

Master of Public Health
Integrative Learning Experience Report

**Exploring Medicaid Dental Utilization in Kansas: Trends, Gaps,
and Special Populations**

by

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MASTER OF PUBLIC HEALTH

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Summary/Abstract

As part of my internship at Oral Health Kansas (OHK), I conducted a practice-based project focused on Medicaid dental service utilization among individuals with Intellectual and Developmental Disabilities and Autism Spectrum Disorder (IDD/autism). OHK's mission is to improve oral health equity across Kansas, and under the guidance of the agency's leadership, I gained valuable exposure to advocacy, policy translation, and data-driven public health practice.

My project aimed to analyze Medicaid dental service use from 2022 to 2024, with a focus on disparities by age, geography, and waiver enrollment. To achieve this, I created an interactive dashboard that visualized enrollment patterns, procedure utilization, and provider distribution. The dashboard served as a systems-thinking tool, allowing stakeholders to see how factors such as geography, waiver type, and provider availability interacted to shape access.

To translate these findings for diverse audiences, I developed two key products: an executive summary tailored for Kansans, policymakers, and providers, and a flyer designed for caregivers of individuals with IDD/autism. Both products used plain language, visuals, and accessible formatting to communicate complex data in audience-appropriate ways. These materials helped transform raw data into actionable insights that could guide advocacy, policy development, and community awareness.

Through this experience, I strengthened my skills in interpreting quantitative data, applying health equity frameworks, and communicating findings across different sectors. The project demonstrated how practice-based research can inform real-world policy discussions, support coalition-building, and contribute to improving Medicaid dental access for vulnerable populations in Kansas.

Keywords: Intellectual and Developmental Disabilities/Autism Spectrum Disorder (IDD/autism), Medicaid, dental utilization, Kansas

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Chapter 1 - Introduction and Literature Review

Oral health is a fundamental component of overall health and quality of life, and yet, disparities in dental care access and utilization persist across the United States. These disparities are particularly noticeable among individuals with intellectual and developmental disabilities (IDD) and autism spectrum disorder (ASD), who often face structural, economic, and provider-related barriers to oral health services (Ward et al., 2019). Although healthcare benefits have been made available to low-income and disabled individuals through Medicaid, variations in dental coverage and utilization outcomes have been observed across states. In Kansas, Medicaid administration has been undertaken through a managed care program known as KanCare, which provides dental services to eligible populations, including those with intellectual and developmental disabilities and autism (*Medicaid in Kansas | Department for Aging and Disability Services*, 2014; Coonrod, 2022). Despite this framework, limited data exist regarding how effectively these services are accessed and utilized by this population. National and Kansas-specific trends in dental care utilization among people with IDD and autism, along with the policies and services offered under KanCare and the existing research gaps, have been explored in this literature review.

Autism Spectrum Disorder is a neurodevelopmental condition affecting about 1 in 31 children in the U.S. (Brown, 2025). Intellectual and Developmental Disabilities is an umbrella term for conditions such as intellectual disability, Down syndrome, and other lifelong developmental delays. Both ASD and IDD can impact how a person learns, communicates, and manages daily tasks. For example, individuals with autism may have strong reactions to sights, sounds, or touch and may repeat certain behaviors, while those with IDD may struggle with learning and everyday activities (NeuroLaunch Editorial Team, 2024).

These challenges often make it difficult for individuals with ASD and IDD to maintain good oral hygiene and tolerate routine dental care, which can lead to problems such as tooth grinding, gum overgrowth from certain medications, and poor oral health overall. As a result, they face higher rates of dental disease and have more unmet dental care needs than the general population (Fisher et al., 2017).

The physical and behavioral barriers include communication challenges and sensory sensitivities, such as aversion to dental lights, sounds, textures, and smells. These often cause dental anxiety and fear, requiring sedation or desensitization techniques. Higher disease burden, such as caries and periodontal disease, also arises from difficulties with daily oral hygiene and dietary issues. In addition, dependence on caregivers further complicates access to routine care (Milano, 2017).

Many individuals with IDD and ASD rely on caregivers for daily oral hygiene and dental visits. Consistent caregiver support is linked to better oral health and preventive care, whereas inconsistent support often leads to delays, untreated disease, and greater disparities (Alwadi et al., 2024; Overview, 2020; Malvania-Damani et al., 2025).

As a result, preventive dental services are often underutilized, leading to delays in treatment until more invasive or emergency procedures become necessary. These delays can lead to pain, infection, and nutritional challenges due to difficulty chewing or swallowing. Poor oral health may also affect self-esteem and social participation, and in some cases, worsen systemic conditions such as diabetes or cardiovascular disease (Milano, 2017). These barriers can be broadly categorized into physical and behavioral factors, and systemic factors, as illustrated in Figure 1, which presents a hierarchy diagram of oral health disparities among people with IDD and autism.

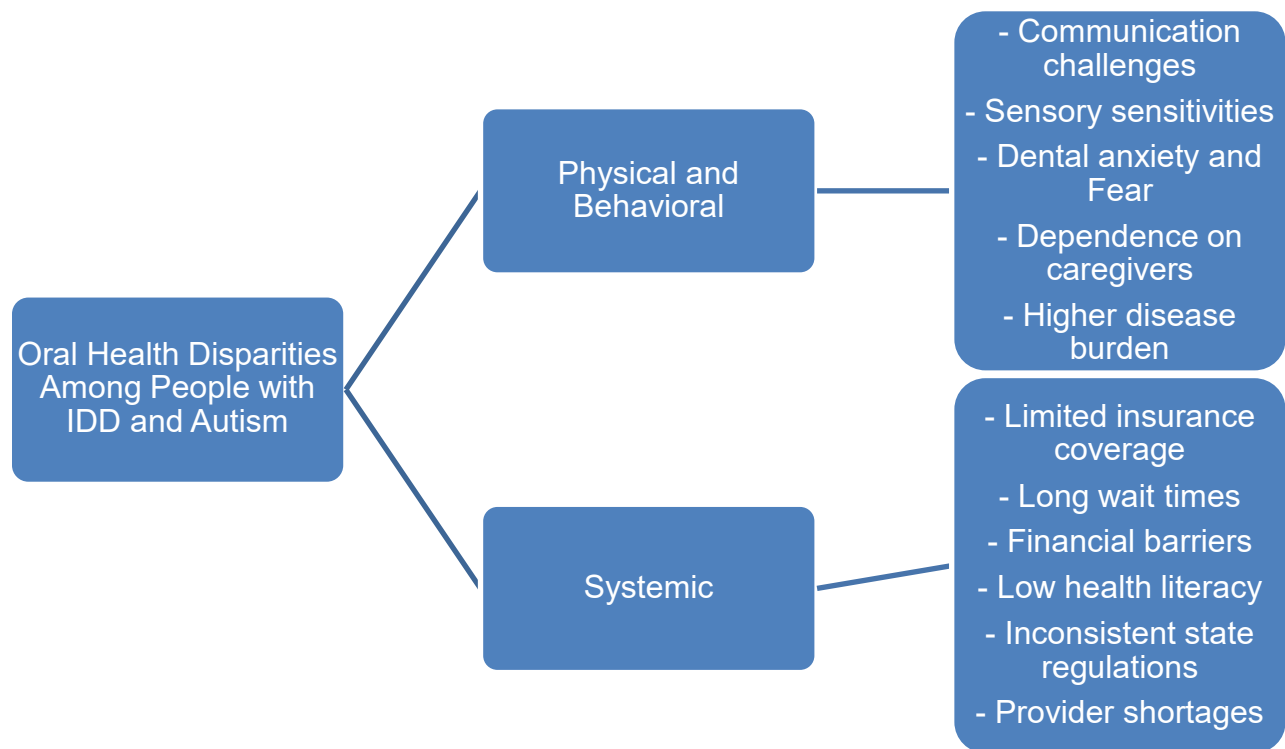


Figure 1. Hierarchy diagram of Oral Health Disparities Among People with IDD and Autism (Milano, 2017).

Medicaid remains the primary insurer for individuals with disabilities, yet dental benefits vary by state and are often limited for adults. This report focuses on IDD and autism, but disabilities differ in many ways, which affects how people face barriers to oral health care (Wilson et al., 2019). In a 2023 policy brief, they reported that only 24 states in the US had Medicaid beneficiaries utilizing dental benefits, with coverage that may not fully include all necessary treatments. The remaining states offer limited dental benefits, with utilization levels as low as 0 - 0.05% (Douglas & August, n.d.). A state-based study in Iowa demonstrated that 60% of adults with IDD had at least one dental visit in 2005. Among those who visited a dentist, 83% received preventive services, 31% received routine restorative services, and 16% received complex dental services. Notably, adults aged 65 and older had lower utilization rates, with only 45% having at least one dental visit, compared to 64% among those aged 22–64 (Chalmers et al., 2010). This finding reflects a common national trend in which basic care is more likely to be delivered than advanced procedures.

However, recent state-level efforts indicate progress: Tennessee (2023) expanded its TennCare program to include comprehensive dental services for over 600,000 adult enrollees; New Hampshire (2023) launched the Smiles Adult Program, offering a \$1,500 annual dental benefit to adults aged 21 and over (*Dental Benefits for Adult Medicaid Enrollees*, 2023; *Medicaid Dental Services: New Hampshire Smiles Program for Adults*, 2024). These initiatives represent promising steps toward addressing persistent disparities in access to dental care for adults with intellectual and developmental disabilities and autism.

KanCare, Kansas's managed Medicaid program, was established in 2013 to integrate and coordinate care for low-income and disabled residents. Dental coverage for adults under KanCare is limited and varies slightly across the managed care organizations (MCOs) that administer benefits. Generally, coverage includes preventive cleanings and exams but excludes more comprehensive restorative care unless deemed medically necessary (*KanCare & Medicaid* | KDHE, KS. (n.d.)).

In 2014, KanCare expanded to include long-term services and supports (LTSS) for individuals with IDD under the Home and Community-Based Services (HCBS) waiver program (*Long Term Services & Supports* | Department for Aging and Disability Services, 2023). While this policy aimed to improve service delivery and independence, there is limited evidence on its impact on dental utilization. In 2022, the Kansas Legislature approved funding to extend dental coverage to adults enrolled in Medicaid (KanCare). The Legislature added coverage for dentures in 2023 and 2024, allocating funding to cover dental exams, x-rays, and cleanings for adults (Coonrod, 2022).

Despite the presence of programs and waivers targeting individuals with IDD and autism, specific data on dental service use among this subgroup in Kansas and provider participation and willingness to treat this population are limited (Douglas & August, n.d.; Coonrod, 2022). Anecdotal evidence and qualitative surveys suggest that major barriers persist, including provider reluctance to treat patients with behavioral or cognitive differences, lack of training in special needs dentistry, and poor caregiver education regarding oral health (Coonrod, 2025).

Many individuals with IDD and autism require sedation to tolerate dental procedures, yet access to such services is limited. In Kansas, only 13% of dentists provide Medicaid sedation dentistry, and the availability of providers certified to administer moderate or deep sedation remains especially low in rural regions (Kansas Medicaid: Sedation Dentistry Report, n.d.). This shortage not only delays necessary treatment but also results in emergency room visits or deferred care for preventable dental conditions. Kansas-specific organizations such as Oral Health Kansas and the Kansas Disability and Health Program have developed training modules and webinars to address the unique oral care needs of individuals with IDD and autism. These programs stress the importance of trauma-informed care, behavior management techniques, and individualized service approaches (*Resource Library* | *Dental Health Tools & Support*, 2025).

In 2023, Kansas had 1,558 active dentists, yet only 225 used sedation dental codes, and 303 had sedation permits issued by the Kansas Dental Board. This suggests that fewer than one in five dentists statewide are positioned to offer sedation services—a significant limitation for patients with special healthcare needs who may require such accommodations (Kansas Medicaid: Sedation Dentistry Report, n.d.). Training gaps remain a challenge. Insufficient preparation in managing patients with disabilities has been reported by many dentists. Standardized training protocols, as recommended by organizations like the American Dental Association (ADA), have been inconsistently adopted (Poe et al., 2001; Vanderbilt & Husson, 2013).

While KanCare has the potential to provide good services for people with disabilities, there are still significant challenges in making sure everyone gets fair access to dental care. Across the U.S., many people with intellectual and developmental disabilities or autism who are on Medicaid don't use dental services as much as they need to. Kansas shows the same pattern—limited dental coverage, low awareness, and not enough trained dentists make it hard for these individuals to get proper care. Future studies should focus on collecting Kansas-specific data, looking at how helpful the state's waiver programs are, and creating solutions that support both patients and providers. Bridging these gaps is essential for promoting oral health equity among some of Kansas's most vulnerable populations.

Introduction to Oral Health Kansas (OHK)

Access to quality oral health care remains a significant challenge for many individuals, particularly underserved populations, due to financial, geographic, and systemic barriers. Recognizing this issue, Oral Health Kansas is dedicated to improving oral health for all Kansas through advocacy, public awareness, and education. Their mission is to create a culture that values oral health as an integral part of overall health, ensuring access to dental services and promoting self-care practices across all ages and communities. From May 20, 2025, to July 31, 2025, I conducted my internship at Oral Health Kansas, located in Topeka, Kansas, where I contributed to achieving the goals of Oral Health Kansas, specifically improving oral healthcare among the Kansas Population (*Oral Health Kansas*, n.d.).

A variety of programs and advocacy efforts focus on promoting oral health, preventing dental issues, and improving access to care across Kansas. Programs such as "The Dental Champions Leadership Program" train leaders in oral health advancement, while "Thirsty for Health" encourages schools to promote water over sugary drinks (Coonrod, 2015; Coonrod, 2019). Partnering with the American Academy of Pediatrics, "Brush, Book, Bed" supports bedtime routines that include oral hygiene (Coonrod, 2025). To prevent tooth decay and improve public health, advocacy efforts also emphasize "Community Water Fluoridation" (Fluoride in Kansas, 2025). Collaborating with partners like the Kansas Department of Health and Environment and the Kansas Dental Association, OHK strives to reduce disparities and enhance access to care (*Oral Health Kansas*, n.d.).

I worked under Tanya Dorf Brunner, the Executive Director of Oral Health Kansas, who holds a Master of Science degree and has extensive experience in public health advocacy, policy development, and community engagement, particularly in oral health. The Medicaid dental utilization among the disabled population task force is led by MaryAnne Lynch Small (BDS, MPH), the Medicaid Projects Manager at Oral Health Kansas. Her expertise in clinical dentistry, Medicaid program management, and public health advocacy makes her a key leader in addressing the oral health project in Kansas. Throughout this project, I have had the opportunity to attend meetings with both Tanya and MaryAnne, where they provided valuable insights into public health policy, Medicaid programs, advocacy strategies, stakeholder collaboration, and program implementation. These experiences have significantly enhanced my understanding of public health leadership and real-world efforts to improve access to oral health care (Coonrod, 2025).

The public health issue addressed in this project is the persistent disparity in oral health care access for individuals with IDD and autism despite available Medicaid programs like KanCare. My project at Oral Health Kansas contributed to reducing this gap by supporting advocacy, policy review, and community education to improve access to preventive care and equity across Kansas.

Chapter 2 - Learning Objectives and Project Description

Learning Objectives

The primary learning objectives for my project were to strengthen my skills in data cleaning, analysis, and visualization using Excel and Tableau; develop the ability to translate complex datasets into clear, actionable insights for diverse audiences; improve my understanding of oral health disparities among individuals with intellectual and developmental disabilities and autism; enhance my public health communication skills through the creation of targeted outreach materials; and foster collaboration with stakeholders, including public health organizations, advocacy groups, and policymakers.

I worked on a project called Dental Service Utilization under KanCare for Individuals with IDD and Autism as part of the Pathways to Oral Health initiative by Oral Health Kansas. The primary focus of this project was to analyze how dental services under Medicaid were used by IDD/ autism individuals, and what barriers they face when opting for those dental services.

To accomplish these goals, OHK provided a dataset illustrating the utilization of dental services among children and adults enrolled in KanCare, individuals with IDD/Autism, and Medicaid provider enrollment data. I analyzed, cleaned, and prepared the data in Excel by ensuring consistency, removing duplicates and errors, and formatting it for visualization. I then created an interactive dashboard in Tableau to present the results.

Through this process, I developed foundational data analysis skills, including cleaning, sorting, filtering, and summarizing data. I also gained introductory Tableau skills that allowed me to design visual narratives supporting effective public health communication. This experience improved my ability to interpret data and translate findings into actionable insights.

Based on the dashboard interpretation, I developed an executive summary tailored to three distinct audiences: the Kansas population, healthcare providers, and state legislators. I created a one-page version for each group, using accessible language, relevant statistics, and key visuals to effectively communicate the findings. These summaries aimed to raise awareness, guide provider engagement, and inform policy discussions. They were later shared with Kansas legislators, healthcare providers, and the broader public to support efforts in improving oral health services for individuals with IDD and autism.

Additionally, I enhanced my communication skills by presenting my work to OHK and the advisory group. Most importantly, the project deepened my understanding of the health disparities experienced by individuals with disabilities in accessing oral healthcare. It also strengthened my ability to work with real-world public health datasets, collaborate with advocacy organizations, identify systemic service gaps, and contribute to promoting equitable access to dental care for underserved populations.

Secondly, for educational purposes, I designed an educational flyer using Canva, with guidance from design expert Christina Noland. This process helped me develop key skills in communication, visual design, and graphic creation. I intentionally incorporated elements that reflect diversity across age, gender, and race — and used the Pathway theme color to maintain visual consistency with the organization's branding. I shared both the dashboard and the flyer with Oral Health Kansas, and they will publish it on the organization's website to support community education and advocacy efforts.

Throughout the project, I regularly attended weekly meetings with Tanya and Maryanne and participated in OHK team meetings twice a month. I also took part in a large meeting with

the Pathways to Oral Health Advisory Group, which included 25 members representing disability advocacy organizations, dental providers, and managed care organizations. Additionally, I attended a live experience session with individuals with special needs, where they provided valuable feedback on my educational flyer.

One of the challenges I encountered was correctly interpreting the data; however, with consistent guidance and support from my mentors, I was able to overcome this and strengthen my analytical skills.

Chapter 3 – Methods

Step 1: Data preparation and Quantitative analysis

To support an accurate and detailed assessment of Medicaid dental service utilization in Kansas, I used a quantitative approach to process multiple datasets requested by Oral Health Kansas from the Kansas Department of Health and Environment (KDHE). These datasets included: Total KanCare enrollment by county and age group (adults 21+ and children under 21) for 2022, 2023, and 2024, enrollment numbers for the Intellectual and Developmental Disabilities waiver and Autism waiver populations, also by county, age group, and year, counts of KanCare members who received any Medicaid-paid dental services, with age and waiver breakdowns for the same years, counts of unique individuals who received specific dental procedure codes (D-codes), organized by procedure category (diagnostic, restorative, preventive, etc.), age group, and waiver status, and Medicaid billing dental provider counts by county for 2021 to 2023.

To prepare the data for analysis, I organized all spreadsheets by key variables, including county, age group, waiver type, procedure code, and calendar year. I added calculated fields to classify counties as urban or rural, grouping frontier, rural, and densely settled rural counties as rural, and urban and semi-urban counties as urban.

For enrollment data, I calculated total enrollment for KanCare and each waiver population by year and age group in Excel. I determined year-over-year growth rates using the standard percentage change formula:

$$\text{Growth Rate (\%)} = (\text{Members in Later Year} - \text{Members in Earlier Year}) / \text{Members in Earlier Year} \times 100.$$

I also calculated the average annual change from 2022 to 2024 and identified counties with the highest and lowest enrollment each year. Urban and rural trends were compared by calculating total counts, average population per county, and each group's share of total enrollment:

$$\text{Average Population per County} = \text{Total Population} / \text{Number of Counties in Category}.$$

For dental service utilization, I calculated the total number of members who received any Medicaid-paid dental services each year and compared usage between adults and children. I computed net changes, year-over-year growth rates, and average annual changes. For the waiver populations, I calculated the proportion of eligible members who received services:

$$\text{Proportion (\%)} = (\text{Members Who Used Services} / \text{Total Eligible Members}) \times 100.$$

For the analysis of unique dental procedures, I grouped D-codes into broader service categories (diagnostic, restorative, preventive, etc.) and calculated the total number of unique individuals receiving each category by waiver status and age group. The share of each procedure category within the total population was determined using:

$$\text{Proportion (\%)} = (\text{Unique Individuals for Procedure} / \text{Total Unique Members}) \times 100.$$

I then compared trends between waiver and total Medicaid populations to identify the most and least used procedures.

For the Medicaid billing dental provider data, I calculated total providers by county and year, determined year-over-year growth rates, and measured each county's contribution to the statewide total. I calculated the urban-to-rural provider ratio using:

$$\text{Urban-to-Rural Ratio} = \text{Total Urban Providers} / \text{Total Rural Providers}.$$

Finally, I tracked changes in the regional share of providers over time to highlight shifts in

provider distribution and access. All calculated data were reviewed for consistency and accuracy before being imported into Tableau for visualization.

Step 2: Tableau software installation and utilization

I chose to build the dashboard using Tableau because it is a widely used business intelligence tool known for its strong data visualization capabilities and ease of use. Tableau allows for the creation of clear, interactive, and dynamic visualizations without requiring advanced programming skills, which made me an appropriate choice for presenting my data in an engaging and accessible way. Additionally, Tableau's features support filtering, drilling down, and exploring data interactively, which helps users gain a deeper understanding of trends and patterns related to Medicaid dental service utilization in 2022, 2023, and 2024. I requested access to Tableau software through Kansas State University's IT services. Upon approval, I downloaded and installed the Tableau Desktop application on my personal computer using the license provided by the university. This ensured that I had authorized access to all Tableau features necessary for data visualization and analysis.

Tableau also allows users to interact directly with the data. For example, by clicking on a county in the map, a user can see its Medicaid population or provider counts, and filters can be applied to view only specific years, age groups, or waiver types. Charts and maps update instantly to reflect these selections, making Tableau especially useful for turning large datasets into clear, dynamic insights for different audiences.

Step 3: Data Organization and Upload to Tableau

In the third step, I reviewed, corrected, and standardized all raw data in Microsoft Excel to prepare it for detailed analysis and visualization in Tableau. This included datasets such as IDD/Autism waiver Medicaid population by county for 2024, Total Medicaid population by county for 2024, Dental service utilization, procedure types, member claims, and dental provider counts with population ratios across Kansas counties.

For the Medicaid population data, I checked and merged multiple sheets to ensure consistency in county names, county codes, age groups, waiver types, and member counts. I standardized categories such as county category (e.g., densely settled rural, rural, frontier, urban, semi-urban) and verified that each record included the correct calendar year. I also added a new column for the state name (Kansas) to ensure clear identification.

For the dental service utilization and procedure trends, I merged sheets covering multiple years (2022–2024) and verified variables such as age group, procedure type, and member claim counts. I standardized procedure names (e.g., preventive, restorative, radiographic images) and added calculated fields for total members and proportions to support trend and distribution charts.

For provider access maps, I merged billing provider counts by year with KanCare population data for each county. I checked for duplicates, ensured consistent county naming, added the state column (Kansas), and calculated the ratio of providers per 1,000 population for each county and the years (2022, 2023, and 2024). This allowed Tableau to automatically generate latitude and longitude coordinates for accurate mapping. Once cleaned and verified for accuracy, all datasets were saved and uploaded to Tableau for visualization.

Step 4: Interactive Sheet Creation in Tableau

After cleaning and organizing the data spreadsheets, I used Tableau to build multiple interactive sheets to analyze various aspects of Medicaid dental service utilization in Kansas.

First, I created two separate sheets to display the IDD/Autism waiver population by county for 2024 and the total Medicaid population by county for 2024. For each sheet, I

connected the cleaned Excel file to Tableau and added relevant fields, including County Name, Waiver Type, Age Group, Members, and Calendar Year. I applied filters to display only the 2024 data. For the waiver population sheet, I used color coding to distinguish IDD and Autism waiver types. For the total Medicaid population sheet, I used shades of blue to separate the Adults 21+ and Children Under 21 age groups. In both sheets, County Name was placed on the X-axis and Total Members on the Y-axis to show how population counts vary by county.

Next, I created interactive sheets to analyze dental service utilization trends over multiple years. This included a Dental Service Utilization – children vs adults sheet using a bubble chart that visualizes the proportion and total number of members by age group for the years 2022 – 2024. Relevant fields included Age Group, Year, Proportion, and Total Members, with circle size and color representing differences across years and age groups.

I also developed a Procedures and Member Claims per Year sheet using a stacked bar chart to display the percentage of total member claims by procedure type and age group for each year. Fields such as Age, Procedure, Year, and Members' Claims were added, and color shading was used to distinguish years, allowing for clear year-over-year comparison of procedure types (e.g., preventive, oral surgery, radiographic images).

Additionally, I created a Year-by-Year Trend of Dental Procedures sheet using an area chart to show how member claims for major dental procedures changed over time. This sheet included Procedure, Year, and Members Claims, with different colors representing procedure categories such as preventive, restoration, radiographic images (X-rays), and oral evaluation.

To examine Medicaid dental provider access, I created several interactive map-based sheets. One map visualizes Urban vs. Rural Access by mapping the total counts of Medicaid dental providers by county, shaded according to County Category (urban, semi-urban, rural, frontier, or densely settled rural). For this, I connected the cleaned dataset with fields such as County, County Category, State, and Billing Providers by Year, and used Tableau's automatically generated latitude and longitude to plot each county geographically.

Finally, I developed three additional map sheets showing the ratio of providers per 1,000 population for 2022, 2023, and 2024. For these maps, I used County, Number of Providers, and KanCare Population, and calculated the ratio to show provider availability relative to the population. Color shading was applied to highlight counties with higher or lower provider-to-population ratios, revealing regional differences in access.

Step 5: Dashboard Creation (Product 1)

In the final step, I combined the eight interactive sheets into three separate dashboards in Tableau to present the findings in a clear, organized, and user-friendly way. The first dashboard focused on the Medicaid population by county, bringing together the IDD/Autism waiver population and the total Medicaid population for 2024, with filters and color coding that allow users to compare different population groups across Kansas counties. The second dashboard highlighted dental service utilization and procedure trends by integrating a bubble chart (children vs. adults), a stacked bar chart (procedures and member claims per year), and an area chart (year-by-year trend of dental procedures), which together illustrate changes in service use and procedure types over time. The third dashboard concentrated on provider access and ratios, combining an urban vs. rural access map of provider counts with two maps showing the ratio of providers per 1,000 population for 2022, 2023, and 2024, helping to visualize regional differences in availability and highlight potential urban–rural disparities in access.

Chapter 4 – Results

The results present key findings on Medicaid dental service utilization and population trends in Kansas using Tableau visualizations.

Total Medicaid population by county, Kansas, 2024

In 2024, the total KanCare Medicaid population showed large differences across counties and age groups. Sedgwick County had one of the highest numbers, with 238,878 children under 21 and 128,210 adults aged 21 and older. Wyandotte County had 110,406 children and 54,119 adults. In comparison, some counties had very low numbers. For example, Haskell County had only 1,999 children under 21 enrolled in KanCare Medicaid, while frontier counties like Lane and Hodgeman had fewer than 320 adult members each (Figure 1). Each bar in the figure represents a different county, with light blue bars showing children under 21 and dark blue bars showing adults aged 21 and older. These findings are important because they highlight the uneven distribution of KanCare enrollment across Kansas. Urban counties had much larger Medicaid populations than rural or frontier counties, suggesting greater demand for dental providers and services in metropolitan areas, while rural areas may face critical shortages in access and utilization.

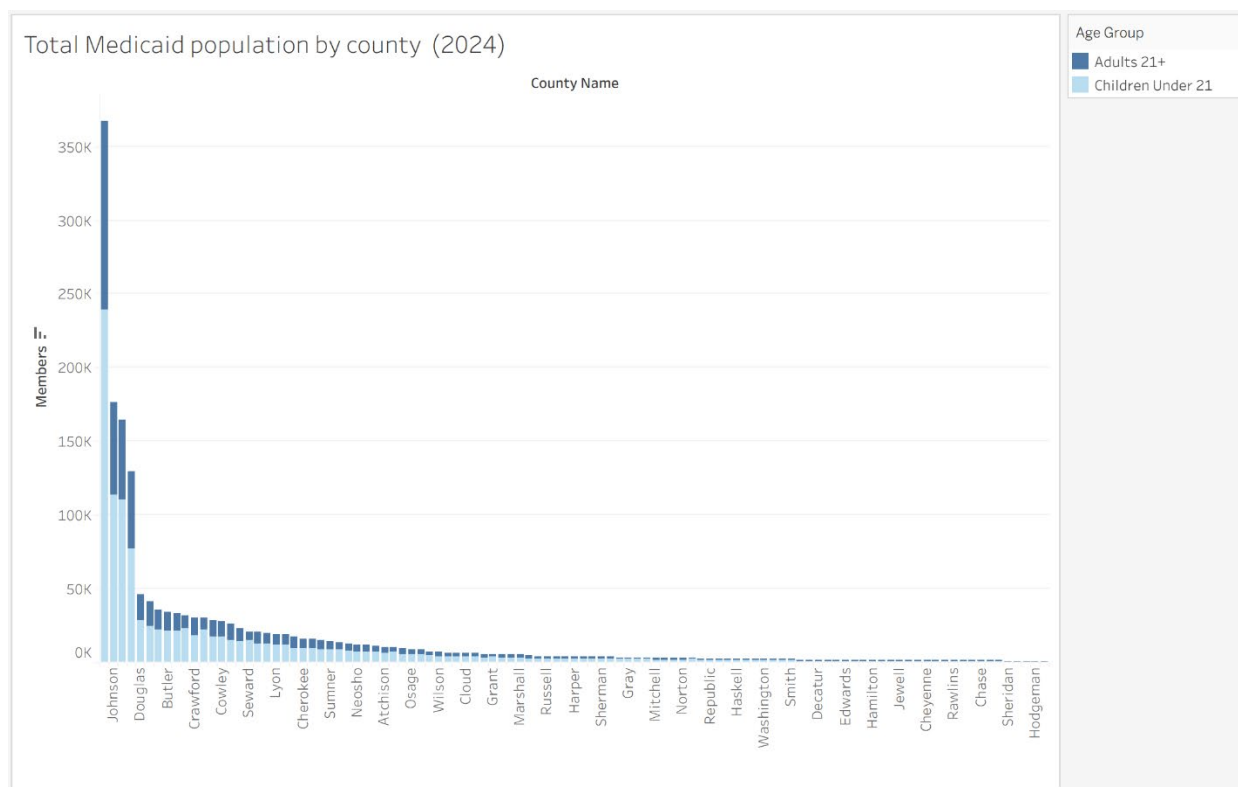


Figure 1. Total Medicaid population by county, Kansas, 2024 (Source: Tableau Dashboard)

The top 10 counties, including Sedgwick, Wyandotte, Johnson, Shawnee, and Douglas, account for the majority of the Medicaid population, highlighting that enrollment is heavily concentrated in urban areas compared to rural and frontier counties.

Top 10 Kansas Counties by Total Medicaid Population (2024)



Figure 1 (a) Top 10 counties by total Medicaid population, Kansas, 2024 (Source: Tableau Dashboard)

IDD/Autism Waiver Medicaid Population by County, Kansas, 2024

In 2024, IDD and Autism waiver enrollment under KanCare varied widely across counties (Figure 2). Johnson County had the highest number of IDD waiver members, with 1,742 individuals, along with 25 members under the Autism waiver. Sedgwick County followed with 1,641 IDD members and 9 Autism members. Other urban counties like Wyandotte and Shawnee also had high IDD waiver numbers, with over 900 and 400 members, respectively. In contrast, several frontier counties, such as Clark and Lane, had very low enrollment, with only 1 and 2 IDD members, respectively. Each bar in the figure represents a different county, with pink bars representing Autism waiver enrollment and yellow bars representing IDD waiver enrollment.

These values are drawn from the dataset underlying Figure 2 and illustrate how waiver participation is concentrated in urban counties, where service access and provider availability are greater. In contrast, rural and frontier counties may face critical gaps in care for individuals with IDD and autism.

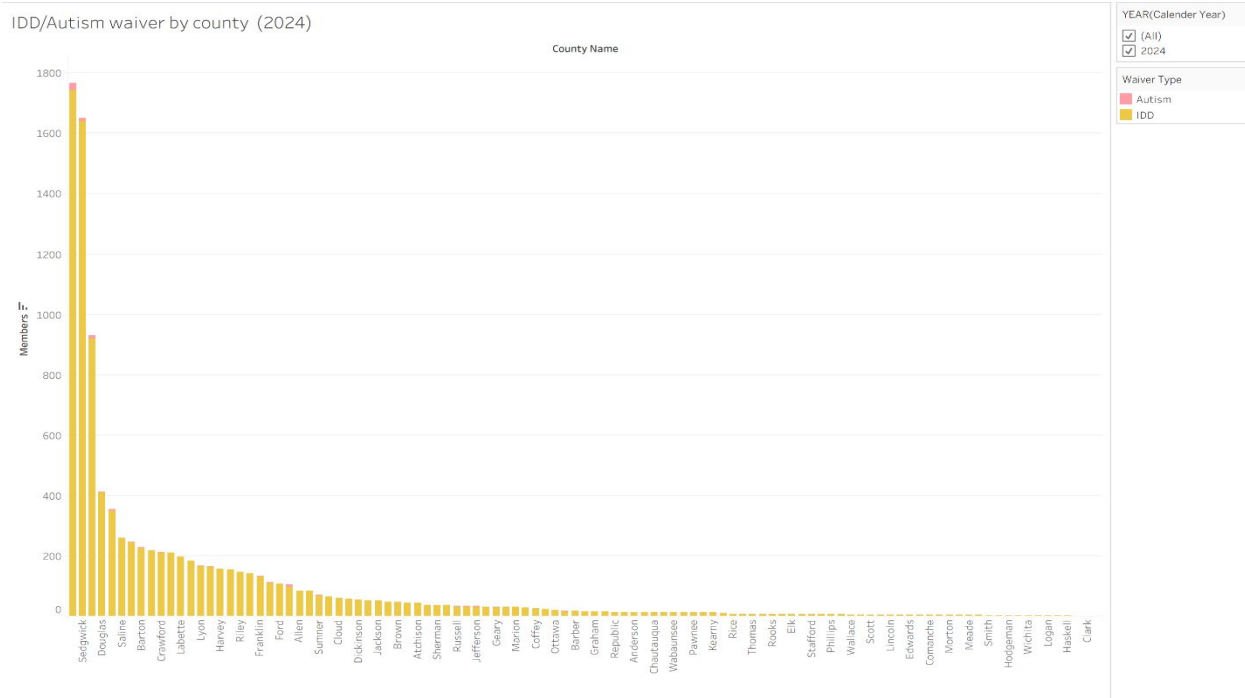


Figure 2. IDD/Autism Waiver Medicaid Population by County, Kansas, 2024 (Source: Tableau Dashboard)

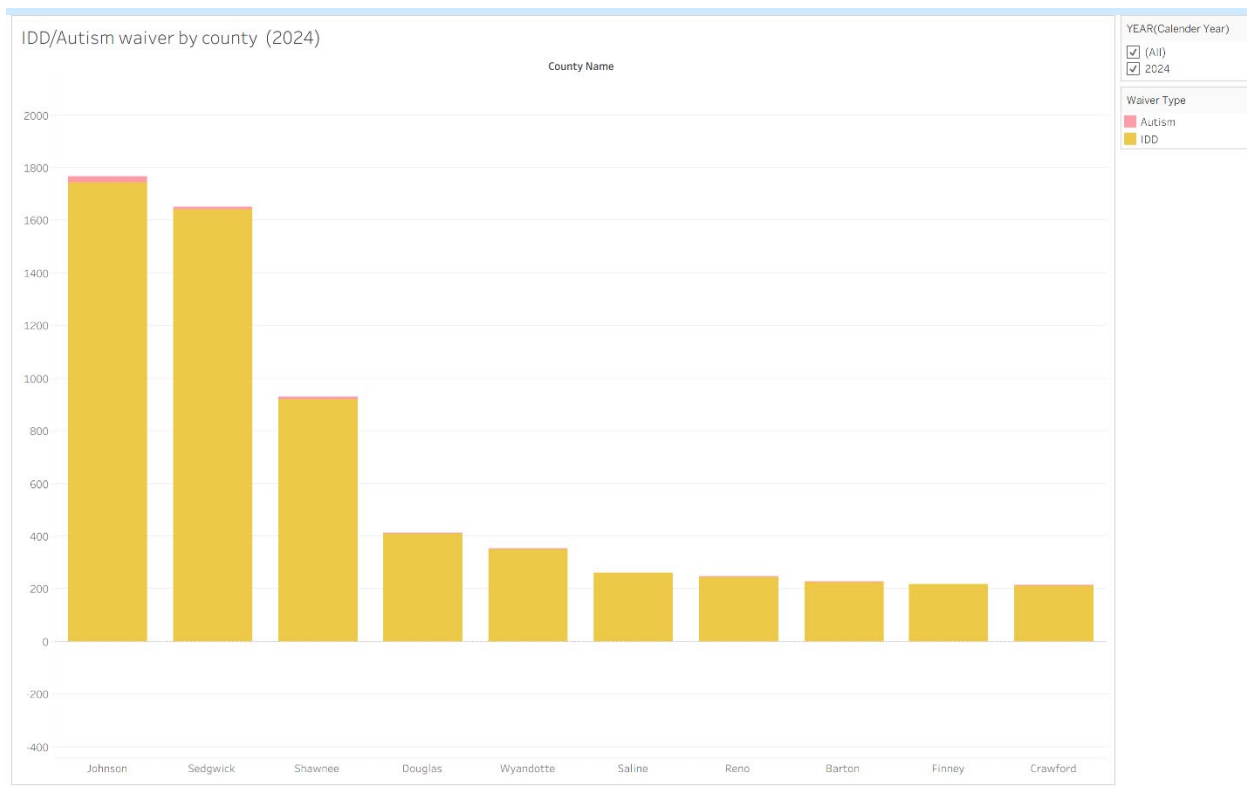


Figure 2 (a) Top 10 counties by IDD/autism waiver, Kansas, 2024 (Source: Tableau Dashboard)

The top 10 counties, including Sedgwick, Wyandotte, Johnson, Shawnee, Douglas, Saline, Reno, Finney, Crawford, and Butler, account for the majority of the IDD/Autism waiver population, highlighting that enrollment is clustered in a small number of counties while much of rural Kansas has very limited participation.

Dental Service Utilization — Children vs Adults, Kansas, 2022–2024

From 2022 to 2024, Medicaid dental service utilization in Kansas showed clear differences between children under 21 and adults aged 21 and older. Children consistently represented the highest proportion of service users: 85.40% (174,730 members) in 2022, 83.23% (169,137 members) in 2023, and 86.01% (164,848 members) in 2024. In contrast, adults had much lower utilization rates, with 14.60% (29,881 members) in 2022, 15.73% (34,117 members) in 2023, and 13.99% (26,824 members) in 2024 (Figure 3).

They highlight a persistent disparity: while children accessed dental services at high levels, adult utilization remained consistently low, suggesting gaps in adult dental coverage, access, and awareness under Medicaid.

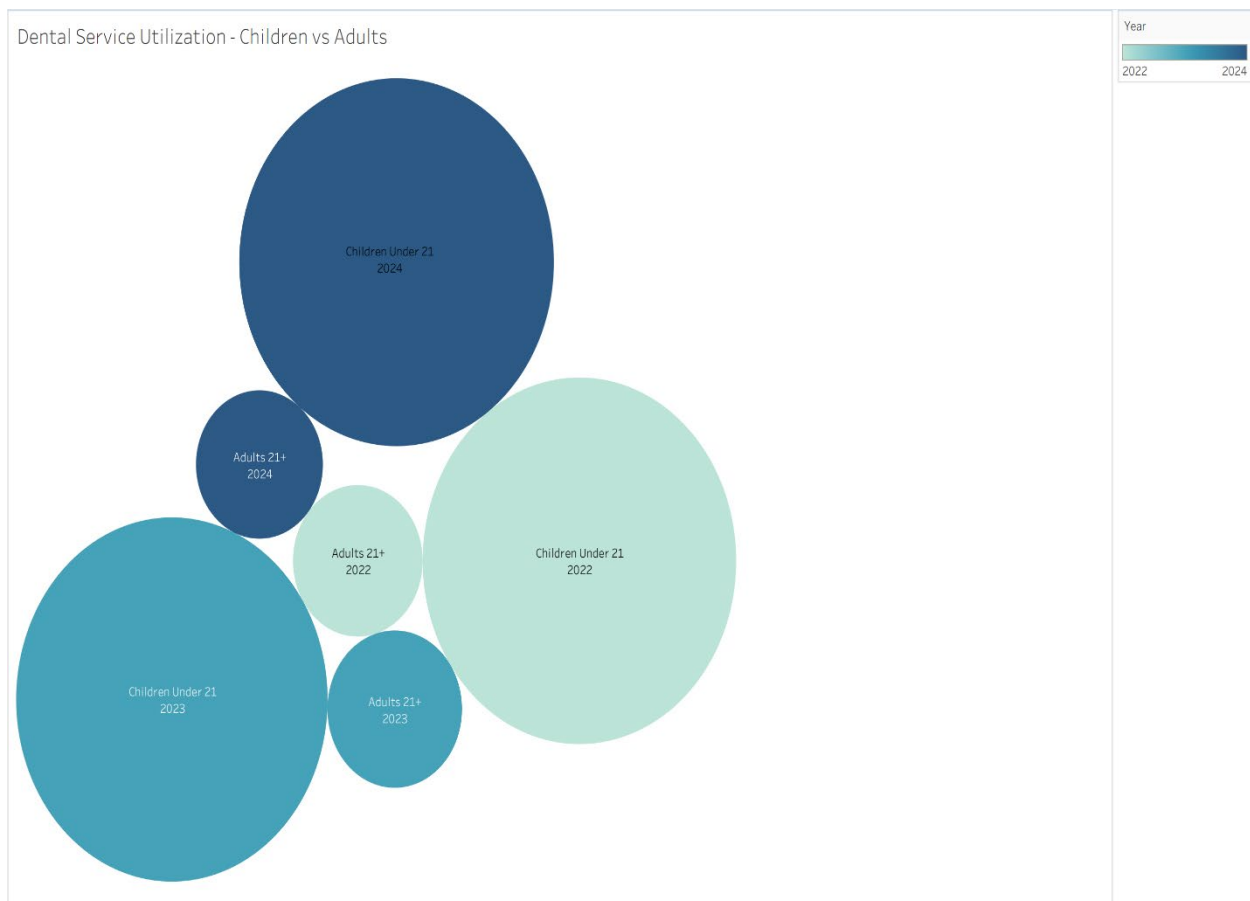


Figure 3. Dental Service Utilization — Children vs Adults, Kansas, 2022–2024 (Source: Tableau Dashboard)

Procedures and Member Claims per Year, Kansas, 2022–2024

From 2022 to 2024, the distribution of Medicaid dental claims in Kansas varied by procedure type and age group. Preventive procedures represented the largest share of children’s claims, accounting for 13.70% in 2022, 14.89% in 2023, and 12.57% in 2024. Among adults, preventive claims made up only 4.03% in 2024. Radiographic imaging (X-rays) accounted for 10.57% of adult claims in 2023, while periodontics among children was minimal (0.02% in 2022). Implant and orthodontic procedures for both adults and children were negligible, remaining at 0.00% in 2022 and 2023 (Figure 4).

The results indicate that children benefit from higher levels of preventive care, which can reduce disease burden over time, while adults rely less on preventive services and more on diagnostic or problem-focused care. The low rate of preventive procedures among adults signals gaps in access, coverage, and early intervention—issues that can lead to more complex, costly treatments later and highlight where Medicaid policies and provider capacity need strengthening.

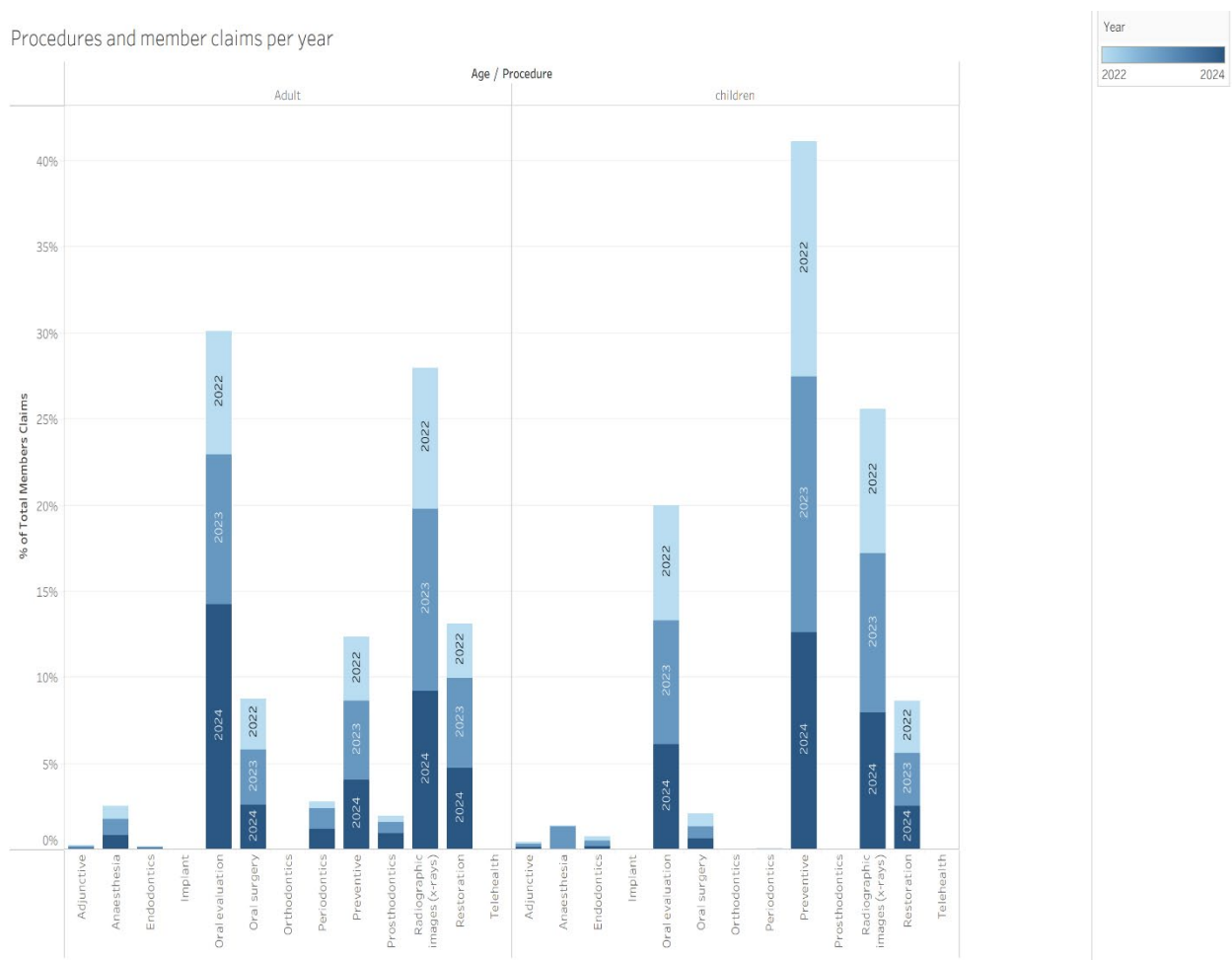


Figure 4. Procedures and Member Claims per Year, Kansas, 2022–2024 (Source: Tableau Dashboard)

Year-by-Year Trend of Dental Procedures Among Members, Kansas, 2022–2024

From 2022 to 2024, total Medicaid dental claims in Kansas showed notable shifts across major procedures. For children, preventive claims were highest, rising from 473,145 in 2022 to 514,083 in 2023 before declining to 434,246 in 2024. Among adults, preventive claims totaled 14,760 in 2022, increased to 18,307 in 2023, and fell to 13,870 in 2024. Radiographic imaging was also significant among adults, with 112,104 claims in 2023. Telehealth claims for adults were minimal across all years, with 66 in 2022, 4 in 2023, and 7 in 2024 (Figure 5).

These findings matter because they highlight Medicaid’s consistent focus on preventive care and diagnostic imaging, while also revealing sharp declines in 2024 that may reflect service gaps, provider shortages, or policy limitations affecting access—particularly for adults who already face low utilization.

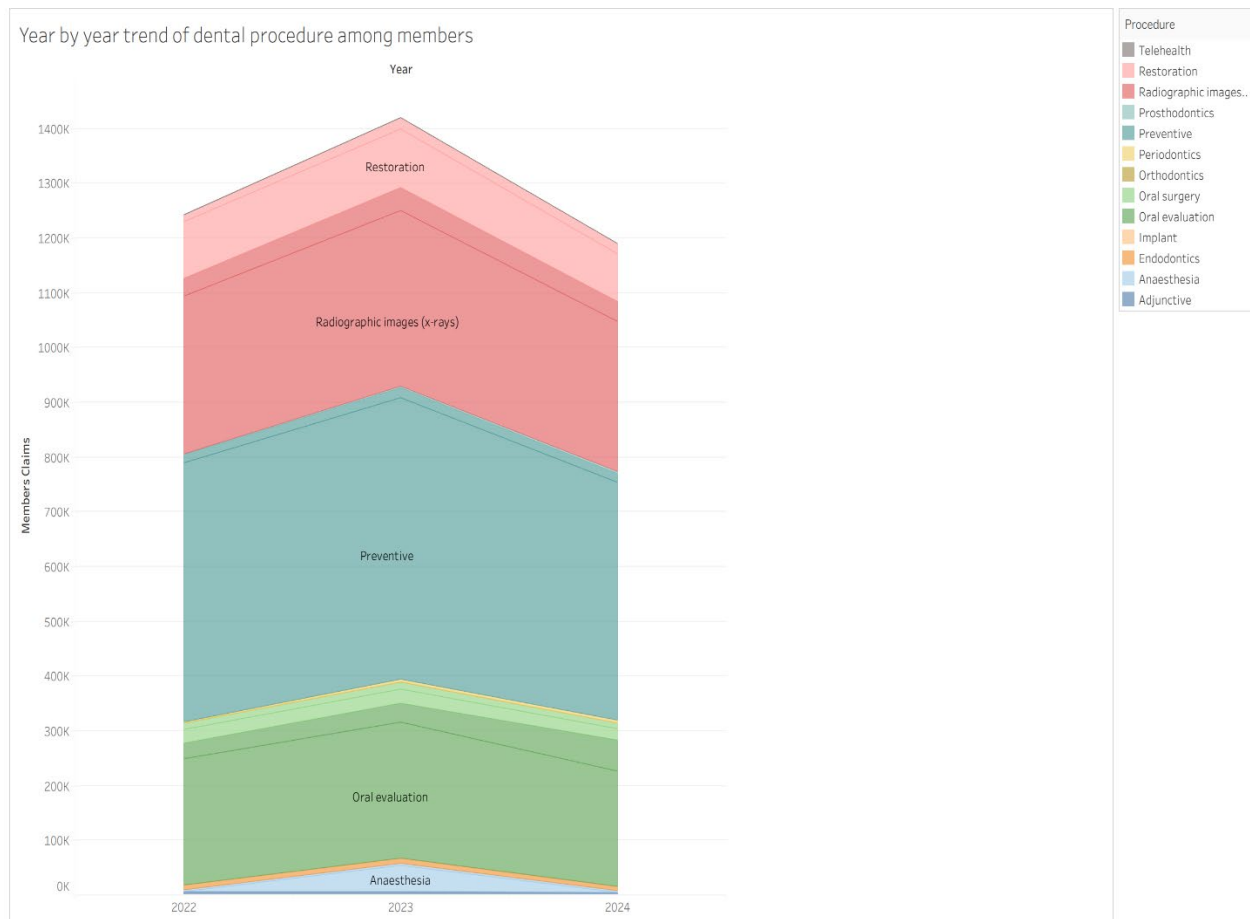


Figure 5. Year-by-Year Trend of Dental Procedures Among Members, Kansas, 2022–2024 (Source: Tableau Dashboard)

Urban vs. Rural Access — Medicaid Dental Provider Counts by County, Kansas, 2021–2023

From 2021 to 2023, the number of Medicaid dental providers in Kansas varied sharply by county type. In 2023, urban Johnson County had the highest number of Medicaid dental providers (90), rising from 73 in 2022 and 67 in 2021. In contrast, semi-urban Riley County had only 5 providers in 2023, up from 2 in 2022 and 1 in 2021. Densely settled rural Ford County had 4 providers in 2023, while rural Thomas County and frontier Trego County had zero providers across all three years (Figure 6).

These findings underscore the persistent urban–rural divide in provider availability, with urban counties steadily increasing access while many rural and frontier counties remain without any Medicaid dental providers, limiting options for residents and increasing reliance on travel or emergency care.

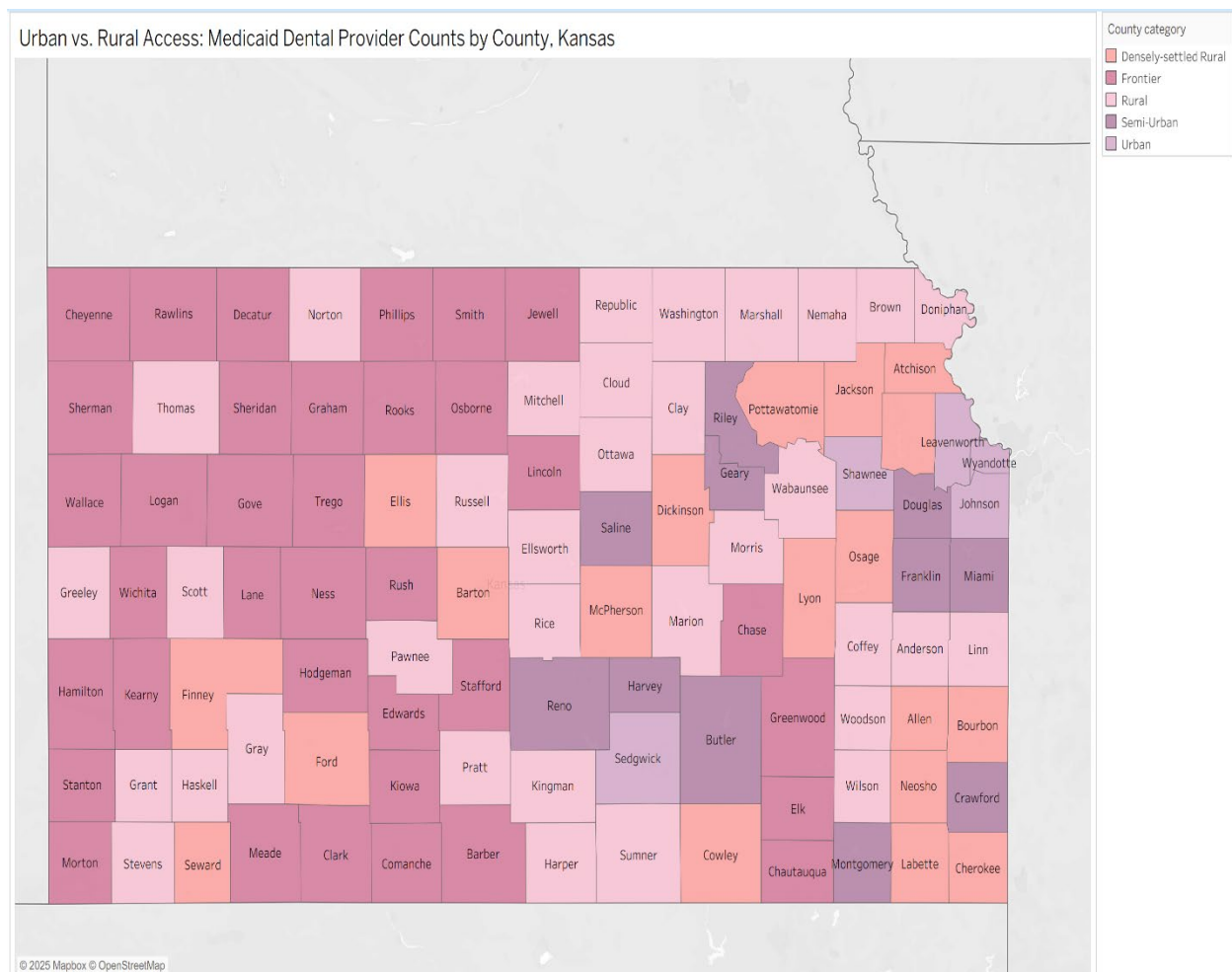


Figure 6. Urban vs. Rural Access: Medicaid Dental Provider Counts by County, Kansas, 2021–2023 (Source: Tableau Dashboard)

Ratio of Medicaid Dental Providers per 1,000 Population by County, Kansas, 2022

In 2022, the ratio of Medicaid dental providers to enrolled members varied widely across Kansas counties. Johnson County (urban) had the highest ratio at 1.252 providers per 1,000 members, with 73 providers serving 58,329 KanCare enrollees. Riley County (semi-urban) had a much lower ratio of 0.267, with only 2 providers for 7,479 members. Ford County (densely settled rural) had 5 providers, equating to a ratio of 0.516 per 1,000 for 9,687 members. In contrast, Trego (frontier) and Thomas (rural) counties had zero providers despite having enrolled populations of 404 and 1,223, resulting in ratios of 0.000 (Figure 7).

These results highlight stark inequities in provider distribution, with urban counties maintaining relatively higher provider capacity while rural and frontier counties face severe shortages, leaving Medicaid enrollees in these areas without direct access to dental care.

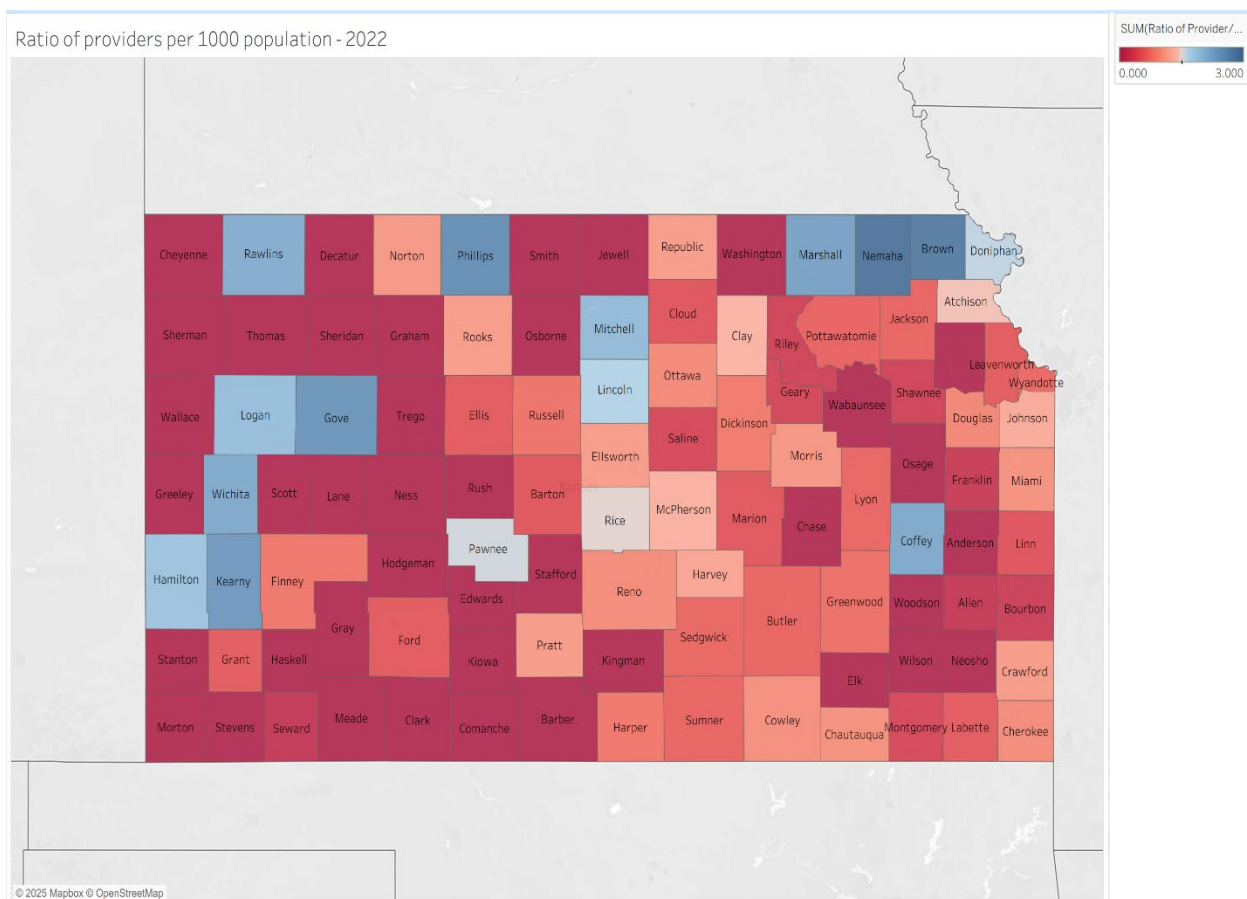


Figure 7. The ratio of Medicaid dental providers per 1,000 population by county, Kansas, 2022 (Source: Tableau Dashboard)

Ratio of Medicaid Dental Providers per 1,000 Population by County, Kansas, 2023

In 2023, the ratio of Medicaid dental providers to enrolled KanCare members varied greatly across Kansas counties. Phillips County (frontier) had the highest ratio at 0.722 providers per 1,000, with 6 providers serving 831 members. Johnson County (urban) had a ratio of 0.259, with 161 providers for 62,261 members. Riley County (semi-urban) reported a ratio of 0.112, with 9 providers for 8,058 members. Ford County (densely settled rural) had 8 providers, equating to a ratio of 0.076 per 1,000 for 10,599 members. Trego (frontier) and Thomas (rural) counties again had zero providers despite enrolled populations of 438 and 1,283, resulting in ratios of 0.000 (Figure 8). The 2023 map shows more counties shaded red, reflecting a temporary decrease in Medicaid dental providers relative to enrollee demand, likely due to workforce shortages or delays in provider participation renewals before numbers rebounded in 2024.

Findings underscore the uneven distribution of providers, where even frontier counties like Phillips can appear favorable due to small enrolled populations, while larger urban and rural counties face strained provider-to-population ratios, further highlighting disparities in equitable access to dental care under Medicaid.

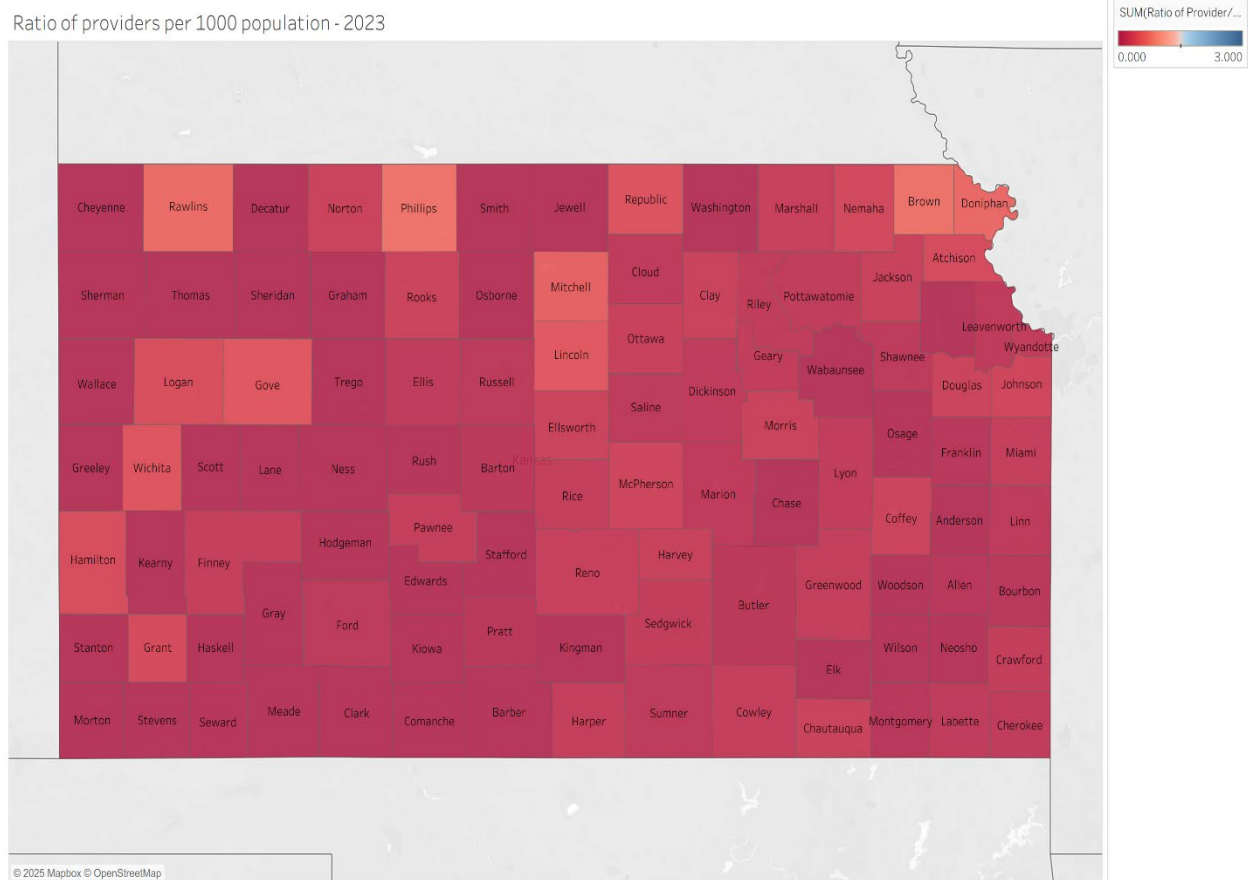


Figure 8. Ratio of Medicaid Dental Providers per 1,000 Population by County, Kansas, 2023 (Source: Tableau Dashboard)

Ratio of Medicaid Dental Providers per 1,000 Population by County, Kansas, 2024

In 2024, the ratio of Medicaid dental providers to enrolled KanCare members varied significantly across Kansas counties. Rawlins County (frontier) had the highest ratio at 5.249 providers per 1,000, with 2 providers serving 381 members. Johnson County (urban) reported a ratio of 1.315, with 73 providers for 55,500 members. Riley County (semi-urban) had a ratio of 0.528, with 4 providers for 7,572 members. Ford County (densely settled rural) had 3 providers, equating to 0.311 per 1,000 for 9,657 members. Thomas County (rural) had zero providers despite an enrolled population of 1,122, resulting in a ratio of 0.000 (Figure 9).

These results illustrate how ratios can appear high in frontier counties with very small populations, while larger counties—even with more providers—show lower ratios due to higher demand. This emphasizes the ongoing challenge of equitable provider distribution, as many rural and frontier areas remain underserved despite seemingly favorable ratios in a few small counties.

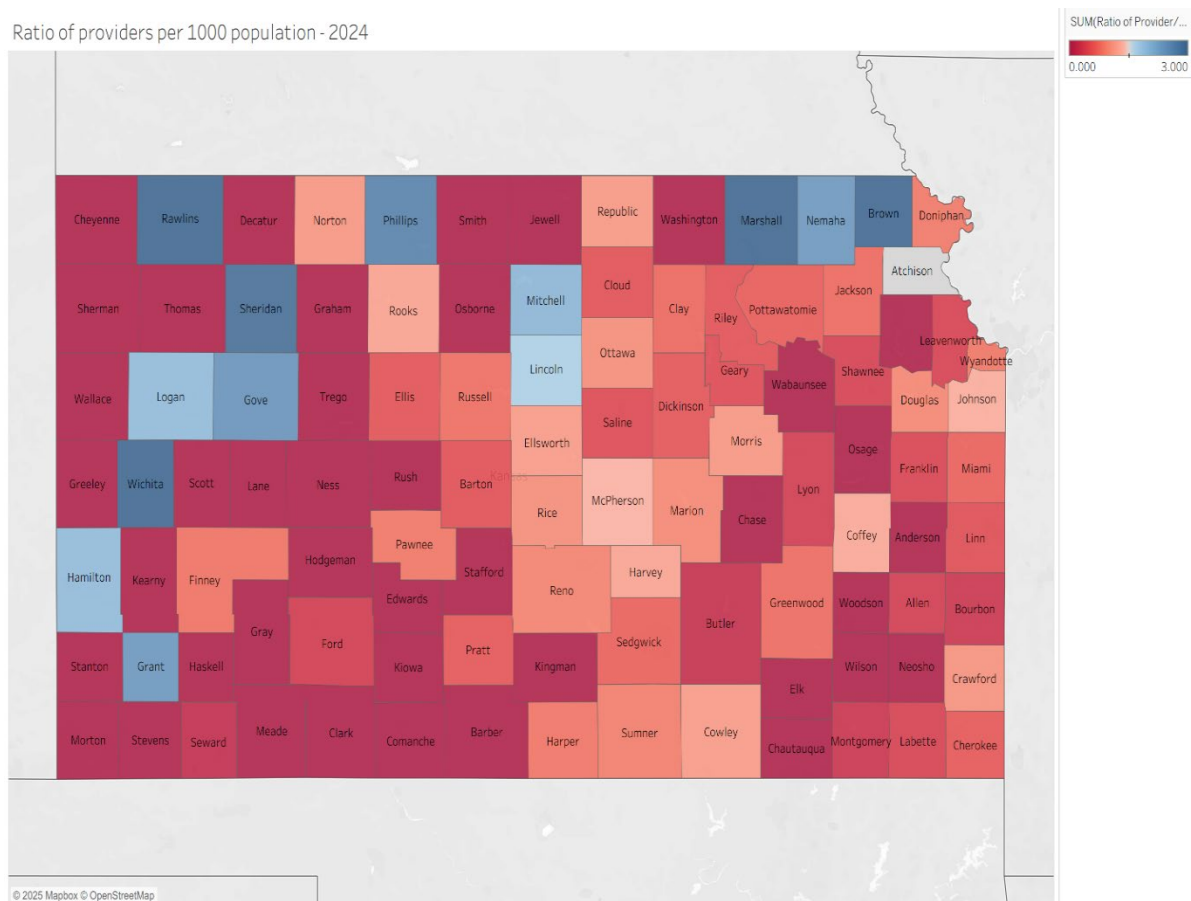


Figure 9. Ratio of Medicaid Dental Providers per 1,000 Population by County, Kansas, 2024 (Source: Tableau Dashboard)

Chapter 5 – Discussion

This practice-based report highlights the importance of understanding Medicaid dental service utilization in Kansas by examining variations across counties, age groups, and waiver types from 2022 to 2024 (see Figure 1). Data showed clear disparities in both enrollment and service utilization. In Sedgwick County, 238,878 children under 21 (65%) were enrolled in Medicaid compared to 128,210 adults (35%) in 2024, and in Johnson County, children made up 67% of the Medicaid population versus 33% adults. By contrast, in frontier counties like Hodgeman, children represented about 57% of Medicaid enrollees compared to 43% adults (see Figure 1), showing a more balanced distribution between the two groups. Enrollment declined for both groups in 2023 before rebounding in 2024, suggesting sensitivity to policy or access-related factors (as discussed in Chapter 1, Literature Review).

Utilization patterns also revealed that children consistently used dental services more often than adults, particularly for preventive care, which represented the majority of claims (see Figure 3). In contrast, specialized services such as implants, prosthodontics, endodontics, and telehealth were rarely used (see Figure 4), underscoring persistent gaps in access to comprehensive care.

In 2024, adults on the IDD waiver accounted for about 75% of total waiver enrollment, while children on the IDD waiver made up 24%. Autism waiver enrollment was minimal, representing only 1% of the waiver population. Although IDD adult enrollment remained steady from 2022 to 2024, IDD child enrollment more than doubled (see Figure 2), highlighting growing demand for pediatric disability-related dental support.

The study's heat maps confirmed that Medicaid dental providers were concentrated in urban areas (see Figure 6). For example, Johnson County reported 73 Medicaid dental providers in 2022, increasing to 90 providers by 2024. Sedgwick County also showed growth, rising from 58 providers in 2022 to 71 providers in 2024, reflecting a comparable upward trend in provider availability. By contrast, rural and frontier counties such as Thomas and Trego had no Medicaid dental providers across 2022–2024 (see Figure 7), leaving enrolled populations without local access. Some small counties showed unusual provider-to-population ratios. For example, in Rawlins County in 2024, 2 Medicaid dental providers were serving 381 enrollees — approximately 5.25 providers per 1,000 enrollees (see Figure 9). By contrast, most rural counties had far lower provider-to-population ratios, often below 0.5 providers per 1,000 enrollees, highlighting severe workforce shortages (see Figure 8 and Figure 9).

Overall, the findings demonstrate that location, age, and disability status strongly influenced Medicaid dental service use in Kansas. Limited provider availability, especially in rural and frontier counties, combined with underutilization of waiver services, contributed to persistent gaps in oral health access. These results suggest that strategies to increase provider participation, expand waiver services, and improve targeted outreach could help reduce disparities and improve oral health outcomes for Medicaid-enrolled populations, particularly individuals with IDD and autism.

Limitations

The dataset only included Medicaid recipients, excluding individuals with private insurance or those who were uninsured, which limited the ability to capture a full picture of oral health access in Kansas. Claims data also did not reflect unmet needs or those who were unable to access services at all. Additionally, the limited availability of telehealth dental services during

the study period may have influenced comparisons. Finally, in some counties, very low waiver enrollments caused year-to-year variations to appear larger than they truly were.

Future work and Project contributions

Future work should focus on expanding provider networks in rural and frontier counties to address gaps in access. Assessing the feasibility of telehealth for preventive and follow-up care could also provide a more flexible model for service delivery, especially in underserved areas (Daniel & Kumar, 2014). By comparing Medicaid use with private insurance use, we can see larger differences and better understand the overall picture. Adding caregiver and provider views would also give more insight into real-life barriers and support the numbers from the data.

This project contributes to the field by demonstrating how Medicaid claims data can serve as an effective surveillance tool for monitoring oral health access. By identifying geographic and demographic disparities, the findings highlight actionable areas for policy and program development. Targeted interventions—such as increasing the number of dental providers in rural areas, improving transportation support for Medicaid patients, and expanding waiver coverage for individuals with IDD and autism—can directly address these inequities. Overall, the results underscore how location, age, and disability status strongly influence service use, and they suggest that strengthening provider networks and waiver access could significantly improve oral health outcomes for vulnerable populations across Kansas.

Chapter 6 – Competencies

The five MPH Foundational Competencies most utilized in my Integrative Learning Experience (ILE) were Competencies 4, 8, 13, 19, and 22. These were demonstrated throughout the entire process of my project, from data analysis and visualization to communication with stakeholders and policy translation. My ILE involved not only producing dashboards, executive summaries, and educational materials, but also applying cultural awareness, coalition-building, and systems thinking to address oral health disparities among individuals with IDD and autism in Kansas. Collectively, this experience strengthened my ability to interpret and communicate data, design culturally inclusive strategies, engage stakeholders, and evaluate policy gaps to inform public health action.

Throughout my Integrated Learning Experience, I demonstrated Competency 4 by interpreting data in ways that connected technical findings to public health policy and practice. My work involved moving from raw KanCare dental utilization data to actionable insights that could guide decision-making for underserved populations, particularly individuals with IDD and autism.

This competency was evident not only in developing an interactive dashboard but also in analyzing utilization trends, identifying disparities, and contextualizing results for diverse audiences. For example, I interpreted trends such as higher dental use among children compared to adults and persistent rural provider shortages, connecting these findings to real policy gaps like limited sedation services and uneven provider access.

I applied Competency 4 further during stakeholder engagement with Oral Health Kansas staff and advisory groups. Here, I tailored data interpretation to meet the needs of each audience—highlighting funding implications for legislators, access challenges for families, and utilization trends for providers. This process showed that interpreting results is not simply about presenting numbers but about translating them into meaningful narratives that inform solutions.

By integrating technical analysis, stakeholder perspectives, and policy relevance, my ILE as a whole demonstrated Competency 4. I learned how to critically evaluate, interpret, and communicate data in a way that supports evidence-based improvements in Medicaid dental access and strengthens public health programs for individuals with IDD and autism.

Table 6.1 Summary of MPH Foundational Competencies

Number and Competency		Description
4	Interpret results of data analysis for public health research, policy, or practice.	I used Tableau to turn raw KanCare dental data into easy-to-read dashboards showing age, waiver status, procedure type, geography, and provider access. These visuals helped identify important patterns like low adult dental use and rural provider shortages, making the data useful for guiding policy and practice.

8	Apply awareness of cultural values and practices to the design or implementation of public health policies or programs.	My ILE emphasized inclusivity by ensuring communication materials and discussions reflected cultural awareness and accessibility. I applied this competency by engaging advocacy groups, incorporating feedback from families of individuals with IDD and autism, and designing content that respected diverse values and needs. This process demonstrated how cultural awareness strengthens policy translation and program design to better serve vulnerable populations. OHK will use this flyer to support their community outreach efforts and provide accessible oral health education to families and caregivers across Kansas.
13	Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes	Throughout my ILE, I engaged with Oral Health Kansas staff, advisory groups, and community stakeholders to identify priority areas in Medicaid dental access. By collaborating with disability advocates, dental providers, and policymakers, I proposed strategies to build partnerships that addressed rural provider shortages and limited preventive care. This experience demonstrated how coalition-building and stakeholder engagement are essential for influencing public health outcomes.
19	Communicate audience-appropriate public health content, both in writing and through oral presentation	My ILE required me to adapt Medicaid dental utilization findings for multiple audiences, including policymakers, providers, and caregivers. I practiced tailoring communication by using plain language, visuals, and presentations that matched the needs of each group. Through meetings, advisory sessions, and written summaries, I gained experience in presenting data in ways that improved understanding and encouraged evidence-based decision-making.
22	Apply systems thinking tools to a public health issue.	I applied systems thinking by using the dashboard and a systems thinking tool, the Causal Loop Diagram (CLD), to map how geography, waiver status, procedure use, and provider availability interact in shaping Medicaid dental access. This interactive

		view showed trends such as rural provider shortages contributing to low utilization and highlighted how multiple factors connect to create disparities. By revealing these interrelationships, the dashboard supported identifying root causes and guiding targeted interventions to improve equity for individuals with IDD and autism.
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Table 6.2 MPH Foundational Competencies and Courses Taught In

22 Public Health Foundational Competencies Course Mapping	M PH 701	M PH 720	M PH 754	M PH 802	M PH 818
Evidence-based Approaches to Public Health					
1. Apply epidemiological methods to settings and situations in public health practice	x		x		
2. Select quantitative and qualitative data collection methods appropriate for a given public health context	x	x	x		
3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming, and software, as appropriate	x	x	x		
4. Interpret results of data analysis for public health research, policy, or practice	x		x		
Public Health and Health Care Systems					
5. Compare the organization, structure, and function of health care, public health, and regulatory systems across national and international settings		x			
6. Discuss the means by which structural bias, social inequities, and racism undermine health and create challenges to achieving health equity at organizational, community, and societal levels					x
Planning and Management to Promote Health					
7. Assess population needs, assets, and capacities that affect communities' health		x		x	
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs					x
9. Design a population-based policy, program, project, or intervention			x		
10. Explain basic principles and tools of budget and resource management		x	x		
11. Select methods to evaluate public health programs	x	x	x		
Policy in Public Health					

22 Public Health Foundational Competencies Course Mapping	M PH 701	M PH 720	M PH 754	M PH 802	M PH 818
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence		x	x	x	
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes		x		x	x
14. Advocate for political, social, or economic policies and programs that will improve health in diverse populations		x			x
15. Evaluate policies for their impact on public health and health equity		x		x	
Leadership					
16. Apply leadership and/or management principles to address a relevant issue		x			x
17. Apply negotiation and mediation skills to address organizational or community challenges		x			
Communication					
18. Select communication strategies for different audiences and sectors	DMP 815				
19. Communicate audience-appropriate (i.e., non-academic, non-peer audience) public health content, both in writing and through oral presentation	DMP 815				
20. Describe the importance of cultural competence in communicating public health content		x			x
Interprofessional Practice					
21. Integrate perspectives from other sectors and/or professions to promote and advance population health		x			x
Systems Thinking					
22. Apply systems thinking tools to visually represent a public health issue in a format other than a standard narrative			x	x	

Table 6.3 MPH Emphasis Area: Infectious diseases and zoonosis		
Number and Competency		Description
1	Pathogenic mechanism	I learned how infectious agents replicate, spread, and cause disease through courses

		such as DMP 710 (One Health) and ASI 540 (Animal Disease Control). I integrated this knowledge into my project by recognizing how individuals with IDD and autism are more vulnerable to oral infections due to difficulties with daily hygiene and systemic barriers to preventive care. This helped me interpret dental service utilization data by understanding that poor oral health can increase susceptibility to secondary infections, highlighting why Medicaid access is critical for this population.
2	Host response to immunology	Through AAI 852 (Vaccinology), I studied both innate and adaptive immune responses, antigen presentation, and the development of immunological memory. I was able to synthesize this learning in my ILE by considering how immune suppression from chronic conditions or medications—common among individuals with IDD and autism—may heighten vulnerability to oral infections. This understanding informed my interpretation of Medicaid dental utilization data by framing preventive dental services as critical not only for oral health but also for supporting overall immune resilience. Connecting immunological principles to real-world disparities helped me emphasize why maintaining oral health is essential for vulnerable populations who often face systemic barriers to care.
3	Environmental influences	I learned how environmental factors contribute to the emergence and spread of infectious diseases through courses such as MPH 802 – Environmental Health and DMP 710 – One Health. I synthesized this knowledge in my project by recognizing how social and environmental determinants—such as rural location, transportation barriers, and provider shortages—impact dental service utilization among Medicaid-enrolled individuals with IDD and autism. Just as air quality or water safety can shape infectious disease risk, geographic and systemic barriers shape

		disparities in oral health access, making it clear that the environment plays a central role in public health outcomes.
4	Disease surveillance	I learned that monitoring disease trends through active and passive surveillance is critical for identifying health needs and shaping policy. In MPH 754 – Epidemiology, I gained skills in analyzing incidence, prevalence, and rate ratios. I was able to integrate this competency in my project by analyzing Medicaid dental utilization data across waiver groups and geography to identify disparities in access. This work mirrored public health surveillance by tracking service-use trends, highlighting inequities, and helping to guide evidence-based recommendations for improving dental care access among vulnerable populations.
5	Disease vector	I learned that vectors such as mosquitoes and ticks play a major role in the transmission of diseases like malaria and Lyme disease. Through DMP 710 – Introduction to One Health and MPH 802 – Environmental Health, I studied the biology of disease vectors, their habitats, and control strategies. I synthesized this understanding to my project by drawing parallels between vector-borne disease risks and barriers to dental service access among Medicaid-enrolled individuals with IDD and autism. Just as vectors are shaped by environmental and social conditions, I recognized how geographic location, transportation, and systemic inequities act as “vectors” influencing access to oral health care. This perspective helped me analyze how structural barriers function like disease vectors, disproportionately affecting vulnerable populations and creating oral health disparities.

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