

# Trinity County Oral Health Needs Assessment

## Summary Findings



**CALIFORNIA CENTER FOR RURAL POLICY  
AT HUMBOLDT STATE UNIVERSITY**

2019

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# Trinity County Oral Health Needs Assessment

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## Summary Findings

### TABLE OF CONTENTS

|                                              |    |
|----------------------------------------------|----|
| ACKNOWLEDGEMENTS .....                       | 2  |
| EXECUTIVE SUMMARY .....                      | 3  |
| BACKGROUND .....                             | 6  |
| METHODS .....                                | 6  |
| RESULTS.....                                 | 8  |
| SUMMARY OF SECONDARY DATA WITH GIS MAPS..... | 8  |
| SUMMARY OF INTERVIEW DATA .....              | 27 |
| NEEDS ASSESSMENT SURVEY DATA.....            | 44 |
| RECOMMENDATIONS .....                        | 53 |
| REFERENCES (SECONDARY DATA SCAN) .....       | 54 |
| APPENDIX A (Community Survey).....           | 55 |
| APPENDIX B (Survey Distribution Sites).....  | 64 |

### REPORT ABSTRACT

In 2019, in collaboration with the Trinity County Department of Health & Human Services—Public Health Branch, the California Center for Rural Policy (CCRP) conducted an oral health needs assessment for Trinity County. CCRP collected primary data and reviewed secondary data to summarize the current oral health needs of Trinity County residents. The needs assessment was made possible by the 2016 California Healthcare, Research and Prevention Tobacco Tax Act (Proposition 56) that was approved by voters and provided \$30 million annually to the California Department of Public Health and local health departments across California.

## ACKNOWLEDGEMENTS

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## EXECUTIVE SUMMARY

The purpose of this work was to: (1) collect primary qualitative and quantitative data to better understand the oral health status and unmet needs of Trinity County’s residents, (2) use publicly available secondary data from local, state, and national sources, and (3) identify key themes and opportunities for improvement of Trinity County’s system of oral health care.

|                                                                                |                                     |
|--------------------------------------------------------------------------------|-------------------------------------|
| Population                                                                     | 13,037                              |
| Percent of Residents Living in Poverty                                         | 20%                                 |
| Overall Health Ranking                                                         | 55 <sup>th</sup> out of 58 counties |
| Population-to-Dentist Ratio                                                    | 2,130:1                             |
| Rate for ER Visits for Non-Traumatic Dental Issues                             | 907.7 per 100,000                   |
| Percent of Children Living Below the Poverty Line                              | 24.4%                               |
| Percent of Children Eligible to Receive Free or Reduced-Priced Meals at School | 65% (1006 children)                 |
| Percent of Kindergarten Students with Untreated Decay                          | 47.1% (273 children)                |
| Number of Students Who Received Mobile Dental Services from 2015-2019          | 344 students                        |

All data sources and additional details can be found in the Results section of the report.

### Key Findings

Key findings are based on a review of the secondary data scan, results of the oral health survey conducted in the summer of 2019 (n=328), and themes that emerged in interviews with key professionals (n=24). Themes from interviews with professionals echo the findings of the secondary data scan and in general are supported by the results of the survey.

**Theme 1. The number of dental providers in Trinity County is inadequate to meet patient need.** Residents enrolled in Medi-Cal as well as those who are covered by private insurance have very few options for dental care in Trinity County.

There have been important strides made in efforts to increase access to care, such as (1) the use of mobile dental clinics, (2) opening of a second site for Southern Trinity Health Service’s Federally Qualified Health Clinic in Weaverville, and (3) Redding Rancheria’s plan to break ground for a dental clinic in Weaverville that will serve tribal, Medi-Cal and low-income patients.

- Sixty-one percent (61%) of survey respondents reported that they visited the dentist within the last year, and 44% reported they visited either for a six-month cleaning or an annual check-up.
- Until recently, two dentists were available to treat privately insured patients, one in Weaverville and one in Hayfork. One of the two retired this year.
- Thirty-nine percent (39%) reported they did not receive the care they needed in the last year.

**Theme 2. The remoteness of the region and rugged terrain, combined with the scarcity of providers, make transportation a central problem in accessing oral health care.**

*“If I had to drive from Hayfork to Redding, I hate to go to Redding now from Lewiston...so unless you have to go to a dental appointment, unless you’re in dire pain, is a dental check-up really worth that drive? Probably not.”*

- Use of mobile services—which *has* increased access to services—is limited by the winding, mountainous and narrow roads into the more remote areas.
- More than half of survey respondents (60%) reported that it takes an hour or more to drive to the dentist.
- More than half of survey participants (60%) have had their adult teeth pulled, excluding wisdom teeth (39% reported having lost between one and five teeth).

**Theme 3. The level of poverty in Trinity County significantly affects residents’ ability to access oral health care.** Although (88%) of survey participants reported that oral health was either extremely or very important, cost was reported to be a deterrent to dental care for about 20% of survey respondents.

*“If you don’t have enough money to eat, you are not thinking about your teeth or oral health.”*

*“We’re one of the oldest and one of the poorest-per-capita [counties] in the state. So unfortunately, dental care just falls to the bottom for those reasons, lack of resources and lack of providers.”*

**Theme 4. Many residents have gaps in knowledge about proper oral health care.**

*“...with the parent, she was afraid of cancer and other, [fluoride’s] just not healthy or natural for the body and they’re into holistic-type remedies, holistic health.”*

- Half of survey participants mentioned that they did not know if there is a connection between gum disease and diabetes, yet 69% were aware of the connection between gum disease and heart disease.
- Over half of survey respondents (59%) reported that their child’s doctor did not ask about dental care or examine the child’s teeth.

**Theme 5. Social isolation based on the rural and “off-the-grid” nature of many communities presents significant challenges to urban-oriented health education strategies.**

“Back-to-landers” make up a large number of Trinity County residents, especially those in the most outlying areas of the County. They tend to value independence, self-sufficiency, and often mistrust or reject practices associated with prevailing medical, scientific, or otherwise accepted forms of health care. While this is often read as a negative it has also been cited as a strength:

*“They came to this area to get away from government or society...they went off, and they came to create their own...self-sufficiency and so that’s that culture.”*

*“Some of our beliefs about the importance of nutrition and growing our own food...trying to have community gardens, and fruits and vegetables, less sugar and candy and junk...working on healthy communities.”*

**Missing or Insufficient Data**

CCRP was able to obtain very little data on the oral health of seniors—who comprise 27.3% of Trinity County’s population<sup>1</sup>, veterans—who comprise 10%, according to American Community Survey (2017), and immigrant populations, who are not easily estimated. Services that focus on seniors tend to be oriented to housing and/or food provision, and records about oral health are not generally available. One dentist who serves Medi-Cal patients told CCRP that the elderly and medically compromised are most affected by poor oral health. This is true for people with mental or developmental disabilities as well—oral health may not be viewed as a pressing concern given their other problems. However, the links between oral health and overall physical conditions underscore the importance of assessment in these populations, and the need to gather data across agencies.

**RECOMMENDATIONS**

- 1. County-wide Collaboration with a Whole-Family Focus.** A whole-family focus suggests that a collaborative approach between schools, medical and social-service providers, public health and community members (parents among them) is the best way to produce effective change in oral health behaviors and conditions.
- 2. Employ Grassroots Educational Strategies.** Considering the interreliance that develops in geographically isolated communities in response to emergency conditions, an oral health education program—utilizing grassroots-oriented strategies that identify clusters of lay community leaders and locally close-knit families throughout the county—should be pursued.
- 3. Medical/Dental Integration.** Integration of oral health assessments with medical examinations would reach people who may otherwise not attend to dental conditions—pregnant women, seniors, patients with mental and developmental disabilities, etc.

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<sup>1</sup> U.S. Census data. [Census.gov/quickfacts/trinitycountycalifornia](https://www.census.gov/quickfacts/trinitycountycalifornia)

4. **Expand Oral Health Advisory Team.** Efforts should be made to increase the breadth of community members on the Oral Health Advisory Team to include: community leaders from various outlying areas, teens/young adults, school superintendents, representatives of faith-based communities, local businesses, Lions Club and other civic organizations, veterans services providers, and MCHD hospital staff.
5. **Design and Implement a Data Collection Plan.** An effort to map and streamline existing channels of data gathering, analysis and reporting would provide a mechanism for an ongoing system of feedback that could be used to steer the county through a long-range health improvement plan, allowing for adjustments and innovations as lessons are learned along the way.
6. **Conduct a Series of Community Focus Groups in Outlying Areas** to develop an understanding of the perspectives of vulnerable populations around barriers to accessing care and their level of engagement with good oral health practices in the home setting. Such groups could serve multiple purposes, all of which would further the goal of outreach and education: (a) community leaders could be identified, (b) a more specific census of localized information about the various clusters of Trinity residents could be constructed, and (c) residents could become engaged with the concerns of the LOHP, perhaps working with the oral health advisory team as a program ambassador in their area. These focus groups, if properly designed and promoted, would most certainly raise awareness of the value of good oral health and could be a vehicle for Public Health to broadly distribute new information about plans for improving oral health in Trinity County.

## BACKGROUND

In 2019, in collaboration with the Trinity County Department of Health & Human Services—Public Health Branch, the California Center for Rural Policy (CCRP) conducted an oral health needs assessment for Trinity County. CCRP collected primary data and reviewed secondary data to summarize the current oral health needs of Trinity County residents.

## METHODS

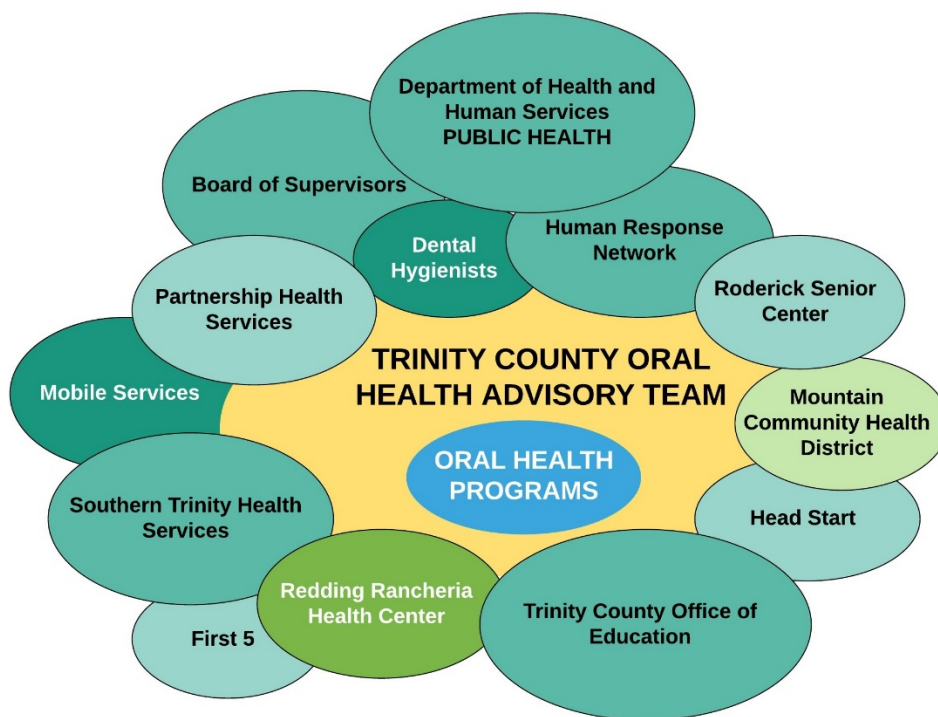
A combination of primary and secondary data sources was utilized for the report. Primary data was collected from three sources: (1) GIS Maps (2) interviews with professionals linked with oral health or social services in Trinity County, and (3) surveys aimed at residents of Trinity County designed to gather the status of residents' oral health in Trinity County.

### *Secondary Data and GIS Maps*

CCRP conducted a secondary data scan through various available sources. CCRP designed GIS maps utilizing ArcMap to demonstrate the relationship between the secondary data and locations/communities in Trinity County.

### *Interviews with the Professional Community*

In the summer of 2019, CCRP consulted with a group of professionals that had been identified by the Coordinator of the Local Oral Health Program as members of the Trinity County Advisory Team or people who were otherwise important to oral health programs in the county, such as County Supervisors. CCRP conducted 24 interviews, many in person and some by telephone, with key members of the Team or Trinity County agencies and government in order to capture the knowledge of the history of oral health programs in the county, current perspectives on the status and needs of the communities served with respect to oral health, and ideas and suggestions for tackling some of the obstacles to oral health care. Interviews were transcribed and analyzed using Atlas-ti software.



### *Public Surveys Throughout the County*

The survey tool was designed to measure the community's oral health knowledge, practices, conditions, and their opinions and understanding of how to prevent dental caries (see Appendix A for a copy of the survey questions). Respondents were asked to fill out the first part for themselves, and if they had children between the ages of 0-18, to complete the second part of the survey, and submit basic demographic information as well. Surveys were distributed in paper form at events around the County, at the Public Health office in Weaverville, and an on-line survey using Survey Monkey software was available for people to complete on a computer, phone or tablet. In some cases a Public Health worker completed the on-line version with a tablet, with people who agreed to participate in the survey.

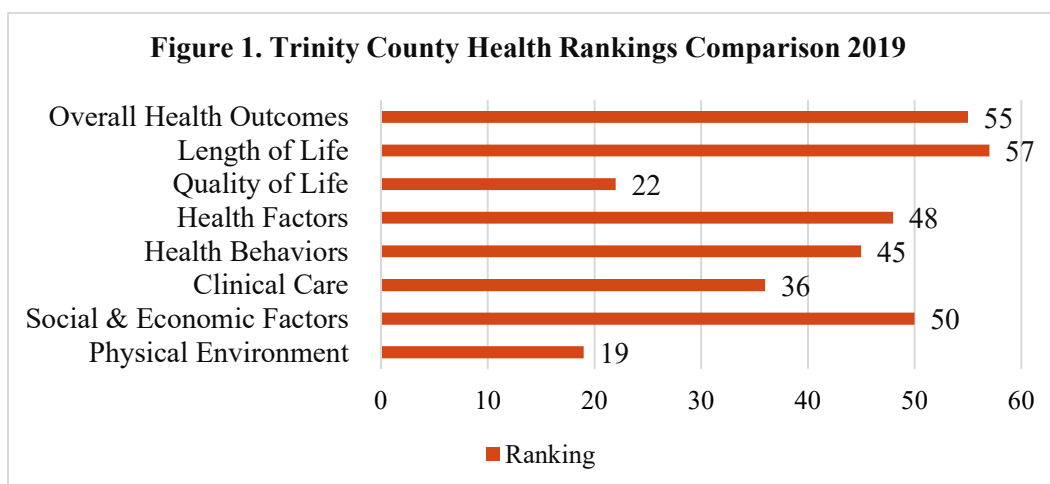


The surveys were promoted by posting flyers containing the web link to the on-line survey and/or by leaving paper surveys at various sites around the County. See Appendix B for a complete list of the distribution sites. Schools, play-group programs, shops or stores, food-distribution sites, and health clinics were used to solicit participation in the survey in Southern Trinity, Northern Trinity, Central Trinity, Mountain Valley communities, Eastern Trinity and Western Trinity. Links to the on-line survey were posted on social media, advertised in newspapers and County email lists. Businesses, social services offices and civic organizations (e.g., Rotary Club, Moose Lodge) were also provided with the link and/or paper surveys. Flyers were posted and surveys were available in local stores, clinics, community bulletin boards, The Grange, Trinity County Library, and parks and recreation areas, as well as distributed at the Trinity County Fair. Efforts were made to reach senior citizens, tribal communities and service providers who work with people with developmental disabilities. A number of social media and websites were used to post information about survey with a corresponding access link. A total of 328 Trinity County residents participated in the needs assessment survey.

## RESULTS: SUMMARY OF SECONDARY DATA WITH GIS MAPS

### *Overall Health in Trinity County*

Trinity County is home to 13,037 residents (U.S. Census, 2018 estimate). Approximately 20% of Trinity residents are living in poverty (American Community Survey 2017) compared to 18.9% of residents in the state of California. The U.S. Census reports that 87% of residents are White, 7.5% are Hispanic or Latino, 5.2% are American Indian or Alaskan Native, 1.4% are Asian or Asian American and 5.4% are two or more races. Trinity County ranked 55 out of 58 California counties for overall health outcomes.



Source: 2019 Robert Wood Johnson Foundation Health Outcomes. Note: Lower number is better.

Oral health refers to the health of our teeth, gums and the entire oral-facial muscular system. Some of the most common diseases that impact our oral health include but are not limited to:

- Tooth decay (cavities)
- Gum (periodontal) disease
- Oral cancer

*What are the risk factors?*

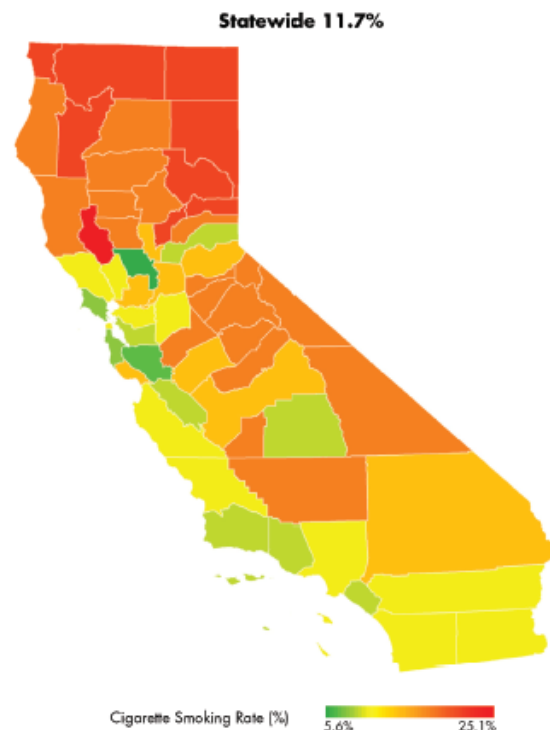
Risk factors for oral health diseases include but are not limited to:

- Diabetes
- Smoking or tobacco use

Periodontal disease is the most common dental disease affecting individuals diagnosed with diabetes (American Academy of Periodontology-AAP). People with diabetes are at a higher risk for gum issues because of poor blood sugar control (AAP). In 2014, 10% of adults aged 20 and above in Trinity County were diagnosed with diabetes (2018 County Health Rankings). Figure #2 depicts the cigarette-smoking rate among California adults by geographic regions, 2015-2017 (California Tobacco Facts and Figures 2019).

In California there are geographical differences in the cigarette-smoking rate. Higher rates of smoking tend to be found in rural counties. In 2015-2017, the cigarette-smoking rate among adults living in Trinity County was about 20.3%. By 2019, the rate for cigarette use in Trinity County is double the rate for California (11.7%) (California Tobacco Facts and Figures 2019).

**Figure 2. Rate of Cigarette Smoking Among California Adults**



Note: Restricted to respondents aged 18 or older. Cigarette use is based on self-reported current use. Several counties were categorized together to produce stable estimates: (a) Alpine, Amador, Colusa, Inyo, Mariposa, Mono, Tuolumne; (b) Del Norte, Lassen, Modoc, Plumas, Sierra, Siskiyou, Trinity; (c) Colusa, Glenn, Tehama; (d) Napa, Sonoma; and (e) Santa Barbara, Ventura. Source: California Health Interview Survey, 2015-17. Los Angeles, CA: UCLA Center for Health Policy Research; February 2019.

Figure 3 (next page) compares population estimates of other indicators related to poor oral health in Trinity County and California.

| <b>Figure 3. Indicators Related to Poor Oral Health 2014</b> | <b>Trinity County</b> | <b>California</b> |
|--------------------------------------------------------------|-----------------------|-------------------|
| Delayed prescriptions/medical services (18+)                 | 0.255%                | 0.212%            |
| Fair or poor health (18-64)                                  | 0.243%                | 0.192%            |
| Ever diagnosed with heart disease (18+)                      | 0.098%                | 0.059%            |
| Sugary drink consumption 1+ times per day (18+)              | 0.199%                | 0.174%            |
| Ever diagnosed with diabetes                                 | 0.097%                | 0.088%            |

Source: California Health Interview Survey, 2014.

Population estimates for all of the indicators listed in Figure 3 are disproportionately higher for Trinity County than for the state of California.

### *Vulnerable Populations*

Oral health disparities are profound in Trinity County (Oral Health Care Disparities in the Redwood Coast Region/CCRP, 2010). Oral health disparities exist for many racial and ethnic groups—by geographic location, socioeconomic status, gender, and age (CCRP, 2010).

The following section discusses five populations that are vulnerable to oral health diseases in Trinity County. These populations include:

1. People who are living in rural, frontier and remote communities
2. People living in poverty
3. Pregnant women
4. Youth
5. Seniors

### *Remote and Frontier Geography:*

Residents of Trinity County face barriers in efforts to access dental services due to its geography (Trinity County Oral Health Data Dashboard, 2019).

According to the Medical Service Study Areas (MSSA) 2010, the entire county of Trinity County is classified as frontier (CHHS, 2010). In general, frontier areas are remote and sparsely populated rural areas which are isolated from social services, health care, grocery stores, schools and other necessities (Rural Health Information Hub).

Medical Service Study Areas (MSSAs) are groupings of census tracts that are classified as urban, rural or frontier (Office of Statewide Health Planning and Development-OSHPD). The following describes the distinctions of each MSSA classification:

1. **Rural:** An MSSA which has a population density of fewer than 250 persons per square mile, and no census-defined place with a population in excess of 50,000 within the MSSA.
2. **Frontier:** A rural MSSA with a population density of fewer than 11 persons per square mile.

3. Urban: An MSSA which is neither frontier nor rural.

Some of the health care challenges in frontier areas include but are not limited to:

1. Lack of transportation (public or private).
2. Lack of available health care providers or limited capacity at local community health facilities.
3. Lack of financial resources and/or limited dental-benefit coverage for low-income households.

Frontier communities without social services and health clinics are often clustered together, compounding the distance residents must drive to reach a provider (Rural Health Information Hub). Unavailable or inadequate public transportation for low-income households, the elderly, and people with disabilities is one of the barriers to accessing health care in frontier areas (Rural Health Information Hub). Seasonal travel barriers can also occur due to obstructions such as landslides, forest fires, snow, ice and flooding.

Trinity County is a medically underserved community and its remoteness may contribute to the shortage of health care professionals (Measuring Rurality Statewide/CCRP, 2006). The entirety of Trinity County is also classified as a health care professional shortage area for low-income residents (Trinity County Oral Health Database, 2019).

Frontier areas often face difficulties in maintaining their health care workforce because frontier regions cannot easily compete with the amenities and wages offered to health care providers in urban areas (Rural Health Information Hub).

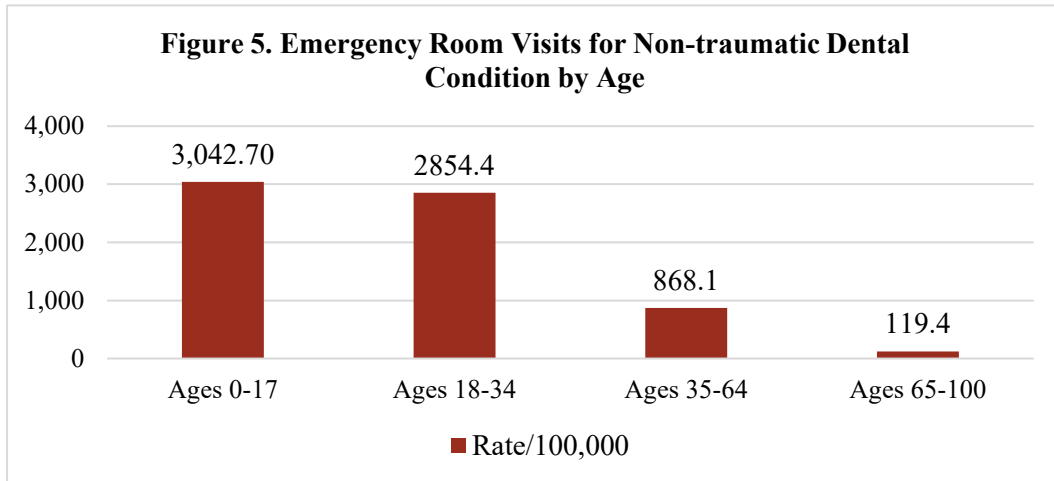
In Trinity County, primary care physicians see an average of 4,356 patients per year and dentists see about 2,130 patients per year. Figure 4 compares the patient-to-provider ratio of Trinity County to the state of California.

| <b>Figure 4. Patient-to-Provider Ratios</b>                        | <b>Trinity County</b> | <b>California</b> |
|--------------------------------------------------------------------|-----------------------|-------------------|
| Population-to-Primary Care Physician ratio                         | 4,356: 1              | 1,341:1           |
| Population-to-Dentist ratio                                        | 2,130:1               | 1,210:1           |
| The rate for emergency room visits for non-traumatic dental issues | 907.7 per 100,000     | 353.3 per 100,000 |

Source: California Health and Human Services Open Data Portal 2013-2017 and Trinity County Oral Health Data Dashboard, 2019.

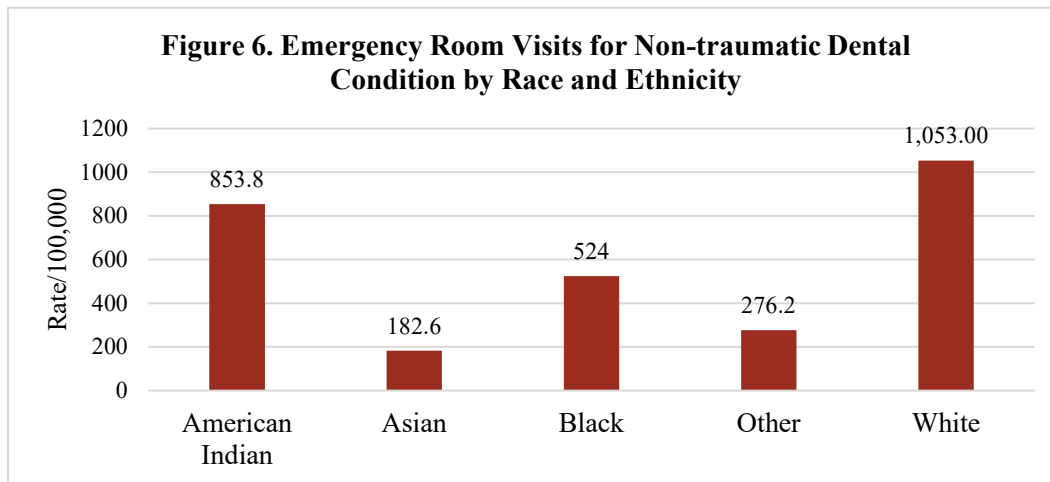
High rates of emergency room visits may be associated with a lack of health care providers. The rate for emergency room visits for non-traumatic dental issues in Trinity County is about 907.7 per 100,000, which is significantly higher than in the state of California (Trinity County Oral Health Data Dashboard, 2019).

Figure 5 demonstrates emergency room visits for non-traumatic dental conditions by age. Youth have the highest rate of emergency room visits for non-traumatic dental issues in Trinity County (Trinity County Oral Health Data Dashboard, 2019). The rate for ages 0-5 alone is 1,777.4 per 100,000.



Source: Trinity County Oral Health Data Dashboard 2019.

Figure 6 demonstrates emergency room visits for non-traumatic dental conditions by race and ethnicity. American Indian/Alaska Native and White community members have the highest rate for emergency room visits for non-traumatic dental conditions.



Source: Trinity County Oral Health Data Dashboard 2019.

In frontier or rural regions, low-income residents face barriers in accessing services. Low-income residents are more likely to not be able to access public or private transportation, not be able to afford services or insurance, and are often socially marginalized (Rural Health Information Hub).

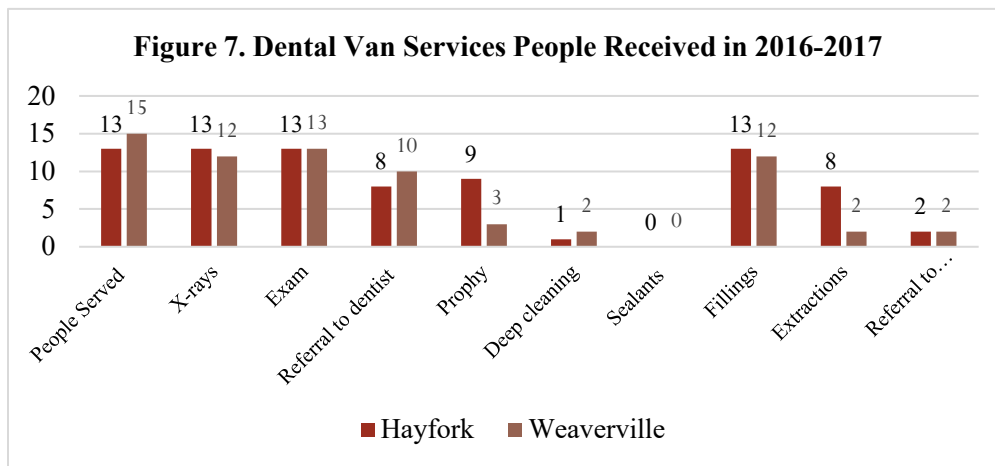
### Mobile Dental Services

The mobile dental service model is a portable dental clinic or dental van that offers access to care for underserved residents in hard-to-reach communities. From 2016 to 2017, the dental van project was organized by the Trinity County Department of Health and Human Services (TCHHS). The goal of this project was to develop a sponsored partnership between a dental professional and TCHHS for the purpose of addressing dental needs of residents—children and

adults. Mobile dental clinics offer the following services:

- X-rays
- Exams
- Referral to dentist
- Prophylaxis
- Deep cleaning
- Sealants
- Fillings
- Extractions
- Referrals for specialists

The dental van project served a total of 28 patients (adults and children) in the Hayfork and Weaverville areas. Twenty-two were adults and six were children under the age of 18. Figure 7 demonstrates the kind of dental services adults and children received through the dental van in these two towns.



Source: Trinity County Department of Health and Human Services Dental Van Project 2016-2017.

### Residents Living in Poverty

People living in poverty may be at a higher risk for oral health diseases than folks who are not living in poverty. In Trinity County, about 19.9% of residents live below the poverty line (American Community Survey, 2017). Figure 8 compares people living below the poverty line in Trinity County and in California.

| Figure 8. Living Below the Poverty Line                    | Trinity County | California |
|------------------------------------------------------------|----------------|------------|
| Percentage of all residents living below the poverty line. | 19.9%          | 18.9%      |

Source: American Community Survey, 2017.

Figure 9 demonstrates the prevalence of residents living below the poverty line in 2017 by zip code. According to Figure 9, Mad River (95552) has the highest percentage of residents living below the poverty line.

Figure 10 demonstrates the prevalence of residents without health insurance by zip code.

Figure 9. Map of Poverty in Trinity County by Zip Code/City

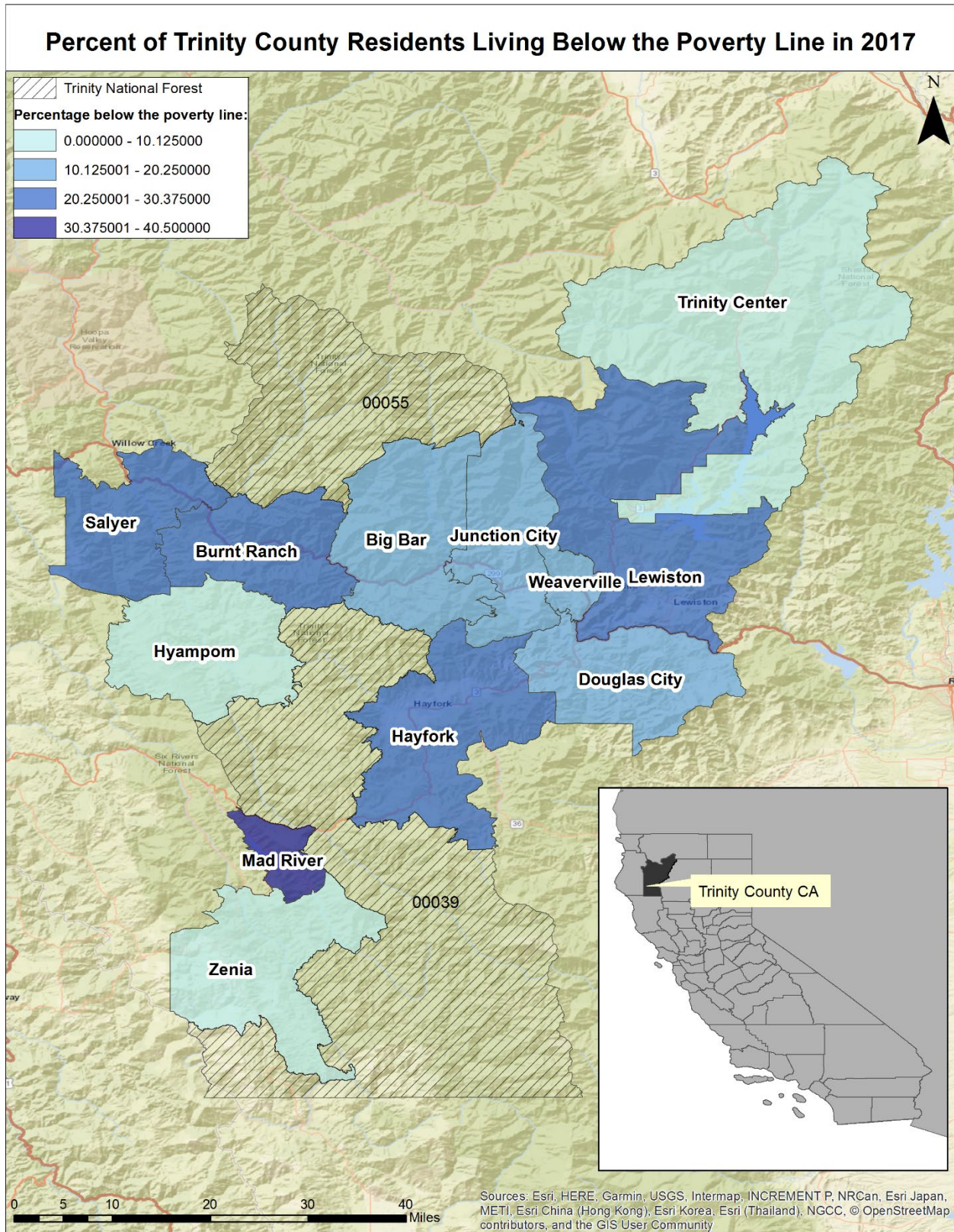
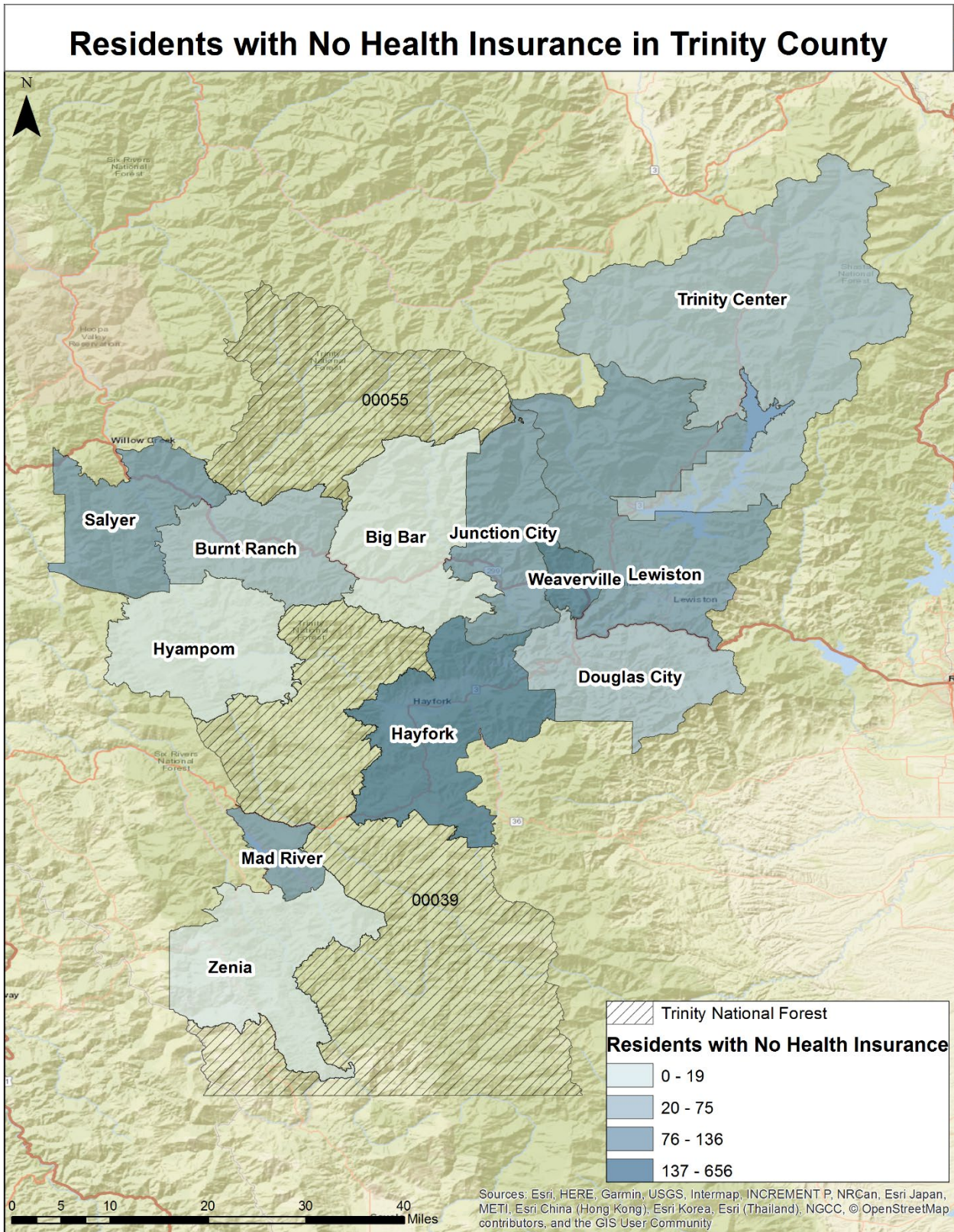


Figure 10. Map of Trinity County Residents Without Medical Insurance by Zip Code/City



Trinity County Oral Health Needs Assessment | 9/25/2019

According to Figure 10, the majority of Trinity County residents without health insurance reside



in Weaverville and Hayfork. The percentage of Trinity County residents without health insurance is disproportionately higher than in the state of California (American Community Survey, 2017). Figure 11 compares the percentage of people without health insurance for Trinity County and California.

| <b>Figure 11. Residents Without Health Insurance</b> | <b>Trinity County</b> | <b>California</b> |
|------------------------------------------------------|-----------------------|-------------------|
| Percent of all residents without health insurance    | 20%                   | 7.2%              |

Source: American Community Survey.

In Trinity County, about 85.9% of the population has health coverage, with 26.5% on employee plans, 21.6% on Medicaid (“Medi-Cal”), 23.4% on Medicare, 11.2% on non-group plans, and 3.31% on military or VA plans (American Community Survey, 2017). The U.S. Census estimates that 20% of Trinity County’s population does not have health insurance (American Community Survey, 2017).

The California Medical Assistance Program (Medi-Cal) is California’s Medicaid program serving low-income individuals.

| <b>Figure 12. Trinity County Medi-Cal Eligibility as of 09/01/2019</b> |              |            |
|------------------------------------------------------------------------|--------------|------------|
| Age                                                                    | Member Count | Percentage |
| 0-1                                                                    | 133          | 3.26%      |
| 2-4                                                                    | 200          | 4.90%      |
| 5-10                                                                   | 426          | 10.44%     |
| 11-14                                                                  | 286          | 7.01%      |
| 15-19                                                                  | 268          | 6.57%      |
| 20-24                                                                  | 207          | 5.07%      |
| 25-44                                                                  | 1,110        | 27.19%     |
| 45-64                                                                  | 1,075        | 26.34%     |
| 65+                                                                    | 377          | 9.24%      |
| <b>Sum Total:</b>                                                      | <b>4,082</b> |            |

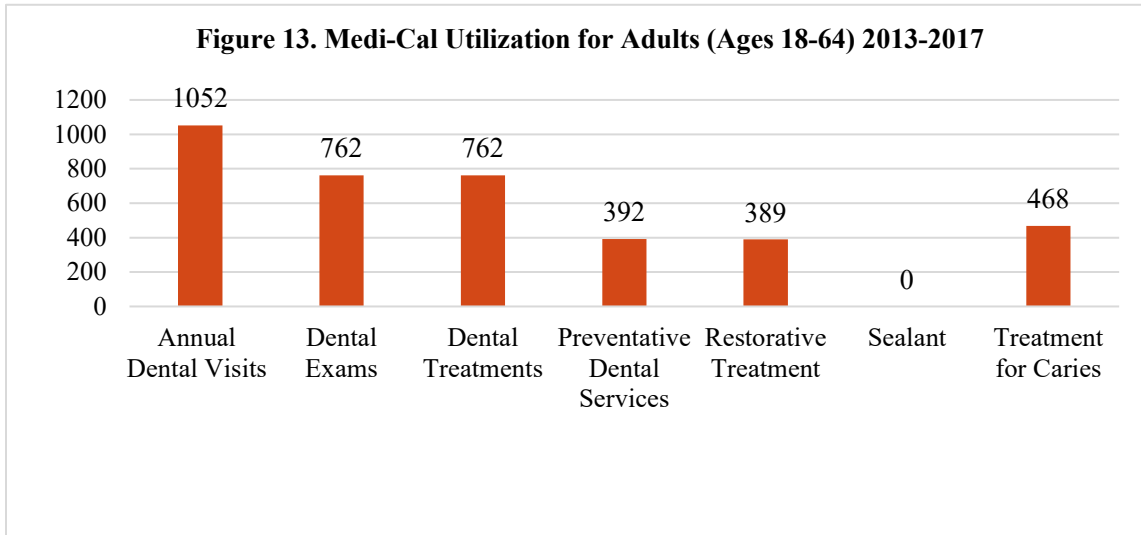
Source: Partnership Health Plan of California, 2019.

As of September 1, 2019, 4,082 of Trinity County residents were enrolled in Medi-Cal. About 50.02% Medi-Cal members in Trinity County are female and 49.98% are male.

*“Health is not going to happen in the provider’s office.”*

Figures 13 and 14 demonstrates how often adults (18-64 years old) with Medi-Cal received dental services from 2013-2017. These dental services include the following:

- Annual dental visits
- Dental exams
- Dental treatment
- Preventative dental services
- Restorative dental treatment
- Sealant
- Treatment for caries



Source: California Health and Human Services Open Data Portal 2013-2017.

**Figure 14. Medi-Cal Utilization for Adults by Age 2013-2017**

| Service                      | Ages 18-34 | Ages 35-44 | Ages 45-64 |
|------------------------------|------------|------------|------------|
| Annual Dental Visits         | 509        | 300        | 243        |
| Dental Exams                 | 340        | 136        | 286        |
| Dental Treatments            | 268        | 127        | 367        |
| Preventative Dental Services | 167        | 60         | 165        |
| Restorative Treatment        | 167        | 79         | 143        |
| Sealant                      | 0          | 0          | 0          |
| Treatment for Caries         | 193        | 82         | 193        |

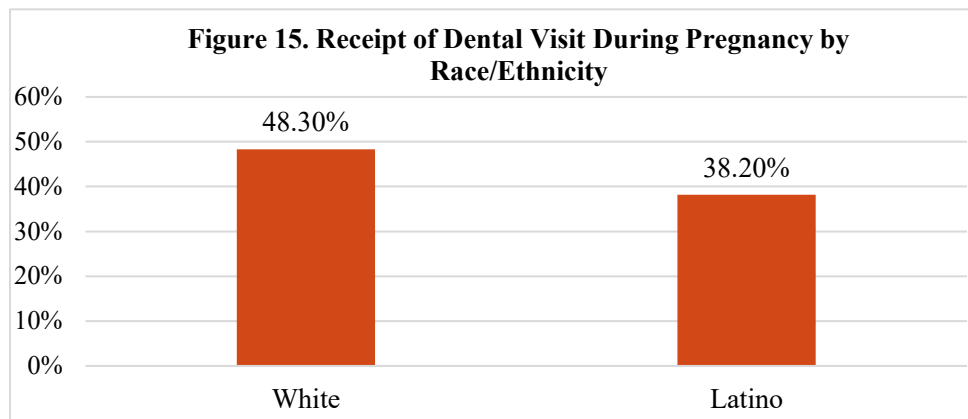
Source: California Health and Human Services Open Data Portal 2013-2017.

## Pregnant Women

Pregnant women are more prone to gum disease and tooth decay due to the changing hormones during pregnancy (Center for Disease Control). Oral health is a significant part of prenatal care because poor oral health during pregnancy can lead to poor health outcomes for the mother and baby, including preterm birth and low birth weight (Center for Disease Control).

In Trinity County about 60.3% of women are accessing prenatal care in their first trimester (Trinity County MCAH 2019). About 45.1% of pregnant women living in the North/Mountain region<sup>2</sup> visited the dentist during their pregnancy (Trinity County Oral Health Data Dashboard 2019).

Figure 15 demonstrates the prevalence of dental visits during pregnancy by race and ethnicity.



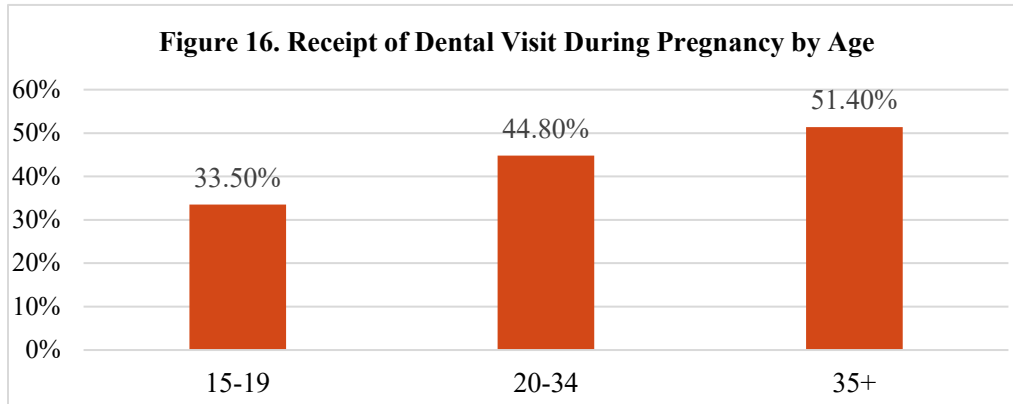
Source: Trinity County Oral Health Data Dashboard, 2019.

Pregnant women who identify as White in the North Mountain region of California have a higher percentage of dental visits during pregnancy than pregnant women who identify as Latino in the North Mountain region.

Family income and education are two additional categories where disparities appear to exist in the prevalence of dental visits among pregnant women (Trinity County Oral Health Data Dashboard, 2019).

Figure 16 demonstrates the prevalence of dental visits during pregnancy by age.

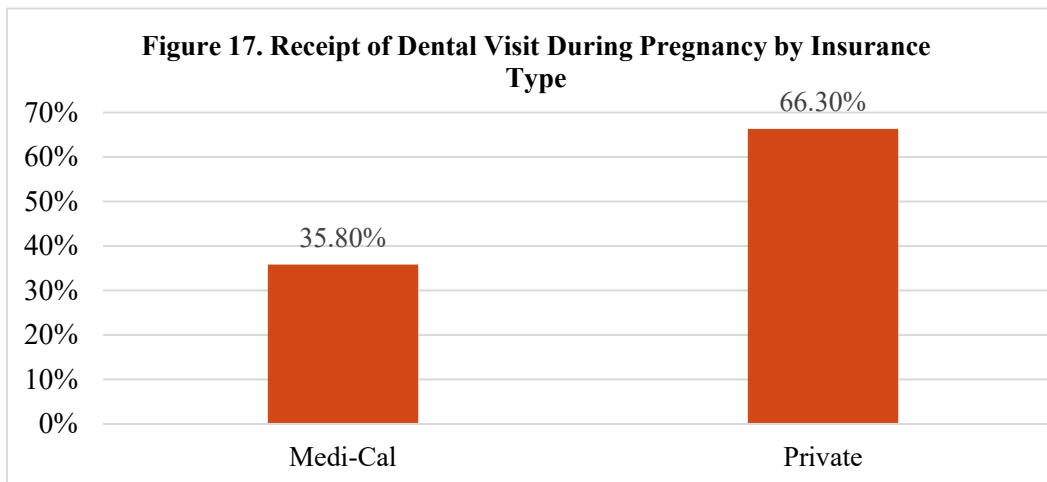
<sup>2</sup> As designated by Maternal and Infant Health Assessment (MIHA) Survey, North Mountain Region includes the following counties: Alpine, Amador, Butte, Calaveras, Colusa, Del Norte, Glenn, Humboldt, Inyo, Lake, Lassen, Mariposa, Mendocino, Modoc, Mono, Nevada, Plumas, Shasta, Sierra, Siskiyou, Tehama, Trinity, and Tuolumne.



Source: Trinity County Oral Health Data Dashboard, 2019.

Pregnant women who are older are more likely to visit the dentist during their pregnancy in the North Mountain region of California. The youngest age group of 15-19 has a disproportionately lower percentage of dental visits during pregnancy. In Trinity County, the teen birth rate per 1,000 population (23.7) is higher than the state rate (19.0).

Figure 17 demonstrates the prevalence of dental visits during pregnancy by insurance type.



Source: Trinity County Oral Health Data Dashboard, 2019.

Pregnant women who have Medi-Cal in the North Mountain region of California are visiting the dentist at a disproportionately lower rate than pregnant women who have private insurance residing in the North Mountain region.

In Trinity County, 24.6% of single mothers live in poverty and 5.3% are unemployed (Trinity County MCAH, 2019).

WIC (Women, Infant and Children) is a nutrition program for low-income women, infants and children up to age 5 who are at nutritional risk. WIC provides nutritious foods to supplement diets, information on healthy eating, and referrals to health care. WIC participation during pregnancy is significantly lower in Trinity County (31.6%) than in California (53.4%).

## Youth

Dental disease is detrimental to the overall well-being of youth. Dental disease is the most common chronic disease for youth and contributes to diminished nutritional status, school absenteeism, difficulty learning and self-esteem (Center for Disease Control).

The Kindergarten Dental Checkup law, enacted in 2006, helps identify children with unmet needs (California Dental Association) Figure 18 shows the results of Trinity County’s Kindergarten Oral Health Assessments from 2012-2017.

| <b>Figure 18. Kindergarten Dental Check-Up Results Trinity County 2012-2017</b> |                |                     |                 |
|---------------------------------------------------------------------------------|----------------|---------------------|-----------------|
| District                                                                        | Total Eligible | Proof of Assessment | Untreated Decay |
| Klamath-Trinity Joint Unified                                                   | 476            | 209                 | 112             |
| Burnt Ranch Elementary                                                          | 69             | 24                  | 10              |
| Coffee Creek Elementary                                                         | 6              | 4                   | 0               |
| Cox Bar Elementary                                                              | 3              | 1                   | 0               |
| Douglas City Elementary                                                         | 69             | 47                  | 18              |
| Junction City Elementary                                                        | 37             | 26                  | 10              |
| Lewiston Elementary                                                             | 49             | 37                  | 17              |
| Mountain Valley Unified                                                         | 71             | 37                  | 14              |
| Southern Trinity Joint Unified                                                  | 33             | 16                  | 7               |
| Trinity Center Elementary                                                       | 13             | 12                  | 4               |
| Trinity County Office of Education                                              | 1              | 0                   | 0               |
| Weaverville Elementary                                                          | 231            | 166                 | 81              |
| <b>Total</b>                                                                    | <b>1,061</b>   | <b>579</b>          | <b>273</b>      |

Source: California Dental Association 2012-2017.

From 2012-2017, 273 kindergarteners from Trinity County were diagnosed with untreated tooth decay. In 2017, 34 kindergarteners from Trinity County were diagnosed with untreated tooth decay.

Dental disease is infectious and progressive, but it is entirely preventable. Children living in poverty are vulnerable to dental diseases, lack of access to dental care and dental insurance. (California Dental Association). The poverty rate for children ages 0-18 is about 56.5%, which is higher than the state of California. About 24.4% of children in Trinity County currently live below the poverty line.

Figure 19 compares the poverty rate for children and the percentage of children living below the poverty line in Trinity County and in California.

| Figure 19. Children in Poverty                       | Trinity County | California |
|------------------------------------------------------|----------------|------------|
| The poverty rate for children ages 0-18              | 56.5%          | 43.0%      |
| Percentage of children living below the poverty line | 24.4%          | 22.5%      |

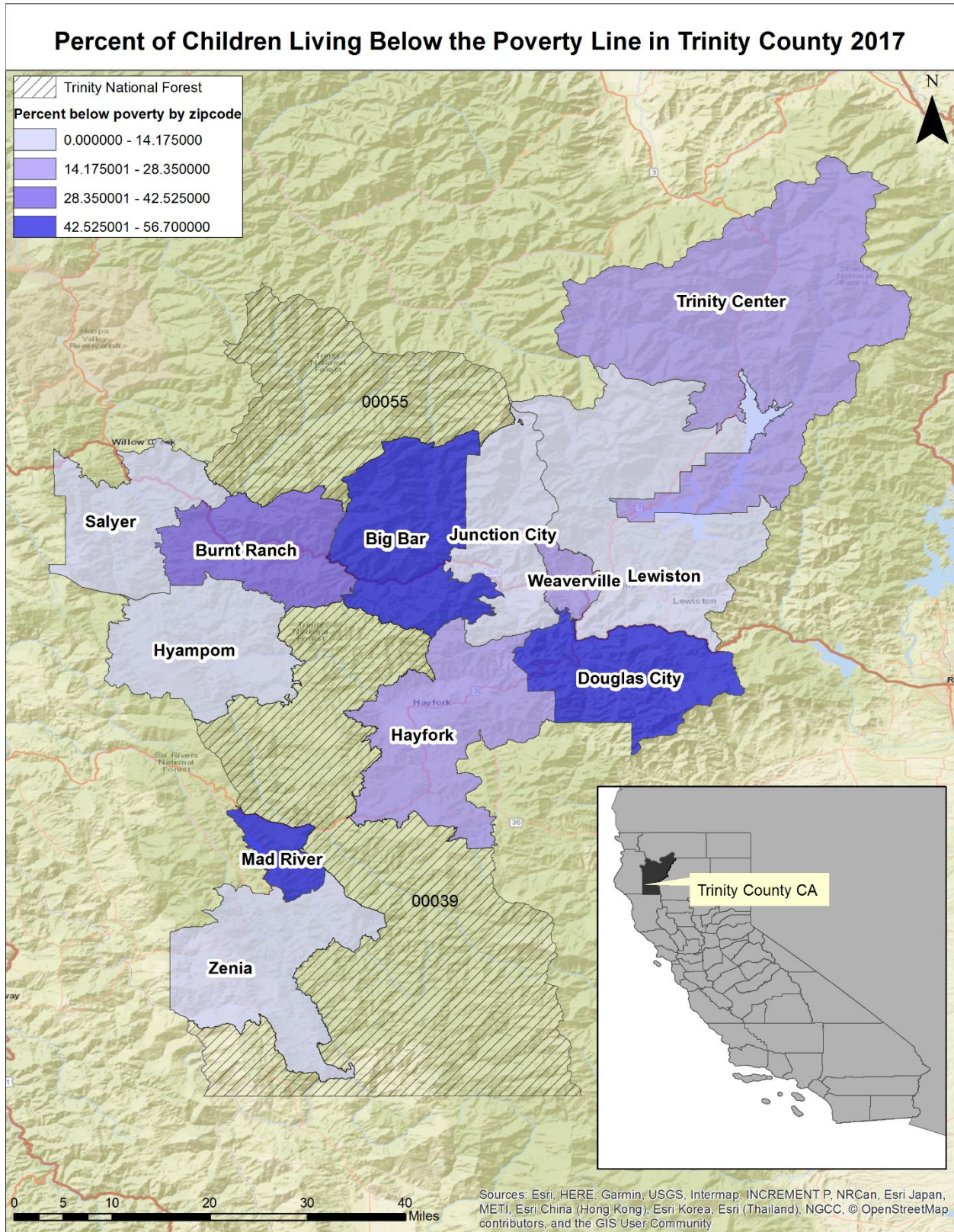
Source: Trinity County MCAH 2019 and American Community Survey 2017.



Public Health demonstration (CHDP/LOHP) at the Trinity County Children’s Fair, 2019.

Figure 20 demonstrates the percentage of children (ages 0-18) living below the poverty line in each zipcode/city. Mad River (95552), Douglas City (96024), and Big Bar (96010) have the highest percentages for children (ages 0-18) living below the poverty level. It is important to consider that the census data for children (ages 0-18) reflect a severe undercount and may not accurately represent the percentage of children living below the poverty line throughout Trinity County.

Figure 20. Map of Children (ages 0-18) Living Below the Poverty Line in Trinity County.

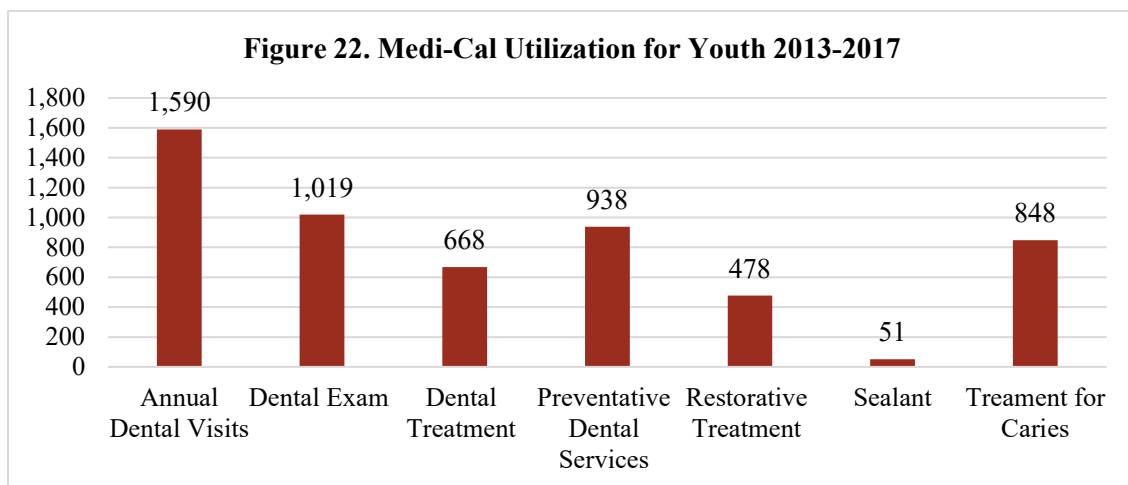


According to the California Department of Education, 65%, or 1,006 children enrolled in Trinity County schools, were eligible to receive free or reduced-priced meals (2017-18). Figure 21 illustrates the number and percent of students eligible for FRPM by school district.

| <b>Figure 21. Trinity County 2017-18 Free &amp; Reduced Price Meal (FRPM) Eligibility</b> |        |            |            |            |
|-------------------------------------------------------------------------------------------|--------|------------|------------|------------|
| District                                                                                  | Grades | Enrollment | FRPM Count | % Eligible |
| Burnt Ranch Elementary                                                                    | K-8    | 88         | 64         | 72.7%      |
| Coffee Creek Elementary                                                                   | K-4    | 5          | 2          | 40%        |
| Douglas City Elementary                                                                   | K-8    | 175        | 93         | 53.1%      |
| Junction City Elementary                                                                  | K-8    | 56         | 41         | 73.2%      |
| Lewiston Elementary                                                                       | K-8    | 62         | 48         | 77.4%      |
| Mountain Valley Unified                                                                   | K-12   | 253        | 202        | 79.8%      |
| Southern Trinity Joint Unified                                                            | K-11   | 83         | 70         | 84.3%      |
| Trinity Alps Unified                                                                      | K-12   | 757        | 410        | 54.2       |
| Trinity Center Elementary                                                                 | K-7    | 12         | 8          | 66.7%      |
| Trinity County Office of Education                                                        | 9-12   | 93         | 68         | 73.1%      |

Source: California Department of Education 2017-18 FRPM Data.

Approximately 17% of youth under 19 years old living in Trinity County do not have health insurance (American Community Survey, 2017). About 1,313 youth (ages 0-19) residing in Trinity County are currently enrolled in Medi-Cal. Figure 22 demonstrates how often youth (ages 0-18) with Medi-Cal received dental services from 2013-2017.



Source: California Health and Human Services Open Data Portal 2013-2017.

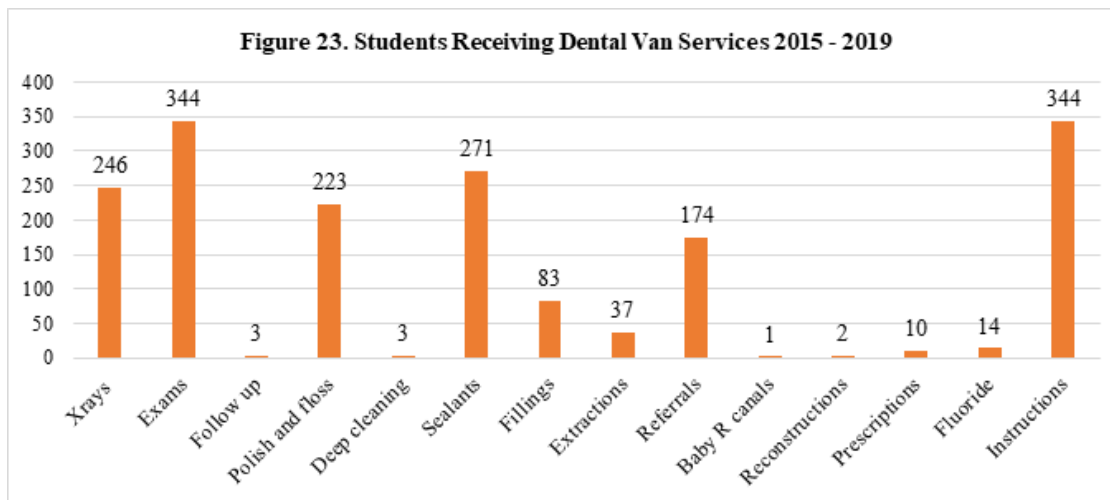


In Trinity County, youth with Medi-Cal receiving sealant application is significantly low compared with other dental services. Applying sealant is a significant way to prevent cavities and tooth decay, especially among children (American Dental Association).

During the school years of 2015-2019, the dental van project collaborated with schools in Trinity County and was able to reach 344 students. The dental van offered the following services:

- X-rays
- Exams
- Follow-up
- Polish and floss
- Deep cleaning
- Sealants
- Fillings
- Extractions
- Baby teeth root canals
- Referrals for surgery
- Prescriptions
- Instructions
- Fluoride

Figure 23 represents how many students received each type of mobile dental service from 2015-2019.



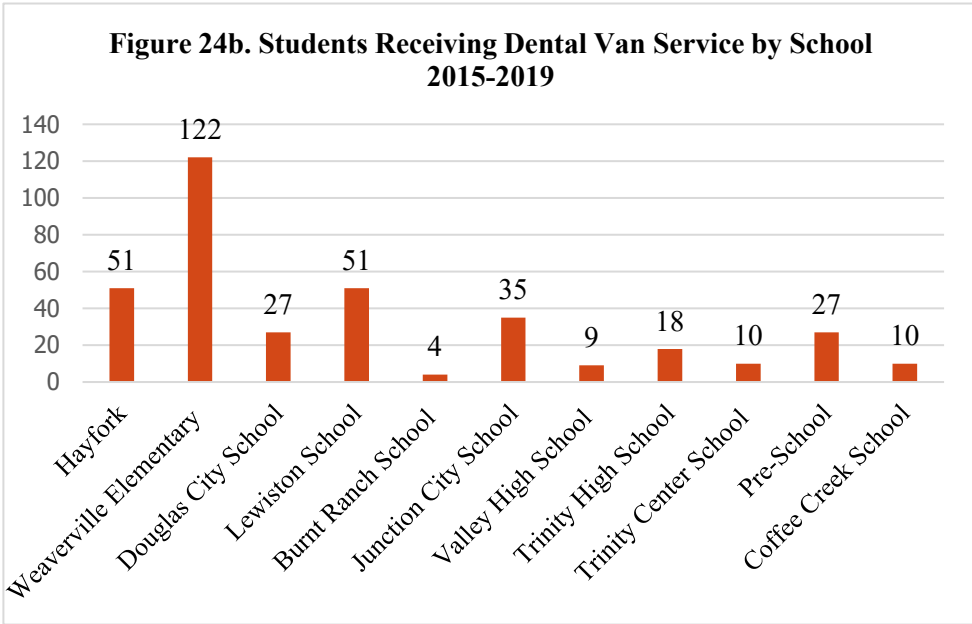
Source: Trinity County Office of Education 2015-2019.

During the Spring of 2019, 15 students were able to receive fluoride from the dental van. The majority of students (78.7%) were able to receive sealants. About half of the students (50.5%) received referrals.

Figure 24a demonstrates how many students received services each year. The dental van reached the highest number of students during the school year of 2017-2018. Figure 24b represents students receiving dental van service by school. About 35.4% of the students who received dental van services attended Weaverville Elementary School during the Fall of 2015 to Spring of 2019.

| <b>Figure 24a. How Many Students Received Dental Van Services per School Year</b> |                    |
|-----------------------------------------------------------------------------------|--------------------|
| School Year                                                                       | Number of Students |
| 2015-16                                                                           | 89 Students        |
| 2016-17                                                                           | 103 Students       |
| 2017-18                                                                           | 104 Students       |
| 2018-19                                                                           | 48 Students        |

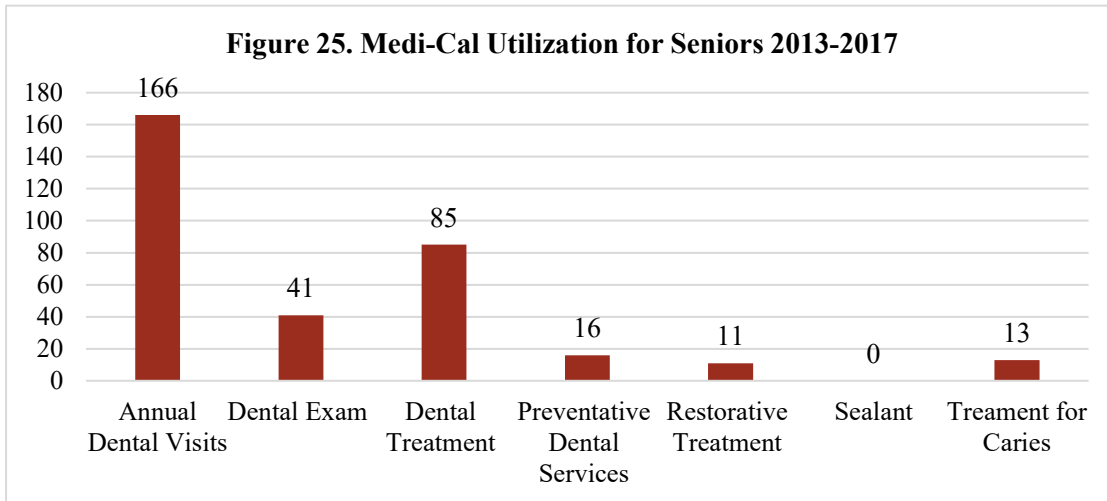
Source: Trinity County Office of Education 2015-2019.



Source: Trinity County Office of Education 2015-2019.

## Seniors

Seniors have the lowest utilization rates of Medi-Cal dental services than any other age group. Figure 25 demonstrates how often seniors with Medi-Cal received dental services from 2013-2017. According to Figure 25, seniors were more likely to utilize Medi-Cal for annual dental visits than any other dental services.



Source: California Health and Human Services Open Data Portal 2013-2017.

*“Digestion begins in the mouth...”*

## SUMMARY OF INTERVIEW DATA

### *System of Dental Care for Trinity County Residents*

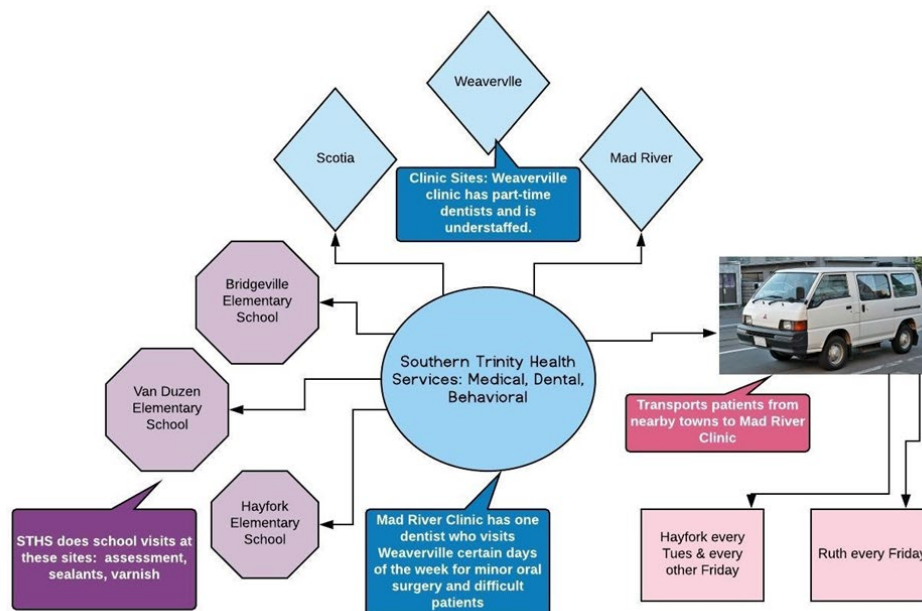
Trinity County is among those classified in California as a Dental Health Professional Shortage Area. Many patients, both private-pay and Medi-Cal, have to travel to Redding for dental care, which is an hour's drive without the ever-present road construction or emergency road blockages that frequently and significantly increase travel time. Some travel to Humboldt County, which is a two-hour drive that is also subject to traffic delays throughout the year. Many interviewees told CCRP that wait times for an appointment, for both Medi-Cal and privately insured patients, could often be up to several months.

### *Federally Qualified Health Centers (FQHCs)*

#### Southern Trinity Health Services

There is one FQHC in Trinity County with two locations that provide oral health services to individuals on Medi-Cal. The Southern Trinity Health Services (STHS) clinic in Mad River recently purchased a private practice from a retiring dentist in Weaverville and is transitioning to a practice that also serves Medi-Cal patients. Prior to the opening of the clinic in Weaverville, the Mad River STHS Clinic was the only provider of Medi-Cal services in Trinity County. They also have a clinic in Scotia, serving patients in Humboldt county, but they see patients from Del Norte and even Mendocino counties at the Mad River site.

Southern Trinity Health Services also sponsors a van service that transports patients—it goes from their Mad River Clinic to Hayfork every Tuesday and every other Friday for scheduled medical, dental, or behavioral health appointments. They also send the van to the small community of Ruth on Mondays. The clinic also schedules school visits where the dental team makes assessments and applies sealants and varnish to children's teeth.



## Redding Rancheria

The Rancheria clinic is based in Redding—the director told CCRP that they have been the top large tribal facility in the nation for oral health for the past several years—they operate a satellite medical facility in Trinity County but it does not offer oral health services. They plan to break ground in 2019 for a new health campus in Weaverville, near the Public Health complex, that will have full dental services with one full-time dentist and two full-time dental hygienists. At the time of this interview, their patient population was about 50% Medicare and 50% Partnership Health, or Medi-Cal. Currently, when they see patients with dental pain they typically start them on antibiotics or send them to the emergency room for pain control.

## *Other Dental Providers Who Serve Trinity Residents*

### Mobile Dental Services in Trinity County

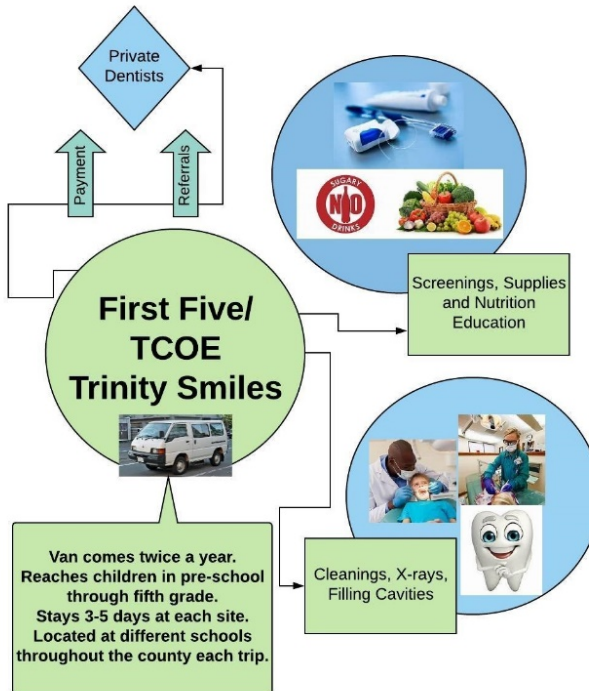
Many interviewees recommended to CCRP the mobile van/clinic service as a good solution to the problem of accessing basic oral health care. The services are brought directly to the outlying communities, and basic procedures—such as assessments, exams, X-rays and fillings—can be done on the spot. This service is especially helpful for seniors, long-term-care residents, and people with special needs. However, Trinity County’s rugged terrain and geographically scattered communities pose significant obstacles to the use of this service.

One cost-benefit analysis of mobile dental clinics compared to fixed dental clinics (LifeLineMobile, 2019) demonstrates that start-up costs and the cost of first-year operations is lower for a mobile clinic than even a small dental office. However, given the small population of Trinity County, a full-time van service may not be feasible even if it were affordable. As reported in the secondary data review, a dental van has made visits to Trinity County several times between 2015 and 2017.

To continue the benefits of a dental mobile service, Trinity County and the Office of Education attempted to bring the Healthy Smiles Van, through Delta Dental, in the spring of 2017. However, a few days before the date the project was to start, representatives from Healthy Smiles came to Trinity County to scout the locations and roads, and they canceled the contract the following day. Contract negotiations were terminated because Healthy Smiles said their dental van was too old to make the journey over the mountain passes to Weaverville.

Mobile dental units are often located in the same areas that are now served by the two clinics serving Medi-Cal patients. Areas like Burnt Ranch, Salyer, Hyampom, Coffee Creek, and other outlying communities may not be reachable by a large truck the size of a moving van. More patients were reached when the van was organized for students at school sites (n=344) than for the adult population (n=28). There may be a way of scheduling future van visits so that patients can be identified in advance and transportation to the central stops could be organized to maximize the number of patients seen during these visits. If the van was made more accessible, more people may be able to utilize the dental services and the frequency of the visits might be increased beyond more than twice a year.

## MOBILE DENTAL VAN OUTREACH



### Western Dental & Orthodontics

The Redding office has a “kids-only” office that specializes in the care of infants, toddlers, young children, and adolescents. A few interviewees mentioned that they have heard negative feedback from parents about the service they have received there. Western Dental provides services to Medi-Cal patients. CCRP was not able to interview anyone from this organization.

### Private Dentists

CCRP was told that, until recently, there were two dental practices in Trinity County, Dr. Carlin in Weaverville and Dr. Kizziar in Hayfork. Neither dentist accepted Medi-Cal, but Dr. Kizziar would often work out payment plans for Medi-Cal recipients who wanted to pay cash in order to see him. Two dentists in Redding, Dr. Nickravish and Dr. Skoy, see patients from Trinity, but they do not take MediCal. CCRP was unable to interview them and it is not known what their Trinity County patient loads are.

### *Interview Themes*

Between June and July, 2019, CCRP interviewed twenty-four people who are in some way connected with oral health programs or communities involved with oral health issues, including Trinity County District Supervisors—15 in person and 9 by telephone. Most but not all of these people are members of the LOHP Oral Health Advisory Team. CCRP attempted to contact additional professionals but did not hear back from several providers whose opinions would have greatly contributed to this needs assessment, such as dentists in Redding who serve Trinity patients.

Figure 26 shows the names of agencies and organizations that were included in the interview process.

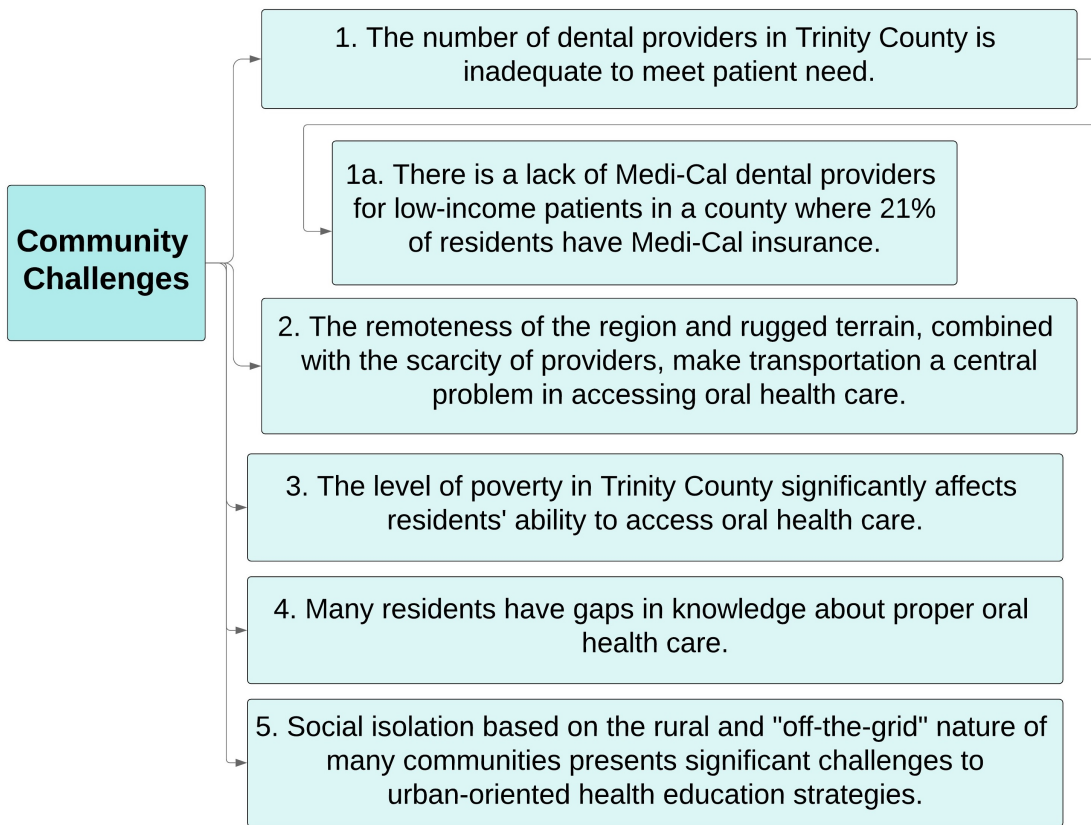
**Figure 26. List of Participating Agencies**

| Agency/Organization                                                                                                                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>First 5 Trinity County</b>                                                                                                                              |
| <b>Human Response Network</b> <ul style="list-style-type: none"> <li>▪ Early Head Start</li> <li>▪ Home Visiting</li> <li>▪ Prevention Services</li> </ul> |
| <b>Mountain Community Healthcare District</b> <ul style="list-style-type: none"> <li>▪ Trinity Hospital</li> <li>▪ Hayfork Clinic</li> </ul>               |
| <b>Partnership Health Plan</b>                                                                                                                             |
| <b>Roderick Senior Services Center</b>                                                                                                                     |
| <b>Shasta-Trinity Head Start</b>                                                                                                                           |
| <b>Southern Trinity Health Services</b> <ul style="list-style-type: none"> <li>▪ Mad River Clinic</li> <li>▪ Weaverville Clinic</li> </ul>                 |
| <b>Trinity County Board of Supervisors</b> <ul style="list-style-type: none"> <li>▪ Districts 1, 2, 3, 4, &amp; 5</li> </ul>                               |
| <b>Trinity County Health &amp; Human Services</b>                                                                                                          |
| <b>Public Health</b>                                                                                                                                       |
| <ul style="list-style-type: none"> <li>▪ WIC</li> </ul>                                                                                                    |
| <ul style="list-style-type: none"> <li>▪ MCAH, CHDP</li> </ul>                                                                                             |
| <ul style="list-style-type: none"> <li>▪ Perinatal Services</li> </ul>                                                                                     |
| <ul style="list-style-type: none"> <li>▪ Adult Services</li> </ul>                                                                                         |
| <b>Trinity County Office of Education</b>                                                                                                                  |

Data were analyzed using Atlas-ti software to isolate the predominant themes mentioned by individuals working in public health, social services, and educational settings. Below are some of the themes related to challenges in the county, organized in order of importance based on the frequency of mentions in interview narratives.

Figure 27 shows the primary themes that emerged from interviews with Trinity County professionals.

**Figure 27. Themes from Key Professionals Interviews**



### *Barriers to Care*

#### 1. Lack of dental providers

Two dentists were mentioned as the only private-practice dentists in the county—Dr. Carlin in Weaverville and Dr. Kizziar in Hayfork. Dr. Carlin recently retired his own practice, and Dr. Kizziar is in his late 70s and is still in active practice primarily because of the great need for his services, according to several people interviewed by CCRP.

Until recently, Southern Trinity Health Services—located in Mad River in the southeastern part of the county—was the only Medi-Cal provider in the entire county. Dr. Georgine Chase, who also holds a degree in Public Health, took over as their dental director in 2019 after the previous dentist left. She told CCRP that she is seeing nearly twice as many patients than did her predecessor.

In 2019, Southern Trinity Health Services bought Dr. Carlin’s practice in Weaverville. Dr. Carlin now works part-time for STHS, a clinic which is transitioning from being a private-pay practice to one that serves mainly Medi-Cal patients. Dr. Chase also travels to Weaverville once a week to see patients. Other team members who were interviewed pointed out that the previous patients on private insurance are adversely impacted because the clinic’s patient load has so dramatically increased.



Many Trinity County residents use dental providers located in Redding, regardless of what kind of insurance they have (Medi-Cal, private insurance, or no insurance—cash-pay). Two dentists, Dr. Skoy and a pediatric dentist, Dr. Nickravish, both see patients from Trinity County, but they do not take Medi-Cal. School-based initiatives that rely on private funding refer children to Dr. Nickravish and they pay for treatment. Dr. Nickravish has volunteered with the Office of Education’s Trinity Smiles program to work on their dental van in Trinity County in the past. However, these dentists also have a Redding-based patient load, which impacts the availability of appointments. There are also other dentists in Redding (Shasta County) who see Trinity residents, but some patients from Trinity travel as far as Red Bluff (Tehama County), Chico (Butte County), Laytonville (Mendocino County), and in Modoc County as well.

*“...people in Trinity County, they either have to come in [to] places like Redding, or go to places like Humboldt to see a dentist. That’s a huge barrier to accessing dental care. And it’s not easy travel—the expense of travel as well.”*

## 2. Lack of consistent, reliable and affordable transportation in a rugged, rural terrain

Even for people with insurance, the travel required for most Trinity residents who need dental care poses an onerous burden, and the waiting times for dental appointments can be as far as several months into the future. Given that many residents live one to two hours from the county center or the main roads out of the county—Route 299 and Route 36—their travel time to a dental provider could take up to five hours or more depending on road and weather conditions.

*“...if you don’t have transportation and you live in, let’s say Hyampom is farther east, southeastern part of the county, it will take you a good three hours to get to a provider.”*

This kind of trip may require patients or their parents to take at least one day off from work. With repeated dental procedures required for severe conditions, or even just regular check-ups in the case of small children, this becomes impractical if not impossible for most rural residents.

*“...this is the county seat, and this is where resources go, this is where programs are focused, so these outlying communities that are you know, three hours away—we went to Zenia yesterday, they have three kids going into their school next year, they’re thinking about shutting down, so these kids would have to go over an hour to Van Duzen Elementary just to get to school, so then you think about all the other things, how do these people go grocery shopping? How are they able to fit in all the other needs?”*

Southern Trinity Health Services’ van service mitigates some of the transportation difficulties for the southern part of the county, but there is still a lot of territory between Hayfork and Hyampom and the eastern part of the county that is very rugged and hard to travel across.

*“It’s about an hour from [Mad River] to Hayfork, and then from Hayfork to Weaverville is about an hour-forty-five...you can only do it a number of times.”*

Another van that was previously contracted completed their visit but would not return, stating

that their staff members were intimidated by the rural environment. Trinity County Office of Education was successful in bringing down a van from Oregon, but reports are that it has been challenging to staff the project.

### 3. Lack of financial resources to pay for dental services

District Supervisors told CCRP that Trinity County is one of the poorest counties, per capita, in California. Poverty in the county was mentioned by nearly everyone as a serious barrier to oral health in Trinity County. If individuals and families cannot meet basic needs, dental care is likely to be sought only when there is great pain or discomfort, and preventive care is neglected.

*“Our demographics, we’re one of the oldest and one of the poorest per capita in the state. So unfortunately, dental care just falls to the bottom for those reasons, lack of resources and lack of providers.”*

There was some concern about how to serve “people in the middle”—those not poor enough for Medi-Cal but not well-off enough to have good dental insurance or pay out of pocket for care. In addition to individual poverty levels, the county is under-funded. Eighty percent of Trinity County is federal forest land, so the tax base does not sustain the services and infrastructure that the County requires.

*“...dental care is not inexpensive so finances are always an issue and not just directly because of the cost of care, but also because of the transportation issues, or they can’t afford to take a day off work because they aren’t making that much money in the first place and they’re struggling to make ends meet, so it’s kind of, how do you get those people to treatment?”*

Often poverty is associated with a lack of education, which was also cited as an impediment to getting services—many are unaware that their young children require early and regular dental exams for optimal oral health over their lifetimes. Current high-school graduation rates for Trinity County—88%—are better than the overall rate for California (82%) (Trinity County MCAH, 2019). However, most people in general, unless they are specialists in the dental field, are unlikely to be aware of the role poor dental conditions play in causing other physical ailments such as heart disease and diabetes.

*“Think of the whole pie...it’s the poverty, and with that comes a deluge of problems, including oral health. If you don’t have enough money to eat, you are not thinking about your teeth or oral health.”*

People wait too long to seek dental care because of the expense involved; some pull their own teeth.

*“There’s kind of an ignorance to the importance of teeth cleaning....And people waiting too long to do anything, then they go into the dentist, and the dentist says it’ll be \$3,000 and a lot of pain. I’ve had employees that pull their own teeth. I had one employee who lost months and months and months of [work] because she was*

*in such pain all the time, and luckily she had a brother that worked in a dental place so he made her some dentures, but she pulled them out herself.”*

MediCal-Dental (Denti-Cal) provides dental coverage to children and adults on Medi-Cal, but there are exclusions in coverage—for example, partial dentures and root canals in back teeth are not covered—that leave many adults without procedures they need because they cannot afford treatment. Low-income seniors on Medicare may be eligible for Denti-Cal if their income qualifies them for Medi-Cal services, but if their income is too high, they must buy dental insurance through a separate policy. It is not known how many seniors have dental insurance or who have dual-eligibility for both Medicare and Medi-Cal. The elderly are more likely to suffer the effects of long-term lack of dental care with associated physical ailments. When asked what populations are most affected by poor oral health, Southern Trinity Health Center’s dental director gave this response: “The elderly. Without a shadow of a doubt, and the medically compromised.”

However, even if all the people eligible for Medi-Cal were signed up for services, the number of providers who serve Medi-Cal patients is grossly inadequate to the need. One provider pointed out that patient no-shows are a problem at clinics, even for Partnership patients who are supported by an outreach coordinator. This suggests the problem is more complex than simply a matter of cost.

*“Getting parents to bring their one kid, two kids, three and four kids in for [appointments] at two different dentists, different times, it’s just not workable. It’s not feasible for a lot of the patient population because we’re dealing with Partnership Health patients who are predominantly below the federal poverty levels so they don’t have the time, let alone the gas money, to come back 5 to 6 times a month to get their kids all done.”*

More than one person interviewed pointed out that it is somewhat illogical and perhaps counter-productive to promote more dental visits when in fact there are not enough providers within the county that can serve additional patients.

#### 4. Gaps in knowledge about proper oral health care

Professionals, especially those who have worked directly with parents and children, expressed a strong sense that most people don’t understand how profound is the connection between oral health and their overall well-being.

*“I actually had a patient come in and see me a couple of days ago and tell me that he has better dental health because he doesn’t brush regularly. He...was telling me that it was his wife or his sibling or something—and this is a gentleman in his fifties—she brushes all the time and she’s had most of her teeth pulled and I still have all of mine. So, that’s the kind of thing I’ve seen, or simply just lack of understanding that you actually have to brush your teeth a couple of times a day. Let alone, flossing, is a whole other thing that I don’t ever see happening.”*

Most parents these professionals are seeing do not understand the science around the formation and prevention of cavities. And without an appreciation of how damaging poor oral health can be, they may not see the importance of keeping track of their children's dental visits and general development.

*"...you have parents that aren't as educated on oral health as they should be, and then their children aren't, and then there is no access. So the first experience a child has of going to the dentist at six years old and has a cavity that hurts. I see this all the time, a nipple full of apple juice in there and you see these little rotten teeth in children and I don't think the mother is wanting to do that, I just think they don't know any better."*

Several interviewees told CCRP that many adults just don't think about oral health until they're in pain, and then they go to the MCHD emergency room in Weaverville for antibiotics and pain management.

*"Education is a big one, I think there is lot of misinformation, I think that people, until they're in pain they don't think about their teeth...I think that the prevention of dental disease is kind of new...I think it's lack of information about early intervention and that it's a communicable disease. We spread our dental disease...when I tell [parents] that, they are shocked."*

*"I think people have a lack of understanding on the importance of oral health education, about health education in general."*

A theme that emerged in this area is the need for a whole-family approach. Many interviewees touched on the value of educating children in school settings, who would then go back home and show the family members how to brush properly, sharing their new knowledge. Other interviewees pointed out that if the parents, grandparents or other care providers are not similarly educated, the newly learned practices will not be maintained. Everyone in the family needs to be conscious of the importance of oral health, from the youngest children to middle-aged parents to the elders, along with the practices specific to each stage that will benefit good overall health.

*"They don't have the prevention, a lot of people, and I found this to be the case of the parents too, either when talking to them about having a cavity, then 'I guess there's no cake for your birthday tonight,' and that's not an understanding of how cavities form, it's just a lack of education. So [what's important is] educating the parent, student, educating the whole family on what it means to have oral health, and making sure they have access."*

## 5. Off-the-grid “culture” makes educational efforts challenging for Public Health

There are a few themes that emerge around beliefs or cultural ideas that are relevant to the development of a Community Health Improvement Plan. Despite a general perceived lack of trust in government (“people are out here because they don’t want the government to find them”), interviewees report that people tend to trust schools as a reliable source of information and a base of help in finding solutions for some of their problems. With respect to beliefs that are more specific to oral health, some fall under the anti-government umbrella (such as “fluoride will rot your brain,” “root canals are neurotoxic,” to name a few that were mentioned); others are tied to the local economy—“marijuana will cure whatever is wrong with your health.”

- ◆ “Government/Corporate/Science” vs. “Local/Natural/Organic”
- ◆ Residents in Trinity County think of themselves as “independent,” “self-reliant,” “self-sufficient,” “back-to-landers.”
- ◆ “This is my life, my privacy, my choices...we don’t need your influences coming into our family.”
- ◆ Hmong community’s distrust of government is informed by a history of fleeing an oppressive government.
- ◆ Some are so poor that there is a lack of hope: *“We’re poor and the livelihoods have been taken away and hope is almost extinguished and without hope there is really no reason to fortify yourself. It’s easier to give up than fight when you’re in that place.”*

Interviewees tended to pose these local beliefs as obstacles to educational or political processes. From a strength-based perspective, however, these attitudes suggest that with a creative grassroots effort involving lay community leaders and families throughout the county, an oral health education program could be successful.

### *Special Populations*

#### Immigrant communities

While the majority of the population in Trinity County is White, there are significant enclaves of other ethnic and cultural groups, primarily located where seasonal workers were needed for cannabis production. There is a large contingent of Hmong families, as well as Jamaicans, Bulgarians, Nigerians and Russians, and many have become more permanent residents. The presence of these residents is not likely to be reflected in census information. One interviewee reported that the fires in 2017 created a crisis that drew previously isolated communities together to help each other weather the effects and recover from the damage done, and these bonds have continued to develop.

#### Elderly and people with disabilities

Interviewees reported to CCRP that there is a lack of caring about oral health in certain parts of the community. Sometimes older folks see a futility in worrying about their oral health—“I’m old, it’s too late for me to really get much benefit from taking care of my health,” or “I’m going to be dead soon, life’s just fine for me without my teeth.” One interviewee reported that one woman she spoke to told her that the way to keep your teeth healthy is to brush without

toothpaste once a week and that's what she's taught all of her generations of children. One interviewee observed that some residents 60 or 70 years old have never had anyone look in their mouths before.

Several interviewees pointed out that people with few or no teeth cannot chew whole foods properly and therefore their nutritional needs are not being met, causing other health problems, including wasting of muscles. There is a large population of seniors in Trinity County that have poor dentition, no dental insurance, and difficulty with traveling great distances for dental care. However, it is not only seniors who are living with poor oral health, but also adults with serious mental illness or developmental disabilities who are living on SSI or otherwise struggling to get their dental needs met. This suggests that a program that integrates oral health assessments with medical examinations would reach people who may otherwise not attend to dental conditions.

### Veterans

There are varying reports of the veteran population. According to one interviewee, Hayfork has an active veterans group, but the county is currently missing a Director of Veterans Services and is using Shasta's agency—it appears that veterans are an underserved group in Trinity.

### Substance Use Disorder/Drug Use

Missing teeth is a condition that many adults face for a number of reasons, among them an intergenerational fear of dentists, the lack of dentists in the county and the cost of dental care, circumstances which make access nearly impossible for many residents. It is likely that even with greater access to dental care, some of these misperceptions will be perpetuated in the absence of exposure to contemporary dental practices that could prove themselves to be tolerable and effective in reducing painful oral health conditions.

*“I have so many people that don't have teeth...I have one patient who is like 30 years old that has no teeth because they've had such poor care because they've had injuries and haven't had follow-up care. I've had patients with methamphetamine addiction that have lost their teeth that way. I think just numerous caries and broken teeth and just overall poor dentition, that is probably the biggest issue that I see just very commonly here...The worst teeth I see are here in Hayfork, and Hayfork serves Hyampom and a lot of other very remote areas.”*

Interviewees reported that methamphetamine use is a huge cause of tooth loss, and there are a number of adults in Trinity County who have dentures.

*“A drug-addicted mom isn't going to brush her baby's teeth. We see little children having their temporary teeth pulled because they're so rotten, which of course has to be pretty negative on your upbringing to be in pain. Then we have the 40 and 50 year old people that have lived that lifestyle, old and abscessed teeth, not having the money to take care of it—again, none of the dentists taking Medi-Cal here.”*

### Pregnant women and nursing mothers

Interviewees reported that Public Health does a good job of educating pregnant women and mothers of young children through WIC and other programs, but one Public Health professional told CCRP that they only reach about 50% of low-income women in the county. Most interviewees who work with this population believe that most pregnant women don't realize that their own poor oral health can affect the health of their pregnancy. Some advocated stronger outreach to providers of well-child visits to encourage more discussion with patients of oral health's importance—to both the mother as well as her children. Thirty-three percent (33%) of parents reported in the community survey that during well-child visits, doctors asked them about their children's teeth, whereas only 18% of adult respondents reported that their doctors checked their own oral health status.

One interviewee told CCRP that many of the mothers in Trinity County have substandard nutrition (“empty calories”) and give birth to children whose health is negatively impacted. Another reported that there are no pediatricians in Trinity County, and another told CCRP that there is currently no County Perinatal Services Program active in Trinity County.

According to a needs assessment completed by Trinity County Public Health in 2019<sup>3</sup>, the majority of births for Trinity County mothers took place at Mercy Medical Center in Redding, which is at least a one-hour drive from Weaverville. A small number of births took place at St. Elizabeth's Hospital in Redding, and at Mad River Hospital or St. Joseph's Hospital in Humboldt County, both of which are at least a two-hour drive with no construction or landslide stoppages, and a small number at Redwood Memorial Hospital, which is 2-1/2 hours from Weaverville along Highway 299, or two hours from Hayfork, along Highway 36. Thirty-to-forty percent of the pregnant mothers in Trinity County from 2016-2018 live in the Weaverville area, with another 20% living in Hayfork. Another 10-15% live in Lewiston, which is close to Highway 299 east of Weaverville near the Shasta County line, but the remaining 30% live in outlying areas such as Douglas City, Mad River, Zenia, and Salyer, making their commute for prenatal and other pregnancy-related health care even longer and more difficult.

Between the years 2016 and 2018, an average of 70% of women in Trinity County seeking prenatal care was funded by Medi-Cal or other government programs. In 2017, according to this needs assessment, 44% of women giving birth had prenatal care only in the third trimester of their pregnancy or no prenatal care at all<sup>4</sup>. Among the aims of the MCAH program are several that provide opportunities for collaboration with LOHP:

- ◆ to increase the number of women who access prenatal care during the first trimester
- ◆ to increase the number of women who receive postpartum care
- ◆ to decrease substance use diagnoses in women of childbearing age
- ◆ to decrease smoking during pregnancy
- ◆ to increase pregnant women's access to preventative and restorative dental services.

<sup>3</sup> Baracco, M., 2019 Maternal-Child-Adolescent-Health Trinity County Needs Assessment, Trinity County Public Health PowerPoint presentation.

<sup>4</sup> This figure dropped to 32% in 2018.

These reports paint a picture of significant health needs among women of childbearing age, of which oral health is one small part. A plan to meet those needs will require tremendous creativity and collaboration among all agencies that currently address various aspects of women's health.

### Children

Dr. Chase, Dental Director for Southern Trinity Health Services, told CCRP that the children she serves are in pretty good shape compared to other regions in which she has worked. However, some of the most pressing oral health problems in the county concern children. One interviewee reported that there are no baseline examinations for *all* children on Denti-Cal. Parents are not getting their children's annual health examinations in their preschool years—oral health is not their priority. Some of this may be attributed to the likelihood that many parents simply do not realize that their infants and very young children need oral health care from a very young age. “First tooth, first visit,” is one phrase that was used in an interview to encourage families to attend to their children's oral health at an earlier age. However, there is also the need to endorse the practice of wiping children's gums while breastfeeding, which is somewhat controversial among advocates of breastfeeding. These are seen as opportunities for educating Trinity residents at all stages of parenting or child care, and the local medical professionals are probably the best place to start these conversations.

Some interviewees brought up the difficulty of getting parents to participate in parenting or special training classes, which are offered by various agencies that focus on early childhood. There is also a concern that parents are often preoccupied with their cellphones and are not paying as much attention to their children as they need to. Interestingly, many people suggested that the way to reach parents is to educate the children at school using interactive and engaging tools, which they will then take home to their parents. As pointed out earlier, a whole-family focus suggests that a collaborative approach between schools, medical and social service providers, public health and community members (parents among them) is the best way to produce effective change in oral health behaviors and conditions.

### *Data*

The Department of Health and Human Services is actively involved in accumulating, analyzing and reporting data across a broad scope of health and social issues, yet the efforts of many agencies with different funding streams are limited by a “silo” effect that makes it difficult to formulate a comprehensive picture of all the services being delivered, people being reached, and effects of the work overall. If these initiatives were better integrated, the collective outcomes would be more effective and persuasive in terms of reaching county-wide goals, soliciting more funding and reaching more residents in need. It is the aim of the LOPH to employ the Advisory Team in coordinating this work in the service of improved oral health in Trinity.

A few interviewees mentioned that there is a lack of tracking preventive efforts and interventions to measure impact and follow-up, to identify gaps in service as well as opportunities for education and greater collaboration among agencies, community leaders, providers and individual residents and their families. An effort to map and streamline existing channels of data gathering, analysis and reporting would provide a mechanism for an ongoing system of feedback



that could be used to steer the county through a long-range health improvement plan, allowing for adjustments and innovations as lessons are learned along the process.

With regard to integration, a question asked about who should be on the Advisory Team yielded the following list:

- ◆ MCHD Critical Care hospital
- ◆ PATH—Partnerships In Action for Trinity Health
- ◆ Community leaders
- ◆ School superintendents
- ◆ Lions Club, other civic organizations
- ◆ Senior service agencies (Golden Age Senior Center, Roderick Center)
- ◆ Food kitchen/Food pantry coordinator(s)
- ◆ Local business leaders
- ◆ Veterans services
- ◆ Local faith-based communities

### *Outreach and Education*

Many interviewees expressed appreciation for the Public Health focus on oral health in the community, but also there was a sense that there needs to be more. There is acknowledgement among the Advisory Team members who were interviewed that more outreach, more direct education must be employed, frequently, consistently, and creatively. Members of the LOHP Advisory Team who were interviewed reported many positive experiences. CCRP was offered many ideas for effective outreach and education about oral health that address the complexities of implementing effective campaigns in the rural geographical and cultural landscape of Trinity County. These are represented in the sections that follow.

### Target Audiences

- ◆ Parents of young children above age 8 who don't get seen in the well-child visits
- ◆ High-school-age youth who can be creative about spreading the information to their peers, parents, and younger children
- ◆ Community leaders (see section on Citizen Leadership, page 43)
- ◆ Older adults
- ◆ Seniors
- ◆ Doctors (oral health correlates to physical health)
- ◆ Parents (oral health education, services)
- ◆ Developmentally disabled or severely mentally ill
- ◆ School-aged children (they will influence their parents)
- ◆ Pregnant women and nursing mothers

### Places to Engage/Distribute Information

It was pointed out that there is no television or radio station that is devoted to Trinity County residents, and even though many residents can access the internet, in some areas it is unavailable

or only accessible through a trip to the local store or coffee shop during limited times of the day. All outreach should consider alternative ways of reaching rural residents.

- ◆ Churches
- ◆ Schools
- ◆ Information to Providers
  - Agencies that provide transportation assistance
  - List of dentists (for referrals) who serve different populations
  - Importance of checking pregnant women's oral health
  - Need to correlate patient health conditions with dental problems
  - How referrals can be tracked for follow-up and problem-solving
- ◆ Teens Friday Night Live
- ◆ Local stores in outlying areas (bulletin boards)
- ◆ Libraries
- ◆ Public events (county fairs, health fairs, etc.)
- ◆ Dental colleges seeking residents to work in Trinity
- ◆ Farmers markets
- ◆ Food banks
- ◆ Lions Club, Rotary, other civic organizations
- ◆ Post office
- ◆ Senior housing complexes
- ◆ Senior meal programs (Roderick Center, Golden Age Senior Center)
- ◆ Food Bank Commodities Program distribution sites
- ◆ Soup kitchens/food pantries

### Media

A variety of media were suggested to work around the lack of an overarching, county-wide information source. Social media methods are effective to some extent and are used by most residents, although it is to be expected that elderly people will sometimes need help in using unfamiliar technologies, or older systems of communication will have to be relied on to communicate with many of them.

- ◆ Social media: YouTube demonstrations of toothbrushing, flossing and other techniques, proper care of dentures and periodontal care
- ◆ Facebook groups
- ◆ Local newsletters or newspapers, other print media
- ◆ Drinking establishments
- ◆ Store bulletin boards
- ◆ Use visual messaging whenever possible
- ◆ Language aimed at a sixth-grade reading level
- ◆ Consider language-appropriate messaging in ethnic communities
- ◆ Local comedic performances that dramatize social issues around oral health

## Messages

Use visuals, such as photos of poor condition of teeth to demonstrate the impact of lack of care. One interviewee talked about a collaborative CHDP/LOHP demonstration that was done at the Children's Festival. An egg was immersed in a container of cola and children were able to see the disintegration of the egg enamel that resulted, showing how acidic or sugary beverages and food contribute to acid-producing bacteria in the mouth that attack tooth enamel.

A few interviewees remarked that just talking about what people should be doing is not as helpful as demonstrating, interactively, or showing with visuals, the real-life consequences of healthy maintenance vs. lack of care. Showing people substantial evidence can help empower them to make healthier choices for themselves and their children.

- ◆ Variety and benefits of various fluoride applications
- ◆ Ongoing, consistent messaging addressing oral health misperceptions
- ◆ Messaging about the importance of oral health, especially in young children
- ◆ Information about links between oral health and other health problems
- ◆ Empowering messages about how to keep good oral health
- ◆ Caring for infant gums/engaging breastfeeding advocates effectively
- ◆ List of dentists and associated services (transportation, funding, etc.)

## Activities

Go to where people gather, draw people together to engage in interactive learning experiences and provide handouts and supplies that they can share with their neighbors and friends.

- ◆ Screening for oral health problems
- ◆ Distribution of toothbrushes, toothpaste, and dental floss
- ◆ Lessons in brushing or flossing
- ◆ Assessments/Referrals
- ◆ Demonstration of nutritional and destructive effects of sugary beverages
- ◆ Build oral care into daily school activities
- ◆ Parent trainings in oral health habits and care techniques
- ◆ Registered Dental Hygienists going into communities doing assessments, something like Doctors Without Borders, only home-grown
- ◆ Simulated dental visits—at fairs, have a booth where children can climb up in a chair and have someone look in their mouth and receive a gift bag of dental supplies, to get them used to having someone check their teeth
- ◆ Post-card campaigns for outlying areas
- ◆ RDHAPs visiting schools and other events with demonstrations and supplies for maintenance of oral health

## *Advocacy in Professional Organizations*

Given the critical shortage of providers in Trinity County, efforts should be made on the part of Public Health leadership to reach out to medical and dental associations, as well as registered

dental hygienists in alternative practice (RDHAPs), about the possibility of partnering to enhance service delivery. As one interviewee stated,

*“That’s the number one problem is there is just not enough information about—this can affect your heart, there is a 95% link—periodontal disease can...demonstrate to you that you have heart disease coming.”*

Medical professionals need to know what to look for, and which dental providers are the most likely to accept their patients if they require dental work. Currently, the system used by Trinity County Office of Education—an external funding arrangement with specific Redding dentists, is effective for reaching a number of students who need dental care, but there are not the same remedies for adults, nor can this system address the needs of all Trinity school children who need care. Collaboration at the systemic level with neighboring counties may bring forth solutions that are not evident at this time.

### *Citizen Leadership*

The Human Reponse Network seems to have the most “boots on the ground” and grassroots information about low-income parents. One interviewee suggested that some of the primary aspects of Trinity’s culture—self-reliance and self-sufficiency—are also engines of creativity. People living in rural areas can be quite imaginative when confronting collective challenges, a virtue that was illustrated in more than one interview. Another interviewee emphasized the importance and value of including local people in each of the outlying communities in developing and communicating health information.

*“[I]t might just be the guy that has the Sunday barbeque that everyone goes to his house, whoever these people are, you have to find them and kinda get them to partner with you, I think that’s the part that we’re really missing...we’re not reaching out to the guy that everybody knows in town, or the lady who’s been...everyone’s preschool teacher, but she might not necessarily have this role as...Board of Supervisor, or sheriff’s wife...”*

Each community has its leaders, formal and informal, and it is important to integrate them for effective public health campaigns, especially in rural areas. Churches and civic organizations are good places to organize and distribute information, as are bars and shops and small grocery stores. Focus groups should be conducted in outlying communities to gather data about oral health issues, build awareness of oral health preventive practices, and inform residents of the efforts of Trinity County Public Health Department to improve services.

Given the widespread presumption that the government is not to be trusted, every effort should be made to integrate local individuals into advisory teams, working groups, and outreach initiatives throughout the county. It is only when people are working side by side that we realize that the government is us. It is by participating in the collective direction of resources to implement programs that benefit those most in need that notions of “us” and “them” can be diminished, as the gradual experience of community spreads over a wider range of people whose basic needs are met.

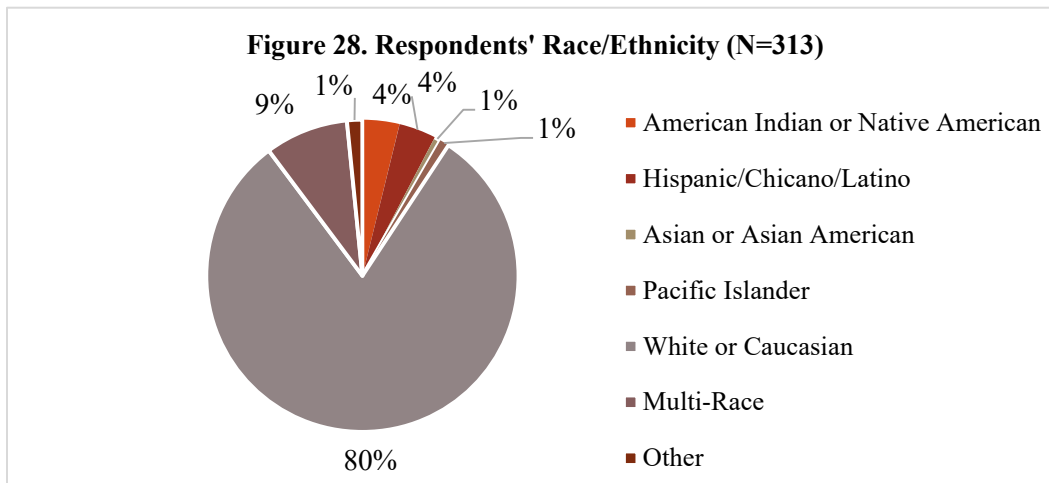
## NEEDS ASSESSMENT SURVEY RESULTS

### Demographics of Survey Participants

A total of 328 Trinity County residents participated in the needs assessment survey.

Almost half of the participants (47.6%) are between the ages of 41 to 64 years old (Q39). The average age of participants is about 40 years old. About 5.5% of participants are between the ages of 18-26 years, about 25.5% are between the ages of 27-40 years and about 15.8% are seniors.

### Q40. What is your race/ethnicity?



The majority of participants (80%) identify as White.

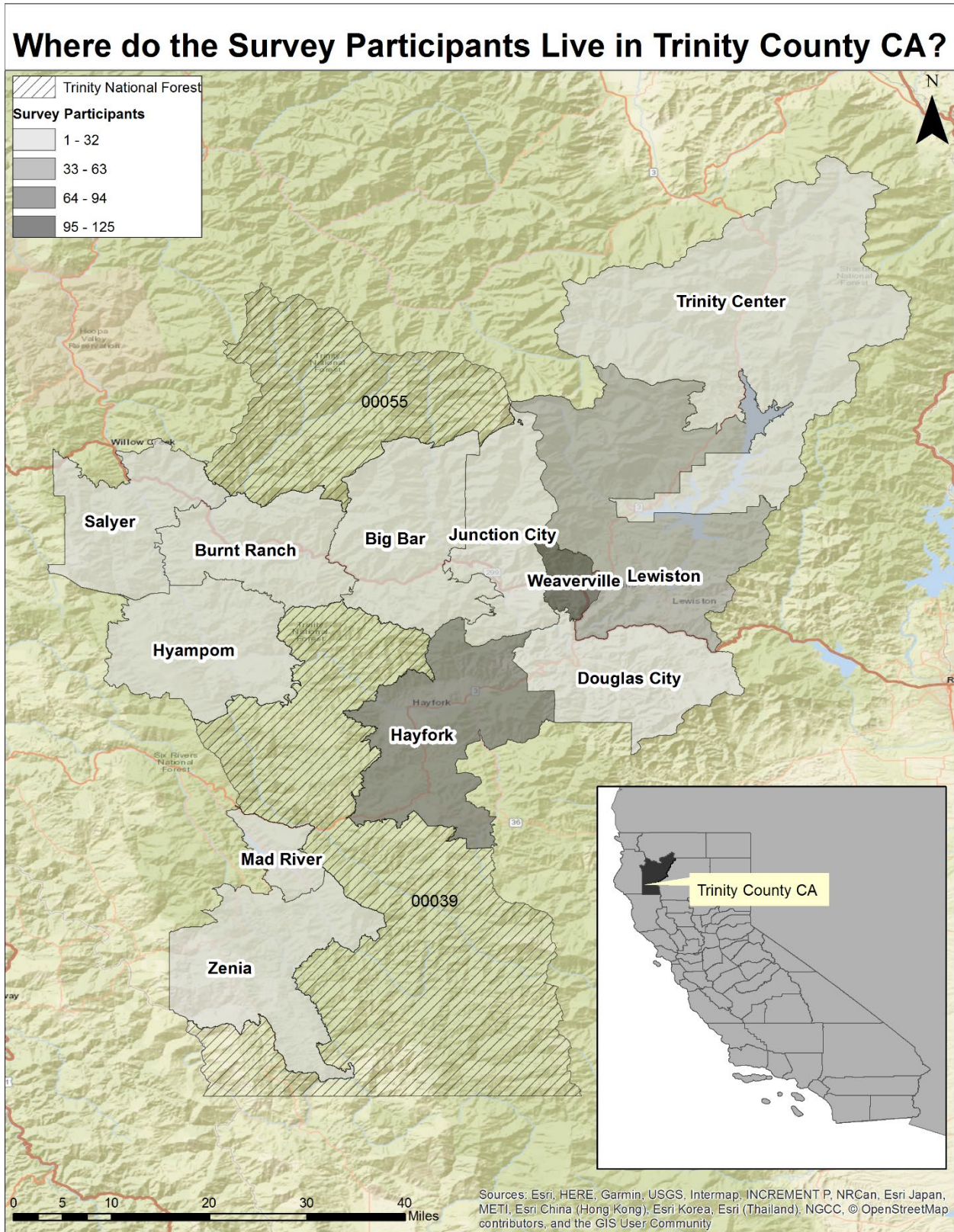
### Q38. What is the zip code where you live?

Figures 29 and Figure 30 demonstrate where the participants reside in Trinity County.

**Figure 29. Where Participants Live in Trinity County**

| Towns in Trinity County | N       | Percentage of Participants |
|-------------------------|---------|----------------------------|
| Big Bar                 | N = 2   | 0.6%                       |
| Burnt Ranch             | N = 2   | 0.6%                       |
| Douglas City            | N = 24  | 7.2%                       |
| Hayfork                 | N = 65  | 19.7%                      |
| Hyampom                 | N = 3   | 0.9%                       |
| Junction City           | N = 20  | 6.0%                       |
| Lewiston                | N = 35  | 10.6%                      |
| Mad River               | N = 8   | 2.4%                       |
| Salyer                  | N = 1   | 0.3%                       |
| Trinity Center          | N = 4   | 1.2%                       |
| Weaverville             | N = 125 | 37.9%                      |
| Zenia                   | N = 3   | 0.9%                       |

Figure 30. Map of Where Survey Participants Currently Reside.



The most common city in which participants (38%) live is Weaverville, California. Eighteen (18) participants mentioned that they live outside of Trinity County. The other counties in which the participants reside include:

- Humboldt County
- Siskiyou County
- Shasta County

Shasta County **Q41. Are you currently a part of any of these programs?**

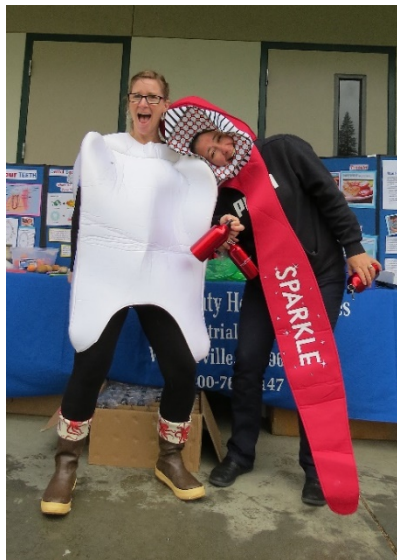
**Figure 31. Participants Currently Enrolled in Social Programs**

| Program Type          | # of Participants |
|-----------------------|-------------------|
| Medi-Cal              | N = 114           |
| Medicare              | N = 59            |
| Disability/SSI        | N = 34            |
| SNAP/CAL Fresh        | N = 28            |
| WIC                   | N = 18            |
| Unemployment benefits | N = 2             |
| None                  | N = 157           |

Please note: Participants chose more than one answer.

Medi-Cal is the most common social program in which participants are enrolled.

About 35% (N=113) of participants mentioned that they have children between the ages of 0-17 years old (Q32).



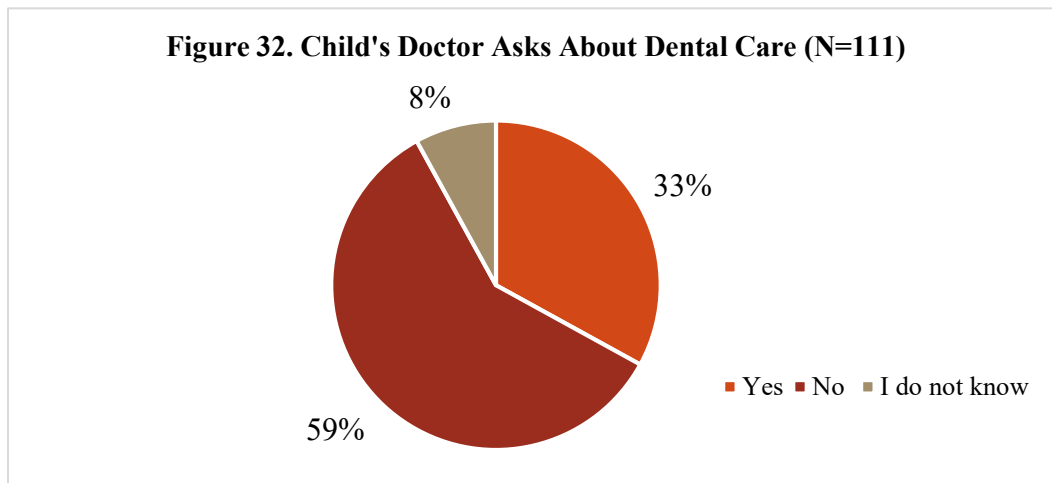
## Youth

Twenty-nine (29) participants indicated that their child currently has dental problems (Q35).

About half of the participants (50%) mentioned that a child's first dental visit should be at age 1 or when their first tooth comes in (Q28).

Forty-three (43) participants mentioned that their child had had dental sealant (Q33) and 70 participants mentioned that their child had had fluoride on their teeth (Q34).

### **Q36. Does this child's medical doctor ever ask about dental care or look at the child's teeth during a well-child exam?**



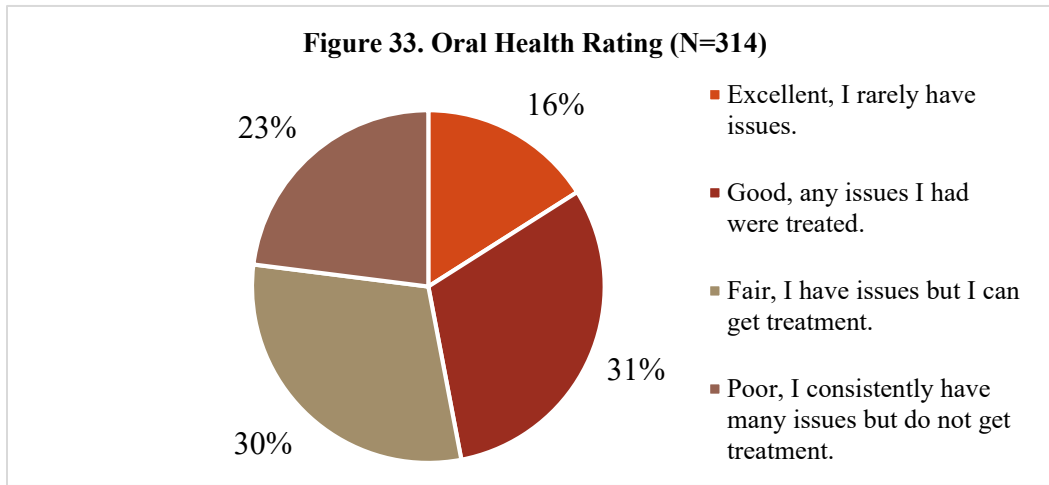
Over half of the participants (59%) indicated that their child's doctor did not ask about dental care.

Only 11 participants mentioned that their child consumes a sugar-sweetened beverage either every day or 3-4 times a week (Q37).



Adults

**Q2. How would you rate the health of your teeth, gums and mouth?**



More than half (53%) of participants rated their oral health as fair or poor.

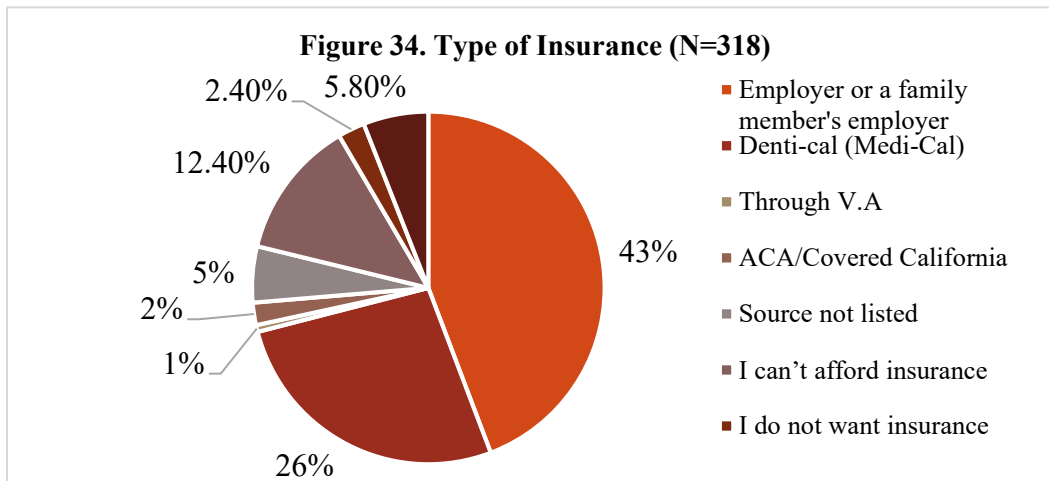
The majority of participants (87%) found their oral health to be either extremely or very important (Q3).

The majority of participants (88%) reported that they brush their teeth at least once a day (Q4). About 7% of participants reported that they rarely or never brush their teeth.

Less than half of the participants (40%) floss their teeth daily (Q5). Twenty-nine percent (29%) of participants reported flossing their teeth a few times a week and 31% reported that they rarely or never floss their teeth.

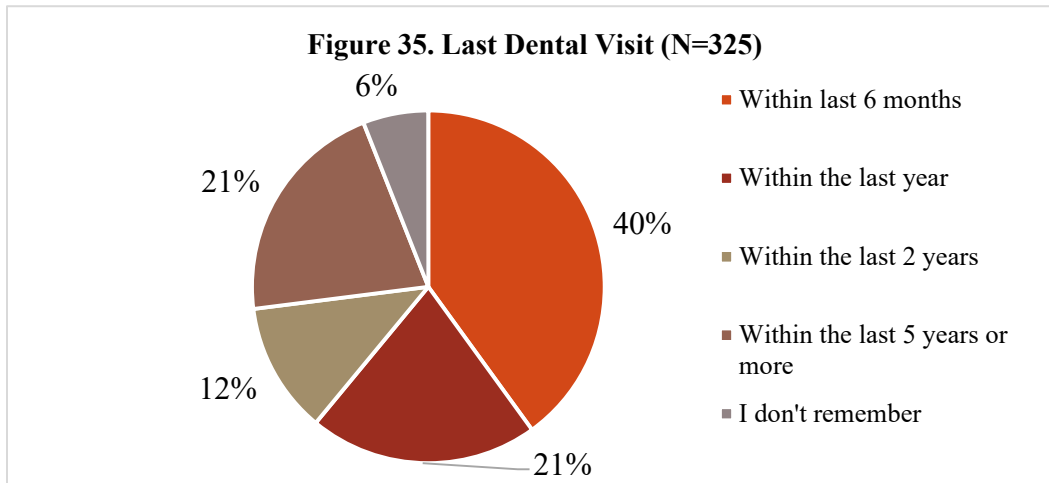
More than half of the participants (66%) reported that they have dental insurance (Q6).

**Q7. What type of insurance do you have?**



Almost half of the participants (43%) mentioned that their medical insurance is through their employer or their family member’s employer. About 26% of participants are enrolled in Medi-Cal. About 21.3% of participants do not have insurance. Over twelve percent (12.4%) of participants mentioned that they do not have insurance because they can’t afford it.

**Q8. When was the last time you went to the dentist?**

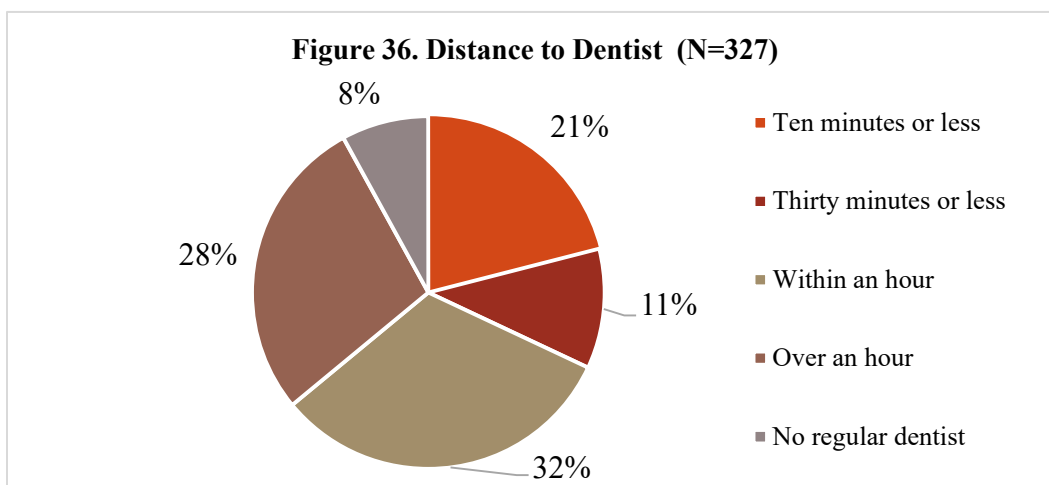


Over half of the participants (61%) visited the dentist within the last year.

About 43% of participants last visited the dentist because of a treatment or a follow-up treatment for an issue (Q9). About 44% of participants last visited a dentist for either a six-month cleaning or an annual check-up.

The majority of participants (73%) indicated that they feel good or excellent about their last dental visit (Q10).

**Q11. How far is the dentist from your home?**



For more than half of the participants (60%), it takes an hour or more to drive to the dentist.

About 39% of participants did not receive the care they needed in the last year (Q12).

**Q13. What is your experience in trying to get dental care?**

| <b>Figure 37. Common Experiences in Getting Dental Care</b> |         |
|-------------------------------------------------------------|---------|
| It was too expensive.                                       | N = 126 |
| It was great.                                               | N = 121 |
| I do not like going to the dentist.                         | N = 63  |
| The wait time for my appointment was too long.              | N = 54  |
| I cannot find a dentist that is taking new patients.        | N = 52  |
| I do not know where to go to get dental care.               | N = 36  |
| I do not have transportation to the dentist.                | N = 24  |

Please note: Participants chose more than one answer.

One-hundred-twenty-six (126) participants mentioned that getting dental care is too expensive. One-hundred-eleven (111) participants also mentioned that it is too expensive to visit the dentist to maintain their oral health (Q20).

About 31% of participants reported that they currently use tobacco products (Q15). About 27% of participants reported that they use tobacco products daily.

About 18% of participants mentioned that their doctor asks about their dental health (Q16).

**Q17. Have you had any of the following dental issues in the past year?**

| <b>Figure 38. Oral Issues in the Last Year</b> |         |
|------------------------------------------------|---------|
| Cavities                                       | N = 114 |
| Bleeding gums                                  | N = 101 |
| Swelling/abscess                               | N = 56  |
| Loose teeth                                    | N = 49  |
| Crown                                          | N = 39  |
| Root canal                                     | N = 25  |
| None                                           | N = 124 |

Please note: Participants chose more than one answer.

More than half of the participants (60%) have had their adult teeth/tooth (excluding wisdom teeth) pulled (Q18).

About 39% of participants removed or lost between one and five teeth, and 15% removed or lost six or more adult teeth (excluding wisdom teeth) (Q19).

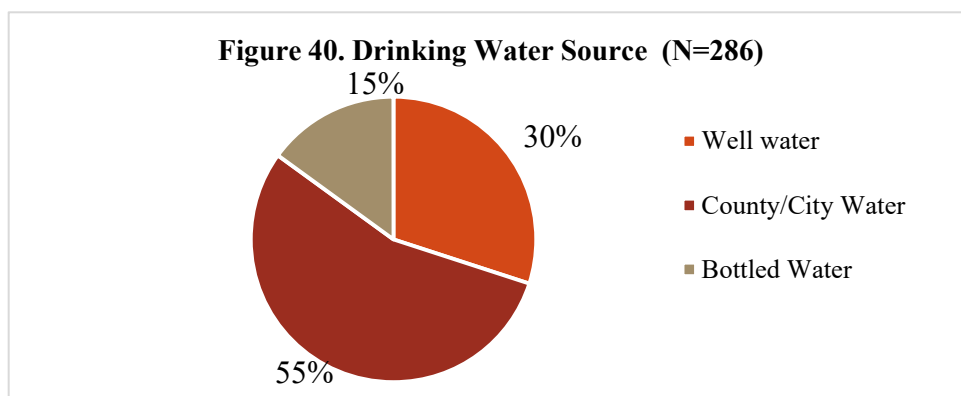
Figure 39 (Q21-26) demonstrates the participants' common beliefs and knowledge about topics related to oral health.

| <b>Figure 39. Common Beliefs and Knowledge About Oral Health</b> |      |       |               |
|------------------------------------------------------------------|------|-------|---------------|
| Fact:                                                            | True | False | I do not know |
| Gum disease is related to heart disease                          | 69%  | 4%    | 28%           |
| Gum disease is related to diabetes                               | 45%  | 6%    | 50%           |
| Baby teeth are unimportant                                       | 8%   | 84%   | 8%            |
| Fluoride prevents cavities                                       | 77%  | 8%    | 15%           |
| Fluoride water is bad for your health                            | 31%  | 39%   | 30%           |
| Women should not have dental treatment during pregnancy          | 13%  | 55%   | 32%           |

The majority of participants (69%) understands the relationship between heart disease and gum disease. Half of the participants (50%) mentioned that they do not know if there is a connection between gum disease and diabetes.

Although the majority of participants (77%) mentioned that fluoride prevents cavities, about 31% mentioned that fluoridated water is bad for their health. About 30% of participants mentioned that they do not know if fluoridated water is bad for their health.

**Q29. Where do you get your drinking water?**



About half of the participants' (55%) drinking water source is from the county or city. About 15% depend on bottled water, and 30% of participants get their drinking water from a well.

About 11% of participants indicated that their drinking water is fluoridated (Q30). Thirty-nine percent (39%) of participants do not know if their water is fluoridated.

Figure 41 (Q31) demonstrates the participants' practices/knowledge about fluoride.

| <b>Figure 41. Fluoride-related Practices</b> | <b>Number of participants</b> |
|----------------------------------------------|-------------------------------|
| I buy toothpaste with fluoride               | N = 195                       |
| I do not know about my fluoride intake       | N = 83                        |
| I avoid fluoride                             | N = 47                        |
| I get fluoride treatments at the dentist     | N = 43                        |
| I drink tap water with fluoride              | N = 25                        |
| I do not know what fluoride is               | N = 14                        |
| I use fluoride tablets or drops              | N = 4                         |

Please note: Participants chose more than one answer.

Eighty-three (83) participants indicated that they do not know about their fluoride intake.

## RECOMMENDATIONS

- 1. County-wide Collaboration with a Whole-Family Focus.** A whole-family focus suggests that a focused, collaborative approach between schools, medical and social-service providers, public health and community members (parents among them) is the best way to produce effective change in oral health behaviors and conditions.
- 2. Employ Grassroots Educational Strategies.** Considering the interreliance that develops in geographically isolated communities in response to emergency conditions, an oral health education program—utilizing grassroots-oriented strategies that identify clusters of lay community leaders and locally close-knit families throughout the county—should be pursued.
- 3. Medical/Dental Integration.** Integration of oral health assessments with medical examinations would reach people who may otherwise not attend to dental conditions—pregnant women, seniors, patients with mental and developmental disabilities, etc.
- 4. Expand Oral Health Advisory Team.** Efforts should be made to increase the breadth of community members on the Oral Health Advisory Team to include: community leaders from various outlying areas, teens/young adults, school superintendents, representatives of faith-based communities, local businesses, Lions Club and other civic organizations, veterans services providers, and MCHD hospital staff.
- 5. Design and implement a data collection plan.** An effort to map and streamline existing channels of data gathering, analysis and reporting would provide a mechanism for an ongoing system of feedback that could be used to steer the county through a long-range health improvement plan, allowing for adjustments and innovations as lessons are learned along the way.
- 6. Conduct a Series of Community Focus Groups in Outlying Areas** to develop an understanding of the perspectives of vulnerable populations around barriers to accessing care and their level of engagement with good oral health practices in the home setting. Such groups could serve multiple purposes, all of which would further the goal of outreach and education: (a) community leaders could be identified, (b) a more specific census of localized information about the various clusters of Trinity residents could be constructed, and (c) residents could become engaged with the concerns of the LOHP, perhaps working with the oral health advisory team as a program ambassador in their area. These focus groups, if properly designed and promoted, would most certainly raise awareness of the value of good oral health and could be a vehicle for Public Health to broadly distribute new information about plans for improving oral health in Trinity County.

## **REFERENCES (Secondary Data Scan)**

American Academy of Periodontology

American Dental Association

California Dental Association

California Department of Education

California Health and Human Services Open Data Portal 2013-2017

Census – American Community Survey 2017

Center for Disease Control

California Center for Rural Policy – Measuring Rurality Statewide, 2006

California Center for Rural Policy – Oral Health Care Disparities in the Redwood Coast Region, 2010

California Tobacco Facts and Figures, 2019

California Health and Human Services Open Data Portal 2013-2017

California Health Interview Survey (CHIS)– [Healthpolicy.ucla.edu](http://Healthpolicy.ucla.edu), 2014

ESRI – Geographic Information System Company

Maternal Child Adolescent Health Trinity County Needs Assessment, 2019

Rural Health Information Hub

Trinity County Oral Health Data Dashboard, 2019

# APPENDIX A

## Trinity County Oral Health Needs Assessment

### Community Survey

**This section describes the purpose of the survey and asks for your consent to participate. Please review before taking the survey. This is the only question you are required to answer--you will be able to complete the survey once you have indicated your consent.**

#### \* 1. Informed Consent for Participation

You are invited to take part in a survey that will help us to better understand the current status of Trinity County's oral health, what are the needs of our community, and how should the County effectively address these needs.

The California Center for Rural Policy (CCRP) is doing a needs assessment for Trinity County Department of Public Health (TDPH). You have been asked to take part because you live in Trinity County. The information you give us about your oral health concerns and conditions will help us to work with Trinity Department of Public Health to develop a community health improvement plan for the County.

#### Overall Description of Participation

If you decide to be a part of this project, you will be asked to "sign" this consent form which will allow you to move through the survey on-line. The survey is anonymous—your name is not anywhere on the consent form, and your consent is indicated by selecting the "yes" response below. The information you provide in your survey will be part of a dataset that will be used by CCRP and shared with TDPH. This needs assessment will be used to develop a Community Health Improvement Plan. The plan will address many of the gaps in community services found in the needs assessment. Your name will not be linked to the information on the survey.

#### Length of Participation

The survey should take about 15-25 minutes to complete.

#### Compensation

No compensation will be provided for participation in the survey.

#### Volunteer Statement

You are a volunteer. Participating in this project is up to you. If you decide to be in the project, you may stop at any time and take back your consent to participate. You will not be treated any differently if you do not participate in the project or if you stop once you have started.

#### Confidentiality Statement



Your name will not be linked to any information you give us as part of this study. If results are shared with other people at meetings or in published articles, your name will be kept private.

### Rights of Participants

If you have any concerns with this study or questions about your rights as a participant, contact the Institutional Review Board for the Protection of Human Subjects at [irb@humboldt.edu](mailto:irb@humboldt.edu) or (707) 826-5165.

For specific questions about this study, you may contact the program coordinator, Dawn Arledge Director of Health Research at the California Center for Rural Policy (707-826-3400), or the program principal investigator, Connie Stewart, California Center for Rural Policy, HSU (707-826-3402).

### Statement of Informed Consent

I have read and understood what it means to be a part of this project. I understand that the investigator or program coordinator will answer any questions I may have concerning the investigation or the procedures at any time. I also understand that my participation is entirely voluntary and that I may decline to enter this study or may withdraw from it at any time without jeopardy. I understand that the investigator may terminate my participation in the study at any time.

By clicking the "agree" statement below, I indicate that would like to be a part of this project and consent to take the survey.

Investigator: Connie Stewart, Executive Director of the California Center for Rural Policy at Humboldt State University.

Yes, I agree to participate in this survey.

No, I do not agree to participate in this survey.

## Trinity County Oral Health Needs Assessment

### PART I ADULTS

**This section asks questions about habits about your oral health, opinions about dentists, and various other issues related to dental care.**

2. How would you rate the health of your teeth, gums and mouth?

- Excellent, I rarely have issues.
- Good, any Issues I had were treated.
- Fair, I have issues, but I can get treatment.
- Poor, I consistently have many issues but do not get treatment.

3. How important is the health of your teeth, gum and mouth to you?

- Extremely important
- Very important
- Somewhat important
- Not so important
- Not at all important

4. How often do you brush your teeth?

- Three times a day or more
- Twice a day
- Once a day
- A few times a week
- Rarely
- Never

5. How often do you floss your teeth?

- Three times a day or more
- Twice a day
- Once a day
- A few times a week
- Rarely
- Never

6. Do you have dental insurance?

- Yes
- No

7. What type of insurance do you have?

- Through my employer or a family member's employer
- Through Denti-Cal (Medi-Cal)
- ACA/Covered California
- Through the Department of Veteran Affairs
- Through a source not listed
- I can't afford insurance
- I don't want insurance
- I don't know

8. When was the last time you went to the dentist?

- Within the last six months
- Within the last year
- Within the last two years
- Within the last five years or more
- Never
- I don't remember

9. What was the reason for your last dental visit?

- Six-month cleaning
- Annual check-up
- Treatment for an issue
- Follow-up treatment
- Other reason

10. How do you feel about the care you received at your last dental visit?

- Excellent, I felt respected and approved of the treatment that was done.
- Good, I approved of the treatment that was done.
- Fair, I felt okay about my visit.
- Poor, I was unsure of why they did the treatment.
- Other (please specify)
- Horrible, I did not feel respected and was unsure of why they did the treatment.
- I have never been to the dentist.
- I do not remember.

11. How far is the dentist from your home?

- Ten minutes or less
- Thirty minutes or less
- Within an hour
- Over an hour
- I do not have a regular dentist.

12. During the last year, has there been a time when you needed dental care, but could not get it?

- Yes, I did **not** receive the care that I needed.
- No, I **received** the care that I needed.
- No, I did not need care.

13. What is your experience in trying to get dental care? (Select **all** that apply.)

- It was great.
- It was too expensive.
- I do not know where to go to get dental care.
- I cannot find a dentist that is taking new patients.
- The wait time for my appointment was too long.
- The appointment was canceled.
- I missed the appointment.
- I do not have transportation to the dentist.
- I do not like going to the dentist.
- No one at the dentist speaks my language.
- Other (please specify)

14. If you do not like going to the dentist, please indicate why. (Select **all** that apply.)

- I do not mind going to the dentist.
- Fear or nervousness.
- Hard to schedule with my work/school.
- Bad past experience.
- Hard to schedule appointments with the dental office.
- I cannot afford it.
- Transportation problems.
- No reason to, my teeth are fine.
- Language barrier.
- I do not know where to go.
- The waiting time at the dental office.

15. Do you use tobacco products (including cigarillos, cigars, cigaritta, pipe tobacco, chewing tobacco, vape pen, hookah, e-cigarettes and juul)?

- Yes, daily
- Yes, sometimes
- I used to, but I quit
- I tried it a few times
- Never

16. Does your medical doctor ever ask about your dental health?

- Yes
- No
- I do not have a medical doctor

17. Have you had any of the following in the past year? (Check **all** that apply)

- |                                           |                                     |
|-------------------------------------------|-------------------------------------|
| <input type="checkbox"/> Bleeding gums    | <input type="checkbox"/> Crown      |
| <input type="checkbox"/> Swelling/abscess | <input type="checkbox"/> Root canal |
| <input type="checkbox"/> Loose teeth      | <input type="checkbox"/> None       |
| <input type="checkbox"/> Cavities         |                                     |

18. Have you ever had an adult tooth pulled (not including wisdom teeth)?

- Yes
- No
- I do not know

19. How many of your adult teeth have been removed or lost? (Do not include wisdom teeth.)

- None
- 1-5
- 6 or more
- All

20. What is your experience in keeping your teeth, gums and mouth healthy? (Check **all** that apply)

- |                                                                                 |                                                                                                  |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> I do well in keeping my teeth, gums and mouth healthy. | <input type="checkbox"/> I do not have someone to watch the kid(s).                              |
| <input type="checkbox"/> Going to the dentist is too expensive.                 | <input type="checkbox"/> I do not have a way to get to the dentist.                              |
| <input type="checkbox"/> Toothbrushes, toothpaste and floss are too expensive.  | <input type="checkbox"/> My housing issues have affected the health of my teeth, gums and mouth. |
| <input type="checkbox"/> I am too busy.                                         | <input type="checkbox"/> I have other medical needs that are more important.                     |
| <input type="checkbox"/> I cannot take time off work.                           |                                                                                                  |
| <input type="checkbox"/> Other (please specify)                                 |                                                                                                  |

PLEASE INDICATE WHETHER THE FOLLOWING STATEMENTS ARE TRUE OR FALSE.

21. There is a connection between gum disease and heart disease.

- True
- False
- I do not know

22. There is a connection between gum disease and diabetes.

- True
- False
- I do not know

23. Baby teeth are not that important because they are going to fall out anyway.

- True
- False
- I do not know

24. Fluoride strengthens (or helps to protect) teeth and helps prevent cavities.

- True
- False
- I do not know

25. Fluoride-treated water is not good for your health.

- True
- False
- I do not know

26. A woman should not have dental treatment during pregnancy.

- True
- False
- I do not know

27. Who told you this? (Check **all** that apply.)

Family

Medical doctor

Friend

I do not remember

Dentist

Other (please specify)

## Trinity County Oral Health Needs Assessment

28. Children should have their first dentist visit by:

Age 1 or when their first tooth comes in

Age 3 or when they start school

I do not know

29. Where do you get your drinking water?

Well water

County/city water

Bottled water

I do not know

30. Is the tap water in your home fluoridated?

Yes

No

I do not know

31. How do you feel about fluoride? (Select **all** that apply.)

I buy toothpaste with fluoride.

I do not know about my fluoride intake.

I drink tap water with fluoride.

I do not know what fluoride is.

I get fluoride treatments at the dentist.

I avoid fluoride.

I use fluoride tablets or drops.

32. Do you have a child between the ages of 0 (infant) and 17 years old?

- Yes
- No

## Trinity County Oral Health Needs Assessment

### **PART II - CHILDREN**

**Please fill out this section for your YOUNGEST CHILD between the ages of 0 (infant) and 17 years old.**

33. Has this child ever had a dental sealant?

- Yes
- No
- I do not know

34. Has this child ever had fluoride put on their teeth?

- Yes
- No
- I do not know

35. Does this child have any dental problems right now?

- Yes
- No
- I do not know

36. Does this child's medical doctor ever ask about dental care or look at the child's teeth during a well-child exam?

- Yes
- No
- I do not know



37. How many times a day does your child drink sugar-sweetened beverage (cola, sports drink, juice, punch)?

- Rarely
- 1-2 times a week
- 3-4 times a week
- Every day
- Never

## Trinity County Oral Health Needs Assessment

### Please tell us about yourself.

38. What is the zip code where you live?

39. What is your age?

- 18-26 years
- 27-40 years
- 41-64 years
- 65+ years

40. What is your race/ethnicity?

- American Indian or Native American
- Black or African American
- Hispanic/Chicano/Latino
- Asian or Asian American
- Other (please specify)
- Pacific Islander
- White or Caucasian
- Multi-race

41. Are you currently a part of any of these programs? (check all that apply)

- Medi-Cal
- Medi-Care
- WIC
- SNAP/CAL FRESH
- Disability/SSI
- Unemployment benefits
- No

# APPENDIX B

Trinity County Public Health  
**ORAL HEALTH PROGRAM**  
 2019 Needs Assessment Survey Distribution Sites

| REGION                                             | METHOD                                                             | LOCATION                                                                                   |
|----------------------------------------------------|--------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| <b>Southern Trinity</b>                            |                                                                    |                                                                                            |
|                                                    | Paper, Survey link through email; QR code flyer                    | Southern Trinity Health Services                                                           |
|                                                    | Survey link through email,                                         | Van Duzen Elementary School, Southern Trinity High School, Hoaglin-Zenia Elementary School |
|                                                    | Paper, QR code flyer; In-person online survey collection at site   | Kettenpom Fire Station (Food Commodities Distr. Site); Kettenpom Store                     |
|                                                    | Survey link email, QR code flyer.                                  | Zenia/Kettenpom Play and Learn Pre-K playgroup                                             |
|                                                    | Paper, Survey link flyer, In-person survey collection at site.     | Ruth Store                                                                                 |
|                                                    | Paper; QR code flyer; In-person, online survey collection at site. | Watering Hole Deli/ Mad River Burger Bar                                                   |
|                                                    | Survey link email & flyer                                          | Van Duzen/Mad River/Ruth Southern Trinity Pre-K playgroup                                  |
| <b>Northern Trinity</b>                            |                                                                    |                                                                                            |
|                                                    | QR code flyer                                                      | Trinity Center Market                                                                      |
|                                                    | Survey link through email                                          | Coffee Creek Elementary School, Trinity Center Elementary School                           |
|                                                    | Survey link through email                                          | Trinity Center/Coffee Creek –North Lake Pre-K Playgroup                                    |
| <b>Central Trinity (Weaverville, Douglas City)</b> |                                                                    |                                                                                            |

Trinity County Public Health  
**ORAL HEALTH PROGRAM**

2019 Needs Assessment Survey Distribution Sites

|  |                                                                                     |                                                    |
|--|-------------------------------------------------------------------------------------|----------------------------------------------------|
|  | Paper surveys, Survey link through email                                            | Weaverville Elementary School, Trinity High School |
|  | In-person online & paper survey collection at site                                  | Weaverville Congregational Church (Food Pantry)    |
|  | In-person survey collection by clinicians at site; Paper, Survey link through email | Behavioral Health                                  |
|  | Email with Survey link, flyer                                                       | Trinity Public Utilities Department                |
|  | Survey link & QR code flyer through email                                           | County Transportation Department (Trinity Transit) |
|  | Paper, Survey link through email, QR code flyer; In-person survey collection        | Trinity County HHS, Public Health                  |
|  | Paper, QR Code flyer, survey link flyer                                             | Trinity County Library                             |
|  | Survey link through email                                                           | Tribal TANF                                        |
|  | Paper, Survey link through email, QR code flyer                                     | Human Response Network                             |
|  | Survey link on Facebook page                                                        | Parks and Recreation                               |
|  | Paper surveys                                                                       | Golden Age Senior Center/Blue Barn Thrift Store    |
|  | Paper                                                                               | Shascade                                           |
|  | Survey link through email                                                           | Head Start/Early Head Start                        |
|  | QR code flyers                                                                      | Holiday Market                                     |
|  | Paper surveys, flyers                                                               | Smart Business Resource Center                     |
|  | Survey link through email                                                           | Trinity County Chamber of Commerce                 |
|  | Survey link on Facebook group                                                       | Mountain Marketplace                               |
|  | Paper, Survey link through email                                                    | Trinity Dental Care (STHS dental clinic)           |
|  | Paper, Survey link through email, In-person survey collection by staff              | Redding Rancheria-Trinity Health Center            |
|  | Survey link through email                                                           | MCHD (Trinity Hospital)                            |
|  | Paper, Survey link through email, In-person survey collection                       | MCHD (Trinity Community Health Clinic)             |
|  | Survey link through email                                                           | Douglas City School                                |

**Trinity County Public Health  
ORAL HEALTH PROGRAM**

**2019 Needs Assessment Survey Distribution Sites**

|                                                                                              |                                                                                             |                                                                       |
|----------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
|                                                                                              | Survey flyer and & link through email, PowerPoint presentation                              | Rotary Club                                                           |
|                                                                                              | QR Code, link flyer                                                                         | Douglas City Community Board (Post Office)                            |
|                                                                                              | Paper, QR code flyer, In-person survey collection                                           | Douglas City Fire Hall (Food Commodities Distrib. Site, Soup Kitchen) |
| <b>East-Central Trinity -Mountain Valley Communities (Hayfork Peanut, Wildwood, Hyampom)</b> |                                                                                             |                                                                       |
|                                                                                              | Survey link through email, QR code flyer                                                    | Hayfork High School, Hayfork Elementary                               |
|                                                                                              | Paper, Survey link through email, QR code flyer, In-person paper & online survey collection | MCHD (Hayfork Community Health Clinic)                                |
|                                                                                              | In-person paper & online survey collection                                                  | Trinity County Fair                                                   |
|                                                                                              | Survey link FB Page                                                                         | Hayfork Parks & Recreation                                            |
|                                                                                              | Paper survey & survey link through email                                                    | Roderick Senior Center                                                |
|                                                                                              | Paper survey & survey link through email                                                    | Eskaton Senior Apartments                                             |
|                                                                                              | In-person Paper survey collection                                                           | Wildwood Inn & RV Park (Food Commodities Distr. Site)                 |
|                                                                                              | Survey link through email                                                                   | Hayfork School Readiness                                              |
| <b>Eastern Trinity (Lewiston)</b>                                                            |                                                                                             |                                                                       |
|                                                                                              | Paper surveys, flyers                                                                       | Moose Lodge                                                           |
|                                                                                              | Paper, Survey link through email, text message, QR code flyer                               | Day Care Centers/Providers in Lewiston                                |
| <b>Western Trinity (Down River Communities)</b>                                              |                                                                                             |                                                                       |
|                                                                                              | Paper, QR Code Flyer                                                                        | Junction City Store                                                   |
|                                                                                              | Online survey link through email                                                            | Junction City School                                                  |
|                                                                                              | QR code flyer                                                                               | North Fork Grange                                                     |
|                                                                                              | Paper surveys, Survey link through email                                                    | Burnt Ranch School                                                    |

Trinity County Public Health  
**ORAL HEALTH PROGRAM**

2019 Needs Assessment Survey Distribution Sites

|                                             |                                               |                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                             | Survey link through email                     | Burnt Ranch Playgroup                                                                                                                                                                                                                                                                                                                                           |
| <b>Media/Social Media/Listservs/Mailers</b> |                                               |                                                                                                                                                                                                                                                                                                                                                                 |
|                                             | Survey link                                   | Facebook Community Groups (You Know you're From Junction City if...; North Fork Grange; Trinity County Community FB page; Junction City Fire FB Page; Trinity County Events; Trinity County News and Alerts; Trinity County Alerts & Notifications; Trinity County HHS FB page, Hayforkers FB Group; Public Health, Trinity county Oral Health program webpages |
|                                             | Survey link                                   |                                                                                                                                                                                                                                                                                                                                                                 |
|                                             | Ad with QR code and survey links (12 weeks)   | Trinity Journal Newspaper                                                                                                                                                                                                                                                                                                                                       |
|                                             | Survey link email                             | County of Trinity (allusers)                                                                                                                                                                                                                                                                                                                                    |
|                                             | Survey Link Email                             | Trinity County Office of Education (allusers)                                                                                                                                                                                                                                                                                                                   |
|                                             | Survey Link Email; Survey Link Flyer          | Trinity Lumber Company (all users)                                                                                                                                                                                                                                                                                                                              |
|                                             | Survey Link email; Survey link, QR code flyer | Mountain Communities Healthcare District (all users)-Trinity Hospital, rural health clinics employees (Hayfork & Weaverville                                                                                                                                                                                                                                    |