

Health Is Primary

Charting a Path to Equity and Sustainability

PCC 2023
EVIDENCE REPORT



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Definitions

Advanced Practice Practitioner (APP)

Includes Nurse Practitioners and Physician Associates/Physician Assistants.

Clinician

Includes Doctors of Osteopathy, Medical Doctors, Nurse Practitioners and Physician Associates/Physician Assistants.

Full-time Equivalent (FTE)

An individual who works 30 hours or more, for at least 120 days per year or 15 shifts per month as a clinician.

Health Professional Shortage Area (HPSA)

Geographic areas, populations, or facilities; these areas have a shortage of primary, dental, or mental health care providers.

International Medical Graduate (IMG)

A clinician who completed their medical school education outside of the United States or territories. May be U.S. born or foreign born.

Nurse Practitioner (NP)

Individuals with degrees conferred after a traditional nursing degree by a nationally accredited nurse practitioner program.

Physician Associate/Physician Assistant (PA)

Individuals who have completed an accredited master's degree-level program and clinical training hours and have been certified by the PA-accrediting body.

Primary Care Clinician (PCC)

Clinicians practicing in the specialties of family medicine, general internal medicine, general pediatrics, and general medicine; includes Primary Care Physicians, Nurse Practitioners, and Physician Associates/Physician Assistants.

Primary Care Physician (PCP)

Physicians practicing in the specialties of family medicine, general internal medicine, general pediatrics, and general medicine.

Physician

Graduates with conferred degrees of Medical Doctor (MD) or Doctor of Osteopathy (DO).

Non-U.S. International Medical Graduate (Non-U.S. IMG)

A clinician born outside of the United States and who completed a medical school education outside of the U.S. states and territories. As compared to U.S. IMGs who are U.S. residents who completed their medical school education and/or a portion of their training outside of the United States.

Rural

Defined by the U.S. Department of Agriculture as any population, housing, or territory NOT in an urban area.

Usual Source of Care (USC)

Usual source of care is the particular medical professional, doctor's office, clinic, health center, or other place where a person would usually go if sick or in need of advice about his or her health.

Dear Colleagues,

Based on the data in the Primary Care Collaborative's 2023 Evidence Report, patients' ability to find and sustain a primary care relationship is strained and getting worse. What should be the front door of our nation's health care system is not open to many, particularly those in low-income communities and rural communities. And our report may well be underestimating the problem at hand, given that most of the data available to inform our analysis are pre-pandemic.

Reports suggest that the COVID-19 pandemic prompted more Primary Care Clinicians to opt for early retirement, to cut back on hours, or to seek non-clinical jobs. This workforce contraction is happening precisely when patients need primary care more than ever—to get back in the swing of managing chronic conditions, to catch up on preventive care, and to address more acute issues exacerbated in recent years.

This report's analysis identifies many supply-and-demand issues challenging the provision of relationship-based primary care. And the maps within show that some communities have it worse than others when it comes to primary care access: there is a fourfold difference across states grouped into regions. This should not be a surprise when a related measure, life expectancy at the state level, has such a dramatic spread, from a low of 72 years in Mississippi to a high of 81 years in Hawaii.

Our policy solutions do not offer a single panacea and suggest that it will take leadership across many sectors to pry open our health system's front door for *all* communities. The longer that front door is jammed, the harder it becomes to break it free. We must put our collective shoulders into the work ahead to rebuild and reimagine primary care.



Regards,

A handwritten signature in black ink that reads "Ann C. Greiner".

Ann Greiner
President and CEO
Primary Care Collaborative

Executive Summary

There have been many attempts to address perennial shortages of primary care in the United States, including expansions of the federal Health Center Program and overall expansion of insurance. With the Affordable Care Act (ACA), specifically the Health Insurance Marketplace® and Medicaid expansion in 41 states and the District of Columbia, almost 16 million residents (about the population of New York) received coverage and access to care. Technology and the broadening of the primary care workforce beyond physicians also are enabling more primary care options.

These trends should contribute to an *increasing* share of the population with a regular source of primary care, yet we continue to see a *decline*. One in four people in the United States has no such relationship, and those who do are increasingly naming a facility rather than a clinician as their usual source of care.¹ In 2019, 40 percent of adults in the United States had no primary care visit in a year.¹ Simultaneously, we continue to see a decline in primary care spending as a share of total health care spending alongside an increasing proportion of the population living in medically underserved communities.¹ Most of these trends are based on data collected before the pandemic. Yet, numerous sources report that the COVID-19 pandemic contributed to increased primary care burnout,² early retirements,³ and practice closures,⁴ suggesting that the situation may be more dire than the data currently reflect.

The Primary Care Collaborative's (PCC) 2023 Evidence Report unpacks the major drivers shaping the establishment and maintenance of primary care relationships and the availability of comprehensive primary care services, embodying the kind of care envisioned by the Shared Principles.⁵ While we do not attempt to quantify these drivers, we use the construct of supply and demand to illuminate them further.

We also focus our attention on understanding why particular communities and individuals are more at risk of losing or not having primary care relationships that they can count on. Finally, we describe potential solutions that policymakers and health system leaders can take to address the underlying factors and trends.

The National Academies of Science, Engineering, and Medicine (NASEM) defined high-quality primary care as a public good in its 2021 seminal report, "Implementing High-Quality Primary Care: Rebuilding the Foundation of Health Care." NASEM's definition is "the provision of whole person, integrated, accessible and equitable health care by interprofessional teams who are accountable for addressing the majority of an individual's health and wellness needs across settings and through sustained relationships with patients, families and communities."



“

[My primary care's private practice takes] pride in knowing if someone's sick they'll be seen that day, regardless [of the circumstances] ... I've never had [my primary care practice] turn me away or say no."

– **Sadie**, patient

MEDICAL NEED IS SIGNIFICANT

The number of medically disenfranchised in this country is estimated to be 100 million, about 30 percent of the U.S. population, according to an analysis by the National Association of Community Health Centers (NACHC) and HealthLandscape.⁶ Black, Hispanic, and Asian American/Pacific Islander individuals, as well as those living in rural and poor urban areas are more likely to be disenfranchised as a percentage of their population in comparison to White Americans. The definition of medically disenfranchised is derived by adding the populations in Health Professional Shortage Areas (HPSAs) and Medically Underserved Areas/Populations (MUA/Ps) against primary care professionals serving in these geographies and populations, and then subtracting those currently served by Community Health Centers (CHCs).^{6,7}

TABLE 1
Medically Disenfranchised Populations by Race and Ethnicity

	U.S. Population	Medically Disenfranchised
White	75.8%	68.7%
Black	13.6%	15.7%
Asian American/ Pacific Islander	1.3%	3.5%
Hispanic	18.9%	21.9%

Source: "Closing the Primary Care Gap: How Community Health Centers Can Address the Nation's Primary Care Crisis," NACHC. Accessed August 15, 2023. <https://www.nachc.org/resource/closing-the-primary-care-gap-how-community-health-centers-can-address-the-nations-primary-care-crisis/>

Public goods are undersupplied by market forces because their benefits accrue broadly to individuals, communities, economies, and society. Consequently, we cannot expect market forces alone—even when boosted by public programs and subsidies—to solve our primary care access problem. What we need is evidence-based and better-targeted policy solutions focused on data, workforce, payment, and care delivery to render primary care a robust public good.

SUPPLY OF PRIMARY CARE

Primary care physicians (PCPs), nurse practitioners (NPs), and Physician Associates/Physician Assistants (PAs)*—the latter two often grouped as Advanced Practice Practitioners (APPs)—are increasingly less likely to choose primary care, resulting in an aging workforce, and an overall shortage of PCPs. This trend is compounded by PCPs moving to jobs away from the front line of care, reducing their clinical hours, or retiring from medicine altogether.

Approximately 35,345 PCPs retired in 2022,⁸ more than double (17,238) those who matched to primary care that year; 9,380 to internal medicine, 4,916 to family medicine, and 2,942 to pediatric positions.⁹ This may be an overcount because many physicians who select internal medicine and pediatrics later subspecialize and do not practice in primary care.¹⁰

* Of note, the American Academy of Physician Associates is in the process of changing PAs to be defined as Physician Associates instead of Physician Assistants.

The composition of who is providing primary care also has shifted, with increasing numbers of primary care NPs and PAs, but not enough to make up for the declining number of PCPs. Most analysts agree that there is a primary care shortage, and all agree that there is a maldistribution issue, with rural and low-income urban areas having less primary care on a population basis.

The following two charts provide more granular data.

Annually since 2014, there has been a net decrease in the number of Primary Care Clinicians available per 100,000 individuals in the United States (Figure 1). Overall, there was a deficit of 4.91 PCCs per 100,000 in 2014, and that has more than doubled to a net decrease of 10.11 PCCs per 100,000 individuals in 2019.

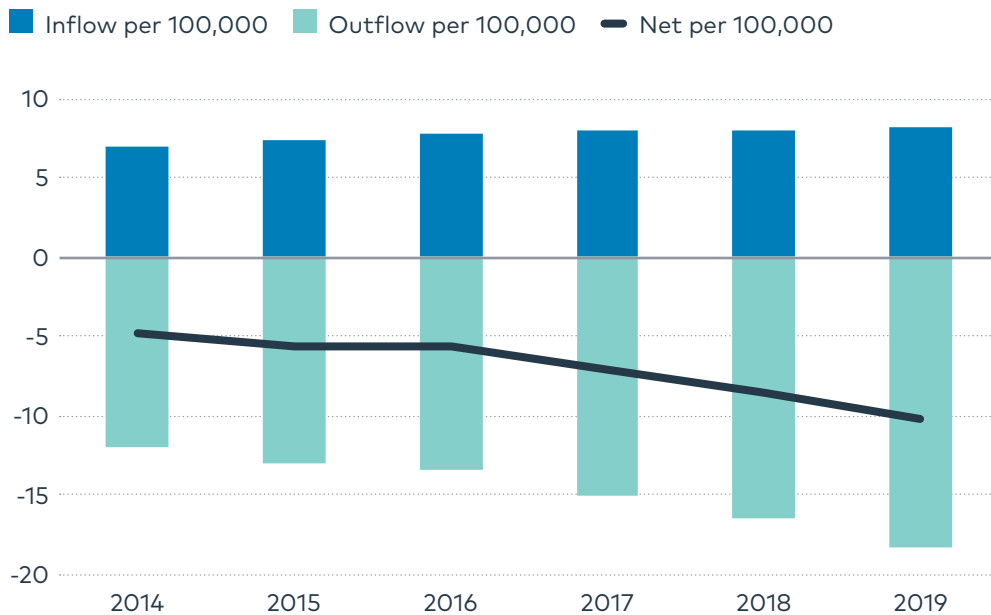
The decrease for Primary Care Physicians is even steeper. More specifically, there was a net loss of 8.03 PCPs per 100,000 based on more retirements than entrances in 2012 as compared to a net loss of 14.22 PCPs per 100,000 in 2020 (Figure 2). The retirement of PCPs far exceeds the entrance of these physicians into the primary care workforce.



I wish I could see more patients. I wish I could focus more on providing preventative care and health education. I wish I could provide greater support to individuals managing chronic health conditions."

– **Laura Okolie**,
DMSc, MBA, MHS, PA-C

FIGURE 1
Inflow and Outflow, Primary Care Clinicians per 100,000 Population, 2014–2019 (with Physician Retirement at Age 65)



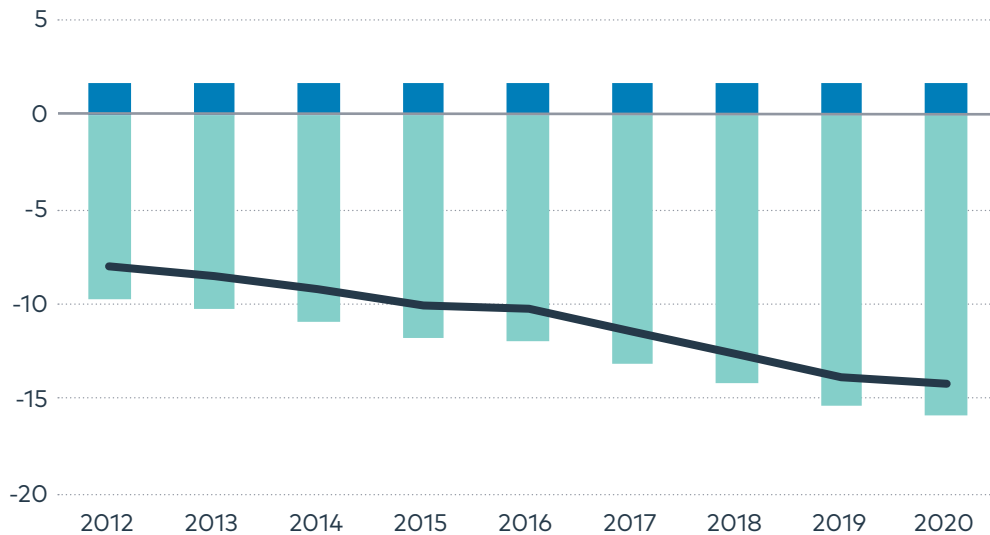
Data Source: American Medical Association Physician Masterfile 2012–2020; Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use File 2013–2020; U.S. Census 2012–2020

Notes: Primary Care Clinicians includes PCPs, NPs, and PAs. As for PCPs, inflow was calculated as the number of PCPs (per 100,000 population) entering the workforce after completion of their fields training program, while outflow was calculated as the number of PCPs retiring at age 65. As for NPs and PAs, inflow and outflow were identified based on Medicare billing such that we assumed someone billing for the first time was a new provider and when someone no longer billed for at least two consecutive years we assumed they were no longer providing those services.

FIGURE 2

Inflow and Outflow, Primary Care Physicians per 100,000 Population, 2012–2020 (with Physician Retirement at Age 65)

■ Inflow per 100,000 ■ Outflow at age 65 per 100,000 — Net at age 65 per 100,000

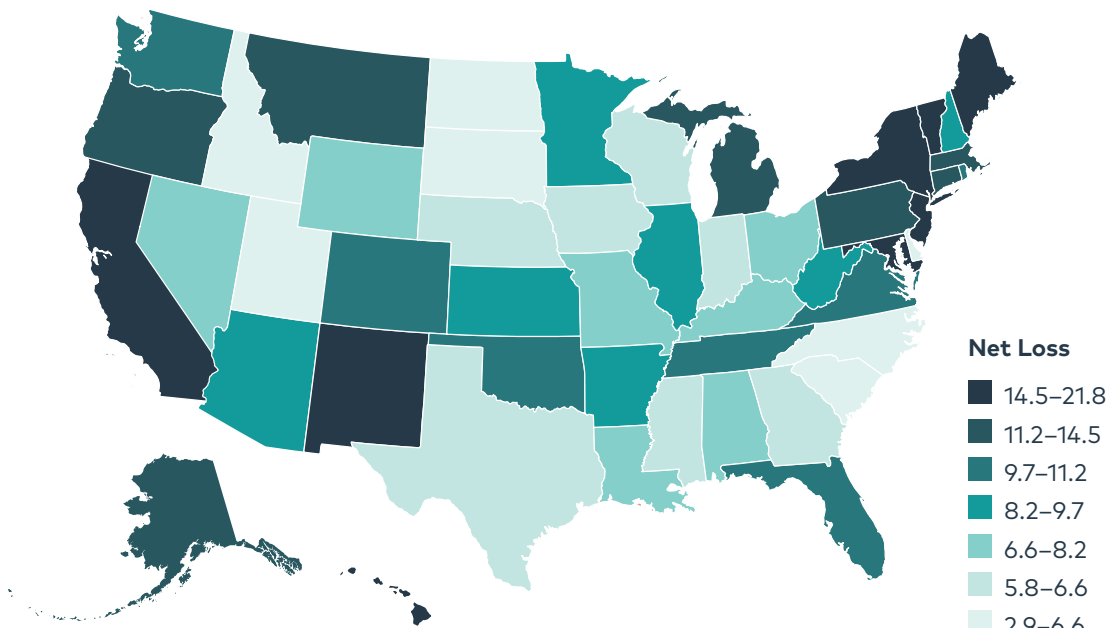


Data Source: American Medical Association Physician Masterfile 2012–2020; U.S. Census 2012–2020

Notes: As for PCPs, inflow was calculated as the number of PCPs (per 100,000 population) entering the workforce after completion of their fields training program, while outflow was calculated as the number of PCPs retiring at age 65.

FIGURE 3

Net Loss of Primary Care Clinicians (DO, MD, NP, PA) per 100,000 Population, per State, 2019



Data Source: American Medical Association Physician Masterfile; Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use File; U.S. Census

Notes: Primary Care Clinicians include PCPs, NPs, and PAs. As for PCPs, inflow was calculated as the number of PCPs (per 100,000 population) entering the workforce after completion of their fields training program, while outflow was calculated as the number of PCPs retiring at age 65. As for NPs and PAs, inflow and outflow were identified based on Medicare billing such that we assumed someone billing for the first time was a new provider and when someone no longer billed for at least two consecutive years we assumed they were no longer providing those services.

These PCP declines are not experienced equally across the country. A state-by-state analysis shows that the states experiencing the largest loss of Primary Care Clinicians fell by a range of 14.5 percent to 21.8 percent and were mostly concentrated in the Northeast and West (Figure 3). In contrast, those states that experienced the least decline, 2.9 percent to 6.6 percent, tended to be in the South and Midwest. These data represent more than a fourfold difference in PCP decline between regions.

DEMAND FOR AND ON PRIMARY CARE

The population in the United States is growing, aging, and becoming more racially diverse. In the 2020 U.S. Census, 17 percent of people in the country were older than 65, a 38.6 percent increase from the 2010 census, and there was a 22 percent increase in Hispanic or Latino populations alongside 5.6 percent growth in the Black population.¹¹ Older adults have more complex care needs, averaging three chronic medical conditions and with most taking five or more prescription medications;¹² they also are more likely to experience cognitive decline. These factors contribute to more demand for primary care, and for a more diverse primary care workforce.

As demand for more primary care increases, there is simultaneously increased demand on primary care providers. Patient demand for mental health services has increased exponentially, with nearly 50 million adults in the United States experiencing a mental illness in 2019, and with at least 4 in 10 adults presenting in a primary care office.¹³ In addition, there is a greater awareness of patients' social vulnerabilities and their effects on patient outcomes, and recognition of the prevalence of loneliness, particularly among the elderly. These increased demands are challenging for primary care providers to meet.

While changing patient demographics are driving demand for and on primary care, financial barriers to care may be dampening such demand. Specifically, analysts see a relationship between the growing prevalence of High-Deductible Health Plans (HDHPs) and reduced demand for primary care services. While certain preventive health screenings are covered on a pre-deductible basis under HDHPs, management of chronic conditions and other needed services in primary care can only be accessed after the deductible (between \$1,000 and \$5,000 or more) is paid, making care financially out of reach for many in the United States.



In several cases as a primary care provider, I've practiced at the upper limit of my scope due to a patient's extended specialist wait time. During these cases, my collaborating physician and I work together to craft a care plan that can bridge the patient's needs until they can be seen."

– **Laura Okolie,**
DMSc, MBA, MHS, PA-C

A MIX OF SUPPLY AND DEMAND

Primary care innovations are attempting to fill the primary care access gap, including direct primary care, telehealth, and retail clinics, responding to both demand and supply factors. A central question is whether these innovations support or undermine the primary care relationship and related access issues.

Direct Primary Care (DPC), where patients or their employers pay a monthly subscription fee outside of an insurance arrangement, is increasingly popular. There are approximately 2,000 active physicians in family medicine that practice in a DPC model.¹⁴ This model provides more ready access to primary care, in large part because of the reduced size of patient panels, but also because the practices are freed up from insurers' administrative and quality reporting requirements. Yet due to DPC's reduced patient panel size, the growth of this kind of care may be contributing to access issues at the community level. In addition, such care may be financially out of reach for lower- and middle-income people.

Telehealth spiked during the COVID-19 pandemic and remains a practice feature despite the ebbing of the pandemic. Specifically, 3.3 percent of visits were virtual in 2021 as compared to less than 0.1 percent pre-pandemic. Urban residents were more likely to have a telehealth visit to any specialty (3.3 percent) as compared to their rural counterparts (2.1 percent). In addition, at least one study shows that Black and Hispanic individuals were less likely to use telehealth.^{15,16} Telehealth offerings vary. On one end of the spectrum, telehealth is integrated into existing practices. On the other end, telehealth is separate from and may replace existing relationships.

Retail clinics had first access to COVID-19 vaccines and tests and their popularity soared. According to a Morning Consult poll, 35 percent of the U.S. public received care in a retail clinic in 2021.¹⁷ Simultaneously, retail giants—including CVS, Walgreens, and Walmart—appear to be expanding their primary care strategies, adding brick-and-mortar clinics that provide more comprehensive primary care services than previously. And the number of urgent care clinics is growing rapidly, too.¹⁸ They offer some primary care services in an alternative setting.

The chart below summarizes the various trends at a high level:

SUPPLY



Factors Increasing Primary Care Supply (per population)

- Overall growth in NPs, PAs
- Small increase in primary care residency programs
- Tech-enabled primary care teams caring for larger patient panels
- Effective patient panel management
- Retail clinics (generally addressing low-acuity episodic needs)



Factors Decreasing Primary Care Supply (per population)

- Decline in physicians going into primary care
- Rising, earlier retirement rates
- Decreased direct patient care time for active primary care clinicians
- Direct primary care models with smaller patient panels

DEMAND



Factors Increasing Primary Care Demand

- Domestic migration
- Aging and changing demographics of U.S. population
- Growing medical complexity
- Increasing social complexity, SDOH, loneliness
- Increased mental health demand
- Telehealth (increased access, decreased burden)



Factors Decreasing Primary Care Demand

- Financial barriers to primary care, including high-deductible health plans
- Patient self-management with support of the internet

POTENTIAL SOLUTIONS

There is no panacea to solving the primary-care-access issues our country faces. It will take an array of solutions to reopen and rebuild the front door of our health system.

These solutions start with collecting accurate and transparent workforce data about PCPs, NPs, and PAs to inform policy. We also need consistent and transparent data about how primary care is currently financed and paid for, including overall primary care spending at the payer level and by organization, as well as how and how much Primary Care Clinicians are paid. This data can inform policymakers about how the United States “values” primary care versus other health care specialties and sectors.

Arguably the most powerful lever at policymakers' disposal is payment. Taking a page from the NASEM report, we argue that to enhance primary care access, the country needs to invest considerably more in primary care and needs to pay for primary care differently. Hybrid payments—a mix of capitated and fee-for-service payments—can allow clinicians to provide shared decision-making and better customize care to fit patients' needs and preferences. Hybrid payments also would provide financial support to build a team that offers more comprehensive and needed primary care services.

Policymakers also need to consider how to better support the existing primary care workforce and to attract more clinicians to select primary care as a specialty. Ideas suggested in these sections include leveraging technology to bolster primary care, team-based models of care that enable increased patient access, and flexibility for individuals to practice part time, take breaks to care for children or elderly parents, and to practice across state borders. In addition, upstream programs can recruit and support diverse students entering primary care, shorter undergraduate education can reduce education costs, and federal policymakers can redirect Graduate Medical Education (GME) funds to better support more primary care training sites.

Finally, employers have a role to play in mitigating the effects of HDHPs that dampen employee demand for primary care due to financial barriers. They can do so by offering creative solutions such as on-site/near-site clinics, relationships with primary care practices, direct primary care, or by encouraging employees to return to more traditional health plan offerings through monetary incentives. Employers also can educate their employees about the value of maintaining a primary care relationship and provide incentives to do so.

Introduction



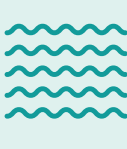




In the 2019 “Shared Principles of Primary Care: A Multistakeholder Initiative to Find a Common Voice,” primary care colleagues from across the discipline joined to articulate the seven core tenants of primary care, building from Barbara Starfield’s four cardinal functional attributes of primary care.¹⁹ These tenets included care that is patient-centered, coordinated and integrated, continuous, comprehensive and equitable, high value, team-based and collaborative, and accessible. To date, more than 375 organizations have signed on to support these seven principles.

These Shared Principles are designed to create a primary care environment that is community oriented and achieves better health. To optimally implement them, policies for the future must meet the current state of primary care. The current supply capacity for primary care and demand for its use is evaluated in this report.

The United States spends 18.3 percent of gross domestic product on health services, a total of \$4.3 trillion in 2021.²⁰ The spending is distributed broadly—inpatient and outpatient medicine, prescription costs, services, procedures, and durable medical equipment, among other spending categories. While the U.S. health care system is set up as a business model, U.S. spending does not follow traditional supply and demand models. In this report, supply and demand are used as a construct to understand the three main factors that impact primary care:

- 1. What factors shape access as defined by the Shared Principles?**
- 2. What supply and demand factors promote a healthy primary care system?**
- 3. What public funding and investments are needed to shift the primary care market to a public good?**

The Shared Principles of Primary Care

	Patient Centered
	Comprehensive & Equitable
	Continuous
	Coordinated & Integrated
	Team Based & Collaborative
	High Value
	Accessible



This report answers these questions in the following three sections:

Section 1

The existing literature on the supply and demand of primary care. Supply consists of the number of clinicians, the geographic distribution of clinicians, aging and retirement, empanelment and patient panel management, and practice patterns. Demand consists of demand *for* primary care (distribution of population, population growth, and the aging population) and demand *on* primary care (patient factors such as social vulnerabilities, patient expectations, loneliness and increasing behavioral health needs, and system factors.)

Section 2

An analysis of the primary care workforce entering and exiting the field, including Medical Doctors, Doctors of Osteopathy, Nurse Practitioners, and Physician Associates/Physician Assistants. The analysis also includes an examination of state-based net gain or loss of Primary Care Clinicians.

Section 3

A discussion of the policy implications and recommendations based on the literature and analysis of what will bolster supply to meet demand and achieve the shared principles of primary care.

SECTION 1

Literature Review

Both supply and demand factors impact access to primary care. The table below summarizes many of the factors identified from the literature review and each is further expanded upon in the text.

SUPPLY



Factors Increasing Primary Care Supply (per population)

- Overall growth in NPs, PAs
- Small increase in primary care residency programs
- Tech-enabled primary care teams caring for larger patient panels
- Effective patient panel management
- Retail clinics (generally addressing low-acuity episodic needs)



Factors Decreasing Primary Care Supply (per population)

- Decline in physicians going into primary care
- Rising, earlier retirement rates
- Decreased direct patient care time for active primary care clinicians
- Direct primary care models with smaller patient panels

DEMAND



Factors Increasing Primary Care Demand

- Domestic migration
- Aging and changing demographics of U.S. population
- Growing medical complexity
- Increasing social complexity, SDOH, loneliness
- Increased mental health demand
- Telehealth (increased access, decreased burden)



Factors Decreasing Primary Care Demand

- Financial barriers to primary care, including high-deductible health plans
- Patient self-management with support of the internet

SUPPLY

The first literature synthesis will focus on the supply of primary care across the United States in five domains: the numeric workforce, geographic distribution, the aging and retiring workforce, empanelment, and practice patterns. The workforce analysis includes physicians, Nurse Practitioners and Physician Associates/Physician Assistants.

The Numeric Workforce

WORKFORCE SHORTAGES AND PROJECTIONS

The United States is experiencing a shortage of Primary Care Physicians, as well as an overall shortage of Primary Care Clinicians based on key estimates in the peer-reviewed literature and novel analyses presented in this report. (See Section 2.) But at least one study suggests that the growth of NPs and PAs in primary care has offset the decline in PCCs, although there are questions about the study's underlying data. Given issues with data quality, it is challenging to ascertain on a geographic basis where primary care shortages exist. As of this writing, the Health Resources & Services Administration (HRSA) estimates a shortage of 17,266 Primary Care Clinicians within Health Profession Shortage Areas (HPSAs).²¹

The most reliable estimates show a primary care shortage of 17,000 to 52,000 physicians.

The Association of American Medical Colleges (AAMC) projects a shortage of Primary Care Physicians of between 17,800 and 52,000.²² Newer data demonstrate a decrease in this shortage as compared to 2020 projections, as more clinicians enter primary care and as more funding for graduate medical school education is available through the Consolidated Appropriations Act of 2021. These projections are based on Full-Time Equivalent (FTE) physicians.

HRSA projects a primary care shortage of 35,260 FTE Primary Care Physicians by 2035, with the greatest shortages in family medicine and internal medicine²³ (Table 2). HRSA also projects that NPs and PAs will have excess supply by 2035. The HRSA projections define 1 FTE as a clinician working 40 hours per week in professional activity.²⁴ Their projections do not account for clinicians who may work more or less than 1 FTE and these projections may not fully represent total supply due to this limitation.

The Robert Graham Center projected a shortage of about 52,000 PCPs by 2025.²⁵ The authors estimated that in 2008 there were approximately 209,000 practicing PCPs in the United States and that due to increasing demand from increased insurance coverage after the ACA rollout, population growth, and the aging population, the country will require 33,000 additional PCPs to meet demand. By 2021, there were 228,936 Primary Care Physicians—an increase of only 19,936 and failing to come close to the 52,000 needed PCPs.²⁶



I know how busy clinicians are. I work in this space. I totally understand. But I waited for like 35 minutes to see [my clinician] and I'm busy too. And it just felt disrespectful."

– **Lisbeth Balligan**,
patient

TABLE 2

Projected Supply and Demand for Selected Occupation in Primary Care, 2035

Occupation	Supply	Demand	Percent Adequacy
Family Medicine	124,390	138,670	90%
General Internal Medicine	89,040	107,570	83%
Geriatrics	7,950	9,080	88%
Pediatrics	61,240	62,560	98%
Nurse Practitioners	189,340	92,450	205%
Physician Associates/ Physician Assistants	62,680	41,720	150%

Notes: Demand and supply estimates and projections are in FTEs, defined as working 40 hours a week. Adequacy is calculated by taking projected supply in 2035 divided by projected demand in 2035. FTE estimates may differ from estimates of the headcounts of the health workforce.

Source: Health Resources Services Administration. Primary Care Workforce: Projections, 2020–2035. Published online 2022. Accessed June 22, 2023. <https://bhwh.hrsa.gov/sites/default/files/bureau-health-workforce/Primary-Care-Projections-Factsheet.pdf>

The current shortage estimates and projections differ, but it is clear that the primary care workforce does not have the number of clinicians needed to support access.

MEDICAL STUDENT AND RESIDENT TRAINING

The Balanced Budget Act of 1997 capped the number of residency slots funded by the federal government out of concern for physician oversupply.²⁷ The cap has remained in place for the past 26 years. As the U.S. population grew, and life expectancy increased, the number of residency training slots remained relatively stable. The number of medical schools has increased without a corresponding increase in residency positions. In 2023, there were approximately 43,000 medical school graduates (international and U.S.-trained) eligible for the residency match, with approximately 40,000 residency slots available.²⁸ Approximately 3,000 medical students went without further training.

In 2021, Congress approved funding to expand GME training positions for the first time since 1996 as part of the Consolidated Appropriations Act of 2021. One thousand training positions were funded and planned to be allocated over the next 5 years to medical specialties based on legislative rulemaking (10 percent in rural areas, sites training over their Medicare GME cap, in states with new medical schools, and at sites that serve HPSAs). In the first year of allocation, 125 were allocated to primary care specialties. Over the next 4 years, an additional 800 slots are planned to be allocated to medical specialties.²⁹ Additional training positions may alleviate a small proportion of the shortage but fail to meet the conservative estimate of a primary care shortage of 17,000.

NURSE PRACTITIONER AND PHYSICIAN'S ASSISTANT TRAINING AND PROJECTIONS

While there is a significant shortage of physicians in the United States, the number of NPs and PAs is growing exponentially. In fact, NPs are the fastest growing profession in the United States.³⁰ NPs are able to practice independently in 29 states and have reduced scope of practice in 12 states³¹ (Table 3).

The data on practice geography for NPs and PAs are not easily accessible, making it difficult to develop clear projections about the workforce needs in specific areas for primary care. These data are challenging to interpret due to varying levels of reporting regarding chosen specialties and lack of mandatory state or federal reporting on the location of practices. Additionally, billing complexities lead to confounded data on whether a patient was seen by an NP or a physician.

The counts of NPs practicing primary care vary by source. Perhaps the most reliable source is that provided by NASEM in 2021 in their report, "The Future of Nursing 2020-2030: Charting a Path to Achieve Health Equity." In this evidence review, between 24.4 percent and 39.2 percent of NPs practice ambulatory primary care.³² The American Association of Nurse Practitioners (AANP) estimates that there are 355,000 active NPs, with an estimated 70 percent of them providing primary care services, much higher than other studies.³³ In 2018, HRSA conducted a National Sample Survey of Nurse Practitioners and found that the actual number of NPs working in primary care is approximately 26 percent. HRSA estimated that there were 67,515 NPs providing primary care in the United States.*³⁴

The American Association of Physician Associates estimates that there are approximately 168,300 practicing PAs in the United States, 20 percent of whom are working in primary care. HRSA predicts that between 2020 and 2035 the number of PAs working in primary care, defined as family medicine, general pediatrics, general internal medicine, or geriatric medicine, will increase by 75 percent, to 62,680 from 35,880.

The substitution of NPs and PAs for physicians in the primary care setting is much debated. The number of NP and PA entrants to primary care clearly increases access for prospective patients. See [Section 3—potential solutions—](#)for possible team-based care models that suit a collaborative model of care.

* The definition of primary care used by HRSA is narrower than that used in the AANP study. HRSA only considered those working in ambulatory primary care as providing primary care,³⁴ while the AANP definition included family, gerontology primary care, adult primary care, pediatrics primary care, and women's health NPs.³³

TABLE 3
Overview of NP Licensure for all 50 States, the District of Columbia, and U.S. Territories, 2022

Full Practice	Reduced Practice	Restricted Practice
Alaska	Alabama	California*
Arizona	American Samoa	Florida
Colorado	Arkansas	Georgia
Connecticut	Illinois	Michigan
Delaware	Indiana	Missouri
District of Columbia	Kentucky	North Carolina
Guam	Louisiana	Oklahoma
Hawaii	Mississippi	South Carolina
Idaho	New Jersey	Tennessee
Iowa	Ohio	Texas
Kansas	Pennsylvania	Virginia
Maine	Puerto Rico	
Maryland	Virgin Islands	
Massachusetts	West Virginia	
Minnesota	Wisconsin	
Montana		
Nebraska		
Nevada		
New Hampshire		
New Mexico		
New York		
North Dakota		
Northern Marina Islands		
Oregon		
Rhode Island		
South Dakota		
Utah		
Vermont		
Washington		
Wyoming		

Data Source: American Association of Nurse Practitioners. State Practice Environment. AANP. Published October 2022. Accessed August 15, 2023. <https://www.aanp.org/advocacy/state/state-practice-environment>

Notes: Full practice are areas where state practices and licensure laws permit NPs to have full practice. Reduced practice are areas where state practice and licensure laws reduce the ability of NPs to practice in at least one element of NP practice. And restricted practice are areas where state practices and licensure laws restrict the ability of NPs in at least one element of NP practice.

*According to California's Assembly Bill 890, eligible NPs will gain full practice capabilities around January 2026.

Geographic Distribution of the Workforce

In addition to an overall shortage of Primary Care Clinicians, the primary care workforce is maldistributed across geography and populations, with rural geographies and those with high proportions of low-income residents especially underserved, as measured by a ratio of primary care professionals to population.

CURRENT TRAINING AND DISTRIBUTION OF PRIMARY CARE

Training locations are based in hospitals and academic centers due to federal funding requirements and are not equitably distributed geographically. Specifically, the Northeast is saturated with resident trainees and physicians relative to population and to population growth, while the South has the highest need for physicians. In addition, there is maldistribution of residency training away from medically underserved and rural areas. This is even more important to consider given that more than half of resident physicians stay to work and provide care in the areas in which they trained.^{35,36}

According to HRSA, 100 million residents of the United States (30 percent of the population) currently reside in 8,266 HPSAs and 17,266 additional primary care practitioners are needed to serve these geographies. (See demand for primary care for more detail on population growth).²¹ The federal HPSA designation is linked to eligibility for several federal programs intended to incentivize professionals to serve the designated shortage areas. Residency training, however, has been historically tied to academic institutions and community-based training has been minimal.

This mismatch between communities in need and the location of training has resulted in a disparity of care in HPSA regions. Primary Care Physicians are in relatively shorter supply in rural areas compared to urban areas, while Nurse Practitioners are in relatively greater supply compared to physicians in rural areas.^{23,37} The National Center for Health Statistics (NCHS) categorizes counties in an urban-rural scheme that enables large "central" metropolitan areas to be separated from large "fringe" metropolitan areas. This and other distinctions enable more precise measurement of health outcomes and disparities across the full urban-rural spectrum.

ADVANCED PRACTICE NURSES AND PHYSICIAN ASSOCIATES/PHYSICIAN ASSISTANTS PLAY KEY ROLE IN THE DISTRIBUTION OF THE PRIMARY CARE WORKFORCE

Using a broad definition of the primary care workforce inclusive of Nurse Practitioners and Physician Associates/Physician Assistants, one study found that the number of Primary Care Clinicians increased overall relative to population in both urban and rural counties from 2009 to 2017; however, the increase was more pronounced in urban compared with rural counties.³⁸ Moreover, the growth of the NP and PA primary care workforce dramatically outpaced the growth of the supply of physicians over the same time period. According to this analysis, in urban counties, the number of PCPs per 3,500 residents grew from 2.69 in 2009 to 3.25 in 2017. In rural counties, the growth



[At the small, private primary care practice,] there were two doctors and when one doctor left, the other had to take on his caseload as well. So, they're in the process of finding another doctor, but finding a doctor in rural Colorado is not the easiest."

– Sadie, patient

in PCPs grew from 2.22 to 2.54 per 3,500 residents over the same time period. By contrast, NPs grew from 1.65 to 3.20 per 3,500 residents in urban counties and grew from 1.31 to 2.49 in rural counties. Rural-urban disparities widened during the study period, which overlapped with the Affordable Care Act's Medicaid expansion in some states beginning in 2014.

The estimates of APPs in primary care provided by this analysis are contradicted in most workforce estimates, as in the section above. This may be due to the use of a more inclusive definition of APPs. The study used the National Plan and Provider Enumeration System to identify primary care workforce clinicians, which included all NPs and PAs and was not limited to APPs practicing in primary care. This estimate likely far exceeds the 25 percent to 40 percent of APPs truly practicing in primary care. In contrast, the study focuses on MDs and DOs who practice in general practice, family medicine, or general internal medicine and excludes general pediatrics.

RURAL HEALTH DISPARITIES LINKED TO HEALTH WORKFORCE SHORTAGES

According to the U.S. Centers for Disease Control and Prevention, rural Americans face significant health disparities compared with their urban counterparts. More than 46 million Americans, or 15 percent of the U.S. population, live in rural areas as defined by the U.S. Census.³⁹ They are more likely to die from heart disease, cancer, unintentional injury, chronic lower respiratory disease, and stroke than their urban counterparts. They have higher rates of cigarette smoking, high blood pressure, and obesity, experience higher rates of poverty, less access to health care, and are less likely to have health insurance. Most importantly, rural residents have higher rates of all-cause mortality (death due to any cause), and the mortality gap continues to grow.⁴⁰ A critical factor in the higher mortality and morbidity seen in rural areas is a shortage of Primary Care Physicians.⁴¹

While a decrease in PCPs is associated with increased (age-adjusted) mortality, an increase in PCPs is associated with an increase in life expectancy. A landmark study found that every 10 additional Primary Care Physicians per 100,000 population was associated with a 51.5-day increase in life expectancy.⁴² From 2005 to 2015, however, the density of Primary Care Physicians decreased from 46.6 to 41.4 per 100,000 population, **with greater losses in rural areas**. Over the period 2005–2015, the supply of Primary Care Physicians declined by –7 per 100,000 in rural counties on average compared to –2.6 per 100,000 in urban counties.⁴²

INTERNATIONAL MEDICAL GRADUATES PLAY KEY ROLES

International Medical Graduates (IMGs) fill gaps in communities lacking sufficient primary care. Most non-U.S. IMGs practice internal medicine and family medicine, and many must navigate complex immigration hurdles and temporary visas to serve rural and urban communities in need of primary care services after completing the necessary U.S. licensure exams and training requirements.⁴³ IMGs account for 25 percent of the physician workforce, according to the AMA, and the growth of IMGs practicing in the United States has outpaced U.S. medical graduate growth since 2010.⁴³



I needed to see someone before they hired a new [Primary Care Physician], so I went to see the NP and she was fantastic. I think I saw her twice Now, if my primary isn't available, I'll see if she's available when I make an appointment."

– Lisbeth Balligan, patient

Aging and Retirement

DEMOGRAPHICS AND PENDING BABY-BOOMER RETIREMENTS

Many Primary Care Physicians are reaching retirement age. A 2022 AAMC Physician Specialty Data Report cites that nearly 45 percent of physicians are older than 55 and more than 40 percent of active physicians will be 65 or older in the next ten years.⁴⁴ Across all specialties, the average physician age is 53, including those defined as primary care. This impending wave of retirements, as well as physician decisions regarding the timing of retirement and choices to either accelerate or decelerate their own personal timelines, have the potential to significantly implicate overall supply.⁸

CHANGES IN RETIREMENT

Emerging patterns driving decisions leading to retirement are individual in nature, dependent on personal finances, family, health and other circumstances. But health system operational factors, requirements, and practice patterns are key systemic contributors. In addition, broader externalities such as the COVID-19 public health emergency, increasing health disparities, and the growth of non-clinical physician opportunities are also contributors.

Multiple sources cite that the COVID-19 pandemic has significantly impacted the health and well-being of clinicians, heightening burnout, and accelerated serious retirement considerations. In addition, growth of non-clinical physician opportunities, increased demand driven by the rise of managed care organizations, and desire for greater work life balance (wanting to work remote/hybrid hours and/or part-time hours) have driven clinicians to consider non-clinical roles. Further, increased expectations and requirements to take on non-clinical work such as care coordination and paperwork also has led to burnout and accelerated, or early, retirement.⁴⁵

While the COVID-19 pandemic has complicated retirement trends, "early retirement" is neither a new concept nor something that directly stems from the COVID-19 pandemic. According to a 2019 AAMC survey, 40 percent of the country's practicing physicians "felt burned out at least once a week before the COVID-19 crisis began."⁴⁵ As such, while the stress of the COVID-19 pandemic has led to feelings of increased burnout, there may be something within the system itself, contributing to these phenomena.

The literature notes that key strategies to facilitate physician retention and retirement planning include offering flexible work hours, minimal work barriers, and enhancing work satisfaction.⁴⁶ Further, options such as part-time employment and changes in practice patterns may help to facilitate a working environment that will delay retirement.^{46,47} (See [Practice Patterns](#) for more information on reduction in direct clinical hours.)



In this low-income population [of rural Appalachia], it is rare to see low-risk health adults, even at a younger age Most of the patients are complex. Since they live in poverty, most have multiple physical with concomitant psychosocial issues."

– Joyce M. Knestrick,
PhD, CRNP, FAANP,
FAAN, Family
Nurse Practitioner,
Nurse Scientist

These strategies also can be deployed to incentivize reentry into the workforce. In 2008, a national study surveyed "inactive physicians" who were younger than the typical retirement age of 65, to determine their reasons for leaving clinical practice and prospects for reentry into the workforce.⁴⁷ For those fully retired and inactive, reasons for retiring were personal health, compliance issues, rising medical malpractice premiums, and lack of professional satisfaction. The survey also covered reasons to consider becoming active again in medicine. Respondents cited the availability of part-time work and/or flexible scheduling as the primary reason for reentering medicine, followed by financial need.⁴⁷

CLINICIAN RETENTION MODELS

A number of factors are associated with having plans for retirement and therefore should be considered when developing strategies to retain the primary care workforce. These factors include, but are not limited to, limited flexibility in schedules, time spent coordinating patient care, and dissatisfaction with the increased burden of non-medical tasks (form completion, pre-authorizations for medications, and similar tasks) that are not reimbursed in the fee-for-service model. Providing flexibility in schedules and part-time options may decelerate retirement plans.⁴⁸ Further, investment in support staff to handle case management, social work, and other support functions to facilitate and promote an effective and efficient team-based environment has been shown to prevent early burnout and ensure that each team member is using their time in ways that best serves the patient.⁴⁹

For those who may already have retired or reduced their clinical effort, reentry into the workforce has been evaluated and strategies to promote return are feasible. The same national survey that evaluated inactive physicians under the traditional retirement age of 65 also inquired about factors that impacted their return to the workforce.⁴⁷ The most common response was that availability of part-time work or flexible scheduling would lead them to reconsider clinical practice again. These factors also were the most cited reason for becoming active again among those who had reentered clinical practice. Table 4 provides an overview of the considerations to reentry for those fully retired, not currently active, and those that have reentered clinical practice.

TABLE 4
Reasons to Consider Becoming Active in Medicine Again or Reasons to Reenter Clinical Practice

	Fully retired (n=436)	Not currently active (n=500)	Reentered (n=226)
	Reasons to consider reentry		Reasons for reentry
Nothing	34.2%	3.6%	
Reasons among those who did not indicate "nothing" would lead them to consider reentry	n=287	n=482	
Availability of part-time work or flexible scheduling	42.5%	51.5%	47.8%
Financial need	43.9%	43.4%	32.3%
Desire to provide volunteer services	40.8%	39.6%	8.0%
Change in family or personal circumstances	30.1%	42.9%	31.0
Responding to a need in the community	33.1%	38.0%	16.8%
Miss caring for patients	29.3%	37.3%	32.7%
Miss colleagues/practice environment	19.9%	23.4%	22.6%
Want to pursue a new challenge or new area of medicine	10.5%	21.0%	16.8%
Boredom/too much free time on my hands	12.9%	17.6%	13.3%
An opportunity to change my specialty/subspecialty with relative ease	8.0%	15.6%	9.7%
An opportunity with less administrative responsibility	7.3%	8.3%	10.6%
Other	22.0%	25.7%	19.0%

Source: Jewett EA, Brotherton SE, Ruch-Ross H. "A national survey of "inactive" physicians in the United States of America: enticements to reentry." *Hum Resour Health*. 2011;9(101170535):7. doi:10.1186/1478-4491-9-7

Empanelment and the Potential for Increased Clinical Productivity

Effective patient panel management allows for improved access to care and capacity of Primary Care Clinicians to care for their patients.^{50,51} Patient panel management relies on consistent and accurate empanelment. Empanelment refers to the linking of each patient to a Primary Care Clinician. Accurate linkages enable clinicians to better identify and manage their patient population and provides for the ease of continuity of care and population management.^{52,53}

Clinicians can employ patient panel management in a variety of ways, but Kaiser Permanente defines it as a "set of tools and processes for population care that are applied systematically."⁵⁴ Patient panel management is a form of preventive care, which can shift a practice's focus from visit-based care to population-based care and provide targeted outreach interventions to populations that need it most.⁵⁵

PATIENT PANEL SIZE

Much research has evaluated the optimal patient panel size for Primary Care Clinicians. To determine the adequate number of clinicians, it is essential to know how many patients a single clinician can effectively care for. No “optimal” primary care patient panel size exists in research; a previous study quoted 2,500 patients per physician as the most common attributed patient panel size.⁵⁶ In practice, however, primary care patient panel sizes tend to vary considerably, ranging from between 1,000 and 2,500 patients per full-time clinician across various practice settings in the United States.⁵⁶ Patient panel sizes larger than this range are at a risk for decreased access and worse health outcomes.^{51,57} The size of a single clinician’s patient panel impacts their ability to provide continuous, easily accessible, and comprehensive care.

CHALLENGES TO PATIENT PANEL SIZE DETERMINATION

Patient panel size is calculated as a ratio of assigned patients to a single clinician. But the rules for assigning patients to a panel, and a clinician’s capacity to care for that patient panel, vary across practices and health systems.^{58–60} Patients can be misattributed to multiple clinicians based on algorithms specific to insurers and health care systems.⁵⁹ This leads to an inaccurate calculation of actual empanelment and may impact the ability for a clinician to accept, or stop accepting, new patients.

Due to the various estimates of patient panel size, clinicians may have difficulty ascertaining their true patient panel. One study found that only about one third of family physicians can estimate their patient panel size.⁶¹ Clinicians also have been found to overestimate their geographic service area, which can impede population management.⁶² These difficulties in understanding their patient panel size could in part be due to physicians’ inability to access or see their patient panel electronic medical record data.⁶³ When clinicians do not know their patient panel, it can hinder their ability to create disease registries, manage populations, and coordinate care.⁶¹

PATIENT PANEL MANAGEMENT TEAMS, TRAINING, AND TOOLS

The creation of an empanelment committee, or a multi-disciplinary team specifically assigned to manage clinicians’ patient panels, can assist in matching clinician capacity with patient demand based on patient panel size and risk factors.^{64,65} Specifically, these committees can help clinicians set goals for patient panel sizes, create an algorithm for empaneling patients, determine what patients need re-empanelment and how to re-empanel them, and facilitate electronic health record integration.⁶⁴ By acting as a gatekeeper, these empanelment committees have the potential to increase access to the Primary Care Clinician while reducing the burden of patient panel management on the clinician. When these strategies are combined with risk-based stratification methods and utilization-based stratification methods (to target high-risk patients to proactively manage their risk), this leads to greater improvements in effective patient panel management.^{50,66}



While I recognize that administrative tasks are important for patient care, it often diverts my focus from what I truly enjoy—seeing patients, providing health education, and actively partnering with my patients to address their health concerns. These are the aspects of my work that are life-giving for me.”

– **Laura Okolie,**
DMSc, MBA, MHS, PA-C

Effective patient panel management requires training and dedicated staff time. The majority of clinicians do not receive training on patient panel management during their education and do not have time allocated for dedicated patient panel management, which can take almost an additional 8 hours per week aside from their usual patient care.^{55,67–69} Residents who are prepared to engage in patient panel management and who have received education during training are more likely to be retained in the workforce, and are more satisfied with their jobs.⁷⁰ Clinicians that have received management training and have dedicated 8 hours of staff time weekly to engage in patient panel management, have been linked to improved self-efficacy^{53,67,68,70,71} and efficiency.^{70–73}

Various tools and systems can further improve panel management. Specifically, by providing patients access to their own clinician and team, demand is reduced on clinicians. These technologies and systems include automated call systems, disease- or condition-specific patient panel management tools, such as PrEP-Rx or preventive screening reminders, and mass messaging.^{67,74–77}



I would rather drive a little bit further to have that [walk-in clinic option] available [at my primary care practice] and just have more doctors available.”

– David, patient

DEMAND

The second portion of this literature synthesis will focus on the demand for and on primary care across the United States. Demand for primary care is determined by population growth, geography, and patient mix. Demand on primary care are the features that require more time, attention, or information from the primary care team. These demands include screening for social determinants of health and connecting patients to services, patient isolation and loneliness, and unmet behavioral health needs.

Demand for Primary Care

GEOGRAPHIC DISTRIBUTION

Domestic migration patterns have significant implications for the dynamic geographic demand landscape for Primary Care Clinicians. For counties that reported an increase in population, 90 percent of their population change was related to domestic migration. In the past decade, less populated counties experienced a positive net migration while more populated counties have experienced a net outward migration.⁷⁸

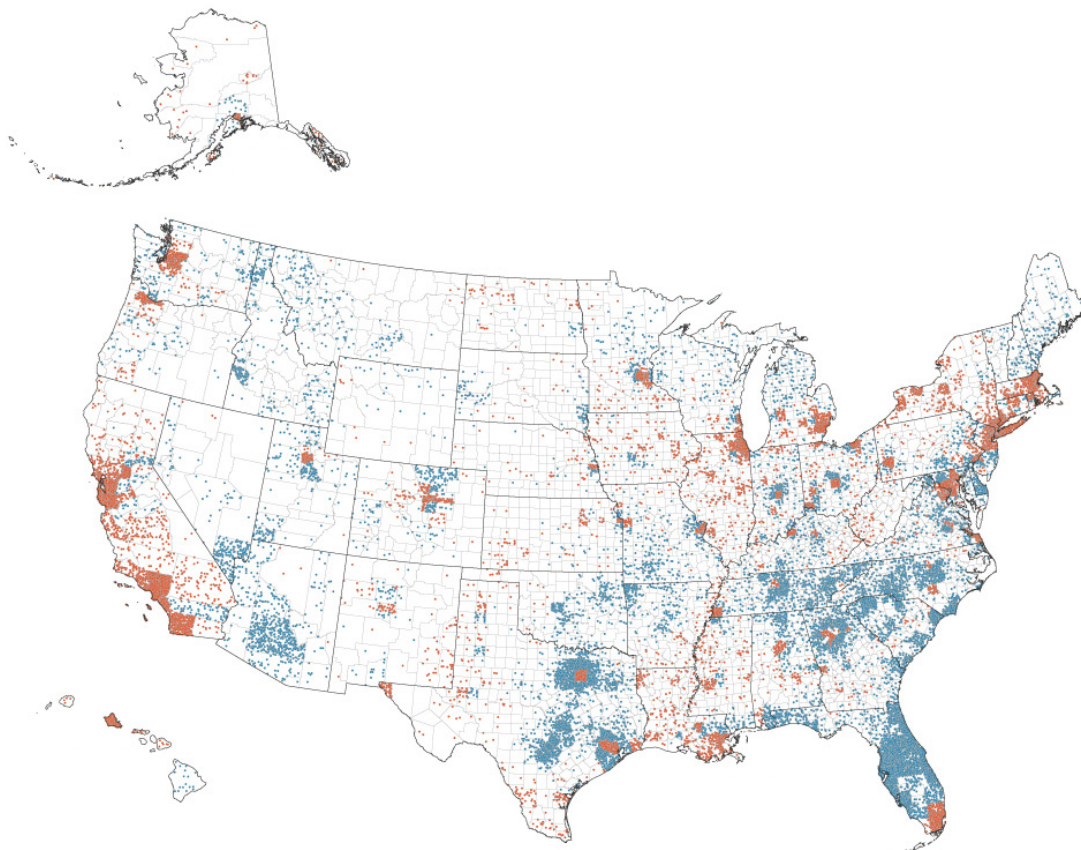
Data from the U.S. Census Bureau's Population Estimates Program demonstrate that between 2010–2019, regions of the United States west of the Rocky Mountains represented an area experiencing a dramatic increase in the proportion of the population aged 65 and older.⁷⁹ Specifically, Boise, Idaho and the surrounding area had a 60 percent and greater increase in their population that was more than 65 years old between 2010 to 2019.⁷⁹ This trend also took place in Phoenix, in the cities of Santa Fe and Taos in New Mexico, in Maui, Hawaii, in Browning, Minnesota, and in the Rocky Mountains of Colorado.

The Midwest region east of the Rocky Mountains constitutes an area of relative stagnation and even decreases in aging populations. Areas including Campbell County, South Dakota, Deuel and Garden counties in Nebraska, Decatur and Jewell counties in Kansas, and several counties in Texas registered losses in their elderly populations.⁷⁹ Unsurprisingly, many rural counties experienced an increase in domestic migration during the COVID-19 pandemic, but this was not uniformly distributed across the United States.

Certain geographic regions of the country stand out as hotspots for domestic migration in 2021⁷⁸ (Figure 4). Urban centers on the West Coast such as Seattle, Portland, San Francisco, and Los Angeles experienced net population losses, while inland counties in the West in Arizona, Idaho, and the Las Vegas region experienced net population gains. The Southeast Appalachian region in Tennessee, the Carolinas, and Georgia experienced significant migratory growth as well, in contrast to the urban centers of the Northeast such as Boston, New York, and Washington DC.

FIGURE 4
Net Migration by County in the United States: 2021–2022

■ Positive net domestic migration ■ Negative net domestic migration 1 dot = 100 people



Source: Rogers L, Perry M, Spell L. "Domestic Outmigration From Some Urban Counties Slowed, Smaller Gains in Rural Counties." Census.gov. Published March 30, 2023. Accessed August 16, 2023. <https://www.census.gov/library/stories/2023/03/domestic-migration-trends-shifted.html>

Notes: Red demonstrates negative domestic migration while blue denotes increased domestic migration.



Occasionally the well-established patients with 2 or 3 stable chronic conditions are seen, but it takes a long time, months and sometimes longer to get the patients to be 'stable.' An example is that many have hypertension and type 2 diabetes with an A1C greater than 12 and elevated blood pressure, so it takes a long time."

– **Joyce M. Knestrick**,
PhD, CRNP, FAANP,
FAAN, Family
Nurse Practitioner,
Nurse Scientist

TRENDS IN THE AGE AND DEMOGRAPHICS OF THE U.S. POPULATION

The population in the United States is aging. In the 2020 U.S. Census, 17 percent of people in the country were older than 65, a 38.6 percent increase from 2010, driven largely by the Baby Boom generation.⁸⁰ By 2035, the U.S. Census Bureau projects that adults older than 65 will outnumber children in the United States. In the past four years, life expectancy in the United States has dropped, nearly a year between 2020 and 2021, and 1.8 years between 2019 and 2020, representing the sharpest drop in life expectancy since 1921–1923.⁸¹ Even with the decrease in life expectancy, the proportion of U.S. residents older than 65 continues to increase, increasing the demand for primary care.⁸⁰

The majority of adults older than 65 in the United States are non-Hispanic White, at 77 percent, non-Hispanic Black (9.2 percent), two or more races (5.5 percent), Asian (4.5 percent), other (3.4 percent), and 0.1 percent who identify as American Indian/Alaska Native.^{11,80} Importantly, though, people of color over the age of 65 are projected to increase by 135 percent from 2017 to 2040.⁸² The demographics of the aging population means there also will be a higher demand for racially and ethnically concordant physicians and an increasingly diverse workforce. Racial and ethnic concordance between physicians and patients has been shown to decrease costs, increase satisfaction with care, and lead to better outcomes.⁸³

GROWING MEDICAL COMPLEXITY OF ADULTS AND CHILDREN

The proportion of the aging population with previously fatal diseases such as HIV and cancer is growing, as well as those with multiple chronic comorbidities. With this increase in complexity, demand for care and costs also increases care.^{84–89} The AAMC estimates in its "Supply and Demand Projections" reports that the prevalence of diabetes and heart disease will increase by 25 percent and 29 percent, respectively, between 2019 and 2034.²² It also estimates a 23 percent to 29 percent increase in the number of living individuals with a history of stroke, heart attack, or cancer in the same time period.²²

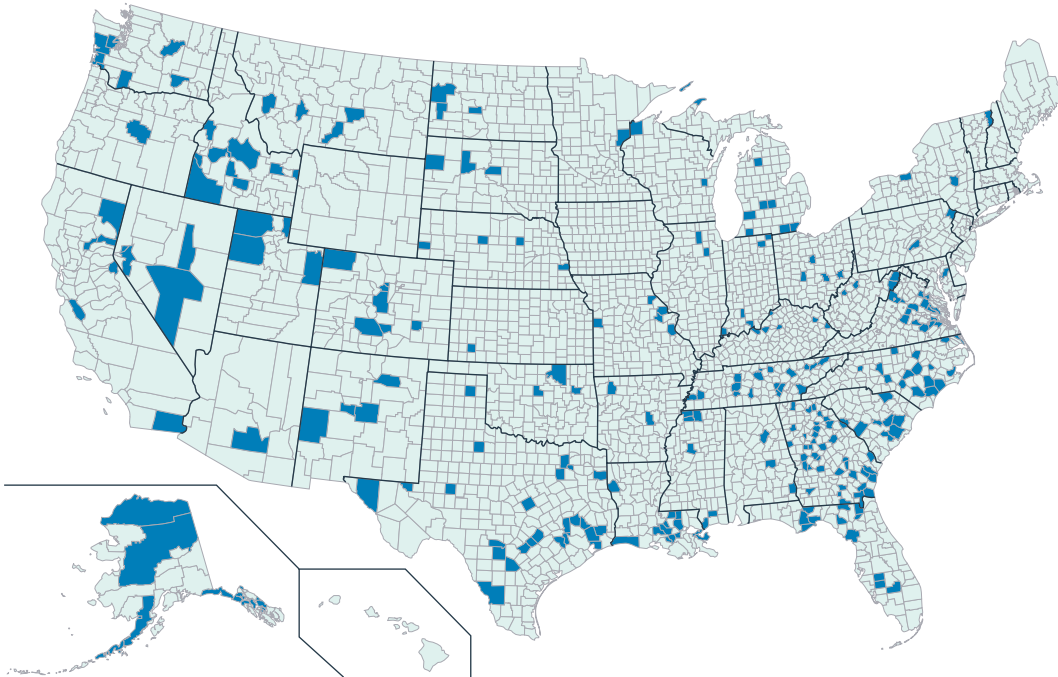
Primary Care Physicians are often involved with the care of individuals with two or more diagnoses⁹⁰ and older adults have an average of three chronic medical conditions, with most individuals taking five or more prescription medications.¹² Increased complexities, diagnoses, and the resulting increased demand for PCP appointments in turn results in a significant increase in demand for PCPs in the geographies with geriatric population growth (Figure 5).

Figure 5 below displays counties in dark blue that are in the lowest tercile for PCP capacity and in the highest tercile for geriatric population growth. While these counties are scattered throughout the United States, many of them are concentrated in the Southeast, Virginia, Texas, and Idaho. These counties are at highest risk for lack of access to primary care and worsening health outcomes.

FIGURE 5

Percent Change among the 65 & Older U.S. Population: 2010–2019 vs. PCPs per 100,000 Population (2020)

■ High growth and low capacity counties



Data Sources: U.S. Census Bureau. Population Estimates. County Population by Characteristics: 2010–2019. www.census.gov/data/tables/time-series/demo/popest/2010s-counties-detail.html and www.census.gov/library/visualizations/2020/comm/map-popest-65-and-older.html; University of Wisconsin Population Health Institute. County Health Rankings & Roadmaps 2023. www.countyhealthrankings.org

Notes: High Growth & Low Capacity Counties are defined as counties in the highest tercile for geriatric population growth and in the lowest tercile for Primary Care Physician capacity.

This aging demographic also means an increase in the proportion of the population experiencing cognitive decline and dementia, which requires many levels of support.⁹¹ In addition to medical conditions, older adults are often dealing with psychosocial, mobility, and psychiatric issues that affect health and quality of life.^{92–94} Because of complex medical issues and psychosocial concerns, older adults often require more specialist care, which requires a level of coordination that the current health care system is ill prepared to provide.

More than a quarter of all children in the United States have a chronic health condition, such as diabetes, asthma, mental health disorders, or obesity.⁸⁶ This growing population of Children with Medical Complexity (CMC) face increased needs for medical, developmental, educational, and social support.⁹⁵ These complications can often lead to severe functional limitations, a need for health services to maintain their health, and dependence on high health care utilization.^{88,96}

In addition, maintaining the wellness of CMC outside of the hospital and emergency department setting can be difficult as clinicians may not know how to manage every type of CMC situation.⁹⁷ The increasing racial and ethnic diversity of the pediatric population also adds to the complexity of care due to the need for culturally competent care.⁸⁶ CMC will also need special care such as support programs that help them transition into adult care,⁹⁸ more social work services,⁹⁵ and primary care teams working with interdisciplinary experts.⁹⁹



[My wife] is in a 24/7 facility [and] she's now in a wheelchair It's simplified my life a lot by using that service, but I just don't have great confidence in maybe all the doctors or the dentist."

– David, patient

INCREASED DEMAND FOR MEDICAL SCHOOL RECRUITMENT, RETAINMENT, AND TRAINING

Population growth, population aging, and increasing complexity result in more pressure on medical schools to recruit and train primary care matriculants.¹⁰⁰ In order to meet the demands of older patients, those living in areas without resources, and those with medical complexities, medical schools and residencies have altered their training curricula.¹⁰¹ Few medical students receive training to adequately prepare them to care for the elderly. In fact, there are no requirements for geriatrics training in medical schools, leaving future physicians without adequate knowledge to meet the needs of this population.¹⁰² Minimum geriatric competencies have been shown to increase confidence in caring for this population after training.¹⁰³

The Accreditation Council on Graduate Medical Education (ACGME) recently updated competencies for family medicine residents, which now includes a requirement for residents to have a “dedicated experience in the care of older adults of at least 100 hours or one month and at least 125 encounters,” emphasizing this should include “functional assessment, disease prevention, health promotion, and management of multiple chronic conditions.”¹⁰⁴ Residents without a geriatric fellowship will be better equipped to provide geriatric care.

The increased demand for care for the elderly also will increase the demand for NP and PA training. When NPs choose a specialty track, one option is combined adult-gerontology primary care NP certification that provides robust training across the lifespan, yet less than 2 percent of NPs are certified in geriatrics.¹⁰⁵ PAs can help to fill the gap in geriatric care. It is estimated that 0.8 percent of the PA workforce is certified in geriatric care as of 2022, yet this proportion increased 167 percent between 2013 to 2018.¹⁰⁶ In 2020, the National Academy of Medicine recommended that the workforce be strengthened and that all practitioners, including physicians, NPs, and PAs providing care to the elderly receive appropriate training.^{107,108}

A NOTE OF DECREASED DEMAND: HIGH DEDUCTIBLE INSURANCE PLANS LOWER USE

HDHPs dampen demand for primary care because they pose a financial barrier to getting services after preventive screenings—specifically, paying the deductible. When an employer-sponsored health plan was implemented that included a high deductible component, health care service use and spending dropped by 13 percent per year.¹⁰⁹ Services were deferred by patients, rather than seeking lower cost care.

Demand on Primary Care

SCREENING FOR AND ADDRESSING SOCIAL DETERMINANTS OF HEALTH

There are many administrative demands on primary care, including responding to prior authorization requirements, electronic health record documentation and coding, and quality reporting to name a few. More recently, payers are asking primary care practitioners to document the social determinants of health (SDOH) to try and understand their impact on health outcomes. There are many SDOH tools available, and practices use screeners including the PREPARE tool, Structural Vulnerability Assessment Tool, and the AAFP's Social Needs Screening tool.^{110,111}

Evidence about the equitable uptake of screening in practices remains lacking. Several review articles cite the limited specificity in administration and screening and referral rates.¹¹² The U.S. Preventive Services Task Force notes that the data to support screening for SDOH is limited for some components but does have recommendations for screening for mental health (depression and anxiety) and health behaviors (tobacco use, alcohol use, and adherence to healthy behaviors).¹¹³ The task force emphasizes the importance of screening for modifiable risk factors, rather than those without possible intervention.

Many have raised questions as to whether primary care is the optimal setting for SDOH screening and interventions. The feasibility and burden have been evaluated in limited studies. Research has demonstrated a need for ease in the collection of electronic health record data and user education on workflow.¹¹⁴ In one analysis, an automated electronic health record system was used to facilitate screening, with 70 percent of eligible patients screened for SDOH. Of those who screened positive and requested resources, 86 percent received a relevant referral or resource.¹¹⁵ The automation of screening removed the burden on nursing staff and clinicians. Interventions have also been evaluated in a few studies. In a recent community health center evaluation, care was influenced by social determinants in 35 percent of encounters as reported by clinicians.¹¹⁶

The integration of SDOH screening in primary care settings places more demand on the team, either to collect data, review data, or make tailored recommendations for resources and follow up. This demand should be considered when additional screening recommendations are put into place.

LONELINESS, BEHAVIORAL HEALTH, AND PRIMARY CARE USE

Loneliness is a public health issue associated with a negative impact on health outcomes. The prevalence of loneliness is approximately 20 percent in the U.S. primary care patient population and increases with age¹¹⁷ (Figure 6). The COVID-19 pandemic resulted in significantly more social isolation and increased loneliness. The elderly population and children with complex needs are at higher risk for loneliness.¹¹⁸ The impact that loneliness has on the elderly population is comparable to smoking, alcohol use, and obesity.¹¹⁹ With increased loneliness, demand for primary care appointments and attention to social factors during appointments increases.¹²⁰

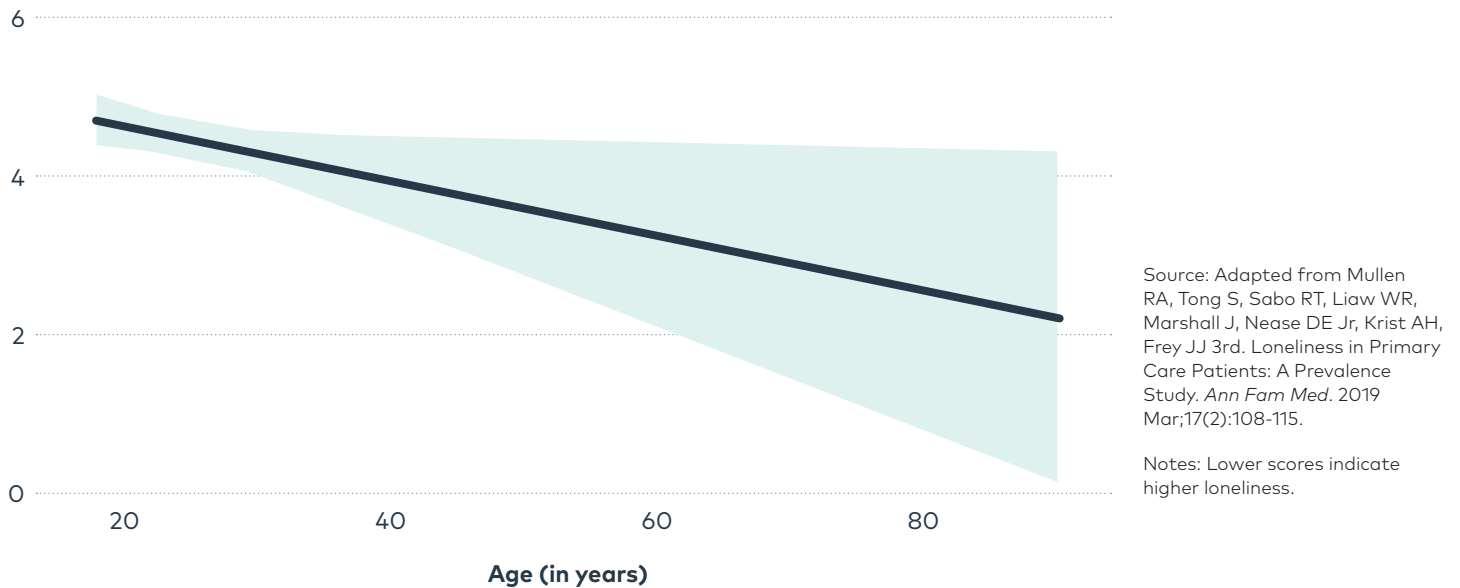


We can't disregard the impact of social determinants of health. It's a significant challenge, especially when working in a rural health community. Consequently, there is a greater need for additional support and access to pertinent resources."

– **Laura Okolie,**
DMSc, MBA, MHS, PA-C

FIGURE 6
Increased Likelihood of Loneliness at Older Ages

Predicted Loneliness Score



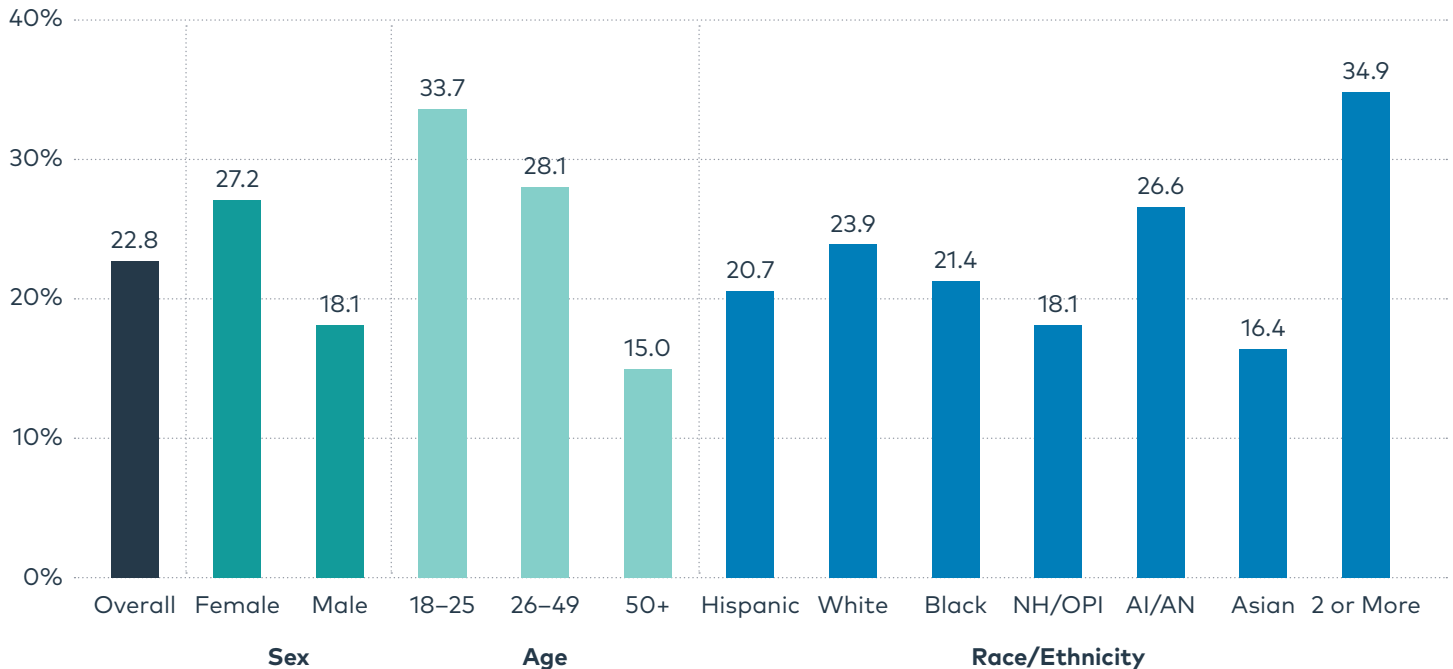
Screening tools for loneliness can be introduced either synchronously during the visit or asynchronously before/after the visit. Strategies recommended by Primary Care Clinicians such as exercise, social facilitation, and therapy have limited supporting research, but may improve loneliness in adults.¹¹⁷ NASEM notes that screening for social isolation is not often completed in primary care. If screening takes place, there is a gap between screening for and addressing loneliness in the primary care setting, which may be due to lack of collaborative models that reduce clinician burden.¹²¹⁻¹²³

In addition to loneliness, mounting mental health concerns have increased demand for primary care. One in five adults in the United States lives with a mental health condition—more than 57 million individuals¹²⁴ (see Figure 7 for the detailed demographics). Mental health has long been addressed in the primary care setting and many models that incorporate mental health concerns exist.¹²⁵ Integrated behavioral health clinics are promoted as a patient-centric approach to address the physical, emotional, and social health care needs.¹²⁶

The definition of integration is broad and ranges from those clinics that have a warm handoff between a Primary Care Clinician and a therapist, to co-location and team-based approaches to mental health care. Integrated clinics that promote inter-specialty consultation, coordination, and collaboration are able to better address patient concerns and treat mental health disorders.¹²⁷ Further, these models support professional development.¹²⁷ For more information on integrated behavioral health, see “The State of Integrated Primary Care and Behavioral Health in the United States.”¹²⁵

FIGURE 7

Prevalence of Any Mental Illness in 2020 for U.S. Adults by Sex, Age, and Race/ethnicity, 2021



Source: National Institute of Mental Health. Mental Illness. NIMH. Published March 2023. Accessed July 13, 2023. www.nimh.nih.gov/health/statistics/mental-illness

Practice Patterns—The Intersection of Supply and Demand

There have been significant shifts in the way medicine is practiced and patient expectations of medicine. This section evaluates the changing landscape of how care is provided based on the intersection of the demand for care and how the health care system has adjusted to meet those demands. Many concepts presented in this section are a direct result of innovation and adaptation to supply and demand.

DIRECT PRIMARY CARE

DPC is a practice model that aims for patient engagement, rather than an insurer-centric health care approach. DPC offers patients a financially transparent model for accessing primary care.¹²⁸ Clinicians offer patients relatively unlimited access to their services, often including 24/7 communication with their PCP, in exchange for a membership fee. The average annual cost for an adult to participate in a DPC practice ranges from \$500 to \$1,499.¹²⁹ This membership fee often includes the cost of in-person visits, virtual visits, wellness and preventive care, acute care, chronic care, minor procedures (electrocardiograms, breathing treatments), and some labs.¹³⁰ DPC clinicians report that they offer physician email access (82 percent of those surveyed), 24-hour access to the clinician (76 percent), same day appointments (92 percent), and wholesale labs (74 percent).¹²⁹

While formal definitions that distinguish DPC from Concierge care do not yet exist, DPC practices traditionally do not bill an individual patient's insurance company for the care provided for each encounter in addition to their membership fee. Their income is driven purely from the membership fee. Concierge practices offer similar services for their patients, but in addition to an often higher membership fee these practices bill patients' insurance companies per visit. Services may vary in regard to low-cost laboratories, imaging, and medications; patients may rely on their primary insurance for access to these items.



[My previous primary care practice went into a Concierge service] where you had to pay a few thousand dollars to be on the list and you could see him during the year. He would have fewer patients and would be able to devote more time to their health. But I didn't feel like I could pay that for myself and my wife."

– David, patient

Patient panel size is a critical factor in clinician supply in the DPC setting. Historically, patient panel sizes have been below 500 patients per clinician in a DPC practice. Yet some practices report more than 600 patients per patient panel. This is significantly fewer than the 1,000-to- 2,500 patient panel size often seen in primary care settings (see [Empanelment](#)). While a smaller patient panel size, DPC clinicians report decreased burnout compared to peers, and higher satisfaction with practice independence.¹³¹ This job satisfaction may be in part due to decreased health plan paperwork and lower administrative burdens.

Additional benefits of DPC may include fewer emergency room and hospital visits; one study showed a 54 percent reduction in emergency room claims and 25 percent fewer hospital admissions.¹⁴ While improving burnout and reducing hospital visits, there are downsides to the DPC model. With a further restricted patient panel size, the primary care workforce shortage is exacerbated and would likely double projected needs if the majority of clinicians worked in DPC. Additionally, the requirement of a membership fee may further cause inequities in health care; patients unable to afford the monthly cost will remain in increasingly overburdened primary care settings.

Based on these considerations, DPC practices contribute to some of the shared principles of primary care, including a strong emphasis on patient-centered care, easily accessible care, and continuous care. These practices, however, may have more difficulty with coordinated care and can contribute to inequitable care uptake. Studies have yet to demonstrate whether low-value care is reduced in the DPC setting.

RETAIL CLINICS

Retail clinics, defined as clinics co-located with other stores such as Walmart or CVS, are often used as an alternative to a visit to the emergency room or primary care office for acute conditions. Retail clinics first arose in 2000, and in 2015 there were nearly 2,000 locations; this number has assuredly increased dramatically since then.¹³² Retail clinics often employ NPs and PAs, offer extended hours of care, and promote short wait times. The acuity of conditions seen at retail clinics is often low, including ear infections, sore throats, and need for vaccines. Patients who use retail clinics are more likely to be men, younger than 45, and lacking a Primary Care Clinician.¹³³

There are some advantages to retail clinics. The use of retail clinics as an alternative to emergency rooms at hospitals has been associated with a decrease cost to the health care system in some instances.¹³³ Retail clinics are convenient for consumers; patients who are seen in retail clinics report that at the time of the visit (often early or late hours) most primary care practices are not open.¹³²

But the use of these retail clinic settings likely results in decreased continuity of care and decreased adherence to preventive service recommendations.¹³⁴ While some studies have evaluated the efficacy of prescribing, antibiotic stewardship, and access provided by retail clinics individually, there is limited data on the impact of retail clinics on the shared principles of primary care.

TEAM-BASED, COORDINATED CARE

Traditionally, a primary care team is defined as “a group of individuals that work together to satisfy patients’ needs for primary care services, with the potential of teams to expand access to primary care services.”¹³⁵ In practice, however, the scope and structure of teams varies across primary care organizations.¹³⁵ To rectify this, organizations and supervisors should assign members to a team and identify additional “resources” or team members who have a special expertise or skill that is valuable to the care team.¹³⁵ Patients and their families should also be considered part of the care team because shared decision-making is important to providing care.¹³⁵ Integrating multi-disciplinary members, such as clinician pharmacists and dentists, into the primary care team can help build trust and rapport with patients, as well as improve medication use and meet health goals and quality measures.¹³⁶



I think everybody experienced that a little bit [of burnout] in primary care, but I'd say I have less of it in the past 3 and a half years that I've been a Direct Primary Care practice."

– Wes, MD





I still have other doctors [who are specialists] in [other health care] portal[s]. And the two portals [my Primary Care Physician's portal and my specialist's portal] do not talk to each other. So, one of the things that's impacting the primary care is that they don't have any information that is in the other portal. And I think that is terrible."

– P. Skoglund, patient

Overall, multi-disciplinary and integrated team-based care models can enable clinicians to focus on professionally fulfilling clinical activities and can reduce clinician burnout.¹³⁷ Coordinating care across the team and ensuring continuity of care are also vital to ensure that comprehensive (but not duplicative) care is provided to the patient.^{138,139} This is especially critical when caring for medically complex patients, as PCPs often lack the evidence-based knowledge and the confidence in managing these patients.¹⁴⁰ Placing the sole responsibility of caring for these patients on PCPs adds further burdens and stress on a physician's already demanding workload.¹⁴¹ With the rise in the proportion of high-risk patients and medically complex patients, care coordination between care teams will be instrumental in reducing clinician stress and burnout.¹⁴¹

HEALTH CARE WORKFORCE DIVERSITY AND EQUITABLE OUTCOMES

Increasing the diversity of the primary care workforce can partially mitigate the negative effects of the workforce shortage, by contributing to closing disparity gaps in care. The American Board of Family Medicine tracks demographic data of Family Medicine Diplomates. Between 1987 and 2017, the percentage of Black family physicians rose from 1.3 percent to 7.8 percent and Hispanic family physicians rose from 2.3 percent to 9.1 percent.¹⁴² While still below the national population representation (13.6 percent Black and 19.1 percent Hispanic), the increased representation is valuable.¹⁴³

Multiple studies have demonstrated that increased representation and increased race concordance positively impacts outcomes. The ratio of Black Primary Care Physicians to the Black population in a county has an impact on life expectancy; between 2009, 2014, and 2019, the authors in one study found that a 10 percent increase in Black PCP representation was associated with a higher life expectancy of 30.61 days.¹⁴⁴ Black infants cared for by Black physicians' results in decreased neonatal mortality.¹⁴⁵ Physician-patient race concordance results in decreased emergency department use and decreased total health care costs.⁸³ A clinician's race may increase trust, access, and result in improvement in the shared principles of primary care.

THE EXPANSION OF TELEHEALTH AND EQUITABLE UPTAKE

Telehealth, including video visits, audio-only visits, and asynchronous electronic messaging grew enormously during the COVID-19 pandemic, as demand for primary care visits dramatically rose, while in-person access was substantially limited. Pre-pandemic, the use of telehealth was limited to 0.1 percent of encounters.¹⁴⁶ In the Veterans Health Administration, telehealth use jumped from 13.9 percent to 63.1 percent between March 2019 and March 2021.¹⁴⁷ For commercially insured patients and those with Medicare Advantage, telehealth rose 23-fold during the pandemic.¹⁴⁸

Despite the enormous temporary growth in telehealth use during the height of the COVID-19 pandemic, not all populations benefited equitably from this new access point. Patients living in poverty and those in rural areas were less likely to use telehealth during the pandemic.¹⁴⁸ Broadband networks either lag or completely lack capacity in many rural areas of the United States.¹⁴⁹ In some cases, primary care was delivered by individuals outside of the communities they served, which may have prevented continuity and comprehensive care.

Yet a survey of consumer experience with telehealth during the pandemic suggests people in rural America are increasingly satisfied with and comfortable receiving remote care.¹⁵⁰ The same survey also reported that rural residents are more likely to use audio-only telehealth, rather than video virtual care. Less is known about the more remote frontier areas of the country. Medicare recipients may also have decreased access to telehealth, but studies often report reduced uptake in rural Medicare communities as compared to their urban peers.¹⁵¹

Older adults' preferences for care delivery differ as compared to younger patients. Many individuals who are more than 65 years of age prefer face-to-face care over telemedicine, prefer continuity over convenience, but often experience difficulties getting appointments, and prefer discussions about their care rather than seeking information from reading materials.¹⁵² Telehealth may limit access and efficacy for these patients.



At the end of the pandemic, with my previous provider [an NP], she and I decided to do some telehealth ... and so we did that twice. It was fine, but I knew her. I would not want to do telehealth with someone I didn't know. But it worked fine. It was really handy."

– **P. Skoglund**, patient

SECTION 2

Supply and Demand Analysis

Trends of workforce entering and exiting with state-level variations

INTRODUCTION: INFLOW AND OUTFLOW

As described in Section 1, several organizations have projected the workforce needs for coming years based on the complex factors that impact primary care access, sustainability, and equity. Most analyses include increased access due to the implementation of the Affordable Care Act and Medicaid expansion, some attribution due to population growth, and occasionally increased complexity as factors increasing demand. In this evaluation, the national and state-based inflow and outflow of primary care clinicians, including Primary Care Physicians, Primary Care Nurse Practitioners (PCNPs) and Primary Care Physician Associates/Physician Assistants (PCPAs) is analyzed, finding a net change in demand rather than the overall workforce shortage projections.

METHODS

Data Sources

Three data sources were used to assess the inflow and outflow of primary care clinicians per 100,000 population.

The primary data source to estimate the number of PCPs was The American Medical Association Physician Masterfile (AMA Masterfile) from 2012 to 2020, which includes a nearly complete listing of all physicians in the United States. It contains information about each physician's age, gender, type of medical degree (Doctor of Medicine [MD] or Doctor of Osteopathic Medicine [DO]), specialty, practice type, and practice address.

Lacking the type of data AMA Masterfile that is available about physicians, we estimated the number of PCNPs and PCPAs we used the Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use File (Physician and Other Supplier PUF) from 2013 to 2020, which includes information on services and procedures provided to Medicare beneficiaries

by physicians and other health care professionals such as NPs and PAs. The Physician and Other Supplier PUF provide information on use, payments, and submitted charges organized by National Provider Identifier (NPI), Healthcare Common Procedure Coding System (HCPCS) codes, and place of service. The data were also used to identify primary care clinicians working as hospitalists and those billing mainly from emergency departments.

Lastly, we used U.S. Census estimates of the population for the United States and individual states at an annual level from 2012 to 2020.

Measures

NUMBER OF PCPS:

Inflow was calculated as the number of physicians (per 100,000 population) entering the workforce after completion of their fields training program. Primary care includes physicians in family medicine, general practice, internal medicine, geriatrics, and pediatrics. A 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. The method has been used and described in the literature.¹⁵³

Due to the difficulty in determining when a physician retires, we used the typical retirement age of 65. Outflow was calculated as the number of PCPs retiring at age 65. These data were collected from the AMA Masterfile, the number of PCPs that reached 65 were removed from the proportion per 100,000 population.

NUMBER OF PCNPS AND PCPAS:

We developed a novel method using Medicare billing to identify whether an individual PCNP or PCPA enters and leaves. We identified NPs and PAs based on the provider type available from Medicare billing. We further identified those in primary care based on the taxonomy codes linked to the National Plan and Provider Enumeration System (NPPES). We also excluded those working as hospitalists and those in non-primary care settings. We assumed someone billing for the first time was a new provider and when someone no longer billed for at least two consecutive years we assumed they were no longer providing those services.

Analysis

State-based calculations were determined based on the location of practice or services available from the AMA Masterfile and the Physician and Other Supplier PUF.

RESULTS

National Inflow and Outflow

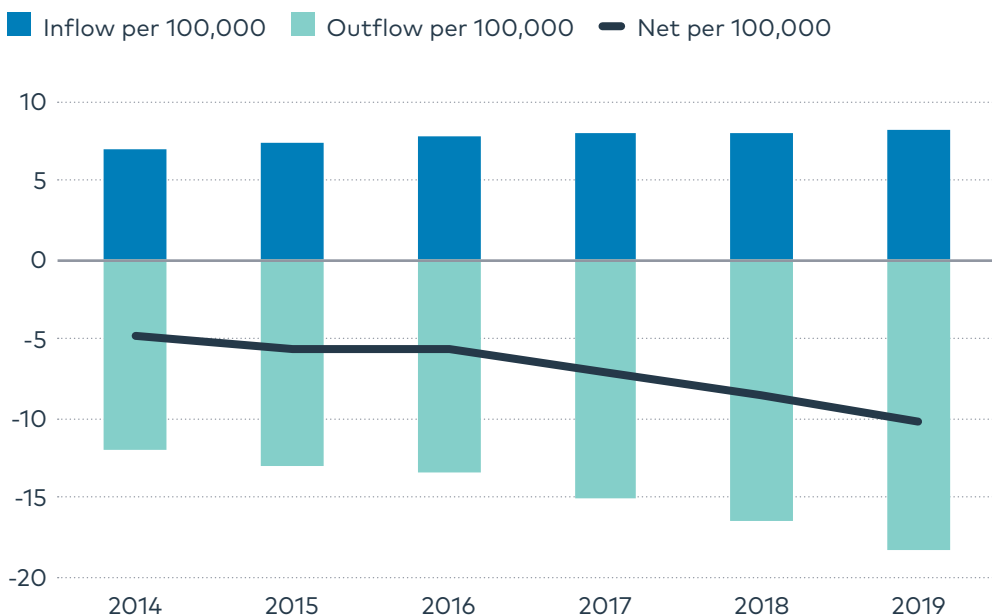
Annually since 2014, there has been a net decrease in the number of Primary Care Clinicians available per 100,000 population in the United States (Figure 1). Overall, there was a deficit of 4.91 clinicians per 100,000 population in 2014 and that has worsened to a net decrease of 10.11 clinicians per 100,000 population in 2019. The average loss per year continues to increase as retirements or exits outpace entrances into primary care.

NPs and PAs somewhat mitigate the loss of physicians in the United States. When considering only the inflow and outflow of physicians, the deficit is more significant. In 2012, there was a net loss of 8.03 physicians per 100,000 population based on more retirements than entrances (Figure 2). Eight years later in 2020, there was a higher net loss of 14.22 physicians per 100,000 population. The retirement of physicians far exceeds the entrance of physicians into the workforce.

State-Based Inflow and Outflow

In 2019, outflow peaked in the U.S. Northeast (Figure 8). There was a net loss of between 15 percent and 22 percent per 100,000 population in nearly every Northeastern state. New Mexico, California, Michigan, and Florida also had high rates of outflow.

FIGURE 1
Inflow and Outflow, Primary Care Clinicians per 100,000 Population, 2014–2019
(with Physician Retirement at Age 65)



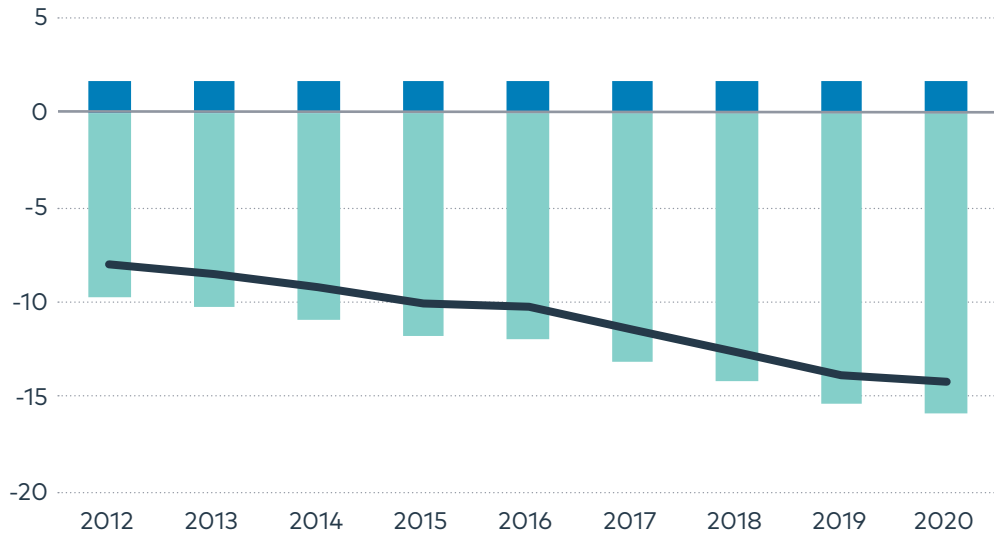
Data Source: American Medical Association Physician Masterfile 2012-2020; Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use File 2013–2020; U.S. Census 2012-2020

Notes: Primary Care Clinicians includes PCPs, NPs, and PAs. As for PCPs, inflow was calculated as the number of PCPs (per 100,000 population) entering the workforce after completion of their fields training program, while outflow was calculated as the number of PCPs retiring at age 65. As for NPs and PAs, inflow and outflow were identified based on Medicare billing such that we assumed someone billing for the first time was a new provider and when someone no longer billed for at least two consecutive years we assumed they were no longer providing those services.

FIGURE 2

Inflow and Outflow, Primary Care Physicians per 100,000 Population, 2012–2020 (with Physician Retirement at Age 65)

■ Inflow per 100,000 ■ Outflow at age 65 per 100,000 — Net at age 65 per 100,000

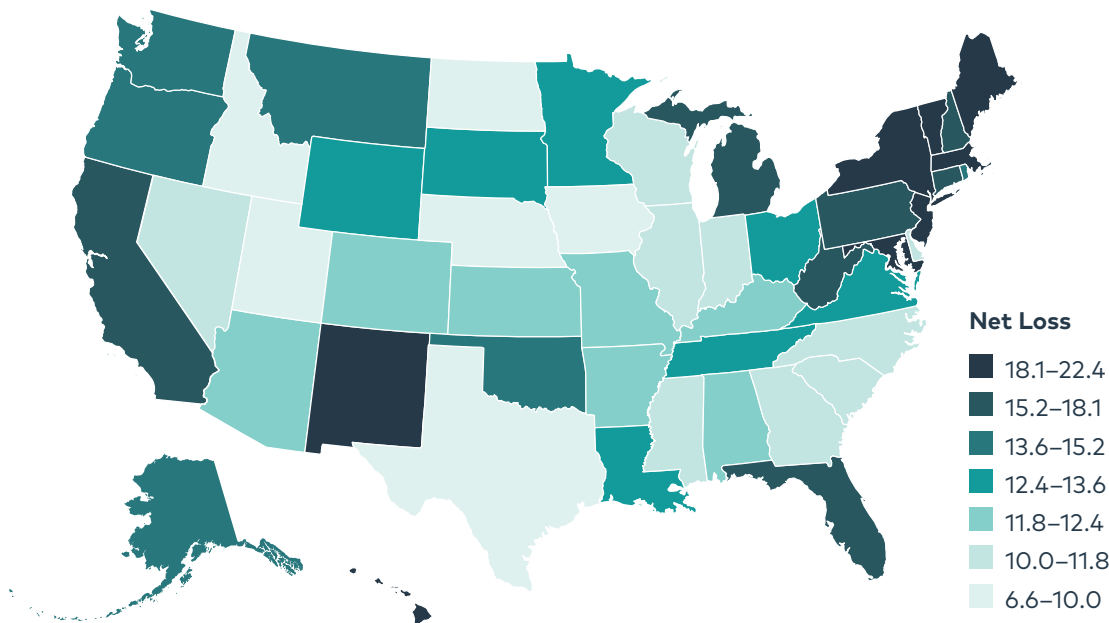


Data Source: American Medical Association Physician Masterfile 2012–2020; U.S. Census 2012–2020

Notes: As for PCPs, inflow was calculated as the number of PCPs (per 100,000 population) entering the workforce after completion of their fields training program, while outflow was calculated as the number of PCPs retiring at age 65.

FIGURE 8

Net Loss of Primary Care Physicians (DO, MD) per 100,000 Population, per State, 2019



Data Source: American Medical Association Physician Masterfile; U.S. Census

Notes: As for PCPs, inflow was calculated as the number of PCPs (per 100,000 population) entering the workforce after completion of their fields training program, while outflow was calculated as the number of PCPs retiring at age 65.

While most states saw a net loss of Primary Care Physicians in 2019, there was growth of NPs and PAs in primary care in 2019. The states with the largest growth were the Dakotas, New Hampshire, Ohio, Wyoming, and Mississippi, with between 5 percent and 7.3 percent growth among these states. (See Figure 9.) Some states had only a modest increase of NPs and PAs, with growth of less than 1.5 percent in states including California, Alaska, Hawaii, and Vermont. See Appendix A for more detail about state changes in PCP, NP/PA, and PCC changes in 2019.

The gain of these clinicians moderated state losses, as seen in Figure 3. Aligned with the overall national trends, every state experienced a loss of Primary Care Physicians per 100,000 population in 2019. Some states with minimal growth of NPs and PAs experienced high net losses (California, Vermont, Alaska), but some states with minimal growth of NPs and PAs did not have significant net losses, such as Texas. The states with the highest increase in NPs and PAs did have mitigated losses, with the Dakotas, Mississippi, and Ohio experiencing relatively low net loss of clinicians (less than 6 percent per 100,000 population).

FIGURE 9
Net Gain of NPs and PAs per 100,000 Population, per State, 2019

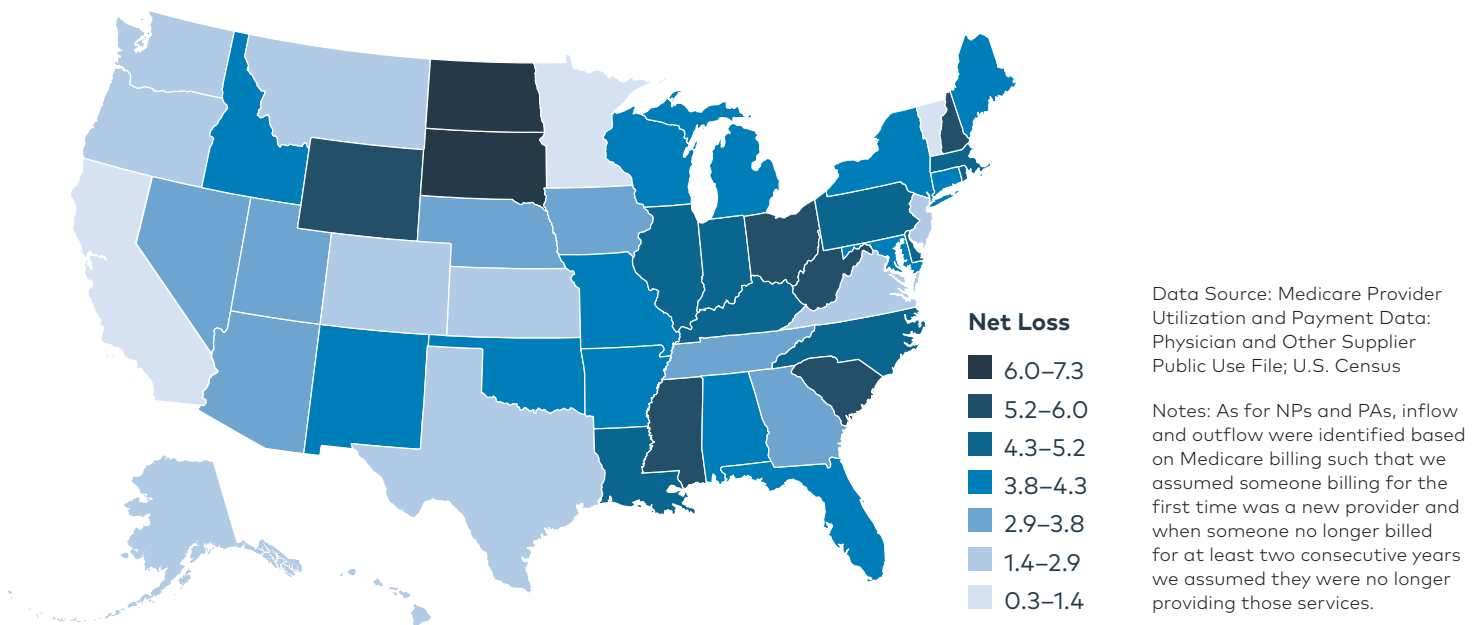
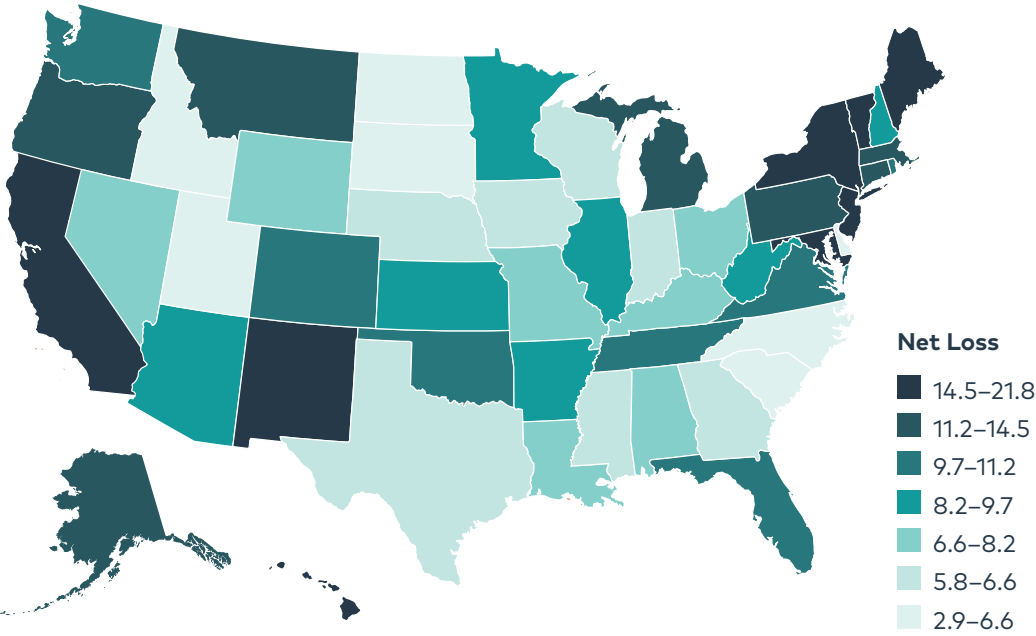


FIGURE 3

Net Loss of Primary Care Clinicians (DO, MD, NP, PA) per 100,000 Population, per State, 2019



Data Source: American Medical Association Physician Masterfile; Medicare Provider Utilization and Payment Data; Physician and Other Supplier Public Use File; U.S. Census

Notes: Primary Care Clinicians include PCPs, NPs, and PAs. As for PCPs, inflow was calculated as the number of PCPs (per 100,000 population) entering the workforce after completion of their fields training program, while outflow was calculated as the number of PCPs retiring at age 65. As for NPs and PAs, inflow and outflow were identified based on Medicare billing such that we assumed someone billing for the first time was a new provider and when someone no longer billed for at least two consecutive years we assumed they were no longer providing those services.

SECTION 3

Potential Solutions to Declines in Relationship-Based Primary Care

While important, existing policy interventions to increase access to relationship-based primary care are not adequate as evidenced by 27 percent of adults having no Usual Source of Care (USC). These include recent, significant expansion of CHCs, support for states under the ACA to expand Medicaid and for individuals to participate in exchanges, greater use of teams and panel management, and support for loan forgiveness through the public health service. A case in point is the 20-year decline in USC, except for 2021 which may be due to more patients seeking a primary care relationship during the COVID-19 pandemic. Additional policy actions must be taken beyond those already in place to achieve better patient health outcomes, enhanced equity across races and ethnicities and geographies, and more affordability.

These solutions fall into five main buckets:

- 1. Data:** Changes to workforce and payment data systems so policymakers are better able to make data-driven decisions related to primary care
- 2. Payment:** Pay primary care more and differently to achieve greater access to primary care and to support a team delivering more comprehensive care
- 3. Workforce:** Enact policies to leverage, support and retain the current primary care workforce
- 4. Education/Training:** Incentivize, inspire and diversify the future primary care workforce
- 5. Employers:** Educate employees about the importance of a primary care relationship and urge health plans to encourage establishing such relationships; and remove financial barriers to primary care

Let's examine each of these solutions in turn.

ENHANCE DATA COLLECTION AND REPORTING TO INFORM POLICY

Analysts who provide data on current and projected Primary Care Clinician shortage areas are working in the dark. Administrative data capture who bills and is paid for a service, not who delivers it. A MedPAC analysis of 2016 data estimates that 40 percent and 30 percent of Evaluation & Management services delivered by NPs and PAs, respectively, were billed under a physician NPI, known as “incident to” billing.¹⁵⁴ And unlike physicians when they enter the Medicare program, NPs and PAs are not asked to declare their specialty, so the field relies on surveys to determine specialty choice.

This lack of data contributes to the field’s inability to chart the changing composition of the primary care workforce, to undertake research comparing clinician type on quality and cost measures, to inform public and private decisions about where to target new CHCs and private clinics to respond to clinician shortages, and many other critical decisions.

The Medicare Payment Advisory Commission (MedPAC) recommendations in its June 2019 report would address these issues:

- **Remove “incident to” billing, an artifact of a time when an Advanced Practice Practitioner (APP) could not bill Medicare directly. Require APPs to declare their specialty when they join the Medicare program.**¹⁵⁴ NPs and PAs can now bill Medicare directly for the provision of services, with some minor exceptions. Removing “incident to” billing would neither change scope-of-practice laws, including state supervision or collaboration requirements, nor require changing the way care is delivered. This policy change would directly alter the bill that the clinician submits to Medicare for payment, accurately reflecting who delivered the service and the appropriate rate (NPs and PAs are paid 85 percent of physician rates). **This policy change to improve data quality for decision-making will only make sense if primary care practices do not lose the associated revenue linked to incident billing.** See below.
- **In addition to workforce data, decision-makers need more regular and standardized information about investment levels in primary care across all payers and information about how primary care is being paid.** Public and private payers should consider using their clout to require clinicians to report on a standardized primary care spending measure and on primary care value-based payment levels using the Learning and Action four categories.^{155,156} To date, 21 states are requiring primary care spending reports.^{157,158} Such data can inform policymakers about whether primary care expenditures reflect their priorities and help chart progress against value-based payment goals.

PRIMARY CARE SCORECARDS

A national and a state-level primary care scorecard were both issued in February 2023, raising the visibility of key challenges primary care is facing. The objectives of these scorecards differ but are complementary. “The Health of US Primary Care: A Baseline Scorecard”¹⁵³ is focused on assessing progress in the implementation of the five NASEM recommendations in its 2021 report, namely those related to payments, access, workforce/teams, health information technology, and accountability. The “Massachusetts Primary Care Dashboard”¹⁵⁹ is focused on identifying areas that need strengthening and on monitoring the impact of its investments. The scorecard is expected to be regularly updated.

These scorecards conclude that the state of primary care needs dramatic improvement and that tracking progress on these metrics over time is critical to making the case for interventions and for assessing whether such efforts make a difference.

Data challenges exist that need to be addressed. There is no data set, for example, that captures state-level primary care spending and usual source of care (USC) across all payers in 50 states, the District of Columbia and U.S. territories but only in 29 states. Further, we have limited data on how primary care is paid among other data gaps.

State-level scorecards can drill down further than a national report, stratifying data to examine differences across race and ethnicity to inform local decision-makers about what needs attention. For instance, while USC fell for all populations by about 2.5 percent between 2019–2021 in Massachusetts, USC dramatically declined by 10 percent for Black residents during this time period.

PAY PRIMARY CARE MORE AND DIFFERENTLY

Spending on primary care has been falling—from an average of 6.2 percent in 2013 to 4.6 percent in 2020 across all payers¹⁵³—while demand on and for primary care have been increasing as documented above. **To strengthen primary care, there should be increased spending on this sector, and it should flow through new payment models that incentivize and support practices to simultaneously offer more access and a more comprehensive set of primary care services through team-based care.** Such models also can encourage primary care clinicians to focus on population health and patient panel management, freeing them up to tailor care to individuals instead of focusing on relative value unit productivity.^{160–162}

Each method for paying primary care practices differently has its benefits and drawbacks. **A 2021 report from NASEM recommends a mix of capitated and fee for service—a hybrid payment—to balance against incentives in each approach that may not be beneficial for patients.** Further, NASEM recommends that payment flows to primary care teams to care for people, with accountability measures in place to determine if this is happening, not to doctors (or any other primary care clinician) to deliver more services.

Determining the amount of increased investment needed is a work in progress. But studies estimate that Primary Care Physicians spend almost a quarter of their time on non-visit, care-related activities for which they are currently not compensated, so a 25-percentage-point increase should be the floor in negotiations.¹⁶³ In addition, if changes to the “incident to” billing policy above were made to enhance data quality, there would need to be a mitigation strategy so that primary care practices would not lose that revenue.

Finally, policies related to increased investment should consider the costs associated with hiring team members to provide a more comprehensive set of services. Additional investment in primary care needs to be considered in relationship to the total cost of care and the timeframe for when new primary care models can achieve both quality and cost outcomes.

The Centers for Medicare/Medicaid Innovation (CMMI) have recently introduced “Making Care Primary” with payment tiers; it is intended to move primary care practices to take on more prospective payments so that they can offer more comprehensive services, including behavioral health integration.¹⁶⁴ CMMI and the Centers for Medicare & Medicaid Services (CMS) also are considering offering a primary care hybrid payment option within the Medicare Shared Savings Program, which currently serves more than 11 million beneficiaries, with the idea that this would result in more investment in primary care and more comprehensive primary care service offerings.¹⁶⁵

LEVERAGE, SUPPORT AND RETAIN THE EXISTING WORKFORCE

While there is no longer a public health emergency, the COVID-19 pandemic drove an exponential growth in remote primary care. Specifically, 3.3 percent of primary care visits were virtual in 2021 as compared to less than 0.1 percent pre-pandemic.¹⁴⁶ **If properly integrated with a patient’s USC, telehealth can enhance convenience, broaden access, and increase clinician efficiency. A hybrid payment model that is agnostic about how care is delivered—leaving it up to the patient and clinician to decide upon modality—is preferable from the standpoint of costs and administrative simplicity versus billing using existing fee-for-service codes for remote care.** Other technologies that can support primary care clinicians include e-consults, which provide remote curbside specialty consults and broaden access, and artificial intelligence applications to reduce administrative burdens related to billing and quality reporting, freeing up primary care practices to focus on patients not paperwork.

Leveraging teams is also a critical strategy for addressing the growing complexity of patient care as the share of Primary Care Clinicians continues to shrink and demand for primary care increases. More investment in primary care practices through alternative payment models is needed to provide upfront, predictable payments that can enable practices to hire team members, redesign care delivery, and offer a more comprehensive set of primary care services.

New team members, including social workers, community health workers, and health coaches can contribute to better clinical outcomes, reduce the stress and the workloads of Primary Care Clinicians, and potentially contribute to increasing diversity of the team.¹⁶⁶⁻¹⁶⁹ There is no one model of team-based care. Leaders assembling a team must consider the needs of the patients in the practice and the broader community and available clinical and non-clinical staff for hire.

Health systems and others who employ primary care clinicians also should consider how to reduce administrative burdens and to offer part-time and more flexible arrangements to retain staff, given increased two-parent working households and the sandwich generation, who are taking care of children and older parents.⁴⁸ Such flexibility was the No.1-cited reason why physicians returned to clinical care after having recently left the workforce.⁴⁷

Finally, compacts that allow clinicians to more readily practice across state lines, remotely or physically, can provide additional patient access to primary care. Specifically, states that are not currently participating in the Interstate Medical Licensure Compact should consider doing so.¹⁷⁰ This Compact of 37 states, the District of Columbia, and Guam permits physicians who meet required criteria to practice across state lines. While RNs have set up a licensing Compact, NPs and PAs are still in the process of doing so.^{171,172}



The care I've received from the private sector is a thousand times better than trying to get through [my local hospital]. Like the phone call. If I call [my private practice family care provider] right now, they'll answer."

– Sadie, patient

INCENTIVIZE, INSPIRE AND DIVERSIFY THE FUTURE PRIMARY CARE WORKFORCE

Many analysts underscore the importance of going upstream in middle school and high school to identify promising future Primary Care Clinicians, particularly in rural and underserved urban areas. If these programs successfully recruit such students into health care, and primary care more specifically, the evidence has shown that they are more likely to return to their communities to practice.¹⁷³ Such efforts also can potentially increase the proportion of people of color in the health professions, as can greater support for health-professions education in Historically Black Colleges and Universities.¹⁷⁴ These efforts are critical as the United States has made little progress in increasing racial/ethnic diversity of medicine for 40 years.¹⁷⁴

Novel approaches and further support for both undergraduate and graduate education of Primary Care Clinicians also can potentially increase the selection of primary care as a specialty. **Policymakers should consider providing financial support for the growing network of undergraduate programs, now numbering approximately 30, that are 3 years in length instead of 4 years.**¹⁷⁵ One less year decreases the time and money required for undergraduate medical education and aligns with the duration of these programs in other countries.¹⁷⁶

With respect to graduate education, it is past due for the federal government to better target the considerable \$15 billion they spend annually on GME funding to better support primary care. The NASEM report recommends that primary care training be shifted to ambulatory settings in communities that are most in need of primary care clinicians. NASEM presents evidence that training primary care clinicians where they “work and live” will result in expanding the workforce in rural and urban underserved areas. **The \$174 million allocated in 2022 to provide more primary care training in CHCs is directionally correct, but the investment needs to be much more significant to have the needed impact of increasing the primary care workforce.**

EMPLOYERS HELP ESTABLISH PRIMARY CARE RELATIONSHIPS AND REMOVE FINANCIAL BARRIERS TO PRIMARY CARE

Even if primary care shortages did not impede patients’ ability to find and establish primary care relationships, the design of health plan benefits may get in the way. As discussed earlier, HDHPs may pose a financial barrier to patients getting needed preventive care beyond screenings. In short, although employees may have insurance coverage, getting needed primary care services is out of financial reach because of deductibles and co-pays.

Some employers who have embraced HDHPs are now pursuing solutions to ensure that their employees get needed primary care by carving out and offering Direct Primary Care or by contracting with an on-site or near site workplace clinic to offer such services. Premise Health is an example of an onsite/near site clinic with 200-plus employer clients that offers comprehensive primary care for low or no deductibles. Other employers should consider following suit.

Finally, employers can also play a role in educating their employees about the important health dividends of maintaining a primary care relationship and urge the health plans they contract with to incentivize the selection of primary care by offering a modest payment to do so. Of course, this will only work if the employer supports policies that ensure there is a sufficient supply of Primary Care Clinicians in the community to meet employee demand and if clinician directories are up to date. In addition, employer policies need to offer paid time off when an employee is sick and needs to be seen by a clinician or to go to well care visits.



I get frustrated a lot in primary care because sometimes I think primary care doctors care more ... I think burnout comes from sometimes the doctor caring more than the patient themselves and so there’s a disconnect there.”

– Wes, MD

Conclusion



I think [my family physician's] private practice allows them to bend a few rules that they wouldn't otherwise. I think they take on more of that community aspect, like no one gets left behind, where I didn't feel that at [my local hospital] at all."

– **Sadie**, patient

The supply and demand of primary care is tenuous. The supply of PCPs is decreasing while supply of APPs is increasing and mitigating some of this loss. Medical training is not increasing at a rate to meet the needs of an aging public. Graduate medical education has made only incremental steps to increasing the number of PCPs trained. Demands are on the rise from medical interventions, increased patient complexity, new administrative demands, and patient expectations. Burnout was a major threat to the health care system before the COVID-19 pandemic, which exacerbated demand, and is shaping the way clinicians provide care in 2023, from reduced FTEs to changing types of practice such as DPC. Telehealth has offered increased access but not in an equitable fashion.

To sustain and promote equitable primary care, several tenable steps should be taken. Data should be reported in a consistent, transparent, and usable format for monitoring and measuring outcomes and for use in patient care. Primary care practices should receive fair reimbursement for the care they provide; payment systems that promote services rather than continuity and comprehensiveness fail to support equitable care for all communities.

From a patient perspective, health insurance plans that promote wellness and continuity with primary care should be affordable and easy to understand. The team of primary care professionals should be supported, and policies at national, state, and local levels should encourage all professionals to work to the top of their license. Finally, and of utmost importance, the team should be recruited from and be incentivized to remain within the communities they serve. This will result in attaining the shared principles of primary care, with all individuals having access to this public good.

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Appendix A

State-by-state evaluation of the net loss and gain of PCPs (column 1), NPs and PAs (column 2), and all Primary Care Clinicians (Column 3), 2019.

	PCP net change per 100,000 residents	NP and PA net change per 100,000 residents	Primary Care Clinician net change per 100,000 residents
AK	-14.18	0.27	-13.90
AL	-12.16	4.12	-8.05
AR	-12.25	4.04	-8.21
AZ	-11.85	3.28	-8.57
CA	-15.91	1.41	-14.50
CO	-12.07	2.33	-9.74
CT	-16.99	3.59	-13.40
DC	-15.25	2.12	-13.13
DE	-9.62	4.71	-4.91
FL	-15.26	4.34	-10.92
GA	-10.38	3.75	-6.62
HI	-22.39	0.57	-21.83
IA	-9.75	3.23	-6.52
ID	-8.55	4.19	-4.36
IL	-14.25	4.77	-9.48
IN	-10.88	4.92	-5.96
KS	-12.02	2.57	-9.44
KY	-11.78	4.92	-6.86
LA	-12.39	5.20	-7.19
MA	-18.11	4.63	-13.49
MD	-18.88	4.03	-14.85
ME	-20.95	3.79	-17.16
MI	-15.73	4.24	-11.50
MN	-13.07	4.84	-8.23
MO	-12.18	4.23	-7.95
MS	-11.15	5.37	-5.78
MT	-14.30	2.43	-11.87
NC	-10.02	5.01	-5.01
ND	-9.95	6.81	-3.14
NE	-9.73	3.78	-5.95
NH	-15.36	5.81	-9.55
NJ	-19.19	2.92	-16.26
NM	-18.96	4.14	-14.81
NV	-10.09	3.46	-6.63
NY	-18.85	3.99	-14.86
OH	-12.39	5.45	-6.94
OK	-14.49	3.91	-10.58
OR	-15.08	1.99	-13.09
PA	-15.88	4.66	-11.23
RI	-14.46	4.73	-9.73
SC	-10.37	5.27	-5.10
SD	-12.74	7.33	-5.41
TN	-12.80	3.06	-9.74
TX	-9.36	2.89	-6.47
UT	-6.65	3.75	-2.90
VA	-12.65	2.65	-9.99
VT	-21.31	1.12	-20.19
WA	-13.62	2.86	-10.76
WI	-10.80	4.29	-6.51
WV	-15.37	5.85	-9.53
WY	-12.93	6.03	-6.90



About the Primary Care Collaborative

Founded in 2006, the Primary Care Collaborative (PCC) is a not-for-profit multi-stakeholder membership organization dedicated to advancing an effective and efficient health system built on a strong foundation of primary care and the patient-centered medical home. Representing a broad group of public and private organizations, the PCC's mission is to unify and engage diverse stakeholders in promoting policies and sharing best practices that support growth of high-performing primary care and achieve the "Quadruple Aim": better care, better health, lower costs, and greater joy for clinicians and staff in delivery of care.

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The AAFP's Robert Graham Center aims to improve individual and population healthcare delivery through the generation or synthesis of evidence that brings a family medicine and primary care perspective to health policy deliberations from the local to international levels. The information and opinions contained in research from the AAFP's Robert Graham Center do not necessarily reflect the views or policies of the American Academy of Family Physicians.

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