now defunct Congressional Office of Technology Assessment, the federal government had spent about \$65 million to train PAs and nurse practitioners, up from \$1 million in fiscal year 1969 to \$21 million in fiscal year 1979.<sup>13</sup>

Political momentum for primary care, and the widespread acceptance by organized medicine and the federal government of the generalist concept of PAs, created the climate for PAs to emerge as primary care providers and for the formalization of federal subsidization of PA training. In these early years, local financial support was tenuous and thus, programs relied heavily on federal funding from Title VII.<sup>14</sup> In 1981, when the Graduate Medical Education National Advisory Committee forecast that by 1990 there would be a surplus of physicians,<sup>15</sup> many thought this would mark the end not only of federal support for PA education, but would doom the existence of the entire profession. The early 1980s saw federal funding cut in half, a number of programs close, and applications decline. Remarkably, the PA profession survived and entered the nineties poised for a period of remarkable growth and widespread utilization.

The 1992 Health Professions Education Extension Amendment (PL 100–607) and 1998 Health Professions Education Partnership Act (PL 100–607) specified a preference for placement of a high rate of graduates in medically underserved communities (MUCs), with the 1998 act providing a priority for trainees from disadvantaged or underrepresented minority backgrounds. Phase Three, the current stage, continues to provide support for programs to attract primary care graduates to practice in underserved regions, and to increase the number of underrepresented minorities in training programs and practice. During this time, the number of PA programs grew dramatically from 55 in 1990 to in 115 in 2000 (see Table 1 in the article).

By 2008, the PA profession has become successfully established in U.S. medicine. Federal support for PA education was crucial to this success and has fostered the deployment of PAs into areas of medical need. Primary care practice remains a central focus in PA educational programs.

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