

Humboldt County Oral Health Needs Assessment

Summary Findings



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

2018

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Humboldt County Oral Health Needs Assessment

Summary Findings

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REPORT ABSTRACT

In 2018, in collaboration with the Humboldt County Department of Health & Human Services- Public Health Branch, the California Center for Rural Policy (CCRP) conducted an oral health needs assessment for Humboldt County. CCRP collected primary data and reviewed secondary data to summarize the current oral health needs of Humboldt 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 dollars annually to the California Department of Public Health and local health departments across California.

ACKNOWLEDGEMENTS

This report was made possible by funding from the Humboldt County Department of Health & Human Services (DHHS) Public Health Branch (PHB) and in-kind support from Humboldt State University.

We specifically want to thank:

- Laura McEwen, Humboldt County DHHS Public Health Branch
- Humboldt County Department of Health & Human Services- Public Health Branch: Michele Stephens, Lara Weiss, Linda Villano, Emily Shears, Holly Baker, Marianne Hutchins and Catherine DeSantis
- Members of the Dental Advisory Group
- Members of the Humboldt County Oral Health Initiative Leadership Team
- Dr. Robert Berg, Dentist (Retired)
- Parents who participated in the oral health focus groups
- Hoopa Head Start, Paso y Paso, and Healthy Moms
- PDI Surgery Center: Viveka Rydell, Julie Tucker and Gustavo Sanchez
- Humboldt County Office of Education: Pennie Locklin and Tess Ives
- Open Door Community Health Centers: Cheyenne Spetzler and Sarah Ross
- Redwoods Rural Health Center: Tina Tvedt and Kathi Johnston
- K'ima:w Medical Center: Stephen Stake and Clara Clark
- Redwood Community Action Agency: Lorey Keele
- Northcoast Children's Services: Kathy Montagne
- CCRP Staff: Jan Bramlett, Connie Stewart, Isadora Sharon and Molly Noble
- Humboldt State University: Lisa Rossbacher, President
- Humboldt State University: Sponsored Programs Foundation

Suggested Citation:

Arledge, D. *Humboldt County Oral Health Needs Assessment*. California Center for Rural Policy, Humboldt State University. December 2018.



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EXECUTIVE SUMMARY

In 2018, in collaboration with the Department of Health and Human Services of Humboldt County, the California Center for Rural Policy (CCRP) conducted an oral health needs assessment to better understand the oral health status of residents in Humboldt County. 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 Humboldt County's residents, 2) use publicly available secondary data from local, state and national sources, and 3) identify key strengths and weaknesses of Humboldt County's oral health system of care.

Figure 1. Quick Facts About Humboldt County

Population	136,754
Percent of Residents Living in Poverty	21%
Overall Health Ranking	49 th out of 58 counties
Percent of Population Enrolled in Medi-Cal	37.4% (51,185 residents)
Number of Clinics that Accept Denti-Cal	4
Percent of Children Eligible to Receive Free or Reduced-Priced Meals at School	59% (10,946 children)
Percent of Residents on Denti-Cal with a Professional Teeth Cleaning in the Past Year	40.7%
Percent of Residents Living in Communities Without Access to Fluoridated Water	66% (90,794 residents)
Percent of Kindergarten Students with Untreated Decay	25.3% (1,787 children)

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

Key Findings

Humboldt County has a long history of multi-agency collaboration to address unmet oral health needs in the county. Unmet oral health needs persist despite these efforts and are in part due to systemic barriers that make it difficult for low-income and vulnerable populations to access preventive care.

Strengths of Humboldt County's Oral Health System of Care:

- Humboldt County has four Federally-Qualified Health Clinics (FQHCs) that accept Denti-Cal, a provider that treats children who require hospital-based dentistry (PDI Surgery Center in Sonoma County), a community-based non-profit that provides oral health education to classrooms across the county, Well-Child Dental Visits through one of the FQHCs and the Humboldt County Women, Infant, and Children (WIC) program, two mobile dental vans run by two FQHCs that visit school sites, and a dental assisting program offered at the local community college.

- Humboldt County has a Dental Advisory Group, an Oral Health Leadership Team, a dental association and a hygienist association.
- Humboldt County was awarded a Local Dental Pilot Project through the Dental Transformation Initiative of the California Department of Health Care Services.
- Humboldt County’s efforts to improve oral health have been supported by multiple local funders.

Weaknesses of Humboldt County’s Oral Health System of Care:

- The four FQHCs that accept Denti-Cal cannot meet the demand of 51,185 Denti-Cal enrolled residents.
- Private providers are unable to accept patients on Denti-Cal for a variety of reasons.
- Humboldt County residents are visiting the emergency department for dental conditions at a higher rate than the state of California for every age group with the exception of the 3-5 year-olds. For 18-34 year-old residents, the rate is almost 4 times higher than the state.
- More than 2/3 (66%) of Humboldt County residents do not have access to fluoridated water.
- One in four Humboldt County students entering kindergarten have untreated decay.
- In a seven year period, 830 children under the age of 15 received hospital-based dentistry. Those 830 children had 3012 fillings, 3406 crowns, 1503 root canals, and 2562 extractions. The vast majority of these children were Denti-Cal patients.
- There is a lack of data on the oral health status of adults in Humboldt County, and limited data on vulnerable populations such as seniors, those experiencing homelessness, and those with developmental disabilities, among others.

What Parents of Children on Denti-Cal Told Us:

- Oral health habits are established during childhood.
- Accessing oral health care can be intimidating and frustrating.
- Fear of the dentist and/or shame around poor oral health may prevent people from seeking care.
- Cavities are inevitable.

Recommendations

Access to Care

- Implement strategies to engage private dentists in providing care to low-income populations and advocate for state-level improvements to the Denti-Cal system.
- Explore opportunities to increase capacity of mid-level oral health professionals, and develop local career pathways to encourage youth to pursue oral health-related professions.

- Examine no-show trends and implement strategies to reduce the rate of no-shows at existing Denti-Cal providers to increase capacity to provide routine preventive care to more residents.
- Explore strategies to reduce emergency dental visits at clinics and emergency rooms and increase the percent of patients that receive routine preventive care across all age groups.

Cross-Agency Collaboration

- Conduct a feasibility study to clarify the number of additional clinics and providers necessary to meet the needs of the Denti-Cal population, including pursuing the possibility of expanding existing FQHCs or Public Health opening a Dental Clinic.
- Explore innovative efforts to provide oral health services outside of the four walls of the clinic, such as teledentistry, virtual dental home, additional mobile services, and/or services provided in school-based and community-based settings.
- Continue to expand collaborative efforts to:
 - Draw down federal and state resources to improve oral health
 - Advocate for allocation and prioritization of local resources toward oral health care and prevention
 - Explore innovative partnerships to provide integrated oral, medical and behavioral health services for low-income and vulnerable residents

Data Collection

- Continue to monitor Kindergarten Oral Health Assessment data and work to improve response rate. Work to identify resources and schools to participate in 3rd and 6th grade oral health assessments.
- Pursue opportunities to gather more data on the oral health status of the following populations:
 - Seniors
 - Pregnant Women
 - Residents Experiencing Homelessness
 - Individuals with Developmental Disabilities
 - Immigrant Families
 - More population-level data on the oral health status of adults

BACKGROUND

Scope of the Problem

The *U.S. General Surgeon's Report on Oral Health* (2000) outlined the importance of oral health to overall health with the following findings:

- The mouth is a portal of entry, as well as the site of disease for microbial infections, that affect overall health.
- Studies demonstrate association between periodontal disease and diabetes, cardiovascular disease, stroke, and adverse pregnancy outcomes.
- Diet, nutrition, sleep, psychological status, social interaction, school, and work are affected by impaired oral health.

According to the Institute of Medicine and National Research Council (Improving Access to Oral Health Care for Vulnerable and Underserved Populations, 2011), “Vulnerable and underserved populations face persistent and systemic barriers to accessing oral health care. Dental caries disproportionately affects vulnerable and underserved populations. Because good overall health requires good oral health, the unmet oral health needs of millions of Americans cannot be neglected.”

Dental disease is more prevalent in low-income families and other vulnerable populations in Humboldt County as well. According to CCRP's Rural Health Information Survey (RHIS) and *Research Brief No. 5: Oral Health Care Disparities in the Redwood Coast Region* (2010), respondents living in poverty were the least likely group to have their teeth professionally cleaned in the past year. Respondents who were uninsured or with Medi-Cal were significantly less likely to have their teeth cleaned in the past year. This population was also more likely to have never received or to have gone 5 or more years without professional teeth cleaning than those with private insurance. Additionally, respondents of color were less likely to have their teeth professionally cleaned than white respondents.

Efforts to Improve Oral Health in Humboldt County

In 1999 a group of community stakeholders in Humboldt County came together to create the Dental Advisory Group (DAG) in response to the limited availability of dental services for low-income residents. In 2001, the California Endowment funded the Circle of Smiles initiative which included an education program, an Oral Health Coordinator, sealant clinics, and the expansion of the dental van and Burre Dental Clinic through the Open Door Community Health Center. Since the Circle of Smiles funding ended in 2005, the DAG has continued to network to sustain these efforts.

In 2002, Humboldt County began offering a classroom-based oral health education program called TOOTH (Teaching Oral Optimism Throughout Humboldt). The program provides age-appropriate oral health curriculum to preschool and elementary classrooms county-wide.

A 2010 report, *Specialty Access on the North Coast: Mental, Dental, and Medical Access*, cited 41 adjusted full-time equivalent (FTE) general dentists, but only 5.2 FTE to serve low-income patients. This translates to 4,808 low-income patients per dentist, a ratio that qualifies Humboldt County as a Dental Health Professional Shortage Area.

In 2007, the Humboldt County Department of Health & Human Services- Women, Infant and Children (WIC) Division began offering Well Child Dental Visits (WCDV) through the WIC clinics. Open Door Community Health Centers also began offering WCDV as well.

Additionally, in 2012, the *Children's Dental Strategic Plan* was produced by the California Center for Rural Policy, followed by the 2014 report *Healthy Teeth for Life: Assessing Children's Oral Health*.

In 2014 the Humboldt County Department of Health & Human Services (DHHS) Public Health Branch (PHB) formed the Oral Health Leadership Team (OHLT), a working group of agency leaders with a goal to improve oral health in Humboldt County. In 2015-16 the DAG branded Humboldt County's oral health improvement efforts as "Smile Humboldt."

In 2017, Humboldt County DHHS PHB was awarded one of fifteen Local Dental Pilot Projects through the Dental Transformation Initiative led by the California Department of Health Care Services. Humboldt County's project provides dental coaches for families with children on Denti-Cal at high risk of dental disease and innovation focused on medical-dental integration.

In 2016 the California Healthcare, Research and Prevention Tobacco Tax Act (Proposition 56) was approved by voters and provided \$30 million dollars annually to the California Department of Public Health. The purpose of this funding is to educate about, prevent, and treat dental disease in California. In 2018 DHHS PHB was awarded funds through Proposition 56.

Mission, Vision, Values & Common Themes

The California Center for Rural Policy worked with DHHS PHB to review meeting minutes and previous oral health reports to revisit and fine-tune the mission, vision and values of the Oral Health Leadership Team, which were approved by the group in July 2018. The following sources of information were used:

- Humboldt County Oral Health Leadership Team minutes, 2014-2018
- Humboldt County Dental Advisory Group minutes, 2012-2018
- *Humboldt County Children's Dental Strategic Plan*, 2012
- *Humboldt County Healthy Teeth for Life Report*, 2014
- Focus Groups with Parents of Children on Medi-Cal, 2017-2018
- Focus groups with OHLT & DAG, 2018

Mission Statement

The Oral Health Leadership Team brings multidisciplinary leadership to coordinate data-driven system change to improve oral health for all, especially low-income Humboldt County residents.

Vision Statement

Our communities thrive because oral health is valued as essential to well-being. Equitable opportunities ensure that everyone has optimum oral health

Values

- Oral health and overall health are linked.
- People should have equal and sustainable access to preventive and restorative dental care.
- People should have equal, timely access to relevant oral health information.
- We value evidence-informed decision making to improve oral health in our community.
- We value collaboration and coordination across all agencies and organizations that work to improve the oral health of our community.

In addition, the following common themes were identified. These themes served as the framework for the focus groups with OHLT and DAG, the results of which are discussed in the summary of primary data section.

Common Themes/Concerns

1. Access to oral health care for low-income and vulnerable population
2. Access to timely and relevant oral health education
3. Anxiety and fear around oral health care
4. Behaviors & habits that contribute to poor oral health
5. Resistance and/or lack of information about fluoride

METHODS

A combination of primary and secondary data sources were utilized for the report. Primary data was collected from a total of three sources: 1) focus groups, 2) surveys, and a 3) problem analysis activity completed by the Dental Advisory Group (DAG) of Humboldt County.

In the spring of 2016, the oral health parent survey was developed by using a modified version of a survey developed by the Horowitz Center for Health Literacy at the University of Maryland, College Park. The survey tool was designed to measure parents' oral health knowledge, opinions and understanding of how to prevent dental caries. During this time focus group questions were also developed. To guide the discussion, focus group questions consisted of oral health care behaviors, how to prevent cavities and access to care.

A total of four focus groups were conducted by CCRP with the help of St. Joseph Hospital- Paso a Paso, Department of Health & Human Services- Healthy Moms, and Hoopa Head Start. A total of 36 parents participated in the focus groups. Parents participating in the focus groups also completed the parent survey. Focus groups and surveys were conducted with parents of children aged 0-5 enrolled in Medi-Cal.

Figure 2. Summary of Humboldt County Oral Health Focus Groups

Focus Group Partner	Type of Focus Group	Number of Participants	Date of Focus Group
St. Joseph Hospital- Paso a Paso Fortuna	Parents of children on Medi-Cal	10	June 9, 2016
St. Joseph Hospital- Paso a Paso Eureka	Parents of children on Medi-Cal	11	July 13, 2016
Department of Health & Human Services- Healthy Moms	Parents of children on Medi-Cal	11	June 23, 2016
Hoopa Head Start	Parents of children on Medi-Cal	6	March 28, 2017
Oral Health Leadership Team	Agency leaders	11	July 9, 2018
Dental Advisory Group	Key stakeholders & community partners	24	August 14, 2018

Focus groups were also conducted with the Humboldt County Oral Health Leadership Team (OHLT) and the Dental Advisory Group (DAG) in July and August of 2018. Additionally, an oral health data inventory survey was completed by OHLT and DAG members in February-April of 2018.

In March and May of 2016 CCRP gathered input from the Humboldt County Dental Advisory Groups through two problem analysis activities. There were a total of 22 completed problem analysis for activity 1 and 15 completed problem analysis for activity 2.

All focus groups conducted were audio-recorded in order to capture word-for-word responses from the participants. Audio-recordings were transcribed and formatted in a Microsoft word document.

The following secondary data sources were analyzed for the needs assessment:

- California Department of Education, Free and Reduced Price Meal Data
- Humboldt County Office of Education Kindergarten Oral Health Assessment data
- PDI Surgery Center (PDI) data on Humboldt County children

- Partnership Health Plan data on Humboldt County residents enrolled in Medi-Cal
- Humboldt County Sheriff’s Office- Correctional Facility
- California Department of Health Care Services Open Data Portal
- Northcoast Children’s Services 2017-18 Community Needs Assessment
- Redwood Community Action Agency TOOTH Program data

RESULTS

System of Care for Low-Income and Vulnerable Populations

Humboldt County has a number of organizations and agencies that provide oral health services and/or support for low-income and vulnerable populations. They include:

- Federally-Qualified Health Care Clinics (FQHC)- Direct services
- Pediatric Dental Institute (PDI)- Direct services
- Humboldt County Oral Health Leadership Team (OHLT)- System coordination
- Humboldt County Dental Advisory Group (DAG)- System coordination
- Humboldt-Del Norte Dental Society- Professional association
- California Dental Hygienists’ Association- Six Rivers- Professional association
- Redwood Community Action Agency (RCAA)- Direct services (education)
- Humboldt County Department of Health & Human Services (DHHS)- System coordination and direct services
- Humboldt County Sheriff’s Office- Correctional Facility- Direct services
- Humboldt State University (HSU) & College of the Redwoods (CR)- Education for future oral health professionals & direct services at CR’s Dental Health Center
- North Coast Grantmaking Partnerships- System coordination and direct services

Federally-Qualified Health Centers (FQHC)

There are four FQHCs in Humboldt County that provide oral health services to individuals on Medi-Cal: Open Door Community Health Centers, K’ima:w Dental Clinic, Redwoods Rural Health Center, and United Indian Health Services. These four clinics are the only providers with dentists that provide services to individuals on Denti-Cal in Humboldt County.

Open Door Community Health Centers

Starting as a single clinic in 1971, Open Door now has 13 medical clinics across Humboldt and Del Norte counties serving more than 55,000 patients a year. Open Door Community Health Centers believes in providing quality medical, dental and mental health care and health education to all people on California’s North Coast, regardless of financial, geographic or social barriers. Burre Dental Center serves a large majority of Denti-Cal patients in Humboldt County. The clinic has a partnership with the School of Dentistry at New York University Langone in New

York that places fourth-year students and post-graduate residents at the clinic. The Burre Dental Clinic operates a mobile dental van that provides oral health services to students at approximately 3-4 Humboldt County schools each year. Burre Dental Clinic also holds a monthly Well Child Dental Visit event for children 0-4 and their families. Open Door will be opening a dental clinic in Fortuna in the very near future. Open Door is also implementing medical-dental integration by having a Registered Dental Assistant conduct oral health assessments and referrals during routine medical visits for children.

K'ima:w Medical Center

K'ima:w Medical Center has been in operation since 1974. K'ima:w means “good medicine” in the Hoopa language. The medical center is accredited by The Joint Commission, an independent, not-for-profit national body that oversees the safety and quality of health care and other services provided in accredited organizations. K'ima:w provides high-quality health care to the Native American people and all others who may seek services in the Hoopa Valley Indian Reservation and the surrounding area. They have three locations in Hoopa, a general medical and dental facility, one focused on senior nutrition and another on child and family services.

Redwoods Rural Health Center (RRHC)

RRHC serves residents of southern Humboldt County and operates with an elected Board of Directors. The licensed, certified and experienced team at Redwoods Rural Health Center provides responsive, preventive, high quality primary health care services to the community regardless of social or economic status. The Dental Clinic currently has three dentists on staff, one of whom is the Director, six dental assistants, two front desk assistants and an office manager. The Dental Clinic also operates a mobile dental van that provides oral health services to students at schools in southern Humboldt County.

United Indian Health Services (UIHS)

In 1970 UIHS incorporated as a nonprofit, first offering community outreach services. The first on-site offerings were dental services in 1972. UIHS gradually expanded services to nearly every large town within Humboldt County, and served tribal members from every Rancheria and Reservation in Humboldt and Del Norte counties. Mobile services reach areas with no electricity or phones. UIHS currently offers services at the Potawot Health Village and seven other tribal health program outpatient clinics with medical, dental, behavioral health, vision and community health and welfare services across Humboldt and Del Norte counties.

PDI Surgery Center (PDI)

The Pediatric Dental Initiative (PDI) of the North Coast, now PDI Surgery Center, was formed in 2001 by a group of health providers, social services programs, child advocates, and public health programs from the counties of Sonoma, Mendocino, and Lake. According to their website (www.pdisurgerycenter.org), PDI is the only non-profit pediatric dental surgery center in the

United States focused on treating children with severe tooth decay under general anesthesia. The group’s mission is to “maintain a sustainable dentistry resource that will serve the low income children of Northern California.” In 2008 PDI opened in Windsor, California and serves children and families from 30 counties across Northern California, including Humboldt County. Humboldt County is approximately a three to six hour drive by car to PDI.

Humboldt County Oral Health Leadership Team (OHLT)

The Humboldt County Oral Health Leadership Team began meeting in January of 2014 and continues to meet on a quarterly basis. The current members of OHLT are agency leaders and executive directors. The current goals of OHLT are:

1. Improve access to dental homes and continuity of care for vulnerable and low-income populations
2. Improve monitoring of population’s oral health state and track key performance measures to track progress on a county-wide level.
3. Sustain networking and collaboration to improve coordination, advocacy, collective problem-solving, and innovation.
4. Improve oral health and overall health by creating a culture shift around the importance of preventive oral health care and address social determinants of overall health including oral health.

Humboldt County Dental Advisory Group (DAG)

The Humboldt County Dental Advisory Group began meeting in 1999 and continues to meet on a quarterly basis. DAG members are front-line service providers from a wide diversity of community-based providers, agencies and organizations. In addition to providing support for county-level strategic planning around oral health, DAG members coordinate outreach events and activities and participate in advocacy efforts to improve oral health in Humboldt County.

Humboldt-Del Norte Dental Society

The Humboldt- Del Norte Dental Society is an association of dental professionals serving the population of Humboldt and Del Norte counties. The mission of the organization is to serve the dental needs of all patients, improve the dental health of the community, maintain and improve professional knowledge and skills, and share new information with colleagues.

California Dental Hygienists’ Association- Six Rivers

The California Dental Hygienists’ Association- Six Rivers is an association of dental hygienists in Humboldt and Del Norte counties. The mission of the association is to advance the art and science of dental hygiene, increase the public’s awareness of the cost effective benefits of prevention, ensure access to quality oral health care, promote the highest standards of dental hygiene education, licensure and practices, promote dental hygiene research, and promote the interests of dental hygienists.

A Registered Dental Hygienist in Alternative Practice (RDHAP) is a licensed registered dental hygienist with specialized training that holds a specific license to allow him or her to practice in settings outside of the traditional dental office. RDHAPs can become Denti-Cal providers. Humboldt County's LDPP has six scholarships for Registered Dental Hygienists (RDH) to become RDHAPs and Denti-Cal providers.

Redwood Community Action Agency (RCAA)

RCAA is a locally based, private, nonprofit organization that provides a wide range of services to low- and moderate-income residents of Humboldt County. RCAA is the lead agency for the TOOTH (Teaching Oral Optimism Throughout Humboldt) Program, which began in 2002 as an AmeriCorps program with the California Conservation Corps. The TOOTH program provides oral health education in the classroom setting for preschool and elementary schools across Humboldt County. TOOTH also provides oral health assessment, plaque finding, and fluoride varnish in school-based settings.

RCAA was the recipient of a 2015-2018 Rural Health Care Services Outreach Grant from the Health Resources and Services Administration (HRSA). As part of this grant RCAA staff provided the following preventive oral health services to approximately 400 children:

- Two annual oral health screenings by a registered dental professional for Humboldt County's low-income students attending Early Head Start, Head Start, and State preschools.
- Two annual fluoride varnish applications by a registered dental professional for the population listed above.

Humboldt County Department of Health & Human Services (DHHS)

The Public Health Branch of Humboldt County DHHS leads several oral health prevention programs. The Women, Infant and Children (WIC) program offers the Well Child Dental Visit (WCDV) which is funded by the Maternal, Child and Adolescent Health (MCAH) division. The WCDV is offered at various communities in Humboldt County. It is held in Fortuna once a month on the first Thursday of every month, in Eureka once a month on the 2nd Wednesday of every month and on the 4th Wednesday of every other month, and in McKinleyville bi-monthly on the 4th Wednesday of every other month.

The Safe Care program through Public Health Nursing provides oral health education during the health session of the Safe Care curriculum. Safe Care served 57 families in 2016, 46 families in 2017 and 22 families in 2018.

The Child Health and Disability Program (CHDP) is a health promotion and disease prevention program serving infants, children and teens between the ages of 0 and 21 with Medi-Cal. In 2017-18, CHDP made a total of 143 dental referrals. Seventy-nine of those referrals scheduled

or kept their dental appointment, and 62 referrals were lost to follow-up before the dental appointment was scheduled.

Public Health also houses the county's oral health program which convenes DAG and OHLT. Public Health was the recent recipient of a Local Dental Pilot Project (LDPP) through the Dental Transformation Initiative. Humboldt County's LDPP provides care coordination and support for families on Medi-Cal whose children are at high-risk of dental disease. Humboldt County's LDPP is also working with local FQHCs to improve medical-dental integration.

Humboldt State University (HSU) & College of the Redwoods (CR)

Humboldt State University (HSU) is a public institution and part of the 23-campus California State University system. HSU was founded in 1913 and is located in Arcata, CA. HSU has a pre-professional health program that supports students interested in dental school. HSU also has a Pre-Dental Oral Health outreach club.

College of the Redwoods (CR) was established in 1964 as a community college serving students in the counties of Humboldt, Del Norte, Trinity and Mendocino. CR offers an Associate of Science degree in Dental Assisting and a Certificate of Achievement in Dental Assisting. CR works with the local dental community to assist graduates in gaining employment. In addition, CR's Dental Health Center provides reduced cost dental services performed by a licensed dentist and registered dental hygienist, and assisted by students enrolled in the Dental Assisting Program.

For students interested in becoming a Registered Dental Hygienist, the closest educational institutions are Santa Rosa Junior College (4 hours by car) or Shasta College in Redding (3 hours by car).

Humboldt County Sheriff's Office- Correctional Facility

There is one dentist who works eight hours per week to serve the Humboldt County Correctional Facility. The dentist treats emergency dental issues while individuals are in custody.

North Coast Grantmaking Partnership

A variety of local funders have provided past and current support for efforts to improve oral health in Humboldt County. Local funders have included:

- Union Labor Health Foundation (now Humboldt Health Foundation)
 - Dental Angel Fund provides small grants to meet immediate dental health-related needs of Humboldt County residents.
 - Dental Travel Fund provides small grants to assist families in travel costs when hospital-based dentistry is needed through PDI.
- First 5 Humboldt
- Mel and Grace McLean Foundation

- Smullin Foundation
- St. Joseph Health- Humboldt

Summary of Focus Groups, Surveys, and Other Primary Data

Focus Group Results

There were 38 total parent participants, 11 agency leaders, and 24 community partners that participated in focus groups between 2016 and 2018. A total of 73 individuals participated in focus groups. Focus group scripts were different for each participant type. Parent focus group questions covered topics including oral health care behaviors, how to prevent cavities, and access to care. The focus groups with key community stakeholders centered around five common concern areas illustrated in the below graphic.

Access to oral health care for low-income & vulnerable populations

Access to timely and relevant oral health education

Anxiety and fear around oral health care

Behaviors & habits that contribute to poor oral health

Resistance to & lack of information about fluoride



Figure 3. Summary of Focus Group Participants

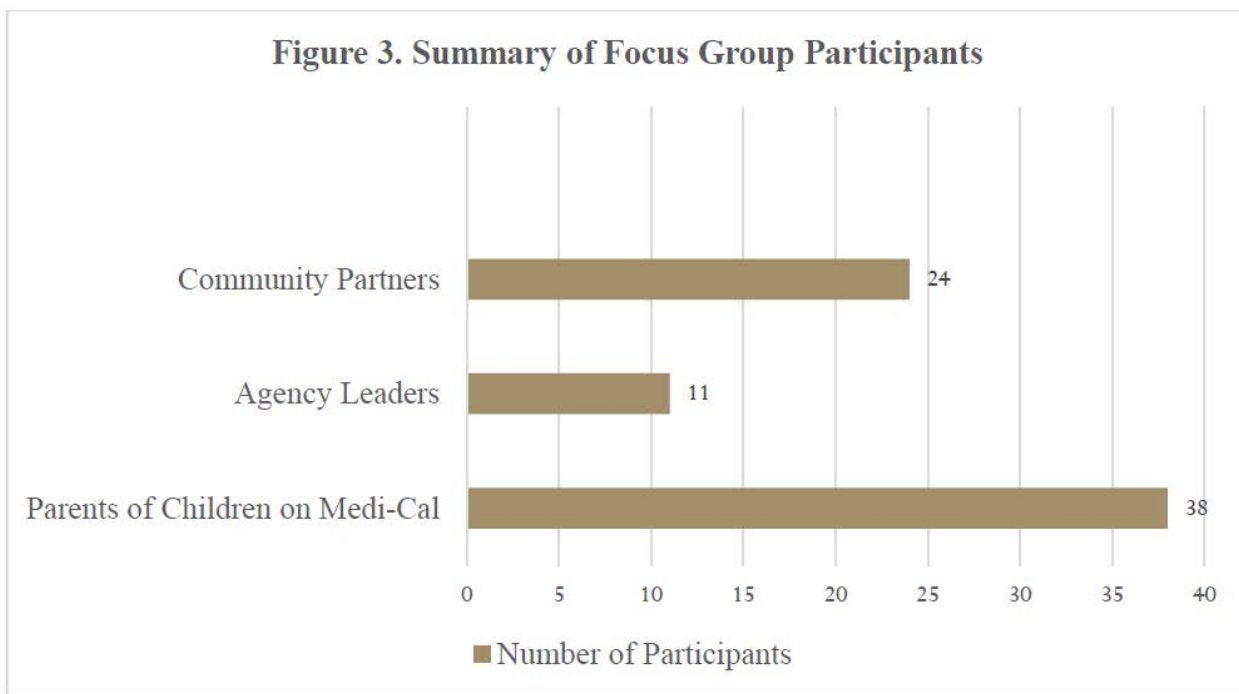


Figure 3 summarizes the type of focus group participants that provided input for the oral health needs assessment.

The photos are from a meeting of the Humboldt County Oral Health Leadership Team. OHLT members participated in a focus group and multiple activities to inform the needs assessment.



Parent Focus Groups

Qualitative data analysis of the parent focus groups revealed seven overarching themes. For several of the key themes, quotes from parents are included.

1. Poor oral health impacts one's overall health & self-esteem
2. Negative oral health experiences shape oral health habits
3. Oral health habits are established during childhood
4. Timely oral health education is critical
5. Accessing oral health care can be intimidating to parents
6. The environment of the dentist's office is important to parents
7. Fear of the dentist can be passed from parent to child

Theme: Poor oral health impacts one's overall health and self-esteem.

Across focus groups, participants described how having poor oral health impacts one's overall health. Participants discussed how poor oral health results in a range of poor health outcomes. For example, participants mentioned how poor oral health results potentially in: pain, fevers, and inability to eat certain foods.

Some quotes from parents include:

“It can mess up your speech. It can cause you pain, and you don't eat right.”

“So, I have very poor teeth now...It's so embarrassing, so embarrassing.”

“It has a lot to do with self-esteem...it is embarrassing and painful to smile...it is hard to look for a job.”

Theme: Negative oral health experiences shape oral health habits.

“There was one time that I visited the dentist when I was little, and the dentist really scared me. He put the shot behind his back and my mom told him that I was really scared...I remember that it was the last time I remember ever seeing the dentist.”

“When I was in 6th grade I got braces, I remember my mom crying because even though we had dental insurance it covered half, so my dad paid like \$2500. I remember my mom crying because she was so upset, because she didn’t think that she would be able to afford it.”

Theme: Oral health habits are established during childhood.

Many parents reflected back on the oral health habits they had during their own childhood. Some parents reported that they did not have good role models when they were growing up to show them how to have good oral health.

“Well, my parents never made me brush my teeth, so I have a hard time remembering to brush my teeth.”

“My mom never made us brush our teeth when we were little, or never visited a dentist ever.”

Theme: Timely oral health education is critical.

“My mom didn’t know that she was supposed to take us to the dentist. I went for the first time when I was eight, so like educating, letting them know that taking them sooner is good.”

“A lot don’t know what a cavity truly means. What is a cavity?”

Theme: Accessing oral health care can be intimidating to parents.

“At the end of the appointment they say, ‘call in July to schedule an appointment in October.’ So if I forget, they get mad ‘why didn’t you bring your child, you know you had to, why didn’t you?’ I don’t say anything just not be rude to him.”

“I visited a dentist two years ago and they told me that I needed a \$5000 treatment and I didn’t have \$5000 and I didn’t have any insurance that would cover me. I said ‘well, next time’ because I didn’t have all that money.”

“I had a tooth that was hurting so I went to the dentist and then I got the okay to do the x-ray and then they wanted to do the root canal, and I had to go to the OB and get the okay to do the root canal.”

Focus Groups with Agency Leaders and Community Partners

As discussed above, the two focus groups with agency leaders and community partners at the OHLT and DAG meetings focused on five common themes. Focus group results are discussed in the context of these themes.

Figure 4. Access to Oral Health Care for Low-Income and Vulnerable Populations

	Concerns	
Lack of providers that accept Denti-Cal	Lack of pediatric dentists	Aging out of current dentists
Lack of local specialty care	Individuals that only go to the dentist when in pain	High no-show rates at clinics that accept Denti-Cal
Some residents have to travel significant distance to access care	Medicare doesn't cover oral health	Clinics that accept Denti-Cal are highly impacted; some cannot accept adult patients
	Opportunities	
Identify local dentists who could serve high-need pediatric patients	Embed tooth brushing in daily school activities & provide services at school sites	Promote the use of silver diamine fluoride to arrest tooth decay
Explore capacity of alternative providers (RDHAP, Dental Therapists)	Seek transportation options to help residents access care	Actively recruit dental professionals to work in Humboldt County
Develop local career pathways for dental assistants and registered hygienists	Encourage local dentists to "adopt a school" or volunteer services for Denti-Cal patients	Implement best practices to reduce no-show rates at clinics that accept Denti-Cal
	Populations of Concern	
Adults on Denti-Cal	Seniors	Families with language barriers
Individuals with developmental disabilities	Immigrant families	Residents experiencing homelessness
Residents in outlying areas	Pregnant women	Families experiencing inter-generational trauma

Source: Oral Health Leadership Team and Dental Advisory Group Focus Groups, 2018

Figure 5. Access to Timely and Relevant Oral Health Education

	Concerns	
Improve knowledge of best practices for infant oral health and importance of baby teeth	Improve knowledge about oral bacteria passing from one person to another	People don't know that oral health and overall health are linked
Parents need to assist children with brushing until age 8	Parents need to monitor children's brushing technique	People need oral health hygiene instruction from multiple sources
	Opportunities	
Improve oral health education at the pediatrician's office & ensure consistent messages	Identify co-occurrence of cardiac and other illnesses with poor oral health	Educate pregnant women about children's oral health needs
Educate families and other providers about best practices for good oral health	Link nutrition education & oral health education efforts	All staff can be educators
	Messages Most Relevant to Populations of Concern	
How to read labels on food & drink regarding sugar content	How grazing all day on unhealthy foods can affect teeth	Make children's books about oral health available in places where families are
Brush twice a day and floss every day	How to brush and floss your child's teeth	Use of fluoride to promote good oral health

Source: Oral Health Leadership Team and Dental Advisory Group Focus Groups, 2018

“When we clean the pacifier or the spoon with our mouth and then we put it in their mouths, we pass the bacteria that causes cavities in our children.”

Parent, Humboldt County

“Brush your teeth at least twice a day, and use dental floss.”

Parent, Humboldt County

Figure 6. Anxiety and Fear Around Oral Health Care

	Concerns	
Those who have had negative oral health experiences in the past may avoid care	Children with special needs or behavioral issues may have increased anxiety	Waiting rooms and waiting may make anxious patients more anxious
Patients may not disclose their fear and anxiety to providers	Patients may be very anxious about the cost of dental care	Some patients may feel very vulnerable in the dental chair
	Opportunities	
Get children used to being in a dental chair in fun ways	Make waiting rooms fun and/or relaxing	Identify patients who are anxious or fearful
Identify what patients are fearful about and discuss those fears	Acknowledge that fear and anxiety are powerful in influencing behavior	Messaging that emphasizes the fun and positive side of good oral health
	Populations Most Affected by Anxiety and Fear Around Oral Health	
People with previous negative experiences	Those who haven't been to the dentist in a long time	Those who have limited financial resources
Those who have experienced trauma	Individuals whose parents are afraid of the dentist	Those who have experienced or are dealing with addiction

Source: Oral Health Leadership Team and Dental Advisory Group Focus Groups, 2018



Figure 7. Behaviors & Habits that Contribute to Poor Oral Health

	Concerns	
Access to and affordability of healthy foods	Poor and/or inconsistent daily oral hygiene habits	Providing sweets and sugar as a reward for good behavior
Unhealthy diets and consumption of sugar-sweetened beverages	Smoking and substance use	Eating throughout the day
	Messaging Opportunities	
Campaign that promotes drinking water	Brushing teeth after snacks and meals in school settings	Brushing teeth after eating or drinking sugary products
Supply toothbrushes with candy at Halloween	Free or low cost oral health supplies for all	Establishing good oral health habits at a young age
	Desired Behaviors & Habits	
Daily brushing and flossing	Healthy diets	Drink lots of water
Cleanings and exams at dentist twice a year	Limited consumption of sugary products	Routines that promote good oral health at home, school and work

Source: Oral Health Leadership Team and Dental Advisory Group Focus Groups, 2018

Figure 8. Resistance to and Lack of Information about Fluoride

	Concerns	
Only three communities have access to fluoridated water	Resistance to fluoride; a belief that fluoride is bad for you	Lack of information about fluoride in general
	Messaging Opportunities	
What you can do if you don't live in area with fluoridated water	Address anti-fluoride propaganda strategically	Provide more basic information about the link between fluoride and good oral health

Source: Oral Health Leadership Team and Dental Advisory Group Focus Groups, 2018

Survey Results

Surveys were conducted with parents of children on Medi-Cal and with the Oral Health Leadership Team and the Dental Advisory Group.

Parent Survey Findings

Parents who participated in the focus groups also completed an oral health survey. Thirty-eight parents completed surveys. Key findings are summarized below.

- Thirty-nine (39) percent of parents thought that white spots on the child’s front teeth were an early sign of tooth decay. Another 20% thought that pain in the mouth was an early sign of tooth decay. Thirty-two (32) percent indicated that black or brown spots on the child’s front teeth were an early sign of tooth decay.
- Seventy (70) percent of parents thought that all children develop tooth decay.
- Seventy-six (76) percent of parents said they always have toothbrushes, toothpaste and floss in their home.
- Thirty-five (35) percent of parents reported being very sure that they can prevent their child’s teeth from getting cavities.
- Thirty-six (36) percent of parents reported they did not have a regular dentist, and 32% reported that their child had not been seen by a dentist in the past 12 months. Additionally, 65% of parents reported their most recent teeth cleaning was more than one year ago, and 19% hadn’t had a cleaning in more than five years.

Oral Health Inventory with OHLT & DAG

Twenty-five community partners and agency leaders from OHLT & DAG completed an oral health inventory survey in 2018. The purpose of the survey was to understand the depth and breadth of work related to oral health in Humboldt County.

Oral health services are being delivered in the following settings. Respondents were asked to check all settings in which their agency or organization works.

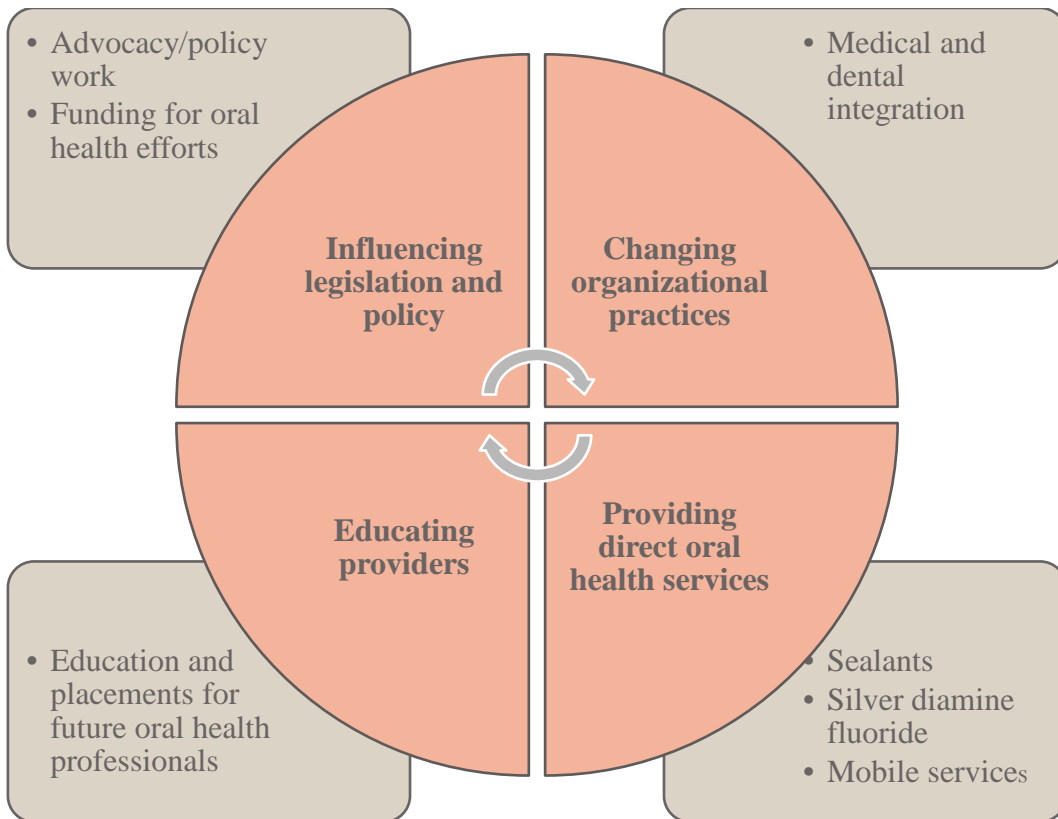
- Clinics (35.7% of respondents)
- Mobile van (14.3% of respondents)
- Homes (28.6% of respondents)
- Community-based settings (39.3% of respondents)
- Schools (57.1% of respondents)

Figure 9 illustrates the types of professionals that provide both direct services and support services for oral health activities in Humboldt County. These are professionals that work in agencies and/or organizations that participate in DAG and/or OHLT.

Figure 9. Types of Professionals Provide Direct and Support Services for Oral Health Work in Humboldt County

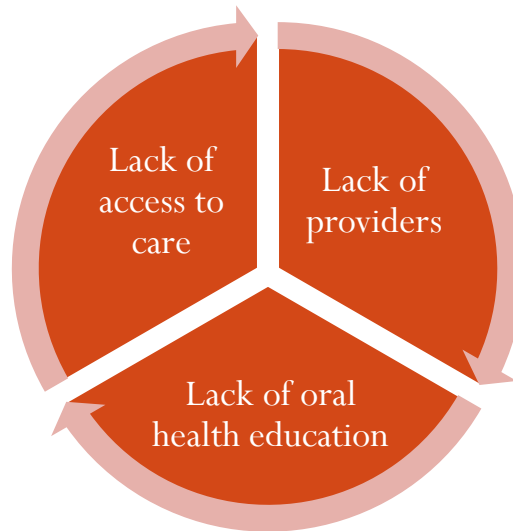
Direct Oral Health Services	Support Services for Oral Health Activities
Type of Professional	Type of Professional
Dentists	Leadership Team
Registered Dental Hygienists	Educators
Registered Dental Assistants	Case Managers
Community Health Outreach Workers	Administrative Support Staff
Nurses	Analysts and/or Researchers
Medical Office Assistants	Budget Specialists

Respondents were also asked to check services or activities that their organization was currently involved in. Those services and activities that were being done by the fewest percentage of respondents may be possible areas for expansions and opportunities for future focus. They are listed in the following graphic.



Problem Analysis Results

Twenty-two members of the Dental Advisory Group participated in a problem analysis activity in March and May of 2016. Members were asked to list their top three concerns related to oral health in Humboldt County.



Members were asked to give local evidence that verifies the concerns based on their expertise in working with low-income Humboldt County residents.

Figure 10. Evidence to Support Oral Health Concerns in Humboldt County

Concern 1: Lack of access to care

Evidence:

- Long wait times for appointments
- Clinics are not able to accept adult patients
- Patients lack access to transportation

Concern 2: Lack of providers

Evidence:

- Lack of providers that accept Medi-Cal
- Lack of pediatric dentists and other specialty care
- Lack of clinics in remote rural areas

Concern 3: Lack of education

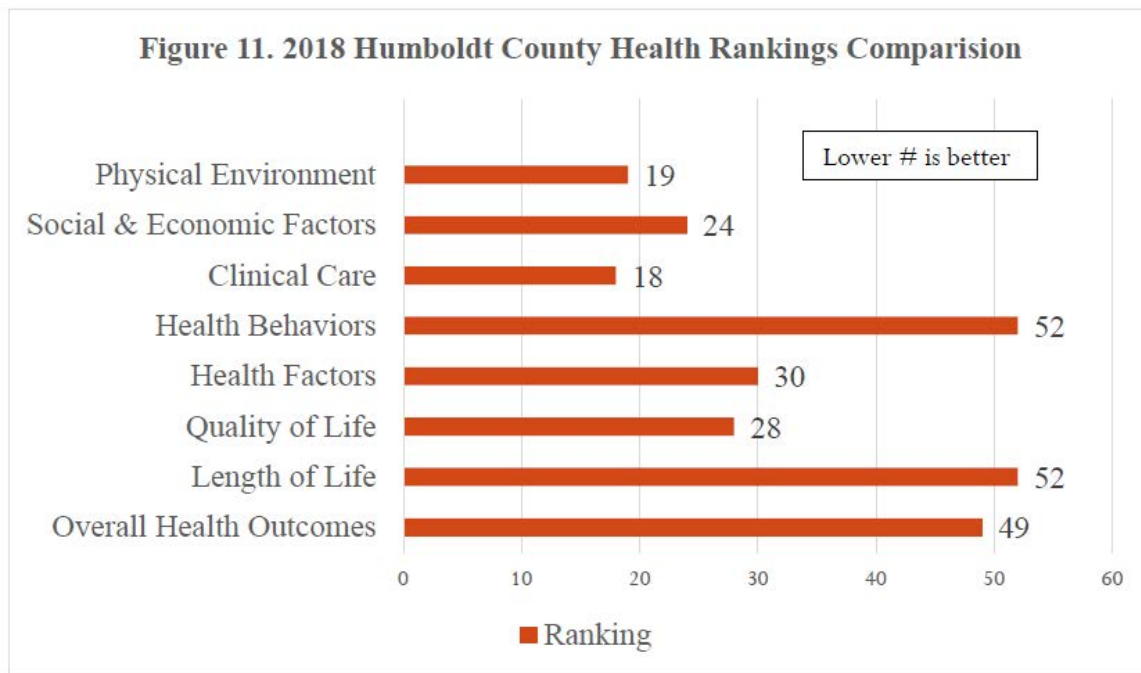
Evidence:

- Parents lack knowledge of how to prevent tooth decay in infants and children
- Lack of knowledge about importance of daily brushing and flossing routines
- Lack of knowledge of the link between sugar and tooth decay

Summary of Secondary Data

Overall Health in Humboldt County

Humboldt County is home to 136,754 residents (U.S. Census, 2017 estimate). Approximately 21% of Humboldt residents are living in poverty (2012-2016 American Community Survey) compared to 15.8% of residents in the state of California. The U.S. Census reports that 83.5% of residents are White, 11.7% are Hispanic or Latino, 6.3% are American Indian and Alaska Native, and 5.6% are two or more races. Humboldt County ranked 49th out of 58 California counties for overall health outcomes.



Source: 2018 Robert Wood Johnson Foundation Health Outcomes. Note: Lower # is better.

The California Medical Assistance Program (Medi-Cal) is California's Medicaid program serving low-income individuals. Figure 12 represents the number of Humboldt County residents enrolled in Medi-Cal by age. Approximately 37.4% of the overall population in Humboldt County are residents enrolled in Medi-Cal. The U.S. Census estimates that 8.3% of the county's population does not have health insurance.

Figure 12. Humboldt County Medi-Cal Eligibility as of 5/3/2016

Age	Member Count	Percentage
0-1	2,047	4.0%
2-4	3,045	5.95%
5-10	5,963	11.65%

Age	Member Count	Percentage
11-14	3,351	6.55%
15-19	3,757	7.34%
20-24	4,121	8.05%
25-44	16,283	31.81%
45-64	10,152	19.83%
65+	2,466	4.82%
Sum	51,185	

Source: Partnership Health Plan of California, 2016.

According to the California Department of Education, 59% or 10,946 children enrolled in Humboldt County schools were eligible to receive free or reduced-price meals (2017-18). Figures 13 & 14 illustrate the number and percent of students eligible for FRPM by school district.

Figure 13. Humboldt County 2017-18 Free & Reduced Price Meal (FRPM) Eligibility

District	Grades	Enrollment	FRPM Count	% Eligible
Arcata Elementary	K-8	1087	576	52.9%
Blue Lake Union Elementary	K-8	185	120	64.9%
Bridgeville Elementary	K-8	26	22	84.6%
Cuddeback Union Elementary	K-8	143	72	50.3%
Cutten Elementary	K-6	601	269	44.7%
Eureka City Unified	K-12	3869	2730	70.6%
Ferndale Unified	K-12	499	269	53.9%
Fieldbrook Elementary	K-8	151	79	52.3%
Fortuna Elementary	K-8	1347	919	68.2%
Fortuna Union High	9-12	1080	566	52.4%
Freshwater Elementary	K-8	354	147	41.5%
Garfield Elementary	K-6	62	12	19.4%
Humboldt County Office of Education	K-12	439	223	50.8%

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

Figure 14. Humboldt County 2017-18 Free & Reduced Price Meal (FRPM) Eligibility

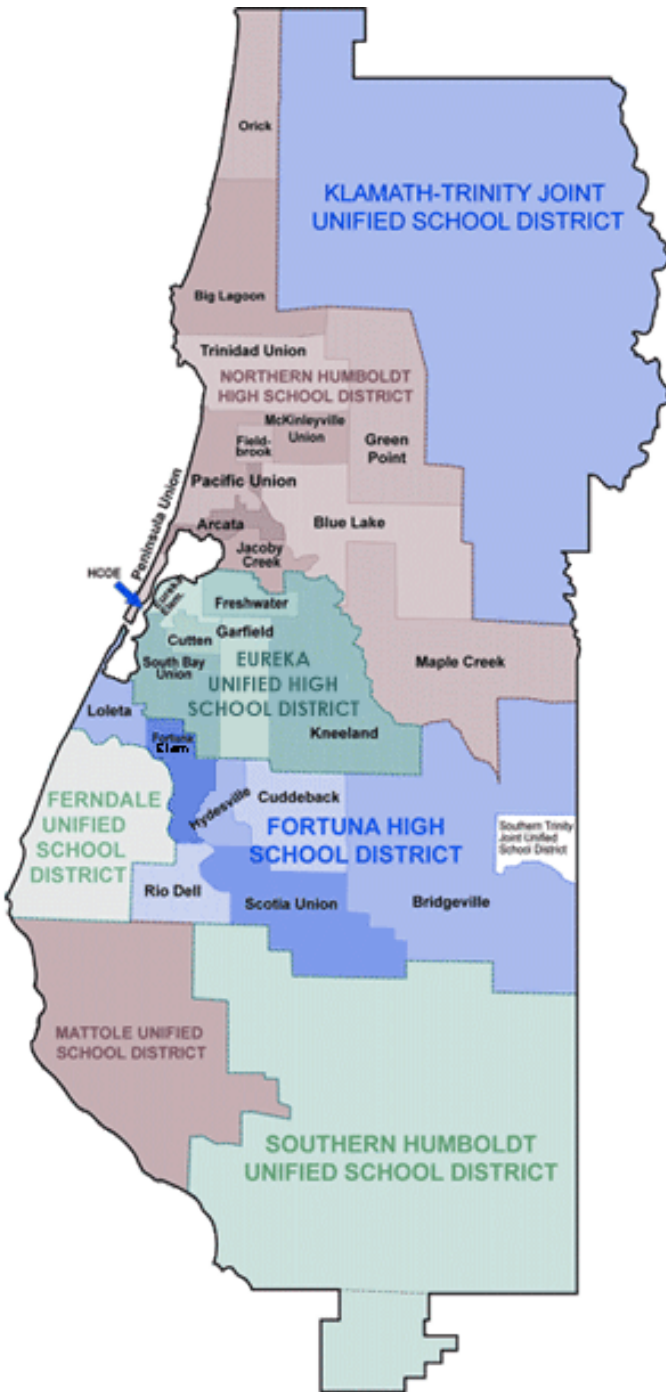
District	Grades	Enrollment	FRPM Count	% Eligible
Hydesville Elementary	K-8	195	66	33.8%
Jacoby Creek Elementary	K-8	462	134	29.0%
Klamath-Trinity Joint Unified	K-12	1001	816	81.5%
Loleta Union Elementary	K-8	101	91	90.1%
Mattole Unified	K-12	779	540	69.3%
McKinleyville Union Elementary	K-8	1166	698	59.9%
Northern Humboldt Union High	K-12	1761	820	46.6%
Pacific Union Elementary	K-8	542	288	53.1%
Rio Dell Elementary	K-8	333	273	81.9%
Scotia Union Elementary	K-8	192	129	67.3%
South Bay Union Elementary	K-12	913	632	69.2%
Southern Humboldt Joint Unified	K-12	789	454	59.5%
Trinidad Union Elementary	K-8	211	126	59.7%

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

*Please note: The following districts were not included due to small enrollment numbers: Big Lagoon Union Elementary, Green Point Elementary, Kneeland Elementary, Maple Creek Elementary, Orick Elementary, Peninsula Union Elementary.

The school districts with the highest percentage of students eligible for Free & Reduced Price Meals in 2017-18 were:

- Loleta Union Elementary Enrollment: 101 FRPM Eligibility: 90.1%
- Bridgeville Elementary Enrollment: 26 FRPM Eligibility: 84.6%
- Rio Dell Elementary Enrollment: 333 FRPM Eligibility: 81.9%
- Klamath-Trinity Joint Unified Enrollment: 462 FRPM Eligibility: 81.5%
- Eureka City Unified Enrollment: 3869 FRPM Eligibility: 70.6%



Map of Humboldt County Schools and Districts.

Source: Humboldt County Office of Education

Oral Health Care Access in Humboldt County

Many Humboldt County residents enrolled in Medi-Cal are having difficulty accessing oral health care. There are 44 general dentist clinics in Humboldt County that accept private insurance and 4 clinics that accept patients on Denti-Cal.

Figure 15. Humboldt County Patient to Clinic Ratio for Oral Health Care

Type of Clinic	Number of Clinics in Humboldt	Accepts Medi-Cal?	Number of Residents Eligible	Patient to Clinic Ratio
Federally-Qualified Health Centers	4	Yes	51,185	12,796
General Dentistry Provider Offices	44	No	74,219	1,686

Source: Humboldt County General Dentists, 2017.

There are also another 11,350 residents who have no health insurance and it is not clear whether or not they are accessing oral health care.

According to the American Dental Association, as of 2017 there are 61.0 dentists working in dentistry per 100,000 people in the United States (Source: Supply of Dentists in the U.S. 2001-2017). These ratios vary by state. This translates to an average of 1,636 patients per dentist.

California Dental Health Professional Shortage Areas are designated by the California Office of Statewide Health Planning and Development. The designation is given to areas that demonstrate a shortage of dental healthcare providers. Humboldt County meets the criteria for a Dental Health Professional Shortage Area based on the population designation (Source: Status of Oral Health in California: Oral Disease Burden and Prevention 2017 California Department of Public Health).

The shortage of providers who accept Denti-Cal in the state of California was discussed in detail in the Little Hoover Commission's 2016 *Report #230- Fixing Denti-Cal*. "With dreadful reimbursement rates for dentists and slow, outdated paper-based administrative and billing processes that compare poorly with those of commercial insurers, Denti-Cal has thoroughly alienated its partners in the dental profession. Most California dentists want nothing to do with Denti-Cal and consequently, more than 13 million people eligible for coverage have few places to use their benefits."

Humboldt County is located in rural northern California and is surrounded by other rural counties facing similar issues with a lack of oral health providers that serve low-income residents. When it is difficult to access routine oral health exams and cleanings, many individuals end up waiting until they are in pain to seek dental care. The FQHCs in Humboldt

County have very limited capacity to serve adults on Denti-Cal so these adults are either leaving the county for care or not receiving care.

Recruitment & Retention of Oral Health Professionals in Humboldt County

Three of the local FQHCs completed an oral health care workforce survey to share their experiences with recruitment and retention of oral health professionals in the FQHC setting. In order to support recruitment and retention of dentists, local FQHC’s offer the following additional support to dentists. These efforts are seen as necessary to keep positions filled and attract dentists to work in a rural FQHC setting.

Figure 16. Additional Support Offered to Recruit Dentists to Work in FQHC

Type of Support	# of FQHC (n=3)	Type of Support	# of FQHCs (n=3)
Signing bonus	2	Assistance with loan forgiveness	2
Temporary housing	3	Relocation expenses	2
Permanent housing	1	Mileage	1

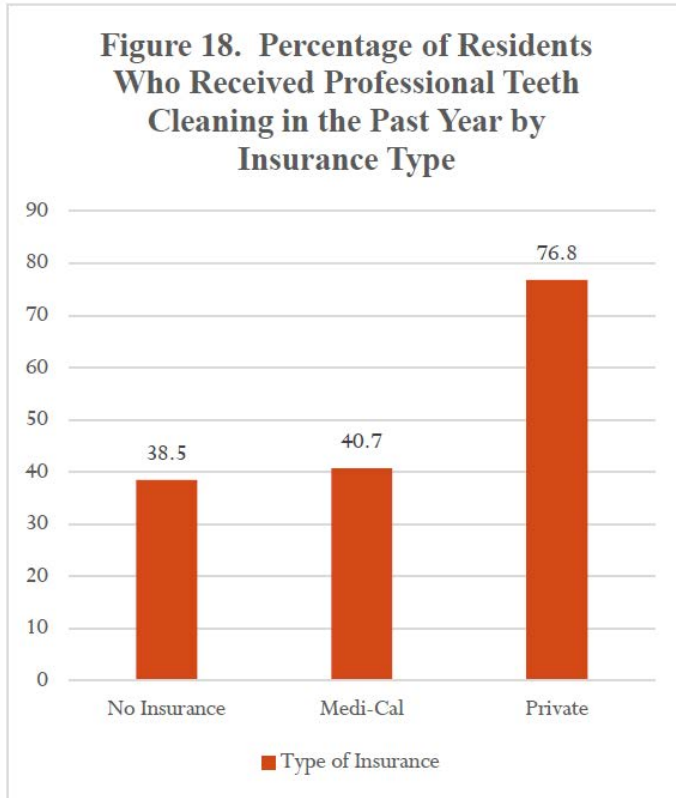
Source: 2018 Humboldt County Oral Health Workforce Survey

The FQHCs also shared their insights on the reasons that dentists leave the FQHC setting and reasons that dentists stay in the FQHC setting. This information was provided by FQHC staff who were asked to identify reasons that dentists leave and stay in the FQHC setting.

Figure 17. Reasons that Dentists Leave & Stay in the FQHC Setting

Reasons for Leaving	# of FQHCs (n=3)	Reasons for Staying	# of FQHCs (n=3)
Pay	2	Sense of community	2
Location	2	Outdoor beauty/recreation	2
Retirement	1	Believe in mission of organization	2
Move after loan repayment	1	Family oriented office/ work-life balance	2
No permanent housing	1	Family	1

Source: 2018 Humboldt County Oral Health Workforce Survey

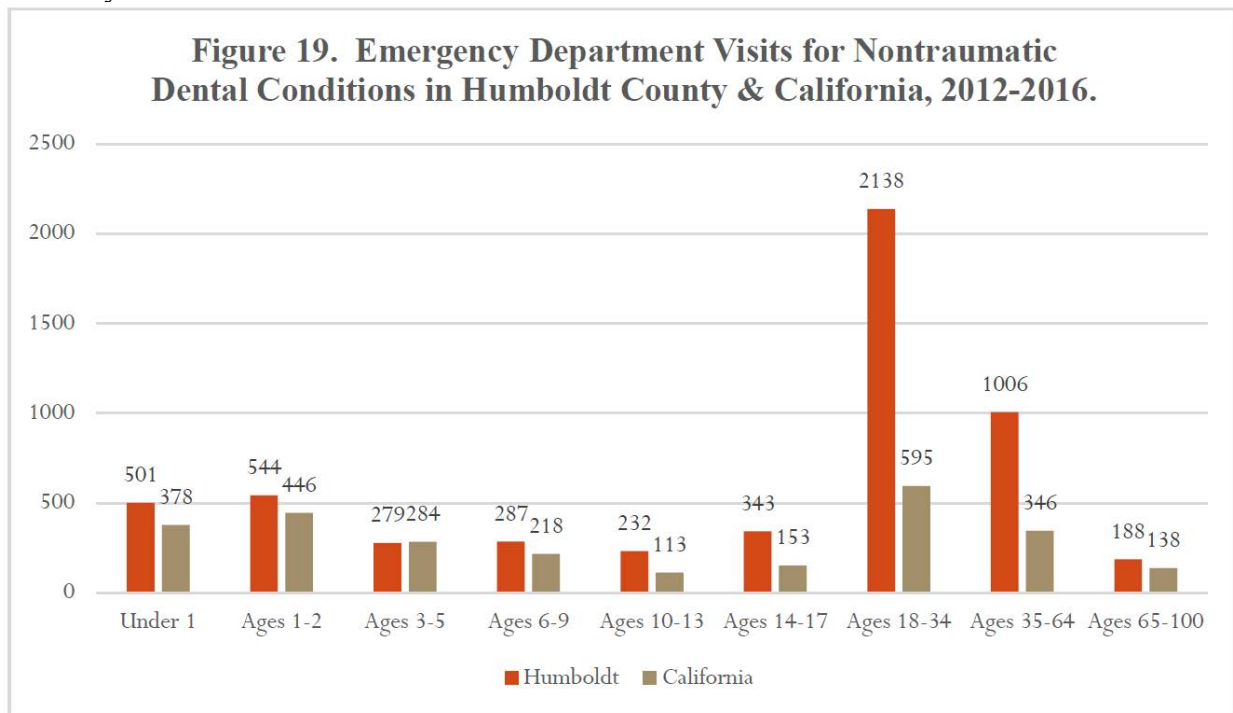


According to the 2010 Rural Health Information Survey (RHIS), residents in the Redwood Coast Region with Medi-Cal or no insurance were less likely than those with private insurance to have received a professional teeth cleaning in the past year.

Thirty-eight percent of respondents with no insurance had their teeth professionally cleaned in the past year, compared to 40.7% of respondents on Medi-Cal.

Almost twice as many respondents (76.8%) with private insurance reported a professional teeth cleaning in the past year.

Figure 19 shows the rate of emergency department visits for dental conditions for Humboldt County residents. Humboldt County residents are visiting the emergency department for dental conditions at a higher rate than the state of California for every age group with the exception of the 3-5 year-olds.



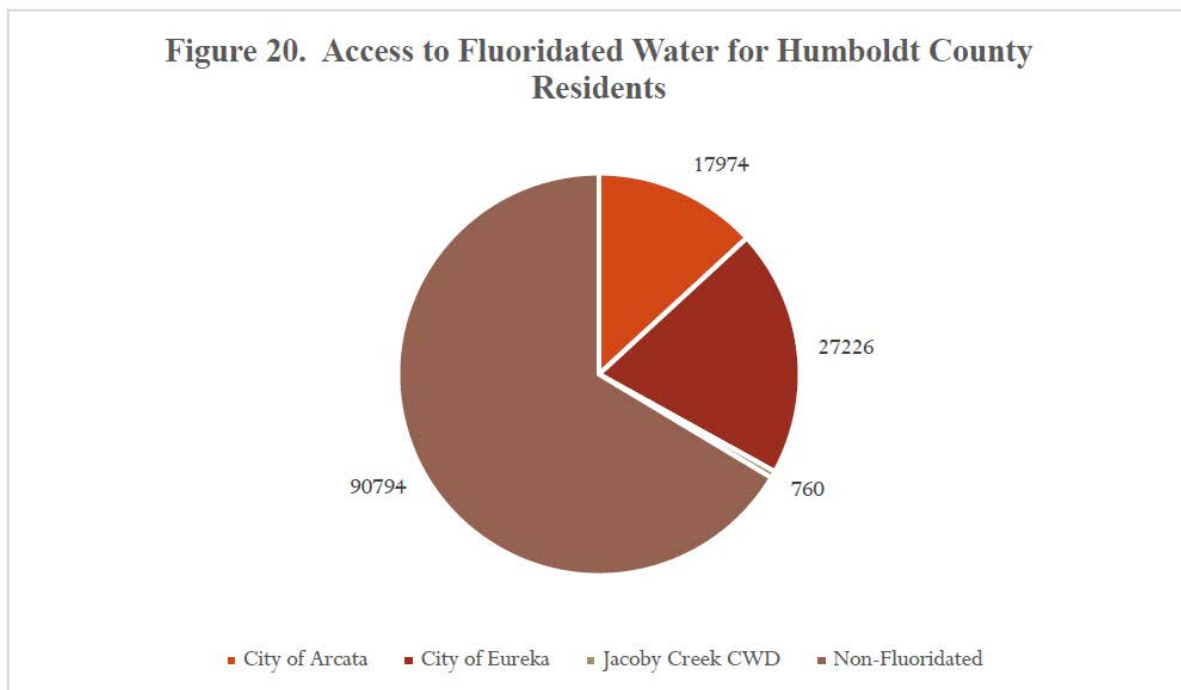
Source: California Department of Public Health Dental Data Dashboard, 2012-2016

According to the Office of Statewide Health Planning and Development (OSHPD), 2012, Humboldt ranked 47th worst out of 58 counties for its rate of preventable dental emergency department visits. Humboldt’s rate was more than double that of the state of California as a whole. Many of Humboldt’s surrounding rural counties also had very high rates of people visiting the emergency department for dental reasons. According to the *Status of Oral Health in California: Oral Disease Burden and Prevention* report by the California Department of Public Health in 2017, “routine and timely preventive care would reduce the need for emergency department visits for dental conditions.” (p.46)

In addition to having higher rates of emergency department visits for dental reasons than the state of California, Humboldt County has limited water districts with fully fluoridated water systems. According to the California Water Board, there are only three water districts in the county with a fluoridated water supply:

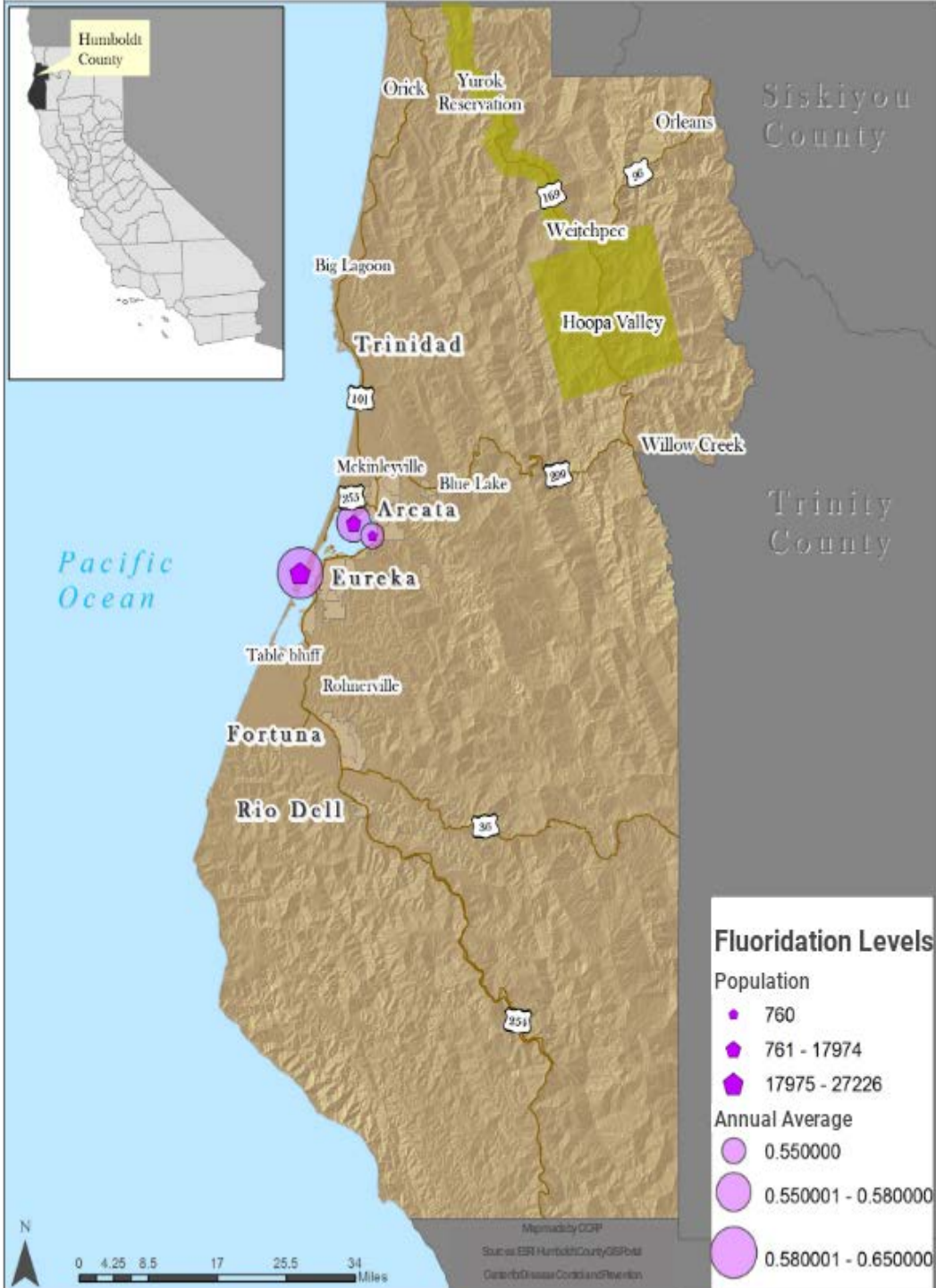
- City of Arcata
- City of Eureka
- Jacoby Creek County Water District

The estimated percent of Humboldt County’s population that lives in a community with fluoridated water is 34% or 45,960, as seen in Figure 20. Another 66% or 90,794 residents are living in communities without access to a fluoridated water supply.



Source: 2016 & 2017 U.S. Census estimates and Jacoby Creek CWD Municipal Service Review, 2009

Fluoridation Levels in Humboldt County 2017



Head Start Programs in Humboldt County

Head Start is a federal program that provides comprehensive early childhood education, health, nutrition, and parent involvement services to low-income children and their families. Northcoast Children's Services (NCS) provided the following oral health-related data from their 2017-18 Head Start Program Information Report (PIR).

Figure 21. Oral Health Data for NCS Head Start Programs, 2017-18

Data Reported in PIR	# of children at end of enrollment year	% of total enrollment (n=393)
Number of children with continuous, accessible dental care provided by a dentist	393	100%
Number of children who received preventive care since 2016-17 PIR	194	49.3%
Number of all children who have completed a professional dental examination since 2016-17 PIR	279	70.9%
Of those above, the number of children diagnosed as needing dental treatment since 2016-17 PIR	96	34%*
Of those above, the number of children who have received or are receiving dental treatment	47	49%**

*Note: The n for this row is 279. **Note: The n for this row is 96.

When asked to specify the primary reason that children who needed dental treatment did not receive it, the following reasons were identified:

- Medicaid not accepted by dentist
- Parents did not make/keep appointment
- Lack of providers

It should be noted that Northcoast Children's Services partnered with Redwood Community Action Agency (RCAA) in 2015-2018 to provide a registered dental professional to conduct oral health assessments and fluoride varnish in Head Start classrooms. This service was noted as very valuable by the Director of NCS.

Kindergarten Oral Health Assessment in Humboldt County

In 2005 the California Dental Association (CDA) sponsored AB 1433 (Gatto), which was signed by the governor. The law required school districts to provide proof of oral health screenings for kindergarten students entering the school system for the first time. Children were required to have a dental checkup by May 31 of their first year in public school. The law also required districts to aggregate the data received from students and to submit an annual report to the county

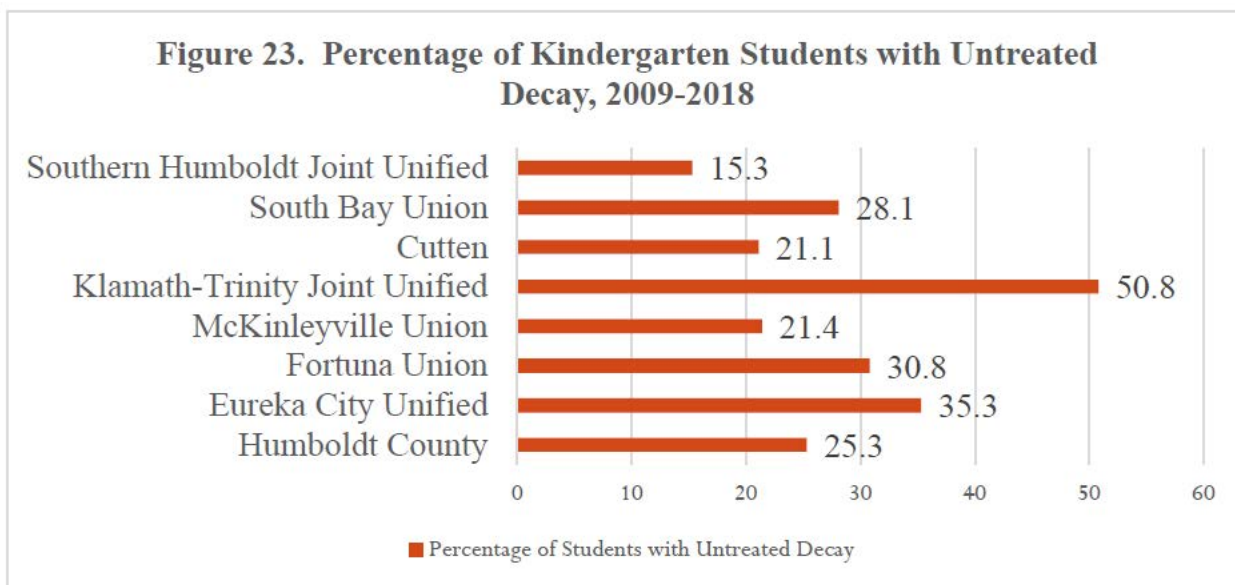
office of education. The State Budget Act of 2009 made the program optional, but the California Department of Education (CDE) has continued to allocate funding to support implementation of the law and Humboldt County schools have continued to screen students and produce the annual report.

Figure 22. Humboldt County Kindergarten Oral Health Assessment Data, 2009-2018

Year	Total Eligible	Proof of Assessment	% Eligible who were Assessed	Number with Untreated Decay	% Assessed with Untreated Decay
2009-10	1171	723	61.7	237	32.8
2010-11	1208	765	63.3	203	26.5
2011-12	1300	767	59	209	27.2
2012-13	1356	834	61.5	175	21
2013-14	1392	788	56.6	232	29.4
2014-15	1391	848	61	237	27.9
2015-16	1259	801	63.6	190	23.7
2016-17	1335	749	56.1	156	20.8
2017-18	1421	766	53.9	148	19.3
Total	11,833	7,041	59.5	1,787	25.3%

Source: Humboldt County Office of Education, Kindergarten Oral Health Assessment, 2009-2018

The following figure illustrates the percentage of kindergarten students with untreated decay for the seven largest school districts in Humboldt County.



Source: Humboldt County Office of Education, Kindergarten Oral Health Assessment, 2009-2018.

Figures 24 & 25 show the overall data for each school district in Humboldt County from 2009-2018.

Figure 24. Humboldt County Kindergarten Oral Health Assessment Data, 2009-2018

District	Total Eligible	Proof of Assessment	% Eligible who were Assessed	Number with Untreated Decay	% Assessed with Untreated Decay
Arcata Elementary	434	193	44.5	59	30.6
Blue Lake Union Elementary	177	73	41.2	15	20.5
Bridgeville Elementary	54	49	90.7	1	2.0
Cuddeback Union Elementary	160	87	54.4	17	19.5
Cutten Elementary	771	502	65.1	106	21.1
Eureka City Unified	2488	995	40	351	35.3
Ferndale Unified	308	189	61.4	55	29.1
Fieldbrook Elementary	152	98	64.5	21	21.4
Fortuna Union Elementary	1071	983	91.8	303	30.8
Freshwater Elementary	344	310	90.1	44	14.2
Garfield Elementary	86	65	75.6	3	4.6
Humboldt County Office of Education	71	9	12.7	2	22.2

Source: Humboldt County Office of Education, Kindergarten Oral Health Assessment, 2009-2018*



Figure 25. Humboldt County Kindergarten Oral Health Assessment Data, 2009-2018

District	Total Eligible	Proof of Assessment	% Eligible who were Assessed	Number with Untreated Decay	% Assessed with Untreated Decay
Hydesville Elementary	173	128	73.4	32	25
Jacoby Creek Elementary	441	232	52.6	33	14.2
Klamath-Trinity Joint Unified	810	354	43.7	180	50.8
Loleta Union Elementary	146	96	65.8	37	38.5
Mattole Unified	152	62	40.8	1	1.6
McKinleyville Union Elementary	1279	1017	79.5	218	21.4
Pacific Union Elementary	586	450	76.8	0	0
Rio Dell Elementary	318	253	79.6	104	41.1
Scotia Union Elementary	196	103	52.6	59	57.3
South Bay Union Elementary	687	302	43.9	85	28.1
Southern Humboldt Joint Unified	576	280	48.6	43	15.3
Trinidad Union Elementary	199	110	55.3	4	3.6

Source: Humboldt County Office of Education, Kindergarten Oral Health Assessment, 2009-2018*

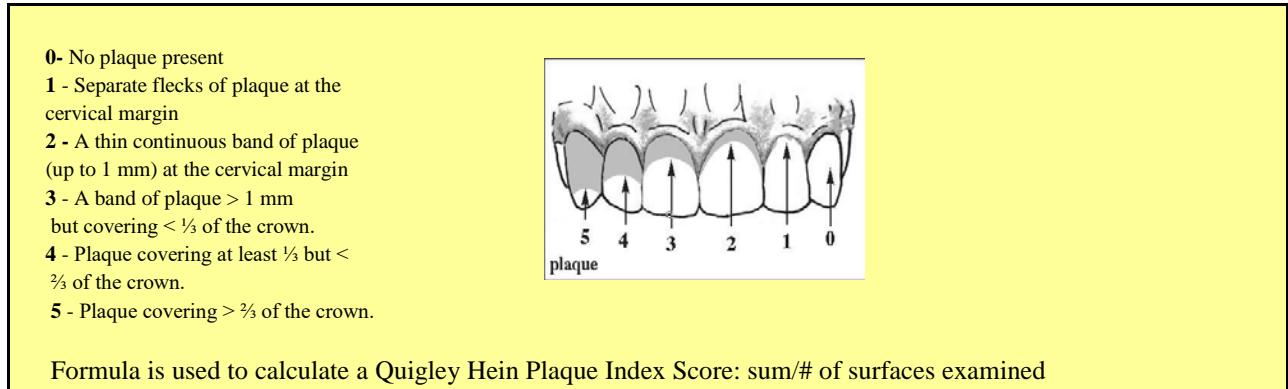
*Please note: The following districts were not included because there were fewer than 50 eligible students between 2009 and 2018: Big Lagoon Union Elementary, Green Point Elementary, Kneeland Elementary, Maple Creek Elementary, Orick Elementary, Peninsula Union Elementary.

Classroom-Based Oral Health Education

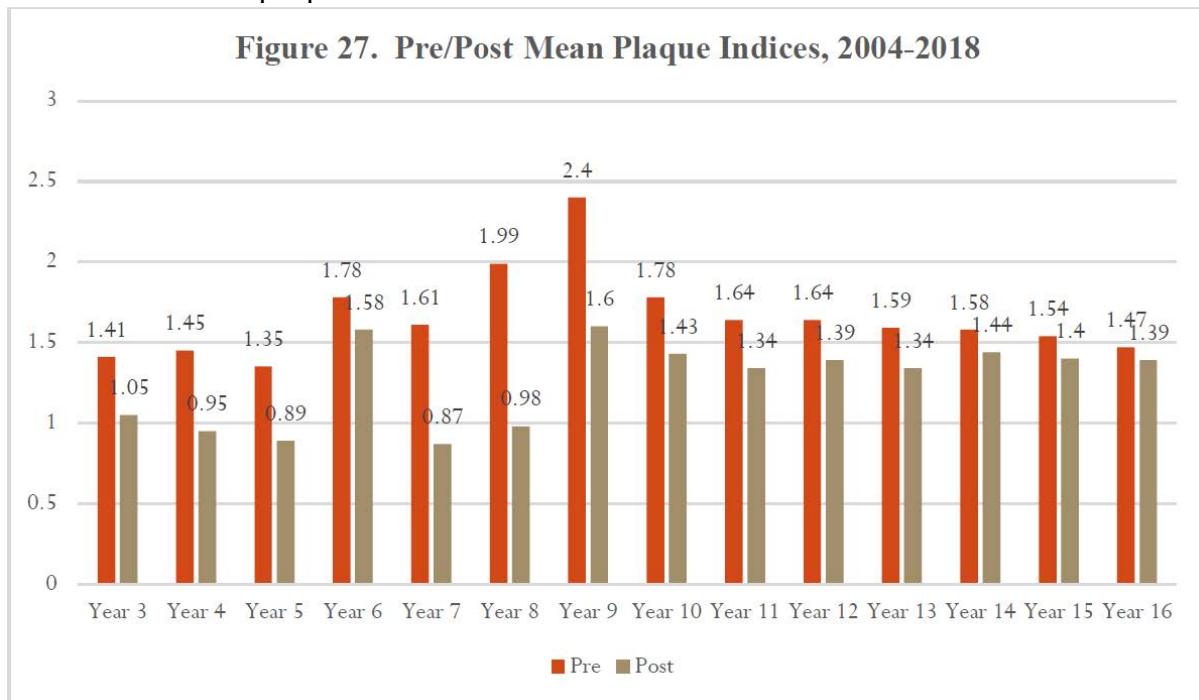
Humboldt County has had a classroom-based oral health education program called TOOTH (Teaching Oral Optimism Throughout Humboldt) since 2002. The program has served more than 4,800 students in preschools and elementary schools across Humboldt County. As part of the program, educators have conducted pre and post plaque disclosure to measure physical changes in students’ oral health in unison with the commencement and completion of the TOOTH program.

To obtain data to calculate the index score, TOOTH Program staff used a plaque tinting swab which turns teeth purple to indicate plaque presence. The amount of plaque for each child was recorded using a scale of zero to five, in which a higher score indicates more plaque presence. Figure # shows the criteria used for recording plaque observations and calculating the Quigley Hein Index score. The following figures are from the *2017-10 TOOTH Program Evaluation Findings & Recommendations Report*.

Figure 26. The Quigley Hein Plaque Index Criteria for Recording Plaque Observations



As seen in Figure 27, average post-plaque indices have decreased in each year that TOOTH staff have conducted the plaque disclosures.



In addition to seeing a decreased level of plaque for students in classroom settings who are receiving oral health education, students have also increased oral health knowledge, as seen in the following figure. The differences in pre and post knowledge scores are statistically significant for each program year (see the p-value column of the figure).

Figure 28. Summary of TOOTH Knowledge Assessment Results 2003-2016

Year	Number of Classrooms	Number of Students	Pre-Test Average Score	Post-Test Average Score	p-Value
2003-04	33	374	53.4	60.9	p<.002
2004-05	44	401	64.7	81.7	p<.001
2005-06	25	221	72.88	87.63	p<.001
2006-07	19	129	68.00	85.05	p<.001
2007-08	31	407	49.38	61.10	p<.001
2008-09	16	106	55.06	73.33	p<.001
2009-10	31	240	66.91	78.75	p<.001
2010-11	36	346	48.42	83.02	p<.001
2011-12	30	475	45.52	83.27	p<.001
2012-13	34	444	55.75	85.01	p<.001
2013-14	32	531	57.47	83.88	p<.001
2014-15	43	573	55.43	79.38	p<.001
2015-16	50	742	61.40	84.12	p<.001

Hospital-Based Dentistry through PDI Surgery Center

CCRP analyzed hospital-based dentistry data for Humboldt County from 2008-2018 to better understand the population of children receiving hospital-based dentistry services. The PDI Surgery Center provided CCRP with data on Humboldt County children served through their program from 2008-2018. Children are often referred to hospital-based dentistry when they require anesthesia due to multiple cavities, when they are too young or scared to sit still for treatment, or when they have a developmental disability. PDI saw children between the ages of 1 and 15 from Humboldt County.

Between 2008 and June 2018, 960 Humboldt County children received hospital-based dentistry services through the PDI Surgery Center. Figure 29 shows the number of children treated by year.

Figure 29. Number of Humboldt County Children Treated at PDI Surgery Center by Year, 2008-2018



Figure 30. Number of Humboldt County Children Treated at PDI by Gender, 2008-2018

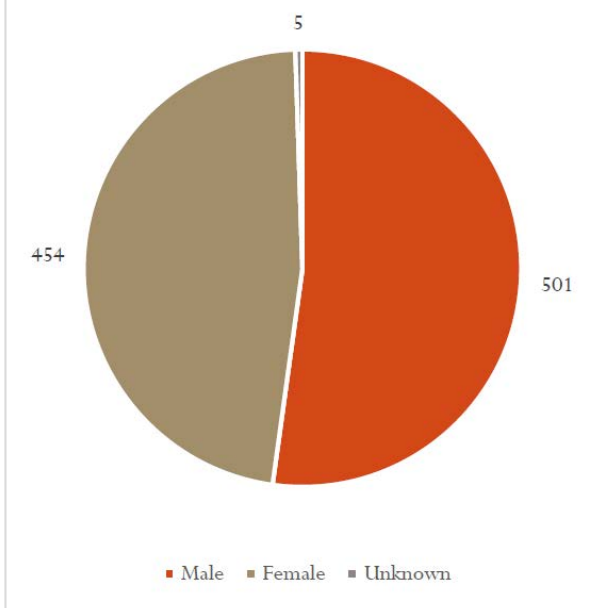
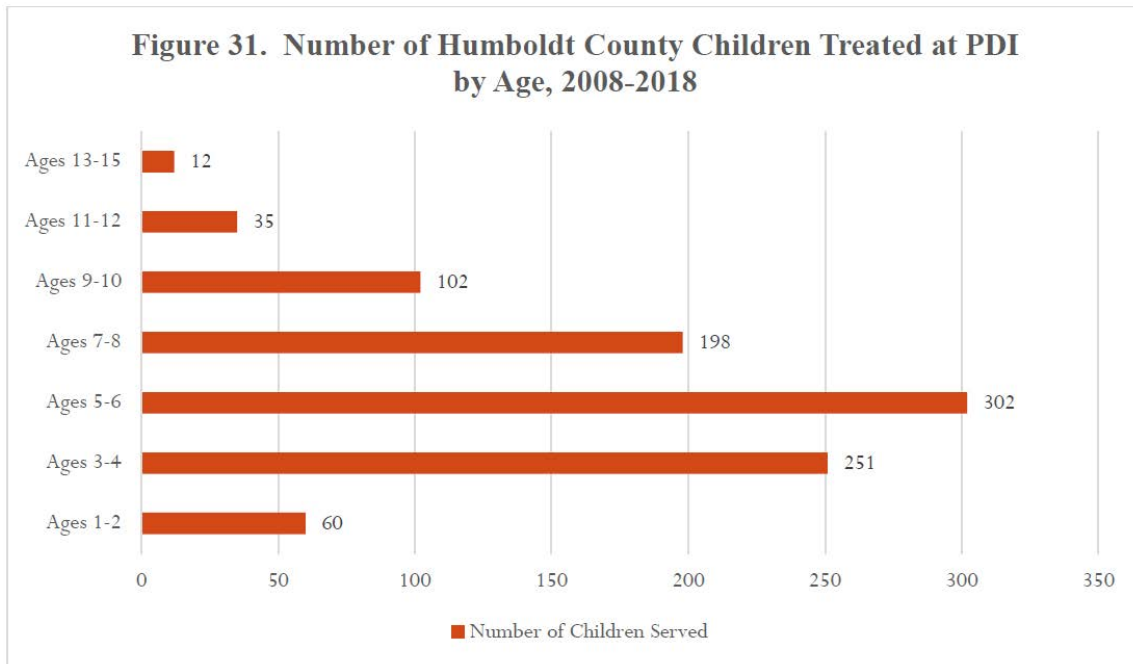


Figure 30 shows the breakdown of Humboldt County children treated at PDI Surgery Center by gender.

There is a fairly equal percentage of males and females being treated at PDI Surgery Center. 52% of children served were male, 47% were female, and for approximately 1% gender was not known.



Figure 31 shows the breakdown of Humboldt County children treated at PDI Surgery Center by age.



Overall, 64% of the population treated at PDI were children ages 6 and under. Thirty-one percent of children were ages 5-6, 26% were ages 3-4, 21% were ages 7-8, 11% were ages 9-10, 6% were ages 1-2, and the remaining 5% were ages 11-15.

The vast majority (98.7%) of the 960 children treated at PDI were enrolled in Medi-Cal. Additionally, the vast majority (94%) of referring clinics were the FQHC's that serve Humboldt County.

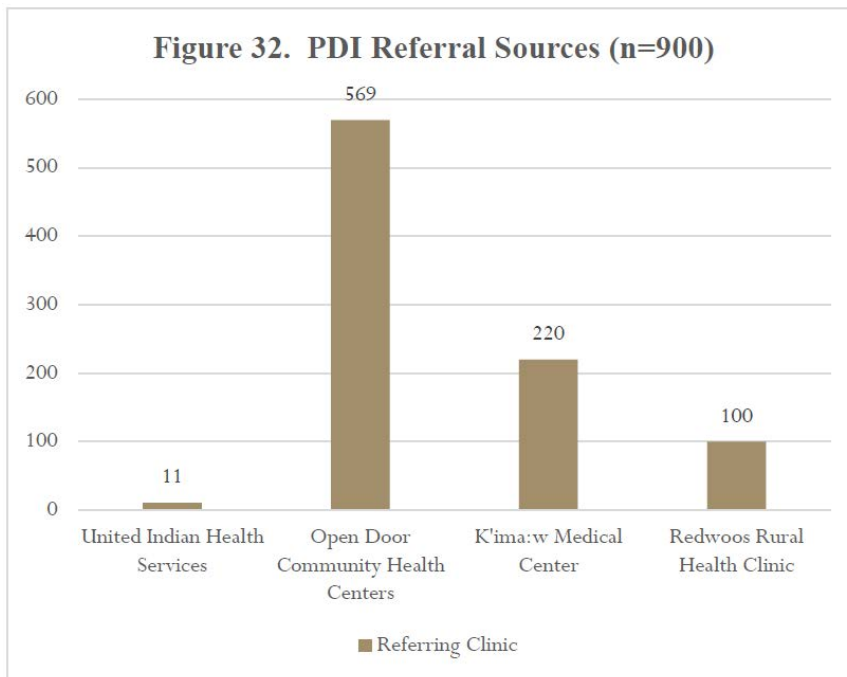


Figure 32 shows that the highest frequency (63%) of referrals was from Open Door Community Health Centers, the largest FQHC.

Twenty-four percent of referrals came from eastern Humboldt County.

Eleven percent of referrals came from Redwoods Rural Health Clinics that serves residents of southern Humboldt County, and 1% of referrals came from UIHS.

In terms of the type of treatment received, there has been some variation in the way this data has been collected. From 2008-2010 (n=130), treatment data captured the number of restorations and the number of extractions. From 2011- June of 2012 (n=149) treatment data captured the numbers of extraction, pulp therapy, amalgam fillings, composite fillings, crowns and sealants. From July of 2012-June 2018 (n=681) treatment data captured the numbers of extractions, fillings, sealants, crowns, pulp therapy, extractions and spacers.

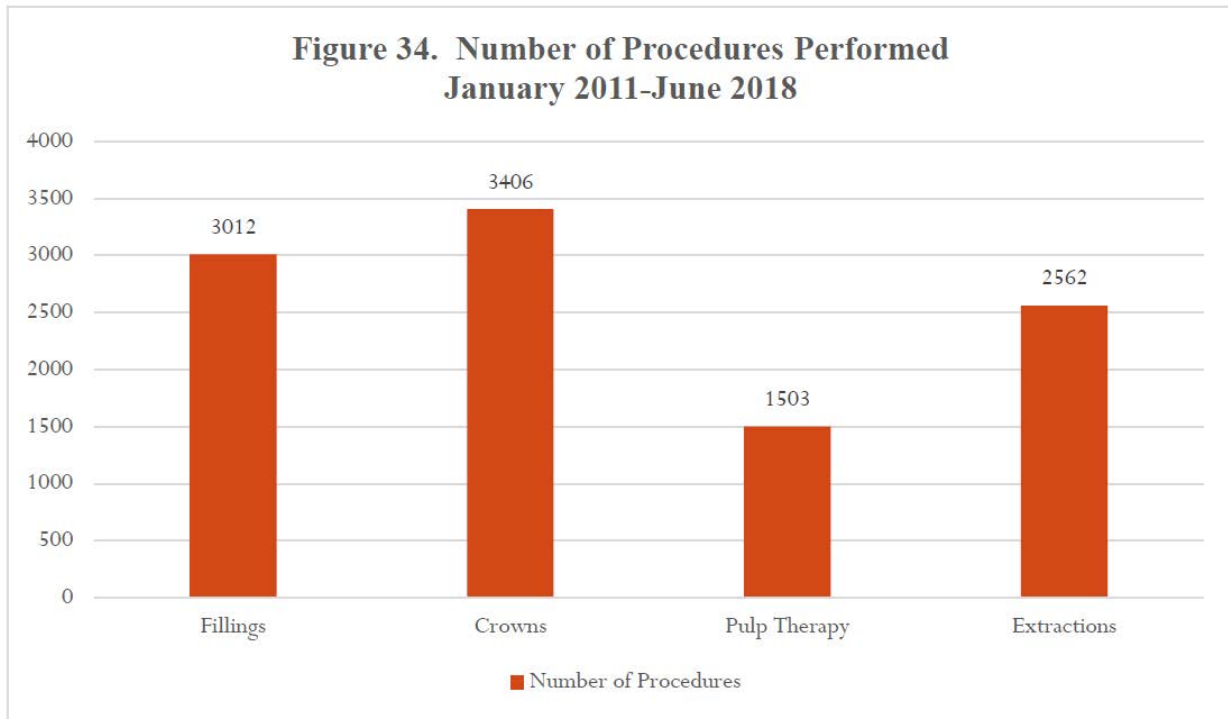
Figure 33 illustrates the number of children that received each type of treatment from PDI Surgery Center from 2008-2018. The types of treatment most currently received by children at PDI are fillings, crowns, pulp therapy, and extractions.

Figure 33. Frequency of Treatment Received by Humboldt County Children, 2008-2018

Type of Treatment	Applicable Years*	Number of Children Treated	Number of Children That Received the Treatment	Percentage of Children That Received the Treatment
Restoration (general)	2008-2010	130	125	96%
Fillings	Jan 2011-June 2018	830	688	83%
Crowns	Jan 2011-June 2018	830	692	83%
Pulp Therapy	Jan 2011-June 2018	830	521	63%
Extractions	2008-June 2018	960	676	70%
Sealants	Jan 2011-June 2018	830	88	11%
Spacers	July 2012-June 2018	681	77	11%

*See above paragraph for further explanation of applicable years based on variations in data collection.

Figure 34 shows the number of procedures performed by type for Humboldt County children. Number of procedures refers to the total number of teeth that PDI performed a service on.



A number of children served at PDI had extensive treatment needs. Figure 35 shows some of the most extensive treatments provided to Humboldt County children.

Figure 35. Most Extensive Treatments Provided to Humboldt County Children

Treatment Type	Applicable Years	Number who had 4-6 teeth treated	Number who had 7-9 teeth treated	Number who had 10+ teeth treated
Fillings (n=681)	July 2012-June 2018	224	75	22
Crowns (n=830)	Jan 2011-June 2018	226	122	68
Pulp Therapy (n=830)	Jan 2011-June 2018	124	30	2
Extractions (n=960)	2008-June 2018	248	55	29
Restorations (n=130)	2008-2010	22	50	45

Oral Health Status of Other Vulnerable Populations

Seniors

Minimal local data was available on the oral health status of older residents in Humboldt County. The rate of visits to the emergency department for residents 65-100 was higher in Humboldt (188) than the state of California rate (138). In 2018 the Center for Oral Health released *A Healthy Smile Never Gets Old: A California Report on the Oral Health of Older Adults*. Key findings from the report include:

- Large numbers of older adults suffer from untreated tooth decay.
- Untreated tooth decay is leading to a high prevalence of tooth loss in older adults in California.
- Many older Californians suffer from the inability to chew due to poor contact between teeth.
- Many older adults need treatment for tooth decay and/or gum diseases.
- Older adults living in rural areas are worse off than those living in urban areas.

Figure 36 includes a list of the skilled nursing facilities in Humboldt County and Figure 37 includes a list of the residential care homes for the elderly in Humboldt County.

Figure 36. Skilled Nursing Facilities, Humboldt County

Name	Address	Beds/Capacity
Granada Rehabilitation and Wellness Center	2885 Harris Street, Eureka	87
Sea View Rehabilitation and Wellness Center	6400 Purdue Drive, Eureka	99
Southern Humboldt Community Healthcare District	733 Cedar Street, Garberville	8
Fortuna Rehabilitation and Wellness Center	2321 Newburg Road, Fortuna	110
Eureka Rehabilitation and Wellness Center	2353 23 rd Street, Eureka	99

Source: Area 1 on Aging Agency/Department of Social Services, 2018

Figure 37. Residential Care Homes for the Elderly, Humboldt County

Name	Address	Beds/Capacity
Aguilar Manor	6433 Eggert Road, Eureka	15
Alder Bay	1355 Myrtle Avenue, Eureka	49
Cleo's Home	129 Higgins, Eureka	15
Cutten Care Home	6253 Berry Lane, Cutten	15
Especially You	12 Henderson Street, Eureka	15
Frye's Care Home	2240 Fern Street, Eureka	58
Hall Avenue	2641 Hall Avenue, Eureka	15
Humboldt House Lodge	4041 F Street, Eureka	30
Roseland Care Home	6449 Purdue Drive, Eureka	6
Redwood R & R	3231 Dolbeer Street, Eureka	14
Timber Ridge Eureka	2740 Timber Ridge Road, Eureka	75
Timber Ridge Renaissance (Alzheimer Unit)	2780 Timber Ridge Lane, Eureka	22
Timber Ridge McKinleyville	1400 Nursery Way, McKinleyville	72
Timber Ridge (Alzheimer Unit)	1400 Nursery Way, McKinleyville	28

Source: Area 1 on Aging Agency/Department of Social Services, 2018

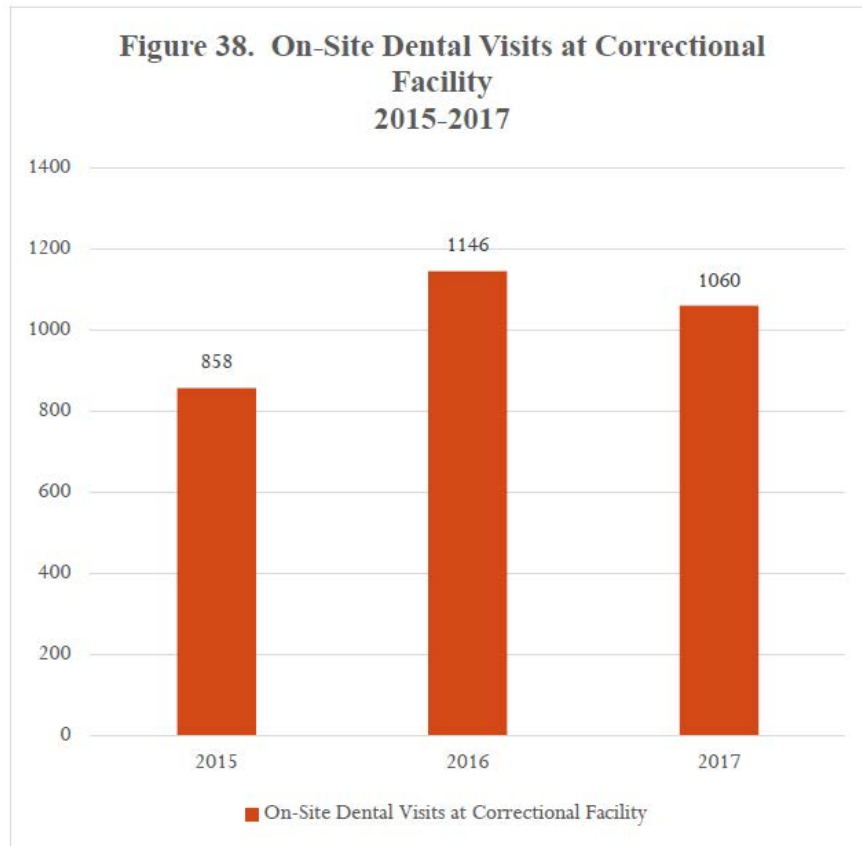
Pregnant Women

According to the Maternal and Infant Health Assessment (MIHA) survey (2015-16), 48.4% of pregnant women in Humboldt County reported receiving a dental visit during pregnancy, compared to 43% for the state of California. This difference is not statistically significant. Forty-one percent of pregnant women were insured through Medi-Cal. No additional local data was available on the oral health status of pregnant women in Humboldt County.

Humboldt County Correctional Facility Inmates

As mentioned in a previous section, there is one dentist who works eight hours per week to serve the Humboldt County Correctional Facility.

Figure 38 shows the number of on-site dental visits for the jail for 2015-2017.



In 2015, there was an average of 71 on-site dental visits per month for jail inmates. In 2016, there was an average of 95 on-site dental visits per month, and in 2017, there was an average of 88 on-site dental visits per month.

From January –August of 2018 there were 616 on-site dental visits, or an average of 77 per month.

RECOMMENDATIONS

Recommendations can be clustered into three key areas: access to care, cross-agency collaboration, and data collection.

Access to Care

- Implement strategies to engage private dentists in providing care to low-income populations and advocate for state-level improvements to the Denti-Cal system.
- Explore opportunities to increase capacity of mid-level oral health professionals, and develop local career pathways to encourage youth to pursue oral health-related professions.
- Examine no-show trends and implement strategies to reduce the rate of no-shows at existing Denti-Cal providers to increase capacity to provide routine preventive care to more residents.
- Explore strategies to reduce emergency dental visits at clinics and emergency rooms and increase the percent of patients that receive routine preventive care across all age groups.
 - Create central after-hours call system to reduce number of ER visits for dental pain.
- Encourage local businesses to offer dental insurance to their employees.

Cross-Agency Collaboration

- Conduct a feasibility study to clarify the number of additional clinics and providers necessary to meet the needs of the Denti-Cal population, including pursuing the possibility of expanding existing FQHCs or Public Health opening a Dental Clinic.
- Explore innovative efforts to provide oral health services outside of the four walls of the clinic, such as teledentistry, virtual dental home, additional mobile services, and/or services provided in school-based and community-based settings.
- Continue to expand collaborative efforts to:
 - Draw down federal and state resources to improve oral health
 - Advocate for allocation and prioritization of local resources toward oral health care and prevention
 - Explore innovative partnerships to provide integrated oral, medical and behavioral health services for low-income and vulnerable residents

Data Collection

- Continue to monitor Kindergarten Oral Health Assessment data and work to improve response rate. Work to identify resources and schools to participate in 3rd and 6th grade oral health assessments.

- Pursue opportunities to gather more data on the oral health status of the following populations:
 - Seniors
 - Pregnant Women
 - Residents Experiencing Homelessness
 - Individuals with Developmental Disabilities
 - Immigrant Families
 - More population-level data on the oral health status of adults

For more information about this report, please contact the California Center for Rural Policy at (707) 826-3400 or at <https://ccrp.humboldt.edu/>. Copies of survey tools, focus group questions, and assessment tools referenced in this report can be provided upon request.