Executive Summary: Comparison of Kool Smiles Utilization and Medicaid Expenditures Across States Using Government-Provided Data

Oral health is an integral part of general health and well-being. Yet, preventable dental caries, or tooth decay, is the most common chronic disease in children.[1] More than 40 percent of U.S. children ages 2 to 11 experience baby teeth decay, and about 25 percent of children ages 6 to 18 suffer from untreated permanent tooth decay.[2] Oral diseases disproportionately affect the poor, people of color, and children – those who are most restricted in accessing dental care services that would enable them to achieve optimal oral health.[3]

Only an average of 44.4 percent of Medicaid children in the U.S. receive dental care in comparison to 58.1 percent for those who are covered by commercial insurance, despite a dental benefit being required by all Medicaid and Children's Health Insurance Program (CHIP) programs.[4] This relatively low utilization of Medicaid dental services still reflects a significant growth in utilization over time – the percent of children enrolled in Medicaid with a dental visit almost doubled from 21 percent of children enrolled in 1993 to over 40 percent in 2010. Researchers suggest that the presence of Dental Support Organizations (DSOs) in areas with a high Medicaid concentration are responsible for the significant increase in delivery of pediatric dental services over time and for bridging the gap in dental service delivery between Medicaid and commercially insured individuals.[5]

The Role of DSOs-Affiliated Dentists

DSOs are support companies that provide comprehensive business and administrative services to dental practices including billing, purchasing, scheduling, regulatory compliance, and other day-to-day non-clinical tasks. As a result, DSO affiliated dentists – often led by licensed senior dentists who provide training, professional guidance, clinical protocol, and audits – can focus on delivering services to patients instead of the challenges of running a business. Benevis Practice Services (Benevis) is a DSO that provides non-clinical support services to Kool Smiles, a national children's dental provider.

> The Benevis Foundation commissioned Dobson DaVanzo & Associates, LLC to conduct an analysis to examine the utilization and Medicaid expenditures for Kool Smiles providers vs. non-Kool Smiles providers that operate within the same geographic area.

Kool Smiles focuses their patient care on improving patient hygiene and increasing patient access to dental services on a regular basis. They first aim to provide regular cleanings, fluoride treatments, and sealants to patients to reduce the need for extractions and restorative treatments, which are often more expensive and invasive for the patient.

Overview of Methodology

Under the Freedom of Information Act (FOIA), Benevis requested Medicaid dental data from all 15 states (plus District of Columbia) in which Kool Smiles providers operate. Data were received for nine states, seven of which were included in the analysis.[6] While the data were structured slightly differently by state, most frequently, Medicaid dental data were provided in aggregate by unique provider identifier and dental service code (CDT).[7] For each dental service (within each provider) the data contained the number of procedures (services) performed, number of unique patients who received the dental service, and Medicaid payments (expenditures). FOIA data were also supplemented with publicly available data sources, as appropriate. To calculate a utilization rate per patient by provider, a proxy for total patients served for each provider was developed based on the number of unique patients who received prophylaxis (cleaning).[8] The

> **Dental Service Categories Analyzed:**
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> Diagnostic:
> - X-rays
>
> Restorative:
> - Stainless Steel Crowns
> - Pulpotomies
> - Fillings
>
> Extractions:
> - Simple Extractions
> - Coronal Remnants
>
> All Other Dental Services:
> - Includes all other CDT codes (excluding above) provided to Medicaid patients across all providers

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[1] U.S. Department of Health and Human Services. Oral Health in America: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, National Institute of Dental and Craniofacial Research, National Institutes of Health, 2000.

[2] Children and Oral Health: accessing needs, coverage, and access. *Kaiser Commission on Medicaid and the Uninsured.* 2012.

[3] Ibid 1.

[4] Nasseh et al. Dental Care Use among Children Varies Widely across States and between Medicaid and Commercial Plans within a State. Health Policy Institute. 2013.

[5] Dental Visits for Medicaid Children: Analysis and Policy Recommendations. *Children's Dental Health Project.* (2012).

[6] Arizona and Kentucky provided data, but due to extreme variations within their data, these states were excluded from the aggregate study results. We note that these states had results that were directionally consistent with the results from other states; therefore, their exclusion did not bias the interpretation of aggregate results.

[7] Current Dental Terminology (CDT) codes are developed and updated by the American Dental Association (ADA) for reporting dental services and procedures to dental benefits plans.

[8] We assume each patient who received any dental service would have received at least one cleaning per year: D1110, D1120, and D0145, consistent with methodology presented in Laffer, A. Dental Service Organizations: A Comparative Review. Laffer Associates. 2012.

states included in our analyses are: Georgia, Indiana, Louisiana, Mississippi, South Carolina, Texas, and Virginia. Medicaid dental services for over 8,200 providers and 2.5 million unique patients are included (based on the most recent full year of data available for each state). Although the available data by year differed for each state, collectively, across states, these data covered the time period from 2011 to 2015. Data were provided from Benevis to Dobson | DaVanzo for analysis.

Utilization rates and monthly Medicaid expenditures for patients treated by Kool Smiles providers were compared to those treated by non-Kool Smiles providers in two different ways:

- **GEOGRAPHIC AREA**: Compared Kool Smiles and non-Kool Smiles providers who operated within the same geographic area, defined as the market area where 75 percent of the Kool Smiles patients reside (on average a 7 mile radius)
- **AGE DISTRIBUTION WITHIN GEOGRAPHIC AREA**: Compared Kool Smiles and non-Kool Smiles providers who operated within the same geographic area who also serve a similar proportion of Medicaid patients 4 to 9 years old (analysis not available for all states due to data limitations)

Results

Across all states and years analyzed for the geographic area in which Kool Smiles operates, Kool Smiles providers perform **15 percent fewer total dental services** per Medicaid patient than non-Kool Smiles providers. This results in a **33 percent lower monthly Medicaid expenditure per patient** (Exhibit 1). Kool Smiles providers had lower utilization and monthly Medicaid expenditures per patient in each of the restorative services. Among extraction services, including simple extractions and coronal remnants, overall utilization and monthly Medicaid expenditures were more than 40 percent different. For x-ray services, Kool Smiles providers had slightly higher utilization (6 percent higher), but lower monthly Medicaid expenditures per patient (14 percent lower), reflecting a different x-ray service mix.

Exhibit 1: Overall Annual Utilization and Monthly Medicaid Expenditure per Patient Across All States and Years: Geographic Area
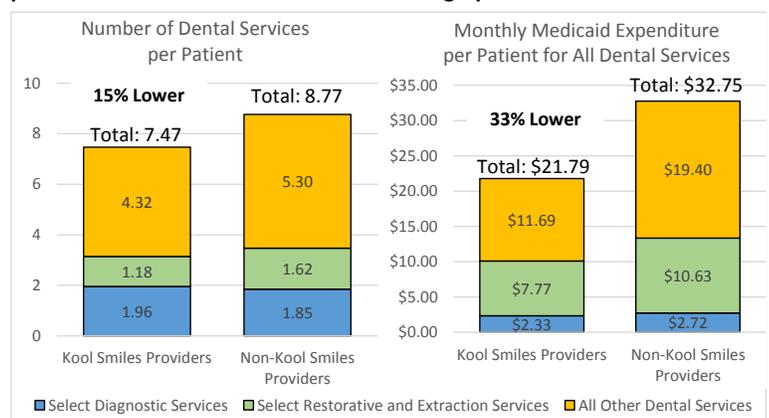
Source: Dobson | DaVanzo analysis of Medicaid dental claims data received under FOIA.

After adjusting for patient age to account for differences in utilization attributed to age-mix, we found that Kool Smiles providers have 23 percent lower utilization and a 38 percent lower monthly Medicaid expenditure per patient than non-Kool Smiles providers.

Across each state and year, this analysis confirms that Kool Smiles providers have statistically significantly **lower utilization and monthly Medicaid expenditures per patient than non-Kool Smiles providers**.

If the care protocol used by Kool Smiles was to be implemented by all non-Kool Smiles providers within the same geographic area, the Medicaid program could realize annual **savings of $193 million dollars** (Exhibit 2). If, however, the protocol was to be extended beyond the Kool Smiles geographic area and covered the entire state, the Medicaid program could realize annual **savings of over $550 million dollars**. These savings could provide care for over **790,000 underserved children** with Medicaid who do not currently receive dental services in the geographic area, or **1.9 million** children across all states examined.

Exhibit 2: Estimated Medicaid Annual Savings for Applying Kool Smiles Care Protocol to Non-Kool Smiles Providers

State	Geographic Area	Entire State
GA*	$51,167,304	$51,167,304
IN	$26,029,926	$84,390,564
LA	$12,998,068	$23,512,804
MS	$11,012,841	$58,584,802
SC	$31,597,694	$44,444,920
TX	$36,145,897	$235,499,301
VA	$24,112,957	$58,622,869
Total	**$193,064,687**	**$556,222,564**

Source: Dobson | DaVanzo analysis of Medicaid dental claims data received under FOIA; based on most recent full year for each state. *Includes the entire state, as a geographic market area was not able to be identified.

Conclusions

Detailed analyses within and across states over time suggest that Kool Smiles is a low-cost and conservative provider of pediatric dental service for children with Medicaid. Kool Smiles routinely provides fewer fillings, simple extractions and pulpotomies, and a comparable number of x-rays and stainless steel crowns, per patient than non-Kool Smiles patients. This confirms that Kool Smiles' focus on routine cleaning and hygiene reduces the number of restorative and extraction procedures required per patient, hence improving oral health for this underserved and vulnerable population.

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