
The State of Primary Care in the United States

A Chartbook of Facts and Statistics



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1. Introduction

Revitalizing the nation's primary care system is critical to achieving safe, high-quality, accessible, equitable, and affordable health care for all Americans. This chartbook describes the current state of primary care in the United States. It presents information from a variety of national data sources to answer questions about who, what, where, and how primary care is being delivered. Providing a single compendium of this data is critical to help guide decision makers and researchers at a time when health care delivery systems, especially primary care, are rapidly evolving. Understanding the current capabilities and capacities of primary care to assume transformational change will help guide initiatives to bolster primary care redesign and practice improvement.

1.1. Overview of Methods

In this chartbook, estimates of the primary care physician workforce come from the American Medical Association (AMA) Physician Masterfile. Estimates for other professionals come from a variety of other sources, including the Center for Medicare & Medicaid Services (CMS) National Provider and Plan Enumeration System (NPPES), based on a National Provider Identification (NPI) number. The NPI number is issued by CMS and is used for processing health care claims. Analysis of NPI data can identify physician assistants and nurse practitioners working alone or alongside primary care physicians. The estimates rely on NPPES data from 2017. Details about methods used to estimate the primary care workforce for the chartbook can be found in the Methods Appendix.

2. What is Primary Care?

The Institute of Medicine (IoM) defines primary care as “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing a sustained partnership with patients, and practicing in the context of family and community.”¹ A World Health Organization (WHO) report about primary health care recognized the important role and value of primary care. The report indicated that primary care should be:

- Comprehensive
- Integrated
- Continuous
- Empowering to the patient
- Bridge personal, family, and community health
- Health promoting
- Team-based²

Primary care is a core component of the United States health care system, and a strong primary care foundation is necessary to achieve the triple aims of improving the quality of care, improving the health of people and populations, and reducing the cost of health care. However, primary care practices and providers are struggling with increasing demands and expectations, diminishing economic margins, and workforce limitations.³ Primary care can enhance the performance of health care systems, but only if it is well designed, well delivered, and well used.⁴

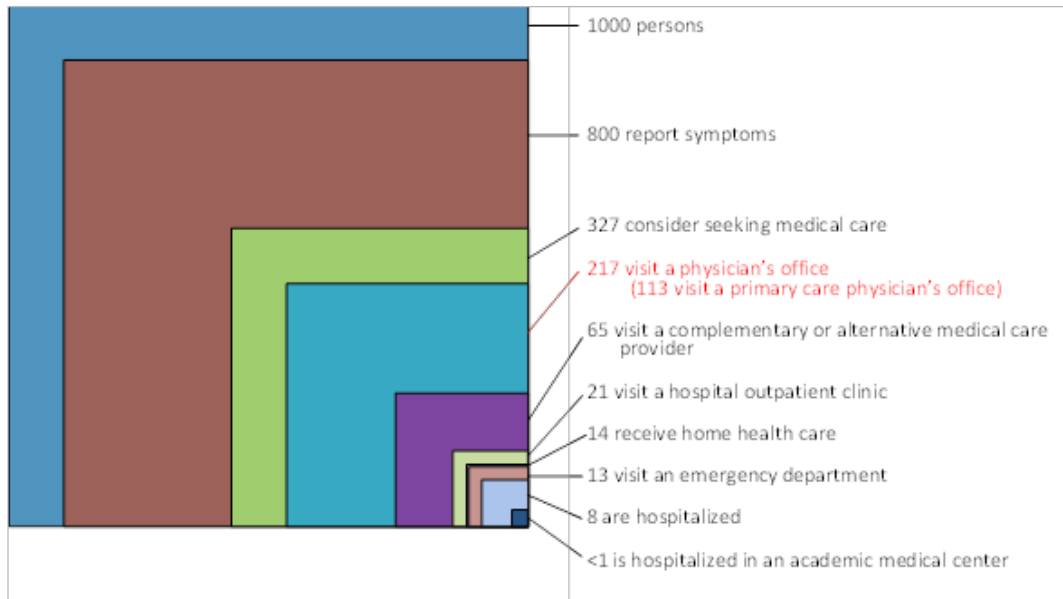
2.1. Ecology of Medical Care

Primary care continues to be the largest platform of formal health care in the United States. In 2001, an updated and expanded 40-year-old model of the use of primary care services estimated the number of Americans who experience certain health care events in a typical one-month period.⁵ Using multiple data sources and comparing primary care services to other medical specialty services, the model showed that more people seek primary care than any other type of health care service.

Figure 1 on the next page shows the proportion of Americans who seek various types of health care services in an average month. For every 1,000 people in the United States:

- 800 report symptoms
- 327 consider seeking medical care
- 217 visit a physician’s office (of which 113 visit a primary care physician)
- 104 visit a specialist physician
- 65 visit a complementary or alternative medical care provider
- 21 visit a hospital-based outpatient clinic
- 14 receive health services at home
- 13 visit an emergency department
- Eight are hospitalized
- Less than one person is hospitalized in an academic medical center⁵

Figure 1. The Ecology of Medical Care, 2001



2.2. What Are the Benefits of Primary Care

There is strong evidence of the benefits of primary care for both populations and personal health.⁶⁻¹⁷ Studies show that robust systems of primary care can improve health.⁶ Access to primary care can lower overall health care utilization,⁹⁻¹¹ increase the use of preventive services,¹² and lower disease and death rates.^{13,14,18} Primary care may reduce the negative health effects of income inequality on health and mortality, especially in areas where income inequality is greatest.^{15,16} Patient care delivered with a primary care orientation is associated with more effective, equitable, and efficient health services.¹⁷

3. Who Provides Primary Care?

The primary care workforce is different in the United States than in many other countries. The primary care health care function is performed by several physician specialties, as well as by nurse practitioners and physician assistant. In many other developed countries, primary care is typically only provided by general practitioners. The primary care physician workforce in the United States is only about one-third of the physician workforce,¹⁹ proportionally smaller than many international peers. Production of primary care physicians relative to specialty physicians has been in steady decline for decades.²⁰ The proportion of the primary care health care workforce also declined during this period.²¹

3.1. Primary Care Physicians

In 2017, there were more than 223,000 direct patient care physicians in the five major primary care specialties (**Table 1**). The number of geriatricians is relatively small. The major specialty of primary care physicians is family medicine, accounting for more than 39% of the total primary care physician workforce, followed by general internal medicine and general pediatrics. Primary care physicians make up less than one-third of the physicians who spend most of their time caring for patients.¹⁹

Table 1. Number of Office-Based, Direct Patient Care Physicians by Specialty, 2017

Physician Type	Number of Physicians	Percent of Primary Care Physicians	Percent of Total
Total Physicians	699,670	-	100.0%
Non-Primary Care Physicians	476,546	-	68.1%
Total Primary Care Physicians	223,125	100.0%	31.9%
Family Physicians	88,197	39.5%	12.6%
Geriatrics	4,170	1.9%	0.6%
General Practice	6,097	2.7%	0.9%
General Internal Medicine	77,068	34.5%	11.0%
General Pediatrics	47,593	21.3%	6.8%

Source: American Medical Association (AMA) Physician Masterfile (2017)

3.2. Primary Care Nurse Practitioners and Physician Assistants

In 2017, there were more than 129,000 nurse practitioners (NPs) who held a National Provider Identifier (NPI) number (**Table 2**). More than half were likely practicing primary care. There were more than 80,000 physician assistants (PAs) who held an NPI number, with fewer than half (36,119) likely to be practicing primary care (**Table 2**).²²

Table 2. Estimates of Nurse Practitioners and Physician Assistants in Primary Care, 2016

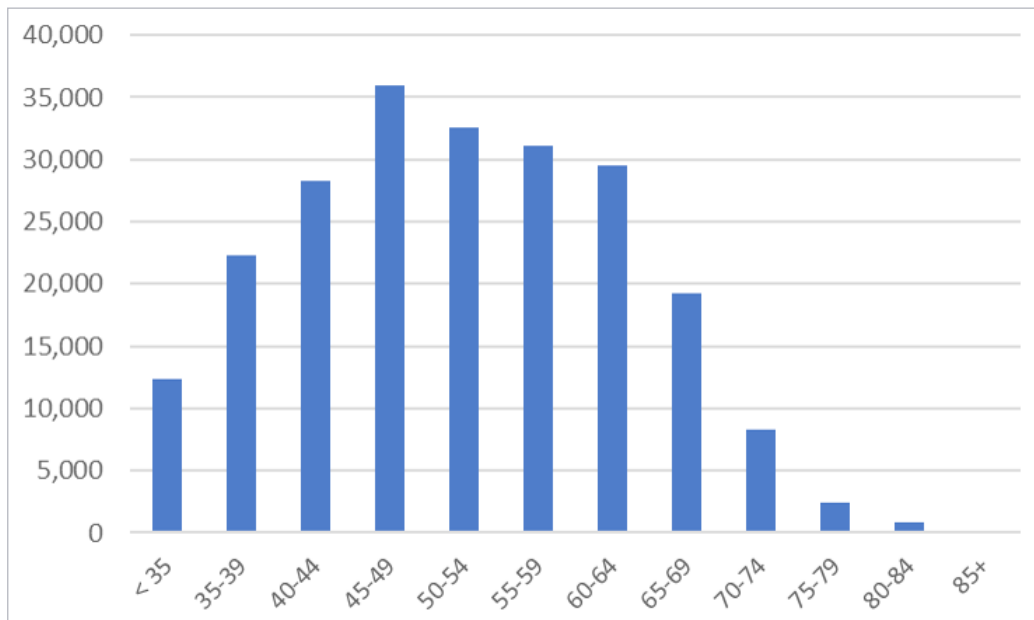
Provider Type	Total Number	Percent of Primary Care (AHRQ)	Number in Primary Care
Nurse Practitioners	129,961	52.0%	67,580
Physician Assistants	83,224	43.4%	36,119

Source: Medicare Provider Enrollment, Chain, and Ownership System (PECOS), 2016; AHRQ Primary Care Workforce Facts and Stats No. 2

3.3. Age Distribution of Primary Care Physicians

Most primary care physicians arrive in the workforce in their late 20s, and typically remain in the workforce for 40 years. The increased interest in primary care in the late 1990s likely explains the age peak of physicians in their early 40s (**Figure 2**). In 2017, more than one-quarter of primary care physicians were aged 60 years and older.¹⁹

Figure 2. Age Distribution of Primary Care Physicians, 2017



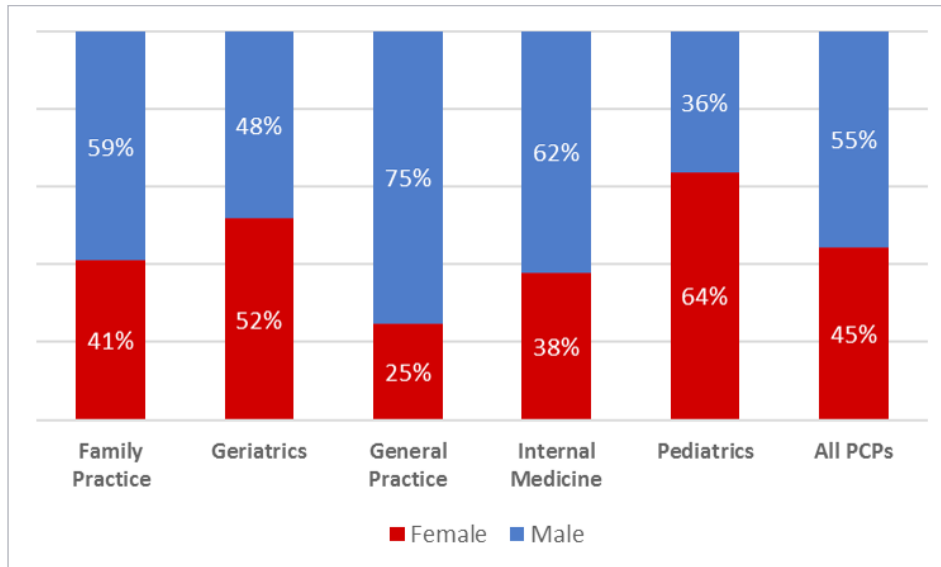
Source: American Medical Association (AMA) Physician Masterfile (2017)

Physician assistants in primary care are younger on average than physicians. Only 14% of primary care PAs are aged 60 years or older. The median age is 37 years.²³ Age distribution data were not available for primary care nurse practitioners.

3.4. Primary Care Providers by Gender

Women are the majority of pediatricians and also predominate the nurse practitioner and geriatrics professions (Figure 3).¹⁹

Figure 3. Primary Care Physicians by Gender and Specialty

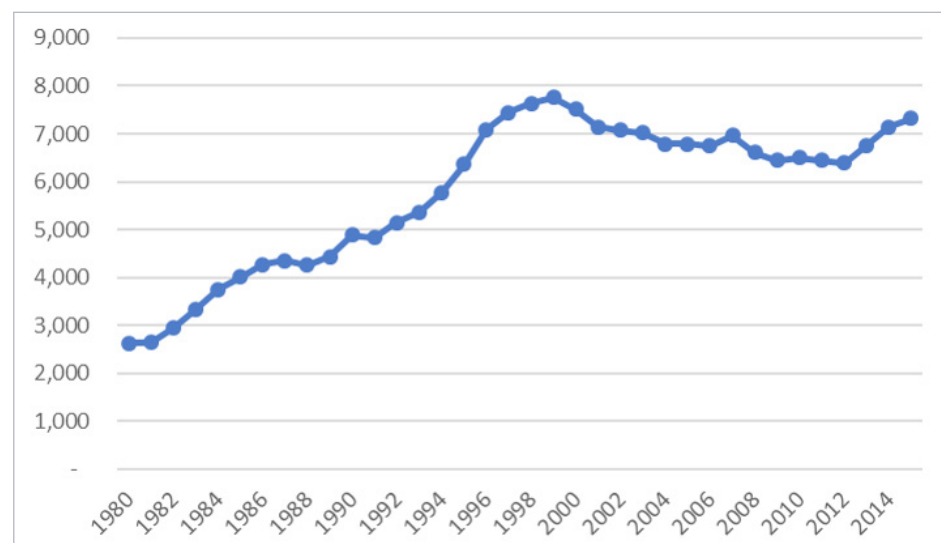


Source: American Medical Association (AMA) Physician Masterfile (2017)

3.5. Growth in Number of Graduates from Primary Care Residencies

The number of graduates from primary care residency training programs peaked in the 1990s.¹⁹ There is a long lag period after completion of training before a physician's practice specialty or location is certain. Data sources, such as the AMA Physician Masterfile, reflect this period of uncertainty for recent residency graduates.

Figure 4. Primary Care Physicians by Year of Residency Graduation, 1980-2015



Source: American Medical Association (AMA) Physician Masterfile (2017)

4. Where is Primary Care Provided?

The unequal geographic distribution of physicians is an enduring problem noted more than a hundred years ago by Abraham Flexner, and revisited by federal agencies and advisory groups many times in the past 30 years. According to the Organization for Economic Cooperation and Development (OECD), the number of physicians per 1,000 residents in the United States is slightly lower than the average in other similarly developed OECD countries—2.6 for the United States compared to the OECD average of 3.3.²⁴ However, there is significant variation in the United States at the state level.²⁵

Family physicians, as well as primary care nurse practitioners and physician assistants are more likely than other providers to provide care in rural and remote areas. The number of providers at practice sites also varies significantly, but even as recently as 2016, the majority of clinic sites have five or fewer providers.²⁶

4.1. Ratios of Primary Care Professionals to Population by Specialty

Nationally, there are 216.5 physicians per 100,000 persons. Of those, 69.1 are primary care physicians (**Table 3**). There are 101.1 primary care providers overall per 100,000 population, including physicians, physician assistants, and nurse practitioners. This translates to one primary care physician for about every 1,450 people in the United States, and one primary care professional for every 1,000 people.^{19,22,27}

There are substantial variations between primary care specialties and professions. Pediatric and geriatric physician ratios are adjusted for the appropriate population ages. Physician assistant and nurse practitioner ratios are considerably higher because of the smaller numbers of professionals. **Table 3** shows both the number of health care professionals per 100,000 population and the ratio of persons per provider.^{19,22,27} As a benchmark, 2,000 to 2,500 persons per provider is considered an average panel size.²⁸

Table 3. Primary Care Professionals per 100,000 Population by Specialty

Specialty	Providers per 100,000	Persons per Provider
Family Medicine	27.3	3,664
General Practice	1.9	52,998
General Internal Medicine	23.9	4,193
Geriatrics*	8.5	11,778
General Pediatrics†	64.6	1,548
Primary Care Nurse Practitioners	20.9	4,781
Primary Care Physician Assistants	11.2	8,946
All Primary Care Physicians	69.1	1,448
All Primary Care Providers	101.1	989
All Physicians	216.5	462

Sources: American Medical Association Physician Masterfile (2017) (Physicians); Medicare Provider Enrollment, Chain, and Ownership System (PECOS) (2016) (NPs/PAs); United States Census Bureau (2017) (Population)

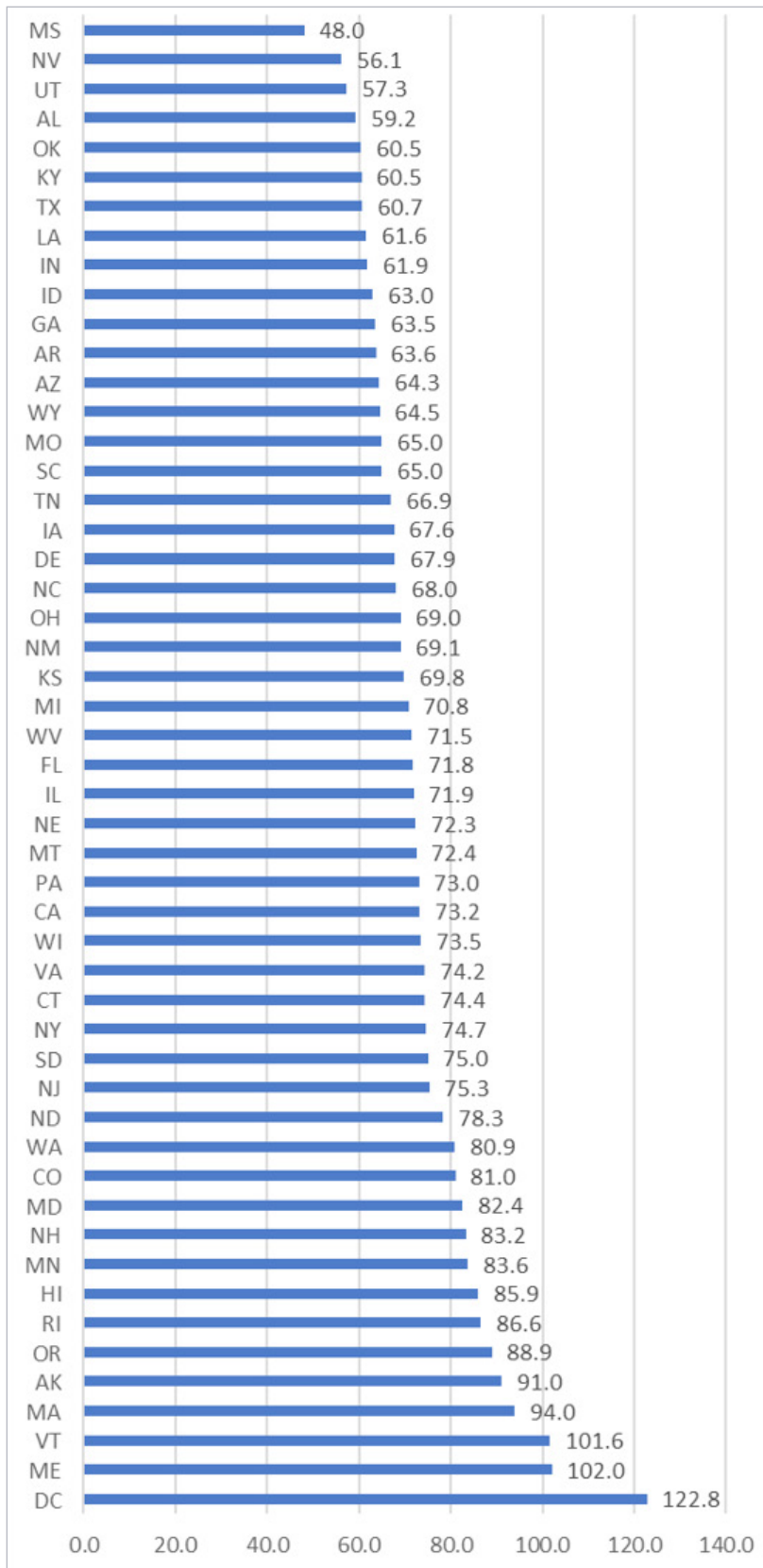
*Population: Persons Age 65 or Older

†Population: Persons Under Age 18

4.2. Primary Care Physician to Population Ratios by State

The number of primary care physicians per 100,000 population varies significantly by state (**Table 4**). Mississippi has the lowest, with 48, and Maine the highest, with 102 primary care physicians per 100,000 people. The District of Columbia has an even higher physician-to-population ratio of 122.8. The Northeast, Northwest, and northern Midwest have the highest ratios of primary care physicians per population.¹⁹

Table 4. Primary Care Physicians per 100,000 Population by State, 2017



Source: American Medical Association (AMA) Physician Masterfile (2017)

4.3. Primary Care Professionals by Rural/Urban Geography

Table 5 shows that primary care physicians are significantly more represented in non-metropolitan areas than specialists. This relationship is especially true among family physicians. Specialists, internists, pediatricians, and geriatricians are all more highly concentrated in highly populated urban areas than the United States population as a whole.^{19,29}

Table 5. Primary Care Professionals by Metropolitan Statistical Area (MSA) Status

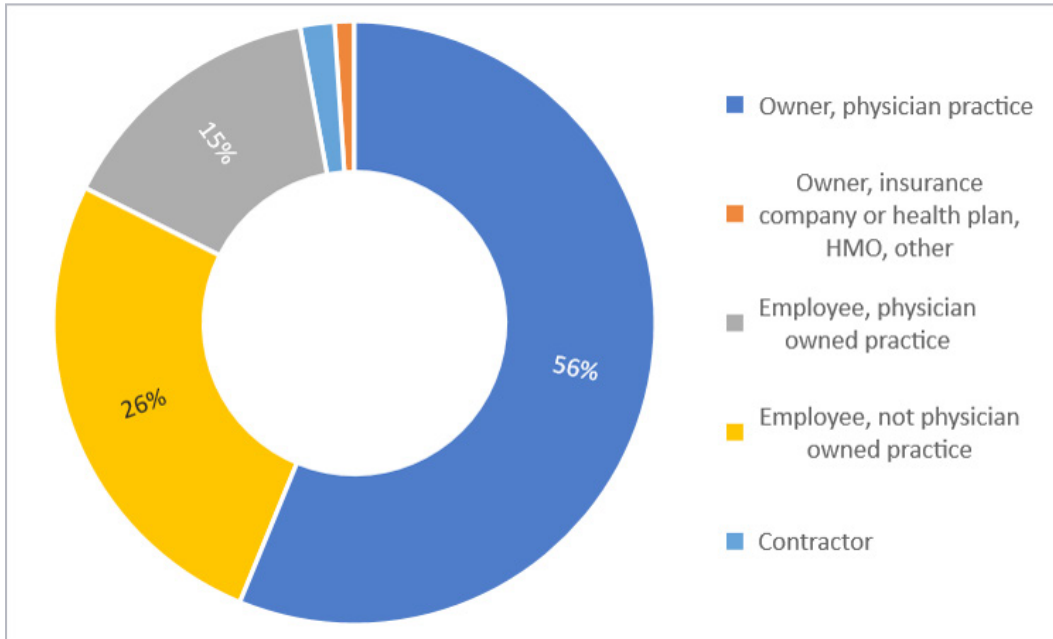
Population Range	Percent of U.S. Population	Non-Primary Care	Primary Care	Family Medicine	Internal Medicine	Pediatrics	General Practice	Geriatrics
MSA								
1,000,000+	54.7%	63.5%	58.2%	48.1%	65.5%	65.9%	46.0%	67.3%
250,000-1,000,000	21.2%	21.1%	21.3%	24.2%	19.6%	19.5%	15.8%	20.8%
< 250,000	9.2%	8.4%	8.6%	11.0%	7.3%	6.9%	7.0%	6.1%
Non-MSA								
20,000+	5.9%	3.4%	4.5%	6.2%	3.4%	3.3%	5.1%	2.2%
2,500-19,999	7.4%	2.1%	4.9%	8.1%	2.7%	2.3%	7.8%	1.9%
< 2,500	1.5%	0.2%	0.7%	1.3%	0.3%	0.2%	1.8%	0.3%

Sources: American Medical Association (AMA) Physician Masterfile (2017); United States Census Bureau (2010) (Population); For non-MSA counties, Rural-Urban Continuum Codes (RUCC) combined across adjacency/non-adjacency to MSA (4-5, 6-7 and 8-9).

4.4. Primary Care Practices by Ownership

Primary care physicians may own their practices, work as employees of another physician, work as employees in non-physician owned practices, or work as independent contractors (**Figure 5**). The majority of primary care offices are owned by a physician or physician group. Approximately 56% of primary care physicians are full or partial owners of their practices. A smaller percentage (41%) of primary care physicians are employees, of which 15% are employed in physician-owned practices and 26% are employed in non-physician owned practices. A small percentage of primary care physicians (2%) are independent contractors.³⁰

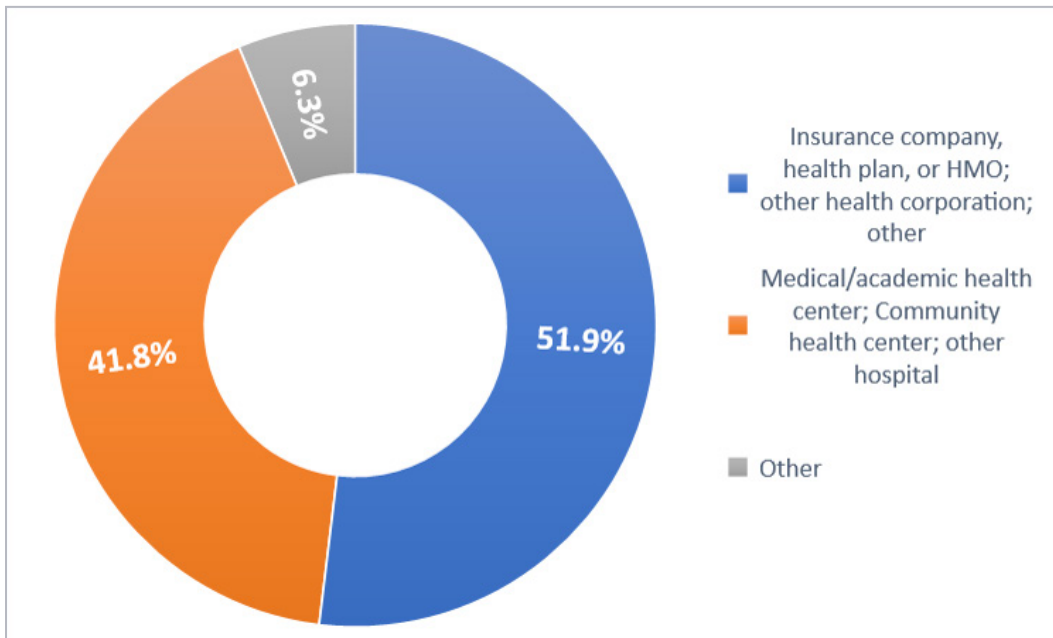
Figure 5. Primary Care Physicians by Employment Status, 2014



Source: National Ambulatory Medical Care Survey (NAMCS) (2014)

Of the primary care physicians who work in non-physician owned practices, as reported by physicians for the National Ambulatory Medical Care Survey (NAMCS), 52% are in practices owned by insurers, health plans, HMOs, or other corporate entities. Approximately 42% are in medical, academic, or community health centers (**Figure 6**).³⁰

Figure 6. Distribution of Primary Care Physicians in Non-Physician Owned Practices, 2014



Source: National Ambulatory Medical Care Survey (NAMCS) (2014)

5. Who Visits Primary Care Practices?

Primary care providers care for patients of all ages and with a broad range of acute and chronic physical and psychosocial conditions, including multiple chronic conditions. Primary care providers also deliver clinical preventive services, provide patient education, and coordinate care with other providers. Despite being just one-third of the health care workforce,¹⁹ half of all physician office visits are to primary care physicians,³⁰ and primary care providers provide the majority of visits for most people with chronic conditions. Nurse practitioners and physician assistants are authorized to practice and prescribe medications in all states and the District of Columbia, though their scope of practice varies by state and practice site.

5.1. Office Visits to Physicians by Specialty

In 2014, Americans made nearly 900 million visits to office-based physicians with more than 52% of those visits were made to primary care physicians.³⁰ Though they had over half of the office visits,³⁰ primary care physicians make up only one-third of the physician workforce.¹⁹ The largest number of office-based primary care physician visits (nearly 200 million) were to family medicine or general practice physicians.³⁰ Visits to general internists and general pediatricians represent the second and third most-visited specialties, with more than 224 million combined visits (**Table 6**).³⁰

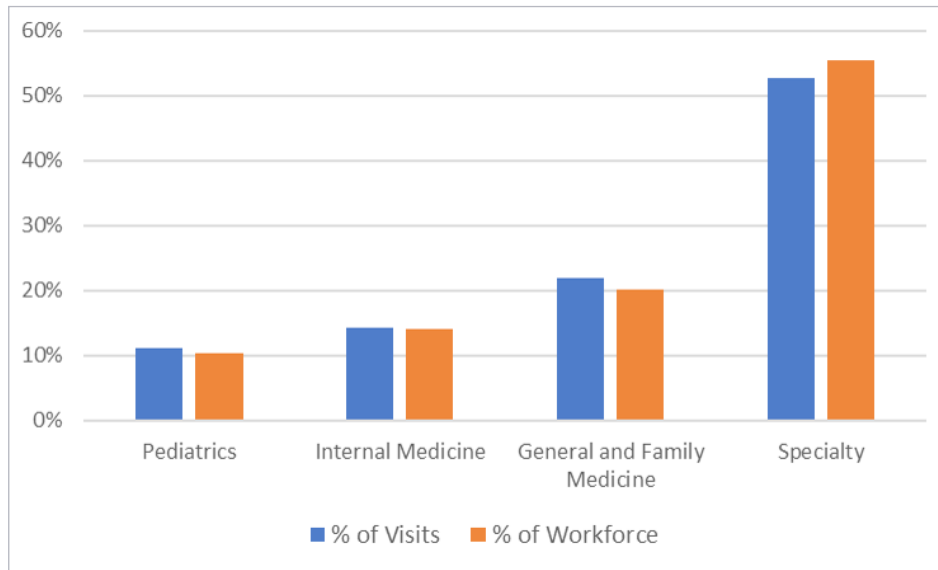
Table 6. Physician Office Visits by Specialty, 2014

Physician Specialty	Number of Visits	Percent of Visits
General and family medicine	193,275,946	21.8%
Internal medicine	126,759,739	14.3%
Pediatrics	95,286,835	10.8%
All primary Care	415,322,520	46.9%
Other Medical Specialities	218,918,724	24.7%
Surgical specialities	250,466,074	28.3%
All Visits	884,707,318	100.0%

Source: National Ambulatory Medical Care Survey (NAMCS) (2014)

Figure 7 shows the proportion of visits compared to percentage of workforce by primary care providers and specialists.

Figure 7. Visits to Office-based Physicians by Specialty, 2014

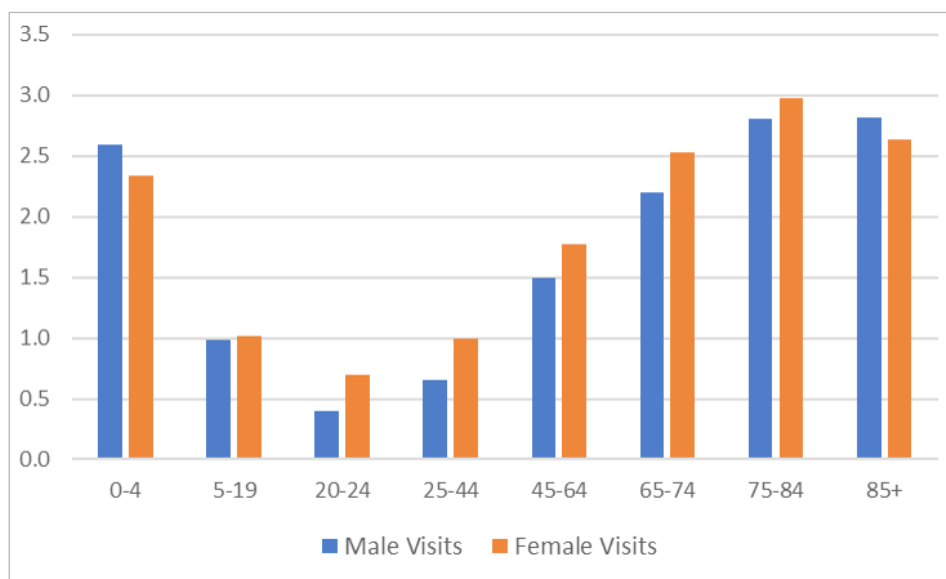


Source: National Ambulatory Medical Care Survey (NAMCS) (2014)

5.2. Outpatient Visits to Primary Care Physicians by Patient Age and Sex

The Medical Expenditure Panel Survey (MEPS) provides information about patients who made visits to a primary care office. The number of visits to primary care physicians varies by age and sex (Figure 8). The youngest patients (0-4 years) and oldest patients (65-100 years) tend to visit primary care offices more frequently. The youngest age group averages approximately 2.5 visits per year; older age groups average 2.5 to 3 visits per year. Across all age groups, females have a higher mean number of primary care office visits (1.65) per year than males (1.44).³¹

Figure 8. Primary Care Office Visits by Age and Sex, 2014

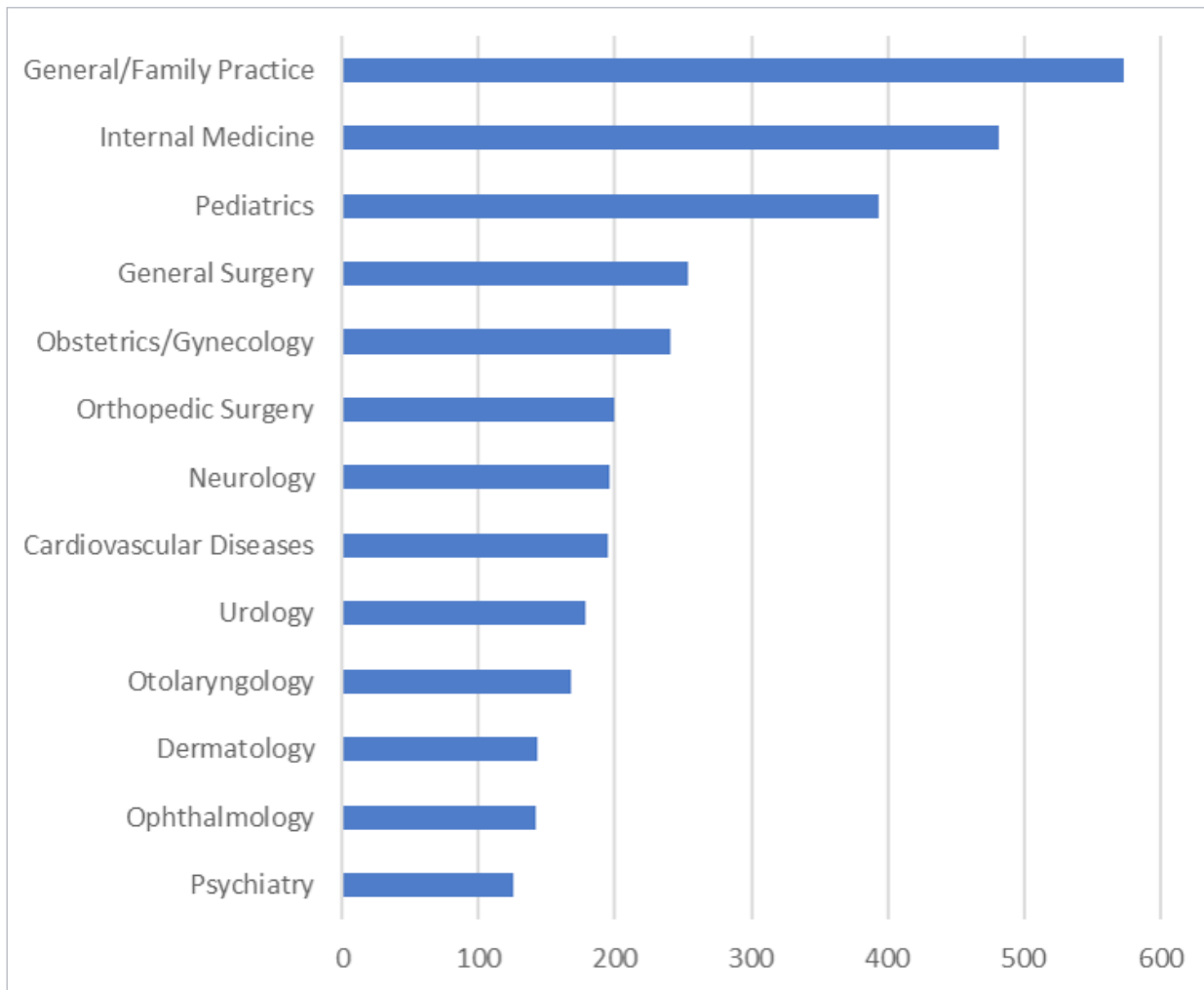


Source: Medical Expenditure Panel Survey (MEPS) (2014)

5.3. Primary Care Physicians' Scope of Practice

Primary care physicians care for a broad range of conditions and illnesses. The scope of primary care physician practice can be measured by the distribution of the diagnosis codes they use. The number of diagnosis codes used by primary care physicians is broader than that of non-primary care physicians, whose diagnosis codes cluster around the organs or illnesses of their specialty. **Figure 9** indicates the number of unique International Classification of Disease, Ninth Revision (ICD-9) diagnosis codes by primary care and selected specialties. Primary care physicians treat a wide range of conditions along the spectrum of ICD classified conditions.³⁰

Figure 9. Scope of Practice by Number of ICD-9 Diagnosis Codes for Primary Care and Selected Physician Specialties, 2014



Source: National Ambulatory Medical Care Survey (NAMCS) (2014)

5.4. Primary Care for Patients with Chronic Conditions

Chronic conditions are prolonged in duration. They include diabetes, heart disease, arthritis, and asthma. Nearly half of all adults in the United States (133 million) have at least one chronic condition.³² Primary care physicians care for a large portion of patients with chronic diseases. Primary care nurse practitioners and physician assistants see patients with these chronic diseases, as well. However, data about the care they provide is not easily accessible. Within a group of eight common chronic diseases, primary care physicians see a large proportion of patients with these conditions (**Table 7**). For example, in 2014, 84% of Americans, over 62 million people with high blood pressure who sought care, visited a primary care physician.³¹

More people with hypertension, diabetes, and asthma visit a primary care physician each year than visit a specialist for treatment of these conditions. Even people with less common, severe chronic diseases, such as multiple sclerosis or Parkinson's disease, generally see a primary care physician each year, in addition to seeing a specialist, such as a neurologist.³¹

Table 7. Patients with Chronic Conditions Who Visited or Talked to a Physician, 2014

Condition	Total Patients	Visited Primary Care Physician	Percent	Visited Subspecialist	Percent
Hypertension	62,170,492	52,086,268	84%	44,432,708	71%
Diabetes	25,663,376	22,019,702	86%	18,765,232	73%
Asthma	19,047,216	15,723,148	83%	12,700,747	67%
Arthritis	15,379,356	12,487,497	81%	12,831,979	83%
Glaucoma	4,193,069	3,109,622	74%	3,893,425	93%
Congestive Heart Failure	1,976,929	1,675,103	85%	1,786,331	90%
Multiple Sclerosis	695,295	528,726	76%	585,317	84%
Parkinson's	541,854	508,272	94%	521,756	96%

Source: Medical Expenditure Panel Survey (MEPS) (2014)

6. How Much Do We Pay for Primary Care?

According to the Centers for Medicare & Medicaid Services (CMS), total health care spending in the United States reached \$3.3 trillion in 2016.³³ Despite being the largest specialty for care in the United States,¹⁹ primary care accounts for a small portion of health care spending.³¹ While accounting for more than half of patient visits in the country,¹⁹ physicians who deliver primary care have lower incomes than those that work in other specialties.³⁴

6.1. Expenditures for Primary Care

Only 6% of total spending for personal health services represents payments to primary care physicians.³⁵ According to the Medical Expenditure Panel Survey, which captures household expense data for non-institutionalized populations in the United States, office-based primary care accounted for only 6% of total health expenditures in 2014 (**Table 8**).³¹

Table 8. Expenditures on Health Care by Service Type, 2014

Services	Total Expenses (In Millions)	Percent of Total
Primary care, office-based	\$85,688	6.0%
Specialist, office-based	\$219,425	15.4%
Non-physician, office-based	\$128,394	9.0%
Emergency room	\$65,362	4.6%
Prescriptions	\$350,168	24.6%
Home Health	\$67,271	4.7%
Dental	\$91,879	6.5%
Inpatient	\$381,931	26.9%
Vision	\$14,898	1.0%
Other	\$15,839	1.1%
Total	\$1,420,855	100.0%

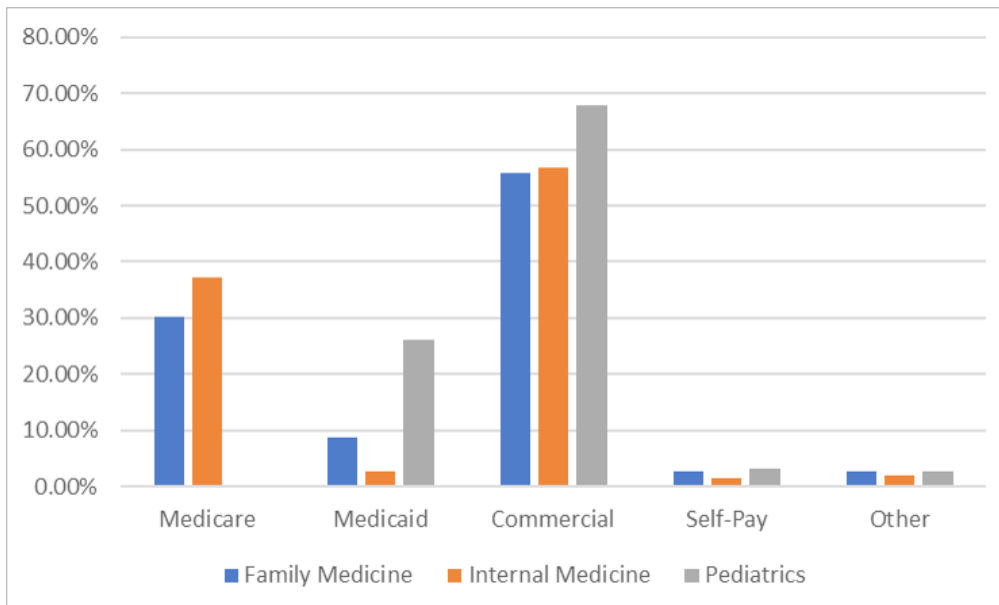
Source: Medical Expenditure Panel Survey (MEPS) (2014)

Note: Office-based and outpatient expenditures consist of facility and physician expenses for all office-based and outpatient visits. 'Other' includes expenditures on medical equipment and services.

6.2. Primary Care Payment Sources

Public health insurance (Medicare and Medicaid), as a proportion of all payment sources, varies among the three major primary care specialties (family medicine, internal medicine, and pediatrics) (**Figure 10**). This is largely reflective of the age ranges of the patients that different primary care specialists treat. For all three specialties, more than half of their patients have commercial insurance. Internists care for a large number of elderly patients, which is reflected in the high percentage of patients who participate in Medicare. General pediatricians see a larger percentage of children, which is reflected in the high percentage of patients who participate in Medicaid.³⁶

Figure 10. Primary Care Payment Sources, 2014



Source: Medical Group Management Association (MGMA) Cost and Revenue Survey (2015)

6.3. Physician, Nurse Practitioner, and Physician Assistant Income

Table 9 shows the median income of primary care physicians, nurse practitioners, and physician assistants. The median income for a family physician in 2013 was \$204,411, slightly less than that of a general internist, but higher than for a pediatrician or geriatrician. Primary care nurse practitioners and physician assistants earned essentially the same, at just more than \$90,000 a year.³⁷

Table 9. Median Annual Income by Specialty, 2013

Physician Specialty	Median Income, 2013
Family Medicine	\$204,411
General Internal Medicine	\$215,689
General Pediatrics	\$203,948
Geriatrics	\$195,000
Primary Care Nurse Practitioner	\$91,518
Primary Care Physician Assistant	\$92,635

Source: Medical Group Management Association (MGMA) Physician Compensation and Production Survey (2013)

7. Conclusion

Despite renewed interest in strengthening primary care in the United States in recent years, many challenges remain. Foremost among them is assuring an adequate number and distribution of primary care providers. For example, more than 25% of the current primary care physician workforce is 60 or older, and likely to retire during the next five to 10 years. Many of these older physicians practice in rural areas.³⁸

The primary care provider shortage is exacerbated by a growing mismatch between the needs of the United States population for primary care providers and current trends in graduate medical education and training. During the past decade, there has been a steady decline in interest among United States medical school graduates in primary care as a career choice.³⁹ Population growth, population aging, and health insurance expansion under the Affordable Care Act will likely create additional demand for primary care providers.

A study projects that by 2025, the United States will require nearly 261,000 practicing primary care physicians, an increase of almost 52,000 more than the labor pool at the time of the analysis.⁴⁰ Part of this projected need can be met by enhancing an interprofessional, team-based approach to primary care that shifts roles of physicians, and accommodates increasing numbers of nurse practitioners and physician assistants in the primary care workforce. Innovative models for more efficiently delivering primary care services can also help address the growing demand.

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Methods Appendix

Estimating the numbers of primary care physicians

The methods used for estimating the number of primary care physicians are based on the 2017 American Medical Association (AMA) Physician Masterfile and described in literature.¹ The following section describes similar methods used to update those estimates based on the 2017 AMA Physician Masterfile. Primary care physicians were identified by selecting physicians in direct patient care with a primary, self-designated specialty of family medicine, general practice, general internal medicine, general pediatrics, or geriatrics. Note that it is assumed that physicians reporting these specialties have not further specialized. In the AMA Physician Masterfile, physicians who first trained in internal medicine and then obtained further training are not still classified in internal medicine.

Retirement: Undercounting and Correction

Due to the difficulty in determining when a physician retires, the AMA Physician Masterfile undercounts retirees. There are various ways to correct this problem. Workforce estimates from the Association of American Medical Colleges² or Health Resources and Services Administration (HRSA)³ adjust AMA counts downward using results from a study of physicians over the age of 50, which includes a question about retirement intentions. The approach used in this chartbook adjusted AMA counts based on a comparison of the age distribution of physicians in the AMA Physician Masterfile with the subset of these physicians who could be matched in the National Plan and Provider Enumeration System (NPPES) database.

Physician counts were decreased by 3% for those 55 to 59 years, 8.7% for those 60 to 64 years, 20.1% for those 65 to 69 years, 26.2% for those 70 to 74 years, 38.4% for those 75 to 79 years, 54.3% for those 80 to 84 years, 70.6% for those 85 to 89 years, 81.4% for those 90 to 98 years, and 100% for those 99 years and older.

Hospitalists

A second correction made to the data is the exclusion of physicians with a primary care specialty working as hospitalists and those in non-primary care settings. We used an estimate, based on work by Kuo and his colleagues, that about 20% of general internists worked as hospitalists.⁴ We used data from the American Board of Family Medicine (ABFM) about time allocated to different activities by board certified family physicians which stated that one in fifteen respondents devoted 80% or more of their time to emergency or urgent care.⁵ Based on this analysis, we assumed that about 5% of family physicians, pediatricians, and geriatricians worked in non-primary care settings. After these modifications, our estimate of the size of the workforce was reduced by about 25,000 (from 240,762 to 215,206). In its estimate of the size of the primary care workforce, HRSA relied on figures from the Society of Hospital Medicine, which estimated that there were 28,000 hospitalists in practice in 2010.³ HRSA made no correction for primary care trained physicians working in urgent or emergency care.

Unspecified Specialties

There are other sources of undercounts and overcounts in the AMA Physician Masterfile. Our 2013 figures may undercount physicians as we excluded the nearly 10,000 physicians with unspecified specialties, a fraction of which are certainly in primary care. There are also about 20,000 physicians with unknown patient care status, many of whom are in transition between residency and direct patient care, but also many who have not yet obtained board certification or have left medicine. We estimate that an additional 10,000 to 11,000 of these physicians with unknown patient care status may be in the workforce. Based on examinations of the National Ambulatory Medical Care Survey (NAMCS) and the Health Tracking Survey, both of which used the AMA Physician Masterfile as a sampling frame, HRSA and others have voiced concern that the masterfile does not adequately capture physicians who have left direct patient care and recent graduates from osteopathic residencies. HRSA estimates that this overcount is approximately 8%. Without more reliable data, our own calculations assume that the overcounts and undercounts are more or less offsetting.

Descriptions of data sources

Medical Expenditure Panel Survey (MEPS)

The Medical Expenditure Panel Survey (MEPS) comprises surveys of households, health care and insurance providers, and nursing homes.⁶ MEPS Household Component (MEPS-HC) is a set of large-scale surveys of families and individuals, their medical providers, and employers across the United States. The MEPS-HC survey collects nationally representative data on demographic characteristics, health conditions, health status, use of medical care services, charges and payments, access to care, satisfaction with care, health insurance coverage, income, and employment. Interviews are conducted with one member of each family who reports on the health care experiences for the entire family. Starting in 1996, a new household MEPS sample has been drawn each year from the respondents to the National Health Interview Survey (NHIS) of the preceding year. After a preliminary contact, that sample, or “panel” is interviewed five times over the next two and a half years. Each panel represents a new sample and each round within a panel represents interviews during one of five, discrete, six-month time periods. Since new panels are formed in subsequent years, the panels overlap, increasing the effective sample size at a given time⁷

American Medical Association Physician Masterfile

The AMA Physician Masterfile is a proprietary data set maintained by the American Medical Association (AMA) that includes a near complete listing of all physicians in the United States. More than 1.4 million physicians, residents, and medical students in the United States have current and historical data in the AMA Physician Masterfile. The AMA Physician Masterfile includes detailed information about each individual, including their age, gender, self-reported specialty, practice address, type of medical degree (MD or DO), practice type, specialty, and home address.⁸ The Robert Graham Center holds AMA Physician Masterfile data for each year between 2000 and 2014 with the exception of 2003. The Robert Graham Center geo-codes the addresses in the file (98% match rate) and can readily match the addresses with other geographic data.

Centers for Medicare & Medicaid Services (CMS) National Plan and Provider Enumeration System (NPPES)

The Centers for Medicare & Medicaid Services (CMS) National Plan and Provider Enumeration System (NPPES) Downloadable File (2008-Present) is a freely available public data set that contains rich information on health care providers, including the National Provider Identifier (NPI), practice address, and practice arrangements.⁹ The Health Insurance Portability and Accountability Act of 1996 (HIPAA) mandated that the required identifier for Medicare services, the unique provider identification number (UPIN), be replaced by the NPI. Other payers, including commercial health care insurers, also use the NPI. The NPI is a 10-position, intelligence-free numeric identifier (10-digit number). In October 2006, CMS began issuing NPIs. By May 23, 2007, all HIPAA covered entities, such as providers completing electronic transactions, health care clearinghouses, and large health plans, were required to use only the NPI to identify covered health care providers. One of the advantages of the NPPES data is that it is not restricted to physicians, permitting an analysis of nurse practitioners (NPs), physician assistants (PAs), and certified nurse midwives. The NPPES data also contain more precise physician address information than the AMA Physician Masterfile data. A drawback of the NPPES data is the lack of an indicator for currently active providers. Although the NPPES data identifies NPs and PAs, the data does not include a clear identifier of NPs and PAs who provide primary care. Address information can be used to create an identifier for nurse practitioners and physician assistants who are located with other primary care providers.

Medical Group Management Association

The Medical Group Management Association (MGMA) is a for-profit agency that surveys medical professionals to create reports mostly relating to cost or compensation in the medical field.¹⁰ The Physician Compensation and Productivity Report describes the salaries of physician and non-physician providers. The report includes information about specialty, geographic regions, practice settings, years in specialty, and method of compensation. The data has more than 121,000 providers from 140 medical specialties.¹¹

National Ambulatory Medical Care Survey (NAMCS)

The National Ambulatory Medical Care Survey (NAMCS) measures physician-patient encounters to get reliable information about ambulatory care services in the United States and has been conducted annually since 1989. The survey collects physicians' diagnoses, patients' symptoms, and medications ordered or provided, as well as patient demographics and services provided.¹² The survey is administered by the United States Census Bureau for the Centers for Disease Control and Prevention (CDC).¹³ The physicians who are interviewed must be non-federal, office-based physicians that are primarily engaged in direct patient care. The survey samples 20-100% of the patient encounters a physician has during a one-week period, depending on the size of practice.¹⁴

Methods Appendix References

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