



ANALYSIS OF MASSACHUSETTS

Primary Care Investment and Quality

JULY 2024

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Authors

Sarah Shaffer, MPH, Data Analyst,
Freedman HealthCare LLC

Gary Swan, MBA, MPHA, Senior
Consultant, Freedman HealthCare LLC

Contributors

Mary Jo Condon, MPPA, Principal
Consultant, Freedman HealthCare LLC

Rik Ganguly, MPH, Data Science
Consultant, Freedman HealthCare LLC

John Freedman, MD, MBA, President,
Freedman HealthCare LLC

Sely-Ann Headley Johnson, PhD., Project
Manager, Freedman HealthCare LLC

Laurie Doran, MPH, Strategic Advisor,
CEO, Advancing Health Care

Corinne Lewis, MSW, Assistant Vice
President, Delivery System Reform,
The Commonwealth Fund

Wayne Altman, MD, FAAFP, Professor
and Chair of Family Medicine, Tufts
University School of Medicine

Russell Phillips, MD, Director, Center for
Primary Care, Harvard Medical School

Sarah Lindberg, MS, Senior Data Science
Consultant, Freedman HealthCare LLC

INTRODUCTION

There is a considerable body of research demonstrating the long-term benefits of primary care. Primary care addresses most of an individual's health needs throughout their life, offers patient-centered care delivered within the context of family and community, and integrates with other healthcare sectors for efficient and effective care. According to the National Academy of Sciences, Engineering, and Medicine (NASEM), primary care ensures that all individuals have access to health services, leading to improved and more equitable health outcomes.¹ However, for decades, the United States has underinvested in primary care, spending only 5 to 7 cents of every health care dollar on it versus 13 cents in other high-income countries.^{1, 2} This underinvestment has contributed to inadequate primary care workforces, provider burnout, and suboptimal care delivery. To help address these concerns, more than a third of states have passed legislation or enacted regulations aimed at increasing the percentage of healthcare spending that goes toward primary care.³

These initiatives face a common challenge. There is relatively scarce research demonstrating that increased spending on primary care directly improves outcomes or lowers costs. A 2019 study observed that states with greater primary care investment experienced lower rates of hospitalization and emergency department visits.⁴ A separate 2019 study examining the effects of Rhode Island's 2010 affordability standards, which imposed price controls and required increased primary care spending, showed an overall reduction in TME due to lower prices.

Another 2022 study measured primary care spending for Californians with commercial coverage. For patients insured through a HMO plan, provider organizations with higher primary care spending performed better on quality and patient experience measures. These patients also had fewer hospital and emergency department visits, and lower overall spending. The study also found that if the lowest performing provider organizations had performed equal to the highest performing provider organizations, there would have been 25,000 fewer hospital stays and 89,000 fewer emergency department visits. In total, spending would have been \$2.4 billion less.⁵ Results for commercial members covered by PPO plans were more mixed.

To promote increased access to high-quality primary care, Massachusetts' is considering legislation - Primary Care for You (PC4You) - which proposes doubling primary care spending by 2029 for participating providers. It would require all commercial

payers in the Commonwealth to offer prospective, per-member per-month payments to all participating primary care practices in exchange for adopting a set of primary care transformers, such as adding integrated behavioral health, health coaches, or care management programs.

This brief employs Massachusetts' combination of recommended policy and rich data sources to analyze whether provider organizations with higher primary care investment perform better on measures of quality and spending. This study builds on the aforementioned California work and aims to show whether a similar analysis replicated in state with a different approach to primary care financing and delivery would produce similar results. It also models how these findings could inform legislative and regulatory efforts to increase primary care investment using Massachusetts' PC4You legislation as an example. Highlights of the findings are provided below. The study used Massachusetts Center for Health Information and Analysis (CHIA)'s data on commercial primary care spending, total medical expense, and care quality.

Highlights

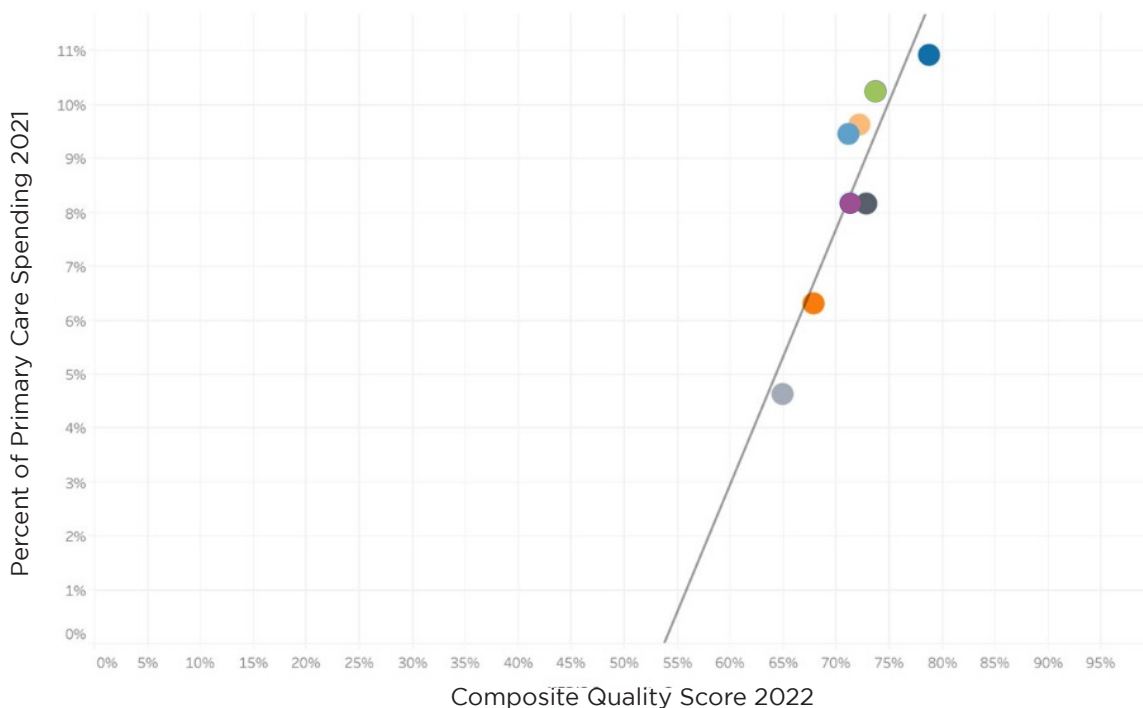
- Provider organizations with higher primary care investment as a percentage of total spending performed significantly better on standardized measures of quality and had lower spending on inpatient and outpatient hospital services.
- Provider organizations with higher primary care investment as a percentage of total spending did not have significantly higher total spending. This suggests that increased primary care spending does not lead to an increase in overall health care spending, while also improving quality of care.
- If all Massachusetts provider organizations performed as well as the top performer, nearly \$600 million per year would have been saved on inpatient and outpatient hospital services. If all provider organizations performed at the state average, more than \$200 million per year could be saved.
- Assuming robust provider participation and a commitment to reallocate new dollars to implementing the primary care transformers, modeling found the PC4You program could cover its own costs by Year 4 and potentially generate additional savings in future years.

KEY FINDINGS

Our analysis focused on the eight largest provider organizations in Massachusetts, which were the most consistently identified in the data sources. Primary care investment for these provider organizations ranged from less than 5 percent of total spending to nearly 11 percent of total spending. In our analysis, provider organizations with higher primary care investment as a percentage of total spending performed significantly better on standardized measures of quality than those with lower primary care investment, as shown in Figure 1. Quality measures included rates of breast, cervical and colorectal cancer screening, immunizations for adolescents, imaging for low back pain, and measures related to diabetes care. A full list of measures can be found in **How we Conducted this Study**.

Figure 1: Primary Care Spending and Quality

The linear regression produced an R-squared value of .84 and a P-value of .001.

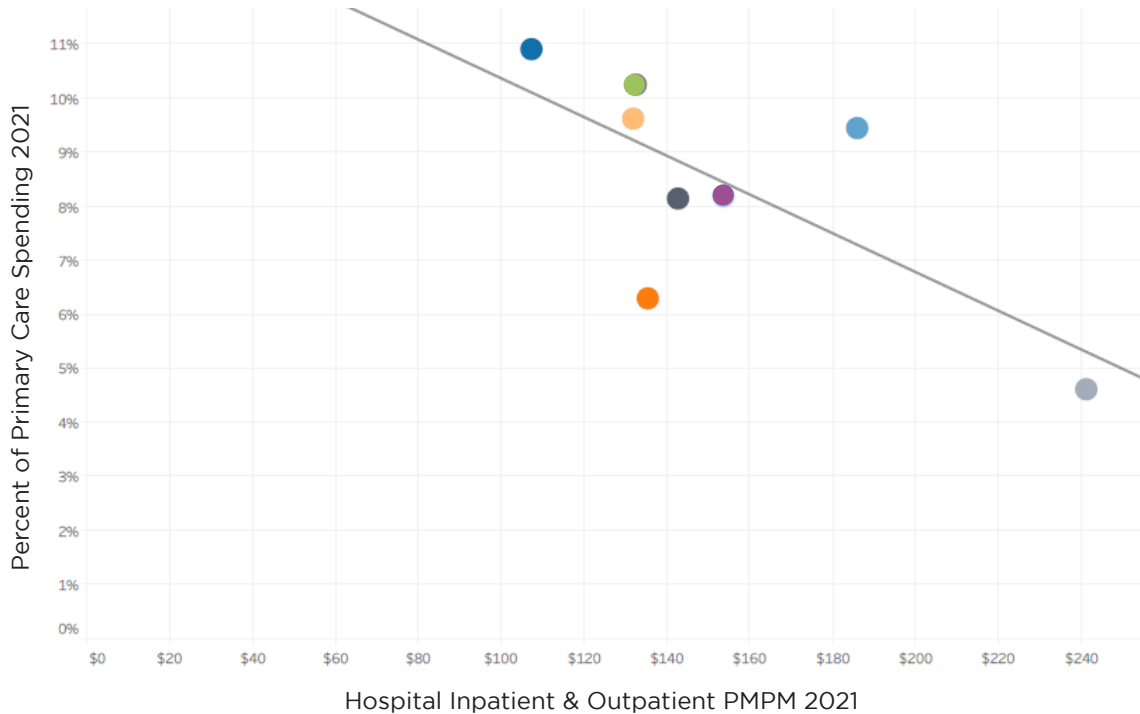


The provider organization with the highest primary care spending as a percentage of the total spend was close to 10.9 percent. This organization also achieved the highest quality composite score, nearly 78.8 percent. Conversely, the lowest two quality performers spent significantly below the state average primary care spend of 9.0 percent. The average primary care spend across these two groups was 4.6 percent and 6.3 percent respectively, about half of what the highest performer spent on a percentage basis. It was also approximately \$20 less on a per-member, per-month basis. These provider organizations also posted the lowest quality composite scores, 67.9 percent, and 64.9 percent respectively.

The provider organization with the highest primary care spending performed significantly better than the state average on six of the eight measures in the quality composite, which was developed for the analysis data collected by CHIA. The two provider organizations with the lowest primary care spending performed significantly worse than the state average on six of the measures and five of the measures respectively.

Figure 2: Primary Care and Hospital Spending

The linear regression produced an R-squared value of .50 and a P-value of .05



Further, our analysis found provider organizations with higher primary care investment as a percentage of total spend had significantly lower spending on inpatient and outpatient hospital services. For example, inpatient and outpatient hospital spending for patients who received care from the provider group with the highest primary care spend was less than half that of the provider group with the lowest. This significantly lower inpatient and outpatient hospital spending was observed regardless of the commercial payer.

The CHIA data includes only professional claims in its primary care spending calculation. CHIA defines outpatient hospital spending as all payments to hospitals for outpatient services generated from claims. This includes payments for emergency room, imaging, lab and observation services and facility fees for office visits. Its outpatient spending category excludes payments made for physician services provided on an outpatient basis that have been billed directly by a physician group practice or an individual physician.

If all Massachusetts provider organizations performed as well as the top performer, nearly \$600 million per year could be saved on inpatient and outpatient hospital services.

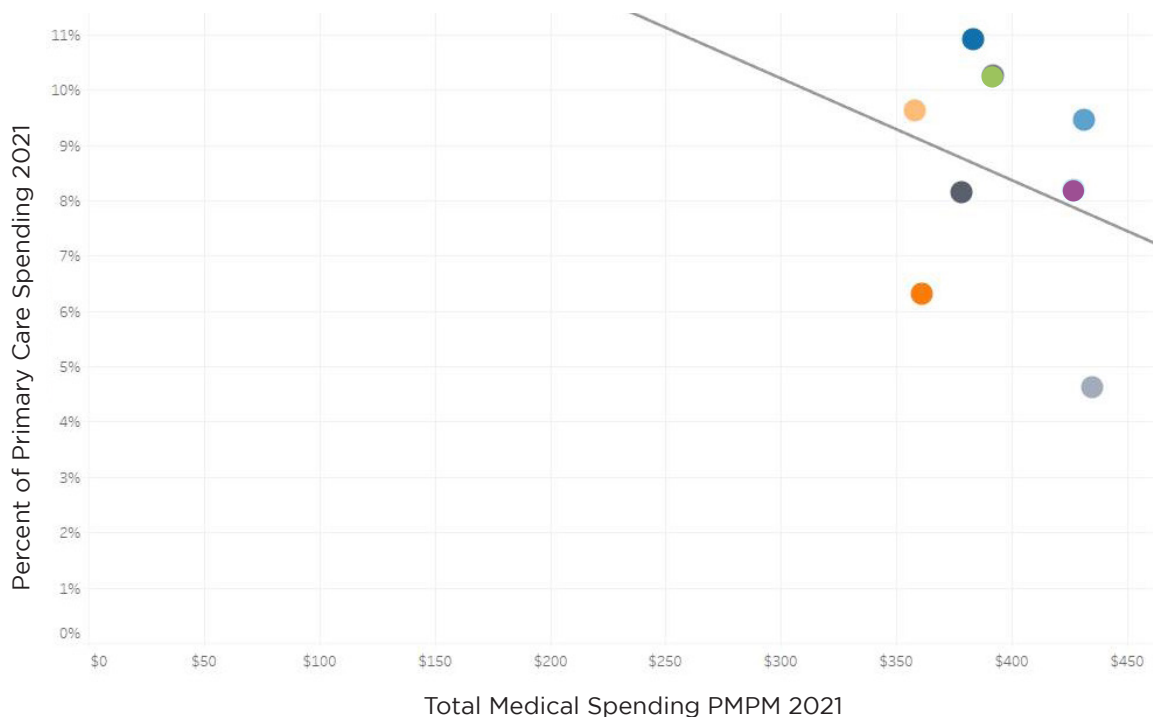
Even moving all provider organizations to the state average could save more than \$200 million per year. Massachusetts has been facing long wait times in its emergency room and overcrowded inpatient hospital facilities.⁶ The lower spending on outpatient hospital and inpatient hospital services observed in the analysis is likely driven, at least in part, by lower utilization of those services. In turn, increasing future primary care investment across provider organizations may help reduce overcrowding of hospital facilities.

Patients attributed to provider organizations with higher primary care investment as a percentage of total spending did not have significantly higher or significantly lower total medical spending (see Figure 3). The reasons for this are likely multi-factorial, including the impact of price variation. The CHIA data did not include information on service utilization or mix and therefore the analysis could not neutralize the impact of price variation in any of our analyses.

Notably, the provider organization with the highest spending on primary care and the best quality performance specializes in primary care and does not own a hospital. All other provider organizations in this study are linked to a hospital. When this top performer was removed, the relationship between increased primary care spending and inpatient and outpatient spending was no longer statistically significant. The relationship between higher primary care spending and higher quality performance remained. This shift is an important acknowledgement of the importance of maintaining variation in health systems that own hospitals versus those that do not when performing analyses. It also is a more general finding that systems that are not hospital led have generally been more responsive to efforts to manage and reduce costs.

Figure 3: Primary Care and Total Medical Spending

The linear regression produced an R-squared value of .07 and a P-value of .51



INCREASING PRIMARY CARE INVESTMENT

Provider organizations with higher primary care investment provided better quality care and their patients had lower spending on hospital services without costing more overall. These aims seem well worth pursuing and are consistent with previous findings.^{4,7}

However, previous research also finds that those benefits from primary care accrue over time.⁸ The question then becomes how to finance increased primary care spending in the short term to generate these long-term benefits. A first step is estimating the additional cost of raising all provider groups' primary care spending up to the best performing, which is well aligned with the levels envisioned in the PC4You legislation.

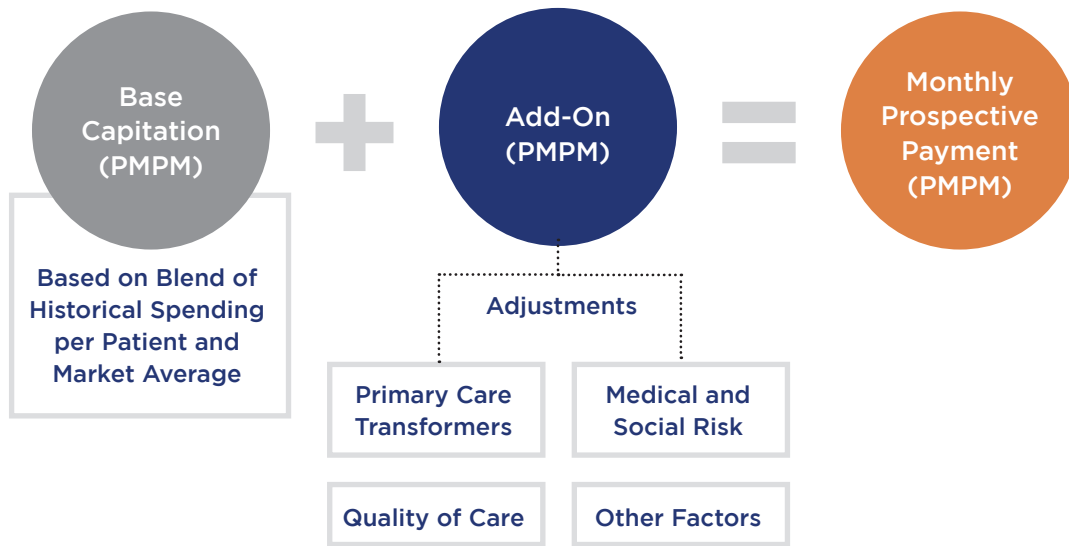
As discussed in the introduction, PC4You envisions doubling core primary care investment for participating providers and improving care delivery and equity through the adoption of primary care “transformers” (see Figure 3).

Figure 4: Massachusetts PC4You Primary Care Transformers



PC4You would establish two per-member, per-month (PMPM) payments, a base capitation payment and an “add-on payment” (see Figure 5). The base capitation payment typically would reflect what providers would otherwise receive under a fee-for-service system for the most common primary care services. The “add-on payment” would be an additional payment that reflects the number and type of transformers adopted, the quality of care provided, and the medical and social risk of the patient population. At the highest level of participation and performance, the “add-on payment” aims to match the base capitation, doubling primary care revenue to the provider participant. Primary care providers would continue to receive fee-for-service reimbursement for services not covered under payment such as certain procedures and vaccinations.

Figure 5: Massachusetts PC4You Payment Model



Our analysis estimated the five-year cost of implementing the PC4You model for the Massachusetts commercial market. This modeling required making certain assumptions regarding member and provider participation, provider engagement, and provider performance. The analysis utilized data from CHIA to estimate factors such as current levels of primary care spend, total cost of care, and membership over the five-year period. Savings were estimated using research examples evaluating patient-centered medical home savings and models, including Oregon’s rollout of the Patient Centered Primary Care Home (PCPCH) program. In this instance, PCPCH participants achieved per-person savings of 3.5% in the first year and increased savings to 8.6% by the third year. PC4You conservatively estimated total savings in a comparable fashion and projected these savings throughout the implementation period.^{9,5} More information regarding these assumptions can be found in How we Conducted this Study.

Based on these assumptions, the model estimated an annual program cost of just under \$70 million in year one to just over \$220 million in year five as participation ramps up. The model estimated the total five-year cost at \$766 million.

In line with the primary care investment analysis presented in this brief and similar previous research, the model estimated that a portion of these “savings” would be reallocated to primary care from inpatient and outpatient hospital spending.

After only four years, the model projects this reallocation will fully cover the cost of the program and potentially generate additional savings. This projected reallocation reduced the total five-year net cost to \$128 million.

DISCUSSION

There is a common question in states seeking to increase primary care investment, “How will the increased costs be funded before the benefits of more robust primary care are fully realized?” The table below offers a menu of funding source options based on the experience of Massachusetts and other states (see Table 1). It shows the portion of each funding source that would be needed if that funding source was the sole funding source for PC4You. The table also provides tradeoffs policymakers should consider in evaluating these options. Note all options would require legislative action.

Experience from other states suggests policymakers should focus on sustainable and reliable funding mechanisms. Ideally, a policy solution would layer multiple mechanisms to mitigate the impact on any one sector. As the program begins to generate savings for the state, the level of investment from any of these funding sources may decrease.

Table 1: Sources of Funding

Source	Definition	Estimated Percent Investment if Sole Funding Source*	Considerations and Trade Offs
Assess insurer reserves over 600 percent of risk-based capital	Insurers maintain excess capital based on the size and risk of their products. This approach would involve collecting a percentage of reserves that exceed 600 percent.	9 percent to 28.3 percent	Reserves will fluctuate each year, making this source less reliable.
Assess insurer net profits	After considering costs borne by the health insurer, this approach would take a percentage of health insurer profits.	5.5 percent to 21.2 percent	Net profit will fluctuate each year, making this source less reliable.
Assess reported hospital assets	Hospitals often have assets that include cash and investments. This approach would capture a small percentage of those assets.	0.1 percent	There is no clear standard for identifying excess assets or reserves. A review would need to be conducted and a standard would need to be set.
Limit on price growth for hospital services	This approach would cap price increases for hospital services and redirect the savings.	8.2 percent to 32 percent	Similar to approaches used in Delaware and Rhode Island.
Assessment on insurer hospital payments	This approach would collect a moderate percentage of insurer payments to hospitals.	0.1 percent to 0.6 percent	Similar to the approach used to fund the Massachusetts health care safety net where an insurer surcharge is imposed.

**The range reflects variation across model scenarios. As reported in 2022 filings for MA domiciled plans supporting Commercial business. Model assumes 2022 baseline reserve levels decrease with investments.*

CONSIDERATIONS FOR FUTURE RESEARCH



Evaluate utilization.

When examining the impact of increased primary care spending on total spending, accounting for the various confounding variables that influence spending is difficult. For example, differences in incentive models at both the organizational and provider levels may influence overall costs. An alternative approach to evaluating increased primary care spend would be to examine changes in service utilization across different care settings. This utilization analysis would more closely link where care is provided, primary care or otherwise, with changes in total spending.



Evaluate the role of price.

One factor not examined in this analysis is the impact of price on primary care spending and total spending. Different provider organizations establish different contract relationships and incentive programs and may prioritize negotiations that focus on non-primary care aspects of their organization. Analyzing how price influences the percentage of primary care spend and overall spending would further strengthen the results of this analysis.



Expand the analysis to other states.

This analysis focuses on a single state and a relatively small number of major provider organizations. An opportunity for further research would be to replicate this analysis in other states. Continuing to conduct this research would add credibility to the growing body of research on this topic and further confirm the relationships identified here.



Examine primary care organizations in greater detail.

By focusing on a targeted cohort of provider organizations and incorporating organizational structure components and payment methods into the assessment, researchers could gain a better understanding of both the impacts of primary care on total spending and how each factor contributes to overall outcomes. For example, understanding and quantifying the impact of internal provider incentive models, primary care financing, team structure, and technical capabilities would be helpful.

HOW WE CONDUCTED THIS STUDY

Freedman HealthCare used three different datasets from CHIA to conduct this analysis, representing the three different dimensions on which provider organizations were compared:

- Focus on Provider Quality (Quality)
- Primary Care and Behavioral Health Care Expenditures (PCBH)
- Total Medical Expense and Alternative Payment Methods Data (TME)

To perform our analyses, we created a crosswalk across these different datasets and organized providers into comparable units of analysis. We used the provider information in the 2022 CHIA Quality dataset as an anchor. Through this process, we identified 11 “Provider Organizations” and a twelfth category of “Independent Medical Groups.” We determined eight Provider Organizations had sufficient attributed patients to include in the analysis.

Table 2: List of Provider Organizations

- | | |
|---|---|
| <ul style="list-style-type: none">• Atrius Health• Baycare Health Partners• Berkshire Health Systems• Beth Israel Lahey Health | <ul style="list-style-type: none">• Massachusetts General Physicians Organization• Steward Health Care• Tufts Medicine• UMass Memorial Health Care |
|---|---|

We used various statistical methods to assess whether the provider organization’s results were statistically better or worse than the state average. We used either the chi-square goodness-of-fit test, the one-sample t-test, or confidence intervals depending on the dataset characteristics and the measure’s sensitivity. For example, utilizing a chi-square analysis for the primary care spending measure was identified as inappropriate since the chi-square analyses traditionally are applied to proportions of a common population. We used the state average as the comparator instead of the average of the eight groups to enhance the statistical power of the analysis. The state average was defined as the average result across all providers included in the dataset, weighted by each group and network’s population size. We also developed regression analyses to better understand whether higher primary care investment as a percentage of total medical spending was associated with differences in care quality or spending.

Calculating Primary Care Investment: CHIA uses its PCBH supplemental template completed by health plans to collect and calculate claims and non-claims primary care spending for Massachusetts. CHIA collects data from commercial, Medicaid MCO/ACO-A, and Medicare Advantage plans. The analysis included 2021 spending for commercial members, the only year of primary care spend data available by provider group at the time of the analysis. Commercial data included self-insured and fully insured members.¹¹ We analyzed primary care spending on a per member, per month basis and as a percentage of total spending by provider organization. We focused our analyses on total primary care spending as a percentage of medical expense. This measure included the most comprehensive view of primary care spend. Also, using the percent of spending approach blurred some impact of provider fee schedule variation that was observed in the per member, per month results.

Association of Primary Care Investment and Quality: CHIA partners with Massachusetts Health Quality Partners (MHQP) to publish provider organization performance on a selected set of HEDIS clinical quality measures for the commercial market in its Quality dataset. We analyzed data across three performance years

2018, 2020 and 2022 and created two straight-average composites to allow for equal weighting of measures across provider groups. The first composite included 2022 data. The second composite included data from 2018, 2020 and 2022. We focused the analysis on the 2022 individual measure results and the 2022 composite. Findings were compared to the three-year individual measure results and the three-year composite to check for consistency. We selected measures based on their relevance to core primary care functions and data availability.

Table 3: Measures Included in Analysis

<ul style="list-style-type: none"> • Asthma Medication Ratio • Breast Cancer Screening • Cervical Cancer Screening* • Colorectal Cancer Screening* • Comprehensive Diabetes Care- HbA1c Testing* • Comprehensive Diabetes Care- Retinal Eye Exam* 	<ul style="list-style-type: none"> • Eye Exam for Patients with Diabetes • Immunizations for Adolescents (Combo 2)* • Use of Imaging Studies for Low Back Pain • Chlamydia Screening in Women Ages 16 to 24
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**Health plans could choose to report these measures using the “Hybrid Method,” a combination of claims data and clinical chart information. The use of the adjusted scores was consistent with CHIA’s approach; Note: Due to reporting changes, Comprehensive Diabetes Care- HbA1c Testing and Retinal Eye Exam were reported in 2018 and 2020, but not in 2022. Conversely, the measure for Eye Exam for Patients with Diabetes was reported in 2022, but not in 2018 or 2020. Chlamydia Screening in Women Ages 16 to 24 is the weighted average of Chlamydia Screening in Women Ages 16 to 20 and Chlamydia Screening in Women Ages 20 to 24; See Appendix A for a complete list of measures.*

Association of Primary Care Investment and Cost: CHIA uses its TME supplemental template completed by health plans to collect and calculate total healthcare spending for Massachusetts. The analysis used commercial 2021 total spending data for consistency with the PCBH data. Like the PCBH dataset, commercial data in the TME dataset includes self-insured and fully insured members. The TME dataset includes unadjusted and risk-adjusted spending information. We also licensed access to provider-level spending data by service category from CHIA. This additional data allowed us to isolate differences in spending on inpatient and outpatient hospital spending. Note we did not risk adjust inpatient and outpatient spending as the risk adjustment methodology is designed to predict differences in total healthcare costs not in specific spending categories.

Patient Experience: We also licensed the 2023 MHQP Patient Experience Survey (PES) results. We excluded this data from our analysis due to insufficient levels of variation in patient experience at the provider organization level.

PC4You Cost Assumptions: The model anticipates 60 percent participation from large provider groups throughout the program period, with all other provider groups gradually joining to reach 60 percent by the fourth year. Large providers are expected to invest in more of the transformers earlier in the program and in turn, receive higher “add-on payments” sooner. Since base capitation payments would be based on a blend of historical per-member spending and the market average, these provider groups may receive slightly less through the base capitation than they would have otherwise received through fee-for-service. As providers improve performance, they will receive higher “add-on payments.”

Acknowledgement

Supported by the Commonwealth Fund, a national, private foundation based in New York City that supports independent research on health care issues and makes grants to improve health care practice and policy. The views presented here are those of the author and not necessarily those of the Commonwealth Fund, its directors, officers, or staff.

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Questions? Contact Gary Swan, Senior Consultant, Freedman HealthCare LLC, at gswan@freedmanhealthcare.com