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PRIMARY CARE PROFESSIONALS

Recent Supply Trends, Projections, and Valuation of Services

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Highlights of [GAO-08-472T](#), a testimony before the Committee on Health, Education, Labor, and Pensions, U.S. Senate

Why GAO Did This Study

Most of the funding for programs under title VII of the Public Health Service Act goes toward primary care medicine and dentistry training and increasing medical student diversity. Despite a longstanding objective of title VII to increase the total supply of primary care professionals, health care marketplace signals suggest an undervaluing of primary care medicine, creating a concern about the future supply of primary care professionals—physicians, physician assistants, nurse practitioners, and dentists. This concern comes at a time when there is growing recognition that greater use of primary care services and less reliance on specialty services can lead to better health outcomes at lower cost.

GAO was asked to focus on (1) recent supply trends for primary care professionals, including information on training and demographic characteristics; (2) projections of future supply for primary care professionals, including the factors underlying these projections; and (3) the influence of the health care system’s financing mechanisms on the valuation of primary care services.

GAO obtained data from the Health Resources and Services Administration (HRSA) and organizations representing primary care professionals. GAO also reviewed relevant literature and position statements of these organizations.

To view the full product, including the scope and methodology, click on [GAO-08-472T](#). For more information, contact A. Bruce Steinwald, (202) 512-7114, or steinwalda@gao.gov.

PRIMARY CARE PROFESSIONALS

Recent Supply Trends, Projections, and Valuation of Services

What GAO Found

In recent years, the supply of primary care professionals increased, with the supply of nonphysicians increasing faster than physicians. The numbers of primary care professionals in training programs also increased. Little information was available on trends during this period regarding minorities in training or actively practicing in primary care specialties. For the future, health professions workforce projections made by government and industry groups have focused on the likely supply of the physician workforce overall, including all specialties. Few projections have focused on the likely supply of primary care physician or other primary care professionals.

Health professional workforce projections that are mostly silent on the future supply of and demand for primary care services are symptomatic of an ongoing decline in the nation’s financial support for primary care medicine. Ample research in recent years concludes that the nation’s over reliance on specialty care services at the expense of primary care leads to a health care system that is less efficient. At the same time, research shows that preventive care, care coordination for the chronically ill, and continuity of care—all hallmarks of primary care medicine—can achieve improved outcomes and cost savings. Conventional payment systems tend to undervalue primary care services relative to specialty services. Some physician organizations are proposing payment system refinements that place a new emphasis on primary care services.

Supply of Primary Care Professionals

	Number of primary care professionals		Number of primary care professionals per 100,000 people		Average annual percentage change per capita
	Base year	Recent year	Base year	Recent year	
Primary care physicians	208,187	264,086	80	90	1.17
Physician assistants	12,819	23,325	5	8	3.89
Nurse practitioners	44,200	82,622	16	28	9.44
Dentists	118,816	138,754	46	47	0.12

Sources: GAO analysis of data from HRSA’s Area Resource File and organizations representing primary care professionals.

Notes: Data on primary care physicians are from 1995 and 2005. Data on physician assistants are from 1995 and 2007. Data on nurse practitioners are from 1999 and 2005. Data on dentists are from 1995 and 2007. Data for identical time periods were not available. The average annual percentage change is not sensitive to these time period differences.

GAO discussed the contents of this statement with HRSA officials and incorporated their comments as appropriate.

Mr. Chairman and Members of the Committee:

I am pleased to be here today as you prepare to consider the reauthorization of health professions education programs established under title VII of the Public Health Service Act.¹ Most of the funding for title VII programs goes toward primary care medicine and dentistry training and increasing medical student diversity.

Despite a longstanding objective of title VII to increase the total supply of primary care professionals, health care marketplace signals suggest an undervaluing of primary care medicine, creating a concern about the future supply of primary care professionals. As evidence, health policy experts cite a growing income gap between primary care physicians and specialists and a declining number of U.S. medical students entering primary care specialties—internal medicine, family medicine, general practice, and general pediatrics. Moreover, the federal agency responsible for implementing title VII programs, the Health Resources and Services Administration (HRSA), notes that physician “extenders”—namely, physician assistants and nurse practitioners—may also be choosing procedure-driven specialties, such as surgery, cardiology, and oncology, in increasing numbers.^{2,3}

¹42 U.S.C. §§ 292 – 295p.

²Physician assistants are health care professionals who practice medicine under physician supervision. Physician assistants may perform physical examinations, diagnose and treat illnesses, order and interpret tests, advise patients on preventive health care, assist in surgery, and write prescriptions. Unlike physician assistants, nurse practitioners are licensed nurses who work with physicians and have independent practice authority in many states. This authority allows them to perform physical examinations, diagnose and treat acute illnesses and injuries, administer immunizations, manage chronic problems such as high blood pressure and diabetes, and order laboratory services and x-rays with minimal physician involvement.

³For the purposes of this testimony, we considered primary care physicians to be those practicing in family medicine, general practice, general internal medicine, and general pediatrics. Some physician groups, such as the American Medical Association (AMA), consider physicians practicing in obstetrics/gynecology to also be primary care physicians. In addition, we considered general dentists and pediatric dentists to be primary care dentists. We defined primary care physician assistants as those practicing in family practice, general practice, general internal medicine, and general pediatrics. We defined primary care nurse practitioners as those practicing in adult, family, and pediatric medicine. Other types of health professionals, such as registered nurses, can provide primary care services in a variety of settings, but they were outside the scope of our review.

A paradox commonly cited about the U.S. health care system is that the nation spends more per capita than all other industrialized nations but ranks consistently low in such quality and access measures as life expectancy, infant mortality, preventable deaths, and percentage of population with health insurance. Moreover, experts have concluded that not all of this spending is warranted, and overutilization of services can, in fact, lead to harm.⁴ These findings come at a time when there is growing recognition that greater use of primary care services and less reliance on specialty services can lead to better health outcomes at lower cost.

To examine the supply of primary care professionals in more detail, you asked us to provide information related to the current and future supply of these professionals. My remarks today will focus on (1) recent supply trends for primary care professionals, including information on training and demographic characteristics; (2) projections of future supply for primary care professionals, including the factors underlying these projections; and (3) the influence of the health care system's financing mechanisms on the valuation of primary care services.

To discuss the recent supply trends for primary care professionals—including information on training and demographic characteristics—we obtained data from HRSA's Area Resource File; the American Academy of Physician Assistants (AAPA); and the American Academy of Nurse Practitioners (AANP). In addition, we reviewed published data from AMA, the American Association of Colleges of Nursing (AACN); and the

⁴For example, noted studies show that Medicare spending for physician services varies widely by geographic areas and is unrelated to beneficiary health status. Elliott S. Fisher and H. Gilbert Welch, "Avoiding the Unintended Consequences of Growth in Medical Care: How Might More Be Worse?" *Journal of the American Medical Association*, vol. 281, no. 5 (1999), 446-453; E.S. Fisher, et al., "The Implications of Regional Variations in Medicare Spending. Part 1: The Content, Quality, and Accessibility of Care," *Annals of Internal Medicine*, vol. 138, no. 4 (2003), 273-287; E.S. Fisher, et al., "The Implications of Regional Variations in Medicare Spending. Part 2: Health Outcomes and Satisfaction with Care," *Annals of Internal Medicine*, vol. 138, no. 4 (2003), 288-298; and Joseph P. Newhouse, *Free for All? Lessons from the RAND Health Insurance Experiment* (Cambridge, Mass.: Harvard University Press, 1993).

American Dental Education Association (ADEA).⁵ We also obtained published annual estimates from the United States Census Bureau on the noninstitutionalized, civilian population.

To obtain information about projections of future supply of primary care professionals, we reviewed relevant literature and the position statements of organizations representing primary care professionals, including the American Academy of Family Physicians (AAFP) and the American College of Physicians (ACP). We also interviewed officials from HRSA, AAPA, AANP, the American Dental Association (ADA), and the Association of American Medical Colleges (AAMC). In selecting workforce supply projections for review, we focused on the projected estimates of national supply for primary care professionals from the past decade.

To obtain information on the influence of the health care system's financing mechanisms on the valuation of primary care services, we reviewed relevant literature on Medicare's resource-based physician fee schedule and the influence of primary care supply on costs and quality of health care services.

We assessed the reliability of HRSA's Area Resource File data by interviewing officials responsible for producing these data, reviewing relevant documentation, and examining the data for obvious errors.⁶ We assessed the reliability of the data provided by the AAPA and the AANP by discussing with association officials the validation procedures they use to ensure timely, complete, and accurate data. We determined the data used in this testimony to be sufficiently reliable for our purposes. We discussed a draft of this testimony with HRSA officials. They provided technical

⁵We obtained the most recently available data on supply for each professional group, the groups' training programs, and the groups' demographic characteristics. We compared the most recent data to a prior data point, in many cases 10 years earlier. For primary care physicians, we obtained data on supply for 1995 and 2005 from the Area Resource File and information on training and demographics from published AMA data for 1995 and 2006. For physician assistants, we obtained data on supply and demographic characteristics from AAPA for 1995 and 2007. For nurse practitioners, we obtained data on supply and demographic characteristics from AANP for 1999, 2003, and 2005 and information on training from published AACN data for 1994 and 2005. For dentists, we obtained data on supply for 1995 and 2007 from the Area Resource File and information on demographics from published ADEA data for 2000 and 2005.

⁶Data from the AMA Masterfile and the American Osteopathic Association (AOA) Masterfile—on which data on physicians in the Area Resource File is based—are widely used in studies of physician supply because they are a comprehensive list of U.S. physicians and their characteristics.

comments, which we incorporated as appropriate. We conducted this work from December 2007 through February 2008, in accordance with generally accepted government auditing standards.

In summary, in recent years, the supply of primary care professionals increased, with the supply of nonphysicians increasing faster than physicians. The numbers of primary care professionals in training programs also increased. Little information was available on trends during this period regarding minorities in training or actively practicing in primary care specialties. For the future, health professions workforce projections made by government and industry groups have focused on the likely supply of the physician workforce overall, including all specialties. Few projections have focused on the likely supply of primary care physician or other primary care professionals.

Health professional workforce projections that are mostly silent on the future supply of and demand for primary care services are symptomatic of an ongoing decline in the nation's financial support for primary care medicine. Ample research in recent years concludes that the nation's over reliance on specialty care services at the expense of primary care leads to a health care system that is less efficient. At the same time, research shows that preventive care, care coordination for the chronically ill, and continuity of care—all hallmarks of primary care medicine—can achieve improved outcomes and cost savings. Conventional payment systems tend to undervalue primary care services relative to specialty services. Some physician organizations are developing payment system refinements that place a new emphasis on primary care services.

Background

Among other things, title VII programs support the education and training of primary care providers, such as primary care physicians, physician assistants, general dentists, pediatric dentists, and allied health practitioners.⁷ HRSA includes in its definition of primary care services, health services related to family medicine, internal medicine, preventative medicine, osteopathic general practice, and general pediatrics that are furnished by physicians or other types of health professionals. Also, HRSA recognizes diagnostic services, preventive services (including

⁷Allied health professionals include, for example, audiologists, dental hygienists, clinical laboratory technicians, occupational therapists, physical therapists, medical imaging technologists, and speech pathologists.

immunizations and preventive dental care), and emergency medical services as primary care. Thus, in some cases, nonprimary care practitioners provide primary care services to populations that they serve.

Title VII programs support a wide variety of activities related to this broad topic. For example, they provide grants to institutions that train health professionals; offer direct assistance to students in the form of scholarships, loans, or repayment of educational loans; and provide funding for health workforce analyses, such as estimates of supply and demand.⁸ In recent years, title VII programs have focused on three specific areas of need—improving the distribution of health professionals in underserved areas such as rural and inner-city communities, increasing representation of minorities and individuals from disadvantaged backgrounds in health professions, and increasing the number of primary care providers. For example, the Scholarships for Disadvantaged Students Program awards grants to health professions schools to provide scholarships to full-time, financially needy students from disadvantaged backgrounds, many of whom are minorities.

Primary Care Education and Training Programs

After completing medical school, medical students enter a multiyear training program called residency, during which they complete their formal education as a physician. Because medical students must select their area of practice specialty as part of the process of being matched into a residency program, the number of physician residents participating in primary care residency programs is used as an indication of the likely future supply of primary care physicians. Physician residents receive most of their training in teaching hospitals, which are hospitals that operate one or more graduate medical education programs. Completion of a physician residency program can take from 3 to 7 years after graduation from medical school, depending on the specialty or subspecialty chosen by the physician. Most primary care specialties require a 3-year residency program. In some cases, primary care physicians may choose to pursue additional residency training and become a subspecialist—such as a pediatrician who specializes in cardiology. In this case, the physician would no longer be considered a primary care physician, but rather, a cardiologist.

⁸For fiscal year 2007, funding for the title VII health professions programs was about \$183 million. This excluded funding for student loans, which did not receive funds through the annual appropriation process.

According to the AAPA, most physician assistant programs require applicants to have some college education. The average physician assistant program takes about 26 months, with classroom education followed by clinical rotations in internal medicine, family medicine, surgery, pediatrics, obstetrics and gynecology, emergency medicine, and geriatric medicine. Physician assistants practice in primary care medicine, including family medicine, internal medicine, pediatrics, and obstetrics and gynecology, as well in surgical specialties.

After completion of a bachelor's degree in nursing, a nurse may become a nurse practitioner after completing a master's degree in nursing. According to the AACN, full-time master's programs are generally 18 to 24 months in duration and include both classroom and clinical work. Nurse practitioner programs generally include areas of specialization such as acute care, adult health, child health, emergency care, geriatric care, neonatal health, occupational health, and oncology.

Dentists typically complete 3 to 4 years of undergraduate university education, followed by 4 years of professional education in dental school. The 4 years of dental school are organized into 2 years of basic science and pre-clinical instruction followed by 2 years of clinical instruction. Unlike training programs for physicians, there is no universal requirement for dental residency training. However, a substantial proportion of dentists—about 65 percent of dental school graduates—enroll in dental specialty or general dentistry residency programs.

Supply of Primary Care Professionals Increased; Little Data Available on Minority Representation

In recent years, the supply of primary care professionals increased, with the supply of nonphysicians increasing faster than physicians. The numbers of primary care professionals in training programs also increased. Little information was available on trends during this period regarding minorities in training or actively practicing in primary care specialties.

In Recent Years, Supply of Primary Care Professionals Increased

In recent years, the number of primary care professionals nationwide grew faster than the population, resulting in an increased supply of primary care professionals on a per capita basis (expressed per 100,000 people). Table 1 shows that over roughly the last decade, per capita supply of primary care

physicians—internists, pediatricians, general practice physicians, and family practitioners—rose an average of about 1 percent per year,⁹ while the per capita supply of nonphysician primary care professionals—physician assistants and nurse practitioners—rose faster, at an average of about 4 percent and 9 percent per year, respectively. Nurse practitioners accounted for most of the increase in nonphysician primary care professionals. The per capita supply of primary care dentists—general dentists and pediatric dentists—remained relatively unchanged.

Table 1: Supply of Primary Care Professionals

	Number of primary care professionals		Number of primary care professionals per 100,000 people		Average annual percentage change per capita
	Base year	Recent year	Base year	Recent year	
Primary care physicians ^a	208,187	264,086	80	90	1.17
Physician assistants ^b	12,819	23,325	5	8	3.89
Nurse practitioners ^c	44,200	82,622	16	28	9.44
Dentists ^d	118,816	138,754	46	47	0.12

Sources: GAO analysis of data from HRSA's Area Resource File, AAPA, AANP, and the U.S. Census Bureau.

Notes: Data on primary care professionals for identical time periods were not available. The average annual percentage change is not sensitive to these time period differences.

^aData on primary care physicians include numbers for both MDs and DOs. Data for MDs are from 1995 and 2005, and for DOs are from 1995 and 2004.

^bData on physician assistants are from 1995 and 2007. Data on the total number of physician assistants were obtained from AAPA, then weighted by using the percentage of physicians assistants who practiced primary care according to the 1995 AAPA membership survey and the 2007 AAPA physician assistant census survey.

^cData on nurse practitioners are from 1999 and 2005. Data on the total number of nurse practitioners were obtained from AANP, then weighted by using the percentage of nurse practitioners who practiced primary care according to the AANP.

^dData on dentists are from 1995 and 2007.

⁹Allopathic medicine is the most common form of medical practice. Graduates of allopathic medical schools receive doctor of medicine (MD) degrees. Osteopathic medicine is a form of medical practice similar to allopathic medicine that also incorporates manual manipulation of the body as a therapy. Graduates of osteopathic medical schools receive doctor of osteopathic (DO) medicine degrees. The number of primary care physicians includes both MDs and DOs.

Growth in the per capita supply of primary care physicians outpaced growth in the per capita supply of physician care specialists by 7 percentage points in the 1995-2005 period. (See table 2.)

Table 2: Supply of Primary Care and Specialty Care Physicians, 1995 and 2005

	Number of physicians		Number of physicians per 100,000 people		Percentage change per capita
	1995	2005	1995	2005	
Primary care physicians	208,187	264,086	80	90	12
Specialty care physicians	468,843	553,451	181	189	5
All physicians	677,030	817,537	262	280	7

Source: GAO analysis of data from HRSA's Area Resource File.

Note: Numbers do not add to totals due to rounding.

By definition, aggregate supply figures do not show the distribution of primary care professionals across geographic areas. Compared with metropolitan areas, nonmetropolitan areas, which are more rural and less populated, have substantially fewer primary care physicians per 100,000 people. In 2005, there were 93 primary care physicians per 100,000 people in metropolitan areas, compared with 55 primary care physicians per 100,000 people in nonmetropolitan areas.¹⁰ Data were not available on the distribution of physician assistants, nurse practitioners, or dentists providing primary care in metropolitan and nonmetropolitan areas.¹¹

Number of Primary Care Professionals in U.S. Training Programs Increased from 1995 to 2006

For two groups of primary care professionals—physicians and nurse practitioners—the number in primary care training has increased in recent years. Over the same period, the number of primary care training programs for physicians declined, while programs for nurse practitioners increased. Comparable information for physician assistants and dentists was not available.

¹⁰Specialty care physicians are even more concentrated in metropolitan areas. In 2005, there were 33 specialty care physicians per 100,000 people in nonmetropolitan areas, compared with 200 specialty care physicians per 100,000 people in metropolitan areas. In total, there were 87 physicians per 100,000 people in nonmetropolitan areas and 293 physicians per 100,000 people in metropolitan areas in 2005.

¹¹One researcher, analyzing HRSA data, reported that in 2007 more than 30 million people were living in areas with too few dentists. Shelly Gehshan, "Foundations' Role in Improving Oral Health: Nothing to Smile About," *Health Affairs*, vol. 27, no. 1 (2008).

From 1995 to 2006, the number of physician residents in primary care training programs increased 6 percent, as shown in table 3. Over this same period, primary care residency programs declined, from 1,184 programs to 1,145 programs.

Table 3: Number of Physicians in Residency Programs, in the United States, 1995 and 2006

	Number of resident physicians		Percentage change
	1995	2006	
Primary care residents	38,753	40,982	6
Specialty care residents	59,282	63,897	8
All physician residents	97,416	104,526	7

Sources: AMA, "Appendix II: Graduate Medical Education," *Journal of the American Medical Association* (JAMA) vol. 276, no. 9 (September 1996) and "Appendix II: Graduate Medical Education, 2006-2007," JAMA vol. 298, no. 9 (September 2007).

Notes: Primary care residencies include those for family medicine, internal medicine, pediatrics, internal medicine/family practice, and internal medicine/pediatrics.

The composition of primary care physician residents changed from 1995 to 2006. A decline in the number of allopathic U.S. medical school graduates (known as USMD) selecting primary care residencies was more than offset by increases in the numbers of international medical graduates (IMG) and doctor of osteopathy (DO) graduates entering primary care residencies.¹² Specifically, from 1995 to 2006, USMD graduates in primary care residencies dropped by 1,655 physicians, while the number of IMGs and DOs in primary care residencies rose by 2,540 and 1,415 physicians respectively. (See table 4.)

¹²Physicians who enter U.S. residency programs include graduates of both U.S. medical schools and foreign medical schools. Physicians from foreign medical schools—international medical graduates—can be citizens of other countries or U.S. citizens who attended medical school abroad.

Table 4: Number of Physicians in Residency Programs, by USMDs, IMGs, and DOs, 1995 and 2006

	1995			2006		
	USMDs	IMGs	DOs	USMDs	IMGs	DOs
Primary care residents	23,801	13,025	1,748	22,146	15,565	3,163
Specialty care residents	45,300	11,957	1,585	47,575	12,611	3,466
All physician residents	69,101	24,982	3,333	69,721	28,176	6,629
Total (USMDs + IMGs + DOs)		97,416			104,526	

Sources: AMA, "Appendix II: Graduate Medical Education," *JAMA* vol. 276, no. 9 (September 1996) and "Appendix II: Graduate Medical Education, 2006-2007," *JAMA* vol. 298, no. 9 (September 2007).

Note: Primary care residencies include those for family medicine, internal medicine, pediatrics, internal medicine/family practice, and internal medicine/pediatrics.

From 1994 to 2005, the number of primary care training programs for nurse practitioners and the number of graduates from these programs grew substantially. During this period, the number of nurse practitioner training programs increased 61 percent, from 213 to 342 programs. The number of primary care graduates from these programs increased 157 percent from 1,944 to 5,000.

Little Information Available Regarding Minorities in Training or Actively Practicing In Primary Care Specialties

Little information was available regarding participation of minority health professionals in primary care training programs or with active practices in primary care.¹³ Physicians were the only type of primary care professional for whom we found information on minority representation. We found information not specific to primary care for physician assistants, nurse practitioners, and dentists identified as minorities, which may be a reasonable substitute for information on proportions of minorities in primary care.

For physicians, we used the proportion of minority primary care residents as a proxy measure for minorities in the active primary care physician

¹³HRSA's Health Careers Opportunity Program defines underrepresented minorities as racial and ethnic groups that are underrepresented in the health professions relative to their numbers in the general population. According to HRSA, African Americans, Hispanics, American Indians, and Alaska Natives are underrepresented in the health professions. During the period we examined, minority representation increased among the general population. Specifically, from 1995 to 2006, the proportion of African-Americans in the general population increased from 12.0 percent to 12.3 percent; the proportion of Hispanics increased from 10.3 percent to 14.8 percent; and the proportion of American Indian/Alaska Natives increased from 0.7 percent to 0.8 percent.

workforce. From 1995 to 2006, the proportion of primary care residents who were African-American increased from 5.1 percent to 6.3 percent; the proportion of primary care residents who were Hispanic increased from 5.8 percent to 7.6 percent. Data on American Indian/Alaska Natives were not collected in 1995, so this group could not be compared over time; in 2006, 0.2 percent of primary care residents were identified as American Indian/Alaska Natives.

Minority representation among each of the other health professional types—overall, not by specialty—increased slightly. AAPA data show that from 1995 to 2007, minority representation among physician assistants increased from 7.8 percent to 8.4 percent. AANP data show that from 2003 to 2005, minority representation among nurse practitioners increased from 8.8 percent to 10.0 percent. ADEA data show that from 2000 to 2005, the proportion of African-Americans among graduating dental students rose slightly from 4.2 percent to 4.4 percent, while the proportion of Hispanics among graduating dental students increased from 4.9 percent to 5.9 percent. The proportion of Native American/Alaska Native among graduating dental students grew from 0.6 percent to 0.9 percent.

Other demographic characteristics of the primary care workforce have also changed in recent years. In two of the professions that were traditionally dominated by men in previous years—physicians and dentists—the proportion of women has grown or is growing. Between 1995 and 2006, the proportion of primary care residents who were women rose from 41 percent to 51 percent. Growth of women in dentistry is more recent. In 2005, 19 percent of professionally active dentists were women,¹⁴ compared with almost 45 percent of graduating dental school students who were women.

¹⁴American Dental Association, “Survey and Economic Research on Dentistry: Frequently Asked Questions” (Chicago, Ill.: American Dental Association), <http://www.ada.org/ada/prod/survey/faq.asp> (accessed Jan. 7, 2008).

Uncertainties Exist in Projecting Future Supply of Health Care Professionals; Few Projections Are Specifically for Primary Care

Accurately projecting the future supply of primary care health professionals is difficult, particularly over long time horizons, as illustrated by substantial swings in physician workforce projections during the past several decades. Few projections have focused on the likely supply of primary care physician or nonphysician primary care professionals.

History of Physician Workforce Supply Predictions Illustrates Uncertainties in Forecasting

Over a 50-year period, government and industry groups' projections of physician shortfalls gave way to projections of surpluses, and now the pendulum has swung back to projections of shortfalls again. From the 1950s through the early 1970s, concerns about physician shortages prompted the federal and state governments to implement measures designed to increase physician supply. By the 1980s and through the 1990s, however, the Graduate Medical Education National Advisory Committee (GMENAC), the Council on Graduate Medical Education (COGME), and HRSA's Bureau of Health Professions were forecasting a national surplus of physicians. In large part, the projections made in the 1980s and 1990s were based on assumptions that managed care plans—with an emphasis on preventive care and reliance on primary care gatekeepers exercising tight control over access to specialists—would continue to grow as the typical health care delivery model. In fact, managed care did not become as dominant as predicted and, in recent years, certain researchers, such as Cooper,¹⁵ have begun to forecast physician shortages. COGME's most recent report, issued in January 2005, also projects a likely shortage of physicians in the coming years and,¹⁶ in June of 2006, the AAMC called for an expansion of U.S. medical schools and federally supported residency training positions.¹⁷ Other researchers have concluded that there are

¹⁵Richard A. Cooper et al., "Economic and Demographic Trends Signal an Impending Physician Shortage," *Health Affairs*, vol. 21, no. 1 (2002).

¹⁶COGME, "Sixteenth Report: Physician Workforce Policy Guidelines for the United States, 2000-2020" (January 2005).

¹⁷AAMC, "AAMC Statement on the Physician Workforce" (June 2006).

enough practicing physicians and physicians in the pipeline to meet current and future demand if properly deployed.¹⁸

Few Projections Address Future Supply of Primary Care Professionals

Despite interest in the future of the health care workforce, few projections directly address the supply of primary care professionals. Recent physician workforce projections focus instead on the supply of physicians from all specialties combined. Specifically, the projections recently released by COGME point to likely shortages in total physician supply but do not include projections specific to primary care physicians.¹⁹ Similarly, ADA's and AAPA's projections of the future supply of dentists and physician assistants do not address primary care practitioners separately from providers of specialty care. AANP has not developed projections of future supply of nurse practitioners.

We identified two sources—an October 2006 report by HRSA and a September 2006 report by AAFP—that offer projections of primary care supply and demand, but both are limited to physicians.²⁰ HRSA's projections indicate that the supply of primary care physicians will be sufficient to meet anticipated demand through about 2018, but may fall short of the number needed in 2020. AAFP projected that the number of family practitioners in 2020 could fall short of the number needed, depending on growth in family medicine residency programs.

HRSA based its workforce supply projections on the size and demographics of the current physician workforce, expected number of new entrants, and rate of attrition due to retirement, death, and disability. Using these factors, HRSA calculated two estimates of future workforce supply. One projected the expected number of primary care physicians,

¹⁸David Goodman et al., "End-Of-Life Care At Academic Medical Centers: Implications For Future Workforce Requirements," *Health Affairs*, vol. 25 no. 2 (2006) and Jonathan P. Weiner, "Prepaid Group Practice Staffing And U.S. Physician Supply: Lessons For Workforce Policy," *Health Affairs*, Web Exclusive (Feb. 4, 2004).

¹⁹COGME does not currently hold a position on the appropriate ratio of primary care physicians to specialty physicians. This is in contrast to the position COGME held from 1992 through 2004, which recommended that half of all physicians should be primary care physicians.

²⁰U.S. Department of Health and Human Services, HRSA, Bureau of Health Professions, "Physician Supply and Demand: Projections to 2020" (October 2006) and AAFP, "Family Physician Workforce Reform (as approved by the 2006 Congress of Delegates) Recommendations of the AAFP" (September 2006).

while the other projected the expected supply of primary care physicians expressed in full-time equivalent (FTE) units. According to HRSA, the latter projection, because it adjusts for physicians who work part-time, is more accurate.²¹ The agency projected future need for primary care professionals based largely on expected changes in U.S. demographics, trends in health insurance coverage, and patterns of utilization. HRSA predicted that the supply of primary care physicians will grow at about the same rate as demand until about 2018, at which time demand will grow faster than supply. Specifically, HRSA projected that by 2020, the nationwide supply of primary care physicians expressed in FTEs will be 271,440, compared with a need for 337,400 primary care physicians. HRSA notes that this projection, based on a national model, masks the geographic variation in physician supply. For example, the agency estimates that as many as 7,000 additional primary care physicians are currently needed in rural and inner-city areas and does not expect that physician supply will improve in these underserved areas.

In a separate projection, AAFP reviewed the number of family practitioners in the United States. AAFP's projections of future supply were based on the number of active family practice physicians in the workforce and the number of completed family practice residencies in both allopathic and osteopathic medical schools. AAFP's projections of need relied on utilization rates adjusted for mortality and socioeconomic factors. Specifically, AAFP estimated that 139,531 family physicians would be needed by 2020, representing about 42 family physicians per 100,000 people in the United States. To meet this physician-to-population ratio, AAFP estimated that family practice residency programs in the aggregate would need to expand by 822 residents per year.

Both reports noted the difficulties inherent in making predictions about future physician workforce supply and demand. Essentially, they noted that projections based on historical data may not necessarily be predictive of future trends. They cite as examples the unforeseen changes in medical technology innovation and the multiple factors influencing physician specialty choice. Additionally, HRSA noted that projection models of supply and demand incorporate any inefficiencies that may be present in the current health care system.

²¹The FTE projection takes into account an expected decrease in the number of hours worked by physicians due to demographic workforce changes, including a greater share of female physicians and older physicians, some of whom are likely to work less than full-time.

Move Toward Primary Care Medicine, A Key to Better Quality and Lower Costs, Is Impeded by Health Care System's Current Financing Mechanisms

Health professional workforce projections that are mostly silent on the future supply of and demand for primary care services are symptomatic of an ongoing decline in the nation's financial support for primary care medicine. Ample research in recent years concludes that the nation's over reliance on specialty care services at the expense of primary care leads to a health care system that is less efficient. At the same time, research shows that preventive care, care coordination for the chronically ill, and continuity of care—all hallmarks of primary care medicine—can achieve better health outcomes and cost savings. Despite these findings, the nation's current financing mechanisms result in an atomized and uncoordinated system of care that rewards expensive procedure-based services while undervaluing primary care services. However, some physician organizations—seeking to reemphasize primary care services—are proposing a new model of delivery.

Payment Systems That Undervalue Primary Care Appear to Be Counterproductive

Fee-for-service, the predominant method of paying physicians in the U.S., encourages growth in specialty services. Under this structure, in which physicians receive a fee for each service provided, a financial incentive exists to provide as many services as possible, with little accountability for quality or outcomes. Because of technological innovation and improvements over time in performing procedures, specialist physicians are able to increase the volume of services they provide, thereby increasing revenue. In contrast, primary care physicians, whose principal services are patient office visits, are not similarly able to increase the volume of their services without reducing the time spent with patients, thereby compromising quality. The conventional pricing of physician services also disadvantages primary care physicians. Most health care payers, including Medicare—the nation's largest payer—use a method for reimbursing physician services that is resource-based, resulting in higher fees for procedure-based services than for office-visit “evaluation and management” services.²² To illustrate, in one metropolitan area, Boston, Massachusetts, Medicare's fee for a 25 to 30-minute office visit for an established patient with a complex medical condition is \$103.42;²³ in

²²Evaluation and management (E/M) services refer to office visits and consultations furnished by physicians. To bill for their service, physicians select a common procedural terminology (CPT) code that best represents the level of E/M service performed based on three elements: patient history, examination, and medical decision making. The combination of these three elements can range from a very limited 10-minute face-to-face encounter to a very detailed examination requiring an hour of the physician's time.

²³The fee for this service in Boston, Mass., is represented on the fee schedule as CPT code 99214.

contrast, Medicare’s fee for a diagnostic colonoscopy—a procedural service of similar duration—is \$449.44.²⁴

Several findings on the benefits of primary care medicine raise concerns about the prudence of a health care payment system that undervalues primary care services. For example:

- Patients of primary care physicians are more likely to receive preventive services, to receive better management of chronic illness than other patients, and to be satisfied with their care.²⁵
- Areas with more specialists, or higher specialist-to-population ratios, have no advantages in meeting population health needs and may have ill effects when specialist care is unnecessary.²⁶
- States with more primary care physicians per capita have better health outcomes—as measured by total and disease-specific mortality rates and life expectancy—than states with fewer primary care physicians (even after adjusting for other factors such as age and income).²⁷
- States with a higher generalist-to-population ratio have lower per-beneficiary Medicare expenditures and higher scores on 24 common performance measures than states with fewer generalist physicians and more specialists per capita.²⁸

²⁴The fee for this service in Boston, Mass., is represented on the fee schedule as CPT code 45378.

²⁵A.B Bindman et al., “Primary Care and Receipt of Preventive Services,” *Journal of General Internal Medicine* vol. 11, no. 5 (1996); D.G. Safran et al., “Linking Primary Care Performance to Outcomes of Care,” *Journal of Family Practice*, vol. 47, no. 3 (1998); and A.C. Beal et al., “Closing the Divide: How Medical Homes Promote Equity in Health Care: Results From The Commonwealth Fund 2006 Health Care Quality Survey” (The Commonwealth Fund, June 2007).

²⁶B. Starfield et al., “The Effects Of Specialist Supply On Populations’ Health: Assessing The Evidence,” *Health Affairs* web exclusive (2005).

²⁷B. Starfield et al., “Contribution of Primary Care to Health Systems and Health,” *Milbank Quarterly*, vol. 83, no. 3 (2005).

²⁸K. Baicker and A. Chandra, “Medicare Spending, the Physician Workforce, and Beneficiaries’ Quality of Care,” *Health Affairs* web exclusive (2004).

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- The hospitalization rates for diagnoses that could be addressed in ambulatory care settings are higher in geographic areas where access to primary care physicians is more limited.²⁹

Some Health Care Reform Proposals Seek to Reemphasize Primary Care Medicine

In recognition of primary care medicine's value with respect to health care quality and efficiency, some physician organizations are proposing a new model of health care delivery in which primary care plays a central role. The model establishes a "medical home" for patients—in which a single health professional serves as the coordinator for all of a patient's needed services, including specialty care—and refines payment systems to ensure that the work involved in coordinating a patient's care is appropriately rewarded.

More specifically, the medical home model allows patients to select a clinical setting—usually their primary care provider's practice—to serve as the central coordinator of their care. The medical home is not designed to serve as a "gatekeeper" function, in which patients are required to get authorization for specialty care, but instead seeks to ensure continuity of care and guide patients and their families through the complex process of making decisions about optimal treatments and providers. AAFP has proposed a medical home model designed to provide patients with a basket of acute, chronic, and preventive medical care services that are, among other things, accessible, comprehensive, patient-centered, safe, and scientifically valid. It intends for the medical home to rely on technologies, such as electronic medical records, to help coordinate communication, diagnosis, and treatment. Other organizations, including ACP, the American Academy of Pediatrics (AAP), and AOA, have developed or endorsed similar models and have jointly recommended principles to describe the characteristics of the medical home.³⁰

Proposals for the medical home model include a key modification to conventional physician payment systems—namely, that physicians receive payment for the time spent coordinating care. These care coordination payments could be added to existing fee schedule payments or they could be included in a comprehensive, per-patient monthly fee. Some physician

²⁹M. Parchman et al, "Primary Care Physicians and Avoidable Hospitalizations," *Journal of Family Practice*, vol. 39, no. 2 (1994).

³⁰AAFP, AAP, ACP, AOA, "Joint Principles of the Patient-Centered Medical Home" (March 2007).

groups have called for increases to the Medicare resource-based fee schedule to account for time spent coordinating care for patients with multiple chronic illnesses. Proponents of the medical home note that it may be desirable to develop payment models that blend fee-for-service payments with per-patient payments to ensure that the system is appropriately reimbursing physicians for primary, specialty, episodic, and acute care.

Concluding Observations

In our view, payment system reforms that address the undervaluing of primary care should not be strictly about raising fees but rather about recalibrating the value of all services, both specialty and primary care. Resource-based payment systems like those of most payers today do not factor in health outcomes or quality metrics; as a consequence, payments for services and their value to the patient are misaligned. Ideally, new payment models would be designed that consider the relative costs and benefits of a health care service in comparison with all others so that methods of paying for health services are consistent with society's desired goals for health care system quality and efficiency.

Mr. Chairman, this concludes my prepared statement. I will be happy to answer any questions that you or Members of the committee may have.

Contact and Acknowledgments

For information regarding this testimony, please contact A. Bruce Steinwald at 202-512-7114 or steinwalda@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Jenny Grover, Assistant Director; Sarah Burton; Jessica Farb; Hannah Fein; Martha W. Kelly; and Sarabeth Zemel made key contributions to this statement.

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