Research Brief

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Dentist Participation in Medicaid: How Should It Be Measured? Does It Matter?

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Key Messages

- *There is considerable debate on how best to measure dentist participation in Medicaid. In a first-of-its-kind analysis, we use newly accessible data to measure dentist participation in Medicaid according to different metrics and compare results across states.*
- *Our results show that different metrics give different conclusions. For example, some states have a "wide but shallow" pool of Medicaid providers, meaning many dentists are enrolled in the Medicaid program but, on average, see few patients each. Other states have a "narrow and deep" pool of providers, meaning fewer dentists are enrolled in Medicaid, but each, on average, sees a high volume of patients.*
- *Our research does not propose a single best definition of meaningful dentist participation in Medicaid. Rather, it provides different "cuts" of provider enrollment and patient volume data in a transparent way. Further research will explore which measures matter when it comes to access to dental care.*

Introduction

Medicaid enrollment hit record levels in 2021.[1] Dentist participation in state Medicaid programs is an important aspect of the dental care safety net meant to serve nearly 75 million covered adults and children. Research suggests there is an association between dentist participation in Medicaid and access to dental care for low-income individuals.[2]

Various criteria have been used to measure dentist participation in Medicaid, including provider enrollment, volume of patients, claims, and share of revenues. Each measure yields different levels and distributions of provider participation. The most meaningful way to measure dentist participation in Medicaid is still under debate.[3,4]

Medicaid is a state-administered health insurance program funded at the federal and state levels for low-income populations. Each state program determines its covered services,

provider reimbursement, and administrative operation processes. Adult dental benefits are optional under Medicaid while comprehensive dental care for children is required under the Early and Periodic Screening, Diagnostic and Treatment (EPSDT) benefit, making programs for enrollees under age 21 fairly uniform across states.

Past research indicates variation in dentist participation in Medicaid by state and dentist characteristics, including gender, race/ethnicity, age, and practice characteristics such as specialty, urban/rural status, and affiliation with dental service organizations.[5] Tuition levels, student debt, and community-based training have also been associated with future Medicaid participation among dental school graduates.[6,7,8] These characteristics of the dental workforce have important implications for access to care.[9,10]

Most prior research on dentist participation in Medicaid has been limited to single-state analyses.[11,12,13] Multi-state analyses exploring provider participation beyond enrollment in state programs have been performed, though never for all states.[3,4] Data sources have included surveys of dentists and state dental directors, state Medicaid claims data, and national provider enrollment data for children's dental services as required by EPSDT. In the past, the Health Policy Institute (HPI) relied on provider enrollment data from Insure Kids Now (IKN) maintained by the Centers for Medicare and Medicaid Services (CMS) as well as HPI's proprietary data to measure dentist participation.[5]

In this research brief, we explore several important policy questions. How should dentist participation in Medicaid be measured? How do different measures impact ranking of states according to provider participation? Which metric is the most relevant in terms of its correlation with access to care? For the

first time, we are employing data from the Transformed Medicaid Statistical Information System (T-MSIS), a national Medicaid claims database recently made available to researchers. Specifically, our analysis describes the distribution of dentists by their volume of Medicaid patients by state. We illustrate how states with similar provider enrollment have drastically different distributions of Medicaid patient volume per dentist. This is a much more granular and refined analysis than was possible in the past, which focused solely on provider enrollment in the programs. Additionally, we offer the distribution of dentists' volume of Medicaid patients by dentist race/ethnicity, offering further insights into how White and Black dentists, for example, differ in terms of their Medicaid caseload. To our knowledge, this is the first robust analysis for all states examining these various measures of dentist participation in Medicaid.

Results

Figure 1 is an illustrative example of how different measures of dentist Medicaid participation provide very different results in terms of number of Medicaid patients. In each of the three selected states – Michigan, Vermont, and Wyoming – 71 percent of dentists were enrolled as providers in their respective Medicaid programs. However, the level of engagement of dentists with Medicaid patients varied drastically. In Michigan, 15 percent of dentists were enrolled as Medicaid providers but did not see any Medicaid patients in the year while 10 percent saw more than 100 Medicaid patients. In Vermont, more than one-third of dentists each treated more than 100 Medicaid patients in the year and only 6 percent of dentists were enrolled as Medicaid providers but did not see any Medicaid patients. These results illustrate the importance of disentangling provider enrollment – a measure that HPI has published annually for several

years for all states – from measures that capture how many dentists are actively treating Medicaid patients.

The distribution of dentists by volume of Medicaid patients in each state is provided in Figure 2 as well as the Appendix. Vermont, Mississippi, and Montana have the largest shares of dentists seeing more than 100 patients while Maine, Virginia, and Utah have the lowest. This depiction of Medicaid engagement by volume of patients allows policymakers, including state Medicaid officials, to compare states using consistent yet flexible definitions of participation. For example, Louisiana had less than 50 percent of dentists enrolled as Medicaid providers, but nearly one-quarter of dentists in the state saw more than 100 Medicaid patients each. Conversely, 72 percent of dentists in North Dakota were enrolled in Medicaid, but only 10 percent of dentists in the state had Medicaid patient volumes of greater than 100.

Figure 3 shows the average Medicaid patient volume per dentist per year by dentist race/ethnicity. Black dentists, followed by Hispanic dentists, lead in terms of enrollment in the program and treating more than 100 Medicaid patients. White dentists had the lowest enrollment and average participation by Medicaid patient volume.

Discussion

There are many different ways to define dentist participation in Medicaid, even when analysis is limited to provider enrollment and volume of patients. Our research does not propose a single best definition that should be used ubiquitously for dentist participation in Medicaid, nor does it suggest some threshold for dentist participation that assures access to care. It does, however, offer different "cuts" of the provider enrollment and patient volume data, allowing researchers, policymakers, and oral health advocates

the opportunity to use the data that will most appropriately respond to their delivery system needs.

Dentist participation in Medicaid varies not only by overall share of practicing dentists enrolled in Medicaid, but perhaps more importantly, by the distribution of the volume of Medicaid patients. Some states have relatively high provider enrollment but a very small share of dentists seeing many (>100) Medicaid patients. In other words, these states have a "wide but shallow" pool of providers. In some cases, group practices may be submitting claims under a single NPI, but there is no way to assess this in the data. Other states have low overall provider enrollment but a high share of enrolled dentists seeing many Medicaid patients. These states have a "narrow and deep" pool of providers. Our analysis does not shed light on which of these is "better" in terms of driving access to dental care for Medicaid enrollees, but it does, for the first time ever, provide an "apples-to-apples" comparison across all states using various metrics and consistent data.

The more relevant question is how much does dentist participation in Medicaid really matter? We have analyzed and published these data from claims and enrollment records, but our analysis does not answer a lot of important questions. Which of these metrics correlate most with access and utilization? We are currently undertaking research that examines whether different measures of provider participation actually translate to more Medicaid beneficiaries visiting the dentist.

Enrollment is the most basic measure of participation. If enrollment increases are among dentists who don't see any Medicaid patients, this will not translate to more access to care. If more providers enroll *and* see a significant volume of patients, we would expect access to improve. However, if the main constraints to access are on the beneficiary side such as insufficient dental

care coverage, low oral health literacy, or challenges with social determinants of health like lack of transportation, then provider participation is a nonissue.

Perhaps most striking, our analysis reveals that in many states there is a significant share of enrolled providers not seeing any Medicaid patients. For example, Colorado implemented the Take 5 program in 2014, encouraging all dentists to treat five Medicaid patients per year.[14] The state has above average dentist enrollment at 57 percent, but nearly one-third of dentists were enrolled and did not see any Medicaid patients. This initiative may have successfully encouraged provider enrollment, but perhaps was not as successful in terms of getting Medicaid patients connected to a provider.
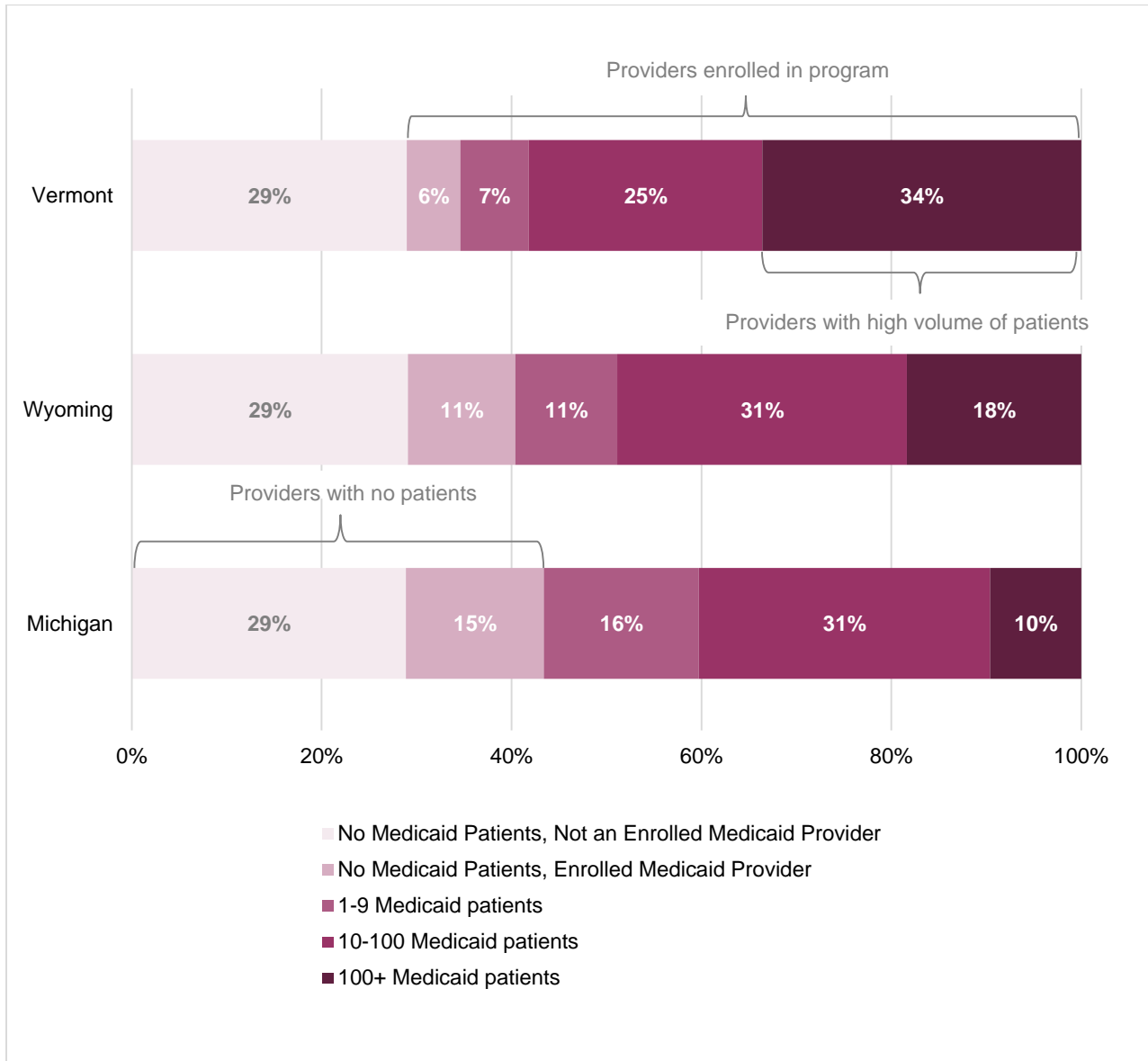
What distinguishes Medicaid-enrolled dentists not treating Medicaid patients from the enrolled providers who *are* treating Medicaid patients? What is their motivation for enrolling in the program? Are they located in areas that don't have demand from Medicaid insured patients? Are enrolled providers turning away patients due to being too busy or fear of broken appointments? Are they seeing so few Medicaid patients that they opt not to file claims due to administrative burden and lower reimbursement? Do they feel a sense of professional stigma for

participating in the Medicaid program? These are important issues for policymakers to further explore. HPI has collaborated with state-level stakeholders to explore these issues with tailored research.

Forthcoming research will employ T-MSIS national Medicaid claims data to obtain the number of Medicaid patients seen in a year as well as the HPI's office database with dentist, practice, and local area characteristics to answer the following: What provider, practice and area characteristics drive Medicaid participation? What predicts having at least one Medicaid patient? For instance, the data show that Black dentists see more Medicaid patients on average than dentists in other racial/ethnic groups. But is this simply a function of where Black dentists locate (i.e., in areas with higher concentrations of Medicaid enrollees) or is it some other factor?
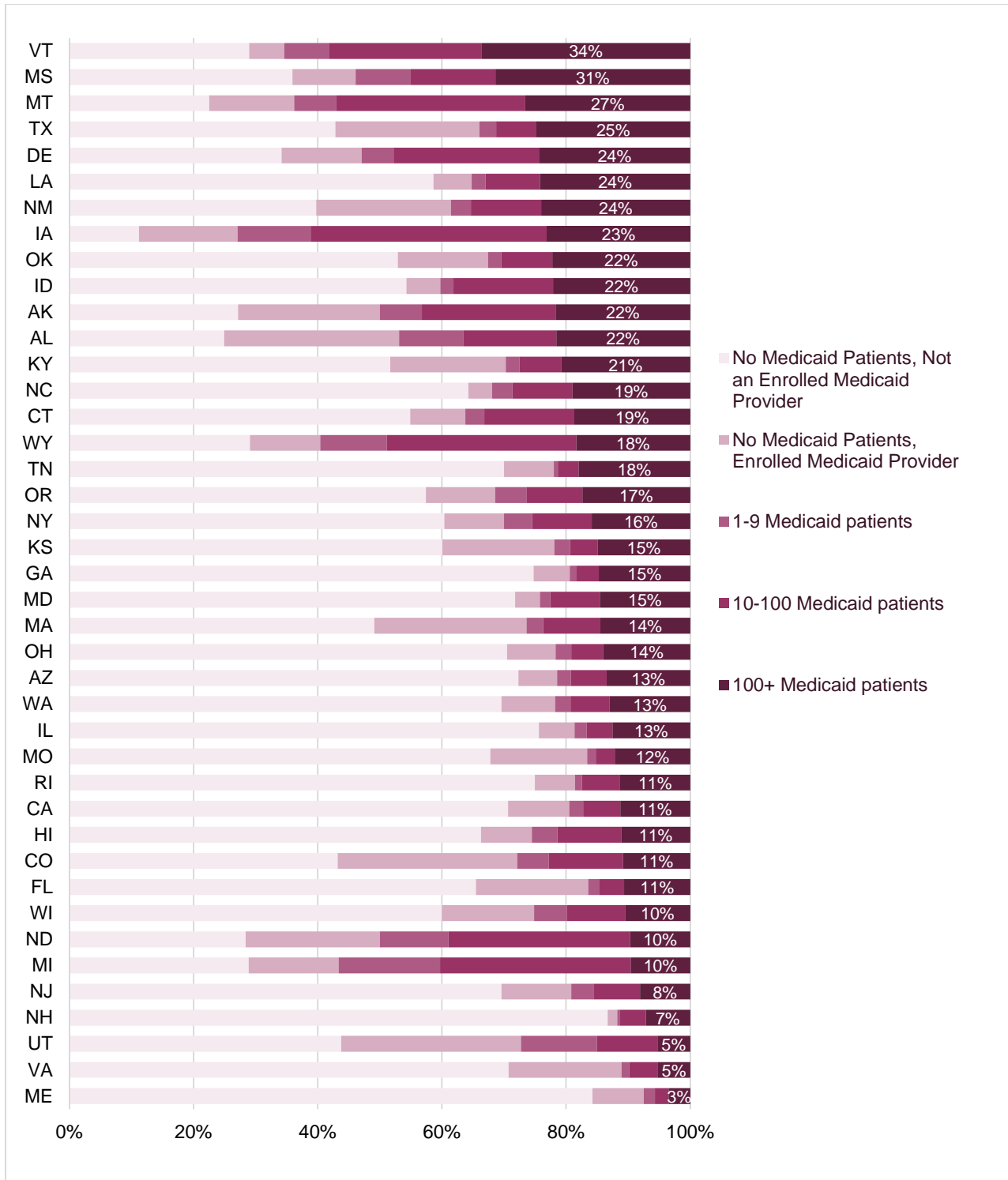
A better understanding of dentists' Medicaid participation will help inform how we can build a more robust dental care safety net to provide care and promote oral health for the growing number of people with Medicaid coverage. The integrity of the dental care safety net depends upon meaningful participation of dentists in Medicaid.

Figure 1: Distribution of Dentists by Number of Medicaid Patients, Three States

Providers enrolled in program

State					
Vermont	29%	6%	7%	25%	34%
Wyoming	29%	11%	11%	31%	18%
Michigan	29%	15%	16%	31%	10%

Providers with high volume of patients

Providers with no patients

- No Medicaid Patients, Not an Enrolled Medicaid Provider
- No Medicaid Patients, Enrolled Medicaid Provider
- 1-9 Medicaid patients
- 10-100 Medicaid patients
- 100+ Medicaid patients

Source: ADA office database and 2017 Medicaid and CHIP de-identified dental claims data from the Transformed Medicaid Statistical Information System (T-MSIS).

Figure 2: Distribution of Dentists by Number of Medicaid Patients, All States

Legend:
- No Medicaid Patients, Not an Enrolled Medicaid Provider
- No Medicaid Patients, Enrolled Medicaid Provider
- 1-9 Medicaid patients
- 10-100 Medicaid patients
- 100+ Medicaid patients

States (top to bottom) with 100+ Medicaid patients percentages:
- VT 34%
- MS 31%
- MT 27%
- TX 25%
- DE 24%
- LA 24%
- NM 24%
- IA 23%
- OK 22%
- ID 22%
- AK 22%
- AL 22%
- KY 21%
- NC 19%
- CT 19%
- WY 18%
- TN 18%
- OR 17%
- NY 16%
- KS 15%
- GA 15%
- MD 15%
- MA 14%
- OH 14%
- AZ 13%
- WA 13%
- IL 13%
- MO 12%
- RI 11%
- CA 11%
- HI 11%
- CO 11%
- FL 11%
- WI 10%
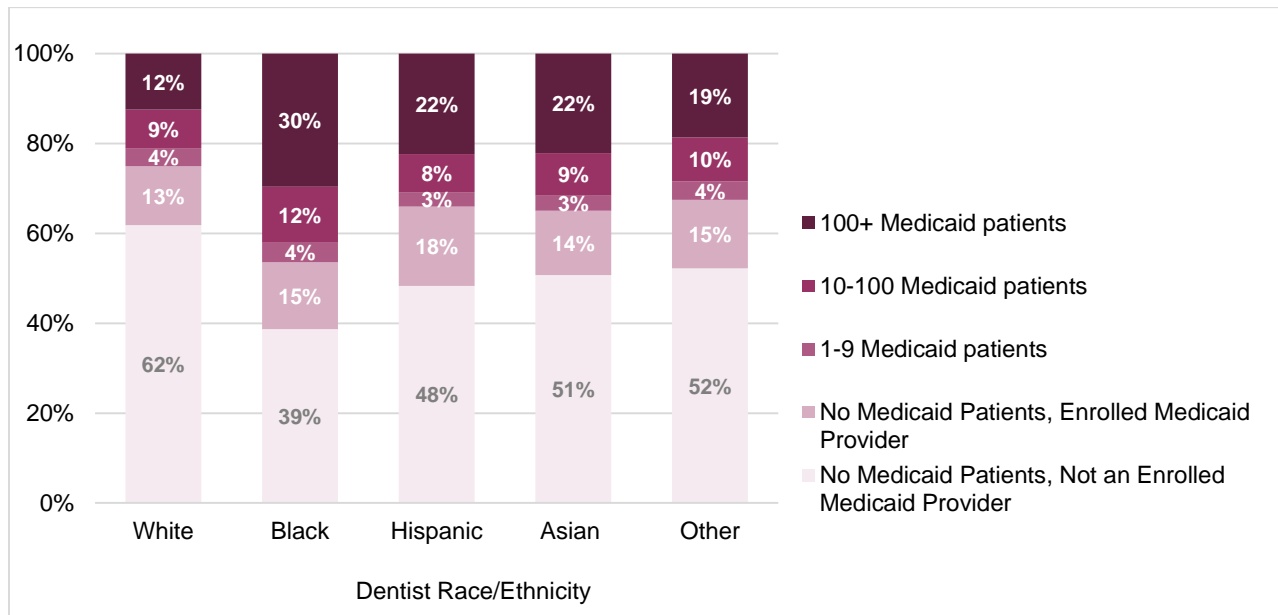- ND 10%
- MI 10%
- NJ 8%
- NH 7%
- UT 5%
- VA 5%
- ME 3%

Source: ADA office database and 2017 Medicaid and CHIP de-identified dental claims data from the Transformed Medicaid Statistical Information System (T-MSIS).

Figure 3: Distribution of Dentists by Number of Medicaid Patients, by Dentist Race/Ethnicity

Source: ADA office database and 2017 Medicaid and CHIP de-identified dental claims data from the Transformed Medicaid Statistical Information System (T-MSIS). **Notes:** "Other race" includes dentists who identify as American Indian, Alaska Native, Hawaiian/Pacific Islander, or "other."

Data & Methods

Our main sources of data for this analysis are the ADA office database and 2017 Medicaid and Children's Health Insurance Program (CHIP) de-identified dental claims data from the Transformed Medicaid Statistical Information System (T-MSIS), maintained by the Centers for Medicare and Medicaid Services (CMS).[15] The ADA office database includes the census of all professionally active dentists in the United States and contains street addresses identifying practice locations. Along with dentist demographic characteristics (age, gender, race/ethnicity), the ADA office database has identifiers for unique offices, large group practices, and individual dentists. The key identifier that allows us to link the T-MSIS Medicaid claims data with the ADA office database is the National Provider Identification (NPI) number. All medical and dental providers are required to have an NPI number to bill public or private insurance.[16] The dentists in the ADA office database

constitute the denominator in our analysis. The ADA office database identifies dentists that are listed in Insure Kids Now (IKN), a directory created by CMS that allows parents of children enrolled in Medicaid or CHIP to find dentists that participate in public insurance programs.[17] The office database also identifies dentists located at federally qualified health centers (FQHCs) and their locations. In a given state, a dentist participates or is enrolled in Medicaid or CHIP if he or she is listed in the IKN directory or is mapped to a FQHC.

As of 2017, each state, the District of Columbia, and other U.S. territories provided T-MSIS with Medicaid and CHIP claims data on a monthly basis. The T-MSIS Analytic Files (TAFs), housed in the Chronic Condition Data Warehouse (CCW),[18] include annual demographic and eligibility tables, inpatient claims,

long-term care claims, pharmacy claims, and other services claims. The other services (OT) monthly tables, which are split into separate line and header files, contain Medicaid and CHIP dental claims. The header tables contain claim aggregate payments, type (fee-for-service, managed care, capitation), medical diagnoses (ICD-9/ICD-10), and date of service. The associated monthly line tables include the specific procedures (medical CPT, HCPCS, dental CDT codes) that occurred under a specific claim, dates of service, procedure payments, and a field for NPI that denotes the provider that performed a service. The enrollment tables contain the demographic information (age and gender) of the beneficiary. From the monthly line tables for children age 0-20, we queried all dental procedure codes that begin with the letter "D" (D0100-D9999), which represent Codes on Dental Procedures and Nomenclature (CDT).[19] Due to high missing rates on the NPI field in the 2017 line tables (5 percent or more) in any given month, dental claims and dentists from Arkansas, District of Columbia, Indiana, Nebraska, Nevada, Pennsylvania, South Carolina, South Dakota and West Virginia were excluded from the analysis. Minnesota was also excluded from the analysis due to abnormalities in the data. The office database excludes dentists from Puerto Rico and Virgin Islands.

We appended dental claims from each calendar month in 2017 and then enumerated the number unique patients (identified by a beneficiary identifier) that a given dentist (identified by NPI number) submits claims for in the year. Our outcome variable (number of pediatric dental patients a dentist sees in a given state) represents the numerator in our analysis. At the NPI and state level, we merged this variable back to the office database. Any NPI-state pair that is not matched to the T-MSIS data is assumed to have zero patients. Conditional on being an IKN or FQHC provider, we calculated the percentage of dentists that accept publicly insured patients. We categorized number of unique patients a dentist treats into the following categories: zero patients, not enrolled as a Medicaid provider; zero patients, enrolled as a Medicaid provider; 1-9 patients; 10-100 patients; and over 100 patients. We calculated the percentage of dentists that fall into each of the number of patient categories by state. We also calculated by dentist race/ethnicity (white, black, Asian, Hispanic, other race) and the percentage of dentists that fall into each of aforementioned Medicaid patient categories. "Other race" included dentists who identify as American Indian, Alaska Native, Hawaiian/Pacific Islander, or "other." These are reported in aggregate due to having too few observations to report as distinct categories.

Appendix: Distribution of Dentists According to Volume of Medicaid Patients Seen in the Past Year

	No Medicaid Patients, Not an Enrolled Medicaid Provider	No Medicaid Patients, Enrolled Medicaid Provider	1-9 Medicaid patients	10-100 Medicaid patients	100+ Medicaid patients	HPI Medicaid Participation Measure
AK	27%	23%	7%	22%	22%	73%
AL	25%	28%	10%	15%	22%	75%
AZ	72%	6%	2%	6%	13%	28%
CA	71%	10%	2%	6%	11%	29%
CO	43%	29%	5%	12%	11%	57%
CT	55%	9%	3%	15%	19%	45%
DE	34%	13%	5%	23%	24%	66%
FL	65%	18%	2%	4%	11%	35%
GA	75%	6%	1%	4%	15%	25%
HI	66%	8%	4%	10%	11%	34%
IA	11%	16%	12%	38%	23%	89%
ID	54%	5%	2%	16%	22%	46%
IL	76%	6%	2%	4%	13%	24%
KS	60%	18%	3%	4%	15%	40%
KY	52%	19%	2%	7%	21%	48%
LA	59%	6%	2%	9%	24%	41%
MA	49%	24%	3%	9%	14%	51%
MD	72%	4%	2%	8%	15%	28%
ME	84%	8%	2%	2%	3%	16%
MI	29%	15%	16%	31%	10%	71%
MO	68%	16%	1%	3%	12%	32%
MS	36%	10%	9%	14%	31%	64%
MT	23%	14%	7%	30%	27%	77%
NC	64%	4%	3%	10%	19%	36%
ND	28%	22%	11%	29%	10%	72%
NH	87%	2%	0%	4%	7%	13%
NJ	70%	11%	4%	7%	8%	30%
NM	40%	22%	3%	11%	24%	60%
NY	60%	10%	5%	10%	16%	40%
OH	71%	8%	3%	5%	14%	29%
OK	53%	15%	2%	8%	22%	47%
OR	57%	11%	5%	9%	17%	43%
RI	75%	6%	1%	6%	11%	25%
TN	70%	8%	1%	3%	18%	30%
TX	43%	23%	3%	6%	25%	57%
UT	44%	29%	12%	10%	5%	56%
VA	71%	18%	1%	5%	5%	29%
VT	29%	6%	7%	25%	34%	71%
WA	70%	9%	3%	6%	13%	30%
WI	60%	15%	5%	9%	10%	40%
WY	29%	11%	11%	31%	18%	71%

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