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# Trends in the Supply, Utilization, and Payment for Primary Care Services in New Jersey FamilyCare before and after ACA Medicaid Expansion

Derek DeLia, Ph.D.
Jose Nova, M.S.
David Goldin, M.A.

**February 2019**

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# Acknowledgments

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## Executive Summary

Medicaid expansion under the Affordable Care Act (ACA) has raised questions about whether and how the program will be able to meet the rising demand for demand for services from new enrollees. The supply of primary care services is of particular concern. Numerous reports have warned about national shortages in the supply of primary care physicians overall and many practicing physicians do not participate in Medicaid.

This report examines trends in the supply of primary care services to NJ FamilyCare – which includes Medicaid and the Children's Health Insurance Program (CHIP) – during a time of rising enrollment and multiple changes in primary care payment policy at the federal and state levels. It uses data from the NJ Medicaid Management Information system (MMIS) from 2012 through the first half of 2017 to document trends in key variables within regions that approximate primary care service areas. Variables examined include primary care visits, number of providers, use of midlevel providers (e.g., physician assistants, nurse practitioners), payments for services (measured by a primary care price index that preserves confidentiality of proprietary pricing information), and the market concentration of Medicaid HMOs and primary care providers within regions. Trends in treat-and-release emergency department (ED) visits, which are often used as a substitute mode of care by patients who face difficulty accessing primary care, are also examined.

The analyses center on primary care service areas, which are designated by 3-digit zip codes and weighted by NJ FamilyCare enrollment. For each service area in each period, a set of core primary care providers is defined based on the smallest number of unique primary care providers that accounts for at least 75% of all primary care visits. To minimize the influence of outlier zip codes, the report emphasizes median values of key variables. (Major findings are not sensitive to weighting, mean versus median values, or the use of 5-digit instead of 3-digit zip codes.)

The median number of primary care visits as well as primary care providers grew after ACA Medicaid expansion in 2014. The median number of primary care providers reached their highest level overall in 2017-1. Initially in 2014, the number of providers per 1,000 NJ

FamilyCare enrollees fell and the number visits per provider increased. But in the later study periods, these numbers returned to pre-ACA levels. Median primary care visits per 1,000 enrollees dropped after expansion (from 1,029 in 2013-2 to 780 in 2014-1). They subsequently increased and then fluctuated but exhibited a slight downward trend reaching their lowest level of 763 in 2017-1. The decline in primary care visits per enrollee appears to be driven by a decline in the proportion of enrollees who have at least one such visit (from 53.6% in 2013-2 43.9% in 2017-1).

During the post-ACA period, there was a large increase in the percentage of primary care visits involving midlevel providers (e.g., median of 1.7% in 2014-1 versus 5.4% in 2017-1). In 2014-1, there was a one-time sustained increase in total ED visits but no change in ED visits per 1,000 enrollees.

Throughout the study period, the primary care price index exhibited a generally upward trend across all primary care service areas. The median value of the price index rose from 106 to 147 during the study period (relative to the baseline value set to 100 for all of NJ FamilyCare in 2012-1). Thus, for the median zip code in 2017-1, the general price level for primary care services was 47% higher than the statewide price level in 2012-1. There were increases in the price index in 2013 and 2014 that coincide with the federal Medicaid Primary Care Payment Increase. The index declined in 2015 when the federally-funded payment increase was discontinued in New Jersey. However, the price index values increased in 2016 and again in 2017 as New Jersey set its own primary care payment increases through Medicaid HMO contract amendments.

Throughout the study period, the concentration of enrollees within health plans remained high with a Herfindahl-Hirschman Index (HHI) value of approximately 1/3, which indicates a highly concentrated market. In contrast, market concentration among primary care providers remained low at approximately 0.01 indicating an un-concentrated market. Although neither market concentration measure changed significantly, within each half-year, greater market concentration at the plan level (i.e., higher HHI) was associated with lower values of the primary care price index. For example, a simple linear regression analysis for 2017-1 produced an $R^2$ value of 0.55, which means that 55% of the variation in the price index across zip codes is associated with variation in health plan HHI. There was no cross-sectional association between the price index and primary care provider HHI in any half-year. Throughout the study period, there was no change in average patient risk scores and duration of NJ FamilyCare enrollment, indicating that observed trends in key study variables are not driven by these potential confounders.

The analysis in this report shows that since the ACA Medicaid expansion, the number of professionals providing primary care services to NJ FamilyCare patients has grown with the rising number of enrollees using these visits. Growth in the use of midlevel providers also appears to have been important in expanding the supply of primary care services. Rising

primary care visits have not become concentrated among a small subset of Medicaid providers and there appears to be no increase in ED use beyond what would be expected from rising enrollment (i.e., use per enrollee remained stable). Despite the growth in total primary care providers and visits, there was a slight decrease in primary care visits per enrollee post-expansion. This decline coincided with a general reduction in the percentage of enrollees with at least one primary care visit and not necessarily a reduction in total visits among those who have already engaged in primary care. The study findings are not driven by patient acuity or time in which individuals remain enrolled in NJ FamilyCare, both of which remained unchanged overall during the study period.

Although this analysis does not include causal modeling, the rising trend in payments for primary care services likely played an important role in attracting primary care providers to meet the growing demand for visits. The growth in payments occurred primarily due to federal and state policy changes designed to ensure an adequate supply of primary care services to Medicaid patients. The analysis also suggests that the concentration of Medicaid HMO enrollment, and the associated purchasing power, also plays a significant role in the level of payments made to primary care providers in NJ FamilyCare. Thus, the balance of bargaining power between plans and providers presents another consideration for ensuring that prices are adequate for primary care providers to serve Medicaid patients in specific service areas.

This report provides a high-level descriptive analysis of recent trends in measures that are important to Medicaid policymaking. It shows that overall the supply of primary care has mostly risen to meet growing demand from newly enrolled NJ Family Care patients, although a growing number of individuals are not using any primary care. The report also highlights policy considerations around the determinants and consequences of variation in prices paid for primary care delivery. Future analysis will focus on primary care availability and utilization within important subgroups of Medicaid enrollees such as children, the Aged, Blind, & Disabled, and homeless individuals.

# Trends in the Supply, Utilization, and Payment for Primary Care Services in New Jersey FamilyCare before and after ACA Medicaid Expansion

**Derek DeLia, Ph.D., Jose Nova, M.S., and David Goldin, M.A.**

## Introduction

Since the Affordable Care Act (ACA) expanded eligibility, enrollment in Medicaid and the Children's Health Insurance Program (CHIP) has grown substantially. In New Jersey, NJ FamilyCare enrollment (which includes Medicaid and CHIP combined) grew by 38.0% from 1.28 million in 2013 to 1.77 million in 2017 (CMS 2019). This growth includes newly eligible enrollees as well as individuals who were previously eligible but not enrolled. New enrollment is expected to increase the demand for health services from Medicaid/CHIP providers but it remains unclear how the supply of services is responding to growing demand. A recent review of studies on the early years of Medicaid expansion finds mixed results about how well the supply of Medicaid providers has responded to meet the growing demand (Antonisse et al. 2018). Some studies show greater access to care, even in primary care shortage areas, while others show longer wait times for appointments.

Currently, this evidence is limited by several factors. First, it is based primarily on broad self-reported measures, which do not provide sufficient detail about how access to care is affected in local service areas where capacity to treat patients varies. Second, current evidence is restricted to the first year or two of the expansion, leaving it unknown whether early effects have been sustained. Third, current evidence does not assess how providers have adjusted the supply of services in response to greater demand. For example, it remains unknown whether more providers are participating in Medicaid or more visits are being concentrated within the same or shrinking number of providers.

The supply of primary care services is of particular concern. Numerous reports have warned about national shortages in the supply of primary care physicians (AAMC 2011; ACP 2006). Supply concerns are even greater for the Medicaid program, since physician payments rates in Medicaid programs nationwide have been lower than rates paid by Medicare and private insurance. Relatively lower physician payment, along with other factors such as administrative burdens and high patient acuity, have limited providers' willingness to serve Medicaid patients (Cunningham and May 2006; Norton and Zuckerman 2000; White 2012). The level of payment is an important factor, as prior analysis of Medicaid fee-for-service (FFS) rates

has shown that higher physician fees can increase patient access as least as much as coverage expansions alone (White 2012). Less is known about the level and impact of physician fees in Medicaid managed care where pricing information is proprietary and not publicly disclosed. Since fees are negotiated between medical groups and health plans, physician payment in Medicaid managed care is likely to exhibit more variation than FFS rates across plans, providers, geography, and time. This issue is especially important in New Jersey where more than 90% of NJ FamilyCare enrollees are in managed care plans.

In response to concerns about the adequacy of primary care supply for Medicaid patients, the ACA authorized the Medicaid Primary Care Payment Increase, which provided federal funds to the states to increase Medicaid payments for primary care services to the level of the Medicare fee schedule in 2013 and 2014. This increase affected payments in Medicaid managed care as well as FFS. Research on the ACA fee increase along with studies on interstate variation in Medicaid physician fees have found that higher fees are associated with a variety of positive effects related to healthcare access and health outcomes. These include improved appointment availability (Polsky et al. 2015; Sharma et al. 2018), provider acceptance of Medicaid patients (Decker 2012), having a usual source of care (Shen and Zuckerman 2005), fewer missed appointments by patients (Callison and Nguyen 2018; Decker 2009), improved prenatal and infant health outcomes (Gray 2001; Sonchak 2015), improved behavioral health outcomes (Maclean et al. 2018). Higher physician fees also improve the likelihood of patients' reporting that their physicians "listened and explained things" (Shen and Zuckerman 2005). (One study, however, found that the ACA fee increase did not increase physician participation in Medicaid (Decker 2018).

After 2014, some states used their own funds to maintain the ACA Medicaid payment increase. Although New Jersey did not do so, the state later implemented its own initiatives to increase payment for primary care services by amending its contract with Medicaid health maintenance organizations (HMOs). Since nearly all NJ FamilyCare enrollees are in a Medicaid HMO, amendments to the plan contract affect nearly all enrollees. Beginning January 1, 2016, the Division of Medical Assistance and Health Services (DMAHS), which oversees the NJ FamilyCare program, allocated additional funds to Medicaid HMO capitation payments with the requirement that the additional funds be used "to encourage new and continued provider participation in the Medicaid/NJ FamilyCare program while strengthening recipients' access to primary care physician services, preventative care physician services and postpartum physician services (NJDHS, DMAHS 2018)." Medicaid HMOs are given considerable flexibility in how they use these funds to achieve the stated goals (e.g., procedure code-specific payment increases, quality-based incentives) subject to review and approval by DMAHS.

Beginning January 1, 2017, the Medicaid HMO contract was amended to implement the New Jersey Medicaid Access to Physician Services Program, which was designed "to preserve and promote access to medical services for Medicaid clients and underserved populations

through setting minimum rates for professional services provided by qualified physicians and non-physician professionals affiliated with schools of medicine or dentistry (NJDHS, DMAHS 2018)." The amendment defines a set of "Qualified Practitioners" and a fee schedule with minimum payments required for specified services delivered by these practitioners. (Medicaid HMOs may pay amounts greater than the minimum.)

This report examines trends in the supply of primary care services to NJ FamilyCare during a time of rising enrollment and multiple changes in primary care payment policy. It uses data from 2012 through the first half of 2017 to document trends in key variables within regions that approximate primary care service areas. Variables examined include primary care visits, number of providers, use of midlevel providers (e.g., physician assistants, nurse practitioners), payments for services (measured by a primary care price index), and the market concentration of Medicaid HMOs and primary care providers within regions.

# Methods

## *Data and Analysis*

Study data come from the NJ Medicaid Management Information System (NJMMIS), which includes all adjudicated Medicaid fee-for-service claims and managed care encounter records. The study includes records with service dates from January 1, 2012 through June 30, 2017 grouped into half-year intervals. This grouping enables the identification of gradual transition patterns and allows the inclusion of the most recent information available. This database includes actual prices paid to primary care providers by Medicaid HMOs. Although the prices paid to specific providers for specific services are confidential, the analysis below is based on a primary care price index, which protects against disclosure of confidential information while enabling analysis of price variation across regions and over time. All analyses are based on graphical displays and descriptive statistics for the variables described below. The analysis includes individuals who were program eligible before the expansion as well as CHIP enrollees, since these individuals receive services from an overlapping pool of participating providers. In other words, if the primary care provider pool does not increase to meet rising demand from the expansion, then previously eligible individuals may find it more difficult to access primary care, as providers spread their resources across a larger patient population.

## *Variable Construction*

We use 3-digit zip codes to approximate primary care service areas (PCSAs). For each zip code in each period, a set of core primary care providers is defined based on the smallest number of unique primary care providers that accounts for at least 75% of all primary care visits (defined below). Unique providers (who may practice in the same office or facility) are identified by National Provider Identifier (NPI). Although algorithms exist for creating empirically derived

PCSAs, when applied to a densely populated state like New Jersey, such algorithms place most residents in PCSAs that fail to capture the majority of primary care destinations for PCSA residents (Goodman et al. 2003). Since 3-digit zip codes can overestimate the size of PCSAs, we repeat the analysis using 5-digit zip codes, which typically generate underestimates. When calculating descriptive statistics, each zip code is weighted by total Medicaid enrollment to provide a population-based representation of primary care utilization and supply. To minimize the influence of outlier zip codes, we report zip code level median values of key variables. Multiple sensitivity analyses, found in Appendix A, show that the *trends* in key variables are not sensitive to weighting or 3- versus 5-digit zip codes (although *levels* of some variables such as total visits are higher when population weighted and in 3- versus 5-digit zip codes).

Primary care visits are defined as ambulatory visits for evaluation and management (E/M) identified in HCPCS/CPT codes as office/other outpatient services (99201-99215), office/other outpatient consultations (99241-99245), or preventive medicine services (99381-99397). Although specialists sometimes provide primary care services, the focus of this analysis is on the supply of primary care providers specifically. Thus, E/M visits are included in the analysis only if that they were delivered by a provider specializing in primary care (e.g., family medicine, pediatrics) and in an ambulatory care setting. Specific inclusion criteria are listed in Appendix B. We contrast trends in primary care visits with trends in treat-and-release emergency department (ED) visits, which are often used as a substitute mode of care by patients who face difficulty accessing primary care. Treat-and-release ED visits are defined as hospital outpatient claims with revenue codes 450-459 indicating "emergency room" services. Finally, visits involving midlevel providers are defined as visits where part of the claim or encounter specified involvement of a "nurse practitioner", "advanced practice nurse", or "midlevel provider", which includes physician assistants.

To examine primary care price variation, a primary care price index is calculated based on the core providers for each zip code. Within each zip code in each year, all of the E/M services and associated prices paid to each provider are assembled. The E/M services are used as quantity weights to create a price index based on the Fisher Ideal formula (Dorfman, Leaver, and Lent 2017). This formula is defined as the geometric mean of the Laspeyres formula, which weights prices using base year quantities (like the well-known Consumer Price Index), and the Paasche formula, which weights prices using current year quantities. The combined formula is considered "ideal" because it corrects for the upward bias in the Laspeyres formula and downward bias in the Paasche formula (Dorfman, Leaver, and Lent 2017). The price index is constructed so that the value for all of New Jersey in the first half of 2012 is 100. For a given zip code in a given half-year, a value above 100 indicates a general price increase, while a value below 100 indicates a general price decrease. This method provides a summary of how prices paid for primary care services vary over small market areas and time without revealing any proprietary pricing information used to create the index.

Each 3-digit zip code is characterized by a variety of local market characteristics. The first is provider concentration measured by the Herfindahl-Hirschman Index (HHI), which is the sum of the squares of the market shares of primary care visits for each of the core primary care providers. Since individual providers in the same practice bargain as a single business unit, Group NPI Billing (rather than the individual NPI used for most of the analysis) is used for market share calculations. The HHI, which is commonly used in anti-trust analyses, ranges from 0 indicating a highly dispersed or competitive market to 1 indicating a perfectly concentrated, or monopoly, market. According to guidelines by the Department of Justice and Federal Trade Commission, a market is considered un-concentrated if the HHI is less than 0.15, moderately concentrated if the HHI is between 0.15 & 0.25, and highly concentrated if the HHI exceeds 0.25 (U.S. Department of Justice and the Federal Trade Commission 2010).

Higher values of the provider HHI are expected to be associated with higher values of the primary care price index, all else equal. Similarly, health plan concentration is measured by an HHI based on the shares of Medicaid enrollment in each of the health plans. Higher values of the plan HHI, indicating significant monopsony (i.e., buying) power, are expected to be associated with lower values of the primary care price index, all else equal. For analytic purposes, Medicaid fee-for-service is treated the same as a health plan, although, as stated earlier, nearly all enrollees are in a managed care plan.

Although the study is largely descriptive and does not seek to determine causal relationships, trends are tabulated for two additional variables that would clearly confound the interpretations of trends in the key variables above. The first is average number of days enrolled among NJ FamilyCare enrollees in each zip code, as greater enrollment duration is expected to increase the total use of primary care visits. The second is average patient risk score within the zip code, which is calculated using the Chronic Illness and Disability Payment System (CDPS) (Kronick et al. 2000). Greater average risk scores are expected to increase the use the total use of primary care visits.

## Findings

Median zip code-level primary care visits grew after 2014 with rising Medicaid enrollment (Figure 1, line & right axis). Median visits reached their highest level of the study period at 146,971 in 2016-2 and then fell to 131,013 in 2017-1. Although visit volumes tended to be higher in the second half of each year, volume levels were clearly higher in the post-ACA period. The median number of primary care providers also rose in the post-ACA period, reaching their highest level in 2017-1 at 270 (Figure 1, bars & left axis).
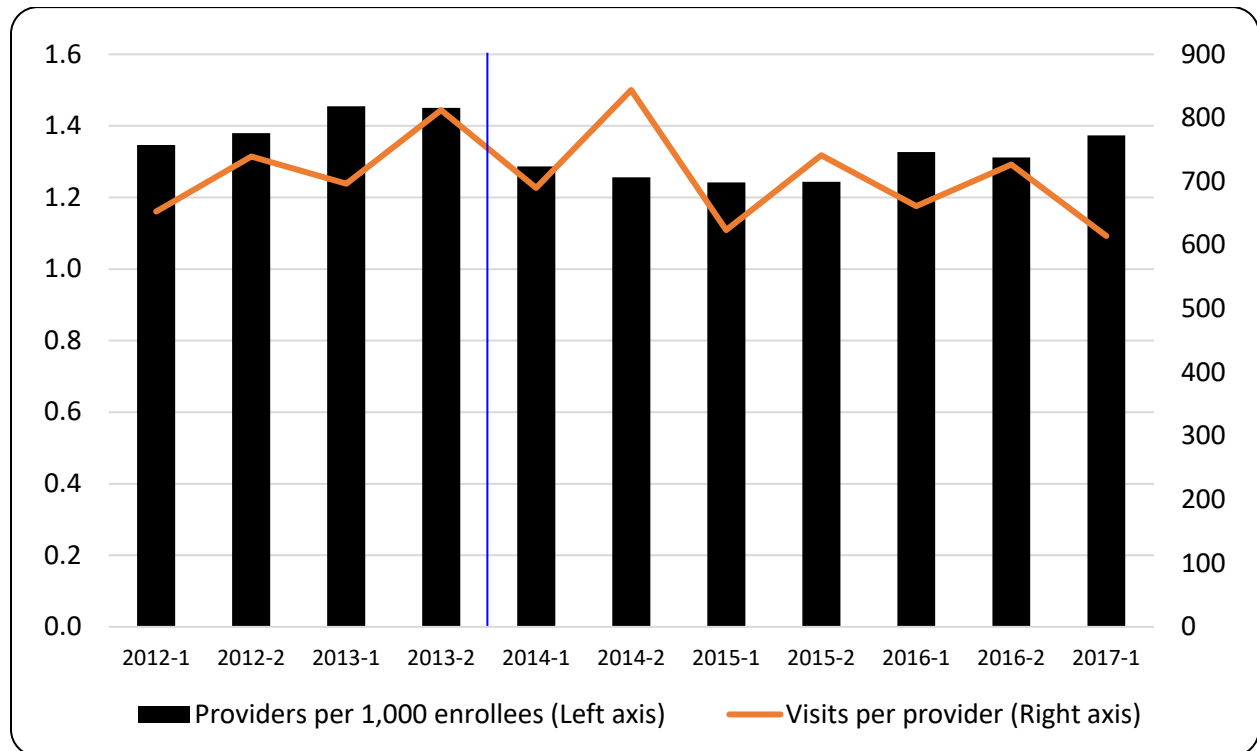
**Figure 1: Trends in NJ FamilyCare Primary Care Visits and Providers before and after ACA Medicaid Expansion**
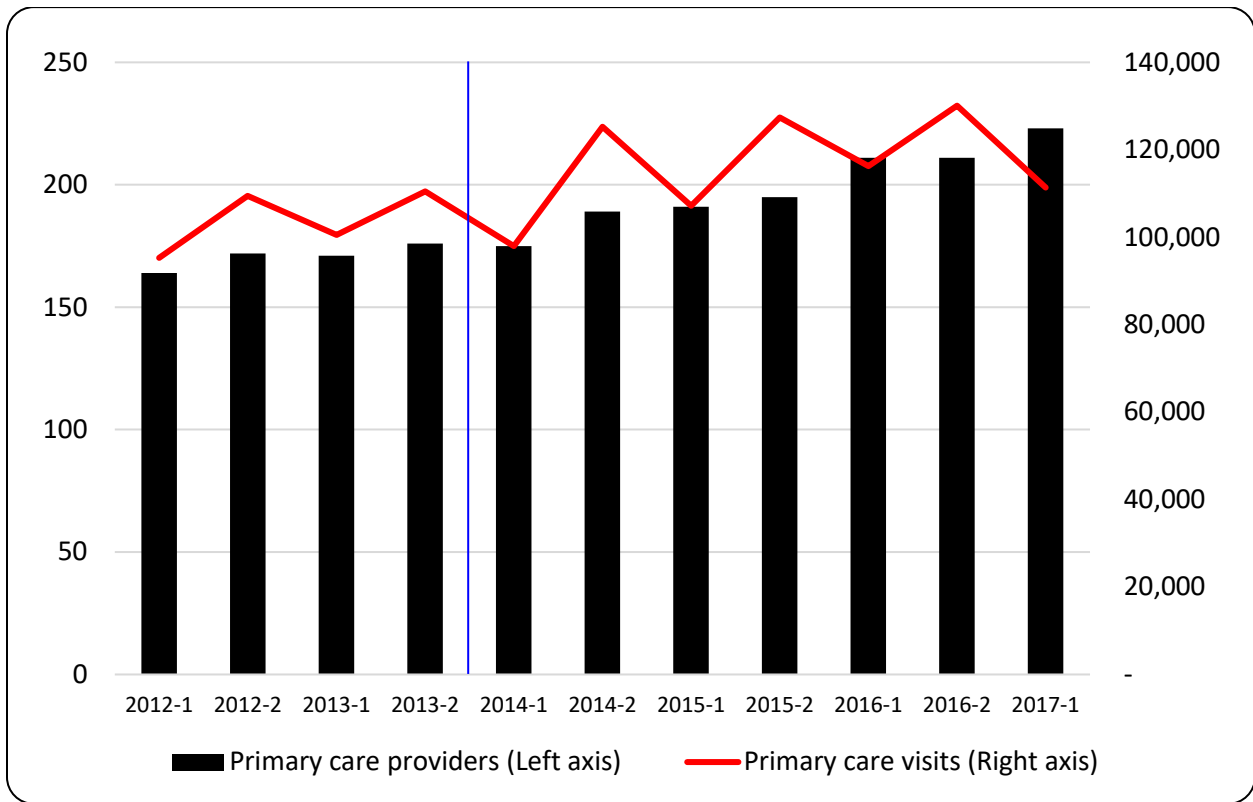


Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes weighted by NJ FamilyCare enrollment. Numbers shown are median levels.

The number of primary care providers per 1,000 enrollees declined in 2014 but rose and fluctuated thereafter (Figure 2, bars & left axis). By the first half of 2017, this number was comparable to pre-ACA levels at 1.65 providers per 1,000 enrollees. The number of visits per provider spiked in the second half of 2014 but then fell to pre-ACA levels thereafter, standing at 581 visits per provider in 2017-1 (Figure 2, line & right axis).

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**Figure 2: Trends in NJ FamilyCare Primary Care Providers per 1,000 Enrollees and Primary Care Visits per Provider before and after ACA Medicaid Expansion**
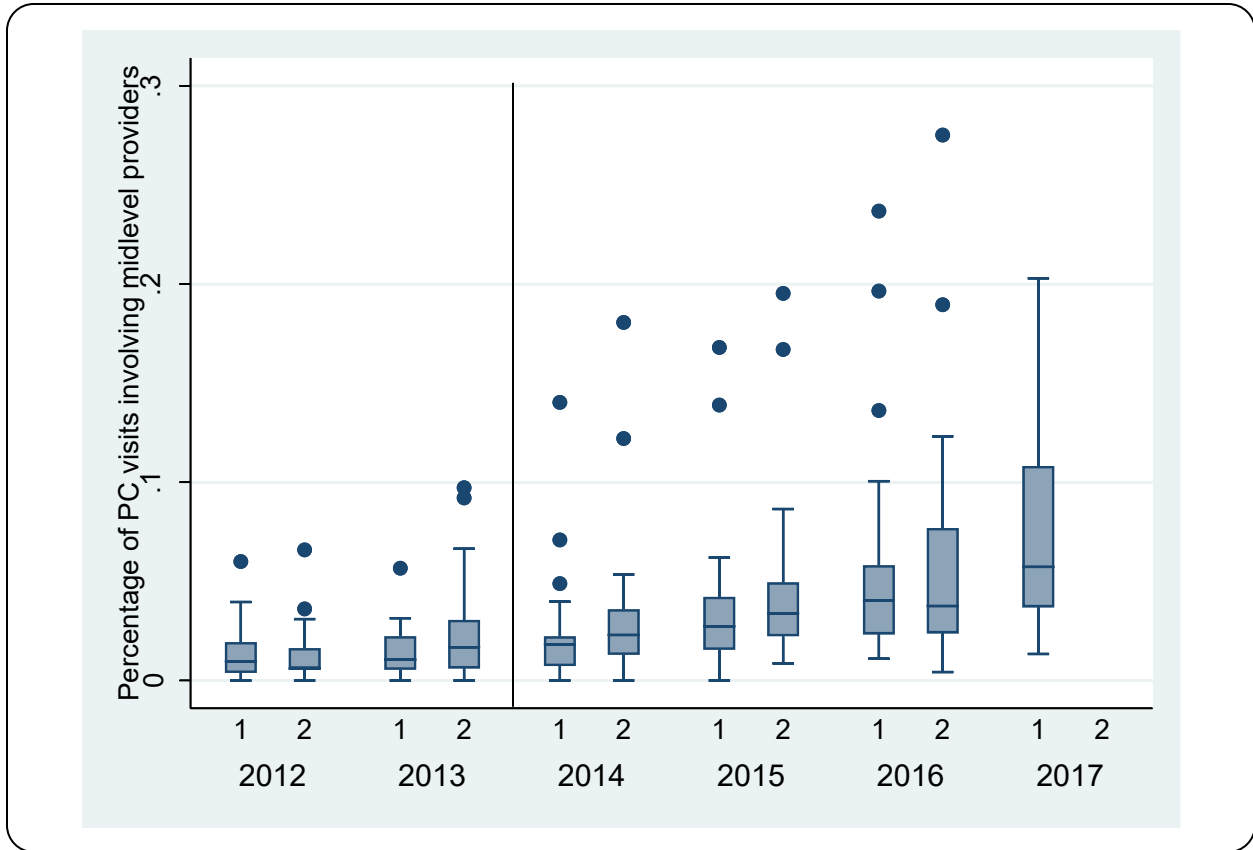


Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes weighted by NJ FamilyCare enrollment. Numbers shown are median levels.

Figure 3 shows a box-and-whisker plot for the percentage of primary care visits that involved a midlevel provider. The thick horizontal lines represent median levels, while the bottom and top of each box show the 25th and 75th percentiles, respectively. Vertically longer bars represent greater variability in the data. Roughly, the upper whisker bar represents the 75th percentile plus 1.5 times the inter-quartile range (IQR), which is the difference between the 25th and 75th percentiles. The lower whisker bar represents the 25th percentile minus 1.5 times the IQR. Greater distance between whisker bars provides another indicator of greater variability in the data. Points outside the whisker bars represent extreme high and low values.

After 2014, there was a rising trend in the median percentage of primary care visits involving midlevel providers (1.7% in 2014-1, 5.4% in 2017-1). The 25th and 75th percentiles also rose beginning in 2014. In addition, there was a strong rising trend in the upper values of this measure. Before 2014, midlevel provider involvement in primary care visits was below 10% for all zip codes. In the later time periods, maximum values moved above 15% and then 20%.

**Figure 3: Trend in Percentage of NJ FamilyCare Primary Care Visits that Involve Midlevel Providers before and after ACA Medicaid Expansion**
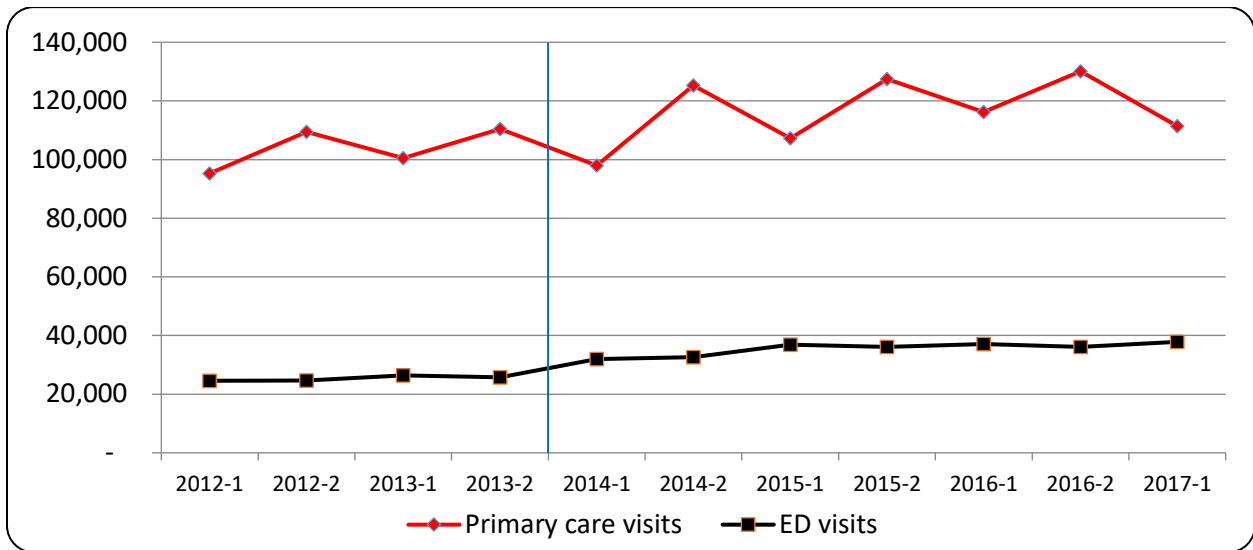


Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes weighted by NJ FamilyCare enrollment.

Throughout the study period, nearly all primary care visits took place in a physician's office. The share of such visits fluctuated between 92% and 96% with no apparent pattern. Most of the remaining primary care visits (2% to 5%) took place in Federally Qualified Health Centers (FQHCs). Very small shares of visits took place in hospital outpatient settings and independent clinics.

For the median zip code, total primary care visits and ED visits rose after the Medicaid expansion (Figure 4). The growth in ED visits came in the first half of 2014 and then leveled off. Primary care visits fluctuated but maintained an upward trend.

**Figure 4: Trend in Total NJ FamilyCare Primary Care Visits and Treat-and-Release Emergency Department (ED) Visits before and after ACA Medicaid Expansion**



Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes weighted by NJ FamilyCare enrollment. Numbers shown are median levels.

Figure 5 shows ED and primary care visits with an adjustment for the number of Medicaid enrollees in the zip code. Median ED visits per 1,000 enrollees fluctuated within a narrow band of 267 to 308 with no apparent trend before or after expansion. Median primary care visits per 1,000 enrollees dropped after expansion and subsequently increased and then fluctuated but exhibited a slight downward trend.

**Figure 5: Trend in Primary Care Visits and Treat-and-Release Emergency Department (ED) Visits per 1,000 NJ FamilyCare Enrollees before and after ACA Medicaid Expansion**
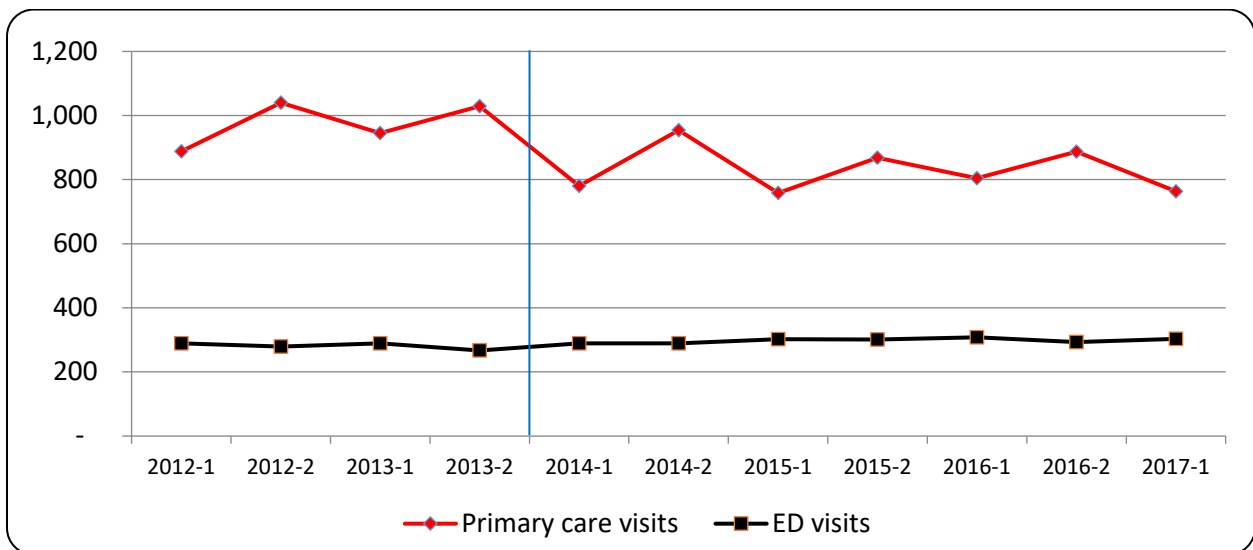


Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes weighted by NJ FamilyCare enrollment. Numbers shown are median levels.

The slight decline in primary care visits per enrollee appears to be driven by a slight decline in the proportion of enrollees who have at least one such visit. As shown in the box-whisker plot in Figure 6, the 25th, 50th, and 75th percentiles as well as extreme values show a noisy yet generally downward pattern in primary care visits per enrollee after 2013.

**Figure 6: Proportion of NJ FamilyCare Enrollees with at Least One Primary Care Visit before and after ACA Medicaid Expansion**
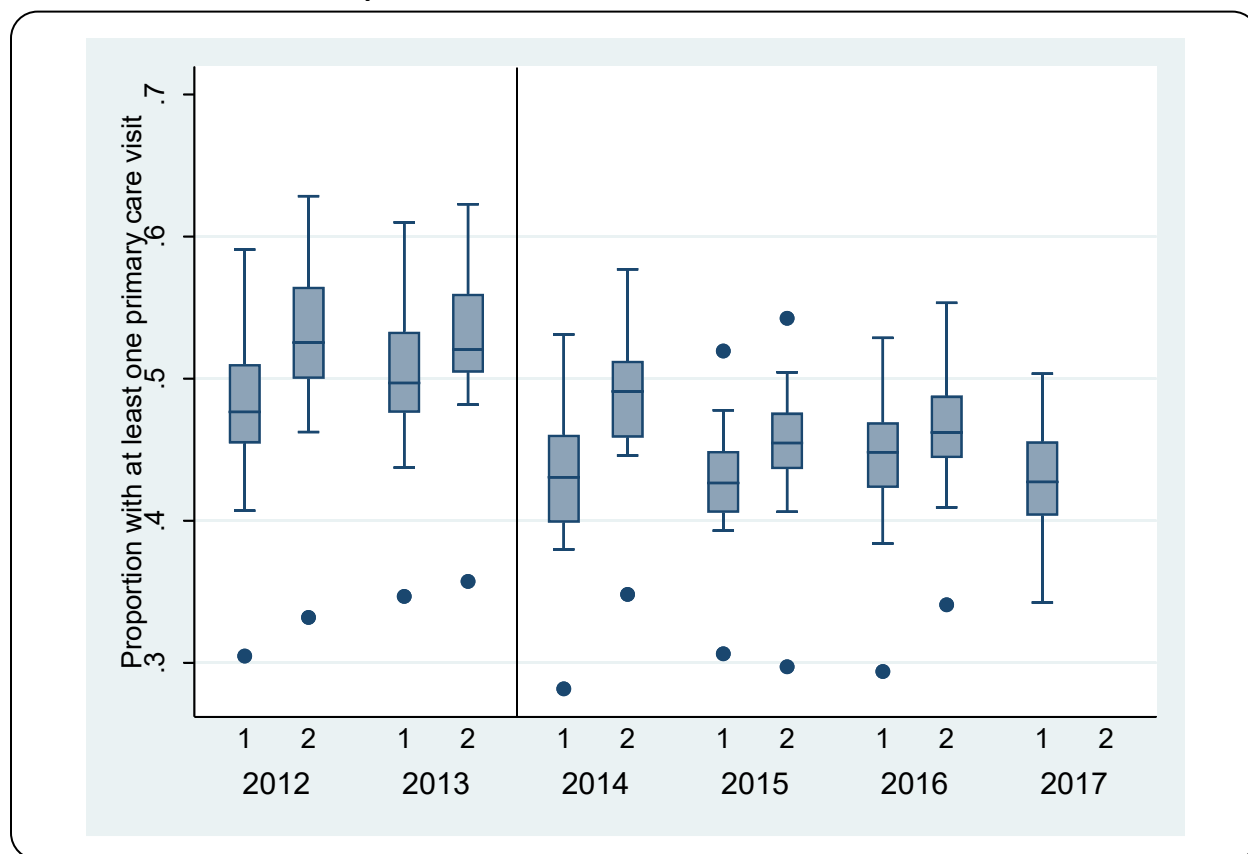


Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes weighted by NJ FamilyCare enrollment.

The box-whisker plot for the primary care price index shows a generally upward trend across the entire distribution of values (Figure 7). The median value of the price index (weighted by population Medicaid enrollment) rose from 106 to 147 during the study period. Thus, for the median zip code in 2017-1, the general price level for primary care services was 47% higher than the statewide price level in 2012-1. The 25th and 75th percentiles as well as extreme high and low values also rose. Increases in 2013 and 2014 coincide with the federal Medicaid Primary Care Payment Increase, while the decline in 2015 coincides with its discontinuation in New Jersey. The price index values increased in 2016 and again in 2017 as the Medicaid HMO contract amendments were implemented. (None of the upper or lower values of the price index were so extreme that they fell outside of the whisker boundaries.)

**Figure 7: Trend in NJ FamilyCare Primary Care Price Index before and after ACA Medicaid Expansion**
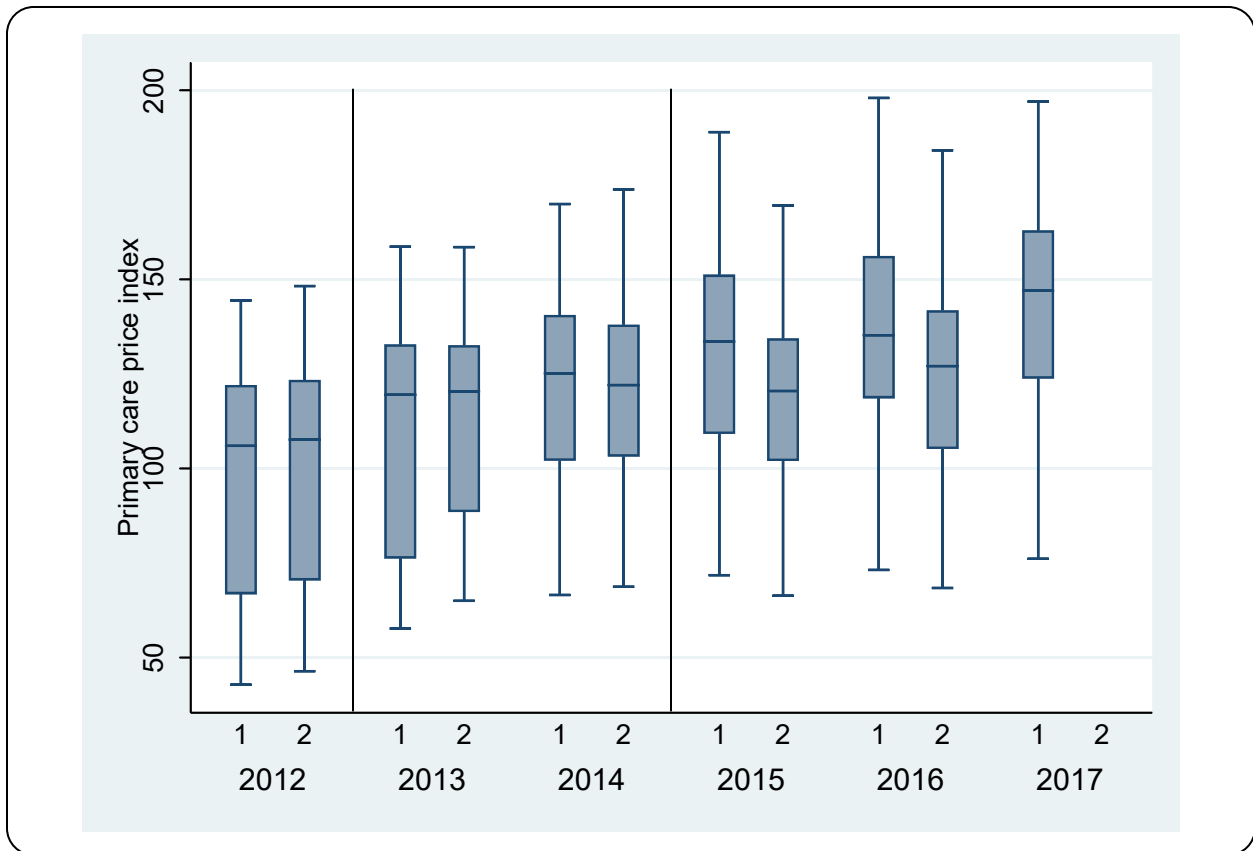


Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes weighted by NJ FamilyCare enrollment.

Throughout the study period, the median health plan HHI remained steady at approximately 1/3, indicating a highly concentrated market (Table 1). Using a common rule of thumb, the reciprocal of the HHI is 3, which suggests that the typical Medicaid HMO market is similar to one with 3 plans with equal market shares. The median provider HHI remained steady at a much lower value of 0.01, indicating a very un-concentrated market (Table 1). Based on the reciprocal rule, the typical provider market is similar to one with 100 providers with equal market shares.

**Table 1: Trends in Additional Variables Related to Primary Care Utilization and Supply before and after ACA Medicaid Expansion**

| | 2012 | | 2013 | | 2014 | | 2015 | | 2016 | | 2017 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1 |
| Health plan HHI | 0.35 | 0.36 | 0.35 | 0.34 | 0.33 | 0.34 | 0.35 | 0.35 | 0.36 | 0.36 | 0.36 |
| Primary Care Provider HHI | 0.02 | 0.01 | 0.02 | 0.02 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 | 0.01 |
| Patient risk score | 1.2 | 1.1 | 1.2 | 1.1 | 1.1 | 1.0 | 1.1 | 1.1 | 1.2 | 1.1 | 1.2 |
| Average percentage of days enrolled | 91.6% | 92.2% | 91.0% | 91.3% | 90.0% | 92.4% | 92.0% | 90.4% | 91.4% | 91.5% | 91.7% |

Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes weighted by NJ FamilyCare enrollment. Numbers shown are median levels.
HHI: Herfindahl-Hirschman Index

Although neither market concentration measure changed significantly, within each half-year, greater market concentration at the plan level (i.e., higher HHI) was associated with lower values of the primary care price index, as illustrated for 2017-1 in Figure 8. A simple linear regression analysis produced an $R^2$ value of 0.55, which means that 55% of the variation in the price index across zip codes is associated with variation in health plan HHI (and statistically significant at the 0.1% level). There was no cross-sectional association between the price index and provider HHI in any half-year ($R^2$ = 0.18, not statistically significant at the 5% level). It should also be noted that the provider HHI exhibited much less variation across zip codes than the health plan HHI. Finally, there was no change in average patient risk scores and duration of Medicaid enrollment (Table 1), indicating that observed trends in key study variables are not driven by these potential confounders.

**Figure 8: Relationship between Primary Care Price Index and Concentration of NJ FamilyCare Health Plan Enrollment, First Half of 2017**
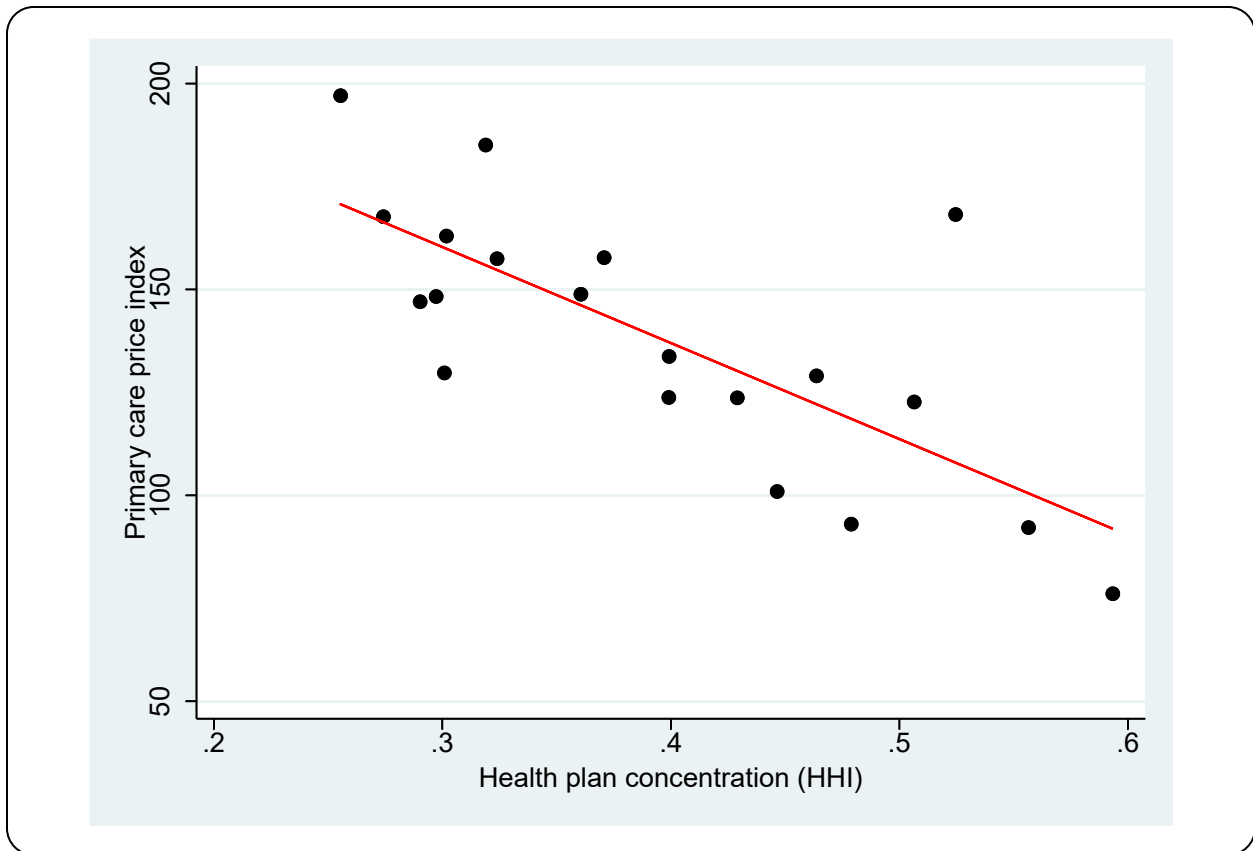


Source: New Jersey Medicaid Management Information System (MMIS)
Units of analysis are 3-digit zip codes.
HHI: Herfindahl-Hirschman Index

## Discussion

The analysis above shows that the number of professionals providing primary care services to NJ FamilyCare patients has grown with the growing number of primary care visits since the ACA Medicaid expansion. It is important to emphasize that this study focuses only on the "core" providers in each geographic area. Therefore, the observed increase in the number of primary care providers is not attributable to professionals who provide only a nominal volume of care. Among these core primary care providers, total visits increased and visits per provider remained mostly unchanged. As a result, growth in enrollment has not led to concentration of patients within same number of providers who might have become overburdened with a rapid increase in Medicaid patients. After Medicaid expansion, there was a slight increase in ED utilization but this has been commensurate with the growth in the NJ FamilyCare population, keeping ED use per enrollee roughly constant.

The study findings are not driven by patient acuity or time in which individuals remain enrolled in NJ FamilyCare, both of which remained unchanged during the study period. Although wait times could not be measured in this study, it is likely that the growing number of participating providers helped to limit any increase in wait times for appointments that could have arisen with increased NJ FamilyCare enrollment.

Part of the supply-side response to growing NJ FamilyCare enrollment has been the rapidly growing involvement of midlevel providers in the delivery of primary care. Depending on patient acuity and scope of practice, these providers can either deliver services independently or operate within a care team that increases the primary care productivity of physicians allowing them to see a greater volume of patients.

Despite the growth in total primary care providers and visits, there was a slight decrease in primary care visits per enrollee post-expansion. This decline coincided with a general reduction in the percentage of enrollees with at least one primary care visit and not necessarily a reduction in total visits among those who have already engaged in primary care. Individuals with no primary care engagement are presumably healthier than other enrollees and there is clear value in prioritizing primary care visits for individuals with more pressing issues. Nevertheless, routine visits with a primary care provider remain important even for generally healthy individuals for screening and prevention. Thus, it remains important to monitor whether the supply of primary care providers is sufficient to meet the full range of primary care needs.

Although this analysis does not include causal modeling, the rising trend in payments for primary care services likely played an important role in attracting primary care providers to meet the growing demand for visits. The growth in payments occurred primarily due to federal and state policy changes designed to ensure an adequate supply of primary care services to Medicaid patients. The analysis also suggests that the concentration of Medicaid HMO enrollment, and the associated purchasing power, also plays a significant role in the level of payments made to primary care providers in NJ FamilyCare. Thus, the balance of bargaining power between plans and providers presents another consideration for ensuring that prices are adequate for primary care providers to serve Medicaid patients in specific service areas.

This report is subject to some limitations. It provides a high-level descriptive analysis of recent trends in variables that are important to Medicaid policymaking; but it is not designed to draw causal inferences and does not attempt to uncover differences in primary care availability within subgroups of Medicaid enrollees such as Dual Eligibles, children, or the Aged, Blind, & Disabled. The report does not include data on time to an appointment or time to see a clinician, both of which might be affected by rising numbers of NJ FamilyCare enrollees. Finally, it could not be determined whether providers altered the time spent with other patients in response to growing demand from those newly enrolled NJ FamilyCare patients. Nevertheless, the study demonstrates that the supply of primary care has generally risen to meet growing demand from

newly enrolled NJ Family Care patients and highlights key variables related to the increased volume of primary care.

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# Appendix A: Sensitivity Analyses for 3 versus 5 Digit Zip Codes and Weighted versus Non-weighted Tabulations

**Table A1: Median Primary Care Providers by Zip Code**

| | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
| | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 164 | 92 | 64 | 32 |
| 2012-2 | 172 | 95 | 69 | 34 |
| 2013-1 | 171 | 98 | 69 | 35 |
| 2013-2 | 176 | 93 | 68 | 33 |
| 2014-1 | 175 | 98 | 69 | 35 |
| 2014-2 | 189 | 101 | 69 | 38 |
| 2015-1 | 191 | 107 | 75 | 43 |
| 2015-2 | 195 | 111 | 76 | 44 |
| 2016-1 | 211 | 113 | 79 | 45 |
| 2016-2 | 211 | 127 | 80 | 46 |
| 2017-1 | 223 | 115 | 78 | 46 |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.

**Table A2: Median Primary Care Visits by Zip Code**

| | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
| | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 95,285 | 47,794 | 5,869 | 382 |
| 2012-2 | 109,428 | 55,825 | 6,956 | 459 |
| 2013-1 | 100,500 | 50,743 | 6,663 | 418 |
| 2013-2 | 110,454 | 56,293 | 7,525 | 444 |
| 2014-1 | 97,978 | 49,005 | 6,194 | 426 |
| 2014-2 | 125,270 | 64,621 | 8,066 | 582 |
| 2015-1 | 107,221 | 55,645 | 6,518 | 552 |
| 2015-2 | 127,422 | 65,544 | 7,884 | 661 |
| 2016-1 | 116,255 | 58,610 | 7,180 | 566 |
| 2016-2 | 130,092 | 66,892 | 7,765 | 645 |
| 2017-1 | 111,392 | 58,974 | 6,363 | 541 |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.

**Table A3: Median Primary Care Providers per 1,000 Enrollees by Zip Code**

|  | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
|  | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 1.3 | 1.6 | 11.6 | 76.3 |
| 2012-2 | 1.4 | 1.6 | 11.6 | 80.3 |
| 2013-1 | 1.5 | 1.7 | 11.4 | 80.1 |
| 2013-2 | 1.5 | 1.6 | 11.2 | 75.1 |
| 2014-1 | 1.3 | 1.5 | 10.2 | 60.4 |
| 2014-2 | 1.3 | 1.4 | 9.7 | 62.0 |
| 2015-1 | 1.2 | 1.5 | 9.7 | 60.7 |
| 2015-2 | 1.2 | 1.5 | 9.9 | 60.6 |
| 2016-1 | 1.3 | 1.7 | 10.2 | 63.6 |
| 2016-2 | 1.3 | 1.6 | 10.2 | 65.2 |
| 2017-1 | 1.4 | 1.6 | 10.5 | 62.5 |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.


**Table A4: Median Primary Care Visits per Provider by Zip Code**

|  | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
|  | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 653 | 529 | 75 | 9 |
| 2012-2 | 739 | 590 | 87 | 10 |
| 2013-1 | 696 | 496 | 81 | 10 |
| 2013-2 | 812 | 577 | 93 | 11 |
| 2014-1 | 690 | 463 | 75 | 10 |
| 2014-2 | 844 | 597 | 95 | 12 |
| 2015-1 | 624 | 441 | 78 | 11 |
| 2015-2 | 741 | 516 | 90 | 12 |
| 2016-1 | 661 | 432 | 73 | 10 |
| 2016-2 | 727 | 459 | 79 | 11 |
| 2017-1 | 615 | 399 | 65 | 10 |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.

**Table A5: Median Primary Care Visits per 1,000 Enrollees by Zip Code**

| | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
| | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 888 | 856 | 889 | 829 |
| 2012-2 | 1,040 | 975 | 1,017 | 937 |
| 2013-1 | 945 | 896 | 927 | 881 |
| 2013-2 | 1,029 | 975 | 1,033 | 932 |
| 2014-1 | 780 | 732 | 757 | 673 |
| 2014-2 | 954 | 919 | 941 | 850 |
| 2015-1 | 758 | 734 | 771 | 693 |
| 2015-2 | 868 | 827 | 875 | 806 |
| 2016-1 | 804 | 786 | 785 | 709 |
| 2016-2 | 887 | 860 | 860 | 781 |
| 2017-1 | 763 | 759 | 753 | 676 |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.


**Table A6: Median Percentage of Primary Care Visits Involving Midlevel Providers by Zip Code**

| | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
| | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 1.0% | 0.9% | 0.6% | 0.0% |
| 2012-2 | 0.6% | 1.1% | 0.5% | 0.0% |
| 2013-1 | 1.1% | 1.1% | 0.7% | 0.0% |
| 2013-2 | 1.7% | 2.3% | 1.4% | 0.6% |
| 2014-1 | 1.8% | 1.9% | 1.2% | 0.5% |
| 2014-2 | 2.3% | 2.5% | 1.7% | 1.4% |
| 2015-1 | 2.7% | 2.8% | 2.5% | 2.1% |
| 2015-2 | 3.4% | 4.0% | 3.4% | 3.0% |
| 2016-1 | 4.0% | 4.9% | 3.6% | 3.6% |
| 2016-2 | 3.8% | 4.8% | 3.6% | 3.3% |
| 2017-1 | 5.7% | 5.8% | 5.2% | 4.1% |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.

**Table A7: Median Number of Treat-and-Release Emergency Department Visits by Zip Code**

|  | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
|  | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 24,559 | 18,384 | 2,098 | 125 |
| 2012-2 | 24,691 | 18,155 | 2,035 | 128 |
| 2013-1 | 26,385 | 18,700 | 2,233 | 130 |
| 2013-2 | 25,750 | 17,620 | 2,069 | 118 |
| 2014-1 | 31,935 | 22,533 | 2,597 | 159 |
| 2014-2 | 32,595 | 24,293 | 2,794 | 175 |
| 2015-1 | 36,880 | 27,156 | 2,833 | 202 |
| 2015-2 | 36,105 | 26,763 | 2,925 | 192 |
| 2016-1 | 37,090 | 27,150 | 3,189 | 218 |
| 2016-2 | 36,059 | 26,385 | 2,847 | 202 |
| 2017-1 | 37,835 | 26,660 | 2,869 | 205 |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.

**Table A8: Median Treat-and-Release Emergency Department Visits per 1,000 Enrollees**

|  | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
|  | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 289 | 297 | 296 | 264 |
| 2012-2 | 279 | 283 | 286 | 257 |
| 2013-1 | 290 | 297 | 297 | 268 |
| 2013-2 | 267 | 270 | 272 | 244 |
| 2014-1 | 289 | 298 | 289 | 251 |
| 2014-2 | 290 | 302 | 293 | 251 |
| 2015-1 | 302 | 317 | 303 | 265 |
| 2015-2 | 301 | 311 | 280 | 256 |
| 2016-1 | 308 | 318 | 309 | 265 |
| 2016-2 | 293 | 301 | 286 | 251 |
| 2017-1 | 303 | 310 | 298 | 260 |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.

**Table A9: Median Primary Care Price Index by Zip Code**

|  | 3-digit zip codes | | 5-digit zip codes | |
|---|---|---|---|---|
|  | Weighted[a] | Non-weighted | Weighted[a] | Non-weighted |
| 2012-1 | 106 | 100 | 97 | 94 |
| 2012-2 | 108 | 103 | 96 | 96 |
| 2013-1 | 120 | 115 | 106 | 107 |
| 2013-2 | 120 | 115 | 107 | 109 |
| 2014-1 | 125 | 120 | 117 | 120 |
| 2014-2 | 122 | 119 | 115 | 120 |
| 2015-1 | 134 | 125 | 125 | 130 |
| 2015-2 | 120 | 116 | 114 | 119 |
| 2016-1 | 135 | 130 | 133 | 136 |
| 2016-2 | 127 | 122 | 120 | 122 |
| 2017-1 | 147 | 140 | 141 | 142 |

[a] Weighted by the number of NJ FamilyCare enrollees in each zip code.

# Appendix B: Inclusion Criteria for Primary Care Visits

Evaluation and Management (E/M) Codes in HCPCS/CPT
Outpatient services (99201-99215)
Office/other outpatient consultations (99241-99245)
Preventive medicine services (99381-99397)

Claim Type
03-outpatient
04-physician
13-EPSDT/HealthyStart
15-professional crossover
18-independent clinic
22-midlevel practitioner

Place of Service
1-doctor's office
7-outpatient hospital
8-clinic

Specialty Codes
010-general practice
080-family practice
082-NP family practice
110-internal medicine
160-OBGYN
162-NP OBGYN
164-NP women's health
190-NP gerontology
370-pediatrics
372-NP pediatrics
450-NP community health
460-NP school health
470-adult health
950-FQHC

Provider Type
20-physician
24-independent clinic
43-FQHCs
60-hospital
70-APN/midlevel practitioner

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Center for State Health Policy

Center for State Health Policy
Rutgers, The State University of New Jersey
112 Paterson Street, 5th Floor
New Brunswick, NJ 08901

p. 848-932-3105  f. 732-932-0069
cshp_info@ifh.rutgers.edu
www.cshp.rutgers.edu