ACHI

INSPIRING HEALTHY ACTS

UTILIZATION OF DENTAL CARE AMONG ARKANSAS CHILDREN AND ADULTS

June 2022

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Disclosure

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Executive Summary

Tooth decay remains one of the most prevalent chronic childhood illnesses in the United States, with about 1 out of every 5 children aged 5 to 11 and 1 out of every 7 children aged 12 to 19 having at least one untreated decayed tooth. While the American Academy of Pediatric Dentistry recommends that all children have biannual dental examinations, many children in Arkansas do not receive adequate dental care, even with dental insurance coverage. Among adults in the state, 38% reported the condition of their mouth and teeth as fair or poor, and only 57% reported having a dental visit in 2020. Oral disease can cause significant problems such as loss of tooth structure and function, pain, anxiety, and embarrassment, all of which can greatly affect an individual's quality of life and overall health.

The Arkansas Center for Health Improvement (ACHI) undertook this study to further inform policy decisions supporting improved access and utilization of dental care, and to establish baseline measures for key coverage and utilization indicators. This report includes analytic outcomes meant to support the increase of Arkansans who receive any preventive dental services, and to decrease the proportion of individuals with untreated dental decay. Key measures in this report include:

- Dental insurance coverage and demographic profiles by county;
- Analyses of the proportion of individuals receiving any dental services within a year, by service type;
- COVID-19 impacts on utilization trends and downstream service utilization;
- A profile of availability of active providers per county per number of residents;
- Utilization of dental care in medical settings, including hospitals and emergency departments;
- A profile of uninsured utilization and related charges for dental care in emergency departments;
- Fluoride varnish application trends in dental and medical settings;
- A profile of sealant applications; and
- A profile of dental extraction-related opioid prescribing.

Data used for this study were obtained from the Arkansas All-Payer Claims Database (APCD), which contains health insurance claims data for approximately 85% of all publicly and privately insured lives in Arkansas. The primary study population for this report includes ARKids, traditional Medicaid, Medicare Advantage, and individuals with evidence of dental coverage in 2019 for private and commercial coverage. We used available 2019 and 2020 claims experience. Key findings in this report include the following.

- Fifty-four percent of Arkansans had evidence of dental coverage in the APCD for 2019 (1.6 million individuals).
- In 2019, only 30.4% of adults with dental coverage used any services, and 50.5% of children with dental coverage used any services.
- Individuals with private dental coverage utilized preventive services at a higher rate than adults on traditional Medicaid, with variations across counties.
- COVID-19 dramatically affected dental care utilization in the state, with overall utilization decreased by 56% in March through May of 2020 compared to the same period in 2019; monthly utilization mostly returned to pre-COVID-19 levels by the end of 2020.
- Many counties, particularly rural ones, appear to have too few active dentists providing services.
- Fluoride varnish applications by dental and medical providers have steadily increased since 2013, with the exception of 2020.

- A large number of individuals seek dental care in medical settings, including emergency departments (ED); utilization was substantially lower among individuals who had preventive dental care during the previous 12 months.
- Many individuals with no insurance sought dental care in ED settings, with associated annual charges totaling $6 million.
- Analysis of opioid prescribing for tooth extractions found that providers generally followed guidelines, with a three- to four-day supply being prescribed on average.

As Arkansas's healthcare delivery system faces the continued impact of the COVID-19 pandemic, the downstream effects to oral health can be better understood through analyses of COVID-19-era dental care utilization rates. This report includes trend information throughout 2019 and 2020 by type of dental treatments, by age, and by payer type. The report also displays utilization impacts as a result of the unprecedented near-total pause in dental care provision during the onset of the pandemic in Arkansas.

While this report includes several important indicators of dental insurance coverage, provider supply, and baselines for dental care utilization, there are several areas of interest that may warrant more targeted or more in-depth studies. The findings in this report indicate that access to active dental providers is not evenly distributed in the state. Furthermore, social determinants of health such as socioeconomic status, income, rurality of residence, and race and ethnicity can represent barriers to optimal dental care and can compound issues of dental care access.

Due to the Arkansas Transparency Initiative, which includes the APCD (authorized in April 2015 through Act 1233), we have access to dental claims data for patients covered by private dental insurance to assess both supply of, and demand for, dental services. As more recent dental and medical claims data become available, further analyses of COVID-19 impacts will help policymakers better understand the challenges and needs associated with oral health and dental care utilization in Arkansas.

In addition to claims and other similar data analyses, qualitative survey or other data from providers could improve the understanding of attitudes about the financial feasibility of providing dental care in Arkansas, particularly with respect to rural areas of the state. More detailed study of reimbursement differences by payer type and by service type could also help policymakers understand the drivers behind any differential payer mix across providers. Future studies may also address how inadequate dental care and poor oral health can lead to adverse outcomes for an individual's overall health. Linkages to medical claims experience at the individual level may support further study of the impacts of dental care (or lack thereof) on specific medical conditions and overall health outcomes.

Introduction

This report is the result of DDAF's "Smiles: Possible" grant funding designed to improve oral health in Arkansas using the Healthy People 2020 Arkansas Framework. Specifically, these efforts are meant to address framework objectives 3 (reduce the proportion of adults with untreated dental decay) and 7 (increase the proportion of low-income children and adolescents who received any preventive dental service during the past year). This report includes the result of data analytics to support targeted efforts to improve these objectives.

The primary source of data for this report is the Arkansas All-Payer Claims Database (APCD), which is supported by the Arkansas Healthcare Transparency Initiative (Arkansas Act 1233 of 2015). Dental care profiles are included for publicly and privately insured individuals, and select utilization measures and cost information are included for individuals with no evidence of insurance coverage.

This report summarizes select demographic, insurance coverage, and utilization and diagnostic profiles for dental care among children and adults in Arkansas and provides outcomes for select measures for 2019 and 2020. There is an inherent lag in claims data, particularly Medicare data; however, future updates may provide a profile of more recent claims-based utilization experiences.

As Arkansas's healthcare delivery system faces the continued effects of the COVID-19 pandemic, the downstream impacts to oral health can be better understood through analyses of COVID-19-era dental care utilization rates. This report includes trend information throughout 2019 and 2020 by type of dental treatments, age, and payer type, and displays utilization impacts as a result of the unprecedented near-total pause in dental care provision during the onset of the pandemic in Arkansas.

Tooth decay remains one of the most prevalent chronic childhood illnesses in the United States, with about 1 out of every 5 children aged 5 to 11 and 1 out of 7 children aged 12 to 19 having at least one untreated decayed tooth.[1,2] The American Academy of Pediatric Dentistry recommends that all children have their first dental examination at the time of the eruption of the first tooth and no later than 12 months of age, and at least biannually thereafter through their 18th birthday.[3] Adults are also impacted by inadequate dental care, with more than 1 in 4 adults in the United States having untreated tooth decay.[4] In Arkansas, 38% of adults reported the overall condition of their mouth and teeth as fair or poor. This assessment varies by income, with 60% of lower-income adults reporting fair or poor condition of their teeth, compared to only 22% of high-income adults.[5] This is, in part, the result of only 57% of adults reporting having a dental visit in 2020.[6] Oral disease can cause significant problems such as loss of tooth structure and function, pain, anxiety, and embarrassment, all of which can greatly affect an individual's quality of life.

Arkansas is a largely rural state with most counties being designated as dental health provider shortage areas (HPSA) in 2019.[7,8] The dental HPSA designations are established by the Bureau of Health Workforce, Health Resources and Services Administration, U.S. Department of Health & Human Services. As of 2021, there were 96 dental HPSA designations in Arkansas, based on geography or populations with unmet needs that have a population-to-dental-provider ratio of greater than 5,000 residents to 1 dentist.[9] This report contains assessments of provider-to-population ratios, and payer-mix profiles at the county level to support efforts to improve access to active dentists throughout the state.

Data Sources and Methodologies

DATA SOURCES

Data used for these analyses were obtained from the Arkansas All-Payer Claims Database (APCD), which contains health insurance claims data for approximately 85% of all publicly and privately insured lives in Arkansas. Those not providing health claims data to the APCD include insurance carriers that cover fewer than 2,000 individuals and self-insured companies not receiving state (public) dollars. The version of the APCD used for these analyses contains dental, medical, and pharmacy claims data from 2019 and 2020 for Medicaid and commercial payers and data from 2018 for Medicare. These were the most recently available data at the time of these analyses. Additional data from the Arkansas Health Transparency Initiative (HTI) was used in this report, including hospital and emergency department (ED) discharge data.

MEASURES INCLUDED

Several measures are included in this report, and grouped by coverage type when possible:

- Coverage and demographic profiles by county, including proportion of residents with dental coverage
- Assessment of proportion of children and adults receiving any preventive services within a year
- Assessment of proportion of individuals receiving any periodontal or restorative services within a year
- A profile of availability of active providers per county per number of residents
- Utilization of dental care in medical settings, including hospitals and emergency departments
- COVID-19 impacts on utilization trends and downstream service utilization
- Fluoride varnish application in dental and medical settings
- Sealant applications profile
- Dental extraction-related opioid prescribing profile
- Profiles of diagnoses and other dental procedures related to recent policy and legislative efforts

While a substantial amount of the dental care provided in the state is included in this report, statistics on dental care that was provided free of charge, or for which there was no insurance claim filed is not included. Collaborative efforts are needed to collect and maintain data on non-claims based dental care utilization, and future research is warranted to assess the proportion of all dental care provided in the state either free of charge or without any insurance claim being filed.

As with any claims-based data analysis, this analysis is subject to inherent provider-level billing and coding variation. While this is a known limitation of healthcare claims-based data analysis, the team at ACHI uses evidence-based research methods and conducts multi-layer data and analytic-validation processes.

METHODS OVERVIEW AND KEY FINDINGS

Multiple data sources were used for this study. In addition to the APCD and HTI sources mentioned previously, this study uses the U.S. Census Bureau's 2019 American Community Survey (ACS) estimates of county-level populations. Populations are segmented by age group, gender, coverage type, county of residence, and other variables.

The primary study population for this report includes ARKids, traditional Medicaid, Medicare Advantage, and individuals with evidence of dental coverage in 2019 for private and commercial coverage. We used available

2019 and 2020 claims experience to document utilization trends related to COVID-19 impacts. This analysis includes claims data with reported dates of service during calendar years 2019 or 2020. We used insurance enrollment records to derive the most recent location of residence to assign individuals to each county for all the county-level analyses.

KEY FINDINGS

This report includes several key findings, which are grouped by coverage type when possible:

- Fifty-four percent of Arkansans had evidence of dental coverage in the APCD for 2019 (1.6 million individuals).
- Claims analysis found that too few individuals seek preventive dental services.
- COVID-19 dramatically affected dental care utilization in the state, with overall utilization decreased by 56% in March through May of 2020 compared to the same period in 2019; monthly utilization mostly returned to pre-COVID-19 levels by the end of 2020.
- Many counties appear to have too few active dentists providing services, with several having a patient-to-dentist ratio that is higher than the Health Research and Services Administration Dental Health Provider Shortage Area (HPSA) thresholds.
- Fluoride varnish applications by dental and medical providers have steadily increased since 2013, except for 2020, when overall levels of dental care utilization were lower than in previous years.
- Individuals with private dental coverage utilized preventive services at a higher rate than adults on traditional Medicaid, with variation across counties.
- A large number of individuals seek dental care in medical settings, including emergency departments (ED); utilization was substantially lower among individuals who had preventive dental care during the previous 12 months.
- Many individuals with no insurance sought dental care in ED settings, with associated annual charges totaling $6 million.
- Analysis of opioid prescribing for tooth extractions found that providers generally followed guidelines, with a three- to four-day supply being prescribed on average, which could support updated guidelines for prescribing.

A separate sub-population within this study includes individuals with evidence of medical coverage (for corresponding study periods) for whom their dental-related medical claims experience was analyzed. These individuals' experiences of dental-related care utilization (in medical coverage claims) were assessed in both medical and dental care settings — separately for individuals who had dental coverage and for individuals who did not have dental coverage.

Finally, a third sub-population was derived from dental-related care received in either inpatient hospitals or emergency departments. This includes data for uninsured individuals without evidence of any medical or dental coverage. Costs associated with utilization (derived from charged amounts) among this population were assessed and quantified for the purpose of approximating the total amount of uncompensated dental-related care that is utilized in hospital settings among the uninsured.

Overall Study Demographics and Dental Insurance Coverage Profile

This report includes information on insurance coverage and dental service utilization for approximately 1.7 million unique individuals throughout the state. Analyses are grouped by patient coverage type, including Medicaid, ARKids Medicare, and commercially insured patient experiences. The Medicaid coverage category includes individuals covered by Arkansas Medicaid's dental managed care plans, including Delta Dental and Managed Care of North America. Age was calculated as of January 1, 2019.

TABLE 1: STUDY POPULATION DEMOGRAPHICS AND EVIDENCE OF DENTAL COVERAGE IN THE APCD, 2019

		Arkansas Population Estimate	Percentage of Arkansas Population with Coverage in APCD	Number with Coverage	Percentage of Total Study Population
Gender	Female	1,527,610	56.4%	861,448	51.1%
	Male	1,471,760	51.0%	750,736	44.5%
	Unknown			74,919	4.4%
Child or Adult	Child (<19)	744,843	83.8%	624,298	37.0%
	Adult (≥19)	2,254,527	47.1%	1,062,805	63.0%
Age	0-4	189,636	81.1%	153,875	9.1%
	5-9	196,874	85.7%	168,681	10.0%
	10-14	197,804	88.1%	174,215	10.3%
	15-19	201,105	79.0%	158,947	9.4%
	20-24	202,312	49.1%	99,283	5.9%
	25-29	202,000	50.9%	102,875	6.1%
	30-34	189,817	50.9%	96,664	5.7%
	35-39	187,837	49.9%	93,799	5.6%
	40-44	180,620	48.0%	86,702	5.1%
	45-49	182,033	46.7%	84,988	5.0%
	50-54	189,778	43.2%	82,032	4.9%
	55-59	195,220	46.4%	90,512	5.4%
	60-64	185,556	44.4%	82,415	4.9%
	65+	498,778	42.5%	212,056	12.6%
	Unknown			59	0.0%
Rurality (Arkansas residents only)	Rural	1,163,505	53.5%	622,109	37.0%
	Urban	1,752,413	58.8%	1,030,083	61.2%
	Missing			31,325	1.9%
Payer Group	Private Dental			1,208,127	71.6%
	Medicaid			243,897	14.5%
	Medicare Advantage			84,712	5.0%
	ARKids			522,185	31.0%

Table 1 (previous page) displays demographic and dental coverage information for individuals identified as having any dental coverage in 2019. Under the Arkansas Medicaid program, children and adults in the state have access to coverage under managed dental care plans, including Delta Dental and Managed Care of North America Arkansas division. Children throughout the state have access to dental coverage under the ARKids program. Arkansas Medicaid offers limited (up to $500 per year) dental coverage for adults on Medicaid. Individuals may also purchase private dental coverage through commercial plans, including Medicare advantage dental plans for Medicare beneficiaries.

FIGURE 1: PERCENTAGES OF ARKANSAS RESIDENTS WITH EVIDENCE OF ANY DENTAL COVERAGE IN THE APCD, BY GENDER AND AGE GROUP, 2019

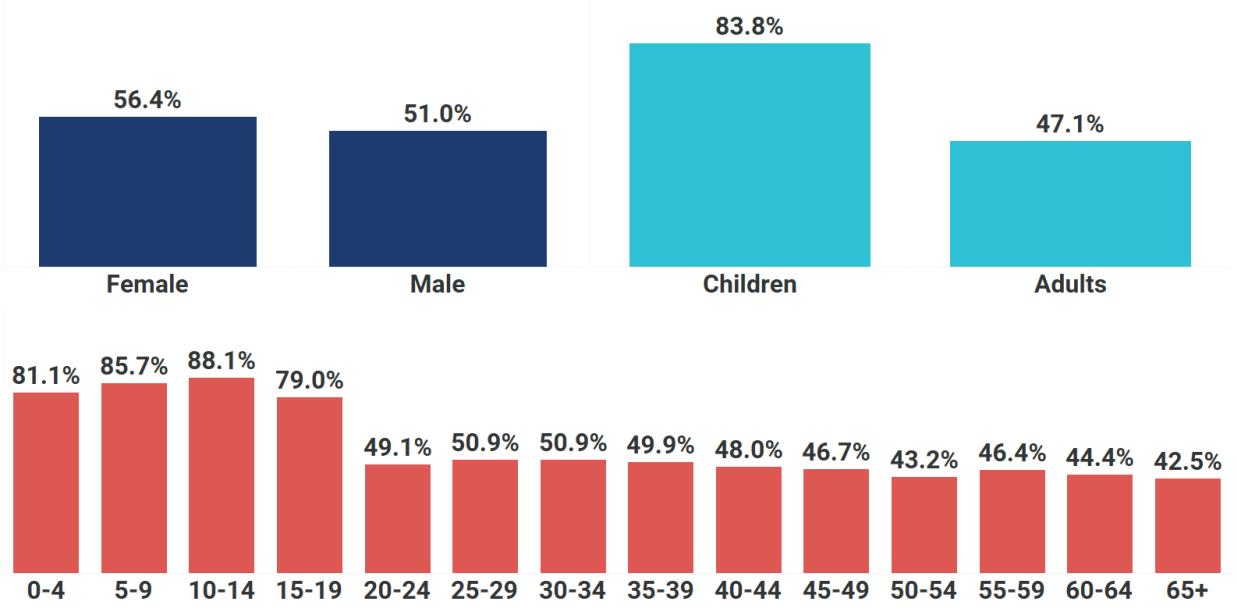


Figure 1 displays a subset of the information in Table 1 for illustrative purposes. The percentages of individuals with any coverage in the APCD by age group were calculated by determining the number of individuals in each age range with evidence of coverage in 2019. These counts were divided by age-group specific population estimates from the 2019 ACS.[10]

FIGURE 2: PERCENTAGES OF ARKANSAS RESIDENTS WITH EVIDENCE OF ANY DENTAL COVERAGE IN THE APCD, BY COUNTY, 2019

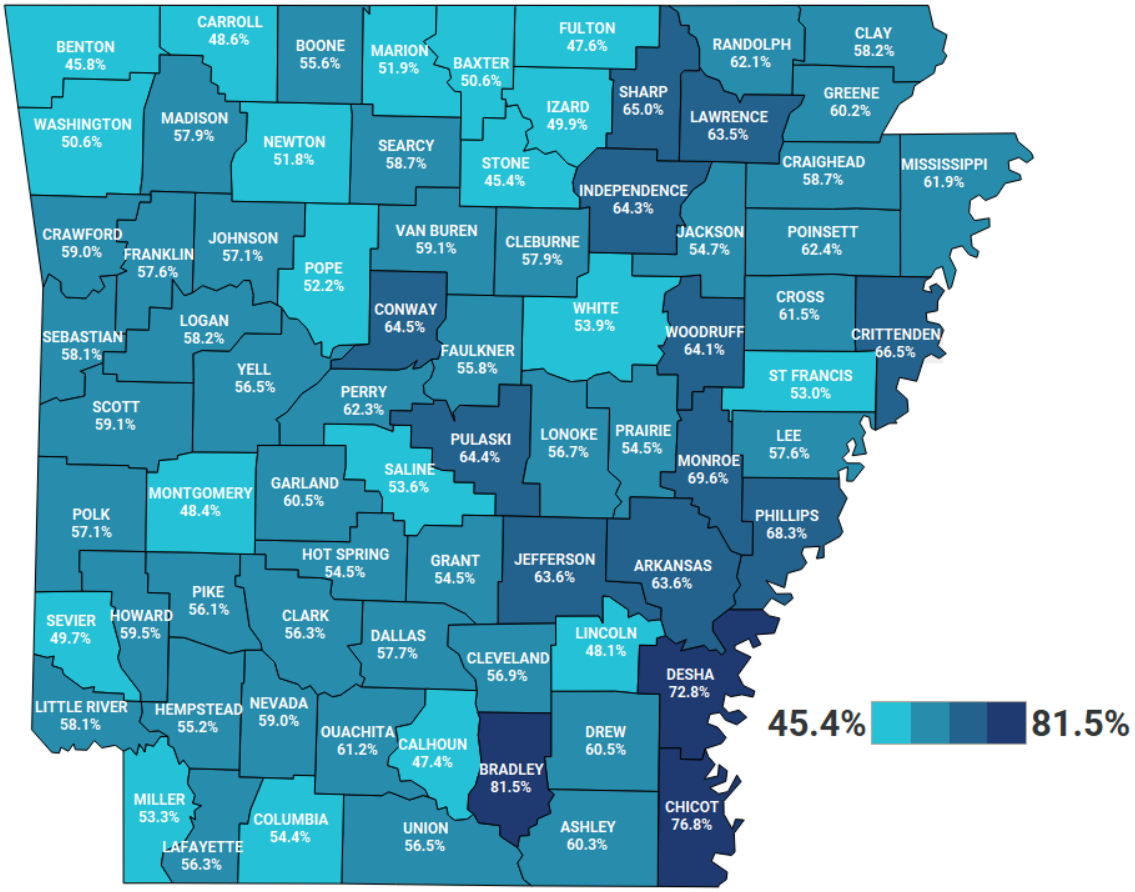


Figure 2 displays the percentages of residents of each county that had evidence of any dental coverage at any point in time during 2019. This data is included in tabular form as an appendix to this report. Several counties in the eastern Delta region of the state had higher rates of coverage as evidenced by APCD data, including Bradley County (82%), Chicot County (77%), and Desha County (73%). Higher rates of evidence of coverage could be a result of these counties having a higher proportion of lower-income residents who may have higher rates of ARKids or Medicaid enrollment than counties with higher average incomes or higher proportions of individuals with private, self-funded employer-sponsored coverage (i.e., Walmart, Tyson, etc.), for which data is not currently available in the APCD.

Although the APCD includes enrollment data for approximately 85% of Arkansans, data for private self-funded employers is not included at this time. For this reason, the percentages in Figure 2 should not be interpreted as the total percentage of individuals in any given county with dental coverage, but rather an estimate of the total number of individuals with either Medicaid, ARKids coverage, private commercial dental coverage from fully insured plans, or Medicare Advantage plans.

Utilization of Dental Services

Utilization of dental services is based on and grouped by higher-level current dental terminology (CDT) dental procedure code classifications, as published by the American Dental Association (ADA). Since this report is largely meant to target preventive treatments and more routine dental care, these analyses do not include some types of procedure groups, including prosthodontics, maxillofacial prosthetics, implants, and oral surgery. For the purpose of this report, groupings that were used in the analyses are included below:

TABLE 2: CDT DENTAL PROCEDURE CODE GROUPS INCLUDED IN THIS REPORT

CDT Groupings	Examples of Types of Procedures Included
Diagnostic (D0100-D0999)	Periodic, limited, or comprehensive evaluations, diagnostic imaging such as bitewings and other radiographic images, oral pathology lab tests, etc.
Preventive (D1000-D1999)	Teeth cleanings, fluoride varnish applications, sealants, space maintainers, tobacco counseling, nutrition counseling, etc.
Restorative (D2000-D2999)	Treatment of cavities including amalgam restorations, resin-based restorations, inlays and outlays, crowns, veneers, etc.
Endodontics (D3000-D3999)	Root canal treatments, pulpotomies/surgical removal of pulp soft tissue, direct and indirect pulp capping, apicoectomies (root surface surgery), etc.
Periodontics (D4000-4999)	Gingivectomies or gingivoplasties (gum removal or reshaping), implants, root planning (cleaning of infected root surface), bone grafting, etc.

It is important to note that although the “Preventive” group includes many procedures and services that are part of routine dental care, the “Diagnostic” group also contains services often performed during a routine dental visit (e.g., D0120 – periodic oral evaluation) that are important components of preventing future adverse oral health outcomes for patients. The following tables and maps display utilization of any dental services as observed in dental insurance claims data. Criteria for overall dental service utilization includes any dental claim.

UTILIZATION OF ANY DENTAL SERVICE

The following section includes information about overall dental care utilization. Use of “any” service means evidence of individuals having at least one claim on their dental insurance within the year.

Several publications include results of surveys in which patient populations have indicated whether or not they have had any dental visit within the past year. Nationally, the proportion of children who have had an annual visit has generally increased, although disparities have been found across racial and ethnic groups.

Nationally, approximately 55.5% of white children had an annual dental visit in 2017–2018, up two percentage points from 53.5% in 2005–2006. Only 42.6% of Black children had an annual dental visit in 2017–2018, up from 37.4% in 2005–2006. Among adults, the racial disparities are even greater. While the proportion of White individuals who reported having annual dental visits actually decreased from 48.4% in 2005–2006 to 47.8% in 2017–2018, the proportion is far higher than that of Black adults, with only 28.6% having a dental visit in 2017–2018, up slightly form 28.4% in 2005–2006.[11]

The following claims-based analyses includes overall utilization rates of any dental service. While race and ethnicity data are incomplete in insurance claims data, future analyses may include data linkages that would enable stratifications by race and ethnicity.

FIGURE 3: PERCENTAGES OF INDIVIDUALS WITH EVIDENCE OF ANY DENTAL COVERAGE WHO USED ANY DENTAL SERVICE, BY COUNTY, ALL AGES, 2019

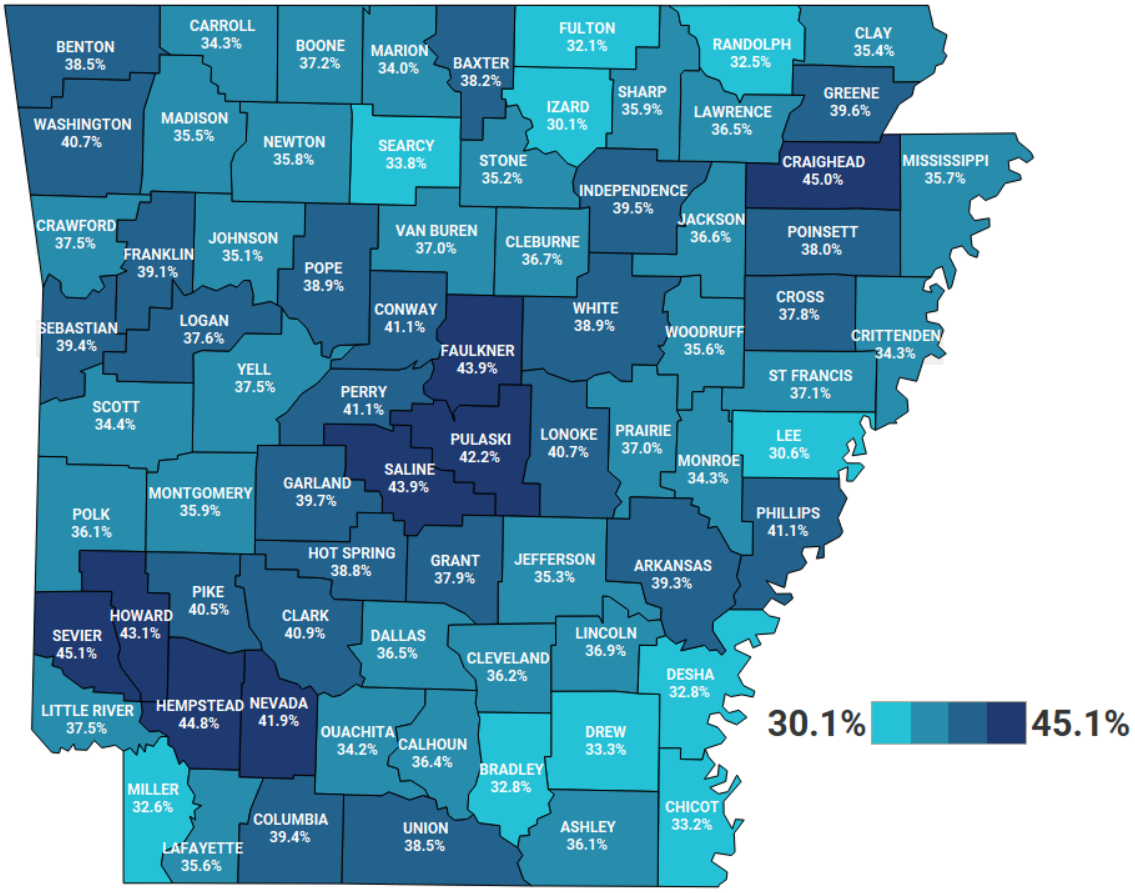


Figure 3 displays the percentages of residents of each county with evidence of any dental coverage who used at least one dental service (any dental insurance claim) in 2019.

The counties with higher percentages of utilization are generally located in the Central and Southwest regions of the state. At 45.1%, Sevier County residents had the highest percentage of utilization of any service, followed by Craighead County (45.0%), and Hempstead County at (44.8%).

The county with the lowest percentage of utilization of any service was Izard County at 30.1%, followed by Lee County (30.6%) and Fulton County (32.1%).

FIGURE 4: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE WHO UTILIZED ANY DENTAL SERVICES BY PROCEDURE TYPE, CHILDREN (0–18) VS. ADULTS (≥19), 2019

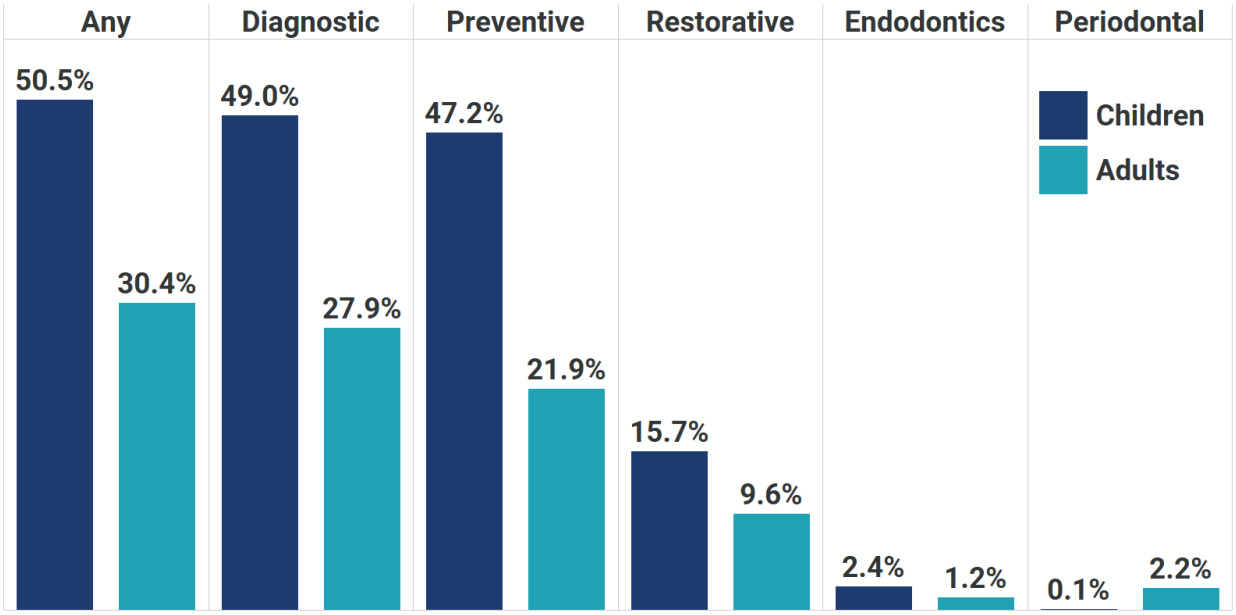


Figure 4 separately displays the percentages of children (ages 0–18) and adults (19 and older) in our study population who had at least one dental claim, by type of service, in 2019. Overall, the percentage of children with at least one claim was higher than it was for adults. Approximately half of all children had at least one claim, compared to 30.4% of adults. Diagnostic claims were observed for 49.0% of children, compared to 27.9% of adults. Among children, 47.2% had at least one preventive service claim, compared to 21.9% of adults. Also, 15.7% of children had at least one restorative claim, compared to only 9.6% of adults. Only 2.4% of children had an endodontics claim, compared to 1.2% of adults. Periodontics was the only category in this study for which adults had a higher rate of utilization than children, with 2.2% of adults having a periodontal service claim, compared to 0.1% of children.

FIGURE 5: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE WHO UTILIZED ANY DENTAL SERVICES, BY AGE GROUP, 2019

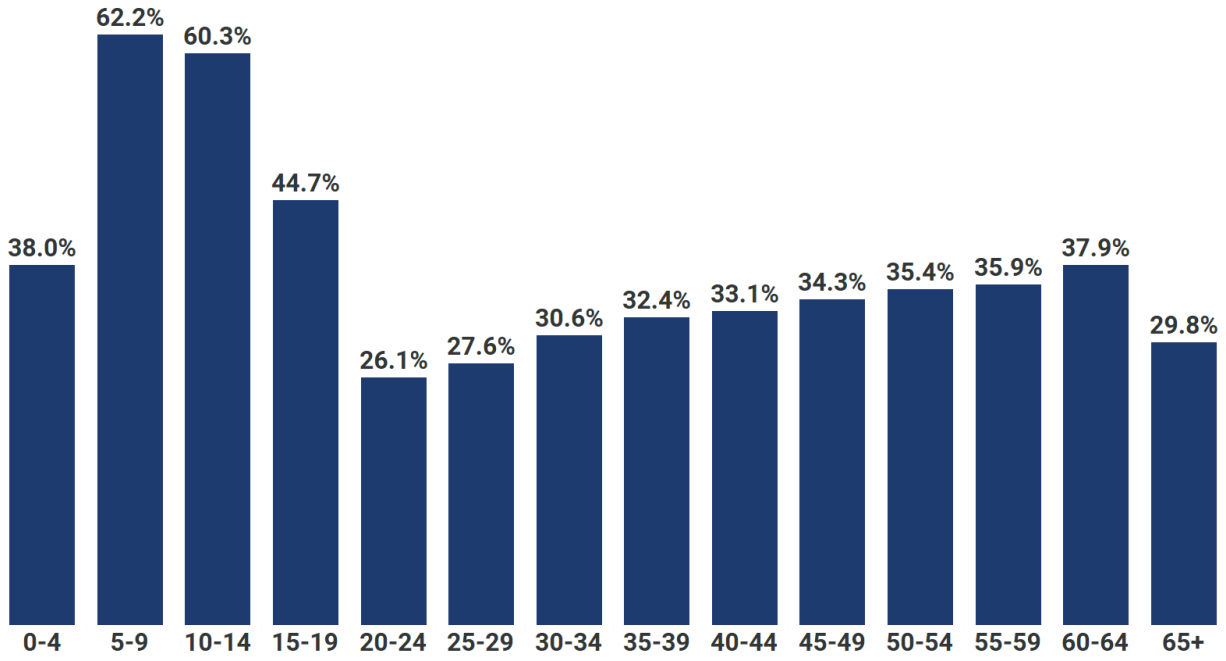


Figure 5 displays the proportions of each age group that had evidence of any valid CDT procedure claim (any claim line with a procedure code that began with a “D”), regardless of dental coverage type, in 2019. Children ages 5–9 and 10–14 had the largest proportion of individuals having any dental claim at 62.2% and 60.3%, respectively. Among adults, use of any dental services within a year appears to generally increase with age, with 37.9% of 60- to 64-year-olds having any dental claims, compared to 26.1% of individuals 20–24 years old. At 29.8%, the proportion of individuals aged 65 and older with any dental claims in 2019 was slightly less than the next oldest age group. This may be due in part to dental coverage or benefit structure changes associated with Medicare eligibility status.

UTILIZATION OF ANY DENTAL SERVICE BY COUNTY, URBAN VS. RURAL

FIGURE 6: PROPORTIONS OF INDIVIDUALS WITH DENTAL INSURANCE UTILIZATION OF ANY DENTAL SERVICE, BY TYPE, 2019 (URBAN VS. RURAL COUNTIES IN ARKANSAS)

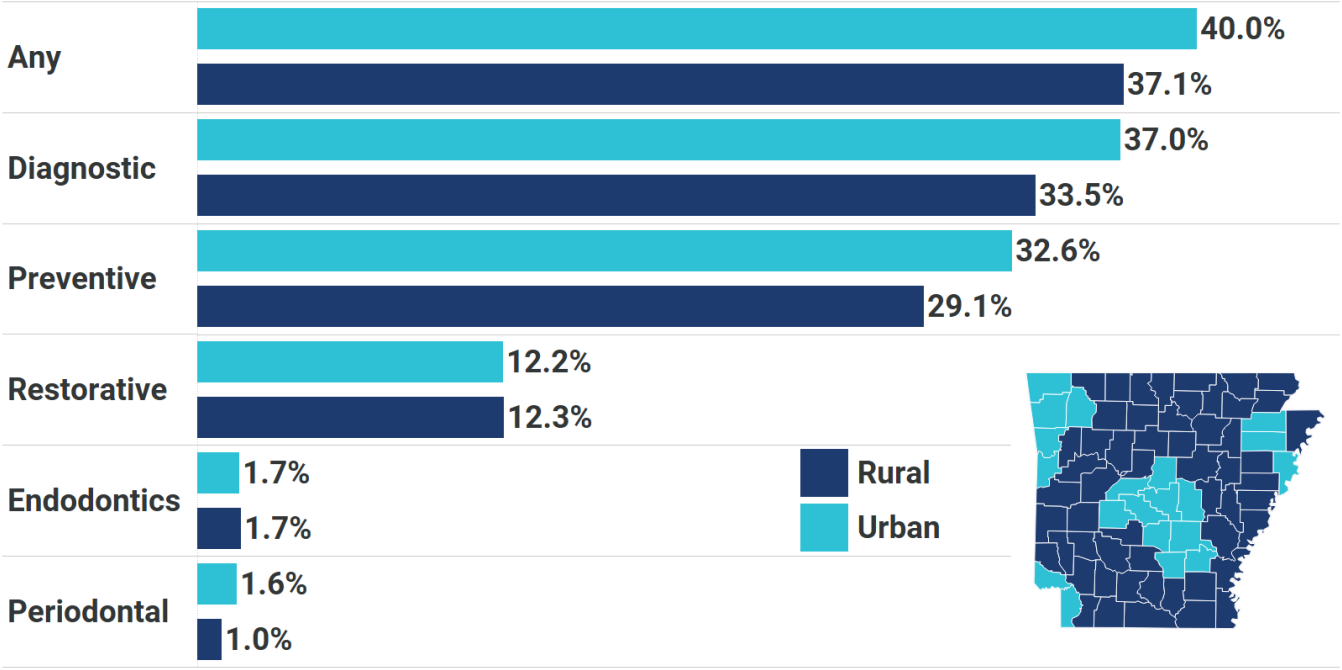


Figure 6 displays the utilization of any dental service and the utilization of specific groups of dental services (i.e., preventive services) by urban or rural location of patient residence based on U.S. Census Bureau designations of rurality.

With the exception of restorative services, the proportion of covered individuals who reside in urban counties that utilized services was greater overall and for each type of service, than that of residents in rural counties. While 40.0% of individuals with evidence of coverage who reside in urban counties used any dental service, 37.1% of individuals who reside in rural counties used any service. Thirty-seven percent of urban residents used any diagnostic services, compared to 33.5% of rural residents. Preventive services were used by 32.6% of urban residents with coverage, compared to 29.1% of rural residents. A higher proportion of rural residents used restorative services than residents of urban counties, at 12.3% to 12.2%, respectively. Varied access to providers (due to differential presence of providers and contributing factors such as transportation and proportion of individuals covered by Medicaid, etc.) is likely a contributing factor to the disparate rates of utilization of services in urban counties compared to rural counties.

UTILIZATION OF ANY DENTAL SERVICE BY COVERAGE TYPE

FIGURE 7: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE WITH ANY DENTAL CLAIMS, BY DENTAL COVERAGE TYPE, 2019

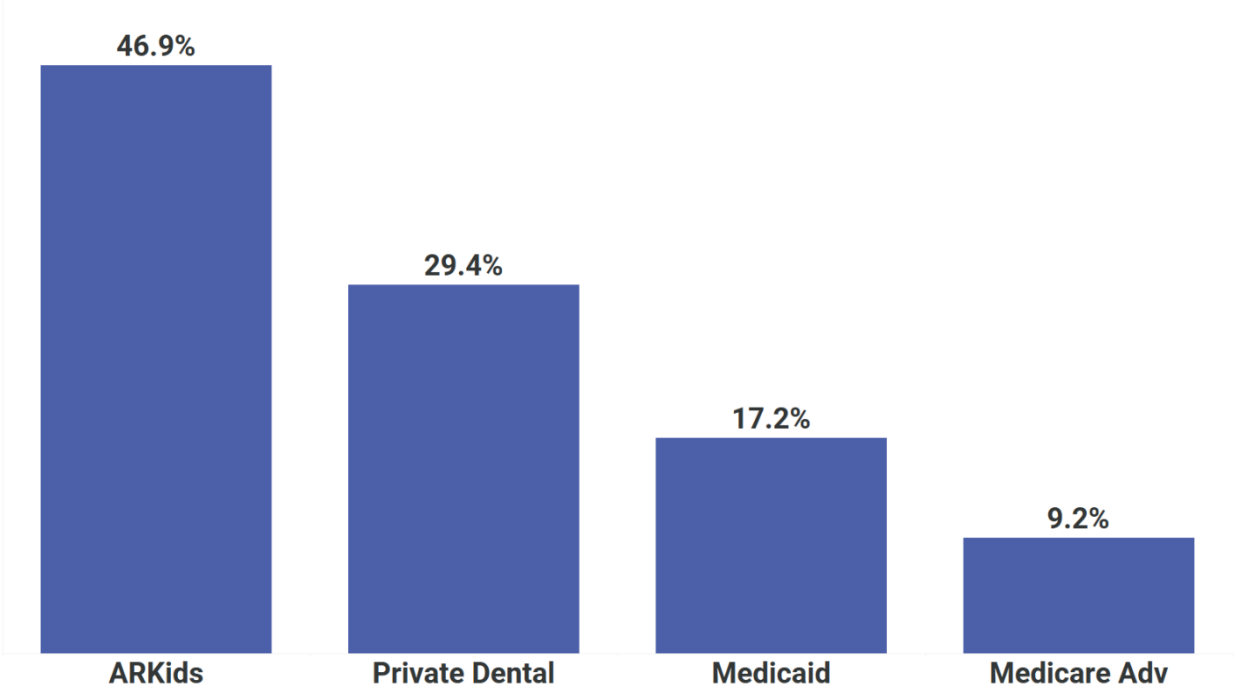


Figure 7 displays the proportions of individuals who used any dental service as incurred and reported in dental insurance data, by type of coverage. Almost half of all ARKids enrollees utilized dental services, with 46.9% having at least one dental insurance claim reported in 2019. Among individuals with evidence of private dental insurance, 29.4% used at least one dental service.

Only 17.2% of Medicaid dental coverage enrollees (including Medicaid dental managed care enrollees) had reported dental claims. While this percentage is low, it is similar to what other states have reported among Medicaid-insured adults. For example, a recent analysis by the ADA Health Policy Institute found that only 18.7% of Medicaid-insured adults in North Carolina used dental services, compared to 23.2% nationwide.[12] Among individuals with Medicare Advantage dental coverage, 9.2% had at least one dental claim incurred and reported under dental coverage.

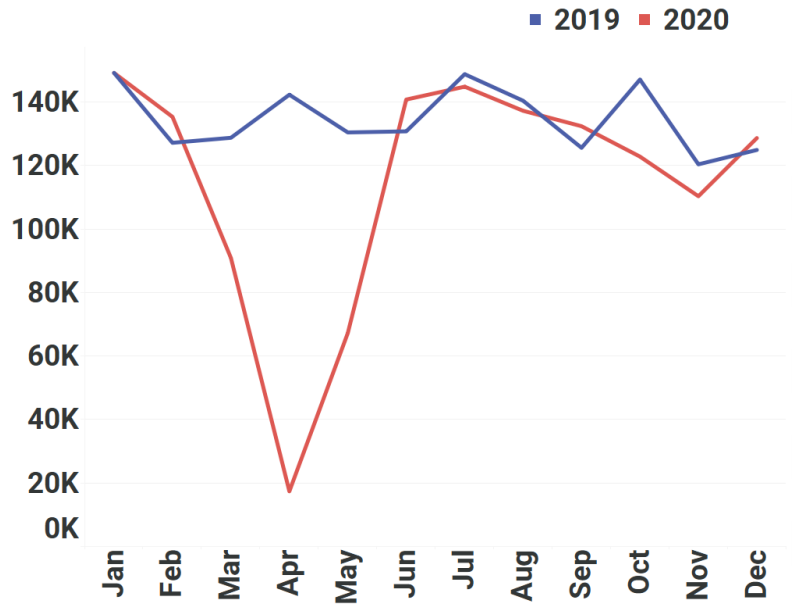
Further oral health education and information about local access to dentists that accept certain coverage types may improve overall utilization of any dental services, particularly among those enrolled in Medicaid dental coverage.

OVERALL UTILIZATION TRENDS AND COVID-19 IMPACT

The onset of the COVID-19 pandemic had unprecedented impacts on Arkansas's citizens and the state's health system, including the delivery of dental care. In response to COVID-19, in March 2020 the Arkansas Department of Health (ADH) issued several directives and specific guidance for dental care practitioners. In March of 2020, ADH requested voluntary suspension of nonessential treatments. Dentists throughout the state adopted new operational protocols to protect patients and help stop the spread of COVID-19. Guidance from the ADH summarizes the steps providers have taken to provide an optimally safe environment, including updated COVID-19 patient screening guidelines, prioritization and management considerations for care of higher-risk patients, rules for office visitors, and treatment considerations — including expanded use of personal protective equipment (PPE).[13]

In May 2020, Dentists throughout the state began submitting claims for additional PPE, under CDT code D1999 for "unspecified preventive procedure – by report" per the ADA. Analysis of APCD claims data found that through December 2020, more than 45,000 claims had been filed for additional PPE, totaling more than $450,000 in paid claims.

FIGURE 8: STATEWIDE UTILIZATION TRENDS: OVERALL SERVICES IN DENTAL SETTING, PER MONTH, 2019–2020

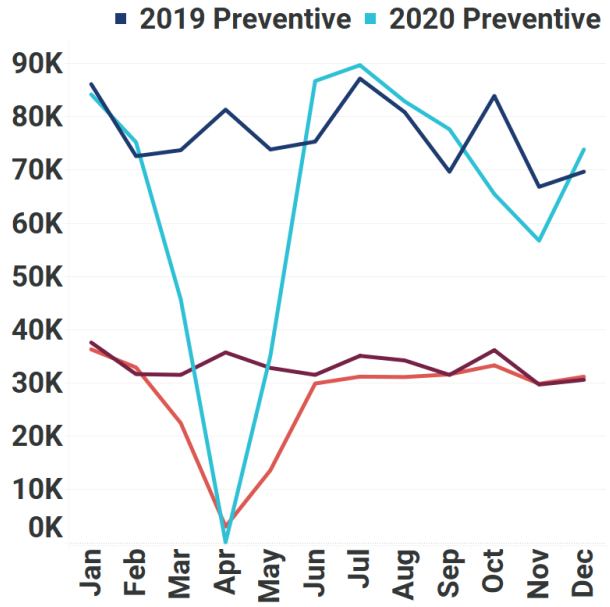


	2019	2020
Jan	149,197	149,188
Feb	127,182	135,360
Mar	128,762	90,895
Apr	142,329	17,390
May	130,453	67,243
Jun	130,791	140,803
Jul	148,802	144,865
Aug	140,434	137,268
Sep	125,603	132,408
Oct	147,111	122,834
Nov	120,398	110,348
Dec	124,928	128,671
Total	1,615,990	1,377,273

Figure 8 displays the trends in overall dental service utilization from available claims data, from January 2019 through December 2020. Within the study population, the number of individual overall visits with any dental insurance claims decreased by 14.8% in 2020 compared to the number in 2019.

In March through May of 2020, compared to the same period in 2019, dental service utilization decreased sharply, with overall use of any services declining 56.3%. By summer of 2020, the volume of monthly dental service utilization returned to levels comparable to those of the previous year. However, services again trended downward slightly in November 2020, as the state approached its second major peak of COVID-19 infections in the winter of 2020–2021. This may be in part a result of individuals choosing to limit participation in certain activities, including choosing to delay seeking dental care.

FIGURE 9: MONTHLY UTILIZATION OF PREVENTIVE OR OTHER SERVICES,[i] ALL AGES, 2019–2020



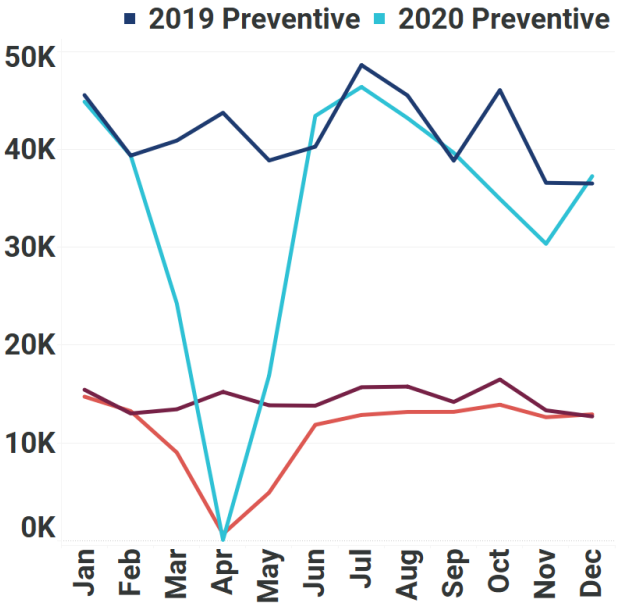
	2019 Preventive	2020 Preventive	2019 Other	2020 Other
Jan	86,126	84,200	37,613	36,326
Feb	72,617	75,228	31,681	32,934
Mar	73,738	45,680	31,545	22,476
Apr	81,341	112	35,754	3,051
May	73,864	35,111	32,842	13,622
Jun	75,349	86,722	31,542	29,919
Jul	87,177	89,702	35,119	31,207
Aug	80,871	82,897	34,252	31,135
Sep	69,688	77,652	31,532	31,639
Oct	83,918	65,507	36,180	33,326
Nov	66,860	56,747	29,727	29,862
Dec	69,694	73,867	30,618	31,194
Total	921,243	773,425	398,405	326,691

Figure 9 displays the trends in overall preventive service utilization compared to other service utilization from all available claims data, January 2019–December 2020. Within the study population, the number of preventive service (CDT codes D1000–D1999) claims decreased by 16.0% in 2020 compared to the number in 2019. Utilization of other services includes any visits for restorative, endodontic, or periodontal claims (CDT codes D2000–D4999). While utilization of these other services is generally less than that of preventive services, overall counts of other service utilization decreased by 18.0% in 2020 compared to that of 2019.

In March through May of 2020, compared to the same three-month period in 2019, preventive dental service utilization was greatly reduced, with overall use of preventive services declining by 64.7%. Over the same period, other dental service utilization was reduced by 60.9% in 2020 compared to 2019.

[i] Other services includes restorative, periodontal, and endodontic services

FIGURE 10: MONTHLY UTILIZATION OF PREVENTIVE OR OTHER SERVICES, AMONG CHILDREN AGES 0–18, 2019–2020



	2019 Preventive	2020 Preventive	2019 Other	2020 Other
Jan	45,563	44,890	15,431	14,725
Feb	39,381	39,388	13,006	13,246
Mar	40,914	24,247	13,432	9,011
Apr	43,761	78	15,212	677
May	38,881	16,904	13,838	4,918
Jun	40,293	43,438	13,800	11,846
Jul	48,644	46,403	15,687	12,853
Aug	45,529	43,213	15,755	13,161
Sep	38,861	39,663	14,183	13,171
Oct	46,080	34,950	16,480	13,898
Nov	36,598	30,359	13,325	12,621
Dec	36,527	37,273	12,707	12,916
Total	501,032	400,806	172,856	133,043

Figure 10 displays the trends in utilization of preventive services and other services, among children aged 0–18 within the study population. This includes all available claims data from January 2019 through December 2020. Among children in the study population, the number of preventive service claims decreased by 20.0% in 2020 compared to the count in 2019. Utilization of other services includes any visits for restorative, endodontic, or periodontal claims. While utilization of these other services is generally less than that of preventive services, overall counts of other service utilization decreased by 23.0% in 2020 compared to that of 2019.

In March through May of 2020, compared to the same period in 2019, preventive dental service utilization was greatly reduced, with overall use of preventive services declining by 66.6%. Over the same period, other dental service utilization was reduced by 65.6% in 2020 compared to that of 2019.

PREVENTIVE DENTAL SERVICE UTILIZATION

Figure 11 displays the proportions of covered individuals using any preventive services in 2019 by age group. As with use of any dental services, utilization is higher among children and appears to generally increase with age for adults. Figure 12 displays preventive service use by coverage type. Among ARKids enrollees, 44.3% used any preventive service, compared to 22.8% of patients with private dental coverage, 8.0% of Medicaid-covered patients, and 5.6% of Medicare Advantage dental coverage enrollees.

FIGURE 11: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE UTILIZING AT LEAST ONE PREVENTIVE SERVICE, BY AGE GROUP, 2019

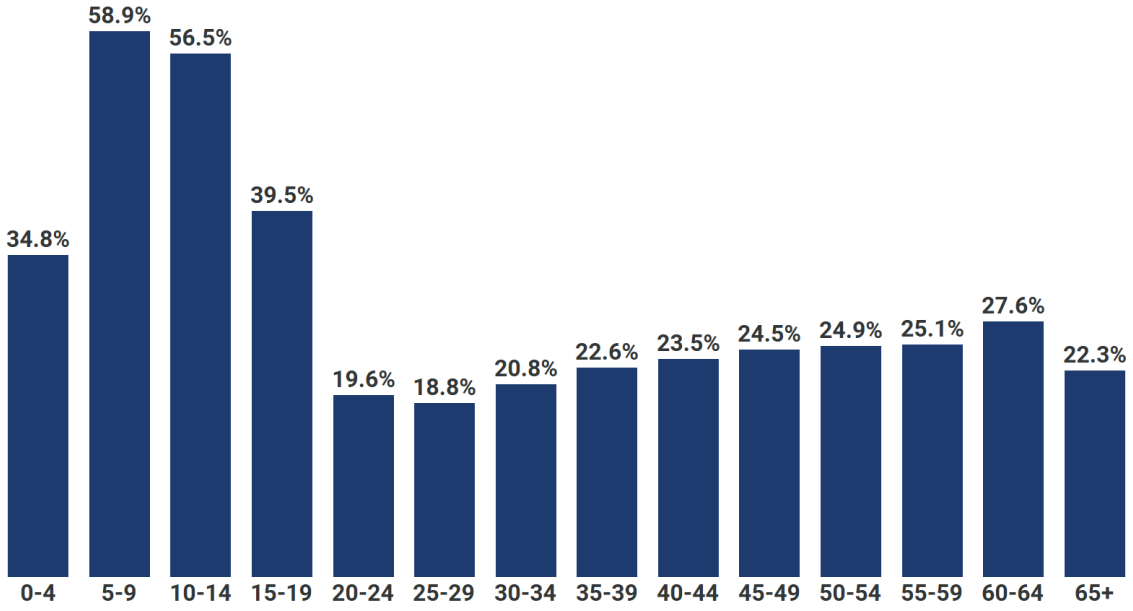


FIGURE 12: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE WHO UTILIZED PREVENTIVE DENTAL SERVICES BY PAYER, 2019

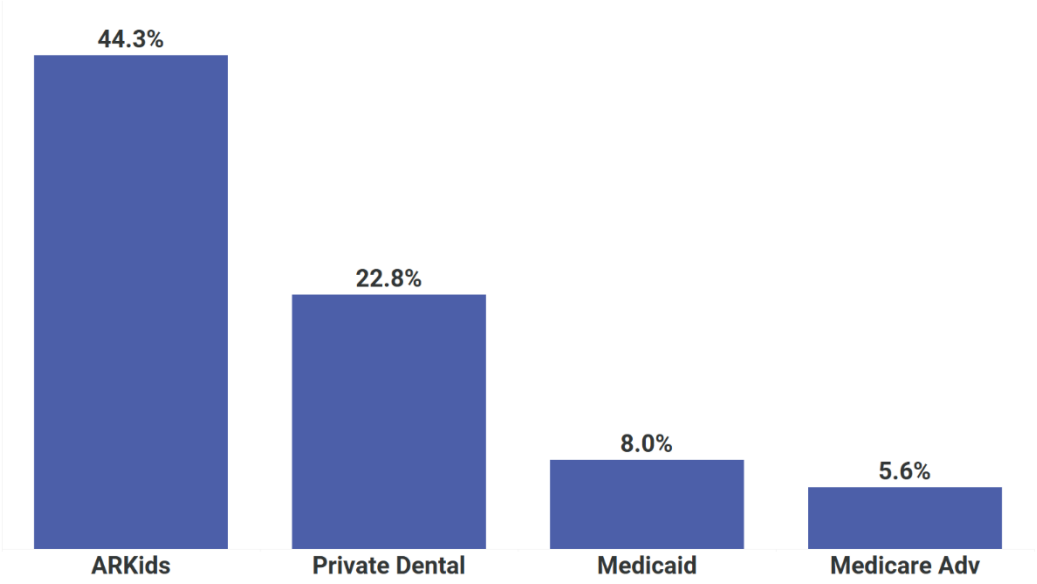
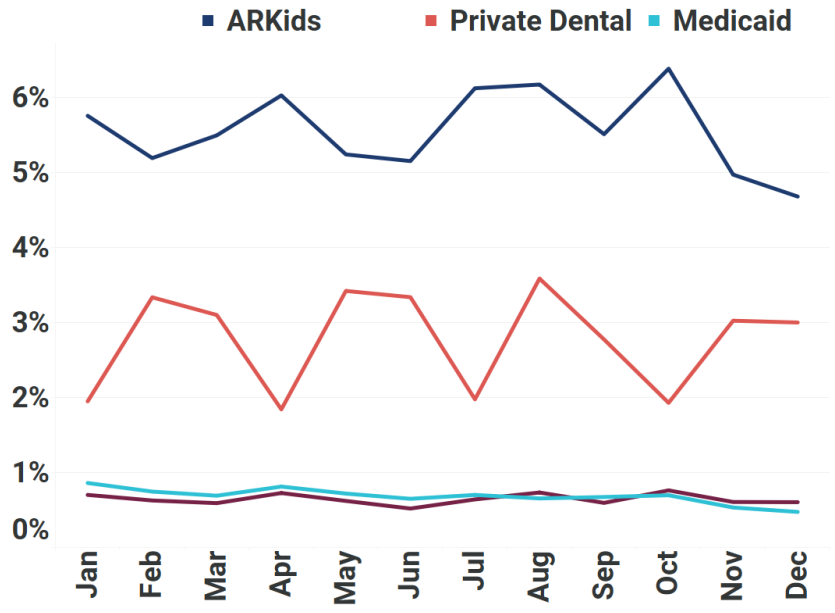


FIGURE 13: STATEWIDE UTILIZATION TRENDS: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE WITH A PREVENTIVE VISIT, BY COVERAGE TYPE, BY MONTH, 2019



	ARKids	Private Dental	Medicaid	Medicare ADV
Jan	5.8%	1.9%	0.9%	0.7%
Feb	5.2%	3.3%	0.7%	0.6%
Mar	5.5%	3.1%	0.7%	0.6%
Apr	6.0%	1.8%	0.8%	0.7%
May	5.2%	3.4%	0.7%	0.6%
Jun	5.2%	3.3%	0.6%	0.5%
Jul	6.1%	2.0%	0.7%	0.6%
Aug	6.2%	3.6%	0.7%	0.7%
Sep	5.5%	2.8%	0.7%	0.6%
Oct	6.4%	1.9%	0.7%	0.8%
Nov	5.0%	3.0%	0.5%	0.6%
Dec	4.7%	3.0%	0.5%	0.6%

Figure 13 displays the proportions of individuals with a preventive service claim, by month, in 2019. While monthly trends are generally steady across coverage types, ARKids enrollees have the highest proportions of monthly preventive visit utilization, from a high of 6.4% of enrollees having a preventive claim in October, and a low of 4.7% of enrollees having a preventive claim in December.

The proportions of enrollees in private dental coverage utilizing any preventive services per month varied from a high of 3.6% in August to a low of 1.8% in April. The proportions of Medicaid dental coverage enrollees utilizing any preventive services varied from 0.9% in January to 0.5% in November and December. The proportion of Medicare Advantage dental coverage enrollees utilizing any preventive services varied from 0.8% in October to 0.5% June.

TOP SERVICES AMONG PREVENTIVE SERVICE CLAIMS

TABLE 3: TOP 10 PREVENTIVE CLAIM TYPES AND MEDIAN AMOUNT PAID, AMONG ALL CLAIMS, 2019

CDT Code	Description	Number of Claims	Median Amount Paid
D1110	Prophylaxis (Teeth Cleaning) — adult	359,971	$55.00
D1120	Prophylaxis (Teeth Cleaning) — child aged 13 or younger	168,821	$38.00
D1208	Topical application of fluoride, including fluoride gels or fluoride foams (excluding fluoride varnish)	167,489	$22.00
D1206	Application of fluoride varnish	129,429	$23.00
D1351	Sealant — per tooth	32,267	$30.00
D1510	Space maintainer — fixed, unilateral per quadrant	2,377	$171.95
D1354	Interim caries arresting medication application	1,415	$22.00
D1517	Space maintainer — fixed, bilateral, mandibular	292	$256.50
D1320	Tobacco counseling for the control and prevention of oral disease	225	$25.00
D1516	Space maintainer — fixed, bilateral, maxillary	221	$338.40

Table 3 displays the utilization of the top 10 preventive services by counts of unique claims, by specific preventive CDT codes. Prophylaxis (teeth cleaning) for adults and children were the most frequent claim types among the preventive service category, followed by fluoride varnish applications and sealants.

PREVENTIVE VISIT UTILIZATION PRECEDING RESTORATIVE, PERIODONTAL, OR ENDODONTICS

FIGURE 14: PERCENTAGES OF RESTORATIVE, PERIODONTAL, AND ENDODONTICS SERVICES WITH A PREVENTIVE VISIT WITHIN PREVIOUS 12 MONTHS, BY AGE, 2019

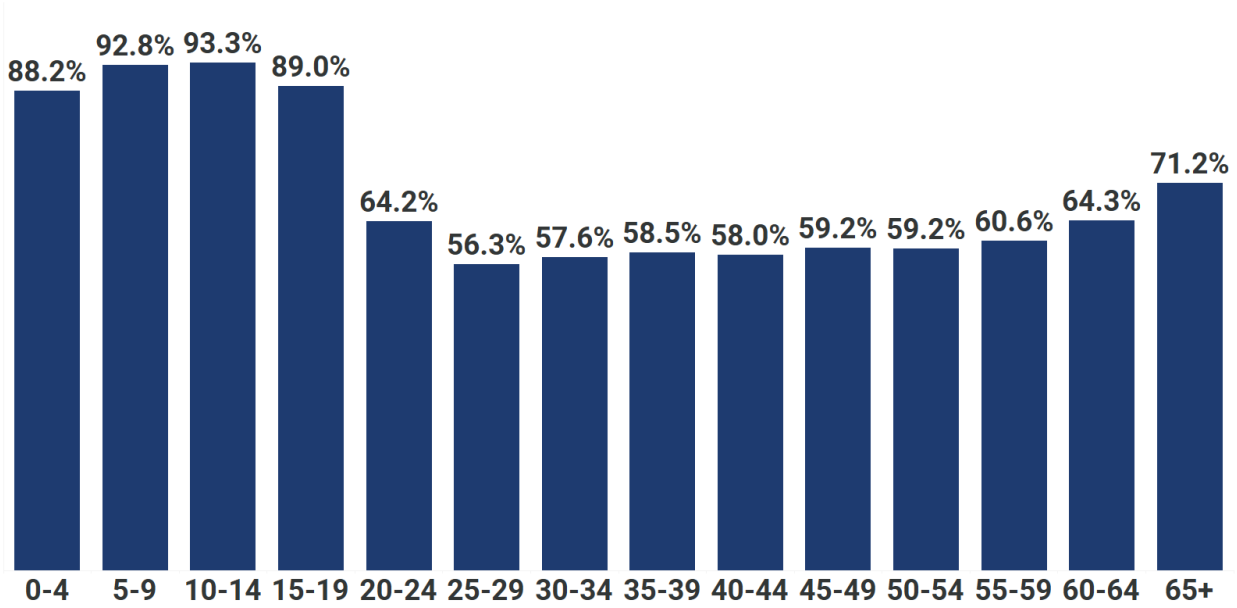


Figure 14 displays the proportions of individuals who had a preventive dental visit during the previous 12 months preceding either a restorative, endodontics, or periodontal service claim. Approximately 91.6% of children who had any of these other services had evidence of a preventive claim during the 12 months preceding these other services. Among individuals older than age 20, at least 62.1% of individuals with a restorative, endodontics, or periodontal service claim had a preventive service claim during the preceding 12 months.

The high proportion of individuals who had preventive claims prior to restorative, endodontics, or periodontal service claims is an indicator that underscores the importance of routine preventive service utilization, which may identify the need for additional necessary dental services.

DIAGNOSTIC DENTAL SERVICE UTILIZATION

Figure 15 displays the proportions of covered individuals using any diagnostic services in 2019 by age group. As with use of any dental services, utilization is higher among children, and appears to generally increase with age for adults. Figure 16 displays diagnostic service use by coverage type, showing that 45.9% of ARKids enrollees used any diagnostic service, compared to 26.7% of patients with private dental coverage, 15.9% of Medicaid-covered patients, and 8.2% of Medicare Advantage dental coverage enrollees.

FIGURE 15: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE UTILIZING AT LEAST ONE DIAGNOSTIC PROCEDURE, BY AGE GROUP, 2019

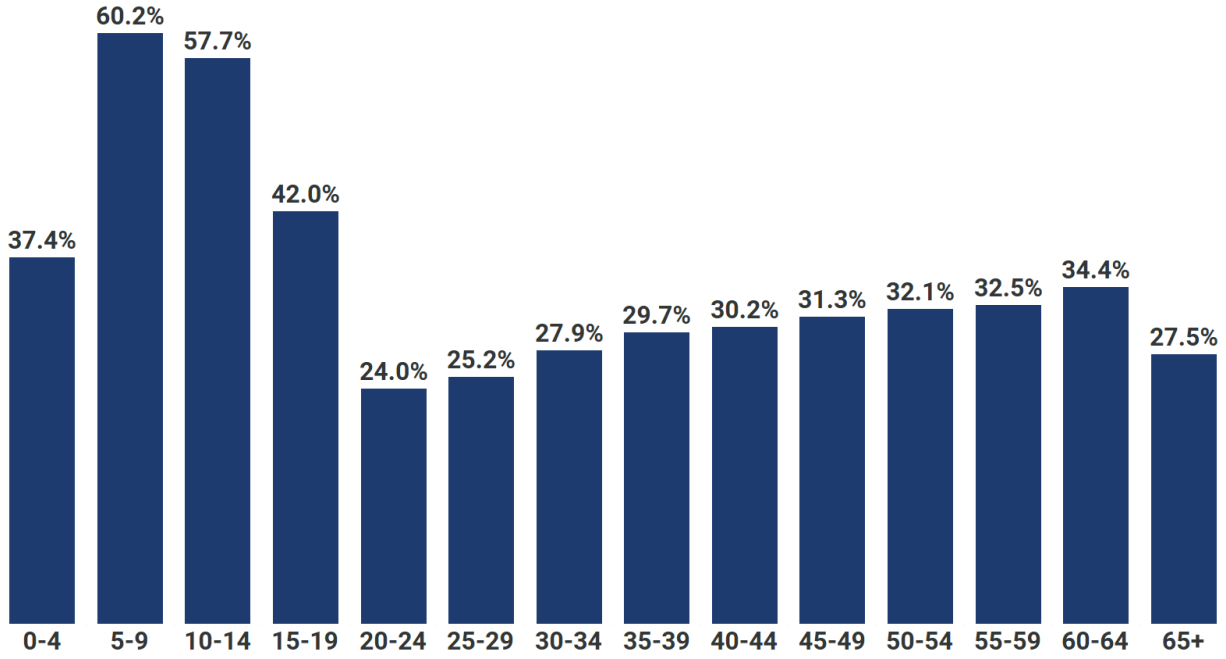
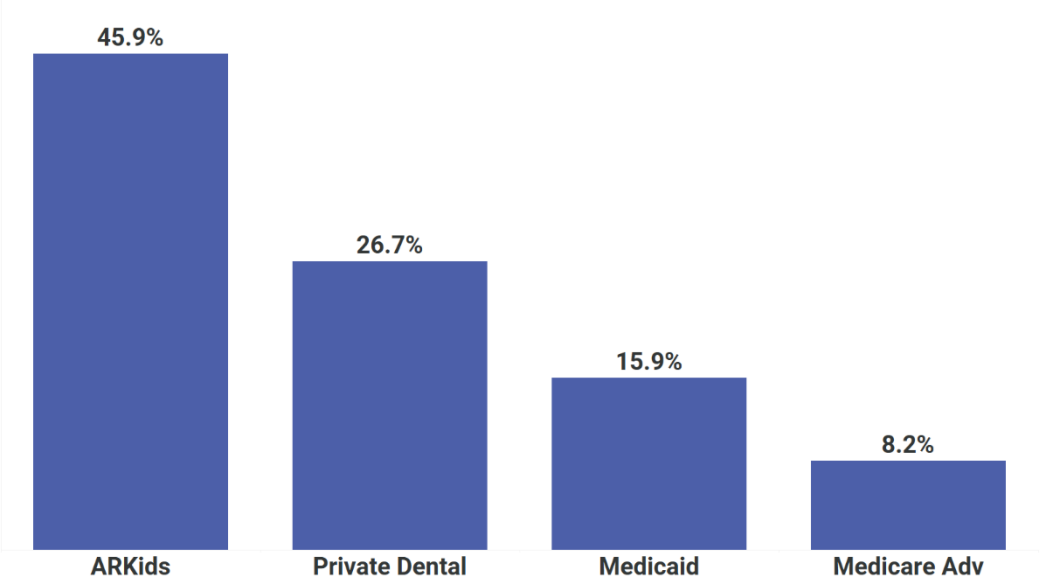


FIGURE 16: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE THAT UTILIZED DIAGNOSTIC DENTAL SERVICES BY PAYER, 2019



TOP SERVICES AMONG DIAGNOSTIC SERVICE CLAIMS

TABLE 4: TOP 10 DIAGNOSTIC CLAIM TYPES AND MEDIAN AMOUNT PAID, AMONG ALL CLAIMS, 2019

CDT Code	Description	Number of Claims	Median Amount Paid
D0120	Periodic oral evaluation	492,896	$30.00
D0272	Bitewings — two films	244,669	$25.00
D0220	Intraoral — periapical first film	186,492	$21.00
D0274	Bitewings — four films	153,575	$39.00
D0230	Intraoral — periapical each additional film	103,640	$18.00
D0140	limited oral evaluation — problem focused	102,260	$41.00
D0210	Intraoral — complete series of radiographic images	78,358	$90.00
D0603	Finding of moderate caries risk	69,378	$5.00
D0150	Comprehensive oral evaluation	69,044	$43.00
D0330	Complete series or panoramic film	67,440	$70.00

Table 4 displays the utilization of the top 10 diagnostic services by counts of unique claims, by specific diagnostic CDT codes. Periodic oral evaluation was the most frequent claim type in the diagnostic service category, followed by bitewings and other imaging services. It should be noted that while the proportion of Medicaid enrollees with evidence of any preventive claim was low at only 8.0% (Figure 12) their use of any diagnostic service was higher at 15.9% (Figure 16). For this reason, it is reasonable to not solely interpret preventive service use as the primary measure of utilization of dental care that serves to “prevent” downstream issues. For example, a periodic oral exam can serve this purpose and is included in the diagnostic category.

RESTORATIVE DENTAL SERVICE UTILIZATION

Figure 17 displays the proportions of covered individuals using restorative services in 2019 by age group. Utilization is higher among children and appears to increase with age for adults. Figure 18 displays restorative service use by coverage type. Among ARKids enrollees, 15.6% used any restorative service, compared to 8.7% of patients with private coverage, 4.7% of Medicaid-covered patients, and 2.4% of Medicare Advantage dental coverage enrollees.

FIGURE 17: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE UTILIZING AT LEAST ONE RESTORATIVE PROCEDURE, BY AGE GROUP, 2019

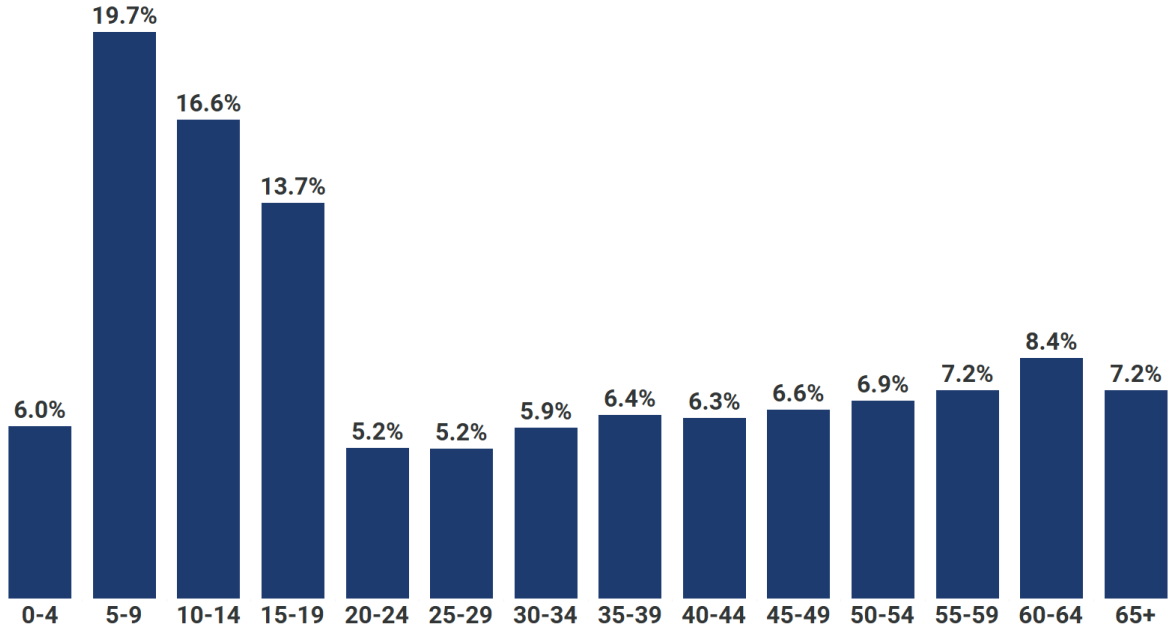
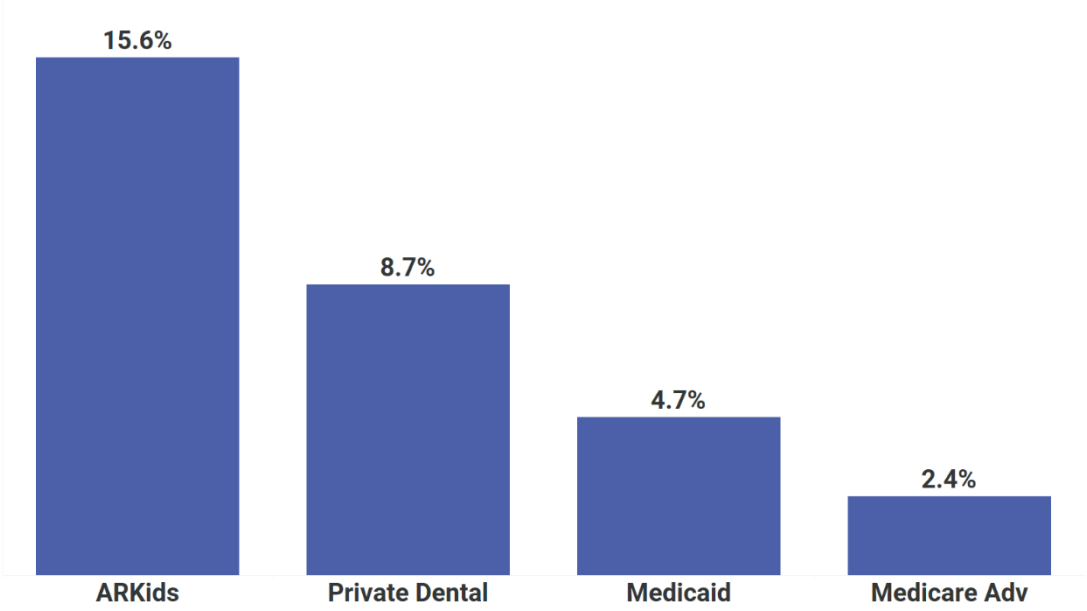


FIGURE 18: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE WHO UTILIZED RESTORATIVE DENTAL SERVICES BY PAYER, 2019

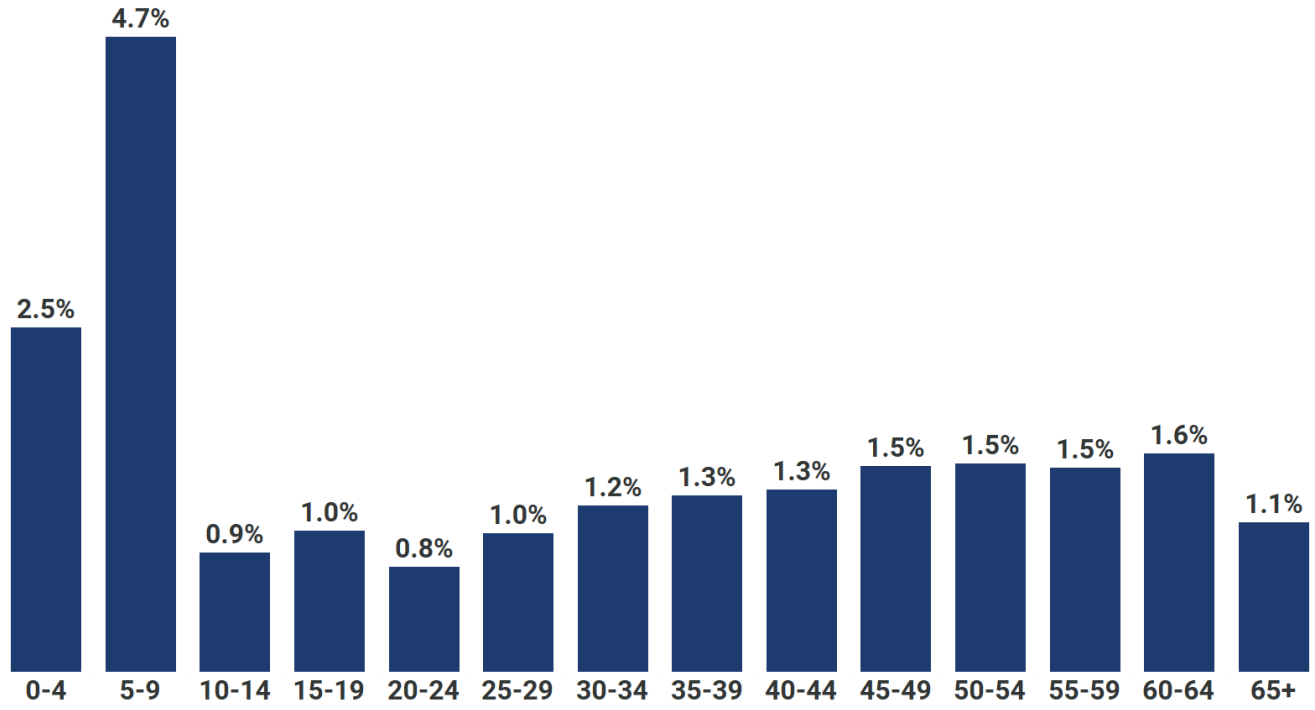


ENDODONTIC DENTAL SERVICE UTILIZATION

Figure 19 displays the proportions of individuals who had any claims for endodontic services by age group. Endodontic services include root canals, pulpotomy (surgical removal of pulp soft tissue), direct and indirect pulp capping, and apicoectomies (root surface surgery). Children aged 5–9 had the largest proportion of covered individuals using endodontic services, at 4.7%. Among adults, approximately 1.5% of individuals aged 45–64 had any claims for endodontic services in 2019, as evidenced in the APCD.

Claims analyses of proportion of individuals with any utilization of endodontic services by dental coverage type found that only 2.5% of individuals with ARKids had any endodontic claims, compared to 1.2% of individuals with private dental coverage. The proportion of those covered by Medicaid or Medicare Advantage who had evidence of claims for any endodontic services was less than 0.1%.

FIGURE 19: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE UTILIZING AT LEAST ONE ENDODONTIC PROCEDURE, BY AGE GROUP, 2019

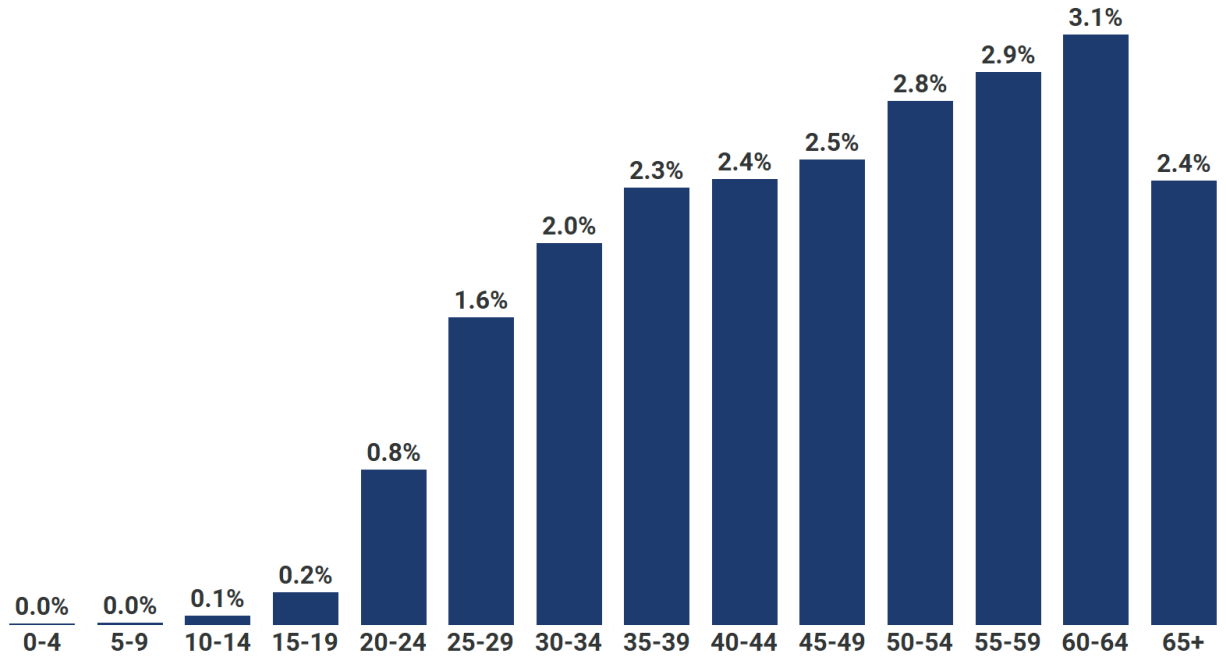


PERIODONTAL DENTAL SERVICE UTILIZATION

Figure 20 displays the proportions of individuals who had any claims for periodontal services by age group. Periodontal services include gingivectomies or gingivoplasty (gum removal or reshaping), implants, root planning (cleaning of infected root surface), bone grafting, etc. While the overall proportion of children using any periodontal services was very low, utilization among adults appears to generally increase with age, with the largest proportion of individuals using any periodontal services being 3.1% for individuals in the 60–64 age group.

Claims analyses of the proportion of individuals with any utilization of periodontal services by dental coverage type found that only 1.6% of individuals with private dental coverage had any periodontal claims, compared to 1.5% of individuals with Medicaid dental coverage. The proportion of those covered by Medicare Advantage who had evidence of claims for any endodontic services was 0.1%, while the proportion of individuals covered by ARKids who had claims for any periodontal services was less than 0.1%.

FIGURE 20: PROPORTIONS OF INDIVIDUALS WITH DENTAL COVERAGE UTILIZING AT LEAST ONE PERIODONTAL PROCEDURE, BY AGE GROUP, 2019



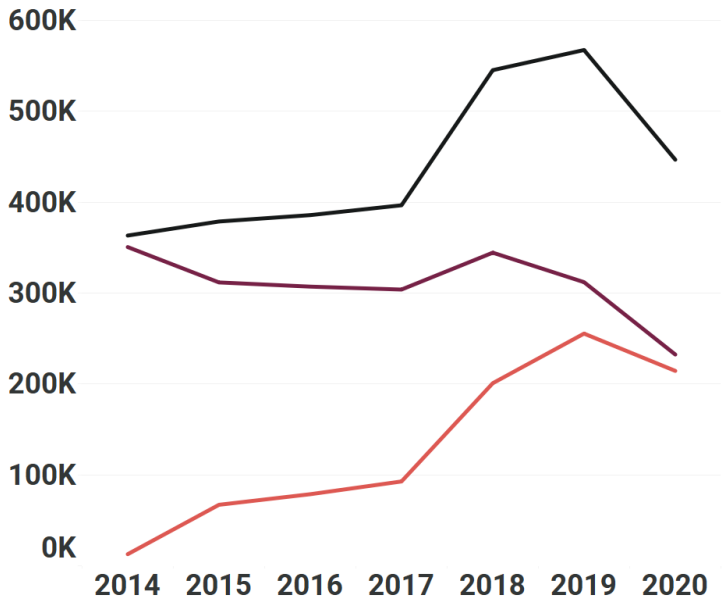
FLOURIDE AND FLOURIDE VARNISH APPLICATIONS AND RELATED SERVICES IN DENTAL AND MEDICAL SETTINGS

Fluoride varnish is a topical resin containing fluoride that is thinly applied to the tooth surface and used as a preventive treatment for caries. Fluoride varnish can prevent about one-third of cavities in the primary (baby) teeth.[14] The United States Preventive Services Task Force (USPSTF) recommended in 2014 that primary care clinicians apply fluoride varnish to the primary teeth of all infants and children starting at the age of primary tooth eruption (B recommendation).[15]

Figure 21 shows overall trends in fluoride varnish application in dental settings for the two primary CDT codes used for these claims, D1206 (topical application of fluoride varnish) and D1208 (topical application of fluoride, which could be used for varnish also). Overall applications have increased each year from 2014 through 2019, increasing from 363,343 applications in 2014 to 567,489 applications in 2019. Overall frequency of applications was less in 2020, with 446,810 total applications.

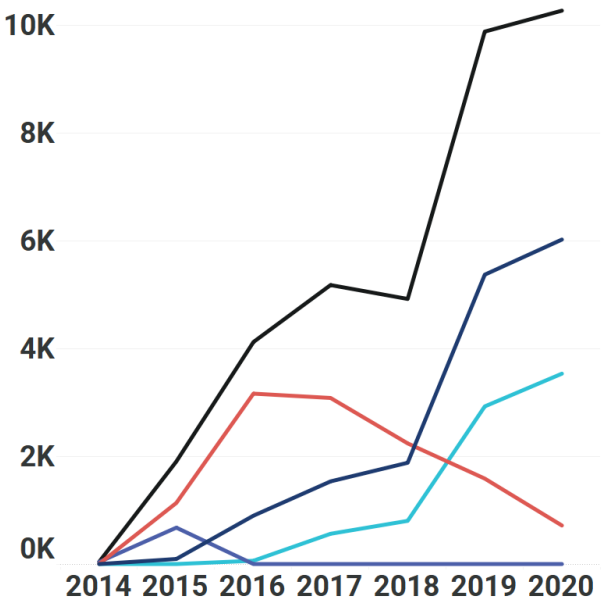
The reduced number of applications in 2020 compared to 2019 is likely a result of the impact of COVID-19 on overall preventive service utilization. Further analysis of more recent claims data is warranted to track varnish application trends in 2021 and beyond.

FIGURE 21: FLOURIDE VARNISH APPLICATION TRENDS IN DENTAL SETTINGS, AGES 0–18, 2014–2020



	D1206	D1208	Total
2014	12,709	350,634	363,343
2015	67,060	311,750	378,810
2016	78,697	307,120	385,817
2017	92,738	303,922	396,660
2018	200,847	344,486	545,333
2019	255,443	312,046	567,489
2020	214,406	232,404	446,810

FIGURE 22: FLOURIDE VARNISH APPLICATION TRENDS IN MEDICAL SETTINGS, AGES 0–18, 2014–2020



	D1206	V0731	Z293	99188	Total
2014	4	39	0	0	43
2015	1,135	676	0	94	1,905
2016	3,165	0	61	898	4,124
2017	3,085	0	562	1,535	5,182
2018	2,241	0	802	1,881	4,924
2019	1,587	0	2,928	5,375	9,890
2020	716	0	3,536	6,027	10,279

Figure 22 displays trends in fluoride varnish applications completed by physicians, nurses, or other healthcare professionals, as opposed to dentists. Fluoride varnish applications in medical settings have increased greatly since 2014, to a high of over 10,000 claims for varnish applications in medical settings in 2020. Provider guidance from the Arkansas Department of Health's Office of Oral Health and others has helped reinforce this practice. Medical insurance claims for the code "99188" (application of topical fluoride by a physician or other qualified healthcare professional) have increased the most among applicable fluoride codes, which also include dental CDT codes.

The application of fluoride varnish by physicians and nurses was authorized by Arkansas Act 90 in 2011.[16] Act 90 allows physicians to apply fluoride varnish once they have completed training on dental caries risk assessment and varnish application. The act also enables delegation of fluoride varnish applications to nurses or other licensed healthcare professionals who have completed the necessary trainings. The rules and regulations related to fluoride varnish application were updated in 2012 in response to Act 90.[17]

Fluoride varnish applications by primary care providers have contributed to an overall increase in applications and represents an opportunity to medical providers to offer some dental care and risk assessment to children, some of whom may have difficulty seeing a dentist on a regular basis. The continued integration of components of dental care into the state's primary medical care system may increase the overall number of access points for dental care, particularly in areas where there are fewer active dental care providers. Similar initiatives in other states have found that younger children (ages 1–2 years) appeared to benefit the most from such initiatives, given the frequent well-child visits and other visits that children in this age range have with their pediatricians.[18]

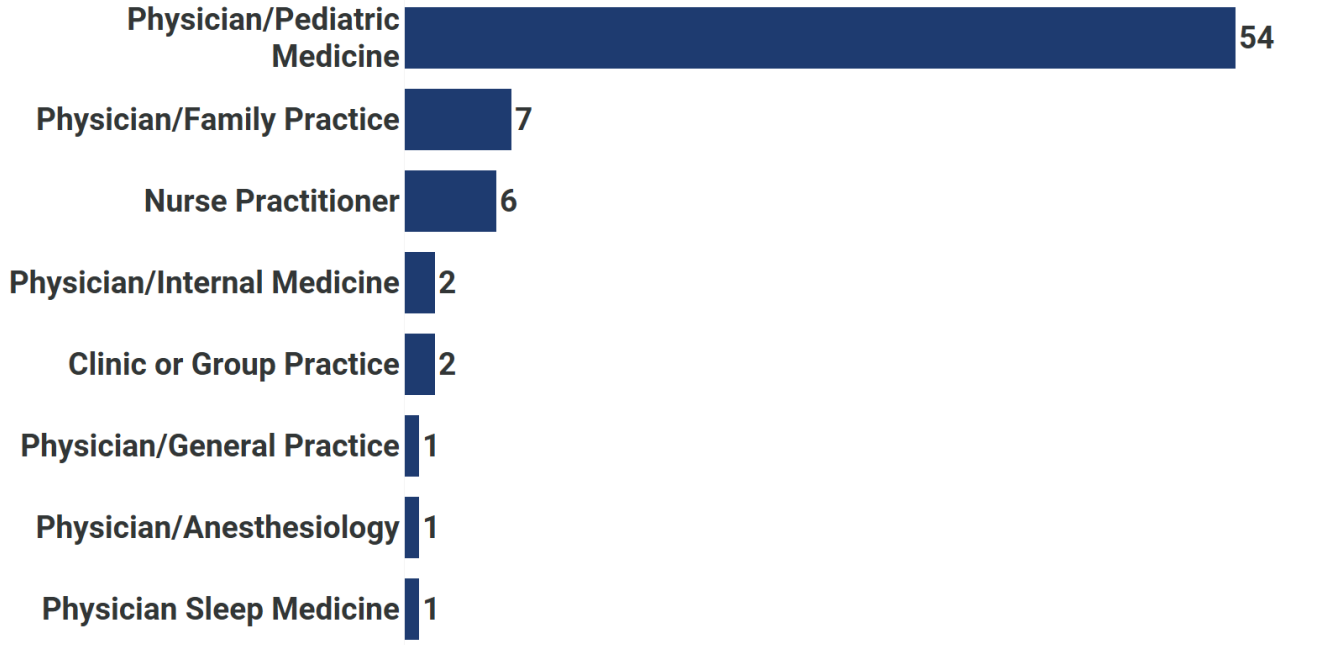
TABLE 5: FREQUENCY OF FLUORIDE VARNISH APPLICATIONS, 0–18 YEARS OLD, 2019

Number of visits with a fluoride varnish claim	Count of patients aged 0–18	Percentage among individuals aged 0–18 with dental coverage
Any	415,339	66.5%
1	256,970	41.2%
2	157,180	25.2%
3	1,072	0.2%
4	114	<0.1%
5	<10	<0.1%

The American Association of Pediatrics (AAP) recommends that fluoride varnish applications occur every six months among children at low risk of caries, and every three to six months among children at high risk for dental caries.[19]

Table 5 displays the number of visits among patients ages 0 to 18 in the study population who had claims for fluoride varnish applications by number of visits in 2019. Overall, approximately 67% of children with dental coverage had any visits with claims for fluoride varnish applications in 2019. Among those, 41.2% had one visit, and 25.2% had two visits. Less than 0.3% of children had three or more visits with claims for fluoride varnish applications in 2019.

FIGURE 23: COUNTS OF MEDICAL PROVIDERS WHO PERFORMED AT LEAST 20 FLUORIDE VARNISH APPLICATIONS, BY SPECIALTY TYPE, 2019



Overall, in 2019, there were 324 individual medical providers (physicians or nurses) or practices that performed any fluoride varnish applications. Figure 23 displays the counts of providers who performed at least 20 applications, by medical specialty for 2019. There were 54 unique pediatric medicine physicians who provided fluoride varnish applications in 2019 as evidenced by reported medical claims. Seven family practice physicians and six nurse practitioners provided fluoride varnish applications. Two internal medicine physicians and two group practices filed claims for fluoride varnish applications, while one general practice physician, one sleep medicine physician, and one anesthesiology physician provided fluoride varnish applications.

Sealants are thin coatings applied to teeth to protect against dental caries. Sealants are most effective when applied soon after eruption of permanent molars. This typically occurs around age 6 for first molars and age 12 for second molars.[20]

Figure 24 displays the annual trend in sealant applications from 2013–2020 among children ages 0–18 years, as evidenced by claims reported to the APCD. The frequency of sealant claims was generally steady from 2013–2017, at approximately 35,000 per year. In 2018 and 2019, sealant claims increased to nearly 50,000 per year, before being reduced to approximately 32,000 claims in 2020. This reduction of almost 35% from 2019 to 2020 was likely another impact of COVID-19-related reductions in overall dental service provision in 2020. Additional outreach and education may be needed to provide sealants to children who did not receive them as a result of 2020 service interruptions.

FIGURE 24: DENTAL SEALANT APPLICATION CLAIM COUNTS, AGES 0-18, 2013–2020

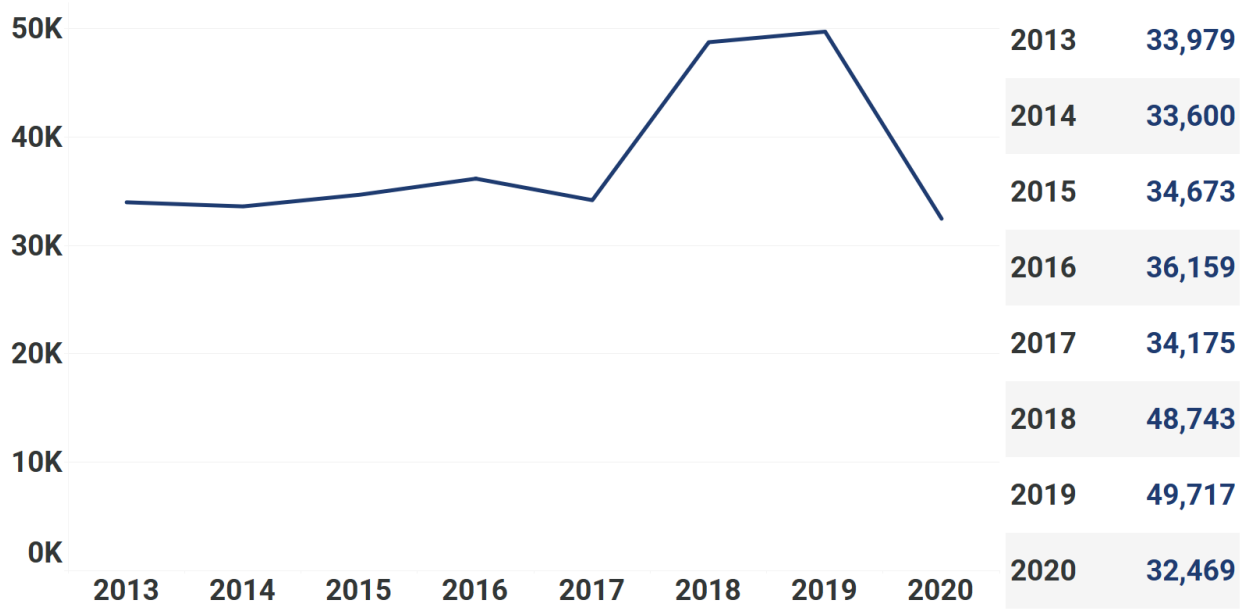


Table 6 displays the overall proportion of dentists who served children and who provided any sealants. Among the 990 dentists identified as having provided any services to at least 20 children, 740 (74.7%) provided any sealant applications. Further research is warranted to better understand barriers to providers offering sealants to children.

TABLE 6: PROPORTIONS OF DENTISTS WITH CLAIMS FOR SEALANTS, 2019

Dentists who served at least 20 children 0–18:	**990**
Dentists who had at least one sealant claim:	**740**
Percentage of dentists providing sealants:	**74.7%**

Utilization of Dental Care in Medical Settings

While emergency dental care and procedures are sometimes warranted in hospital settings, for most dental-related care, individuals should not have to seek care from hospitals and emergency departments (ED). For many patients with dental coverage, seeking dental care in a medical setting results in an allocation of expenses towards their medical coverage. In many instances the treatment of dental-related issues in emergency settings is likely the result of patients' failure or inability to obtain dental preventive care, or healthcare system failure to provide adequate access to preventive dental services.

Analyses of medical and dental claims experience found that a large number of individuals sought dental care in medical settings, including EDs. Individuals who had a preventive dental visit in the prior 12 months represented the minority of individuals who sought dental care in an ED, suggesting that routine preventive dental care and dental visits can help avoid use of EDs for dental-related care.

TABLE 7: PATIENTS WITH DENTAL CARE IN MEDICAL SETTINGS BY MEDICAL COVERAGE TYPE AND DENTAL INSURANCE STATUS, 2019 (MEDICARE FROM 2018)

Payer	Dental Coverage	Total Individuals with Claims	Individuals with ED Claims	Percentage of Individuals with ED Claims
ARKids	Yes	14,815	1,404	9.5%
Commercial/EBD	No	8,320	2,383	28.6%
Commercial/EBD	Yes	5,632	1,265	22.5%
Medicaid	No	2,280	1,184	51.9%
Medicaid	Yes	7,641	3,527	46.2%
Medicare Advantage	No	429	121	28.2%
Medicare Advantage	Yes	1,840	357	19.4%
Medicare	No	3,310	832	25.1%
Medicare	Yes	2,159	607	28.1%

Table 7 shows the proportions of individuals who had any dental-related claims on their medical insurance, overall and specifically in the emergency department, by type of medical coverage. Table 7 also displays this information stratified by dental coverage status to indicate whether or not patients had any evidence of dental coverage.

Among patients with ARKids medical coverage, 14,815 had dental-related medical claims, and 1,404 (9.5%) of those individuals had claims in the ED. Among patients with commercial or Arkansas Employee Benefits Division (EBD) coverage, 13,952 had medical claims for dental care. Among those, 8,320 (59.6%) did not have evidence of dental coverage, compared to 5,632 who did have dental coverage. The proportion of

individuals with dental care in the ED was higher for commercial or EBD patients without evidence of dental coverage at 28.6%, compared to 22.5% for those with dental coverage.

For individuals with Medicaid medical coverage, 9,921 patients had medical claims for dental care. However, unlike the commercial/EBD patient experience, the majority of the Medicaid population who incurred medical claims for dental care did have dental coverage. Among the 9,921 Medicaid patients with medical claims for dental care, 2,280 (23.0%) did not have dental coverage, while 7,641 (77.0%) did have dental coverage.

Regardless of dental coverage status, the proportion of Medicaid patients' medical claims for dental care that occurred in ED settings was nearly double that of commercial or EBD patients, at approximately 47% for Medicaid patients, compared to approximately 26% for commercial or EBD patients.

These findings suggest that Medicaid medical coverage enrollees are more likely to seek dental care in medical settings, and specifically emergency departments, and that targeted patient education is needed by medical and dental providers to improve oral health literacy and to ensure patients know how to engage with a dentist or dental home as their primary setting for dental care.

TABLE 8: TOP DIAGNOSES FOR DENTAL CARE RECEIVED IN A MEDICAL SETTING AMONG INDIVIDUALS WITH COMMERCIAL OR MEDICAID MEDICAL COVERAGE, 2019

ICD-10	Description	Individuals
K02*	Dental caries	10,239
K04*	Diseases of the pulp and periapical tissues	6,962
K08*	Other disorders of the teeth and supporting structures	5,141
K00*	Disorders of tooth development and eruption	2,673
K05*	Gingivitis and periodontal diseases	1,022
K01*	Embedded and impacted teeth	887
K03*	Other diseases of hard tissues of teeth	374
K06*	Other disorders of the gingiva and edentulous alveolar ridges	241

Table 8 displays the most frequent diagnoses on medical claims for dental-related care in medical settings among individuals with commercial or Medicaid medical coverage. Dental caries was the most frequent diagnosis, followed by diseases of the pulp and periapical tissues, and other disorders of the teeth and supporting structures.

FIGURE 25: DENTAL COVERAGE STATUS AMONG INDIVIDUALS WITH ANY MEDICAL CLAIMS FOR DENTAL SERVICES

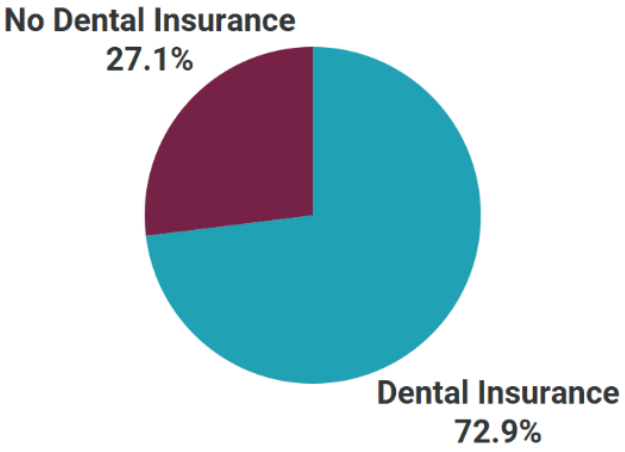


Figure 25 displays the dental insurance coverage status of patients who incurred medical insurance claims (generally in medical care settings) for dental services in 2019. Among individuals who incurred medical insurance claims for dental services, 72.9% had evidence of dental coverage, while 27.1% did not have any evidence of dental coverage.

Figure 26 displays the proportions of individuals with medical claims for dental services who had any preventive dental service claims in the 12 months preceding their medical claim for dental services. At least 90% of individuals with Medicaid, Medicare Advantage, or private dental coverage did not have any claims for preventive dental visits in the 12 months preceding their medical claim for dental services.

FIGURE 26: PREVIOUS HISTORY OF PREVENTIVE DENTAL VISITS AMONG INDIVIDUALS WITH DENTAL SERVICE CLAIMS IN MEDICAL SETTINGS, BY DENTAL COVERAGE TYPE, 2019

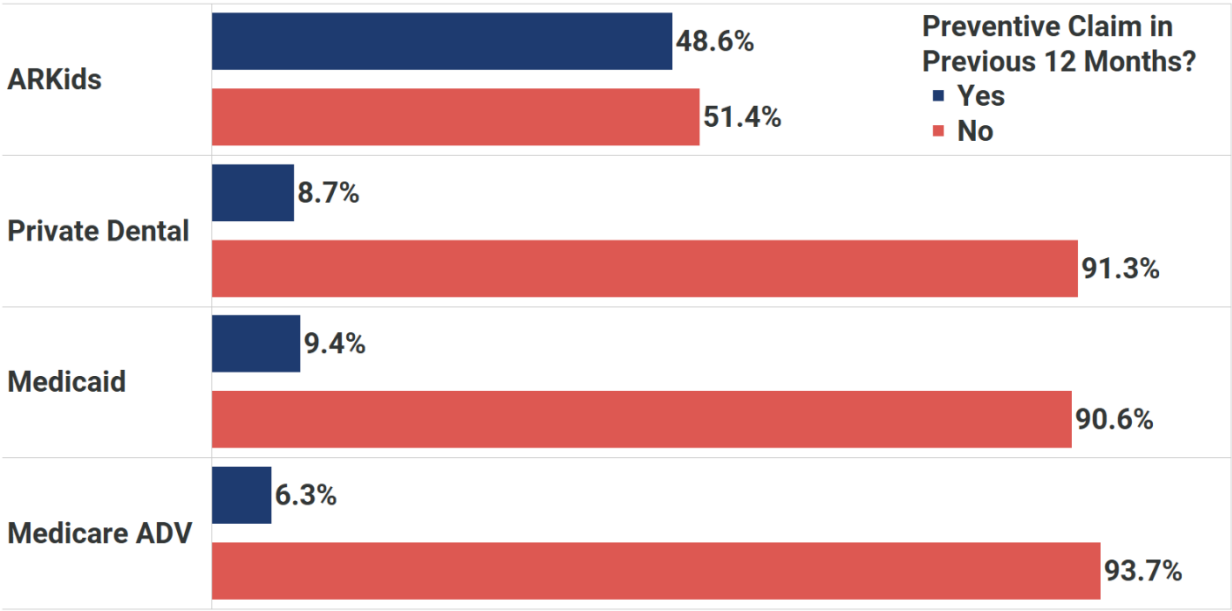


Figure 27 displays the proportions of individuals with medical claims in the emergency department for dental care who had any preventive dental service claims in the 12 months preceding their medical claim. At least 92% of individuals with Medicaid, Medicare Advantage, or private dental coverage did not have any claims for preventive dental visits in the 12 months preceding their medical claim for dental services.

FIGURE 27: HISTORY OF PREVENTIVE VISITS AMONG INDIVIDUALS WITH DENTAL SERVICE-RELATED CLAIMS IN EMERGENCY DEPARTMENT SETTINGS, BY DENTAL COVERAGE TYPE, 2019

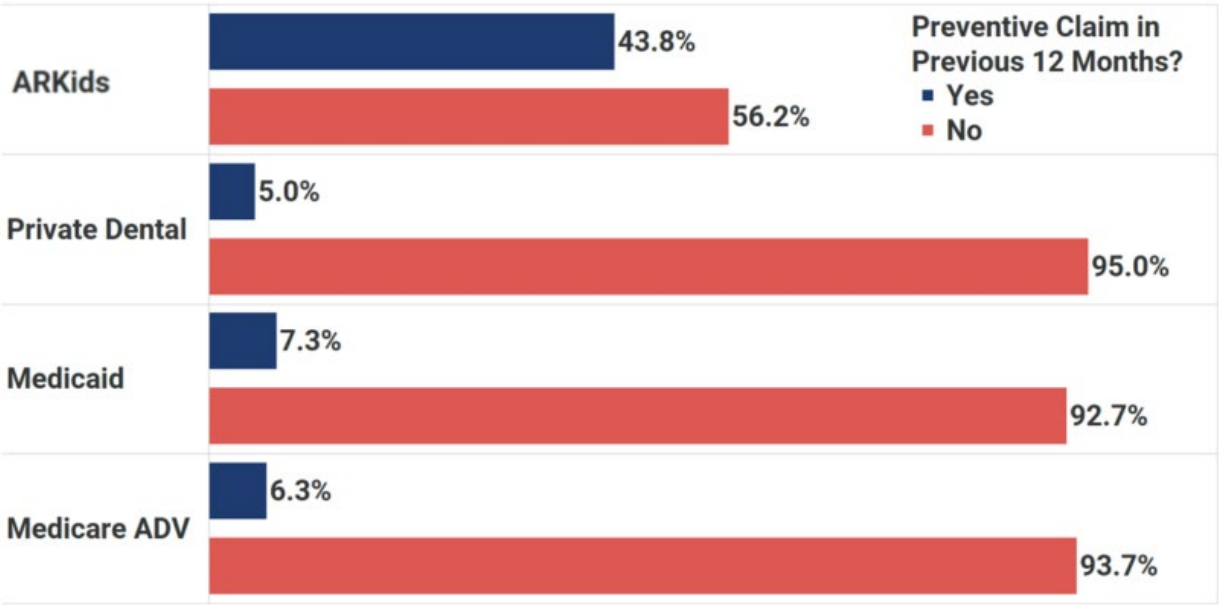
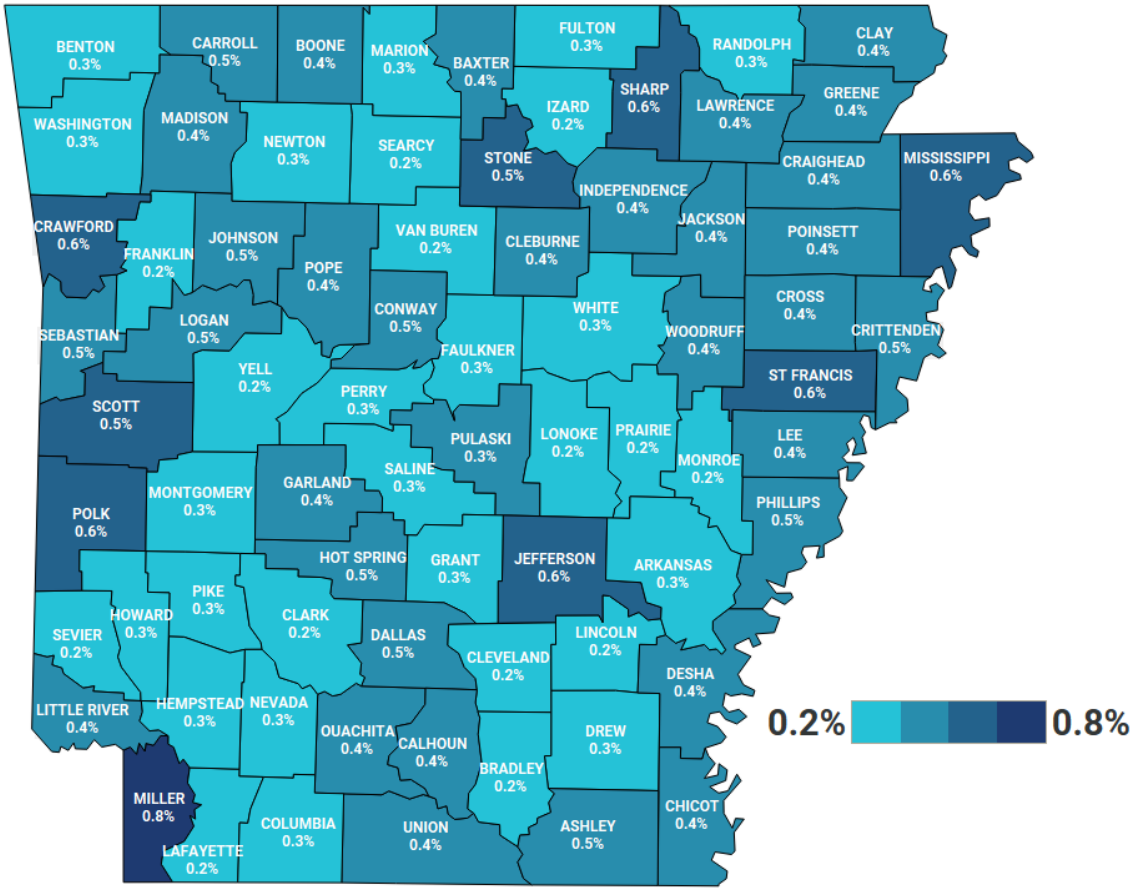


Figure 28 shows the proportions of individuals with dental coverage who incurred a medical claim in the ED for dental care in 2019. At 0.8%, Miller County had the highest proportion of dental-related ED use among individuals with dental coverage.

FIGURE 28: PERCENTAGES OF INDIVIDUALS WITH DENTAL COVERAGE WHO HAD AN EMERGENCY DEPARTMENT VISIT FOR A DENTAL SERVICE, 2019



Hospital Emergency Department Utilization Among Uninsured Individuals

Figure 29 shows the estimated proportions of uninsured individuals who had an ED visit for dental care in 2019. Event counts are from the APCD hospital discharge data for uninsured individuals. Uninsured population estimates are from the 2019 ACS population estimates and the Small Area Health Insurance Enrollment (SAHIE) uninsured rate estimates per county. Green, Jefferson, and Little River counties had the largest proportions of uninsured individuals with a dental-related ED visit in 2019.

FIGURE 29: PERCENTAGES OF UNINSURED INDIVIDUALS WHO HAD AN EMERGENCY DEPARTMENT VISIT FOR A DENTAL SERVICE, 2019

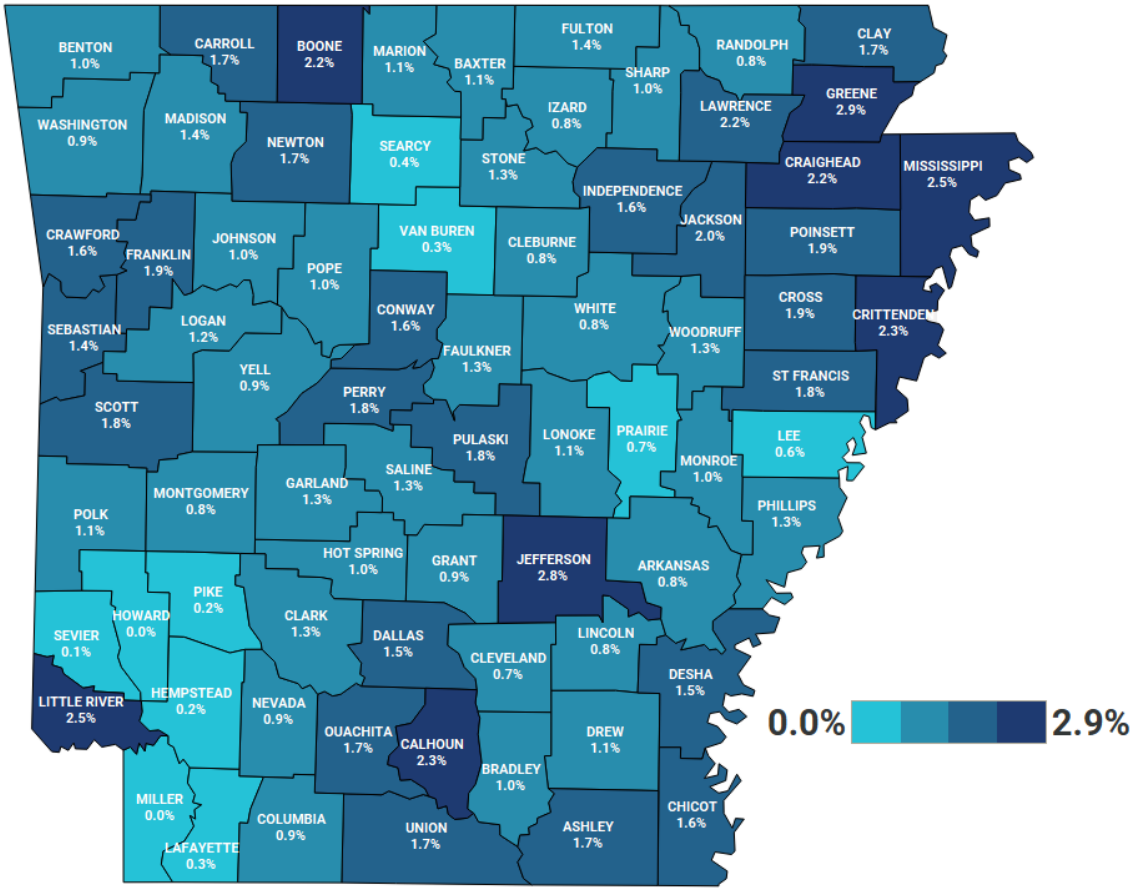


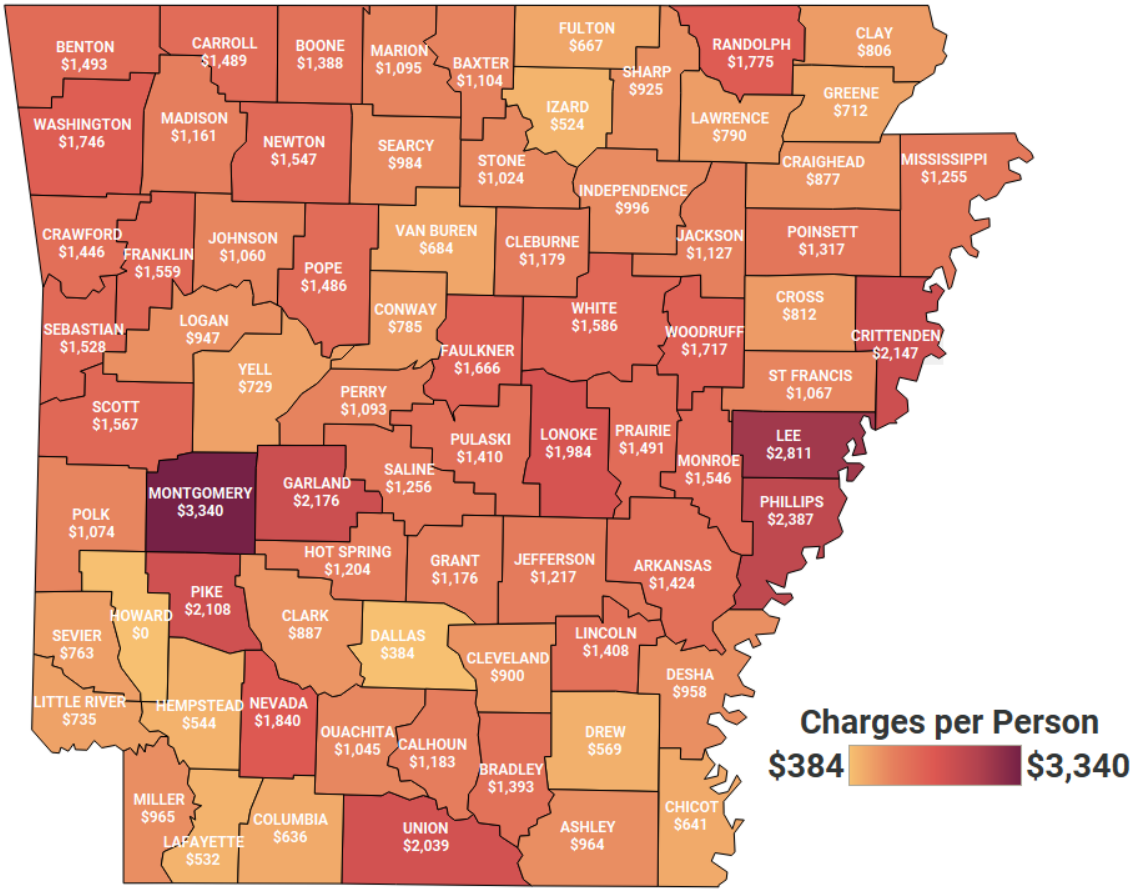
Table 9 displays the total dental-related ED visits among uninsured Arkansas residents and total associated charges for those services. In 2019, patients sought dental care in an ED approximately 4,000 times, with associated charges totaling over $5.5 million. These charges contributed to overall uncompensated care totals for hospitals in the state.

TABLE 9: TOTAL NUMBER OF DENTAL-RELATED EMERGENCY DEPARTMENT VISITS AND ASSOCIATED COSTS AMONG UNINSURED INDIVIDUALS, 2019

Total Annual Dental-Related ED Visits Among the Uninsured	3,997
Total Annual Charged Amounts for Uninsured Patient Visits	$5,587,630

Figure 30 shows county-level average charged amounts associated with dental-related ED visits. At $3,340 per visit, Montgomery County had the highest average charges for uninsured dental-related ED visits.

FIGURE 30: AVERAGE CHARGED AMOUNTS FOR EMERGENCY DEPARTMENT VISITS FOR DENTAL SERVICES AMONG UNINSURED INDIVIDUALS, BY COUNTY OF PATIENT RESIDENCE, 2019



Population to Active Dentist Ratio Profile

Many counties appear to have too few active dentists providing services within the county, with several having a patient-to-dentist ratio higher than the Health Research and Services Administration Dental Health Provider Shortage Area designated threshold of 5,000 individuals to each provider.

Figure 31 displays the ratio of residents to dentists who served at least 20 unique patients in each county, as designated by a service address indicating care was delivered in that county. A minimum threshold of 20 patients seen should not be considered the equivalent of a full-time dentist, but rather a minimum indication that a dentist has provided care to patients in a given county. Because dentists may provide care to patients in multiple counties, they may be counted towards multiple county ratios. Only two counties, Cleveland and Lafayette, had no dentists providing care for at least 20 patients in the county.

Dentist taxonomies included are Dentist General Practice; Oral and Maxillofacial Surgery; Oral and Maxillofacial Pathology; Pediatric Dentistry; Periodontics; Orthodontics and Dentofacial Orthopedics; Endodontics; Prosthodontics; and Public Health Dentist.

FIGURE 31: COUNTY RESIDENTS PER 1 DENTIST PROVIDING SERVICES TO A MINIMUM OF 20 INDIVIDUAL PATIENTS WITHIN EACH COUNTY, 2019

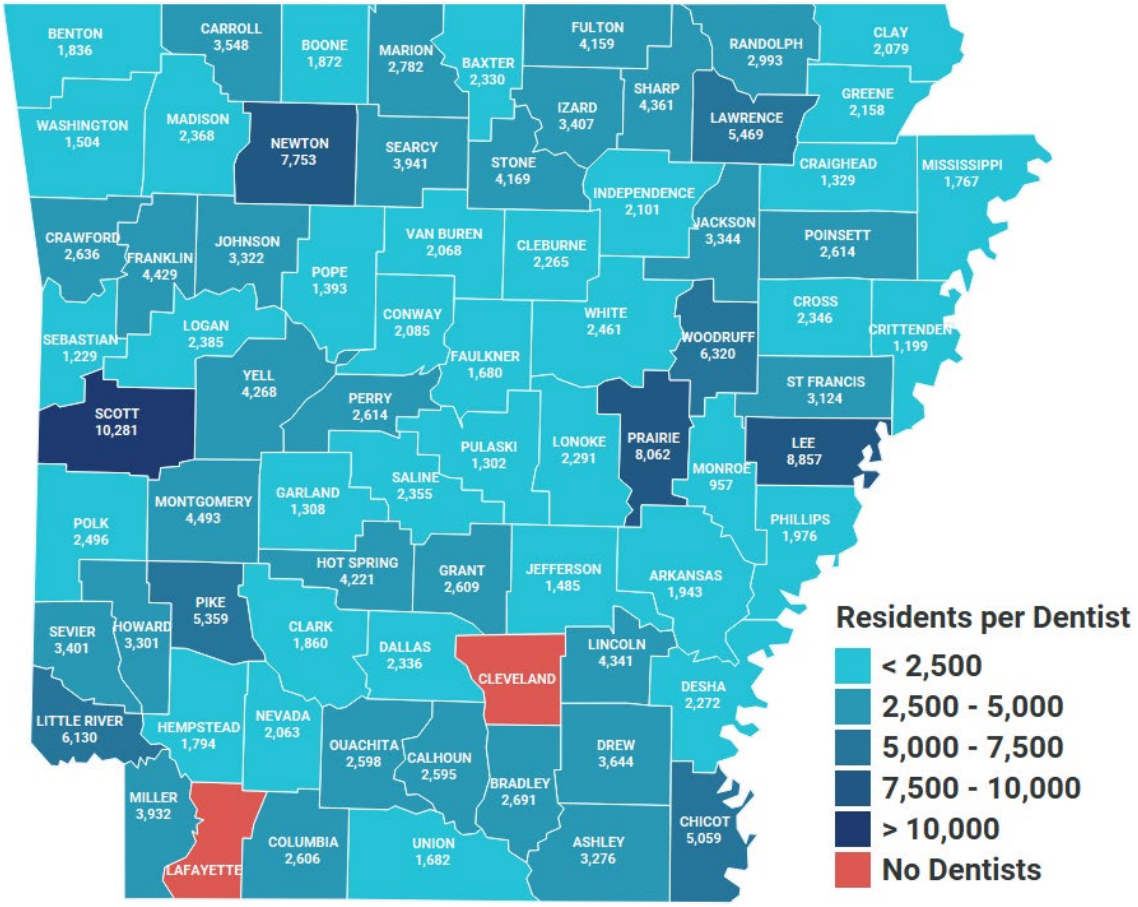
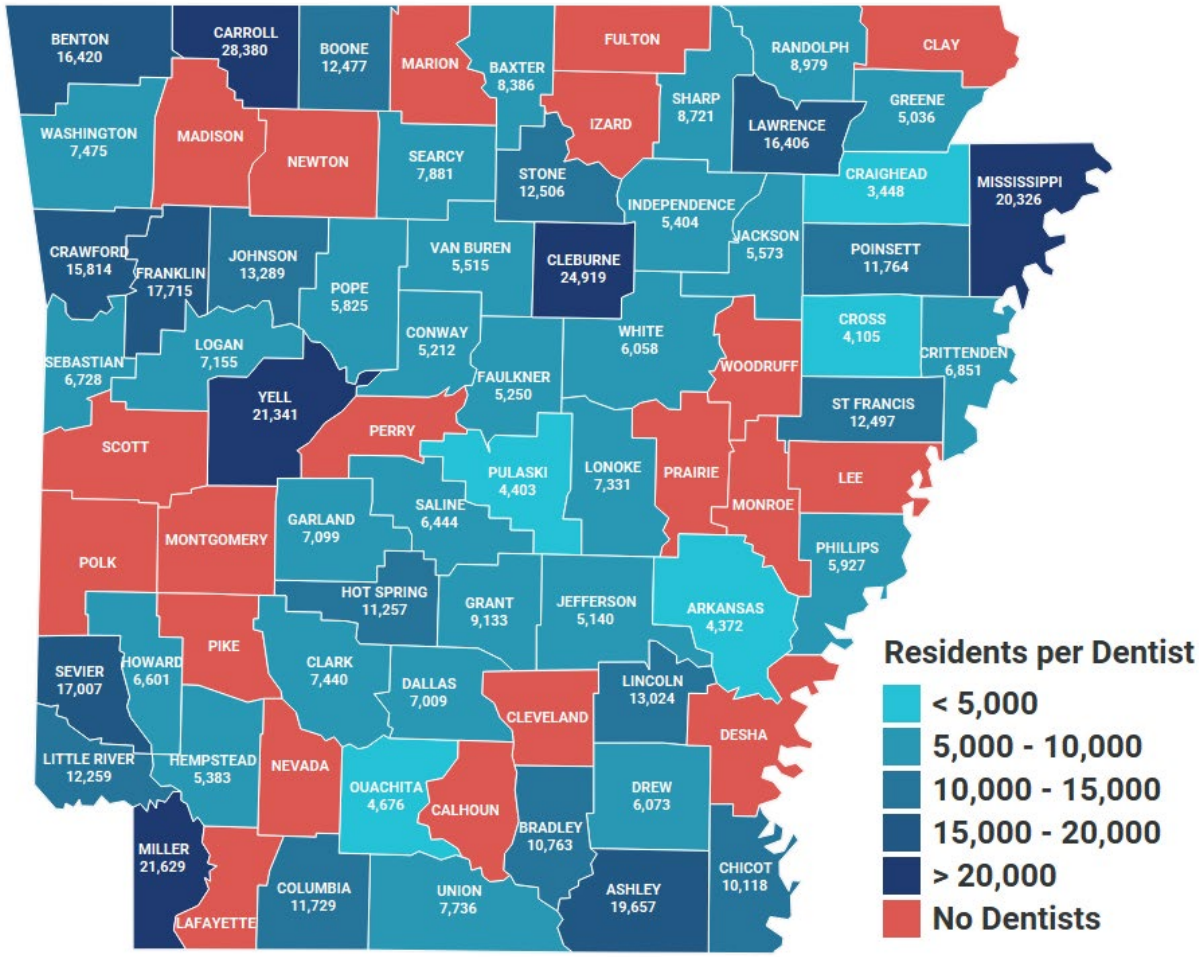


Figure 32 displays the ratio of residents to dentists who served at least 1,000 unique patients in each county, as designated by a service provider address being listed in that county. Twenty counties do not have a dentist who served at least 1,000 unique patients within the county in 2019.

FIGURE 32: COUNTY RESIDENTS PER 1 DENTIST PROVIDING SERVICES TO AT LEAST 1,000 INDIVIDUAL PATIENTS WITHIN EACH COUNTY, 2019

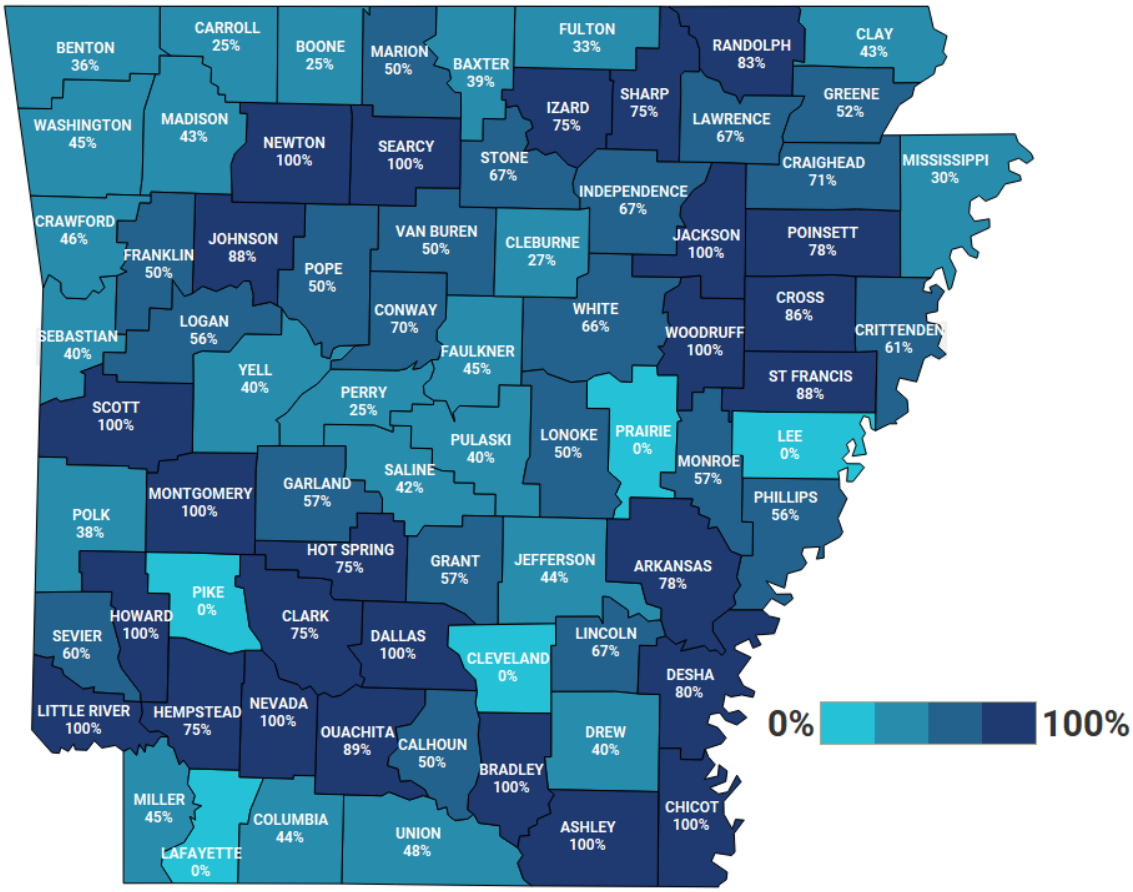


DENTISTS' PROVISION OF DENTAL SERVICES TO ARKIDS ENROLLEES BY COUNTY

Figure 33 displays the proportions of dentists who filed any claims for ARKids enrollees in 2019. This analysis includes providers who filed claims for at least 20 unique patients for services provided in each county. For 13 counties, the proportion of providers who served any ARKids enrollees was 100%. These counties are shaded the darkest blue on the map below. On average across counties in Arkansas, 61% of dentists served any ARKids patients in 2019.

According to the ADA, approximately 64% of dentists in Arkansas participated in ARKids/Medicaid in 2016.[21]

FIGURE 33: PROPORTIONS OF DENTISTS PROVIDING ANY SERVICES FOR CHILDREN WITH ARKIDS/MEDICAID COVERAGE, 2019



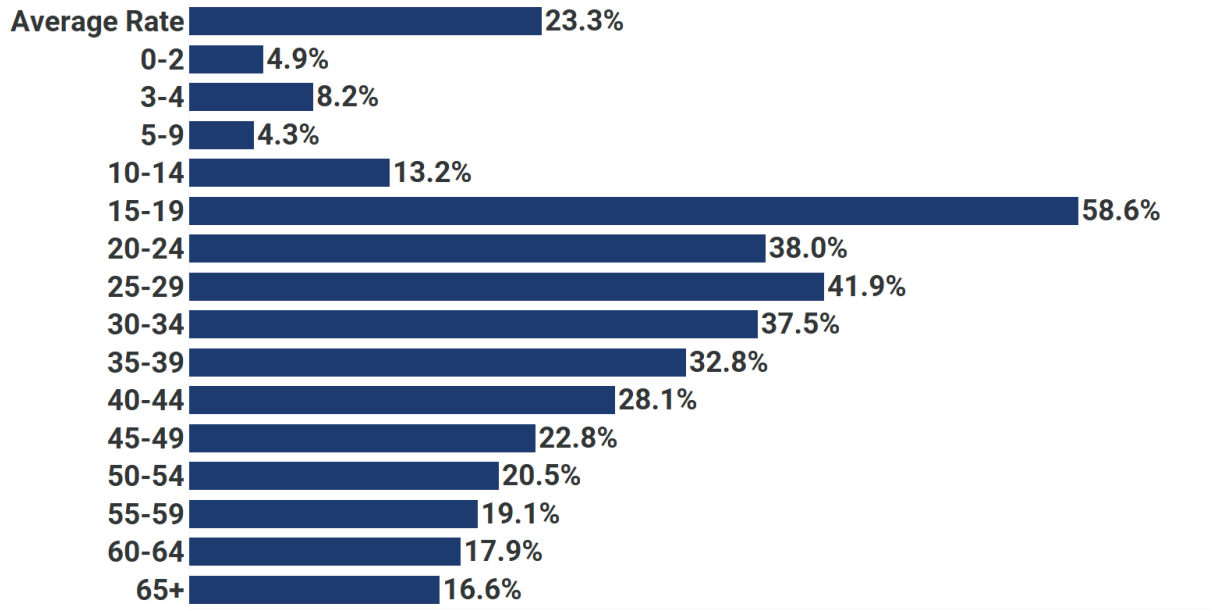
Dental Extraction-Related Opioid Prescribing Profile

Dentists commonly prescribe medications to help patients manage acute pain associated with dental procedures, including tooth extractions and oral surgeries. The risks involved in unnecessary dental opioid prescribing include the potential for opioid misuse and increased risk of overdose among patients and their family.[22] In response to a national increase in opioid prescribing, the Centers for Disease Control and Prevention (CDC) established recommendations that include using non-opioid therapy for chronic pain when possible, and only prescribing opioids when the benefits of pain relief and function are expected to outweigh risks.[23] Further, practitioners should limit the prescribed supply to the minimum number of days' supply necessary to manage acute pain.

Providers both nationally and in Arkansas have responded to updated guidance and have contributed to improvements in opioid prescribing practices. Nationally, opioid prescribing among dentists has declined as over-the-counter medications can often effectively help manage pain after dental care.[24] In Arkansas, overall opioid prescribing rates and the number of individuals with high-dose opioid prescriptions have declined each year since 2017.[25] While progress has been made, dental providers must remain committed to appropriate opioid prescribing to mitigate risks and potential harms.

An opioid prescription by a dentist is often an individual's first encounter with opioids, and persistent opioid use after an initial prescription has been documented in younger age groups.[26, 27] Figure 34 displays the proportion of patients who had tooth extractions and received an opioid prescription, by age. The average rate was 23.3%, and the highest rate was among 15– to 19-year-olds, due to the removal of wisdom teeth being common in this age group. At 41.9%, the 25–29 age group had the next highest proportion, and proportions of prescriptions decreased as the groups increased in age.

FIGURE 34: OPIOID PRESCRIPTION RATES FOR TOOTH EXTRACTIONS BY DENTAL PROVIDERS, BY AGE, 2019

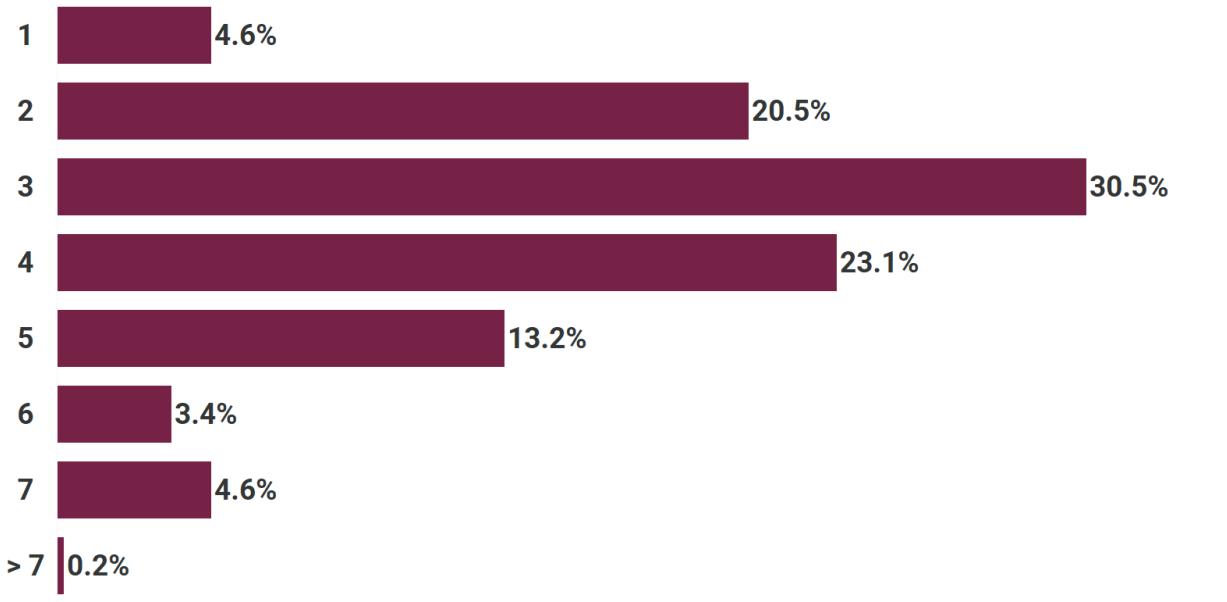


When dentists prescribe opioids, they should follow CDC guidelines and prescribe not only the lowest effective dose, but also no greater supply than is needed to effectively manage acute pain. A supply of three days or less is often sufficient, and a supply of more than seven days is rarely needed.

Figure 35 displays the days' supply prescribed to patients in Arkansas who had a dental extraction. The majority of prescriptions (55.6%) were for three days or less, 23.1% were for four days, 13.2% were for five days, and 3.4% were for six days. Only 4.8% of opioid prescriptions for tooth extractions were for seven days or more.

While these findings are promising and are in alignment with CDC prescribing guidelines, additional research is warranted to examine provider variation in prescribing practices, and opioid prescribing associated with other procedures.

FIGURE 35: DAYS' SUPPLY FOR OPIOID PRESCRIPTIONS FOR DENTAL EXTRACTIONS, 2019



Options for Future Research

While this report includes several important indicators of dental insurance coverage, provider supply, and baselines for dental care utilization, there are several areas of interest that may warrant more targeted or in-depth study. The findings in this report indicate that access to active dental providers is not evenly distributed in the state. Furthermore, social determinants of health such as socioeconomic status, income, race and ethnicity, and rurality of residence can represent barriers to optimal dental care and can compound issues of dental care access.

In addition to claims and other similar data analyses, qualitative survey or other data from providers could improve understanding of attitudes about the financial feasibility of providing dental care in Arkansas, particularly with respect to rural areas of the state. More detailed study of reimbursement differences by payer type and by service type could also help policymakers understand drivers behind any differential payer mix across providers.

Medical condition-specific analyses are also needed to better understand the impact of dental care on the overall health of Arkansans. Adverse oral health outcomes and dental issues can increase risks for pregnant women and individuals with diabetes and other chronic conditions and can lead to adverse outcomes for an individual's overall health. Linkages to medical claims experience at the individual level may support further study of the impacts of dental care (or lack thereof) on specific medical conditions and overall health outcomes.

A limitation of this report is that it does not include claims data from private self-insured employers, nor does it contain comprehensive data from public health dental services, temporary or pop-up dental clinics, or other non-claims-based dental care. Collection of data from additional sources could enhance the type and scope of research of dental care experience among Arkansans. If private self-insured employers' claims data were included, analyses of total coverage proportions and provider-to-population ratio analyses would be strengthened. Further, the addition of free or subsidized dental care provided by safety-net or other providers could give a more complete picture of overall utilization and demand in the state. ACHI is committed to continue to work with stakeholders to try to obtain these additional data to enable future studies to improve the oral health of Arkansans.

Conclusion

This report presents updated baseline measures for dental coverage, dental service utilization, dentist-to-population ratios, COVID-19 impacts, and other key measures. The information in this report including dental service utilization by coverage type and by patient age will help better identify and characterize geographic access and barriers to care. The assessment of dental providers across the state and their accessibility will inform future workforce needs and oral health improvement strategies. There are several potential future options to further identify dental provider workforce shortages or practice differentials in the state. An assessment of weekdays worked by individual providers, by county, could allow for more detailed analyses of active provider profiles.

While the APCD provides a vast resource of claims data from which the findings in this report are derived, additional data could be collected regarding free services or subsidized services for which claims are not filed. Future analyses could also target provision of dental care by dental hygienists and dental assistants. This information may inform the Arkansas State Dental Association and policymakers to support additional state-practice act changes permitting alternative models of care delivery for underserved populations needing dental care. Furthermore, findings from these analyses could inform

the Arkansas Board of Health to revisit policies related to collaborative care agreements between dentists and dental hygienists, and the use of dental sealants in schools.

Finally, experience from this project will inform ongoing and future assessments of dental care and related utilization, including opportunities and challenges in using administrative claims data for dental-related research. Additional linkages of individuals' dental and medical claims records may enable studies of the impact of regular preventive dental care (or lack thereof) on overall medical utilization. Targeted analysis of individuals with chronic conditions (e.g., diabetes) and across other sub-populations with respect to social determinants of health may further demonstrate the value of having dental coverage and access to regular dental care.

Due to the Arkansas Healthcare Transparency Initiative, including the All-Payer Claims Database (APCD), inclusive of dental claims authorized in April 2015 through Act 1233, we now have access to more patients covered by private dental insurance to assess both supply of, and demand for, dental services. As more recent dental and medical claims data become available, further analyses of COVID-19 impacts will help policy leaders better understand challenges and needs associated with oral health and dental care utilization in Arkansas.

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