The impact of dental Medicaid reform on dental care provider activity and market penetration of dental support organizations

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ABSTRACT

Background. Medicaid state dental programs have experienced changes related to provider practice settings with the increased growth of dental support organizations (DSOs). The authors conducted this study to assess the impact of state Medicaid reform on the dental practice environment by examining provider activity and practice setting.

Methods. This was a retrospective cohort study of more than 13 million dental claims in the Virginia Medicaid program. It included children and dental care providers in the Virginia dental Medicaid program at some time during a 9-year period (fiscal years 2003-2011). The independent variable was the provider practice setting: private practice, DSO, and safety-net practice. The outcomes included annual measures of claims, patients, and payments per provider. The outcomes were examined over 3 phases of the study period: prereform (2003-2005), implementation phase (2006-2008), and postreform maturation (2009-2011).

Results. Provider activity increased after dental program reform, with private-practice providers delivering most of the dental care in the Medicaid program. There was a significant penetration of DSO providers in number of providers, claims per provider, and patients per provider ($P < .001$). Regression results found that providers in DSO settings had an increased number of patients and claims compared with private-practice providers.

Conclusions. Medicaid reform has resulted in a significant increase in provider participation and growth of DSO-affiliated providers.

Practical Implications. Areas of the state with more dense population had a higher penetrance of dentists practicing in DSO settings providing dental services to children enrolled in Medicaid.

Key Words. Access, demand, use of services; child and adolescent health; dental care; dentistry; governance; Medicaid; ownership.

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Since its establishment in 1965, millions of children rely on the Title XIX Medicaid program for their medical and dental needs.[1] There are public health concerns associated with low levels of dental care use among children enrolled in Medicaid, which has been tied to an increased risk of developing poor oral in children from lower socioeconomic backgrounds.[2] The literature further identifies an association between poor childhood dental health and poor dental heath later in life.[3] In adults, dental disease has been correlated with other health concerns including cardiovascular disease and poor pregnancy outcomes.[4,5] Therefore access to pediatric dental services among the Medicaid population has important public health implications both for the immediate and long-term costs along with overall health of children.[6]

Various studies have shown that low dentist participation is partially due to administrative issues or reimbursement rates, referred to as programmatic factors.[7-12] Other reasons, referred to as patient-related factors, may include lack of participant awareness of the importance of regular dental care (that is, broken appointments or poor oral health literacy) and the lack of flexible appointments for working participants owing to traditional provider practice schedules.[13,14]

Several studies have investigated the impact of increasing Medicaid reimbursement rates on the use of dental services and dentist participation.[9-14] Beazoglou and colleagues[15] investigated the impact of increased dental fees on dental use among children enrolled in Medicaid in Connecticut. The study results indicate that fee increases and program improvements resulted in increased dental participation by 72% and an increase in use that eliminated the disparities in access to dental care between children with private insurance and children enrolled in Medicaid.[15] A 2015 study on the impact of Medicaid reforms including increases in Medicaid reimbursement rates for pediatric dental care in Connecticut, Maryland, and Texas found that increasing Medicaid dental fees closer to private insurance fee levels has a significant impact on dental care use and unmet dental need among children eligible for Medicaid.[12] A study conducted in 2017 suggests that access to children's dental care is affected by reimbursement rates, dentist density (that is, dentist-to-population ratio), and dental care provider participation in Medicaid's dental program.[16] Chalmers and colleagues[17] conducted a study to investigate how low dentist geographic density and low provider participation rates affect access to dental treatment and diagnostic services, with a focus on the ratio of children who receive services to those who have access to the dental care system. Study results indicate that increases in reimbursements increase use among children enrolled in Medicaid but not the services the children receive from their dental care provider.[17] These studies indicate that reimbursement rates influence access to dental care but are also moderated by dentist density and participation in the Medicaid dental program.

Many of the programmatic barriers to participation such as complicated filing processes, low reimbursement rates, limited procedure coverage, preauthorizations, and denial of payments have been improved with Medicaid reform in the Commonwealth of Virginia.[18,19] In fiscal year (FY) 2006, Virginia initiated its dental Medicaid reform. This program "carved out" approximately 8 managed care organizations that had been responsible for providing dental benefits to patients enrolled in the Medicaid program before the reform. These managed care organizations reimbursed dental care providers at varying, independent rates and had varying preauthorization requirements and procedures that were covered benefits.[20] The "carve-out" consisted of a concerted effort between the leadership at the Virginia Department of Medical Assistance Services (VDMAS) and efforts of stakeholders in the dental community across the state. These efforts culminated in significant program reform to a single-payer model that included increased provider reimbursement rates. This reform has since led to increased participation and use of Virginia's dental Medicaid program.[21] It appears that the reform of state dental Medicaid programs has affected the delivery of dental services to low-income families, but it is unclear what new practice settings may have developed in some states to meet the needs of this previously uninsured or untreated population and to deliver care.[22,23]

DENTAL SUPPORT ORGANIZATIONS

The limited information available has focused on the definition of dental practices and the fact that there has been a decrease in the number of private (solo) practitioners with an increase in large group practices. These large group practices are both traditional (dentist-owned) and nontraditional (corporation owned, corporation managed, or both).[24-27] The nontraditional dental practices are often referred to as dental support organizations (DSOs). DSOs are managed group dental practices typically with employed dental care providers. DSOs support their affiliated group practices by providing nonclinical functions such as human resources, accounting, marketing, and electronic health record systems along with legal and practice management.[28] The DSO may also be a corporate entity that owns the dental practice, or several locations, and employs the dentists in additional to managing the practice operations.[27] There are no public data such as dental licensure files or economic census that provide a classification of dental practices. Characteristics of practice settings that may affect the capacity of the dental delivery system to provide services to children enrolled in Medicaid are not well understood.

To our knowledge, no studies have examined, to date, the impact of the effect of Medicaid reforms on the dental practice environment and the distribution of practice settings and dental services provided. We conducted a study to evaluate the transformation of the practice environment during a period of significant Medicaid dental program reform within the Commonwealth of Virginia. A cohort of dental care providers participating in the VDMAS dental program has been categorized into practice settings of private practice, DSO practice, or safety-net practice. These 3

ABBREVIATION KEY

DQA: Dental Quality Alliance.
DSO: Dental support organization.
FY: Fiscal year.
SES: Socioeconomic status.
VDH: Virginia Department of Health.
VDMAS: Virginia Department of Medical Assistance Services.

practice settings were compared over 3 phases of the dental Medicaid program reform (FY 2003-2011). Comparisons of numbers of providers, dental claims, and children receiving dental services were made across the different practice settings and reform phases.

METHODS

Data sources

This is a retrospective cohort study based on more than 13 million dental claims from providers participating in the Virginia Medicaid program during FY 2003 through 2011. This study was done to examine dental claims by providers according to their practice setting over 3 phases of the study period: a prereform phase (FY 2003-2005), an implementation phase (FY 2006-2008), and a postreform phase (FY 2009-2011). This study was approved for exemption by the Virginia Commonwealth University's institutional review board for human subjects (HM5024).

Classification of provider practice setting

A dental care provider is defined as a dentist providing services and registering claims with the VDMAS. There were 2,806 unique dental care providers who submitted claims over the study period. After excluding mobile dental care providers there were 2,776 unique providers in the analytical file for this study. The principal indicator of practice environment was the practice setting of the dental care provider. Dental care provider settings were classified into 3 categories as private practice, DSO, or safety-net practice.

Using the VDMAS provider file, each dental care provider has a VDMAS provider number and was assigned to the practice setting using the provider number, name, and physical address of the practice location. The assignment of provider setting was completed by 2 research assistants (B.W.R.P.) and reviewed by the primary investigator. Their agreement was examined and resulted in a κ coefficient of 0.95 (95% CI, 0.94 to 0.96). Safety-net settings included both university- and hospital-based clinics in addition to county health departments, federally qualified health centers, and local safety-net clinics. In Virginia, federally qualified health centers file claims based on fee for procedure, not per visit, and are included in this analysis.

Measuring provider activity

The claims data were aggregated into summary data at the provider level within each FY of the study, using the provider number. The FYs were then grouped according to reform period. We focused on 5 annual measures to evaluate the trends of provider activity and payments through the years of the study. To evaluate the provider activity (and market share) for each provider practice setting (private practice, DSO, safety-net practice) we calculated the annual number of claims per patient per provider, annual number of patients per provider, and annual number of claims per provider. Economic outcomes were evaluated as annual cost per patient per provider and annual payment per provider.

Independent variables included in the analysis were the period of dental program reform as defined above (prereform, implementation phase, postreform maturation), provider specialty (general dentist, pediatric dentist, other dental specialty), county-level SES, VDMAS managed care regions, and Virginia Department of Health (VDH) planning districts. The SES index was created for each geographic county on the basis of the Area Health Resources Files[29] for the practice location, with the fourth quartile having the highest SES.

Analytic methods

Descriptive

In Table 1, we describe and compare the following outcomes across the providers and the program reform periods: claims per patient per provider, patients per provider, claims per provider, payment per patient per provider, and payment per provider.

We also compared between each provider practice setting and DSO setting in each program reform period. We used a *t* test to evaluate statistical differences among the different program reform periods and among the different practice settings. Figure 1 displays the annual patients per provider and annual payments per provider by practice setting over the reform periods. Then, for each of the

Table 1. Descriptive table for dental care providers across practice setting and program reform periods.

	ANNUAL NUMBER OF CLAIMS PER PATIENT PER PROVIDER	ANNUAL NUMBER OF PATIENTS PER PROVIDER	ANNUAL NUMBER OF CLAIMS PER PROVIDER	ANNUAL COST ($) PER PATIENT PER PROVIDER	ANNUAL PAYMENT ($) PER PROVIDER
	(n = 9,138)	(n = 9,138)	(n = 9,138)	(n = 9,138)	(n = 9,138)
PROVIDER TYPE FOR POLICY PERIODS	Mean (SD*)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Prereform Period (FY† 2003-2005)					
Private (n = 1,496)	4.93 (0.06)	187 (13.00)	1,117 (82.00)	182 (8)	36,982 (3,686)
Safety net (n = 353)	4.68 (0.11)	178 (26.00)	926 (170.00)	154 (16)	31,560 (7,587)
DSO‡ (n = 18)	3.39 (0.49)	118 (116.00)	547 (751.00)	101 (72)	15,533 (33,598)
Implementation Period (FY 2006-2008)					
Private (n = 2,122)	5.27 (0.05)	213§ (11.00)	1,341§ (69.00)	302§ (7)	66,695 (3,094)
Compared with prereform	0.34¶ (NA#)	26 (NA)	224 (NA)	120¶ (NA)	29,713¶ (NA)
Safety net (n = 414)	4.36 (0.11)	258 (24.00)	1,289§ (157.00)	219 (15)	59,548 (7,006)
Compared with prereform	−0.32 (NA)	81 (NA)	362 (NA)	66 (NA)	27,989 (NA)
DSO (n = 296)	4.85 (0.13)	377 (29.00)	2,090 (185.00)	223 (18)	88,688 (8,285)
Compared with prereform	1.46 (NA)	259 (NA)	1,544 (NA)	122 (NA)	73,156 (NA)
Postreform Maturation Period (FY 2009-2011)					
Private (n = 3,330)	5.57§ (0.05)	217§ (9.00)	1,440§ (55.00)	338§ (5)	72,498§ (2,471)
Compared with prereform	0.64¶ (NA)	30 (NA)	323 (NA)	155¶ (NA)	35,516¶ (NA)
Compared with implementation	0.30¶ (NA)	4 (NA)	99 (NA)	35¶ (NA)	5,803 (NA)
Safety net (n = 500)	4.73 (0.10)	272 (22.00)	1,498§ (143.00)	256 (14)	66,249§ (6,375)
Compared with prereform	0.05 (NA)	95¶ (NA)	572 (NA)	102¶ (NA)	34,690¶ (NA)
Compared with implementation	0.37 (NA)	14 (NA)	210 (NA)	36 (NA)	6,701 (NA)
DSO (n = 609)	4.77 (0.09)	634 (20.00)	3,225 (129.00)	209 (12)	121,173 (5,776)
Compared with prereform	1.38 (NA)	515¶ (NA)	2,678¶ (NA)	109 (NA)	84,191¶ (NA)
Compared with implementation	−0.08 (NA)	257¶ (NA)	1,135¶ (NA)	−14 (NA)	32,485¶ (NA)

* SD: Standard deviation. † FY: Fiscal year. ‡ DSO: Dental support organization § $P < .001$ for significant differences in practice settings compared with DSO practice in the same period. ¶ $P < .001$ for significant differences between periods. # NA: Not applicable.

3 program reform periods, we estimated the percentage of claims for each practice setting of the overall number of claims in each of the health planning districts in Virginia. We mapped these percentages to show the changes (Figure 2).

Regression

We used a difference in difference (DiD) model to examine how the dental program reform affected the practice environment; we used a linear regression model to estimate the differences between the program reform periods and provider practice settings (Table 2). An interaction term between the provider setting and the program reform period represented the DiD and was used to evaluate whether the differences between the prereform period and either the implementation or postreform period varied between provider settings. In each regression model, we controlled for the provider specialty, SES index, VDMAS managed care region, and VDH planning district. We controlled for any secular changes in the outcomes by including a year fixed effect. Most of the providers provided services in multiple years, and to account for the correlated outcomes for the same provider we clustered the errors within each provider. Five separate regression models were used to estimate the 5 outcomes: the annual number of claims per patient per provider, annual number of patients per provider, annual number of claims per provider, annual payment per patient per provider, and annual payment per provider. A supplementary analysis using an interrupted time series regression model was used to evaluate the causal effect of dental program reform on the growth of DSO practice settings.[30,31]

RESULTS

As seen in Table 1, during the 3 reform periods, annual claims per patient per provider were significantly higher for providers in private settings. Annual patients per provider and claims per provider were higher for providers in predominantly DSO settings. Annual cost per patient per provider was higher for providers in private settings, whereas annual payment per provider significantly increased for providers in DSO settings. Table 1 shows that, overall, dentists in private practice settings delivered most of the dental care in the Medicaid program. By the end of the postreform maturation period, there was significant penetration of DSO provider settings in terms of number of patients per provider, claims per provider, and annual payment per provider compared with the prereform period ($P \leq .001$) and compared with the private practice provider setting (Table 1). Mobile providers had claims only in the postreform period. The mobile provider setting had an annual average number of claims per patient per provider of 5.13 (0.03), an annual average number of patients per provider of 257 (59), an annual average number of claims per provider of 1,320 (384), an annual average payment per patient per provider of $47 ($37), and an annual average payment per provider of $36,927 ($17,103).

Figure 1 displays the annual patients per provider and annual payment per provider by practice setting over the reform periods. All 3 settings show increases in patients per provider and payment per provider, with providers in DSO settings showing the most marked increases. Figure 2 displays the percentage of claims by practice settings of the overall number of claims in each of the VDH planning districts over the 3 program reform periods. The percentage of claims in each of the VDH planning regions over the 3 reform periods shows the penetration of DSO practice settings, which can be seen to be clustered in predominantly urban counties compared with private practice and safety-net settings.

According to our regression models in Table 2, there was a significant increase in number of patients, number of claims per provider, and payment per provider when reaching the postreform period ($P < .001$). Compared with providers in DSO settings, providers in private practice settings had 1.66 more claims per patient per provider ($P < .001$). Pediatric dentists provided significantly higher levels of service than did general dentists, whereas other dental specialists provided lower levels of service. Dental care providers practicing in counties, cities, or both with lower SES indexes had higher levels of activity than dental care providers in higher SES localities.

When examining the interaction between reform period and provider setting, during the postreform period, dental care providers in both private practice and safety-net settings had significantly fewer patients per provider ($P < .001$). The DiD models show that the reform increased the annual number of patients per provider and the annual number of claims per provider for the DSO setting by 425.5 (95% CI, 197.05 to 653.95) patients and 2,101 (95% CI, 629.22 to 3,572.79) claims, respectively, compared with private practice settings, and by 357.7 (95% CI, 121.43 to 593.97) patients and 1,833 (95% CI, 312.09 to 3,353.91) claims, respectively, compared with safety-net settings.

Table 3 displays an interrupted time series regression of quarterly claims, patients, and payments for DSO practice settings showing significant changes after program reform. The results show significant increases in the number of patients, claims, and payments per provider for the DSO setting after the program reform. The scatterplots in Figure 3 show the actual number, predicted means, and counterfactual estimates (that is, what would be expected without program reform) for patients and payments per provider in the DSO practice setting.

DISCUSSION

This is, to our knowledge, one of the first studies to examine the changing profile of the dental practice environment using claims data from a government-sponsored insurance program such as Medicaid. In this study, we examined the impact of program reform in a Medicaid dental program on the dental practice environment. Most significantly, over the study period (FY 2003-2011), there has been an increase in provider participation and provider activity as measured by dental claims and payments. DSOs are a growing sector of the dental practice environment, and this study shows evidence of this growth specific to a state Medicaid dental program. There has been a transformation of dental practice environment with an increased number of DSO practices entering the provider market, specifically in geographic areas with dense population concentrations.

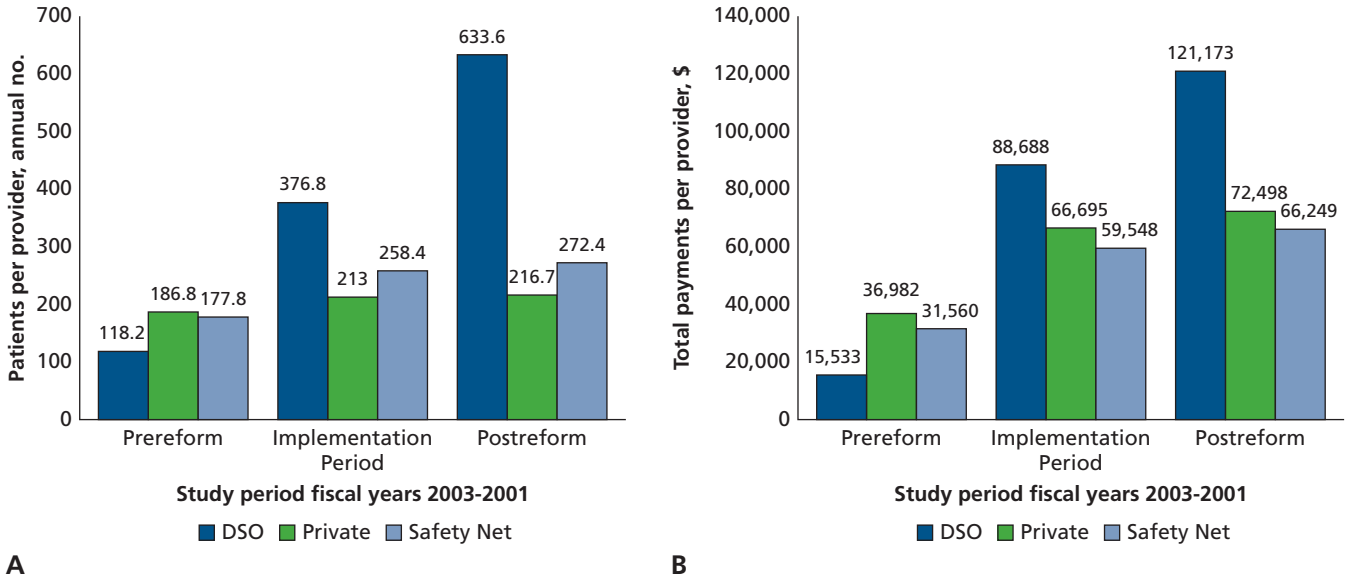

Figure 1. Annual number of patients per provider (**A**) and total payments per provider (**B**). DSO: Dental support organization.

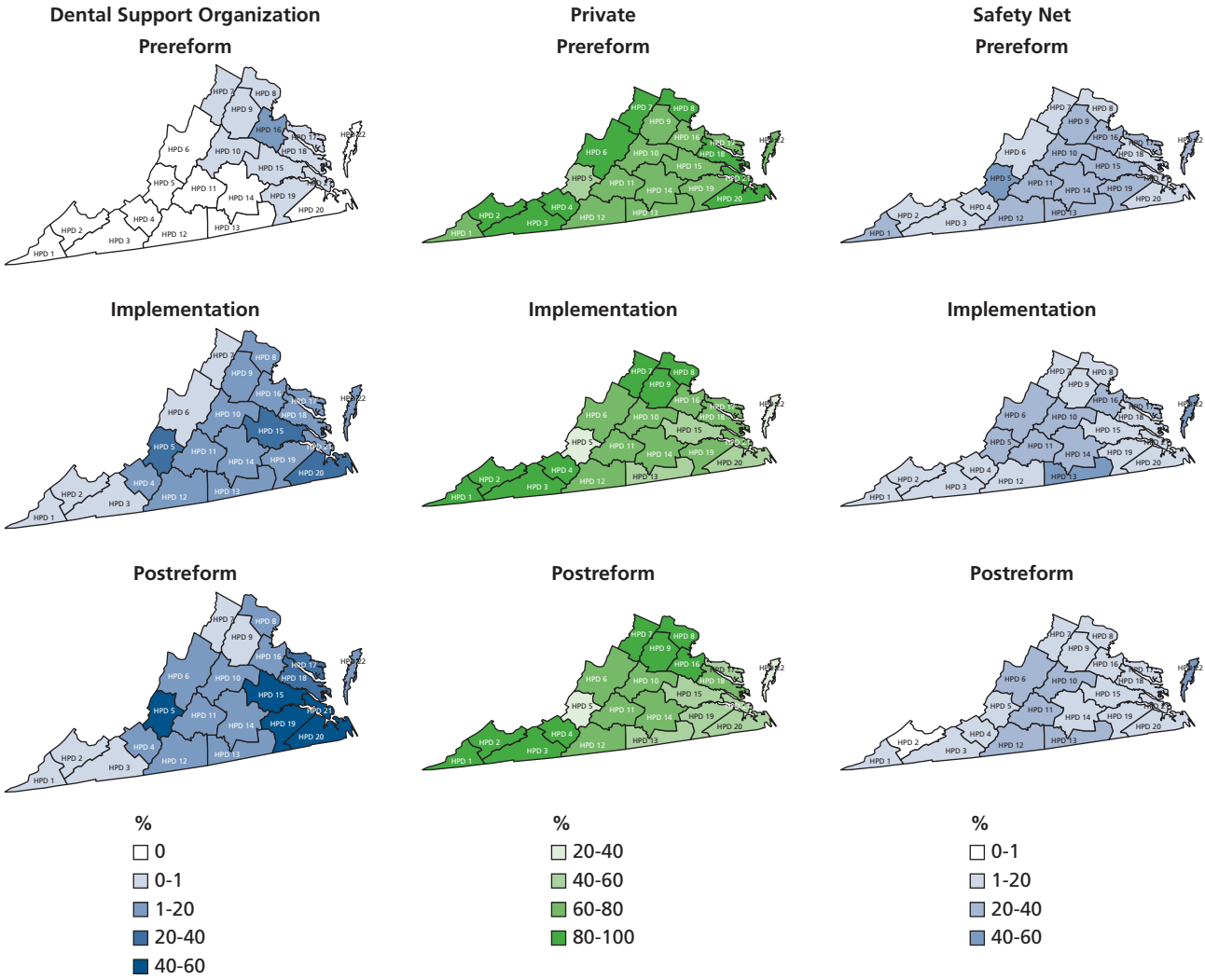

Figure 2. Virginia Department of Health health planning district map of the percentage of claims by practice setting providers for each of the 3 reform periods.

Table 2. Regression table comparing differences in outcomes for private and safety-net practice settings compared with referent group of dental support organization practice settings during implementation and postreform periods, relative to prereform period.*

	ANNUAL CLAIMS PER PATIENT PER PROVIDER, NO. (n = 8,797)	ANNUAL PATIENTS PER PROVIDER, NO. (n = 8,797)	CLAIMS PER PROVIDER, NO. (n = 8,797)	ANNUAL COST PER PATIENT PER PROVIDER, $ (n = 8,801)	ANNUAL PAYMENT PER PROVIDER, $ (n = 8,796)
COVARIATE	**Estimate (95% CI)**	**Estimate (95% CI)**	**Estimate (95% CI)**	**Estimate (95% CI)**	**Estimate (95% CI)**
Intercept	3.55† (2.19 to 4.91)	−15.60 (−339.57 to 308.37)	−285.00 (−2,371.83 to 1,801.83)	50.54 (−151.32 to 252.40)	−18,905.00 (−112,191.41 to 74,381.41)
Period					
Implementation	1.26‡ (0.30 to 2.22)	188.30 (−41.25 to 417.85)	1,238.00 (−239.68 to 2,715.68)	137.44 (−5.69 to 280.57)	61,942.00 (−4,154.71 to 128,038.71)
Postreform	1.08 (0.14 to 2.02)	481.70† (255.45 to 707.95)	2,568.00† (1,109.97 to 4,026.03)	127.11 (−13.96 to 268.18)	102,277.00‡ (37,127.43 to 167,426.58)
Prereform [Reference]	0	0	0	0	0
Setting					
Private practice	1.66† (0.72 to 2.60)	−6.60 (−38.20 to 25.00)	211.00 (−1,231.31 to 1,653.31)	82.43 (−57.26 to 222.12)	4,616.00 (−59,894.95 to 69,126.95)
Safety-net practice	0.70 (−0.26 to 1.66)	−51.20 (−279.91 to 177.51)	−226.00 (−1,699.75 to 1,247.75)	64.58 (−78.04 to 207.20)	−9,521.00 (−75,377.98 to 56,335.98)
Dental support organization practice [Reference]	0	0	0	0	0
Dentist type					
Other	−1.70† (−1.84 to −1.56)	−137.60† (−169.20 to −106.00)	−929.00† (−1,133.36 to −724.64)	187.73† (168.02 to 207.44)	−18,687.00† (−27,788.88 to −9,585.12)
Pediatric	1.16† (0.98 to 1.34)	433.60† (393.20 to 474.00)	3,270.00† (3,010.62 to 3,529.38)	63.03† (37.84 to 88.22)	151,534.00† (139,903.17 to 163,164.84)
General [Reference]	0	0	0	0	0
Interaction of Reform Period × Practice Setting					
Implementation × private	−0.95 (−1.91 to 0.01)	−149.20 (−381.09 to 82.69)	−934.00 (−2,427.40 to 559.40)	−17.79 (−162.37 to 126.79)	−28,216.00 (−94,988.67 to 38,556.67)
Implementation × safety net	−1.09 (−2.09 to −0.09)	−97.50 (−337.52 to 142.52)	−803.00 (−2,349.46 to 743.46)	−62.72 (−212.37 to 86.93)	−29,839.00 (−98,953.95 to 39,275.95)
Postreform × private	−0.48 (−1.44 to 0.48)	−425.50† (−653.95 to −197.05)	−2,101.00‡ (−3,572.79 to −629.22)	16.19 (−126.25 to 158.63)	−60,741.00 (−126,521.34 to 5,039.34)
Postreform × safety net	−0.58 (−1.56 to 0.40)	−357.70‡ (−593.97 to −121.43)	−1,833.00‡ (−3,353.91 to −312.09)	−28.61 (−175.93 to 118.71)	−60,747.00 (−128,779.23 to 7,285.23)
Socioeconomic Status Index					
First quartile	−0.18 (−0.34 to −0.02)	75.80† (38.23 to 113.37)	549.00† (307.31 to 790.7)	−19.00 (−42.42 to 4.42)	18,632.00† (7,814.68 to 29,449.33)
Second quartile	0.09 (−0.07 to 0.25)	54.60‡ (16.26 to 92.94)	418.00† (170.41 to 665.59)	−15.19 (−39.10 to 8.72)	11,718.00 (678.63 to 22,757.37)
Third quartile	−0.21‡ (−0.35 to −0.07)	7.60 (−24.96 to 40.16)	150.00 (−60.26 to 360.26)	−23.67 (−43.97 to −3.37)	1,961.00 (−7,412.05 to 11,334.05)
Fourth quartile [Reference]	0	0	0	0	0

* Each outcome panel represents a separate regression that adjusted for the provider's specialty, Virginia Department of Medical Assistance Services geographic managed care region, Virginia Department of Health planning region, and fiscal year fixed effects. The covariates Virginia Department of Medical Assistance Services region and Virginia Department of Health planning region are not shown in the table, the regression models also clustered the standard errors within each provider. † $P < .001$. ‡ $P < .01$.

There is limited research on the impact of DSO support practices related to use, cost, or quality. There are a few DSO industry-sponsored reports examining specific states that show decreased costs per patient per year at DSO-affiliated practices compared with non-DSO practices.[32,33] These reports focus only on expenditures with no assessment of quality of care, outcomes studies, or both and

Table 3. Interrupted time series regression of quarterly claims, patients, and payments in dental support organization practice settings.

	POSTREFORM COEFFICIENT*			
OUTCOME	**Coefficient**	**Standard Error**	**95% CI**	***P* Value**
Payment per Provider†	2.23	0.37	1.51 to 2.95	< .001
Patients per Provider	96.84	24.69	48.44 to 145.24	< .001
Claims per Patient per Provider‡	−0.26	0.11	−0.49 to −0.04	< .05
Claims per Provider‡	1.83	0.03	1.77 to 1.89	< .001
Payment per Patient per Provider†	−0.74	0.47	−1.66 to 0.18	Not applicable

* Postreform period begins at fiscal year 2006. † Generalized linear model with log link function. ‡ Generalized linear model Poisson distribution and log link function.

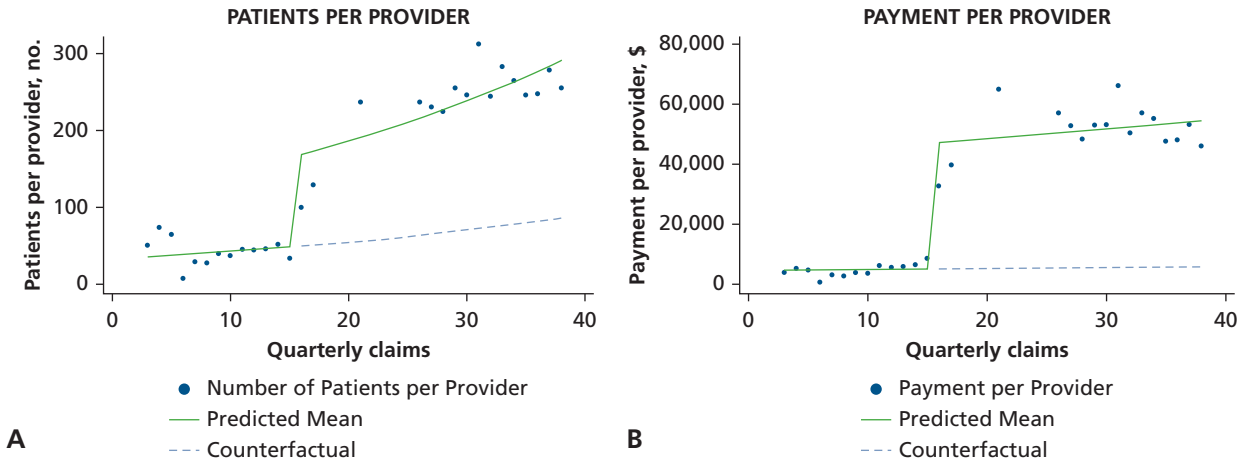

Figure 3. Quarterly patients (**A**) and payments per provider (**B**) in dental support organization practice settings.

may not be generalizable nationally. Future studies of state Medicaid dental program are needed to make judgments about program performance, the quality of dental care, and outcomes. Healthcare Effectiveness Data and Information Set or Dental Quality Alliance (DQA) measures exist that measure quality and outcomes.[34,35] For example, claims-level DQA quality measures can posit regular receipt of care (usually once per year for "any," "preventive," and "treatment") as a quality measure. Future studies can use these quality of care measures to examine the dental care delivered, comparing differing practice settings for publicly insured children.[23,36] We can also use these measures in future studies with patient-level data to examine the effect of Medicaid dental program reform across the identified dental practice settings related to cost, treatment, and DQA outcomes or quality measures of dental care.

One of the limitations of this study is that there is no common classification of dental practices that is collected or reported nationally. The economic census has some limited reporting of dental establishments as single and multiunit establishments and reports a significant increase in office sites controlled by "multiunit" dental companies.[37] A geographic distribution of dentists survey conducted by the American Dental Association Health Policy Institute also found a reduction in the proportion of dentists who were owners, from 91.0% to 84.8%, and a reduction in the proportion of dentists who were solo practitioners, from 67.0% to 57.5%.[38] There is no widely accepted framework for classifying practice settings that has the specificity to examine the impact of these differing or alternative settings on either volume or quality of dental care provided.[23] A classification system of group dental practices has been proposed, although the specificity of it has not been tested.[27] Working with either Medicaid or even private dental insurance claims, it is not possible to apply this classification uniformly. Dental insurance claims lack an operational definition of dental practice setting and typically contain only a provider identification number with provider or business name and physical address. We assigned practice setting using the name of the provider,

the name of the business, or both and the physical address of the practice location. If the provider name, business name, or both were not also listed on the Association of Dental Support Organizations website (https://www.theadso.org), the practice setting was classified as a private dental setting. This may have underestimated the classification of practice settings as DSO-affiliated or alternative practice settings, underestimating the impact of these settings in the results.

CONCLUSIONS

This Medicaid dental program reform has resulted in a significant increase in dental care provider participation and activity as measured by the submission of dental claims. During this same time, there has been a transformation of the practice environment with significant increases in dental care providers practicing in DSO settings in a subset of urban geographic areas.

Practical Implications

Publicly funded dental insurance programs are increasingly charged with providing efficient, cost-effective, and quality dental care for millions of children. There is a need for both national- and state-level studies to provide policy makers and state Medicaid dental programs the necessary information to make judgments on the performance of their program. These studies need to use existing (DQA) measures of quality and outcomes when examining both public and commercial dental insurance programs. The dental practice environment is likely to continue to change. It is paramount for understanding the impact of the dental care provider practice setting on treatment, quality, and cost of care. New providers entering the profession, in addition to existing providers, are increasingly likely to consider DSO-affiliated practice alternatives, expecting that it will free them from the business side of practice and allow them to concentrate on clinical dentistry.[39] In 2015, nearly 12% of dental school graduates entering private practice were choosing to work for corporate practices affiliated with DSOs. The 2018 American Dental Education Association survey of dental school seniors showed that 16% of graduates were making this career choice.[40]

An operational framework is needed to more accurately measure the practice setting of dental care providers. This will provide opportunities to examine demand for dental care, use of dental services, and quality of dental care and outcomes in both national surveys and state-level public and commercial dental programs. ■

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