Marin County

Oral Health Needs Assessment

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MARIN HEALTH & HUMAN SERVICES
Health, Well-being & Safety

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Executive Summary

In 2018, for the eighth time, The Robert Woods Johnson Foundation ranked Marin County as the healthiest county in California. Despite this designation, health inequity remains a problem. For example, African American and Latino children are much more likely than other children in the county to experience poverty and to lack access to oral health prevention and treatment. This report about the Marin County oral health system identifies both health disparities as well as the strengths of the system.

In 2018, the California Department of Public Health (CDPH) released a report and Strategic Plan focused on oral health statewide. Following the statewide oral health assessment and report, the CDPH, through the Oral Health Program, granted local jurisdictions proportionate funding to conduct a strategic planning process to improve their oral health systems, programs, and outcomes. The goals of the California Oral Health Program are as follows:

1. Improve the oral health of Californians by addressing the determinants of health and promote healthy habits and population-based prevention interventions to attain a healthier status in communities.
2. Align dental health care delivery systems, payment systems, and community programs to support and sustain community-clinical linkages for increasing utilization of dental services.
3. Collaborate with payers, public health programs, health care systems, foundations, professional organizations, and educational institutions to expand infrastructure, capacity, and payment systems for supporting prevention and early treatment services.
4. Develop and implement communication strategies to inform and educate the public, dental teams, and decision makers about oral health information, programs, and policies.
5. Develop and implement a surveillance system to measure key indicators of oral health and identify key performance measures for tracking progress.

Therefore, the Marin County Health and Human Services conducted this Oral Health Needs Assessment to inform development of the county's Local Oral Health Plan for 2018-2022.This Oral Health Needs Assessment has been designed to elucidate the strengths and weaknesses of Marin's oral health system by collecting and analyzing data in key areas identified by the State of California, oral health research, and best practices. We reviewed secondary data from reliable sources and followed up by gathering primary data through community convenings, online surveys, focus groups, and key informant interviews. Both primary and secondary data were used to develop the local oral health plan which will guide programming such as education, prevention, and treatment, and policy formation responding to the needs of Marin County residents.

The following assessment report highlights our key findings from the Marin County Oral Health Needs Assessment. These findings reflect the demographics of Marin County which on average has a high socio-demographic and health outcomes profile, but the county has disparate oral health utilization and outcomes by income, age, geographic and racial sub-groups. The inequities in access to oral health services and disparities in outcomes are stark especially among the most vulnerable populations in the county. Closing these gaps will require attention to data, use of evidence-based solutions, and creativity in service delivery. Highlights of the county's assets and challenges include the following:

Key Findings

Oral Health Conditions

- Among the 65% of kindergarteners screened through the Kindergarten Oral Health Assessment, 7% were diagnosed with untreated tooth decay – an improvement from four years ago when the rate of untreated decay was 10%. However, this countywide good news masks localized disparities with some low-income schools where rates were as high as 21%.
- 48% of adults surveyed in Marin County reported having their permanent teeth removed due to tooth decay or gum disease, slightly lower than the state average of 50%.

Protective Factors and Risk Factors

- Schools in San Rafael's Canal District and West Marin have the highest rates of children eligible for the Free Reduced Priced Meals program.
- Approximately 73% of Marin County's population has access to fluoridated water. Although the importance of fluoridated water is well established, there is some opposition to fluoridation within the county.
- Smoking.

Access to Care

- 46% of adults surveyed reported not having dental insurance.
- When asked about barriers in access to care, 44% of adults surveyed reported "lack of money or high cost" as the primary reason for not visiting the dentist.

Utilization of Care

- 55% of expecting mothers living between 100-200% of the Federal Poverty Level reported visiting the dentist within the past year.
- Adults between 18 and 44 years have the highest rate of preventable emergency dental visits.
- Older Medi-Cal beneficiaries aged 65 and up have the highest annual dental visit rate at 25%, exceeding the state average of 21%.
- Among Marin children aged 0-20, the rate of preventive dental visits at 57% exceeds the state average (41%) and target (48%). However, at 6%, the rate of sealants among children aged 6-14 is far below the state average (13%).

Community Perspectives

- Focus groups for older adults reported significant barriers to accessing care such as: lack of insurance coverage, long wait times, and the inability to afford treatment on a fixed income.
- The majority of participants from all four focus groups including low-income older adults, Spanish speaking parents of young children, Spanish speaking low income adults, and low-income adults displayed sufficient knowledge of best oral health practices.
- Key informants noted improvements in oral health service access in rural West Marin through the expansion of Federally Qualified Health Center services. However, due to barriers like geography, transportation, and availability there are still gaps in access to care.

Opportunity: Build on Current Oral Health Efforts

Based on these findings, the strategic plan should consider the following approaches.

- Increase school-based oral health referrals
- Expand on successful prenatal oral health programs
- Develop a communication plan with consistent messaging through community-wide outreach, website, and social media campaigning
- Continue with medical and dental oral health integration efforts
- Expand access to specialist care for low-income communities
- Build or strengthen programs that tackle oral health disparities
- Continue to strengthen the Oral Health Advisory Committee and its role in improving access to oral health care

I. Introduction

About Marin County Health and Human Services

In 2018, for the eighth time, The Robert Woods Johnson Foundation ranked Marin County as the healthiest county in California. Despite this designation, health inequity remains a problem. For example, African American and Latino children are much more likely than other children in the county to experience poverty and to lack access to oral health prevention and treatment. This report about the Marin County oral health system identifies both health disparities as well as the strengths of the system.

Marin County Health and Human Services ("HHS") works to mitigate barriers that are preventing families from attaining optimal health. The Department's mission is to "promote and protect the health, well-being, self-sufficiency, and safety of all people in Marin."[1] In 2014, the HHS conducted a community health needs assessment that highlighted the need to develop a comprehensive oral health program. In response to the CDPH and the implementation of Proposition 56 earlier this year, HHS elected to conduct a follow up needs assessment focusing on oral health and by developing a Local Oral Health Plan aimed at improving oral health and alleviating the oral health disparities within the county.

About the California Local Oral Health Plan Grant

Building on the statewide oral health report, the CDPH offered grant funding to all 58 counties to conduct a strategic planning process designed to improve their oral health services and outcomes. A summary of the objectives of the California Oral Health Plan are as follows;

- Improve the oral health of Californians by addressing the determinants of health and promoting healthy habits by:
    - Reducing the proportion of children and adults experiencing caries and permanent tooth loss.
    - Increasing the percentage of patients receiving tobacco cessation counseling and other cessation aids; as well as increasing the proportion of the California population served by community water systems that have fluoridated water.
- Align dental health care delivery systems, payment systems, and community programs to support and sustain community linkages for increasing utilization of dental services by:
    - Increasing the proportion of children ages 1-20 who receive a preventive dental service
    - Increasing the percentage of children ages 6-9 years who have received dental sealants on one or more of their permanent first molar teeth
    - Increasing the rate of dental visits among pregnant women, and decreasing the rate of preventable dental visits in the emergency room
    - Improving the oral health status of institutionalized adults and increasing the options for nursing home and other institutionalized adults to receive dental services

[1] 2018. About Marin HHS. County of Marin Department of Health and Human Services. Retrieved from https://www.marinhhs.org/. Accessed November 15, 2018

- Collaborate with payers, public health programs, health care systems, foundations, professional organizations, and educational institutions to expand infrastructure, capacity and payment systems in order to support prevention and early treatment services.
    - Reduce the number of children whose dental disease severity necessitates dental treatment under general anesthesia
    - Increase the number of dentists and Promotora/community health workers/home visitation/CHDP programs that work and operate in dental professional shortage areas.
    - Increase the percentage of payers that implement payment policies that reward positive health outcomes
- Develop and implement communication strategies to inform and educate the public, dental teams, and decision makers about oral health information, programs, and policies
    - Increase the coordination, consistency, and reach of a communication plan for the California Oral Health Plan and related reports.
    - Increase the proportion of patients who report that their dental care teams give them easy-to-understand instructions detailing what to do to take care of their oral health and prevent/treat oral diseases.
- Develop and implement a surveillance system to measure key indicators of oral health and identify key performance measures for tracking progress.
    - Develop a five-year surveillance plan consistent with the Council of State and Territorial Epidemiologists definition of a State Oral Health Surveillance System to provide current data on diseases/conditions, risk/protectives factors, and use of dental services.
    - Gather, analyze, and use data to guide Oral Health Needs Assessment, policy development, and assurance functions.

The Importance of Oral Health

Despite being one of the key indicators of physical health, practitioners, insurers and consumers often treat oral health as distinct from other aspects of physical health. Described as a "silent epidemic" by the Little Hoover Commission, the impact of untreated oral health conditions has taken its toll on the state's most vulnerable populations[2]. Conditions such as tooth decay and gum disease can lead to a negative impact on individual quality of life if left untreated[3]. Although tooth decay and gum disease are preventable, many individuals lack the access to care. This assessment provides an important first step in the effort to improve the oral health of Marin County's residents.

[2] 2016. Fixing Denti-Cal. Little Hoover Commission. Retrieved from https://lhc.ca.gov/sites/lhc.ca.gov/files/Reports/230/Report230.pdf. Accessed November 15, 2018

[3] 2017. Status of Oral Health in California: Oral Disease Burden and Prevention. CDPH. Accessed November 15, 2018

II. Approach to the Assessment

This Oral Health Needs Assessment has been designed to elucidate the strengths and weaknesses of Marin's oral health system by collecting and analyzing data in key areas identified by the State of California, oral health research, and best practices. We used the Seven-Step Model created by the Association of State and Territorial Dental Directors (ASTDD) as our process framework, methodically planning our process and then collecting, inventorying, reviewing, and prioritizing the resulting data. The planning was guided by the contributions and feedback of the Oral Health Steering Committee and supported by Nandi Peterson MPH and Lorene Allio PhD of Hatchuel Tabernik and Associates in partnership with Public Health Innovation Consultant Bahar Amanzadeh DDS, MPH.

We reviewed secondary data identified in our needs assessment planning and followed up with focus groups, surveys, and key informant interviews. We facilitated a community convening for the further identification of assets and gaps and for input. The resulting nuanced information will inform the development of the Marin Local Oral Health Plan.

The priority populations for this assessment were identified by the Marin County Local Oral Health Plan Steering Committee as: children 0-5 years, children K-5th grade, pregnant women, low-income adults, older adults ages 65 and up, and adults with special needs.

Review of Existing Data

We began by reviewing the demographic characteristics and socioeconomic profile of the county. Then we considered oral health behaviors, such as knowledge, perceptions of oral health, and barriers in access to care. Next, we looked at the oral health status of the county as a whole, followed by an analysis of access to dental services. We wrapped up our review by analyzing the rate of dental emergency room visits, and the level of service provided by private health practitioners. Below is a breakdown of each assessment element and the indicators.

We looked at the following indicators by demographic and socioeconomic factors:

- Age and racial distributions
- Rate of dental insurance coverage
- Number of children and adults on Medi-Cal insurance
- Quantity of students eligible for free or reduced-price meals (FRPM) under the national school lunch program (NSLP)
- People with disabilities
- Time since last dental visit

We assessed oral health behaviors, knowledge, perceptions, and barriers:

- Level of awareness of the importance of healthy dental behaviors
- Common perceptions of oral health
- Barriers communities are facing in achieving healthy dental behaviors

We assessed the following indicators for specific population groups.
Children 0-5 years:

- Percent of schools participating in the Kindergarten Oral Health Assessment
- Percent of children with untreated caries
- Number and percent of children with a dental home
- Number and percent of children with a recent dental exam
- Number and percent of children that have received dental treatment

Pregnant Women:

- Percent of women with access to care
- Number of women who had a dental visit during 2016-2017

Adults, Older Adults, and Individuals with special needs:

- Percent of people on Medi-Cal or Medicare
- Names and locations of senior centers with high Medi-Cal populations
- Oral and Pharyngeal cancer incidence

Communities' access to dental care and related programs

- Rate of annual dental visits among the Medi-Cal population
- Rate of preventive dental visits among the Medi-Cal population
- Number and list of dentists that accept Denti-Cal patients
- Utilization rate of preventive services among different age groups

Rate of emergency department utilization for preventable oral health conditions

- Rate of emergency room visits for preventable conditions

Access to fluoridated water

- Number of fully and partially fluoridated water systems
- Use of fluoride varnish in medical offices

Focus Groups

Focus groups were included in the needs assessment process as a qualitative means to explore themes emerging from the quantitative data on oral health in Marin. The focus groups allowed us to gather more in-depth and/or nuanced information related to particular populations of interest. Based on the findings from the review of secondary data, we selected relevant focus group populations.

- Spanish speaking parents of children between the ages of 0 and 5 years,
- Health professionals working with expectant mothers,
- Low-income older adults

Both English and Spanish speaking, housing insecure adults.

Surveys

To assess the behaviors, perceptions, and barriers of adults – insured and uninsured – regarding oral health and access to care, we created and administered an adult behavioral risk survey titled "Adult Oral Health Questionnaire." We used convenience sampling to gather information from adults in a variety of geographic locations across the county. In order to capture a strong sample of individuals in the county, we administered the survey in English and Spanish through online and hard copies. Coordination of the survey was done by sending the online survey through Marin Oral Health Plan Steering Committee members, and a distribution list of nonprofit organizations, FQHC's, and government agencies who received hard copies for distribution to their consumers.

Key Informant Interviews

We conducted key informant interviews with key stakeholders in an effort to garner additional information that was not obtained by the secondary data review, focus groups, or surveys. We addressed a number of topics, including but not limited to:

- Oral health system issues
- Adult oral health (accesses and barriers)
- Rural oral health issues
- Oral health among vulnerable populations
- Oral health among low-income populations for children 0-5 years
- Older adult oral health access, needs, and barriers
- Youth and tobacco
- Access to oral health services in West Marin County
- Women, children, and adolescent oral health access through WIC, CHDP, and MCAH
- Oral health and school-aged children
- Fluoridation
- Specialty dentists
- Emergency department oral health

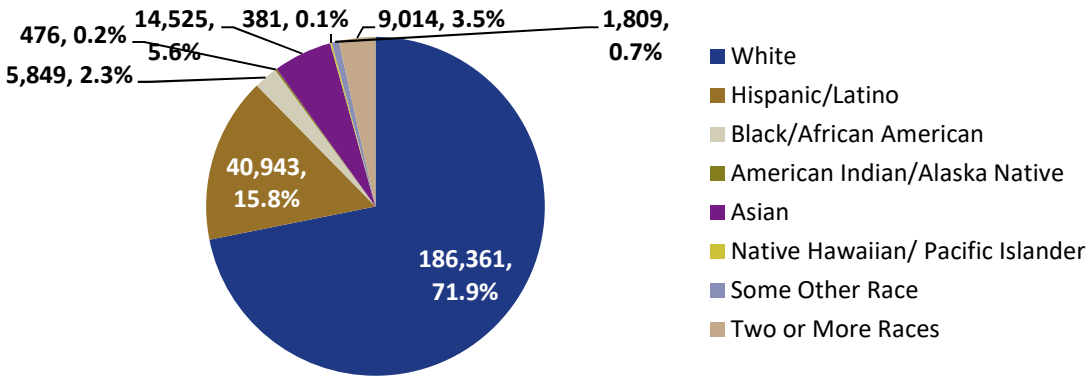
III. Findings

1. Demographic Characteristics and Socio-Economic Factors

When assessing the level of need in a given population in a particular place, the social determinants of health are a key to understanding the population's overall health. The determinants are the conditions in which people live and work that impact their quality of life[4]. In relation to oral health, elements of socioeconomic status, usually defined as income, education, and occupation and the level of insurance coverage are two very important indicators in order to assess the level of access to necessary services. Below is a demographic snapshot of Marin County addressing the age, race, poverty level, and insurance coverage.

Population and Race/Ethnicity: Marin County is an affluent county in the San Francisco Bay Area with a total population of 259,358. White non-Hispanics comprise the majority of the county's population at 72%, followed by Hispanic/Latinos at 16%, and Asians at 6% (Figure 1-A). The majority of the population in the county is between the ages of 45-64 years of age (Figure 1-B).

Figure 1-A. Race and ethnicity of Marin County residents, 2016

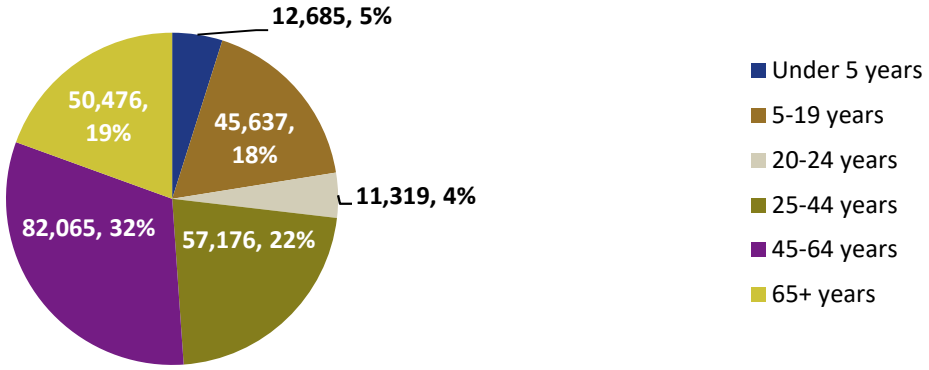


Source: 2012-2016 5-Year Estimates, Demographic and Housing Estimates, Table DP05, U.S. Census Bureau, American Community Survey

Age of Marin County Residents: Only 27% of the Marin County population is under 25 years of age. Another 54% of residents are between 25 and 64 years, and 19% of residents are 65 years of age or older.

[4] 2018. Social Determinants of Health: Know What Affects Health. Centers for Disease Control and Prevention. Retrieved from https://www.cdc.gov/socialdeterminants/. Accessed October 31, 2018

Figure 1-B. Age of Marin County residents, 2016

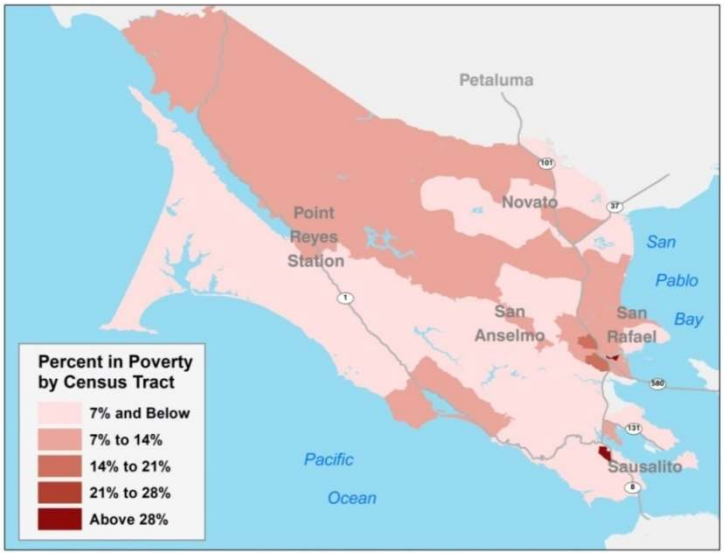


Source: **2012-2016 5-Year Estimates, Demographic and Housing Estimates, Table DP05, U.S. Census Bureau, American Community Survey**

Poverty Levels

Populations that fall below the federal poverty level of $24,300[5] for a family of four in 2016 are concentrated in the Canal area in San Rafael and in Marin City – with less concentrated numbers of lower income individuals also residing in many other parts of the county including rural West Marin and Novato. One should note that due to the gap between the federal poverty level and the actual high cost of living in Marin County, areas not labeled as having high proportions of residents below the federal poverty level may nevertheless have significant numbers of individuals who survive on less than a living wage. This discrepancy should be taken into consideration when selecting target populations and programmatic investments.

Figure 1-D. Residents living below the Federal Povertly Line by Census Tract, Marin County, 2016



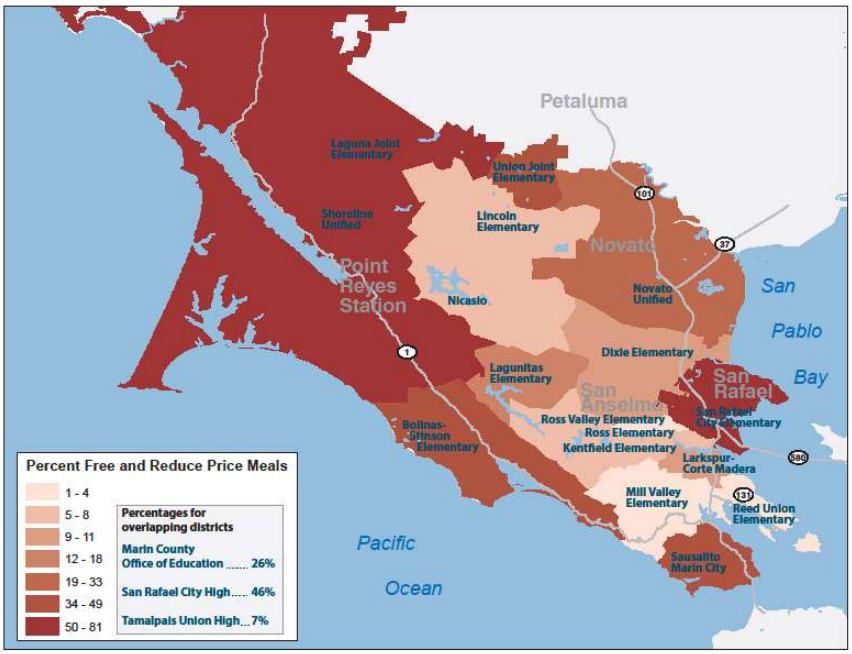
Source: 2016, Poverty Status in the Past 12 Months – Below Poverty Level by Census Tract, Figure S2201, U.S. Census Bureau, 2012-2016 Food Stamp/ Supplemental Nutrition Assistance Program (SNAP), American Community Survey 5-Year Estimates

[5] 2016 What is the Federal Poverty Level, People Keep, Retrieved from https://www.peoplekeep.com/blog/2016-federal-poverty-level-fpl-guidelines

Eligible Students under the Free or Reduced-Price Meals (FRPM)

The National School Lunch Program's Free or Reduced-Price Meals (FRPM) program was created to assist students whose families are living near or below the federal poverty level. Because of this, the percentage of children eligible for FRPM is often used as a proxy measure for low income rates among school populations[6]. For Marin County in 2016, the Laguna Joint Elementary School District had the highest percentage of eligible students for the FRPM program at 81%, though the small student body makes this number of 13 students less significant. The second highest rate of students on FRPM is San Rafael City School District (elementary) with 65% FRPM and 3081 students qualifying.

Figure 1-E. Students qualifying for Free and Reduce Priced Meals by district, Marin County, 2017



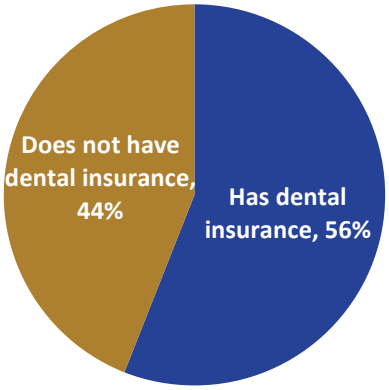
Source: 2017, Free or Reduced-Price Meal Data, California Department of Education

Dental Insurance Coverage

A number of data sources were examined in order to understand rates of dental insurance among adults in Marin County Figure 1-F shows the percentage of adults with dental insurance in Marin County for 2013, 2014, and 2016 combined. Slightly over half of the adult population in the county has dental insurance (Figure 1-F), though the percentage without insurance increased slightly from 2014 to 2016 (Figure 1-G)

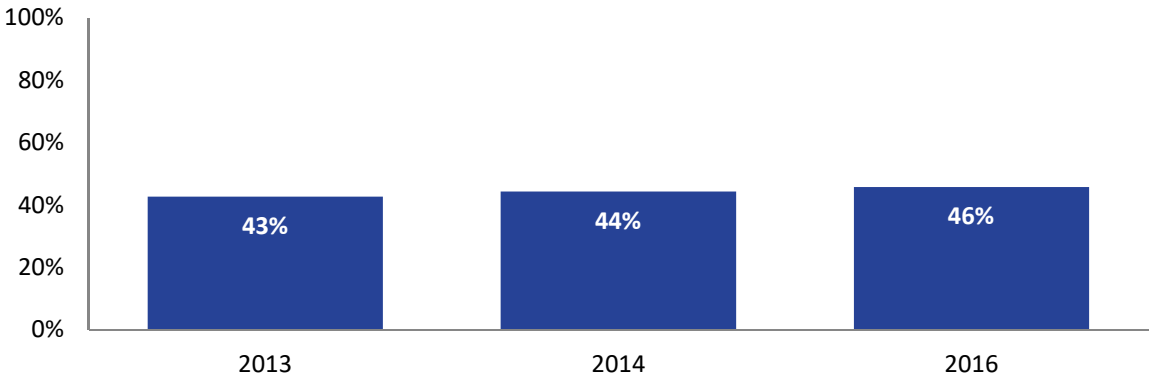
[6] 2018. Income Eligibility Guidelines for Free and Reduced-price Meals or Free Milk in Child Nutrition Program. California Department of Education. Retrieved from https://www.cde.ca.gov/ls/nu/rs/scales1819.asp. Accessed November 15, 2018

Figure 1-F. Dental insurance among adults, Marin County, 2013, 2014, 2016 (Pooled)



Source: 2013, 2014, 2016 California Health Interview Survey

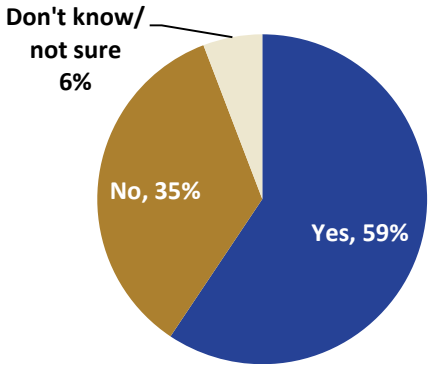
Figure 1-G. Adults without dental insurance, Marin County, 2013, 2014, 2016



Source: 2013, 2014, 2016 California Health Interview Survey

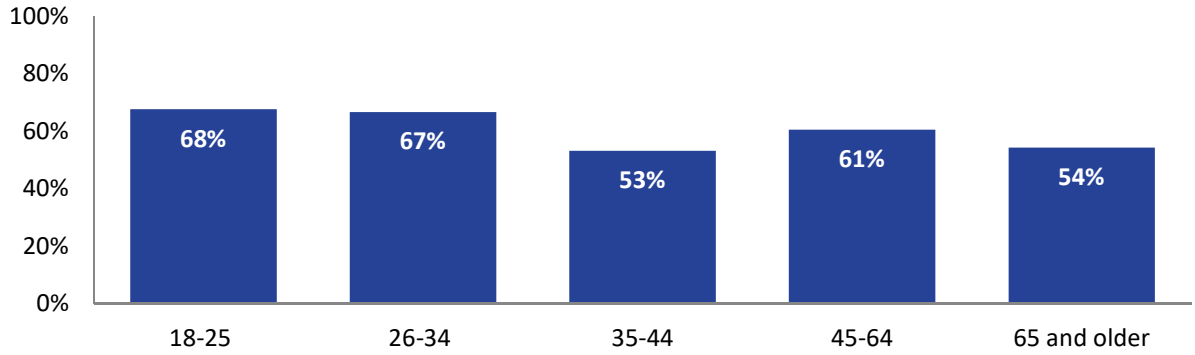
According to the Adult Oral Health Questionnaire surveying adults in Marin County, 59% of respondents reported having dental insurance (Figure 1-H). This is similar to data in 1-F and 1-G above. When disaggregated by age, fewer adults aged 35-44 and 65 and older reported having dental insurance than other age groups (Figure 1-I).

Figure 1-H. Adults with dental insurance (N=345), Marin County, 2018



Source: 2018, Marin County Adult Oral Health Survey, Hatchuel Tabernik & Associates

Figure 1-I. Adults with dental insurance by age (N=345), Marin County, 2018



Source: 2018, Marin County Adult Oral Health Survey, Hatchuel Tabernik & Associates

2. Barriers to Maintaining Oral Health

In order to understand the social determinants of health, it helps to have an understanding of an individual or community's risk and protective factors. [7] Below are the results from the risk behavior survey and the voices from focus group participants, both of which provide a glimpse into the general knowledge of oral health and the importance assigned to oral health, and access to oral health.

In order to identify oral health behaviors, knowledge, perceptions, and barriers to care, we conducted focus groups with the following populations; Spanish speaking parents of children between the ages of 0 and 5 years, health professionals working with expectant mothers, low-income older adults, and both English and Spanish speaking, housing insecure adults.

> "All the education in the world can't help if you can't afford it."
>
> ~ Older Adult focus group participant

The following themes emerged from the focus groups:

- *Low Number of Medi-Cal Providers*

  All of the groups noted a persistent reluctance of private dental practitioners to accept patients on Medi-Cal. As a result many individuals and families must pay for care out of pocket or wait, allowing their oral health to decline until they have no alternative but to use the Emergency Room for otherwise preventable dental care emergencies. Patients often wait a long time to access care at the small number of private practices that do accept Medi-Cal. This results in a decrease in access to care and quality of care. The low Denti-Cal reimbursement rate is one reason that private practice dentists are reluctant to accept Medi-Cal patients – particularly in high cost areas like Marin County.

- *Affordability of Care*

[7] 2012. Kullgren, JT et al. Nonfinancial Barriers and Access to Care for U.S. Adults. Health Services Research. 47(1Pt2): 462-485. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3393009/. Accessed November 1, 2018

For those who transitioned from private insurance to Medicare, participants noted the difficulty in maintaining care due to the increase in prices for necessary treatment that was not covered by Medicare or when a provider could not be found that accepted their insurance. As a result, many participants have turned to prioritizing their hygiene practices to compensate for the lack of access to care.

- *Sufficient Knowledge of Oral Health Importance*
  Participants from all focus groups noted a significant knowledge around the importance of maintaining good oral health. Practices such as brushing, flossing, and staying away from sugary foods and drinks were highlighted by all groups, although housing insecure individuals had challenges in maintaining regular oral health practices.

All of the focus groups were asked "If you could change one thing about oral health in Marin County, what would it be?" The salient responses included the following:

- Spanish Speaking Parents of Children 0-5 years: Would like to have health insurance that includes dental coverage for adults.
- Spanish and English-Speaking Insured/ Uninsured Adults: Would like to have access to local affordable dental care services where they could address their oral health needs.
- Would like to have financial assistance in paying providers for services not covered by insurance.
- Low-Income Older Adults: Would like to have affordable oral health care plan that is accepted by private providers.

Other data from focus groups to note:

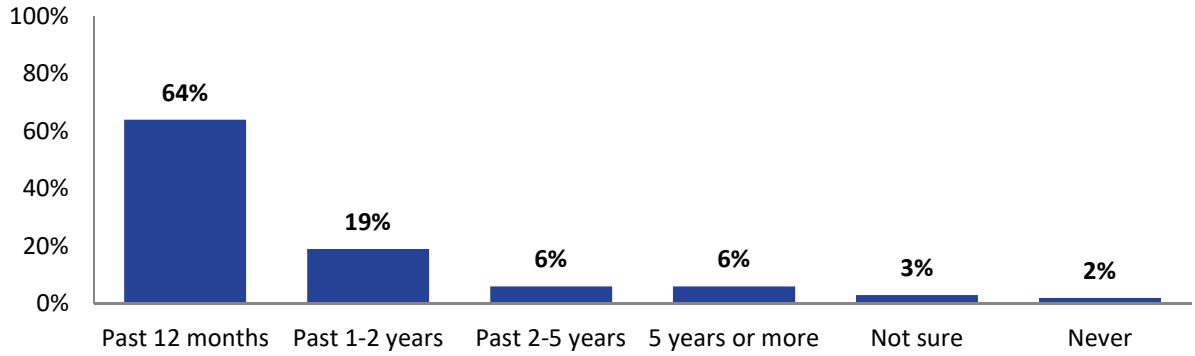
- When asked about the barriers to oral health care access, many participants from all focus groups cited having gaps in their insurance coverage. Specific reasons ranged having difficulty navigating the insurance market, to not being eligible for insurance coverage.
- Many Spanish speaking parents of children 0-5 years said the best way for the Latino community to receive information on oral health practices is through the schools, specifically the teachers. In addition, they suggested hosting workshops with accessible data visualizations showing the impact of tooth decay and gum disease and how to maintain good oral health. In addressing barriers to dental care for children, one parent suggested offering services at the schools, such as a dentist coming to do a dental exam and cleaning.

Adult Oral Health Behavioral Risk Factor Survey Findings

A total of 352 survey responses were collected from adults across age groups with 82 respondents at least 64 years and older; followed by 80 adults between 35 and 44 years, and 78 between 45 and 64 years of age. Respondents did not include all races and ethnicities; 63% of respondents identified as Hispanic/Latino, followed by 27% White. Approximately 39% of respondents identified as a parent of children between 0 and 18 years. Only 4% of respondents identified as having special needs. There were a small number (1%) of respondents that indicated they reside in an assisted living community or in a shelter.

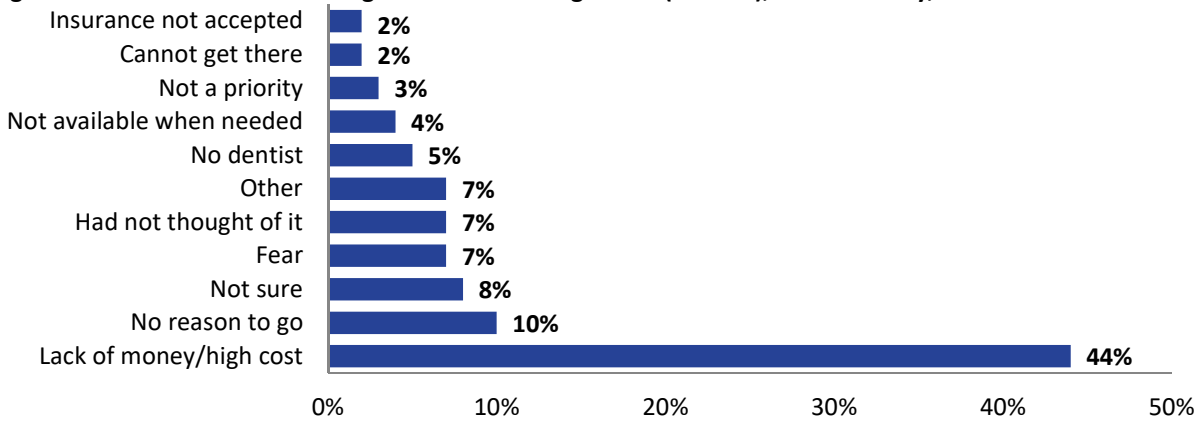
For adult respondents, the cost of services was the most prevalent barrier to accessing services. When asked about frequency of dental visits, the majority of respondents (64%) reported having seen a dentist within the past year. Approximately 18% noted having seen a dentist within the past 2 years. Some respondents (6%) reported not having visited the dentist within the past 5 years or longer. Approximately 44% of respondents indicated that their reason for not visiting the dentist was because they lack sufficient money to pay the high cost of services.

Figure 2-A. Frequency of dental visits among adults (N=326), Marin County, 2018



Source: 2018, Marin County Adult Oral Health Survey, Hatchuel Tabernik & Associates

Figure 2-B. Reasons for not visiting the dentist among adults (N = 326), Marin County, 2018



Source: 2018, Marin County Adult Oral Health Survey, Hatchuel Tabernik & Associates

Key Informant Interview Findings

Key informants provided additional qualitative information regarding a range of local access issues relevant to the oral health of underserved populations in the county. These interviews also provided details regarding the strengths and gaps in Marin's oral health system. Some of this qualitative information is as follows.

Rural Access for Adults and Children. Although key informants noted improved access in rural areas due to expanded FQHC resources and mobile clinics, there was still a notable gap in the ability of rural residents to access care due to a range of barriers including geography, transportation, availability of providers, legal status, and financial resources.

- "There is a lack of pediatric dentists in rural areas though the collaboration with FQHCs helps"
- "We see people who are losing weight because they can't eat, and they have no access because of legal status. Paying for dentures and seeing that person gain weight is great!"
- "We are far away from the nearest dentist. It is forty minutes by car. Being isolated means you may have the car but not money for gas."
- "There is only one dentist in town who takes Denti-Cal and only works part time
- "We had a child with twelve cavities and we had to work hard to get parents to take them in. We finally used our vehicle to take them to the clinic."
- "Rural areas are the hardest to reach. … Care at school is key in these [rural] areas and in rural areas that are multi-county."

Children's Access

- "There used to be a six-month waiting list at the County Clinic. There has been a big change with the FQHCs developing a strong dental program. Now the kids who are worst off are those that don't qualify for Denti-Cal but are low income: the working poor. They may have medical but no dental."

Adult Access: One problem is a lack of treatment for adults who are either low income or undocumented.

- "Undocumented adults have the highest barriers. They are uninsured, low income, lack education about oral health, and don't have access to healthcare."
- "There is dental coverage available for children and a number of dental programs oriented toward children, but there are no dental programs for undocumented adults

Access for Anchor Outs[8] and Individuals Experiencing Homelessness:

- "Healthy food is an issue for them. They are prone to have processed food with a long shelf life. Even education of general hygiene is an issue: they may have a toothbrush but not toothpaste, so they won't use the toothbrush. They lack financial means: there is a reason they are living out there on boats."

Senior Access: Seniors are challenged by transportation, the lack of dentists accepting their insurance, and the cost of treatments related to dentures or crowns that become more commonly needed as these patients age...

- "There is a high population of seniors and half are on Medi-Cal."
- "Medi-Cal does not cover all of the procedures that they need. Things as essential as dentures are considered cosmetic!"
- "Transportation is an issue for some people. For seniors that did not have a way to transport themselves because they are in a facility. Even though there are certain services that take them around, it is not reliable. They will put it off and lose their teeth. There is a lack of communication between their facility and our facility to keep appointments."

Need for education and community outreach. A number of key informants mentioned the need to engage communities in a way that builds their knowledge of oral health and trusting relationships with providers would improve prevention.

- "The biggest challenge is motivation and education – getting people to value what your teeth do for you. Often people wait until it is a problem and then it is too late. Motivation is important. One-to-one attention is important. We try to get into the community to build trust."

Systemic Workforce and Specialist Issues. Some interviewees cited the high cost of living and cost of doing business in Marin as issues. For example, more than one key informant mentioned that it is very difficult to hire and retain staff such as registered dental assistants, and some attributed this to the high cost of living and relatively low pay. One interviewee noted that some support staff were commuting very long distances from lower cost-of-living areas. Key informants also reported that specialist reimbursements were so low and the cost of doing business was so high that it did not make financial sense for specialists to accept Medi-Cal /Denti-Cal patients.

- "Adults are mostly showing up with emergency needs and the clinic's model of care delivery is focused on continuity of care and schedule-based appointments."

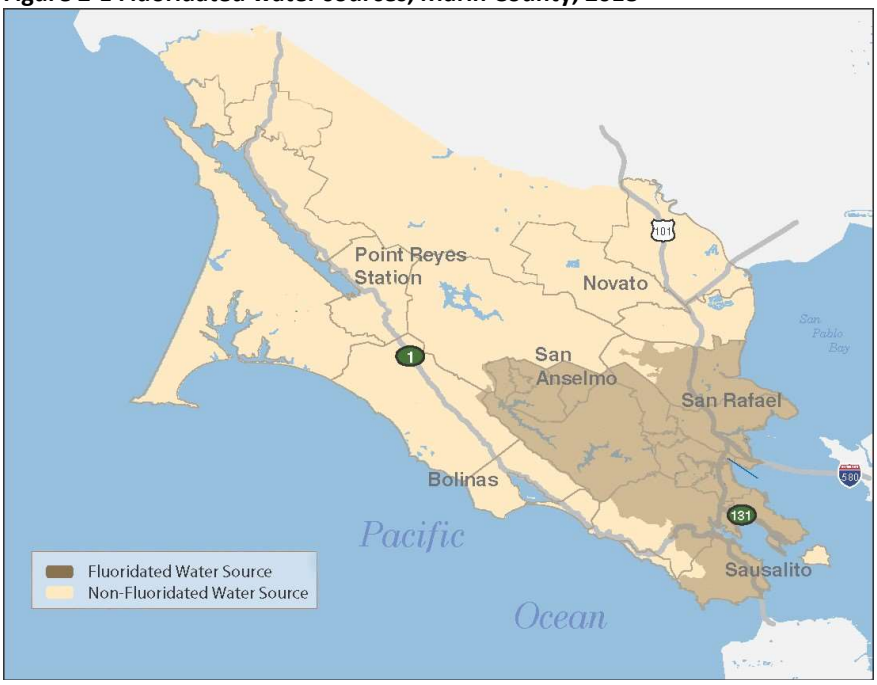
[8] Anchor outs are individuals who are often low income living on boats anchored in Richardson Bay near Sausalito, California.

- "The cost of doing business in Marin is high. Private dentists have not participated that much in providing care. This is burdensome for them. Some were concerned about losing money."

Water Fluoridation

One of many Healthy People 2020 goals, fluoridated water is one of the most effective systemic tools for reducing caries. Lack of access to fluoridated water is a barrier to achieving optimal oral health for many communities. Despite the established importance of water fluoridation, only a portion of Marin County has fluoridated water. Only the South East area of Marin County has fluoridated water consisting of 72.9% of the total population[9][10]. Rural West Marin and communities north of San Rafael do not have fluoridated water.

Figure 2-E Fluoridated water sources, Marin County, 2018



Source: 2016, About, Marin Municipal Water District

[9] 2017. Age and Sex 2017 American Community Survey 1-Year Estimates. American Fact Finder. https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_17_1YR_S0101&prodType=table. Accessed November 16, 2018

[10] 2018. About. Marin Municipal Water District. https://www.marinwater.org/27/About. Accessed November 16, 2019

3. Oral Health Status

Assessing oral health status is an important step in identifying and addressing gaps in access to care.[11] Oral health status is an important indicator of the overall health of an individual, as oral symptoms may be the first sign of a range of chronic conditions[12]. Below are the findings from the Kindergarten Oral Health Assessment, including rates of children identified as needing treatment.

Kindergarten Oral Health Assessment

As required by the Kindergarten Dental Check-up Law (AB 1433), the Kindergarten Oral Health Assessment is an annual examination of the unmet oral health needs of children entering their first year of school in California's public education system.

Of the 2,439 eligible for screening in 2016, 1,609 (65%) Marin students were screened through the Kindergarten Oral Health Assessment. While only 7% of those kindergarteners screened were found to have untreated tooth decay, the actual rate of untreated decay among all Marin kindergartners may be higher given the voluntary opt-out policy that excludes many students from this assessment.

There are marked disparities in oral health outcomes between various schools and districts. Some school districts far exceed the County average for untreated tooth decay. For example, students at San Rafael City Elementary School District had the highest rate (21%) of untreated tooth decay. As noted in table 3-A below, San Rafael Elementary also has one of the highest rates of low-income students further underscoring the linkage between disparities in income and oral health.

[11] By oral health status we are referring to the rates of dental decay.

[12] 2018. Dentists: Doctors of Oral Health: More than Just Teeth and Gums. American Dental Association. Retrieved from https://www.ada.org/en/about-the-ada/dentists-doctors-of-oral-health. Accessed November 1, 2018

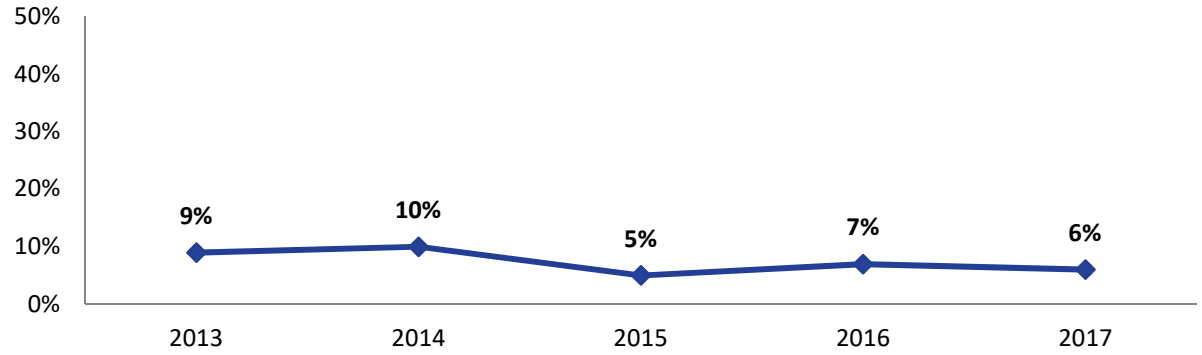
Table 3-A. Number of Marin County students eligible for and participating in oral health assessment, and number and percent identified as having untreated decay by district, 2016

Districts with Elementary Schools	Students Eligible for Assessment (#)	Students Completing Assessment (#)	Students with Untreated Decay (#)	Students with Untreated Decay (%)
Kentfield Elementary	123	62	5	8.3%
Laguna Joint Elementary	4	3	0	0
Lagunitas Elementary	29	27	0	0
Larkspur Elementary	188	116	9	7.7%
Lincoln Elementary	3	1	0	0
Marin County Office of Education	14	3	0	0
Mill Valley Elementary	391	288	0	0
Nicasio Elementary	5	5	0	0
Novato Unified	581	540	30	5.5%
Ross Elementary	51	45	0	0
Ross Valley Elementary	289	171	5	2.9%
San Rafael City Elementary	659	262	57	21%
Sausalito Marin City	59	52	3	5.7%
Shoreline Unified	43	34	3	8.8%
Total	**2439**	**1609**	**112**	**7%**

Note: Missing/unreported data for the following districts; Bolinas Stinson Union, Dixie Elementary, Reed Union Elementary, and Union Joint Elementary
Source: 2016, CA Assembly Bill 1433 Kindergarten Dental Screening Data, California Dental Association

There has been an overall decrease in the percentage of kindergarten students who have untreated tooth decay, based on those completing the oral health assessment (Figure 3-B).

Figure 3-B. Untreated tooth decay identified among students receiving the kindergarten oral health assessment, Marin County, 2013-2017



Source: 2016, CA Assembly Bill 1433 Kindergarten Dental Screening Data, California Dental Association

Families participating in the Head Start Program are assisted with connecting their children to a dental home and with accessing dental exams. The percentage of children participating in the Marin Head Start Program with a dental home has remained high and stable since 2012 (Table 3-C) providing us with some consistent data for low income children.

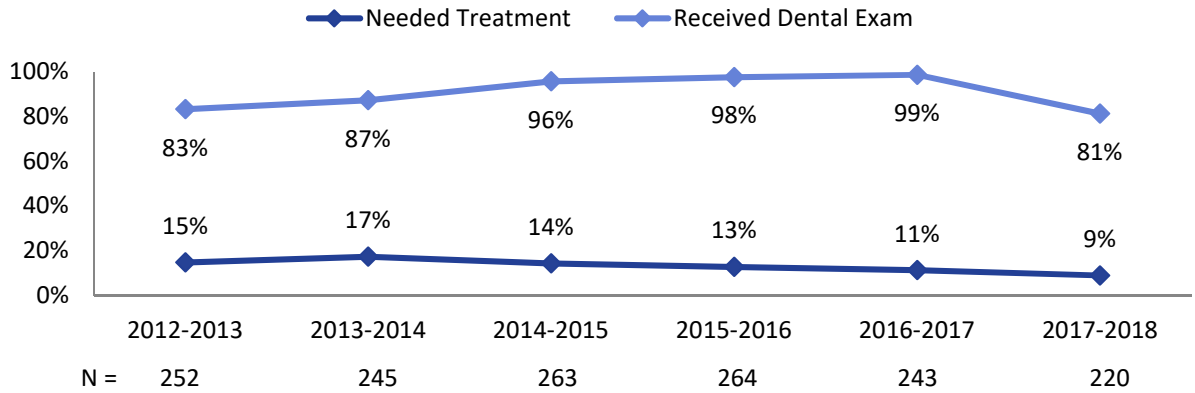
Table 3-C. Marin Head Start participants (aged 3-5) who have a dental home, Marin County, 2012-2018

Program Year	N	Have a Dental Home
2012-2013	252	97%
2013-2014	245	96%
2014-2015	263	95%
2015-2016	264	97%
2016-2017	243	99%
2017-2018	220	97%

Source: 2018, Family Development Program, Marin Head Start

The rate at which children participating in the Head Start Program received a dental exam increased from 2012-2017 but dropped in the 2017-2018 school year. The rate at which children aged 3-5 needed treatment after a dental exam decreased slightly between 2012 and 2018, though numbers year-to-year remain below 40 (Figure 3-D). This indicates an improvement in service delivery among one of the low-income populations most vulnerable to dental caries and these data will continue to be tracked in order to determine if the trend continues.

Figure 3-D. Marin Head Start participants (aged 3-5) who received a dental exam and needed dental treatment, Marin County, 2012-2018

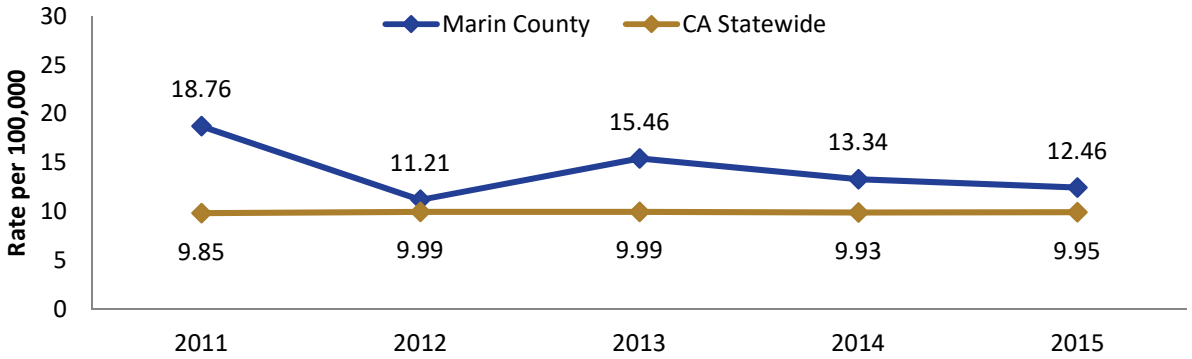


Note: Percentage of participants needing treatment is calculated from those receiving a dental exam.
Source: 2018, Family Development Program, Marin Head Start

Oral and Pharyngeal Cancer Rates

The Figure 3-E and Table 3-F show the rates of oral and pharyngeal cancer diagnoses between 2011 and 2015 in Marin County. The age-adjusted rate of oral and pharynx cancer diagnoses in California have remained quite stable in recent years. The Marin County rate has fluctuated somewhat, with a general decline overall (Table 3-F).

Figure 3-E. Oral cavity and pharynx cancer rates (age-adjusted), Marin County and California, 2011 -2015



Note: All rates are per 100,000. Rates are age-adjusted to the 2000 U.S. Standard Population. Based on January 2018 data.
Source: 2011-2015, Invasive Cancer Incidence Rates in Marin County, Oral Cavity and Pharynx, California Cancer Registry

The pooled average of oral and pharyngeal cancer for 2011-2015 in Marin County, has low crude numbers but an age-adjusted rate or 14.22 per 100,000 that exceeds the state average of 9.94 (Table 3-F). Given that tobacco consumption is the cause of many oral and pharyngeal cancer cases, smoking cessation programs are important for the adult population.

Table 3-F. Oral cavity and pharynx cancer rates (age-adjusted), Marin County and California, 2011 – 2015

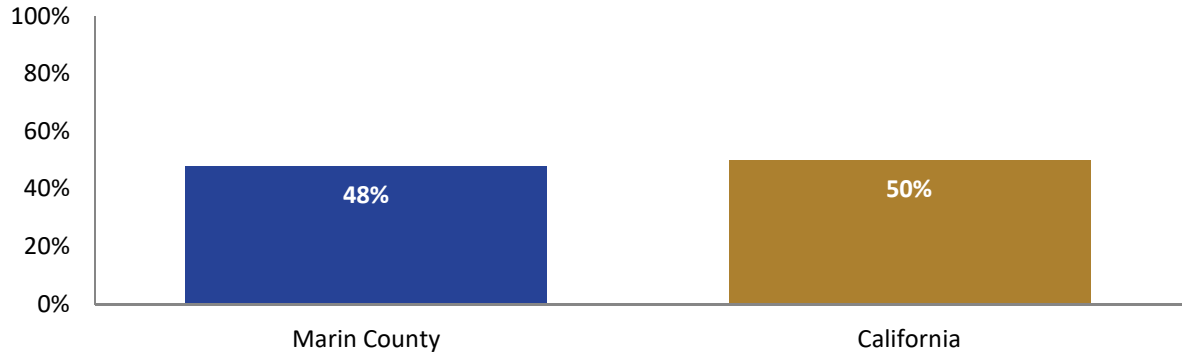
Marin Total Cases (#)	**268**
Marin Crude Rate (per 100,000)	20.75
Marin Age-Adjusted Rate (per 100,000)	14.22
Statewide Age-Adjusted Rate (per 100,000)	9.94

Note: All rates are per 100,000. Rates are age-adjusted to the 2000 U.S. Standard Population. Based on January 2018 data.
Source: 2011-2015, Invasive Cancer Incidence Rates in Marin County, Oral Cavity and Pharynx, California Cancer Registry

Permanent Tooth Removal Due to Tooth Decay or Gum Disease

The Marin County Adult Oral Health Survey conducted for this assessment found that Marin adults aged 45-64 had the highest rate of permanent tooth removal due to tooth decay or gum disease (48%). Since the survey is a convenience sample and is not necessarily representative of the entire county, the Marin survey rate is roughly on par with the state rate of permanent tooth removal due to decay or gum disease at 50% (Figure 3-G).

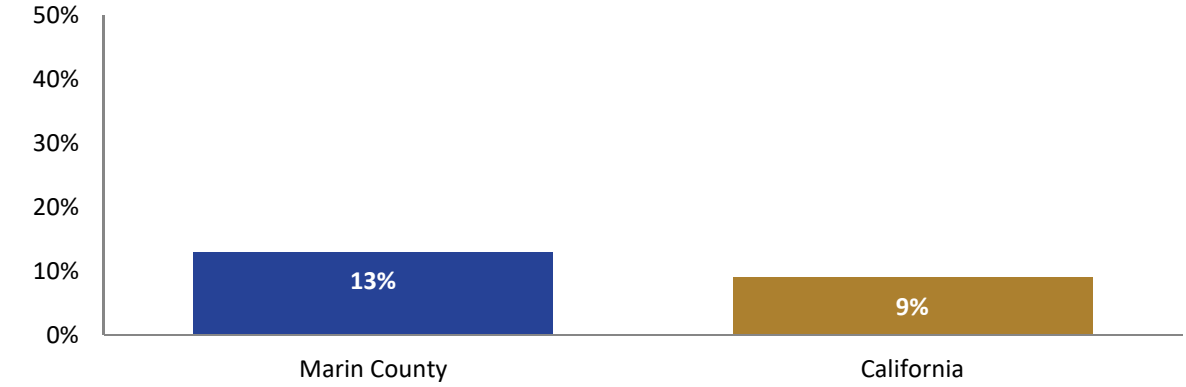
Figure 3-G. Permanent tooth removal due to tooth decay or gum disease among adults aged 45-64 (N=77), Marin County and California, 2018



Source: 2018, Marin County Adult Oral Health Survey, Hatchuel Tabernik & Associates; 2018-2028, California Oral Health Program, CDPH

Among Marin's older adults surveyed, 13% reported having all of their teeth removed due to tooth decay or gum disease; this rate exceeded the state average of 9%. Again, the results may not be representative of the whole county. The findings from this survey identify a need to understand not only the level of access to care but also the extent to which these preventable conditions impact quality of life for older Marin residents.

Figure 3-H. Adults aged 65-74 with all of their teeth removed due to tooth decay or gum disease (N=80), Marin County and California, 2018



Source: 2018, Marin County Adult Oral Health Survey, Hatchuel Tabernik & Associates; 2018-2028, California Oral Health Program, CDPH

4. Utilization of Care

In addition to access to care, the rate of dental utilization is also very important to measure the level of need among a given population. To identify the utilization rates of oral health care, our assessment looked at 1) annual and preventive dental visits among people with Medi-Cal insurance; 2) rates of dental visits among children, adults, and pregnant women; 3) the rate of annual and preventive dental visits among children and adults with Medi-Cal insurance; 4) the rate of sealant utilization among children aged 6-14 years with Medi-Cal insurance; and 5) numbers of emergency room visits for preventable dental concerns.

According to Medi-Cal billing guidelines, an annual dental visit is defined as a having had at least one dental visit during the past year[13]. A preventive dental visit is a regular dental visit for patients of any age that helps to prevent the incidence of dental decay[14].The majority of residents of Marin County have had regular dental visits. Dental visits consist of routine check-ups or visits for specific issues. This measure can be a proxy for oral health status since an annual dental visit would identify and prevent dental issues at their beginning stages. Dental care access requires sufficient resources (e.g., dental insurance and/or personal income/wealth) to pay for dental services on a regular basis.

Dental Visits during Pregnancy

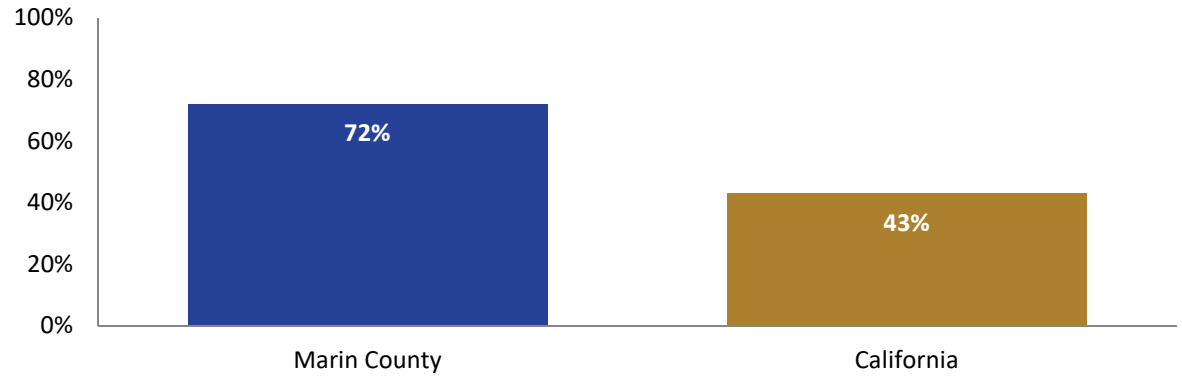
Pregnant Marin County women have a higher dental utilization rate (73 %) in comparison to the rest of California (43%) as a whole (Figure 4-A).

However, among pregnant women there are three demographic subgroups that are not utilizing dental visits during pregnancy. The first gap is among women who are between the federal poverty level and 200% of poverty (which, given the Marin cost of living, is a more meaningful measure of poverty in California). These are typically the working poor who may not be eligible for publicly funded care (Medi-Cal). The second gap in dental access is among women who have some college education (Table 4-D). The third gap seems to be among pregnant women who are between the aged 22-34 years.

[13] 2018. Annual Dental Visit, why it matters. NCQA. Retrieved from https://www.ncqa.org/hedis/measures/annual-dental-visit/. Accessed October 31, 2018

[14] 2013. America Dental Association Statement on Regular Dental Visits. American Dental Association. Retrieved from https://www.ada.org/en/press-room/news-releases/2013-archive/june/american-dental-association-statement-on-regular-dental-visits. Accessed October 31, 2018

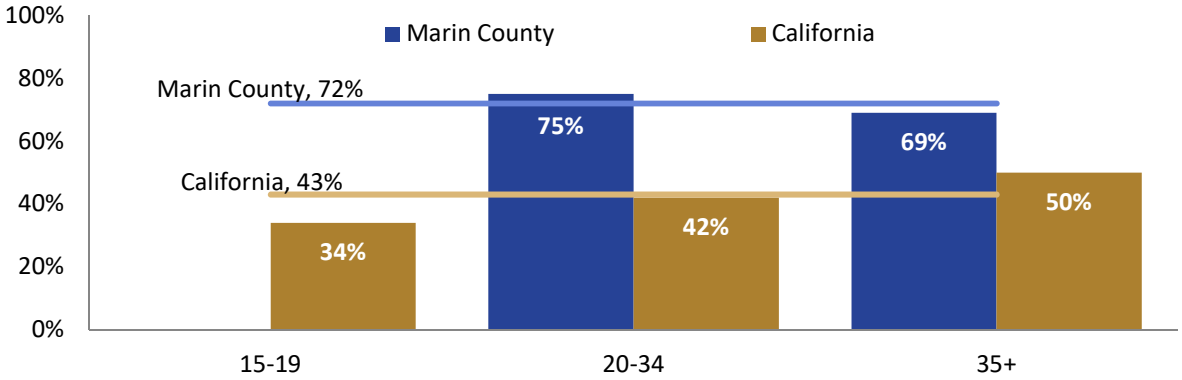
Figure 4-A. Women with a recent live birth that had a dental visit during pregnancy, Marin County and California, 2015-2016



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

Pregnant women aged 20 to 34 years had a higher frequency of dental visits (75%) than other age groups at (Figure 4-B).

Figure 4-B. Women with recent live birth that had a dental visit during pregnancy by age, Marin County and California, 2015-2016



Note: Data for 15-19-year olds in Marin County is unavailable because the relative standard error (RSE) is greater than 50%, fewer than 5 women reported, or the weighted population denominator for the column is less than 100 women

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

Pregnant women living at or above 200% of the federal poverty level demonstrated a higher frequency of dental visits (75%) during pregnancy compared to those living between 100%-200% of the federal poverty level (55%). Women with a high school/GED or less education had the highest rates of dental visits during pregnancy at 79%, while 74% of women who are college graduates had a dental visit. Women who had some college had significantly lower rates of utilization at 56%. The differences between dental visitation among the different educational levels calls for additional investigation. However, the income-related subgroup data reflects the impact of different income levels on access to oral health services among pregnant women.

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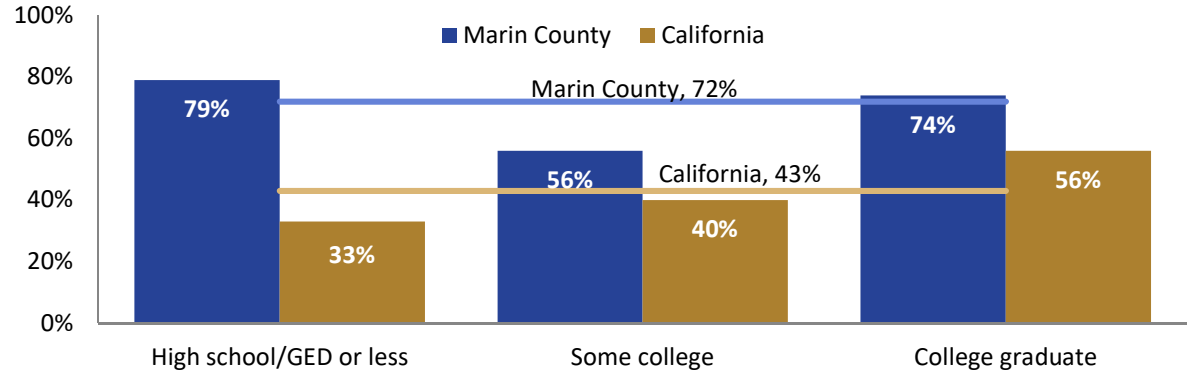
Figure 4-C. Women with recent live birth that had a dental visit during pregnancy by educational attainment, Marin County and California, 2015-2016



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

Table 4-D. Women with recent live birth that had a dental visit during pregnancy by insurance, race/ethnicity, and income, Marin County and California, 2015-2016

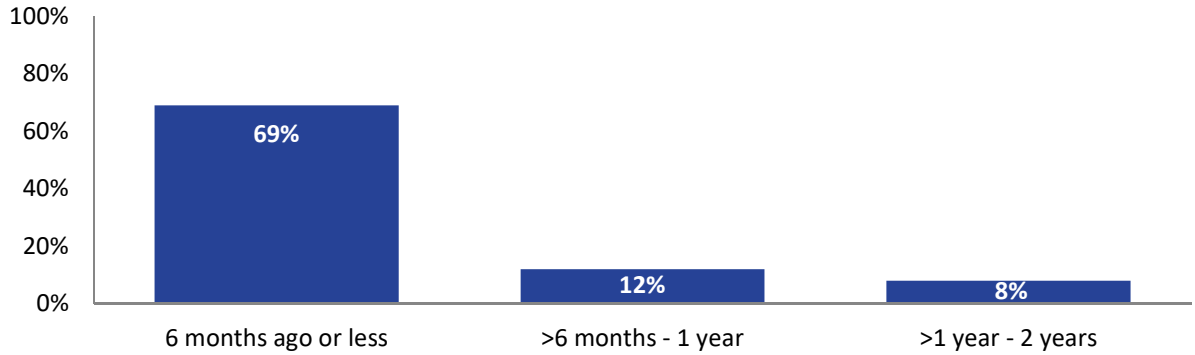
	Health Insurance		Race/Ethnicity				Family Income		
	Medi-Cal	Private	Asian/ PI	Black	Latina	White	0-100% FPL	101-200% FPL	>200 % FPL
Marin County	74%	72%	76%*	--	74%	74%	75%*	55%	75%
California	34%	54%	46%	34%	36%	52%	33%	33%	58%

Note: -- Estimate not shown because the relative standard error (RSE) is greater than 50%, fewer than 5 women reported, or the weighted population denominator for the column is less than 100 women. Estimate marked with an asterisk (*) should be interpreted with caution due to low statistical reliability.
Source: 2015-2016, Maternal and Infant Health Assessment (MIHA) Survey, CDPH

Dental Visits among Adults

Between 2013 and 2016, 69% of adults within the county reported visiting the dentist within the past six months.

Figure 4-E. Time since last dental visit among adults, Marin County, pooled 2013, 2014, 2016



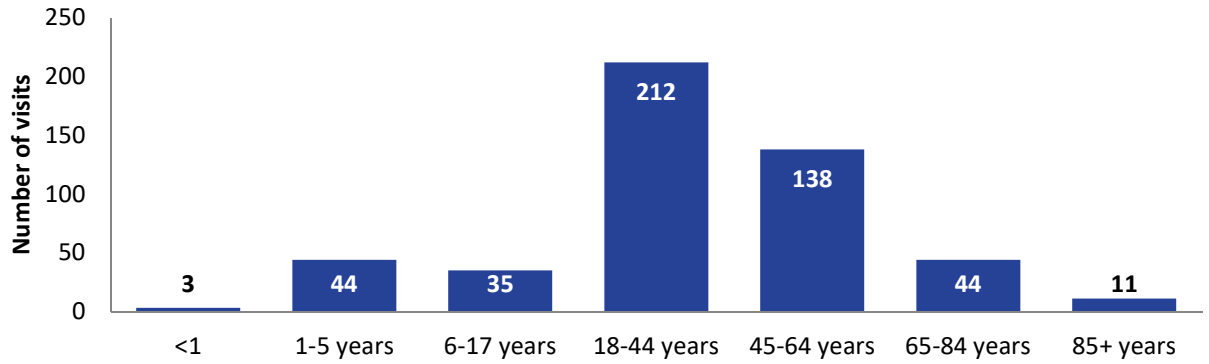
Source: 2013, 2014, 2016 California Health Interview Survey.

Emergency Department Visits

In 2016, the raw number of preventable dental emergency room[15] visits in Marin County were highest among adults aged 18-44 years, followed by adults 45-64 years. The lowest number of preventable dental emergencies were among children less than 1 year of age and adults 85 years and older (Figure 4-F). Please note that the grouping of the data into these age groups is designed to look at different stages of life (e.g., infants, preschool, elementary, adolescence, etc.). However, since the time periods range from one year to 26 years in duration, Figure 4-F should not be interpreted to mean that the rate of emergency room utilization is higher among the 18-44 year olds as compared to other age groups. The important take away is that there is significant use of the emergency room for preventable oral health needs. While emergency rooms are vital resources for many acute conditions, including dental emergencies, they are not the ideal source of care for preventable dental conditions, and use of the emergency room for this category of crisis services may indicate the presence of barriers to preventive care.

[15]2014. Preventable dental conditions defined by the following ICD-9 codes: 5205, 5206, 5207, 5210, 52101, 52102, 52103, 52104, 52105, 52106, 52107, 52108, 52109, 52110, 52111, 52112, 52113, 52114, 52115, 52120, 52121, 52122, 52123, 52124, 52125, 52130, 52131, 52132, 52133, 52134, 52135, 52140, 52141, 52142, 52149, 5215, 5216, 5217, 52181, 52189, 5220, 5221, 5224, 5225, 5226, 5227, 5228, 52300, 52301, 52310, 52311, 52320, 52321, 52322, 52323, 52324, 52325, 52330, 52331, 52332, 52333, 52340, 52341, 52342, 5235, 5236, 5238, 5239, 52430, 52431, 52432, 52433, 52434, 52435, 52436, 52437, 52439, 5244, 52450, 52451, 52452, 52453, 52454, 52455, 52456, 52457, 52459, 52460, 52461, 52462, 52463, 52464, 52469, 52510, 5253, 52540, 52541, 52544, 52512, 52513, 52519, 52542, 52543, 52565, 52550, 52551, 52552, 52553, 52554, 52560, 52561, 52562, 52563, 52564, 52566, 52567, 52569, 52571, 52572, 52573, 52579, 5258, 5259, 5264, 5265, 52800, 52801, 52802, 52809, 5281, 5282, 5283, 5285, 5286, 52871, 52872, 52879, 5289, 5290. 2018. OSHPD Preventable Dental ED Visits. Accessed April 2018

Figure 4-F. Preventable dental emergency room visits by age, Marin County, 2016



Source: 2016, Emergency Department data, California Office of Statewide Health Planning and Development (OSHPD)

Dental Utilization among Medi-Cal Population

For children and adults on Medi-Cal, the rate of annual dental visits such as routine check-ups and cleanings and preventive dental visits such as fluoride varnish and sealant treatment are an indicator of access to care. Marin County's rate of annual and preventive dental visits among adults and children with Medi-Cal insurance is on par with that for California.

The Dental Transformation Initiative

Marin County is one of the counties that has been implementing the Dental Transformation Initiative (DTI), an effort to improve the oral health status of children in California. DTI is a strategy created by the California Department of Health Care Services to improve the oral health of children on Medi-Cal. It has driven integration of dental services into Marin County FQHCs and expansion of access through strategies such as extending hours over weekends. The focus areas of the DTI strategy are:

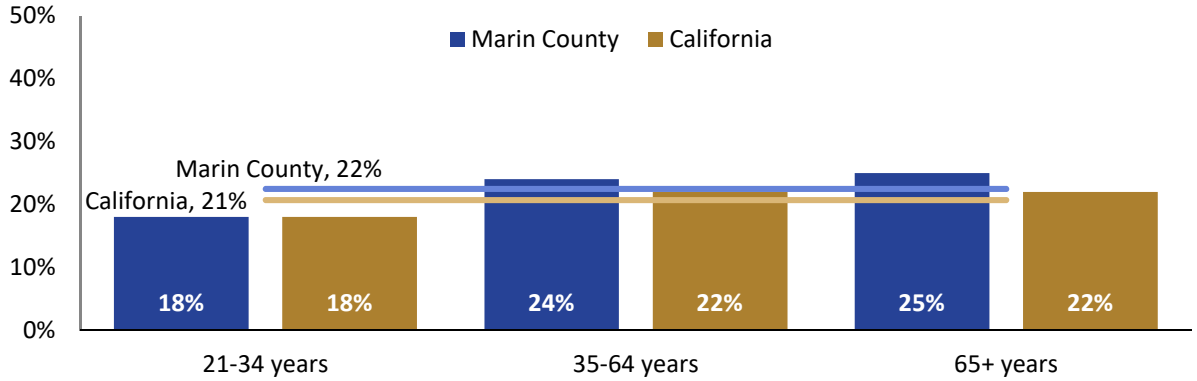
- Provide high-value care
- Improve access
- Enhance utilization of performance measures to drive system reform.

One of its primary objectives is to increase the statewide utilization rate of preventive services for children by at least 10% over five years. The data from 2014 and 2016 were used as a measure for effectiveness of strategies aimed at incentivizing dental providers in Marin County to prioritize these services for young children.

Annual Dental Visits

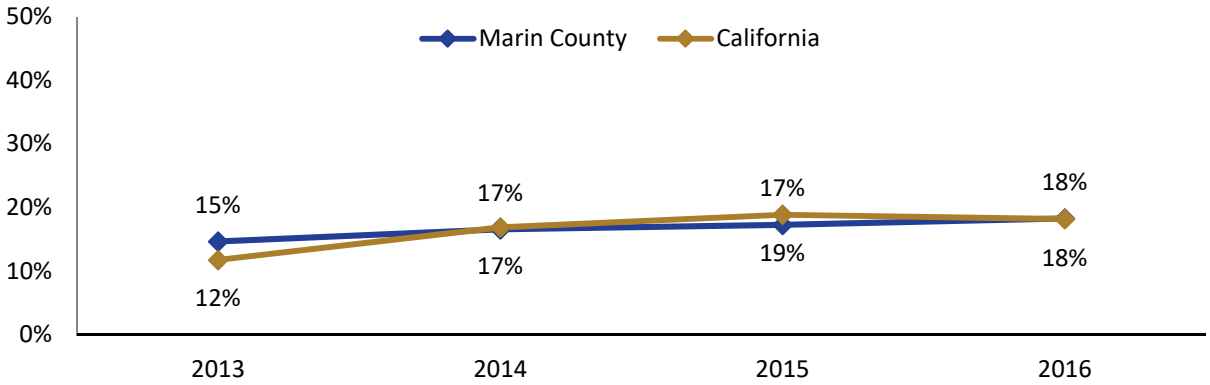
Marin County adults covered by Medi-Cal have low rates of annual visits to the dentist, though those rates are comparable to statewide rates. Adults aged 21-34 years have a lower rate of annual visits compared to adults of other ages (Figure 4-G), and their rate has gradually increased as they age (Figure 4-H).

Figure 4-G. Annual dental visits among Medi-Cal eligible adults, Marin County and California, 2016



Source: 2016, Dental Utilization Measures and Sealant data, Medi-Cal Dental Services Division, Department of Health Care Services

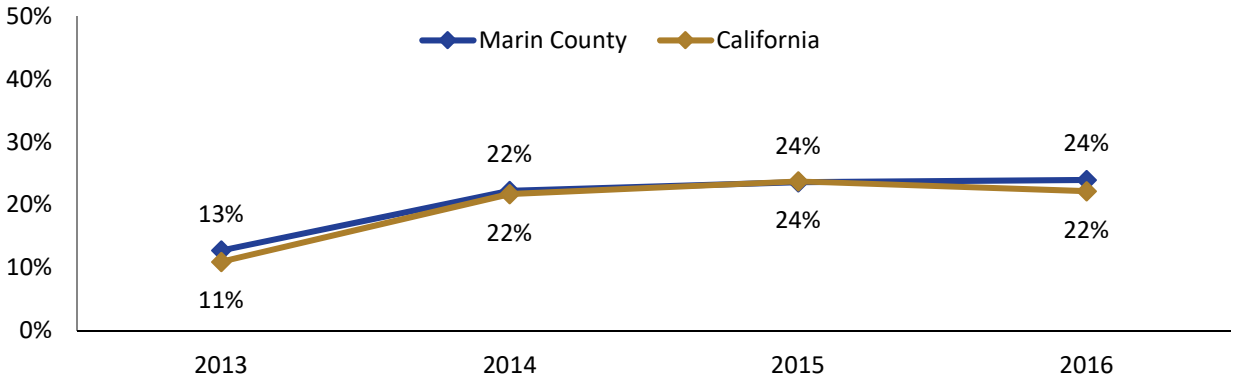
Figure 4-H. Annual dental visits among Medi-Cal eligible adults aged 21-34 years, Marin County and California, 2013-2016



Source: 2013-2016, Dental Utilization Measures and Sealant data, Medi-Cal Dental Services Division, Department of Health Care Services,

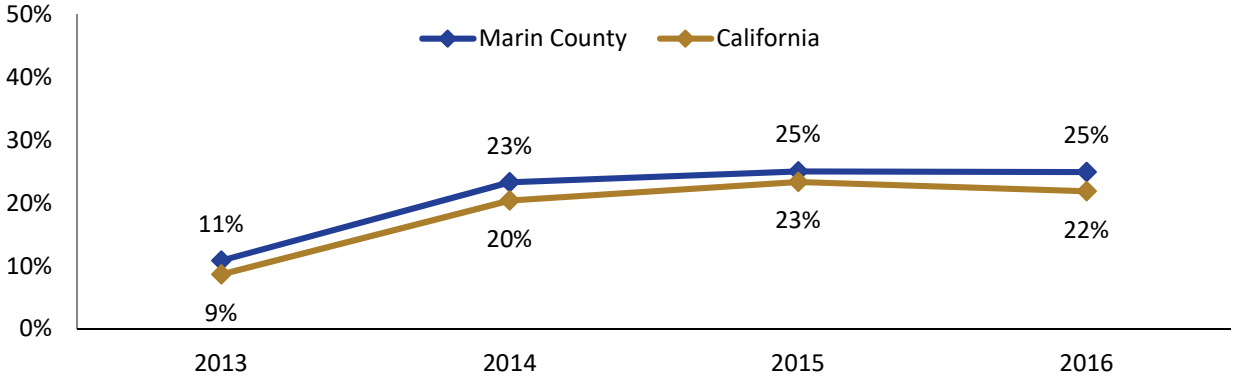
The percentage of adults on Medi-Cal aged 35-64 years (Figure 4-I) and aged 65 and older (Figure 4-J) receiving an annual visit increased between 2013 and 2014, likely due to the reinstatement of Medi-Cal dental benefits for adults. Since 2014, though, rates for both age groups has remained stable and on par with California.

Figure 4-I. Annual dental visits among Medi-Cal eligible adults aged 35-64 years, Marin County and California 2013-2016



Source: 2013-2016, Dental Utilization Measures and Sealant data, Medi-Cal Dental Services Division, Department of Health Care Services

Figure 4-J. Utilization of any dental services by Medi-Cal eligible adults aged 65 and older, Marin County and California, 2013-2016

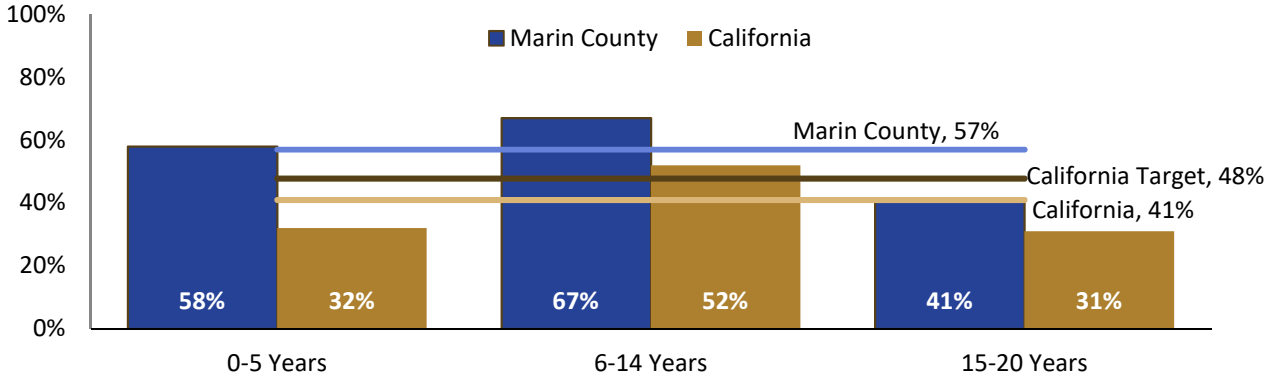


Source: 2013-2016, Dental Utilization Measures and Sealant data, Medi-Cal Dental Services Division, Department of Health Care Services,

Preventive Dental Visits

Marin children and youth with Medi-Cal insurance received a preventative dental visit in 2016 at higher rates when compared to their counterparts in California. Marin 6 to 14 year olds have surpassed and birth to five year olds have met the California Target for 2020 (Figure 4-K). However, transitional age youth (15-20 years) had significantly lower rates.

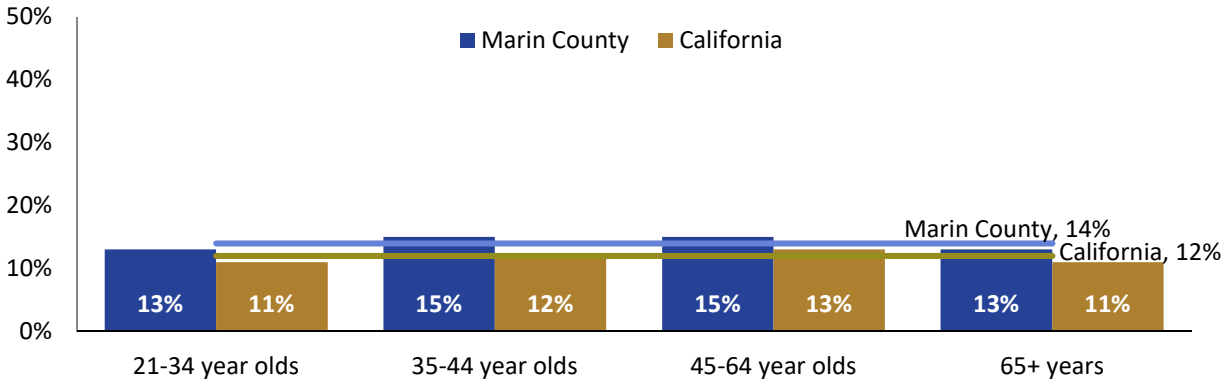
Figure 4-K. Use of preventive dental services by Medi-Cal eligible children (0-20 years), Marin County and California, 2016



Source: 2016 Dental Utilization Measures and Sealant data, Medi-Cal Dental Services Division, Department of Health Care Services; 2018-2028, California Oral Health Plan, California Oral Health Program, CDPH

Adults 21 years and older with Medi-Cal have significantly lower rates of preventive dental visits compared to children and youth, but they are slightly better when compared to all adults in California. Rates among adults are similar across age groups (Figure 4-L).

Figure 4-L. Use of preventive dental services by Medi-Cal eligible adults (21+ years), Marin County and California, 2016

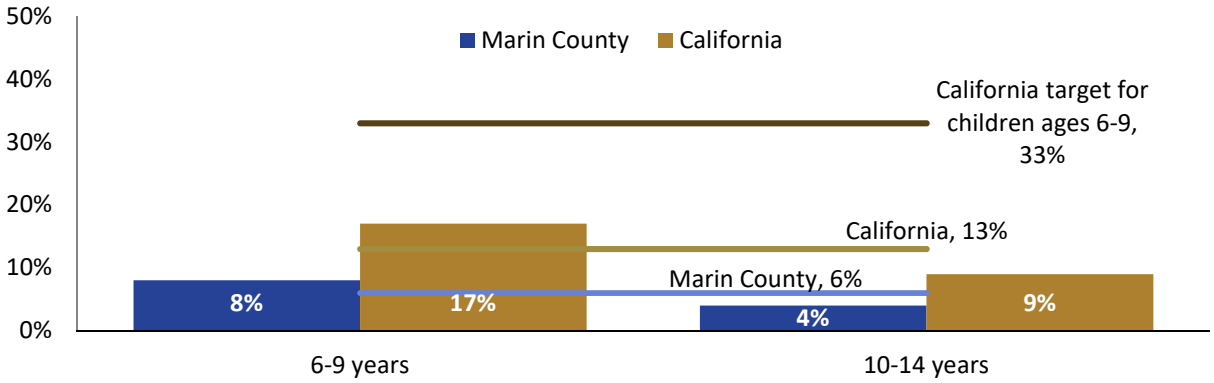


Source: 2016, Dental Utilization Measures and Sealant data, Medi-Cal Dental Services Division, Department of Health Care Services

Sealants

Preventive sealants for Marin children 6-14 years of age on Medi-Cal fall below sealant rates for children of the same age in California and well below the California target. The percentage of sealants for children aged 6-9 for Marin County is 8%, compared to the state `average of 17%. For children aged 10-14 years in Marin County, 4% received sealants compared with the state average of 9%. The California target for all children ages 6-9 years of age is 33% (Figure 4-M).

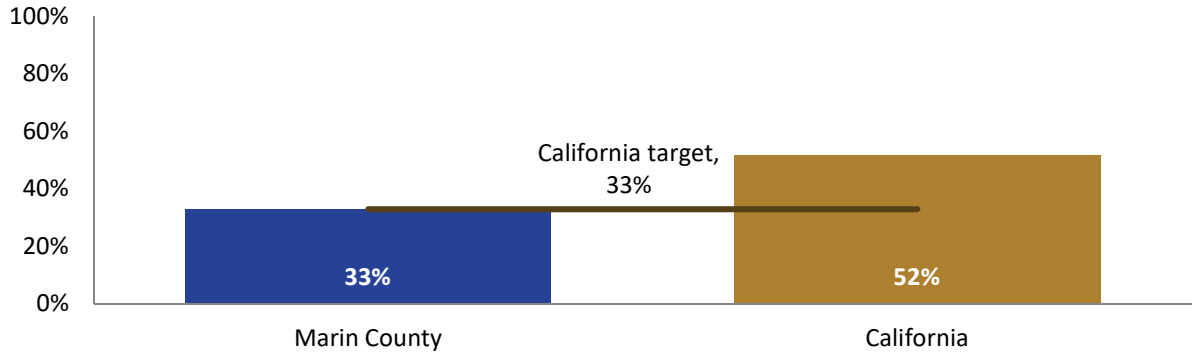
Figure 4-M. Children 6-14 years old with Medi-Cal insurance receiving sealants, Marin County and California, 2016



Note: California target is for children aged 6-9 regardless of insurance
Source: 2016 Dental Utilization Measures and Sealant data, Medi-Cal Dental Services Division, Department of Health Care Services; 2018-2028, California Oral Health Plan, California Oral Health Program, CDPH

Children aged 6-9 who receive dental care at Federally Qualified Health Centers (FQHCs) in Marin County received sealants at lower rates than children at FQHCs across California. However, this same group has reached the 2025 California target (Figure 4-N). There is wide variation in the prevalence of sealant application for children aged 6-9 (Table 4-O) across Marin FQHCs providing dental care.

Figure 4-N. Dental sealants among Children 6-9 years old at FQHCs, Marin County and California, 2017



Notes: The data listed here does not represent all of the federally qualified health centers in the county.
California target is for children ages 6-9 regardless of insurance or service provider
Source: 2017, Health Center Program Grantee Data, HRSA Health Center Program

Table 4-O. Dental sealants among children 6-9 years at FQHCs in Marin County, 2017

Health Center Name	Patients Aged 6-9 With Sealants to First Molars (%)
Marin Community Clinic	32
Coastal Health Alliance	50
Marin City Health & Wellness Center	71

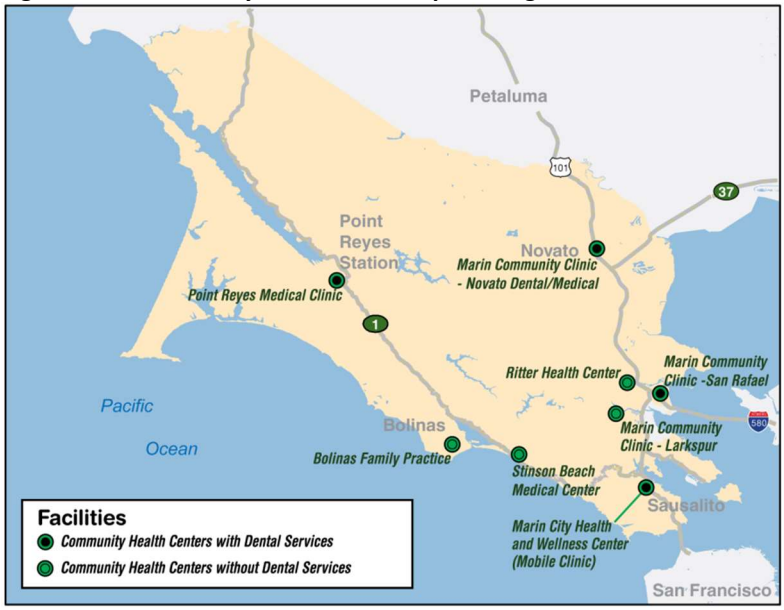
Note: Data is unavailable for the Ritter Center as it does not offer dental services
Source: 2017, Health Center Program Grantee Data, HRSA Health Center Program

5. Dental Workforce Capacity

Having a robust oral health workforce is essential to closing the gaps in oral health outcomes in Marin. Resources from dental hygienists to dental specialists are needed to successfully fulfill the needs of Marin County's most vulnerable populations. Marin's FQHCs are critical resources in this effort. This assessment found that there is a workforce gap in Marin County. According to the American Dental Association, in 2017 there were approximately 61 dentists working per 100,000 individuals nationwide[16]. Below is a snapshot of the current dental providers and health centers that are assisting vulnerable populations within the county.

The majority of community health centers in Marin County provide dental services in low-income communities (Figure 5-A). However, there are not enough providers accepting Denti-Cal to meet the need of Marin residents.

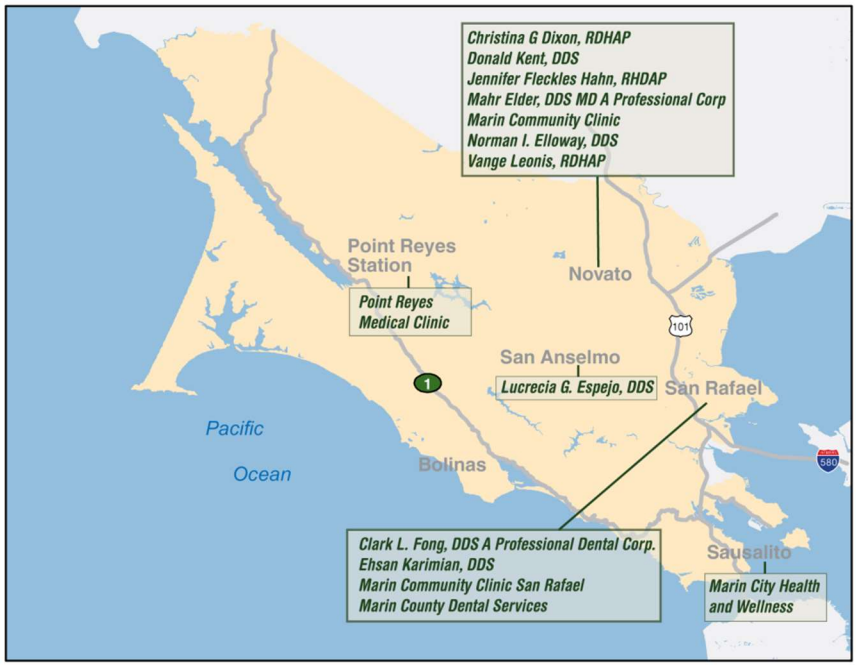
Figure 5-A. Community Health Centers providing dental services in Marin County, 2018



Source: 2018, Profile of Enrolled Medi-Cal Dental Fee-for- Service Providers and Safety Net Clinics, California Health and Human Services Agency

[16] 2018. Workforce. American Dental Association. Retrieved from https://www.ada.org/en/science-research/health-policy-institute/dental-statistics/workforce. Accessed November 1, 2018

Figure 5-B. Denti-Cal providers in Marin County, 2018



Source: 2018, Profile of Enrolled Medi-Cal Dental Fee-for-Service Providers and Safety Net Clinics, California Health and Human Services Agency

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Appendix A: Focus Group and Key Informant Interview Roster

Marin Oral Health Strategic Plan Focus Groups & Key Informant Interviews

Focus Group Population
1) Spanish Language Parents
3) Pregnant, Spanish Language Women
2) Spanish Language Adults/Uninsured Adults
4) Older Adults

Key Informant Interview Topic	Organization
FQHC adult OH and access/barriers	Marin Community Clinics
FQHC rural OH issues	Coastal Health Alliance
FQHC OH in vulnerable pop/geography	Marin City Health and Wellness
OH among low-income under 5	Head Start
Older OH adults access, needs, barriers	HHS. Previously an office assistant at HHS Dental Clinic scheduling appts & referrals.
Youth and tobacco	Marin County Office of Ed
Access to OH services in West Marin/rural areas	West Marin Community Services
Women, children, adolescent OH access through WIC, CHDP, MCAH	HHS
OH and school-aged children	Ross Valley School District

Appendix B: Focus Group Analysis

Participant Recruitment

For all focus groups, key stakeholders among each target population were identified by the Marin Local Oral Health Plan Steering Committee, as well as a location to host the focus group. Next, a flyer was created advertising the focus group which stated the purpose, date, time and duration of the session. Compensation for participating in the focus group came in the form of a gift card.

Target Populations

The following focus group populations were selected based on the findings from the review of existing secondary data.

- Spanish speaking parents of children 0-5 years
- Low income pregnant women (Providers working with low income pregnant women)
- Spanish speaking insured and uninsured adults 25-34 years who are housing insecure
- Older adults insured and uninsured

For Spanish speaking parents of children 0-5 years, the focus group took place on May 3rd, 2018 at the Marin Childcare Council in San Rafael, CA. HTA conducted a focus group with health professionals that work in perinatal services in order to gather further information on pregnant women. The focus group took place at the Perinatal Services Networking Meeting in San Rafael, CA on May 9th, 2018. The older adult focus group took place at the Maria B. Freitas Senior Housing in San Rafael, CA on May 23rd, 2018. The Adult Focus group took place on June 28 at the Ritter Center. A survey assessing adult behavioral risk factors was also administered.

Group 1: Spanish Speaking Parents of Children 0-5 Years

In this focus group, there were seven participants. All of the participants were parents of children under the age of five.

"If I had a magic wand"

All of the participants agreed that if they could change one thing that would help them gain better access to good oral health it would be having health insurance that included dental coverage for adults.

Dental Visits

All of them began taking their child to the dentist between the ages of 0-2 years.
Most of the parents take their children three times per year to the dentist. The most common appointment is the routine dental checkup; other possible reasons they had visited the dentist ranged from having a filling or a dental cleaning that includes getting fluoride varnish. One parent mentioned that with more dental visits, there is less need for their child to brush their teeth so much.

For their own oral health, most of the parents said they should go the dentist every six months. One parent mentioned going to the dentist depending on need of, for example, a filling.

Access to care/ identifying barriers

When asked about dental insurance coverage, while all of the participants' children had insurance, not all of the parents had insurance. Participants agreed that having insurance would make it easier to go the dentist. Out of all of the participants, only three acknowledged having dental insurance with one participant having only seasonal employment with insurance. The rest of the parents indicated that clinics are not always open to new patients and the private dental services they receive are expensive. However, a parent noted they had access to a discount for certain services.

Below are a few quotes from the discussion regarding the costs of dental care.

- "I didn't go to the community clinic and had to go with another dentist and they would charge more. It was one hundred and something for cleaning, if you had to get a tooth removed more. That's why I didn't go as much, because then I couldn't pay."

- "I personally would pay $160.00 for the cleaning because I don't use that insurance as much. In the clinic in Novato and I think in San Rafael, it is the same, they don't accept new patients. It's hard to go to one place only. In my case I would rather pay for a private dentist."

- "I only have insurance during the 10 months that I work. For the rest of the year I don't have insurance neither health nor dental insurance. During the school year I work."

Knowledge of oral health practices

For their children's oral health, the majority of the participants agreed that taking away the baby bottle early, making sure their children floss and brush their teeth, and getting a fluoride varnish during a dental cleaning is very important. For their own oral health, all of the parents agreed they need to take care of their own teeth. All of the participants were nonsmokers; all of them brush and floss their teeth and use mouth wash. One of the participants stays away from sugary drinks since they do not go the dentist often. The self-reported rate of brushing their teeth ranged from twice to three times per day.

Access to oral health information

When it comes to distributing information on oral health to the Latino community, the participants indicated using places such as schools/pre-schools; libraries are good starting points in engaging community members in education on good oral health practices. Specifically, workshops at one or more of these areas have been successful.

One participant mentioned that receiving education through their dentist has helped them as well. Another participant mentioned coming back to the Marin Childcare Council when there is an attendance upwards of twenty-five people is another way of distributing information on best oral health practices.

Interventions and programs

When asked what would help them or their child receive better and easier dental care, most of the participants said having dental insurance that is low cost, accepted by most private dentists in the county, and accessible for dental cleanings and other prevention treatment would be great. Many private dentists do not accept Medi-Cal patients, making access to some services such as cleanings, and sealants for their children and themselves difficult.

One parent suggested bringing dental services to schools as they currently have vision and hearing services offered. As for language, only one of the participants mentioned an issue with translation; however the rest of the parents noted the school nurses know Spanish.

Improving experience with the dentist

Most of the parents interviewed indicated their children have had good experiences at the dentist. The information shared with them was done in a respectful and caring manner, with consideration for the wellbeing of their child's oral health for the future. As for language, all of participants indicated they were able to communicate with the dentist in Spanish. Transportation was not an issue in access to care; some of the parents are able to walk to their dentists while others are able to get to their appointments easily by car. Another parent mentioned a constant fear of going the dentists, stating "I have to tell the dentist not to show me the needle, if not I have trouble sleeping."

Perception of oral health best practice

The majority of the parents felt they needed to go to the dentists either twice per year or every three months, depending on the status of their teeth. One parent mentioned they were recommended to go once per year depending on the results of their dental exams, indicating a high reliability and confidence in their dental provider.

For their children, one parent mentioned their child should go every three months; while other parents said it depends on the state of child's teeth. Depending on their oral health status, the child may need to go four to five times per year.

For oral hygiene practices, one parent noted difficulty in having their child brush their teeth daily.

Group 2: Perinatal Service Employees

There were thirteen participants in this focus group with diverse occupations representing the following entities.

- Marin Community Clinic
- Marin City Health and Wellness

- Marin Head Start
- Marin Family Connection
- Parent Services Project
- Marin County, Nutrition Moms Program
- Opening the World
- Canal Walk In Center
- Marin County, Motherhood Program

Oral health within the perinatal population

One of the participants noted that at the Marin Community Clinic, oral health is integrated: every pregnant woman that comes into the clinic receives a dental referral. The special clinic in the dental department takes care of them. Perinatal Case Managers make sure their patients go to their dental appointments. Another participant noted that when a pregnant woman or child comes into the clinic the patient is asked if they have received dental care. If they have not, a home visitor will work with the mother to connect them with the Marin Community Clinic. This is part of the performance standards and it is part of what they report to the office of Head Start yearly. A participant stated that clinics are not required to follow up on the expectant mother's dental referral.

Once a child between 0-5 years old has entered their program, they are required to have a dental home, exam, and follow up treatment.

Barriers in access to oral health care

Focus group participants noted that lack of access to dental insurance is a big barrier in accessing dental care for expecting mothers. Participants from a Clinic noted that the perinatal patients that come to them know about perinatal dental coverage.

However, another participant noted that most clinics in the county are doing a good job informing mothers about any additional coverage regardless of their immigration status.

Comprehensive Perinatal Services Program (CPSP) assessment and referral

A representative of the Marin City Health and Wellness Center indicates that they do a CPSP assessment through coordination with the Marin County Birth Center. This center is an access point for Marin City Health and Wellness specifically for pregnant women. They have integrated dental services but are only located in Marin City.

For patients that are home bound or have transportation issues, they have been using a recently purchased mobile van to assist. They have also been trying to forge collaborations to promote oral health care. At the Marin County Birth Center, they do not provide dental services; however through the CPSP assessment dental referrals are possible if the patient is getting the necessary information.

Group #3 Adults Insured and Uninsured – English

Demographics: The participants ranged in age and ethnicity, with the age range between 48 and 68 years and ethnicities ranging from White, African American, Asian, to Latino and mixed. All of the participants are unstably housed with some having additional health issues due to previous drug use.

Dental experience

The majority of participants had experience going to the dentist in their youth. However, many were being seen by the dentist through the Ritter Center for the first time in a few years.

Half of the participants reported having a good experience with going to the dentists. The most common reason was the opportunity to build a relationship with the clinic staff. The group agreed that it was challenging getting the care needed for those who are housing insecure. Another participant noted that when he was seen by a dentist at the Ritter Center, he felt no pain during the appointment and felt respected by the staff. This sentiment was echoed by a third participant, saying the dental staff at the Ritter Center had an open communication with them, let them know "what needs to be done and what they were doing; the wait time is short too."

- "When you're down and out skipping around from place to place, you don't get the care you really need because no one really cares."

Of those who reported having a negative experience, the cost of care and the lack of health insurance were the primary causes behind issues such as;

- Long wait time
- Disrespect
- Scheduling and cancellation issues
- Impeding health issues such as high blood pressure

One participant noted, "It's an individual experience, there's gonna be good and bad;" to which everyone agreed.

Barriers in access to care

The primary barrier in accessing dental care noted by participants was the long wait time while at the clinic. The second barrier was the level of insurance coverage. None of the participants had issues with transportation, as most stated they live within walking distance or a quick car ride.

When asked about what would make it easier to go the dentist; nearly all of the participants stated less wait time in the clinic as the top item. This was followed by a notification system that makes it easy to schedule and cancel appointment; this includes the opportunity to speak to a person and not an automated system when issues arise. Another participant noted,

- "I think if you're in the pipeline, that's great. I want to be there, it's great to be there. But, if you're waiting for a slot that's not gonna be for weeks, most of the time I'm told to 'check in.' There's no consideration of how I want or need to be there."

Importance of oral health

When asked about the need to go the dentist, all of the participants agreed that it "depends on the situation" such as the state of one's teeth. One participant however, noted that s/he goes once a year for preventive measures saying, "they ask questions, like are you brushing, are you flossing; ya' know just for maintenance."

Regarding oral health practices, two participants noted brushing their teeth twice per day while one mentioned he brushes lightly after every meal. Another participant noted he brushes, flosses and stays away from juices and sugar. Other participants noted difficulty in maintaining good oral health practices due their prescriptions and dentures. One participant mentioned he is more concerned with people trying to steal his dentures in his sleep than maintain oral health practices; citing another issue faced by the housing insecure community in Marin County.

Oral health education and information

The majority of participants mentioned they receive information in the following ways;

- Commercials
- Dentists
- Family members (in the past)

Receiving information from the dentist was noted as the best way to receive information and additional education on oral health practices.

Tobacco consumption

All of the participants were aware of the impact of smoking on their teeth. While another person noted they do smoke however they do all they can to minimize the effects; He then went on to describe how he takes out his dentures and scrubs them a lot to take off the cigarette residue. Another participant recalled learning about the impact of any harsh chemical on their teeth and another mentioned oral health impacts from drug abuse.

- "I've been smoking for years, I've tried to cut down on smoking but it's still tough to quit."
- "It's the same thing with meth (drugs); you will lose your teeth."

"If I had a magic wand"

When asked if they could change one thing about their access to good oral health, they responded with the following;

- Have someone do it for me
- Get both teeth fixed
- Choose a family member to be a dentist, "If my dad was a dentist, I wouldn't have had this many dental problems."
- Proximity, "like having a gym next door"
- Seeing a dentist every other week, being updated on what's going on, what you may or may not need, "helping me get straight."
    - "I like to look nice, be clean, people don't know I'm homeless but I am. I'm back on the mend."

Group #4: Adults Insured and Uninsured – Spanish

Two of the participants were monolingual Spanish speakers. As a result, their responses have been separated from the other participants. Both speakers were women, of Latino/Hispanic descent, and were 59 and 62 years of age.

Dental experience

Out of the two, only one had a previous experience in going to the dentist. The other participant noted her first time going to the dentist was about two months ago. Both were happy to be at the Ritter Center.

- "I am in the process at the moment to schedule an appointment here with Oscar. I am waiting to have my appointment set-up and I'm happy to be here at this clinic."
- "Thank you for having us here today, this is important for us. I went to the dentist for the first time about two months ago in this clinic and last Thursday was my most recent visit to the dentist. "

When asked about whether their dental experience was positive or negative, one participant noted she first started going to MCC and later was referred to the Ritter Center. One participant had bad experiences previously. She thought it was important to have the same person (dentist) doing the check-ups to build trust.

- "I want to have the same doctor, because it's a problem when they change. Sometimes they don't know what has been done previously."

Barriers in access to care

Transportation: One of the women mentioned she has had transportation issues to get to appointments to Novato. While the other participant noted she had transportation arranged by the clinic and was unsure of other available options.

Cost of Treatment: One participant noted barriers with cost, because she needed a procedure not covered by Medi-Cal at Marin Community Clinic.

Wait Times: A participant noted she was attempting to get a low-cost specialist appointment in SF but the wait has been long.

Importance of oral health

When asked how frequently they believe they should go to the dentist, participants stated the following; "when you have a problem with your teeth is when you should go to the dentist." On the other hand, the other woman thinks that you need to go for cleaning every six months and for check-ups every three months or if you really need it, about 3 to 4 times per year.

Both participants mentioned that they brush their teeth three times per day

- It is “important keeping your teeth clean.”

Oral health education and information

One the women mentioned she hasn’t received information in the past regarding oral health. She found out about the Ritter Center because of a friend and has been receiving information from the Ritter Center.

The other woman mentioned a staff member informed her to get information from the Ritter Center regarding oral health. Regarding her previous dental experience she said; “I hadn’t received information in the past… here they give you information.”

Tobacco consumption

Both participants both mentioned that they don’t smoke or use any tobacco product.

“If I had a magic wand”

When asked if they could change one thing to improve access to good oral health, both women consider a location that was close by. Having more information about oral health resources and help with cost of treatment were also mentioned as important.

- “I would need help getting with the cost and having a closer place to access oral health.

Group #5: Older Adults Insured and Uninsured

Demographics: All 9 participants were female, ethnically diverse, and ranged in age from 67 to 97 years.

Dental experience

When asked about early experience with dental care, the majority of the participants had a good experience at the dentist while others reported fear and pain.

Some of the factors that made for a positive experience included:

- a dentist with great chairside manner,
- attentive and respectful dentists and staff
- trust
- dentists that keep them informed as to necessary treatment and cost.

Barriers in access to care

Insufficient Access to Providers Accepting Denti-Cal Patients

The majority of participants acknowledged they have had dentists they have gone to for many years. One participant described the ways in which she had struggled to maintain a long-term patient/provider relationship once they she had been moved onto Medi-Cal.

Other participants mentioned the difficulty in finding a dentist that would take Denti-Cal. Another concern was the limitations of Denti-Cal which did not cover costly procedures that some members of the group were encountering in their senior years.

All of the participants mentioned the cost for procedures due to the lack of insurance coverage as being the biggest barrier in accessing care. One of the participants mentioned that she has had issues with making payments,

- "I told the doctor it's easier to have a root canal, they don't wanna take payments."

Participants felt that the stereotype of being a Medi-Cal patient has had a significant impact on the participants receiving adequate dental care.,

- "They don't like Medi-Cal patients."

Transportation: While the participants were able to make appointments by taking the (Name of the bus system) or by getting a lift from their staff at the senior residence, transportation was cited as a barrier to access for some.

Importance of oral health

All of the participants noted a strong importance in maintaining good oral hygiene. Most of the participants acknowledge brushing their teeth twice per day, while three women said they brush their teeth after every meal.

As a result, she would only go the dentist three times out of year. Another participant noted, "It's better to take care of them now, before you lose them" in which all of the participants agreed. As for flossing, a participant said,

- "If you want your teeth to stay in your mouth, you gotta do it every night."

Dental care in the "Golden Years"

The changes in oral health needs experienced by the participants in their senior years ranged from crowns and fillings to receding gums and bridge work.

In terms of being able to care for their teeth, none of the women have had mobility issues that interfered with dental hygiene.

The key issue for the group was that they were on limited income at a time when their growing dental care needs required specialist treatment that was not covered by Medical/DentiCal or they simply could not find a provider taking new patients. The quotes below were encompassing of what it's like to have an increase of oral health issues while being on Medi-Cal insurance.

- "A crown pulled out one day, a tooth pulled out the next."
- "Thing is as you get older, your teeth are changing."
- "My laugh is money; I need to think about Medicare."

Solutions to issues in access care

The group suggested that strategies for increasing access to oral health care in Marin County should include expanding the number of dentists that accept Medi-Cal, making financial support for oral healthcare costs available, and improving access to transportation/the transportation system for seniors.

- "There's a lot of money in Marin that could become possibly available to seniors."

- “Why can’t there be agencies seniors can go to find insurance that’s not too high, dentist that have good reputations?”

Oral health education and information

All of the participants noted that the best way to get information out to the older adult community is through their dentist and through word of mouth. All of the respondents noted they have some knowledge around the impact of oral health on the body.

“If I had a magic wand”

All of the participants agreed that having affordable insurance that does not elicit a stigma from providers as the one thing that should be changed around oral health.

Appendix C: Adult Oral Health Behavioral Risk Factor Survey Instrument

Across California, there is a movement to improve Oral Health and this survey is part of a larger assessment that will help communities decide on what will work best to improve oral health in their location.

We are interested in your responses, we will use the information you provide today to help us as we begin to plan and implement a Local Oral Health Plan in Marin County. All of your responses will be confidential; we are not asking for any identifiable information. The survey should take no more than 5 minutes to complete. Thank you for taking the time to participate in this survey.

Please mark your answer to each of the questions by completely darkening the oval of your response

Answer Selection: Correct = ● Incorrect = ⊗ ✓ ⊖

1. What is your age:

- ☐ 18-25
- ☐ 26-34
- ☐ 35-44
- ☐ 45-64
- ☐ 64 and older

2. What is your race (**select all that apply**):

- ☐ White
- ☐ Black or African American
- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Pacific Islander
- ☐ Other (*please specify*): _____

3. Are you Hispanic or Latino?

- ☐ Yes
- ☐ No

4. Do any of the below conditions relate to you (**select all that apply**):

- ☐ Pregnant
- ☐ Living in an assisted living community

- ☐ Parent of child (0-18 years)
- ☐ Special needs
- ☐ Living in an independent living community
- ☐ Living in a shelter
- ☐ Employed by Marin County
- ☐ None of the above

5. When was the last time you visited the dentist or a dental clinic? (**select only one**):

- ☐ Within the past year (0 to 12 months ago) → **go to Question 7**.
- ☐ Within the past 2 years (1 to 2 years ago)
- ☐ Within the past 5 years (2 to 5 years ago)
- ☐ 5 or more years ago
- ☐ Don't know / Not sure
- ☐ Never

6. What is the main reason you have not visited the dentist in the last year? (**Select only one**):

- ☐ Fear, apprehension, nervousness about going to the dentist or dislike going.
- ☐ Lack of sufficient money/Cost too high
- ☐ Do not have a dentist / Don't know where to get dental care
- ☐ Cannot get to the office/clinic (too far away, no transportation)
- ☐ No appointment available at times I can go
- ☐ Can't find a dentist that accepts my insurance
- ☐ No reason to go (no problems, no teeth)
- ☐ Dental care is not a priority for me
- ☐ Have not thought of it
- ☐ Don't know / Not sure
- ☐ Other (please specify): _____

7. How many of your permanent teeth have been removed because of tooth decay or gum disease. Do not include teeth lost for other reasons, such as injury or orthodontics. (**Select only one**):

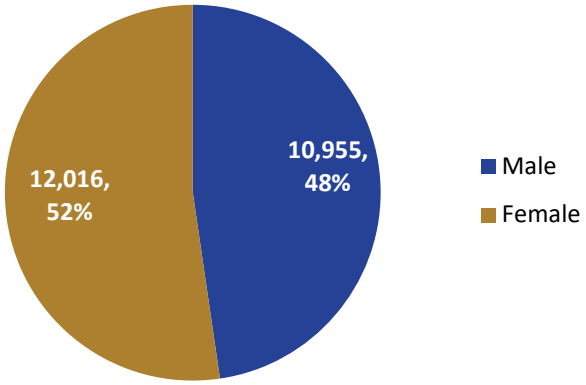
- ☐ 5 or fewer
- ☐ 6 or more but not all
- ☐ All
- ☐ None
- ☐ Don't know / Not sure

8. Do you have any kind of insurance coverage that pays for some or all of your routine dental care, including dental insurance, prepaid plans such as HMOs, or government plans such as Medicaid?

- ☐ Yes
- ☐ No
- ☐ Don’t know / Not sure

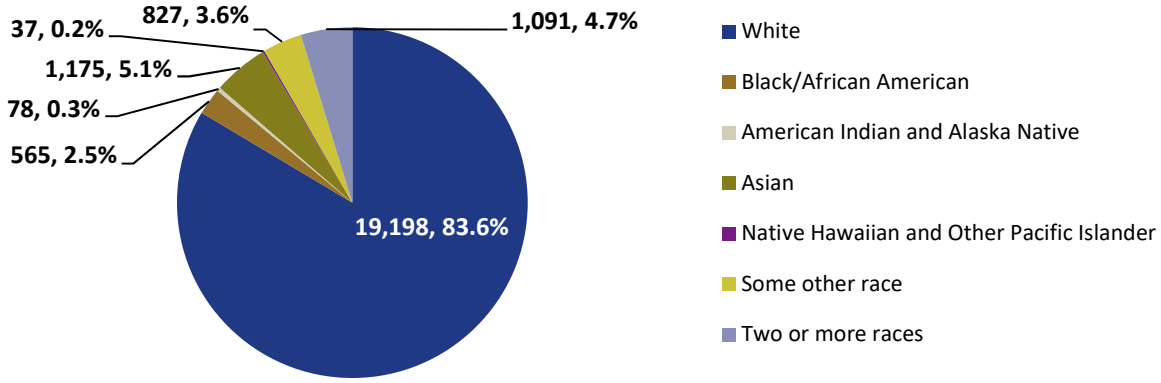
Appendix D: Additional Data

Table and Figure E-1. Residents with a disability by sex, Marin County, 2016



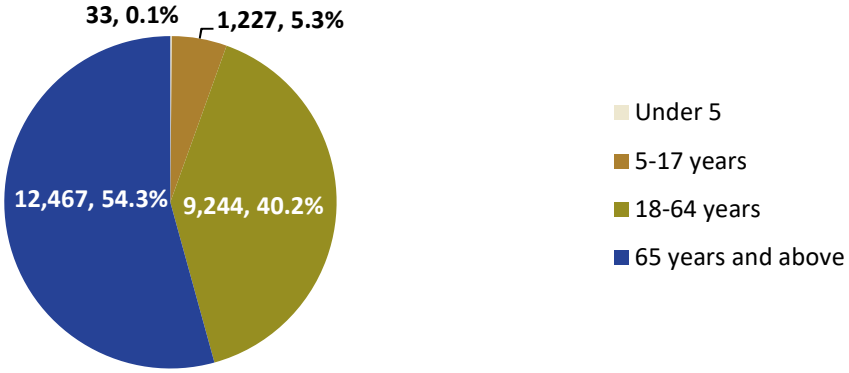
Source: 2012-2016 5-Year Estimates, Disability Characteristics, Table S1810, U.S. Census Bureau, American Community Survey

Table and Figure E-2. Residents with a disability by race, Marin County, 2016



Source: 2012-2016 5-Year Estimates, Disability Characteristics, Table S1810, U.S. Census Bureau, American Community Survey

Table and Figure E-3. Population with a disability by age, Marin County, 2016



Source: 2012-2016 5-Year Estimates, Disability Characteristics, Table S1810, U.S. Census Bureau, American Community Survey

Table E-4. Patients with preventable dental emergency department visits by age, among Marin residents seeking emergency care for dental emergencies within county, 2016

Age	Dental ED Visits	Total ED Visits
< 1	3	960
1-5	44	3475
6-17	35	6,347
18-44	212	15,729
45-64	138	14,774
65-84	44	12,106
85+	11	4,176
Total	487	57,567

Source: 2018, Preventable Dental ED Visits, OSHPD

Table E-11. Dental visit during pregnancy by age, Marin County and California 2015-2016

	Total			Maternal Age								
				15-19			20-34			35+		
	Prevalence (%)	*95% CI*	*Annual Population Estimate*	*Prevalence (%)*	*95% CI*	*Annual Population Estimate*	*Prevalence (%)*	*95% CI*	*Annual Population Estimate*	*Prevalence (%)*	*95% CI*	*Annual Population Estimate*
CA	43	(41.6-44.4)	206,500	34	(27.6-40.4)	7,400	42	(39.9-43.1)	147,900	50	(47.0-53.3)	51,100
Marin	73	(66.5-78.2)	1,600	-			75	(68.4-82.2)	900	69	(58.9-79.5)	600

Note: -- Estimate not shown because the relative standard error (RSE) is greater than 50%, fewer than 5 women reported, or the weighted population denominator for the column is less than 100 women. CI = Confidence Interval.
Source: 2016 Dental Visit during Pregnancy among California Women with a Recent Live Birth by County and Region, Maternal and Infant Health Assessment (MIHA) Survey, 2015-2016.

Table G12. Dental visit during pregnancy by race/ethnicity, Marin County and California, 2015-2016

	Total			Race/Ethnicity											
				Asian/Pacific Islander			Black			Latina			White		
	Prev. (%)	*95% CI*	*Annual Pop. Est.*	*Prev. (%)*	*95% CI*	*Annual Pop. Est.*	*Prev. (%)*	*95% CI*	*Annual Pop. Est.*	*Prev. (%)*	*95% CI*	*Annual Pop. Est.*	*Prev. (%)*	*95% CI*	*Annual Pop. Est.*
CA	43	(41.6-44.4)	206,500	48	(43.3-51.7)	35,400	34	(30.7-37.4)	8,800	36	(34.0-38.0)	82,500	52	(49.9-54.9)	71,300
Marin	72	(66.5-78.2)	1,600	76*	(59.1-92.1)	100	-			74	(62.9-84.5)	500	74	(66.6-81.0)	900

Note: Percentages marked with an asterisk (*) should be interpreted with caution due to low statistical reliability. CI = Confidence Interval.
Source: 2016 Dental Visit during Pregnancy among California Women with a Recent Live Birth by County and Region, Maternal and Infant Health Assessment (MIHA) Survey, 2015-2016.

Table G13. Dental visit during pregnancy by health insurance, Marin County and California, 2015-2016

	Total			Prenatal Health Insurance					
				Medi-Cal			Private		
	Prevalence (%)	*95% CI*	*Annual Population Estimate*	*Prevalence (%)*	*95% CI*	*Annual Population Estimate*	*Prevalence (%)*	*95% CI*	*Annual Population Estimate*
CA	43	(41.6-44.4)	206,500	34	(31.8-35.5)	80,900	54	(51.9-56.2)	115,100
Marin	72	(66.5-78.2)	1,600	74	(62.8-85.7)	500	72	(65.3-78.7)	1,000

Note: CI = Confidence Interval.
Source: 2016 Dental Visit during Pregnancy among California Women with a Recent Live Birth by County and Region, Maternal and Infant Health Assessment (MIHA) Survey, 2015-2016.

Table G14. Dental visit during pregnancy by income, Marin County and California, 2015-2016

	Total			Income								
				0-100% FPL			101-200% FPL			> 200% FPL		
	Prevalence (%)	*95% CI*	*Annual Population Estimate*	*Prevalence (%)*	*95% CI*	*Annual Population Estimate*	*Prevalence (%)*	*95% CI*	*Annual Population Estimate*	*Prevalence (%)*	*95% CI*	*Annual Population Estimate*
CA	43	(41.6-44.4)	206,500	33	(30.9-35.4)	54,000	33	(30.0-36.0)	31,300	58	(56.2-60.7)	105,400
Marin	72	(66.5-78.2)	1,600	75*	(60.0-90.3)	400	55	(34.4-75.9)	100	75	(68.2-81.5)	1,000

Note: Percentages marked with an asterisk (*) should be interpreted with caution due to low statistical reliability. CI = Confidence Interval.
Source: 2016 Dental Visit during Pregnancy among California Women with a Recent Live Birth by County and Region, Maternal and Infant Health Assessment (MIHA) Survey, 2015-2016. Percent's marked with an asterisk should be interpreted with caution due to statistical instability

Table G14. Dental visit during pregnancy by education level, Marin County and California, 2015-2016

	Total			Education								
				High school/GED or less			Some college			College graduate		
	Prevalence (%)	*95% CI*	*Annual Pop. Estimate*	*Prevalence (%)*	*95% CI*	*Annual Pop. Estimate*	*Prevalence (%)*	*95% CI*	*Annual Pop. Estimate*	*Prevalence (%)*	*95% CI*	*Annual Pop. Estimate*
CA	43	(41.6-44.4)	206,500	33	(30.8-35.4)	53,600	40	(37.1-42.1)	58,200	56	(53.4-58.3)	91,800
Marin	72	(66.5-78.2)	1,600	79	(67.5-90.5)	400	56	(37.7-74.2)	200	74	(67.0-80.7)	1,000

Note: CI = Confidence Interval.

Source: 2016 Dental Visit during Pregnancy among California Women with a Recent Live Birth by County and Region, Maternal and Infant Health Assessment (MIHA) Survey, 2015-2016.

Table G15. Oral cavity and pharyngeal cancer rates (age-adjusted), Marin County and other San Francisco Bay Area counties, 2010-2014

Region	Population at Risk	Cases	Crude	Age-adjusted Rate	95% CI
Marin	1,284,011	270	21.03	14.64	[12.89,16.60]
San Francisco	4,145,362	566	13.65	11.66	[10.70,12.68]
Contra Costa	5,406,158	640	11.84	10.34	[9.54, 11.20]
Alameda	7,796,539	775	9.94	9.34	[8.68, 10.04]
Santa Clara	9,207,845	908	9.86	9.5	[8.88, 10.15]
Total	27839915	3159	11.34702	10.28	[9.92, 10.66]

Source: California Cancer Registry 2016, Invasive Cancer Incidence Rates by County, Oral Cavity and Pharynx (2010-2014)