REPORT

Standardizing the Measurement of Commercial Health Plan Primary Care Spending

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Table of Contents

Message from the President

How much of our health care dollars go to support primary care, the acknowledged foundation of any high-performing health care delivery system? This Milbank Memorial Fund report, "Standardizing the Measurement of Commercial Health Plan Primary Care Spending," by Michael Bailit, Mark Friedberg, and Margaret Houy, outlines a methodological approach to measuring "primary care spending rates"—the portion of total health care expenditures that goes to primary care. The report provides some preliminary answers, using information from a group of commercial insurers.

The Fund believes this is an important question for several reasons:

- Society confers value, in part, though monetary payments. If primary care is so important to society, do our collective payments reflect it?
- It turns out defining primary care is harder than it first seems. Should we define it by the type of provider offering the service? The type of services available, regardless of provider? The definition needs to be easily operationalized with available financial information. It must be standardized to allow for comparative measurement. This report tests several definitions of primary care and measures the resulting differences in spending rate. The definitions are specified in this report so other researchers can use them in the future.
- As quality improvement experts remind us, we improve what we measure. If, as many maintain, the US health care system relies too heavily on specialty and institutional services, resulting in poor health care value, then measuring the primary care spending rate for communities, states, and risk-bearing entities can be an important way to call attention to this underinvestment and assess progress over time. This report provides standards and baseline performance measures for other measurement organizations to use.
- The United States is in the midst of an unprecedented era of provider payment reform. Assessing the effects of these innovations on a known contributor to high value care—our primary care infrastructure—should be a high priority.

This report adds to a growing body of effort regarding primary care spending rates. The states of Oregon and Rhode Island have taken the lead in the United States—assessing both insurers and accountable delivery systems in their states. Internationally, the United Kingdom's National Health Service regularly measures primary care spending rates, and the World Health Organization is investigating how to use these rates as a performance comparator between countries. With these increased efforts come opportunities for learning, evidence development, and public attention.

As provider payment reform innovations continue in the United States, and purchasers, providers, and policymakers work to measure and improve the value of our significant health care expenditures, we hope this report will provide a useful guide to measuring primary care spending and help focus public attention on the importance of building a robust primary care infrastructure.

Christopher F. Koller
President, Milbank Memorial Fund

Introduction

The benefits of primary care are well documented. Studies have consistently shown positive relationships between delivery of primary care services and health systems with greater primary care orientations to better outcomes, efficiency, and patient experience of care.[1,2]

Despite the demonstrated value of primary care, primary care physicians are compensated significantly less than physicians in other medical specialties.[3] For this reason and others, most medical school graduates pursue careers in non-primary care specialties.[4]

Concern about an increasingly specialist-oriented health care system has led to increased national discussion and action over the past decade to strengthen the nation's primary care foundation. Some of the strategies being pursued include adoption of patient-centered medical home practice models, increased use of non-physician practice team members, and increased financial investment in and support for primary care.

To meaningfully quantify current and future health system investment in primary care, we need a standardized basis for measuring this investment.

Study Purpose

The Milbank Memorial Fund engaged Bailit Health and the RAND Corporation to undertake a proof-of-concept study to assess the feasibility of calculating the percentage of commercial insurer medical spending that was paid to primary care providers among a sample of highly rated commercial health plans.

Specifically, the primary purposes of the study were to (1) assess whether it is feasible to perform the measurement comparably across insurers, and (2) determine whether the work could be performed with voluntary insurer participation.

Should it be possible to measure relative investment in primary care, there may be a basis for objectively comparing primary care spending across geographic areas and organizations and for focusing attention on the extent of financial support primary care receives.

The study also had a secondary objective: to test the calculation of primary care spending using different definitions of primary care.

Study Methodology

Health Insurer Selection Criteria

Primary care orientation (including investment in primary care) has been associated with higher quality of care. Therefore, the study sought to test the feasibility of identifying health plans highly rated for quality as a means of establishing a benchmark for primary care spending. We anticipated that primary care spending as a percentage of total spending among these plans might be higher than among plans poorly rated for quality.

The quality ratings published by the National Committee for Quality Assurance (NCQA) were employed for selecting highly rated health insurers. We identified commercial health plans that had NCQA overall ratings of at least 80 (maximum score of 100) and a score of 4 or 5 (maximum score of 5) for prevention and treatment in the 2014-2015 plan rankings.[5]

Health insurers often submit data to NCQA for multiple products. For example, a health plan may submit information to NCQA for a health maintenance organization (HMO), preferred provider organization (PPO), and/or a point-of-service (POS) product as individual health plans or combined into one health plan. In selecting insurers to target, we gave preference to those with both a high-performing HMO and a high-performing PPO to support a comparative assessment of primary care spending for HMO- and PPO-enrolled populations.

In recognition of the volatility of measures of health spending with small populations, as a selection criterion, we required a minimum enrollment of 10,000 members, as reported in NCQA's Quality Compass.

To obtain diverse geographic representation, the high-performing plans were selected based on NCQA's regions.[6] NCQA divides the country into eight regions. Because we were seeking 10 plans for the study and high-performing plans are not equally distributed across regions, we grouped NCQA's regions into four (listed below) and identified the top three or four qualifying health plans from each region:

- *East and West North Central:* Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, Wisconsin
- *Mountain and Pacific:* Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming
- *New England and Mid-Atlantic:* Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont
- *South Atlantic and South Central:* Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia

In addition, we initially chose only one plan from each state. This meant skipping some high-performing plans when there were multiple high-performing plans in some states.

Health Insurer Participant Recruitment

Health insurers meeting the selection criteria were invited to participate in the study with the understanding that each insurer would be required to generate reports using study-prescribed data specifications (see Appendix B) and would in return receive a customized report comparing the individual health insurer's performance to that of the other study participants.

Twenty-nine health insurers were contacted before 10 agreed to participate. The scarcity of internal analytic resources was the most common reason health insurers reported when electing not to participate.

Participating Health Insurer Characteristics

The 10 health insurers that chose to participate had some degree of geographic representativeness, but not to the extent initially sought.

- East and West North Central: 2
- Mountain and Pacific: 2
- New England and Mid-Atlantic: 5
- South Atlantic and South Central: 1

The geographic distribution of participating health insurers was consistent with the uneven national distribution of health insurers highly rated by NCQA for quality. For example, there are many more such insurers in the New England and Mid-Atlantic region than in the South Atlantic and South Central regions. In addition, some national insurers that had strong market presence in multiple states either declined participation or did not rate high on quality in many markets. For this reason, eight of the 10 participating health insurers were regional or single-state insurers.

Ultimately, one of the participating national carriers (for a New England market) was unable to produce accurate data and was therefore excluded from the analysis, resulting in a total of nine insurers.

External Expert Methodology Review

To inform the research methodology design, the Milbank Memorial Fund, in collaboration with the Patient-Centered Primary Care Collaborative, convened a 16-person expert panel (see Appendix A for a list of members) to serve in an advisory role to review the study methodology, including the definitions of primary care services (PCS) and primary care providers (PCPs). In addition, the authors consulted with three health services researchers with experience in primary care and with four state insurance commissioners to review the methodology.

Primary Care Service and Provider Definitions

Multiple definitions of primary care exist. For example, the Organisation for Economic Co-operation and Development (OECD) has used the general definition "first point of contact that the population has with health systems," as well as more specific definitions including those from the Alma-Ata Declaration,[7] the Institute of Medicine[8] (now known as the National Academy of Medicine), and the Primary Health Care Activity Monitor for Europe.[9] Based on these definitions, the OECD has proposed that primary care spending be estimated in two ways, based on System of Health Accounts (SHA) categories:[10]

1. [Narrower] Outpatient curative and rehabilitative care (excluding specialist care and dental care), home-based curative and rehabilitative care, ancillary services, and preventive services *if provided in an ambulatory setting*.
2. [Broader] Outpatient curative and rehabilitative care including specialist care (excluding dental care), home-based curative and rehabilitative care, ancillary services if provided in an ambulatory setting, and total preventive services *in all settings (including hospitals and long-term care facilities*).

Unfortunately, this OECD framework, which was designed to compare primary care spending across member countries (and was challenging for many countries to implement, especially for the narrower version), is not available for individual health plans in the United States, which do not use SHA codes in their business operations.

Another framework, the Primary Health Care Performance Index, also designed for comparing countries and also using SHA codes,[11] has similar barriers to application among US health plans.

To estimate the percentage of total health care spending that high-performing commercial health insurers expend on primary care services, we considered six potential definitions of primary care spending:

- *Definition 1 (provider-based):* All medical services delivered by primary care providers (including non-evaluation and management [E&M] services, such as office-based procedures). In this definition, primary care providers are identified by specialty, the setting in which the provider typically delivers care, and health insurer designation.
    - *Specialty:* Most agree that family medicine, general internal medicine, general pediatrics, and general practice are primary care specialties. Some may argue that geriatrics, adolescent medicine, and gynecology also can be primary care specialties. It is worth noting that nurse practitioners (NPs) and other allied health professionals lacked specialty information for all but one plan; no plan was able to input missing specialty information. However, we also note that in many practices, these professionals are likely to bill under a physician's name.
    - *Setting:* A large share of the provider's billings must be for services delivered in ambulatory settings.
    - *Plan designation:* A provider must be designated as a primary care provider (PCP) by health insurers. Most health insurers have such designations, especially in their HMO products, where a referral from an insurer-designated PCP is necessary for many services.
- *Definition 2 (service-based, Starfield version[12]):* Services that support the fulfillment of four cardinal functions of primary care (comprehensive care, first-contact care for a wide variety of conditions, coordinated care, longitudinal care). There are no widely accepted claims-based measures corresponding to these cardinal functions. The

closest approximations to one of these dimensions (longitudinal care) might be continuity of care indices. There are many such indices (e.g., Bice-Boxerman[13]), each with its relative strengths and weaknesses. In addition, researchers at the Robert Graham Center have recently developed a claims-based definition of comprehensiveness, which has shown modest correlation with physician self-reported measures of comprehensiveness.[14]

- *Definition 3 (service-based, claims version):* All office visits and preventive services (e.g., immunizations), regardless of provider. The Medicare Payment Advisory Commission has used this definition implicitly in some older reports to Congress.[15]
- *Definition 4 (provider- and service-based):* All office visits and preventive services delivered by primary care providers (defined by specialty). This is a subset of definition 1, which includes all services delivered by specialty-defined primary care providers (not limited to office visits and preventive services).
- *Definition 5 (system-based):* Health systems that support fulfillment of the cardinal functions of primary care. This option is most attractive for fully capitated systems, where service-based definitions cannot be operationalized, but measuring fulfillment of cardinal functions was outside the feasible scope of work for this study.

After discussion among project team members and with our expert panel, we operationalized definitions 1 (provider-based) and 4 (provider- and service-based).

Our study definitions of primary care provider differ from the OECD definitions of general practitioner (the closest category of provider used by the OECD to calculate primary care spending) in an important way: the OECD allows considerable country-to-country variation in the clinician specialties considered to represent "general practitioners."[16] In contrast, our definitions of primary care provider are uniform among units of analysis (health plans).

Study Data Specifications

To enable health plans to calculate provider-based and provider- and service-based primary care spending using the two definitions selected, we wrote detailed data specifications with four specific definitions of primary care providers and one specific definition of primary care services. In all PCP definitions, we excluded primarily inpatient providers (e.g., hospitalists) using the method of Welch et al.,[17] in which any provider receiving 90% or more of revenues in the inpatient setting was designated a primarily inpatient provider.

- Primary care providers:
  - PCP-A: family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP
  - PCP-B: family medicine, general internal medicine, general pediatrics, general practice, NP, or physician assistant (PA) *and* designated by health insurer as a PCP

- PCP-C: family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP
- PCP-D: designated by health insurer as a PCP (no specialty requirement)

- Primary care services: fee-for-service claims for any of the following Healthcare Common Procedure Coding System (HCPCS) codes: 9920x, 9921x, 9924x, 99339-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420-99429, 99495, 99496, G0402, G0438, G0439

For all possible combinations of primary care providers (PCP-A through PCP-D) and payment types (all fee-for-service [FFS] payments, all FFS plus non-FFS payments, and primary care service payments), we asked analysts from each health insurer to calculate per-member per-month spending, for all combinations of the following subsets of patients:

- Year: 2013 and 2014
- Product type: HMO/POS (i.e., combining HMO and POS product types) and PPO
- Sex: male and female
- Age category: 18 years or younger; 19-24; 25-34; 35-44; 45-54; 55-64
- Comorbidities: asthma, diabetes mellitus, or neither (using each insurer's own definition or Healthcare Effectiveness Data and Information Set measure denominator specifications for insurers that had no preferred method of defining these conditions)

We also requested total medical and total medical plus prescription drug spending (i.e., the payment denominator) per-member per-month in each of these categories. We identified and separately analyzed members in insurers with mental health or prescription drug carve-outs, since these can reduce denominator spending relative to insurers without such carve-outs. All FFS spending amounts were *allowed amounts* and therefore included any payments made by health insurer members directly (e.g., deductibles and co-payments). The categorization of non-FFS primary care spending varied by health insurer. Some reported this in multiple categories (e.g., pay-for-performance, patient-centered medical home per-member per-month, shared savings, primary care partial capitation); others reported a per-member per-month lump sum that aggregated the insurer's non-FFS payment methods.

In addition, we requested data on the percentage of primary care services (defined as above) that were delivered by primary care providers, using each definition of PCP. The requested data included only members for whom the health insurer was the primary insurance and only for commercial lines of insurance.

The general technical specifications of the data request are available in Appendix B. We reviewed these general specifications with analysts from each health insurer and then customized them as needed (e.g., to request the exact types of non-FFS payment used by the insurer). Each health insurer submitted initial spending data, which we reviewed for inconsistencies with the data request. We requested at least one round of revised data from most insurers. Nine high-performing insurers were able to provide complete FFS data, but one insurer was unable to send data consistent with the request by time of publication. Of these nine insurers, seven made non-FFS payments to primary care providers in 2013 and 2014. Of these seven insurers making non-FFS payments, one insurer was unable to report non-FFS payment data and is therefore excluded from analyses that incorporate non-FFS payments.

Study Data Calculations

We calculated descriptive statistics (mean, minimum, and maximum) for all spending and utilization variables, weighting each health insurer equally. Results were similar for 2013 and 2014 across patient subsets. Results for 2014 alone can be found in Appendix C. Results for 2013 and 2014 are available in Appendix D.

Findings

The study findings are intended to inform future efforts to measure and set policies regarding primary care spending. We present findings on the feasibility of calculating primary care spending in commercial health insurers, followed by preliminary estimates of primary care spending among our study's sample of high-performing health insurers.

Feasibility of Calculating Primary Care Spending

1. *It is possible to measure primary care spending using insurers' financial information and expert consensus definitions of primary care translated into data specifications.* While considerably more effort would be required to assure the consistency of interpretation of the data specifications by the insurers, we have shown the feasibility of developing and operationalizing a measure of primary care spending.

2. *Voluntary reporting was challenging to obtain.* We had to contact nearly three times as many health insurers as needed to obtain a set of 10 participating insurers. Our methods required commitment of time and effort from data analysts (a scarce resource) at each participating health plan. The demands already placed on those staff made many insurers unwilling to commit to study participation, even when they supported the policy aims of the study. As a result, it seems unlikely that a voluntary approach will be adequate to support broad state-level or national-level measurement of commercial insurer spending on primary care. Alternative approaches to the voluntary submission method used for this study may be more effective.

First, it may be possible to use third-party databases such as state all-payer claims databases and those assembled by voluntary state-level collaboratives.[18] We tested this approach with one such collaborative and found that some data elements necessary to identify primary care spending according to our definitions were absent.

Second, states can require by statute the reporting of primary care spending (as does Oregon) or by regulation (as does Rhode Island). This approach appears to have worked reasonably well.

Regardless of the approach, multi-state insurers with an interest in measuring primary care spending will likely prefer a standard definition to facilitate data submission and reporting in multiple states.

3. *Acquisition of accurate data required significant work with insurers.* For most participating health insurers, analysts required detailed guidance and multiple rounds of submission to produce the requested data. This learning curve, which varied considerably from insurer to insurer, suggests that future efforts with new health insurers are likely to require similar guidance. We expect, but cannot be certain, that subsequent data requests from the same insurers would become easier with each repetition, as analysts gain experience.

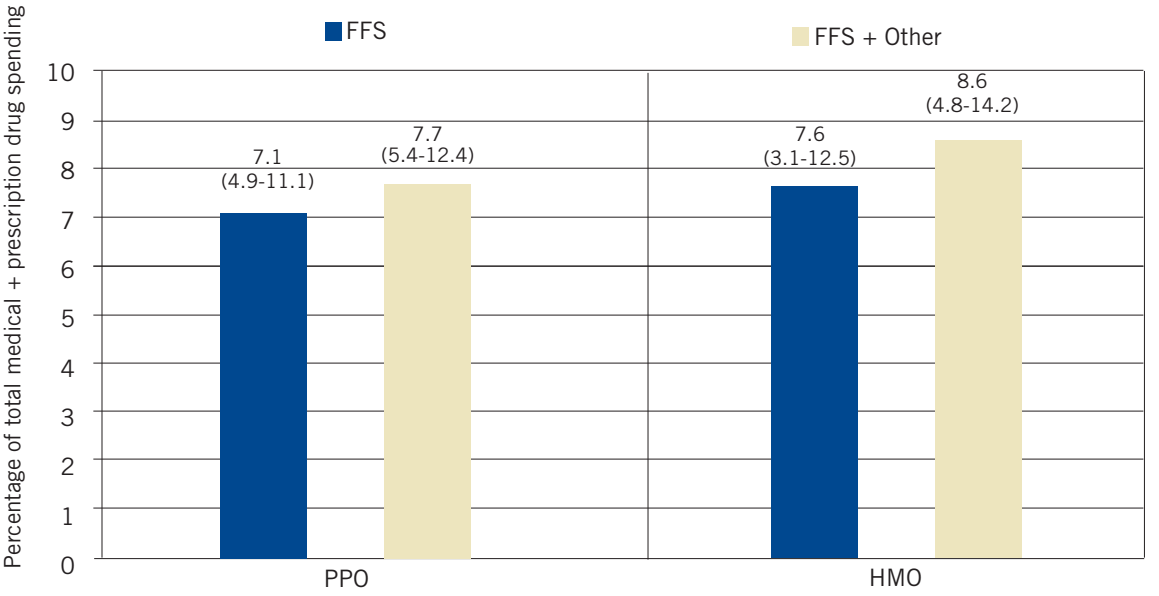
4. *New payment models and delivery system structures will create new measurement challenges.* While global capitation of health systems is not a common payment model in the United States, there are signs of its emergence as a more frequently adopted design.[19] We encountered this challenge when considering a few highly rated health insurers for the study. The adoption of such a payment model complicates measurement of the percentage of insurer spending directed to primary care, because the distribution of provider medical spending is controlled by the capitated provider entity and might not be visible to the insurer.

   The shared savings payment models employed by accountable care organizations (ACOs) can be similarly challenging if savings payments and/or quality incentive payments are made at the ACO level and then distributed across the ACO's primary care and non–primary care providers. New types of data capture and reporting will be necessary if primary care spending is to be measured for these new payment models.

Preliminary Insights Regarding Primary Care Spending

1. *Most primary care spending occurs via FFS payment.* As shown in Figure 1, only a small percentage of 2014 spending was made using non-FFS payments to primary care providers: the difference between FFS-only and FFS-plus-other spending was 0.6 percentage points for PPOs (7.7% vs. 7.1%) and 1 percentage point for HMOs (8.6% vs. 7.6%). While there is much national discussion about payment reform, including for primary care,[20] non-FFS spending on primary care was modest in 2014 among the health plans participating in the study.

Figure 1. Primary Care Spending by Payment and Product Type Among All Patients in 2014 as a Percentage of Total Medical + Prescription Drug Spending, Mean (Range)*



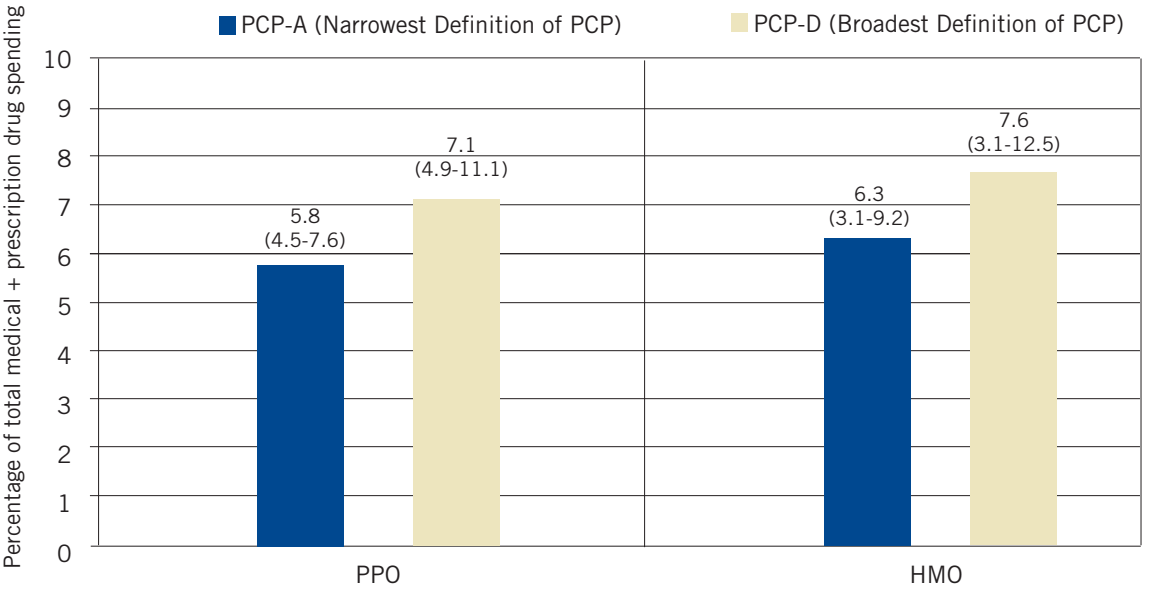
Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider; PPO, preferred provider organization.
*In this figure, FFS primary care spending includes all services billed by PCPs (definition 1), using the least restrictive definition of PCPs (PCP-D: any provider designated by health insurer as a PCP, regardless of specialty).

2. *Differences in spending between narrow and broad definitions of primary care providers were less than differences between definitions of primary care services.* This study used multiple definitions of primary care providers narrowly (PCP-A, which included only a limited range of physician specialties) and broadly (PCP-D, which included any provider that a health plan designated as a PCP, regardless of specialty).

   We also defined primary care services narrowly (definition 4, which included only evaluation and management and preventive services) and broadly (definition 1, which included any service delivered by a PCP). This broader definition of services might include minor surgical procedures and tests performed by PCPs.

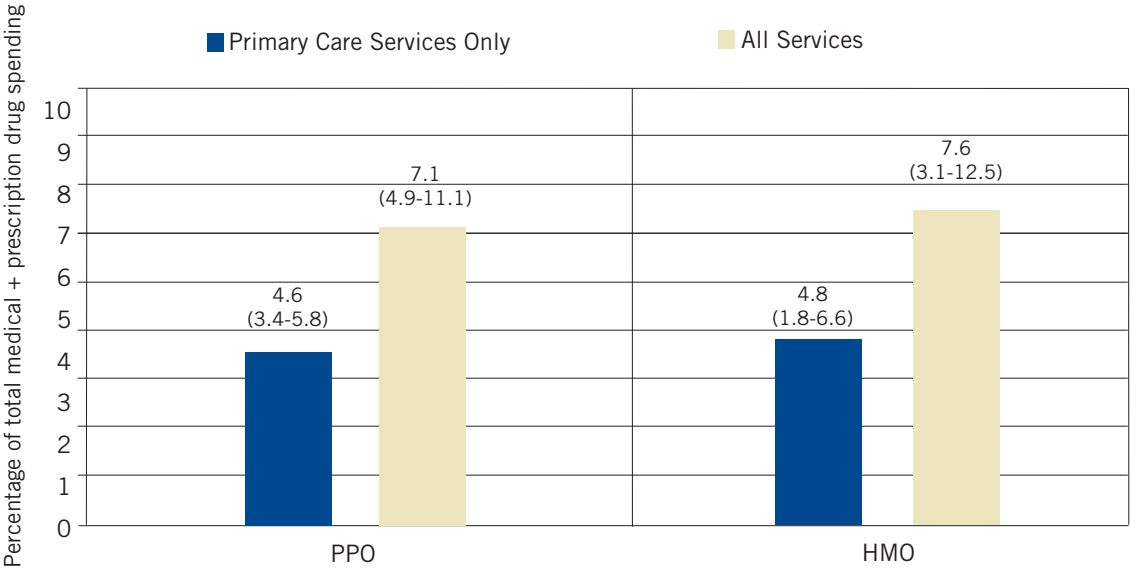
   As shown in Figure 2, the difference in percentage primary care spending between narrower and broader PCP definitions ranged up to 1.3 percentage points (5.8% vs. 7.1% for PPO spending and 6.3% vs. 7.6% for HMO spending). This is smaller than the 2.8 percentage point difference between spending on primary care services only and all services delivered by PCPs (4.8% for PCS only vs. 7.6% for all services) as shown in Figure 3. Versions of this figure that use more restrictive PCP definitions are available in Appendix C.

Figure 2. FFS Primary Care Spending Across All Service Types by Product and PCP Type Among All Patients in 2014 as a Percentage of Total Medical + Prescription Drug Spending, Mean (Range)*



Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider; PPO, preferred provider organization.
*In this figure, FFS primary care spending includes all services billed by PCPs (definition 1), using the most restrictive definition of PCPs (PCP-A: family medicine, general internal medicine, general pediatrics, or general practice provider designated by health insurer as a PCP) and least restrictive definition of PCPs (PCP-D: any provider designated by health insurer as a PCP, regardless of specialty).

Figure 3. FFS Primary Care Spending by Service Type Among PPO and HMO Members in 2014 as a Percentage of Total Medical + Prescription Drug Spending, Mean (Range)*



Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider; PPO, preferred provider organization.
* In this figure, we use the least restrictive definition of PCPs (PCP-D: any provider designated by health insurer as a PCP, regardless of specialty). "Primary care services only" corresponds to primary care definition 4, and "all services" corresponds to primary care definition 1. No non-FFS payments are included.

Our finding that provider definitions affected spending estimates less than service definitions suggests that more expansive PCP definitions can be employed in efforts to increase investment in primary care (like the primary care payment increases included in the Affordable Care Act) without causing large increases in primary care spending, relative to narrower PCP definitions. More expansive definitions such as these might help address challenges to achieving consensus on programs designed to increase primary care spending (i.e., lessen opposition from specialties that might be—but sometimes are not—considered "primary care" in regulatory definitions).

However, our study has a significant caveat in this regard: We required all such providers to be designated as PCPs by health plans. Some payers (e.g., Medicare) lack this PCP-designation variable and therefore cannot apply the PCP-designation requirement. Without this requirement, the range of included specialties might have a greater impact on primary care spending. In addition, plans might change their policies for designating providers as PCPs (if given the flexibility to do so) if they are incentivized to increase their percentage of spending on primary care.

3. *Primary care spending as a percentage of total spending varied greatly across high-performing health insurers.* The plan-to-plan range of percentage spending on primary care, depicted in Table 1, exceeded our expectations. Despite our best efforts to conduct uniform data collection across plans, much of this observed variation between plans might be due to differences in health plan analysts' interpretations of our specifications for calculating spending. In other words, some of this variation could be due to measurement error rather than true differences in spending. Our study was not designed to estimate the amount of such measurement error.

Table 1. Primary Care FFS Spending Among All PPO Patients in 2014 as a Percentage of Total Medical + Prescription Drug Spending, Mean (Range)

PCP Definition	PCP-A	PCP-B	PCP-C	PCP-D
Mean (Range)	5.8 (4.5-7.6)	6.0 (4.6-7.6)	6.4 (4.6-8.6)	7.1 (4.9-11.1)

Abbreviations: FFS, fee-for-service; PCP, primary care provider; PPO, preferred provider organization; PCP-A: family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B: family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant *and* designated by health insurer as a PCP; PCP-C: family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D: designated by health insurer as a PCP (no specialty requirement).

4. *The validity of comparisons between our spending estimates and others' spending estimates is unknown, reinforcing the need for a standard definition of primary care spending.* There are other calculations of primary care spending, both in the United States and internationally. The calculation that is most comparable to ours was pro-

duced by the state of Rhode Island (10.8% in 2015)[21] because of that state's regulatory focus on increasing primary care investment. Benchmarks from Oregon (5.9% in 2015),[22] research estimates (6%-8%),[23] and Medicare (3.6%)[24] are not comparable because they include non-primary care payments (e.g., for mental health services in Oregon, for investments in the state's health insurance exchange in Rhode Island) or are for populations with different health risk profiles and different expenditure patterns (e.g., Medicare, Medicaid). (See box on page 14, "Measuring Primary Care Spending: Policies in Two States.")

5. *Primary care spending as a percentage of total medical spending is influenced by population characteristics.* We found that the percentage of total spending devoted to primary care differed by patient age group and for patients with diabetes, patients with asthma, and the patient population as a whole (Table 2). Therefore, stratifying or adjusting calculated percentages by patient characteristics might be appropriate, especially when comparing health insurers with substantially different patient populations. At a minimum, the large distinction between children and adults as shown in Table 2 suggests a need for separate primary care spending benchmarks for these two patient populations.

Table 2. Per-Member Per-Month FFS + Other Primary Care Spending, as a Percentage of Total Medical + Prescription Drug Spending, by Patient Age and Comorbidity, Among HMO Members in 2014, Mean (Range)*

Patient Characteristic		**PCP-D (FFS + other)****
Age		
	18 or younger	18.3 (11-22)
	19-24	9.4 (5-15)
	25-34	7.8 (4-13)
	35-44	7.0 (4-13)
	45-54	6.9 (4-15)
	55-64	5.9 (3-14)
Comorbidity		
	All patients	8.6 (4.8-14.2)
	Diabetes	5.0 (2-13)
	Asthma	6.9 (4-13)

Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider; PCP-D, primary care provider designated by health insurer as a PCP (no specialty requirement).
* This table corresponds to definition 1, all service types.
** The FFS + other figures do not include the insurer that made non-FFS primary care payment but did not report them to us.

Measuring Primary Care Spending: Policies in Two States

There are two states that currently require commercial health plans to submit data about primary care spending. While their methodologies vary from those included in this report, the examples are worth noting for two reasons: (1) the state models demonstrate further that it is feasible to define measures and collect data for primary care spending, and (2) the states have used these measures to stimulate collaborative efforts for multi-payer primary care payment reform.

Rhode Island

In 2011, the Rhode Island Office of the Health Insurance Commissioner (OHIC) established initial guidance for health insurers that (1) defined primary care services, and (2) based on that definition, required insurers to demonstrate that they would increase primary care spending by five percentage points during the period 2010 to 2014. The guidance defines these expenditures as including direct FFS payments as well as payments provided for activities and services to enhance primary care capacity (e.g., electronic health records, care managers, and other practice transformation activities). Each health insurer was expected to spend 25% in 2011 and 30% in 2012 as the percentage of primary care payments that must be paid in the above categories in means other than FFS payments.

Additional requirements were promulgated in subsequent years. The percentage of insurer payments to be allocated for these enhanced service investments was increased to 40% in 2013 and 45% in 2014. The most recently adopted version of OHIC Regulation 2 (adopted 12-12-16) reflects the state's continued interest in directly supporting primary care. Expenditures to support medical home-related activities are as follows:

- Each health insurer's annual, actual primary care expenses, including both direct and indirect primary care expenses, shall be at least an amount calculated as 10.7% of its annual medical expenses for all insured lines of business.
- Within that amount, at least 9.7% of the calculated amount shall be for direct primary care expenses.
- Indirect primary care expenses shall include at least the insurer's proportionate share for the administrative expenses of the medical home initiative and for its proportionate share of the expenses of the health information exchange.

Oregon

Primary care is the cornerstone of Oregon's health care transformation strategy. Legislation in 2015-2016 required the state to report on the percentage of primary care spending by "prominent" carriers offering commercial and Medicare Advantage plans, health insurance plans contracting with state public employee boards, and the Medicaid coordinated care

organizations (CCOs). The same legislation required the Oregon Health Authority to convene a Primary Care Payment Collaborative to develop recommendations to improve primary care capacity.

The primary care spending analysis includes both claims-based payments (e.g., FFS payments) and non-claims-based payments (e.g., supplemental payments focused on quality improvement and practice capacity building). Information on claims-based payments are collected through the state's All Payer All Claims Database, while data on the non-claims-based payments are collected through a separate reporting template. Specific rules established the non-claims-based reporting requirements as follows:

- OAR 836-053-1500 through 836-053-1510, effective October 20, 2015: These rules define prominent carriers and require carriers to report non-claims-based primary care spending and total medical spending.
- OAR 409-027-0010 through 409-027-0030, effective November 5, 2015: These rules require CCOs to report non-claims-based primary care spending and total medical spending.

In 2017, Oregon enacted legislation that establishes primary care spending requirements for health coverage programs under the state's jurisdiction. The law requires the Medicaid CCOs to spend at least 12% of their total expenditures for physical and mental health services (excluding prescription drugs, vision, and dental care expenditures) on primary care services by 2023. If a CCO spends less than that amount, it will need to document how it will increase its primary care spending by at least one percent annually. The law also requires health insurers to meet the 12% spending threshold, and the public employee board is required to meet the same spending threshold through its health benefit plans.

Opportunities for Further Research

This research has shown the importance of precisely defining primary care spending, because different definitions can produce different estimates from the same underlying claims data. We found that calculating primary care spending by commercial health insurers was feasible. However, such data collection was difficult under a voluntary reporting model and was especially challenging for non-FFS payment models.

Additional research should consider the following questions:

1. How might generating primary care spending estimates be partially or fully automated to facilitate wider measurement participation and decrease administrative demands on health insurers?
2. Would the same variation in primary care spending percentage persist with a larger sample of health insurers? If so, what accounts for the significant observed variation in the percentages of commercial insurer spending targeted to primary care? How much

of the observed variation is due to measurement error, rather than variation in the true spending ratios?

3. What are the non-primary care services (i.e., non-E&M, non-preventive services) that account for a substantial proportion of total FFS billing by primary care providers?[25]
4. How do the findings differ for Medicaid and Medicare populations?
5. Are there viable methods for measuring percentage of spending dedicated to primary care when insurers and other payers are paying health systems global capitation rates that are inclusive of primary care and other services?
6. How will the distribution of primary care payments and the level of payment change as primary care payment models change and ACOs grow?
7. Does the share of primary care spending correlate with quality, cost, and provider satisfaction outcomes?

Finally, there is the practical question of who should apply and report a standardized measure of the percentage of medical spending dedicated to primary care if such a measure is indeed adopted.

We believe that the adoption and widespread application of a measure of primary care spending as a percentage of total medical spending will provide valuable information and focus to ensure a sound primary care foundation for the delivery system. While the total amount or fraction of money devoted to primary care in no way guarantees the provision of efficient and effective primary care in particular, or medical care in general, it might be an important marker of the extent to which a health care payer, a delivery system, or a geographic community is achieving these goals. With further development and validation, these measures of primary care spending could serve as the basis for national benchmarks and public policies seeking to orient health systems more strongly toward primary care.

Appendix A

Expert Panel Members

The panel members' affiliation at the time of review is listed.

Melinda Abrams	The Commonwealth Fund
Christine Bechtel	Bechtel Health Advisory Group
Louise Cohen	Primary Care Development Corporation
Shari Erickson	American College of Physicians
Rebecca Etz	Virginia Commonwealth University
Kevin Grumbach	University of California, San Francisco
Daniel Lowenstein	Primary Care Development Corporation
Shawn Martin	American Academy of Family Physicians
Len Nichols	George Mason University
Marci Nielsen	Patient-Centered Primary Care Collaborative
John O'Brien	CareFirst, Inc.
Diane Padden	American Association of Nurse Practitioners
Steven Peskin	Horizon Blue Cross Blue Shield of New Jersey
Bob Phillips	American Board of Family Medicine
Julie Schilz	Anthem, Inc.
Eric Schneider	The Commonwealth Fund

Appendix B

Primary Care Spending Study Technical Specifications

Part I: Identify Primary Care Providers (PCP).

- Find PCP identifiers in provider file.
  - Send list of specialty codes to RAND Corporation.
  - RAND identifies PCP-1 specialty codes: family medicine, general internal medicine, general pediatrics, general practice.
  - RAND identifies PCP-2 specialty codes: family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), and physician assistant (PA).
  - RAND identifies PCP-3 specialty codes: family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, and gynecology.
  - PCP designation flag (i.e., health plan has designated this provider as a PCP).
    - In general, we expect PCP flags to be present in health maintenance organization (HMO) products. Carry any PCP flags in HMO products over to preferred provider organization (PPO) products so that the same PCP flag status is applied to a given provider across all products.
- Identify primarily inpatient providers in adjudicated medical claims file.
  - Send list of site-of-service codes to RAND.
  - RAND identifies all site-of-service codes corresponding to "inpatient" or "other" settings.
  - For each claim line, attach designation "inpatient site" or "other site" based on RAND designation corresponding to site-of-service.
  - Perform classification check.
    - Identify "inpatient service" claims as Healthcare Common Procedure Coding System (HCPCS) in 99221, 99222, 99223, 99231, 99232-99233, 99234, 99235, 99236, 99238-99239.
    - Identify "outpatient service" claims as HCPCS in 9920x, 9921x, 9924x, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411-99412, G0402, G0438, G0439.
    - Populate this table and send to RAND:

% of adjudicated claims	Inpatient site	Other site
Inpatient service		
Outpatient service		

    - If >95% of adjudicated claims are in the shaded cells, proceed to next step.

- For each provider, calculate in the adjudicated claims.
  - Total allowed amounts in 2013 and 2014 in "inpatient site."
  - Total allowed amounts in 2013 and 2014 in "other site."
- For each provider, apply "inpatient provider" flag if total "inpatient site" allowed amount / (total "inpatient site" allowed amount + total "other site" allowed amount) >0.90.
- Merge new "inpatient provider" variable into provider file.

- Complete PCP identification in provider file.
  - Apply "PCP-A" flag if specialty code = "PCP-1" and PCP designation flag is present and "inpatient provider" flag is not present.
  - Apply "PCP-B" flag if specialty code = "PCP-2" and PCP designation flag is present and "inpatient provider" flag is not present.
  - Apply "PCP-C" flag if specialty code = "PCP-3" and PCP designation flag is present and "inpatient provider" flag is not present.
  - Apply "PCP-D" flag if PCP designation flag is present and "inpatient provider" flag is not present, regardless of specialty code.

Part II: Identify Members and Member Characteristics.

- Identify members and product and demographic variables.
  - Include only members for whom your plan is the primary insurance.
  - Identify and include all HMO and point-of-service (POS) members who were in the plan for one month or more in calendar year 2013 and who were 64 years of age or younger in 2013.
  - For each of these members, create a variable that counts the number of months in 2013 in which the member was enrolled (range: 1 to 12).
  - Apply a "prescription drug carve-out" flag if there is a prescription drug carve-out or if prescription drug claims data are otherwise unavailable.
  - Apply a "mental health carve-out" flag if there is a mental health carve-out or if mental health claims data are otherwise unavailable.
  - Include a variable indicating member sex.
  - Create a variable indicating member age category in 2013: 18 years or younger; 19-24; 25-34; 35-44; 45-54; 55-64.
  - Repeat above steps for HMO/POS members in 2014.
  - Repeat above steps for PPO members in 2013.
  - Repeat above steps for PPO members in 2014.

- Create chronic condition flags.
  - For each member in each year, apply the following comorbidity flags (two separate variables):
    - Presence of diabetes mellitus (type 1 or type 2)
    - Presence of asthma
  - If a chronic condition flag is present for a given member in 2013 but not present in 2014, please let 2013 *overwrite* 2014 (i.e., assume the chronic condition did not resolve between 2013 and 2014).

Part III: Identify Primary Care Services and Calculate Spending.

- Identify primary care services.
  - In adjudicated medical claims file, create a variable that flags all claim lines as "primary care services" for which the following HCPCS codes are present: 9920x, 9921x, 9924x, 99339-99340, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411-99412, 99420-99429, 99495, 99496, G0402, G0438, G0439.
  - Calculate the number (i.e., count) of primary care services (including a maximum of one per day per provider) for each member in 2013.
    - To any provider
    - To PCP-A providers
    - To PCP-B providers
    - To PCP-C providers
    - To PCP-D providers
- Calculate denominator spending (*allowed amounts*).
  - For each member identified above, calculate the following when there are *no* carve-outs:
    - Total medical spending* in 2013
    - Total medical spending + prescription drug spending in 2013
    - Total medical spending in 2014
    - Total medical spending + prescription drug spending in 2014
  - For each member identified above, calculate the following when there is a *prescription drug* carve-out:
    - Total medical spending in 2013
    - Total medical spending in 2014
  - For each member identified above, calculate the following when there is a mental health (MH) carve-out:
    - Total medical spending (MH carve-out) in 2013
    - Total medical spending (MH carve-out) + prescription drug spending in 2013
    - Total medical spending (MH carve-out) in 2014
    - Total medical spending (MH carve-out) + prescription drug spending in 2014

*Include fee-for-service and non-fee-for-service payments in the denominator.

- Calculate numerator spending.
  - For each member identified above, calculate:
    - PCP-A-all-2013 spending = total allowed amounts paid to PCP-A providers in 2013
    - PCP-A-all-2014 spending = total allowed amounts paid to PCP-A providers in 2014
    - PCP-B-all-2013 spending = total allowed amounts paid to PCP-B providers in 2013
    - PCP-B-all-2014 spending = total allowed amounts paid to PCP-B providers in 2014
    - PCP-C-all-2013 spending = total allowed amounts paid to PCP-C providers in 2013
    - PCP-C-all-2014 spending = total allowed amounts paid to PCP-C providers in 2014
    - PCP-D-all-2013 spending = total allowed amounts paid to PCP-D providers in 2013
    - PCP-D-all-2014 spending = total allowed amounts paid to PCP-D providers in 2014
  - For each member identified above, calculate:
    - PCP-A-PCS-2013 spending = total allowed amounts paid to PCP-A providers in 2013 for primary care services only
    - PCP-A-PCS-2014 spending = total allowed amounts paid to PCP-A providers in 2014 for primary care services only
    - PCP-B-PCS-2013 spending = total allowed amounts paid to PCP-B providers in 2013 for primary care services only
    - PCP-B-PCS-2014 spending = total allowed amounts paid to PCP-B providers in 2014 for primary care services only
    - PCP-C-PCS-2013 spending = total allowed amounts paid to PCP-C providers in 2013 for primary care services only
    - PCP-C-PCS-2014 spending = total allowed amounts paid to PCP-C providers in 2014 for primary care services only
    - PCP-D-PCS-2013 spending = total allowed amounts paid to PCP-D providers in 2013 for primary care services only
    - PCP-D-PCS-2014 spending = total allowed amounts paid to PCP-D providers in 2014 for primary care services only

Part IV: Create Aggregated Output File.

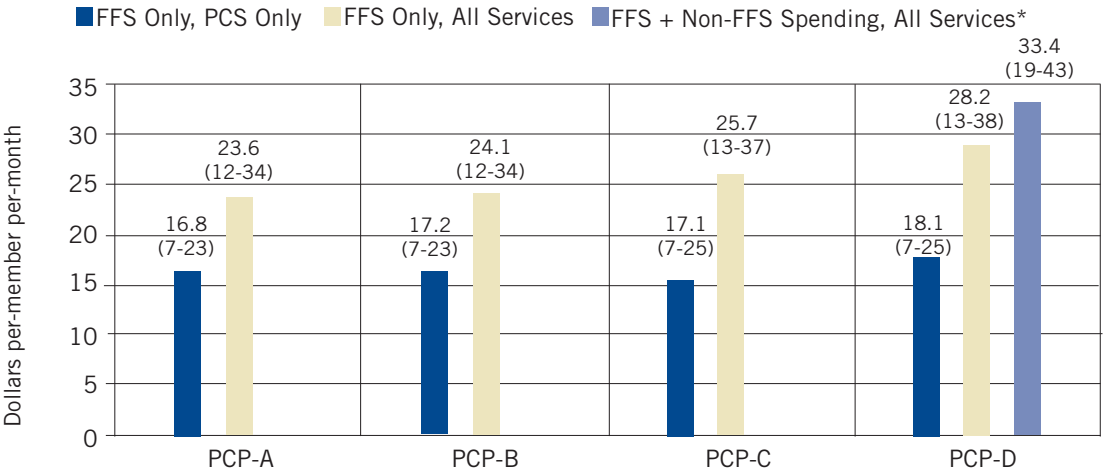
- Calculate monthly spending and utilization.
    - For each member, divide each 2013 denominator and numerator cost by the number of months the member was enrolled in 2013.
        - Repeat for 2014.
    - For each member, divide each 2013 count of primary care services by the number of months the member was enrolled in 2013.
        - Repeat for 2014.
    - Take the mean of each of the above figures, weighing all member-months equally, among 2013 HMO/POS members with no carve-outs, in each of the following subsets:
        - All members
        - Sex categories (women and men)
        - Age categories
        - Chronic condition categories
            - Among members with diabetes
            - Among members with asthma
    - Repeat the previous step for:
        - 2013 HMO/POS members with prescription drug carve-out
        - 2013 HMO/POS members with mental health carve-out
        - 2014 HMO/POS members with no carve-outs
        - 2014 HMO/POS members with prescription drug carve-out
        - 2014 HMO/POS members with mental health carve-out
        - 2013 PPO members with no carve-outs
        - 2013 PPO members with prescription drug carve-out
        - 2013 PPO members with mental health carve-out
        - 2014 PPO members with no carve-outs
        - 2014 PPO members with prescription drug carve-out
        - 2014 PPO members with mental health carve-out

Appendix C

Results for 2014

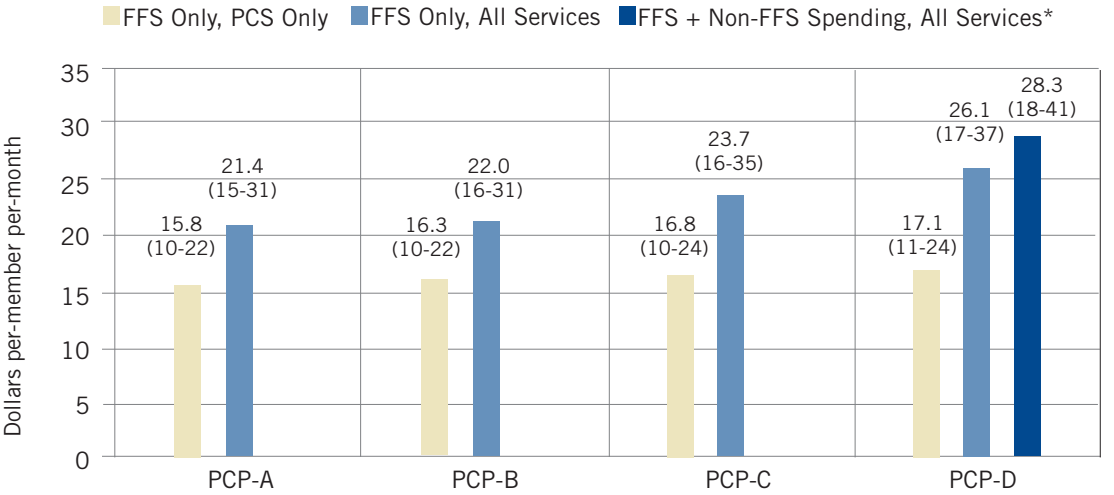
Figure C1. Per-Member Per-Month Primary Care Spending in Dollars, Among All Patients in 2014, Mean (Range), HMO and PPO

Per-Member Per-Month Primary Care Spending in Dollars, Among HMO Patients in 2014, Mean (Range)



Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider: PCS, primary care services (definition 4); service type "all" corresponds to definition 1; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).

Per-Member Per-Month Primary Care Spending in Dollars, Among PPO Patients in 2014, Mean (Range)



Abbreviations: FFS, fee-for-service; PCP, primary care provider; PCS, primary care services (definition 4); service type "all" corresponds to definition 1; PPO, preferred provider organization PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).

* For most insurers, non-FFS payments cannot be subdivided by PCP specialty and are therefore only available for PCP-D (which does not rely on

specialty).

Table C1. Primary Care Spending Among All Patients in 2014 as a Percentage of Total Medical + Prescription Drug Spending, Mean (Range)

Payment Type	Product Type	Service Type	PCP-A	PCP-B	PCP-C	PCP-D
FFS	HMO	PCS only	4.5 (1.8-6.2)	4.6 (1.8-6.2)	4.7 (1.8-6.2)	4.8 (1.8-6.6)
FFS	PPO	PCS only	4.3 (3.0-5.4)	4.4 (3.1-5.4)	4.5 (3.1-5.8)	4.6 (3.4-5.8)
FFS	HMO	all	6.3 (3.1-9.2)	6.5 (3.1-9.2)	6.8 (3.1-9.2)	7.6 (3.1-12.5)
FFS	PPO	all	5.8 (4.5-7.6)	6.0 (4.6-7.6)	6.4 (4.6-8.6)	7.1 (4.9-11.1)
FFS + other	HMO	all	NA*	NA	NA	8.6 (4.8-14.2)
FFS + other	PPO	all	NA	NA	NA	7.7 (5.4-12.4)

Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider; PCS, primary care services (definition 4); service type "all" corresponds to definition 1; PPO, preferred provider organization; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).
* For most insurers, non-FFS payments cannot be subdivided by PCP type.

Table C2. Per-Member Per-Month FFS + Other Primary Care Spending, in Dollars, by Patient Subset, Among HMO Members in 2014, Mean (Range)*

Patient Characteristic		PCP-A (FFS)	PCP-B (FFS)	PCP-C (FFS)	PCP-D (FFS + other)
Sex					
	Female	24.8 (14-35)	25.5 (14-35)	28.7 (14-44)	31.3 (14-44)
	Male	22.2 (11-34)	22.7 (11-34)	22.8 (11-34)	25.4 (11-38)
Comorbidity					
	All patients	23.6 (12-34)	24.1 (12-34)	25.7 (13-37)	33.4 (19-43)
	Diabetes	33.8 (21-45)	34.6 (31-45)	36.0 (32-51)	42.6 (34-58)
	Asthma	32.6 (31-55)	33.3 (31-55)	34.6 (31-57)	39.0 (34-62)
Age					
	18 or younger	33.0 (17-45)	33.3 (17-45)	33.6 (18-45)	37.6 (24-45)
	19-24	14.0 (6-24)	14.6 (6-24)	16.4 (7-27)	20.8 (13-31)
	25-34	15.3 (7-22)	15.9 (7-22)	20.2 (7-42)	25.8 (14-48)
	35-44	18.4 (9-23)	19.0 (9-23)	21.3 (9-34)	27.0 (16-40)
	45-54	22.2 (13-29)	22.8 (13-29)	24.2 (13-35)	32.6 (19-58)
	55-64	26.9 (17-36)	27.6 (17-36)	28.5 (17-40)	37.8 (24-59)

Abbreviations: FFS, fee-for-service; PPO, preferred provider organization; PCP, primary care provider PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).

* This table corresponds to definition 1, all service types.

Table C3. Per-Member Per-Month FFS + Other Primary Care Spending, as a Percentage of Total Medical + Prescription Drug Spending, by Patient Subset, Among HMO Members in 2014, Mean (Range)*

Patient Characteristic		PCP-A (FFS)	PCP-B (FFS)	PCP-C (FFS)	PCP-D (FFS + other)**
Sex					
	Female	5.7 (3.1-7.2)	5.9 (3.0-7.2)	6.7 (3.1-9.8)	8.2 (4.5-13.0)
	Male	6.3 (3.2-7.6)	6.5 (3.2-7.6)	6.5 (3.2-7.6)	8.4 (5.2-15.6)
Comorbidity					
	All patients	6.3 (3.1-9.2)	6.5 (3.1-9.2)	6.8 (3.1-9.2)	8.6 (4.8-14.2)
	Diabetes	3.5 (1.7-5.7)	3.5 (1.7-5.7)	3.6 (1.7-5.7)	5.0 (2.2-12.9)
	Asthma	5.6 (2.7-9.5)	5.7 (2.7-9.5)	6.8 (2.7-9.5)	6.9 (3.6-12.8)
Age					
	18 or younger	16.9 (8-24)	17.0 (8-24)	17.2 (8-24)	18.3 (11-22)
	19-24	6.4 (3-9)	6.7 (3-9)	7.5 (3-12)	9.4 (5-15)
	25-34	4.8 (2-7)	5.0 (2-7)	6.3 (2-11)	7.8 (4-13)
	35-44	5.0 (2-7)	5.2 (2-7)	5.7 (2-7)	7.0 (4-13)
	45-54	4.8 (3-7)	5.0 (3-7)	5.3 (3-7)	6.9 (4-15)
	55-64	4.2 (2-6)	4.2 (2-6)	4.4 (2-6)	5.9 (3-14)

Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).
* This table corresponds to definition 1, all service types.
** The FFS + other figures do not include the insurer that made non-FFS primary care payment but did not report them to us.

In addition to the preceding calculations, we requested data on the percentage of primary care services (defined in the note below Table C4) that were *delivered by primary care providers*, using each definition of PCP. As shown in Table C4, mean rates of primary care service utilization among HMO members ranged from 0.17 to 0.18 services per-member per-month as the PCP definition ranged from PCP-A (narrowest) to PCP-D (broadest).

Table C4. Rates of Primary Care Service Utilization Delivered by Each Definition of PCP Per-Member Per-Month in 2014, Mean (Range)*

Product Type	PCP-A	PCP-B	PCP-C	PCP-D
HMO	0.17 (0.06-0.25)	0.17 (0.06-0.25)	0.18 (0.06-0.26)	0.18 (0.06-0.26)
PPO	0.16 (0.12-0.27)	0.16 (0.12-0.27)	0.17 (0.12-0.28)	0.17 (0.12-0.28)

*Abbreviations: HMO, health maintenance organization; PCP, primary care provider; PPO, preferred provider organization; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) and designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).
Primary care service utilization is the count of fee-for-service claims for any of the following Healthcare Common Procedure Coding System (HCPCS) codes: 9920x, 9921x, 9924x, 99381-99387, 99391-99397, 99401-99404, 99411-99412, 99420-99429, 99339-99340, 99341-99345, 99347-99350, 99495, 99496, G0402, G0438, G0439.

Primary care services also can be measured without regard to provider type (i.e., following definition 3 of primary care spending, which counts primary care services *provided by anyone as primary care*). The ratio of primary care services provided by PCPs to primary care services provided by anyone is another potential marker of primary care orientation—and one that is not as sensitive to prices as spending data might be. Table C5 shows that this ratio ranged from mean 52% to 56% as the PCP definition ranged from PCP-A (narrowest) to PCP-D (broadest).

Table C5. Primary Care Service Utilization Delivered by Each Definition of Primary Care Provider, as a Percentage of "Primary Care Utilization" Delivered by All Providers (Including Subspecialists) in 2014, Mean (Range)*

Year	Product Type	PCP-A	PCP-B	PCP-C	PCP-D
2014	HMO	52 (21-79)	53 (21-80)	55 (21-81)	56 (23-89)
2014	PPO	51 (21-74)	52 (21-74)	54 (21-75)	55 (22-82)

Abbreviations: HMO, health maintenance organization; PCP, primary care provider; PPO, preferred provider organization; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).
* This table uses definition 3 for primary care spending: all office visits and preventive services (e.g., immunizations), regardless of provider. This is a broader definition than used in the preceding tables. Primary care service utilization is the count of fee-for-service claims for any of the following Healthcare Common Procedure Coding System (HCPCS) codes: 9920x, 9921x, 9924x, 99339, 99340, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411, 99412, 99420-99429, 99495, 99496, G0402, G0438, G0439.

Appendix D

Results for 2013 and 2014

Table D1. Per-Member Per-Month Primary Care Spending in Dollars, Among All Patients, Mean (Range)

Year	Payment Type	Product Type	Service Type	PCP-A	PCP-B	PCP-C	PCP-D
2013	FFS	HMO	PCS only	17.5 (10-23)	17.9 (11-23)	18.4 (11-24)	18.9 (11-24)
2013	FFS	PPO	PCS only	15.9 (11-21)	16.4 (11-21)	16.9 (11-23)	17.3 (13-23)
2014	FFS	HMO	PCS only	16.8 (7-23)	17.2 (7-23)	17.7 (7-25)	18.1 (7-25)
2014	FFS	PPO	PCS only	15.8 (10-22)	16.3 (10-22)	16.8 (10-24)	17.1 (11-24)
2013	FFS	HMO	all	24.1 (16-35)	24.6 (16-35)	26.1 (16-37)	29.0 (16-49)
2013	FFS	PPO	all	21.5 (15-30)	22.1 (16-30)	23.9 (16-34)	26.0 (17-35)
2014	FFS	HMO	all	23.6 (12-34)	24.1 (12-34)	25.7 (13-37)	28.2 (13-38)
2014	FFS	PPO	all	21.4 (15-31)	22.0 (16-31)	23.7 (16-35)	26.1 (17-37)
2013	FFS + other	HMO	all	NA*	NA	NA	33.6 (23-55)
2013	FFS + other	PPO	all	NA	NA	NA	27.8 (18-39)
2014	FFS + other	HMO	all	NA	NA	NA	33.4 (19-43)
2014	FFS + other	PPO	all	NA	NA	NA	28.3 (18-41)

Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider; PCS, primary care services (definition 4); service type "all" corresponds to definition 1; PPO, preferred provider organization; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).

* For most insurers, non-FFS payments cannot be subdivided by PCP type.

Table D2. Primary Care Spending Among All Patients as a Percentage of Total Medical + Prescription Drug Spending, Mean (Range)

Year	Payment Type	Product Type	Service Type	PCP-A	PCP-B	PCP-C	PCP-D
2013	FFS	HMO	PCS only	4.9 (3.0-6.7)	5.0 (3.0-6.7)	5.1 (3.0-6.9)	5.2 (3.0-7.0)
2013	FFS	PPO	PCS only	4.5 (3.6-5.7)	4.7 (3.6-5.7)	4.8 (3.7-6.0)	4.9 (4.1-6.0)
2014	FFS	HMO	PCS only	4.5 (1.8-6.2)	4.6 (1.8-6.2)	4.7 (1.8-6.2)	4.8 (1.8-6.6)
2014	FFS	PPO	PCS only	4.3 (3.0-5.4)	4.4 (3.1-5.4)	4.5 (3.1-5.8)	4.6 (3.4-5.8)
2013	FFS	HMO	all	6.7 (4.4-9.0)	6.9 (4.4-9.0)	7.3 (4.4-9.6)	8.0 (4.4-12.2)
2013	FFS	PPO	all	6.2 (4.7-8.3)	6.3 (4.7-8.3)	6.8 (4.7-9.3)	7.5 (5.0-11.6)
2014	FFS	HMO	all	6.3 (3.1-9.2)	6.5 (3.1-9.2)	6.8 (3.1-9.2)	7.6 (3.1-12.5)
2014	FFS	PPO	all	5.8 (4.5-7.6)	6.0 (4.6-7.6)	6.4 (4.6-8.6)	7.1 (4.9-11.1)
2013	FFS + other	HMO	all	NA*	NA	NA	8.9 (6.4-13.7)
2013	FFS + other	PPO	all	NA	NA	NA	8.0 (5.5-12.8)
2014	FFS + other	HMO	all	NA	NA	NA	8.6 (4.8-14.2)
2014	FFS + other	PPO	all	NA	NA	NA	7.7 (5.4-12.4)

Abbreviations: FFS, fee-for-service; HMO, health maintenance organization; PCP, primary care provider; PCS, primary care services (definition 4); service type "all" corresponds to definition 1; PPO, preferred provider organization; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).
* For most insurers, non-FFS payments cannot be subdivided by PCP type.

Table D3. Rates of Primary Care Service Utilization Delivered by Each Definition of PCP Per-Member Per-Month, Mean (Range)*

Year	Product Type	PCP-A	PCP-B	PCP-C	PCP-D
2013	HMO	0.18 (0.10-0.26)	0.19 (0.10-0.26)	0.19 (0.10-0.27)	0.20 (0.10-0.27)
2013	PPO	0.16 (0.12-0.26)	0.17 (0.12-0.27)	0.18 (0.12-0.28)	0.18 (0.13-0.28)
2014	HMO	0.17 (0.06-0.25)	0.17 (0.06-0.25)	0.18 (0.06-0.26)	0.18 (0.06-0.26)
2014	PPO	0.16 (0.12-0.27)	0.16 (0.12-0.27)	0.17 (0.12-0.28)	0.17 (0.12-0.28)

Abbreviations: HMO, health maintenance organization; PCP, primary care provider; PPO, preferred provider organization; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).
* Primary care service utilization is the count of fee-for-service claims for any of the following Healthcare Common Procedure Coding System (HCPCS) codes: 9920x, 9921x, 9924x, 99339-99340, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411-99412, 99420-99429, 99495, 99496, G0402, G0438, G0439.

Table D4. Primary Care Service Utilization Delivered by Each Definition of Primary Care Provider, as a Percentage of Primary Care Utilization Delivered by All Providers (Including Subspecialists), Mean (Range)*

Year	Product Type	PCP-A	PCP-B	PCP-C	PCP-D
2013	HMO	53 (22-79)	54 (22-80)	56 (22-80)	57 (23-89)
2013	PPO	51 (22-74)	53 (23-75)	54 (23-75)	56 (24-82)
2014	HMO	52 (21-79)	53 (21-80)	55 (21-81)	56 (23-89)
2014	PPO	51 (21-74)	52 (21-74)	54 (21-75)	55 (22-82)

Abbreviations: HMO, health maintenance organization; PCP, primary care provider; PPO, preferred provider organization; PCP-A, family medicine, general internal medicine, general pediatrics, or general practice *and* designated by health insurer as a PCP; PCP-B, family medicine, general internal medicine, general pediatrics, general practice, nurse practitioner (NP), or physician assistant (PA) *and* designated by health insurer as a PCP; PCP-C, family medicine, general internal medicine, general pediatrics, general practice, NP, PA, geriatrics, adolescent medicine, or gynecology *and* designated by health insurer as a PCP; PCP-D, designated by health insurer as a PCP (no specialty requirement).

* This table uses definition 3 for primary care spending: all office visits and preventive services (e.g., immunizations), regardless of provider. This is a broader definition than used in the preceding tables. Primary care service utilization is the count of fee-for-service claims for any of the following Healthcare Common Procedure Coding System (HCPCS) codes: 9920x, 9921x, 9924x, 99339-99340, 99341-99345, 99347-99350, 99381-99387, 99391-99397, 99401-99404, 99411-99412, 99420-99429, 99495, 99496, G0402, G0438, G0439.

Notes

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[7] "At a global level, the 1978 Alma-Ata declaration defined primary care as the 'first level of contact for the population with the health care system, bridging health care as close as possible to where people live and work. It should address the main health problems in the community, providing preventive, curative and rehabilitative services' (WHO, 1978)." World Health Organization, *Primary Health Care: Report of the International Conference on Primary Health Care.* Alma-Ata, USSR, September 6-12, 1978. (Accessed May 15, 2017: http://apps.who.int/iris/bitstream/10665/39228/1/9241800011.pdf.)

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[25] These non–primary care services create the differences between spending on "primary care services only" and "all services" displayed in Figure 3.

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