Oral Health Community Health Assessment

Butte County Public Health Department

August 2018

harder co | community research

Butte County PUBLIC HEALTH

Contents

Executive Summary

The health of a person's mouth and teeth play an important role in one's overall health and well-being. A healthy mouth supports a person's ability to eat, speak, and have confidence in their appearance. Poor oral health, on the other hand, can result in pain, difficulty with daily activities including work and school, and untreated dental diseases, including tooth decay and dental caries, gum disease, and oral cancers.

In 2018, the Butte County Public Health Department (BCPHD) received funding from the California Department of Public Health (CDPH) to establish a local oral health program that would support the goals and strategies set forth in the California Oral Health Plan 2018-2028. Funded by Proposition 56, this five-year grant (2018-2022) will enable BCPHD to educate county residents about oral health and dental disease prevention, address common risk factors for oral health diseases, and increase access to oral health and dental health services.

As a first step in its local oral health program, BCPHD launched a process to develop a comprehensive Oral Health Community Health Assessment (CHA). This Oral Health CHA entails the collection, analysis, and synthesis of primary and secondary data that describe oral health status and needs in the county. In particular, the Oral Health CHA is informed by an interest in understanding how the social determinants of health—including factors such as education, concentrated poverty, and access to other community resources—influence oral health outcomes. The key questions that guided data collection for the CHA were:

1. What is the status of oral health in Butte County?

2. How do oral health needs vary for different populations in Butte County, including traditionally underserved or marginalized communities?

3. Given this data, what are Butte County's oral health needs?

From April to August of 2018, BCPHD collaborated with Harder+Company Community Research to support the development of its Oral Health CHA. This process included the convening of key local stakeholders in an Oral Health Coalition; the collection and analysis of both primary and secondary data describing oral health status in Butte County (including an Oral Health Community Survey of over 800 Butte County residents, as well as four in-depth focus groups with 37 individuals); and the selection of criteria to help prioritize oral health needs.

Key findings from data analysis include:

- Overall perceived oral health status was similar to oral health status for Californians. Adults with poor oral health status reported impacts on their ability to interview for jobs (41%), their need to take time off from work (14%), more pain and discomfort while eating (43%), and difficulty with speech (12%).

- A high proportion of adults in Butte County have dental insurance (82% in Community Survey) compared to California (61%). Insurance coverage was higher among people in the five largest cities in the county (85%) compared to those in more rural parts of the county (72%), women (84%)

compared to men (72%), and adults under age 60 (84%) compared to oder adults (58%).

- Denti-Cal was more likely to be a primary source of dental insurance coverage for residents who were African American or Black (60%), Asian (55%), or two or more races (46%). Residents who were Hispanic/Latino or white were less likely to use Dentical (31% and 25% respectively).

- Nearly all children in Butte County have dental insurance (97% in Community Survey).

- Over half (52%) of Denti-Cal recipients felt their mouth and tooth appearance affected their job interview prospects, compared to 30 percent with private insurance.

- Adults with private insurance were more likely to have a dental visit in the last 12 months (76%) compared to those with Denti-Cal (53%) or no insurance (49%). Young adults and men were less likely to have a dental visit in the past year.

- More adults use tobacco products in Butte County (17%) compared to those who smoke in California (12%), with the majority (75%) having used tobacco for eight years or more.

- One-third of adults received a recommendation for an oral cancer screening, with no significant difference between tobacco users (32%) and non-tobacco users (36%).

- Approximately half of adults (57%) and children (51%) brushed at the recommended frequency of twice per day. Less than half of adults flossed (40%) or used fluoride toothpaste (48%) at the recommended frequency of twice per day, similar to children (36% flossing; 42% fluoride toothpaste).

- Survey and focus group findings suggest mixed messages related to the benefits of fluoride. Fully fluoridated water is currently only available in Gridley and parts of Oroville.

- Key barriers to care identified for both children and adults included cost, time required to see a dentist, competing priorities, negative prior experiences, and a perceived lack of dental providers—particularly those who accept Denti-Cal—in the county.

- The ratio of population to providers in Butte County (1,400:1) is higher than in California (1,210:1), and focus group participants noted a lack of Denti-Cal providers in the county.

Findings from this Oral Health CHA suggest that Butte County has both significant strengths related to promoting oral health among its residents, as well as opportunities for improvement. These findings will form the basis for an oral health Community Heath Improvement Plan (CHIP) that aligns with California's Oral Health Plan 2018-2028 and reflects the particular needs, priorities, and strategies that are best suited to improving oral health in Butte County.

Introduction

Background

The health of a person's mouth and teeth play an important role in their overall health and well-being. A healthy mouth supports a person's ability to eat, speak, and have confidence in their appearance. Poor oral health, on the other hand, can result in difficulty with daily activities, pain, and untreated dental diseases, including tooth decay, gum disease, and oral cancers. Key factors that can influence a person's oral health include:

- Oral health and hygiene practices, such as flossing and brushing;
- Diet and behavior, including consumption of fruits and vegetables, sugary foods and drinks, and tobacco use;
- Access to regular preventive dental care;
- Protective factors within a person's community, including the presence of a sufficient number of dental providers, water fluoridation, and access to healthy foods; and
- Social determinants of health, including income level, housing status, employment, and education.

In 2017, the California Department of Public Health (CDPH) released *Status of Oral Health in California: Oral Disease Burden and Prevention 2017*[1] and the *California Oral Health Plan 2018-2028*.[2] Together, these two reports set forth a 10-year framework for improving oral health among all Californians by addressing inequities in oral health access and improving the oral health and dental systems of care that support positive oral health outcomes.

The Butte County Public Health Department (BCPHD) received funding from CDPH in 2018 to establish a local oral health program that would support the goals and strategies set forth in the California Oral Health Plan. Funded by Proposition 56, this five-year grant (2018-2022) will enable BCPHD to educate county residents about oral health and dental disease prevention, address common risk factors for oral health diseases, and increase access to oral health and dental health services.

As a first step in its local oral health program, BCPHD launched a process to develop a comprehensive oral health Community Health Assessment (CHA). This Oral Health CHA entails the collection, analysis, and synthesis of primary and secondary data that describe oral health status and needs in the county. The Oral Health CHA will then form the basis for an oral health Community Heath Improvement Plan (CHIP) that aligns with California's Oral Health Plan and reflects the particular needs, priorities, and strategies that are best suited to improving oral health in Butte County.

[1] *Status of Oral Health in California* can be accessed here.
[2] *California Oral Health Plan 2018-2028* can be accessed here.

Approach

Reflecting the focus of the California Oral Health Plan, the Butte County Oral Health CHA is informed by a particular interest in understanding how the social determinants of health—including factors such as education, concentrated poverty, and access to other community resources—influence oral health outcomes. This focus is reflected in the CHA's data collection planning, methods, and analysis.

The following questions guided the focus and analysis for the Butte County Oral Health CHA:

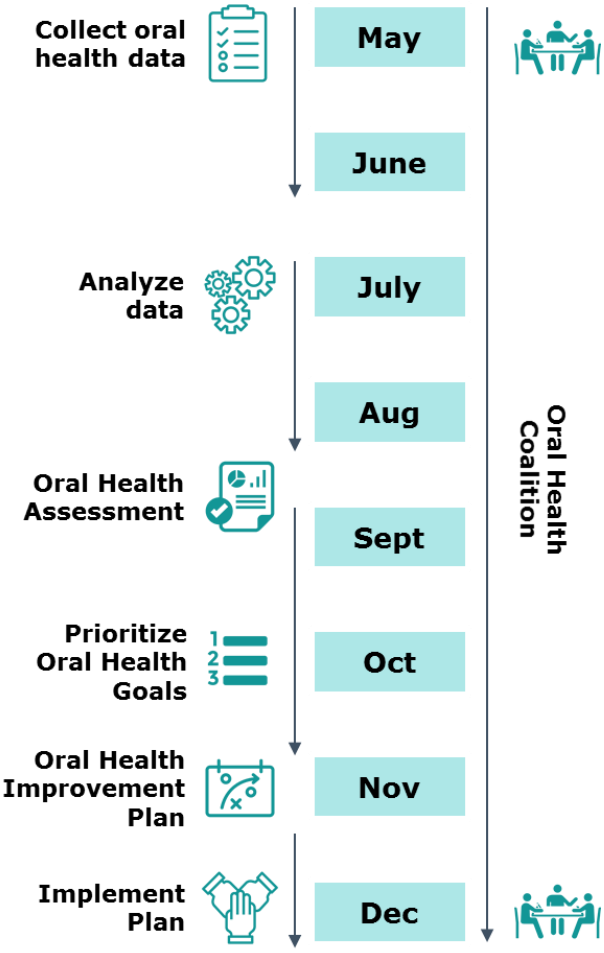
1. What is the status of oral health in Butte County, including:
    a. Oral health status,
    b. Access to care,
    c. Utilization of care,
    d. Oral health behaviors,
    e. Oral health knowledge and beliefs, and
    f. Environmental risk and protective factors?
2. How do oral health needs vary for different populations in Butte County, including traditionally underserved or marginalized communities?
3. Given this data, what are Butte County's oral health needs?

Development of the Community Health Assessment

In early 2018, BCPHD partnered with Harder+Company Community Research to support their Oral Health CHA/CHIP process. This process has included:

- **Convening a local Oral Health Coalition**. Starting in April 2018, BCPHD began to convene key oral health stakeholders in the county (including dental providers, educators, early care providers, health centers, and other community agencies) who were interested in informing and guiding the actions of Butte County's Oral Health Program. The Oral Health Coalition met on a monthly basis during the development of the CHA, and contributed to both planning and data collection. See Appendix B for a list of Oral Health Coalition members.
- **Collecting and analyzing oral health data.** BCPHD staff worked with key internal staff, members of the Oral Health Coalition, and Harder+Company to develop and implement primary data collection tools, including focus group facilitation protocols, a community oral health survey, and a dental provider survey. BCPHD and key Oral Health Coalition partners collected primary data in May and June of 2018. In addition, BCPHD staff collected secondary data from key sources of oral health information, including the California Health Interview Survey, the California Department of Health Care Services, and other secondary data collected by Oral Health Coalition members. All primary and secondary data were analyzed by Harder+Company using a data analysis plan developed in partnership with BCPHD staff. See "Methods" for more details on primary and secondary data collection.

- **Identifying criteria for prioritizing oral health needs.** BCPHD worked with the Oral Health Coalition to identify criteria to prioritize oral health needs. These criteria include:
    - *Size*: a large number or percentage of people in the community are impacted by the issue;
    - *Severity/degree of impact*: the health need has serious consequences;
    - *Disparities*: the health need disproportionately impacts specific geographic, age, or racial/ethnic populations;
    - *Prevention:* the health need presents an opportunity to intervene through prevention;
    - *Feasibility:* sufficient local resources and community support/political will are available to help ensure successful outcomes; and
    - *Leverage:* a solution could address multiple health issues or challenges.
- **Developing a Community Health Improvement Plan.** Using the criteria above, BCPHD will use the results of the Oral Health CHA to develop a Community Health Improvement Plan (CHIP), which will identify key goals for addressing the county's identified oral health needs, and the strategies that the local oral health program can employ to meet those goals.



A timeline for this process can be found at right.

Community Health Assessment report structure

This report begins with an overview of the demographics of Butte County residents, including comparisons to the population of California, as well as to respondents for each primary data collection method.

Data for the 2018 Butte County Oral Health Community Health Assessment are categorized into six topic areas: oral health status; access to care; utilization of care; oral health knowledge and beliefs; oral health behaviors; and environmental risk and protective factors. Findings across all six topic areas are synthesized to present a summary picture of oral health needs in Butte County. Next steps for the development of the Oral Health Community Health Improvement Plan are also described.

Methods

Oral health is influenced by a wide variety of factors, including individual knowledge and behaviors, community assets and gaps in services, and structural access to resources such as employment, income, and insurance coverage. BCPHD drew on existing resources—including the California Department of Public Health's *Status of Oral Health in California*, the *California Oral Health Plan 2018-2028,* and input from the Oral Health Coalition—to clearly define the parameters of the Oral Health CHA. These topics, their definition, and related indicators are summarized in Exhibit 1.

Exhibit 1. Oral health topics for Butte County Oral Health CHA

Oral health topic	Definition	Related indicators
Oral health status	Measures of oral health outcomes and well-being	Perceived oral health status; mouth and tooth pain or discomfort; missed days of work or school due to pain; untreated tooth decay; oral cancer rates
Access to care	The ability to access oral health and dental health care services	Dental insurance coverage; establishment of a usual source of care
Utilization of care	Use of dental services to prevent or treat dental disease and other tooth and mouth conditions	Annual preventive visits; reasons for most recent visit; utilization of emergency room or urgent care for oral health problems; barriers to care; utilization of specific services such as oral cancer screenings, scaling and root planning, dental visits during pregnancy, dental sealants received, and the HPV vaccine in children/adolescents
Oral health behaviors	Individual behaviors related to oral hygiene, diet, and smoking	Frequency of brushing and flossing; use of fluoride toothpaste; consumption of foods that support or hurt oral health; child and infant feeding behaviors; smoking behaviors
Oral health knowledge and beliefs	Knowledge of oral health best practices, as well as beliefs about oral health and dental care	Adult knowledge of oral health best practices (including beliefs about fluoride); adult knowledge of children's oral health best practices; receipt of oral health information
Environmental risk and protective factors	Neighborhood and county factors—including policy decisions—that contribute to oral health	Access to fresh fruits and vegetables; exposure to fluoridated water; access to oral health information; availability of dental providers

The oral health topics identified above are all influenced by the structural conditions that determine a person's opportunities, access to information, and decisions about their oral health practices. Rather than separating these social determinants of health into their own category, their influence on oral health are examined throughout this report.

The following methods were used to collect data related to each of these key topics:

- **Oral Health Community Survey.** To learn about oral health needs in Butte County, BCPHD administered an Oral Health Community Survey to 820 people who lived or worked in Butte County in May and June 2018. Survey questions asked respondents about their oral health knowledge, beliefs, practices, and access to services. Caregivers with children under age 18 answered additional questions related to their child' oral health. Some of these caregivers (n=361) did not respond to questions about their own oral health. When possible, questions were developed to allow comparisons to existing secondary data.

- **Dental provider survey.** In addition to the community survey, BCPHD administered a survey to dental providers about the services they offered to Butte County residents, as well as their perspectives on key oral health and dental health priorities in the county. The survey was developed in consultation with Harder+Company and BCPHD staff, and tailored to include questions that examined unique characteristics of dental services in Butte County.

- **Focus groups.** To capture in-depth perspectives on access to and delivery of dental services, BCPHD conducted four focus groups with 37 Butte County residents in June 2018. To better understand the experiences of traditionally marginalized communities, BCPHD prioritized focus groups with African-American and other racial groups from the South Oroville area, as well as Hmong, Native American, and Spanish-speaking communities in Butte County. Questions focused on understanding community oral health attitudes, knowledge, experiences, as well as their ideas for improving oral health in the county.

- **Secondary data.** Multiple public data sources were used to gather secondary data that describe oral health in Butte County. Indicators were selected by BCPHD and Harder+Company based on their application to each of the CHA's topics of interest, as well as the availability of data for the county. Key sources of data included the California Health Interview Survey, the California Department of Health Care Services, and the California Department of Public Health. In addition, Oral Health Coalition members—including Chico Unified School District, First 5 Butte, and Northern Valley Indian Health, Inc.—shared secondary data on oral health status and practices.

- **Asset mapping.** Oral Health Coalition members participated in an asset mapping activity at the June 2018 Oral Health Coalition meeting. This meeting gathered key information on the tangible resources that could support oral health improvements, the networks and systems that could contribute to oral health improvement efforts, and the challenges and gaps in care that they may need to address.

Detailed descriptions of the development, implementation, and analysis of each method can be found in Appendix A.

Synthesis of findings

Data sources selected for the Butte County Oral Health CHA collected information related to each oral health topic (see Exhibit 2).

Exhibit 2. Data sources to address each oral health topic

Oral health topic	Data Source			
	Community Survey	Provider survey	Focus groups	Secondary Data
Oral health status	x	x	x	x
Access to care	x	x	x	x
Utilization of care	x	x	x	x
Oral health behaviors	x		x	x
Oral health knowledge and beliefs	x		x	
Environmental risk and protective factors	x		x	x

These primary and secondary data sources were synthesized for each oral health topic. The following criteria were considered when determining whether an indicator for the county qualified as a need:

- Comparison to statewide benchmarks
- Disparities between populations within Butte County
- Key themes that emerged from focus groups

Findings for each oral health topic were reviewed closely with BCPHD and the Oral Health Coalition to come to consensus about whether to consider the topic an oral health need.

Demographics

This section provides a brief introduction to the residents of Butte County, including a comparison of key characteristics of its residents with California's population as a whole. In addition, this section details the demographics of respondents to both the Butte County Oral Health Community Survey, and participants in BCPHD focus groups conducted for this CHA.

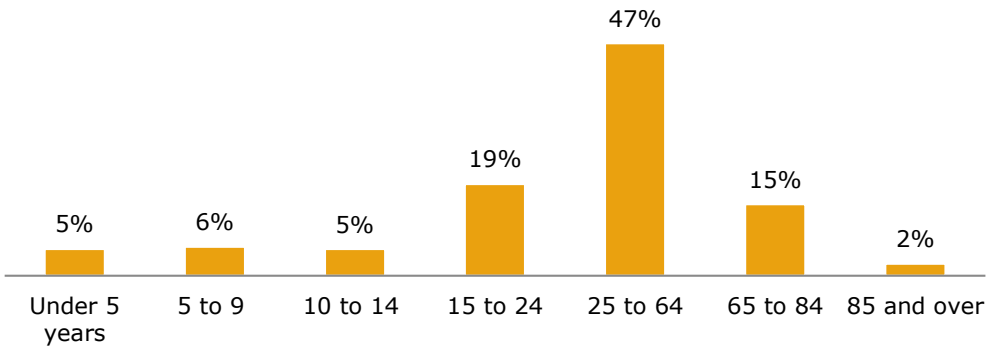
Data in this section draw on the U.S. Census and American Community Survey, as well as the Butte County Oral Health Community Survey and focus groups.

Butte County demographics

In 2017, approximately 229,000 people lived in Butte County.[3] The largest population centers—Chico, Paradise, Oroville (the county seat), Magalia, and Oroville East—comprised approximately two thirds of the population of Butte County. One third of the population lived in small cities and towns throughout more rural parts of the county.[4]

Approximately half (47%) of county residents were adults ages 25 to 64, and 19 percent were adolescents and young adults ages 15 to 24. Sixteen percent were children under the age of 14, with five percent under five years old. Seventeen percent of the population was age 65 or older (compared to 13% in California).

Exhibit 3. Butte County population by age (n=223,877)



U.S. Census Bureau, 2012-2016 American Community Survey 5-year estimates.

Age distributions in the Butte County population have remained relatively steady over the past five years, with a slight increase in the percent of residents over age 65. The percent of residents over age 65 is also slightly higher than the percent in California (14%). In addition, the percent of grandparents in Butte County who are responsible for grandchildren under the age of 18 is almost double the proportion in California (45% vs. 25%, data not shown).

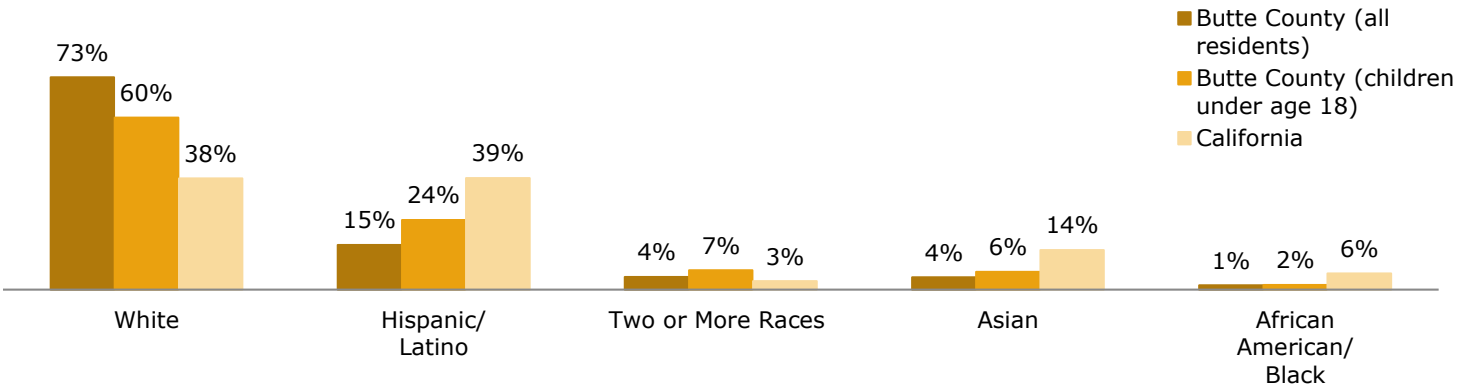
Nearly two-thirds of Butte County residents (73%) identified as white, compared to 38 percent across California. Conversely, Butte County has a lower percentage of Hispanic/Latino residents compared to California (15% vs. 39%). This has shifted slightly over the past three years, with a three percentage point decrease in white

[3] U.S. Census Bureau, Population Division, Annual estimates of the resident population.
[4] U.S. Census Bureau, 2010 Census.

residents and almost two percentage point increase in Hispanic/Latino residents. Four percent of Butte County residents identified as Asian, four percent identified as two or more races, and one percent of residents identified as African American or Black. Less than one percent of residents identified as American Indian or Alaskan Native, Native Hawaiian or Pacific Islander, or another race.

Children under age 18 reflected a slightly more racially and ethnically diverse population. Sixty percent of children were white, 24 percent of children were Hispanic or Latino, and seven percent of children were multiracial. The percent who were Asian (6%), African American/Black (2%) was similar to the rest of the county. Two percent of children under 18 were American Indian/Alaska Native, Native Hawaiian/Pacific Islander, or another race.

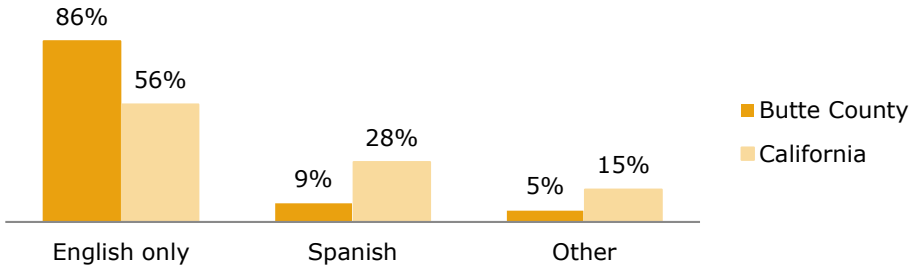
Exhibit 4. Race of Butte County and California residents in Butte



U.S. Census Bureau, 2012-2016 American Community Survey 5-year estimates. Less than 1 percent of Butte County residents identified as American Indian or Alaskan Native, Native Hawaiian or Pacific Islander, or another race.

The majority of the population over age five (86%) spoke English only; this is significantly higher than California, where 56 percent of the population speaks English only.

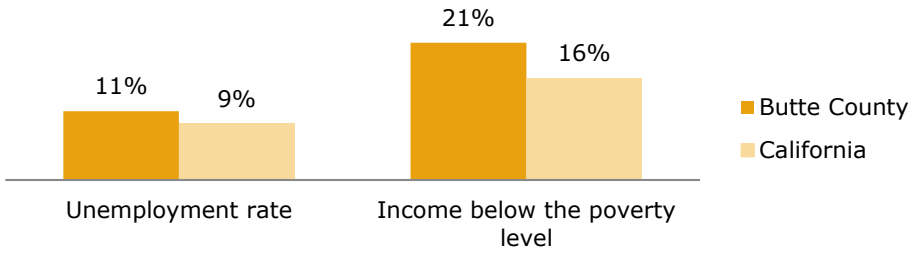
Exhibit 5. Primary language of the population over age 5 in Butte County and California



U.S. Census Bureau, 2012-2016 American Community Survey 5-year estimates.

A slightly higher percentage of the civilian labor force in Butte County was unemployed (11%) compared to California (9%). In addition, the percent of all people with incomes below the Federal Poverty Level in the past year was higher in Butte County (21%) than in the state (16%).

Exhibit 6. Unemployment and poverty in Butte County and California



U.S. Census Bureau, 2012-2016 American Community Survey 5-year estimates.

Survey Demographics

The Butte County Oral Health Community Survey collected demographic data to understand more about respondents, as well as to understand how they compared to the population of Butte County as a whole.[5]

- **Geographic distribution.** Respondents were concentrated in the larger population centers in the County, with most responses from residents of Oroville (39%), Chico (21%), Thermalito (8%), Paradise (6%) and Palermo (5%). Nineteen percent of respondents lived outside of these five population centers. Three percent of respondents indicated that they work in—but do not reside in—Butte County.

- **Gender.** People who identified as female/women accounted for the majority of survey respondents (86%), compared to 50 percent of the county's population.

- **Age.** Similar to the adult population of Butte County, Community Survey respondents were adults between ages 18 and 59 (85%). Approximately 15 percent of respondents were age 60 or older.

- **Primary language.** Like the county, most survey respondents reported primarily speaking English at home (79%). Respondents who spoke more than one language at home, as well as those who identified their primary household language as a language other than English, were overrepresented in the survey: eleven percent reported bilingual households (6% bilingual Spanish and 5% bilingual Hmong, and less than 1% bilingual in another language), and eight percent reported a primary household language other than English (3% Spanish, 5% Hmong, and less than 1% other languages).

- **Race or ethnicity.** The majority of survey respondents (65%) identified as white and 12 percent identified as Latino/Hispanic, reflecting the overall population in Butte County. The Community Survey oversampled residents who were multiracial (12% vs. 4% in the county), Native American or Alaska Native (4% vs. <1%), African American or Black (2% vs. 1%), and Asian (5% Asian, including 4% Hmong, vs. 1%). Like the county, less than

[5] Language and geographic location questions were answered by all survey respondents, including those who only completed questions about their child's oral health. Questions regarding race or ethnicity, gender identity, age, employment status, receipt of government assistance, and highest level of education were only answered by a subset of adults who completed the adult portion of the survey, or completed the full survey.

one percent of respondents were Native Hawaiian/Pacific Islander or another race or ethnicity.

- **Educational level.** Most respondents (77%) reported having some college education or higher. Eighteen percent had received a high school diploma or GED, and four percent had not completed high school.

- **Poverty level.** While the Community Survey did not ask respondents to report their income, respondents were asked to indicate whether they received any form of government assistance, such as WIC, Head Start, Medi-Cal, or Cal-Fresh (Supplemental Nutrition Assistance Program). Just under half (42%) reported receiving at least one form of government assistance.

- **Employment status.** Over half of respondents (56%) reported either full-time employment (44%) or part-time employment (16%). Seven percent reported that they were unemployed and seeking work, seven percent could not work due to disability, and four percent were full-time students.

- **Children.** Of 820 total survey responses, 526 respondents (68%) reported having children between ages zero and 17 years old. Among these respondents, over half (59%) reported that their youngest child was between ages zero to six, and 34% percent were between ages 6 and 10. A large proportion reported that their child was white (45%); a significant proportion reported that their child was multiracial (22%), Hmong (15%), or Latino/Hispanic (11%). Smaller percentages of respondents had children who were African American or Black (3%), American Indian/Alaska Native (3%), non-Hmong Asian (1%), Native Hawaiian or Pacific Islander (<1%), or another race (<1%). Over two-thirds (69%) reported that their youngest child received some form of government assistance (such as WIC, Head Start, Medi-Cal, or CalFresh). Children under age 10 more likely to receive government assistance (70%) than older children (53%).

Focus group demographics

Demographic data were also collected from 37 people who participated in four focus groups. Most participants lived in the larger cities of Oroville and Chico. Of these participants:

- The majority of participants were from Oroville (43%) and Chico (41%). Two participants worked in, but did not live in, Butte County.

- Approximately 60 percent of respondents were female, and 40 percent were male.

- While race or ethnicity data were not collected for all participants, focus groups intentionally focused on collecting data from historically marginalized communities. Therefore, focus group participants were largely African American/Black, American Indian or Alaska Native, Hmong, and Spanish-speaking Hispanic/Latino residents.

- The percentage of focus group participants who relied on Denti-Cal as their primary form of insurance (41%) or who had no insurance coverage (32%) was higher than among survey respondents and higher than the county as a whole.

Oral Health Status

Oral health status refers to the overall health of teeth, gums, and mouth. Oral health status encompasses a broad range of outcomes, from the condition of teeth and gums to oral diseases such as oral cancers, as well as other diseases not discussed in this report, including congenital disorders like cleft lip and palate, and neuromuscular problems like temporomandibular joint disorder/TMJ.

Indicators of oral health status include perceived oral health status; experiences of mouth discomfort; specific oral health outcomes, such as dental caries and incidence of untreated caries; and the impact of oral health on one's quality of life. Additional indicators of oral health including extraction of teeth due to periodontitis, and the loss of all-natural teeth, are not reported in this CHA due to lack of available data at the county level.

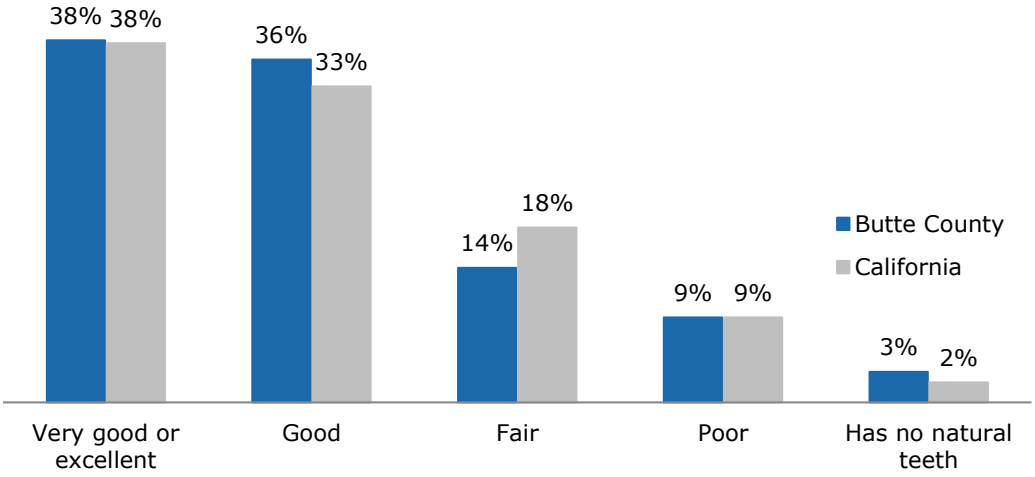
Findings in this section draw from the California Health Interview Survey (CHIS); American Dental Association; California Cancer Registry; Chico Unified School District and Northern Valley Indian Health; the Butte County Dental Provider Survey; the Butte County Oral Health Community Survey; and Butte County focus groups.

Adults

Perceived oral health status

According to the 2016 California Health Interview Survey (CHIS), 38 percent of Butte County adults reported that their teeth were in very good or excellent condition, and an additional 36 percent reported their teeth were in good condition. Twenty-three percent reported their teeth were in fair or poor condition. These findings were similar to oral health status in California.

Exhibit 7. Perceived oral health status of adults



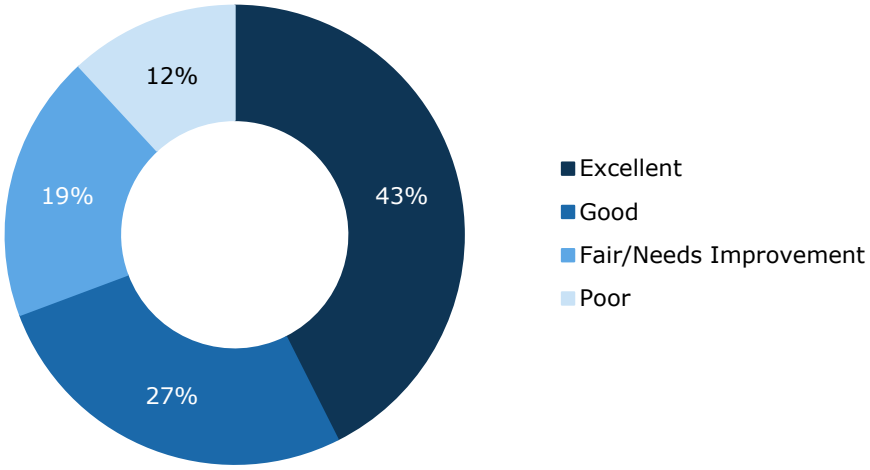
California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

Key findings

- Butte County residents reported similar oral health status to Californians.
- Poorer self-reported oral health status was associated with increased pain and discomfort while eating (43%), speech difficulty (12%), taking time off from work (14%), and one's ability to interview for jobs (41%).
- Over half (52%) of Denti-Cal recipients felt their mouth and tooth appearance affected their job interview prospects, compared to 30% with private insurance.
- Missing school due to dental pain or discomfort was more common among children with Denti-Cal compared to those with private insurance (15% vs. 6%), and higher in Butte County Community Survey respondents (12%) than in Butte (5%) or California (7%) CHIS data.
- Dental providers (n=23) indicated that populations that were more likely to have poor oral health were low-income (68%), tobacco users (46%), teens (41%), older adults (41%), and people with disabilities (36%).

Similar to CHIS, the Butte County Oral Health Community Survey asked adults to describe their oral health status at their last dental visit. Among adults who had visited a dentist in the past 12 months, 43 percent reported that their oral health status was excellent, with teeth and gums in great condition and no new cavities. An additional 27 percent reported that their teeth and gums were fine, but had one new cavity. Approximately one in five (19%) had visible tooth decay, gum problems, or at least two new cavities, and one in 10 (12%) reported severe visible tooth decay and gum disease, missing teeth, and/or three or more new cavities.

Exhibit 8. Oral health status of adults at last dental visit



Butte County Oral Health Community Survey, 2018 (n=301 adults who had seen a dentist in the last year).

Appearance, pain, discomfort, and quality of life

While over half of respondents to the Oral Health Community Survey reported that their teeth were in excellent or good condition at their last dental visit, 41 percent also reported feeling that the appearance of their mouth and teeth had affected their ability to interview for a job. This is higher than estimated by a 2015 survey of Californians conducted by the American Dental Association (25%).[6]

In the past 12 months, 43 percent of Butte County adults also reported experiencing difficulty biting or chewing food, 14 percent had taken days off work because of tooth or gum pain or discomfort, and 12 percent had had difficulty with speech. A higher proportion of Butte County residents experienced difficulty eating compared to the same American Dental Association survey (32%); similar proportions of Californians took days off work (15%) or had difficulty with speech in the past 12 months (17%).

Exhibit 9. Effects of oral health appearance, pain, and discomfort

41%	**43%**	**14%**	**12%**
Appearance of mouth and teeth affected their ability to interview for a job	Experienced difficulty biting or chewing food in the past 12 months	Took days off work because of tooth or gum pain or discomfort in the past 12 months	Experienced difficulty with speech in the past 12 months

Butte County Oral Health Community Survey, 2018 (n=459-499 adults). Total number of respondents varied by question due to missing responses.

[6] American Dental Association. Oral Health and Well-Being in California. Accessed here on August 26, 2018.

Findings related to oral health appearance, pain, and discomfort were associated with several common factors. Insurance type was associated with increased risk of oral health affecting work, such as taking days off from work (17% among those with Denti-Cal, 15% with no insurance, and 11% with private insurance), and feeling one's appearance affected job interview prospects (52% for Denti-Cal recipients compared to 30% of those privately insured). In addition:

- Pain while biting or chewing was more common among those with poor (84%) or fair (63%) oral health, compared to those with excellent (18%) or good (32%) oral health.
- Adults receiving government assistance were more likely to report difficulty biting or chewing (51%) compared to adults without government assistance (49%). They were also more likely to take days off work due to pain or discomfort (18% vs. 11%), and experience difficulty with speech (18% vs. 6%).
- Almost two-thirds (65%) of individuals with less than a high school education reported discomfort when biting or chewing and more than one-third (39%) reported taking days off from work.

"To have a healthy mouth and gums is very important…If you don't have nice teeth, it affects your opinion on how you look. Having nice healthy teeth can increase your well-being mentally."

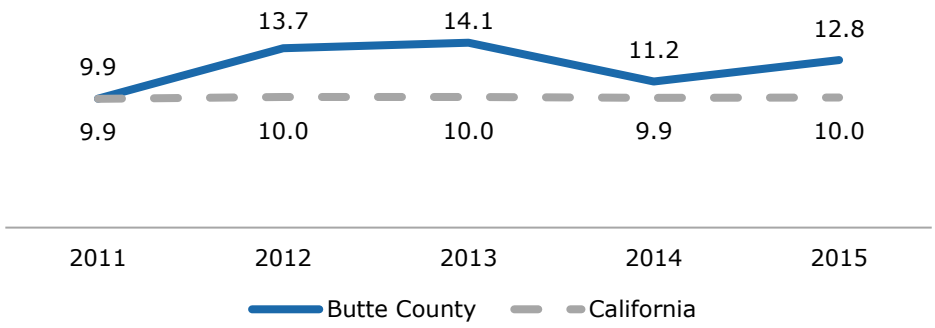
–Focus group participant

One participant described the effects of oral health appearance on one's mental health: "To me, to have a healthy mouth and gums is very important. It doesn't matter if you are young or old, it can be depressing to not have nice looking teeth. If you don't have nice teeth, it affects your opinion on how you look. Having nice healthy teeth can increase your well-being mentally."

Oral cancers

According to the California Cancer Registry, 170 cases of invasive oral cavity and pharynx cancers were reported in Butte County between 2011 and 2015, with 38 cases in 2015 (the most recent year of available data). The age-adjusted incidence rate of oral cavity and pharynx cancers during this period was 12.8 per 100,000, compared to 10.0 per 100,000 in California. Butte County's incidence rate was similar to other Northern California counties, with the regional age-adjusted rate in 2015 of 13.7 per 100,000. According to the American Cancer Society, the average age of people with oral cavity and pharynx cancers is 62.[7]

Exhibit 10. Invasive oral cavity and pharynx cancers



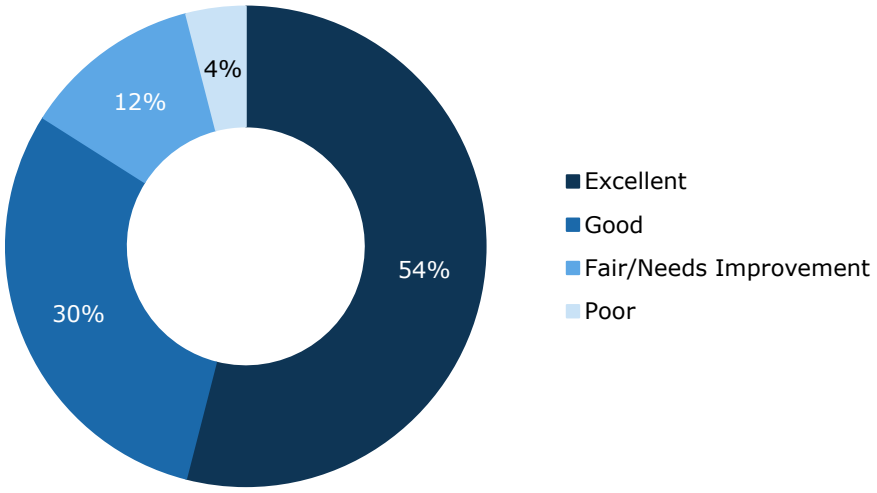
California Cancer Registry. 2011-2015 data exported in June 2018. Excludes cases reported by the Department of Veterans Affairs.

[7] American Cancer Society. Key Statistics for Oral Cavity and Oropharyngeal Cancers. Accessed here on August 15, 2018.

Child outcomes

Among caregivers whose children had visited a dentist or dental hygienist at least once in the past 12 months, 54 percent reported that their child's oral health status was excellent; an additional 30 percent reported their child's oral health was good. Approximately 16 percent of caregivers reported that their child's teeth and gums were in fair or poor condition.

Exhibit 11. Oral health status of children at last dental visit



Butte County Oral Health Community Survey, 2018 (n=380 children who had seen a dentist in the last year).

Pain and discomfort

Eight percent of respondents to the Community Survey with children older than 3 (or younger than 2 with teeth) reported that their children had experienced difficulty when biting or chewing food as a result of dental pain or discomfort. This was more common among children who had Denti-Cal (11%) compared to those with no insurance (7%) or private insurance (4%). In addition:

- Children whose families received government assistance (12%) were more likely to report pain or discomfort when biting or chewing compared to those who did not (2%), as were
- Children ages 11-18 (26%) compared to younger children ages six to ten (13%) and zero to five (4%).

Six percent of Community Survey respondents reported their children had difficulty with speech because of dental pain or discomfort.

Untreated decay

County-wide data on untreated tooth decay was not collected through the Community Survey. However, data from oral health assessments was provided by Chico Unified School District and Northern Valley Indian Health. Chico Unified School District served 384 kindergarten students in 2016-2017, and 21 percent of

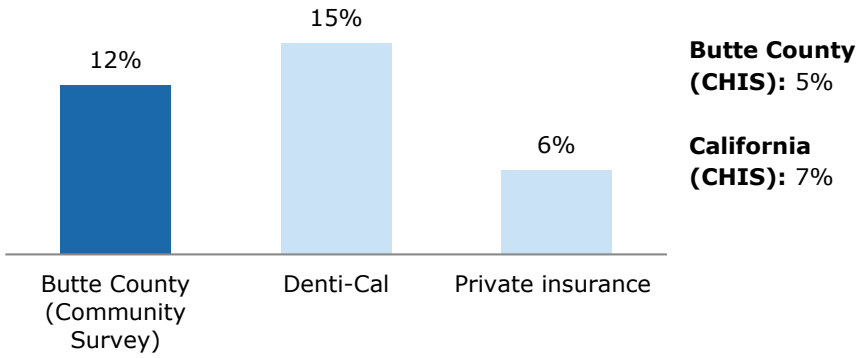
students had untreated decay.[8] Northern Valley Indian Health, which serves some of these same Chico schools, reported that of the 917 pre-kindergarten through 8th grade students screened in 2017-2018, 30 percent had untreated decay, and 10 percent had urgent dental needs.[9]

Missed days of school

The effects of oral health-related discomfort and tooth decay have implications on children's overall well-being, including school attendance. For example, among caregivers of children ages five or older who responded to the Community Survey, 12 percent reported that their child had taken days off from school during the last 12 months due to pain or discomfort in their mouth, teeth, or gums. This was higher than reported in CHIS for both Butte County (5%) and California (7%).

Missing school as a result of dental pain or discomfort was more common among children whose primary source of insurance was Denti-Cal (15%) compared to private insurance (6%). These findings were similar to missing school due to dental pain or discomfort by receipt of any government assistance (15%) compared to not receiving government assistance (7%). Differences were not significant by age, race or ethnicity, or geographic location.

Exhibit 12. Children ages 5-17 who missed school as a result of dental pain or discomfort in the past year, by insurance type



Butte County Oral Health Community Survey, 2018 (n=246 children ages 5 or older). California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

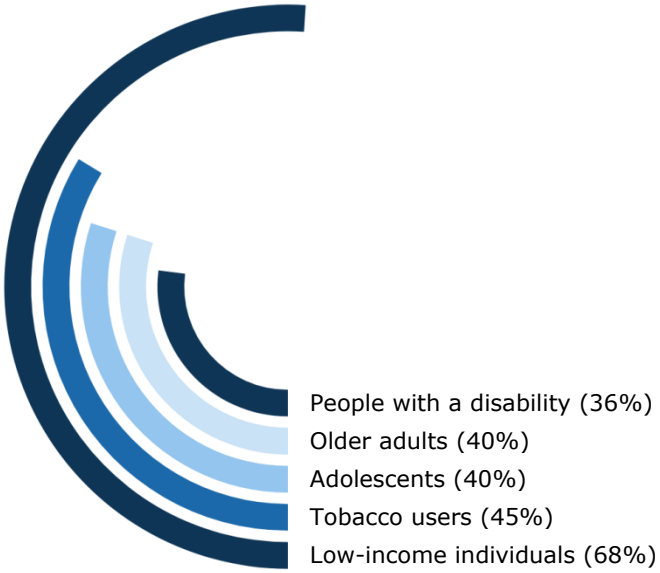
Dental provider perceptions of oral health status

Priority groups identified by dental providers

Twenty-three respondents to the Butte County Dental Provider Survey identified populations they believed to have poorer oral health on average, and should therefore be considered a priority for services or education. The majority (68%) of dental provider survey respondents felt that low-income populations had poorer oral health and should be a priority group for services or education, followed by tobacco users (46%), teens (41%), older adults (41%), and people with disabilities (36%). Lower in priority were preschool (27%) and grade school (23%) children, adults (18%), and infants (9%).

[8] 2016-2017 Chico USD data.
[9] 2017-2018 Northern Valley Indian Health, Healthy Smiles, Healthy Kids School Oral Health Outreach data.

Exhibit 13. Top five priority groups identified by dental providers



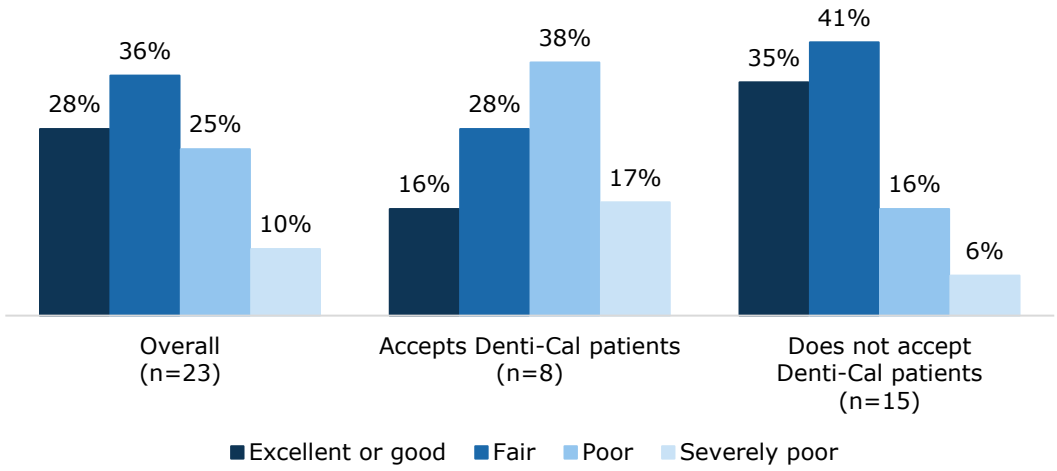
Butte County Dental Provider Survey, 2018 (n=23).

Perceived oral health status

The Dental Provider Survey also asked respondents to estimate the percentage of their patients who had excellent or good, fair, poor, or severely poor oral health. On average, respondents reported that 28 percent of their patients had excellent or good oral health, 36 percent had fair oral health, 25 percent had poor oral health, and 10 percent had severely poor oral health.

Compared to providers who did not accept Denti-Cal patients, Denti-Cal providers reported a higher percentage of patients who had poor oral health (38% vs. 16%) or severely poor oral health (17% vs. 6%), and reported a lower percentage with excellent or good oral health (16% vs. 35%).

Exhibit 14. Provider report of oral health status by type of patients served



Butte County Dental Provider Survey, 2018 (n=23)

Access to Oral Health Care

The ability to access oral health and dental health care services play a critical role in oral health outcomes and disparities. Key factors that can influence access to regular oral health care include insurance coverage, establishing a usual source of dental care, and having a sufficient number of providers who can serve the needs of the population. Indicators included in this section include insurance coverage and usual source of care for both children and adults.

Findings in this section are drawn from the Butte County Oral Health Community Survey, the California Health Interview Survey (CHIS), and focus groups conducted in Butte County.

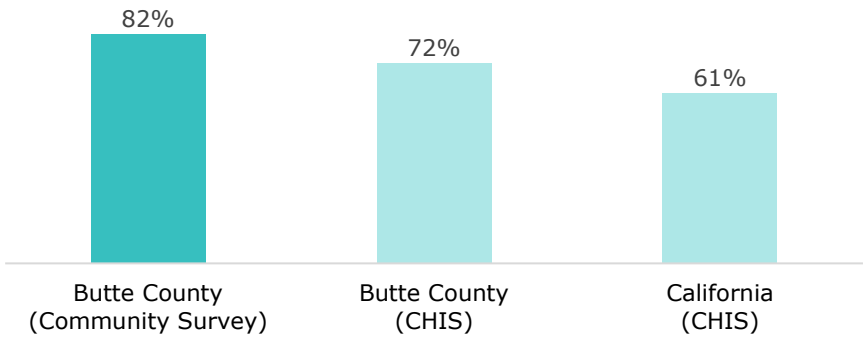
Adult access to care

Dental insurance coverage

Over eighty percent of respondents to the Oral Health Community Survey (82%) reported having some form of dental insurance coverage. Adult dental insurance coverage was slightly higher than the CHIS estimate for Butte County (72%), and higher than the estimate for California (61%) in 2016. Insurance coverage was also higher for some populations, including:

- People in the five largest cities in the county (85%) compared to those living in more rural parts of the county (72%);
- Women (84%) compared to men (72%); and
- Adults under age 60 (84%) compared to adults over age 60 (58%).

Exhibit 15. Adult dental insurance coverage



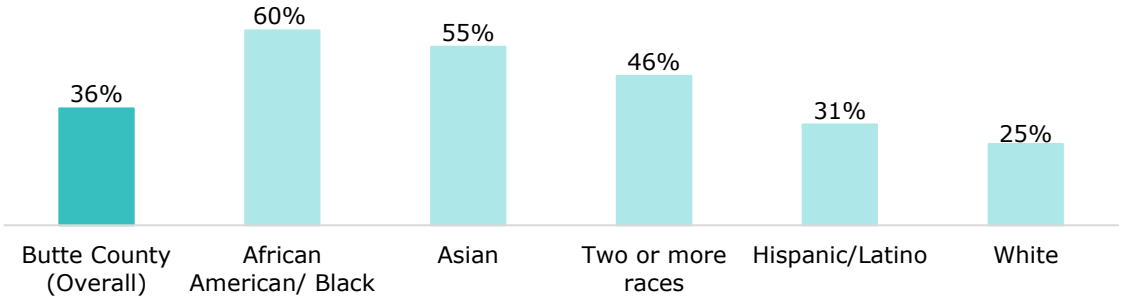
Butte County Oral Health Community Survey, 2018 (n=498 adults). California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

Key findings

- A high percentage of Butte County adults had dental insurance (76%) compared to California (61%). Men, adults over age 60, and people in more rural parts of the county were less likely to have insurance.
- Adults who identified as African American or Black (60%), Asian (55%), or two or more races (46%) were more likely to have Denti-Cal or another form of public insurance than individuals who identified as Hispanic/Latino (31%) or white (25%).
- Adults with Denti-Cal or without insurance coverage were less likely to have a usual source of care, and less likely to regularly use dentist offices for their dental care.
- A majority of children (97%) had dental insurance, with approximately two-thirds relying on Denti-Cal. There were no significant differences in overall insurance coverage by child's age, race or ethnicity, city, primary language spoken in the household, or caregiver's education level.
- Children whose primary form of insurance was Denti-Cal were more likely to be taken outside of Butte County for their dental care.

According to the Butte County Community Survey, 46 percent of adults had private insurance and 36 percent had Denti-Cal or another form of public insurance. Individuals who identified as African American or Black (60%), Asian (55%), or two or more races (46%) were more likely to be enrolled in Denti-Cal than individuals who identified as Hispanic/Latino (31%) or white (25%). In addition, Denti-Cal coverage was significantly correlated with receipt of government assistance, lower education levels, and working less than full time.

Exhibit 16. Adult Denti-Cal coverage



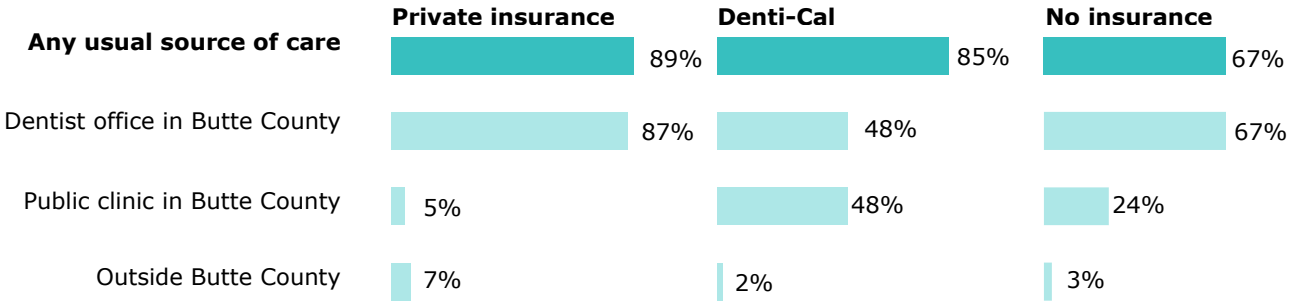
Butte County Oral Health Community Survey, 2018 (n=477 adults).

Usual source of care

Usual sources of dental care varied significantly depending on dental insurance. Those with private insurance were more likely to have a usual source of care (89%) compared to those on Denti-Cal (85%) or those without insurance (67%).

Among those with a usual source of care, the majority with private insurance received dental care at a dentist office (87%). Denti-Cal beneficiaries reported going to both dentist offices (48%) and public clinics (48%). Those without insurance were most likely to go to a dentist office (67%). Anecdotal evidence from focus groups and open-ended responses to the community survey indicate that those without dental insurance paid out-of-pocket for care at private dental offices. There were no significant differences in usual sources of care for those in the five largest population centers compared to the rest of the county.

Exhibit 17. Usual sources of care in Butte County by type of insurance



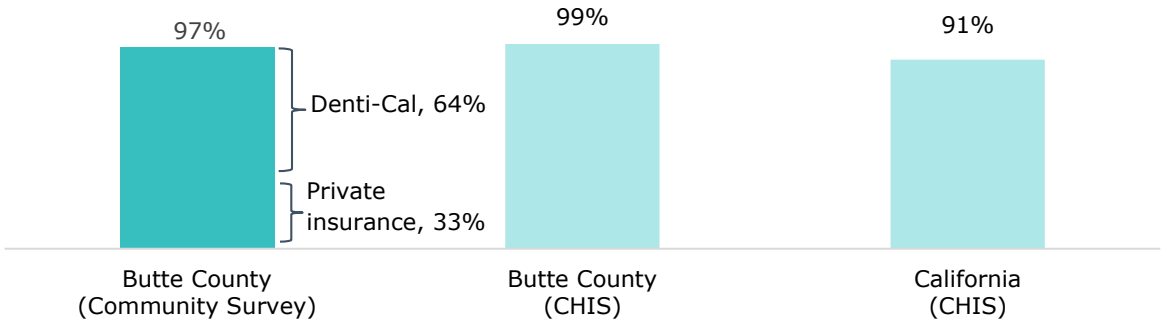
Butte County Oral Health Community Survey, 2018 (n=500 adults). Percentages for specific locations (dentist office, public clinic, or outside Butte County) are among the total number who reported any usual source of care.

Child access to care

Dental insurance coverage

The majority of caregivers (97%) reported that their child had dental insurance that covered all or part of their child's dental care, similar to the CHIS estimate for 2016 (99%) and higher than the statewide average (91%).

Exhibit 18. Child dental insurance coverage among children ages 3-11 or under 2 with teeth



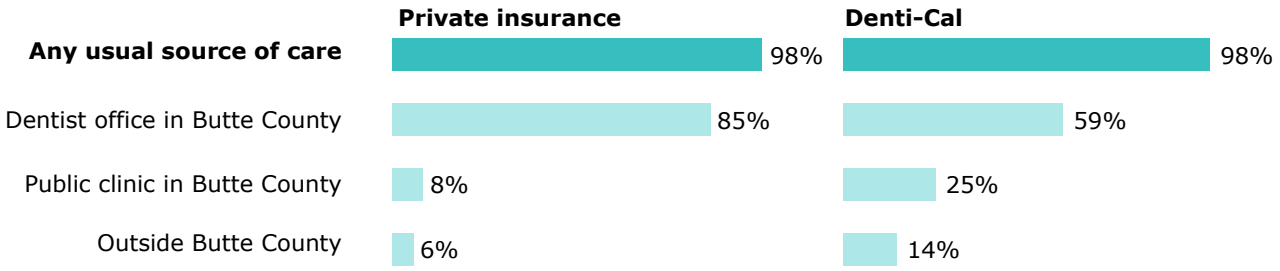
Source: Butte County Oral Health Community Survey, 2018 (n=465 children). California Health Interview Survey, 2016 (children ages 3-11 or under 2 with teeth). Both data sources examine children ages 3-11 or under 2 with teeth. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

Two-thirds (64%) relied on Denti-Cal or other public insurance, and one-third (33%) had any private insurance or another source of insurance. Dental insurance coverage was similar for both teens and children, and there were no significant differences in overall insurance coverage by child's age, race or ethnicity, city, primary language spoken in the household, or caregiver's education level.

Usual source of care

For children who had seen a dentist, 98 percent of caregivers reported having a usual source of care for their child. The most common source of care was a dentist office (66%) or public clinic (18%). Like adults, children with private insurance were more likely to go to a dentist's office (85%) than those with Denti-Cal (59%). Caregivers whose children relied on Denti-Cal were also more likely to go outside of the county for dental care (14%) compared to those with private insurance (2%). In addition, children living in more rural parts of the county were more likely to go outside of Butte County for care (14%) compared to those in the five largest cities.

Exhibit 19. Usual sources of dental care for children in Butte County by type of insurance



Butte County Oral Health Community Survey, 2018 (n=385 children who had ever seen a dentist). Percentages for specific locations (dentist office, public clinic, or outside Butte County) are among the total number who reported any usual source of care.

Utilization of care

Dental services are an important way of maintaining good oral health, as well as treating any diseases developing in the mouth. In particular, annual preventive visits for both children and adults are recommended for regular cleaning, as well as identification of caries and other dental conditions. In addition, specific dental services—such as sealants and oral cancer screenings—can serve as key ways to prevent or mitigate oral health issues. Indicators of utilization of care include: receipt of preventive dental services such as annual dental exams, oral cancer screenings, and sealants; utilization of hospital emergency rooms and outpatient clinics; and barriers to utilization of care.

Findings in this section are drawn from the Butte County Oral Health Community Survey; the California Health Interview Survey (CHIS); the California Maternal Infant Health Assessment (MIHA); focus groups conducted in Butte County; and the Butte County Dental Provider Survey.

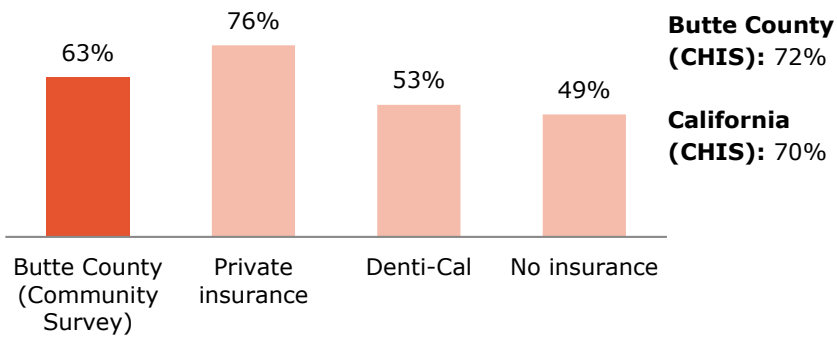
Adult utilization of care

Dental visit in the last twelve months

Among all adult respondents to the Oral Health Community Survey, 63 percent had visited a dentist within the last 12 months. This is slightly lower than estimated by the California Health Interview Survey for both Butte County (72%) and California (70%), which may reflect the Oral Health Community Survey's intentional oversampling of traditionally underserved populations.

Visits to a dentist in the last 12 months varied significantly by whether someone had private insurance (76%) or Denti-Cal (53%). Women were also more likely than men to have seen a dentist in the last 12 months (66% vs. 48%), and adults over age 30 more were more likely to have seen a dentist than adults ages 18 to 29 (68% vs. 52%). No significant differences by race or ethnicity or city were identified.

Exhibit 20. Adult dental visit in the last 12 months



Butte County Oral Health Community Survey, 2018 (n=495 adults). California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

Key findings

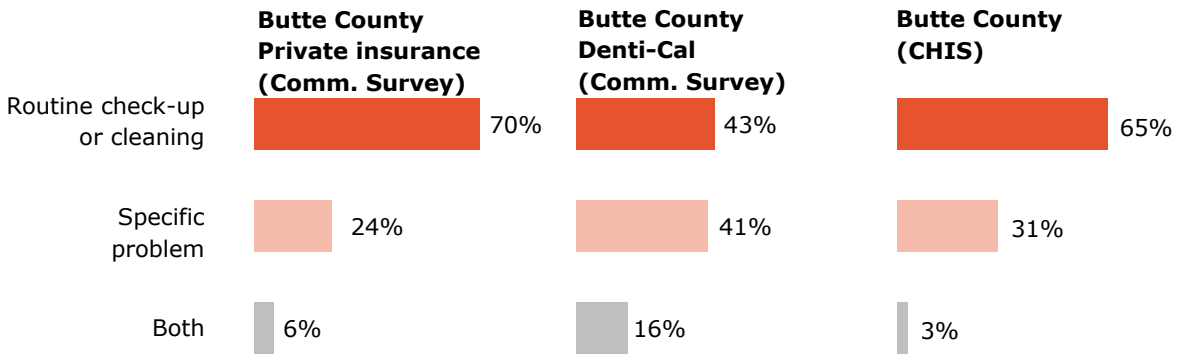
- Sixty-three percent of adults had a dental visit during the past year; adults with private dental insurance, older adults, and women were more likely to have a dental visit during the past year.
- Adults with Denti-Cal were more likely to have visited a dentist for a specific problem (41%) instead of a routine cleaning, compared to adults with private insurance (24%).
- Half (47%) of women saw a dentist during pregnancy; women were less likely to see a dentist during pregnancy if they were on Medi-Cal (39%), below the poverty level (38%), had a high school education or lower (37%).
- Most adults had not received recommendations for oral cancer screenings (67%).
- The majority (79%) of children had seen a dentist in the past year.
- Key barriers to care identified for both children and adults included cost, time required to see a dentist, competing priorities, negative prior experiences, and a perceived lack of dental providers—particularly those who accept Denti-Cal—in the county.

A small percentage of adults also reported visiting a hospital or emergency room (5%) or an urgent care clinic (8%) in the past year for tooth, mouth, or jaw pain.

Reason for most recent dental visit

According to the Butte County Oral Health Community Survey, adults with private insurance were most likely to have gone for a routine check-up or cleaning at their most recent visit (70%). Denti-Cal beneficiaries, however, were much more likely to go for either a specific problem (41%) or for both routine care and a specific problem (16%).

Exhibit 21. Reason for most recent dental visit



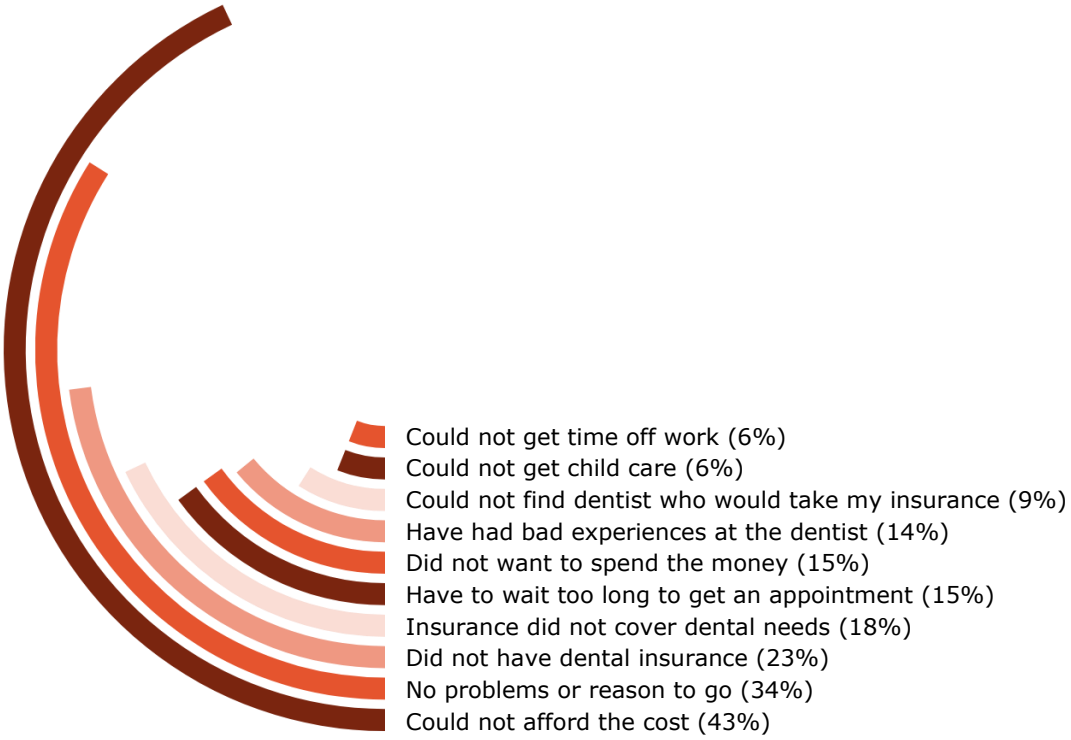
Butte County Oral Health Community Survey, 2018 (n=466 adults). California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

Barriers to care

Among adults who had not seen a dentist during the past 12 months, the most commonly cited reason was that the respondent could not afford the cost of the visit (43%). Other common reasons for not visiting a dentist during the past year included not having a problem or reason to go (34%), not having dental insurance (23%) or having dental insurance that did not cover the services needed (18%). Many also reported that they had to wait too long to get an appointment (15%), did not want to spend the money (15%), had had prior bad experiences at the dentist office (14%), or were not able to find a dentist who would take their insurance (9%).

A small percentage (5% or less) reported other challenges that prevented them from getting to their appointments, such as dentist office hours, distance to the dentist office, lack of transportation, or having a disability or special need that made it challenging to see a dentist. Reflecting this, most respondents to the Dental Provider Survey (70%) reported that their patients missed appointments only occasionally or rarely (data not shown).

Exhibit 22. Barriers to care among adults who had not seen a dentist in the past year

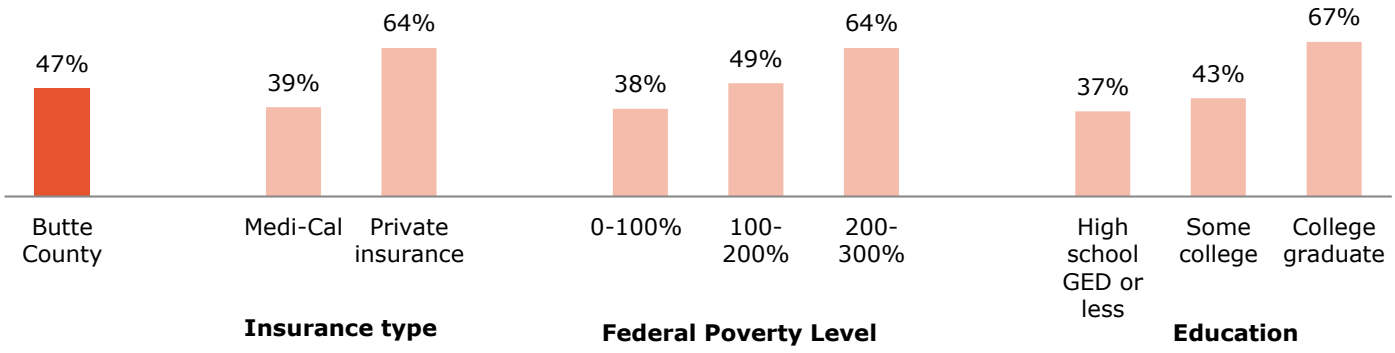


Butte County Oral Health Community Survey, 2018 (n=181 adults with no dental visit in the past 12 months).

Dental visit during pregnancy

According to the California Maternal and Infant Health Assessment (MIHA), 47 percent of women in Butte County with a recent live birth reported visiting a dentist during their pregnancy. This was not significantly different from the percent for California overall (43%). However, women who relied on Medi-Cal as their primary form of health insurance, women below the Federal Poverty Guideline, and women with less than a high school education were less likely to visit a dentist during their pregnancy.

Exhibit 23. Dental visit during pregnancy



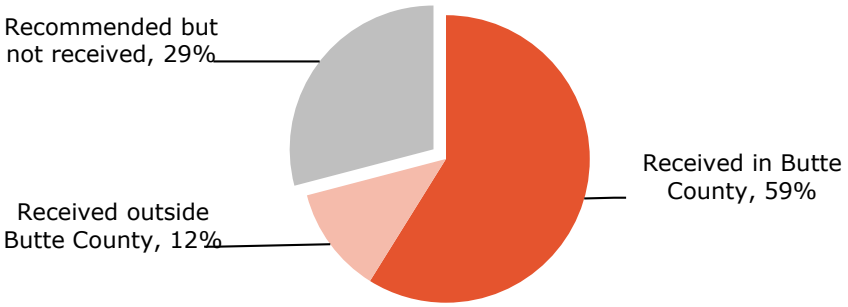
California Department of Public Health, California Maternal and Infant Health Assessment (MIHA), 2015-2016.

While the number of pregnant women who responded to the Butte County Community Survey was small (n=35), the percent who had been to the dentist during the past six months or planned to go before their baby was born (46%) was similar to the MIHA estimate.

Scaling and root planing

Approximately one-third of adults in the Butte County Oral Health Community Survey had received a recommendation for scaling and root planing, otherwise known as a deep cleaning (36%). Of those who had received a recommendation, 71 percent received a deep cleaning either in Butte County (59%) or outside of Butte County (12%). Twenty-nine percent never received the service.

Exhibit 24. Receipt of scaling and root planing, Butte County Oral Health Community Survey

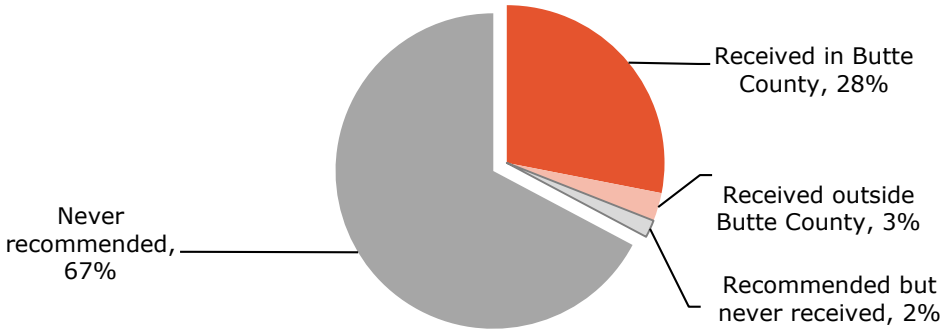


Butte County Oral Health Community Survey, 2018 (n=141 adults with recommended scaling and root planing).

Oral Cancer Screening

Approximately one-third of adults in the Butte County Oral Health Community Survey (31%) reported ever receiving an oral cancer screening (28% within Butte County and 3% somewhere else). Two-thirds of adults (67%) had never received an oral cancer screening. There was no significant difference in recommended cancer screenings for tobacco users (68%) and non-tobacco users (64%).

Exhibit 25. Receipt of oral cancer screenings, Butte County Oral Health Community Survey (n=385)



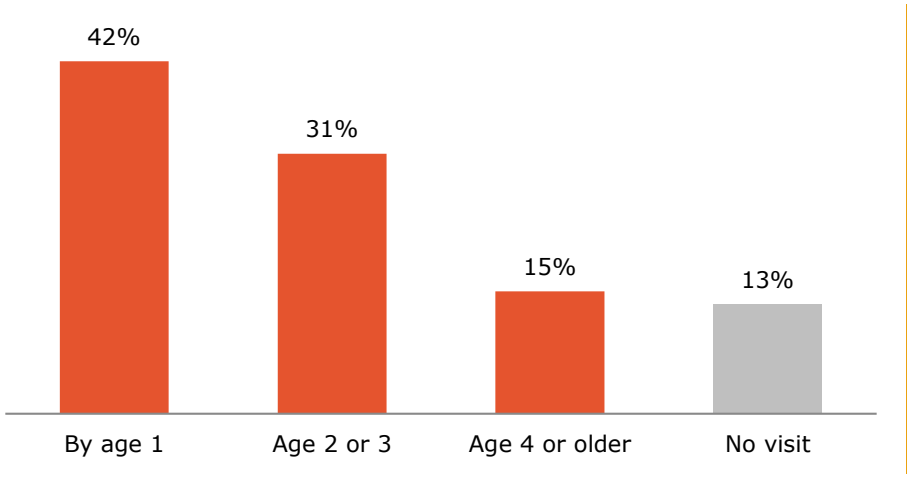
Butte County Oral Health Community Survey, 2018 (n=385 adults).

Child utilization of care

Child visits to dentist

Eighty-seven percent of respondents to the Community Survey indicated that their child age one or older (or younger with teeth) had been to the dentist at least once. Among those who had seen a dentist, 42 percent saw a dentist by age one, and an additional 31 percent saw a dentist by age three. Fifteen percent of children saw a dentist at age four or older. Of the 13 percent of children who had not yet seen a dentist, two-thirds (66%) were age one or younger, 18 percent were ages two or three, and 2 percent were age four or older. The oldest child to have not yet seen a dentist was seven years old.

Exhibit 26. Age at first dental visit



Butte County Oral Health Community Survey, 2018 (n=448 children ages 1 or older or younger with teeth).

No significant differences were found between children of different races/ethnicities, primary languages, or type of dental insurance (data not shown).

In focus groups, participants expressed knowledge of recommendations that children should see a dentist by age one, or by the time they had their first teeth. This included valuing the ability to begin familiarizing their children with oral health best practices. Most caregivers, however, described taking their children to the dentist at a later age (typically between two and five years of age). One caregiver described this sentiment: "[WIC] taught us that once the child has his or her first tooth, they should see the dentist. But, if I am confident that the child does not have issues [I] wait until the child will let the dentist see their teeth."

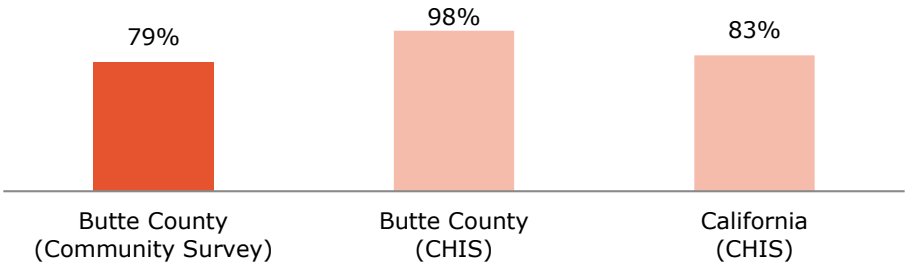
"[WIC] taught us that once the child has his or her first tooth, they should see the dentist. But, if I am confident that the child does not have issues [I] wait until the child will let the dentist see their teeth."

–Focus group participant

Dental visit in the last twelve months

Butte County Community Survey respondents reported that among children ages three to 11 and those under three with teeth (n=463), 79 percent had seen a dentist in the last 12 months. This is lower than estimated by CHIS for Butte County (95%) and the state (83%). Rates were similar for teens. Differences between Butte County Oral Health Community survey data and CHIS data may be a result of both statistical stability of CHIS estimates, as well as purposive oversampling of traditionally marginalized or underserved communities in Butte County's Community Survey.

Exhibit 27. Dental visit within the past 12 months for children ages 3-11



Butte County Oral Health Community Survey, 2018 (n=463 children ages 3-11 or under age 3 with teeth). California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

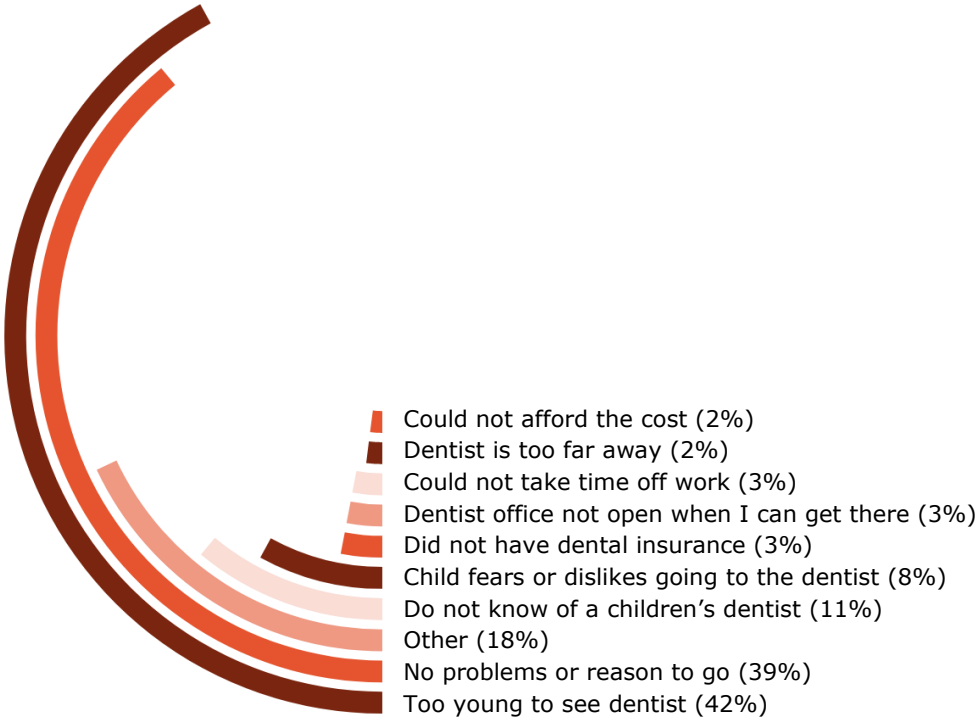
Within community survey data, there was no significant difference between children's visits to a dentist by insurance type, race or ethnicity, primary language, geographic location, or caregiver level of education.

A small percentage of caregivers reported taking their child to a hospital or emergency room (2%) or an urgent care clinic (2%) in the past year for tooth, mouth, or jaw pain.

Barriers to care

Among children age one or older (or younger with teeth) who had not seen a dentist during the past twelve months, the most commonly cited reason was that their child was too young to see a dentist (42%) and that their child did not have any reason to go (39%).

Exhibit 28. Barriers to care for children who had not seen a dentist in the past year

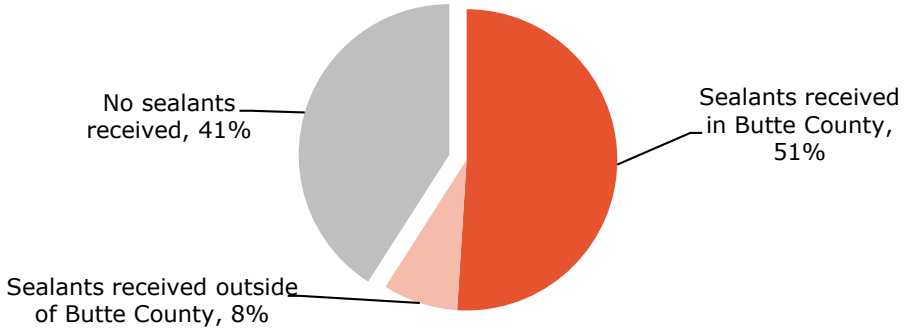


Butte County Oral Health Community Survey, 2018 (n=89 children ages 1 or older or younger with teeth, and no dental visit in the past 12 months).

Sealants

Among respondents to the community survey whose youngest child was between ages six and 14 (n=149), 59 percent reported their children had received sealants. Of those with sealants, eight percent received them outside of Butte County. Nationally, the Centers for Disease Control and Prevention estimate that approximately 39 percent of low-income children and 48 percent of higher-income children have sealants on at least one tooth.[10]

Exhibit 29. Sealants among children ages 6 to 14



Butte County Oral Health Community Survey, 2018 (n=149 children ages 6 to 14).

HPV vaccination

Human papillomavirus (HPV), a common sexually transmitted infection, is believed to be the cause of approximately 70 percent of oropharyngeal cancers in the United States.[11] Therefore, receiving the HPV vaccine can be an important form of prevention against oropharyngeal cancers. According to the Centers for Disease Control and Prevention's National Immunization Survey-Teen, approximately 73 percent of adolescents ages 13 to 17 in California had received the HPV vaccine in 2016.[12] Among caregivers with a child ages 13 to 17 (n=17), 71 percent reported that their child had received the HPV vaccine. While similar to the statewide vaccination rate, this number should be interpreted with caution due to the limited number of respondents. No county-wide data is currently available on HPV vaccination rates.

One quarter of respondents to the Butte County Provider Survey (26%) reported talking to their patients about the HPV vaccine. An additional 30% indicated that they had not—but would be willing to—talk to their patients about the HPV vaccine (data not shown).

Attitudes about dental care

While the Butte County Oral Health Community Survey focused on the barriers faced by people who did *not* see a dentist during the past year, focus group participants discussed the overarching barriers to care experienced in Butte County, as well as beliefs and attitudes that influenced their decisions about whether to seek out preventive care or treatment. The following pages include key

[10] Griffin SO, Wei L, Gooch BF, Weno K, Espinoza L. Vital Signs: Dental Sealant Use and Untreated Tooth Decay Among U.S. School-Aged Children. MMWR Morb Mortal Wkly Rep 2016;65:1141-1145. Available here.
[11] Centers for Disease Control and Prevention. HPV and Ororpharyngeal Cancer. Accessed here.
[12] Centers for Disease Control and Prevention. 2016 Adolescent Human Papillomavirus (HPV) Vaccination Coverage Report. Accessed here.

themes identified in at least two out of four focus groups.

Exhibit 30. Key attitudes about dental care, Butte County focus groups

Key theme	Representative quotes
The cost of dental services is high (particularly for low-income communities), and there is a lack of clarity about out-of-pocket costs.	"We will have our children see a dentist first before going ourselves. We have to be realistic—it is expensive." "The other side [of my mouth] is starting to bother me [but] I am not going to go back to that dentist as I already paid him $1,400. For the days I have left of life, I will be like this." "People who go to Mexico, they can get dental services that they can pay for. In Mexico, with $100 you can get a general cleaning."
Appointment wait times are long, and emergency dental issues are not always treated in a timely manner.	"By the time [the dentist] actually got in to have [the tooth] worked on, it was really painful and…we just had to go ahead and extract it."
Appointments can take a long time, which requires taking time off from work.	"You think it should take like an hour or two hours, but…the process of it is just long." "You lose a whole day worth of wages to experience it."
Competing priorities pose a challenge to regularly accessing care.	"Sometimes oral care gets put on the back burner because individuals might have other type[s] of complications... If you're battling addiction, if you're battling disease, you're battling poverty, it's hard for you to find a job or keep a job…Sometimes those things take years to get through. And, and by then, you know, you may not have any teeth after that, you know?" "I don't know that it is a priority on the list of health issues until it becomes an issue…and by the time you get in, it's kind of gone too extreme."
Negative prior experiences—including painful prior experiences and lack of clarity about visit purpose—can result in lack of desire to return.	"Why are there so many appointments before I get actual work done?" "Instead of showing the parent how to take care of the [child's bottle rot], they called CPS. Well there goes the whole community trust right there because no one is going to take their kid when they're only going to call CPS when [the parents are] trying to get them help." "They had to use the needle to numb [my son] so he got scared and they refused to continue to care for his tooth."
Older adults can feel like they are too old for dental care.	"To us that are older now, it's too late to take care of our teeth because we have dentures now. We hope the young ones will take better care of their teeth…It's too late for us old ones."
There are a lack of dental providers who accept Denti-Cal in the county.	"We got referred out. They also gave us an option to pay out-of-pocket to see other providers who [do] not take Denti-Cal." "It's also uncomfortable to go to the dentist because I don't have private dental insurance so sometimes it's embarrassing to be asked why I still have Medi-Cal to cover my dental needs." "You have to get the referral and you have to go to Stockton to take your kids.

Key theme	Representative quotes
	There is no other that accepts Medi-Cal in the north state." "My children [have] not had dental care in the past 12 months. Because for Medi-Cal recipients the dental providers are limited in our county. The wait list is long. The referrals are always outside of the county…I'm not satisfied with the dental services here in Butte County."
Caregivers worked to reduce barriers for their children.	"[My daughter] needed braces. My mom helped me pay for it because [we] weren't covered."

Oral Health Behaviors

Oral health behaviors play a significant role in oral health status. Oral health behaviors refer to personal health behaviors that help to prevent or increase risk of oral health disease. Dental hygiene activities—such as toothbrushing with fluoridated toothpaste and flossing, and maintaining a healthy diet by consuming fresh fruits and vegetables—can help to reduce the risk of developing dental caries and oral health diseases. In adults, indicators of oral health behaviors also include tobacco use, which increases the risk of developing oral cancers and periodontal disease. Among infants and children, feeding behaviors, such as putting children to sleep with a bottle in the mouth, are also behaviors that impact oral health outcomes.

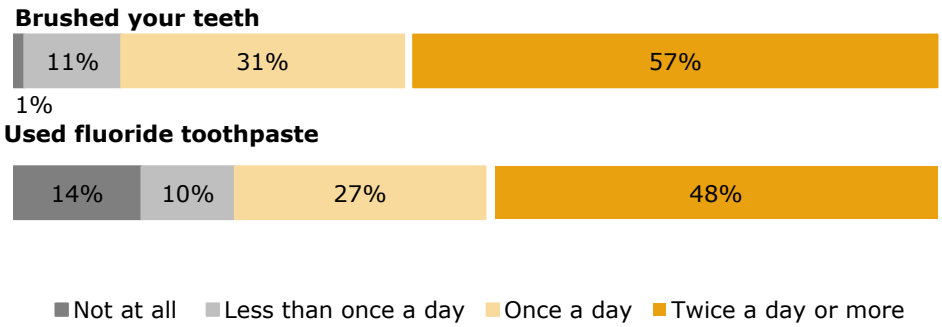
Findings in this section draw from the California Health Interview Survey; the California Department of Public Health's Tobacco Control Program; the Butte County Oral Health Community Survey; and Butte County focus groups.

Adult behaviors

Dental care and hygiene

The American Dental Association recommends that adults brush their teeth twice a day with fluoride toothpaste. Just over half of adults (57%) who responded to the Butte County Oral Health Community Survey reported brushing at the recommended frequency during the past week. An additional 31 percent reported brushing at least once a day. Fewer respondents reported using fluoride toothpaste (48% twice a day or more, and 27% once a day or more). Fourteen percent reported not using fluoride toothpaste at all.

Exhibit 31. Percentage of adults brushing teeth and using fluoride toothpaste in the past week



Butte County Oral Health Community Survey, 2018 (n=463-492 adults).

Survey respondents with Denti-Cal (46%) were less likely to report brushing their teeth twice a day than adults with private insurance (62%) or no insurance (63%). Similarly:

- Adults with good or excellent oral health status at their last dental visit were more likely to brush twice a day (68%) compared to adults with fair (47%) or poor (46%) oral health status.

Key findings

- Approximately half of adults (57%) and children (51%) brushed at the recommended frequency of twice per day. Less than half of adults flossed (40%) or used fluoride toothpaste (48%) at the recommended frequency of twice per day, similar to children (36% flossing; 42% fluoride toothpaste).
- Adults and children whose primary household language was English were less likely to brush (both 48%) than their peers (both 62%). Similar differences were found for adult flossing and child fluoride toothpaste use.
- Eating fruits and vegetables daily was more common for children from primarily English speaking (44%) and bilingual English and Spanish speaking (43%) households than their peers (24%).
- More adults used tobacco products in Butte County (17%) compared to those who smoke in California (12%).
- Children with Denti-Cal were more likely than children with private insurance (46% vs. 31%) to drink juice and eat candy (55% vs. 37%) more than four times per week.
- Ten percent of Community Survey respondents with children under age six reported that their child slept with a bottle in their mouth that contained milk, formula, juice, or other sugary beverages during the past week.

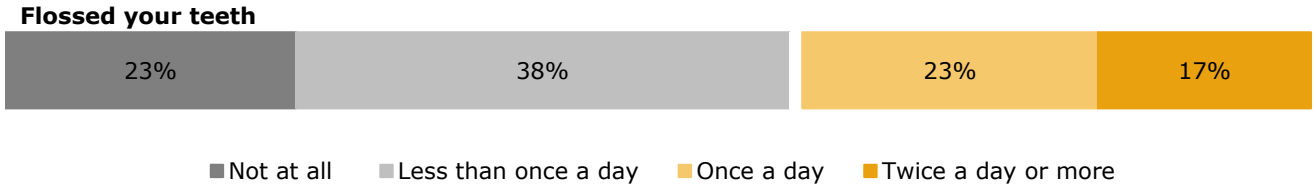
- Women were more likely to brush twice a day than men (59% vs. 45%).
- Adults who were self-employed (70%), retired (65%), or employed full-time or part-time (60%) were more likely to brush twice a day than those who were full-time students (53%), unemployed and looking for work (47%) or chose not to work (47%)

These differences were similar to differences in use of fluoride toothpaste, which is also recommended for use twice a day.

Across focus groups, participants had mixed feelings and knowledge about the effects and benefits of fluoride. Eight participants reported feeling fluoride was good for oral health, four reported feeling it was bad for health, ten were unfamiliar with fluoride, and nine had heard mixed messages about fluoride.

The American Dental Association recommends daily flossing as another important element of dental care and hygiene. Compared to brushing and use of fluoride toothpaste, flossing was least commonly practiced among adult respondents to the Butte County Oral Health Community Survey, with 39 percent of respondents reporting daily flossing. Thirty eight percent of respondents reported flossing less than once a day, and 23 percent reported no flossing during the past week.

Exhibit 32. Percentage of adults flossing, Butte County Oral Health Community Survey in the past week (n=480)



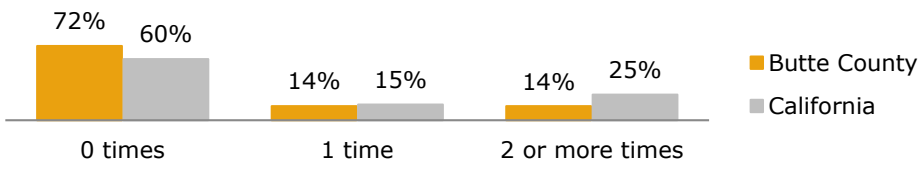
Butte County Oral Health Community Survey, 2018 (n=480 adults).

Frequency of flossing teeth did not differ by demographics except for by primary language. Adults whose primary language was English were less likely than other adults to floss their teeth twice a day (14% vs. 29%) and more likely not to floss at all in the past week (10% vs. 25%).

Dietary behaviors

According to CHIS, Butte County residents were slightly less likely than Californians to drink soda regularly, with 72 percent reporting that on average, they consumed soda zero times during the week (compared to 60% in California).

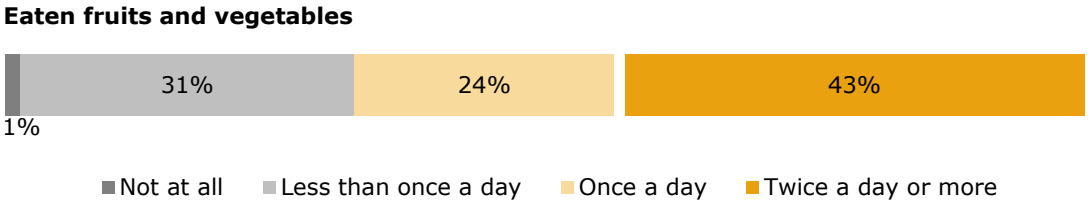
Exhibit 33. Percentage of adults consuming soda in the past week



California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

Forty-three percent of Butte County Community Survey respondents reported eating fruits and vegetables twice a day or more, with an additional 24 percent reporting eating them at least once a day. Thirty-one percent reported eating fruits and vegetables less than once a day, and one percent reported eating no fruits or vegetables.

Exhibit 34. Frequency of eating fruits and vegetables among adults in the past week



Butte County Oral Health Community Survey, 2018 (n=493 adults).

Participants with excellent oral health at their last dental visit were most likely to report eating fruits and vegetables two or more times per day (54%) compared to participants with good (48%), fair (29%), and poor (35%) oral health status. In addition:

- Receipt of government assistance was associated with being less likely to eat fruits and vegetables at least once per day (60%), compared to those not receiving government assistance (72%)

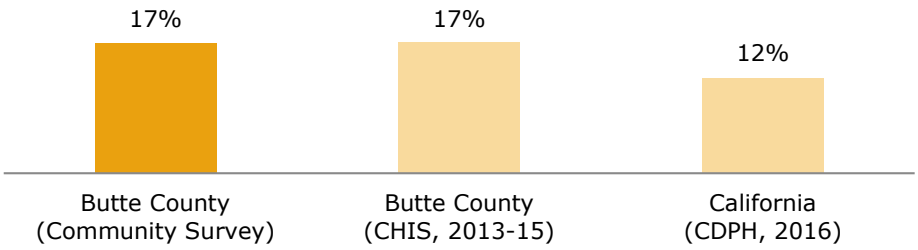
- A similar percentage of adults who selected only English as the primary language spoken in the household (68%) reported eating vegetables at least once a day compared to their peers (65%). Adults who spoke more than one language or spoke primarily languages other than English at home were more likely to have not eaten any fruits or vegetables in the last week (6% vs. 1% among primarily English-speaking adults).

When asked what they can do to promote good oral health, participants from three of the four focus groups noted that eating less sugary drinks and candy could promote better oral health in Butte. Several participants offered up ways to improve their oral health through dietary behaviors, including "drink less soda," and "drink more water."

Smoking and Tobacco Use

According to the California Health Interview Survey, 17 percent of adults in Butte County smoke cigarettes. These findings are similar to findings from the Community Survey, which found that 17 percent of adults smoked cigarettes, e-cigarettes, cigars, pipes, waterpipes, hookah, or any other tobacco product. An additional three percent of adults also reported using smokeless tobacco; the majority of these adults (75% of 13 respondents) also smoked tobacco. In comparison, 12 percent of adults in California reported smoking cigarettes.

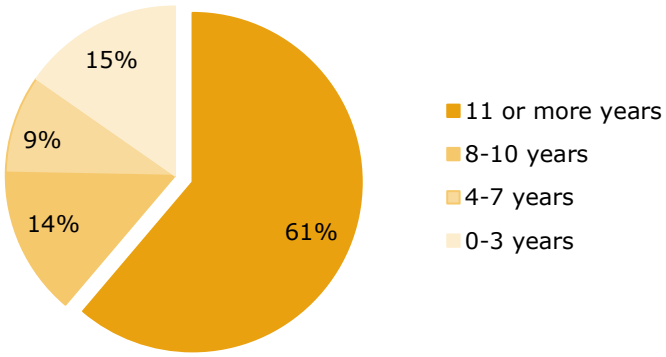
Exhibit 35. Adults who smoke and use tobacco



Butte County Oral Health Community Survey, 2018 (n=493 adults). California Department of Public Health, California Tobacco Control Program, *Tobacco Facts and Figures: A Retrospective Look at 2017* (2013-15 Butte County estimate) and *California Tobacco Facts and Figures 2018 (*2016 California estimate). Data from CHIS only references cigarette smoking.

The majority of tobacco users who responded to the Community Survey indicated that they were long-term users, with 75 percent reporting using tobacco for eight or more years. In recent decades, tobacco use has been decreasing in California and nationally,[13] which may be reflected in the Community Survey data with the vast majority of individuals being long-time users.

Exhibit 36. Number of years of tobacco use



Butte County Oral Health Community Survey, 2018 (n=85 adults).

"You can't [have] good teeth and still be smoking, you know it just doesn't make sense."

–Focus group participant

Across all focus groups, participant reported the negative effects of smoking on teeth and overall oral health. For example, one focus group participant said, "You can't [have] good teeth and still be smoking, you know it just doesn't make sense."

Child behaviors

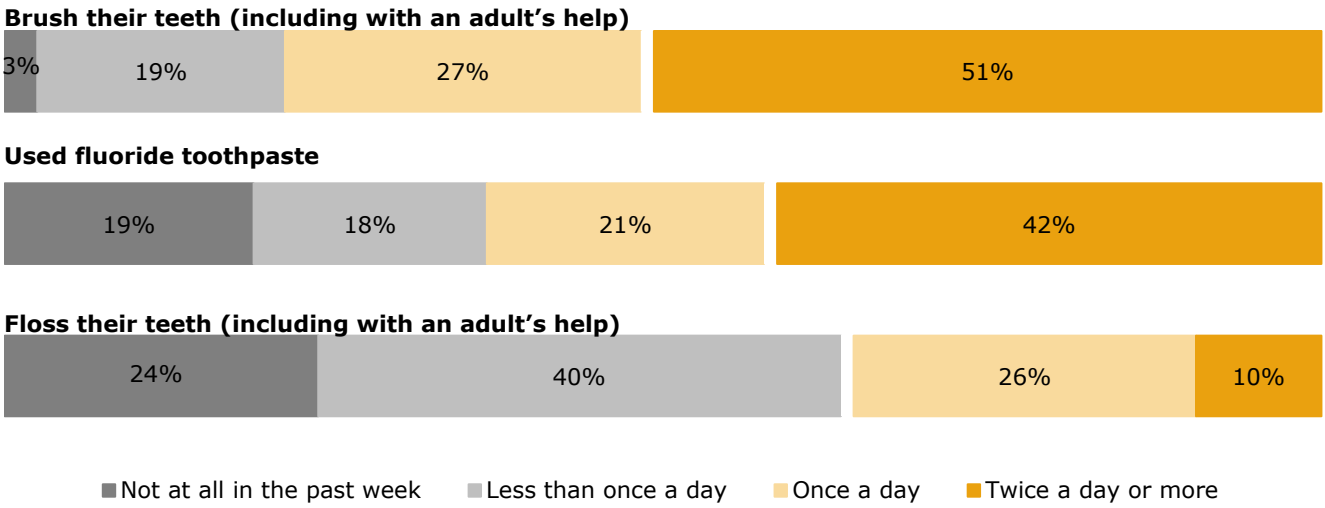
Brushing, flossing, and fluoride use

Among Community Survey respondents who answered questions about their child's oral health behaviors, half (51%) reported that their children brush their teeth at least twice a day, and most of these (42%) reported using fluoride when they brushed. One in four (27%) reported that their child brushed their teeth at least once a day. Twenty percent of caregivers reported that their child brushed less frequently than once a day.

[13] California Tobacco Facts and Figures 2018, California Department of Public Health, California Tobacco Control Program

Approximately one-third (36%) of caregivers reported their child flossed at least daily. Twenty-four percent of caregivers reported their children did not floss.

Exhibit 37. Frequency of children's tooth brushing, use of fluoride, and flossing in the past week



Butte County Oral Health Community Survey, 2018 (n=443-484 children).

Children from homes where English was the only primary language (48%) were less likely than their peers to brush their teeth twice daily, including peers from homes where the primary language was Hmong (78%), both English and Spanish (69%), and both English and Hmong (53%). In addition:

- Children from homes that primarily spoke English were less likely to use fluoride toothpaste twice daily (39%) than their peers from households where primary language was indicated as bilingual or a language other than English (50%).
- Older children ages 11 to 18 (55%) were more likely than young children ages six to 10 (48%) and ages zero to five (36%) to use fluoride toothpaste daily.

Caregivers reported making efforts to have children brush and floss their teeth. One focus group participant reported, "I tried to stay on top of their teeth. I know they'll go and floss their teeth all the time, because he liked putting the little sticks in [his] mouth and he likes that I come in there and fight over them." Another participant reported, "I tell them twice a day, but I know once a day."

Participants in focus groups described conflicting feelings and information about fluoride use for children. As one caregiver said "I've read a lot of different articles on fluoride and they're saying…you really don't need fluoride for kids, and that fluoride actually does something bad to your teeth and the body as a whole. So some people recommend that you not use fluoride, some say use fluoride…I think that there's a lot of disinformation disseminating to the families, so I think people should do their research on fluoride and make an informed decision on whether or not fluoride is something you want to turn your children onto."

One caregiver described fluoride use as a personal preference to be made by each family. This caregiver said "I think [fluoride] is good. And is a decision for every family to make, like eating organic food and vaccines."

"I've read a lot of different articles on fluoride and they're saying…you really don't need fluoride for kids, and that fluoride actually does something bad to your teeth and the body as a whole. I think that there's a lot of disinformation disseminating to the families."

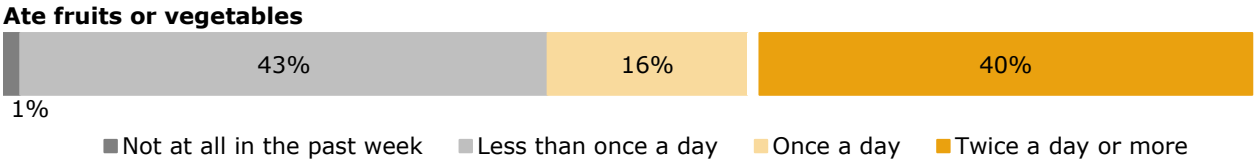
–Focus group participant

Overall, focus group participants felt that good habits were easier to start at younger ages and that efforts to improve oral health should target children directly. One participant said, "Anytime you want to start a good habit it starts young so it should be directed to the younger kids. I don't see it directed at the younger kids in the community…because they leave it up to the parents and the parents can only tell them."

Dietary habits

The Butte County Oral Health Community Survey also asked caregivers how often their child ate fruits or vegetables during the past week. Forty percent reported that their child had fruits or vegetables twice a day or more, and an additional 16 percent reported their child ate fruits or vegetables at least once a day.

Exhibit 38. Frequency of children's fruit and vegetable consumption in the past week



Butte County Oral Health Community Survey, 2018 (n=490 children).

The amount of fruits and vegetables children eaten daily differed by households' primary language(s) and race and ethnicity. Specifically:

- Children living in households that primarily spoke English (44%) or spoke both English and Spanish (43%) were more likely to eat fruits and vegetables at least twice daily, compared to all other households (less than 33% percent).
- Fifty-one percent of white, 37 percent of multi-racial, 35 percent of Latino/Hispanic, and 19 percent of Hmong children ate fruits and vegetables at least twice a day.

Data from the 2016 California Health Interview Survey suggests a slightly different picture, finding that children in Butte County are more likely (56%) than their peers in California (37%) to eat five or more servings of fruit and/or vegetables daily. Data from CHIS also suggest that teenagers in Butte County are less likely (3%) than their peers in California (26%) to eat five or more servings of fruits and/or vegetables daily.

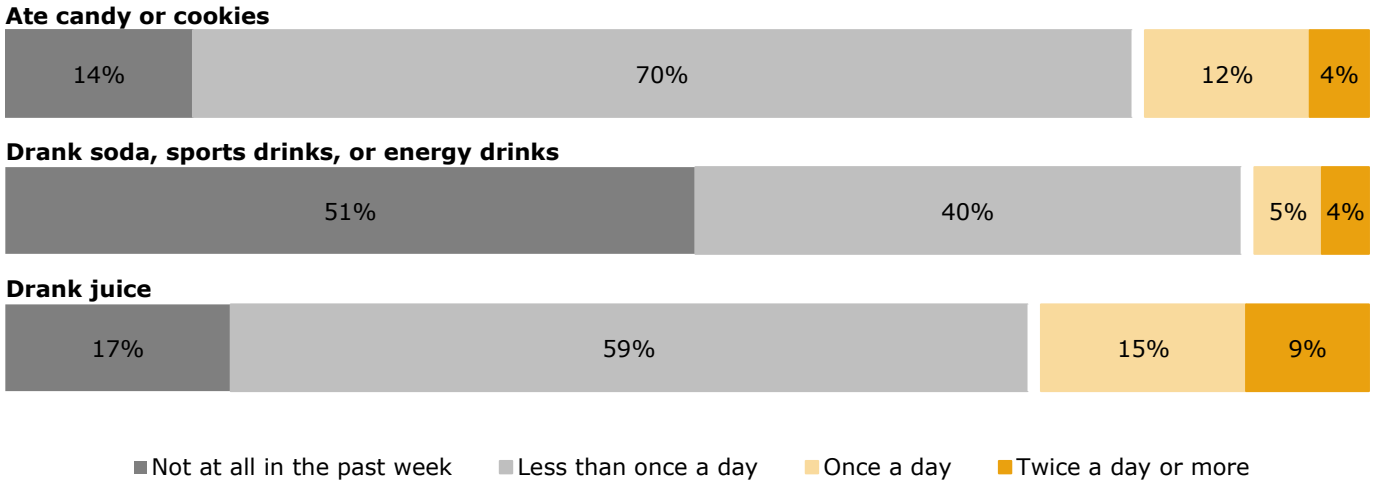
Exhibit 39. Consumption of five or more servings of fruits or vegetables daily

California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County

should be interpreted with caution.

The majority of Community Survey respondents reported that children consumed juice, soda and other sugar drinks, candy or cookies less than once a day. Juice was more likely to be consumed daily (24%) than soda, sports drinks, or energy drinks (9%) and candy or cookies (16%). In comparison, five percent of children ages zero to 11 in California were reported to have drank soda the day before; this may reflect the exclusion of teenagers from CHIS data (data not shown).

Exhibit 40. Frequency of children's consumption of sugar foods and drinks of children consuming sugary food and drinks in the past week

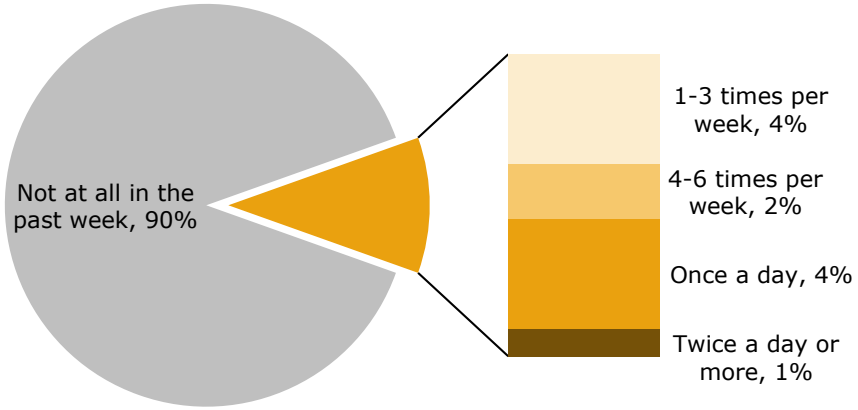


Butte County Oral Health Community Survey (n=460-476 children).

Child sleeps with bottle in mouth

According to 2016 data from CHIS, 5% percent of children under age 6 in California had slept with a bottle in their mouth during the past week. Ten percent of Butte County Community Survey respondents with children under age 6 reported that their child had slept with a bottle in their mouth that contained milk, formula, juice, or other sugary beverages during the past week.

Exhibit 41. Frequency of children falling asleep with a bottle in their mouth in the past week



Butte County Oral Health Community Survey (n=256 children).

Oral Health Knowledge and Beliefs

Oral health knowledge and beliefs are informed by oral health literacy and education, as well as cultural practices and attitudes. Oral health literacy refers to having the knowledge and understanding to address multiple aspects of oral health, from knowing how often to brush, to how to schedule a dental appointment or completing an application for Denti-Cal.

Oral health knowledge and beliefs alone are not the only factors to influence desired health behaviors; having this knowledge, however, may encourage and empower individuals to engage in preventive health activities that can positively influence oral health status. Indicators for assessing oral health knowledge and beliefs include awareness of topics such as contributors to tooth decay or dental caries, as well as the importance of regular dental care.

Findings in this section draw on data from the Butte County Oral Health Community Survey.

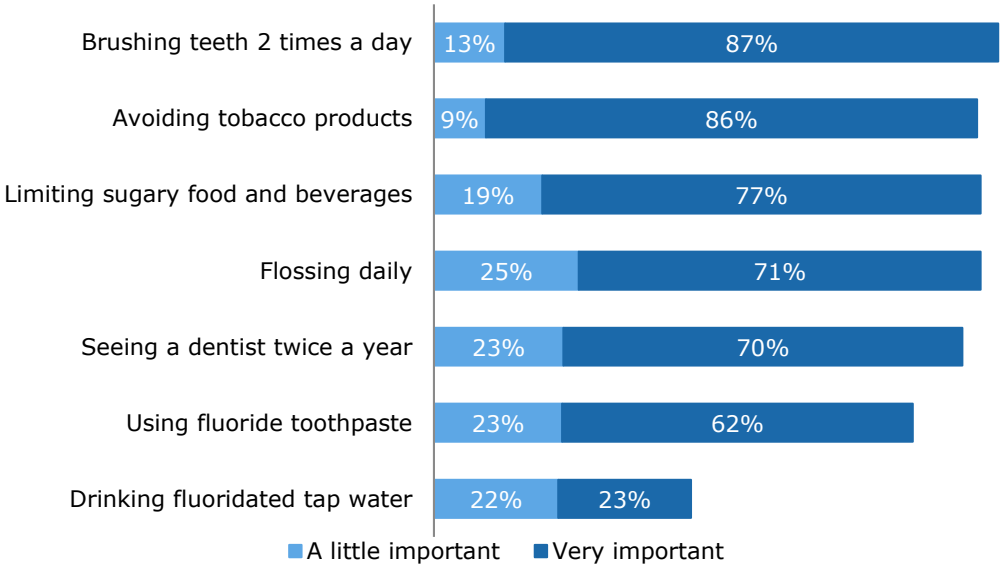
Key findings

- Adults were more uncertain about the use of fluoride toothpaste (6%) and drinking fluoridated water (27%) than other oral hygiene practices.
- Caregivers' knowledge about children's oral health was high. Household primary language was associated with knowledge about children's oral health, with Hmong- (74%) and Spanish-speaking (59%) households most likely to believe that they have to bring their child to the dentist only when they have a cavity.
- Almost half (45%) of respondents indicated they receive information on their child's oral health from the dentist's office. Caregivers of children ages six to ten years old were most likely to receive oral health information.

Adult knowledge

Over 75% of adults agreed on the importance of limiting sugary food and beverages (77%), avoiding tobacco products (86%), and brushing teeth two times a day (87%). A lower percentage thought that flossing daily and seeing a dentist twice a year were very important (71% and 70% respectively). Only 23 percent reported that drinking fluoridated water was very important; 27 percent of adults reported that they did not know whether drinking fluoridated water was important for oral health.

Exhibit 42. Adult knowledge of oral health practices

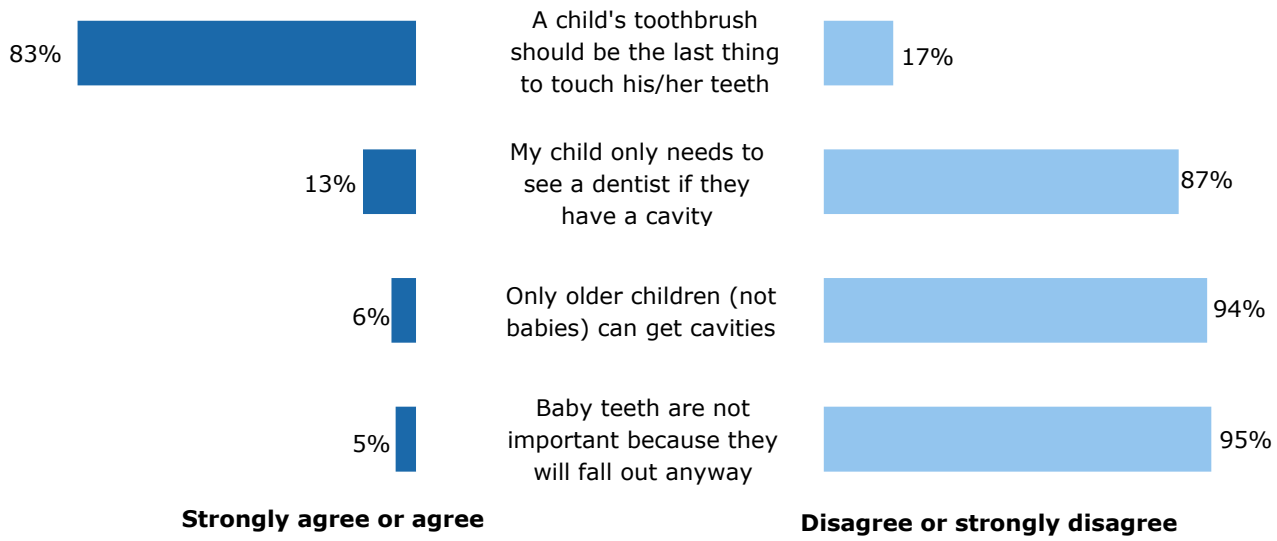


Butte County Oral Health Community Survey (n=477-488 adults).

Caregivers' knowledge of child oral health

Caregivers were asked about their knowledge of child oral health. The vast majority of caregivers reported that they disagreed or strongly disagreed that baby teeth are unimportant because they will fall out (95%), only older children (not babies) can get cavities (94%), and children only need to visit the dentist when they have a cavity (87%). Similarly, four-fifths (83%) of caregivers reported that they agreed or strongly agreed that a child's toothbrush should be the last thing to touch his/her teeth before bedtime.

Exhibit 43. Caregivers' knowledge and attitudes about child oral health practices, Butte County Oral Health Community Survey, (n=499-504)



Butte County Oral Health Community Survey (n=499-504 caregivers of children).

Caregivers with children who use Denti-Cal (16%) were more likely to report that children should visit the dentist only when they have cavities compared to those with no insurance (12%) and private insurance (7%). Similar differences were found among the following respondents:

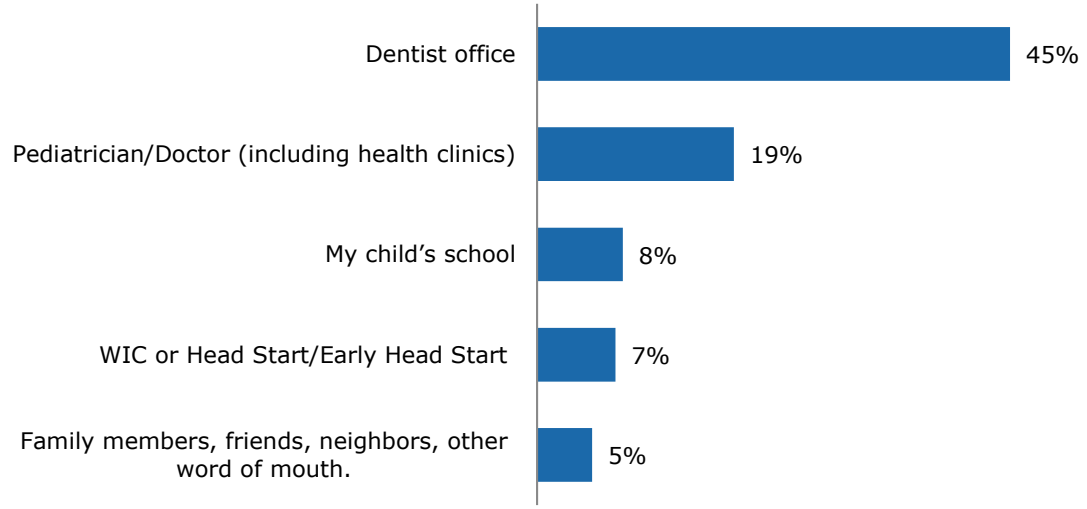
- Individuals receiving government assistance (16%) compared those who did not (7%)
- Households that were primarily Hmong-speaking (26%) and Spanish-speaking (41%) compared to households that were primarily bilingual English/Spanish (7%), English (10%), and bilingual English/Hmong (12%).

Similar trends were seen in beliefs about the importance of baby teeth, having a toothbrush be the last thing in a child's mouth at night, and whether babies can get cavities.

Sources of oral health information

Eighty-four percent of caregivers reported receiving information about their child's oral health in the past 12 months. Caregivers most commonly reported receiving information from the dentist office (45%), pediatricians or other doctors (19%), their child's school (8%), WIC, Head Start, or Early Head Start (7%), or word of mouth (5%).

Exhibit 44. Source of caregivers' information on children's oral health in the past 12 months



Butte County Oral Health Community Survey (n=444 caregivers of children).

Environmental Risk and Protective Factors

In addition to individual behaviors, knowledge, and access to services, community and family conditions—as well as policy decisions—can help support positive oral health outcomes, or increase the risk for poor oral health outcomes. Environmental risk and protective factors associated with oral health include: access to fresh fruits and vegetables, exposure to fluoridated water, and access to oral health information.

Findings in this section are drawn from the California Health Interview Survey; the California Water Boards; the Butte County Public Health Department's Child Health and Disability Prevention program; the Butte County Dental Provider Survey; and Butte County focus groups.

Key findings

- Access to affordable fresh fruits and vegetables was higher in Butte County than in California overall.
- Fully fluoridated water was only available in two cities in Butte County: Gridley and parts of Oroville.
- The ratio of population to dentists was higher in Butte County (1,400:1) compared to California (1,280:1). Focus group participants described a lack of sufficient providers for Denti-Cal beneficiaries.
- Few Community Survey respondents reported receiving oral health information outside of the dentist office, and several focus group participants expressed an interest in additional oral health information.

Access to affordable fresh fruits and vegetables

According to the California Health Interview Survey, 89 percent of Butte County residents report always or usually having fresh fruits and vegetables available in their neighborhood. This is similar to statewide access to fresh fruits and vegetables (88%). Half (54%) of Butte County residents reported that these fruits and vegetables were always affordable, compared to 49 percent in California.

Exhibit 45. Availability of and affordability of fresh fruits and vegetables in the neighborhood

	Fresh fruits and vegetables are available		Fresh fruits and vegetables are affordable	
	Butte County	California	Butte County	California
Always	**77%**	74%	**54%**	49%
Usually	**12%**	14%	**28%**	30%
Sometimes	**9%**	9%	**15%**	19%
Never	**2%**	3%	**2%**	2%

California Health Interview Survey, 2016. Due to sample size, CHIS estimates for Butte County should be interpreted with caution.

Exposure to fluoridated water

Community water fluoridation is a recommended public health measure that reduces the incidence of tooth decay among both children and adults.[14] In 2016, the California Water Boards reported that two public water systems in Butte County were fully fluoridated: the Cal-Water Service Company in Oroville, which covers only parts of Oroville, and the City of Gridley.[15] According to the CDC, 64 percent of Californians served by community water systems had fluoridated water in 2014.[16]

[14] Centers for Disease Control and Prevention. Community Water Fluoridation. Accessed here.
[15] California Water Boards, Fluoridation by Public Water Systems. Accessed here.
[16] Centers for Disease Control and Prevention, State Fluoridation Percentage Calculations and States Ranked by Fluoridation Percentage, 2014. Available here.

Availability of dental providers

According to the Robert Wood Johnson Foundation's County Health Rankings, the ratio of population to dentists in 2016 was 1,400:1. This is slightly higher than both the benchmark for Top U.S. performers (1,280:1) and the ratio for California (1,210:1). The ratio has improved slightly since 2015 (1,461:1). The ratio of population to dentists is similar to nearby counties in Northern California.

Exhibit 46. Provider to dentist ratios in Northern California

County	Ratio of providers to dentists
Plumas	980:1
California	1,210:1
Top U.S. performers	1,280:1
Sutter	1,340:1
Butte	**1,400:1**
Glenn	1,400:1
Tehama	1,860:1
Colusa	2,700:1
Yuba	2,900:1

County Health Rankings and Roadmaps, Butte County and California., 2018 profiles (2016 data).

While there are no census tracts within Butte County that are designated as Dental Health Professional Shortage Areas (HPSA) by the Health Resources and Services Administration, there are currently six facilities in the county that are designated HPSA "points" due to their facility's designation (such as a Federally Qualified Health Center) or the population they serve.[17]

According to Butte County Public Health's Child Health and Disability Prevention program, there are currently eleven dentists, FQHCs, rural health centers, and tribal health centers in the County that currently accept Denti-Cal patients. Providers are concentrated in Chico and Oroville, with one provider in Gridley and one in Paradise.[18]

Among 23 respondents to the Butte County Provider Survey:

- Eight providers (35%) indicated that they accepted Denti-Cal clients.
- Of these eight, five reported that Denti-Cal clients made up at least 51 percent of the clients that they serve (data not shown).
- Thirteen providers (57%) are able to serve clients in both English and Spanish.
- No providers indicated the ability to serve clients in languages other than English or Spanish.
- While almost all providers reported serving children two years and older

[17] Health Resources and Service Administration Data Warehouse. Available here.
[18] Butte County Public Health Department, Child Health and Disability Prevention. Accessed here.

(83%), only 52 percent would see children younger than two.

- Thirty-nine percent reported being able to serve people with a disabilities.

Lack of providers in the county. Focus group participants felt that there were not enough providers to meet the needs in the county. This was seen as a particular barrier for Denti-Cal beneficiaries. As one participant stated, "I think our community needs more dentists who will see people with Medi-Cal dental insurance. We always get referred to see a specialist outside of Butte County. I see there is a lack of providers. Going outside of Butte County for dental care is also a hardship." Some also noted that this was a particular issue for receiving dental services that require anesthesia. As one caregiver said, "the closest place is Stockton to have the anesthesia [for children] and it's a real hardship because your appointment might be at five or six in the morning and you might have multiple kids, they haven't have anything to eat or drink…[and] there's no hotel. There's not enough support services once you go."

"We always get referred to see a specialist outside of Butte County. I see there is a lack of providers. Going outside of Butte County for dental care is a hardship."

–Focus group participant

Availability of oral health information

Less than 5 percent of caregivers reported receiving oral health information by email/internet, TV or radio, brochures, health fairs or community events, newspapers or magazines, mail, or in the hospital/emergency room.

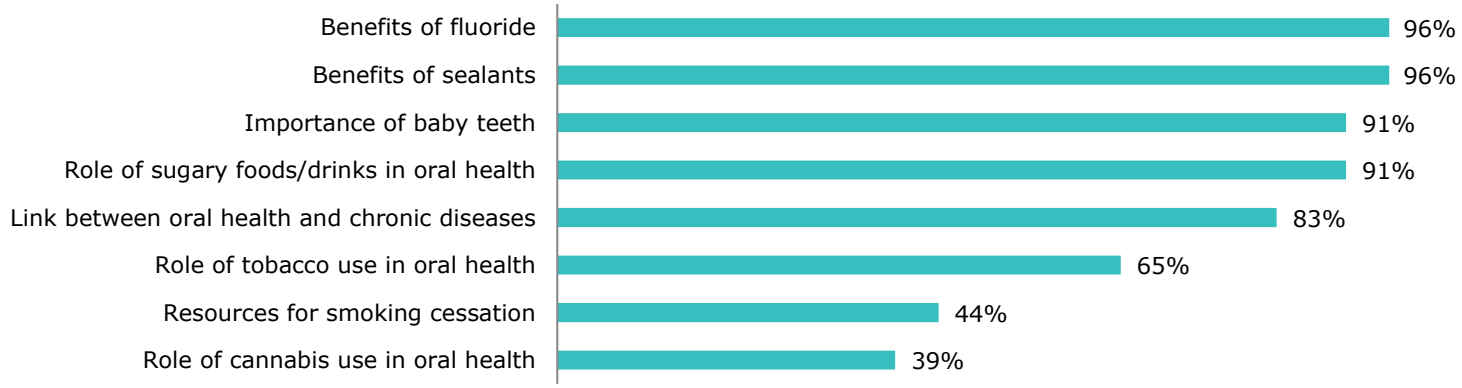
Several focus group participants described wanting additional information and/or education about oral health, either through schools or other venues. As one person stated, "the public health department needs to do more education on oral health so the community [is] education on how to better care for themselves." Another described schools as a good venue for this education: "I think the schools need to take the time to teach the students how to properly…brush their teeth because the kids are at school most of the time during the day." One person expressed the importance of having education for older adults as well: "In my opinion, us elders don't have access to education. There should be ways to learn…from a doctor. The elders need education."

"Us elders don't have access to education. There should be ways to learn from a doctor. The elders need education."

–Focus group participant

Most providers who responded to the Dental Provider survey (96%) reported talking with their patients about oral health topics, including the benefits of fluoride (96%) and sealants (96%), how sugary foods can impact oral health (91%), the importance of baby teeth (91%), and the role that oral diseases can play in other chronic diseases (83%). Lower percentages discussed tobacco usage (65%), resources to stop smoking (44%), and the role of cannabis in oral health (44%).

Exhibit 47. Provider discussion of oral health topics



Butte County Dental Health Provider Survey, 2018 (n=23).

Asset Mapping: Assessing Resources

In June 2018, Oral Health Coalition members participated in an asset mapping activity to identify key strengths in the community, potential resources to support oral health improvements, and challenges and gaps in care that may need to be addressed to improve oral health for all county residents. This section provides an overview of key findings from the activity, as well as the resources generated by Coalition members.

Oral Health Coalition members are proud to live in Butte County.

The findings of the Oral Health Coalition asset mapping activity suggest that Coalition members are proud to live in Butte County and that the county has a number of significant community strengths. Coalition members reported that living in a small community and having connections with others helped to create a good quality of life. Community strengths identified included (see following page for a complete list of community resources):

- Access to the outdoors, including parks and recreation areas, such as Bidwell Park in Chico, Riverbend Park in Oroville, and Lake Oroville;
- Opportunities for higher education at CSU, Chico and Butte College;
- A variety of farmers' markets across the county;
- Medical facilities across the county; and
- Sierra Nevada Brewing Company, a California icon.

The need to increase access to existing resources and increase availability was prominent.

The challenge of accessing existing resources was a prominent topic among Coalition members. For example, members noted that resources were disproportionately located in Chico, with fewer resources available in surrounding communities. Members described easier access to health-related resources in Oroville and Paradise than in other communities, as a result of the hospitals, health centers, and clinics in these cities. Participants also identified several specific systemic barriers contributing to reduced access, such as limited public transportation in the county and long waitlists for providers.

Members identified successful approaches to reducing barriers to existing services. Coalition members noted several providers and resources serving specific populations. For example, Ampla Health prioritizes serving children, resulting in shorter wait times for children's appointments than with other providers. Similarly, Northern Valley Indian Health provides walk-in and shorter wait times for the Native American community. One member also noted that support from behavioral health caseworkers reduces barriers for their clients, such as reminding clients to go to their appointments and transportation to appointments.

Social connections and relationships were identified as key ways to access existing resources. Specifically, Coalition members noted that access often depended on individual knowledge of resources and facilities. Coalition members suggested that increasing relationships and collaboration, and decreasing silos between agencies would increase community access.

In addition, Coalition members reported a general need for an increase in the number of service providers available in the community. Some examples of needed services included dental and mental health providers; free summer camps for children; resources for the homeless; substance and tobacco use prevention and treatment; and services to address trash on the streets.

Where in Butte can someone find...

Access to oral health services

- Ampla Health
- Northern Valley Indian Health
- Feather River Tribal Health
- Feather River Health Center
- Access
- Western Dental
- Hospital emergency departments
- First 5
- Mobile dentist

Access school or education

- Public & charter schools
- First 5
- Head Start, Early Head Start, & state preschools
- Chico State(CSU, Chico)
- Butte College
- Library
- Wellness & recovery centers
- Childcare development centers
- Adult education

Access to Healthy Foods (e.g., fresh fruits and vegetables)

- WIC locations (Oroville, Chico, Paradise, Gridley)
- CalFresh Program
- Grocery stores
- Food banks & food centers
- Farmer's Markets (Chico, Oroville, Gridley, Paradise)
- Summer food through CARD and CUSD
- School lunch programs
- Meals on Wheels
- Non-profits
- Community gardens

Access public transportation

- B-line (bus)
- Para-transit, Merit Medi-Trans, Managed Care Transit, & Behavioral Health
- Taxi, Lyft, Uber
- Bike

Access to medical services and emergency medical services

- Local hospitals: Enloe, Oroville, Feather River/Adventist Health, Orchard
- Ampla Health
- Feather River Tribal Health & Northern Valley Indian Health Clinics
- Butte County Public Health clinics
- Shalom Free Clinic
- Dove's Landing Urgent Care
- Primary care doctors
- Planned Parenthood
- Chico State Health Center

Access to mental health or behavioral supports

- Butte County Behavioral Health & Feather River Tribal Health, Behavioral Health
- Far Northern Regional Center
- Crisis Center
- Chico State Health Center
- Non-profits
- Private therapist and counseling centers
- Primary care doctors

Built Environment for Play and Exercise

- Neighborhood parks
- Recreation districts
- Mooretown Rancheria
- Boys and Girls Club

Synthesis of findings

Oral health needs as determined by synthesis of primary and secondary data for each oral health topic. The following criteria were considered when determining whether an indicator for the county qualified as a need:

- Comparison to statewide benchmarks
- Disparities between populations within Butte County
- Key themes that emerged from focus groups

Exhibit 48. Synthesis of oral health key findings

Topic	Indicator	Key finding	Oral health need?
Oral health status	Perceived oral health status	Overall perceived oral health status was similar to oral health status for Californians. However, those with poor oral health status reported impacts on their ability to interview for jobs (41%), their need to take time off from work (14%), more pain and discomfort while eating (43%) and difficulty with speech (12%).	Yes
	Mouth tooth and pain	Denti-Cal beneficiaries were more likely to take days off from work because of discomfort (17%) than those with no insurance (15%) or private insurance (11%). Over half (52%) of Denti-Cal recipients felt their mouth and tooth appearance affected their job interview prospects, compared to 30% with private insurance. Missing school as a result of dental pain or discomfort was more common among children whose primary source of insurance was Denti-Cal (15% vs. 6%), and higher in Butte County Community Survey respondents (12%) than Butte (5%) or California (7%) CHIS data.	Yes
	Untreated decay	In 2016-17, 21 percent of the 384 kindergarten students assessed by the Chico Unified School District had untreated decay. Among the 917 pre-kindergarten through 8th grade students screened for dental issues in Chico by Northern Valley Indian Health during the 2017-18 school year, 30 percent had untreated decay and 10 percent had urgent dental needs.	Yes
	Oral cancers	The age-adjusted incidence rate of oral cavity and pharynx cancers in Butte County was 12.8 per	Yes

Topic	Indicator	Key finding	Oral health need?
		100,000, compared to 10.0 per 100,000 in California and similar to other Northern California counties.	
Access to oral health care	Dental insurance coverage	A high proportion of adults in Butte County had dental insurance (82% in Community Survey, 72% according to CHIS) compared to California (61%). Nearly all children in Butte County have dental insurance (97% in Community Survey, 99% according to CHIS).	No
	Usual source of care	Adult and child Denti-Cal beneficiaries were more likely to visit a public clinic than a dentist office compared to those with private insurance. Caregivers with Denti-Cal and caregivers in rural parts of the county were more likely to take their child out of Butte County for care (14%) than those with private insurance (2%).	Yes
Utilization of care	Age at first visit	Less than half of children (42%) saw a dentist by age 1.	Yes
	Dental visit in the last 12 months	Adults with private insurance were more likely to have a dental visit in the last 12 months (76%) compared to those with Denti-Cal (53%) or no insurance (49%). Young adults and men were less likely to have a dental visit in the past year. In Butte County's Community Survey, 79 percent of children saw a dentist in the last 12 months. This was lower than reported in CHIS for Butte County (98%) and the state (83%).	Yes
	Reason for most recent visit	Adults with Denti-Cal were more likely to have visited a dentist for a specific problem (41%) compared to adults with private insurance (24%).	Yes
	Dental visit during pregnancy	The overall percent of women who saw a dentist during their recent pregnancy (47%) was similar to California (43%). However, significant disparities exist for women with Medi-Cal (39%), women below the poverty level (38%), and women with a high school education or less (37%).	Yes
	Scaling and root planing	Most adults who had received a recommendation for scaling and root planing (71%) received the service.	No
	Oral cancer screening	One-third of adults received a recommendation for an oral cancer screening. Tobacco users were no more likely to receive a recommendation for a screening (32%) compared to non-tobacco users	Yes

Topic	Indicator	Key finding	Oral health need?
		(36%).	
	Utilization of sealants	Fifty-nine percent of children between ages six and 14 had received sealants.	No
	HPV vaccine	Among 17 Community Survey respondents with children between ages 13-17, 71 percent had received an HPV vaccine, similar to the statewide vaccination rate. Twenty-six percent of providers indicated discussing the HPV vaccine with their patients.	No
	Barriers and attitudes about oral health care	Key barriers to dental care identified for both children and adults included cost, time required to see a dentist, competing priorities, negative prior experiences, and a perceived lack of dental providers-particularly providers who accept Denti-Cal—in the county.	Yes
Oral health behaviors	Dental care and hygiene	Approximately half of adults (57%) and children (51%) brushed at the recommended frequency of twice per day. Less than half of adults flossed (40%) or used fluoride toothpaste (48%) at the recommended frequency of twice per day, similar to children (36% flossing; 42% fluoride toothpaste). Adults and children whose primary household language was English were less likely to brush (both 48%) than their peers (both 62%). Similar differences were found for adult flossing and child fluoride toothpaste use.	Yes
	Dietary behaviors	Children with Denti-Cal were more likely than children with private insurance (46% vs. 31%) to drink juice and eat candy (55% vs. 37%) more than four times per week. Children from primarily English speaking (44%) and bilingual English and Spanish speaking (43%) households were more likely to report eating fruits and vegetables daily than their peers (24%).	Yes
	Smoking and tobacco use	More adults use tobacco products in Butte County (17%) compared to those who smoke in California (12%), with the majority (75%) having used tobacco for eight years or more.	Yes
	Child sleeping with bottle	Ten percent of Butte County Community Survey respondents with children under age six reported that their child had slept with a bottle in their mouth that contained milk, formula, juice, or other sugary beverages during the past week, compared	Yes

Topic	Indicator	Key finding	Oral health need?
		to 5 percent of Children in California.	
Oral health knowledge	General knowledge of oral health best practices	Adults are more uncertain about the use of fluoride toothpaste (6%) and drinking fluoridated water (27%) than other oral hygiene practices. Survey and focus group findings suggest mixed messages related to the benefits of fluoride.	Yes
	Caregivers' knowledge of child behaviors	Caregivers' knowledge about children's oral health is high, with room for improvement for some groups around the importance of annual dental visits, the importance of baby teeth, or having a toothbrush be the last thing in a child's mouth at night.	Yes
	Receipt of oral health information	Almost half (45%) of respondents indicated they receive information on their child's oral health from the dentist's office in the past 12 months.	Yes
Environmental risk and protective factors	Access to fresh fruits and vegetables	A high proportion of Butte County residents report always finding fresh fruits and vegetables in their neighborhood (77% compared to 74% in California).	No
	Exposure to fluoridated water	Fully fluoridated water is currently only available in Gridley and parts of Oroville.	Yes
	Availability of dental providers	The ratio of population to providers in Butte County (1,400:1) is higher than in California (1,210:1), and focus group participants noted a lack of Denti-Cal providers in the county.	Yes
	Availability of oral health information	Less than five percent of caregivers report receiving oral health information through public health campaigns outside of the dentist's office in the past 12 months.	Yes

Next Steps

The Butte County Oral Health Community Health Assessment (CHA) summarizes primary and secondary data that reflect and clarify oral health needs of communities within the county.

Findings from this Oral Health CHA suggest that Butte County has both significant strengths related to promoting oral health among its residents, as well as opportunities for improvement. Following the completion of the CHA, Harder+Company will present the findings to the Oral Health Coalition and facilitate a process for BCPHD staff and Coalition members to prioritize the identified oral health needs. The prioritization process will utilize criteria pre-determined by BCPHD staff and the Oral Health Coalition. Prioritization criteria include:

- *Size*: a large number or percentage of people in the community are impacted by the issue;
- *Severity/degree of impact*: the health need has serious consequences;
- *Disparities*: the health need disproportionately impacts specific geographic, age, or racial/ethnic populations;
- *Prevention:* the health need presents an opportunity to intervene through prevention;
- *Feasibility:* sufficient local resources and community support/political will are available to help ensure successful outcomes; and
- *Leverage:* a solution could address multiple health issues or challenges.

Harder+Company will then work closely with BCPHD staff and Coalition members to develop the Community Health Improvement Plan (CHIP). The CHIP will be completed by December 2018. BCPHD and the Coalition will utilize the CHA and CHIP as a strategic plan to address the priority oral health needs within the Butte County Oral Health Program. The CHIP will rely on the ongoing engagement of the Oral Health Coalition in the BCPHD efforts.

Appendix A: Detailed Methodology

Butte County Oral Health Community Survey

Purpose

The Butte County Public Health Department's Oral Health Community Survey gathered information on oral health status, knowledge and beliefs, behaviors, and utilization of services among adults over the age of 18 who lived or worked in Butte County.

Survey content and development

The survey's 25 questions were informed by existing oral health and dental health surveys—including the American Dental Association's Caries Risk Assessment, the National Health and Nutrition Examination Survey (NHANES), and the California Health Interview Survey (CHIS)—to ensure that community survey findings could be compared to existing data at the county and state level. In some instances, these questions were adapted (or augmented) to examine unique oral health characteristics and key questions in Butte County. Caregivers answered an additional 18 questions about their child's oral health.

The Oral Health CHA Community Survey was developed in consultation with Harder+Company and BCPHD staff with oral health expertise. The survey was piloted with select Oral Health Coalition members in May 2018.

Data collection

Survey responses were collected in May and June 2018 through two key avenues:

- Distributed online by both BCPHD staff and Oral Health Coalition members, and
- Distributed in-person by BCPHD at key community locations, including farmers markets, schools, and at key county agencies.

BCPHD partnered with community agencies and Oral Health Coalition members to ensure that the survey was distributed across the county and, in particular, to traditionally marginalized and underserved communities. Some respondents at locations that were selected specifically to reach caregivers of young children only received child-specific questions (along with select demographic questions).

Online survey respondents could be entered into a drawing for a $25 gift card, and in-person survey respondents received a $5 gift card upon completing each of the two sections of the survey as compensation for their time. No incentives were provided for completed surveys that were distributed at schools and taken home to be filled out by caregivers.

A total of 820 responses were collected from Butte County community residents. Of these respondents, 459 adults received questions about their own oral health knowledge and behaviors. A total of 526 adults received and answered questions

about their child between the ages of zero and 17; some of these adults did not respond to questions about their own oral health.

Data analysis

Descriptive analyses were conducted on survey questions in the form of counts, percentages, and/or proportions. The total number of respondents included for each analysis varies depending on the question, the total number who completed the question, and the relevant subpopulations of interest.

Where applicable and appropriate, data was stratified by select demographic characteristics, including: dental insurance type, race or ethnicity, age group, socioeconomic status as measures by receive of public assistance, geographic location in Butte County, gender identification, and primary language. Stratifications were determined based on both the content of the question and availability of a sufficient number of responses. Tests of significance were used to determine whether differences were significantly different; however, statistical significance was not used to make the final determination for which data would be included in this report. Rather, data were included in this report if they contributed to understanding the strengths and oral health needs of county residents.

Butte County Dental Provider Survey

Purpose

BCPHD administered a survey to dental providers about both the services they offered to their patients, as well as their perspectives on key oral health and dental health priorities in the county.

Survey content and development

The Oral Health CHA Dental Provider Survey was developed by BCPHD with consultation from Harder+Company.. The survey's 13 questions were informed by existing oral health and dental health surveys, literature on dental providers' roles in addressing oral health, and topics of interest to BCPHD staff and other stakeholders.

Data collection

The Dental Provider Survey was distributed by BCPHD staff to dental providers and offices who serve Butte County residents. Surveys were distributed through e-mail and by mail in June 2018. A total of 23 dental providers—primarily dentists—responded to the survey.

Data analysis

Descriptive analyses were conducted on survey questions in the form of counts, percentages, and/or proportions. The total number of respondents included for each analysis varies depending on the question, the total number who completed the question, and the relevant subpopulations of interest.

While stratifications by provider profession, Denti-Cal status, languages offered at the provider's practice, and type of clients seen at each practice were explored, they have not been included in this report due to small sample size.

Focus groups

Purpose

BCPHD set out to conduct focus groups that captured in-depth perspectives on oral health, including access to and receipt of dental services. In particular, BCPHD prioritized focus groups with traditionally marginalized and underrepresented communities in the county.

Focus group content and development

Focus group protocols were developed by BCPHD with consultation from Harder+Company and BCPHD staff with oral health knowledge and expertise. Questions focused on understanding community oral health attitudes, knowledge, experiences, as well as their ideas for improving oral health in the county. In particular, they were designed to reflect key oral health topics that were included in the Butte County Oral Health Community Survey, and to gather additional in-depth knowledge about these topics.

Data collection

Four focus groups were conducted with 37 Butte County residents in June 2018. These focus groups were held with:

- Members of the African American community as well as other racial groups from the South Oroville area, recruited in partnership with the African American Family & Cultural Center
- Members of the Spanish-speaking Latino community, recruited in partnership with Northern Valley Catholic Social Services, Promotores Program.
- Members of the Hmong community, recruited in partnership with the Hmong Cultural Center.
- Members of the Native American community, recruited in partnership with Mechoopda Indian Tribe of Chico Rancheria and primarily representing the Mechoopda tribe.

One planned focus group in the city of Paradise was cancelled due to a low response rate.

All focus group participants received a $15 gift card as an incentive for their participation. An optional demographic survey was also distributed to focus group participants.

Data analysis

Audio recordings from focus groups were transcribed. Notes and transcripts were analyzed using Atlas.TI qualitative analysis software. Coding schema were developed using an iterative process grounded in the focus group protocols and preliminary review of transcripts. Key themes were identified based on the total number of mentions, as well as the total number of focus groups that discussed the theme. In addition, key insights that illuminated specific issues faced by traditionally underserved or marginalized communities were included in key themes to reflect BCPHD's interest in understanding the particular barriers and challenges that these communities have encountered in achieving optimal oral health.

Secondary data

Purpose

Secondary data from public data sources were used to describe oral health status, outcomes, and utilization of care in the county. In addition, this secondary data was used to draw comparisons to statewide oral health.

Selection of indicators

To select secondary data for the Oral Health CHA, BCPHD identified oral health topics of interest for CHA data collection, including demographics, oral health outcomes, access to oral health services (including specific services such as dental sealants and oral cancer screenings), and oral health knowledge, beliefs, and practices. Using these areas of interest, Harder+Company reviewed public data sources with oral health related questions and compiled a database of possible oral health secondary data to examine. Final selection of secondary data for inclusion in this CHA was determined based on availability of the data at the county level, availability of stratifications, most recent years of data available, and relevance to selected oral health topics.

Data collection and analysis

BCPHD and Harder+Company gathered available secondary data for each identified source. The California Health Interview Survey is a key source of oral health data in California; however, estimates for Butte County can be statistically unstable due to small sample size. Point estimates that are statistically unstable have been notated as such in this report.

In addition to secondary data available through public sources, BCPHD staff also compiled secondary data from Oral Health Coalition members who have collected data from their constituents about oral health.

Asset mapping

Purpose

To understand the resources for (as well as the challenges to) improving oral health, the Oral Health Coalition participated in an asset mapping activity.

Facilitation of asset mapping activity

BCPHD staff worked with Harder+Company to design an asset mapping activity that was conducted at the June 2018 meeting of the Oral Health Coalition. This asset mapping activity set out to identify two distinct types of assets for improving oral health:

- Place-based, "mappable" assets and resources that strengthen the community, and
- Social networks and relationships that build community capacity and resilience as it relates to supporting the community.

In particular, Oral Health Coalition members were encouraged to think broadly about oral health, and the social determinants of oral health within Butte County. Participants were also asked to identify barriers to accessing these resources, along with gaps in available services.

In small groups, Coalition members responded to several guiding questions about community strengths and opportunities, and where in the community they access (or could access) both formal and informal resources. Participants were encouraged to think about what resources they see as they walk down the street and where they go when they need specific goods or services. After small group discussions, participants shared their conversations and discoveries back with the full Oral Health Coalition.

Synthesis of findings

These primary and secondary data sources were synthesized for each oral health topic. The following criteria were considered when determining whether an indicator for the county qualified as a need:

- Comparison to statewide benchmarks
- Disparities between populations within Butte County
- Key themes that emerged from focus groups

Findings for each oral health topic were reviewed closely with BCPHD and the Oral Health Coalition to come to consensus about whether to consider the topic an oral health need.

Appendix B: Oral Health Coalition members

As of August 2018, the Butte County Oral Health Coalition includes representatives from the following organizations:

- American Lung Association
- Ampla Health
- Associated Students Child Development Lab (ASCDL) of California State University (CSU), Chico
- Butte County Behavioral Health Department
- Butte County Office of Education
- Butte County Public Health Department
    - Child Health and Disability Prevention (CHDP) Program
    - Support Services, Nursing Division
    - Women, Infants and Children (WIC) Program
- California Health Collaborative
- California Tribal Temporary Assistance for Needy Families (TANF) Partnership (CTTP)
- Chico Unified School District
- Every Woman Counts
- First 5 Butte County
- Feather River Tribal Health
- Hmong Cultural Center
- Mechoopda Indian Tribe of Chico Rancheria
- Northern Valley Indian Health
- Thermalito Union School District
- Valley Oak Children's Services
- Veteran's Resource Center

harderco.com

Harder+Company Community Research works with public- and social-sector organizations across the United States to learn about their impact and sharpen their strategies to advance social change. Since 1986, our data-driven, culturally-responsive approach has helped hundreds of organizations contribute to positive social impact for vulnerable communities. Learn more at www.harderco.com. Follow us on Twitter: @harderco.