

A Healthy Smile Never Gets Old:

A California Report on the Oral Health of Older Adults



Center
for Oral
Health



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ABOUT COH

The Center for Oral Health was founded in 1985 as The Dental Health Foundation with the goal to serve the State Public Health Department in its quest for stronger policies and deeper understanding of the complex issues that affect access to dental care and to achieving optimum health outcomes.

The Center for Oral Health is an independent not-for-profit organization and public policy think tank focused on improving the oral health of the most vulnerable populations in California and nation-wide. COH acts as collaborator and innovator, to promote data-driven, evidence-based practices that help advance public policies to improve the healthcare delivery system and reduce health inequities. COH leverages resources of experts in the dental profession, academic institutions, and local, state and federal government agencies to reduce barriers and increase access to care, promote prevention education and intervention, advance public policy research and oral health surveillance, and build a sustainable oral health workforce.

This report is a work in progress and/or is produced in parallel with other briefs contributing to other work or formal publications by Center for Oral Health.

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ABOUT THIS REPORT

This report by the Center for Oral Health (COH) highlights the oral health status and key issues amongst older adults residing in California. This is the first report to document oral health needs of this population in California. Data for this report was collected through surveys conducted at skilled nursing homes and community sites between March 2016 and September 2017. Based on the study's findings, policy and programmatic recommendations have been developed in consultation with a group of aging and oral health experts and advisors. It is the intention of the Center for Oral Health that information presented in this report be used to influence and shape policies in ways that will improve the oral health of California's older adults.

DEDICATION

This report is dedicated to our parents and grandparents, for they taught us, guided us, and provided us with ideals and values we uphold today. For their legacy defines our identity.

ACKNOWLEDGEMENTS

On behalf of the staff and the Board of Directors at the Center for Oral Health, I would like to express my deepest appreciation to all those who provided us the opportunity to complete this landmark report. I especially thank Bernard "Bernie" Weintraub, whose words of encouragement to make this report inspired us all at the Center for Oral Health, and to Diana Bontá, DrPH, whose support and guidance helped COH embark on this ambitious project.

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Special thanks go to our team at COH, who helped develop this report and gave ongoing input on how to best organize and visualize data and summarize findings. Many thanks go to the head of the project, Sahiti Bhaskara, BDS, MPH who invested her full effort in guiding the team in completing this report. Finally, I would like to recognize the guidance provided by our advisory group and consultants, as well as those who have read drafts of this report and offered us input on the emerging public policy recommendations; many thanks for the insightful comments and advice.



Conrado E. Barzaga

Executive Director, Center for Oral Health

EXECUTIVE SUMMARY

Despite their unique challenges with access to care, mobility, aging, and health complexities, little attention has been paid to the status of oral health in older adults.

Nationally, approximately 50% of nursing home residents are unable to perform three or more of the “Activities of Daily Living,”¹⁸ one of which is personal hygiene that includes oral care. Due to these and many other factors, the risk of poor oral health and its impact on the overall well-being of older adults is significant and deserves more attention.

The more common conditions that affect older adults are tooth loss, lack of contact between upper and lower teeth, gum disease (e.g. swollen and bleeding gums), poor condition of natural teeth (e.g. teeth that are decayed and loose in their socket), xerostomia (dry mouth) and ill-fitting dentures. These conditions are also fueled and exacerbated by natural changes associated with aging and other chronic health conditions.

These conditions can negatively impact overall health by making it difficult to chew or speak, undermining nutrition, leading to infection, exacerbating chronic conditions like hypertension and diabetes, impacting self-esteem, and lowering quality of life.

IMPORTANCE OF DATA IN UNDERSTANDING AND SOLVING THE PROBLEM

IMPROVED ORAL HEALTH WILL NOT ONLY HELP OLDER ADULTS LEAD HEALTHIER, HAPPIER LIVES, IT WILL ALSO BRING SIGNIFICANT COST SAVINGS BY PREVENTING OTHER MEDICAL COMPLICATIONS THAT LEAD TO INCREASED HEALTHCARE SPENDING.

This study sets a baseline understanding of oral health needs of older adults across the state of California. However, it offers a snapshot and should continue to be built upon with clear and consistent data and analysis in order to:

- 1 Improve our understanding of the oral health of population groups across the lifespan including disease trends and disparities; and
- 2 Inform the development of strategic and community-based interventions, measure access to and utilization of care, mobilize resources, and develop data-driven programs and policies.

THE SURVEY APPROACH

Between January 2016 and September 2017, the Center for Oral Health conducted oral health screenings on 2,372 older adults in California. Screenings were conducted at 36 skilled nursing homes (SNHs) and 51 community sites, which included congregate meal sites, adult day care centers and senior centers. Screeners collected data from 1,193 residents who lived at SNHs, along with 1,179 community-dwelling participants, i.e., they lived in a home, apartment, or retirement community.

Screeners collected data on various indicators including tooth loss, health of natural teeth (mobility, root fragments), presence of dentures, ability to chew, tooth decay, gum (gingival and periodontal) health, dry mouth and suspicious oral lesions. Demographic information collected included age, gender, race/ethnicity, and whether the participant was in a rural or urban location.

The study examined a state-representative sample of skilled nursing home residents, thus the findings from this group can be generalized to represent oral health status and needs of older adults who reside in skilled nursing homes across California. The study also included a convenience sample of community-dwelling older adults, i.e., the findings from this group only provide insights and offer a baseline assessment, but do not represent community-dwelling older adults statewide.

Key findings point to the fact that untreated tooth decay is highly prevalent, which is leading to a high degree of tooth loss. Tooth loss and lack of functional contact makes it hard to chew, which impacts nutrition and overall well-being. Many older adults need treatment for gum disease or tooth decay, and the oral health problems are even more pronounced in older adults residing in rural areas compared to urban areas.

KEY FINDINGS

Key findings for this report are categorized into the major oral health issues that were examined:

UNTREATED TOOTH DECAY

Large numbers of older adults suffer from untreated tooth decay.

- Half the older adults residing in skilled nursing facilities have untreated tooth decay.
- More than one in three community-dwelling older adults suffer from untreated tooth decay.

TOOTH LOSS DUE TO DENTAL DISEASE

Untreated tooth decay is leading to a high prevalence of tooth loss in older adults in California.

- One in three older adults in California's skilled nursing homes have lost all their teeth.
- Eighteen percent (18%) of the community dwelling older adults screened have lost all their natural teeth, most of them due to tooth decay.

INABILITY TO CHEW – MISSING OR POOR FUNCTIONAL CONTACT BETWEEN TEETH

Many older Californians suffer from the inability to chew due to poor contact between teeth.

- Nearly 40% of nursing home residents cannot chew because they do not have a functional contact between their upper and lower back teeth on either side of their mouth.
- Nearly 18% of the community-dwelling older adults cannot chew due to lack of a functional contact between their upper and lower back teeth.

POOR GUM (PERIODONTAL) HEALTH

Many older adults need treatment for tooth decay and/ or gum diseases.

- Sixty-five percent (65%) of older adults residing in SNHs need treatment for tooth decay and/or periodontal (gum) treatment.
 - Nearly one in three (27%) older adults in SNHs need gum (gingival or periodontal) treatment immediately.
 - Nearly one in three (27%) older adults in SNHs need treatment for a decayed tooth immediately or within 2 to 4 weeks.
- Forty-six percent (46%) of the community-dwelling older adults screened need treatment for tooth decay and/or periodontal (gum) treatment.
 - Nearly one out of four (24%) older adults need gum (gingival or periodontal) treatment immediately.
 - One in three (32.7%) community-dwelling older adults need treatment for a decayed tooth immediately or within 2 to 4 weeks.

SOCIAL DETERMINANTS OF HEALTH AND HEALTH EQUITY

Older adults living in rural areas are worse off than those living in urban areas.

- Older adults residing in nursing homes located in rural counties are nearly 10% more likely to have untreated tooth decay than their urban counterparts.
- Older adults in rural SNHs also have untreated decay in more teeth on average compared to those living in urban SNHs.
- Older adults who have lost all their natural teeth in rural counties were twice as likely to lack any dentures as compared to their urban counterparts.

KEY POLICY RECOMMENDATIONS

There are a series of improvements that could be made to our healthcare system and funding approaches, as well as building new partnerships and improving workforce capacity in order to help address these challenges and improve the oral health of California's older adults. Key recommendations include:

1. BREAK DOWN HEALTHCARE SILOS TO ADOPT AN INTEGRATED CARE APPROACH TO REDUCE THE DISEASE BURDEN.

- a. Promote cross-professional training of medical, nursing and assisting providers to identify barriers to maintaining good oral health, diagnose dental disease and support timely treatment.
- b. Conduct oral health screenings and create a need-based referral process at senior centers and other places where community-dwelling older adults congregate.
- c. Educate staff and equip institutional facilities with the information, training, tools and resources to encourage regular oral examinations and screening.

- d. Work through these facilities to support the development and implementation of individualized oral health hygiene and maintenance plans.
- e. Work with county agencies, associations, and health systems to set oral health targets and ensure requirements are being addressed.

2. ADOPT AND EXPAND THE USE OF INNOVATIVE PRACTICES IN ORAL HEALTH TO ADDRESS THE NEEDS OF OLDER ADULTS.

- a. Promote the assessment of clinical guidelines and the use of Silver Diamine Fluoride for dental disease prevention among frail older adults.
- b. In order to eliminate transportation barriers to care, support the use of sustainable mobile and portable systems of dental care delivery, and promote the use of the Virtual Dental Home model that is being piloted for children.

3. ELIMINATE BARRIERS TO CARE.

- a. Minimize the administrative burden on professionals like Registered Dental Hygienists in Alternate Practice in collaborative practice and support delivery of on-site dental care.
- b. Prioritize older adults' access to care and ability to pay for services through inclusion of benefits in Medicare.
- c. Strengthen the Medi-Cal Dental Program in its ability to serve older adults by setting utilization targets to increase accountability, increasing provider participation in the program, increasing reimbursement rates, and prioritizing preventive services when rate increases are considered.

4. INCLUDE OLDER ADULTS IN PILOT DENTAL PROGRAMS AND ORAL HEALTH INITIATIVES AIMED AT HEALTHY AGING.

- a. Incentivize screening and referral of older adults for their oral health needs in the Medi-Cal dental and managed care program.
- b. Encourage counties through local oral health programs and provide technical support to include older adults in their community oral health needs assessments, health improvement plans, and programs being developed through funding from the California Department of Public Health.
- c. Include oral health in county and state healthy aging plans and initiatives. Set, assess and evaluate benchmarks to reduce the burden of dental disease in older adults as it has been done with chronic conditions like diabetes and heart disease.
- d. Convene a statewide partnership or advisory committee of stakeholders to focus on oral health needs of older adults and pursue a 5-year public policy agenda.

5. IMPROVE CALIFORNIA'S DENTAL WORKFORCE CAPACITY TO MEET ORAL HEALTH NEEDS OF OLDER ADULTS.

- a. Promote specialized education programs in the oral health care of older adults, for all oral health professionals during their training. Support the inclusion of more geriatric oral health content in specialty programs.
- b. Promote advanced and specialty residency programs in geriatric dentistry through fellowships.

INTRODUCTION

In 2010, nearly 14% of California's population was 65 years or older. By 2030, about 20% (one out of five) Californians are expected to be 65 years or older¹ and increasingly diverse in terms of race/ethnicity, financial resources, and living conditions. Across the United States, the number of older adults is expected to increase by 70% and constitute 21% of the total population by 2030². Although Californians too are living longer than ever before, many of them do not enjoy good overall health and quality of life in their later years.

Oral health is an integral part of overall health and well-being. While dental disease is largely preventable and treatable, low-income families and individuals, older adults (age 65 and older), disadvantaged racial and ethnic minorities, low-income pregnant women, people with special health care needs, and people living in rural communities struggle to gain access to quality dental care³. Untreated tooth decay (dental caries) and periodontal diseases lead to unnecessary pain, infection, and tooth loss. They also contribute to poor quality of life, poor health outcomes, and share common risk factors with other medical conditions such as diabetes, heart disease and poor reproductive/ birth outcomes⁴⁻⁷.

For many people, oral health problems begin when they are young and worsen over time. In the United States (U.S.), between 2005 and 2008, a quarter of children ages 2-5, and one half of those 12-15 years old have tooth decay⁸. In fact, tooth decay (cavities) is the most common chronic disease of childhood, affecting nearly 60% of all 5 to 17-year-old children⁹. In contrast to the growing awareness of children's oral health needs, the oral health of older adults in the U.S. has received relatively little attention and few public health or public policy interventions until recently. As individuals age they continue to be plagued by oral health problems, further impacting their quality of life. Data from the National Health and Nutrition Examination Survey (NHANES) shows that 18% of older adults in the U.S. have lost all their teeth¹⁰, and 70% have some form of periodontal (gum) disease¹¹. Dental disease is also more prevalent among low-income seniors and members of racial/ ethnic minorities¹².

The above stated findings, and national surveys like the Behavioral Risk Factor Surveillance System (BRFSS), document the oral health needs of non-institutionalized (community-dwelling) older adults. It is important to note that there is also a population of frail, institutionalized older adults whose oral health care needs must be considered. In California, at the end of 2014, there were 1,220 licensed nursing



In California, oral health needs and status of institutionalized older adults have not been documented to date and this study aims primarily to fill that gap in literature.

homes operating statewide with 119,696 beds¹³. Nearly 60% of nursing home residents are Medi-Cal beneficiaries and rely on responsive public programs and support services for their health care needs¹⁴. While California State mandates annual dental exams and prophylaxis (tooth cleaning), compliance with this mandate is unknown and so is its impact on oral health of nursing home residents¹⁵. Although not specific to nursing home residents, only 23% of older adults with Denti-Cal had an annual dental visit and only 6% of older adults received a preventive service, according to 2015–16 data^{16,17}. In California, oral health needs and status of institutionalized older adults have not been documented to date. This study seeks to begin to fill that gap in the literature.

OLDER ADULTS EXPERIENCE UNIQUE ORAL HEALTH CARE NEEDS

Nationally, approximately 50% of nursing home residents are unable to perform three or more of the 'Activities of Daily Living'¹⁸, one of which is personal hygiene that includes oral care. Due to these and many other contributing factors, the risk of poor oral health and its impact on the overall well-being of older adults is significant and deserves more attention.

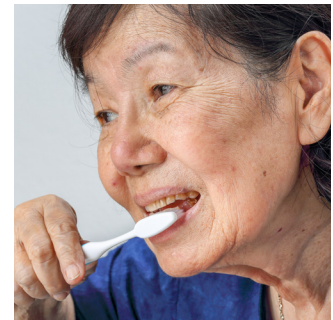
Older adults have unique oral health needs. Common conditions that affect older people include tooth loss, lack of contact between upper and lower teeth, gum disease (e.g. swollen and bleeding gums), poor condition of natural teeth (e.g. teeth that are decayed and loose), xerostomia (dry mouth) and ill-fitting dentures. These conditions are also fueled or exacerbated by natural changes associated with aging and chronic health conditions¹⁹.

POOR ORAL HEALTH UNDERMINES OVERALL HEALTH AND WELL BEING

There is a significant body of emerging evidence regarding the close interaction between oral health and the health of other parts of the body. Tooth decay, tooth loss and the inability to chew may result in weight loss and poor nutrition, and may exacerbate chronic conditions like hypertension and diabetes^{20,21,22}. Diabetic individuals with periodontal (gum) disease are known to have poorer glycemic control and treatment outcomes. Furthermore, the interaction between oral bacteria and aspiration pneumonia is especially concerning for frail older adults and nursing home residents²³. A recent study showed that older adults who had 20 or more natural teeth retained in their mouth had a significantly lower 5-year mortality rate than their counterparts who had 19 or fewer natural teeth²⁴.

IMPROVED ORAL HEALTH WILL BRING COST SAVINGS

There is a strong body of research demonstrating that properly addressing oral health needs helps prevent other medical complications and thereby reduces overall healthcare spending. In a Cigna study, the first year of dental coverage was associated with medical cost savings of approximately \$1,418 per patient²⁵. A landmark study conducted by University of Pennsylvania examined over 200,000 patients with gum (periodontal) disease and found that good periodontal maintenance resulted in an annual reduction of healthcare costs of \$2,840 (40.2%) for patients with Type 2 diabetes; \$5,681 (40.9%) for patients with cerebral vascular disease; \$1,090 (10.7%) for patients with cardiovascular disease; and \$581 (6.3%) for patients with rheumatoid arthritis²⁶. The study also found a reduction in hospital admissions among patients with type 2 diabetes (39.4% reduction); cerebral vascular disease (21.2%) and cardiovascular disease (28.6%)²⁷.



IMPROVED DATA WILL HELP IMPROVE CARE AND HEALTH OUTCOMES

Until now, reliable data that sets a baseline for oral healthcare needs of institutionalized older Californians has not been available. Data on the oral health of older people is critical to:

- 1) Improve our understanding of the oral health of population groups across the lifespan including disease trends and disparities in oral health; and
- 2) Inform the development of strategic and community-based interventions, measure access to and utilization of care, mobilize resources, and develop public health policy solutions.



OUR STUDY APPROACH

Between January 2016 and September 2017, COH conducted oral health screenings on 2,372 older adults in California. Screenings were conducted at 36 skilled nursing home and 51 community sites, which included congregate meal sites, adult day care centers and senior centers.

COH used the Basic Screening Survey (BSS) developed and standardized by the Association of State and Territorial Dental Directors (ASTDD) for this study, which includes protocols for basic examination of key oral health indicators³ (<http://www.astdd.org/basic-screening-survey-tool/#adults>).



Screenings were conducted by Registered Dental Hygienists (RDH) or RDHs in Alternate Practice (referred to as ‘screeners’ henceforth). Screeners were trained to ensure data validity and reliability. Using standardized diagnostic criteria, screeners collected data on various indicators: tooth loss, condition of natural teeth (mobility, root fragments), presence of dentures, ability to chew, tooth decay, gum (gingival and periodontal) health, dry mouth and suspicious oral lesions. Demographic information collected included age, gender and race/ ethnicity; no identifiable information was collected. Data was collected using paper forms and analyzed in SAS (Statistical Analysis Software, version 9.4).

A combination of passive (or implied) and active consent was used, depending on the participant’s ability to consent for themselves. Even if a site agreed to participate in the study, older adult participation in the survey was completely voluntary. Consent was passively given to screeners when potential participants agreed to participate in the study (after receiving detailed information about the study from the screener) and resultantly opened their mouths for the screening – this participation implied that consent was received. For older adults who were designated by staff as unable to verbally consent for themselves, written consent forms were sent to their court-appointed guardian or guarantor at least one week in advance for approval. When early or urgent oral health needs were found by screeners, findings were notified to participants, facility nurses and/ or caregivers. Every older adult and nursing home also received a resource list of free/ low-cost oral health providers in their vicinity. Participants also received a complementary kit of oral hygiene supplies that included a tooth brush, tooth paste and floss, and denture brushes, adhesives and boxes if needed.

SKILLED NURSING HOME RESIDENTS

This is a state-representative sample, i.e., findings from this group represent oral health status and needs of older adults who reside in skilled nursing homes across California.

The total number of older adults screened in this sample was 1,193 from 36 skilled nursing homes across the state. Skilled nursing homes were selected from a master list of facilities statewide using stratified non-probability proportional to size (non-PPS) random sampling. Stratification was done by rurality of the county in which the nursing home was located (urban or rural), Medical Service Study Areas (MSSAs) and percentage of Medi-Cal beds per nursing home.

COMMUNITY-DWELLING OLDER ADULTS

This is a convenience sample; i.e.; findings from this group do not represent community-dwelling older adults statewide. It does, although, provide a robust baseline assessment of the needs of this population.

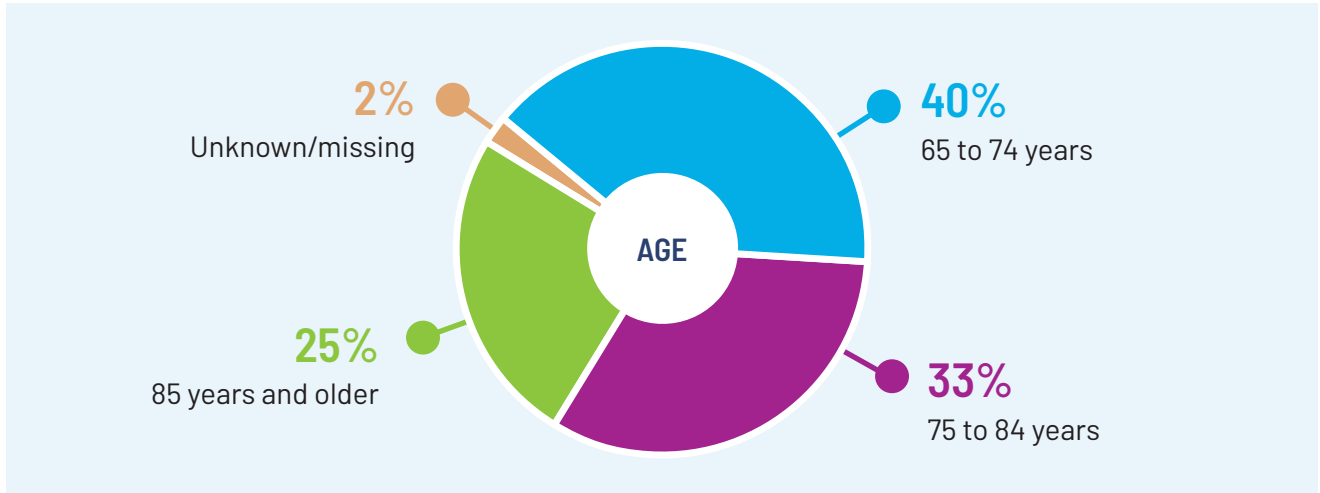
A total of 1,179 community-dwelling older adults living in a home, apartment, or retirement community were screened. Older adults were screened at congregate meal sites, senior centers and adult day care centers in select counties in California.

STUDY LIMITATIONS:

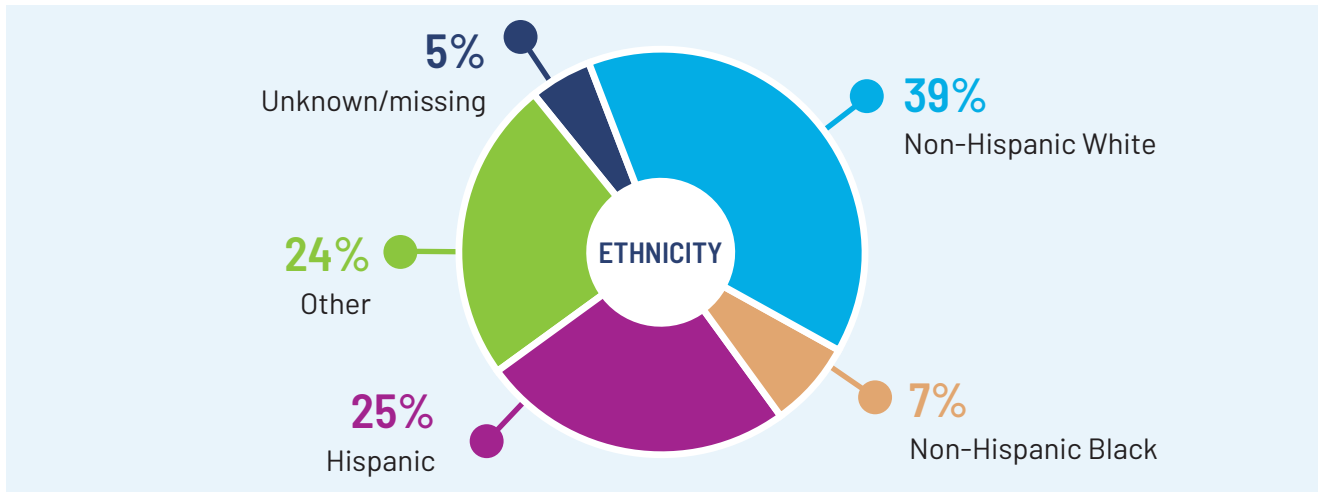
- Assessments in both settings were intended as observational to provide an overview of oral health needs of older adults. Findings in no way are exhaustive (no X-rays, health records, or intra-oral exams were included). This could have resulted in some degree of under or over-estimation.
- Findings from community-dwelling seniors are not statistically representative of the older adults across the state. Being a convenience sample, all sites that participated in this sample were from urban counties (Orange, Los Angeles, Kern, Alameda and San Diego).
- By design, and beyond our control, results of the survey might be slightly skewed towards healthier residents and skilled nursing facilities with better oral health policies. Since participation was optional, facilities with poor policies or lower awareness could have been more likely to opt-out. In fact, some sites responded with confusion or opposition to the request to assess the oral health of their residents.

DEMOGRAPHICS OF SURVEY POPULATION

Over the survey period, 2,372 older adults were screened in California. Screenings were conducted at 36 skilled nursing homes and 51 community sites that included congregate meal sites, adult day care centers and senior centers. Older adults surveyed ranged in age from 65 to 96 years old, with a median age of 76 years for the skilled nursing home residents and 74 years for community-dwelling older adults.



The majority of older adults surveyed were male (68%). A quarter (25%) were Hispanic, 39% were non-Hispanic White, 24% were non-Hispanic Black and the remaining 29% reported their race as other or did not report it.



SUMMARY OF KEY FINDINGS



KEY FINDINGS:



1 LARGE NUMBERS OF OLDER ADULTS SUFFER FROM UNTREATED TOOTH DECAY

Half the older adults residing in skilled nursing homes, and more than one in three community-dwelling older adults, are living with untreated tooth decay.

2 UNTREATED TOOTH DECAY LEADS TO HIGH PREVALENCE OF TOOTH LOSS IN OLDER PEOPLE

One in three older adults in California's skilled nursing homes, and 18% of the community dwelling older adults screened, have lost all their natural teeth, most of them due to tooth decay.

3 MANY OLDER ADULTS IN CALIFORNIA SUFFER FROM INABILITY TO CHEW DUE TO POOR CONTACT BETWEEN TEETH

Nearly 40% of SNH residents and nearly 18% of community-dwelling older adults cannot chew because they do not have a functional contact between their upper and lower back teeth on either side of their mouth.

4 MAJORITY OF OLDER ADULTS NEED TREATMENT FOR TOOTH DECAY AND/ OR GUM DISEASES

Sixty-five percent (65%) of older adults residing in SNHs and 46% of older adults residing in community-dwelling facilities need treatment for tooth decay and/or periodontal (gum) disease.

5 OLDER ADULTS LIVING IN RURAL AREAS ARE WORSE OFF THAN THOSE LIVING IN URBAN AREAS

Nursing home residents in rural counties have more untreated tooth decay and poorer oral health, overall, than their urban counterparts.

UNTREATED TOOTH DECAY

Tooth decay is the most prevalent chronic disease in both children and adults. Much of the tooth decay in older adults started years ago, but failure to treat it early led to more severe consequences like tooth loss and compromised function. Tooth decay not only has medical consequences like inability to chew (affecting nutrition), but also causes social and emotional setbacks such as the inability to speak, and altered appearance (resulting in social isolation and shame). These repercussions further deteriorate the health and well-being of older adults.

Another related finding among older adults is the presence of decayed root fragments. Root fragments are a result of almost complete destruction of tooth structure from decay resulting in only a portion of the root remaining in the mouth. These fragments are often loose and decayed, and can pose a high risk for aspiration and infection.

TOOTH DECAY

Tooth decay is a condition in which tooth and root structures are demineralized by acids produced by bacteria inside the mouth that feed on fermentable carbohydrates one consumes. The resultant cavitation cannot be reversed but can be restored with fillings, endodontic (root canal) and other similar treatments. Left untreated, tooth decay can lead to pain, infection, swelling and ultimately, tooth loss. Tooth decay is completely preventable through a combination of basic behavioral changes (regular tooth brushing, drinking fluoridated water and eating healthy foods that are low in fermentable carbohydrates), and preventative measures (professional application of dental sealants, topical fluoride varnish and caries risk assessment).



KEY FINDING # 1: LARGE NUMBERS OF OLDER CALIFORNIANS SUFFER FROM UNTREATED TOOTH DECAY

SKILLED NURSING HOME RESIDENTS

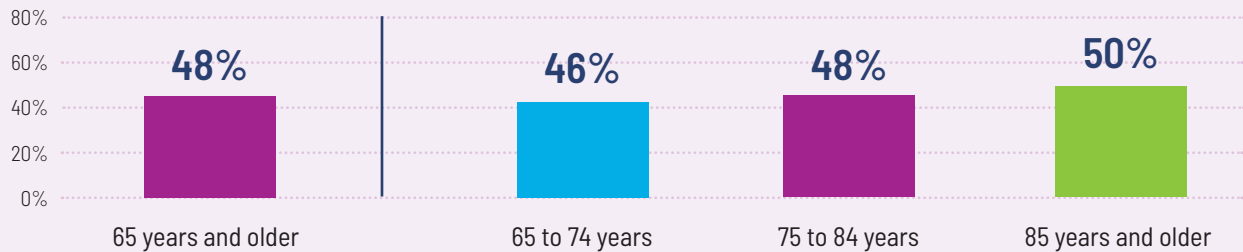
Half the older adults residing in skilled nursing homes have untreated tooth decay. This is significantly higher than the national average rate (30%) of untreated tooth decay among the general population of older adults.

- Forty-eight percent (48%) of the older adults screened at skilled nursing homes have untreated tooth decay, which means that at least one tooth in nearly half the seniors' mouth was decayed. Many older adults have untreated tooth decay in more than one tooth, with 17% having four or more affected teeth.

UNTREATED TOOTH DECAY

- One in three nursing home residents have one or more decayed root fragments in their mouth. An alarming 10% of older adults in SNHs have 4 or more root fragments.
- The rate of untreated tooth decay is highest among adults aged 85 years and older.

CA SKILLED NURSING HOME RESIDENTS (65 YEARS AND OLDER) WITH UNTREATED TOOTH DECAY BY AGE



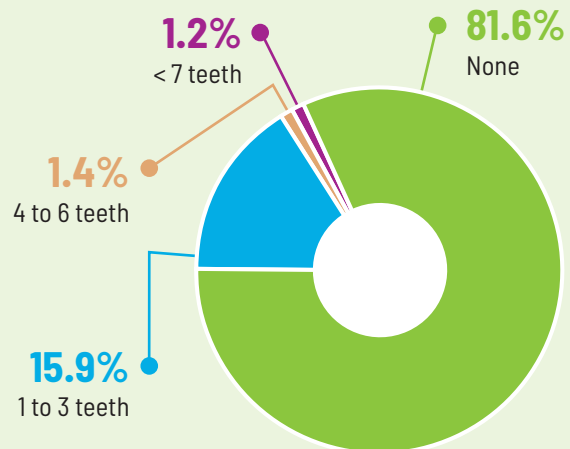
COMMUNITY-DWELLING OLDER ADULTS

More than one in three community-dwelling older adults suffer from untreated tooth decay. This rate is comparable to the national average of 30% in the general population of older adults.

- Many of the community-dwelling older adults screened suffer from untreated tooth decay in more than one tooth. Five percent (5%) have four or more teeth with decay.
- Nearly 20% of the community-dwelling older adults screened have one or more decayed root fragments in their mouth.

PREVALENCE AND NUMBER OF ROOT FRAGMENTS

CA Community-Dwelling Seniors (65 years and older)



UNTREATED TOOTH DECAY IS A HIDDEN EPIDEMIC AMONG OLDER ADULTS, AND LEFT UNTREATED OFTEN HAS SERIOUS CONSEQUENCES LIKE PAIN, INFECTION AND TOOTH LOSS.

TOOTH LOSS DUE TO DENTAL DISEASE

TOOTH LOSS

Total tooth loss (edentulism) most commonly occurs because of long standing dental disease including tooth decay and periodontal (gum) disease. Partial and complete tooth loss can both have a significant negative impact on the general health and well-being of older adults. Tooth loss can impede one’s ability to chew effectively, resulting in a deficient diet, weight loss, and a myriad of related ill effects to a person’s overall health. Tooth loss combined with poor muscle tone/masticatory function can also increase a senior’s susceptibility to choking on food. Tooth loss can have a negative impact on one’s self-esteem and ability to interact socially. An altered appearance, difficulty in chewing/ swallowing effectively and challenges speaking can all affect social interactions, which further impact overall health.



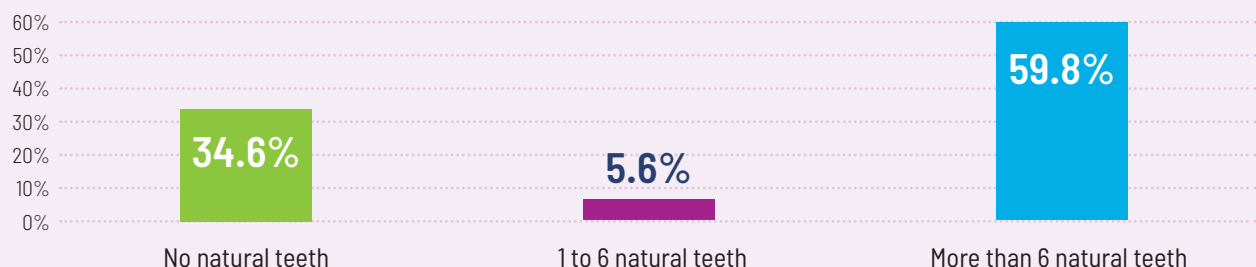
KEY FINDING # 2: UNTREATED TOOTH DECAY IS LEADING TO A HIGH PREVALENCE OF TOOTH LOSS IN OLDER ADULTS IN CALIFORNIA

SKILLED NURSING HOME RESIDENTS

One in three older adults in California’s skilled nursing homes have lost all their teeth. Prevalence of total tooth loss in this population is three times that of the general population of older adults in California (9.4%).

Thirty-five percent (35%) of the older adults screened at skilled nursing homes have lost all their natural teeth and an additional 6% have lost more than six teeth. While tooth loss can also result from injury or trauma, it is almost always a result of tooth decay and gum disease. Prevention, early diagnosis and timely treatment are key to maintaining integrity and function for teeth and mouths.

TOOTH LOSS AS MEASURED BY THE NUMBER OF REMAINING NATURAL TEETH
CA Skilled Nursing Home Residents (65 years and older)



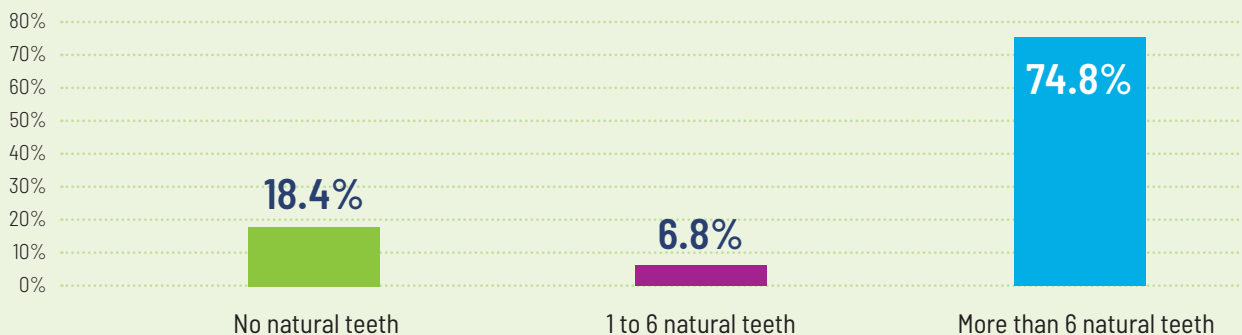
COMMUNITY-DWELLING OLDER ADULTS

Eighteen percent (18%) of the community dwelling older adults screened have lost all their natural teeth, most of them due to tooth decay. This study reports twice as high a prevalence of tooth loss as does the self-reported survey (BRFSS) from 2012 (9.4%).

Eighteen (18%) of the older adults screened have lost all their natural teeth and an additional 7% lost more than six teeth. While this is a convenience sample, compared to the state average (9.4%) of self-reported tooth loss (Behavioral Risk Factor Surveillance System), this study found that tooth loss is twice as high as reported by the 2012 BRFSS. This difference could be due in part to the survey methods – BRFSS state estimates are based on self-report while our study is based on observations by a trained dental professional. Furthermore, for community-dwelling seniors, our study findings are not representative of the whole state while BRFSS estimates are.

TOOTH LOSS AS MEASURED BY THE NUMBER OF REMAINING NATURAL TEETH

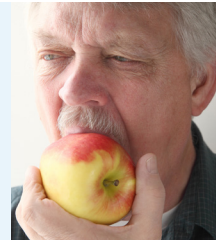
CA Community-Dwelling Older Adults (65 years and older)



INABILITY TO CHEW – MISSING OR POOR FUNCTIONAL CONTACT BETWEEN TEETH

FUNCTIONAL POSTERIOR TOOTH CONTACT (OCCLUSION)

In a healthy mouth, upper and lower teeth meet each other through jaw movements to support functions like chewing, swallowing and speech. This functional contact is especially vital for effectively chewing and swallowing food.



KEY FINDING # 3: MANY OLDER CALIFORNIANS SUFFER FROM INABILITY TO CHEW DUE TO POOR CONTACT BETWEEN TEETH

SKILLED NURSING HOME RESIDENTS

Nearly 40% of SNH residents cannot chew because they do not have a functional contact between their upper and lower back teeth on either side of their mouth.

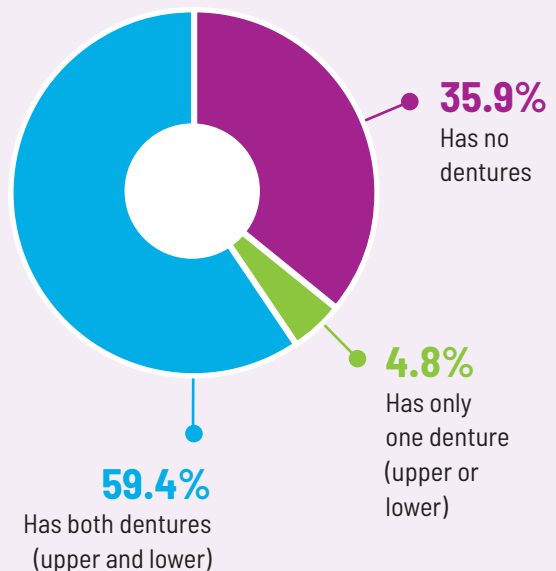
Nearly 40% of nursing home residents do not have any functional posterior contact of their back teeth – neither natural teeth nor dentures. An additional 10% have such posterior contact on only one side of their mouth.

Thirty-six percent (36%) of the older adults with total tooth loss do not have dentures, and thus they have no ability to chew at all. Of those who have dentures, 5% have only one denture even though they need both (upper and lower dentures) to restore functional contact. This implies that more than a third of the nursing home residents with total tooth loss are unable to chew their food at all. This significantly limits the types of foods they can consume and, resultantly, affects their nutrition and well-being.

The status of those with some natural teeth remaining in their mouth was no better. Forty percent (40%) of the older adults with partial tooth loss do not have the necessary dentures either.

DENTURE STATUS OF OLDER ADULTS WITH TOTAL TOOTH LOSS

CA Skilled Nursing Home Residents (65 years and older)



COMMUNITY-DWELLING OLDER ADULTS

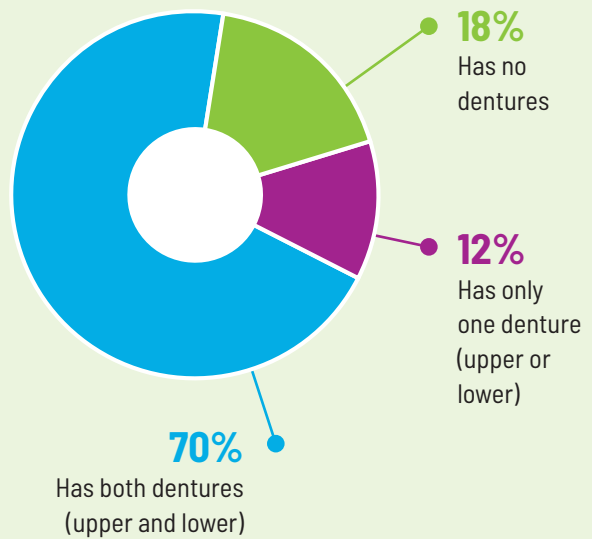
Nearly 18% of the community-dwelling older adults cannot chew due to lack of a functional contact between their upper and lower back teeth.

Eighteen percent (18%) of older adults (with natural teeth, dentures or both) cannot chew on either side of their mouth, while 11.6% have functional contact on only one side.

Eighteen percent (18%) of the older adults with total tooth loss do not have any dentures, and thus have no ability to chew at all. Of those who have dentures, 3% have only one denture even though they need both (upper and lower dentures) to restore functional contact.

DENTURE STATUS OF OLDER ADULTS WITH TOTAL TOOTH LOSS

CA Community-Dwelling Older Adults (65 years and older)



POOR GUM (PERIODONTAL) HEALTH AND TREATMENT NEED

Significant plaque and calculus (calcified plaque) built-up on teeth requires professional dental care to remove it. Dental cleanings every six months and ongoing good oral hygiene habits (tooth brushing, flossing and mouth rinsing) are recommended to ensure sound periodontal health. Left unattended, poor gum health leads to bleeding, pain, suppuration (formation of pus) and infections, and ultimately compromises the structure and integrity of teeth, loosening them in their sockets. Among older adults screened, 10% have one or more teeth that are loose in their sockets (mobile teeth).

PERIODONTAL (GUM) HEALTH

The periodontium is the tissue that supports form and function of our teeth. It is vital to maintain a healthy periodontium in addition to keeping one's teeth cavity-free. Habits like regular brushing and flossing are effective in removing harmful bacterial and plaque. Left unattended, plaque and calculus build-up can result in gingival inflammation, periodontal disease and abscesses, and ultimately tooth loss. Some symptoms of these conditions include bleeding, swollen and tender gums, and teeth that are loose in their socket (mobile teeth). Periodontal (gum) diseases are associated with a high bacterial load and have been shown to affect overall health by reducing glycemic control and increasing susceptibility to pneumonia. Preliminary research also suggests that poor periodontal health is negatively associated with cardiovascular and respiratory health outcomes.

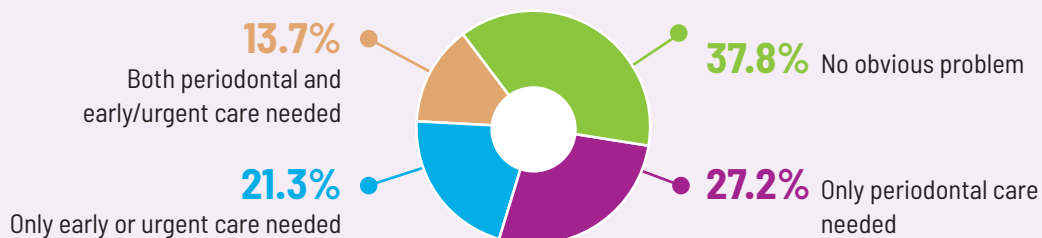


KEY FINDING #4: MAJORITY OF OLDER ADULTS NEED TREATMENT FOR TOOTH DECAY AND/ OR GUM DISEASES

SKILLED NURSING HOME RESIDENTS

Sixty-five percent (65%) of older adults residing in SNHs need treatment for tooth decay and/or periodontal (gum) treatment.

OLDER ADULTS WHO NEED EARLY OR IMMEDIATE DENTAL TREATMENT AND PERIODONTAL CARE CA Skilled Nursing Home Residents (65 years and older)



POOR GUM (PERIODONTAL) HEALTH AND TREATMENT NEED

NEED FOR GUM (GINGIVAL OR PERIODONTAL) CARE OR TREATMENT

Forty percent (40%) of older adults who have natural teeth in their mouth (defined as dentate older adults) have substantial debris or deposits covering more than two-thirds of their natural tooth surfaces. Nearly one-third of the dentate older adults also have significant inflammation in their gums (gingival inflammation).

- As a result, nearly one in three (27%) older adults need gum (gingival or periodontal) treatment immediately.

NEED FOR TREATMENT OF TOOTH DECAY

Seven percent (7%) of older adults need immediate treatment due to pain, swelling or an active infection associated with a decayed tooth. Furthermore, 21% of older adults need to be seen by a dental provider within the next 2 to 4 weeks for necessary dental treatment.

- Overall, one in three (27%) older adults need treatment for a decayed tooth immediately or within 2 to 4 weeks.

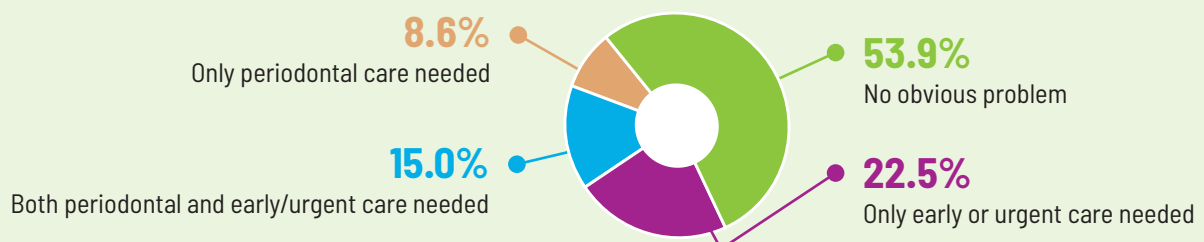
NEED FOR EARLY OR IMMEDIATE DENTAL TREATMENT FOR TOOTH DECAY (EXCLUDING NEED FOR PERIODONTAL OR GUM CARE) CA Skilled Nursing Home Residents (65 years and older)



COMMUNITY-DWELLING OLDER ADULTS

Forty-six percent (46%) of the community-dwelling older adults screened need treatment for tooth decay and/or periodontal (gum) treatment.

PERCENT OF OLDER ADULTS WHO NEEDED EARLY OR IMMEDIATE DENTAL TREATMENT AND PERIODONTAL CARE CA Community-Dwelling Older Adults (65 years and older)



NEED FOR GUM (GINGIVAL OR PERIODONTAL) CARE OR TREATMENT

Twenty-six percent (26%) of community-dwelling older adults who have natural teeth in their mouth (defined as dentate older adults) have substantial debris or deposits covering more than two-thirds of their natural tooth surfaces. Nearly one out of five of the dentate older adults also have significant inflammation in their gums (gingival inflammation).

- As a result, nearly one out of four (24%) of older adults need gum (gingival or periodontal) treatment immediately.

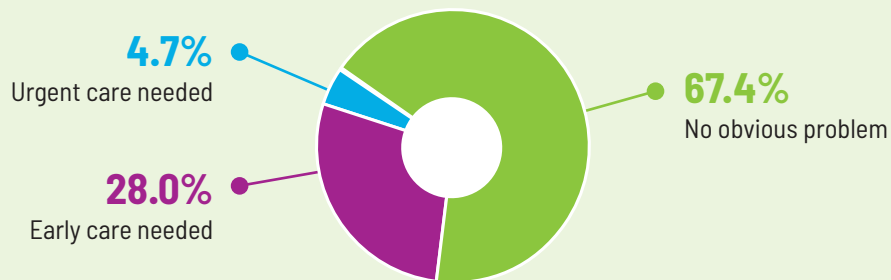
Among community-dwelling older adults screened, 14% have one or more teeth that are loose in their sockets (mobile teeth).

NEED FOR TREATMENT OF TOOTH DECAY

About 5% of older adults need immediate treatment due to pain, swelling or an active infection associated with a decayed tooth. Furthermore, 28% of older adults need to be seen by a dental provider within the next 2 to 4 weeks for necessary dental treatment.

- Overall, one in three (32.7%) older adults need treatment for a decayed tooth immediately or within 2 to 4 weeks.

NEED FOR EARLY OR IMMEDIATE DENTAL TREATMENT FOR TOOTH DECAY (EXCLUDING NEED FOR PERIODONTAL OR GUM CARE) CA Community-Dwelling Older Adults (65 years and older)



SOCIAL DETERMINANTS OF HEALTH AND HEALTH EQUITY

SOCIAL DETERMINANTS OF ORAL HEALTH EQUITY

Socio-economic factors like rurality of residence, race/ ethnicity, highest educational attainment and insurance status determine access to oral health care and oral health outcomes.

Studies have shown that lower socioeconomic status is associated with worse self-rated oral health among some older adults. Social gradient in the oral health status and needs of older adults must not be ignored. The impact of age on oral health is only compounded by social determinants of health, resulting in older adults from disadvantaged backgrounds suffering from the disease disproportionately.

KEY FINDING # 5: OLDER ADULTS LIVING IN RURAL AREAS ARE WORSE OFF THAN THOSE IN URBAN AREAS

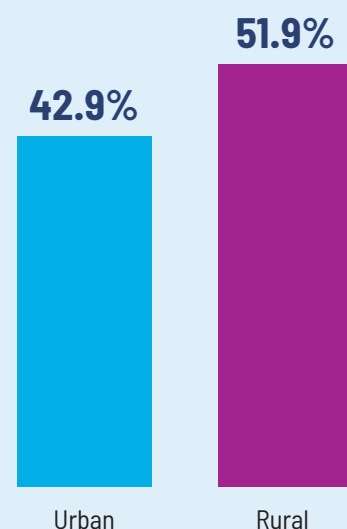
Nursing home residents in rural counties have more untreated tooth decay and poorer oral health, overall, than their urban counterparts.

Older adults residing in nursing homes located in rural counties are nearly 10% more likely to have untreated tooth decay than their urban counterparts.

Older adults in rural counties also have untreated decay in more teeth on average. Rural residents are 6% more likely to have untreated tooth decay in 4 to 6 teeth as compared to older adults residing in urban facilities. This shows that rurality not only determines the prevalence of untreated tooth decay but also its magnitude, as determined by the number of teeth affected.

Older adults screened in rural counties also have higher rates of complete tooth loss (most likely due to tooth decay), and periodontal (gum) disease. Furthermore, older adults living in rural counties who have lost all their natural teeth are **twice as likely to lack any dentures** as compared to their urban counterparts.

PERCENT OF OLDER ADULTS IN CALIFORNIA WITH UNTREATED CARIES BY RURALITY OF COUNTY OF RESIDENCE



CONCLUSION

It is clear that many older Californians are suffering from and living with significant dental disease. This study shows that this health problem is of great magnitude and deserves focused attention.

Older adults residing in skilled nursing homes have a particularly high need of responsive and systematic oral health interventions. By neglecting their oral health needs, they are being put at risk of exacerbation of other chronic conditions and compromised quality of life.

While community-dwelling older adults seem to fare better in terms of their oral health compared to skilled nursing home residents surveyed, there still exists a high level of unmet oral health needs and a high rate of dental disease.

Unique challenges to receiving preventive and treatment oral health services, compounded by barriers of affordability and accessibility to dental services for low-income populations, are resulting in significant oral health challenges that must be better addressed.

We must strive to purposefully respond to this health problem using a multi-pronged approach.



RECOMMENDATIONS

1

Break down healthcare silos to adopt an integrated care approach to reduce disease burden

- Promote cross-professional training of medical, nursing and assisting providers to identify barriers to maintaining good oral health, diagnose dental disease and support timely treatment.
- Conduct oral health screenings and create a need-based referral process at senior centers and other places where community-dwelling older adults congregate. Convene experts to devise and pilot a referral process that takes various aspects like insurance and payment mechanisms into consideration, and results in successful dental visits/ establishment of a dental home.
- Educate staff at institutional settings (skilled nursing and long-term care homes) of the oral health needs of residents they serve, and provide annual in-service training. Promote oral examinations and screening during admission that is repeated semi-annually or annually. Support, for each resident, the development and implementation of an individual oral health hygiene and maintenance plan that takes into consideration their overall state of health.
- Equip nursing homes with resources to case manage dental treatment for older adults in need, ensuring barriers to care are addressed and treatment is completed in a timely manner.
- Encourage Managed Long-Term Services and Supports (MLTSS) and County Organized Health Systems (COHS) to set oral health targets for facilities they are contracted with, and to provide technical assistance and resources to meet these targets.
- Engage state and county agencies, associations and community-based organizations involved with regulation of long term care facilities and supporting community-dwelling older adults, to ensure oral health needs and requirements are being addressed.

2

Adopt and expand the use of innovative practices in oral health to address the needs of older adults

- Promote the assessment of clinical guidelines and the use of Silver Diamine Fluoride for dental disease management among frail older adults at high-risk of dental caries and those who face limitations (like mobility) to seeking dental care.
- Support the development and implementation of sustainable mobile and portable systems of dental care delivery, eliminating transportation barriers for older adults.
- Promote the expansion and use of the Virtual Dental Home model (currently being piloted extensively with children who have limited access to dental care) for bringing much needed dental care to older adults.

3

Eliminate barriers to care

- Minimize the administrative burden on professionals like Registered Dental Hygienists in Alternate Practice in collaborative practice and support delivery of on-site dental care.

- Prioritize older adults' access to care and ability to pay for services through inclusion of benefits in Medicare.
- Set utilization targets for older adults, both community-dwelling and institutionalized, to increase accountability in the Medi-Cal Dental Program towards low-income older adults who depend on it for their oral health needs.
- Increase provider participation in the program, increase reimbursement rates to reasonable levels that are comparable to other states, and prioritize preventive services critical to older adults (periodontal care and maintenance) when rate increases are considered.

4 Include older adults in pilot dental programs and oral health initiatives aimed at healthy aging

- Incentivize screening and referral of older adults for their oral health needs in the Medi-Cal dental and managed care program. Various pilot projects such as the Dental Transformation Initiative have been devised to increase utilization and reduce disease burden among children. This report establishes the need to aggressively and systematically address the gap in access to dental services among the state's aging adults.
- Encourage counties through local oral health programs and provide technical support to include older adults in their community oral health needs assessments, health improvement plans, and programs being developed through funding from the California Department of Public Health (Oral Health Program).
- Include oral health in county and state healthy aging plans and initiatives. Set, assess and evaluate benchmarks to reduce the burden of dental disease in older adults as it has been done with chronic conditions like diabetes and heart disease.
- Convene a statewide partnership or advisory committee of stakeholders to focus on oral health needs of older adults. Develop, implement and evaluate a systematic 5-year public policy agenda. Ensure congruence with the recently released State Oral Health Plan and other ongoing initiatives across the state.

5 Improve California's dental workforce capacity to meet oral health needs of older adults

- Promote specialized clinical and didactic education programs in the oral health care of older adults, for all oral health professionals during their training. Support the inclusion of more geriatric oral health content in specialty programs.
- Promote advanced and specialty residency programs in geriatric dentistry through fellowships.

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