# Fresno County Oral Health Needs Assessment

**Prepared by**

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# Executive Summary

Oral health is an integral part of overall health and well-being. Oral diseases have an adverse impact on physical, psychological and social health, and often result in pain, reduced quality of life, and diminished function. In addition, many studies have shown association between chronic oral infections and many other health problems, including diabetes, heart disease, stroke and adverse pregnancy outcomes.

This report presents finding from the 2019 Fresno County Oral Health Needs Assessment that aimed to identify the most pressing oral health concerns reported by Fresno County residents and stakeholders. The assessment process included establishing community and stakeholder partnerships, assessment of data, and identification of community assets and resources. The data assessment included secondary data review, data gaps identification and collection of primary data through focus groups, key informant interviews and stakeholders survey. This process was guided by the Fresno County Department of Public Health (FCDPH) and Fresno County Oral Health Advisory Committee. The findings will be used to identify the oral health priority needs to inform the development of a countywide oral health improvement plan.

## Key Findings

### Prevalence of Oral Diseases and Oral Health Outcomes

- According to the latest children's oral health screening in the county in 2006, 40% of Fresno County kindergarten and third grade students had untreated tooth decay.
- In 2016, the age-adjusted prevalence of adults 65+ who lost all their teeth is 18% in the City of Fresno. This percentage ranged between 5%-37% across the census tracts. In the City of Clovis, the average percentage was 12% ranging from 5%-18% across the census tracts within the city. Both cities' averages were higher than California's overall average (9.3%).
- In 2016, there were 93 newly diagnosed oral and pharyngeal cancers and 19 cases died from the same type of cancer.

### Access to Dental Care in Fresno County

- Fresno County has 33 Dental Health Provider Shortage Areas (DHPSAs).
- Fresno County is ranked 42$^{nd}$ among California counties regarding access to clinical care measure. The population/dentist ratio is 1,650:1 compared to 1,180:1 in overall California.
- In the City of Fresno, 55% of adults self-reported receiving dental care during the past year, compared to 69% in the City of Clovis.
- In 2015-2016, 28% of pregnant women who rely on Medi-Cal in Fresno County accessed dental care during pregnancy in comparison to 52% who had private insurance.
- Among Medi-Cal Dental beneficiaries, in 2018, 25% of adults aged 21+ had annual dental visits, 14% received preventive dental services, and 9% received restorative services.
- Among Medi-Cal Dental beneficiaries, in 2018, 46% of children aged 0-20 years old had annual dental visits, 42% received preventive dental services, and 18% received restorative services.

### Protective and Risk Factors

- Since May 2013, the City of Fresno discontinued any fluoridation activities at all locations due to several operational and distribution considerations. Moreover, in June 2018, the City of Coalinga discontinued use of fluoride in their treatment process.

- Ten percent of adults reported their smoking status as current smokers. The rate was higher among American Indians/Alaska Natives (32%) and African Americans (16.9%). Among Asian respondents, 94% reported they never smoked (or smoked less than 100 cigarettes).
- Among high and middle school students, 35% of high school students tried some type of tobacco product, 10% tried E-cigarettes, and 8% are current E-cigarettes smokers.
- Sixteen percent of adults aged ≥18 years in the City of Fresno reported having five or more drinks (men) or four or more drinks (women) on an occasion in the past 30 days, compared to 18% in CA.
- Eleven percent of adults have diabetes and 49% of adults in the county are estimated to have pre-diabetes.
- Twenty-two percent of adults reported consuming one sugary drink the previous day (other than soda), while 7.1% reported consuming two or more drinks the previous day (other than soda). Those percentages vary by income level, where 44.5% of respondents having 0-99% FPL reported consuming two or more sugary drinks.

## Top Priorities of Need as Expressed by Key Informants and Focus Groups Participants

1. Improve the quality of dental services offered by the Medi-Cal Dental program in terms of covered services and provider-patient communication.
2. Establish publicly funded programs for adults that are similar to the successful oral health programs provided to children.
3. Lower the high cost of dental services for patients and reduce the overhead expenses on providers.
4. Increase the availability of dental providers, more particularly specialized dentists for children with special health needs.
5. Increase awareness of available dental services as well as offering language appropriate information materials.
6. Increase collaboration between entities and organizations to facilitate access to oral health care for residents.
7. Increase integration between dental and medical systems and increase collaboration between dental and medical health professionals.
8. Improve patients' oral health behavior and the way they value oral health care.
9. Leverage existing successful programs for children by expanding, replicating, and sustaining effective efforts.

## NEXT STEPS

This report provides the oral health needs assessment findings that are based on both secondary and primary data analysis. This assessment is meant to guide FCDPH and partners in developing the Local Oral Health Program and its Action Plan, to be implemented in 2020-2022. Based on the highest identified needs in this assessment and the available resources, and aligned with the State Oral Health Plan goals and objectives, the Fresno County oral health program goals should at a minimum focus on:

- Building community capacity and engaging stakeholders through community partnerships to integrate oral health services into their respective systems.
- Improve access to oral health care through preventive, restorative, and educational services for students K-6.
- Improve oral health outcomes for students K-6 served by the program.

- Improve access to oral health care services for pregnant women.
- Improve oral health literacy for Fresno County residents.

# Introduction

Oral health is an integral part of overall health. The effects of oral diseases on overall health are well-documented.[1] The World Dental Federation defined oral health as multifaceted including the ability to speak, smile, smell, taste, touch, chew, swallow and convey a range of emotions through facial expressions with confidence and without pain, discomfort and disease of the craniofacial complex.[2] Oral health problems may negatively affect a person's physical, psychological and social health, and often result in pain, reduced quality of life, and diminished social function.[3] Due to the recurrent and the cumulative nature of dental diseases, there are significant individual and societal costs.[3] In addition, studies have shown the link between chronic oral infections and many other health problems, including diabetes,[4] heart disease,[5] strokes,[5] and adverse pregnancy outcomes.[6]

In 2000, former United States Surgeon General, David Satcher, referred in his report, "*Oral Health in America: A Report of the Surgeon General,*" to oral diseases as a "Silent Epidemic," because they affect the most vulnerable populations at a higher rate.[7] Data show that, despite current efforts in treatment and prevention, oral health disparities based on race/ethnicity and income still exist. According to Healthy People 2020, low-income individuals, African-Americans and Mexican-Americans experience a higher rate of untreated tooth decay compared to their White counterparts.[8]

Social and environmental determinants play a key role in shaping oral health outcomes in Fresno County. Reducing rates of oral diseases is crucial for the health and well-being of Fresno County residents. However, promoting oral health has been a challenge in the County where some social and economic conditions lag behind the rest of California.

Oral diseases are largely preventable; however, many residents in Fresno County face multiple challenges gaining access to dental services for prevention or treatment. In addition, there is limited current data that assess the residents clinically determined oral health status especially at the county level. The Fresno County Smile Survey, conducted in 2005-2006, was the last published county level report that assessed the oral health status for Kindergarten and third grade students. This survey was part of the California Smile Survey[9]. A key finding of the report was that 80% of 3rd grade students had experienced dental disease in the County, compared to 70% of children across the state. In addition, 40% of children had untreated tooth decay[9].

This report, under the guidance of FCDPH, was prepared by the Central Valley Health Policy Institute, in collaboration with Fresno Metro Ministries. This work is part of the Fresno County Community Health Needs Assessment and funded by Proposition 56; the California Healthcare, Research and Prevention Tobacco Tax Act of 2016 (Prop 56), which provides $30 million annually to activities that support the California Oral Health Plan 2018-2028.[10]

## Efforts to Improve Oral Health in Fresno County

### Dental Transformation Initiative

In 2017, Fresno County was one of the awarded counties in California to implement the Local Dental Pilot Project (LDPP) through the Dental Transformation Initiative (DTI), led by the California Department of Health Care Services. Fresno County subcontracted with two community-based organizations, Fresno Economic Opportunities Commission (EOC) and Reading and Beyond (RAB), to implement and achieve the initiative goals. The Fresno County pilot project focused on two main goals: to increase the number of enrolled dental providers in the Medi-Cal Dental Program, and to

facilitate access of Medi-Cal Dental eligible children to dental services through case management, care coordination, and oral health education.
The implementation of the LDPP in Fresno County has helped to build the capacity of the implementer organizations and their partners to better serve their communities regarding oral health. It initiated the integration of oral health into their respective system and helped create a staff of 32 oral health educators that offer dental case management for families that have children 0-20 and are Medi-Cal Dental beneficiaries. The oral health education team is culturally and linguistically diverse to better serve the families in their preferred languages.
The implementer organizations also hired a team of 4 Provider Relation Representatives that recruited dental providers in Fresno County to enroll in the Medi-Cal Dental program and supported existing enrolled providers to treat more children beneficiaries. The program efforts were successful in increasing the number of enrolled dental providers that accept new patients from 147 dentists in 2016 to 180 in 2020. Each implementer organization had a Dental Project Coordinator who oversaw and managed the whole process. For more information about the impact of the LDPP in the County, please refer to Appendix A.

## Oral Health Advisory Committee

Since the inception of the LDPP, FCDPH has engaged stakeholders and established a well-diversified community partnership. The LDPP first formed a stakeholder group in August 2017, which then transitioned to become the Oral Health Advisory Committee (OHAC) in September 2018. The OHAC members included oral health stakeholders for the LDPP and the Local Oral Health Program (LOHP). The current goal of the committee is to connect and convene stakeholders to prioritize oral health needs in Fresno County.

## Oral Health Work Group

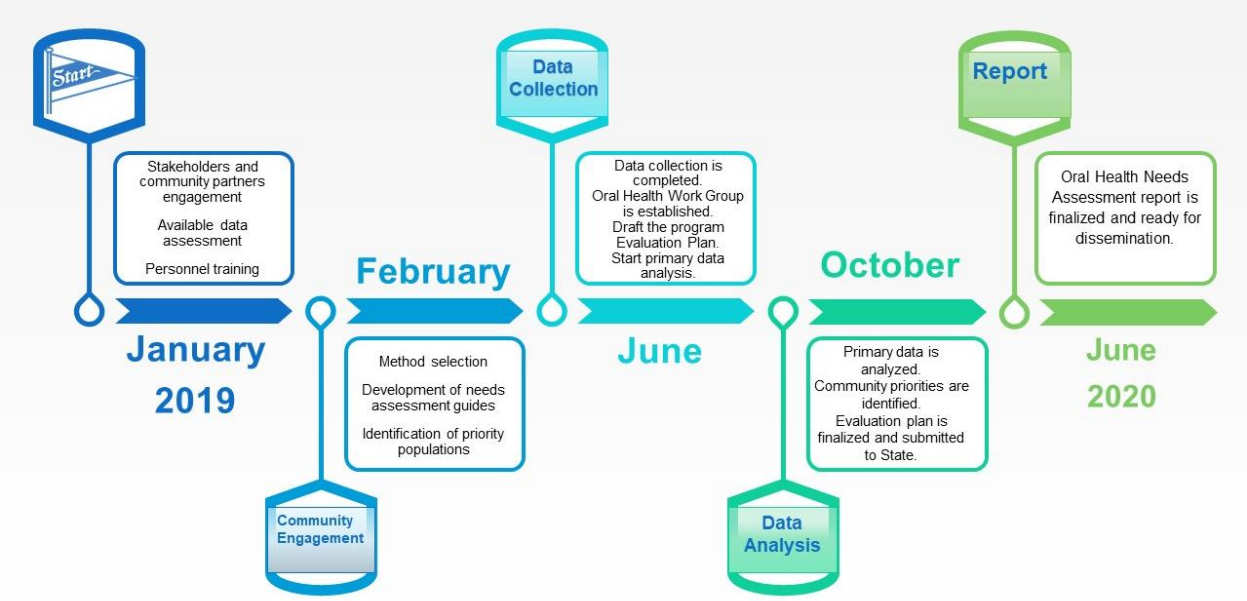
In May 2019, members of the OHAC were asked to participate in an Oral Health Workgroup (OHW). The role of this workgroup was to provide input and expertise throughout the development of the LOHP evaluation plan and to continue overseeing the program implementation. The OHW was established in June 2019 and met four times between July and August of 2019. The OHW provided feedback on the evaluation plan, logic model, vision, mission, and values of the LOHP. The OHW will continue to meet regularly to oversee the implementation of the program and to provide input on areas that may need improvement. (Appendix B acknowledges the OHAC, OHW, and the Oral Health Program staff and consultants).

# Overview of the Oral Health Needs Assessment Process

The drafting of the oral health needs assessment came about as part of the 2020 Fresno County Community Health Needs Assessment, a broader effort to understand the general health needs of Fresno County. Over an 18-month period, the oral health needs assessment was conducted. The assessment included engagement of stakeholders and partner organizations, inventory and analysis of secondary data, primary data collection and analysis, and lastly, reporting of findings and identification of health priorities. The Fresno County Department Public Health (FCDPH) supported the development of the oral health needs assessment, improvement plan, and action plan. The FCDPH collaborated with Fresno Community Health Improvement Partnerships (FCHIP) and Fresno Metro Ministry (FMM) to connect partners and collect primary data. In addition, FCDPH collaborated with the Central Valley Health Policy Institute (CVHPI) to design methodology that aimed to understand the oral health community needs, analyze collected data, identify key priorities, and

develop an oral health action plan, evaluation plan, and community oral health improvement plan. Figure 1 illustrates the timeline for the oral health needs assessment.

**Figure 1. The Oral Health Needs Assessment Timeline**




# Methods

The purpose of the oral health needs assessment was to identify the most pressing oral health concerns of Fresno County residents and to establish oral health priorities to inform the development of a countywide action plan. The oral health needs assessment process included: establishing community and stakeholder partnerships, assessment of available data and identification of data gaps, primary data collection and analysis, and identification of community assets and resources. The Seven-Step Model for Dental Needs Assessment, created by the Association of State and Territorial Dental Directors (ASTDD) was followed throughout the planning and the conduction of this needs assessment.[11] Appendix C includes an illustrative diagram of the Model.

## Data Sources, Collection, and Analysis

**Secondary data** were collected from a variety of publicly available resources to describe the demographic, socioeconomic, and oral health landscape of Fresno County. The datasets available at the following resources, among others, were analyzed:

- The Office of Statewide Health Planning and Development (OSHPD) was utilized to obtain data on emergency department visits for non-traumatic dental conditions.[12]
- The American Community Survey (ACS) was used to describe population demographics.[13]
- The California Department of Health Care Services (DHCS) Medi-Cal Dental program was used to assess dental care utilization.[14]

- The California Health Interview Survey (CHIS) was used to assess oral health behavior, self-reported oral health status and utilization of dental care, and existing common risk factors.[15]
- The Behavior Risk Factor Surveillance System (BRFSS) was used to describe access to oral health services and outcomes by neighborhood.[16]
- The Centers for Disease Control and Prevention (CDC) was used to describe disease prevalence.

In addition, previously conducted local health assessment reports were reviewed, such as "*Oral Health Barriers for California's San Joaquin Valley Underserved and Vulnerable Populations"* [17]and *"Central Valley Community Health Needs Assessment – 2019."*[18]

**Primary data** collection included key informant interviews (n=5), surveys of stakeholders (n=9), and focus group sessions. Fifty-two individuals attended one of the five focus group sessions.

- **Key informant interviews.** Five key informants participated in semi-structured telephone interviews. The key informants included: three dental providers, one Office of Education representative, and one community-based organization representative. The latter interview was conducted entirely in Spanish. The interviews followed a script of open-ended questions. Key informants were asked to identify barriers and facilitators to achieving optimal oral health as well as to identify key priority areas needing to be addressed in Fresno County. Upon verbal consent, all interviews were recorded then transcribed.

- **Community residents' focus groups.** Fresno County residents were recruited to participate in focus groups designed to understand barriers, facilitators, and priority areas needing to be addressed to ensure optimal oral health. Recruitment for focus group participation was designed to capture specific populations including parents of children with special needs, young adults ages 21-35, adults ages 36-64, older adults 65+, and parents of children ages 1-20. Although recruitment was based mainly on age, inclusion of racial/ethnic minorities was a priority. Fifty-three community residents participated in one of the five focus group discussions. A questionnaire was administered to focus group participants to gather basic demographic and socioeconomic status. A semi-structured script was employed to facilitate the focus group discussion. Translation services were available when needed and the focus group session with parents of children age 1-20 was conducted entirely in Spanish. All focus group discussions were tape recorded, upon written consents, then transcribed and translated when needed.

- **Stakeholder survey.** An online survey was distributed to the 42 members of the OHAC that were asked to circulate the survey among their respective organizations. Nine survey responses were received. Respondents represented various community-based organizations and dental providers. The survey was anonymous and included open and close-ended questions.

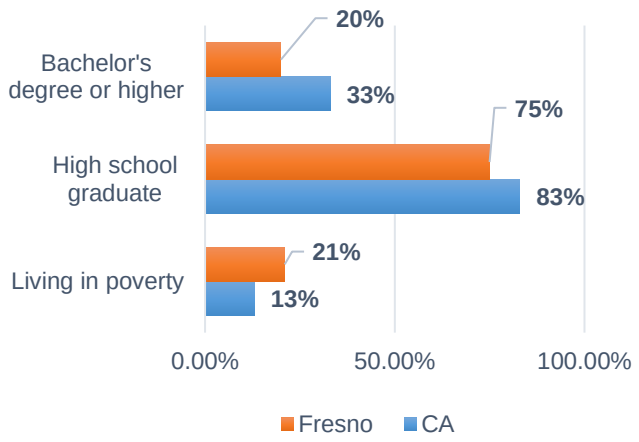
Appendix D includes the list of key informants, and a summary of focus groups sessions and question guides.

# Findings

## Fresno County Demographic Characteristics and Social Determinants of Oral Health

According to the US Census Bureau, nearly 1 million residents live in Fresno County making it the most populated county in the San Joaquin Valley and the population is on the rise. From 2010 to 2018, the population increased by approximately 6.9%.[13] In terms of Fresno County's racial/ethnic composition, Latinos (53%) are the largest group followed by Whites (29%). This differs from the state where Latinos make up 39% and Whites are 36% of the population.[13] Among the 58 counties in California, Fresno County is ranked fourth highest in the percentage of residents enrolled in Medi-Cal with nearly 50% of the total population.[19]

**Figure 2. Percentage of Population Living in Poverty and the Educational Attainment in Fresno County Compared to CA.**




*Data source: U.S. Census Bureau, American Community Survey (ACS), 5-year Estimates.*

The average median household income in Fresno County is $51,261 compared to $71,228 in California.[13] Figure 2 shows the percentage of the population living in poverty and educational attainment in Fresno County compared to California. Twenty-one percent of the population are living in poverty compared to 12.8% for the state overall. Regarding educational attainment, 75.3% of the population 25 years of age and older are high school graduates or greater and 20.7% have a bachelor's degree or greater compared to 82.9% and 33% for the state of California, respectively.

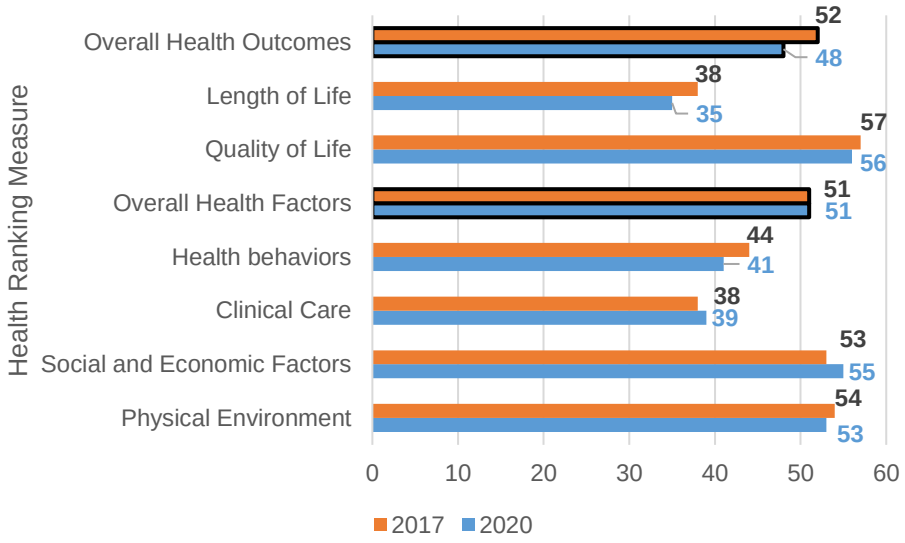
Fresno County experiences a higher rate of unemployment compared to the state average. According to Bureau of Labor Statistics, as of December 2019, the unemployment rate was 6.9%, compared to 3.9% state average.[20]

According to the Robert Wood Johnson Foundation Health Ranking (RWJF),[21] in 2020, the overall Fresno County health ranking was 48$^{th}$ among 58 California counties, improving from 51$^{st}$ in 2017. The overall health ranking includes both the "overall health outcomes" and the "overall health

factors" measures. Overall health outcomes are measures of how healthy counties are within the state, while overall health factors are measure of risk factors that increase poor health in a county. Appendix E includes an illustrative graphic that shows the utilized measures to develop ranking across California counties. In 2020, Fresno County ranked 48th for overall health outcomes, which improved from 52nd in 2017. The overall health factors ranking is 51st in 2020, which remained the same since 2017.

Figure 3 shows the rankings for the main measures among all CA counties in 2020 and 2017. The overall health outcomes measure includes the length of life and quality of life in which the county ranked 35th and 56th respectively. Regarding overall health factors measure, the county ranked 41st for health behaviors, 39th for clinical care, 55th for social and economic factors, and 53rd for physical environment. As shown, in the last three years Fresno County has shown improvement in overall health outcomes for both measures: the length of life and quality of life. Regarding the Overall health factors, there was no change since 2017 however, the health behavior and the physical environment have shown improvement. On the other hand, the clinical care and the social and economic factors have worsened since 2017, according to the (RWJF).

**Figure 3. Fresno County Health Rankings out of 58 California Counties**




*Data Source: 2018 Robert Wood Johnson Foundation Health Outcomes*

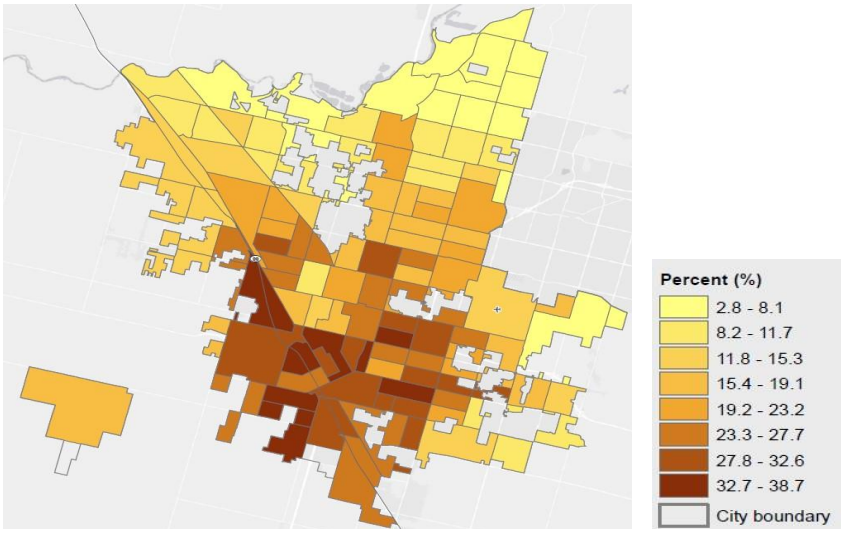
## Disparities and Extent of Oral Diseases in Fresno County

### Place-based Disparity in Oral Health Outcomes among Adults in Fresno County

The cities of Fresno and Clovis were among the 500 cities across the U.S. that were included in the CDC 500 Cities Project. According to the 500 Cities Project, in 2016, the age-adjusted prevalence of adults 65 and older who lost all their teeth was 18% in the City of Fresno.[16] This percentage ranged between 5%-37% across the different census tracts. In the City of Clovis, the average percentage was 12% ranging from 5%-18% across the census tracts within the city. Both cities'

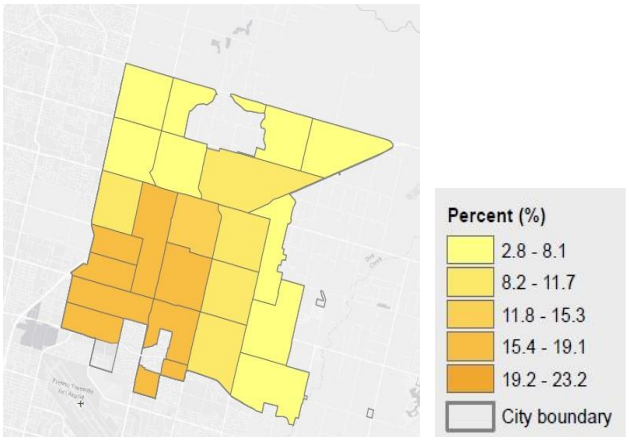
averages were higher than the California average (9.3%).[16] The maps below in Figure 4 and 5 show the place-based disparities in the percentages of adults who lost their teeth at age 65+ in the cities of Fresno and Clovis.

**Figure 4. Percentage of Adults Aged >=65 Years who Lost All Teeth by Census Tract in the City of Fresno, CA, 2016.**




*Data Source: CDC 500 Cities Project*

**Figure 5. Percentage of Adults Aged >=65 Years who Lost All Teeth by Census Tract in the City of Clovis, CA, 2016.**

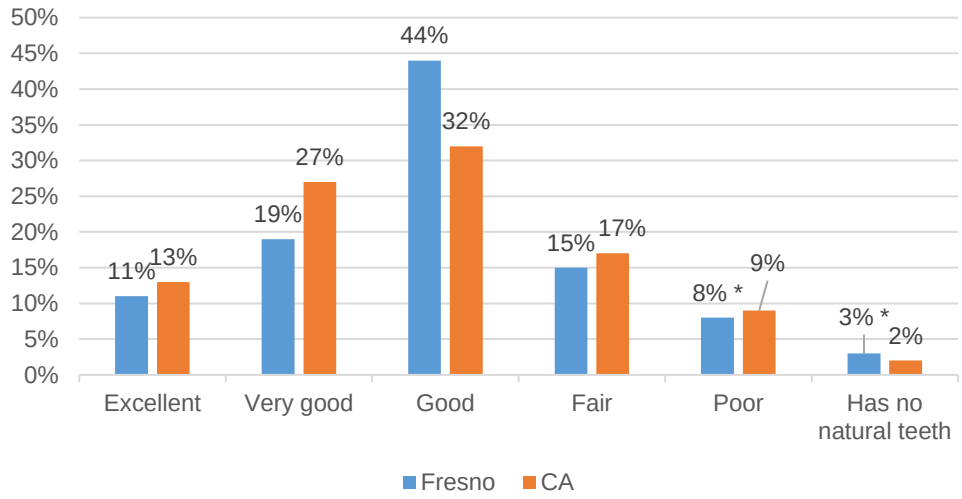



*Data Source: CDC 500 Cities Project*

## Self-Reported Oral Health Condition

Here we show data from the California Health Interview Survey (CHIS). These self-reported responses were drawn from more than 20,000 Californians interviewed each year. When participants were asked, *"How would you describe the condition of your teeth: excellent, very good, good, fair, or poor?"* a larger percentage of respondents in California reported having *excellent* or *very good* teeth conditions when compared to respondents within Fresno County. Most respondents from Fresno tended to report having good teeth conditions, as shown in Figure 6.

**Figure 6. Self-Reported Oral Health Condition, Adults, in Fresno County and California, 2018**



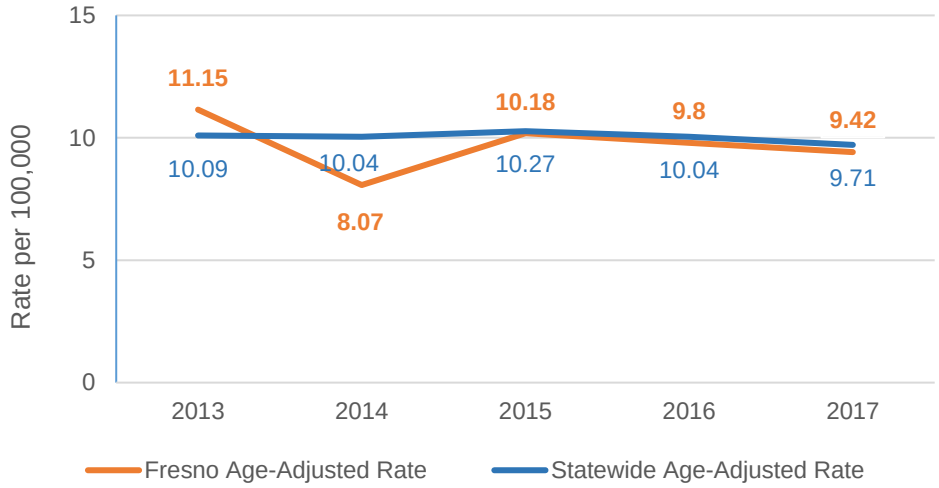

*Data Source: 2018 California Health Interview Survey.*
*Statistically unstable

## Oral and Pharyngeal Cancers

According to the California Cancer Registry, in 2016, Fresno County had 3,708 diagnosed cases of invasive cancers in different sites of the body. Among those, 93 cases were oral and pharyngeal cancers and 19 cases died from the same type of cancer.[22] The average age adjusted rate of invasive oropharyngeal cancer in 2013-2017 was 9.7 compared to the statewide average rate of 10.03, as shown in Table 1. The rate has shown a slight decline since 2013 as shown in Figure 7.[22] The percentage of diagnosed oral cancers at advanced stage has increased throughout the period of 1999-2013[23], as shown in Figure 8.

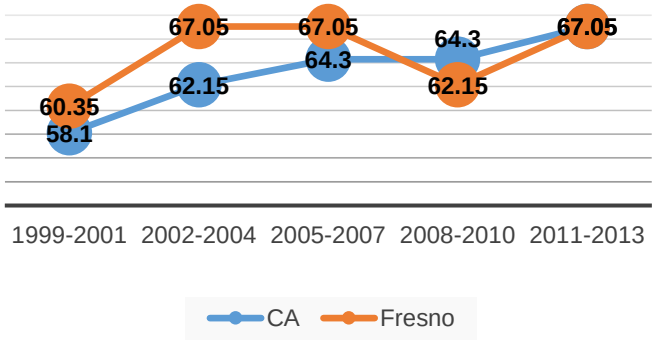
| **Table 1. Oral and Pharyngeal Cancer Average Rate (Age-Adjusted), in Fresno County and CA, 2013-2017** | |
|---|---|
| Total Cases in Fresno County (#) | 458 |
| Fresno County Crude Rate | 9.43 |
| Fresno County Age-Adjusted Rate | 9.7 |
| Statewide Age-Adjusted Rate | 10.03 |
| *Note: All rates are per 100,000. Rates are age-adjusted to the 2000 U.S. Standard Population*<br>*Data Source: California Cancer Registry Chronic Disease Surveillance and Research Branch*<br>*Data accessed March 16, 2020. Based on Dec 2019 data. Excludes cases reported by the Department of Veterans Affairs* | |

**Figure 7. Invasive Oral and Pharyngeal Cancer Rates (Age Adjusted), Fresno County and California, 2013-2017**




*Note: All rates are per 100,000. Rates are age-adjusted to the 2000 U.S. Standard Population*
*Data Source: California Cancer Registry Chronic Disease Surveillance and Research Branch*
*Data accessed March 16, 2020. Based on Dec 2019 data. Excludes cases reported by the Department of Veterans Affairs.*

**Figure 8. Average Percentages of Oral and Pharyngeal Cancer Cases Diagnosed at an Advanced Stage in Fresno and CA, (1999-2013)**




*Data source: California Cancer Reporting and Epidemiologic Surveillance (Cal CARES) Program*

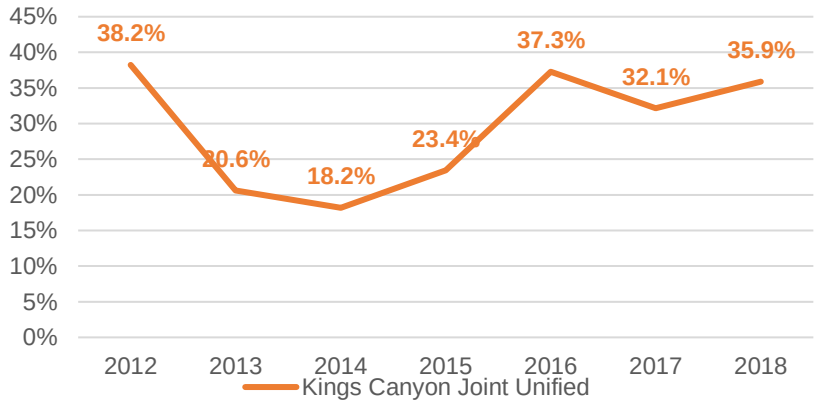
## Pre-Kindergarten Assessment Findings

The kindergarten dental checkup requirement, AB 1433, was signed into law in 2005. The bill requires schools that choose to participate in the Kindergarten Oral Health Assessment program to distribute oral health education materials and the assessment-waiver form to parents who are registering their child in public school for the first time, in either kindergarten or first grade. Fresno County has 32 school districts with 191 elementary schools. In 2018-2019, 13 elementary schools reported assessment data to the System for California Oral Health Reporting (SCOHR): one elementary school from Firebaugh-Las Deltas Joint Unified and 12 elementary schools from Kings Canyon Joint Unified. It is worthy to note that in 2011, 74 elementary schools from Fresno Unified

School District have reported to SCOHR and 62 schools from the same district reported in 2012. From 2013-2018 no school from the same district has reported the data to the SCOHR. In the period of 2012-2018, the total number of students that were eligible for assessment was 19,634. Thirty-two percent of eligible students provided their proof of assessment and 5% submitted waivers to assessment. Seventy-eight percent of submitted waivers were because of lack of parental consent. Seventeen percent of children who submitted their proof assessment had untreated tooth decay in 2012-2019.

Since only schools from Kings Canyon Unified have been consistent in reporting to SCOHR, their data was utilized to identify the trend of children having untreated tooth decay, as shown in Figure 9.

**Figure 9. Percentage of Children with Untreated Tooth Decay, 2012-2018 in Kings Canyon Joint District**

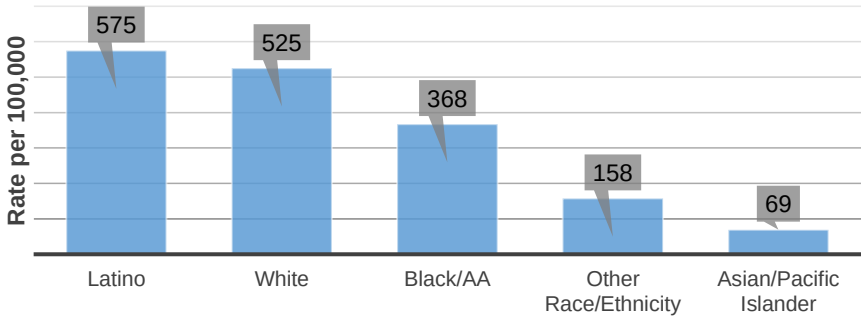



*Data Source: California Dental Association AB 1433 Kindergarten Dental Screening Data*

## Emergency Department Visits for Non-Traumatic Dental Conditions

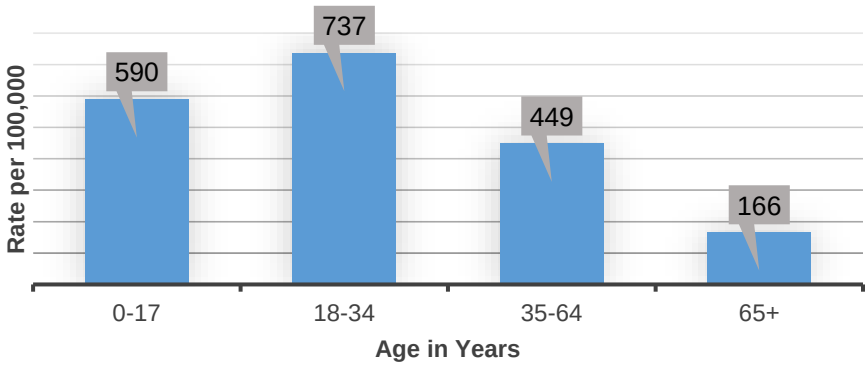
Fresno County experiences a higher rate of non-traumatic dental Emergency Department (ED) visits than the state. From 2012-2016, the rate was 522 per 100,000 in Fresno County compared to 353 per 100,000 in California.[12] In 2016, among all race/ethnicities, Latinos showed the highest rate of non-traumatic dental ED visits, as shown in Figure 10. Patients 18-34 years of age had the highest rate, compared to all other age ranges, during the same year. The publicly insured patients had a significantly higher rate of ED visits (855 per 100,000), compared to privately insured rate (114 per 100,000), as shown in Figure 12.

**Figure 10. Rate of Emergency Department Visits for Non-Traumatic Dental Conditions per 100,000 by Race/Ethnicity, Fresno County, 2016**



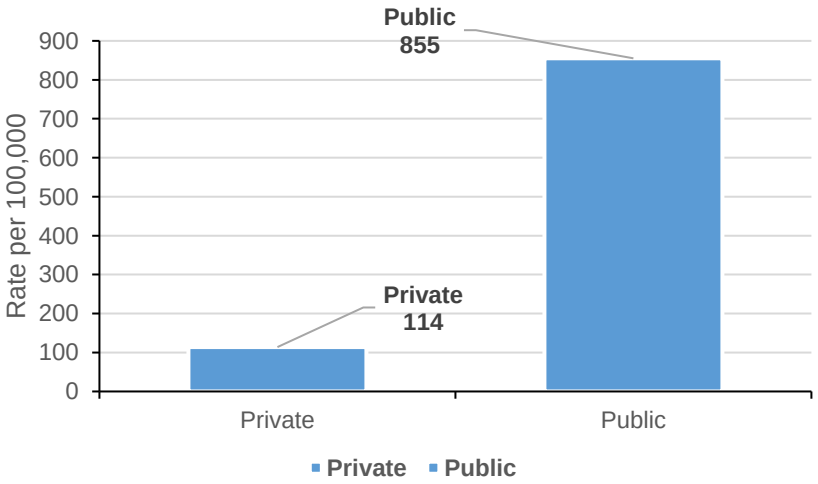

*Data Source: Office of Statewide Health Planning and Development, 2016.*

**Figure 11. Rate of Emergency Department Visits for Non-Traumatic Dental Conditions per 100,000 by Age, Fresno County, 2016**




*Data Source: Office of Statewide Health Planning and Development, 2016.*

**Figure 12. Rate of Emergency Department Visits for Non-Traumatic Dental Conditions per 100,000 by Health Coverage, Fresno County,2016**




*Data Source: Office of Statewide Health Planning and Development, 2016.*

## Safety-Net and Other Dental Care Resources

**School-Based Health Centers**

Fresno County has 13 School-Based Health Centers (SBHCs) where 3 centers provide preventive dental services and 1 of those provides dental treatment services.[24] In addition, there are 2 mobile vans, one of them offers only preventive and the other one offers both preventive and treatment services. Appendix F includes a list of all SBHCs in the county. Appendix G includes a map showing the SBHCs geographic distribution.

**Academic Institutions**

Fresno City College offers several allied health programs including the Dental Hygiene program that serves as a safety-net provider in the county. The college has a dental hygiene clinic that provides affordable dental hygiene services for patients, performed by students under the supervision of registered dental hygiene faculty and a licensed dentist.[25]

The University of California San Francisco (UCSF), Fresno offers a four-year Oral-Maxillofacial residency program in which faculty and residents treat a large volume of patients that need broad scope of surgical procedures related to the mouth, head, and neck that includes: Trauma, Head and Neck Cancers, Dental Implants and Cleft Lip and Palate.[26]

**Federally Qualified Health Centers**

In Fresno County there are 36 Federally Qualified Health Centers (FQHC) that serve residents at a rate of 3.87 per 100.000 population compared to 3.06 and 2.94 in CA and the U.S. respectively.[27] There are 22 centers that provide dental services as shown in the map included in Appendix G.

## Dental Health Professional Shortage Areas (DHPSAs)

In Fresno County, there are 33 DHPSAs all or partially in the area[1].[28] According to the County Health Ranking and Roadmap, Fresno County is ranked 39th in CA regarding the access to clinical care measure.[21] The population to dentist ratio is worse in Fresno County 1,650:1 compared to California 1,180:1 as a whole.

## Access to Oral Health Care in Fresno County

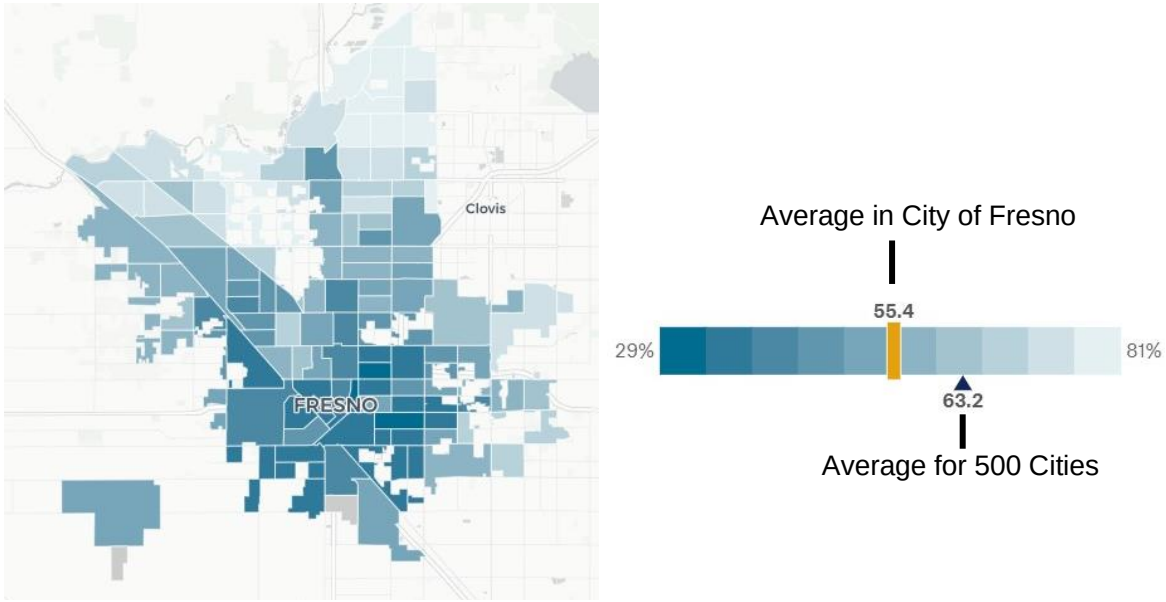
- **Place-based disparity in Accessing Dental Care among Residents in Fresno County**

According to the Centers for Disease Control and Prevention-500 Cities project, in 2016, 55.4% of adults in the City of Fresno reported having a dental visit during the past year, compared to an average of 63.2% across the 500 cities[16] and to 67.1% in California.[29] Within the City of Fresno, the percentage ranged between 29%-81% across the census tracts. In the City of Clovis, 68.7% of adults reported having a dental visit during the past year, ranging between 54%-80% across the census tracts. The City of Clovis average was higher than Fresno (55.4%), California (67.1%), and the 500 cities (63.2%) averages. This data indicates that the access to dental care for Fresno County population varies greatly by their residential census tract. The maps below in Figures 13 and 14 show the place-based disparities in accessing dental care among adults 18 years of age and

[1] Shortage area boundaries can cross state, county, congressional district, and ZIP Code boundaries. Counts include any area all or partially within the selected geographic area.

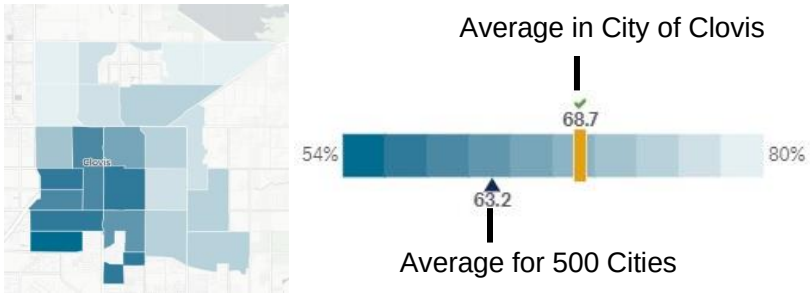
older in the cities of Fresno and Clovis. Appendix H includes 2 maps to contrast the access to dental care and the oral health outcomes in the cities of Fresno and Clovis.

**Figure 13. Percentage of Adults who Received Dental Care in the City of Fresno, California by Census Tract**




*Data source: Centers for Disease Control and Prevention (CDC), 500 cities project (2016) and City Health Dashboard*

**Figure 14. Percentage of Adults who Received Dental Care in the City of Clovis, California by Census Tract**



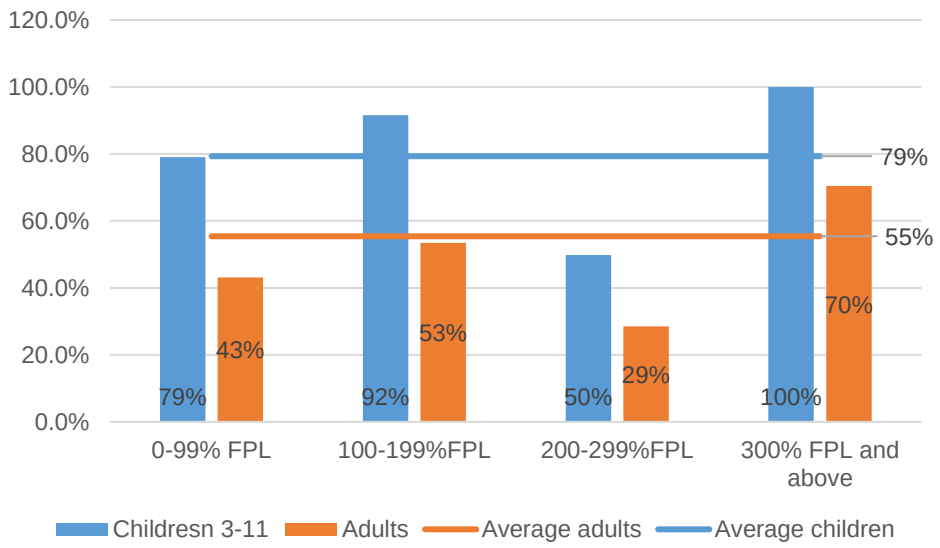

*Data source: Centers for Disease Control and Prevention (CDC), 500 cities project (2016) and City Health Dashboard*

- **Income and age-based disparities in accessing dental care among residents in Fresno County**

In the California Health Interview Survey (CHIS), parents of children 3 to 11 years of age were asked "*About how long has it been since your child last visited a dentist or dental clinic? Include hygienists and all types of dental specialists*".[15] Although the estimates were statistically unreliable, we found that 78.5% of parents living below 99% of the FPL reported taking their child to the dentist within the past 6 months. Among parents living 200-299% of the FPL, 50% reported taking their children to the

dentist in the past 6 months. This finding is surprising; however, should be interpreted with caution because estimates are statistically unstable due to the small sample size. When adults were asked to report about how long it had been since their last visit to the dentist, we found that adults below 99% of the FPL, 43% reported visiting the dentist six months ago or less. Among adults 200-299% of the FPL, 29% reported visiting the dentist six months ago or less, as shown in Figure 15.

**Figure 15. Percentage of Adults and Children 3-11 Years Old in Fresno County who Self-Reported Having a Dental Visit During the Last 6 Months by Poverty level**




*Data Source: UCLA Center for Health Policy Research, 2018*

## Access to Dental Care during Pregnancy

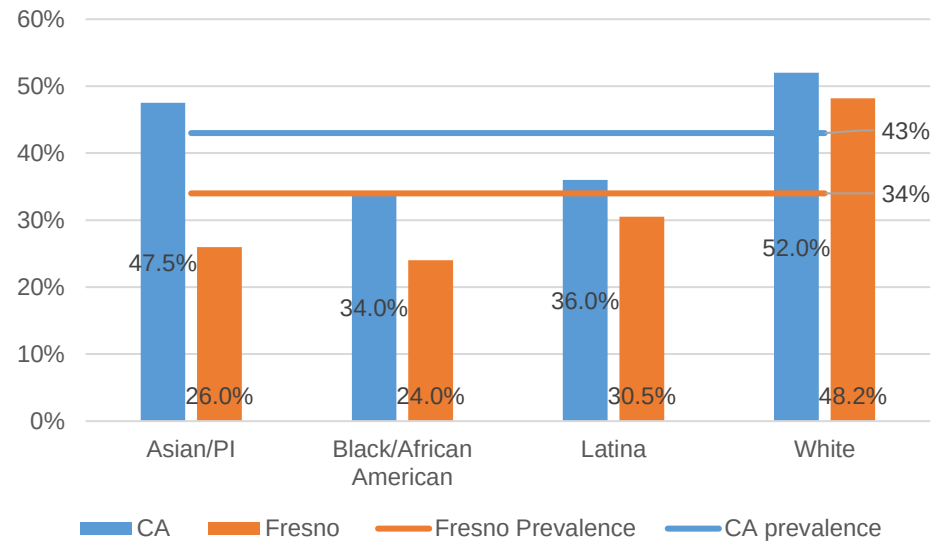
The percentage of dental visits during pregnancy in Fresno County (34%) is lower than the CA average (43%), however, it is slightly higher than the San Joaquin Valley area average (32.7%).[30] This percentage varies by income, age, education, insurance type, and race/ethnicity, as shown in Table 2. Women who are White, with family income > 200% FPL, with private insurance, and are college graduates showed the highest access to the dentist during pregnancy. Conversely, Black women, with family income 101-200% FPL, who are Medi-Cal beneficiaries, and with some college degree showed the lowest rate, as shown in table 2 and Figure 16 and 17. Pregnant women in Fresno experience less access to dental care compared to the CA average.

**Table 2. Percentage of Dental Visit During Pregnancy Among California Women with a Recent Live Birth, for Fresno and CA by Maternal Age, Income, and Insurance, MIHA Survey, 2015-2016**

| Rate of Dental Visits | | Maternal Age | | | Family Income | | | Health Insurance | |
|---|---|---|---|---|---|---|---|---|---|
| | | 15-19 | 30-34 | 35+ | 0-100% FPL | 101-200% FPL | > 200% FPL | Private | Medi-Cal |
| **Fresno** | 34.0% | 37.6 % | 32.4% | 40.9% | 25.5% | 23.5% | 60.0% | 52.0% | 27.8% |
| **CA** | 43.0% | 34% | 41,5% | 50.1% | 33.2% | 33.0% | 58.4% | 54.0% | 33.7% |

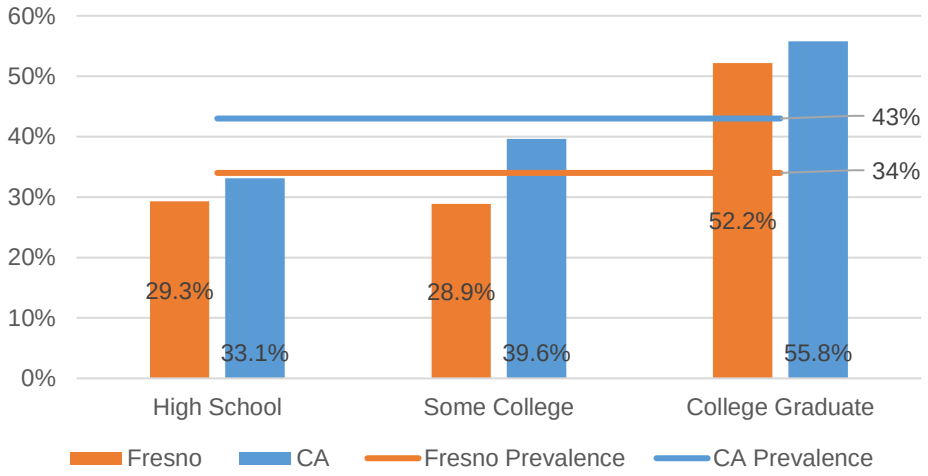
*Data Source: Maternal and Infant Health Assessment (MIHA) Survey, CDPH, 2015-2016*

**Figure 16. Percentage of Pregnant Women who had a Dental Visit During Pregnancy by Region and Ethnicity, MIHA Survey, 2015-2016**




*Data Source: Maternal and Infant Health Assessment (MIHA) Survey, CDPH, 2015-2016*

**Figure 17. Percentage of Pregnant Women who had a Dental Visit During Pregnancy by Region and Education, MIHA Survey, 2015-2016**




*Data Source: Maternal and Infant Health Assessment (MIHA) Survey, CDPH, 2015-2016*

## Access to Dental Care among Medi-Cal Dental Beneficiaries in Fresno County

### Availability of Medi-Cal Dental Providers

According to the Department of Health Care Services, Medi-Cal Dental Provider Directory, and as of January 2020, the county has 148 dental providers who were actively enrolled in the Medi-Cal Dental program. Out of those, 99 providers accepted new patients. Appendix I includes a map showing the locations of enrolled dental providers across the county. Although the general population dentist ratio in the county is 1,660:1, this ratio is not the same for the Medi-Cal Dental population. In the county, there were 483,437 individuals enrolled in Medi-Cal in 2017,[31] making Medi-Cal enrolled population enrolled dentist ratio 3266:1 and for the same population the ratio of enrolled dentist who accepts new patients is 4883:1. This indicates a high need for dentists who accept the new Medi-Cal Dental population in Fresno County.

## Dental Care Utilization among Medi-Cal Dental Adult Beneficiaries

The data utilized for the next section were accessed from Department of Health Care Services, Medi-Cal Dental Services Division open portal data.[14] Four main measures were utilized to identify the access to dental care among Medi-Cal Dental beneficiaries; 1) Annual Dental Visits, 2) Use of Preventive Services, 3) Use of Restorative Services, and 4) Use of Sealants.

### Annual Dental Visit (ADV)

The average ADV among Medi-Cal beneficiaries aged 21+ years old in Fresno County has shown a slight increase from 2016-2018. In the County this percentage has increased by2.5 % from 22.5% in 2016 to 25% in 2018. Compared to California, the average ADV has also increased by 2.6% from 20.7% to 23.3%, from 2016 to 2018 respectively.

The average ADV among adults varies by race/ethnicity and age. Across all races/ethnicities, there was an increase in the ADV percentage, especially within the Native Hawaiian/Pacific Islander (NH/PI) and Latino groups with the highest increase, 4.5% and 4% respectively. In 2018, across all races/ethnicities, the Latino adults showed the highest ADV 27.3% followed by the Alaskan Native/American Indian (AN/AI) group (25.3%), while the NH/PI group showed the lowest ADV (21.2%). Appendix J (Figure 1-J) shows the percentage of adults 21+ who had an ADV by race/ethnicity in 2016 and 2018.

Regarding variations in the ADV utilization percentage by age in Fresno County, both the 34-44 and 45-64 age groups showed the highest ADV (27%) in 2018. The lowest ADV was among 75+ age group (17.6%). Appendix J (Figure 2-J) shows the ADV among adults 21+ in the county by age group in 2016 and 2018.

### Use of Preventive Services (PS)

The average use of Medi-Cal Dental PS among adults 21+ in Fresno County has increased by 1.8% from 12.6% in 2016 to 14.4% in 2018, compared to the state average 11.6% and 13.6% respectively (2% increase) for the same measure and time period.

The average utilization of the PS among adults 21+ varies by race/ethnicity and age. Across all races/ethnicities, there was an increase in PS from 2016 to 2018, especially within the Latino group with the highest percentage increase (2.4%). In 2018, AN/AI showed the highest PS (18.8%) followed by the Latino group (17.1%), while the White and NH/PI groups showed the lowest PS utilization, 10.8% and 11.7%, respectively, followed by the African American (11.8%), as shown in Appendix J (Figure 3-J).

Regarding variations in the PS utilization by age in Fresno County, the 35-44 age group showed the highest PS among all age groups 16.6% in 2018 compared to 14% in 2016. The 75+ group had the lowest PS (5.9%) in 2018. All age groups showed an increase in their percentages of PS utilization except for the 75+ group which decreased by 1.1%. Appendix J (Figure 4-J) shows the PS among adults 21+ in the county by age group, in 2016 and 2018.

**Use of Restorative Services (RS)**

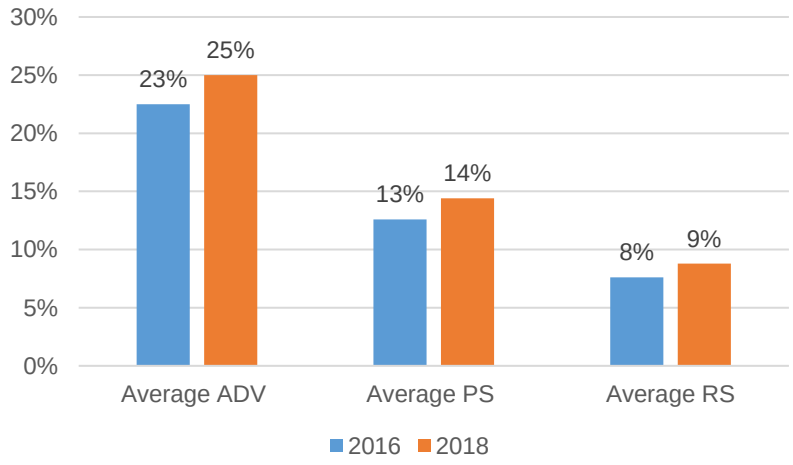
In Fresno County, the percentage of adults 21+ who received Medi-Cal Dental restorative services in 2016 was 7.6% and 8.8% in 2018 (1.2% increase) compared to state average 6.7% and 8.3% respectively (1.6% increase).

The utilization of RS among adults 21+ varies by race/ethnicity and age. Across all races/ethnicities, there was a slight increase in RS from 2016 to 2018, especially within AN/AI and NH/PI groups showing the highest percentage increase 2.4 % and 2% respectively. In 2018, the Latino group showed the highest RS (10.6%) followed by Asian (7.2%), while AN/AI showed the lowest RS (4.9%), followed by Black/African American (6.4%) as shown in Appendix J (Figure 5-J).

Regarding variations in the RS utilization by age in Fresno County, the 35-44 age group showed the highest RS among all age groups 10.6% in 2018 compared to 8.8% in 2016. The 75+ group had the lowest RS (4%) in 2018. All age groups showed an increase in their percentages of RS with the highest increase among the 35-44 age group (1.8%). Appendix J (Figure 6-J) shows the RS among adults 21+ in the county by age group in 2016 and 2018.

Figure 18 shows the improvement in the utilization percentage of all previously discussed measures among Medi-Cal Dental adults from 2016 to 2018. The graph shows that, in general, the service that is least utilized is the RS compared to PS and ADV. The three measures showed an average percentage increase of 1.8% with highest improvement in the ADV (2.5%).

**Figure 18. Average Percentages of ADV, PS, and RS Among Medi-Cal Dental Adults 21+, 2016 and 2018**




*Data Source: California Health and Human Services Open Data Portal*

## Dental Care Utilization among Medi-Cal Dental Children

**Annual Dental Visit (ADV)**

The ADV utilization among Medi-Cal Dental children aged 0-20 years old in the county has shown a slight increase from 2016 to 2018. The percentage has increased by 3.1% from 43% in 2016 to 46.1% in 2018. Compared to the California average, the children's ADV has also increased from 44.5% to 47.6% from 2016 to 2018 respectively, with a similar percentage increase to Fresno County (3.1%).

The ADV utilization among children aged 0-20 years old varies by ethnicity and age. Across all races/ethnicities, there was an increase especially among AN/AI and NH/PI children showing the highest percentage increase, 13.4% and 14.9% respectively, as shown in Appendix K (Figure 1-K). In 2018, across all races/ethnicities, Latino children showed the highest ADV utilization (50.5%) followed by the Asian group (44.1%), while the White children showed the lowest rate (36.7%).

Regarding variations in the ADV utilization by age in Fresno County, in 2018, children aged 6-9 years old showed the highest ADV utilization among all age groups at 58.6%, compared to 57.5% in 2016. Although leading pediatric dental and medical organizations recommend that children should visit the dentist by age one, this ADV for this age group in 2016 was 0.2% and 0.5% in 2018. It is worthy to note that only Latino children >1-year-old had ADV in 2018 (51 users). All age groups showed an increase in their percentage of ADV with the highest increase among the 1-2 years old age group (6.8%). Appendix K (Figure 2-K) shows the ADV among children aged 0-20 in the county by age group in 2016 and 2018.

**Use of Preventive Services (PS)**

The use of Medi-Cal Dental preventive services among children aged 0-20 in Fresno County has increased from 38.7% in 2016 to 41.7% in 2018, compared to the state average 40.7% and 44% respectively for the same measure and time period.

The utilization of PS among children aged 0-20 years old varies by ethnicity and age in Fresno County. Across all races/ethnicities, there was an increase in the PS utilization, especially among the NH/PI who showed an increase from 27.1% in 2016 to 37.2% in 2018. The highest utilization of PS in 2018 was among Latino children (45.6%) followed by the Asian group (40.2%) and the lowest was among Black/African American children (34.4%) as shown in Appendix K (Figure 3-K).

Across all age groups, there was a general increase in the percentage of PS especially within the 1-2 age group with the highest increase from 13.4% to 20.1% in 2016 and 2018 respectively, as shown in Appendix K (Figure 4-K). In 2018, across all age groups, children 6-9 years old showed the highest PS (54.4%), which was the same as in 2016. Similar to the ADV, the >1 age group had the least percentage of PS (0.4%) which was only 0.1% in 2016. Latino children >1-year-old were the only group who utilized PS (39 users) in 2018.

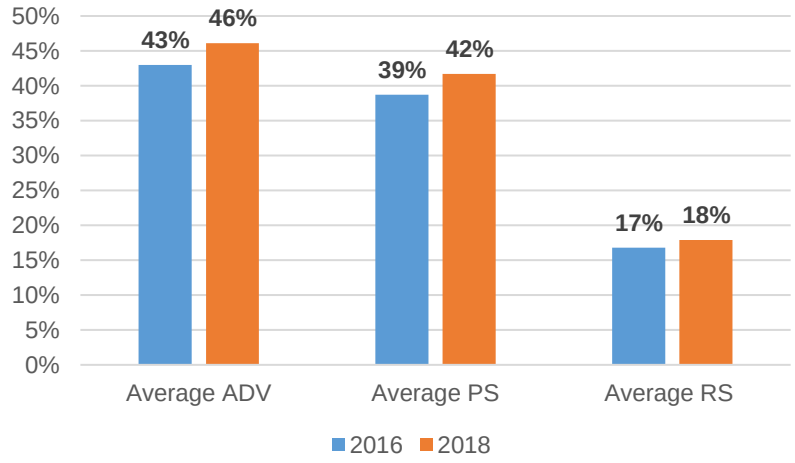
**Use of Restorative Services (RS)**

The use of Medi-Cal Dental restorative services (RS) among children aged 0-20 in Fresno County has increased from 16.8% in 2016 to 17.9% in 2018, compared to the state average 16.4% and 17.2% respectively for the same measure and time period.

The RS utilization among children aged 0-20 years old varied by ethnicity and age in Fresno County. Across all races/ethnicities, there were an increase in the RS especially among the NH/PI who showed an increase from 10.2% in 2016 to 14.1% in 2018. The highest utilization of RS in 2018 was among Latino children (20.1%) followed by the Asian group (15.5%) and the lowest was among AN/AI children (10.1%) as shown in Appendix K (Figure 5-K). Across all age groups, there was a general increase in the percentages of RS especially within the 1-2 years old age group with the highest increase from 0.7% to 2.9% in 2016 and 2018 respectively, compared to average percentage increase of 1.1% across all age groups. In 2018, children aged 6-9 years old showed the highest RS at 26.6%, which was 25.7% in 2016. There was no utilization of RS among the >1 age group and 1-2 age group had the second lowest utilization of RS (2.9%) in the county. Appendix K (Figure 6-K) shows the percentage of children aged 0-20 years old who received RS by age group in 2016 and 2018.

Figure 19 shows the improvement in the utilization percentages of all previously discussed services among Medi-Cal Dental children 0-20 from 2016-2018. The graph shows that in general the least service that the children utilize is the RS compared to PR and ADV. The three measures showed an average percentage increase of 2.4% with highest improvement in the ADV (3.1%).

**Figure 19. Average Percentages of ADV, PS, and RS Among Medi-Cal Dental Children 0-20, 2016 and 2018**



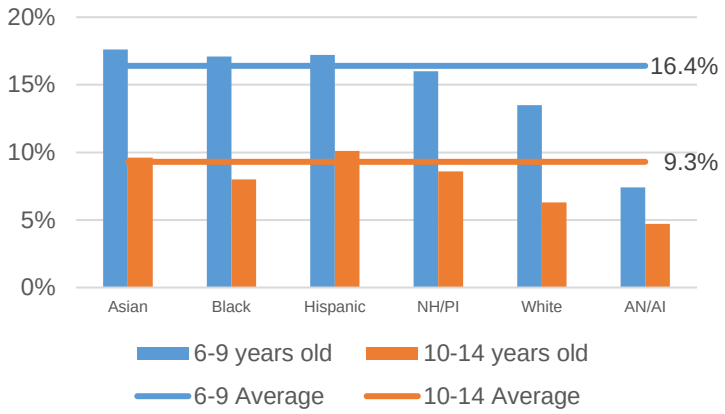

*Data Source: California Health and Human Services Open Data Portal*

### Use of Sealants

The use of sealants among children aged 6-9 years old has decreased during the 2016-2018 period from 18.5% to 16.4%. This service utilization showed a slight reduction among children aged 10-14 years old from 9.8% to 9.3% for the same time period. The 6-9 age group show a higher utilization of sealants than the 10-14 age group. Figure 20 shows the percentages of sealant service utilization among children from all ethnicities, compared to county average. Asian children aged 6-9 years old had the highest percentage of receiving sealants (17.6%) and the AN/AI children from the same age group had the lowest percentage (7.4%) compared to all other races/ethnicities. For children aged 10-14 years old, 9.3% received sealants in the county ranging from 10% among Latino children to 4.7% among AN/AI children of the same age group. Regarding receiving sealants at a FQHC, in

2017 the average percentage was 59% in Fresno County compared to state average of 51.8%. Although, FQHCs are required to report sealant placement for children aged 6-9 years old, both public and privately insured, the only 2 FQHCs that reported were Valley Health Team in San Joaquin at 83% and United Health Center in Parlier at 46.3%.

**Figure 20. Percentage of Children 6-9- and 10-14-Years Old who Received Sealants by Ethnicity in Fresno County, 2018**




*Data Source: California Health and Human Services Open Data Portal*

## Water Fluoridation

California is one of the states that provides water fluoridation to its population. However, as of 2015, only 63.7% of the CA population had access to fluoridated water with a goal to increase this percentage to 70% by 2025. According to the City of Fresno Water Quality Report, 2018, fluoride was detected at an average level of 0.090 that ranged from not detected to 1.9 ppm.[32] The typical sources would be, erosion of natural deposits, water additives that promote strong teeth or discharge from fertilizer and aluminum factories. Although some parts of Fresno City and the City of Coalinga used to provide fluoridated water to their residents, since May 2013, the City of Fresno discontinued any fluoridation activities at all locations due to several operational and distribution considerations.[33] Moreover, in June 2018, the City of Coalinga discontinued use of fluoride in their treatment process.[34]

## Common Risk Factors

Smoking, consuming alcohol, and consuming sweetened beverages, including soda, are behaviors that put an individual at a higher risk of developing oral diseases. Patients with diabetes are also at a higher risk to develop periodontal diseases and tooth decay. Below is the prevalence of those common risk factors among Fresno County residents according to self-reported data.

- **Smoking**

In Fresno County, 10% of adults reported their smoking status as a current smoker. This percentage was higher among AN/AI (32%) and African American (16.9%). On the other hand, 94% of Asian respondents reported that they never smoked (or smoked less than 100 cigarettes).[15] Among high

and middle school students, 35% of high school students tried some type of tobacco products, 10% tried E-cigarettes , and 8% are current E-cigarettes smokers.[35]

- ## Alcohol Consumption

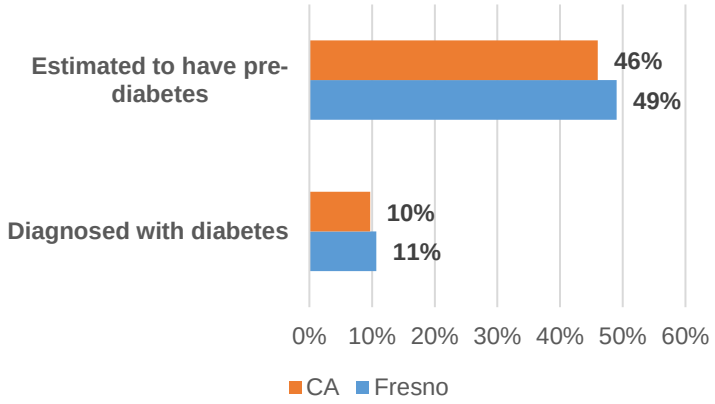
According to the Behavioral Risk Factor Surveillance System (BRFSS) 2016 data, 16% of adults aged ≥18 years in the City of Fresno reported having five or more drinks (men) or four or more drinks (women) on an occasion in the past 30 days, compared to 18% in CA.[16]

- ## Diabetes

According to the CDC, the percentage of adults in the City of Fresno aged 20+ years old who had diabetes in 2016 was 10.7%, which is higher than both the CA average (9.7%) and the national average (8.5%).[36]

To estimate the prevalence of pre-diabetes among adults in California, the University of California Los Angeles, Center for Health Policy Research studied data from the California Health Interview Survey (CHIS) and the National Health and Nutrition Examination Survey (NHANES).[37] Estimates of prediabetes were based on predictive models developed using 2009-2012 NHANES data and applied to CHIS 2013-14 data. The study showed that in Fresno County 49% of adults have prediabetes, compared to 46% state average. This percentage was higher among adults 55-69 and 70+ years old, 68% and 69%, compared to 60% and 59% in California, respectively.

**Figure 21. Percentage of adults 20+ who have diabetes, 2016 and percentage of adults 18+ estimated to have pre-diabetes, 2013-2014, in Fresno and CA**




*Data Source: Centers for Disease Control and Prevention and UCLA Center for Health Policy Research*

- ## Sweetened Beverages and Soda Consumption

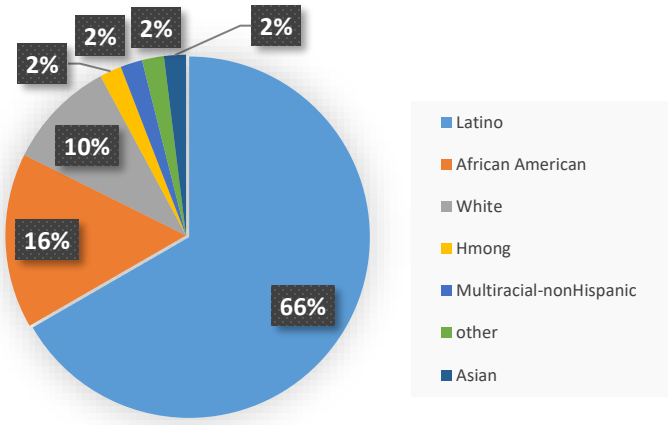
As part of the California Health Interview Survey, in Fresno County, 22.1% of adult respondents self-reported consuming one sugary drink the previous day (other than soda) while 7.1% reported consuming two or more drinks the previous day (other than soda). Those percentages differ by income level, where 44.5 % of respondents having 0-99% FPL reported consuming two or more sugary drinks. A weekly soda consumption of seven or more beverages per week was reported by twenty-one percent of adult respondents. This percentage was higher, at 36%, among respondents who reported their income at 0-99% FPL.

# Findings from Community Residents

## Focus Groups, Key Informants Interviews, and Stakeholders' Survey Findings:

The primary data collected from community residents was conducted through key informant interviews, focus groups, and stakeholders' survey. The question guides were designed to discuss oral health needs in Fresno County as shown in Appendix D. Fifty-two individuals participated in five focus groups. The focus groups were conducted with the following targeted populations: parents of children with special health needs, young adults ages 21-35, adults ages 36-64, older adults 65+, and parents of children ages 1-20. In addition, five key informant interviews were conducted, and a stakeholder survey was sent to the 42 Oral Health Advisory Committee members and nine responses were received.

**Figure 22. Percentage of Focus Group Participants by Race/Ethnicity**




### Population

The selection of participants for focus groups aimed to reach out to the most underserved groups in the county in terms of accessing oral health services. As identified by the secondary data analysis, disparities exist in accessing oral health care that were based on age, race, place, income, and insurance type. The outreach process targeted the vulnerable populations in terms of age, races/ethnicities, and place of residency within the county.

Figure 22 illustrates the racial/ethnic composition of focus group participants. The largest group that participated in the focus groups were Latino/Latina (66%) followed by African American (16%), White (10%), Asian (2%), Hmong (2%), multiracial non-Latino (2%) and other (2%).

### Analysis

NVivo qualitative data analysis software was utilized to analyze the focus group transcripts.[38] Themes, supporting codes, and quotes were identified. Priority needs were identified based on frequency and magnitude of code appearance. The list of key informants and target population focus groups can be found in Appendix 4. Key emergent themes of the oral health needs in Fresno County from discussions with community members, key informants, and stakeholders are discussed in the next section.

## Focus Groups Emergent Themes

The next section presents findings of focus groups analysis. The identified themes are ordered from greatest frequency of codes to least frequency of supporting codes. Appendix L, (table 1-L) presents the list of main emergent themes and the frequency of mentioning the associated codes in each focus group.

- **Challenges to Accessing Oral Health Care Services in Fresno County**

**The high cost of dental services**

The high cost of dental care was a theme that emerged very strongly across all focus groups as a main barrier to accessing oral health care. Participants relying on Medi-Cal Dental showed concerns about the limited coverage and the need to pay out of pocket for their dental needs. Participants who had private insurance were more concerned about the co-pay and the extra payments they had to provide.

*"The financial side is a big barrier, because Medi-Cal does not cover everything. You go to emergency…." Adults 36-64 years old FG.*

*"It's easier to pay a car in payments than…to fix your teeth." Adults 36-64 years old FG.*

**The quality of dental services offered by Medi-Cal Dental program**

Most participants expressed concerns about the delay in receiving the dental service they needed either because of a shortage of dentists that accept their public insurance or the need for treatment authorization. Some participants expressed their feeling of lack of care and compassion among many dental providers. Few participants expressed their feeling of being discriminated against based on their insurance type and based on the place of residency within the county.

*"Most…dentists, the ones that take Medi-Cal are always full, so you have to wait a long time for a visit." Adult 36-64 years old FG.*

*"Also, if you need a root canal or an extraction… we have to wait until Medi-Cal approves it… if not we have to pay out of our pocket... it also takes 3 to 4 weeks to get approved." Adult 36-64 years old FG.*

*"There's a lack of caring…. that's the problem because everyone is money hungry now." Adult 36-64 years old FG.*

*"They discriminate against you basically when they find out you're not paying cash or you don't have the type of insurance...on Medi-Cal...They put you on back burner and take people who do have insurance or they're paying out of pocket. So that's like discrimination against you." Adult 36-64 years old FG.*

**Shortage in specialized dentists for children with special health needs**

Participants expressed the need for more availability of specialized dentists, specifically pediatric dentists who can treat children with special health needs. Many participants showed a concern about their very limited options in Fresno County when it comes to treating their children's teeth. They shared their concern about treating them under general anesthesia which may be risky for the child.

*"So, I feel like there is not even a dentist for my son. I took him to a regular dentist that are for kids and they would not see him because he was not sitting still." Parent of a child with a special health need FG.*

*"I want my autistic son to see someone who specializes with special needs and that knows to be patient and non-aggressive with him." Parent of a child with a special health need FG.*

**Access to information about oral health.**

The lack of access to oral health information and education was identified by many participants as one of the challenges to achieving good oral health. There was an expressed need for more education and outreach about proper oral hygiene practices, available resources, and covered services. There was also an expressed need for a support system from different organizations to collaborate and to become the resources of information and to provide the linkage to available services such as schools and community-based organizations. Some participants had concerns about the language barrier and that the dentists do not speak their language, even if their staff do, which may reduce their ability to effectively communicate with their dental provider. Other participants expressed the need for more communication between the medical provider and the dental provider in terms of their and their children's health needs in general.

*"Not having access to education to even know what it means to take care of your mouth and teeth." Young adult aging 22-35 oral health FG.*

*"I have gone to the dentists and they tell me that they don't cover the services. They need to have more communication about what is covered." Parent of children 0-20 years old FG*

*"I just think if there was something for all of us with disabled children, an organization or something that had a list or something else of specialists because I feel like there is nothing and we have to just search it on our own." Parent of a child with a special health need FG.*

In addition to the previously mentioned main challenges, participants have shared several challenges to maintaining good oral health such as: patients' general health condition, neglecting self-care oral hygiene, language and cultural barriers, and previous negative experience with dental care and its association with pain.

- **Facilitators to Accessing Oral Health Care and Maintaining Good Oral Health Outcomes**

**Good oral hygiene**

Many participants shared the importance of regular oral hygiene habits, avoiding unhealthy food, and maintaining regular visits to the dentist as essential to maintaining good oral health.

**Parental Role**

Most parents believed that they play a great role in maintaining good oral health for their kids by acting as a role model, motivating them to practice good oral hygiene habits, and providing the needed supervision.

*"I found that showing my daughter a video about brushing her teeth and how one, the child in the video are brushing their teeth so she's excited to brush her teeth." Parent of a child with a special health need FG.*

**Availability of services and support system**

Participants shared that the availability of dental services, providers, and covered dental benefits are facilitating factors to maintain good oral health for them and for their children. Many participants acknowledged the existence of dental services offered by mobile dental clinics at schools, health fairs, and free dental services.

*"Sometimes the mobile bus comes to the school." Parent of children 0-20 years old FG*

*"It's good that we have Medi-Cal and that it covers costs." Parent of children 0-20 years old FG*

- **Suggestions to Improve the Oral Health Care System**

Few participants have suggested expanding on more payment programs and some others on the need to provide more scope of covered services especially that are offered by Medi-Cal Dental. Most participants have shared their great appreciation and gratitude to the services offered to the children by the Medi-Cal Dental and they expressed a high need to have a program that offers the same services to adults. Some participants also provided suggestions to have programs that offer services that are specially designed for children with special health needs.

*"The health plans really need to reorganize their priorities and make it more affordable for the people who are on their insurance." Adult 22-35 years old FG.*

*"I think, honestly,…any parent that has Medi-Cal, should be treated equal to their children when it comes to the health coverage because they are just as important as they are, and we're the ones that are…taking care of them. If you get a bad abscess in your mouth you are not getting up to take the kids to school, you go back to sleep. - I'm hurting too bad." Adult 36-64 years old FG.*

*"Maybe just make it like a day for special kids - bring them in and take them out - to help us to help other parents to know that this day is a good day just for our kids to come in and out. I think it'll be so much better for the kids." Parent of a child with a special need FG.*

- **General Perception about Oral Health**

Most participants were aware of the connection between general and oral health. Many of them shared that good oral health is very important for self-esteem and confidence. They also shared that oral health is connected to several diseases, nutrition and eating habits, and reflects their general health.

*"…your mouth is a reflection of the rest of your health. And so usually a lot of health problems that you have internally in your body will show up in your mouth before you know about it elsewhere." Adult 22-35 years old FG.*

*"I have an uncle who he got like a pretty bad tooth infection and he didn't take care of it right away, so it went to his brain because it's so closely connected. So, I would just say, like any part of your body, the way that you take care of your mouth will affect the rest of your body." Adult 22-35 years old FG.*

## Key Informants Interviews Emergent Themes:

The next section presents findings from key informant interviews analysis. The identified themes are ordered from greatest frequency of codes to least frequency of supporting codes. Appendix L (table 2-L) presents the list of main emergent themes and the frequency of mentioning the associated codes in each interview. The list of key informants, represented sector, and interview question guide can be found in Appendix D.

- **Challenges to Good Oral Health Outcomes in Fresno County**

**The high cost of dental services**

Some key informants expressed the same concern as focus group participants regarding the high cost of dental services. Some also shared that this can be due to the high overhead expenses that providers have, limited insurance coverage or due to patient's low income.

*"Health status is an economic... has an economic correlation, the less money you have, the less health you have in America." M.C., Key Informant.*

- **Covered benefits.** There were many concerns about the limited insurance coverage that needs to be expanded to fulfill the beneficiaries' dental needs. The limited coverage, either for the services or for the maximum yearly allowance, do not adequately meet the patients' dental needs.

*"…there's almost no limit to how much money that can be expanded for your medical coverage, but your dental coverage is strictly financially limited. Your active dental care is strictly limited." M.C., Key informant.*

*"Lot of what they cover are only the basic services." Y.M., Key Informant.*

- **Reimbursement and overhead expenses.** Some participants shared that the public dental insurance reimbursement rates are low compared to private insurance. Some also expressed that the overhead expenses for a dental office is a contributing factor to the high cost of dental services.

*"The reimbursement rate is a huge problem. Dentists are reimbursed…about 30% of what they would be paid by private insurance." T.H., Key Informant.*

*"…at a private practice… just to say, hello, and how are you today? You just spend $100? Yeah, and we literally haven't even touched you yet…that's what it costs to buy those services." M.C., Key Informant.*

**The link between general and dental health**

Many participants shared their belief that the disconnection between general and oral health on many levels affect the oral health outcomes. At the individual level, the lack of this connection may

negatively influence the person's behavior. Some participants also shared that health providers also need to establish this connection when dealing with their patients. At an organizational level, collaboration is still needed, as shared by many key informants, especially between schools, medical providers, and community-based organizations, with the dental providers.

*"…get more education out there to the families as well as the students on healthy eating habits and how that relates to dental health." J.B., Key Informant*

*"…getting physicians to look inside the mouth and realize that they need services early can be very helpful…creating a stronger message." M.C., Key Informants.*

*"I see the need to be more getting out and getting preventive services out into the community, into the schools…" M.C., Key Informant.*

**Access to dental services**

Many participants shared that they agree access to dental care in Fresno County is challenging particularly for residents who rely on Medi-Cal Dental insurance. This is partly attributed to the few numbers of dentists who are enrolled and accept publicly insured patients. Transportation also was an issue that hinders access to dental care for some residents in the county.

*"There's only a limited number of dentists that take it...how many patients they're able to see how many people can access these dentists." Y.M., Key Informant.*

*"They have to travel quite a distance to get to somewhere that provides some dental care, or they end up in the ER, which the ER ends up not being able to provide those services to you." J.B., Key Informant*

**Access to Oral Health Information**

Some participants shared that, for some residents, access to culturally and linguistically appropriate oral health information is challenging. Many key informants have shared the concern about general public oral health literacy as they see that the population in general does not have enough information and knowledge about the value of oral health and prevention of oral diseases.

*"Major cause of poor oral health, there were two of them…lack of information, lack of knowledge that oral health was anything important." T.H., Key Informant.*

*"There is no specific information or outreach been done to our indigenous communities, on the importance of oral health, a lot of information out there is focused on the Latino community, and not necessarily our community." Y.M., Key Informant.*

**Individual Responsibilities**

Many key informants viewed individual behavior and responsibilities that are related to oral health as a main factor in identifying oral health outcomes. Some of those individual responsibilities included: parental engagement, role modeling, self-care, and dietary choices. The fatalistic belief about primary teeth was also one of the barriers to maintaining good oral health and was mentioned by the second key informant below.

*"We send them home with a toothbrush and you know, nothing is done at home. If that doesn't change, the child will come back re-infected. I think it's really important patients and parents to be partners with providers." T.H., Key Informant.*

*"One's lack of self-care awareness…"those baby teeth are going to fall out, why should I take care of them? They are going to fall out anyhow…Everybody in my family loses their teeth at 20. So why should I do anything to make that any different? It's just going to happen natural." M.C., Key Informant.*

- **Facilitators to Accessing Oral Health Care and Maintaining Good Oral Health Outcomes**

**Organizational collaboration.** The collaboration that already exists between different sectors is considered as a facilitator for population access to oral health care. This collaboration acts as a support system for many residents as well as a facilitator for dental providers to offer their services.

*"Family Resource Centers, neighborhood resource centers… that have expertise and liaison in the centers who reach out to the neediest and the underserved in the community…they're terrific partners, with a mobile dental office… It takes somebody with a heart in the community." T.H., Key Informant.*

**Availability of services.** Dental care services are seen by many key informants as a main facilitator for patients to maintain good oral health.

*"We…take the doctor to the communities and children who need dental care, we've been doing that for 25 years." T.H., Key Informant*

*"Because we provide care to people as needed. When they show up and essentially ask for a walk in with a problem, will address your problem, we will not turn you away because you can't pay" M.C., Key Informant.*

**Oral health behavior and parental involvement.** Practicing good oral hygiene was seen by some key informants as an enabling factor to maintain good oral health. If parents provide a good example for their kids, this was seen by some participants as a protective factor as well.

- **Suggestions to Improve the Oral Health Care System**

**Improve access to dental services**

Increasing the points of access to care, such as at schools, was a suggestion by some participants. Many key informants expressed the need to focus more on providing preventive dental services and increase the provision of oral health education as essential measures to improve oral health. The collaboration between entities, organizations and sectors needs to be improved as suggested by some participants. More integration between the dental and medical systems is needed. Physicians can play an essential role in improving their patients' oral health by providing information and referrals.

*"Providing more access to those services in the high need areas. Or evaluating the access points that are there or the transportation needed to get to them." J.B., Key Informant*

*"More awareness on the part of physicians because people will take their child see the doctor. That's the time I can not only educate the child, but the parents… then things will get better for the child, the better informed the parent is the more likely the child is to benefit." M.C., Key Informant.*

**Workforce**

Increasing the number of dentists who serve the Medi-Cal population was also suggested by some key informants. In addition, diversity in workforce was seen as essential by some key informants to better serving all communities in Fresno County.

*"Having the adequate staff to cover the needs of all communities here in Fresno County." Y.M., Key Informant.*

*"Having more dentists that accept Denti-Cal." Y.M., Key Informant.*

## Key Stakeholders' Survey Emergent Themes:

**Challenges**. The main causes of poor oral health outcomes were linked by many participants to: lack of awareness about the importance and value of oral health, high cost of dental care, lack of education, poor personal oral hygiene practices, lack of coordination between medical and dental providers, and lack of access to dental services.

**Facilitators.** Many participants considered that access to dental services, case management, care coordination, and providing oral health education as enabling factors to good oral health.

**Suggestions.** Many participants suggested that the needed changes should include: strengthening partnerships between entities, providing more oral health education for the public, increasing the number of dentists who accept publicly insured patients, establishing trust between dental providers and patients, and focusing more on preventive dental treatment.

Appendix D includes the stakeholders' survey questions.

# Discussion

The aim of this assessment was to reach populations that are socially and economically disadvantaged, understand and identify the oral health needs of these populations, and identify priority areas expressed by Fresno County residents. We found that Fresno County has a lower percentage of residents that have a high school diploma or a bachelor's degree and a higher percentage of residents living in poverty, compared to the rest of the state. Among the 58 counties in California, Fresno County is ranked fourth highest in the percentage of residents enrolled in Medi-Cal with nearly 50% of the total population.

In terms of oral health, we found large inequities by neighborhood, racial/ethnic composition, and socioeconomic status. There are census tracts in the south and southwest of the City of Fresno limits where 38% of the older adult population (65+ years of age) have lost all their teeth. Conversely, in the City of Clovis some census tracts have less than 8% of the older adult population who have lost all their teeth. All the census tracts faring the best in the City of Fresno for older adults are in the north, northwest, and one census tract in the far east of the city limits.

Most alarmingly, we found that the rate in non-traumatic emergency department visits for patients using public insurance was 855 per 100,000 compared to only 114 per 100,000 for the privately insured population. The gross disparity in emergency department visits could reflect the lack of access to regular oral health services available in the County.

The primary data analysis revealed essential oral health needs that were also supported by secondary data findings. The focus group participants and key informants expressed disparities for accessing oral health care which include place/location, age and income-level. Participants expressed their concern about the high cost of dental care that many residents cannot afford. The Medi-Cal Dental children users show higher percentage of utilization to all covered dental services compared to adult users. This was supported by many of the focus group participants who shared the need to create programs that resemble what is offered for their children within Medi-Cal Dental.

Dental care during pregnancy is an excellent teachable moment for future mothers about their own oral health care and their children. In addition, it may be the only time that some women are eligible for dental benefits with Medi-Cal Dental. Yet many pregnant women do not receive dental care as part of their prenatal care. Among pregnant women in Fresno County, insurance-based disparity exists in accessing prenatal dental care. This is supported by primary data findings when many participants shared their concern about the shortage in dentists who accept publicly insured patients. Although this was referring to all Medi-Cal Dental patients, pregnant women who rely on public insurance belong to this category.

Besides accessing oral health care, patients' behavior is an important factor in determining oral health outcomes. In the county, 10% of adults are current smokers, and this percentage is higher among AN/AI and African American. Many studies have shown the adverse effect tobacco smoking has on oral health. Smoking cigarettes, pipe, and smokeless tobacco are associated with increased risk for premalignant and malignant lesions of the mouth, periodontal diseases, and tooth loss.[38] Consumption of sweetened beverages is another risk factor to developing tooth decay. Strong evidence has been established to prove the correlation between frequency and amount of sugars containing products and prevalence of tooth decay. A higher frequency in the consumption of sugary drinks is correlated with increased dental caries activity.[39] Income-based disparity exists in the county in sweetened beverages consumption behavior which may subject this population to a higher risk of developing oral diseases. Some focus group and key informant participants expressed the concern about individual behavior and dietary habits in partially determining oral health outcomes.

Table 3 shows the priorities identified from primary data and secondary data analyses. The priorities identified from primary data are ranked from highest to least according to the frequency and depth of supporting codes appearance and the existence of supporting other relevant data sources.

# Conclusion

The results of the Fresno County Oral Health Needs Assessment highlight the existence of disparities. Targeted efforts should be strategically exerted to close the gaps and to eliminate the identified oral health disparities in Fresno County. This assessment is meant to guide the Fresno County Department of Public Health and partners in developing a Local Oral Health Program and its action plan, and health improvement plan. Those plans will be developed based on the highest identified needs in this assessment and aligning with the goals and objectives of the State Oral Health Plan.

| Table 3. Identified Priorities of Need in Both Primary and Secondary Data | |
|---|---|
| **Priorities of need as identified in the primary data** | **Priorities of need as identified in the secondary data** |
| 10. Improve the quality of dental services offered by the Medi-Cal Dental program in terms of covered services and provider-patient communication.<br>11. Establish publicly funded programs for adults that are similar to the successful oral health programs provided to children.<br>12. Lower the high cost of dental services for patients and reduce the overhead expenses on providers.<br>13. Increase the availability of dental providers, more particularly specialized dentists for children with special health needs.<br>14. Increase awareness of available dental services as well as offering language appropriate information materials.<br>15. Increase collaboration between entities and organizations to facilitate access to oral health care for residents.<br>16. Increase integration between dental and medical systems and increase collaboration between dental and medical health professionals.<br>17. Improve patients' oral health behavior and the way they value oral health care.<br>18. Leverage existing successful programs for children by expanding, replicating, and sustaining effective efforts. | • Lack of current data that indicates the objective oral health status and the extent of oral diseases among residents that is reported by oral health professional.<br>• Existing place-based disparities at the census tract level in both adult oral health outcomes and utilization of dental services.<br>• Shortage of dental providers who serve the Medi-Cal Dental population.<br>• Lack of community water fluoridation in the whole county.<br>• The prevalence of diabetes is 10% in the county which puts those patients at a higher risk to develop oral diseases.<br>• Ten percent of Fresno County residents reported their smoking status as current smokers with existing racial disparity where AN/AI and AA show higher percentage.<br>• Income-based disparity exists in the percentage of adults consuming sweetened beverages, where consumption among low-income population is significantly higher than among high-income population.<br>• In 2006, 40% of Fresno County kindergarten and third grade students had untreated tooth decay.<br>• Insurance-based disparity exists in the percentage of pregnant women who access prenatal dental care, where only 27.8% of pregnant women who rely on Medi-Cal Dental accessed dental care during pregnancy compared to 52% who have private insurance.<br>• An age-based disparity exists in dental services utilization among the Medi-Cal Dental beneficiaries, where adults are utilizing dental services at a lower rate than children. |

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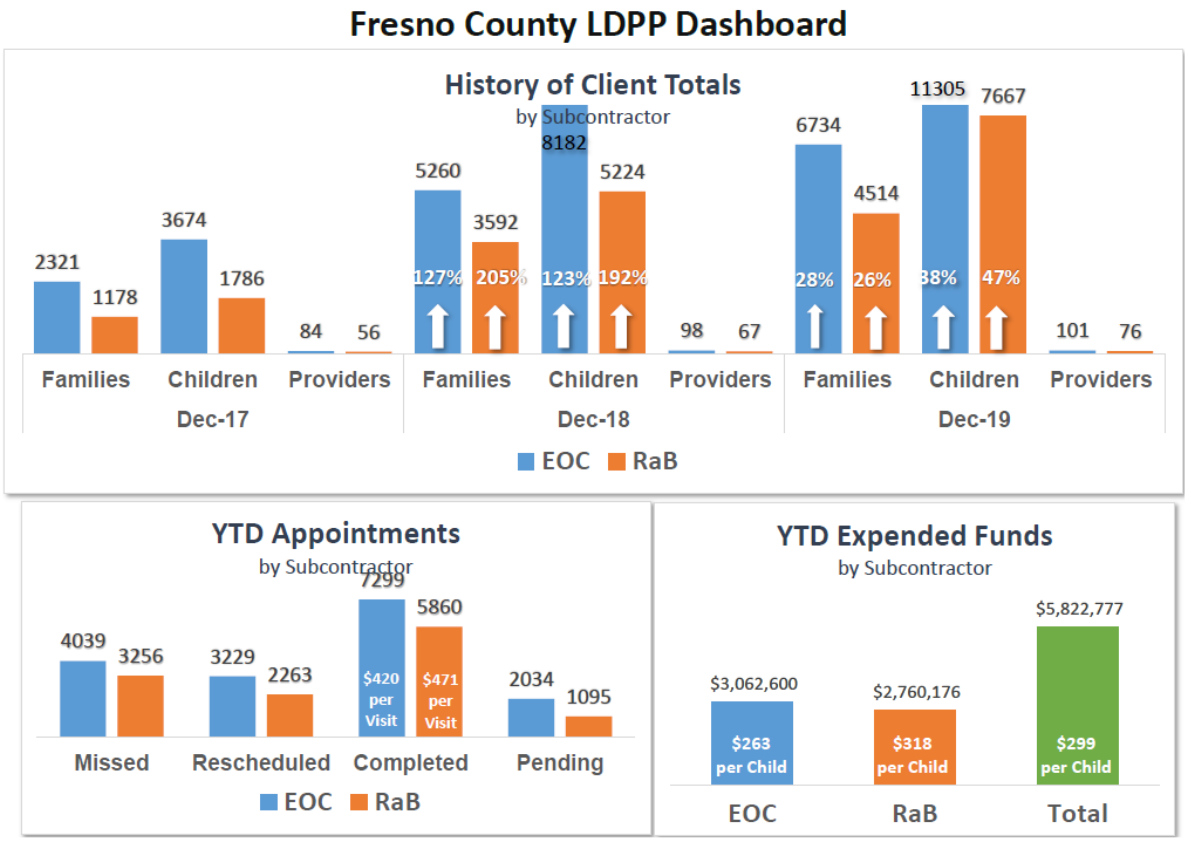
# Appendices

## Appendix A. Dental Transformation Initiative Impact in Fresno County



## Appendix B. List of Oral Health Advisory Committee Members, Oral Health Workgroup Members, and Local Oral Health Program Staff.

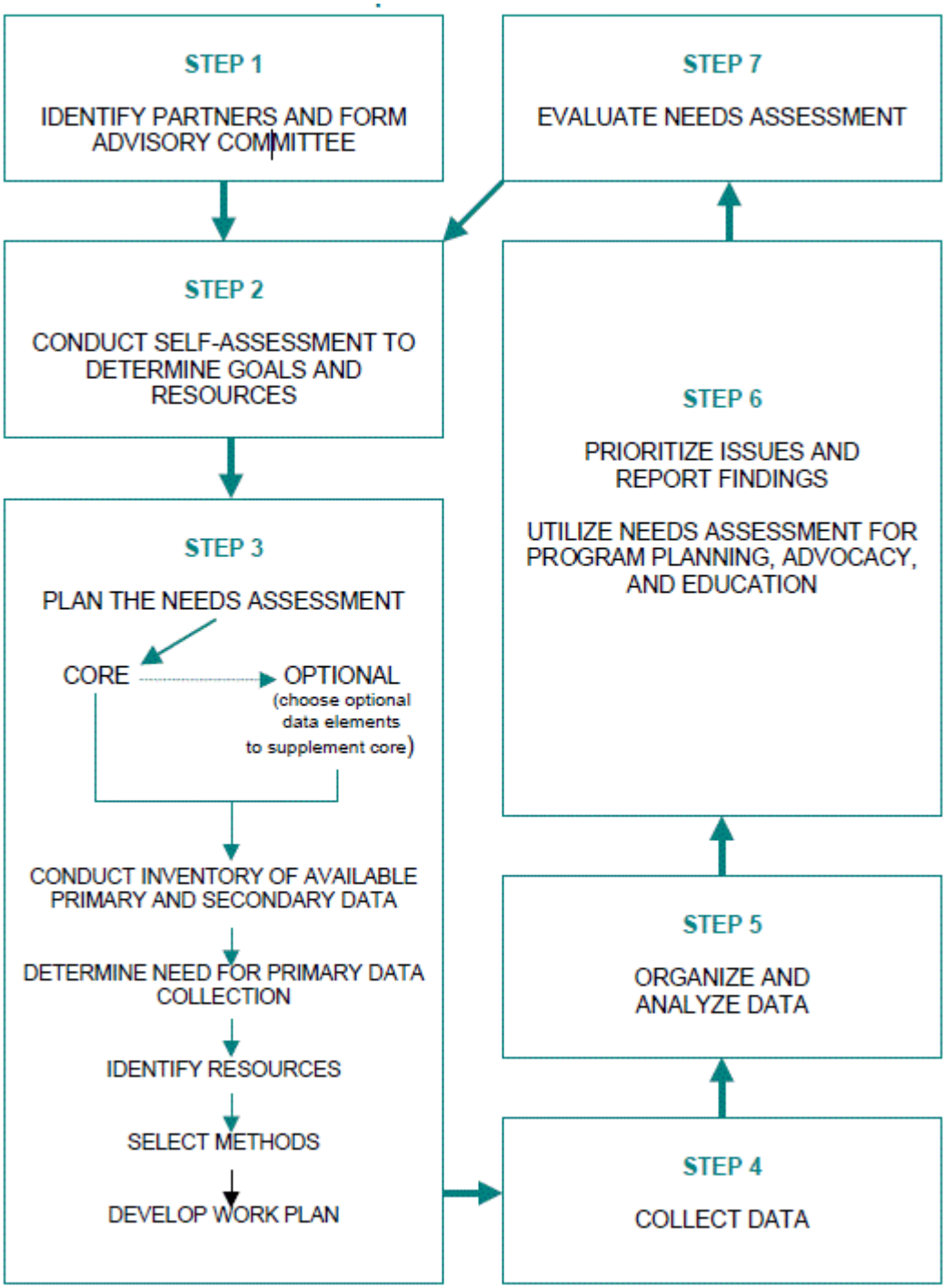
| Table 1-B. List of Oral Health Advisory Committee Members | |
|---|---|
| Name | Title |
| Alma McKenry | Director of Health Services, FCOE |
| Amrit Sidhu | Health Education Specialist, Madera County |
| Ana Cruz | Health Educator, Fresno County DPH |
| Ana Hernandez | Fresno EOC, Project Director |
| Andrea Fillebrown | Health Education Specialist, Madera County DPH |
| Annic Lopez | Health Education Specialist, Fresno County DPH |
| Arasely Rosas | Dental Project Coordinator, RaB |
| Brooke Frost | Director of Collaborative Action Network, C2C |
| Catherine Arguelles | Provider Relations Representative, Medi-Cal Dental |
| Danette Franz | Unit Manager, Tulare County Health & Human Services Agency |
| David Luchini | Assistant Director, Fresno County DPH |
| Dr. Mark Cave | Chief Dental Officer, Clinica Sierra Vista |
| Dr. Paul Cheney | Dentist |
| Dr. Paul Hsiao | Dentist |
| Elizabeth Navarro | Medi-Cal Dental Outreach Central Valley |
| Emanuel Alcala | Co-Assistant Director, Central Valley Health Policy Institute (CVHPI) |
| Erwin Garrido | Dental Project Coordinator, RaB |
| Gail Williams | Health Services Director, Fresno Unified |
| Hayam Megally | Research Analyst, CVHPI-CSU Fresno |
| Ivonne DerTorosian | Director, Community Benefit |
| Jack Lazzarini | Program Director, WIC |
| Jane Banks | Director of Health Services, FUSD |
| Jane Thomas | Health/Dental Director, EOC |
| Joanne Pacheco | Academic Chair, CCHC |
| Josephine Arguelles | Project Coordinator, EOC |
| Katie Kellett | Project Manager, FCHIP |
| Kristeena Bump | Program Tech, Fresno County DPH |

| Table 1-B. List of Oral Health Advisory Committee Members | |
|---|---|
| Name | Title |
| Laneesha Senegal | Community Advocate |
| Linda Gleason | Executive Director, C2C |
| Lisa Chaney | Health Service Coordinator, Fresno City College |
| Luis Santana | Executive Director, RaB |
| Mai Lia Yang | Provider Relations Representative, RaB |
| Maria Barragan | Health Education Coordinator, Madera County |
| Maria Torrez | VA Hospital |
| Marlene Bengiamin | Research Director, CVHPI-CSU Fresno |
| Melanie Ruvalcaba | OHPW Manager, Fresno County DPH |
| Oralia Maceda | Co-Executive Director, Centro Binacional Oaxaqueño |
| Renee Brown | RDHAP |
| Rhoda Gonzales | RDHAP, EOC |
| Sue Kincaid | Program Director, FCHIP |
| Todd Prater | Provider Relations Representative, EOC |
| Valerie Vasquez | Provider Relations Representative, EOC |

| Table 2-B List of Oral Health Workgroup Members and Organizations | |
|---|---|
| **Name** | **Organizations** |
| James Richardson | Reading and Beyond |
| Erwin Garrido | Reading and Beyond |
| Rhoda Gonzales | Fresno Economic Opportunities Commission |
| Josephine Arguelles | Fresno Economic Opportunities Commission |
| Ana Hernandez | Fresno Economic Opportunities Commission |
| Daniela Aghadjanian | Fresno Department of Public Health |
| Ana Cruz | Fresno Department of Public Health |
| Lee Her | Fresno Metro Ministries |
| Katie Kellett | Fresno Metro Ministries |
| Susan Kincaid | Fresno Community Health Improvement Partnership |
| Dr. Paul Hsiao | Local Dental Provider –President of Fresno Madera Dental Society |

| Table 3-B List of Fresno County Local Oral Health Program Staff and Consultants | |
|---|---|
| **Name** | **Title** |
| David Luchini | Assistant Director, Fresno County DPH |
| Melanie Ruvalcaba | OHPW Manager, DPH |
| Ana Cruz | Health Educator, DPH |
| Annic Lopez | Health Education Specialist, DPH |
| Dr. John Capitman | Executive Director, CVHPI |
| Dr. Marlene Bengiamin | Research Director, CVHPI |
| Emanuel Alcala | Co-Assistant Director, CVHPI |
| Hayam Megally | Research Analyst, CVHPI |
| Rachel Doherty | Research Analyst, CVHPI |
| Yesenia Silva | Research Assistant, CVHPI |
| Miguel Garcia Raya | Research Assistant, CVHPI |
| Shuwen Zhong | Intern, CVHPI |
| Lizbeth M. Gasga | Intern, CVHPI |
| Keith Bergthold | Executive Director, Fresno Metro Ministries |
| Katie Kellett | Fresno Metro Ministries |
| Lee Her | Fresno Metro Ministries |
| Christian Gonzalez | Fresno Metro Ministries |
| Susan Kincaid | Fresno Community Health Improvement Partnership (FCHIP) |

## Appendix C. The Association of State and Territorial Dental Directors: Assessing Oral Health Needs-Seven-Step Model



# Appendix D Summary of Focus Groups, List of Key informants and Question Guides.

| **Table 1-D. Summary of Focus Groups** | | |
|---|---|---|
| **Priority Population** | **Number of participants** | **Location** |
| Parents of Children with Special Health Needs | 18 | Exceptional Parents Unlimited |
| Parents of Children 0-20 years old | 11 | Susan B. Anthony School |
| Adults 20-34 years old | 6 | Fresno Metro Ministries |
| Adults 35-64 years old | 9 | Cedar Courts- Fresno Housing Authority |
| Older Adults >65 years old | 9 | West Fresno Family Resource Center |

| **Table 2-D List of Key Informants and Organizations** | |
|---|---|
| Dr. Paul Hsiao | President of Fresno Madera Dental Society |
| Dr. Mark Cave | Chief Dental Officer at Clinica Sierra Vista |
| Tai Hartman | Healthy Smiles Mobile Dental Clinic Foundation |
| Yenedit Avendano; Oralia Maceda | Centro Binacional |
| Jane Banks | Fresno Unified School District- Director of Health Services |

# Guide used for the three focus groups with adults ages 22-34, 35-64, and 65+ years old

1. Do you see any connection between your general health and the health of your mouth? Please describe this connection and how you think the health of your mouth/oral health can be related to your general health and wellbeing?
2. Please describe how it feels when a person experiences good oral health? (NOTE: If participants only refer to teeth, please mention other parts of the mouth as a question, i.e. what about the gums? The tongue?)
3. What do you do to promote good oral health?
4. What do you do to prevent oral health disease?
5. What are the challenges or barriers to promote good oral health?
6. What are the challenges or barriers to visiting a dentist regularly?
7. What barriers stop you and your community from having good oral health?
8. What resources are in your community to help you achieve good oral health?
9. How can our organizations, institutions, community, health providers, policy makers, and/or others address these barriers?
10. How do you think your physician can team up with your dentist to improve both your oral and general health and well-being?
11. What about health coverage, how do you see private insurance companies covering/meeting your dental needs? (for example, insurance covered by employers)
12. What about public insurance? How do you see the public insurance covering/meeting your dental needs? (for example, Medi-Cal)
13. Five years from now, what would you want the local news to say about the oral health of your community?

# Guide used for the two focus groups with parents of children with special needs and parents of children 0-20

1. How does the health of your child's mouth relate to their general health and wellbeing?
2. Please describe how your child might feel and act when he or she experiences good oral health? (NOTE: If participants only refer to teeth, please mention other parts of the mouth as a question, for example what about the gums? The tongue?)
3. What do you do to help promote your child's good oral health?
4. What do you do to prevent your child from experiencing oral health disease?
5. What are the challenges or barriers to promote good oral health for your child?
6. What are the challenges or barriers to your child visiting a dentist regularly?
7. What barriers prevent your child from achieving good oral health?
8. What resources in your community help your child enjoy good oral health?
9. How can organizations, institutions, community, health providers, policy makers, and/or others do to address these barriers?
10. What role do you think your child's school should take in improving your child's oral health?
11. How can your child's physician team up with their dentist to improve his and her oral and general health and well-being?
12. What about insurance coverage, how do you see private insurances covering/meeting your child's dental needs? (For example, insurance covered by employers)
13. What about public insurance? How do you see the public insurance covering/meeting your child's dental needs? (For example, Medi-Cal)
14. Five years from now, what would you want the local news to say about the oral health of children in your community?

# Key Informant Interview Guide

1. As a (*state the interviewee job*), what does your organization do well to manage, prevent and promote good oral health?

2. How do the healthcare system and other sectors collaborate with you and your organization to promote oral health in the community?

3. In your opinion, what are the major causes of poor oral health that need to be addressed?

4. In your opinion, what are the changes that need to be made within the healthcare system and other sectors to promote oral health for those in most need?

5. If an oral health program is to be implemented in Fresno County, what do you suggest being the vision, mission, and values of this program?

6. If an oral health program is to be implemented in Fresno County, how do you see yourself and or your organization be part of this program?

7. Is there anything else you would like to add?

## Stakeholders Survey Question Guide

1. What does your organization (please name your organization) do well to manage, prevent and promote good oral health?

2. How do the health care system and other sectors collaborate with you and your organization to promote oral health?

3. In your opinion, what are the major causes of poor oral health that need to be addressed?

4. In your opinion, what are the changes that need to be made within the health care system and other sectors to promote oral health for those in most need?

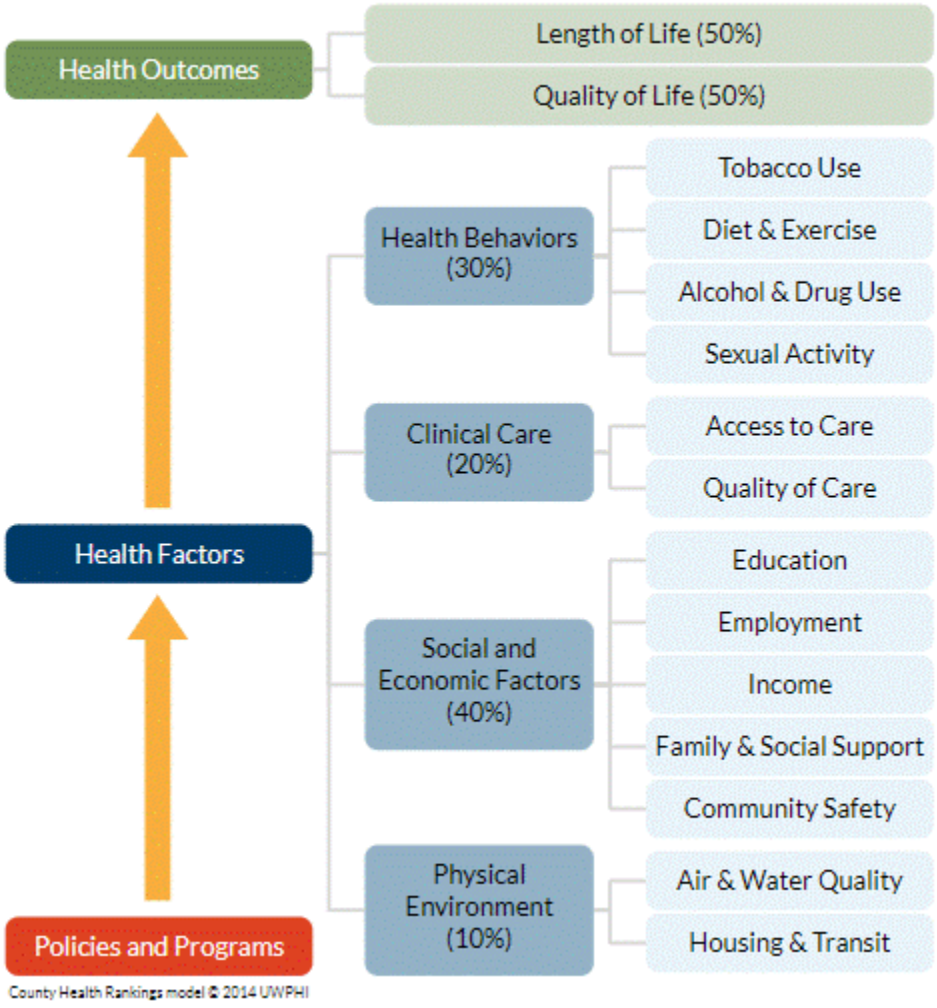
5. If an oral health program is to be implemented in Fresno County, what do you think can be the vision of this program?

6. If an oral health program is to be implemented in Fresno County, what do you think can be the mission of this program?

7. If an oral health program is to be implemented in Fresno County, what do you think can be the values of this program?

8. If an oral health program is to be implemented in Fresno County, how do you see yourself and or your organization be part of this program?

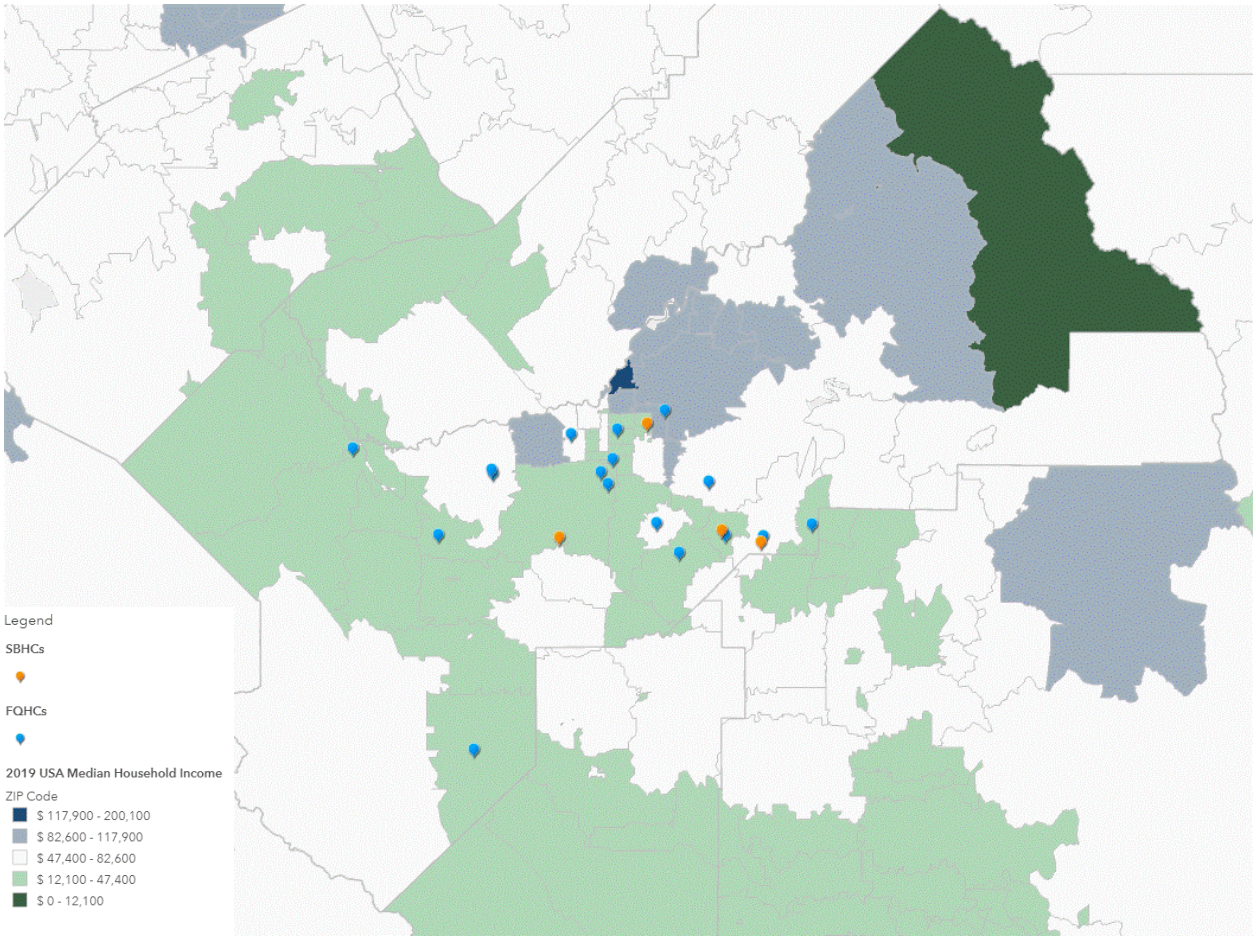
## Appendix E. Robert Wood Johnson County Health Ranking Measures



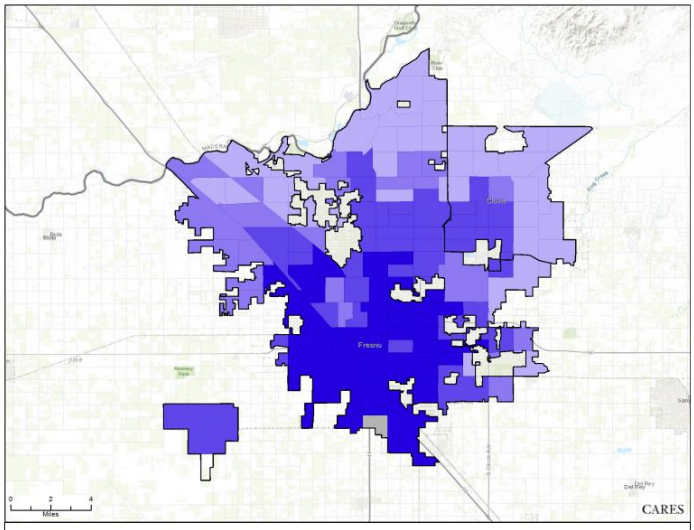
## Appendix F includes a list of all SBHCs in the county.

| SBHC | School | County | City | Phone | Dental Prevention | Dental Treatment |
|---|---|---|---|---|---|---|
| Kerman Unified School Health Center | Kerman-Floyd Elementary School | Fresno | Kerman | | | |
| Fresno Rutherford B. Gaston School Health Center | Rutherford B. Gaston | Fresno | Fresno | | | |
| Sierra Vista Children's Health Center | Sierra Vista Elementary School | Fresno | Clovis | (559) 327-7976 | ✓ | |
| Jefferson Elementary School Health Center | Jefferson Elementary School | Fresno | Reedley | (559) 305-7358 | ✓ | |
| Raisin City Elementary School Based Health Center | Raisin City Elementary School | Fresno | Raisin City | | ✓ | |
| Fresno County Office of Education Health Van | Mobile Van | Fresno | Fresno | (559) 647-5553 | ✓ | |
| Fresno Unified Student Health Services Center | School-linked | Fresno | Fresno | (559) 248-7382 | | |
| Fresno Unified Mobile Van | Mobile Van | Fresno | Fresno | (559) 248-7382 | | |
| Parlier High School Based Health Center | Parlier High School | Fresno | Parlier | | ✓ | ✓ |
| Pinedale Children's Clinic | Pinedale Elementary School | Fresno | Fresno | (559) 327-7793 | | |
| Sequoia Middle School Migrant Clinic | Sequoia Middle School | Fresno | Fresno | (559) 457-3210 | | |
| Fresno Barrios Unidos SBHC | Roosevelt High School | Fresno | Fresno | (559) 453-9662 | | |
| Health Smiles Mobile Dental Foundation | Mobile Van | Fresno | Fresno | (559) 229-6437 | ✓ | ✓ |

# Appendix G. Map Showing the Distribution of the Federally Qualified Health Centers in Fresno County.



# Appendix H. Two Maps that Contrast the Access to Dental Care and the Oral Health Outcomes in the Cities of Fresno and Clovis.

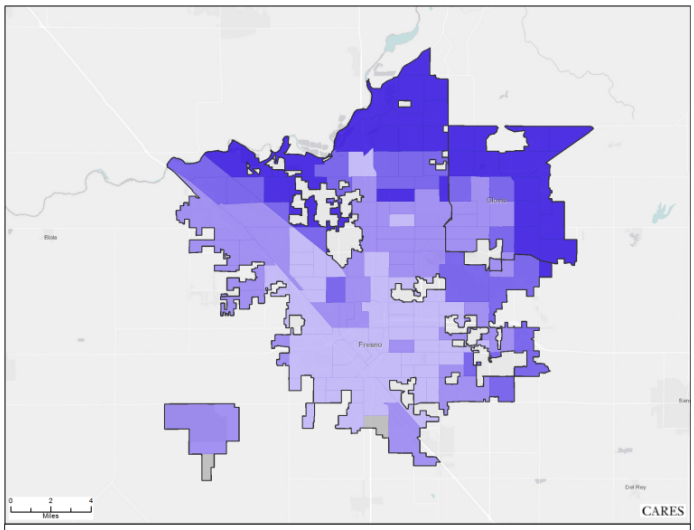



Map Legend

Teeth Loss (All), Prevalence Among Adults Age 65+ by Tract, BRFSS 500 Cities Project 2016

- Over 23.0%
- 15.1% - 23.0%
- 10.1% - 15.0%
- Under 10.1%
- No Data or Data Suppressed

*https://engagementnetwork.org/map-room/, 2/6/2020*



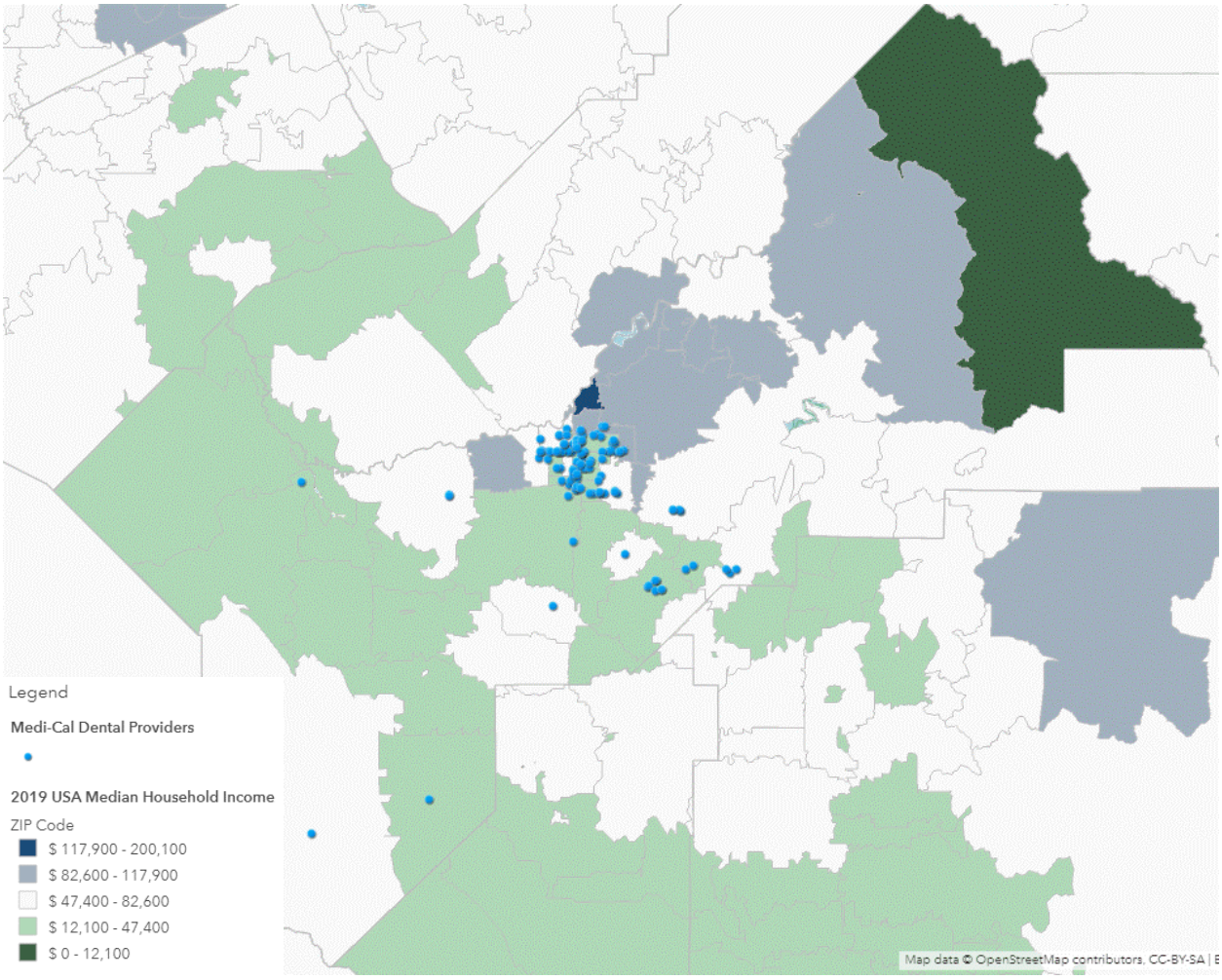

Map Legend

Dental Care Visit, Percent of Adults Seen in Past 1 Year by Tract, BRFSS 500 Cities Project 2016

- Over 72.0%
- 62.1% - 72.0%
- 50.1% - 62.0%
- Under 50.1%
- No Data or Data Suppressed

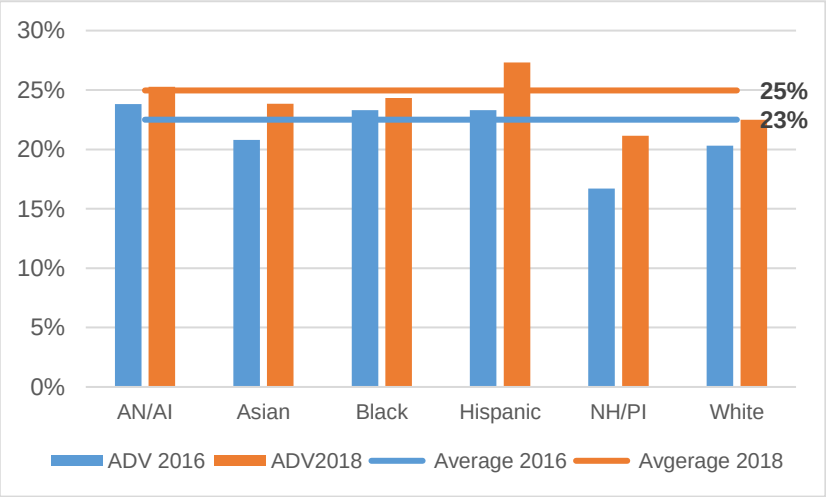
*https://engagementnetwork.org/map-room/, 2/6/2020*

# Appendix I. Map Showing the Locations of Enrolled Medi-Cal Dental Providers in Fresno County.



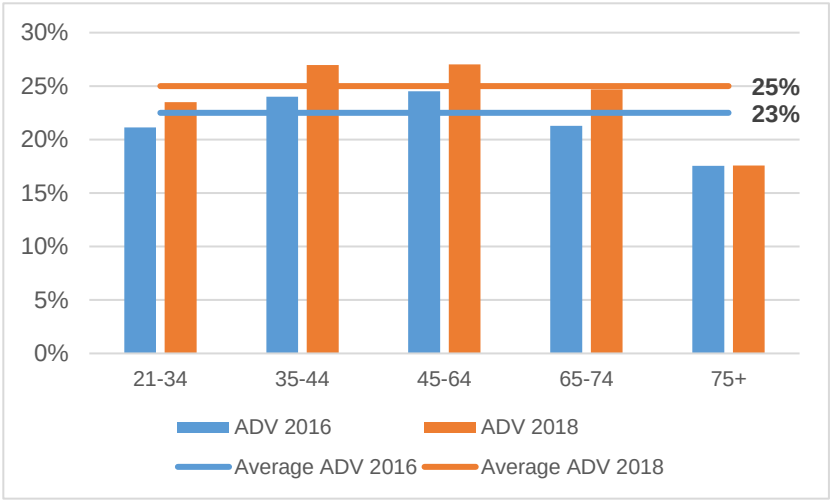
## Appendix J. Dental Care Utilization among Medi-Cal Dental Adult Beneficiaries

**Figure 1-J. Percentage of Adults (21+ Years) in Fresno County who had an Annual Dental Visit by Race/Ethnicity in 2016 and 2018.**



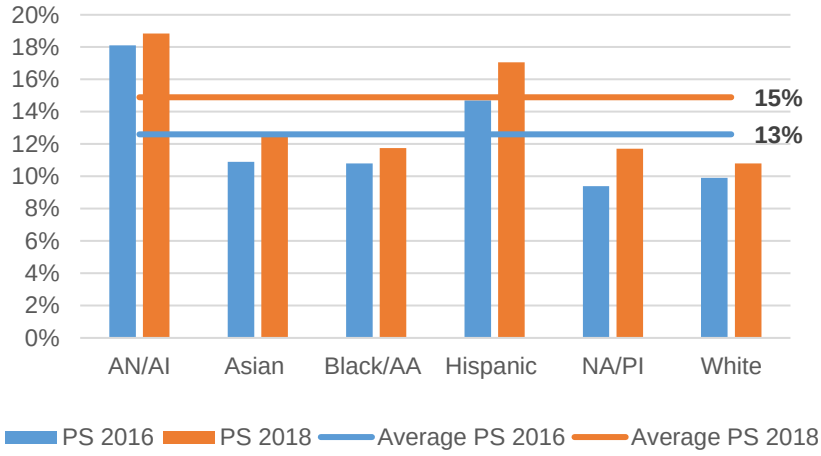

*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 2-J. Percentage of Adults (21+ Years) in Fresno County who had an Annual Dental Visit by Age Group in 2016 and 2018.**



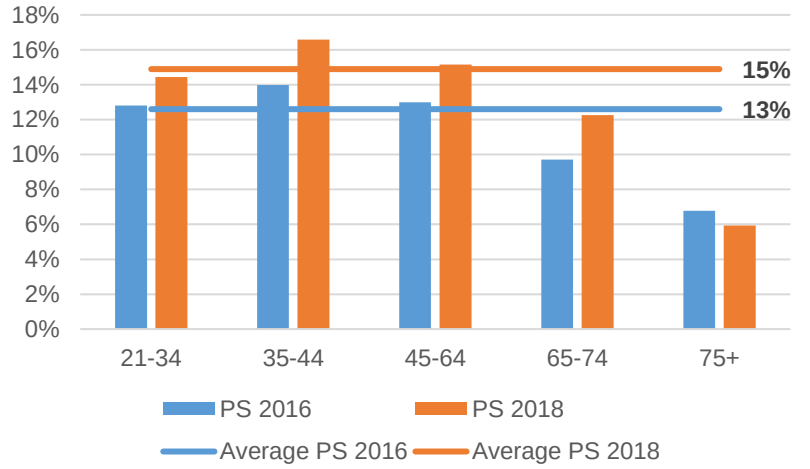

*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 3-J. Percentage of Adults (21+ years) in Fresno County who Received Preventive Services by Race/Ethnicity in 2016 and 2018.**



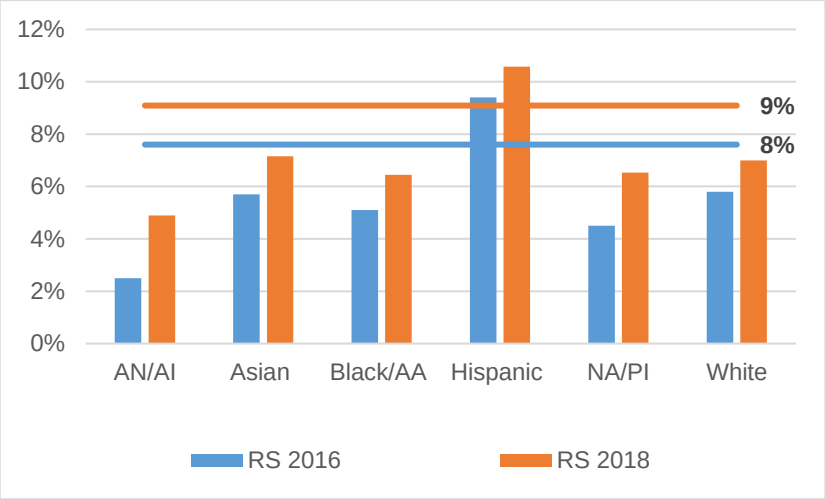

*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 4-J. Percentage of Adults (21+ years) in Fresno County who Received Preventive Services by Age Group in 2016 and 2018.**



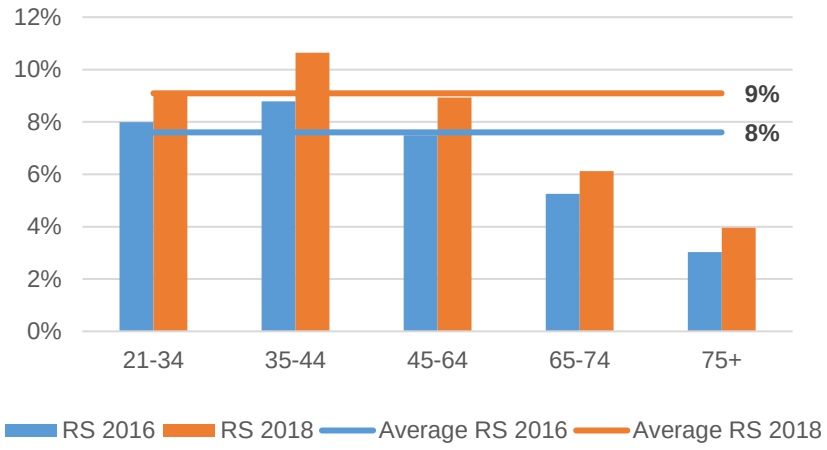

*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 5-J. Percentage of Adults (21+ years) in Fresno County who Received Restorative Services by Race/Ethnicity in 2016 and 2018.**




*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

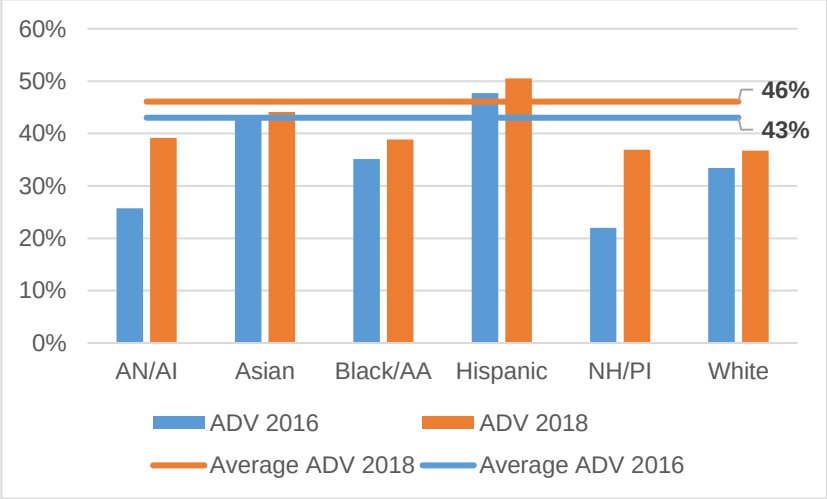
**Figure 6-J. Percentage of Adults (21+ years) in Fresno County who Received Restorative Services by Age Group in 2016 and 2018.**




*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

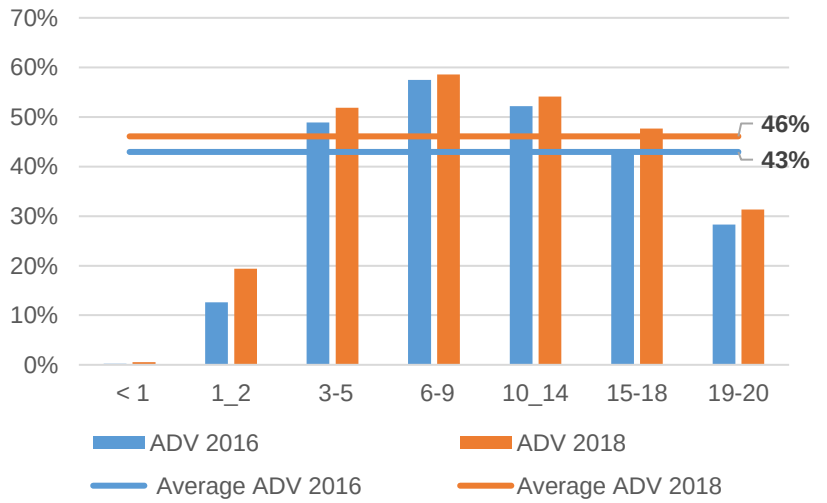
# Appendix K. Dental Care Utilization among Medi-Cal Dental Children Beneficiaries

**Figure 1-K. Percentage of Children (0-20 Years) in Fresno County who had an Annual Dental Visit by Race/Ethnicity in 2016 and 2018.**



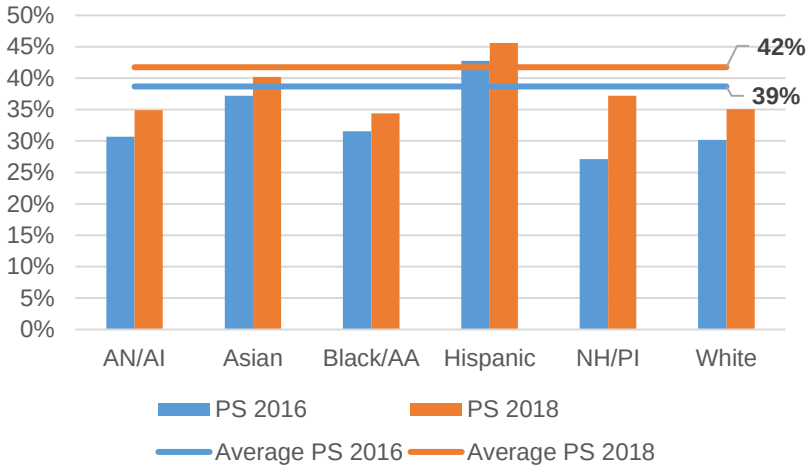

*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 2-K. Percentage of Children (0-20 Years) in Fresno County who had an Annual Dental Visit Age Group in 2016 and 2018.**



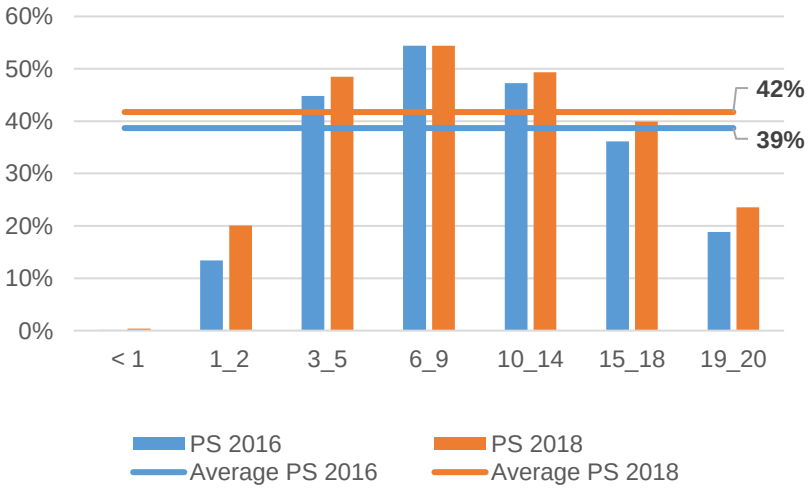

*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 3-K. Percentage of Children (0-20 Years) in Fresno County who Received Preventive Services by Race/Ethnicity in 2016 and 2018.**



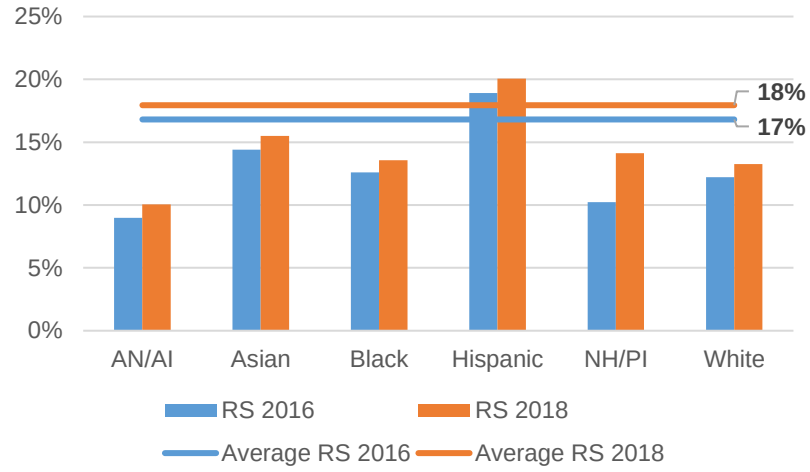

*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 4-K. Percentage of Children (0-20 Years) in Fresno County who Received Preventive Services by Age Group in 2016 and 2018.**



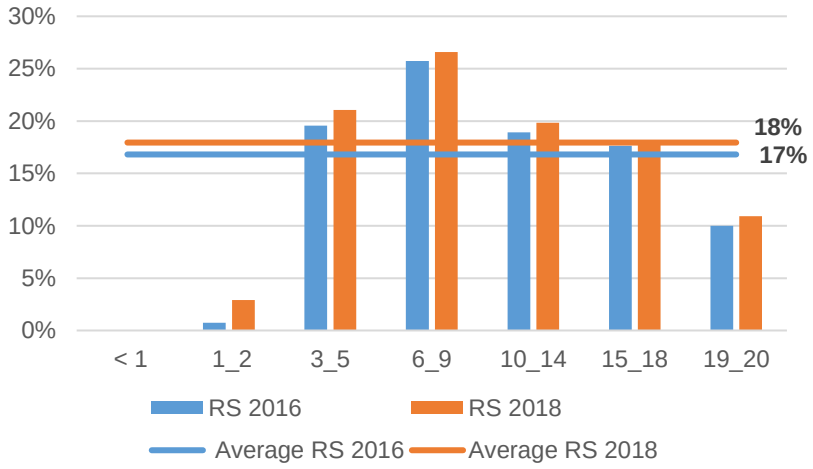

*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 5-K. Percentage of Children (0-20 Years) in Fresno County who Received Restorative Services by Race/Ethnicity in 2016 and 2018.**




*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

**Figure 6-K. Percentage of Children (0-20 Years) in Fresno County who Received Restorative Services by Age Group in 2016 and 2018.**




*Data Source: CALIFORNIA HEALTH AND HUMAN SERVICES OPEN DATA PORTAL*

# Appendix L. Main Emergent Themes and Supporting Codes with their Frequencies in Focus Groups and Key Informant Interviews

| **Table 1-L List of Main Emergent Themes and the Frequency of Mentioning the Associated Codes in Each Focus Group.[2]** | | | | | | |
|---|---|---|---|---|---|---|
| **Code** | **Frequency of code in each focus group** | | | | | **Total frequency of code** |
| | **Adults 36-64** | **Older Adults 65+** | **Parents of children <21** | **Parents of Children WSN** | **Adults 22-35** | |
| **Challenges to accessing oral health care** | | | | | | |
| Language and cultural barrier | 0 | 0 | 5 | 0 | 1 | 6 |
| Negative personal behavior | 3 | 2 | 6 | 0 | 3 | 14 |
| Negative previous experience (self or others) | 0 | 0 | 4 | 2 | 4 | 10 |
| Patient health condition | 0 | 1 | 0 | 13 | 0 | 14 |
| Access to quality and timely services | 17 | 1 | 3 | 3 | 9 | 33 |
| Cost | 13 | 9 | 7 | 1 | 5 | 35 |
| Dental Provide-patient Communication | 7 | 0 | 2 | 3 | 0 | 12 |
| Lack of trust in dental providers | 2 | 1 | 0 | 3 | 0 | 6 |
| Shortage in dental providers | 5 | 2 | 4 | 2 | 1 | 14 |
| Shortage in Specialized dentist | 0 | 0 | 3 | 19 | 0 | 22 |
| Discrimination | 1 | 0 | 0 | 0 | 0 | 1 |
| Place based discrimination | 1 | 0 | 0 | 0 | 0 | 1 |
| Related to insurance type discrimination | 3 | 0 | 0 | 0 | 0 | 3 |
| Stigma related to patient condition | 0 | 0 | 0 | 4 | 0 | 4 |
| Easier access to unhealthy food | 0 | 1 | 2 | 0 | 4 | 7 |
| Insurance | 0 | 5 | 2 | 0 | 13 | 20 |
| Lack of access to information | 2 | 1 | 1 | 2 | 6 | 12 |
| Lack of support system | 0 | 0 | 0 | 0 | 1 | 1 |

[2] The code frequencies are color coded. The darker the color the higher frequency of mentioning the code.

| Code | Frequency of code in each focus group | | | | | Total frequency of code |
|---|---|---|---|---|---|---|
| | Adults 36-64 | Older Adults 65+ | Parents of children <21 | Parents of Children WSN | Adults 22-35 | |
| **Facilitators to accessing oral health care and maintaining good oral health outcomes** | | | | | | |
| Transportation | 0 | 0 | 0 | 0 | 1 | 1 |
| Being informed | 1 | 0 | 0 | 1 | 1 | 3 |
| Being insured | 0 | 0 | 0 | 0 | 4 | 4 |
| Good oral hygiene | 12 | 5 | 1 | 2 | 17 | 37 |
| Parents who act as a role model | 0 | 0 | 2 | 1 | 0 | 3 |
| Motivation | 0 | 0 | 6 | 3 | 0 | 9 |
| Parental supervision | 0 | 0 | 13 | 4 | 2 | 19 |
| Positive previous experience (self or others) | 0 | 0 | 2 | 0 | 0 | 2 |
| Access to healthy food | 0 | 3 | 0 | 0 | 0 | 3 |
| Accessible services | 2 | 1 | 7 | 4 | 4 | 18 |
| Availability of information | 1 | 4 | 1 | 1 | 2 | 9 |
| Medical dental integration | 1 | 0 | 0 | 0 | 0 | 1 |
| Proper funding allocation | 0 | 0 | 0 | 0 | 0 | 0 |
| Provider availability | 2 | 1 | 2 | 2 | 0 | 7 |
| Support system | 0 | 2 | 6 | 3 | 2 | 13 |
| **General perception of oral health** | | | | | | |
| Oral health is connected to general health | 0 | 2 | 6 | 2 | 3 | 13 |
| Potential source of bacterial infection | 1 | 0 | 1 | 1 | 2 | 5 |
| Self-esteem | 3 | 1 | 4 | 2 | 4 | 14 |
| **Suggestions for systematic improvement** | | | | | | |
| Accessible information | 1 | 0 | 7 | 4 | 2 | 14 |
| Better dental coverage | 8 | 3 | 2 | 1 | 1 | 15 |
| Improve access to healthy food | 0 | 0 | 0 | 0 | 1 | 1 |
| Improve provider-patient communication | 0 | 0 | 2 | 0 | 0 | 2 |
| Involve schools | 0 | 0 | 6 | 2 | 0 | 8 |

| Code | Frequency of code in each focus group | | | | | Total frequency of code |
|---|---|---|---|---|---|---|
| | Adults 36-64 | Older Adults 65+ | Parents of children <21 | Parents of Children WSN | Adults 22-35 | |
| Lower the cost of dental care | 0 | 2 | 0 | 1 | 1 | 4 |
| More funding | 0 | 0 | 1 | 1 | 0 | 2 |
| Need for medical dental integration | 2 | 1 | 2 | 1 | 9 | 15 |
| Need for more providers | 0 | 2 | 4 | 2 | 3 | 11 |
| Need for support system | 4 | 3 | 1 | 0 | 0 | 8 |
| Special programs for children with special health needs | 0 | 0 | 0 | 8 | 0 | 8 |
| Supportive policy changes | 1 | 1 | 2 | 0 | 7 | 11 |

| **Table 2-L Presents the List of Main Emergent Themes and the Frequency of Mentioning the Associated Codes in Each Interview.[3]** | | | | | | |
|---|---|---|---|---|---|---|
| **Code** | **Frequency of codes in each interview** | | | | | **Total frequency of code** |
| | Yenedit Mendez and Oralia Maceda | Tai Hartman | Dr. Paul Hsiao | Jane Banks | Dr. Mark Cave | Total |
| **Challenges** | | | | | | |
| Lack of role modeling | 0 | 0 | 0 | 0 | 1 | 1 |
| Literacy | 0 | 1 | 1 | 0 | 2 | 4 |
| Self-care | 0 | 0 | 0 | 0 | 5 | 5 |
| Sense of self worth | 0 | 0 | 0 | 0 | 1 | 1 |
| Competing sectors and entities | 0 | 1 | 0 | 0 | 0 | 1 |
| Cost | 1 | 0 | 1 | 1 | 3 | 6 |
| Limited coverage | 1 | 0 | 1 | 0 | 2 | 4 |
| Reimbursement rate | 0 | 1 | 0 | 0 | 0 | 1 |
| General and oral health disconnection | 0 | 0 | 0 | 2 | 2 | 4 |
| Lack of appropriate linguistic, racial, and cultural services and outreach | 2 | 0 | 0 | 1 | 0 | 3 |
| Provider | 2 | 1 | 0 | 1 | 0 | 4 |
| Business model | 1 | 0 | 0 | 0 | 0 | 1 |
| **Facilitators** | | | | | | |
| Individual Facilitator | 0 | 0 | 0 | 0 | 2 | 2 |
| System Facilitators | 0 | 0 | 0 | 0 | 7 | 7 |
| Existing collaboration with other sectors | 0 | 4 | 0 | 3 | 3 | 10 |

[3] The code frequencies are color coded. The darker the color the higher frequency of mentioning the code.

| Code | Frequency of codes in each interview | | | | | Total frequency of code |
|---|---|---|---|---|---|---|
| | Yenedit Mendez and Oralia Maceda | Tai Hartman | Dr. Paul Hsiao | Jane Banks | Dr. Mark Cave | |
| Actual organization role | 2 | 3 | 0 | 1 | 5 | 11 |
| Future organization role | 1 | 0 | 0 | 1 | 0 | 2 |
| **Suggestions** | | | | | | |
| Denti-Cal system | 3 | 0 | 0 | 0 | 0 | 3 |
| Improve access to services | 0 | 0 | 0 | 5 | 5 | 10 |
| Integration of oral and general health | 0 | 2 | 1 | 3 | 6 | 12 |
| Patient behavioral change | 0 | 1 | 0 | 0 | 3 | 4 |
| Workforce diversity | 1 | 0 | 0 | 0 | 0 | 1 |