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Report to Congressional Committees

December 2019

HEALTH CARE WORKFORCE

Views on Expanding Medicare Graduate Medical Education Funding to Nurse Practitioners and Physician Assistants

GAO-20-162

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GAO Highlights

Highlights of GAO-20-162, a report to congressional committees

Why GAO Did This Study

An adequate, well-trained health care provider workforce is essential to ensure Americans have access to quality health care services. However, studies have shown the United States faces a shortage of physicians, making it increasingly difficult for people to access needed health care. Experts have identified ways to address this shortage, such as through strategies that increase the number of other types of non-physician providers, including NPs and PAs. For example, members of Congress and others have questioned whether expanding the scope of the Medicare GME program to include NPs and PAs could help mitigate the effects of a physician shortage.

A Senate Committee on Appropriations report included a provision for GAO to examine the potential of making GME payments under the Medicare program for NPs and PAs. This report describes: (1) stakeholder views on the potential benefits and challenges of expanding the Medicare GME program to include NP and PA graduate training; and (2) available information on the estimated costs of NP and PA graduate training.

GAO reviewed literature and interviewed officials from nine professional associations with knowledge of NP, PA, and physician graduate training; and agency officials. Based on these interviews, GAO identified sources of information on estimated costs and reviewed those sources.

View GAO-20-162. For more information, contact James Cosgrove at (202) 512-7114 or cosgrovej@gao.gov.

What GAO Found

The federal government funds many education programs for health care providers, but the vast majority of this funding—more than $10.3 billion in 2015—supports physician residency training through the Department of Health and Human Services's (HHS) Medicare graduate medical education (GME) program. This program does not fund graduate training for nurse practitioners (NP) and physician assistants (PA) who deliver many of the same services as physicians, such as diagnosing patients and performing certain procedures. Instead, a smaller portion of federal funding—approximately $136 million in fiscal year 2019—is available to train them. Stakeholders GAO interviewed said that one benefit of expanding Medicare GME is that Medicare GME funding would provide more stable funding for NP and PA training, compared to existing programs. Stakeholders said one challenge of such an expansion is that clinical training requirements for NPs and PAs are different than physicians; therefore, any change to Medicare GME to include NPs and PAs would need to consider how to allocate GME funding in light of these differences.

Source: GAO. | www.gao.gov

GAO identified two estimates of costs for completing an NP or PA graduate school program; while the estimates provide some information about these costs, they are limited and incomplete. The Centers for Medicare & Medicaid Services' (CMS) evaluation of its Graduate Nurse Education Demonstration estimated the total costs over the 2012-2018 demonstration period to be about $47,000 per NP student. While clinical and classroom training are required for NP students, CMS's demonstration only provided funding for clinical training, as specified by statute, and the estimate is not generalizable beyond the participating schools. The Physician Assistant Education Association estimated the total costs to be about $45,000 per PA student. The estimate is based on self-reported data from a 2018 survey of member PA programs and excludes in-kind contributions for clinical training. GAO received technical comments on this report from HHS and the professional associations interviewed and incorporated them as appropriate.

Contents

Abbreviations

CMS	Centers for Medicare & Medicaid Services
GME	graduate medical education
HHS	Department of Health and Human Services
HRSA	Health Resources and Services Administration
NP	nurse practitioner
PA	physician assistant

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December 18, 2019

The Honorable Roy Blunt
Chairman
The Honorable Patty Murray
Ranking Member
Subcommittee on Labor, Health and Human Services, Education, and Related Agencies
Committee on Appropriations
United States Senate

The Honorable Rosa DeLauro
Chairwoman
The Honorable Tom Cole
Ranking Member
Subcommittee on Labor, Health and Human Services, Education, and Related Agencies
Committee on Appropriations
House of Representatives

An adequate, well-trained health care provider workforce is essential to ensure Americans have access to quality health care services. However, studies have shown that the United States faces a shortage of physicians, making it increasingly difficult for people, particularly those in rural areas, to access needed health care.[1] Experts have identified ways to help mitigate this physician shortage, such as by increasing the number of certain types of non-physician providers, including nurse practitioners (NP) and physician assistants (PA).[2] NPs and PAs complete graduate-level education and are trained to deliver many of the same types of services as physicians, such as diagnosing patients, prescribing medication, and performing certain procedures, but the extent to which

[1]See, for example, S. M. Petterson, et al., "Unequal Distribution of the U.S. Primary Care Workforce," *American Family Physician*, vol. 87, no. 11 (2013); and Association of American Medical Colleges, *2019 Update: The Complexities of Physician Supply and Demand: Projections from 2017 to 2032* (Washington, D.C.: April 2019).

[2]For examples, see D. I. Auerbach, P. G. Chen, M. W. Friedberg, R. O. Reid, C. Lau, and A. Mehrotra, "Nurse-Managed Health Centers and Patient-Centered Medical Homes Could Mitigate Expected Primary Care Physician Shortage," *Health Affairs*, vol. 32, no. 11 (2013): 1933–1941; and T. S. Bodenheimer and L. Bauer, "Rethinking the Primary Care Workforce—An Expanded Role for Nurses," *New England Journal of Medicine*, vol. 375, no. 11 (2016): 1015–1017.

NPs and PAs are permitted to provide care independently from physician supervision varies by state.

We previously reported that, while a number of factors affect the supply and distribution of physicians, the cost of graduate medical education (GME)—commonly known as residency training—is a significant determinant.[3] The federal government—largely through the Department of Health and Human Services (HHS)—funds numerous education and training programs for health care professionals, but the vast majority of this funding supports physician residency training through Medicare's GME program. The Medicare GME program, which is administered by the Centers for Medicare & Medicaid Services (CMS), does not fund graduate training for NPs and PAs; instead, a smaller portion of federal funding is available to train these health professionals, primarily through grants and other financial assistance from the Health Resources and Services Administration (HRSA).[4] Members of Congress and others have questioned whether expanding the scope of the Medicare GME program to also include NPs and PAs could help mitigate the effects of a physician shortage.

A report accompanying the Departments of Labor, Health and Human Services, and Education, and Related Agencies Appropriation Bill, 2018, included a provision for us to examine the potential of making GME payments under the Medicare program for NPs and PAs and to identify the costs involved in training NPs and PAs.[5] In this report, we describe

1. stakeholder views on the potential benefits and challenges of expanding the Medicare GME program to include NP and PA graduate training, and

[3]GAO, *Physician Workforce: Locations and Types of Graduate Training Were Largely Unchanged, and Federal Efforts May Not Be Sufficient to Meet Needs*, GAO-17-411 (Washington, D.C.: May 25, 2017).

[4]We focused our review on programs within HHS that provide general funding for NP and PA graduate training. We excluded programs within the Indian Health Service because the agency offers financial assistance to train NPs and PAs in exchange for a commitment from them to provide health care services exclusively within the Indian Health Service system for a period of time. There are also other federal efforts outside of HHS related to training NPs and PAs, such as through the Department of Veterans Affairs, but these were also outside the scope of our review.

[5]S. Rep. No. 115-150, at 129 (2017).

2. available information on the estimated costs of NP and PA graduate training.

To describe stakeholder views on the potential benefits and challenges of expanding the Medicare GME program to include NP and PA graduate training, we interviewed officials at nine stakeholder organizations—professional associations with knowledge about graduate training for NPs, PAs, and physicians. (See table 1.) We identified these stakeholders through referrals from other stakeholders we had interviewed—an iterative process known as snowball sampling. We also interviewed agency officials from CMS and HRSA.

Table 1: Professional Associations Interviewed

Nurse practitioners	Physician assistants	Physicians
1. American Association of Colleges of Nursing	5. American Academy of Physician Assistants	8. Accreditation Council for Graduate Medical Education
2. American Association of Nurse Practitioners	6. Physician Assistant Education Association	9. American Medical Association
3. American Nurses Credentialing Center	7. Association of Postgraduate Physician Assistant Programs	
4. Association of Post Graduate Advanced Practice Registered Nurse Programs		

Source: GAO. | GAO-20-162

In addition, we reviewed the statutes and regulations related to the funding of Medicare GME training and conducted a literature review. To identify relevant studies, we searched multiple reference databases and reviewed abstracts of studies to select potentially relevant studies for full review.[6] Of the 36 studies that were potentially relevant, we identified two that discussed the policy implications of expanding the Medicare GME program to include NP and PA graduate training.

To describe available information on the estimated costs of NP and PA graduate training, we reviewed two cost estimates: one for NP training reported in CMS's evaluation of the Graduate Nurse Education Demonstration, which funded graduate nurse education from 2012 through 2018, and one based on data from a published 2018 member

[6]We performed a search for studies published on this topic between January 2013 and June 2019.

survey from the Physician Assistant Education Association.[7] We identified these estimates through our interviews with NP and PA stakeholder organizations as well as with CMS and HRSA officials. We described these cost estimates as they were reported by the sources, and we identified some limitations that are applicable for determining the total cost of NP or PA graduate training. However, we did not independently verify the accuracy of the information or evaluate the methodology used by these sources to calculate the cost estimates. Based on our interviews with officials from CMS and the Physician Assistant Education Association, we found the estimates to be sufficiently reliable for the purposes of our reporting objectives. We also conducted a literature review of studies that estimated the costs of NP and PA graduate training, but we did not identify any relevant studies.[8]

We conducted this performance audit from February 2019 to December 2019 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

Physician Shortages

According to HRSA, the current demand for physicians in the United States will likely continue, with a projected shortage of 23,640 primary care physicians by 2025.[9] While increasing physician supply is one way to reduce physician shortages, some experts have also suggested increasing the number of non-physician providers. For example, HRSA

[7]See Centers for Medicare & Medicaid Services, *The Graduate Nurse Education Demonstration Project: Final Evaluation Report (*Baltimore, Md.: IMPAQ International, August 2019) and Physician Assistant Education Association, *By the Numbers: Program Report 34: Data from the 2018 Program Survey* (Washington, D.C.: October 2019).

[8]We performed a search for studies published on this topic between January 2013 and March 2019. Of the 144 studies we initially identified, none were deemed relevant because they did not contain data on the estimated costs of NP and PA graduate training.

[9]Health Resources and Services Administration, *National and Regional Projections of Supply and Demand for Primary Care Practitioners: 2013-2025* (Rockville, Md.: November 2016).

predicted that, with health care delivery changes that would allow for NPs and PAs to deliver a greater proportion of services than they do now, the projected shortage of 23,640 primary physicians in 2025 could be mitigated. According to the Bureau of Labor Statistics, in 2018, there were 756,800 physicians, over 189,100 NPs, and 118,800 PAs practicing in the United States.[10]

Graduate Training for Physicians, NPs, and PAs

Physicians. Physician GME, also known as residency, provides the clinical training required for a physician to be eligible for licensure and board certification to practice medicine independently in the United States. Specifically, after completing medical school and receiving a medical degree, physicians enter a multi-year residency training program during which they complete their formal education as a physician, primarily in teaching hospitals. Completion of a residency can take from 3 to 7 years after graduation from medical school, depending on the specialty or subspecialty chosen by the physician. In some cases, physicians may choose to pursue additional training—referred to as fellowships—to become a subspecialist, such as a cardiologist.

NPs and PAs. Since the first NP and PA training programs in the United States were founded in 1965, these professions and their educational requirements have evolved to allow them to furnish more care that was traditionally provided by physicians, such as diagnosing patients, prescribing medication, and performing certain procedures. The extent to which they can provide care independently from physician supervision varies by state.

There are multiple pathways for students to become NPs. In general, after completion of a bachelor's degree, a nurse may become an NP once he or she achieves a master's or doctoral degree in nursing. Full-time master's programs are generally 18 to 24 months and doctoral programs are generally 3 to 5 years. Both programs include classroom and clinical work. In addition, NP students may have varying amounts of hands-on nursing experience before entering an NP program. NP programs generally include the following focus areas: family practice, women's health, acute care, adult/geriatric health, child health, neonatal health, and mental health. NPs are trained according to a nursing care model,

[10]Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook,* accessed September 30, 2019, https://www.bls.gov/ooh/healthcare/.

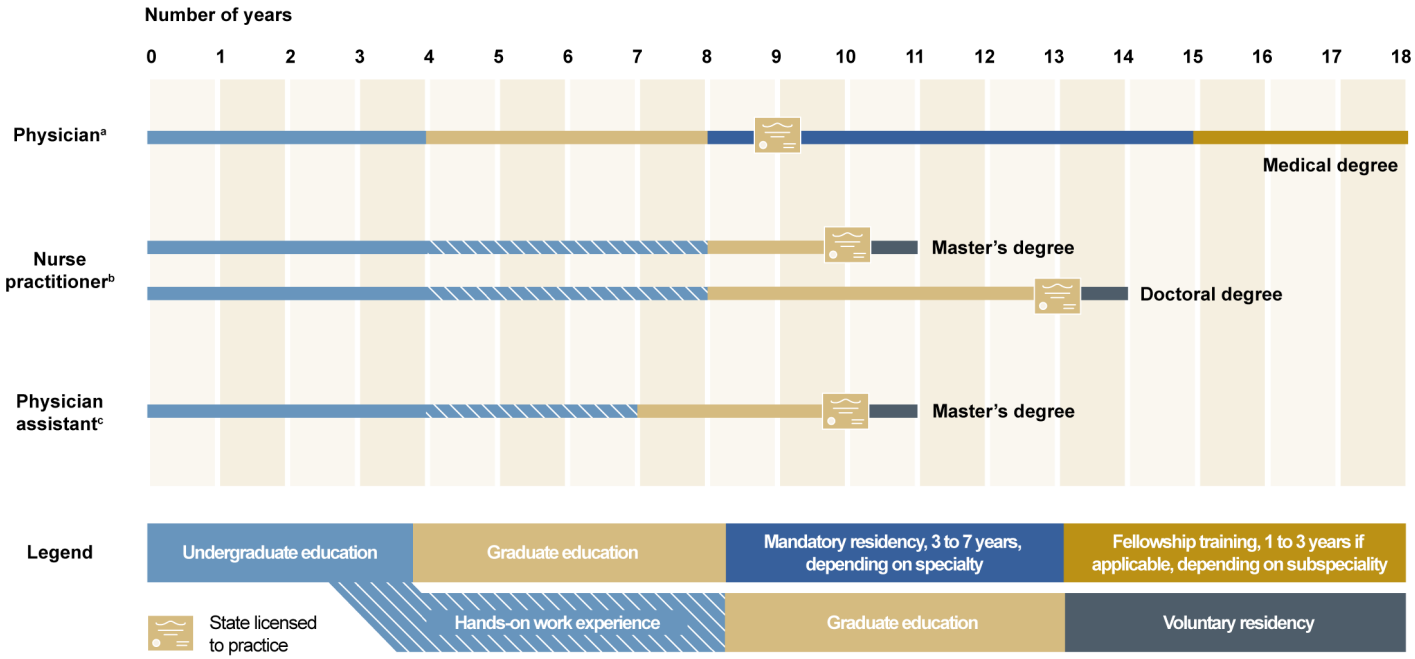
which emphasizes providing comprehensive care for patients that encompasses their physical and other needs.

After completion of a bachelor's degree, students become PAs once they earn a master's degree in physician assistant studies. The average full-time PA program takes about 27 months to complete, which includes classroom education followed by clinical work conducted through rotations in internal medicine, family medicine, surgery, pediatrics, obstetrics and gynecology, emergency medicine, and behavioral medicine. In addition, PA students have varying amounts of hands-on work experience in health care before entering a PA program. PAs are trained to approach patient care according to a medical model focused on assessing, diagnosing, and treating disease.

Both NP and PA students are required to complete clinical work as part of their graduate programs by providing care to patients under the supervision of a preceptor—an experienced and licensed health care provider who provides instruction and supervision to the student during their clinical rotations. Upon graduation and after passing a national certification exam and obtaining a license in the state in which they choose to work, both NPs and PAs can begin practicing. NPs and PAs may also complete an optional post-graduate residency training program, but unlike physicians, they are not required to do so in order to obtain a state license to practice.[11] Figure 1 shows an example of education and training paths for physicians, NPs, and PAs.

[11]Post-graduate training programs for NPs and PAs can also be referred to as "fellowships."

Figure 1: Example of Education and Training Paths for Physicians, Nurse Practitioners (NP), and Physician Assistants (PA)



Source: GAO analysis of information from professional associations knowledgeable about physician, NP, and PA training. | GAO-20-162

[a]After completing medical school, physicians receive a medical degree that is either a Doctor of Medicine or a Doctor of Osteopathic Medicine. The majority of physicians have a Doctor of Medicine degree.

[b]There are multiple pathways for students to become NPs. In general, after completion of a bachelor's degree, full-time master's programs are generally 18 to 24 months in duration. Full-time doctoral programs are generally 3 to 5 years in duration. In addition, students may have varying amounts of hands-on nursing experience prior to entering graduate school.

[c]After completion of a bachelor's degree, most full-time master's programs are approximately 27 months in duration. In addition, students may have varying amounts of hands-on work experience in health care prior to entering graduate school.

Federal Funding for Physician, NP, and PA Training

Physicians. The vast majority of federal funding for physician GME training is distributed by HHS through CMS's Medicare GME program. In our 2018 report on GME funding, we found that Medicare GME payments for physicians totaled more than $10.3 billion in 2015.[12] CMS pays for a hospital's costs associated with GME training through two mechanisms—direct graduate medical education and indirect medical education

[12]See GAO, *Physician Workforce: HHS Needs Better Information to Comprehensively Evaluate Graduate Medical Education Funding*, GAO-18-240 (Washington, D.C.: Mar. 9, 2018).

payments—both of which are formula-based payments set by statute.[13] Direct payments are for costs that include, for example, residents' salaries and benefits, compensation for faculty who supervise the residents, and overhead costs. Indirect payments are for costs including higher patient care costs that teaching sites are thought to incur as a result of training residents, such as increased diagnostic testing and procedures performed. Payments to hospitals may also include funds for training in nonhospital settings.[14] Other sources of federal GME funding for physicians include the Medicaid program, which is jointly administered by CMS and the states, programs administered by HRSA, and other federal agencies outside of HHS.[15]

NPs and PAs. HHS funding is available to train NPs and PAs, primarily through HRSA grants authorized under titles VII and VIII of the Public Health Service Act. Specifically, according to HRSA officials, funding for programs that included NP and PA training totaled approximately $136.2 million in fiscal year 2019. (See table 2 for a description of these programs.)

Table 2: Fiscal Year 2019 Programs that Include Funding for Graduate Nurse Practitioner (NP) and Physician Assistant (PA) Training, According to the Health Resources and Services Administration (HRSA)

Program	Purpose	Time frame	Fiscal year 2019 funding
Advanced Nursing Education - Nurse Practitioner Residency	Intended to prepare NPs in primary care for practice in community-based settings through a 12-month NP residency program.	July 1, 2019 through June 30, 2023	$17,687,092
Advanced Nursing Education Workforce	Intended to support academic clinical partnerships to educate NPs and other types of nurse specialties and help these students transition from nursing school to practicing in rural and underserved communities.	July 1, 2019 through June 30, 2023	$41,264,930
Advanced Nursing Education - Sexual Assault Nurse Examiners Program*	Intended to increase the number of NPs and other types of nurses that are trained and certified as sexual assault nurse examiners in communities.	September 30, 2018 through September 29, 2021	$8,151,542

[13]See 42 U.S.C. § 1395ww(d)(5)(B) and 42 U.S.C. § 1395ww(h).

[14]CMS refers to these settings as "non-provider sites."

[15]Medicaid is a joint federal-state program that finances health insurance coverage for low income and medically needy individuals.

Program	Purpose	Time frame	Fiscal year 2019 funding
Nursing Workforce Diversity Program*	Intended to increase access to high quality, culturally aligned nurses that reflect the diversity of the communities in which they serve, for example, by preparing students from disadvantaged backgrounds for advanced nursing education.	July 1, 2017 through June 30, 2021	$16,165,603
Nurse Faculty Loan Program*	Intended to increase the number of qualified nursing faculty by providing funding to accredited schools of nursing to offer loans to advanced nursing degree students who will work to become nurse faculty.	July 1, 2019 through June 30, 2020	$11,663,501
Primary Care Training and Enhancement Program*	Intended to strengthen the primary care workforce by supporting enhanced training for future primary care clinicians, teachers, and researchers. Eligible applicants include academically affiliated PA training programs.	July 1, 2016 through June 30, 2021	$28,308,050
Primary Care Training and Enhancement - PA Program	Intended to increase the number of primary care PAs, particularly in rural and underserved settings, and improve primary care training in order to strengthen delivery of primary care.	July 1, 2019 through June 30, 2024	$1,610,000
Primary Care Training and Enhancement: Training Primary Care Champions*	Intended to strengthen primary care and the workforce by establishing fellowship programs to train community-based practicing primary care physicians and/or PAs to lead health care transformation and enhance teaching in community-based settings.	September 1, 2018 through August 31, 2023	$7,363,001
Primary Care Medicine and Dentistry Clinician Educator Career Development Award*	Intended to train and support primary care medicine and dentistry junior faculty who plan to teach in certain primary care medicine programs, PA education programs, and dentistry programs.	August 1, 2017 through July 31, 2022	$4,063,148
Total fiscal year 2019 funding			**$136,276,867**

Legend:

*Programs that funded NP or PA training in addition to training for other types of providers. The dollar amounts for these programs reflect total funding across all types of providers.

Source: HRSA. | GAO-20-162

Note: In the table, we describe NP and PA training efforts that, according to HRSA officials, were ongoing as of August 2019.

In recent years, CMS also provided funding for graduate training for advanced practice registered nurses, including NPs, from fiscal years 2012 through 2018 as part of the Graduate Nurse Education

Demonstration.[16] The Graduate Nurse Education Demonstration was established by the Patient Protection and Affordable Care Act to determine whether payments for clinical training provided to hospitals would increase the number of advanced practice registered nurses, including NPs, and whether these payments would affect the number of advanced practice registered nurses by specialty.[17]

Stakeholders Identified Benefits and Challenges of Expanding the Medicare GME Program to Include NP and PA Graduate Training

Officials from the stakeholder organizations we interviewed identified the potential benefits and challenges of expanding the Medicare GME program to include NP and PA graduate training.

Benefits of Expanding the Medicare GME Program

- **Predictability and stability of Medicare GME program funding.** According to officials from five of the nine stakeholder organizations we interviewed—three NP and two PA organizations—a benefit of expanding the Medicare GME program is that it may create more predictability and stability for training funding for NPs and PAs. This would be beneficial by allowing NP and PA programs to do better long-range planning such as planning for the number of NP and PA students that can be admitted. Officials from two of these stakeholder organizations noted that a benefit of the Medicare GME program for physicians is that funding is historically more stable than the funding

[16]Under current law, while Medicare GME payments are not made for NP and PA training, there are other Medicare payments for approved nursing and allied health education programs that support Medicare's share of the costs of those programs. To qualify for nursing and allied health payment, hospitals must operate and directly incur the training costs and employ the teaching staff, among other things. See 42 C.F.R. § 413.85(f) (2018). According to CMS officials, Medicare payments for approved nursing and allied health education programs do not fund training for NPs and PAs because these programs generally do not meet the provider-operated criteria.

[17]Pub. L. No. 111-148, § 5509, 124 Stat. 119, 674 (2010) (codified at 42 U.S.C. § 1395ww note). Section 5509 appropriated $50 million for each fiscal year 2012 through 2015 without fiscal year limitation.

available to NPs and PAs through HRSA. Specifically, Medicare GME funding is mandatory, while funding for NP and PA training programs administered by HRSA is discretionary.[18] During the annual appropriations process, Congress may choose to appropriate the amount requested by HRSA, to increase or decrease those levels, or to not appropriate any funds. For example, Congress appropriated $28.5 million in fiscal year 2018 for HRSA's Nurse Faculty Loan Program, but then decreased this appropriation to $13.5 million in fiscal year 2019.[19]

- **Potential opportunity to pay preceptors.** Officials from four of the nine stakeholder organizations—two NP and two PA organizations—noted that one benefit of expanding the Medicare GME program to include NP and PA graduate training is that funding could be used to pay preceptors as an incentive to supervise students. CMS and others have also reported that schools of nursing have faced significant challenges increasing enrollments, in part due to difficulty finding preceptors willing to supervise students.[20] Similarly, officials from two PA organizations we interviewed noted that some programs may choose not to fill their available enrollment slots because they are concerned about finding enough preceptors to allow all their students to graduate. Officials from four of the stakeholder organizations we interviewed noted that supervising students can take time away from the preceptor's productivity in seeing patients, and that some practices and health care systems do not allow their health care providers to serve as preceptors. Specifically, officials from two stakeholder organizations we interviewed said that, historically, these preceptors have volunteered as a way of "giving back" to their profession and have not been paid for their time. However, due to difficulties finding a sufficient number of volunteer preceptors, some graduate programs have begun reimbursing preceptors for their time in order to encourage their participation. CMS's Graduate Nurse Education Demonstration also included funding for preceptors.

[18]Discretionary appropriations refer to those budgetary resources that are provided in appropriations acts. Mandatory spending refers to budget authority that is provided in laws other than appropriations acts and includes entitlement authority.

[19]According to HRSA officials, after deducting costs such as the costs of contracts to support the program and payroll, funding for the Nurse Faculty Loan Program in fiscal year 2019 totaled $11,663,501.

[20]Centers for Medicare & Medicaid Services, *Evaluation of the GNE Demonstration Project, Volume II, Demonstration Costs* (Baltimore, Md.: IMPAQ International, October 2017).

Challenges of Expanding the Medicare GME Program

- **Differences in training requirements.** Officials from six of the nine stakeholder organizations—two NP, two PA, and two physician organizations—raised concerns about challenges that could occur because NP and PA clinical training requirements do not align with the current structure of the Medicare GME program. For example, officials from some of these organizations noted that the Medicare GME program is structured to fund physician residency training, which is required in order for physicians to practice, but NPs and PAs are not required to complete a residency after completing a graduate program in order to practice.[21] Specifically, CMS makes GME payments to hospitals according to formulas outlined in statute based, in part, on the number of physician residency positions. Therefore, officials from some of these stakeholder organizations said that any change to Medicare GME to include NPs and PAs would need to consider how to allocate GME funding for NP and PA programs in light of these differences in training requirements between physicians, NPs, and PAs.[22]
- **Potential limitations on Medicare funding for physician training.** Officials from seven of the nine stakeholder organizations we interviewed—four NP, one PA, and two physician organizations—expressed concern that expanding the Medicare GME program to increase the number of NPs and PAs without increasing overall funding may negatively impact the funding available for physician training. For example, officials from one stakeholder organization said that reallocating available Medicare GME dollars could be problematic and potentially diminish needed resources for others. An official from one of these stakeholder organizations said that there is currently not enough funding to provide residency training for all qualified

[21]Both NP and PA students are required to complete clinical work as part of their graduate programs by providing care to patients under the supervision of a preceptor—an experienced and licensed health care provider who provides instruction and supervision to the student. NPs and PAs are not required to do postgraduate residency training but may opt to do so.

[22]The author of one study in our literature review noted that PAs perform similar duties to physician residents and that a case can be made to expand Medicare GME to include PA students. See J. F. Cawley, "What the IOM Report on Graduate Medical Education Means for Physician Assistants," *Journal of Physician Assistant Education*, vol. 26, no. 2 (2015). Another article we identified in our literature review questioned whether postgraduate NP residencies, if offered, should be federally funded through a similar mechanism to Medicare GME, noting that none of the current federal funding available for these programs is assured in the long term. See K. L. Nicely and J. Fairman, "Postgraduate Nurse Practitioner Residency Programs: Supporting Transition to Practice," *Academic Medicine*, vol. 90, no. 6 (2015).

physicians, and adding NPs and PAs to the existing pool of underfunded residency candidates would worsen the funding shortage. Officials from another stakeholder organization echoed this concern by noting that expanding the Medicare GME program could force NPs to compete with physician residents for patients and space.

Available Estimates of NP and PA Training Costs Were Limited and Incomplete

Through our review of the literature and our interviews with officials from stakeholder organizations, CMS, and HRSA, we identified two estimates of NP or PA graduate training costs. CMS's evaluation of its Graduate Nurse Education Demonstration estimated the total cost of graduate clinical NP training to be about $47,000 per student, based on the funds paid to the demonstration sites from fiscal year 2012 through fiscal year 2018, and the Physician Assistant Education Association estimated the total cost of graduate PA training to be about $45,000 per student, based on the results of its 2018 survey. While these two estimates provide some information about the costs of training NPs and PAs, they provide limited and incomplete information on these costs.

- **CMS Graduate Nurse Education Demonstration.** CMS estimated NP graduate training costs totaling $47,172 per graduate according to its evaluation of the Graduate Nurse Education Demonstration, in which CMS funded graduate clinical training for advanced practice registered nurses—a category that includes NPs—over 6 years.[23] This estimate represents the cost to CMS (defined as the total funds paid to the demonstration sites during the duration of the demonstration) for the clinical training of each graduating student. Part of the cost covered by the demonstration includes the costs of clinical preceptors. Congress appropriated a total of $200 million for the demonstration, which operated from fiscal years 2012 through 2018. The demonstration funded clinical training at five hospitals, which partnered with 19 schools of nursing, and multiple community-based care settings.

[23]The Graduate Nurse Education Demonstration targeted advanced practice registered nurses. The advanced practice registered nurse degree includes specialties such as NP, clinical nurse specialist, certified nurse-midwife, and certified registered nurse anesthetist; however, the vast majority of advanced practice registered nursing students enroll in NP programs. Therefore, for the purposes of this report, we refer to this demonstration as including NPs. In addition, the demonstration included both master's and doctoral students.

See Centers for Medicare & Medicaid Services, *Demonstration Project*.

The cost estimate underreports the total cost of NP graduate training because, while both clinical and classroom training are required for NP students to graduate, CMS's demonstration only provided funding for clinical training, as specified by the Patient Protection and Affordable Care Act.[24] Specifically, CMS does not include the costs associated with classroom training, certification, and licensure of advanced practice registered nursing students. In addition, the demonstration targeted advanced practice registered nurses, which is a broader category that includes NPs in addition to other types of specialty nurses such as certified nurse-midwives and certified registered nurse anesthetists. However, according to CMS, the vast majority of advanced practice registered nursing students enroll in NP programs. CMS's evaluation also noted that the cost estimates are not generalizable because they are only based on information from the schools that participated in the demonstration. (See table 3.)

Table 3: Estimate of Per Student Graduate Training Costs for an Advanced Practice Registered Nurse, According to the Centers for Medicare & Medicaid Services' (CMS) Graduate Nurse Education Demonstration

Program type	Demonstration years	Total estimated cost per student	Included	Excluded
Advanced practice registered nurse[a] graduate degree[b]	2012-2018	$47,172	Direct and indirect costs of clinical training, along with other types of costs associated with the hospitals, schools of nursing, and the community-based care settings where the students trained	Classroom training, certification, and licensure

Source: CMS. | GAO-20-162

Note:

Costs were grouped into the following categories: "direct costs" included labor-related costs such as salaries paid to staff; "other direct costs" included travel and office supplies; "school of nursing costs" included costs from partnership agreements between the hospital and the school of nursing, such as simulation costs and payment for faculty who teach clinical courses; "community-based care setting costs" included costs incurred under the partnership agreements with the community-based care settings, such as payments for preceptors; and "indirect costs" included administrative and general costs.

[a]The demonstration targeted advanced practice registered nursing students, the vast majority of whom enroll in nurse practitioner (NP) programs. The advanced practice registered nursing degree includes specialties such as NP, clinical nurse specialist, certified nurse-midwife, and certified registered nurse anesthetist.

[b]The demonstration included both master's and doctoral students.

[24]Pub. L. No. 111-148, § 5509, 124 Stat. 119, 674 (2010) (codified at 42 U.S.C. § 1395ww note).

- **Physician Assistant Education Association survey data.** The Physician Assistant Education Association, whose members are graduate PA programs, estimated PA graduate training costs totaling $45,309 per student—an estimate based on the results of a published annual survey of its members in 2018.[25] This represents the average cost to the member PA programs for training a student in a 27-month PA graduate program, based on expense data reported by programs from the 2017-2018 fiscal year.[26]

  The Physician Assistant Education Association's data are self-reported by PA graduate programs.[27] In addition, these data likely underreport the total costs of graduate PA training because they exclude in-kind contributions from clinical sites. These contributions, such as the donated time from volunteer preceptors, are necessary for clinical training. Officials estimated that paying for costs supported by these in-kind contributions—which the Physician Assistant Education Association estimated to be about $11,300 per student—would likely add an additional 25 percent to the total estimated cost to train PAs.[28] (See table 4.)

Table 4: Estimate of Per Student Graduate Training Costs for a Physician Assistant (PA), According to the Physician Assistant Education Association

Program type	Survey time period	Length of program	Total estimated cost per student	Included	Excluded
Graduate degree	2017-2018[a]	27 months[b]	$45,309	Classroom and clinical training	In-kind contributions[c]

Source: Physician Assistant Education Association. | GAO-20-162

Note: Data are based on the results of the 2018 annual survey of Physician Assistant Education Association members. See Physician Assistant Education Association, *By the Numbers: Program Report 34: Data from the 2018 Program Survey* (Washington, D.C.: October 2019).

[25]Physician Assistant Education Association, *By the Numbers: Program Report 34*.

[26]The 2018 survey—the most recent at the time of our review—was administered between July and December 2018 to 236 graduate PA program members and yielded a 100 percent response rate. Physician Assistant Education Association officials said that the response rate varied for certain survey questions.

[27]Physician Assistant Education Association officials said they cannot check the accuracy of the data that are self-reported by PA graduate programs, but noted that these data have been consistent across many years of data collection.

[28]Physician Assistant Education Association officials said that this estimate is based on data collected for its 2017 survey. For this survey, see Physician Assistant Education Association, *By the Numbers: Program Report 33: Data from the 2017 Program Survey* (Washington, D.C.: October 2018).

[a]The survey was conducted in 2018. Expense data reported by programs was from the 2017-2018 fiscal year.

[b]This represents the average length of a graduate PA program based on the Physician Assistant Education Association members surveyed.

[c]According to officials from the Physician Assistant Education Association, in-kind contributions include, for example, donated time for volunteer preceptors for those programs that do not pay preceptors. Officials estimated that paying for costs supported by these in-kind contributions—which the Physician Assistant Education Association estimated to be about $11,300 per student—would likely add an additional 25 percent to the total estimated cost to train PAs.

Agency Comments and Third-Party Views

We provided a draft of this report to HHS for review and comment. The department provided technical comments, which we incorporated as appropriate.

We also provided relevant draft portions of this report to the nine professional associations that we interviewed and they provided technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate Congressional committees, the Secretary of Health and Human Services, and other interested parties. In addition, the report is available at no charge on the GAO website at http://www.gao.gov.

If you or your staff have any questions about this report, please contact me at (202) 512-7114 or cosgrovej@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix I.

James Cosgrove
Director, Health Care

Appendix I: GAO Contact and Staff Acknowledgments

GAO Contact

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Staff Acknowledgments

In addition to the contact named above, Kelly DeMots (Assistant Director), Teresa Tam and Sarah-Lynn McGrath (Analysts-in-Charge), and Margaret Fisher made key contributions to this report. Also contributing were Leia Dickerson, Diona Martyn, Caitlin Scoville, Ethiene Salgado-Rodriguez, and Jennifer Whitworth.

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