



February 2018

MILITARY PERSONNEL

Additional Actions Needed to Address Gaps in Military Physician Specialties

GAO Highlights

Highlights of [GAO-18-77](#), a report to congressional committees

Why GAO Did This Study

Because of nationwide shortages and other challenges, DOD offers programs and incentives to attract and retain more than 16,000 military physicians. DOD's scholarship program, managed by the services, and its University (DOD's sponsored medical school), are the department's two primary programs for creating a pipeline of future military physicians.

Senate Report 114-255 included a provision for GAO to review the recruitment, accession, and retention of military health care professionals. GAO assessed the extent to which DOD (1) has experienced gaps between its military physician authorizations and end strengths, and has an approach to address key gaps; (2) has enrolled students who meet minimum qualifications, and tracked data to evaluate their performance; and (3) knows the costs of educating scholarship and University medical students. GAO compared authorizations to end strengths by specialty, analyzed student data and scholarship and University costs, and interviewed DOD and service officials.

What GAO Recommends

GAO is making ten recommendations, including that the services develop targeted and coordinated strategies to alleviate military physician gaps; the services improve the tracking of medical student data, and the Navy and the Air Force use the data to continually improve their programs; and the University develop a method to accurately determine the costs to educate medical students. DOD did not provide comments on a draft of this report.

View [GAO-18-77](#). For more information, contact Brenda S. Farrell, (202) 512-3604 or farrellb@gao.gov.

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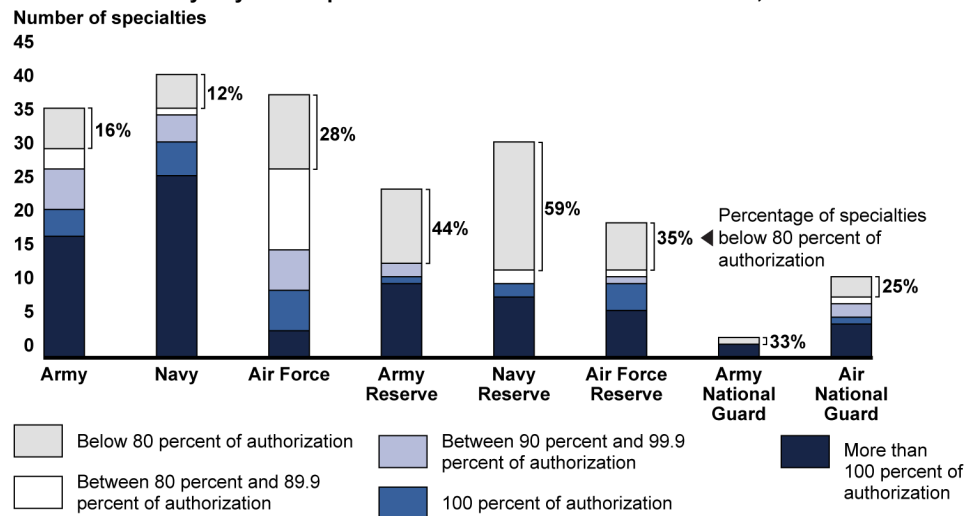
MILITARY PERSONNEL

Additional Actions Needed to Address Gaps in Military Physician Specialties

What GAO Found

The Department of Defense (DOD) has experienced gaps between its physician authorizations (i.e., funded positions) and end strengths (i.e., number of physicians). Its overall approach to address these gaps focuses on the individual service components relying on the scholarship program, University, and other programs to recruit and retain physicians. However, this approach does not include targeted and coordinated strategies to address key physician shortages. All of the components experienced gaps in a number of specialties; several of these were below 80 percent of authorized levels (see figure) and are in what are considered critically short wartime specialties. Until the services develop and implement strategies to alleviate these gaps, they could be at risk of not being able to provide medical care to servicemembers during wartime.

Number of Military Physician Specialties That Were Below Authorizations, Fiscal Year 2015



Source: GAO analysis of Department of Defense data. | GAO-18-77

About 95 percent of scholarship- and University-enrolled medical students with reported qualification data met the services' or the University's minimum academic acceptance criteria in fiscal years 2011-2016. However, the services and the University generally did not consistently track performance data, such as licensing exam scores, specialty, and board certification. Further, the Army and the University used their available data to inform their programs, but the Navy and the Air Force did not. Until all the services track such data, the department will not have key information needed to continually improve programs.

The reported cost to the Army, Navy, and Air Force to educate the services' scholarship medical students has fluctuated over the past 6 years, ranging from \$44 million to \$59 million annually for each service. The costs to educate University medical students are not known. According to University officials, they were unable to determine the costs to educate medical students because their programs share resources. Developing a reliable method to accurately determine shared costs would enable DOD to gauge medical school costs and provide opportunities to enhance overall cost-effectiveness.

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Abbreviations

AFHPSP	Armed Forces Health Professions Scholarship Program
ASD(HA)	Assistant Secretary of Defense for Health Affairs
DOD	Department of Defense
FAP	Financial Assistance Program
GME	Graduate Medical Education
HMPDS	Health Manpower and Personnel Data System
OASD(HA)	Office of the Assistant Secretary of Defense for Health Affairs
USUHS	Uniformed Services University of the Health Sciences

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February 28, 2018

The Honorable John McCain
Chairman
The Honorable Jack Reed
Ranking Member
Committee on Armed Services
United States Senate

The Honorable Mac Thornberry
Chairman
The Honorable Adam Smith
Ranking Member
Committee on Armed Services
House of Representatives

The Department of Defense (DOD) provides health care to more than 9.4 million beneficiaries worldwide and relies on more than 16,000 active and reserve component military physicians to serve the eligible beneficiary population.¹ These physicians help to meet DOD’s primary health care mission of supporting wartime and other deployments, as well as providing peacetime care. The Armed Forces Health Professions Scholarship Program (AFHPSP) and the Uniformed Services University of the Health Sciences (USUHS) are DOD’s two primary programs for creating a pipeline of future military physicians. These programs provide education and pay to medical students in return for an active duty service obligation.² In addition to these programs, the active and reserve components recruit fully qualified physicians.

¹In fiscal year 2015, approximately 11,700 military physicians within the three active components—Army, Navy, and Air Force—and approximately 4,400 reservists within the five reserve components—Army National Guard, Army Reserve, Navy Reserve, Air National Guard, and Air Force Reserve—provided services to meet DOD’s medical military mission.

²Throughout this report, we use the term “medical students” to refer to those students training to become physicians. AFHPSP medical students receive a monthly stipend and incur an obligation to serve 6 months of active duty service for each 6 months of benefits received, with a 2-year minimum obligation. In addition, DOD pays for all qualified educational expenses, including tuition, books, and fees. USUHS medical students receive the pay and benefits of an officer at the O-1 level and incur a minimum 7-year service obligation.

Recruiting fully qualified physicians and retaining them, however, are challenging for the military services. The added stresses of deployments and the general perceptions of war, along with the potential for health care providers to earn significantly more money in the private sector, have caused some physicians to separate from military service once they have fulfilled their service obligations.³

Much of our recent work on DOD's Military Health System has focused on the department's efforts to streamline its business operations and create a more cost-efficient system. For example, in 2016 we identified problems with DOD's analysis of the number of medical personnel required to meet its mission and with efforts to estimate the cost of medical force readiness.⁴ We recommended, among other things, that DOD conduct a new analysis of the required number of active duty and civilian medical personnel, and that it include all significant costs and an assessment of the reliability of the data supporting the cost estimates related to any additional changes to DOD's network of military treatment facilities. DOD concurred with the recommendations and, according to DOD, has taken steps to refine its process for determining uniformed health care requirements.

A Senate Armed Services Committee report accompanying a bill for the National Defense Authorization Act for Fiscal Year 2017 included a provision for us to conduct a review of the recruitment, accession, and retention of health care professionals.⁵ We assessed the extent to which DOD (1) has experienced gaps between its military physician authorizations and end strengths, and has an approach to address key gaps; (2) has enrolled students who meet minimum qualifications for

³See GAO, *Military Personnel: Better Debt Management Procedures and Resolution of Stipend Recoupment Issues Are Needed for Improved Collection of Medical Education Debts*, [GAO-08-612R](#) (Washington, D.C.: Apr. 1, 2008); and *Military Personnel: Status of Accession, Retention, and End Strength for Military Medical Officers and Preliminary Observations Regarding Accession and Retention Challenges*, [GAO-09-469R](#) (Washington, D.C.: Apr. 16, 2009).

⁴GAO, *Defense Health Care Reform: DOD Needs Further Analysis of the Size, Readiness, and Efficiency of the Medical Force*, [GAO-16-820](#) (Washington, D.C.: Sept. 21, 2016).

⁵S. Rep. No. 114-255, at 198 (2016). "Accession" refers to the military services' bringing medical officers into the military to carry out mission-essential tasks. Active and reserve components typically set accession goals and strive to meet them through financial incentives, programs, and advertising. "Recruiting" refers to the services' acquiring medical students who will later be accessed upon completion of their medical education.

AFHPSP and USUHS, and has tracked data to evaluate student performance; and (3) knows the costs for educating AFHPSP and USUHS medical students.

For the first objective, we used data from DOD's Health Manpower and Personnel Data System (HMPDS) to calculate the extent to which the service components met authorizations—that is, funded positions—for all physicians, as well as met authorizations by physician specialty for fiscal years 2011 through 2015.⁶ We analyzed data for this timeframe to enable us to evaluate trends over time, and fiscal year 2015 was the most recent year of available HMPDS data at the time of our review. We assessed the reliability of the HMPDS data by collecting information on how the services and the Defense Manpower Data Center compile and validate HMPDS data, and we compared HMPDS data with service-level data when available. We found the data to be sufficiently reliable for the purposes of this report. We also analyzed the services' AFHPSP, Financial Assistance Program (FAP), and direct accession recruitment goals and achievements for fiscal years 2011 through 2016. We selected fiscal years 2011 through 2016 to enable us to evaluate trends over time, and fiscal year 2016 was the most recent year of accession achievements for which data were available at the time of our review. We assessed the reliability of the goal and achievement data and found these data to be sufficiently reliable for the purposes of this report.

Additionally, for our first objective, we reviewed DOD's special and incentive pay plans and other DOD policies and guidance to identify agency-wide and service-level strategies for addressing gaps in military physician specialties. Further, we reviewed a prior GAO report, an Office of Personnel Management Workforce Planning Model on developing strategic workforce planning, and applicable federal regulations.⁷ Using

⁶"Authorizations" are defined as the number of positions in which resources have been allocated to fulfill the services' medical mission. End strength numbers represent the number of medical personnel fulfilling specific billet positions at the end of the fiscal year.

⁷GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, [GAO-04-39](#) (Washington, D.C.: Dec. 11, 2003); the Office of Personnel Management's Workforce Planning Model; and 5 C.F.R. § 250.204 (2017).

these sources, we applied elements of effective strategic workforce planning to DOD's approach to addressing physician gaps.⁸

To address the second objective, we obtained and reviewed DOD's and the services' AFHPSP eligibility and recruitment policies and guidance. We reviewed USUHS admission policies and guidance for medical students. We obtained and analyzed the services' AFHPSP and USUHS medical student data, such as grade point averages, Medical College Admission Test scores, and medical licensing examination performance for fiscal years 2005 through 2016.⁹ We selected fiscal years 2005 through 2016 to enable us to evaluate trends over time, and fiscal year 2016 was the most recent year for which medical student data were available at the time of our review.¹⁰ To assess the reliability of the data, we electronically tested the data to identify obvious problems with completeness or accuracy and interviewed knowledgeable agency officials about the data. We note in our report that there are limitations with the data due to a lack of completeness, and that the data are not always tracked. However, we determined that the medical student data on grade point averages and college admission test scores were sufficiently reliable for the purposes of our report. We reviewed DOD's strategic plan that states DOD's commitment to using performance data to continually improve operations. Further, we reviewed federal internal control standards, including requirements for using quality information to achieve an organization's objectives.¹¹

⁸Elements include strategies to reduce gaps; consideration of how these strategies can be aligned and coordinated to address gaps in the numbers, skills, and competencies of its workforce; and metrics by which to monitor and evaluate progress toward reducing gaps.

⁹To practice medicine, physicians must pass a series of medical licensing exams (called "steps") administered by the U.S. Medical Licensing Examination or the Comprehensive Osteopathic Medical Licensing Examination. These exam steps are to be taken during medical school and residency.

¹⁰For our analysis of the extent to which enrolled students met minimum qualifications for AFHPSP and USUHS, we used student data for fiscal years 2011 through 2016. For our analysis of the extent to which the services have tracked data to evaluate student performance, we used performance data for students enrolled from fiscal years 2005 through 2009, because it can take several years from the time a student enters medical school for the student to complete licensing exams, train in a specialty, and become board certified.

¹¹GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 10, 2014); and DOD, *Agency Strategic Plan, Fiscal Years 2015-2018*, Version 1.0 (July 31, 2015).

For the third objective, we obtained and analyzed data for fiscal years 2011 through 2016 on the cost to educate the services' AFHPSP medical students and total obligations for USUHS's programs and activities. We selected fiscal years 2011 through 2016 to enable us to evaluate trends over time, and fiscal year 2016 was the most recent year of available obligation data at the time of our review. Our analysis included only the costs funded by the Defense Health Program's operation and maintenance account for education and training. To analyze the costs for AFHPSP medical students' tuition, books, and other educational expenses, we used cost data provided by the services, which include the Army's and Navy's obligation data and the Air Force's expenditure data for AFHPSP.¹² USUHS was unable to identify the specific costs for educating its medical students, as we discuss later in this report. Therefore we instead reported total obligations for its education and training programs for fiscal years 2011 through 2016. To assess the reliability of the services' data on the cost to educate AFHPSP medical students and reported obligation data for USUHS's programs and activities, we checked the data for accuracy and completeness, compared the data with other data sources, and interviewed knowledgeable agency officials about the data. We determined that these data were sufficiently reliable for the purposes of our report.

Furthermore, for our third objective, we examined a memorandum from the Under Secretary of Defense (Comptroller) for improving financial information and processes, an Office of Management and Budget circular on documenting costs, and GAO's cost-estimating and assessment guidance to determine the extent to which DOD followed this guidance when reporting on the costs to educate AFHPSP and USUHS medical

¹²An "obligation" is a definite commitment that creates a legal liability of the government for the payment of goods or services ordered or received, or a legal duty on the part of the United States that could mature into a legal liability by virtue of actions on the part of the other party beyond the control of the United States. An "expenditure" is the actual spending of money—an outlay or the liquidation of the federal government's obligations through the issuance of checks, disbursement of cash, or electronic transfer of funds. We requested obligation data from the services. The Army and the Navy provided obligation data. However, the Air Force was unable to provide obligation data, and instead provided expenditure data. According to Air Force officials, obligation data exist in multiple systems, and the Air Force's financial accounting methodology is not set up to retrieve and report obligation data isolated to a specific Corps, such as by Medical Corps or by Dental Corps.

students.¹³ For each of our objectives, we reviewed policies governing DOD's health profession accession and retention programs and interviewed officials from the services, USUHS, the Defense Health Agency, and the Office of the Under Secretary of Health Affairs (OASD(HA)). A more detailed discussion of our scope and methodology is provided in appendix I.

We conducted this performance audit from September 2016 through February 2018 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

Paths to Becoming a Military Physician

AFHPSP and USUHS are DOD's two primary programs for creating a pipeline of future military physicians. Under the services' AFHPSP program, DOD pays for tuition, books, and fees, plus a monthly stipend for AFHPSP students enrolled in civilian medical schools.¹⁴ In return, the students incur an obligation to serve 6 months of active duty service for each 6 months of benefits received, with a 2-year minimum obligation.¹⁵ AFHPSP medical students can attend either allopathic or osteopathic

¹³ Under Secretary of Defense (Comptroller) Memorandum, *Priorities for Improving Financial Information and Processes and Achieving Audit Readiness* (Aug. 11, 2009); GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: Mar. 2, 2009); OMB, Circular No. A-11, *Preparation, Submission, and Execution of the Budget* (Washington, D.C., Executive Office of the President, July 2017).

¹⁴In 2008 we reported on the financial investment DOD makes in AFHPSP students and recommended that DOD undertake steps to strengthen its debt collection procedures for the small percentage of students who fail to complete their education or to serve their active duty service obligation. See [GAO-08-612R](#).

¹⁵Department of Defense Instruction 6000.13, *Accession and Retention Policies, Programs, and Incentives for Military Health Professions Officers (HPOs)* (Dec. 30, 2015) (incorporating change 1, May 3, 2016).

civilian medical schools.¹⁶ USUHS students are enrolled in the DOD-sponsored USUHS allopathic medical school at no cost and enter active duty service as medical students, receive the pay and benefits of an officer at the O-1 level, and incur a minimum 7-year service obligation.

In addition to these programs, the active and reserve components recruit fully qualified physicians.¹⁷ For example, individuals may become military physicians through direct accessions either by means of the FAP or by entering the service as fully trained physicians.¹⁸ For additional information on these and other accession programs, such as the Health Professions Loan Repayment Program, the Navy's Health Services Collegiate Program, and the Military Accessions Vital to National Interest program, see appendix II.

Regardless of the physician accession program, to become a practicing military physician, an individual must first complete an undergraduate education, medical school, and 1 year of graduate medical education (GME) training, known historically as an "internship" or first year of residency. Once this is done, the physician can obtain an unrestricted state medical license and practice independently.¹⁹ GME training may also include training for a specific specialty, typically lasting 3 to 7 years, after which time a physician is eligible for board certification in the specialty he or she was trained in.²⁰ Most AFHPSP and USUHS

¹⁶Students complete medical school under one of two broad educational philosophies—allopathic or osteopathic. Allopathic medical schools are accredited by the Liaison Committee on Medical Education, and osteopathic medical schools are accredited by the Commission on Osteopathic College Accreditation. Allopathic physicians represent the majority of physicians and have a Doctor of Medicine (known as an M.D.). Osteopathic physicians have a Doctor of Osteopathic Medicine (known as a D.O.). Osteopathic medicine is based on a philosophy that emphasizes a "whole-person approach," and physicians receive specific training in manipulating the musculoskeletal system.

¹⁷Active components include the Army, the Navy (which provides medical care for Marine Corps servicemembers and their beneficiaries), and the Air Force. The reserve components include the Army Reserve, the Army National Guard, the Navy Reserve, the Air Force Reserve, and the Air National Guard.

¹⁸FAP provides annual grants and monthly stipends for physicians accepted or enrolled in a specialty training program.

¹⁹Medical school completion typically takes 4 years. According to service officials, General Medical Officers, Flight Surgeons, and Undersea Medical Officers can start practicing medicine independently after they complete their internships.

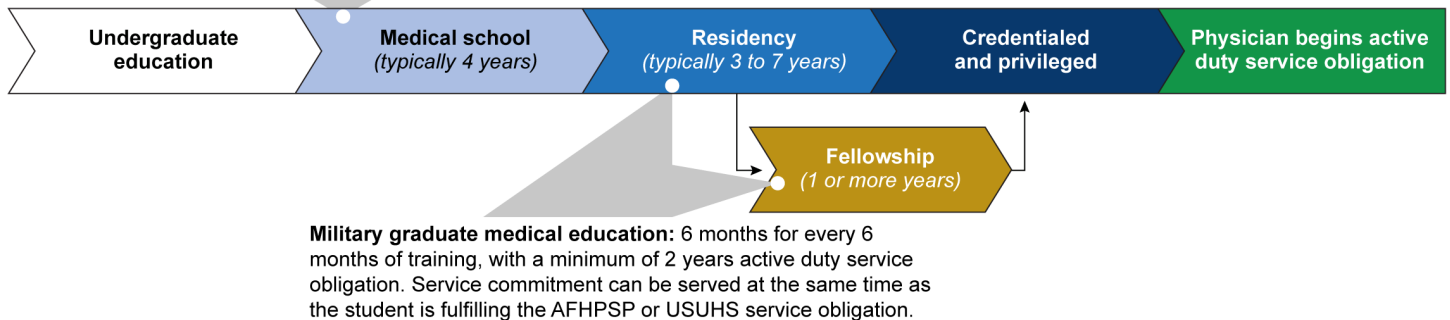
²⁰According to service officials, military physicians are generally not required to be board certified to practice medicine, but it is preferable that they be board certified.

participants go on active duty and perform their GME training at military hospitals, although some AFHPSP participants are granted deferments while they pursue civilian GME. While in a military residency program, participants incur an additional 6 months of active duty service obligation for each 6 months in training, with a minimum of 2 years active duty service obligation. However, this obligation can be served concurrently with obligations already incurred through USUHS and AFHPSP. Figure 1 portrays the path to becoming a military physician and the active duty obligation incurred for AFHPSP and USUHS medical students.

Figure 1: Path to Becoming a Military Physician through Armed Forces Health Professions Scholarship Program and Uniformed Services University of the Health Sciences

Armed Forces Health Professions Scholarship Program (AFHPSP): 6 months for every 6 months in medical school, with a minimum of 2 years active duty service obligation.^a

Uniformed Services University of the Health Sciences (USUHS): 7 year minimum active duty service obligation.



Source: GAO analysis. | GAO-18-77

Note: After medical school, physicians continue their education through graduate medical education, which consists of their first year of residency (“internship”). According to service officials, General Medical Officers, Flight Surgeons, and Undersea Medical Officers may start practicing medicine after completing their first year of residency. The majority of physicians continue to receive training in a specific medical specialty through a residency program.

^aThere are some exceptions to active duty service obligation incurred. For example, Department of Defense Instruction 6000.13 states that an AFHPSP participant may serve his or her service obligation in a component of the Selected Reserve for a period twice as long as the participant’s remaining active duty obligation.

After completing their residencies, some physicians may decide to pursue further training, known as “fellowships,” in order to become subspecialists. For example, to become a cardiologist, a physician must complete an internal medicine residency followed by a cardiology fellowship. In some cases, depending on the specialty or subspecialty, a physician could spend 7 or more years in postgraduate medical training.

Before a physician can practice medicine at a military treatment facility, each of the military services takes specific steps to determine whether the military physician has the appropriate professional qualifications and clinical abilities to care for the servicemembers and their families treated in the Military Health System.²¹ These steps begin with the process of credentialing and privileging each physician. We have previously reported on the military services' efforts to ensure that physicians have the appropriate credentials and clinical competence. For example, in 2011 we reported that each of the services had established requirements for reviewing physician credentials and competence, but that the military services' requirements were in some cases inconsistent with DOD's department-wide requirements.²² Among other things, we recommended that DOD identify and address existing inconsistencies between DOD's and the military services' physician credentialing and privileging requirements. DOD concurred with these recommendations, and officials reported taking steps to standardize the credentialing and privileging processes across DOD.

Roles and Responsibilities for the Accession and Retention of Military Physicians

The Assistant Secretary of Defense for Health Affairs (ASD(HA)) serves as the principal advisor for all DOD health policies and programs.²³ The ASD(HA) has the authority to issue DOD instructions, publications, and memorandums that implement policy approved by the Secretary of Defense or the Under Secretary of Defense for Personnel and Readiness and govern the management of DOD medical programs. The ASD(HA) also exercises authority, direction, and control over the President of USUHS. Further, ASD(HA) sets the special and incentive pay amounts for all military physicians.²⁴

²¹A military treatment facility is established for the purpose of furnishing medical and/or dental care to eligible individuals. In addition, according to service officials, military treatment facilities are readiness platforms for teaching programs and skill sustainment.

²²See GAO, *Defense Health Care: Actions Needed to Help Ensure Full Compliance and Complete Documentation for Physician Credentialing and Privileging*, [GAO-12-31](#) (Washington, D.C.: Dec. 15, 2011).

²³Department of Defense Directive 5136.01, *Assistant Secretary of Defense for Health Affairs (ASD(HA))* (Sept. 30, 2013) (incorporating change 1, Aug. 10, 2017).

²⁴In addition to regular military compensation, qualified physicians may receive one or more special and incentive pays, such as board certification pay, incentive pay, and multi-year retention bonus.

The ASD(HA) reports to the Under Secretary of Defense for Personnel and Readiness, who in turn reports to the Secretary of Defense, whereas the Army, the Navy, and the Air Force medical commands and agencies report through their service Chiefs to their respective Military Department Secretaries and then to the Secretary of Defense. In September 2013 the Defense Health Agency was established to support greater integration of clinical and business processes across the Military Health System. The Defense Health Agency, among other things, manages the execution of policies issued by the ASD(HA) and manages and executes the Defense Health Program appropriation, which funds the service medical departments. The military treatment facilities, including hospitals and clinics, are by contrast under the direction and control of the services, which are responsible for staffing, training, and equipping those commands to meet mission requirements. Beginning in October 2018, the Director of the Defense Health Agency will be responsible for the administration of each military treatment facility, including with respect to budgetary matters, information technology, and health care administration and management, among other things.²⁵

The Army, the Navy, and the Air Force have the authority to recruit, train, and retain physicians.²⁶ Currently, there is no joint DOD unit or process dedicated to recruiting medical students and accessing medical officers, because recruiting and retention are the responsibility of the services. Each military service has its own organizational structure, responsibilities, and varying degrees of personnel resources for accessing physicians. The Army has one medical recruiting brigade for the active Army and the Army Reserve. The brigade is comprised of five medical recruiting battalions geographically dispersed throughout the country. The five battalions are comprised of 16 medical recruiting companies. The Navy has a recruiting command for its active and reserve components. The command covers the entire country with 26 Navy recruiting districts that are divided into and commanded by two different Navy recruiting regions.

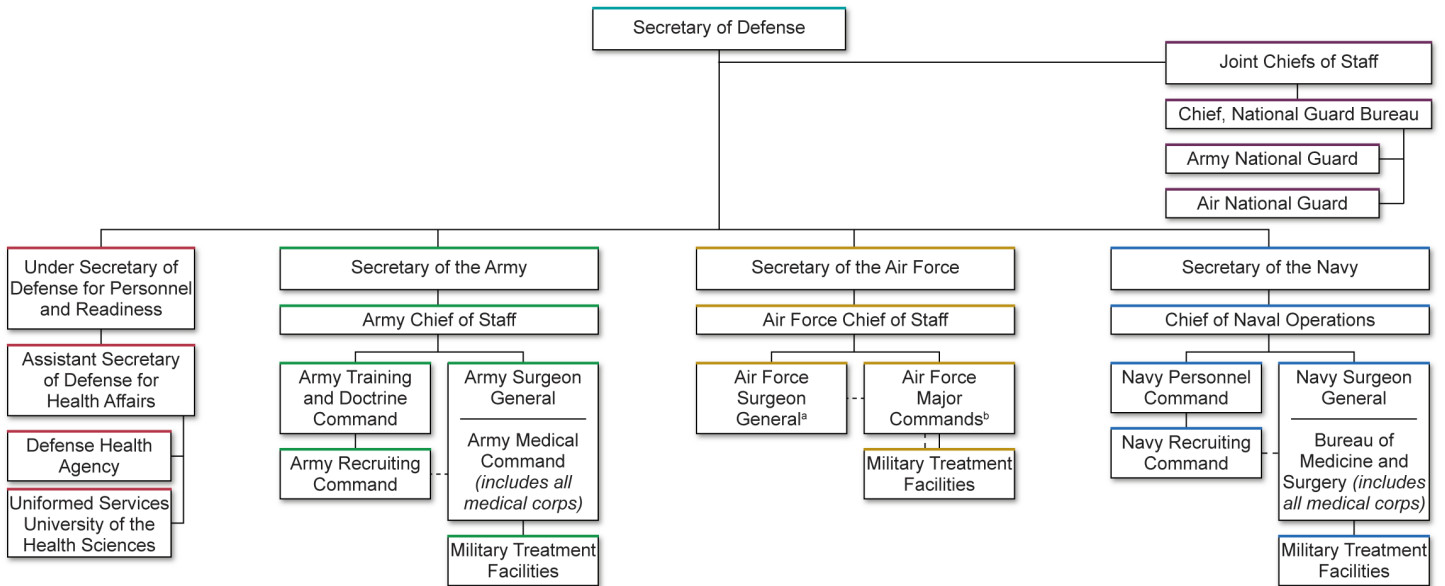
²⁵Pub. L. No. 114-328, §702 (2016). In 2017 we reported on DOD's preliminary implementation plan for the reform of the administration of the Defense Health Agency and military medical treatment facilities. DOD has taken steps to develop the implementation plan, but much of the department's work remains to be completed, and it is too soon to fully assess DOD's efforts. See GAO, *Defense Health Reform: Steps Taken to Plan the Transfer of the Administration of the Military Treatment Facilities to the Defense Health Agency, but Work Remains to Finalize the Plan*, [GAO-17-791R](#) (Washington, D.C.: Sept. 29, 2017).

²⁶The Navy provides medical services for both Navy and Marine Corps installations.

The Air Force has separate recruiting services for both active Air Force and Air Force Reserve. The active Air Force Recruiting Service is comprised of three health professional recruiting squadrons, according to Air Force officials. The Army National Guard and the Air National Guard access medical officers on a state-by-state basis.

The services' recruiting commands recruit medical students into AFHPSP. In a separate process, USUHS recruits and admits a set number of medical students each year. According to a USUHS official, USUHS is leading an initiative to develop a single military application that applicants can use when applying for AFHPSP or USUHS. According to DOD officials, the services' recruiting organizations and USUHS periodically collaborate with each other through both formal and informal meetings to discuss best recruiting practices and related issues. Further, officials from each of the services stated that their recruiting organizations communicate with their respective Surgeon General Offices for various reasons, such as to obtain medical personnel goals and information regarding incentive and bonus programs. See figure 2 for the current Military Health System organizational structure.

Figure 2: Organizational Structure of the Military Health System



----- Line of communication

Source: GAO analysis of Department of Defense information. | GAO-18-77

^aThe Air Force Surgeon General also leads the Air Force Medical Service. This agency is responsible for medical planning, programming, policy, and execution of service medical operations. The Air Force Surgeon General interacts with the Air Force's major commands and military treatment facilities.

^bThere are 10 active Air Force Major Commands, including the Air Education and Training Command and the Air Force Reserve Command. The Air Force Recruiting Service reports to the Air Education and Training Command, and the Air Force Reserve Recruiting Service reports to the Air Force Reserve Command.

Gaps Exist between DOD’s Military Physician Authorizations and End Strengths, and the Services’ Approach Is Not Fully Addressing Key Gaps

DOD continues to experience gaps between its military physician authorizations (that is, funded positions) and end strengths (that is, number of physicians fulfilling specific billet positions at the end of the fiscal year)—including persistent gaps in specialties identified as critically short wartime specialties.²⁷ Service officials cited a number of challenges that make it difficult to attract and retain military physicians, including national shortages and competition with the private sector. According to service officials, the services’ approach to addressing gaps includes using programs such as AFHPSP and GME to recruit, train, and retain physicians. However, the services have not developed targeted strategies and considered how these strategies can be aligned and coordinated to reduce gaps in key specialties. They have also not developed metrics to monitor and evaluate progress toward reducing key military physician gaps.

Gaps Exist between DOD’s Military Physician Authorizations and End Strengths

Based on military physician authorizations that reflect funded physician requirements, DOD continues to experience gaps between overall military physician authorizations and end strengths, as well as gaps in a number of physician specialties.²⁸ In 2009 we reported that all of the service components were below their overall physician authorizations for one or more years from fiscal years 2001 through 2007.²⁹ In the course of our current review we found—based on our analysis of data from DOD’s Health Manpower and Personnel Data System (HMPDS), published in the

²⁷An accession bonus is authorized for health professions officers who are qualified in a specialty that has been designated by the Secretary of Defense as a critically short wartime specialty. See 37 U.S.C. § 335. This critical wartime skills accession bonus is authorized for health professions officers serving on active duty in a regular component or in an active status in a reserve component. See Department of Defense Financial Management Regulation 7000.14-R, vol. 7A, ch. 5, *Special Pay and Bonuses for Medical and Other Health Professions Officers (HPO)* (September 2017). Medical specialties eligible for a critical wartime skills accession bonus are defined as critically short wartime specialties in this report.

²⁸We define a “gap” as the difference between end strength and authorization. Based on varying definitions of a “shortage” provided by DOD and service officials, we examined the occupational specialties below 100, 90, and 80 percent of authorizations to assess the extent to which the services experienced gaps in physician specialties.

²⁹GAO, *Military Personnel: Status of Accession, Retention, and End Strength for Military Medical Officers and Preliminary Observations Regarding Accession and Retention Challenges*, [GAO-09-469R](#) (Washington, DC: Apr. 16, 2009). In 2009 we reported that eight active and reserve components did not always meet their annual authorizations for physicians in fiscal years 2001 through 2007, and that each of these components was persistently below authorizations in a number of physician specialties.

Health Manpower Statistics reports—that the Navy exceeded its overall physician authorizations in fiscal years 2011 through 2015. During this period, the Army, the Air Force, and all of the five reserve components were below their overall physician authorizations.³⁰ Moreover, on average, the active components met more of their overall physician authorizations than did the reserve components. According to Army officials, consistent failure to meet physician authorizations among the active and reserve components could negatively affect DOD’s medical readiness during wartime. Table 1 shows the extent to which each military component was above or below its overall physician authorizations in fiscal years 2011 through 2015.

Table 1: Military Physicians’ Authorization Level, End Strength, and Percentage Above or Below Authorizations, by Service Component, Fiscal Years 2011—2015

Service	Authorized level (in thousands)					End strength (in thousands)					Percentage above/below authorized				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Active															
Army	4.6	4.8	4.7	4.7	4.6	4.4	4.4	4.4	4.4	4.4	-4.5	-8.8	-7.0	-6.4	-5.4
Navy	3.8	3.7	3.7	3.7	3.7	3.8	3.9	3.9	3.8	3.8	1.0	3.7	3.3	3.2	3.1
Air Force	3.7	3.6	3.7	3.7	3.7	3.5	3.4	3.5	3.5	3.5	-4.8	-7.5	-3.5	-5.0	-4.0
Active total	12.0	12.2	12.1	12.1	12.0	11.7	11.7	11.8	11.7	11.7	-2.9	-4.6	-2.8	-3.0	-2.3
Reserve^a															
Army Reserve	1.6	1.6	1.6	1.5	1.5	1.2	1.2	1.1	1.1	1.1	-22.8	-26.7	-29.3	-29.9	-30.1
Navy Reserve	0.7	0.7	0.7	0.7	0.7	0.5	0.5	0.5	0.5	0.5	-23.9	-23.7	-26.1	-29.5	-21.4
Air Force Reserve	0.6	0.6	0.6	0.6	0.6	0.5	0.6	0.5	0.5	0.5	-10.0	-10.1	-13.4	-17.9	-13.9
Army National Guard	0.8	0.7	0.7	0.7	0.8	0.5	0.6	0.6	0.7	0.7	-33.3	-24.3	-17.4	-12.8	-13.4
Air National Guard	0.8	0.7	0.8	0.8	0.8	0.5	0.5	0.5	0.6	0.6	-38.4	-32.1	-34.9	-33.4	-30.0
Reserve total	4.5	4.4	4.5	4.5	4.4	3.3	3.3	3.3	3.3	3.3	-25.8	-24.4	-25.6	-25.9	-23.7
Total	16.5	16.6	16.6	16.5	16.4	15.0	15.0	15.1	15.0	15.0	-9.1	-9.8	-8.9	-9.2	-8.0

Source: GAO analysis of Department of Defense data. | GAO-18-77

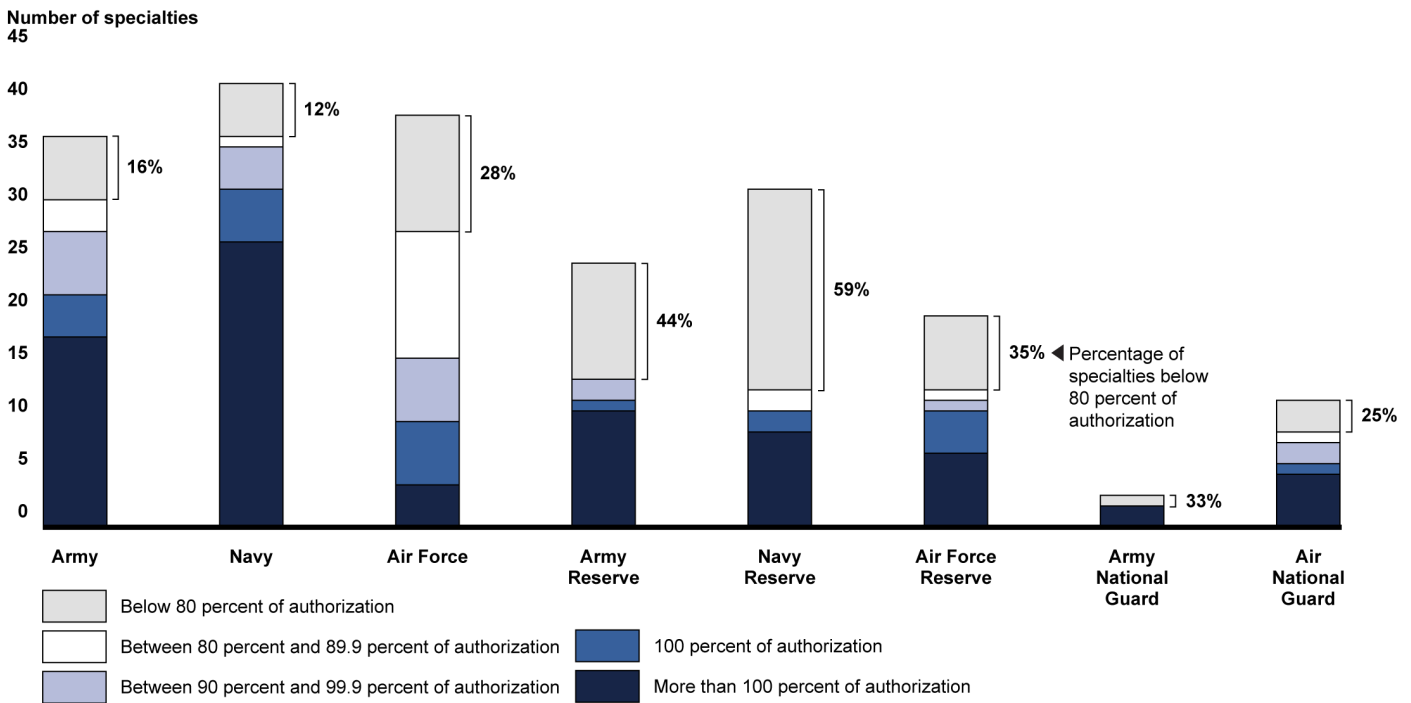
^aWe analyzed authorization and end strength data for the Selected Reserve within the reserve components because data were available only for those personnel.

³⁰DOD Instruction 6000.13 establishes HMPDS as the primary DOD source for health care personnel data. The data are from our analysis of primary specialty tables (tables A7 and R7A) within the *Health Manpower Statistics* reports comparing authorizations to end strengths. We did not independently verify the validity of authorizations or end strength numbers.

In addition, our analysis of data from HMPDS and documentation obtained from service officials indicates that all of the service components were below authorizations to varying degrees in a number of their specialties in fiscal years 2011 through 2015.³¹ DOD and service officials provided varying definitions of what constitutes a shortage, ranging from having less than 80 percent to having less than 100 percent of authorizations filled, depending on the service component and the specialty. For example, Army officials stated that their goal is to fill between 80 percent and 100 percent of authorizations, depending on the component or specialty, while Navy officials stated that they considered specialties filled below 90 percent of authorizations to be short. In addition, an Air Force official stated that the Air Force considers specialties filled below 80 percent to 90 percent of authorizations to be short, depending on the specialty. Services were also at or above authorizations in a number of specialties in fiscal years 2011 through 2015. As shown in figure 3, the services were above and below authorizations in a number of specialties in fiscal year 2015, with each component reporting one or more specialties as falling below 80 percent of authorizations.

³¹Officials noted some limitations with using HMPDS to analyze the military physician specialties that were below authorizations. For example, an Air Force official noted that HMPDS captures only a physician's primary specialty and does not reflect any additional specialties the physician may possess.

Figure 3: Number of Military Physician Specialties That Were Below Authorizations by Military Service, Fiscal Year 2015



Source: GAO analysis of Department of Defense data. | GAO-18-77

Note: The following physician occupational specialties listed in the *Health Manpower Statistics* report were included in our analysis: Allergy and Immunology; Colon and Rectal Surgery; Dermatology; Emergency Medicine; Gastroenterology; Hematology and Oncology; Neurology; Obstetrics/Gynecology; Occupational Medicine; Oncology Surgery; Otorhinolaryngology; Pathology; Pediatric Surgery; Pediatrics, Subspecialties; Physical/Rehabilitation Medicine; Radiology, Diagnostic; Radiology, Therapeutic; Rheumatology; Anesthesiology; Aviation/Aerospace Medicine, Residency Trained; Cardiac/Thoracic Surgery; Cardiology; Critical Care/Trauma, Medicine; Critical Care/Trauma, Surgery; Endocrinology; Family Practice; General Surgery; Infectious Disease; Internal Medicine; Nephrology; Neurological Surgery; Nuclear Medicine; Ophthalmology; Orthopedic Surgery; Pediatrics, General; Peripheral Vascular Surgery; Plastic Surgery; Preventive Medicine; Psychiatry; Pulmonary Disease; Undersea Medicine; and Urology. For our analysis of the reserve components, we analyzed authorization and end strength data for the Selected Reserve within the reserve components because data were available only for those personnel.

Furthermore, on the basis of our analysis of HMPDS data and documentation obtained from service officials on 42 physician specialties, we found that for fiscal years 2011 through 2015, each of the service components was persistently below 80 percent of authorizations in 19 physician specialties, 11 of which are designated as being critically short wartime specialties (see table 2).

Table 2: Active and Reserve Components Persistently Below 80 Percent of Authorizations for Military Physician Specialties, Fiscal Years 2011—2015

Occupational specialty title	Army	Navy	Air Force	Army Reserve	Navy Reserve	Air Force Reserve	Army National Guard	Air National Guard	Number of components with specialty persistently below 80 percent of authorizations
Anesthesiology ^{a,b}					✓		N/A		1
Aviation/Aerospace Medicine, Residency Trained ^{a,b}	✓	✓	✓	✓	N/A	✓	✓	✓	7
Cardiac/Thoracic Surgery ^b		✓		✓	✓		N/A	N/A	3
Cardiology				N/A	✓	N/A	N/A	N/A	1
Critical Care/Trauma, Medicine		✓	✓	✓	✓	✓	N/A	✓	6
Critical Care/Trauma, Surgery ^b	N/A			N/A	✓		N/A		1
Family Medicine ^{a,b}				✓					1
General Surgery ^{a,b}				✓	✓		N/A		2
Infectious Disease ^b					✓		N/A	N/A	1
Nephrology ^b					✓	N/A	N/A	N/A	1
Neurological Surgery ^{a,b}	✓						N/A	N/A	1
Nuclear Medicine	✓		N/A	✓	N/A	N/A	N/A	N/A	2
Ophthalmology ^{a,b}				✓			N/A	N/A	1
Orthopedic Surgery ^{a,b}				✓	✓		N/A		2
Peripheral Vascular Surgery ^{a,b}			✓	N/A	✓		N/A	N/A	2
Plastic Surgery ^b					✓	N/A	N/A	N/A	1
Preventive Medicine ^{a,b}				✓	✓				2
Pulmonary Disease ^{a,b}				✓	✓	N/A	N/A	N/A	2

Occupational specialty title	Army	Navy	Air Force	Army Reserve	Navy Reserve	Air Force Reserve	Army National Guard	Air National Guard	Number of components with specialty persistently below 80 percent of authorizations
Urology ^{a,b}				☑		☑	N/A	N/A	2
Total	3	3	3	11	13	3	1	2	39

Legend:

☑ = Persistently below 80 percent of authorization from fiscal years 2011 through 2015.

N/A = Not applicable because there were no authorizations for the specialty for fiscal years 2011 through 2015.

Source: GAO analysis of Department of Defense data. | GAO-18-77

Note: Officials noted some limitations with using HMPDS to analyze the military physician specialties that were below authorizations. For example, Air Force officials noted that the data capture only a physician's primary specialty and do not reflect any additional specialties the physician may possess. The Health Manpower Personnel Data System data for the occupational specialty end strengths do not indicate whether the medical officers were employed in that specialty. Other physician specialties identified that were persistently below authorization from fiscal years 2011 through 2015 were Endocrinology, Internal Medicine, Pediatrics, General, Psychiatry, and Undersea Medicine. We did not include these specialties because they were not persistently below 80 percent of authorizations for the period in our review. For our analysis of the reserve components, we analyzed authorization and end strength data for the Selected Reserve within the reserve components since data were available only for those personnel.

^aCritically short wartime specialties. Medical specialties eligible for a critical wartime skills accession bonus, according to Assistant Secretary of Defense for Health Affairs Memorandum, *Health Professions Officer Special and Incentive Pay Plan* (Sept. 29, 2017). This accession bonus is authorized for fully qualified health professions officers serving on active duty in a regular component or in an active status in a reserve component.

^bAccession bonus and retention bonus authorized for fully qualified reserve component officers holding a designated critical skill based on the Assistant Secretary of Defense for Health Affairs Memorandum, *Health Professions Officer Special and Incentive Pay Plan* (Sept. 29, 2017). Amounts apply only to services with a critical shortage.

We have previously identified problems with DOD's military medical personnel requirements and have made a number of recommendations for DOD to evaluate these requirements, including requirements for physicians. In 2010 we reported that the military services were not fully collaborating in determining DOD's military and civilian medical personnel requirements for military treatment facilities, and that the services' requirements processes were not in all cases validated and verifiable.³² More recently, in 2016 we reported problems with DOD's analysis of the

³²GAO, *Military Personnel: Enhanced Collaboration and Process Improvements Needed for Determining Military Treatment Facility Medical Personnel Requirements*, [GAO-10-696](#) (Washington, DC: July 29, 2010). In that report we recommended that the services take actions to improve their respective medical requirements determination processes. DOD concurred or partially concurred with our recommendations.

required number of active duty and civilian medical personnel.³³ Section 721 of the National Defense Authorization Act for Fiscal Year 2017 requires DOD to establish a process and issue a report that describes the process for defining the medical and dental personnel requirements necessary to meet operational medical force readiness requirements.³⁴ Further, it states that a military medical or dental position within DOD may be converted to a civilian medical or dental position if the Secretary of Defense determines that the position is not necessary to meet operational medical force readiness requirements. DOD's draft report is still being reviewed, according to officials, but its assessment of DOD's operational medical force readiness requirements could affect the number and types of required military physicians, as well as specialties with gaps based on authorizations.

Various Challenges Hinder the Services from Meeting Authorizations for Physicians

According to service officials, DOD faces various challenges that hinder its ability to meet physician authorizations. OASD(HA) and service officials noted that national shortages in certain physician specialties, driven in part by increasing demand for health care due to population growth and an aging population, make it difficult to obtain fully qualified physicians in both the military and civilian sectors.³⁵ These officials also noted that competing with the private sector, which is often able to offer higher salaries, makes it challenging to recruit fully qualified physicians into the military. The challenge of recruiting fully qualified physicians makes it especially difficult for the reserve components to fill their authorizations, because they obtain the majority of their physicians as

³³GAO-16-820. In that report, we reviewed DOD's *Report on Military Health System Modernization* and found a number of shortcomings. For example, DOD's report did not fully discuss how limitations identified in its analysis would be mitigated regarding the required number of active duty and civilian medical personnel, and it did not sufficiently identify or discuss how it would mitigate limitations concerning its assessment of the requirements necessary to maintain the skills of active duty medical providers. We recommended that DOD conduct a new analysis of the required number of active duty and civilian medical personnel that mitigates known limitations, and identify and mitigate limitations regarding the standard for maintaining providers' clinical skills. DOD concurred with our recommendations.

³⁴Pub. L. No. 114-328, § 721 (2016).

³⁵The federal government has reported physician shortages in the primary care specialties of Family Medicine, Internal Medicine, and Pediatrics. See, for example, Health Resources and Services Administration, *Designated Health Professional Shortage Areas Statistics, as of January 1, 2017*, accessed March 8, 2017, <https://datawarehouse.hrsa.gov/Tools/HDWReports/Reports.aspx>.

direct accessions who have completed their education, rather than obtaining physicians through their own medical student recruitment programs.

Service officials expressed concerns about their ability to meet authorizations for a number of specialties, including General Surgery, Surgery subspecialties (such as Orthopedic Surgery and Cardio-Thoracic Surgery), and Primary Care specialties (such as Family Medicine). Air Force officials noted that fully qualified Family Medicine physicians have become increasingly difficult to recruit. They noted that Family Medicine is the foundational platform for training in Aerospace Medicine, an essential Air Force specialty.

We reported in 2008 that health policy experts cite a growing income gap between primary care physicians and specialists, and cite a declining number of U.S. medical students entering primary care specialties.³⁶ Furthermore, a 2017 study we reviewed predicts an estimated nationwide shortfall in surgical specialties of between 19,800 and 29,000 surgeons by 2030, depending on the surgical specialty, health care use and delivery, physician labor force participation, and other factors that may change over time.³⁷

The Services' Approach Is Not Fully Addressing Key Military Physician Gaps

To mitigate the challenges associated with recruiting fully qualified physicians, the services rely on recruitment, training, and retention programs such as AFHPSP, USUHS, GME, and other programs and incentives. According to service officials, the services' approach to addressing physician gaps involves using these programs to recruit and retain physicians. The services reported that they generally met their recruitment goals for AFHPSP, and that the program enabled DOD to successfully recruit approximately 800 to 850 medical students per year from fiscal years 2011 to 2016. Further, USUHS successfully recruits an additional 170 medical students per year.

DOD policy states that health profession manpower, personnel, and compensation programs are established to provide the DOD components

³⁶GAO, *Primary Care Professionals: Recent Supply Trends, Projections, and Valuation of Services*, [GAO-08-472T](#) (Washington, D.C.: Feb. 12, 2008).

³⁷Association of American Medical Colleges, *The Complexities of Physician Supply and Demand 2017 Update: Projections from 2015 to 2030* (Washington, D.C.: AAMC, Feb. 28, 2017).

with sufficient military health profession personnel.³⁸ Additionally, our prior work on effective strategic workforce planning, the Office of Personnel Management's Workforce Planning Model, and applicable federal regulations have shown that addressing a critical human capital challenge—such as closing or reducing military physician gaps—requires human capital strategies to reduce gaps; consideration of how these strategies can be aligned and coordinated to address gaps in the numbers, skills, and competencies of its workforce; and metrics by which to monitor and evaluate progress toward reducing gaps.³⁹

Despite the services' success in recruiting medical students, their current approach in the use of their programs is not fully addressing critical military physician gaps, in part because the services do not have targeted and coordinated strategies for reducing gaps. For example, the services have not developed a targeted and coordinated strategy for maximizing their use of the AFHPSP program, including expanding the program to recruit reserve component physicians, which could bridge the gap between authorizations and end strengths. An ASD(HA) memorandum states that because AFHPSP is one of the primary accession sources for military physicians, validated allocations should be funded to the fullest extent possible. However, although the services report that they are generally meeting their AFHPSP recruitment goals, we found that they are not recruiting the maximum number of participants (that is, 2,100) they are allowed.⁴⁰ Instead, for fiscal years 2011 through 2015, the Army enrolled in its program approximately 71 percent to 85 percent of the maximum allowed; the Navy about 59 percent to 63 percent; and the Air Force approximately 70 percent to 79 percent.

³⁸DOD Instruction 6000.13.

³⁹[GAO-04-39](#); Office of Personnel Management's Workforce Planning Model; and 5 C.F.R. § 250.204 (2017).

⁴⁰Section 2124 of title 10 of the United States Code limits the number of program participants to a maximum of 6,300 students at any given time, and ASD(HA) authorizes the Army, the Navy, and the Air Force each a maximum of 2,100 participants at any given time. The allocation is divided between the AFHPSP and FAP and can be used for medical, dental, nursing, or other health professional students. Typically, AFHPSP and FAP participants serve their obligations in the active component, but participants may serve their obligations in the Selected Reserve. DOD Instruction 6000.13 states that an AFHPSP and FAP participant may serve his or her service obligation in a component of the Selected Reserve for a period twice as long as the participant's remaining active duty obligation.

The Army and the Air Force do not have plans to increase their AFHPSP goals in order to recruit the maximum number of participants they are allowed. Officials from these services cited various factors that limit their ability to do so—such as restrictions on the number of physicians they are authorized to access in any given year; concern that increasing AFHPSP accession goals could reduce the overall quality of medical student recruits; and the limited number of slots available in military GME programs—making it difficult to place an increased number of AFHPSP participants in these residency programs. However, the Navy is now seeking to increase its AFHPSP physician recruitment goals, starting in fiscal year 2020, in order to address gaps in some physician specialties.⁴¹

Furthermore, the services have not developed a strategy to channel AFHPSP and USUHS students into the specialties where they are needed. DOD's medical student programs generally begin funding students' training prior to their selection of a specialty. Officials from the Army, the Navy, the Air Force, and USUHS stressed that they cannot predict the specialty choice of medical students recruited through AFHPSP and USUHS, making it difficult to use these programs to target certain specialties. Officials stated that specialty choice is a personal and complex decision based on factors such as income, work-life balance, location, deployment frequency, and personal interest, and that they prefer for students to choose their own specialty. According to officials, the services use some marketing strategies, such as informational teleconferences, specialty newsletters, and social media, to develop student interest in available and high-demand specialties. However, Air Force officials noted that while students can only apply to programs that meet the Air Force's needs, the Air Force does not force individuals into certain specialties, even if there is a critical shortage. Army officials noted that there are limited options to incentivize students to select hard-to-fill specialties. Navy officials stated that the military does not screen applicants for interest or aptitude in required specialties, such as surgery or primary care, prior to medical school. Service officials stated that although AFHPSP students are eligible for a signing bonus, the bonus is not specialty-specific because students may not know which specialty

⁴¹ According to Navy documentation, although overall physician authorizations are fully staffed, they plan to increase the AFHPSP accession goal in fiscal year 2020 by 10 accessions because there are several physician specialties that are significantly lower than 100 percent of authorizations that directly support the warfighter. Examples include General Surgery (88 percent), Family Medicine (80 percent), Orthopedic Surgery (89 percent), Anesthesiology (90 percent), and Psychiatry (90 percent).

they will choose at the time they sign on, and over the course of medical school they may change their specialty.

Moreover, the services have not developed strategies for mitigating military GME program limitations in order to more fully leverage the program in addressing gaps in some physician specialties. Service officials stated that specialty training through military GME is an important accession and retention tool because it requires an active duty service obligation and may encourage continued service beyond the fulfillment of that obligation. For example, according to Army officials, the Army's GME program demonstrates to applicants the Army's commitment to their continued specialization. Service officials also stated that they determine the number of military GME positions that are available based on an analysis of projected inventory and needs by specialty. However, officials noted that even though the services use GME to train physicians, various factors limit their ability to fill GME slots for specialties where there are critical gaps, including that military residency programs can accommodate only a limited number of residents, as already noted; that there are not enough qualified applicants for the specialty; or that not enough qualified candidates are interested in the residency program for that specialty.

Officials from all three services stated that they use civilian GME programs to train some of their physicians, but they provided differing views as to their use of civilian versus military GME programs. Army and Navy officials stated that they prefer to train their physicians internally through military GME programs, while Air Force officials stated that using civilian GME programs allows them to train the physicians needed to meet mission requirements, in light of the limited capacity of the Air Force's military GME programs. The Air Force recently changed its process for determining the number of approved GME training positions, resulting in an increased number of new medical residents. Because of the use of civilian residency programs, according to Air Force officials, availability of a military residency was not a limiting factor for the Air Force. The Army and the Navy did not indicate plans to increase their GME training requirements, despite gaps in certain specialties. Army officials acknowledged that more needs to be done to ensure that their GME programs are positioned to alleviate military physician gaps, such as aligning GME programs with the skill sets required to meet future needs.

Further, the services have not developed metrics to measure the effectiveness of their recruitment, training, and retention programs in addressing gaps. For example, while service officials stated that they

measure the success of the AFHPSP program by monitoring the extent to which recruitment goals are achieved, these officials did not indicate that they assess the effectiveness of their combined programs in reducing physician gaps. In addition, while DOD uses special and incentive pays and non-monetary incentives to attract and retain physicians, it has not established metrics to measure the effectiveness of these recruitment and retention programs in addressing gaps. In February 2017 we reported that DOD had not established measures to ensure the efficient use of special and incentive pays and had not assessed the extent to which non-monetary incentives could result in the retention of personnel at a cost lower than that of special and incentive pays, and with equal or greater effectiveness.⁴²

A senior OASD(HA) official agreed that DOD should look at coordinating the programs to ensure that they are effective in addressing gaps. For example, as noted previously, in light of the challenges associated with accessing fully qualified physicians, increasing the number of medical students in the AFHPSP program could potentially close the gap between authorizations and end strengths over time for both the active and the reserve components. At the same time, improved coordination between AFHPSP and GME—such as coordinated strategies for overcoming the limitations in using these programs to address gaps in certain physician specialties—could help channel AFHPSP medical students into the specialties where they are needed most.

Section 721 of the National Defense Authorization Act for Fiscal Year 2017 requires DOD to establish a process to define the military medical personnel requirements necessary to meet operational medical force readiness requirements. Without targeted and coordinated strategies for how the services will use their military physician recruiting, training, and retention programs individually and collectively to address gaps, including gaps by specialty; and without metrics that would allow for an assessment of the effectiveness of their programs in reducing physician gaps, the services could be at risk of not having the number and types of physicians

⁴²GAO, *Military Compensation: Additional Actions Are Needed to Better Manage Special and Incentive Pay Programs*, [GAO-17-39](#) (Washington, D.C., Feb. 3, 2017). We recommended that DOD review whether its special and incentive pay programs have incorporated key principles of effective human capital management and used resources efficiently, and that DOD prioritize and complete the establishment of measures for the efficient use of resources. Further, we recommended that DOD routinely assess the effect of non-monetary incentive approaches on retention behavior. DOD partially concurred and concurred with these recommendations, and it has plans to take actions to address them.

needed to provide quality medical care to their servicemembers during wartime.

Most Students Enrolled in DOD Medical Programs Have Met Minimum Qualifications, but Data on Qualifications and Performance Are Incomplete and Tracking Is Limited

The services and USUHS each have minimum qualifications that potential medical school scholarship candidates should meet for acceptance into their programs. About 95 percent of enrolled medical students with reported qualification data who were enrolled in AFHPSP and USUHS have met these qualifications.⁴³ While the services and USUHS were able to provide data on their enrolled medical students' qualifications and performance, they were not always able to provide complete data for the years and data fields that we requested. In addition, the tracking of these data is limited.

The Services and USUHS Have Set Minimum Qualifications for Their Scholarship Programs

The services and USUHS each have set minimum academic qualifications that potential scholarship candidates should meet for acceptance into their programs. Specifically, the Army and the Air Force require a minimum undergraduate grade point average of 3.2, and the Navy and USUHS require a minimum undergraduate grade point average of 3.0. Table 3 shows the services' and USUHS's minimum academic qualifications for grade point averages and Medical College Admission Test scores.

⁴³For the purposes of this report, enrolled medical students are those who are in their first year of the AFHPSP or USUHS programs.

Table 3: Minimum Academic Qualifications for the Services' Armed Forces Health Professions Scholarship Program (AFHPSP) and the Uniformed Services University of the Health Sciences (USUHS)

	Army AFHPSP	Navy AFHPSP	Air Force AFHPSP	USUHS
Grade point average	3.2	3.0	3.2	3.0
Medical College Admission Test (prior to April 2015) ^a	Composite score of 24 and a score of 8 in each of the 3 sections ^c	No minimum requirement	Composite score of 25 and a score of 8 in each of the 3 sections	Composite score of 24
Medical College Admission Test (after April 2015) ^b	Composite score of 500 and a score of 124 in each of the 4 sections	No minimum requirement	Composite score of 500 and a score of 124 in each of the 4 sections	Composite score of 496

Source: GAO analysis of Department of Defense documentation. | GAO-18-77

^aPrior to April 2015, the Medical College Admission Test consisted of three sections: verbal reasoning, physical sciences, and biological sciences. Medical College Admission Test scores ranged from 3 to 45.

^bThe Medical College Admission Test was updated in April 2015 and consists of the following four sections: Biological and Biochemical Foundations of Living Systems; Chemical and Physical Foundations of Biological Systems; Psychological, Social, and Biological Foundations of Behavior; and Critical Analysis and Reasoning Skills. Medical College Admission Test scores ranged from 472 to 528.

^cArmy's minimum academic qualifications are based on its July 2017 *HPSP Policy on Entry and Participation*. Prior Army Recruiting Command guidance from October 2015 and September 2016, both of which are now expired, stated that the Medical College Admission Test minimum composite score was 26. Army officials stated they have been adhering to the minimum composite score of 26 since 2015 and that they plan to update their policy to match the expired Army Recruiting Command's guidance.

According to service officials, candidates are accepted into the program based on overall qualifications. Accordingly, the services may make exceptions for candidates who do not meet certain minimum academic qualifications; conversely, they may turn down candidates who meet minimum academic qualifications but who are not considered a good fit for the service. According to service officials, once identified as qualified by recruiters, candidates are evaluated by service review boards. Service review boards evaluate candidates based on factors such as academic performance, professional experience, and leadership potential.

Similar to the services' selection of candidates for AFHPSP, USUHS selects candidates based on overall qualifications. According to USUHS officials, its admission committee reviews clinical experience, community service, academic qualifications, background, life experiences, letters of recommendation, and supplemental materials to determine an applicant's suitability for admission. Further, similar to the service review boards, USUHS considers applicants' Medical College Admission Test scores and grades and looks at the "whole person" to identify those with the life experiences, personality, and resilience to excel as military medical officers.

Most Medical Students Enrolled in Services' AFHPSP and USUHS Programs Have Met or Exceeded Minimum Qualifications

On the basis of our analysis of the services' and USUHS's available data, we found that about 95 percent of medical students with reported grade point averages and Medical College Admission Test scores who were enrolled from fiscal year 2011 through fiscal year 2016 met minimum academic qualifications. For example, of the enrolled Army and Air Force AFHPSP medical students with reported grade point averages and composite Medical College Admission Test scores for fiscal years 2011 through 2016, 96.6 percent of Army students and 95.4 percent of Air Force students met their respective services' current minimum academic grade point averages and composite Medical College Admission Test score qualifications.⁴⁴ For the Navy, which does not have a minimum qualification score for the Medical College Admission Test, of the enrolled AFHPSP medical students with reported grade point averages, 99.3 percent met its current minimum academic grade point average qualification. For USUHS, 97.6 percent of enrolled medical students met its minimum academic qualifications for grade point average and composite Medical College Admission Test scores.

Service and USUHS officials stated that they are focused on bringing quality students into their programs. As a result, service recruiting departments may decide to use higher qualifications during their screening processes. For example, Navy officials reported that, while Navy policy requires a minimum grade point average of 3.0, the Navy Recruiting Command seeks candidates with a minimum grade point average of 3.5. In addition, the Army and the Air Force allow qualified candidates who exceed their stated minimums to be accepted into the AFHPSP program on an accelerated basis. For example, qualified 3- or 4-year Air Force AFHPSP candidates who have 3.4 or higher grade point averages and 29 or 503 or higher scores on their most recent Medical College Admission Tests are automatically selected for AFHPSP. As another example, qualified Army AFHPSP candidates who have 3.6 or higher grade point averages and 29 or 507 or higher scores on their most recent Medical College Admission Tests are conditionally accepted, subject to space in the program and meeting all other requirements for

⁴⁴The Air Force was unable to provide the Medical College Admission Test scores for each section of the test. As a result, we are unable to determine the extent to which the Air Force AFHPSP students met the services' minimum Medical College Admission Test score requirement for each section of the test. The Army was able to provide individual scores for each of the sections, and of the enrolled Army AFHPSP medical students with reported grade point averages and Medical College Admission Test scores for fiscal years 2011 through 2016, 89 percent of Army students met the Army's current minimum academic qualifications.

AFHPSP. According to Army officials, AFHPSP candidates who meet the Army's automatic acceptance criteria are considered to be high-quality candidates.

Many enrolled medical students have exceeded the services' and USUHS's minimum academic qualifications. For example, based on our analysis of the services' available data for fiscal years 2011 through 2016, of those enrolled AFHPSP medical students with reported grade point averages, 75.1 percent of Army students, 68.3 percent of Navy students, and 81.7 percent of Air Force students had grade point averages of 3.5 or above. Based on our analysis of available USUHS data, we found that 68.9 percent of enrolled students from fiscal year 2011 through fiscal year 2016 had grade point averages of 3.5 and above. Table 4 shows the grade point average ranges for enrolled AFHPSP and USUHS medical students for fiscal years 2011 through 2016.

Table 4: Undergraduate Grade Point Average Ranges for Enrolled Armed Forces Health Professions Scholarship Program (AFHPSP) and Uniformed Services University of the Health Sciences (USUHS) Medical Students, Fiscal Years 2011-2016

Grade point average range	Number of enrolled medical students				Percentage of enrolled medical students ^a			
	Army AFHPSP	Navy AFHPSP	Air Force AFHPSP	USUHS	Army AFHPSP	Navy AFHPSP	Air Force AFHPSP	USUHS
3.5 to 4.0	1,195	803	1,335	708	75.1	68.3	81.7	68.9
3.2 to 3.49	359	303	277	249	22.6	25.8	16.9	24.2
3.0 to 3.19	26	61	22	46	1.6	5.2	1.3	4.5
Below 3.0	12	8	1	24	0.8	0.7	0.1	2.3
Subtotal	1,592	1,175	1,635	1,027				
Data not available	19	310	164					
Total	1,611	1,485	1,799	1,027				

Source: GAO analysis of Department of Defense data. | GAO-18-77

^aWe included only those medical students with reported grade point averages for fiscal years 2011 through 2016.

In addition to minimum academic qualifications, potential candidates applying for the medical student AFHPSP program must meet other eligibility requirements,⁴⁵ such as being citizens of the United States and being accepted for admission to or enrolled full-time at an accredited educational institution located in the United States or Puerto Rico.⁴⁶ On the basis of our analysis of the services' data, we found that, with one exception, all students attended an accredited or pre-accredited U.S. or Puerto Rican institution.⁴⁷ Table 5 shows the accreditation status of the medical schools that students attended, the types of degrees medical students received, and the locations of the schools for enrolled medical students, for fiscal years 2011 through 2016.

Table 5: Number and Percentage of Armed Forces Health Professions Scholarship Program Enrolled Medical Students by Accreditation Status, Type of Degree, and Location of School, Fiscal Years 2011-2016

	Number of enrolled medical students			Percentage of enrolled medical students		
	Army	Navy	Air Force	Army	Navy	Air Force
Accreditation status ^a						
Fully accredited	1,524	1,433	1,731	94.6	96.5	96.2
Pre-accredited ^b	87	52	68	5.4	3.5	3.8
Type of degree						
Doctor of Medicine	953	1,015	1,069	59.2	68.4	59.4
Doctor of Osteopathic Medicine	658	470	730	40.8	31.6	40.6
Location of school						
United States, Puerto Rico	1,611	1,484	1,799	100.0	99.9	100.0
Other ^c		1			0.1	

Source: GAO analysis of Department of Defense data. | GAO-18-77

⁴⁵In addition to citizenship and medical school enrollment requirements, each individual must (1) meet requirements for appointment as a commissioned officer; (2) sign a written agreement with the military services; (3) not be obligated for any future service other than to DOD; (4) not be in default for court-ordered child support payments or federal debt and be free of any court judgment in favor of the United States creating a lien against the individual's property arising from a civil or criminal proceeding; (5) not be serving or have incurred a service obligation from participation in this or other health science programs; and (6) have completed service obligations for Reserve Officers' Training Corps or attendance at a U.S. military service academy, unless granted a waiver by the Secretary concerned.

⁴⁶DOD Instruction 6000.13.

⁴⁷We found one student who attended an accredited institution in Canada. According to a Navy official, this was a one-time occurrence in which the student was inadvertently admitted, and the process was subsequently reviewed to ensure future compliance.

^aWe used information from the Department of Education, Liaison Committee on Medical Education, and the Commission on Osteopathic College Accreditation to determine accreditation status.

^bPre-accredited status is public recognition granted by an accrediting agency to an institution or program for a limited period that signifies the agency has determined that the institution or program is progressing toward accreditation and is likely to gain accreditation. Fully accredited status is granted when educational programs culminating in the award of the degree meet reasonable, generally accepted, and appropriate national standards for educational quality, and graduates of such programs have a complete and valid educational experience sufficient to prepare them for the next stage of their training.

^cWe found one student who attended an accredited institution located in Canada.

USUHS's admission criteria include U.S. citizenship; the ability to meet the requirements of a commissioned officer; a baccalaureate degree as of June 1 of the year of planned matriculation from an accredited academic institution in the United States, Canada, or Puerto Rico; and specific academic course requirements. Medical students attending USUHS receive a Doctor of Medicine degree upon graduation.

Data on Student Qualifications and Performance Are Incomplete, Tracking Is Limited, and the Navy and Air Force Do Not Have Processes for Using Student Data to Inform Their Programs

Although the services and USUHS were able to provide some data on the qualifications and performance of their enrolled medical students, they were not always able to provide complete data for each year or data field that we requested.⁴⁸ For example, while USUHS was able to provide complete student qualification data on grade point averages and Medical College Admission Test scores for students enrolled from fiscal year 2011 through fiscal year 2016, the services' data varied.⁴⁹ Specifically, for that period, the Army was able to provide those data for 95 percent of its students; the Air Force for 91 percent; and the Navy for 79 percent. Moreover, USUHS and the services were unable to provide complete data on students' performance as they completed their programs, to include licensing exam performances, specialties, or board certification status.⁵⁰ For example, the Army was able to provide board certification

⁴⁸We asked the services and USUHS for student qualifications and performance data for fiscal years 2005 through 2016, including grade point average, Medical College Admission Test scores, licensing exam performance, specialty, and board certification status.

⁴⁹Students' grade point averages and Medical College Admission Test scores are considered indicators of future performance and success in medical school and are typically collected during the application process.

⁵⁰Licensing exam performance is an indicator of how well a student has performed while in medical school and residency; specialty indicates which specialty the student eventually trained in during residency; and board certification status indicates the extent to which the student has become board certified. We analyzed performance data for students enrolled from fiscal years 2005 through 2009 because it can take several years after a student enters medical school for the student to complete licensing exams, train in a specialty, and become board certified.

status for about 12 percent of Army students enrolled from fiscal year 2005 through fiscal year 2009, and the Navy was able to provide board certification status for 75 percent of its students enrolled for that period. The Air Force and USUHS were unable to provide board certification status data.

Data were incomplete due in part to the fact that student qualification data and subsequent performance data were managed separately and not always linked or consistently tracked within the various organizations that keep the data. For example, Air Force officials stated that they could not provide all of the data we requested because the Air Force Recruiting Service manages AFHPSP applicant and selectee information, while the Air Force Institute for Technology manages information on medical students as they are completing the AFHPSP program. Navy and USUHS officials told us that they were able to provide requested data only after manually consolidating them from a variety of datasets. Navy and USUHS officials cited, as reasons for having incomplete data, the difficulty of compiling information from multiple sources and the inconsistency with which certain data fields were tracked. Also, officials stated that the data were not readily accessible and that there was concern about the accuracy of some of them, because the data had to be manually consolidated from multiple sources. Further, according to a USUHS official, performance data are not always tracked once the student completes the program. According to Army officials, the Army had incomplete board certification data because the Army tracked board certification status only for those in fellowship training.

Despite these data limitations, the Army and USUHS each have a process in place to use their available data on the enrolled students' qualifications and performance to improve their programs. However, the Navy and the Air Force do not have such processes. According to Army officials, in 2008, after analyzing the success rates of its medical students in the AFHPSP program, the Army established a minimum grade point average qualification requirement of 3.2, and it has experienced steady increases in grade point averages and test scores for students entering AFHPSP. According to Army officials, the Army continues to periodically review student performance data to determine whether adjustments need to be made in order to improve program quality. Documentation provided by USUHS showed that it also uses its past student qualifications and performance to periodically monitor and inform its program. Moreover, a USUHS official stated that USUHS uses information from its Long-Term

Career Outcome Study and feedback from its directors when making admission decisions.⁵¹ In its technical comments to our draft report, the Air Force noted that it used its data in a limited way and adjusted its AFHPSP acceptance criteria over the years. However, the Air Force did not provide documentation to support that it used its data to make such decisions. Navy and Air Force program managers told us that they do not have processes in place to routinely use data on AFHPSP students' performance to track students beyond a particular department. However, according to Air Force officials, the Air Force decreased the minimum grade point average requirement for automatic acceptance from 3.5 to 3.4. Air Force officials noted that this change was based on the observation that the review boards accepted students with a grade point average of 3.4 or above, and lowering the minimum would decrease the risk of losing these qualified applicants. A Navy official told us that the Navy could benefit from having a centralized system containing student performance data.

In its *Agency Strategic Plan - Fiscal Years 2015-2018*, DOD noted that it is committed to using performance data to continually improve operations.⁵² For example, the Plan states that DOD must work to ensure that the mission and goals are achieved through the appropriate levels of planning, analysis, and use of performance information to improve the results achieved.⁵³ Furthermore, according to federal standards for internal control, management should use quality information to achieve an organization's objectives.⁵⁴ Quality information should be complete, accurate, accessible, and provided on a timely basis. Management should use the quality information to make informed decisions and evaluate the organization's performance in achieving key objectives and addressing risks.

⁵¹USUHS uses the Long-Term Career Outcome Study to collect and analyze educational data to generate evidence-based evaluations of the school's success in meeting its educational objectives and to monitor the career path of its graduates.

⁵²In DOD's *Strategic Management Plan*, dated July 2013, DOD noted that there are a number of opportunities to create greater synergies throughout the department. For example, it states that DOD needs to more readily access, aggregate, and translate data into information to gain valuable insights that drive informed decision making and deliver enterprise-wide capabilities, where appropriate, that align to end-to-end business processes.

⁵³DOD, *Agency Strategic Plan, Fiscal Years 2015-2018, Version 1.0 (July 31, 2015)*.

⁵⁴[GAO-14-704G](#).

Without having complete, accurate, and accessible information on their enrolled medical students' qualifications and performance, the services and USUHS likely lack all the information needed to track and assess their students' performance and the performance of their accession programs. Furthermore, without using their student data to better inform the management of their programs and decisions, the Navy and the Air Force are hindered in their ability to evaluate their accession programs.

Costs to Educate the Services' AFHPSP Medical Students Are Known, but Costs for USUHS Medical Students Are Not Known

The reported cost to educate the Army, Navy, and Air Force AFHPSP medical students ranged from \$44 million to \$59 million annually for each service for fiscal years 2011 through 2016, but the costs for USUHS medical students are not known.⁵⁵ Our analysis of the services' AFHPSP data shows that the cost for tuition, books, and other educational expenses for their medical students, after accounting for inflation, have fluctuated.⁵⁶ With regard to the costs for training USUHS medical students, however, USUHS officials said that they were unable to provide comparable information, because USUHS does not separately track costs for its individual educational programs and activities.

Annual Costs for the Education of AFHPSP Medical Students Have Fluctuated

The services track data on the costs of their AFHPSP programs for medical students, and our analysis of their reported data shows that these costs fluctuated each year between fiscal years 2011 and 2016. The AFHPSP medical student costs included in our analysis are for tuition, books, fees, and other related educational expenses, and they did not include stipends, pays, or allowances. Our analysis of the services' data shows that reported costs for the education of AFHPSP medical students between fiscal years 2011 and 2016 ranged from \$50.9 million to \$59.2

⁵⁵Our analysis includes only the cost for educating medical students funded by the Defense Health Program's operation and maintenance account for education and training, and it does not include stipends, pays, and allowances, which are funded by the services' military personnel accounts. The costs for AFHPSP medical students are for tuition, books, fees, and other related educational expenses.

⁵⁶All costs have been adjusted for inflation and are presented in fiscal year 2016 constant dollars. To convert costs to constant dollars, we used the Defense Health Program deflator listed in DOD's *National Defense Budget Estimates for Fiscal Year 2016*, which is published by the Office of the Under Secretary of Defense (Comptroller).

million for the Army; from \$44.2 million to \$47.3 million for the Navy; and from \$44.7 million to \$51 million for the Air Force.⁵⁷

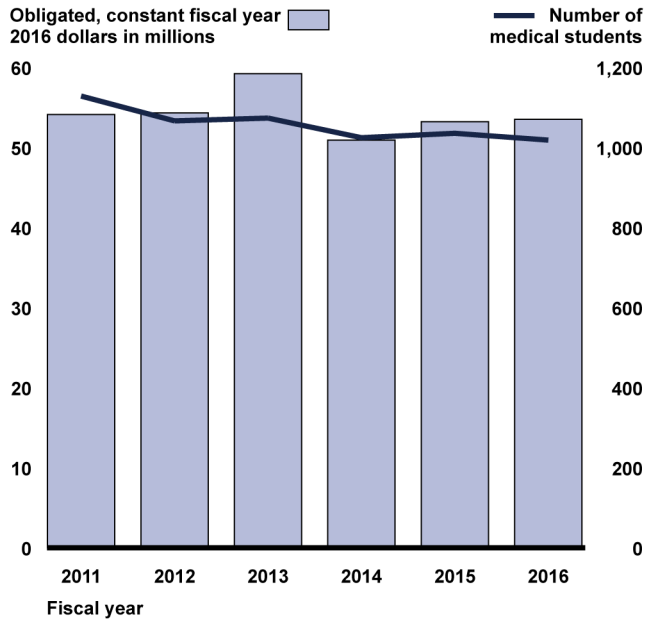
During that period, the number of medical students in the programs per year also fluctuated, ranging from 1,018 to 1,128 for the Army, from 884 to 931 for the Navy, and from 1,029 to 1,127 for the Air Force. According to Army officials, the declines in the number of AFHPSP students in some fiscal years we examined were attributable to the reduction in the recruitment mission as a result of Army force reductions of total authorizations during the period of our review.⁵⁸ The cost fluctuations were driven by more than the fluctuations in the number of AFHPSP students enrolled in a given year. Specifically, service officials noted that several factors affect costs, such as the cost of tuition, the extent to which out-of-state tuition is paid, and the requirement of some medical schools for students to purchase reimbursable supplies in a specific year of medical school.⁵⁹ Figures 4, 5, and 6, respectively, show the total reported costs for fiscal years 2011 through 2016 for the education of Army, Navy, and Air Force AFHPSP medical students and the numbers of students.

⁵⁷ Army and Navy cost data represent obligations, and the Air Force cost data represent expenditures. According to Air Force officials, obligation data exist in multiple systems, and the Air Force's financial accounting methodology is not set up to retrieve and report obligation data isolated to a specific Corps, such as by Medical Corps or by Dental Corps.

⁵⁸ Based on our analysis of Army authorized end strength data, the Army's authorized end strength declined by about 17 percent from fiscal year 2011 to fiscal year 2016.

⁵⁹ Average costs per student were not calculated because the costs per student vary. Officials noted that there is no requirement for students to attend an in-state medical school, and that such factors that affect average costs include cost of medical school and whether the medical student qualifies for in-state or out-of-state tuition.

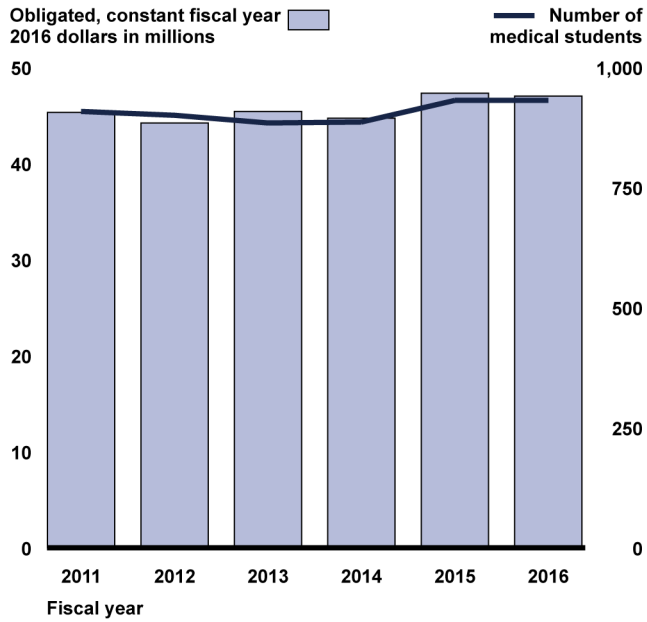
Figure 4: Reported Army Costs for Educating Medical Students and Numbers of Medical Students Participating in Armed Forces Health Professions Scholarship Program, Fiscal Years 2011-2016



Source: GAO analysis of Army data. | GAO-18-77

Note: The costs for AFHPSP medical students are for tuition, books, fees, and other related educational expenses. They do not include stipends, pays, or allowances, which are funded by the services' military personnel accounts.

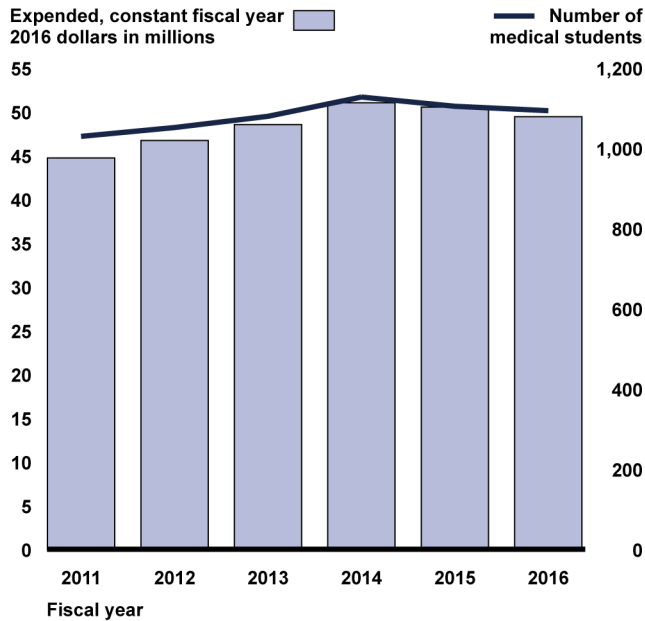
Figure 5: Reported Navy Costs for Educating Medical Students and Numbers of Medical Students Participating in Armed Forces Health Professions Scholarship Program, Fiscal Years 2011-2016



Source: GAO analysis of Navy data. | GAO-18-77

Note: The costs for AFHPSP medical students are for tuition, books, fees, and other related educational expenses. They do not include stipends, pays, or allowances, which are funded by the services' military personnel accounts.

Figure 6: Reported Air Force Costs for Educating Medical Students and Numbers of Medical Students Participating in Armed Forces Health Professions Scholarship Program, Fiscal Years 2011-2016



Source: GAO analysis of Air Force data. | GAO-18-77

Notes: The costs for AFHPSP medical students are for tuition, books, fees, and other related educational expenses. They do not include stipends, pays, or allowances, which are funded by the services' military personnel accounts.

Army and Navy cost data represent obligations, and the Air Force cost data represent expenditures. According to Air Force officials, obligation data exist in multiple systems, and the Air Force's financial accounting methodology is not set up to retrieve and report obligation data isolated to a specific Corps, such as by Medical Corps or by Dental Corps.

According to service officials, they are able to use such data to help manage their programs. Specifically, according to Army officials, the Army routinely tracks and monitors tuition, average cost per student, and other related educational costs by educational program. Army officials stated that these data are used to capture program execution and respond to internal and external inquiries regarding the Army's programs. Similarly, Navy and Air Force officials noted that this information is used to track budget execution throughout the year. Further, according to Air Force officials, due to their monitoring of the execution of their AFHPSP account, they discovered that the Air Force was under-executing the funds in this account, and as a result they realigned \$12 million per year

to other Air Force requirements beginning in the fiscal year 2018 program objective memorandum.⁶⁰

Annual Costs for the Education of USUHS Medical Students Are Not Known

According to USUHS officials, the costs for the education of USUHS medical students are not known, because USUHS does not separately track shared costs for its medical student program. According to USUHS officials, USUHS does not have a process to provide or estimate the costs of educating medical students. These officials stated that USUHS faculty, classrooms, laboratories, library resources, and other academic support resources are used for multiple purposes and may be shared across two or more of its educational programs.

Rather than tracking obligations for its individual education and training programs, such as its program to educate medical students to become physicians, USUHS tracks total obligations for all of its educational programs—not just those focused on educating medical students to become physicians. The USUHS mission is to educate, train, and prepare uniformed services health professionals, officers, and leaders to support the Military Health System, the National Security and National Defense Strategies of the United States, and the readiness of the Armed Forces. According to USUHS officials, USUHS’s medical school model is unique as compared with those of civilian medical schools in that USUHS offers training on military medicine, disaster medicine, and military medical readiness. To do this, USUHS uses its funding for education and training to support a number of programs and activities. According to USUHS officials, total obligations fund all degree programs for medical students, graduate nursing students, and other health professionals enrolled in USUHS’s masters and doctoral programs in preventive medicine, clinical psychology, health care administration, and the biomedical sciences. The total obligations reported also include USUHS’s GME programs in the National Capital Area, GME faculty development throughout the Military Health System, other USUHS-offered graduate level certificate programs, and various other short courses. Further, according to USUHS officials, these total obligations include programs and missions that have been assigned to USUHS because of its faculty expertise and specialized capabilities.

⁶⁰A program objective memorandum identifies and prioritizes requirements and total funding needs for the current budget year and then 4 additional years into the future.

Collectively, USUHS obligations for these various programs and activities fluctuated between fiscal year 2011 and fiscal year 2016, ranging from \$144.6 million to \$159.3 million, while the total number of students and residents in these programs also fluctuated, ranging from 1,708 to 1,913. The increase in the number of students since fiscal year 2013 is mainly attributable to the addition of the postgraduate dental student program, according to USUHS officials. As noted earlier, USUHS obligations support various programs and activities, and thus the fluctuations do not simply reflect the number of students and residents attending USUHS each year. Table 6 shows the total reported obligations for USUHS education and training expenses and the numbers of students and residents in USUHS degree programs.

Table 6: Reported Obligations for Training and Educational Expenses and Numbers of Students and Residents at the Uniformed Services University of the Health Sciences (USUHS), Fiscal Years 2011-2016

	2011	2012	2013	2014	2015	2016
Obligations (in millions)	\$159.3	\$145.1	\$144.6	\$157.9	\$150.7	\$150.9
Number of students and residents						
Medical students	684	686	691	697	672	681
Graduate School of Nursing students	176	163	133	161	190	156
Graduate education students	209	209	224	229	223	232
Postgraduate dental students	0	0	130	130	152	156
Graduate Medical Education residents	685	650	669	671	676	660
Total	1,754	1,708	1,847	1,888	1,913	1,885

Source: GAO analysis of Department of Defense data. | GAO-18-77

Note: Costs are reported in fiscal year 2016 constant dollars. The costs do not include pays and allowances, which are funded by the services' military personnel accounts. Average obligations per attendee were not calculated because the average costs per attendee may vary significantly by type of program. According to USUHS officials, in addition to funding the named student programs shown in the table, the obligations also include (1) resources supporting USUHS's centers and programs; (2) funding for certificate programs and other graduate and continuing education courses; and (3) execution year transfers for directed activities.

To demonstrate the cost-effectiveness of its programs, USUHS officials cited a 2003 Center for Naval Analyses study in which the Center calculated the costs of educating medical students at USUHS and compared these costs with those of the services' AFHPSP programs and

other accession sources.⁶¹ The study found that even though USUHS accessions are the most costly source for accessing and training physicians, the retention of physicians accessed through USUHS has historically been greater than that of physicians accessed through other programs, making it the most cost-effective accession source for filling senior physician requirements. The Center was able to calculate these costs by estimating what was spent on resources dedicated to the medical school using budget data and making various assumptions. While these numbers represent an estimate of the costs of educating medical students at that time, they are now more than 14 years old and required the Center for Naval Analysis to make assumptions that might have changed over time.

According to a USUHS official, to perform an analysis similar to that in the 2003 Center for Naval Analyses study would be extremely difficult because (1) changes in their accounting system were made since that study was performed, and (2) the faculty and space are used for multiple purposes, including educating medical students. Furthermore, as noted by this USUHS official, at the time of the study in 2003, USUHS had only a medical school and a new graduate nursing school. Now USUHS has four professional schools, the National Capital Consortium, the Armed Forces Radiobiology Research Institute, and a number of research centers. According to the USUHS official, all teaching faculty have multiple roles, such as being a Department Chair, Center Director, clinician in a hospital, and/or a grant-funded researcher. Some of their time is directly related to medical student teaching, and some is not. The official added that administrative staff similarly serve in multiple roles.

The Under Secretary of Defense (Comptroller) has established budgetary information as a priority area for DOD's Financial Improvement and Audit Readiness Plan. The Comptroller's memorandum establishing these priorities states that, because budgetary information is used widely and regularly for management, DOD will place the highest priority on

⁶¹As a result of high-level policy-makers' interest in DOD's use of a wide variety of subsidized accession and special pay programs to initially attract and ultimately retain health care professionals in the military, the TRICARE Management Activity at DOD asked the Center for Naval Analyses to evaluate the life-cycle costs of selected uniformed specialists—as fully trained specialists—based on different accession programs. See Center for Naval Analyses, *Life-Cycle Costs of Selected Uniformed Health Professions (Phase I: Cost Model Methodology)* (Alexandria, VA: April 2003); and *Life-Cycle Costs of Selected Uniformed Health Professions (Phase II: The Impact of Constraints and Policies on the Optimal-Mix-of-Accession Model)* (Alexandria, VA: April 2003).

improving its budgetary information and processes.⁶² Furthermore, we have previously reported that reliable cost estimates are critical to the success of any program, and that it is important for cost estimates to be timely and available to decision makers as early as possible.⁶³ Additionally, according to the Office of Management and Budget, agencies must provide a written justification that should include the full cost of a program when submitting their budget.⁶⁴

USUHS officials have not explored any options—or the feasibility of any options—for developing cost estimates to improve their management and oversight of the program. Although, as a USUHS official noted, developing an accurate cost of each program could be difficult, we note that knowing the costs to educate medical students could improve the management and oversight of the USUHS program. A senior OASD(HA) official with whom we spoke agreed that USUHS should know the cost of its largest product—the education of medical students. Further, since the Center’s 2003 study, DOD has experienced multiple wartime operations, sequestration, and downsizing of its military end strength. As DOD balances its ongoing strategic and operational challenges with constrained resources, the ability to mitigate risk and to determine how to prioritize expenses and investments will be paramount. Developing a reliable method to accurately determine shared costs would enable DOD to accurately gauge the full cost of its educational programs and activities for medical students and would provide DOD with opportunities to enhance overall cost- effectiveness.

Conclusions

Military physicians are essential to maintaining DOD’s capability to deliver health care services to servicemembers and other DOD beneficiaries, but various factors, including national shortages in certain physician specialties and competition with the private sector, make it difficult for DOD to recruit and retain fully qualified physicians. To mitigate the challenges associated with recruiting fully qualified physicians, the services rely on AFHPSP, USUHS, and other programs and incentives to recruit and retain physicians. Despite the use of these programs,

⁶²Under Secretary of Defense (Comptroller) Memorandum, *Priorities for Improving Financial Information and Processes and Achieving Audit Readiness* (Aug. 11, 2009).

⁶³[GAO-09-3SP](#).

⁶⁴OMB, *Circular No. A-11, Preparation, Submission, and Execution of the Budget* (Washington, D.C., Executive Office of the President, July 2017).

however, the services have experienced gaps in critical specialties. Notably, many of these gaps have persisted, or the specialties fall well below authorized levels, even as the services have reported that they generally meet their AFHPSP and USUHS recruitment goals. One reason why the services continue to experience gaps in certain specialties is that they have not successfully found a way to channel students into residencies for the specialties in most critical need. Until DOD is able to alleviate gaps in critical specialties, it may be hindered in its ability to provide medical support for its servicemembers during wartime. Furthermore, while most medical students accepted into AFHPSP and USUHS have met or exceeded minimum acceptance qualifications, DOD has not consistently tracked data on its medical students, thus potentially hindering opportunities to improve the quality of its accession programs. Finally, although the services have identified the costs of educating their AFHPSP medical students, USUHS has not done so, and this may limit USUHS's ability to effectively manage its programs and DOD's ability to understand its full funding needs for its primary physician accession programs.

Recommendations for Executive Action

We are making the following ten recommendations to DOD:

The Secretary of the Army should develop targeted strategies for using its recruitment, training, and retention programs collectively to address key military physician gaps in a coordinated manner, and metrics that would monitor the effectiveness of its programs collectively in reducing gaps. (Recommendation 1)

The Secretary of the Navy should develop targeted strategies for using its recruitment, training, and retention programs collectively to address key military physician gaps in a coordinated manner, and metrics that would monitor the effectiveness of its programs collectively in reducing gaps. (Recommendation 2)

The Secretary of the Air Force should develop targeted strategies for using its recruitment, training, and retention programs collectively to address key military physician gaps in a coordinated manner, and metrics that would monitor the effectiveness of its programs collectively in reducing gaps. (Recommendation 3)

The Secretary of the Army should track complete, accurate, and accessible information on the qualifications, performance, and progress of Army AFHPSP medical students. (Recommendation 4)

The Secretary of the Navy should track complete, accurate, and accessible information on the qualifications, performance, and progress of Navy AFHPSP medical students. (Recommendation 5)

The Secretary of the Air Force should track complete, accurate, and accessible information on the qualifications, performance, and progress of Air Force AFHPSP medical students. (Recommendation 6)

The President of USUHS should track complete, accurate, and accessible information on the performance and progress of USUHS medical students. (Recommendation 7)

The Secretary of the Navy should use information on medical student performance to evaluate Navy accession programs. (Recommendation 8)

The Secretary of the Air Force should use information on medical student performance to evaluate Air Force accession programs. (Recommendation 9)

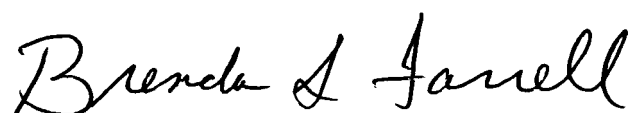
The Assistant Secretary of Health Affairs should require that the President of USUHS develop a reliable method to accurately determine the cost to educate its medical students. (Recommendation 10)

Agency Comments

We provided a draft of this report to DOD for review and comment. DOD did not provide comments. DOD did provide us with technical comments, which we have incorporated, as appropriate.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Defense, the Under Secretary of Defense for Personnel and Readiness, the Office of the Assistant Secretary of Health Affairs, the Secretaries of the Army, the Navy, and the Air Force, and the President of the Uniformed Services University of the Health Sciences. In addition, this report will be available at no charge on the GAO website at <http://www.gao.gov>.

If you or your staff have any questions regarding this report, please contact me at (202) 512-3604 or farrellb@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 major contributions to this report are listed in appendix III.

A handwritten signature in black ink that reads "Brenda S. Farrell". The signature is written in a cursive, flowing style.

Brenda S. Farrell
Director
Defense Capabilities and Management

Appendix I: Scope and Methodology

To address our first objective, on the extent to which the Department of Defense (DOD) has experienced gaps between its military physician authorizations and end strengths and has an approach to address key gaps, we obtained and analyzed authorization and end strength data on physicians. Specifically, we used data from DOD's Health Manpower and Personnel Data System (HMPDS) published in the *Health Manpower Statistics* reports to calculate the extent to which the active and reserve components of the Army, Navy, and Air Force have met authorizations for all physicians, as well as authorizations by physician specialty for fiscal years 2011 through 2015.¹ We analyzed data for this timeframe to enable us to evaluate trends over time, and fiscal year 2015 was the most recent year of available HMPDS data at the time of our review. Using HMPDS data for fiscal years 2011 through 2015, we compared the authorizations with the end strengths to determine the extent to which the medical corps (that is, physicians) was above or below its authorized levels. We excluded specialties reserved for those in training. Using HMPDS data for fiscal years 2011 through 2015, we compared specialty authorizations with specialty-level end strengths to identify those specialties that were consistently below their authorized levels. Since HMPDS data for the occupational specialty end strengths do not indicate whether the physicians were employed in that specialty on a full-time basis, we contacted the Office of the Assistant Secretary of Defense for Health Affairs (OASD(HA)) and appropriate service officials to verify our analysis of the specialties that were consistently below their authorizations. We assessed the reliability of the HMPDS data by collecting information on how the services and the Defense Manpower Data Center compile and validate HMPDS data, and we compared HMPDS data with service-level data when available. We found the data to be sufficiently reliable for the purposes of this report.

Furthermore, to address our first objective, we analyzed the services' AFHPSP, FAP, and direct accession recruitment goals and achievements for fiscal years 2011 through 2016. We selected fiscal years 2011 through 2016 to enable us to evaluate trends over time, and fiscal year 2016 was the most recent year of accession achievements at the time of our review. We assessed the reliability of these data by comparing multiple sources

¹"Authorizations" are defined as the number of positions in which resources have been allocated to fulfill the services' medical mission. "End strength" numbers represent the number of medical personnel fulfilling specific billet positions at the end of the fiscal year. We analyzed authorization and end strength data for the Selected Reserve since data were available only for those personnel within the reserve components.

when available and obtaining information from the services regarding the reliability and quality of the data and found these data to be sufficiently reliable for the purposes of this report. Additionally, we reviewed DOD's special and incentive pay plans and other DOD policies and guidance to identify agency-wide and service-level strategies for addressing gaps in military physician specialties. We interviewed officials and received written responses from the services regarding their processes for identifying physician requirements and gaps, the programs they use to address gaps, and any challenges they experience in recruiting and retaining physicians. Further, we reviewed a prior GAO report and an Office of Personnel Management's Workforce Planning Model on developing strategic workforce planning, and applicable federal regulations.² Using these sources, we applied elements of effective strategic workforce planning to DOD's approach to addressing physician gaps.³

To address our second objective, on the extent to which DOD has enrolled students who meet minimum qualifications for the Armed Forces Health Professions Scholarship Program (AFHPSP) and the Uniformed Services University of the Health Sciences (USUHS) and has tracked data on student qualifications and performance, we obtained and reviewed DOD's and the services' AFHPSP eligibility policies and guidance. We also reviewed USUHS admission policies and guidance for medical students. We interviewed service and USUHS officials regarding their recruitment, eligibility, and admission processes. We obtained and analyzed the services' AFHPSP and USUHS medical student data, to include grade point averages, Medical College Admission Test scores, and medical licensing examination scores for fiscal years 2005 through 2016. We interviewed officials to discuss the data and how they are tracked. We selected fiscal years 2005 through 2016 to enable us to

²GAO, *Human Capital: Key Principles for Effective Strategic Workforce Planning*, [GAO-04-39](#) (Washington, D.C.: Dec. 11, 2003); the Office of Personnel Management's Workforce Planning Model; and 5 C.F.R. § 250.204 (2017).

³Elements include strategies to reduce gaps; consideration of how these strategies can be aligned and coordinated to address gaps in the numbers, skills, and competencies of its workforce; and metrics by which to monitor and evaluate progress toward reducing gaps.

evaluate trends over time, and fiscal year 2016 was the most recent year of medical student data at the time of our review.⁴

Furthermore, to address our second objective, to determine whether students were meeting the services' and USUHS's eligibility requirements, we analyzed policy to determine the criteria for eligibility and admission and compared student data with the criteria. To assess the reliability of the data we electronically tested the data to identify obvious problems with completeness or accuracy and interviewed knowledgeable agency officials about the data, and we sent questionnaires to the services and USUHS and interviewed service officials. As a result of our assessment and interviews, we determined that medical student data on grade point averages and college admission test scores were sufficiently reliable for the purposes of this report. We reviewed DOD's strategic plan, which states DOD's commitment to using performance data to continually improve operations. Further, we reviewed federal internal control standards, including requirements for using quality information to achieve an organization's objectives.⁵

To address our third objective, on the extent to which DOD knows the costs for educating AFHPSP and USUHS medical students, we obtained and analyzed data on the costs to educate the services' AFHPSP medical students and total obligations for USUHS's programs and activities. Our analysis included only the cost for educating and training funded by the Defense Health Program's operation and maintenance account for education and training. To analyze the costs for AFHPSP medical students' tuition, books, and other educational expenses for fiscal years 2011 through 2016, we used cost data provided by the services, which include the Army's and the Navy's obligation data and the Air Force's

⁴For our analysis of the extent to which enrolled students met minimum qualifications for AFHPSP and USUHS, we used student data for fiscal years 2011 through 2016. For our analysis of the extent to which the services have tracked data to evaluate student performance, we used performance data for students enrolled from fiscal year 2005 through fiscal year 2009 because it can take several years after a student enters medical school to complete licensing exams, train in a specialty, and become board certified.

⁵GAO, *Standards for Internal Control in the Federal Government*, [GAO-14-704G](#) (Washington, D.C.: Sept. 10, 2014); and DOD, *Agency Strategic Plan, Fiscal Years 2015-2018*, Version 1.0 (July 31, 2015).

expenditure data for AFHPSP.⁶ USUHS was unable to separate out the costs for educating its medical students and instead provided reported obligations for its education and training programs for fiscal years 2011 through 2016. We selected fiscal years 2011 through 2016 to enable us to evaluate trends over time, and fiscal year 2016 was the most recent year of available obligation data at the time of our review.

Furthermore, to address our third objective, we converted cost data to constant fiscal year 2016 dollars using the Defense Health Program deflator for costs for fiscal years 2011 through 2016 published in the DOD's *National Defense Budget Estimates for Fiscal Year 2016*.⁷ We expressed the costs in inflation-adjusted dollars in order to obtain a more accurate assessment of the change that occurred over the 6-year period. We have designated DOD's financial management area as high risk due to long-standing deficiencies in DOD's systems, processes, and internal controls. Since some of these systems provide the data used in the budgeting process, there are limitations to the use of DOD's budget data.⁸ However, to assess the reliability of the services' cost data for AFHPSP medical students and reported obligation data for USUHS educational programs, we checked the data for accuracy and completeness, compared the data with other data sources, and interviewed knowledgeable agency officials about the data. We determined that these data were sufficiently reliable for the purposes of our report. Further, we examined a memorandum from the Under Secretary of Defense (Comptroller) for improving financial information and processes, an Office of Management and Budget circular on documenting costs, and GAO's

⁶An "obligation" is a definite commitment that creates a legal liability of the government for the payment of goods or services ordered or received, or a legal duty on the part of the United States that could mature into a legal liability by virtue of actions on the part of the other party beyond the control of the United States. An "expenditure" is the actual spending of money—an outlay or the liquidation of the federal government's obligations through the issuance of checks, disbursement of cash, or electronic transfer of funds. We requested obligation data from the services. The Army and the Navy provided obligation data. However, the Air Force was unable to provide obligation data and instead provided expenditure data. According to Air Force officials, obligation data exist in multiple systems, and the Air Force's financial accounting methodology is not set up to retrieve and report obligation data isolated to a specific Corps, such as by Medical Corps or by Dental Corps.

⁷We also converted obligation data to constant fiscal year 2016 dollars using the gross domestic product deflator. We determined that trends in obligation data, stated in constant dollars based on the gross domestic product deflator, do not significantly differ from trends that are based on the Defense Health Program deflator.

⁸GAO, *High-Risk Series: Progress on Many High-Risk Areas, While Substantial Efforts Needed on Others*, [GAO-17-317](#) (Washington, D.C.: Feb 15, 2017).

cost-estimating and assessment guidance to determine the extent to which DOD followed this guidance when reporting on the costs to educate AFHPSP and USUHS medical students.⁹

For each of our objectives, we reviewed policies governing DOD's health profession accession and retention programs and interviewed officials from the services, USUHS, the Defense Health Agency, and the OASD(HA). Further, we interviewed service officials who performed recruiting activities for the Army Recruiting Command, the Navy Recruiting Command, the Air Force Recruiting Service, the Air Force Reserve Recruiting Service, the Army National Guard, and the Air National Guard.

We conducted this performance audit from September 2016 through February 2018 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.

⁹Under Secretary of Defense (Comptroller) Memorandum, *Priorities for Improving Financial Information and Processes and Achieving Audit Readiness* (Aug. 11, 2009); GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: Mar. 2, 2009) and OMB, Circular No. A-11, Preparation, Submission, and Execution of the Budget (Washington, D.C., Executive; Office of the President, July 2017).

Appendix II: Military Physician Accession Programs and Incentives

In addition to the Department of Defense’s (DOD) two primary programs used to access military physicians—the Armed Forces Health Professions Scholarship Program and the Uniformed Services University of the Health Sciences—DOD has several other programs and incentives it relies on to access military physicians. Table 7 includes the names and descriptions of DOD’s military physician accession programs and incentives.

Table 7: Military Physician Accession Programs and Incentives

Accession Program and Incentive	Description
Armed Forces Health Professions Scholarship Program (AFHPSP) (10 U.S.C. §§2120-2128)	Provides scholarships for all tuition and educational expenses and a monthly stipend of more than \$2,000 for health professional students enrolled in an accredited education institution or specialized training program. ^a Participants incur a minimum 2-year active duty obligation or 6-month active duty obligation for every 6 months or portion thereof of AFHPSP sponsorship, whichever is greater. ^b Participants receive O-1 pay and allowances for 45-days of active duty for annual training performed for each year the scholarship is awarded. Military services may also provide a \$20,000 signing bonus.
Critical Wartime Skills Accession Bonus (37 U.S.C. § 335)	Provides an accessions bonus for graduates of accredited medical schools in a designated critically short wartime specialty in exchange for agreement to accept a commission as an officer in the armed forces and service on active duty in a regular component or in an active status in a reserve component in a specific specialty. Bonus amounts range from \$180,000-\$400,000, based on the specialty.
Financial Assistance Program (FAP) (10 U.S.C. §§ 2120-2128)	Provides annual grants of up to \$45,000 and monthly stipends of more than \$2,000 for physicians accepted or enrolled in a residency program. Participants incur a minimum 2-year active duty obligation or 6-month active duty obligation for every 6 months or portion thereof of FAP sponsorship, whichever is greater. FAP participants will serve on active duty in a grade commensurate with their educational experience. Participants receive full pay and allowances for their respective grades for a period of 14 days active duty for annual training performed for each year of participation.
Health Professions Loan Repayment Program (10 U.S.C. § 2173)	Provides repayment of educational loans for fully qualified health professionals. Participants incur a 2-year active duty obligation or 1 year of active duty obligation for each year of repayment, whichever is greater.
Health Services Collegiate Program	Provides financial incentives for students in designated health care professions to complete degree/certification requirements and obtain a commission in the Medical Corps. Students receive full active duty pay and benefits of an E-6 or E-7 and allowances (except for clothing). Participants must pay for their tuition and educational fees. Participants incur an 8-year service obligation with a minimum of 3 years on active duty. This program is offered by the Navy.
Medical and Dental Student Stipend Program	Provides a monthly stipend of more than \$2,000 for medical and dental students. Participants incur a 1-year obligation in the Army Selected Reserve for every 6 months or portion thereof of financial assistance.
Military Accessions Vital to National Interest	Allows certain non-citizen healthcare professionals to join the military in exchange for expedited U.S. citizenship. This program is currently suspended.
Specialized Training Assistance Program	Provides a monthly stipend of more than \$2,000 for physicians in designated specialties currently accepted or enrolled in a residency program. Participants incur a 1-year obligation in the Army Selected Reserve for every 6 months or portion thereof of financial assistance.

**Appendix II: Military Physician Accession
Programs and Incentives**

Accession Program and Incentive	Description
Uniformed Services University of Health Sciences (USUHS) (10 U.S.C. § 2112-2116)	DOD-funded graduate school that awards master's or doctoral degrees in medicine, nursing, and other health-related disciplines in order to support the Military Health System, the National Security and National Defense Strategies of the United States, and the readiness of our armed forces. Medical students do not pay tuition and receive a salary and benefits as O-1 commissioned officers in exchange for a minimum 7-year active duty service obligation.

Source: GAO based on Department of Defense information. | GAO-18-77

^aEach year the stipend is determined and published by an Office of the Assistant Secretary of Defense for Health Affairs memorandum. For the year July 1, 2017, through June 30, 2018, the stipend amount is \$2,276.10 per month.

^bDOD Instruction 6000.13 states that an AFHPSP and a FAP participant may serve his or her service obligation in a component of the Selected Reserve for a period twice as long as the participant's remaining active duty obligation.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Brenda S. Farrell, (202) 512-3604 or farrellb@gao.gov

Staff Acknowledgments

In addition to the contact named above, Beverly Schladt, Assistant Director; David Blanding, Jr.; Nicole Collier; Alexandra Gonzalez; Amie Lesser; Stephanie Santoso; Rachel Stoiko; John Van Schaik; Cheryl Weissman; and Elisa Yoshiara made key contributions to this report.

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