

The Effect of Narrow Network Plans on Out-of-Pocket Cost

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The Affordable Care Act (ACA) of 2010 established health insurance marketplaces in which individuals could access and choose among health plans from various insurers. To lower premiums, insurers created narrow network products for which they negotiated lower reimbursement rates with groups of providers. In return for lower reimbursement rates, providers participating in narrow networks anticipated increased volume through concentrated visits from narrow network beneficiaries.^{1,2} Proponents of narrow network plans claim they can facilitate better care coordination by ensuring that patients receive more care from providers within a certain community or hospital group, making it more likely that providers have working relationships and/or compatible electronic health records systems.³ In addition to better care coordination, narrow network beneficiaries should benefit from lower premiums and lower-cost services when using in-network providers.

In practice, taking advantage of lower out-of-pocket (OOP) expenditures can be challenging. First, not all individuals in a narrow network were aware of the plan restrictions on providers and facilities. A 2014 survey found that 26% of individuals enrolled in a qualified health plan (QHP) were unaware of their plan's network size.^{4,5} Second, even if beneficiaries were aware of the restricted network, they still may have had problems identifying participating providers and facilities. Finally, some individuals may not have fully understood how narrow network plans work.^{5,6} One source of confusion was that out-of-network care was subject to its own deductible, coinsurance, and co-payments, which can have nontrivial consequences on OOP expenditures.^{5,7,8}

Despite these challenges, in 2014 (the first year of marketplace operation), narrow network plans were popular offerings, available to 92% of the population and accounting for 48% of all ACA plans offered in the marketplace.⁴ The recent resurgence of narrow network plan offerings was mainly driven by consumer interest in lower premiums. A 2014 survey of individuals enrolled in ACA-compliant QHPs found that individuals in narrow network plans were more likely to report that they purposely chose one

ABSTRACT

OBJECTIVES: To estimate the effects of selecting a narrow provider network on outpatient utilization and outpatient out-of-pocket (OOP) expenditures among individuals who chose to enroll in a narrow network plan in 2014.

STUDY DESIGN: Claims data from a large insurer in the southeastern United States.

METHODS: The sample consisted of individuals continuously enrolled for 2 years (2013-2014) who had Affordable Care Act-compliant plans in 2014. We compared unadjusted results and then used difference-in-differences (DID) models to determine the effect of narrow networks on the number of outpatient visits and outpatient OOP expenditures.

RESULTS: Our DID model found no significant change in visits or outpatient OOP expenditures for individuals who selected a narrow network plan in 2014. However, unadjusted outpatient OOP expenditures and premiums were lower for individuals who selected narrow network plans.

CONCLUSIONS: Our findings suggest that individuals who selected narrow network plans in 2014 were able to keep costs low without changing their overall number of outpatient visits. Narrow network plans can reduce costs to beneficiaries without affecting the volume of outpatient visits, if appropriate incentives to visit participating providers are followed.

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of the lowest-priced products in the marketplace.⁴ Although individuals selected narrow network plans based on premium price, the effect on overall OOP costs to the beneficiary has not been studied.

In this paper, we examined the extent to which selection of a narrow network plan affected the number of outpatient visits and outpatient OOP costs to the beneficiary for individuals who chose a narrow network plan in 2014. We used a difference-in-differences (DID) model to control for differences in outcomes during the year prior to the introduction of narrow networks and other exogenous occurrences that could have affected the outcomes. We hypothesized that selection of a narrow network plan would not affect the number of outpatient visits, but would decrease outpatient OOP expenditures.

METHODS

Data

Our data came from a large insurer in the southeastern United States. In 2014, this insurer was 1 of only 2 companies offering plans in the state marketplace; in 2013, it had 86% of the nongroup market.⁹ Typically, insurers do not release contractually negotiated reimbursement rates, but this dataset included the price of all services, including the cost of care to the beneficiary.

Sample

The analytical sample included individuals who: 1) were aged 18 to 64 years on January 1, 2014 (working-age adults who do not transition to Medicare), 2) were enrolled in a nongroup QHP in 2014 and residing in a county where narrow network plans were offered in the marketplace by this insurer, 3) had 12 months enrollment in both 2013 and 2014 with the same insurer, and 4) were enrolled in a 2014 narrow or broad network preferred provider organization (PPO) QHP.

In 2013, all individuals in this sample were in broad network health plans; no QHPs or narrow network plans were offered in the nongroup market. In 2014, all individuals switched plans (no individuals were enrolled in a 2014 grandfathered plan); the entire sample was offered the choice between a broad network QHP and a narrow network QHP, and everyone in the sample made an enrollment decision.

In this sample, broad network plans, still defined as PPOs, had contracts with almost all providers in an area, while narrow network PPOs contracted with a smaller group of providers in each market. Narrow network plans were identified as such using internal data from this commercial insurer.

TAKEAWAY POINTS

We analyzed claims data from a large insurer to estimate the effect of narrow network health plan selection on outpatient visits and the cost of outpatient visits to the beneficiary.

- ▶ Selection of a narrow network plan did not cause individuals to decrease the number of outpatient visits their first year in a narrow network plan.
- ▶ Selection of a narrow network plan did not have a statistically significant effect on outpatient out-of-pocket costs.
- ▶ Narrow network plans were associated with lower premiums, which would lower total costs for individuals who did not frequently access out-of-network care.

Outcome Variables

We had 2 outcome variables: outpatient visits and outpatient OOP expenditures related to outpatient visits. Visits were identified using 2013 and 2014 claims; we included both professional and facility claims, but limited them to those where the provider designated for reimbursement was a physician or mid-level provider. We excluded inpatient and emergency department (ED) visits so that individuals had more control over location and provider selection.

Outpatient OOP expenditures were defined as all outpatient-related healthcare expenditures for which the beneficiary was responsible in each year of the study. We chose this outcome because individuals are more likely to make utilization decisions based on the portion of the bill for which they are responsible, not the total cost of a service (the amount paid by both member and insurer). Costs were logged and capped at the 99th percentile to minimize the influence of outliers.¹⁰ We also looked at unadjusted changes in annual premiums.

Statistical Approach

In 2013, this insurer did not offer narrow network plans in the nongroup market. In 2014, narrow network QHPs were introduced as an option in the marketplace, along with broad network QHPs. We take advantage of this quasi-experimental situation by using DID models to examine the effects of selection of a narrow network plan on changes in: 1) the number of outpatient visits and 2) outpatient OOP expenditures for individuals who chose a narrow network QHP in 2014. A DID model controls for observable differences between treatment and control groups and for any extemporaneous changes to the outcome variable over the time period.

We used random-effect generalized linear equations to model each outcome; outpatient visits were represented as a count variable and modeled using a Poisson distribution with a log link, whereas OOP costs were represented as a continuous, nonnegative variable and modeled using a normal distribution with an identity link.

$$\text{Outcome} = \alpha + \delta(\text{Narrow Network}) + \rho\text{Post} + \gamma(\text{Narrow Network} \times \text{Post}) + \beta X + \epsilon$$

Our key independent variable was selection of a 2014 narrow network PPO QHP. Narrow network affiliation in 2014 defined the

TABLE 1. Summary Statistics

Mean ^a	Narrow Network	Broad Network
N (12,314)	4616 (37.5%)	7698 (62.5%)
Demographic characteristics		
Female	55.6%	59.1% ^b
Age	45.3	45.4
On a family policy	55.0%	52.0% ^c
Health status		
Presence of any chronic condition	29.1%	31.2% ^d
Health risk score (2013)	1.276	1.573 ^c
Health risk score (2014)	1.367	1.687 ^c
2013 plan information		
Low 2013 deductible (<\$3000)	43.3%	31.7% ^b
Medium 2013 deductible (\$3000-\$5000)	30.1%	34.0% ^b
High 2013 deductible (>\$5000)	26.6%	34.3% ^b
2013 monthly premium	\$287	\$387 ^c
2014 tax credits		
Percent with applied premium tax credit	58.3%	41.2% ^b
Amount of applied premium tax credit (monthly)	\$213	\$167 ^c

^aUnless indicated otherwise.

^bSignificantly differs from narrow network; *P* < .0001.

^cSignificantly differs from narrow network; *P* < .001.

^dSignificantly differs from narrow network; *P* < .01.

treatment group in this study; the narrow network label applied to the same group of individuals in both periods even though narrow network plans were only available in 2014. Those in the sample who did not select a 2014 narrow network plan were referred to as broad network beneficiaries (in both 2013 and 2014).

In the formula on the previous page, α was the intercept representing the pre-period (2013) for broad network beneficiaries; δ was the effect of the narrow network in the pre-period (2013) (this was also the preperiod difference between the narrow and broad network groups); ρ was the effect of the post period (2014) on the outcome for the broad network beneficiaries, also representing any changes in the outcome variable over the time period that were not a result of the introduction of the narrow networks; and γ , the effect of the narrow networks in the post period, was the main effect of the model. This is the effect of the narrow network plan on the outcomes, controlling for extemporaneous changes and observable characteristics. *X* represents other variables in the model.

Health status, represented by the risk score, is included as a time-varying control. Risk scores have been used in previous studies to represent health status.^{11,12} We used an episode-based health risk score generated by an Ingenix Symmetry algorithm accounting for age, sex, and healthcare claims from the previous 12 months.¹³ Our model utilized the prospective risk score, which

combines demographics and claims data from the past 12 months to calculate a risk score that predicts the risk of an individual being high-cost in the subsequent year.¹³ Two risk scores were generated for each individual in the sample—one to predict risk of high health expenditures in 2013 and the other for risk in 2014.

We explored both fixed-effects and random-effects models by comparing the coefficients on our main variables; we found no difference in the estimates and, since fixed effects are less efficient and random effects were unbiased, we used random effects in our DID models. A random-effects model allows for the inclusion of time-invariant controls; in these models, we controlled for age, gender, and presence of chronic conditions (asthma/chronic obstructive pulmonary disease, heart failure, hypertension, or diabetes). We also controlled for ACA-specific factors, such as an indicator for each rating region in the state and any applied premium tax credits (APTCs) received by the beneficiary. Standard errors in the DID models were obtained by bootstrapping more than 1000 replications.¹⁴ All analyses were done in SAS version 9 (SAS Institute; Cary, North Carolina).

RESULTS

The analytical sample contained 12,314 individuals, 37.5% of whom were in a narrow network health plan in 2014 (Table 1). There was no statistically significant difference between the mean age of the narrow and broad network groups (mean age, 45 years), but females were less likely to choose a narrow network plan (55.6% vs 59.1%; *P* < .0001). Individuals in narrow network plans were at a lower risk of having high healthcare expenditures (*P* < .0001) and fewer had chronic conditions (29.1% vs 31.2%; *P* = .0108).

Unadjusted Results

In Table 2, we present the unadjusted means and 95% confidence intervals for our 2 main outcome variables, as well as the percentage change across years and between groups. Individuals in the narrow and broad networks saw increases in the mean number of outpatient visits between 2013 and 2014 (7.6% and 9.7%, respectively). In both years, the mean number of visits for the narrow network group was lower than for the broad network group (25% to 27% lower).

The unadjusted results show that individuals in narrow network plans had lower mean outpatient OOP expenditures in both the pre-period (−20.5%) and the post period (−22.6%). Although OOP expenditures decreased between 2013 and 2014 for both groups, mean unadjusted expenditures for individuals in narrow network plans decreased more than for individuals in broad network plans (−27.3% vs −23.9%).

Although premiums increased between 2013 and 2014 for both individuals who selected narrow network plans and those who did not, 2014 premiums were 10% lower for individuals in a narrow network plan than for individuals in a broad network plan. These

numbers reflect the 2014 premiums before APTCs were applied. Individuals on narrow network plans were more likely to have an APTC (58.3% vs 41.2%; $P < .0001$); on average, their APTC was 27.5% higher (\$213 vs \$167; $P < .0001$) compared with individuals in broad network plans.

DID Results

Table 3 shows the results of our DID model. After controlling for preperiod differences and adjusting for risk and other variables, we found the effect of narrow network plan selection on outpatient visits to be statistically insignificant. After controlling for observable characteristics and any extemporaneous changes, we also found no significant change in outpatient OOP expenditures for individuals who self-selected narrow network plans.

DISCUSSION

Narrow network plans were popular choices for consumers in the first year of the health insurance marketplaces. Although there was heterogeneity in the creation and execution of narrow network plans, the underlying concept was a product with lower premiums, which incentivized beneficiaries to visit a specified set of providers or face a higher cost for services. To date, few studies have been conducted on the effects of narrow network plans on costs and utilization in the nongroup market.¹⁵ The results from our study support the idea that individuals who select narrow network plans can save money without reducing the number of outpatient visits.

Although the DID model did not find a significant reduction in outpatient expenditures, individuals in narrow network plans did not incur higher adjusted expenditures as a result of the narrow network, indicating that they were not obtaining out-of-network care (purposely or inadvertently). Individuals in narrow network plans who visited in-network providers incurred lower OOP costs for their visits and, by plan design, had lower monthly premiums, which could decrease overall costs throughout the year.

TABLE 2. Unadjusted Means and Percentage Change for 2 Outcomes by Network and Year

	2013 Mean (95% CI)	2014 Mean (95% CI)	Percentage Change From 2013 to 2014
Outpatient visits			
Broad network	7.18 (7.01-7.36)	7.96 (7.77-8.15)	9.7%
Narrow network	5.36 (5.19-5.54)	5.81 (5.61-6.00)	7.6%
Percent difference between narrow and broad networks	-25.3%	-27.0%	
OOP outpatient expenditures			
Broad network	\$1325 (\$1286-\$1367)	\$1070 (\$1036-\$1104)	-23.9%
Narrow network	\$1053 (\$1005-\$1102)	\$828 (\$789-\$867)	-27.3%
Percent difference between narrow and broad networks	-20.5%	-22.6%	
Annual premiums			
Broad network	\$4644	\$5626	-22.0%
Narrow network	\$3378	\$5052	49.5%
Percent difference between narrow and broad networks	-27.3%	-10.2%	

CI indicates confidence interval; OOP, out-of-pocket.

Early reports suggested that individuals chose narrow network plans because of the lower plan premiums, and our results provide support for this finding.^{1,2} In this sample, the individuals who selected narrow network plans had lower unadjusted premiums the year before narrow network plans were offered; the 2013 unadjusted average monthly premium for the narrow network group was 27.3% lower than the average for the broad network group. The 2013 premiums were medically underwritten, which means that lower premiums may have been a function of a healthier population; however, a higher percentage of individuals in narrow networks had deductibles over \$5000 in 2013 (34.3% vs 26.6%), indicating that individuals who selected narrow network plans had a history of choosing health plans with lower premiums but more cost-sharing restrictions.

Although individuals in the narrow network group had fewer unadjusted outpatient visits in both 2013 and 2014, joining a narrow

TABLE 3. DID Model Results: Estimates for 3 Outcomes

	Preperiod Non-Narrow Network	Preperiod Narrow Network: Estimate (95% CI)	Postperiod Non-Narrow Network: Estimate (95% CI)	Postperiod Narrow Network: Estimate (95% CI)
Outpatient visits	ref	-0.20 [-0.23 to -0.16]	0.09 [0.02-0.16]	-0.03 [-0.09 to 0.03]
OOP healthcare expenditures on outpatient visits (% change)	ref	-50.3% [-62.8% to -37.8%]	-34.4% [-54.6% to -14.2%]	-10.0% [-26.5% to 6.5%]

CI indicates confidence interval; DID, difference-in-differences; OOP, out-of-pocket; ref, reference.

network plan did not lead to any statistically significant changes in the mean number of outpatient visits, providing support that narrow networks did not decrease overall utilization. This is consistent with the objective of narrow network plans: to steer individuals toward in-network providers, rather than reduce utilization.

Limitations

This study was conducted with 1 insurer, which limits generalizability; this could be nontrivial because of the wide heterogeneity in narrow network plans nationally and the variation in implementation.^{16,17} However, the insurer in this study had a significant share of the state's nongroup health insurance beneficiaries, which makes this study generalizable within the state.⁹ Second, we focused only on outpatient provider-based visits because they are more actionable, in that people have more ability to make decisions about where to go. However, we do not know the effect of narrow networks on ED or inpatient visits. Third, the sample for this study comprised individuals who were continuously enrolled with this same insurer in 2013 and 2014. Due to the inclusion criteria of 12 months of 2013 enrollment, the average income level of the sample was higher than the average income of the total population of individuals enrolled in QHPs in 2014. The higher income is evidenced by the lower percentage of individuals in our sample with an APTC (41.2%-58.3%) compared with the national average (86%) (Table 1).¹⁸ The results of this study may not apply to individuals who were new to health insurance in 2014.

In posthoc analyses (not shown), we found that individuals with higher expected health expenditures, higher incomes, or a general preference for more generous insurance coverage had lower odds of selecting a narrow network plan in 2014. Because of these associations, we want to underscore that, in this study, all individuals in narrow network plans actively selected a narrow network plan in 2014. Individuals who self-select into a narrow network plan may differ from individuals who do not do so in unmeasured ways (eg, they may be more prepared for, or aware of, narrow network plan guidelines), and as such, they might respond to plan incentives differently than individuals who did not select a narrow network plan. The findings from this study could differ if individuals were forced into narrow network plans (eg, if insurers limited the availability of broader network plans).

CONCLUSIONS

Health insurance premiums and healthcare expenditures are projected to rise, and narrow network health plans are a mechanism that insurers are using to control costs.¹⁹ These health plans offer lower premiums and, in return, individuals are incentivized through cost sharing to visit certain providers and facilities. Narrow network implementation was heterogeneous throughout the country, with varied levels of success, but the rising popularity

of these products suggests issuers may continue to experiment with restricted provider networks.

In this study, we found that self-selection in a narrow network health plan had no statistically significant effect on the number of outpatient visits or on the outpatient OOP expenditures associated with those visits. Utilizing in-network care is imperative for lowering OOP costs on a PPO; individuals on narrow network plans under this particular insurer were able to adhere to plan incentives and therefore were able to enjoy lower premiums without higher expenditures from out-of-network care. To ensure that individuals in narrow network plans continue to comply with plan incentives and visit participating providers, more transparency about provider and facility participation in narrow networks may be necessary. ■

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