Measuring High-Quality Primary Care

Literature review of measures and data

Robert Graham Center

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Contents

Background

Why this scorecard?

The recent National Academies of Science Engineering and Medicine (NASEM) report on "Implementing High Quality Primary Care" laid out five major recommendations for the advancement of primary care in the United States. The NASEM report called for an annual Primary Care Scorecard to provide a regular update on the progress towards these objectives.

The Robert Graham Center will work closely with the Milbank Memorial Fund to support the development and deployment of a Health of Primary Care Scorecard. Relying heavily on the recent NASEM report for the intellectual foundation and strategic recommendations, the PC Scorecard will provide an annual snapshot of the nation's commitment to and deployment of primary care. This comprehensive review of the literature and data begins with NASEM report literature review and recommendations and includes additional literature and potential measures that may be of interest to policy makers.

History of the Robert Graham Center and HealthLandscape

The Robert Graham Center for Policy Studies in Family Medicine and Primary Care ("Graham Center") is a division within the American Academy of Family Physicians (AAFP) that operates with editorial independence. The Robert Graham Center for Policy Research in Family Medicine and Primary Care aspires to create and curate evidence to inform policies that support family medicine, primary care, individual, and population health. Using primary and secondary data, the Graham Center team develops innovative methods, unique data linkages, simple and complex analyses to generate the evidence necessary to promote family medicine and improve population health. The Graham Center collaborates with other primary care research centers, state chapters, national organizations, universities, and funding agencies. The Graham Center hosts a robust training and education program of Visiting Scholars, external collaborators, and year-long Fellows.
The Robert Graham Center conducts research that includes:

1. <u>Workforce and training</u>. Where do family physicians come from? How might we improve the number, quality, diversity, and distribution of family physicians and primary care practices?
2. <u>Primary Care and Public Health</u>. What are the roles of primary care and public health, how might they collaborate, and what impact will that have on communities and population health?
3. <u>Payment</u>. What models might improve payment for primary care and family practice?
4. <u>Health Equity</u>. What is the role of family medicine in mitigating health inequity? How does family practice address vulnerable communities and populations?
5. <u>Scope of Practice</u>. What is the contribution of family medicine and primary care to the delivery of healthcare for: adults, children, women, and specific health services;

vaccinations, maternity care, procedures, hospital and emergency care, behavioral health, telehealth, etc.

6. 4Cs of Primary Care. What is the impact of the 4Cs on patient outcomes and joy of practice? Comprehensiveness, continuity, care coordination, first contact.

The Graham Center's multidisciplinary team of social scientists and clinician researchers, unparalleled existing aggregation of datasets relevant to workforce analysis, and extensive analytic expertise and experience offers valuable assets in health care workforce planning initiatives. Additionally, the Graham Center's reputation as an unbiased source of primary care relevant research has allowed us to cultivate an extensive network of policy makers and healthcare services researchers for dissemination of our findings. The Graham Center has demonstrated capacity to analyze large claims, population, workforce and other datasets to inform stakeholders, workforce and infrastructure adequacy, and to advance state, local, and regional level efforts to improve health and health care planning. The Graham Center has experience conducting, and analyzing data gathered from, small focus groups, site visits and key informant interviews.

HealthLandscape designs, develops, and deploys interactive web applications that allow public users, policy makers, academic researchers, and planners to combine, analyze, and display information in ways that promote understanding. HealthLandscape is skilled in successful collaboration with partners as varied as health care administrators, clinical researchers, demographers, web developers, physicians, nurses, pharmacists, database administrators, statisticians, public officials, graphic designers, and geographers.

Literature review methods briefly

The NASEM report on Implementing High Quality Primary Care served as the starting point for a comprehensive literature review. Additionally, each of the 5 sections in the proposed scorecard underwent a second formal literature review by multiple RGC staff. The extant peer-reviewed literature was reviewed, and pertinent articles are included in this annotated bibliography. Secondary or non-peer-reviewed literature was investigated through google searches, analysis of peer-reviewed publication references and citations, and via collective knowledge of the RGC staff, collaborators, external advisors, patients and community members. In addition to peer-reviewed papers, we include formal and informal reports, media, state and federal agency reports and websites. There have been hundreds of papers, projects, and reports on primary care. It is beyond the scope of this annotated bibliography to include everything. Our aim is to provide the reader a broad overview of the pertinent literature that may inform discussion on implementing high quality primary care. We know there are many other worthy analyses, papers, and reports and apologize to the many committed researchers that do not find their work within this report. We hope they continue to pursue primary care policy research that will inform local, state, and national discourse.

The annotated bibliography is sorted and displayed for each of the major objectives with in the NASEM recommended Scorecard. For each objective and subobjective, we include

references for the measure itself, and references supporting specific datasets used for the measure.

Because the NASEM report had no specific measures for Objective 4, we recommend two subobjectives and provide references for their use and the data to measure each subobjective. Likewise, the NASEM Objective 5 only included one subobjective. We have added two additional subobjectives and potential datasets to measure. Finally, based on feedback from the RGC Patient and Clinician Advisory Group, we have included an additional measure based on a Patient Centered Primary Care Measure.

Objective 1: Pay for primary care teams to care for people, not doctors to deliver services

1.1: Percentage of total spend going to primary care—commercial insurance
1.2: Percentage of total spend going to primary care—Medicare
1.3: Percentage of total spend going to primary care—Medicaid
1.4: Percentage of primary care patient care revenue from capitation

The first three measures proposed in the NASEM report refer to the percent of total healthcare spend going to primary care, or PC spend for short. Although most researchers agree that primary care spend in the United States is too low, there is disagreement over the definition and methodology used to calculate PC spend.

It is easy to get bogged down in too precisely defining primary care spend. The key is to create a data-driven, simple, reproducible measure of primary care spend that has analytic and face validity. Primary care spend efforts can be derailed trying to create the perfect primary care spend definition. Most calculation of primary care spend include a narrow and broad definition of primary care for the numerator and total healthcare expenditures, including pharmaceutical costs, for the denominator. National estimates of primary care spend range from 5-7% for the narrow definition and up to 10% for the broad definitions. While there are numerous individual state reports on total and primary care spend, it is beyond the scope of this annotated bibliography to include every individual state primary care spend report.

In this annotated bibliography we provide a review of several regional and national, validated analyses on primary care spend. Several important questions will remain even with national and state level data on primary care spend. What are the non-billable activities that are included in primary care that might be enhanced with increased spend? How might primary care spend be captured on a per region, county, zip code, or per-person level? What part of large capitated global budget payments go to support primary care?

The Robert Graham Center model of primary care spend uses a provider- based definition and examines total outpatient expenditures for office-based visits made to primary care providers. The narrow definition of this calculation considers family physicians, internists, pediatricians, gps and geriatricians as primary care. The broad definition includes nurse practitioners, physician assistants, behavioral health specialists and Ob/gyn. The Robert Graham Center first employed this model in their Chartbook of Primary Care Facts and Statistics in 2018 and then recalculated it in 2020.

Petterson S, McNellis R, Klink K, Meyers D, Bazemore A. The State of Primary Care in the United States: A Chartbook of Facts and Statistics. January 2018.

Willis J, Antono B, Bazemore A, Jetty A, Petterson S, George J, Rosario BL, Scheufele E, Rajmane A, Dankwa-Mullan I, Rhee K. The State of Primary Care in the United States: A Chartbook of Facts and Statistics. October 2020

Bailit M, Friedberg MW, Houy M. Standardizing the Measurement of Commercial Health Plan Primary Care Spending. Millbank Memorial Fund; 2017.
https://www.milbank.org/publications/standardizing-measurement-commercial-health-plan-primary-care-spending/

One of the first models of how to standardize data and calculate primary care spend was proposed in 2017 in a report published by the Millbank Memorial Fund. Using a geographically representative sample of claims from private insurers throughout the US, the team developed five definitions of primary care and calculated nationwide PC spend for two of these measures. The definitions ranged from a provider-based measure to a service-based measure, to a combination of provider and service base, to a system based measured. The provider based and provider and service-based measures were used to calculate PC spend. Like others, they had a narrow and broad definition for both of these measures.

Baillieu R, Kidd M, Phillips R, et al. The Primary Care Spend Model: a systems approach to measuring investment in primary care. BMJ Global Health. 2019;4(4):e001601. doi:10.1136/bmjgh-2019-001601

The conceptual model of PC spend in an international context was developed in a 2019 BMJ Global Health publication based on finding of a RGC sponsored convening. The study team created a framework for researchers that moves beyond a service-only perspective of primary care to one that accounts for all primary care activities within a healthcare system.

Jabbarpour Y, Greiner A, Jetty A, et al. Investing in Primary Care: A State-Level Analysis. Milbank Memorial Fund. Published 2019. Accessed June 17, 2021. https://www.milbank.org/publications/investing-in-primary-care-a-state-level-analysis/

This study provides the first estimates of primary care spend for 29 states as well as separate estimates for different payers (commercial insurance, Medicare and Medicaid) and for the uninsured. Using the Medical Expenditure Panel Survey, the study team calculated primary care spend for the 29 states where the data was available. This report includes analysis using two definitions of primary care, a narrow definition of primary care, which included spending on office-based visits for family physicians, internists, pediatricians, general practitioners and geriatricians and a broader definition that includes behavioral specialists, obstetrician-gynecologists, advanced practice nurses and physician associates.

The New England States' All-Payer Report on Primary Care Payments Date. New England States Consortium Systems Organization (NESCSO)December 22, 2020. https://nescso.org/wp-content/uploads/2021/02/NESCSO-New-England-States-All-Payer-Report-on-Primary-Care-Payments-2020-12-22.pdf

While numerous individual states are studying primary care spend and working to increase primary care spend, the New England States Consortium Systems Organization (NESCSO) conducted a multi-state study aimed at standardizing primary care spend methodology and reporting. Six states were able to implement a standard reporting system to produce comparable rates for primary care payments. However, the consortium also struggled with how to measure and report non-medical and non-claims based primary care payments. Global budgets, capitation, and prospective payments were difficult to capture consistently. As with most studies on primary care spend, tracking pharmacy spend is complicated due to local, state, and national variations in pharmacy benefit management protocols, rebates, and contracts.

1.1: Percentage of total spend going to primary care—commercial insurance

Reiff J, Brennan N, Fuglesten Biniek J. Primary Care Spending in the Commercially Insured Population. JAMA. 2019;322(22):2244. doi:10.1001/jama.2019.16058

Using Health Care Cost Institute data from 3 national players, the authors calculated primary care spend for the commercially insured. These 3 payers represented 26% of the US individuals who were covered by employer sponsored insurance. The study team used a combination of primary care practitioners and primary care services for their calculations. The narrow definition of primary care practitioners included family medicine, internal medicine, pediatrics and general practice, whereas the broad definition also included nurse practitioners, physician assistants, geriatricians and gynecologists. The narrow services included evaluation and management visits, preventive visits, care transition and coordination services, and preventive screening and counseling, whereas the broad services included all services billed by PCPs. They found that for the narrow definition, PC spend declined from 4.60-4.35% in the time period study. Using the broad definition PC spend declined from 8.97% to 8.04%.

Jabbarpour Y, Greiner A, Jetty A, et al. Investing in Primary Care: A State-Level Analysis. Milbank Memorial Fund. Published 2019. Accessed June 17, 2021. https://www.milbank.org/publications/investing-in-primary-care-a-state-level-analysis/

The Commonwealth Fund curates a portfolio of data tables and figures related to healthcare in the United States. This includes a series of analyses on employer-sponsored commercial insurance and Medicare spending with a plan to update regularly. The initial, and most recent data reported (2018), total primary care spend among employer sponsored beneficiaries at 5.9% of total spend. Primary Care definitions and methods are unclear.

Primary care spending per enrollee among adults ages 18–64 with employer-sponsored insurance. The Commonwealth Fund https://datacenter.commonwealthfund.org/topics/primary-care-spending-enroleee-ages-18-64

1.2: Percentage of total spend going to primary care—Medicare

Reid R, Damberg C, Friedberg MW. Primary Care Spending in the Fee-for-Service Medicare Population. JAMA Intern Med. 2019;179(7):977. doi:10.1001/jamainternmed.2018.8747

Using Part A and B fee-for-service and Part D prescription coverage claims, national primary care spend for beneficiaries 65 and older was calculated. The study team used a combination of primary care practitioners and primary care services for their calculations. The narrow definition of primary care practitioners included family medicine, internal medicine, pediatrics and general practice, whereas the broad definition also included nurse practitioners, physician assistants, geriatricians and gynecologists. The narrow services included evaluation and management visits, preventive visits, care transition and coordination services, and preventive screening and counseling, whereas the broad services included all services billed by PCPs. They found that PC spend was 2.12% for the narrow definitions and 4.88% for the broad definitions.

Jabbarpour Y, Greiner A, Jetty A, et al. Investing in Primary Care: A State-Level Analysis. Milbank Memorial Fund. Published 2019. Accessed June 17, 2021. https://www.milbank.org/publications/investing-in-primary-care-a-state-level-analysis/

The Commonwealth Fund curates a portfolio of data tables and figures related to healthcare in the United States. This includes a series of analyses on employer-sponsored commercial insurance and Medicare spending with a plan to update regularly. The initial, and most recent data reported (2017), total primary care spend for Medicare primary care spend was just 5.7% of total Medicare spend. Primary Care definitions and methods are unclear.

Primary care spending as share of total health care spending among Medicare beneficiaries age 65 and older. The Commonwealth Fund. https://datacenter.commonwealthfund.org/topics/primary-care-spending-share-total-age-65-and-older

1.3: Percentage of total spend going to primary care—Medicaid

Jabbarpour Y, Greiner A, Jetty A, et al. Investing in Primary Care: A State-Level Analysis. Milbank Memorial Fund. Published 2019. Accessed June 17, 2021. https://www.milbank.org/publications/investing-in-primary-care-a-state-level-analysis/

Data 1.1-1.3

The Medical Expenditure Panel Survey (MEPS) is administered by the Agency for Healthcare Research and Quality (AHRQ). MEPS provides national estimates of annual health care insurance coverage, health care service utilization, and health care expenditures of the U.S. civilian non-institutionalized populations. MEPS collects data across five rounds extended over a two-and-a-half-year study period. It is a subsample of the National Health Interview Survey

(NHIS) and each year a new sample enters the panel. MEPS uses a complex survey design using primary sampling units and stratification to sample the survey respondents. Hispanics, Blacks, and Asians are oversampled. Data is collected from 30,000 to 35,000 respondents annually, and response rates ranged from 58%-66%. Although MEPS is designed mainly to provide valid and representative estimates at the national and regional level, it does allow estimation of select measures with enough precision for many of the large states.

Rohde F. Estimates of Health Care Expenditures for the 10 Largest States, 2010. In: Statistical Brief (Medical Expenditure Panel Survey (US)). Agency for Healthcare Research and Quality (US); 2001. Accessed June 17, 2021. http://www.ncbi.nlm.nih.gov/books/NBK493413/

The MEPS has the advantage of multiple years of data across all payers. The major limitation, of course, is that it is not possible to obtain reliable estimates for smaller states. The two commercial claims files differ in their composition. The Health Care Cost Institute (HCCI) pools data from multiple large private insurers; while Market Scan data is drawn from large employers who self-insure. In both cases, the mix of persons included in the data varies year-to-year, making comparisons across time difficult. This is less of a problem with Medicare and Medicaid data.

1.4: Percentage of primary care patient care revenue from capitation

Objective 1.4 refers to the percent of primary care revenue from capitation. The term capitation refers to one of many possible structured payment models in primary care. We believe the NASEM report intended to measure all types of structured payments, not just risk-taking capitation. Therefore, we recommend changing the objective to the percent of primary care revenue from structured payments other than current fee-for-service payments

Taylor E, Ballit M, Kanneganti D. Measuring Non-Claims Based Primary Care Spending. The Milbank Fund. April 2021. https://www.milbank.org/wp-content/uploads/2021/04/Measuring_Non-Claims_7-1.pdf accessed 2.8.22.

The Milbank Fund produced a formal report on potential definitions and methods for measuring non-fee-for-service primary care payments. These include structured advanced payments, per-member-per-month, capitation and global payments, risk-based payments, salaried payments within vertically integrated health systems (e.g. Kaiser), and population health-based payments. Table 1 provides an excellent description of non-claims based payment categories. This report challenges policy makers and funders to implement standard primary care definitions and methods for ascertaining non-claims-based spending. While an important effort to define non-claims-based health care spending, sorting out the primary care portion of structured payments, global budgets, risk adjustment, and health system payments is not adequately enumerated. The recommendation to simply apply a default percentage of non-claims based payments as primary care does not account for local standards, variations in payer and system values, and innovative primary care activities (e.g. community health workers, population health efforts, social determinants of health programs).

Data 1.4

The NASEM report authors recommend using either MEPS or NAMCS data and cite a MEPS-based paper by Zuvekas and Cohen. This paper found that physicians reported receiving a capitated payment for about 5.3% of all office-based visits, a number that has been declining steadily. Constructing this measure requires access to the MEPS Medical Provider Component (MPC), which can only be gained through in person visits to AHRQ's Research Data Center. Given our geographic proximity to AHRQ, the research team at RGC is familiar with AHRQ's Research Data Center and have accessed data through these means for other projects. The MPC is used by MEPS to collect additional information about patient visits from a sample of providers treating MEPS respondents. In this component, providers are asked "For each reported physician visit, the physician's billing office or billing service is asked, "Was the practice reimbursed for ["this visit" or "these visits"] on a fee-for-service basis or capitated basis?" To calculate the proposed measure, the Zuvekas/Cohen measure could be modified by 1) restricting office visits to primary care and 2) using the costs associated with capitated visits rather than the visit per se. As is the case for PC Spend, this measure could only be obtained for the 29 largest states.

Zuvekas SH, Cohen JW. Fee-For-Service, While Much Maligned, Remains The Dominant Payment Method For Physician Visits. Health Affairs. 2016;35(3):411-414. doi:10.1377/hlthaff.2015.1291

Objective 2: Ensure that high-quality primary care is available to every family in every community

2.1: Percentage of adults without a usual source of health care
2.2: Percentage of children without a usual source of health care
2.3: Primary care physicians per 100,000 people in medically underserved areas
2.4: Primary care physicians per 100,000 people in areas that are not medically underserved

2.1: Percentage of adults with/without a usual source of health care

Summary: Access to a usual source of care has been associated with improved provision of healthcare services, particularly preventive screening, and health outcomes. Nationally, primary care visits have been decreasing. Some evidence also points to a national decline in usual source of care amongst older and sicker adults, with worse access amongst certain sociodemographic subgroups. Usual Source of care measurement also raises the issues related to "panel size." That is, how many patients and patient visits per primary care clinician should be expected? MEPS data provides the opportunity to list the ED as a usual source of care. Determining primary care as the usual source of care will be essential

Benjamin D. Sommers et al., "Three-Year Impacts Of The Affordable Care Act: Improved Medical Care And Health Among Low-Income Adults," Health Affairs 36, no. 6 (June 1, 2017): 1119–28, https://doi.org/10.1377/hlthaff.2017.0293.

Difference-in-difference analysis of changes in health care use and self-reported health after ACA's coverage expansion. Outcomes of interest include access to care — having a personal doctor, usual location of care, difficulty obtaining primary care and specialty appointments, reasons for ED use. Broadly, rates of uninsured adults decreased in expansion states. Gaining insurance was associated with a 41% increase in usual source of care (Exhibit 4), among other positive trends in health metrics.

Ishani Ganguli, Claire McGlave, and Meredith B. Rosenthal, "National Trends and Outcomes Associated With Presence and Type of Usual Clinician Among Older Adults With Multimorbidity," JAMA Network Open 4, no. 11 (November 30, 2021): e2134798, https://doi.org/10.1001/jamanetworkopen.2021.34798.

Medicare Current Beneficiary Survey (2010, 2013, and 2016) is used to examine trends in self-reported usual clinician and specialty and association with receipt of recommended preventive services amongst Medicare patients with >=2 comorbidities. Those with usual clinicians decreased during the study years (94.2 to 91.0%), with women and higher income individuals more likely to have usual physician and less likely if they were Black or had traditional Medicare vs Medicare Advantage.

Ishani Ganguli, Thomas H. Lee, and Ateev Mehrotra, "Evidence and Implications Behind a National Decline in Primary Care Visits," Journal of General Internal Medicine 34, no. 10 (October 1, 2019): 2260–63, https://doi.org/10.1007/s11606-019-05104-5.

Since 2008, primary care visits have decreased between 6 and 25%. The authors hypothesize that patient, practice, and system-level factors may underlie these trends.

Ishani Ganguli et al., "Declining Use of Primary Care Among Commercially Insured Adults in the United States, 2008–2016," Annals of Internal Medicine 172, no. 4 (February 18, 2020): 240–47, https://doi.org/10.7326/M19-1834.

Amongst adult, commercially insured patients, PCP visits have decreased between 2008 and 2016.

David M. Levine, Jeffrey A. Linder, and Bruce E. Landon, "Characteristics of Americans With Primary Care and Changes Over Time, 2002-2015," JAMA Internal Medicine 180, no. 3 (March 1, 2020): 463–66, https://doi.org/10.1001/jamainternmed.2019.6282.

The proportion of adults with a source of primary care decreased between 2002 to 2015, according to data from MEPS. Male sex, Latino race/ethnicity, Black race/ethnicity, Asian race/ethnicity, lack of insurance, and Southern US Census Bureau region were associated with decreased likelihood of having primary care.

Stephanie K. Nothelle et al., "Factors Associated With Loss of Usual Source of Care Among Older Adults," The Annals of Family Medicine 16, no. 6 (November 1, 2018): 538–45, https://doi.org/10.1370/afm.2283.

National Health and Aging Trends Study from 2011-2016 is used to study demographic, clinical and social factors linked to losing of usual source of care (USC). Unmet transportation needs, moving to new residence, and depressive symptoms increased odds of losing USC. Having >=4 comorbidities and supplemental or Medicaid insurance coverage were protective factors against losing USC.

Lynn A. Blewett et al., "When a Usual Source of Care and Usual Provider Matter: Adult Prevention and Screening Services," Journal of General Internal Medicine 23, no. 9 (May 28, 2008): 1354, https://doi.org/10.1007/s11606-008-0659-0.

Amongst adults ages 18-64 in National Health Interview Survey (1999) having a usual provider and usual place of care was associated with increased odds of receiving five key preventive services (influenza vaccine, PAP smear, mammogram, clinical breast exam, and PSA) compared to those without.

Erica S. Spatz et al., "Beyond Insurance Coverage: Usual Source of Care in the Treatment of Hypertension and Hypercholesterolemia. Data from the 2003-2006 National Health and Nutrition Examination Survey," American Heart Journal 160, no. 1 (July 1, 2010): 115–21, https://doi.org/10.1016/j.ahj.2010.04.013.

Examines the effect of having a usual source of care (USC) in adults aged >=35 with hypertension or hypercholesterolemia on receipt of treatment. Patient with a USC are more likely to receive appropriate treatment for these conditions. This relationship holds when analysis is stratified by insurance status.

Healthy People 2030 report
https://health.gov/healthypeople/objectives-and-data/browse-objectives/health-care-access-and-quality/increase-proportion-people-usual-primary-care-provider-ahs-07/data-methodology

Sets a target for 84% of US population with a usual primary care provider by 2030. The baseline percentage in 2017, 76.0%, was determined from the Medical Expenditure Panel Survey.

2.2: Percentage of children with/without a usual source of health care

Summary: Access to a usual source of care has improved for children (age 0-17) in recent years. Gains have been particularly notable in certain vulnerable demographics, including Black and Hispanic children. However, adolescents and young adults have shown less improvement in this metric.

"Trends in Access to Health Care Services for US Children: 2000–2014 | Pediatrics | American Academy of Pediatrics," accessed January 26, 2022, https://publications.aap.org/pediatrics/article-abstract/138/6/e20162176/52667/Trends-in-Access-to-Health-Care-Services-for-US?redirectedFrom=fulltext.

Uses National Health Interview Survey to look at trends 5 access indicators — including no usual source of care — amongst children age 0-17 from 2000-2014. Overall, study shows improvement over this period in access indicators, most notably in vulnerable populations including Hispanic and Black children and children from poor or near-poor families.

Donna L. Spencer et al., "Health Care Coverage and Access Among Children, Adolescents, and Young Adults, 2010–2016: Implications for Future Health Reforms," Journal of Adolescent Health 62, no. 6 (June 1, 2018): 667–73, https://doi.org/10.1016/j.jadohealth.2017.12.012.

Uses National Health Interview Survey data to compare access to healthcare for children, adolescents, and young adults before and after rollout of Affordable Care Act. Shows improvement in usual source of care for all age categories, however lower absolute rates of usual source of care as age category increases. Highlights the need for targeted interventions addressing healthcare access in adolescents and young adults.

Arthur Elster et al., "Racial and Ethnic Disparities in Health Care for Adolescents: A Systematic Review of the Literature," Archives of Pediatrics & Adolescent Medicine 157, no. 9 (September 1, 2003): 867–74, https://doi.org/10.1001/archpedi.157.9.867.

Systematic review investigating racial and ethnic disparities in access to healthcare services, controlling for socioeconomic status. Nonwhite children were less likely to have a usual source of medical care.

https://health.gov/healthypeople/objectives-and-data/browse-objectives/adolescents/increase-proportion-adolescents-who-had-preventive-health-care-visit-past-year-ah-01

Healthy People 2030 report

Sets a target for 82.6% of adolescents (age 12-17) who had a preventive health care visit in the past year for 2030. The baseline percentage in 2017, 78.7.0%, was determined from National Survey of Children's Health (NSCH) and HRSA/MCHB.

The first two Objective 2 measures relate to having a usual source of care, one for adults and another for children. The Graham Center has examined trends in having a usual source of care and its benefits over a variety of publications. The most recent used MEPS data to examine trends from 1996 to 2014 in having a usual source of care and the type of usual source of care. We found that while the proportion of persons without a usual source of care was relatively constant, around 20%, there were major shifts in the type of usual source of care. There was a sharp decline in the proportion who identify a specific person as their usual source of care and

increases in the proportion reporting a <u>facility or person in a facility</u>. We recommend including both levels of usual source of care, individual and facility. We also recommend reporting both the percent of the population that does not have a usual source of care, and the percent of the population that does have a usual source of care. And the percentage with a non-PCP as USC?

Jetty A, Green L, Bazemore AW, Petterson SM. Fewer Americans Report a Personal Physician as Their Usual Source of Health Care. Am Fam Physician. 2015;92(12):1053.

Liaw W, Jetty A, Petterson S, Bazemore A, Green L. Trends in the Types of Usual Sources of Care: A Shift from People to Places or Nothing at All. Health Serv Res. Published online August 31, 2017. doi:10.1111/1475-6773.12753

Petterson SM, Rabin D, Phillips RL, Bazemore AW, Dodoo MS. Having a usual source of care reduces ED visits. Am Fam Physician. 2009;79(2):94.

DeVoe JE, Fryer GE, Phillips RL, Green LA. Receipt of preventive care among adults: insurance status and usual source of care. Am J Public Health. 2003;93(5):786-791.

Phillips RL, Dodoo MS, Green LA, et al. Usual Source Of Care: An Important Source Of Variation In Health Care Spending. Health Aff. 2009;28(2):567-577. doi:10.1377/hlthaff.28.2.567

Fryer GE, Dovey SM, Green LA. The importance of having a usual source of health care. Am Fam Physician. 2000;62(3):477.

Data 2.1-2.2

Cohen RA, Makuc DM. State, regional, and national estimates of health insurance coverage for people under 65 years of age: National Health Interview Survey, 2004-2006. Natl Health Stat Report. 2008;(1):1-23.

While this analysis works using MEPS, we recommend using the National Health Interview Survey (NHIS) because of its much larger sample size (about 35,000 households including 87,500 persons) allowing for estimates for a greater number of states.   For instance, one NHIS study obtained estimates of health insurance coverage for 41 states.

2.3: Primary care physicians per 100,000 people in medically underserved areas

2.4: Primary care physicians per 100,000 people in areas that are not medically underserved

Summary: Primary care physician density has been associated with improvement in important health metrics, including mortality. Overall, primary care physician density has decreased over time, although there is significant geographic variability with rural counties experiencing greater declines. However, studies of clinician density that include nurse practitioners and physician's assistants suggest overall increases in clinician density, indicating that APPs are filling gaps in primary care workforce.

"Physician Density by Specialty Type in Urban and Rural Counties in the US, 2010 to 2017 | Health Disparities | JAMA Network Open | JAMA Network," accessed January 26, 2022, https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2775404.

Cross sectional study combining physician specialty information from AMA Masterfile with county classification data from CDC's Online Data for Epidemiologic Research Database. Outcome of interest was physician density per 100,000 people between 2010 and 2017 by county type (large metropolitan, medium/small metropolitan, rural). Overall density of primary care physicians is higher in urban counties. 50.3% of rural counties experienced decreased density in primary care physicians during this time period.

"Assessment of Changes in Rural and Urban Primary Care Workforce in the United States From 2009 to 2017 | Health Disparities | JAMA Network Open | JAMA Network," accessed January 26, 2022, https://jamanetwork.com/journals/jamanetworkopen/article-abstract/2772305.

Cross sectional study looking at density of primary care clinicians (including PCP, NP, and PA) across US counties. Finds that urban and rural counties have been experiencing increases in clinician density over the study period, with faster increases noted in urban counties.

"Association of Primary Care Physician Supply With Population Mortality in the United States, 2005-2015 | Health Care Workforce | JAMA Internal Medicine | JAMA Network," accessed January 26, 2022, https://jamanetwork.com/journals/jamainternalmedicine/fullarticle/2724393.

Investigates the association between primary care physician density and population-level mortality. Obtains primary care physician counts from AMA Masterfile and population data from US Census Bureau. Primary care physician density decreased in the study time frame, with more marked impact in rural areas. 10 additional primary care physicians per 100,000 corresponded to a 51.5-day increase in population life expectancy, in contrast to a 19.2-day increase for specialist physicians.

Chiang-Hua Chang et al., "Primary Care Physician Workforce and Medicare Beneficiaries' Health Outcomes," JAMA 305, no. 20 (May 25, 2011): 2096–2104, https://doi.org/10.1001/jama.2011.665.

Studies the association between strength of primary care workforce (measured by office-based physicians per total population and office-based primary care clinical full-time equivalents per Medicare beneficiary. Results suggest that a stronger primary care workforce has a positive

impact on key patient health outcomes including mortality and ambulatory care sensitive condition hospitalizations.

US Primary Care Workforce
https://www.ahrq.gov/research/findings/factsheets/primary/pcwork3/index.html

Report from AHRQ on the distribution of the US Primary Care Workforce, distribution by provider type (NP, PA, Physician) between rural/large rural/small rural/remote settings. Within primary care, NPs and PAs are more likely to practice in rural settings than physicians. Family doctors are more likely than other primary care providers (general internal medicine, pediatrics) to practice in rural settings, and the distribution of family doctors most closely mirrors the US population distribution of these physician types.

https://data.hrsa.gov/topics/health-workforce/shortage-areas

HRSA data dashboard showing health professional shortage areas and medically underserved populations nationally.

https://www.aafp.org/afp/2021/0800/p133.html

Tabulated state-level variation in primary care physician density using AMA physician Masterfile and US Census Bureau data. Results range from lowest density in Mississippi (49.1 per 100,000 population) to highest in Washington DC (130.7 per 100,000 population).

Medically Underserved Areas (MUA) are designated by HRSA as areas having too few primary care physicians, high infant mortality, high poverty and/or a high elderly population. MUA designation is necessary for a variety of benefits, including applying for a Federally Qualified Health Center, higher Medicare caps for primary care billing and Rural Health Clinic certification. Currently, there 3,477 designated MUAs and aa additional 555 areas designated as a. Of these 1,772 are whole counties and 2,360 are partial counties. The MUA designation is a long-term designation that is not regularly updated while the Health Professional Shortage Area designation is updated more regularly. Both are adequate proxy measures for presence of primary medical care services within a geographic area or population.

Medically Underserved Area Designation. ***https://hpsa.us/services/muaps/medically-underserved-areas-populations-muaps/***

Medically Underserved Population. ***https://data.hrsa.gov/data/download***

Data 2.3-2.4

In the NASEM Appendix, it is suggested that the Area Health Resource File (AHRF) could be used to determine the counts of PCPs. This approach does not take into account that the AHRF only provides county estimates of the physician workforce, not the sub-county estimates necessary for MUAs that do not cover the whole county. There is also concern about AMA data

comprehensiveness compared to the National Plan and Provider Enumeration System (NPPES) data. For this reason, we will use both the AMA Masterfile geocoded down to the block group level and the NPPES data comparing and contrasting to identify the most complete data. Moreover, while they suggest using shapefiles to identify physicians in MUA, this is not necessary since HRSA's MUA data files do include county and subcounty FIPS codes, including Census Tract and Minor Civil Divisions. This geographical information can be used to link the MUAs to a geocoded AMA Masterfile.

DesRoches, C. M., Barrett, K. A., Harvey, B. E., Kogan, R., Reschovsky, J. D., Landon, B. E., ... & Rich, E. C. (2015). The results are only as good as the sample: assessing three national physician sampling frames. Journal of general internal medicine, 30(3), 595-601.

Objective 3: Train primary care teams where people live and work

>3.1: Percentage of physicians trained in community-based settings, rural areas, Critical Access Hospitals, Medically Underserved Areas
>3.2: Percentage of physicians, nurses, and physician assistants working in primary care
>3.3: Percentage of new physician workforce entering primary care each year
>3.4: Residents per 100,000 population by state

3.1: Percentage of physicians trained in community-based settings, rural areas, Critical Access Hospitals, Medically Underserved Areas

Summary*:* Medical trainees who grow up or train in high-need areas are more likely to return to practice in similar settings. Comparatively few training sites in high-need areas and declining numbers of trainees from rural areas may be contributing to shortages in the primary care workforce in these areas.

Andrew Bazemore et al., "Graduates of Teaching Health Centers Are More Likely to Enter Practice in the Primary Care Safety Net," American Family Physician 92, no. 10 (November 15, 2015): 868–868.

Significantly more residents who trained in a teaching health center planned to practice in an underserved setting (33% vs 18%, p=0.004), based on the 2014 American Board of Family Medicine Census data.

Robert L. Phillips, Stephen Petterson, and Andrew Bazemore, "Do Residents Who Train in Safety Net Settings Return for Practice?," Academic Medicine: Journal of the Association of American Medical Colleges 88, no. 12 (December 2013): 1934–40, https://doi.org/10.1097/ACM.0000000000000025.

This study uses Medicare claims data to look at the relationship between residency training in an FQHC, rural health clinic, or critical access hospital and going on to practice in one of these settings after training. The percentage of physicians practicing in these settings in 2009 who had trained in analogous setting from 2001-2005 was 38.1% (RHCs), 31.2% (FQHCs), and 52.8% (CAHs).

Janice Blanchard et al., "Characteristics and Distribution of Graduate Medical Education Training Sites: Are We Missing Opportunities to Meet U.S. Health Workforce Needs?," Academic Medicine 91, no. 10 (October 2016): 1416–22, https://doi.org/10.1097/ACM.0000000000001184.

This study examines the geographic distribution of residency training sites in high need specialties (Family Medicine, Internal Medicine, General Surgery). It finds comparatively low numbers of training programs based in rural and community-based settings (48/1390 = 4% of family medicine training sites).

Xiaochu Hu, Michael J. Dill, and Sarah S. Conrad, "What Moves Physicians to Work in Rural Areas? An In-Depth Examination of Physician Practice Location Decisions," Economic Development Quarterly, December 14, 2021, 08912424211046600, https://doi.org/10.1177/08912424211046600.

This study looks at factors predictive of rural practice using the AAMC National Sample Survey of Physicians (NSSP). Rural origin is predictive of eventual rural practice, in addition to training in a rural environment.

Scott A. Shipman et al., "The Decline In Rural Medical Students: A Growing Gap In Geographic Diversity Threatens The Rural Physician Workforce," Health Affairs 38, no. 12 (December 1, 2019): 2011–18, https://doi.org/10.1377/hlthaff.2019.00924.

This study uses data from the American College Application Service (2002-2017) to characterize a decline in both medical school applicants and matriculants who come from rural areas.

Douglas B. Kamerow, "Is the National Health Service Corps the Answer? (For Placing Family Doctors in Underserved Areas)," The Journal of the American Board of Family Medicine 31, no. 4 (July 1, 2018): 499–500, https://doi.org/10.3122/jabfm.2018.04.180153.

Opinion piece by Dr Doug Kamerow about the roots of the National Health Service Corps and its potential power to increase family medicine workforce in HPSA areas.

https://www.hrsa.gov/rural-health/rural-residency-planning-development

Report of 20 million dollars' worth of HRSA awards given in 2019 to 27 clinical sites for the development of new rural residency programs

https://health.ucdavis.edu/workforce-diversity/COMPADRE/COMPADRE.html

Announcement of California Oregon Medical Partnership to Address Disparities in Rural Education and Health Description of a UC Davis and OHSU partnership with goal of increasing physician workforce in underserved communities beginning with medical school admissions.

Data 3.1

See above

3.2: Percentage of physicians, nurses, and physician assistants working in primary care

Summary: Advance practice providers — NPs and PAs — may be filling gaps in the primary care work force, most importantly in rural and low-income areas.

"Primary Care Nurse Practitioners and Physicians in Low-Income and Rural Areas, 2010-2016 | Health Care Workforce | JAMA | JAMA Network," accessed January 26, 2022, https://jamanetwork.com/journals/jama/fullarticle/2720014.

This study examines trends in primary care nurse practitioner and physician workforce over time, by geographic region income quartile (lower/higher income) and by geographic region population density (metropolitan/urban/rural). It demonstrates that NPs may be filling key gaps in primary care physician supply, most notably in low income and rural areas.

David I. Auerbach, Douglas O. Staiger, and Peter I. Buerhaus, "Growing Ranks of Advanced Practice Clinicians — Implications for the Physician Workforce," New England Journal of Medicine, June 20, 2018, https://doi.org/10.1056/NEJMp1801869.

This is a perspective piece on the dynamics of the increasing supply of NP/PAs, and the implications for the broader healthcare workforce.

David I. Auerbach, Peter I. Buerhaus, and Douglas O. Staiger, "Implications Of The Rapid Growth Of The Nurse Practitioner Workforce In The US," Health Affairs 39, no. 2 (February 1, 2020): 273–79, https://doi.org/10.1377/hlthaff.2019.00686.

This study examines recent changes in the Nurse Practitioner workforce — namely, a doubling of the workforce between 2010 to 2017. It discusses the impact of this expanding workforce on registered nurse (RN) workforce and the potential for future oversupply of NPs.

https://healthcostinstitute.org/hcci-research/trends-in-primary-care-visits

Health Care Cost Institute's (HCCI) 2016 Healthcare Cost and Utilization Report showing that amongst privately insured patient visits to primary care physicians decreased 18% between 2012 and 2016. During the same interval, primary care visits with Advanced Practice Providers (NPs and PAs) increased by 129%. This trend was seen across every state. Data was aggregated from commercial health insurance claims contributed by five large insurance payers.

https://www.graham-center.org/content/dam/rgc/documents/publications-reports/reports/PrimaryCareChartbook.pdf

Robert Graham Center Report on the state of primary care in the US, published in 2018. Table 5 shows that primary care physicians have more of a presence in non-metropolitan areas than non-primary care physicians.

The Graham Center has a long history of estimating the size of the primary care physician workforce and projecting future need at both the national and state level. In the recent "State of Primary Care" Chartbook, using the AMA Masterfile and NPPES, we estimated that there were about 229,000 PCPs in direct patient care, constituting about 31.4% of all physicians. It is more difficult to estimate the number of NPs and PAs in primary care because NPs and PAs are not consistently identified by the specialty in which they practice. Prior analysis has attempted to determine specialty based on the specialty mix of the physicians at the same address. This method was recently updated using PECOS data, which links individual providers to organizations. Primary care practices were identified as those composed of family physicians, general practitioners, general internists, pediatricians, and geriatricians. For multispecialty practices, it was assumed that share of NPs/PAs in primary care mirrored the share of its physicians in primary care. NPs/PAs working mainly with behavioral health providers (social workers and psychologists) were classified as non-primary care. Based on organization type in the PECOS data, we classified NPs/PAs working in FQHC and rural health clinics as primary care, and those working in skilled nursing facilities and critical access hospitals as non-primary care. We also used the organization's name to identify retail clinics and reclassified their providers as non-primary care. Using this method, we estimated that as of 2020 about 42.8% of NPs 35.7% of PAs work in primary care. We realize that this percent for NPs is substantially higher than the 28.8% reported in the HHS study cited in the NASEM Appendix. Their denominator includes NPs not involved in direct care, including those in "ancillary care, care coordination, education, healthcare management/administration, informatics, public health/community health, rehabilitation, research, school nurse, other." By contrast, we restrict our PECOS-based analysis to only NPs enrolled in the PECOS system, indicating that they are practicing. Finally, because the HRSA study is based on a survey of NPs, it is not possible to create state level estimates of the proposed measure. We have reached out to the national office for the trade organizations for Nurse Practitioners and Physician Associates to identify and obtain more reliable data for this measure

Willis J, Antono B, Bazemore A, Jetty A, Petterson S, George J, Rosario BL, Scheufele E, Rajmane A, Dankwa-Mullan I, Rhee K. The State of Primary Care in the United States: A Chartbook of Facts and Statistics. October 2020. https://www.graham-

center.org/content/dam/rgc/documents/publications-reports/reports/PrimaryCareChartbook2021.pdf

Petterson SM, Liaw WR, Phillips RL, Rabin DL, Meyers DS, Bazemore AW. Projecting US primary care physician workforce needs: 2010-2025. Annals of Family Medicine. 2012;10(6):503-509. doi:10.1370/afm.1431

Petterson SM, Liaw WR, Tran C, Bazemore AW. Estimating the Residency Expansion Required to Avoid Projected Primary Care Physician Shortages by 2035. The Annals of Family Medicine. 2015;13(2):107-114. doi:10.1370/afm.1760

Petterson SM, Rayburn WF, Liaw WR. When do primary care physicians retire? Implications for workforce projections. The Annals of Family Medicine. 2016;14(4):344-349.

Jones KC, Whatley MM. Hospitalists: A Growing Part of the Primary Care Workforce. AAMC. Published 2016. Accessed April 27, 2021. https://www.aamc.org/data-reports/analysis-brief/report/hospitalists-growing-part-primary-care-workforce

Agency for Healthcare Research and Quality. The Number of Nurse Practitioners and Physician Assistants Practicing Primary Care in the United States.; 2011. : http://www.ahrq .gov/research/findings/factsheets/

Data 3.2

See above

3.3: Percentage of new physician workforce entering primary care each year

Amelia Goodfellow et al., "Predictors of Primary Care Physician Practice Location in Underserved Urban or Rural Areas in the United States: A Systematic Literature Review," Academic Medicine 91, no. 9 (September 2016): 1313–21, https://doi.org/10.1097/ACM.0000000000001203.

This systematic review included 72 observational and case control studies that looked at physician, institutional, and structural factors that influence whether primary care physicians practice in underserved areas. These studies suggest that factors such as URM status, race/ethnicity, fluency in language spoken by the patient population, financial factors are associated with practicing in high-need areas.

Projecting the supply and demand for primary care practitioners through 2020, HRSA 2013 https://bhw.hrsa.gov/sites/default/files/bureau-health-workforce/data-research/projecting-primary-care.pdf

HRSA report from 2013 forecasts a shortage of 20,400 primary care physicians by 2020.

Primary care specialty choice at medical school graduation greatly overestimates the number of physicians entering the primary care workforce. Because a large majority of internal medicine residents (80%+) and pediatric residents (50%+) go on to sub-specialty training and practice, it is crucial to identify the number and percent of new physicians entering primary care practice, typically 3-5 years after medical school graduation.

US News Best Medical School Rankings 2022. Methodology- Diversity, Underserved, Rural, Primary Care. https://www.usnews.com/education/best-graduate-schools/articles/med-diversity-methodology

Chen C, Petterson S, Phillips RL, Mullan F, Bazemore A, O'Donnell SD. Toward graduate medical education (GME) accountability: measuring the outcomes of GME institutions. Acad Med. 2013;88(9):1267-1280. doi:10.1097/ACM.0b013e31829a3ce9

Data 3.3

The AMA Masterfile includes detailed residency histories for all physicians in either allopathic or joint osteopathic-allopathic residencies accredited by ACGME. The exclusion of physicians in solely osteopathic programs is not of a concern going forward because of the implementation of joint AOA-AGCME accreditation.

3.4: Residents per 100,000 population by state

Fitzhugh Mullan, Candice Chen, and Erika Steinmetz, "The Geography Of Graduate Medical Education: Imbalances Signal Need For New Distribution Policies," Health Affairs, August 2, 2017, https://doi.org/10.1377/hlthaff.2013.0545.

This analysis uses Medicare cost reports from teaching hospitals and finds large geographic differences in number of residents per 100,000 population, total Medicare GME payments, payments per person, and average payments per resident across states.

Reports:
https://www.aamc.org/data-reports/students-residents/interactive-data/report-residents/2021/table-c3-number-individuals-who-completed-residency-and-are-practicing

Data from AAMC on number of individuals who completed residency and are practicing in federally designated medically underserved areas, by state

In the United States, teaching hospitals and associated ambulatory settings provide the graduate medical education (GME) for resident physicians ("residents") through several years of supervised, hands-on clinical training programs in particular areas of medicine. These teaching hospitals provide 3 services simultaneously: (1) patient health care; (2) graduate medical training; and (3) medical research services. In the training of residents, teaching hospitals incur significant costs and expenses beyond those customarily associated with providing patient care or performing medical research. The Medicare program makes payments to teaching hospitals for a portion of these added costs through its graduate medical education payments.

Data Tables: Graduate Medical Education For Teaching Hospitals https://www.graham-center.org/rgc/maps-data-tools/data-tables/gme.html

Data 3.4

See above

Objective 4: Design information technology that serves patients, their families, and the interprofessional primary care team

4.1 Percentage of patients who access a practice patient portal in the past year.

4.2 Percentage of practices, hospitals, and clinical deliver facilities on a health information exchange

4.3 Percentage of patients who communicate with their primary care practice via text messaging.

There is widespread agreement that health information technology, within and between sites of care will advance comprehensive, coordinated, and Patient-Centered primary care services. The COVID-19 pandemic brought the need for digital health tools into sharp focus as patients and practices struggled to keep everyone safe while still providing high-quality primary care. In January 2022 the White House requested examples of digital health tools and use prompted by the pandemic that might have long-term applicability.

While the NASEM Report found that information technology is, and will be, an important element of high-quality primary care, their conclusion for a measure of this objective is found in this quote from the report

> *"The committee is not aware of adequate measures or data sources that capture the use or availability of person-centered digital health in primary care (or any health care) settings, underscoring the urgency for further research in this area."*

Health Affairs published a special issue dedicated to Patients as Consumers that included a review article on consumer facing health technology. The authors reported on the burgeoning consumer-oriented health IT availability but cautioned on the lack of oversight necessary to assure health IT tools were standardized, effective, safe, and met federal and state regulations for privacy and security.

Singh K, Meyer SR, Westfall JM, Consumer Facing data, information, and tools: self-management of health in the digital age. Health Affairs 2019. 38(3): 352-358. https://doi.org/10.1377/hlthaff.2018.05404

Willis VC, Craig KJT, Jabbarpour Y, Scheufele EL, Arriaga YE, Ajinkya M, Rhee KB, Bazemore A. Digital Health Interventions to Enhance Prevention In Primary Care: Scoping Review. JMIR Med Inform 2022;10(1):e33518 doi:10.2196/33518

The Robert Graham Center conducted a thorough review of information technology that aims to serve patients and practices. Several measures rose to the top based on their growth over the past decade, their potential to improve clinical practice, their patient engagement, and the availability of data. While not exhaustive, these measures may serve as a robust proxy measure for Objective 4. We propose 2 measures.

Text messaging may be another measure of patient-physician communication. https://www.hrsa.gov/sites/default/files/archive/healthit/txt4tots/environmentalscan.pdf

4.1 Percentage of patients who access a practice patient portal in the past year.

Beal, L. L., et al. (2021). "Quantifying Patient Portal Use: Systematic Review of Utilization Metrics." J Med Internet Res 23(2): e23493.

Beal and co-authors, in the most recent systematic review, report on the extant literature on patient portal use. They report that while the use of patient portals has been associated with positive outcomes in patient engagement and satisfaction, patient portals are not fully funcational nor universally implemented. Access to patient portals is still a barrier in many communities and for many patients. However, there is still great variability in how portal use is measured and the outcomes it may impact. Despite those limitations, overall portal usage may serve as a proxy measure that can be readily tracked over time to improve access, usage, and impact.

Anthony and co-authors describe their use of the Health Inforamation Nationals Trends Survey (HINTS) dataset that regularly collects nationally representative data about the American public's knowledge, attitudes, and use of heatlh-related information. The HINTS data includes questions about use of practice-patient portals. HINTS has a free dataset available for public use.

American Medical Association (AMA). (2019). "Most of your patients still aren't using the portal. Here's why." https://www.ama-assn.org/practice-management/digital/most-your-patients-still-aren-t-using-portal-here-s-why

Medical Group Management Association. (July 26, 2018). "MGMA Stat: Most practices offer a patient portal ". from https://www.mgma.com/news-insights/quality-patient-experience/mgma-stat-most-practices-offer-a-patient-portal

ONC Data Brief, No. 57, September 2021 – Individuals Access andUse of Patient Portals and SmartPhone Health Apps, 2021. https://www.healthit.gov/data/data-briefs/individuals-access-and-use-patient-portals-and-smartphone-health-apps-2020

Anthony DL, Campst-Castillo C, Lim PS. Who Isn't Using Patient Portals and Why? Evidence And Implications Fom A National Sample Of US Adults. Health Affairs 2018. December. https://doi.org/10.1377/hlthaff.2018.05117

Carini, E., et al. (2021). "The Impact of Digital Patient Portals on Health Outcomes, System Efficiency, and Patient Attitudes: Updated Systematic Literature Review." <u>J Med Internet Res</u> 23(9): e26189.

Di Tosto, G., et al. (2020). "Metrics for Outpatient Portal Use Based on Log File Analysis: Algorithm Development." J Med Internet Res 22(6): e16849.

Antonio, M. G., et al. (2020). "The State of Evidence in Patient Portals: Umbrella Review." J Med Internet Res 22(11): e23851.

Avdagovska, M., et al. (2020). "Capturing the Impact of Patient Portals Based on the Quadruple Aim and Benefits Evaluation Frameworks: Scoping Review." <u>J Med Internet Res</u> 22(12): e24568.

Zhong, X., et al. (2020). "Characteristics of Patients Using Different Patient Portal Functions and the Impact on Primary Care Service Utilization and Appointment Adherence: Retrospective Observational Study." J Med Internet Res 22(2): e14410.

Data – 4.1

The HINTS data includes questions about use of practice-patient portals. HINTS has a free dataset available for public use. The HINTS data includes mostly people who report having health insurance coverage (94%) including Medicaid (18%) and Medicare (19%).

Health Information National Trends Survey https://hints.cancer.gov/

https://www.healthit.gov/data/data-briefs/individuals-access-and-use-patient-portals-and-smartphone-health-apps-2020#:~:text=FINDINGS,-%E2%98%85&text=Nearly%2040%20percent%20of%20individuals,percentage%20point%20increase%20since%202014.
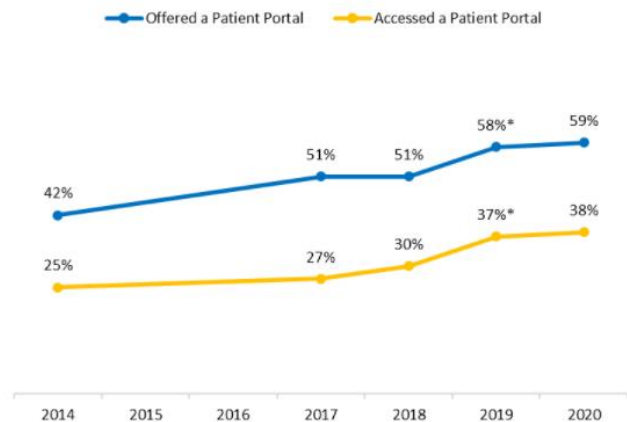

Figure 1: Percent of individuals nationwide who were offered and accessed a patient portal, 2014-2020.

Source: HINTS 4 Cycle 4 (2014); HINTS 5, Cycles 1-4 (2017-2020).
Note: *Significantly different from previous year (p<0.05). Denominator represents all individuals. Percentage reflects weighted national estimate for individuals offered a patient portal by a health care provider or insurer. The HINTS survey was not fielded in 2015 and 2016.

4.2 Percentage of practices, hospitals, and clinical deliver facilities on a health information exchange

Health Information Exchange, the capacity to share electronic health records among and between health facilities has been a goal ever since the introduction of electronic health records. While the vast majority of health systems, practices, and clinicians now rely on electronic health records in their daily practice, there are limitations and barriers to sharing health information between practices and systems. The federal government has made a major investment in electronic health records and information exchange. The Office of the National Coordinator for

Health IT (ONC) supports nationwide implementation of electronic health records, sharing health information, and coordinating federal agency support and investment.

While Health IT use is common across primary care practices, Cross et al, found that advanced IT function was low, ranging from 30-50%. The authors conclude that all ambulatory settings might benefit from improved electronic health record implementation and that most clinics will need additional targeted support for advanced IT functions. Holmgren and co-authors reported that, while 84% of hospitals reported a third-party Health Information Exchange, just 55% were in a regional HIE organization. In 2015, 43% of hospitals reported they had access to outside clinical information when necessary. Unfortunately, just 19% reported they used this information "often" and 37% reported they used this outside clinical information "rarely" or "never."

In 2022, CMS is adding an advanced measure to the Hospital Promoting Interoperability Program called Health Information (HIE) Bi-Directional Exchange. This measure will also be included in the Merit-Based Incentive Performance System (MIPS). As the name implies, this measures the capacity for bi-directional information exchange and will be measured for every in-patient encounter, transition, or referral. This emerging quality reporting measure will not be readily available for several years but may be an important measure of high-quality care when rolled out to ambulatory settings.

95% of hospitals participate in CMS EHR incentive programs
https://www.healthit.gov/data/quickstats/hospitals-participating-cms-ehr-incentive-programs

60% of office-based physicians participate in CMS EHR incentive programs
https://www.healthit.gov/data/quickstats/office-based-health-care-professionals-participating-cms-ehr-incentive-programs

Cross DA, Stevens MA, Spivack SB, Murray GF, Rodriguez HP, Lewis VA. Survey of Information Exchange and Advanced Use of Other Health Information Technology in Primary Care Settings. Capabilities In and Outside of the Safety Net. Med Care 2022;60: 140–148.

Holmgren AJ, Patel V, Adler-Milstein J. Progress in Interoperability: Measuring US Hospitals' Engagement in Sharing Patient Data. Health Affairs 2017. October. https://doi.org/10.1377/hlthaff.2017.0546

Payne TH, Lovis C, Gutteridge C, Pagliari C, Natarajan S, Yong C, Zhao LP. Status of health information exchange: a comparison of six countries J Glob Health 2019. Dec; 9(2): 020427. doi: 10.7189/jogh.09.020427

Merit-Based Incentive Payment System (MIPS) Promoting Interoperability Performance Category Measure 2021 Performance Period https://qpp.cms.gov/docs/pi_specifications/Measure%20Specifications/2021%20MIPS%20PI%20Health%20Information%20Exchange%20(HIE)%20Bi-Directional%20Exchange.pdf

Data 4.2

IT Supplement of the AHA Annual Survey https://www.ahadata.com/aha-data-resources "The American Hospital Association provides relevant and timely hospital data for accurate health care industry analysis. Each year, the survey is rigorously evaluated to ensure it collects the most pertinent indicators that reflect both historical and emerging trends, such as telehealth visits."

The Health Information Exchange (HIE) Market Research Report contains detailed analysis of health information exchange including market forecast, regional trends and updated Covid-19 analysis. The HIEMRR costs a minimum of $4000 https://www.marketreportsworld.com/global-health-information-exchange-hie-market-18058401

Health IT Quick Stats Visualization.
https://www.healthit.gov/data/quickstats?quickstats%5B0%5D=general%3AExchange%20%2 6%20Interoperability

Objective 5: Ensure that high-quality primary care is implemented in the United States

5.1: Investment in primary care research by the National Institutes of Health in dollars spent and percentage of total projects funded

5.2: Ensure high-quality clinical care

5.3: Progress on creation of the HHS Secretary Council on Primary Care and their work

5.1: Investment in primary care research by the National Institutes of Health in dollars spent and percentage of total projects funded

Mendel, Peter, Courtney A. Gidengil, Andrada Tomoaia-Cotisel, Sean Mann, Adam J. Rose, Kristin J. Leuschner, Nabeel Qureshi, Vishnupriya Kareddy, Jessica L. Sousa, and Daniel Kim, Health Services and Primary Care Research Study: Comprehensive Report. Santa Monica, CA: RAND Corporation, 2021.
https://www.rand.org/pubs/research_reports/RRA1503-1.html.

The 2021 RAND Report. The Agency for Healthcare Research and Quality was mandated by congress to conduct a comprehensive study on Health Services Research and Primary Care Research. Congress wanted to know if their investment in HSR and PCR was

worth it and to understand the funding landscape in light of the Administration's proposal to move AHRQ into the National Institutes of Health (NIH). The RAND Report is a seminal work and constitutes a reliable, and highly vetted analysis of the federal investment in primary care research. While the RAND Report included both Health Services Research and Primary Care Research, a major finding of the report was the unique nature of Primary Care Research and the serious gaps in funding and accountability for supporting Primary Care Research.

Westfall JM, Liaw W, Wittenberg H. Time to Invest in Primary Care Research – Commentary on Findings from an Independent Congressionally Mandated Study. J GEN INTERN MED (2021). https://doi.org/10.1007/s11606-020-06560-0 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7819690/

The commentary by Westfall et al. on the RAND Report placed the major findings of the RAND Report in the broader context of primary care research and practice. They point out several additional gaps and provide ample reason for strengthening the Federal investment in primary care research.

Lucan and co-authors produced a series of peer-reviewed manuscripts over the past 2 decades that report on the NIH funding for family medicine research. These efforts brought to light the woeful investment in primary care research at the NIH.

Lucan SC, Barg FK, Bazemore AW, Phillips RL Jr. Family medicine, the NIH, and the medical-research roadmap: perspectives from inside the NIH. Fam Med. 2009 Mar;41(3):188-96.PMID: 19259841

Lucan SC, Phillips RL Jr, Bazemore AW. Off the roadmap? Family medicine's grant funding and committee representation at NIH. Ann Fam Med. 2008 Nov-Dec;6(6):534-42. doi: 10.1370/afm.911.PMID: 19001306

Lucan SC, Bazemore AW, Xierali I, Phillips RL Jr, Petterson SM, Teevan Greater NIH investment in family medicine would help both achieve their missions. Am Fam Physician. 2010 Mar 15;81(6):704.PMID: 20229969

Lucan SC, Bazemore AW, Phillips RL Jr, Xierali I, Petterson SM, Teevan B. Greater family medicine presence at NIH can improve research relevance and reach. Am Fam Physician. 2010 May 15;81(10):1213.PMID: 20507045

The NIH has conducted several internal reviews of spending and grant awards. These analyses reveal grant distribution inequalities. While this report does not include mention of primary care, additional analysis of these data may help serve as baseline and historic investment in primary care research

Lauer M. Inequalities in the Distribution of National Institutes of Health Research Project Grant Funding. https://nexus.od.nih.gov/all/2022/01/18/inequalities-in-the-distribution-of-national-institutes-of-health-research-project-grant-funding/ accessed 2.2.22

Data 5.1

NIH Office of Extramural Research, The Office of Extramural Research (OER) will provide grant number, award amount, fiscal year, principal investigators' degrees, for grants to Departments of Family Medicine in response to a Freedom of Information Act request. While not an exhaustive list of all primary care research grants, family medicine grants may serve as the bellwether, proxy measure for primary care research investment.

NIH Research Portfolio Online Reporting Tools (RePORTER) database. Although developed and managed by NIH, the RePORTER database includes grant projects funded by agencies across HHS as well as the Veterans Administration. This dataset was found to include primary care grants awarded by several strong primary care agencies, namely, the Health Resource and Services Administration (HRSA) and the Agency for Healthcare Research and Quality (AHRQ). Using methods outlined in the RAND report will provide regular comparative and trend data on federal investment in primary care research.

5.2: Ensure high-quality clinical care

Olaisen, R. H., Schluchter, M. D., Flocke, S. A., Smyth, K. A., Koroukian, S. M., & Stange, K. C. (2020). Assessing the longitudinal impact of physician-patient relationship on functional health. The Annals of Family Medicine, 18(5), 422-429.

Olaisen, R. H., Flocke, S. A., Smyth, K. A., Schluchter, M. D., Koroukian, S. M., & Stange, K. C. (2020). Validating the new primary care measure in the Medical Expenditure Panel Survey. Medical care, 58(1), 52-58.

Olaisen, R. H., Flocke, S. A., Smyth, K. A., Schluchter, M. D., Koroukian, S. M., & Stange, K. C. (2019). Developing a new measure of primary care using the Medical Expenditure Panel Survey. Medical care, 57(6), 475-481.

The Medical Expenditure Panel Survey Primary Care includes a reliable and validated measure, and a measure that matters (the predecessor to PCPCM) to quantify patient-centered quality of care in primary care.

Data 5.2

See above

5.3: Progress on creation of the HHS Secretary Council on Primary Care and their work

Grumbach K, Bodenheimer T, Cohen D, Phillips RL, Stange KC, Westfall JM. Revitalizing the U.S. Primary Care Infrastructure. NEJM 2021. August 25. DOI: 10.1056/NEJMp2109700.

In September 2021 the Office of the Assistant Secretary for Health launched the *Initiative to Strengthen Primary Health Care.* Based on the NASEM Report, the stated aim of this initiative is to strengthen primary care in our nation and ensure high quality health care for all, improve health outcomes, and advance health equity. The initial task was to develop a formal Health and Human Service plan that could delineate HHS' role in steering, coordinating, and overseeing implementation of a plan to strengthen primary care in the United States. Dr Judith Steinberg was appointed to lead the initiative and Dr Shannon McDevitt was moved from HRSA to staff the initial efforts.

This measure will report out the annual work and outcomes of the HHS Secretary Council. Year one will include the HHS plan, its reception, and any actions taken to implement the plan. Media and press coverage for HHS initiative on primary care
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https://www.ahrq.gov/news/ahrq-joins-new-hhs-initiative.html

https://www.linkedin.com/in/judith-l-steinberg-0856b0a

http://www.acpinternist.org/archives/2021/11/acp-agencies-work-to-prioritize-primary-care.htm

Data 5.3

Annual report for the *Initiative to Strengthen Primary Health Care* from the Office of the Assistant Secretary for Health.

Additional Measures Under Consideration

Person-Centered Primary Care Measure

Etz RS, Zyzanski SJ, Gonzalez MM, Reves SR, O'Neal JP, Stange KC. A new comprehensive measure of high-value aspects of primary care. Ann Fam Med. 2019; 17(3): 221-230.

A different way to measure primary care performance. https://www.aafp.org/journals/fpm/blogs/gettingpaid/entry/pcpcm_survey.html Accessed January 2022.

Zyzanski SJ, Gonzalez MM, O'Neal JP, Etz RS, Reves SR, Stange KC. Measuring Primary Care Across 35 OECD Countries. Ann Fam Med 2021;19(6):547-552. https://doi.org/10.1370/afm.2697.

Tse ETY, Lam CLK, Wong CKH, et al. Exploration of the psychometric properties of the Person-Centred Primary Care Measure (PCPCM) in a Chinese primary care population in Hong Kong: a cross- sectional validation study. BMJ Open 2021; 11: e052655. https://doi:10.1136/bmjopen-2021-052655.

NAPCRG Patient and Clinician Engagement https://www.napcrg.org/programs/engagement-pace/patient-and-clinician-engagement-pace-program/ accessed 2.1.22.

The Graham Center Patient and Clinician Advisory Group (NAPCRG PaCE group) commented at their recent advisory meeting that there is a paucity of patient centered measures in the NASEM recommendations. The PaCE group strongly recommends addition of some patient-center measure to the scorecard. One measure that has received attention for inclusion in this primary care scorecard is the Person-Centered Primary Care Measure (PCPCM). It was developed as a survey tool for patients to assess their relationship with their physician and practice, and to gauge other important aspects of primary care in a concise manner with 11 questions representing separate domains that help describe continuity of care, comprehensiveness, community context, relationship with their physician, and equitable access. The Centers for Medicare and Medicaid has accepted this as a clinical quality measure for use in its Merit-based Incentive Payment System (MIPS) starting in 2022.

Patients rate their responses on a 4-point Likert scale, where higher scores indicate higher frequency or agreement, which are then averaged to arrive at a final score. The measure is based on 11 items:
1. The practice makes it easy for me to get care.
2. This practice is able to provide most of my care.
3. In caring for me, my doctor considers all of the factors that affect my health.
4. My practice coordinates the care I get from multiple places.
5. My doctor or practice know me as a person.
6. My doctor and I have been through a lot together.
7. My doctor or practice stands up for me.

8. The care I get takes into account knowledge of my family.
9. The care I get in this practice is informed by knowledge of my community.
10. Over time, this practice helps me to meet my goals.
11. Over time, my practice helps me to stay healthy.

This measure can not only provide a practical means to measure the breadth of primary care with a limited set of items, but specific domains may also be used to inform stakeholders where attention and resources may be channeled towards quality monitoring, improving outcomes, and study of patient sub-populations. Beyond the initial conceptualization, calibration and psychometric testing, the PCPCM has been translated into 30 languages and has undergone several state and regional pilots in the US as well as in Canada, Japan, China, Hong King, Australia, and the Netherlands. Subsequent research has also established high levels of correlation between the PCPCM and other existing measures of health care outcomes. Although there is much potential in the usefulness of the PCPCM as a measure of primary care from the perspective of patients, work is ongoing to investigate what PCPCM data are accessible and whether they may be sufficiently representative for use in a regional or national scorecard as it pertains to the quality of physician-patient relationship and the overall importance of primary care in the US.

PC Score Card, Measures and Data

NASEM Objective	Measure	Detail	Intended data source, year 1
Pay for primary care teams to care for people, not doctors to deliver services.	1.1	% of total spend going to primary care— commercial insurance	MEPS HCCI/IQVIA
	1.2	% of total spend going to primary care—Medicare	MEPS
	1.3	% of total spend going to primary care—Medicaid	MEPS
	1.4	% of primary care patient care revenue from capitation	TBD
Ensure that high-quality primary care is available to every individual and family in every community.	2.1	% of adults **with and** without a usual source of health care	NHIS
	2.2	% of children **with and** without a usual source of health care	NHIS
	2.3	# Primary care physicians per 100,000 people in medically underserved areas	HRSA (MUA)
	2.4	# Primary care physicians per 100,000 people in areas that are not medically underserved	HRSA (MUA)
	NA	# Primary care clinicians per 100,000 people including PAs and NPs	NPPES TBD
Train primary care teams where people live and work.	3.1	% Physicians trained in community-based settings, rural areas, Critical Access Hospitals (CAHs), MUAs	AMA, AOA and/or FSMB
	3.2	% Physicians, nurses, and physician assistants (PAs) working in primary care	TBD
	3.3	% New physician workforce entering primary care each year	AMA, AOA and/or FSMB
	3.4	% Physician residents per 100,000 population by state	PECOS?
Report on the Design information technology that serves the patient, family, and interprofessional care team	4.1	% Patients who access a practice patient portal in the past year.	MGMA HINTS
	4.2	% Of practices, hospitals, and clinical delivery facilities on a health information exchange (HIE)	NSHOS CMS
	NA	Team-based care measure (KPP)	TBD
Ensure that high-quality primary care is implemented in the United States.	5.1	Investment in primary care research by the National Institutes of Health (NIH) in dollars spent and % of total projects funded.	NIH RePORT database (NIH, 2020)
	5.2	Quality of the physician-patient relationship	MEPS
	5.3	Progress on creation of the HHS Secretary Council on Primary Care and their work. Essentially report out their annual activities.	TBD