

Michigan Senior Smiles

Statewide View into the Mouth of Michigan Seniors in
Congregate Meal Sites
2016-2017



Acknowledgements

The 2016-2017 Michigan Senior Smiles report is a document that shares the data collected from open mouth screenings of seniors, ages 65 years and older, across Michigan. Special acknowledgement goes to the following individuals who significantly contributed to this project and a **special thank you to all the sites** who supported this project:

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Executive Summary

This summary is intended to highlight important findings on dental disease and dental access for older Michigan adults. Additional information is available in the full text of the Michigan Senior Smiles: Statewide View into the Mouth of Michigan Seniors Report. The data was collected from 692 adults ages 65 years or older across 37 sites between 2016 and 2017.

Access to Care:

- Over 60 percent of seniors visited a dentist or dental professional in the past year. Of those not going to a dentist in the past year, 13.2 percent reported it was due to cost or no insurance.
- Half of the seniors reported ever having an oral cancer screening but only one-third reported having one in the past year.

Oral Disease:

- One in 10 seniors screened had untreated decay and one in eight were in need of periodontal care.
- Approximately 17 percent of the seniors were edentulous, missing all of their natural teeth.
- Over one-third of the screened population had an upper denture present and a quarter had a lower denture present, with higher proportions for both upper and lower dentures among Black seniors compared with White and Other races.

Introduction

The number of Michigan residents aged 65 years and older continues to increase each year. In 2016, there were 1,608,385 in this age group, comprising 16 percent of the population. This proportion is expected to increase to 19.5 percent by 2030, which means an estimated number of 2,081,000 Michigan adults aged 65 or older.¹

According to the Centers for Disease Control and Prevention “... oral health means much more than healthy teeth, and is integral to the general health and well-being of all Americans. Oral health must be included in the provision of health care and design of community programs.”² Due to advancement in preventive measures over the decades, such as community water fluoridation, dental sealants, and an abundance of knowledge on how to prevent dental disease, as time goes on it cannot be assumed that the aging populations are fully edentulous, lost all their natural teeth, or will become edentulous.

In 1945, community water fluoridation began in Grand Rapids, Michigan in time to benefit many of Michigan’s Baby Boomers (born between 1946 and 1964). With less decay, this population has more of their natural dentition than earlier generations. The number of Michigan adults in need of oral care will increase as the number of adults over 65 years of age increases to over 2 million people by 2030.

The aging population will have an elevated risk of poor oral health over the younger generation due to additional challenges, such as physical impairments preventing proper daily homecare, dry mouth due to prescription medications, and access issues stemming from financial and transportation barriers. The 2016 Michigan Behavioral Risk Factor Survey (BRFS) reported that 25.2 percent of those aged 65-74 years and 30.1 percent of seniors aged 75 years and older had not visited a dentist or dental clinic within the past year. In addition, it was reported that 31.6 percent of those aged 65-74 had 6 or more teeth missing¹. While the number of residents in this age group continues to grow, it is important to assess oral health status in order to determine which areas can be improved upon.

As this population continues to benefit from their natural dentition, there may be an increased cost associated with their oral healthcare delivery. It is important for Michigan policy makers to

have a clear and sound understanding as it relates to the current oral health status of those 65 years of age and older to best tailor public health programs, workforce, and available funding to the healthcare system to appropriately provide the necessary preventive and oral health care.

The purpose of this report is to discuss the findings of an oral health senior screening project across Michigan focused on adults aged 65 and older.

Methods

Selection of Congregate Meal Sites

Michigan senior congregate meals sites were randomly selected through systematic probability proportional to size (PPS) sampling from ordered lists of sites in four regions of the state: the Upper Peninsula, the Northern Lower Peninsula, the Southern Lower Peninsula, and Wayne/Oakland/Macomb counties (metropolitan Detroit). The sampling frame was based upon congregate site information from the Area Agencies on Aging (AAA) Association of Michigan pulled in 2015. The number of sites chosen in each region was determined to provide a minimal level of representation for each region to provide for regional estimates of oral health indicators and other results, given the total number of sites to be screened. This resulted in oversampling proportionally for some regions, e.g. the Upper Peninsula. All Michigan congregate meal sites were included in the sampling frame. Site sampling was completed within each of the study-defined geographic regions in Michigan, with a total of 37 senior congregate meal sites selected. In cases of site refusal or site closure, replacement sites were selected with a random PPS site selected from the same sampling interval as the refusing site. Of the original sites selected, 14 sites refused to participate. Participating replacements were selected for all refusing sites.

Upper Peninsula. This region included all counties of the Upper Peninsula of Michigan. This large area has a smaller dispersed population. If sampled proportionally, it would have had 4 sites selections. As it is considered an important area of the state to have oral health estimates, to achieve better representation for this area of the state, five sites were selected. The sampling list of sites was sorted geographically by county to provide for implicit stratification geographically in the systematic PPS sampling.

Northern Lower Peninsula. This region consisted of all Lower Peninsula counties north of and including Mason, Lake, Osceola, Clare, Gladwin, and Arenac counties. A proportional sampling of seven sites was selected for the region. For the Northern Lower Peninsula, a

congregate meal site variable indicating high concentration of older adults in poverty was used to order the list of sites for sampling to achieve some implicit SES stratification for this region.

Southeast Michigan. This region consisted of three counties (Oakland, Macomb, Wayne) that comprise the metropolitan Detroit area. Ordering of the sample selection list provided for implicit stratification by county and SES for the three counties, and separate selection of Detroit sites. Macomb and Oakland Counties were slightly oversampled to achieve sufficient numbers of sampled sites to produce estimates for these counties. Eleven sites were selected to participate from this region.

Southern Lower Peninsula. This region consisted of all remaining Michigan Lower Peninsula counties. This region is a mixture of urban/suburban/rural areas, so sample selection employed implicit stratification on urban/suburban/rural status of site communities and then the meal site variable indicating high concentration of older adults in poverty within these urban/suburban/rural categories of sites. Fourteen sites were selected to participate from this region.

Recruitment of Participants

Seniors were recruited from the 37 consenting congregate meal sites. Consent to work with the sites was obtained by phone call or email with the site coordinator. Upon confirmation, the site provided the best date for a large turnout that worked within their schedule. Many sites were overwhelmingly supportive and demonstrated their support by planning special meals on the designated screening day. Seniors present on the screening day were told about the event and their participation was considered their consent. All congregate meal site participants were offered the open mouth screening but only participants ages 65 years and older were included in this report. Overall, 739 people participated in the open mouth survey and of those, 692 were 65 years or older. Each participant received a personalized oral health care kit based on their oral health needs. Kits were assembled in a fabric reusable tote bag with a zipper and over the counter oral health items were packed inside. Oral health bags included a toothbrush unique to their needs (manual, power, or denture brush) and other items as needed, such as: dry mouth aids, denture adhesive, mouth rinse, denture kits, denture cleaner, super floss, hand help flossers, soft picks, stimudents, dentifrice, and oral health educational brochures provided by Delta Dental of Michigan. Brochures were on topics such as: oral cancer, importance of oral health, diabetes link to the oral cavity, and others. Participants also received a written report with any areas of concern noted.

Survey of Seniors

Seniors were read questions on their oral health behaviors and conditions by an assistant at the event. The assistant recorded their responses on the survey. The same survey form was used to collect their in-mouth oral screening data so that the data were linked. The survey did not contain any identifying information. In the event that the senior wanted to complete their survey individually, they were provided with a clipboard and pen and then upon completion the survey was reviewed for completeness to ensure complete data collection.

Oral Screening of Seniors

Registered dental hygienists performed the oral screenings while following standard precautions for infection control. Assistants were used to help with verbal screenings, set up, tear down, and packing patient bags. Prior to the screenings, the dental hygienists attended a training session to standardize measurement of dental disease and to facilitate the site screening. The Association of State and Territorial Dental Directors (ASTDD) Basic Screening Survey (BSS) tool was utilized to calibrate screeners. Assistants assisting with the screening were also required to attend the training. One training was completed in person, while nine others were completed via Adobe Connect webinar while using a conference call line. Both trainings (in person and Adobe Connect) used the same PowerPoint, ASTDD training tools, and the same language was spoken to consistently train all screeners and assistants. Individual questions from participants did occur within each training session, however questions were minimal. All screeners were provided a printed laminated copy of the ASTDD BSS tool on site to refer to as needed.

Analysis

Analysis weights based on sample design and study participation rates were calculated for each senior in the survey. Weight calculations were generated by state and region, with sample stratification based on geography, SES, or urbanicity depending on the region. As described in the previous section on selection of sites, sampling intervals were created based on these stratification factors. Ultimately, screened seniors represented all seniors within their sampling interval in the state sampling frame. Weights therefore reflect the number of Michigan seniors that each screened senior represented.

These analysis weights and sample design stratification and clustering specifications were used with SAS 9.4 statistical software to generate valid population-based estimates of results. The Michigan Department of Health and Human Services Institutional Review Board reviewed this survey.

Limitations

Some of the regions or populations sampled had small numbers which led to large confidence intervals. Please be aware of this when reporting or comparing populations.

Results

Demographics

Characteristic	%
Region	
Upper Peninsula	10.2
Northern Lower Peninsula	19.1
City of Detroit	10.5
Suburban Detroit	8.9
Southern Lower Peninsula	51.3
Age	
65-74	46.3
75-84	33.9
85+	19.8
Gender	
Male	30.4
Female	69.6
Race	
White	81.3
Black/African American	16.0
Other	2.7

Interview Results

The following tables are results from the interview portion of the exam and are self-reported response to questions on the respondent’s oral health and oral health behaviors.

Last Dental Visit. Seniors reported the last time they visited the dentist including all dental professionals and dental hygienists.

	Last Dental Visit			
	Within past year	1-5 years	More than 5 years	Never
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	61.7 (53.7-69.7)	21.3 (13.4-29.4)	14.0 (9.6-18.5)	0.6 (0.0-1.3)
Region				
Upper Peninsula	65.3 (46.7-83.8)	22.0 (8.6-35.5)	11.4 (4.5-18.3)	0.0
Northern Lower Peninsula	65.5 (58.1-72.9)	17.3 (9.7-24.9)	16.5 (7.4-25.5)	0.4 (0.0-1.1)
City of Detroit	56.7 (53.0-60.5)	21.7 (15.0-28.3)	17.8 (15.2-20.3)	0.0
Suburban Detroit	64.9 (48.3-81.5)	17.6 (8.4-26.7)	13.1 (5.8-20.4)	1.0 (0.0-2.6)
Southern Lower Peninsula	60.0 (45.3-74.7)	23.4 (8.4-38.3)	13.0 (5.2-20.8)	0.9 (0.0-2.2)
Age				
65-74	59.1 (47.8-70.5)	22.1 (10.4-33.8)	14.1 (9.1-19.2)	0.8 (0.0-1.7)
75-84	61.5 (50.7-72.3)	22.4 (14.6-30.1)	14.4 (6.8-22.1)	0.7 (0.0-1.8)
85+	68.0 (55.8-80.2)	17.8 (7.1-28.6)	13.1 (3.5-22.7)	0.0
Gender				
Male	54.2 (43.1-65.3)	22.6 (8.4-36.8)	19.5 (11.4-27.6)	1.1 (0.0-3.3)
Female	64.7 (57.0-72.4)	21.1 (14.4-27.9)	11.7 (7.9-15.5)	0.4 (0.0-0.9)
Race				
White	61.7 (51.8-71.7)	21.5 (11.8-31.2)	14.6 (9.0-20.1)	0.4 (0.0-0.9)
Black/African American	58.3 (54.0-62.7)	22.5 (16.5-28.4)	12.6 (6.7-18.5)	0.8 (0.0-2.1)
Other	60.6 (33.9-87.2)	22.0 (1.2-42.9)	11.4 (1.3-21.6)	6.0 (0.0-19.3)

Reason for Last Dental Visit. Among the seniors who have been to a dentist, what was the main reason they last went.

	Reason for Last Dental Visit			
	Check-up, Exam or Cleaning	Dental Treatment (ex. Root canal, cavity)	Denture Care	Other
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	61.5 (53.9-69.2)	19.7 (14.2-25.3)	15.9 (12.6-19.3)	2.7 (0.8-4.6)
Region				
Upper Peninsula	68.1 (56.5-79.8)	16.7 (6.8-26.6)	15.2 (9.8-20.5)	0.0
Northern Lower Peninsula	61.4 (49.9-72.9)	18.9 (8.1-29.7)	15.5 (10.7-20.3)	4.2 (0.0-8.3)
City of Detroit	41.7 (4.3-79.1)	28.5 (4.8-52.1)	27.1 (5.7-48.5)	2.7 (0.0-6.3)
Suburban Detroit	69.3 (50.4-88.1)	14.7 (5.3-24.1)	15.0 (5.7-24.3)	0.3 (0.0-0.9)
Southern Lower Peninsula	63.0 (51.6-74.5)	19.7 (11.3-28.1)	14.1 (10.0-18.2)	3.1 (0.0-6.4)
Age				
65-74	56.5 (43.8-69.1)	24.3 (14.6-34.0)	16.7 (11.8-21.6)	2.4 (0.2-4.6)
75-84	65.4 (55.9-74.8)	16.8 (11.1-22.4)	15.0 (8.5-21.5)	2.9 (0.0-6.6)
85+	66.9 (56.6-77.2)	14.1 (6.4-21.9)	15.8 (8.5-23.2)	3.1 (0.0-7.0)
Gender				
Male	51.7 (39.9-63.5)	25.4 (16.6-34.2)	19.0 (11.5-26.4)	3.7 (0.5-6.9)
Female	66.1 (58.8-73.3)	17.5 (11.9-23.1)	14.1 (10.8-17.4)	2.3 (0.3-4.4)
Race				
White	64.5 (56.5-72.5)	19.1 (13.4-24.7)	14.0 (10.7-17.3)	2.4 (0.4-4.4)
Black/African American	48.9 (23.3-74.5)	23.2 (5.8-40.7)	24.4 (9.8-39.0)	3.5 (0.3-6.6)
Other	43.1 (10.2-75.9)	26.2 (8.2-44.1)	18.6 (3.9-33.4)	12.2 (2.2-22.1)

Reason for No Dental Visit in Past Year. Among seniors who did not go to the dentist in the past year, what were the reasons they did not go.

	Reason for No Dental Visit in Past Year				
	Cost/No Insurance	Do not have a dentist	Distance to office	Fear, dislike going	Other
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	13.2 (7.6-18.8)	4.8 (0.8-8.8)	1.8 (0.8-2.8)	2.7 (1.1-4.2)	18.2 (13.8-22.6)
Region					
Upper Peninsula	7.1 (0.7-13.5)	0.8 (0.0-2.3)	0.0	4.4 (0.0-9.3)	17.3 (1.3-33.3)
Northern Lower Peninsula	16.4 (12.5-20.2)	2.6 (0.6-4.5)	3.1 (1.2-5.1)	5.7 (2.1-9.3)	18.0 (13.2-22.7)
City of Detroit	4.4 (0.0-9.6)	7.5 (0.0-17.0)	1.9 (0.0-5.7)	5.0 (0.0-14.9)	22.4 (16.8-27.9)
Suburban Detroit	11.9 (3.5-20.4)	0.7 (0.0-2.3)	0.0	0.5 (0.0-1.6)	19.4 (11.3-27.5)
Southern Lower Peninsula	15.2 (4.7-25.7)	6.6 (0.0-14.0)	1.9 (0.3-3.6)	1.1 (0.0-2.6)	17.4 (9.8-24.9)
Age					
65-74	13.7 (5.7-21.8)	5.5 (0.8-10.2)	1.7 (0.2-3.2)	3.7 (1.0-6.3)	17.6 (11.1-24.0)
75-84	13.8 (7.6-20.0)	3.5 (0.5-6.6)	3.0 (0.2-5.7)	1.9 (0.0-3.9)	18.4 (13.1-23.7)
85+	10.7 (1.8-19.6)	5.3 (0.0-14.9)	0.0	1.5 (0.0-4.7)	19.2 (10.7-27.8)
Gender					
Male	15.1 (3.0-27.2)	0.9 (0.0-2.7)	2.7 (0.2-5.1)	2.6 (0.0-5.1)	23.5 (15.7-31.3)
Female	12.5 (8.7-16.4)	6.6 (0.6-12.6)	1.2 (0.1-2.4)	2.7 (0.6-4.8)	16.0 (11.1-20.9)
Race					
White	15.0 (8.0-21.9)	4.4 (0.0-9.1)	1.0 (0.3-1.8)	2.3 (1.0-3.6)	18.5 (13.0-24.0)
Black/African American	5.2 (1.4-8.9)	6.9 (0.0-14.9)	4.3 (0.3-8.4)	4.9 (0.0-11.7)	18.3 (13.6-22.9)
Other	11.4 (1.3-21.6)	10.6 (0.0-21.4)	10.6 (0.0-21.4)	0.0	16.5 (4.4-28.6)

Dental Home. A dental home was defined as having a particular dentist or dental clinic they usually go to when they need dental care or dental advice.

	Dental Home % (95% CI)
Michigan	78.0 (71.9-84.1)
Region	
Upper Peninsula	89.8 (83.0-96.5)
Northern Lower Peninsula	82.2 (75.8-88.5)
City of Detroit	64.9 (45.0-84.9)
Suburban Detroit	79.2 (71.5-86.9)
Southern Lower Peninsula	76.6 (65.9-87.3)
Age	
65-74	75.2 (66.3-84.1)
75-84	81.9 (73.9-89.9)
85+	77.8 (65.8-89.9)
Gender	
Male	72.6 (64.1-81.1)
Female	80.3 (73.9-86.7)
Race	
White	79.0 (72.0-86.0)
Black/African American	71.5 (55.6-87.4)
Other	76.6 (55.9-97.3)

Dry Mouth. Dry mouth is defined as not having enough saliva in the mouth. Dry mouth can lead to tooth decay and makes eating difficult. The respondent indicated a yes response to this question if their mouth felt dry while eating a meal.

	Dry Mouth
	% (95% CI)
Michigan	10.2 (6.6-13.8)
Region	
Upper Peninsula	4.6 (2.0-7.1)
Northern Lower Peninsula	9.7 (0.0-21.1)
City of Detroit	9.3 (1.1-17.4)
Suburban Detroit	14.2 (10.5-17.9)
Southern Lower Peninsula	11.1 (5.8-16.3)
Age	
65-74	11.0 (6.3-15.6)
75-84	9.9 (4.8-15.0)
85+	9.1 (3.8-14.4)
Gender	
Male	8.3 (3.0-13.6)
Female	11.2 (6.9-15.6)
Race	
White	11.3 (7.0-15.5)
Black/African American	7.9 (2.2-13.5)
Other	2.6 (0.0-8.6)

Saliva Present. Saliva is important to oral health. It helps with chewing and swallowing, fights germs in the mouth and helps prevent tooth decay. The respondent self-reported the saliva level in their mouth.

	Saliva Present		
	Too Little	Too Much	Did Not Notice It
	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	21.8 (18.0-25.5)	10.1 (6.8-13.3)	68.2 (63.2-73.2)
Region			
Upper Peninsula	29.3 (11.0-47.6)	9.3 (0.1-18.6)	61.3 (46.3-76.4)
Northern Lower Peninsula	21.4 (12.1-30.6)	5.6 (1.8-9.4)	73.0 (62.6-83.4)
City of Detroit	24.3 (13.6-35.0)	9.8 (0.2-19.5)	65.9 (60.0-71.7)
Suburban Detroit	25.4 (13.5-37.3)	10.4 (3.1-17.8)	64.2 (52.9-75.5)
Southern Lower Peninsula	19.3 (14.9-23.6)	11.8 (6.4-17.3)	68.9 (60.8-77.0)
Age			
65-74	22.6 (17.0-28.1)	11.7 (5.7-17.7)	65.7 (57.6-73.9)
75-84	19.3 (13.8-24.9)	10.9 (6.0-15.9)	69.7 (62.6-76.9)
85+	24.1 (14.4-33.7)	4.7 (0.9-8.6)	71.2 (60.6-81.8)
Gender			
Male	14.3 (7.9-20.8)	9.5 (5.1-13.9)	76.1 (70.1-82.1)
Female	24.3 (19.4-29.2)	10.4 (6.3-14.6)	65.2 (58.8-71.7)
Race			
White	22.5 (18.5-26.4)	10.9 (7.1-14.6)	66.6 (61.3-72.0)
Black/African American	20.2 (10.8-29.7)	6.5 (0.0-14.0)	73.2 (63.4-83.1)
Other	23.9 (0.0-55.8)	10.6 (0.0-21.4)	65.5 (42.3-88.7)

Oral Cancer Screening. Oral cancer screenings should be performed by a dental professional at each cleaning. An oral cancer screening consists of a health professional pulling gently on the tongue, sometimes wrapping the tongue with gauze, feeling under the tongue and inside the cheeks. The external neck area is also palpated for lumps and/or bumps.

	Oral Cancer Screening			
		Time since last cancer screening among those reporting ever having a screening		
	Ever Had an Oral Cancer Screening	Oral Cancer Screen in past year	Oral Cancer Screen 1-5 years ago	Oral Cancer Screen more than 5 years ago
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	51.8 (44.7-58.8)	73.3 (60.1-86.5)	21.8 (9.3-34.2)	2.3 (0.5-4.1)
Region				
Upper Peninsula	45.7 (33.2-58.2)	56.6 (34.4-78.7)	37.0 (21.9-52.0)	6.5 (0.0-17.5)
Northern Lower Peninsula	61.2 (43.6-78.8)	77.0 (66.9-87.0)	20.3 (11.8-28.8)	2.7 (0.0-6.8)
City of Detroit	27.1 (3.5-50.8)	83.9 (73.5-94.2)	16.1 (5.8-26.5)	0.0
Suburban Detroit	52.6 (39.0-66.3)	86.8 (72.3-100.0)	10.5 (0.0-23.4)	2.7 (0.0-6.5)
Southern Lower Peninsula	54.3 (43.8-64.9)	70.5 (48.6-92.4)	23.1 (2.2-44.0)	1.8 (0.0-4.1)
Age				
65-74	52.1 (44.3-59.9)	68.2 (51.6-84.8)	24.6 (8.5-40.8)	3.2 (0.0-6.7)
75-84	50.1 (39.7-60.5)	79.3 (69.5-89.1)	17.3 (9.1-25.5)	2.5 (0.0-6.1)
85+	53.8 (42.4-65.2)	75.6 (56.2-95.1)	22.0 (2.4-41.7)	0.0
Gender				
Male	44.5 (35.7-53.3)	72.2 (53.4-90.9)	20.5 (3.8-37.3)	2.4 (0.0-6.4)
Female	55.6 (48.2-62.9)	73.6 (60.9-86.2)	22.3 (10.2-34.4)	2.2 (0.2-4.3)
Race				
White	53.9 (46.0-61.8)	75.0 (60.2-89.8)	21.3 (7.2-35.3)	1.8 (0.0-3.5)
Black/African American	35.7 (19.1-52.4)	60.0 (46.2-73.8)	23.6 (12.1-35.1)	7.0 (0.0-20.3)
Other	49.4 (26.7-72.1)	75.6 (47.4-100.0)	24.4 (0.0-52.6)	0.0

Open-Mouth Screening Results

The following set of tables are the results from the open-mouth screening performed by a dental hygienist.

Dentures. A denture is a removable replacement for missing teeth and surrounding tissues, they can be complete or partial dentures. Participants were asked if they had an upper or a lower denture and if so, whether they wore the denture(s) while eating.

	Dentures			
	Upper Denture Present	Wears Upper Denture while Eating	Lower Denture Present	Wears Lower Denture while Eating
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	37.5 (31.2-43.9)	88.3 (81.0-95.7)	26.7 (22.3-31.1)	83.0 (74.4-91.7)
Region				
Upper Peninsula	38.3 (27.8-48.9)	96.0 (88.1-100.0)	23.3 (14.1-32.4)	93.8 (80.5-100.0)
Northern Lower Peninsula	30.0 (20.4-39.6)	95.1 (88.8-100.0)	19.5 (12.1-26.8)	85.2 (74.9-95.5)
City of Detroit	65.8 (40.6-90.9)	78.9 (57.2-100.0)	51.3 (30.2-72.4)	84.4 (72.9-95.9)
Suburban Detroit	38.8 (28.9-48.7)	91.2 (85.3-97.1)	29.7 (21.1-38.3)	77.0 (64.6-89.4)
Southern Lower Peninsula	34.2 (23.9-44.5)	87.8 (75.8-99.8)	24.5 (18.1-30.9)	81.2 (64.5-97.9)
Age				
65-74	35.5 (27.2-43.7)	78.8 (64.5-93.0)	26.8 (19.8-33.9)	71.3 (56.3-86.2)
75-84	37.0 (29.1-44.9)	95.6 (90.8-100.0)	27.1 (20.7-33.5)	90.7 (83.0-98.4)
85+	43.3 (30.6-55.9)	95.5 (88.6-100.0)	25.6 (14.0-37.2)	98.0 (93.9-100.0)
Gender				
Male	38.2 (30.6-45.8)	87.8 (70.4-100.0)	28.5 (22.2-34.9)	76.9 (54.6-99.3)
Female	36.9 (29.7-44.1)	88.3 (79.3-97.3)	25.4 (20.8-30.0)	85.4 (76.9-93.9)
Race				
White	33.4 (27.0-39.9)	89.0 (80.9-97.1)	22.9 (18.8-26.9)	82.9 (71.0-94.8)
Black/African American	59.5 (41.3-77.7)	84.4 (66.1-100.0)	46.1 (32.0-60.2)	86.6 (77.2-96.1)
Other	42.1 (16.7-67.5)	100.0 (100.0-100.0)	30.7 (12.7-48.6)	65.5 (37.7-93.4)

Functional Posterior Occlusal Contacts. Functional posterior occlusal contacts are when the molars are present and the bite creates alignment between the upper and lower arch. Functional occlusion assists with proper chewing, which is the first step in the digestive process.

	Functional Posterior Occlusal Contacts		
	None	1 Side Only	Both Sides
	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	15.1 (12.2-18.0)	8.9 (6.7-11.1)	75.9 (73.0-78.9)
Region			
Upper Peninsula	18.9 (5.0-32.8)	8.0 (2.9-13.1)	73.1 (60.2-86.1)
Northern Lower Peninsula	19.5 (9.7-29.2)	11.0 (4.9-17.1)	69.5 (62.3-76.7)
City of Detroit	22.0 (10.0-33.9)	14.3 (7.7-20.9)	63.8 (51.9-75.7)
Suburban Detroit	15.4 (8.0-22.8)	8.1 (3.4-12.8)	76.5 (72.9-80.1)
Southern Lower Peninsula	11.4 (9.2-13.7)	7.4 (4.5-10.4)	81.1 (77.7-84.6)
Age			
65-74	15.7 (10.4-21.0)	9.3 (5.9-12.8)	75.0 (69.9-80.0)
75-84	13.5 (8.7-18.3)	8.8 (5.0-12.6)	77.8 (72.4-83.1)
85+	16.6 (8.9-24.4)	8.1 (2.4-13.9)	75.2 (66.4-84.0)
Gender			
Male	21.3 (14.6-28.0)	9.2 (3.9-14.6)	69.4 (60.9-78.0)
Female	12.6 (9.3-16.0)	8.9 (5.7-12.1)	78.4 (73.9-83.0)
Race			
White	14.5 (11.1-17.9)	8.4 (6.0-10.9)	77.1 (73.9-80.2)
Black/African American	17.2 (8.7-25.7)	10.7 (5.4-15.9)	72.1 (62.2-82.1)
Other	22.5 (9.2-35.8)	14.1 (4.8-23.3)	63.4 (49.4-77.5)

Condition of Hard Tissue. The hard tissue is the teeth within the oral cavity. This table shows estimates for prevalence of dental decay and retained tooth root fragments.

	Condition of Hard Tissue	
	Untreated Decay	Root Fragments
	% (95% CI)	% (95% CI)
Michigan	10.6 (6.0-15.1)	11.1 (7.4-14.8)
Region		
Upper Peninsula	8.2 (1.7-14.8)	5.2 (0.9-9.5)
Northern Lower Peninsula	9.3 (2.0-16.6)	5.6 (2.3-8.9)
City of Detroit	17.0 (0.6-33.3)	16.2 (0.0-33.1)
Suburban Detroit	7.9 (4.6-11.2)	9.1 (3.5-14.7)
Southern Lower Peninsula	10.6 (3.0-18.3)	13.6 (7.6-19.6)
Age		
65-74	12.8 (6.9-18.8)	12.9 (7.2-18.6)
75-84	7.2 (3.2-11.2)	6.0 (1.3-10.8)
85+	11.0 (1.3-20.6)	15.5 (3.4-27.6)
Gender		
Male	13.2 (7.8-18.6)	13.8 (8.2-19.4)
Female	9.6 (4.8-14.3)	10.1 (5.8-14.3)
Race		
White	10.6 (5.3-15.8)	11.2 (7.0-15.3)
Black/African American	13.0 (1.7-24.4)	13.5 (0.8-26.2)
Other	6.9 (0.0-20.7)	6.9 (0.0-20.7)

Condition of Soft Tissue. The soft tissue in the oral cavity includes gingival issue, buccal mucosa, and anything in the head and neck region that is palpable.

	Condition of Soft Tissue					
	Oral Debris	Gingival Inflammation	Tooth Mobility	Severe Dry Mouth	Need Periodontal Care	Suspicious Soft Tissue Lesion
	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	10.7 (6.5-14.9)	10.2 (5.6-14.9)	3.4 (1.6-5.3)	7.4 (3.6-11.1)	12.1 (7.7-16.5)	2.5 (1.4-3.5)
Region						
Upper Peninsula	9.0 (2.8-15.2)	5.4 (0.0-12.9)	3.7 (0.0-8.8)	19.9 (0.0-42.6)	19.2 (0.0-42.3)	0.0
Northern Lower Peninsula	2.0 (0.0-4.7)	1.6 (0.0-4.2)	1.7 (0.0-4.2)	3.8 (0.9-6.8)	6.3 (2.7-9.9)	4.2 (0.9-7.4)
City of Detroit	19.3 (0.0-48.1)	18.1 (0.0-43.3)	11.0 (0.0-24.7)	10.0 (0.0-21.4)	18.1 (0.0-43.3)	2.7 (0.0-6.3)
Suburban Detroit	14.7 (10.7-18.7)	13.4 (8.2-18.5)	7.8 (1.5-14.0)	3.7 (0.9-6.6)	15.1 (8.8-21.3)	1.6 (0.0-4.9)
Southern Lower Peninsula	11.8 (6.5-17.0)	12.1 (5.1-19.2)	1.8 (0.1-3.5)	6.2 (1.1-11.3)	11.0 (6.3-15.8)	2.4 (1.0-3.8)
Age						
65-74	12.7 (4.9-20.5)	15.1 (5.5-24.6)	5.8 (1.8-9.7)	8.9 (2.3-15.4)	14.6 (7.2-22.1)	1.4 (0.0-2.8)
75-84	8.6 (3.9-13.3)	5.3 (2.0-8.6)	1.9 (0.0-4.1)	5.7 (1.3-10.1)	9.1 (2.9-15.3)	2.3 (0.4-4.3)
85+	9.7 (4.0-15.4)	7.5 (2.2-12.8)	0.7 (0.0-1.8)	6.7 (0.1-13.3)	11.2 (4.3-18.1)	5.2 (0.5-9.9)
Gender						
Male	12.4 (4.9-19.8)	13.4 (5.1-21.6)	6.0 (2.3-9.6)	6.2 (0.9-11.5)	18.4 (10.2-26.7)	4.6 (1.4-7.8)
Female	10.0 (5.7-14.3)	9.0 (5.2-12.9)	2.4 (0.3-4.6)	8.0 (4.3-11.7)	9.5 (5.4-13.6)	1.6 (0.4-2.7)
Race						
White	9.1 (5.8-12.3)	9.4 (4.5-14.3)	2.9 (1.3-4.6)	7.2 (3.0-11.3)	11.6 (7.4-15.9)	2.5 (1.3-3.7)
Black/African American	21.5 (1.7-41.3)	16.9 (0.0-34.3)	7.4 (0.0-17.2)	9.9 (1.6-18.2)	16.9 (0.0-34.3)	2.6 (0.1-5.2)
Other	7.7 (0.0-22.3)	6.9 (0.0-20.7)	0.0	6.9 (0.0-22.6)	0.9 (0.0-2.9)	2.8 (0.0-9.0)

Treatment Urgency. The examiner’s oral assessment and recommendation of how soon the senior should visit the dentist for clinical diagnosis and any necessary treatment consisted of three options: No Obvious Problem, Early Dental Care Needed, and Immediate Dental Care Needed.

- “No obvious problem”- Corresponded to no suspicious areas observed.
- “Early dental care is needed”- Corresponded to a:
 - Cavitated lesion without accompanying signs or symptoms
 - Suspicious white or red soft tissue areas
 - Conclusion with a verbal and written recommendation that the senior see a dentist soon.
- “Immediate dental care is needed”-Corresponded to signs or symptoms of pain, infection, or swelling, and a verbal and written recommendation that the senior be seen by a dentist immediately.

	Treatment Urgency		
	No Obvious Problem	Early Dental Care Needed	Immediate Dental Care Needed
	% (95% CI)	% (95% CI)	% (95% CI)
Michigan	81.9 (75.7-88.1)	17.3 (11.3-23.4)	0.8 (0.1-1.5)
Region			
Upper Peninsula	88.6 (75.9-100.0)	11.4 (0.0-24.1)	0.0
Northern Lower Peninsula	84.6 (75.1-94.0)	13.3 (3.3-23.2)	2.2 (0.0-4.4)
City of Detroit	82.3 (66.3-98.2)	17.0 (0.6-33.3)	0.8 (0.0-2.3)
Suburban Detroit	84.0 (78.0-89.9)	15.3 (10.0-20.6)	0.8 (0.0-2.4)
Southern Lower Peninsula	79.1 (68.4-89.8)	20.4 (10.1-30.8)	0.4 (0.0-1.4)
Age			
65-74	78.2 (70.0-86.4)	20.8 (12.5-29.1)	1.0 (0.1-2.0)
75-84	88.0 (82.9-93.0)	11.1 (6.3-15.9)	0.9 (0.0-2.4)
85+	80.3 (68.6-92.0)	19.7 (8.0-31.4)	0.0
Gender			
Male	75.6 (68.8-82.3)	22.9 (16.2-29.6)	1.5 (0.0-3.4)
Female	84.4 (77.5-91.3)	15.1 (8.2-22.0)	0.5 (0.0-1.1)
Race			
White	81.5 (73.8-89.3)	17.7 (10.1-25.2)	0.8 (0.0-1.6)
Black/African American	79.2 (67.9-90.5)	20.3 (8.8-31.8)	0.5 (0.0-1.6)
Other	89.7 (73.0-100.0)	7.7 (0.0-22.3)	2.6 (0.0-8.4)

References

¹Michigan Department of Community Health. Prevalence estimates for risk factors and health indicators. *Michigan Behavioral Risk Factor Survey*: http://www.michigan.gov/documents/mdhhs/2016_MiBRFS_Standard_Tables_FINAL_599753_7.pdf

²Centers for Disease Control and Prevention. *Oral Health in America: Summary of the Surgeon General's Report*: http://www.cdc.gov/oralhealth/publications/factsheets/sgr2000_05.htm