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## **Cover Page Footnote**

This research was supported in part by the Department of Health Services Research, Management and Policy in the College of Public Health and Health Professions at the University of Florida. This research (UF Project # 00103789) was funded by the Florida Agency for Health Care Administration (AHCA) through contract # MED148. The authors would like to thank Lilliana Bell, MHA, PMP who provided project management expertise for the study.

## The impact of provider service networks in Florida Medicaid managed care on enrollees' satisfaction

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### Abstract

Two counties in Florida were selected as pilots in 2006 for the Medicaid Demonstration Program. In reform counties, Medicaid enrollees were required to pick a managed care plan; either a Health Maintenance Organization or a Provider Service Network (PSN). PSNs are a form of managed care that provides health care services directly through a provider or network of organizations to a defined population without an intermediary. There are two types of PSNs: Physician-based PSNs and Healthcare system-based PSNs. The objective of this study is to find the differences in enrollees' satisfaction between two different types of PSNs. To assess the differences in enrollees' satisfaction between physician-based PSNs and health system-based PSNs over time, this study used difference-in-difference study design with CAHPS data from 2006 to 2008. The study findings showed that, compared to enrollees in physician-based PSNs, health system-based PSN enrollees had higher satisfaction during the post-reform period. However, the trends in satisfaction for enrollees in health system-based PSNs declined at a greater rate relative to the trends for enrollees in physician-based PSNs. Findings from this study may give other states, facing similar decisions to reform their Medicaid managed care system, information to decide whether to adopt a similar plan or to consider other interventions to improve Medicaid beneficiaries' satisfaction. PSNs are structured similarly to the new accountable care organizations (ACO) models emerging as a result of the Affordable Care Act. Therefore, study findings may be helpful to in improving patient satisfaction with care in ACOs.

### Keywords

Medicaid managed care, physician-based provider service networks, health system-based provider service networks, CAHPS, and enrollees' Satisfaction

### Note

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### Introduction

Health Maintenance Organizations (HMOs) or Provider Service Networks (PSNs) were the two healthcare plan options given to Medicaid enrollees in Broward and Duval counties after Florida enacted Medicaid reform in 2006. PSNs are newly formed managed care organizations centered on the provider and owned by a healthcare provider, group of affiliated providers, or a public agency. The objectives of PSNs are to improve quality of healthcare services and manage Medicaid expenditures efficiently.<sup>1-3</sup> There are two different types of PSNs: health system-based PSNs (H-PSNs) and physician-based PSNs (P-PSNs). At the initial stage of PSN implementation, several safety net hospitals and physicians working with

these hospitals in South Florida assembled the framework of the delivery network.<sup>2,4,5</sup> This network was adopted as a health system-based PSNs (H-PSNs). The physician-based PSNs (P-PSNs) were derived from the minority physician network (MPN).<sup>3,6</sup> The aims of the MPN were to allow racial and ethnic minority physicians to participate in the Medicaid program, to provide local care management services to Medicaid enrollees, and to lower cost of healthcare services.<sup>6</sup> Both PSNs are reimbursed on a fee-for-service basis and shared saving model, showing they both have similar characteristics in terms of financial and managerial mechanisms.<sup>3,6</sup> However, there are several key aspects that differentiate these two organizational structures.

P-PSNs are considered as a physician-only network, while H-PSNs are a network of hospitals, physician groups, outpatient clinics, ambulatory care centers, and nursing homes under single ownership. H-PSNs, therefore, resemble an integrated delivery systems. Integrated delivery systems are organizations that combine healthcare providers into a vertically or horizontally integrated organization.<sup>7,8</sup> Both PSNs, therefore, are classified depending on the level of integration. H-PSNs can be defined as a more integrated system while P-PSNs can be defined as a less integrated one.

Previous research on the relationship between organizational integration and patients experience could anticipate the potential impact of P-PSNs and H-PSNs on Medicaid enrollees' satisfaction. When healthcare services are integrated through a network of providers, patients may experience reduced fragmentation of care and greater coordination of services in more integrated organizations. Improved coordination of care results in improved quality of care, patient outcomes, and patient perception of care.<sup>9-14</sup> In addition, PSNs are similar with Accountable Care Organizations (ACOs) that emerged as a result of the Affordable Care Act in 2010, since ACOs are also a network of providers that share responsibility to provide healthcare services of a defined population of patients. The aims of ACOs are better coordinated patient care, improvement in quality of care, prevention of disease, and reduction in unnecessary hospital admission.<sup>15,16</sup> There are different types of ACOs as well; physician-led ACOs, hospital-led ACOs, and ACOs jointly led by physicians and hospital.<sup>17,18</sup> In the first national survey of ACOs, physician-led ACOs were less likely to provide coordinated care services and services for indigent population, including emergency, rehabilitation, behavioral health, hospice care, and home health.<sup>18</sup> A recent study found hospital-based ACOs are more able to improve coordination across the care continuum when compared to those without one.<sup>19</sup> These findings may result in different patient experience between ACOs with a hospital and without a hospital.

Therefore, the purpose of this study is to understand the impact of organizational differences between the two forms of PSNs on Medicaid enrollees' satisfaction with health plans, overall healthcare, personal doctor, and specialists. We expected Medicaid enrollees in H-PSNs will have a higher satisfaction with health plan, healthcare, personal doctor, and specialists when compared to those in P-PSNs due to the higher level of integration

## Methods

### *Analytic Approach*

This study used a difference-in-difference model for the analysis. This approach was used to calculate the changes in enrollees' satisfaction between the baseline period in

2006, prior to implementation of reform, and two years after implementation. This timeframe was used to compare the change in H-PSN and P-PSN enrollees' satisfaction.

The Florida Agency for Health Care Administration (AHCA) produced the enrollee list with member-month and recipient eligibility files randomized to create the survey sample. The dataset from the AHCA included Medicaid ID, enrollee name, demographics, county, eligibility status, and health plan name.<sup>2</sup> The study population was a randomly selected sample of beneficiaries from Medicaid member-month and eligibility files to confirm that members were a representative sample from each Medicaid managed care plan (MediPass – Florida primary care case management program, HMOs, and PSNs).<sup>1</sup> Medicaid enrollees in the original reform counties were randomly selected to participate in a 20-minute telephone-based Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey for at least 6 months. The CAHPS survey include ratings of overall healthcare, health plan, primary doctor or nurse, specialty care, and reports of experiences with using a health plan and healthcare services.<sup>20,21</sup> The analytic sample comprised of Medicaid enrollees in H-PSNs and P-PSNs, totaling 6,483 member-years. Dually eligible and pregnant women were excluded, since those are considered voluntary participants. After exclusion, 1,288 Medicaid enrollees in P-PSNs and 428 Medicaid enrollees in H-PSNs were selected for the period before implementation of reform. 2,414 Medicaid enrollees in P-PSNs and 2,353 Medicaid enrollees in H-PSNs were selected for the two year demonstration period. Survey data was weighted based on plan size and non-response in each county to allow for results to be representative of the population.<sup>1</sup>

### *Measures*

This study measured outcome indicators using questionnaires asking enrollees' of their satisfaction with their health plan, overall healthcare, personal doctor, and specialist from CAHPS survey. Ratings for each satisfaction indicator are rated from 0 to 10, ranging from least to most satisfied. Ratings were categorized into the following three groups: high (9-10), medium (7-8), and low score (6 and below), due to the skewed distribution of CAHPS scores. These cut points were identified by the Agency for Healthcare Research and Quality (2014).<sup>1</sup> Independent variables were the two different types of PSNs, P-PSNs and H-PSNs. This variable was a binary indicator, with P-PSNs indicated as the reference group. Control variables included demographics, geographic location, eligibility status, health status, and risk scores. Medicaid beneficiaries enrolled in PSNs and living in Broward or Duval counties were designated as our study samples. Broward and Duval counties have potential culture, population characteristics, and socioeconomic status differences due to the geographic location, since

Broward County is located in the southeast part of Florida, while Duval County is located in the northeast part of Florida. Eligibility status was a binary variable which included SSI and TANF. Risk scores, which were calculated for all Medicaid enrollees based on prescription drug utilization and were used by AHCA to risk-adjust monthly premiums, were used in this analysis as a proxy to measure enrollees' health status.<sup>22,23</sup>

### Statistical Analysis

Dependent variables were enrollees' satisfaction with health plans, overall healthcare, personal doctor, and specialists. Those variables are ordered variables, therefore ordered logistic regression was used to estimate the odds of being in the next highest category of satisfaction for H-PSN enrollees relative to P-PSN enrollees. This model included a dummy variable if the observation was from the reform period from 2007 to 2008, a dummy variable if the observation was from an enrollee in a H-PSNs, and an interaction of post and enrollment in a H-PSN (post\*HPSN). The functional forms are as follows:

$$\begin{aligned} &\text{Satisfaction with health plans, healthcare, personal doctor,} \\ &\quad \text{and specialist} \\ &= \beta_0 + \beta_1 * \text{Post} + \beta_2 * \text{HPSN} + \beta_3 * (\text{Post} * \text{HPSN}) + \\ &\quad \beta_4 * \text{Covariates} + \epsilon, \end{aligned}$$

The odds ratio represented by the coefficient  $\beta_3$  indicates whether the changes in the trends in enrollees' satisfaction with health plans, overall healthcare, personal doctor, and specialists for enrollees in H-PSNs after the post-reform was significantly different from the change in trends in satisfaction for enrollees in P-PSNs over the same time period.

### Results

The characteristics of the study sample between P-PSNs and H-PSNs from 2006 to 2008 through CAHPS survey data are shown in Table 1. Enrollees in H-PSNs were younger (15.47 vs. 18.73), more likely to be male (50.39% vs. 47.90%) and had higher risk scores (1.12 vs. 0.44) than those in P-PSNs. Over 50% of enrollees in P-PSNs and H-PSNs lived in Broward County and were enrolled through TANF.

According to results of the weighted analysis (Table 2), over half of the population provided high rating of satisfaction with their health plan, overall healthcare, personal doctor, and specialist. During the pre-reform period, enrollees in H-PSNs had a higher satisfaction with their initial health plans (64.61% vs. 57.47%;  $p < 0.0001$ ), overall healthcare (66.67% vs. 64.73%;  $p < 0.0001$ ), personal doctor (77.81% vs. 69.78%;  $p < 0.0001$ ), and specialist (71.35% vs. 60.37%;  $p < 0.0001$ ) relative to enrollees in P-PSNs. Also, during the post-reform period, enrollees in H-PSNs were more likely to have higher

satisfaction with their plans (62.40% vs. 55.46%), personal doctors (75.93% vs. 75.81%), and specialists (67.90% vs. 62.76%) relative to enrollees in P-PSNs, while enrollees in H-PSNs had a lower satisfaction with their overall healthcare (60.79% vs. 63.19%). All of these differences between H-PSNs and P-PSNs were statistically significant ( $p < 0.0001$ ).

The multivariate analysis used a difference-in-difference approach. As shown in Table 3, over the course of the entire study period, beneficiaries enrolled in H-PSNs had a higher rating for their health plans, overall healthcare, personal doctor, and specialist compared to beneficiaries enrolled in P-PSNs, adjusting for the impact of age, gender, race, ethnicity, geographic location, eligibility status, self-rated health status, and risk score on satisfaction (AOR= 1.72, 1.53, 1.87, and 1.58;  $p < 0.0001$ ). However, the change in satisfaction for H-PSN enrollees over the study period for all four domains was significantly lower compared to the change in satisfaction for P-PSN enrollees, meaning the trends in H-PSNs enrollees' satisfaction decreased at a greater rate over time compared to the trends in P-PSNs enrollees' satisfaction (AOR= 0.846, 0.632, 0.663, and 0.761;  $p < 0.05$ ).

### Discussion

We hypothesized that Medicaid enrollees in H-PSNs are more likely to have high satisfaction with their health plans, overall healthcare, personal doctor, and specialist compared to those in P-PSNs, since there are structural differences explaining the level of integration between two PSNs. This study found that enrollees in H-PSNs had a higher likelihood to be satisfied with health plans, overall healthcare, personal doctor, and specialist when compared to those in P-PSNs from 2006 to 2008. Relatively, beneficiaries seem to have more positive experience in the more integrated organizations due to higher coordination of care, and higher availability and accommodation in terms of access to care.

However, this study also found that beneficiaries enrolled in H-PSNs had declining trends in satisfaction at a greater rate over time compared to beneficiaries enrolled in P-PSNs. The data supports that less integrated delivery organizations do a better job over time regarding patient satisfaction. There are some previous studies that show similar results. The study by Schiller et al. (2010) investigated the variations in Medicaid enrollees' perceptions between MediPass, which is a primary care case management model, and provider-sponsored organizations (PSOs), which were precursors to PSNs, using CAHPS data in Florida.<sup>5</sup> They found that enrollees in PSOs had lower specialists rating than those in MediPass, while there were no significant differences in satisfactions with health plans, personal doctor, and overall healthcare between PSOs and MediPass. These results

**Table 1. Characteristics of study sample**

		P-PSNs (N=4,040)	H-PSNs (N=4,185)
Age		18.73	15.47
	<1	0.22%	0.24%
	1-5	25.10%	30.99%
	6-13	30.50%	32.71%
	14-20	18.29%	18.18%
	21-54	16.21%	11.35%
	55-64	7.33%	5.52%
	>65	2.25%	0.86%
Gender			
	Female	52.10%	49.61%
	Male	47.90%	50.39%
Race			
	White	34.93%	31.28%
	Black	45.07%	51.35%
	Other	18.84%	15.79%
Ethnicity			
	Hispanic	26.41%	21.39%
	Non-Hispanic	73.59%	78.61%
County			
	Duval	23.74%	48.00%
	Broward	76.26%	52.00%
Eligibility Status			
	SSI	28.59%	46.19%
	TANF	71.41%	53.81%
Health Status			
	Excellent	32.62%	24.73%
	Very good	23.29%	23.27%
	Good	23.74%	27.60%
	Fair	13.59%	17.59%
	Poor	6.16%	6.21%
	Don't know	0.40%	0.48%
	Refused	0.20%	0.12%
Risk score		0.44	1.12

could be explained by different organizational structure between PSOs and Medipass. In addition, previous research regarding the differences in expenditures between the two PSNs found that H-PSNs control costs better than P-PSNs.<sup>24</sup> This suggests that there may be a trade-off between costs and enrollee experiences.

Along with the results of the previous research, more integrated systems likely restrict provider choice more than less integrated systems and patients might be more highly managed. Reduction in utilization along with cost containment in the more integrated organizations would be directly linked to decrease in satisfaction. Patients could perceive that they are getting enough healthcare services and are having barriers to access care. However, longer term studies are necessary to determine whether these downward trends in satisfaction among H-PSN enrollees compared to P-PSN enrollees continue.

There are some potential limitations in this study. There is a possibility to have omitted factors that affected their satisfaction, such as different behaviors of physicians and patients within P-PSNs and H-PSNs. This study used a difference-in-difference approach and controlled for several other enrollees' socio-demographic factors and health status, which minimized potential confounding due to both observed and unobserved factors. However, there might be other time-variant unobserved differences that influence enrollees' satisfaction which could potentially bias the results. In addition, the study population was limited to the initial Medicaid Reform participants from two urban counties, Broward and Duval counties, who enrolled in H-PSNs and P-PSNs. Therefore, it is not appropriate to generalize the study findings to all Medicaid beneficiaries, including those enrolled in rural counties or enrolled in non-PSN plans without further validation.

**Table 2. Univariate analysis**

Weighted	2006		P value	2007-2008		P value
	P-PSNs	H-PSNs		P-PSNs	H-PSNs	
Satisfaction with health plans (rating)	1.42	1.54	<0.0001	1.37	1.49	<0.0001
Low	15.01%	10.31%		17.97%	13.54%	
Medium	27.53%	25.08%		26.57%	24.07%	
High	57.47%	64.61%		55.46%	62.40%	
Healthcare rating	1.54	1.58	<0.0001	1.53	1.47	<0.0001
Low Rating	10.26%	8.83%		10.58%	14.12%	
Medium	25.02%	24.50%		26.23%	25.09%	
High	64.73%	66.67%		63.19%	60.79%	
Personal doctor (rating)	1.62	1.72	<0.0001	1.69	1.68	<0.0001
Low	7.74%	5.45%		7.07%	7.63%	
Medium	22.48%	16.74%		17.12%	16.43%	
High	69.78%	77.81%		75.81%	75.93%	
Specialist (rating)	1.45	1.64	<0.0001	1.49	1.57	<0.0001
Low	15.42%	7.64%		13.33%	10.75%	
Medium	24.21%	21.00%		23.91%	21.35%	
High	60.37%	71.35%		62.76%	67.90%	

**Table 3. Multivariate analysis of satisfaction**

	Health Plans	Overall Healthcare	Personal Doctor	Specialist
Post-reform	0.836**	0.897**	1.192**	0.927
HPSN	1.722**	1.533**	1.871**	1.581**
Post-reform*HPSN	0.846*	0.632**	0.663**	0.761*
Age	1.000	1.001*	0.997*	0.997*
Gender (Female)				
Male	0.932**	0.951*	0.922**	0.909*
Race (White)				
Black	1.148**	1.030	1.067*	1.217**
Other	0.825**	0.733**	0.852**	0.939
Ethnicity (Non-Hispanic)				
Hispanic	1.687**	1.456**	1.448**	1.524**
County (Broward)				
Duval	1.046*	1.098**	0.907**	1.130*
Eligibility (SSI)				
TANF	1.046	1.191**	1.119**	0.734**
Health status (Excellent)				
Very good	0.685**	0.661**	0.757**	0.647**
Good	0.542**	0.429**	0.539**	0.580**
Fair	0.459**	0.366**	0.602**	0.442**
Poor	0.250**	0.182**	0.409**	0.411**
Risk score	1.033**	1.028*	1.081**	1.069**

\*p&lt;.05, \*\*p&lt;.001

In spite of these limitations, findings from this study may inform other states considering changes to how Medicaid services are delivered. There is a possible trade-off between cost containment and patient satisfaction. Findings can also drive further development of ACOs to address areas where satisfaction is lagging to try and achieve both cost containments and high levels of patient

satisfaction. The first national survey of ACOs stated 3 out of 4 ACOs were either physician-led or jointly led by physicians and hospitals.<sup>18</sup> Therefore, findings from this study may help us understand the advantages or opportunities to ACOs jointly led by physicians and hospitals compared to physician-led and hospital-led ACOs in terms of patient satisfaction.

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