The Oral Health of Vulnerable Older Adults in Connecticut

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Keeping Connecticut Healthy
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Connecticut Department of Public Health

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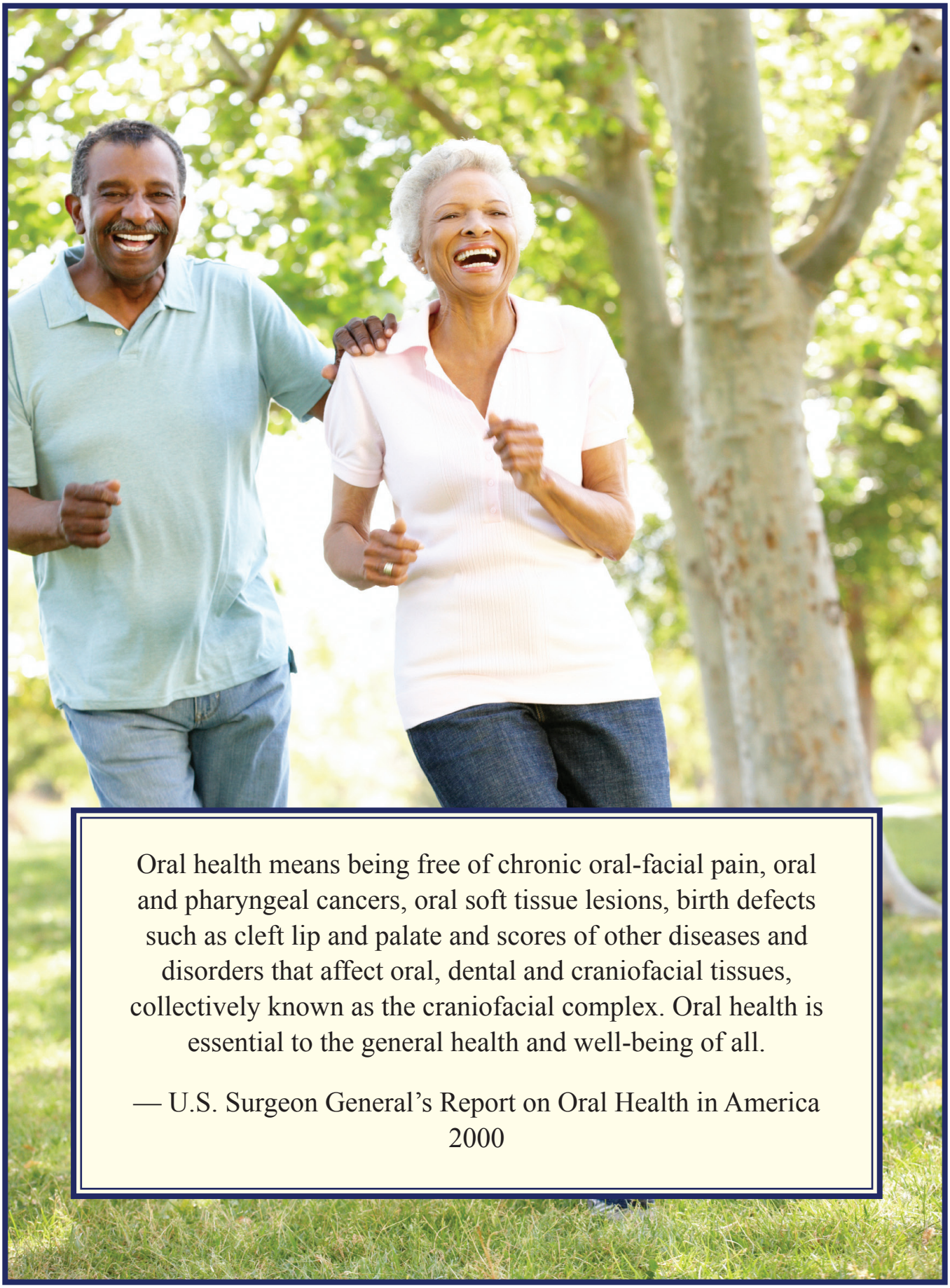


Oral health means being free of chronic oral-facial pain, oral and pharyngeal cancers, oral soft tissue lesions, birth defects such as cleft lip and palate and scores of other diseases and disorders that affect oral, dental and craniofacial tissues, collectively known as the craniofacial complex. Oral health is essential to the general health and well-being of all.

— U.S. Surgeon General's Report on Oral Health in America 2000

Executive Summary

The population 65 years of age and over has increased from 35 million in 2000 to 40 million in 2010 and is projected to increase to 55 million in 2020.[1] According to the 2010 US Census, approximately 14% of Connecticut's population is 65 years or older.[2]

Oral health is integral to overall good health, but it is often an overlooked aspect of an older adult's general health. This oversight is especially true for vulnerable older adults – those with impaired mobility, diminished sensory awareness, multiple chronic health conditions, and social and economic limitations. Ability to access routine professional oral health services, daily oral hygiene and oral health education are all key factors that can improve the oral health of older Americans. According to the US Centers for Disease Control and Prevention (CDC), one-fifth of persons age 75 and older have no remaining teeth and 20% have untreated tooth decay.[3,4]

Advancing age, limited access to routine dental care, inability to maintain good oral hygiene and medications that cause dry mouth put older adults at risk for a number of oral health problems including pain, infection, loose teeth, ill-fitting dentures, severe tooth decay, gum disease and oral cancer. Unfortunately, these problems can result in changes in chewing ability, which can make it more difficult for older adults to consume a healthy diet. In addition, severe gum disease is associated with chronic disease and other health conditions including diabetes, heart disease, stroke and respiratory disease.

Accessing health care can be difficult for older adults, especially access to the oral health care system. Barriers to accessing oral health care include:

- Living on a fixed income
- Cost of oral health care
- Limited dental insurance for retirees (Medicare does not cover dental care)
- A limited number of oral health programs that offer affordable services
- Mobility limitations and lack of transportation
- Translation for immigrant older adults
- Limited number of dental providers that feel comfortable providing care to medically compromised adults, especially nursing home residents

Connecticut Oral Health Survey of Vulnerable Older Adults

To assess the oral health of vulnerable older adults in the state, the Connecticut Department of Public Health (DPH) conducted a statewide oral health survey of two population groups: (1) residents of long-term care facilities, and (2) adults attending federally subsidized congregate meal sites. For the long-term care (LTC) facility population a probability sample of 20 LTC facilities was selected of which eight participated. For the congregate meal site population, adults were offered a screening at a convenience sample of fifteen congregate meal sites and one health fair. A total of 419 adults were screened at the LTC facilities and 426 were screened at the congregate meal sites.

Key Findings

Findings from this survey have been organized into eight key findings. These findings highlight the current oral health of a sample of vulnerable older adults living in CT, and describe disparities in oral health in the state, particularly between the population as a whole and vulnerable older adults.

- **Key Finding #1: Many vulnerable adults in CT are not getting the dental care they need.**
  - 42% of the LTC facility residents screened needed dental care including 4% that needed urgent dental care because of pain or infection.
  - 29% of the adults screened at the meal sites needed dental care including 3% that needed urgent dental care because of pain or infection.

- **Key Finding #2: Many vulnerable adults in CT do not have any natural teeth and many do not have dentures to facilitate eating; this is especially true for residents of long-term care facilities.**
  - 37% of the LTC facility residents did not have any natural teeth and 30% of these individuals were missing one or both of their dentures.
  - 19% of the adults screened at meal sites did not have any natural teeth and 10% of these adults were missing one or both of their dentures.

- **Key Finding #3: Untreated tooth decay is a significant problem for vulnerable older adults in CT; especially for those living in long-term care facilities.**
  - 53% of the LTC facility residents with teeth had untreated tooth decay.
  - Of the adults with teeth screened at the congregate meal sites, 26% had untreated tooth decay.

- **Key Finding #4: The most vulnerable older adults in CT have substantially more untreated tooth decay than the general population of older adults in the United States.**
  - The prevalence of untreated decay is more than 2.5 times higher among CT's LTC residents compared to the national average for adults 75 years or older.

- **Key Finding #5: Almost 60% of the vulnerable older adult participants screened in the congregate meal sites do not have dental insurance.**
  - 59% of the congregate meal site participants reported they do not have dental insurance.

- **Key finding #6: Nearly half of the vulnerable older adult participants in the congregate meal sites do not feel their teeth are in good condition.**
  - 43% of the meal site respondents rated the condition of their teeth as either fair or poor.

- **Key Finding #7: Many vulnerable older adults are not visiting a dentist on a regular basis.**
  - Nearly 40% of the congregate meal site respondents reported they had not seen a dentist in more than a year or could not remember the last time they did.

- **Key Finding #8: Over 20% of those screened in the congregate meal sites reported they have problems getting dental care.**
  - 21% of those responding reported they have problems getting dental care when they needed it, and most (74%) said it was because they could not afford it.

Introduction

In 1900, only 3% of the population in the United States (U.S.), a little more than three million Americans, were 65 years of age or older. In 2000, the number of people 65 and older had grown to 35 million and represented 12% of the population, and by 2010 there were 40 million U.S. citizens 65 years and older representing 13% of the U.S. population. Currently, in CT, the elderly population represents approximately 14% of the population.[2] The number of people aged 65 and over is expected to increase by 70% by 2030 to represent 21% of the population.[5] Connecticut residents, as the rest of Americans, are growing older and living longer than ever before. However, not all of these elders enjoy health and well-being in their later years.

The mouth reflects a person's health and well-being throughout life. Oral diseases can have an impact on many aspects of general health, and health conditions in turn can have an impact on oral health. Research indicates a correlation between poor oral health and many chronic diseases and other health conditions, such as diabetes, cardiovascular disease, stroke and respiratory disease.[6]

Dental caries, the disease that causes tooth decay, and periodontal (gum) disease share common risk factors with other chronic diseases. These risk factors include poverty, poor diet, and tobacco use. Tobacco use accounts for more than half of periodontitis cases among U.S. adults.[6] Factors associated with aging can also increase the risk of dental caries. For example, chronic conditions and medications taken to treat them increase the likelihood of dry mouth, which decreases the protection saliva offers in reducing bacteria levels that cause cavities. Receding gums, associated with periodontal diseases, are more common in older adults and expose root surfaces to decay-causing bacteria. Dental caries and periodontal diseases among older adults can profoundly diminish quality of life and have an adverse impact on general health.[6]

Older adults are often at risk of limited access to oral health care because of a lack of transportation, economic challenges, complex medical conditions, social isolation, and other individual and social factors. Unfortunately, retirement often means losing dental insurance, and many older adults are not aware that Medicare does not cover most dental procedures. Residents of LTC facilities often have difficulty accessing treatment services within the nursing home or in the community. Despite federal legislation enacted in 1987 mandating that all nursing homes provide access to dental care for residents, accessing this care remains a challenge.

Limited cognitive ability and dexterity prevent effective oral self-care. Many older adults and their care givers lack the understanding of the importance of good oral health and the impact that poor oral health has on over-all health and well-being.

Prior to 2012, the only information on the oral health status of older adults in CT came from an annual telephone survey of adults over the age of 18 years living in the community. This survey, the Behavioral Risk Factor Surveillance System (BRFSS), has a few questions relating to the oral health of older adults such as annual dental visits, cleanings and tooth loss.

In 2010, the BRFSS reported that CT ranked second in the nation for adults over 65 keeping their natural teeth. Nine percent (9%) reported that they had all of their natural teeth removed in comparison to the

national average of 17%. Eighteen percent (18%) of the elderly in CT reported not seeing a dentist in the past year.[7] The BRFSS does not ask questions about the extent of the two most common oral diseases, dental decay and periodontal disease.

The oral health of older adults has been a relevant issue for several years in CT. In November 2006, the Connecticut DPH established the *Task Force on Oral Health for Older Adults* in response to concerns in the community regarding the availability and accessibility of oral health services for poor and vulnerable older adults. *The Task Force* was charged with developing actionable strategies to improve the oral health of older adults in CT. The *Task Force* recognized the lack of data relative to the oral health status of CT's older citizens and identified a statewide oral health status survey as an essential first step to implementing targeted interventions to improve the oral health of the older adults in the state. Lacking this information hampers the efforts of the Task Force to promote policies and programs that were identified in their 2008 report "Just the F.A.C.T.S.," which contains the five focus areas to improve oral health for older adults in CT: Financing, Advocacy, Communication, Training and Services, as well as its supplement "Connecticut's Action Plan on Oral Health for Older Adults 2010-2013."

There have been other initiatives in Connecticut focusing on the oral health of the aging population: 1) the *Oral Health Research Strategic Alliance*, established in 2010 as a result of a collaborative grant between the Connecticut Institute for Community Research and the University of Connecticut School of Dental Medicine, primarily focused on research to reduce oral health disparities among low-income older adults; 2) Connecticut will be the first state to have a resource page dedicated solely to our state's oral health resources and information for older adults and their caregivers through Oral Health America's *"Wisdom Tooth Project;"* and 3) with the financial support of the Delta Dental Foundation of New Jersey and the Foundation for Community Health, the DPH Office of Oral Health will conduct a pilot project in a nursing facility in Litchfield County to educate care-givers on the principles and practices of oral hygiene.

In 2012, with funding provided by the National Association of Chronic Disease Directors, *Opportunity Grants for Health Aging* award, the DPH Office of Oral Health conducted its first "Basic Screening Survey for Older Adults" (BSSOA). The 2012 BSSOA was a statewide oral health survey of two population groups: residents of long-term care facilities and adults attending federally subsidized congregate meal sites. The purpose of this survey was to assess the oral health status of two high risk older adult populations in CT that are more vulnerable than the overall older adult population in the state. This survey represents a segment of the state's older adult population and **is not representative of all of Connecticut's older adults**. However, it provides a snapshot of the prevalence of oral disease and unmet needs of older adults, which can be used as a benchmark for future assessments of this segment of the population. The much anticipated first statewide Basic Screening Survey for Older Adults in CT will raise public awareness of the oral health needs of this growing population, inform policy makers and inform programs that can contribute to improving the oral health and overall health of CT's aging population.

Methodology

The DPH Office of Oral Health used the methodology of the Basic Screening Survey (BSS) surveillance tool to assess the oral health of two high risk older adult populations: (1) residents of LTC facilities, and (2) congregate meal site participants. The Basic Screening Survey is a nationally standardized tool developed by the Association of State and Territorial Dental Directors (ASTDD) in conjunction with the CDC. This surveillance tool was originally developed to assess the oral health of children and adults, and in 2010 was modified to include indicators reflective of the older adult population, the Basic Screening Survey for Older Adults (BSSOA). The BSS model has two basic components: (1) direct observation of a person's mouth; and (2) questions asked of, or about, the individual being screened. In CT, direct observation of individuals was administered in both populations, and a written questionnaire was administered in the meal sites as well.

There are, nevertheless, limitations to the BSSOA. A dental screening is not a thorough clinical examination and does not involve making a clinical diagnosis resulting in a treatment plan. A screening is intended to identify gross dental or oral lesions. The information gathered through a screening survey is at a level consistent with monitoring the national health objectives found in the United States Public Health Service's Healthy People document. Surveys are cross sectional (looking at a population at a point in time), and descriptive (to determine estimates of oral health status for a defined population). The data presented in this report are point estimates of those screened.

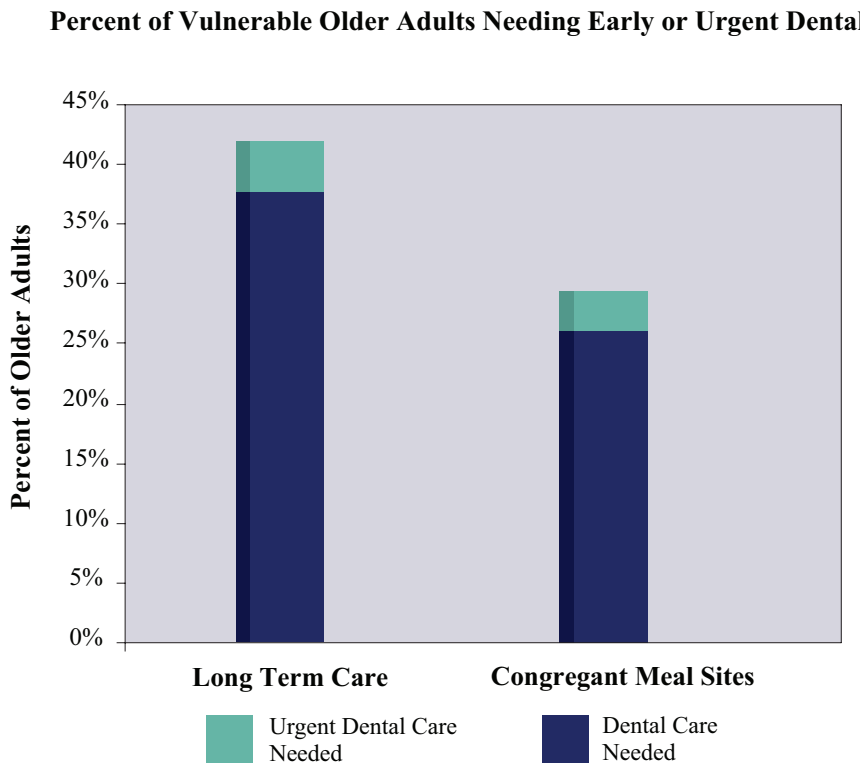
For the LTC facility population a probability sample of twenty LTC facilities was selected from a list of all licensed long term care facilities in CT. The selected facilities were each contacted by the Office of Oral Health, and eight initially agreed to participate. Although follow-up calls were made to the remaining facilities to provide more detailed information regarding the survey, permission to conduct the survey was not granted. Therefore the results may not be representative of the entire LTC population in the state.

For the congregate meal site population, adults were offered a screening at a convenience sample of fifteen senior centers/congregate meal sites and one health fair. It was determined that survey costs would be minimized by selecting sites that were located in the same communities as the LTC facilities. A total of 419 adults were screened at the LTC facilities and 426 were screened at the senior centers.

Dental hygienists completed the screenings using gloves, headlamps, and disposable mouth mirrors. The screeners attended a full-day training session, which included a didactic review of the BSSOA criteria along with a visual calibration session.

Key Findings

Key Finding #1: Many vulnerable older adults in Connecticut are not getting the dental care they need.

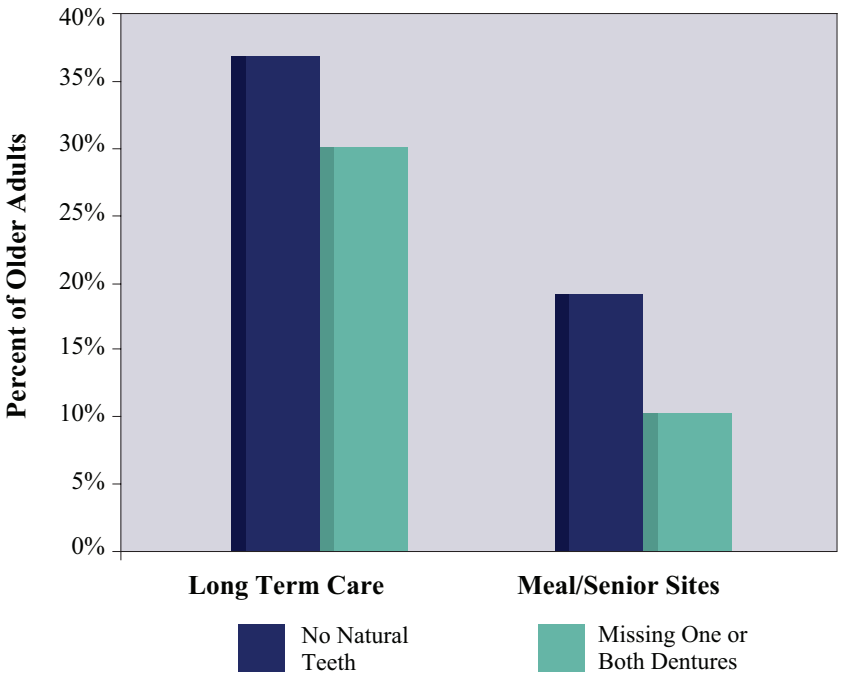


Forty-two percent (42%) of the LTC facility residents screened needed dental care, including 4% that needed urgent dental care because of pain or infection. Of those adults screened in the meal sites 29% needed dental care including 3% that needed urgent dental care because of pain or infection.

Oral diseases will not resolve if left untreated and can profoundly impact quality of life.[6] Oral diseases and conditions is this population often go undetected with symptoms of poor nutrition, lethargy, and chronic disease exacerbation attributed to causes other than oral disease.

Key Finding #2: Many vulnerable older adults in Connecticut do not have any natural teeth and many do not have dentures to facilitate eating: this is especially true for residents of long-term care facilities.

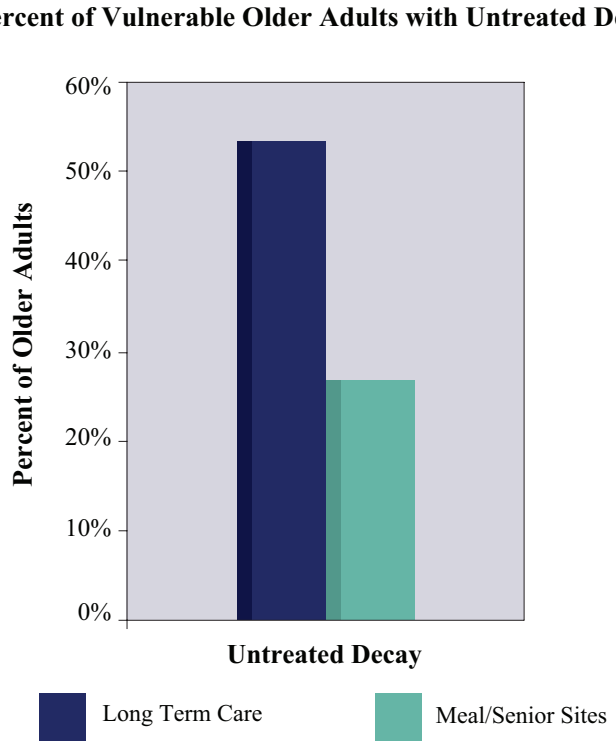
Percent of Vulnerable Older Adults with No Natural Teeth and Missing One or Both Dentures



Complete tooth loss not only impairs the ability to chew efficiently and effectively, it also impacts speech, social interaction, food choice and can detract from ones physical appearance, leading to lower self esteem. Individuals with extensive or complete tooth loss are more likely to eat easier to chew foods such as those rich in saturated fats and cholesterol, rather than those high in nutrients and fiber[8,9]

Thirty-seven (37%) percent of the LTC facility residents did not have any natural teeth. Of these individuals without any natural teeth, 30% were missing one or both of their dentures. Of the adults screened at meal sites, 19% did not have any natural teeth and 10% of these adults were missing one or both of their dentures.

Key Finding #3: Untreated tooth decay is a significant problem for vulnerable older adults in Connecticut: especially for those living in long-term care facilities.



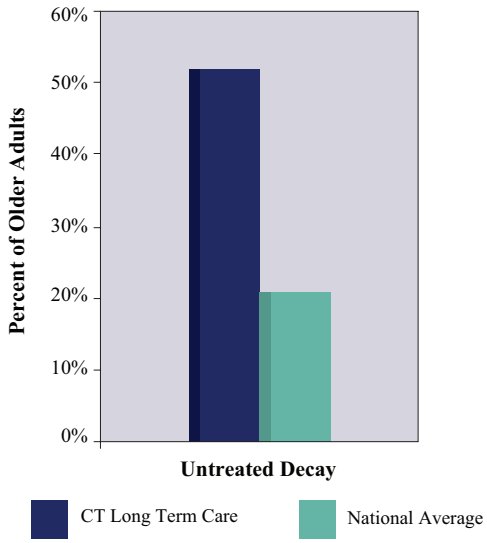
Dental caries is a chronic, progressive, cumulative, infectious disease that causes tooth decay (cavities). If left untreated, cavities lead to nerve destruction in the tooth, needless pain, tooth loss, abscess and systemic infection. Cavities are almost always preventable, but many older adults are more susceptible to cavities due to the dry mouth caused by medications taken for multiple illnesses and chronic conditions.

Of those residents screened in LTC facilities, 53% of those with teeth had untreated tooth decay. Of the adults with teeth screened at the congregate meal sites, 26% had untreated tooth decay.

Key Finding #4: The most vulnerable older adults in Connecticut have substantially more untreated tooth decay than the general population of older adults in the United States.

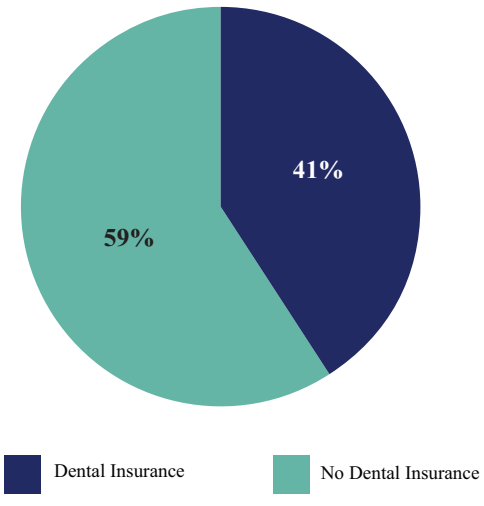
The prevalence of untreated decay is more than 2.5 times higher among CT's LTC residents compared to the national average for adults 75 years or older. According to data collected in the National Health and Nutrition Examination Survey during 2005–2008[5], the prevalence of untreated decay in older adults aged 75 and over was 20%, compared to the prevalence in the residents screened in the LTC facilities, which was 53%.

Percent of CT Long Term Care Residents 75 Years and Older with Untreated Decay Compared to the National Average



Key Finding #5: Almost 60 percent of the vulnerable older adult participants in the Congregate Meal sites do not have dental insurance.

Percent of Congregate Meal/Senior Center Participants with Dental Insurance

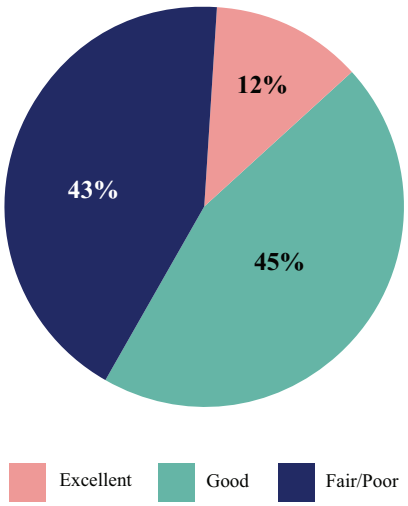


A primary indicator of access to dental care in the U.S. is dental insurance. Studies have shown that persons with dental insurance have more dental visits than persons without dental insurance.[10] Unfortunately, with retirement many older adults lose their employee-sponsored dental insurance coverage and Medicare becomes their primary source of health insurance coverage. Medicare only covers very limited dental procedures associated with underlying health conditions. Most older adults pay for their dental expenses "out of pocket." Among adults aged 65 and older, average out of pocket dental expenses increased from $438 ($527 adjusted for inflation) in 1996 to $620 in 2004.[11]

Of those screened in the congregate meal sites, 59% reported they do not have dental insurance.

Key Findings #6: Nearly half of the vulnerable older adults screened in the congregate meal sites do not feel their teeth are in good condition.

Percentage of Attributes of Respondents Self-Reporting the Condition of Their Teeth



Often predictors of self-rated oral health are "worry about teeth," "appearance of teeth" and the number of missing teeth. In addition, self-rated oral health may be, for older adults, a measure of self-rated general health.[12]

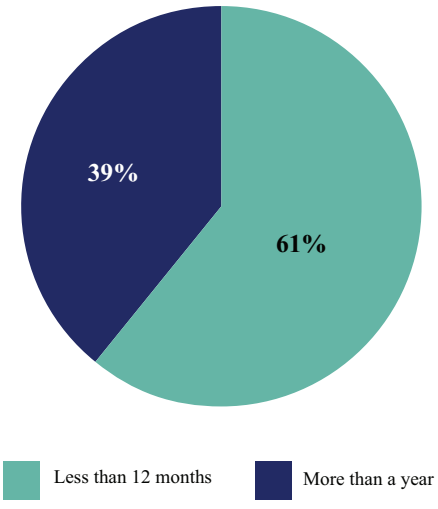
Forty-three percent (43%) of the congregate meal site respondents rated the condition of their teeth as either fair or poor.

Key Finding #7: Many vulnerable older adults are not visiting a dentist on a regular basis.

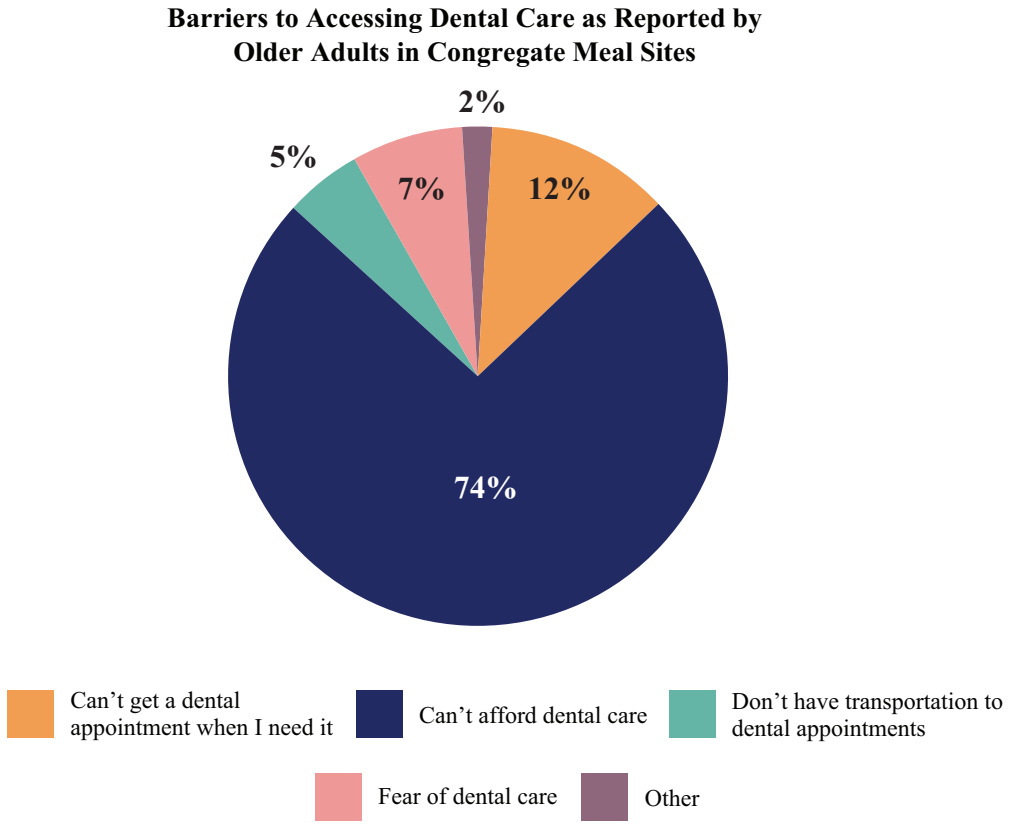
Regular dental visits can help avoid serious dental and over-all health problems through the life-span. Because most dental disease is preventable and can be treated if caught early, regular dental visits can identify problems in their early stages, before they become more serious and acute causing pain, infection and ultimately tooth loss. In addition, the state of oral health can affect other health conditions such as diabetes and heart disease, and many health conditions have oral symptoms that provide clues to their onset, such as HIV/AIDS. Not having regular dental care can have many negative impacts.

Nearly 40% of the congregate meal site respondents reported they had not seen a dentist in more than a year or could not remember the last time they did.

Length of Time Since Last Dental Visit



Key Finding #8: Over 20% of those screened at the congregate meal site report barriers to accessing dental care.



Twenty –one percent (21%) of those responding to the written survey in the congregate meal sites reported they have problems getting dental care when they needed it; most (74%) said it was because they cannot afford dental care.

As highlighted in these key findings, the oral health of CT's vulnerable older adult population needs to improve. To prevent and treat oral disease and its consequences, all vulnerable older adults need access to preventive and restorative dental and denture care. Identifying those in need of care, especially among those who can no longer help themselves, requires that we develop screening, referral and case management systems to assure that individuals get the care they need. It is necessary to educate older adults and their caregivers on the importance of oral health and what they can do to improve their oral health.

Key Strategies

This survey demonstrates that CT has many barriers to overcome to improve the oral health of vulnerable older adults. Many dedicated individuals, agencies and organizations are keenly focused on promoting the strategies and activities identified in the *Connecticut's Action Plan on Oral Health for Older Adults 2010 – 2013*, as well as exploring others that this report may inform.

Several key strategies have been identified to improve the oral health of CT's older adults:

- Advocate for legislative change to ensure that vulnerable senior citizens receive the oral health care they need and more dental providers accept public insurance through maintained dental Medicaid reimbursement rates. Advocate that Medicaid for adults provide coverage for fluoride treatment without prior authorization and coverage for periodontal services, case management care, and coordination services.
- Work with public and private dental insurers to ensure reimbursement for periodontal services, and case management care and coordination services, and a standard oral health package for older adults to include the following covered services: (1) yearly oral cancer screenings, (2) yearly dental examinations, cleaning and x-rays, (3) coverage for periodontal care and routine restorative care and extractions, and (4) dental appliances (i.e. dentures) with a clear and simple appliance replacement policy of no more than three years.
- Design and implement a culturally and linguistically appropriate oral health education campaign targeting specific audiences such as the public, older adults, families of older adults, and health and social services providers.
- Promote increased communication between medical and dental providers including physicians who care for geriatric patients, to improve the health management of older adults.
- Work with Certified Nursing Assistant (CNA) training programs to enhance oral health competencies for CNAs as part of their curriculum and certification.

- Mandate annual in-service training of nursing home staff (particularly direct care staff) that includes incorporation of daily oral hygiene care appropriate to the needs of residents as part of activities of daily living (ADLs).
- Train providers and promote the multi-disciplinary team approach to recognize and assess oral disease and oral health concerns of older adults in order to develop appropriate care plans for oral health.
- Promote the use of portable dental equipment and teledentistry in long term care facilities and other settings serving seniors to increase access to preventive and restorative care.

Long-Term Care Facility Survey

Table 1: Demographic characteristics of long-term care facility residents that participated in the Connecticut oral health survey stratified by dentate status

Characteristic	Dentate Participants (n=265)		Edentulous Participants (n=154)		All Participants (n=419)	
	Frequency	Percent/ Mean	Frequency	Percent/ Mean	Frequency	Percent/ Mean
Gender						
Male (%)	96	36.2	30	19.5	126	30.1
Female (%)	169	63.8	124	80.5	293	69.9
Race						
White (%)	225	84.9	125	81.2	350	83.5
Black (%)	23	8.7	18	11.7	41	9.8
Hispanic (%)	9	3.4	6	3.9	15	3.6
Asian (%)	0	0.0	1	0.6	1	0.2
Unknown/Missing (%)	8	3.0	4	2.6	12	2.9
Age in years*						
Range	217	35-102	132	33-104	349	33-104
Mean	217	81.2	132	83.4	349	82.1

* Age was missing for 70 participants
Dentate means that a participant has at least one natural tooth. Edentulous means that a participant does not have any natural teeth.

Table 2: Percent of long-term care facility participants that are edentulous (have no natural teeth)

Characteristic	Frequency	Percent
Participant is edentulous*		
No	265	63.3
Yes	154	36.8

* Edentulous means that a participant does not have any natural teeth. The edentulism variable was created from number of maxillary and mandibular teeth present. If total number of teeth present was 0 for ***both*** the maxillary and mandibular dentition, the participant was considered to be edentulous. If the number of maxillary ***or*** mandibular teeth was >1 then the participant was considered to be not edentulous (dentate).

Long-Term Care Facility Survey

Table 3: Percent of participants with a maxillary (upper) and/or mandibular (lower) removable denture (partial or full denture) stratified by dentate status (edentulous or dentate)

Characteristic	Dentate Participants (n=265)		Edentulous Participants (n=154)		All Participants (n=419)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Participant has a maxillary denture						
No	188	70.9	19	12.3	207	49.4
Yes	77	29.1	135	87.7	212	50.6
Participant has a mandibular denture						
No	226	85.3	44	28.6	270	64.4
Yes	39	14.7	110	71.4	149	35.6
Participant's overall denture status						
No dentures	186	70.2	17	11.0	203	48.5
Maxillary denture only	40	15.1	27	17.5	67	16.0
Mandibular denture only	2	0.8	2	1.3	4	1.0
Maxillary & mandibular denture	37	14.0	108	70.1	145	34.6

Edentulous means that a participant does not have any natural teeth. Dentate means that a participant has at least 1 natural tooth.

Table 4A: Percent of participants with a maxillary denture that wear their maxillary denture when they eat stratified by dentate status (edentulous or dentate)

Characteristic	Dentate Participants (n=77)		Edentulous Participants (n=135)		All Participants (n=212)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Participant wears their maxillary denture when they eat						
No	13	16.9	20	14.8	33	15.6
Yes	64	83.1	115	85.2	179	84.4

Edentulous means that a participant does not have any natural teeth. Dentate means that a participant has at least 1 natural tooth.

Long-Term Care Facility Survey

Table 4B: Percent of participants with a mandibular denture that wear their mandibular denture when they eat stratified by dentate status (edentulous or dentate)

Characteristic	Dentate Participants (n=39)		Edentulous Participants (n=110)		All Participants (n=149)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Participant wears their mandibular denture when they eat						
No	11	28.2	23	20.9	34	22.8
Yes	28	71.8	87	79.1	115	77.2

Edentulous means that a participant does not have any natural teeth. Dentate means that a participant has at least 1 natural tooth.

Table 5: Mean number of teeth present among *dentate participants* (n=265) and percent of dentate participants with untreated decay, root fragments, tooth mobility, severe gingival inflammation, substantial oral debris and needing periodontal care

Characteristic	Frequency	Percent
Number of teeth		
Maxillary teeth (mean)	265	7.2
Mandibular teeth (mean)	265	9.0
Total number of teeth (mean)	265	16.2
Participant has untreated decay		
No (%)	126	47.6
Yes (%)	139	52.5
Participant has root fragments		
No (%)	168	63.4
Yes (%)	97	36.6
Participant has obvious tooth mobility		
No (%)	251	94.7
Yes (%)	14	5.3
Participant has severe gingival inflammation		
No (%)	233	87.9
Yes (%)	31	11.7
Unknown/Missing (%)	1	0.4
Participant has substantial oral debris		
No (%)	153	57.7
Yes (%)	112	42.3
Participant needs periodontal (gum) care		
No (%)	238	89.8
Yes (%)	27	10.2

NOTE: The variables in this table are only applicable to participants with teeth. For this reason, the information is restricted to dentate participants

Long-Term Care Facility Survey

Table 6: Percent of participants (n=419) with suspicious soft tissue lesions and percent of participants needing dental care stratified by dentate status (edentulous or dentate)

Characteristic	Dentate Participants (n=265)		Edentulous Participants (n=154)		All Participants (n=419)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Functional occlusal contacts						
None	117	44.2	62	40.3	179	42.7
1 side only	30	11.3	0	0.0	30	7.2
Both sides	118	44.5	92	59.7	210	50.1
Participant has a soft tissue lesion						
No	259	97.7	148	96.1	407	97.1
Yes	6	2.3	6	3.9	12	2.9
Participant needs dental care						
No obvious problems	94	35.5	148	96.1	242	57.8
Early dental care needed	159	60.0	1	0.7	160	38.2
Urgent dental care needed	12	4.5	5	3.3	17	4.1

Edentulous means that a participant does not have any natural teeth. Dentate means that a participant has at least 1 natural tooth. Urgent dental care means that a participant needs dental care within 48 hours because of pain or infection.

Data Tables

Meal Site Survey

Table 7: Demographic characteristics of participants screened at meal sites stratified by dentate status

Characteristic	Dentate Participants (n=265)		Edentulous Participants (n=154)		All Participants (n=419)	
	Frequency	Percent/ Mean	Frequency	Percent/ Mean	Frequency	Percent/ Mean
Gender						
Male (%)	105	30.4	26	32.5	131	30.8
Female (%)	241	69.7	54	67.5	295	69.3
Race						
White (%)	264	76.3	54	67.5	318	74.7
Black (%)	58	16.8	16	20.0	74	17.4
Hispanic (%)	14	4.1	6	7.5	20	4.7
Asian (%)	3	0.9	2	2.5	5	1.2
Multi-racial (%)	2	0.6	1	1.3	3	0.7
Unknown/Missing (%)	5	1.5	1	1.3	6	1.4
Age in years*						
Range	341	33-99	78	60-98	419	33-99
Mean	341	73.9	78	78.6	419	74.8

* Age was missing for 7 participants
Dentate means that a participant has at least one natural tooth. Edentulous means that a participant does not have any natural teeth.

Table 8: Percent of participants screened at meal sites that are edentulous (have no natural teeth)

Characteristic	Frequency	Percent
Participant is edentulous*		
No	346	81.2
Yes	80	18.8

* Edentulous means that a participant does not have any natural teeth. The edentulism variable was created from number of maxillary and mandibular teeth present. If total number of teeth present was 0 for ***both*** the maxillary and mandibular dentition, the participant was considered to be edentulous. If the number of maxillary ***or*** mandibular teeth was >1 then the participant was considered to be not edentulous (dentate).

Meal Site Survey

Table 9: Percent of participants with a maxillary (upper) and/or mandibular (lower) removable denture (partial or full denture) stratified by dentate status (edentulous or dentate)

Characteristic	Dentate Participants (n=346)		Edentulous Participants (n=80)		All Participants (n=426)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Participant has a maxillary denture						
No	232	67.1	5	6.3	237	55.6
Yes	114	33.0	75	93.8	189	44.4
Participant has a mandibular denture						
No	274	79.2	8	10.0	282	66.2
Yes	72	20.8	72	90.0	144	33.8
Participant's overall denture status						
No dentures	219	63.3	5	6.3	224	52.6
Maxillary denture only	55	15.9	3	3.8	58	13.6
Mandibular denture only	13	3.8	0	0.0	13	3.1
Maxillary & mandibular denture	59	17.1	72	90.0	131	30.8

Edentulous means that a participant does not have any natural teeth. Dentate means that a participant has at least 1 natural tooth.

Table 10A: Percent of participants with a maxillary denture that wear their maxillary denture when they eat stratified by dentate status (edentulous or dentate)

Characteristic	Dentate Participants (n=114)		Edentulous Participants (n=75)		All Participants (n=189)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Participant wears their maxillary denture when they eat						
No	10	8.8	6	8.0	16	8.5
Yes	104	91.2	69	92.0	173	91.5

Edentulous means that a participant does not have any natural teeth. Dentate means that a participant has at least 1 natural tooth.

Meal Site Survey

Table 10B: Percent of participants with a mandibular denture that wear their mandibular denture when they eat stratified by dentate status (edentulous or dentate)

Characteristic	Dentate Participants (n=72)		Edentulous Participants (n=72)		All Participants (n=144)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Participant wears their mandibular denture when they eat						
No	14	19.4	12	16.7	26	18.1
Yes	58	80.6	60	83.3	118	81.9

Edentulous means that a participant does not have any natural teeth. Dentate means that a participant has at least 1 natural tooth.

Table 11: Mean number of teeth present among *dentate participants* (n=346) and percent of dentate participants with untreated decay, root fragments, tooth mobility, severe gingival inflammation, substantial oral debris and needing periodontal care

Characteristic	Frequency	Percent
Number of teeth		
Maxillary teeth (mean)	346	9.0
Mandibular teeth (mean)	346	10.6
Total number of teeth (mean)	346	19.7
Participant has untreated decay		
No (%)	257	74.3
Yes (%)	89	25.7
Participant has root fragments		
No (%)	302	87.3
Yes (%)	44	12.7
Participant has obvious tooth mobility		
No (%)	317	91.6
Yes (%)	29	8.4
Participant has severe gingival inflammation		
No (%)	320	92.5
Yes (%)	25	7.2
Unknown/Missing (%)	1	0.3
Participant has substantial oral debris		
No (%)	250	72.3
Yes (%)	95	27.5
Unknown/Missing (%)	1	0.3
Participant needs periodontal (gum) care		
No (%)	311	89.9
Yes (%)	35	10.1

NOTE: The variables in this table are only applicable to participants with teeth. For this reason, the information is restricted to dentate participants

Meal Site Survey

Table 12: Percent of participants (n=426) with suspicious soft tissue lesions and percent of participants needing dental care stratified by dentate status (edentulous or dentate)

Characteristic	Dentate Participants (n=346)		Edentulous Participants (n=80)		All Participants (n=426)	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Functional occlusal contacts						
None	50	14.5	20	25.0	70	16.4
1 side only	46	13.3	2	2.5	48	11.3
Both sides	250	72.3	58	72.5	308	72.3
Participant has a soft tissue lesion						
No	337	97.4	77	96.3	414	97.2
Yes	9	2.6	3	3.8	12	2.8
Participant needs dental care						
No obvious problems	231	66.8	73	91.3	304	71.4
Early dental care needed	105	30.4	6	7.5	111	26.1
Urgent dental care needed	10	2.9	1	1.3	11	2.6

Edentulous means that a participant does not have any natural teeth. Dentate means that a participant has at least 1 natural tooth. Urgent dental care means that a participant needs dental care within 48 hours because of pain or infection.

Data Tables

Congregate Meal Site Survey

Table 1: Percentage of survey respondents that reported the Condition of their Teeth or Dentures

Characteristics	Frequency (n=407)	Percent
Excellent	48	11.79
Good	180	43.69
Fair/Poor	179	43.45

Table 2: Percentage of survey respondents that reported they have Dentures

Characteristics	Frequency (n=406)	Percent
Yes full	93	22.91
Yes partial	108	26.60
No	205	50.49

Table 3: Percentage of survey respondents that reported they have Last Visited a dentist or a dental clinic for any reason

Characteristics	Frequency (n=409)	Percent
Less than 12 months	250	61.12
More than 12 months	135	33.01
Do not remember	23	5.62

Table 4: Percentage of survey respondents that reported they had their Teeth Cleaned by a dentist or dental hygienist

Characteristics	Frequency (n=395)	Percent
Less than 6 months	180	45.57
6 months - 1 year	78	19.75
More than 1 year	80	20.25
Do not remember	38	9.62
Never	19	4.81

Congregate Meal Site Survey

Table 5: Percentage of survey respondents that reported their current source of dental care

Characteristics	Frequency (n=400)	Percent
Private	258	64.50
Hospital emergency	1	0.24
Public	62	15.50
Do not get dental care	79	19.75

Table 6: Percentage of survey respondents that reported they have dental insurance

Characteristics	Frequency (n=402)	Percent
Yes	164	40.80
No	238	59.20

Table 7: Percentage of survey respondents that have dental insurance stratified by the type of insurance

Characteristics	Frequency (n=157)	Percent
Medicaid	60	38.21
Private insurance	76	48.40
Do not know	2	1.27
Other	19	12.10

Table 8: Percentage of survey respondents that reported they had problems getting dental care

Characteristics	Frequency (n=389)	Percent
Yes	81	20.82
No	308	79.18

Congregate Meal Site Survey

Table 9: Self-reported barriers to accessing dental care among those who had problems getting dental care

Characteristics	Frequency (n=73)	Percent
Cannot get appointment	9	12.32
Cannot afford	54	73.9
Do not have transportation	4	5.47
Fear	5	6.84
Other	1	1.36

Table 10: Demographics Characteristics of respondents that participated in the oral health survey

Characteristics			
Gender	**Frequency (N=403)**		**Percent**
Male	123		30.52
Female	280		69.48
Ethnicity	**Frequency (N=353)**		**Percent**
Hispanic	25		7.08
Refused	31		8.78
Not Hispanic	297		84.14
Race	**Frequency (393)**		**Percent**
AI/Alaska Native	12		3.05
White	293		74.55
NH/Other Pacific Islander	1		0.25
Refused	13		3.31
Asian	3		0.76
Black	65		16.54
Other	6		1.53
Age	**Frequency (N=388)**		**Percent**
<64	64		16.49
65-74	124		31.95
75-84	124		31.95
85+	76		19.58
Analysis Variable: age			
Number 388	Mean 74.6572	Minimum 33	Maximum 99

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Appendix 1

Oral Health status of long-term residents in Connecticut compared to other states

Characteristic	CT 2012	MA 2009	ND 2012	MO 2009	OR 1993-94
% edentulous	37%	35%	35%	43%	46%
% of edentulous adults missing 1+ denture	30%	45%	13%	26%	63%
% of dentate adults with untreated decay	53%	59%	22%	44%	44%

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