2020

MICHIGAN STATE ORAL HEALTH PLAN

By 2020, all Michiganders will have the knowledge, support, and care they need to achieve optimal oral health.

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MICHIGAN Oral Health Coalition

MDHHS Michigan Department of Health & Human Services

TABLE OF CONTENTS

Executive Summary

The Michigan Department of Health and Human Services (MDHHS) and the Michigan Oral Health Coalition (MOHC) have collaborated to develop a plan that will work toward achieving optimal oral health among all Michiganders. This plan was created with generous contributions of time and thought by individuals and organizations across the state. Stakeholder engagement during the development of this plan helped to ensure that the plan is supported both by those who will implement it and by those intended to benefit from it.

The development of a state oral health plan creates a major opportunity for Michigan. An oral health plan establishes program goals, implementation steps, and a monitoring plan and serves as a tool for enlisting collaborators and partners and attracting funding sources. The 2020 Michigan State Oral Health Plan is focused on three main areas:

- **PROFESSIONAL INTEGRATION**
- **HEALTH LITERACY**
- **INCREASED ACCESS TO ORAL HEALTH CARE**

While significant progress has been made in reducing the extent and severity of common oral diseases, many Michiganders have yet to experience optimal oral health. Disparities persist among individuals with a lower socioeconomic status, among minority racial and ethnic groups, and within special populations whose oral health needs and access to care vary from that of the general population. Due to the growing evidence highlighting the link between oral health and chronic diseases as well as poor birth outcomes, it is even more imperative that all Michiganders are aware of the importance of oral health as well as have access to quality oral health care.

The information included throughout this document is intended to guide policy makers, providers, community members, and other stakeholders as they work together to improve oral health across the state of Michigan through 2020. The goals, objectives and suggested strategies can be used to ensure that by 2020, all Michiganders will have the knowledge, support, and care they need to achieve optimal oral health.

OUR VISION FOR MICHIGAN

By 2020, all Michiganders will have the knowledge, support, and care they need to achieve optimal oral health.

Plan Overview: Goals, Objectives, and Activities

Goal 1: Enhance professional integration between providers across the lifespan

Pages 20 – 21

OBJECTIVE 1.1	OBJECTIVE 1.2	OBJECTIVE 1.3	OBJECTIVE 1.4	OBJECTIVE 1.5
Increase the number of oral health care providers who have formal relationships (e.g., Memorandum of Understanding for patient referrals) with other healthcare providers by 10%.	Increase the number of educational opportunities that allow oral health and other health care providers to work as a single team to address patient health care needs by 10%.	Establish an equitable payment rate for oral health services among both medical and dental providers.	Update oral health guidelines within the Michigan Quality Improvement Consortium (MQIC) guidelines.	Increase the number of programs that educate oral health providers on the social determinants of oral health among underserved or marginalized populations by 10%.

Goal 2: Increase knowledge and awareness of the importance of oral health to overall health

Pages 22 – 24

OBJECTIVE 2.1	OBJECTIVE 2.2	OBJECTIVE 2.3	OBJECTIVE 2.4	OBJECTIVE 2.5
Develop and promote consistent messages to educate providers and consumers on oral health through the internet.	Increase the number of programs and/or interventions that educate parents on how to prevent early childhood caries among children aged 0-3 by 10%.	Increase consumer and health care provider use of evidence-based prevention strategies by 10%.	Create and support county advocacy networks across the state of Michigan.	Collaborate with Michigan's 900 public school districts, including school health and safety programs and school based health centers, to increase oral health awareness activities.

Goal 3: Increase access to oral health care among underserved and/or hard to reach populations

Pages 25 – 27

OBJECTIVE 3.1	OBJECTIVE 3.2	OBJECTIVE 3.3	OBJECTIVE 3.4	OBJECTIVE 3.5
Decrease the proportion of children, young adults, adults and older adults who are underinsured or without dental insurance by 10%.	Reduce the proportion of children, young adults, adults and older adults who experience difficulty, delays or barriers to receiving oral health care by 10%.	Increase the proportion of infants, children, and young adults who received comprehensive dental services during the past year by 10%.	Increase the proportion of adults and children with disabilities who received comprehensive dental services during the past year by 10%.	Increase the proportion of pregnant women who received comprehensive oral health care during pregnancy by 10%.

Oral Health in Michigan
Infants, Children, and Young Adults

Early Childhood

The American Dental Association (ADA) and the American Academy of Pediatrics (AAP) recommend that children have their first dental visit by age 1 to establish a dental home, assess risk, and provide an opportunity to educate caregivers on the prevention of caries and oral trauma. Caries among young children, or early childhood caries (ECC), is defined by the ADA as the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries), or filled surfaces in any primary tooth in a preschool-age child between birth and 5 years of age. Socioeconomic factors, feeding practices, lack of dental hygiene, chronic illness, and enamel defects are factors that have been known to increase the risk of ECC. If left untreated the condition worsens and becomes more difficult and costly to treat. In 2012, over half (52%) of Michigan children age 1 to 5 years did not have a preventive dental care visit during the past year and approximately 6.3% of children age 1 to 5 years had at least one oral health problem (toothache, decayed teeth, or unfilled cavities) during the past 12 months.[1]

Children and Adolescents

Compared to the national average, a greater percentage of children in Michigan have excellent or very good oral health (71% vs. 76%).[1] The majority of children in Michigan have had one or more annual preventive dental care visits, however, there are still many children in Michigan who do not receive these services. The National Survey of Children's Health indicates that 12% of children aged 6 to 11 years and 11% of adolescents aged 12 to 17 years did not have a preventive dental visit during the past year. Of these children, a greater percentage were poor, of a racial/ethnic minority group, and had public insurance or no insurance (Table 1). In 2012, 21% of children 6 to 11 years and 18% of adolescents 12 to 17 years had at least one oral health problem (toothache, decayed teeth, or unfilled cavities) during the past year. Over half of third grade children in Michigan (55.9%) experienced tooth decay according to Count Your Smiles (CYS) 2010, a basic screening survey of third grade children.[2] A greater proportion of children living in the Upper Peninsula and Northern Lower Peninsula experienced caries compared to children residing in other regions of Michigan. Arab American and Hispanic children, children with public insurance or no dental insurance, and children enrolled in the Free and Reduced Lunch Program were more likely to have had a caries experience than other children.[2]

SEALANTS

Strong scientific evidence supports the use of dental sealants as an effective means for caries reduction. Dental sealants are thin plastic films painted on the chewing surface of teeth that prevent bacteria and food from entering the narrow pits and grooves of the teeth. Sealants prevent tooth decay by creating a barrier between the teeth and decay-causing bacteria.

In 2014, the SEAL! Michigan School-Based Dental Sealant program was identified as a "Best Practice Approach" by the Association of State & Territorial Dental Directors (ASTDD). This distinction is given to public health strategies that are supported by evidence for its impact and effectiveness.

Strong scientific evidence supports the use of dental sealants as an effective means for caries reduction. Dental sealants are thin plastic films painted on the chewing surface of teeth that prevent bacteria and food from entering the narrow pits and grooves of the teeth. Sealants prevent tooth decay by creating a barrier between the teeth and decay-causing bacteria.

In Michigan, 26% of third grade students had dental sealants on at least one permanent tooth. Compared to other states, Michigan lags behind in the number of third grade children with sealants and ranks 44th out of the 46 reporting states.[3] The population groups in Michigan with the smallest proportion of third graders with sealants include Arab American and Hispanic children, those living in the Southern Lower Peninsula, those enrolled in the Free and Reduced Lunch program, and children in households with a primary language other than English.[2] To increase the number of Michigan children with dental sealants, particularly those at high-risk for tooth decay, the SEAL! Michigan school-based dental sealant program was developed. Since its inception in 2007, thousands of students have been screened and provided with dental sealants.

COMMON ORAL DISEASES

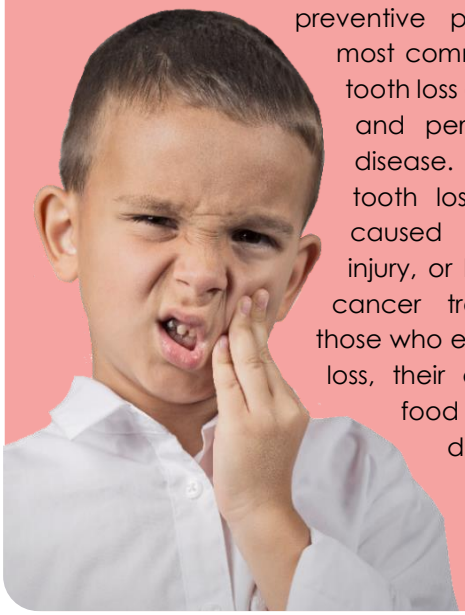
The following oral diseases account for the majority of the social & economic costs of dental care in Michigan.

Dental Caries

Dental caries (tooth decay) is a common chronic disease among the general population. Dental caries occur when acids produced by bacteria on the teeth lead to loss of minerals from the enamel and dentin, the hard substances of the teeth. If the infection goes untreated, it can lead to severe pain, dental abscesses, loss of tooth structure, emergency room visits, and subsequent missed days at school and work.

Tooth Loss

A full set of teeth for the typical adult includes 28 natural teeth, excluding the third molars (wisdom teeth) and teeth removed for orthodontic treatment, or as a result of trauma. Most persons can keep their teeth for life with adequate personal, professional, and population-based preventive practices. The most common reasons for tooth loss are tooth decay and periodontal (gum) disease. Unintentional tooth loss can also be caused by infection, injury, or head and neck cancer treatment. For those who experience tooth loss, their ability to chew food and speak decreases, and this can interfere with social activity.



Periodontal (Gum) Disease

In its earliest stages, periodontal disease is gingivitis. Gingivitis is characterized by localized inflammation, and swollen and bleeding gums without loss of the bone that supports the teeth. It is often caused by inadequate oral hygiene, which allows plaque and calculus (tarter) to build up on the teeth. Gingivitis is reversible with good oral home care and professional dental treatment. If gingivitis progresses, it becomes periodontitis (destructive periodontal disease) in which the tissues and bone that support the teeth are damaged due to extensive buildup of plaque. If untreated, this condition can lead to tooth loss. The use of some medications, diabetes, illnesses, smoking, hormonal changes in girls/women, and genetic susceptibility can all make periodontal disease worse.

Oral Cancers

Cancer of the oral cavity or pharynx (oral cancer) is more common after age 50. Known risk factors include the use of tobacco products and alcohol, and the risk of oral cancer is 6 to 28 times higher in current smokers. When combined with alcohol consumption, the use of tobacco products accounts for the majority of cases of oral and pharynx cancers. Human papilloma virus (HPV) is the primary cause of oral and throat cancers among otherwise healthy nonsmokers between the ages of 25 and 50. Oral cancer is one of the most curable diseases if diagnosed at an early stage, therefore early detection and treatment are crucial for improving survival.

TABLE 1.

Demographic Characteristics of Children and Adolescents (1 to 17 years) with No Preventive Dental Care Visit in Past Year, Michigan, 2012

DEMOGRAPHIC	NO PREVENTIVE DENTAL CARE VISITS IN PAST YEAR (%)
Total	
All (1-17 years)	22.6
Age Group	
1 to 5 year olds	51.9
6 to 11 year olds	11.8
12 to 17 year olds	11.2
Race/Ethnicity	
White, non-Hispanic	18.8
Black, non-Hispanic	28.7
Other, non-Hispanic	33.2
Hispanic	37.0
Household Income	
0-99% FPL	41.6
100-199% FPL	21.1
200-399% FPL	17.2
≥ 400% FPL	13.4
Health Insurance	
Private health insurance	15.1
Public health insurance (Medicaid, SCHIP)	31.2
Uninsured	48.6
Geographic Area	
Rural	20.4
Urban	23.2

FPL = Federal Poverty Level

Source: National Survey of Children's Health. NSCH 2011/12. Data query from the Child and Adolescent Health Measurement Initiative, Data Resource Center for Child and Adolescent Health website. Retrieved 11/02/15 from www.childhealthdata.org.

Oral Health in Michigan
Adults & Seniors

Caries

The risk for tooth decay continues into adulthood due to several changes that are associated with aging, such as receding gums and dry mouth. The Centers for Disease Control and Prevention (CDC) estimates that over 90% of adults in the U.S. had dental caries in their permanent teeth and that 27% of adults had untreated tooth decay in permanent teeth during 2011-2012.[4] In 2014, an estimated 31% of Michigan adults aged 18 years and older did not have a dental visit during the past year.[5] With the exception of the 25-34 year age group, the prevalence of not having a dental visit was similar for all ages. Disparities in dental visits occurred among populations by income level, race, and insurance status (Table 2).

In 2014, an estimated 34% of Michigan adults reported having no dental insurance.[6] The prevalence varied slightly by age with the greatest number of adults without dental insurance being between 25-34 years (41%) and over 75 years (45%) of age. Significant disparities were observed across income levels with Michigan's poorest adults (<$20,000, 54%) being three times more likely than affluent adults (> $75,000, 17%) to not have insurance.

Due to fluoridation and other advances in oral health care, fewer older adults experience tooth decay and maintain their natural teeth. Among adults 65 years and older in Michigan, only 13% experienced complete tooth loss in 2012.

COMMUNITY WATER FLUORIDATION

Source: CDC, Division of Oral Health, Water Fluoridation Reporting System (WRFS), State Fluoridation Reports, 2014)

Fluoride has the ability to inhibit or even reverse the initiation and progression of dental caries (tooth decay). It is believed that widespread use of fluoride has been a major factor in the decline in the prevalence and severity of dental caries in the United States during the past 30 years. However, this decline has been uneven in the general population, with the burden of disease being concentrated among those living in poverty, those with fewer years of education, and those without dental insurance or access to dental services. Water fluoridation benefits all members of the community and has been identified as the most cost-effective method of delivering fluoride, regardless of age, educational attainment, or income level.

The US Public Health Service recommends a fluoride concentration of 0.7 mg/L (parts per million [ppm]) to maintain caries prevention benefits and reduce the risk of dental fluorosis. In Michigan, the fluoridation of Community Water Supplies (CWS) is provided by the Michigan Department of Environmental Quality (MDEQ) and the Michigan Department of Health and Human Services (MDHHS). The MDEQ provides technical and engineering expertise to water systems and the MDHHS Oral Health Program provides health related expertise to communities interested in fluoridating their water supplies. Both departments support water fluoridation and work together to promote it.

Approximately 8.2 million people in Michigan were served by community water systems in 2014, which is approximately 83% of the population. In 2014, there were 1,450 public water systems in Michigan. Of these, 428 systems added fluoride or purchased fluoridated water, and 197 systems had natural fluoride concentrations greater than or equal to 0.60 mg/L, and therefore the addition of fluoride was unnecessary. In 2014, 92% of the population who used community water systems received fluoridated water.

However, in 2014, 31% of adults 65-74 years and 42% of adults 75 years and older reported having 6 or more teeth missing due to tooth decay or gum disease.[6] Tooth loss was more common among Black, non-Hispanic adults and adults with less education and less income.

Periodontal Disease

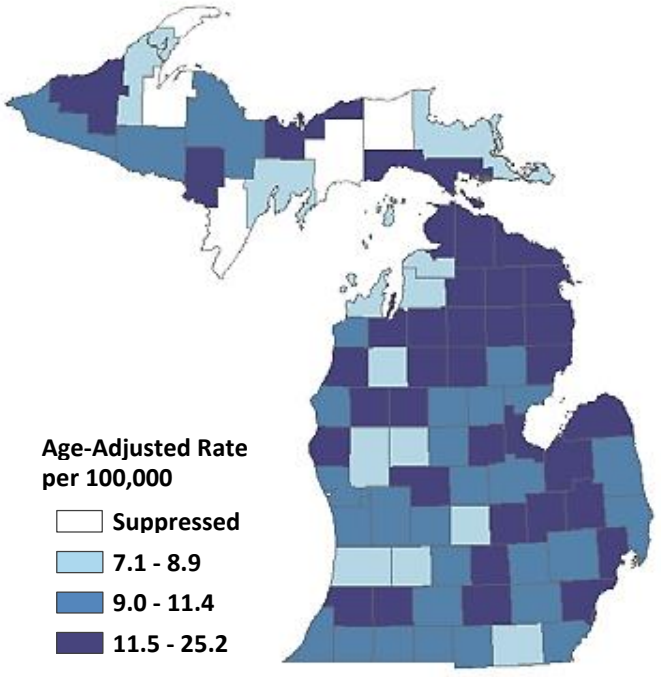
Periodontal diseases are mainly the results of infections and inflammation of the gums and bone that surround and support the teeth. If left untreated periodontal disease can lead to tooth loss. Smoking, diabetes, hormonal changes in girls/women, and medications are known to increase the risk of developing periodontal disease. It is estimated that nearly half of adults (47%) age 30 years and older have some form of periodontal disease and that it increases with age.[6] Over 70% of adults 65 years and older have periodontal disease.

Oral Cancer

Oral cancer is most frequently diagnosed among people aged 55 to 64 years. It is any cancerous tissue growth located in the mouth, tongue, lips, throat, parts of the nose, or larynx. In Michigan, there were 1,281 new cases of oral cancer diagnosed in 2014, a rate of 10.6 cases per 100,000 population.[7] Males have a significantly higher incidence rate of oral cancer compared to females (15.8 per 100,000 vs. 6.0 per 100,000). The incidence of oral cancer varies by region of the state. Counties with the highest incidence of oral cancer are in the Upper Lower Peninsula of Michigan but also stretch down to the Southeastern part of the state (Figure 1). In 2013, 303 Michigan residents died of oral cancer (2.5 deaths per 100,000 population). Men die from oral cancer at significantly higher rate than women (3.9 per 100,000 vs. 1.3 per 100,000).

Oral cancer is most common among those with a history of tobacco or heavy alcohol use or those exposed to the human papilloma virus. When detected at an early stage of development, oral cancer is easier to treat and increases a person's chances for survival. The ADA does recommend screening for oral cancer in patients reporting for routine care. An oral cancer screening is an examination performed by a dentist or doctor to look for signs of cancer or precancerous conditions in the mouth and includes a visual inspection of the mouth and palpation of the jaw and neck. The 2015 Michigan Oral Health Surveillance report indicates that 46% of Michigan adults age 18 years and older reported having had an oral cancer screening in the past year. The prevalence of having an oral cancer screening was impacted by having seen a dentist in the past year or not (67% vs. 5%) and having dental insurance coverage or not (55% vs. 31%).

FIGURE 1: ***Age-Adjusted Oral Cancer Incidence Rate by County, Michigan, 2008-2012***



Source: Anderson B, Deming S, Fussman C, Farrell C. Oral Cancer in Michigan. Lansing, MI: Michigan Department of Health and Human Services, Lifecourse Epidemiology and Genomics Division, Chronic Disease Epidemiology Section, August 2015.

TABLE 2.
Demographic Characteristics of Adults with No Dental Visit in Past Year, Michigan, 2014

DEMOGRAPHIC	NO DENTAL VISIT IN PAST YEAR (%)
Total	
All adults	31.4
Age Group	
18 to 24 years	28.7
25 to 34 years	41.2
35 to 44 years	32.7
45 to 54 years	32.3
55 to 64 years	27.8
65 to 74 years	24.7
75 years or older	31.5
Race/Ethnicity	
White, non-Hispanic	28.6
Black, non-Hispanic	45.1
Other, non-Hispanic	33.8
Hispanic	36.8
Annual Household Income	
< $20,000	55.3
$20,000 to $34,999	43.1
$35,000 to $49,999	28.6
$50,000 to $74,999	23.0
≥ $75,000	13.7
Health Insurance	
Insured	28.2
Uninsured	60.1

Source: Michigan Department of Health and Human Services, Chronic Disease Epidemiology Section. 2014 Behavioral Risk Factor Survey. http://www.michigan.gov/documents/mdch/2014_MiBRFS_Annual_Report_Final_Web_504843_7.pdf.

Oral Health in Michigan
Disparities in Oral Health

Despite improvements in the oral health of the general population, disparities persist among individuals with a lower socioeconomic status, among minority racial and ethnic groups, and within special populations whose oral health needs and access to care vary from that of the general population. Collectively, these groups experience a disproportionate burden of oral health disease due to inadequate access to care, systemic discrimination, and a lack of specialized services that address their particular health needs. Addressing disparities in oral health has become a national priority, set forth by the Surgeon General, the Institute of Medicine, and the U.S. Department of Health and Human Services in the Nation's Healthy People 2020 goals.[8,9,10]

Socioeconomic Disparities

Low socioeconomic status, characterized by low income and low education levels, significantly impacts disparities in oral health. Nationally, children and adolescents living below 100% of the federal poverty level (FPL) are more likely to have untreated dental caries and are less likely to have had at least one dental sealant on a permanent tooth.[11] Adults living below 100% of the FPL are less likely to retain all of their permanent teeth and are more likely to be edentulous (experience complete tooth loss).[12] In Michigan, persons of low socioeconomic status experience similar oral health burdens. According to the 2014 Michigan Behavioral Risk Factor Survey, persons with low household income and less than a high school education were much more likely to report having had no dental visit during the past year and 6 or more teeth missing than those with a greater household income and higher education levels.[12] Over half (55.3%) of Michiganders with a household income of less than $20,000 did not have a dental visit during the past year, compared with only 13.7% among those who had a household income of $75,000 or more. Results were similar for those with less than a high school education, in which 52.9% reported not having seen a dentist in the past year, compared to 16.5% of college graduates.[13]

For those living in poverty, there are many factors that impact an individual's ability to access oral prevention and treatment services, most of which stem from the social and economic environment. A shortage of dentists practicing in low-income communities, a shortage of dentists willing to accept public insurance like Medicaid, high unemployment, jobs that do not offer dental insurance, and limited or no transportation services are just a few of the barriers to oral health care that persons with low socio-economic status face.[13]

Racial and Ethnic Disparities

There are significant racial and ethnic disparities in oral health for both children and adults. Hispanic, non-Hispanic Black/African American, and American Indian/Alaska Native (AIAN) populations suffer from poorer oral health compared to non-Hispanic whites.[9,14] Hispanic and non-Hispanic Black/African American children are less likely to receive dental sealants and experience much higher rates of untreated dental caries, while adults from these groups are more likely to suffer tooth loss and be edentulous.[12] Of all racial and ethnic groups in the United States,

tooth decay is highest among American Indian and Alaska Native populations; 68% of AIAN children have untreated dental caries.[15] Black/African American adults are more likely to have gum disease, and are more likely than non-Hispanic whites to develop oral or pharyngeal cancer and be diagnosed in later stages when chances of survival are lower.[15]

Racial and ethnic disparities in Michigan reflect those found nationally. According to the 2014 Michigan Behavioral Risk Factor Survey, fewer non-Hispanic Black/African Americans, Hispanics, and Other non-Hispanics reported having a dental visit in the past year compared to non-Hispanic whites.[13] Almost one-quarter of non-Hispanic Black/Africans (23%) reported having 6 or more teeth missing, compared to 14% of non-Hispanic whites.[13] While half of non-Hispanic whites reported receiving an oral cancer screening in the past year, only a third or less of all other population groups reported so.[16]

Pregnant Women

Few pregnant women properly maintain their oral health during pregnancy and many are unaware of the consequences poor oral health has on both themselves and their children. Pregnant women are susceptible to "pregnancy gingivitis", which includes sore, swollen gums that occur during pregnancy. Untreated gingivitis may progress to periodontitis, or gum disease. Pregnant women may also be more susceptible to tooth erosion and dental caries, a result of increased acidity in the mouth due to vomiting from morning sickness and increased gastric reflux.[17] For the child, poor oral health during pregnancy has been associated with pre-term birth and low birth weight. After birth, mothers may transmit their own caries-causing bacteria to their teething infants. This additional risk to their infants highlights the importance of preventing and treating caries in the mother early on to prevent early childhood caries (ECC) among children.[15]

A 2009 survey by Delta Dental Plans Association found that 25% of pregnant women did not see the dentist at all during pregnancy, while 38% saw the dentist only once.[15] Data from the 2009 Pregnancy Risk Assessment Monitoring Systems (PRAMS) showed that 41.6% of pregnant women in Michigan did not have their teeth cleaned during the twelve months prior to their pregnancy, while less than half reported receiving counseling on oral health care during pregnancy.[15]

Persons with Special Health Care Needs and Disabilities

For persons who are disabled and who have special health care needs, appropriate and accessible oral health care is a necessity. People within these groups are vulnerable to oral disease, often facing serious oral health issues and barriers to oral health care. Such issues and barriers may stem from a combination of congenital abnormalities and an inability to receive personal and professional oral health care.[9]

Caries rates among persons with special health care needs and disabilities are typically higher than those found in the general population.[9] Children with special health care needs (CSHCN) are more likely to have unmet dental needs, with CSHCN on public insurance experiencing greater unmet need than those with private insurance.[18] In Michigan, disabled adults were more likely to be missing 6 or more teeth and were less likely to have visited a dentist or had a cleaning in the past year than non-disabled adults.[15] Disabled adults were also less likely to have dental insurance, and to have accessed oral health care in the past year due to cost.[15]

Oral Health in Michigan

Economic Impact

The economic costs associated with oral care are high, with a significant proportion of spending attributed to restorative care for preventable oral diseases. In 2012, $111 billion was spent on dental services in the United States, accounting for 4% of total national health expenditures.[19] Visits to the hospital and emergency department (ED) for both acute and non-urgent oral health issues are especially costly. Dental-related ED visits are increasing across the United States, from 1.1 million dental-related visits in 2000 to 2.1 million in 2010.[20] It has been estimated that the 2.1 million dental-related ED visits in 2010 alone cost the U.S. health care system anywhere from $867 million to $2.1 billion.[21] Dental care is predominantly financed by private dental insurance and out-of-pocket spending, though there has been an increase in funding by public sources (from 4% in 2000 to 8% in 2012).[20] In 2012, private insurance paid for 48% of dental care, while 42% was paid for out-of-pocket and 8% was paid for by CMS programs (Medicaid, Medicare, and the Children's Health Insurance Program [CHIP]).[20]

In Michigan, $3.5 billion was spent on dental services in 2009, and the percentage of expenditure for dental care per person was higher than that in the United States.[21,22] While the average annual per person dental expense in the United States was $666 in 2010, Michigan's was $827 per person.[23] More Michiganders paid out-of-pocket costs for dental care (49.5%) in 2010 compared to the general U.S. population (47.5%), while fewer dental costs were paid for by private insurance (40% in Michigan v. 43.1% in the U.S.).[24]

The economic impact of poor oral health that cannot be quantified in dollar amounts are those of lost productivity, including days missed at work and at school. It has been estimated that at least 164 million work hours are lost each year among adults suffering from dental issues, while at least 50 million school hours a year are lost among children.[24]

Oral Health in Michigan
Workforce

Dentists

Currently in Michigan the demand for dentists exceeds the supply, and this shortfall is expected to widen in the next decade. The Health Resources and Services Administration (HRSA) projects that, from 2012 to 2025, the supply of dentists will decrease by 11% but the demand for dentists will decrease by only 3%, resulting in a shortage of 605 dentist Full-Time Equivalents (FTEs).[25] In this report, it was also noted that, due to the Affordable Care Act and the expectation that more people will have dental care, the actual shortage may exceed the estimated shortage depending on the extent that dental insurance coverage is positively associated with demand for service.

As of 2014, there were 7,658 professionally active dentists in Michigan. Of these, 6,661 (83%) were in general practice and 997 (13%) practiced in specialty areas. For the population in Michigan, this is 7 general dentists per 10,000 which is greater than the overall 5 dentist per 10,000 population in the United States.[26] Even though this suggests greater availability, the distribution of dentists is not uniform across the state. Of the 83 counties, there were 21 (25%) with a combined population of over 1 million residents with limited availability of dentists (less than 4 dentist per 10,000 population).[27]

Dental Hygienists

Dental hygienists are licensed dental professionals who specialize in preventive dental and periodontal care. As of 2014, there were 9,557 dental hygienist in Michigan which amounts to approximately 10 dental hygienists per 10,000 population. HRSA estimates that by 2025, the supply of dental hygienist will increase by 5% and the demand will decrease by 2%, resulting in an excess of 582 dental hygienist FTEs.[1] However, because dental hygienist are not evenly distributed throughout the state, certain population groups may still experience shortages. In a report on oral health in Michigan, 18 counties were identified as having limited availability of dental hygienists.[3] Many of these counties were rural with populations less than 50,000 but four counties, including Wayne County, were urbanized areas with large populations. Wayne County, which includes the City of Detroit, is the most populous county in Michigan with over 1.7 million residents, yet only had 6 dental hygienists per 10,000 population in 2014.

Dental Assistants

Dental assistants work directly with dentists to treat patients, work in dental laboratories, or support office operations. Dental assistants are not required to be licensed in Michigan. However, a dental assistant must be licensed by the Board of Dentistry within the Michigan Department of Licensing and Regulatory Affairs (LARA) in order to perform expanded functions and to use the title "Registered Dental Assistant". As of 2014, there were 9,160 dental assistants working in Michigan.

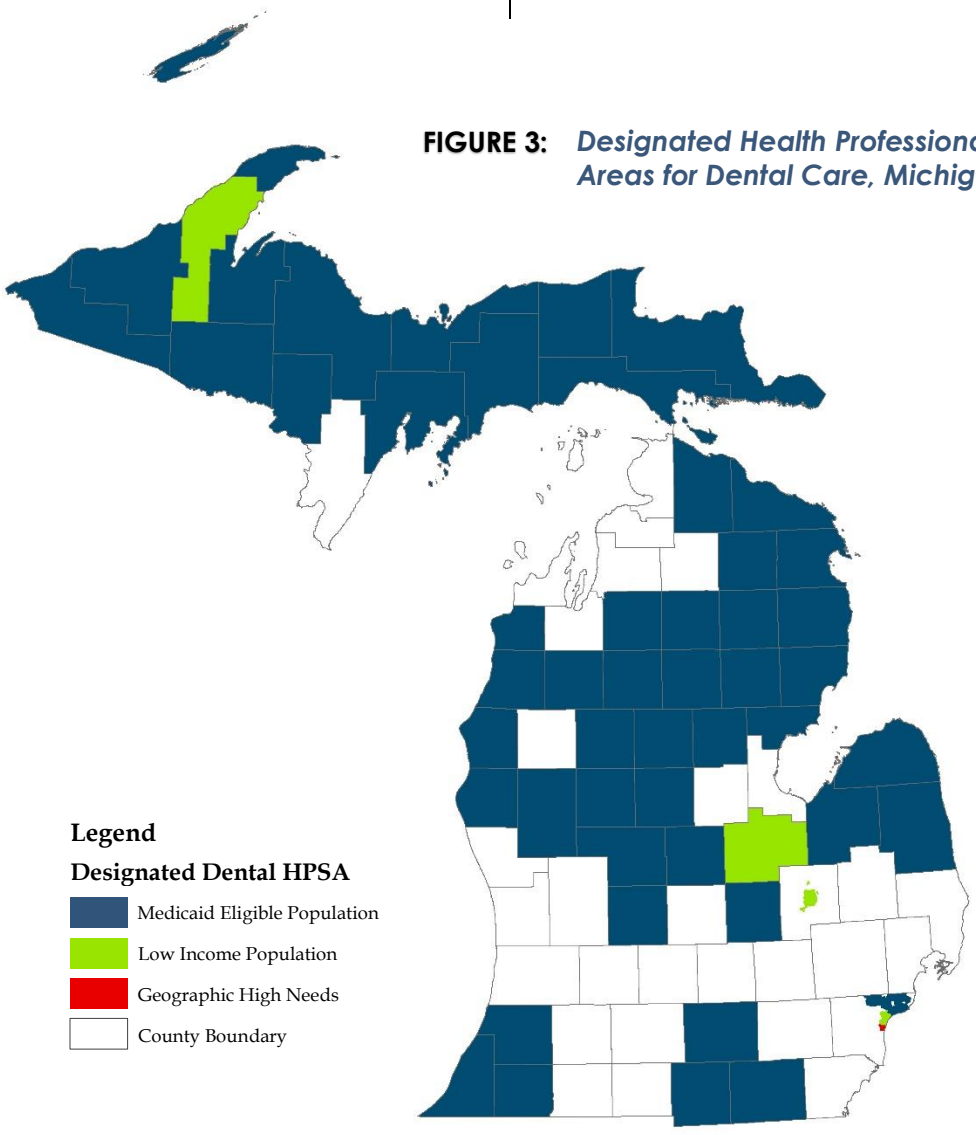
Of the dental assistants practicing in Michigan, 1,653 were licensed as of July 2014. The US Bureau of Labor and Statistics (BLS) calculates a labor quotient to quantify how concentrated an occupation is in a region as compared to the state. A location quotient equal to 1 indicates that the concentration of an occupation in a region is

equal to the state. In 2014, the areas in Michigan with a higher than average concentration of dental assistants included the Northwest Lower Peninsula of Michigan (1.61), Flint (1.57), Saginaw-Saginaw Township (1.21), and Warren-Troy-Farmington Hills (1.11) and areas with a lower than average concentration of dental assistants included Kalamazoo-Portage (0.70), Lasing-East Lansing (0.77), and Monroe (0.79).[28]

Health Professional Shortage Areas for Dental Care

Health Professional Shortage Areas (HPSAs) are geographic areas, population groups, or facilities designated by HRSA as having shortages of primary medical care, dental, or mental health providers. A geographic area can be a county or service area, a population group represents a specific demographic, such as a low income population, and a facility can include a designated institution such as a federally qualified health center. As of November 2015, there were 242 designated HPSAs for dental care in Michigan. Of these, 184 were facility designations, 57 were special population groups, and 1 was a designated geographic area (Figure 2). HRSA estimates that 862,159 people live in Michigan's dental HPSAs and that only 42% of need for dental services in these HPSAs is met. In order to remove the dental shortage designations, 121 additional dental professionals would be needed.[29]

FIGURE 3: ***Designated Health Professional Shortage Areas for Dental Care, Michigan, 2015***



Source: Health Resources and Services Administration (HRSA), US Department of Health & Human Services, November 2015

Oral Health in Michigan
Professional Integration

The mouth and body have been historically separated, as oral health care and medical care providers continue to undergo independent education and training programs and provide distinct services to their patients with little collaboration and coordination. However, evidence and support for professional integration between these two fields has been growing. The U.S. Surgeon General, the Institute of Medicine (IOM), and the Health Resources and Services Administration (HRSA) have all recently called for an integration of oral health and primary health care.[30,31,32]

Arguments in favor of professional integration include increased awareness of the links between oral health and general health, increased access to oral health care, the promotion of a more patient-centered approach to health care delivery, and expanded preventive efforts for both oral disease and chronic disease, thereby reducing spending on emergency room visits and treatment.

Link between Oral & General Health

Recent research has shed light on the association between poor oral health and other poor health outcomes, including increased risk for cardiovascular and other chronic diseases as well as adverse pregnancy outcomes.[31,33,34] Professional integration, beginning with collaborative education and training efforts between oral health care providers and primary care providers, increases awareness of these links and encourages providers to work together to prevent disease among their patients.

Increased Access to Oral Health Care

Oral health care has struggled to reach those populations most at-risk for and with the highest burdens of oral disease, including those who are low-income, minority and rural populations, those with special health care needs, pregnant women, young children, and seniors.[32,33,35] Because individuals are more likely to visit a primary care provider than an oral health care provider, primary care providers are in a unique position to expand access to oral health care among at-risk populations and reduce oral health disparities.[35]

61% of adults visited a dentist in 2012, compared with 82% who made at least one visit to a medical provider.[36]

Primary care providers can provide screenings for oral disease, as-needed referrals to oral health care providers with which they are collaborating, and expand prevention efforts among their patient population by promoting oral health care.

Patient-Centered Approach to Care

Integrated care between oral health care providers and primary care providers allows for a more patient-centered approach to care, with personalized care for the patient addressing both their oral health and primary care needs. Providers can share patient information regarding current health issues, medications and allergies, and reasons for referral to create a comprehensive prevention and care plan for each patient.[34]

Expanded Preventive Efforts and Reduced Spending

Through expanded preventive efforts on behalf of oral health care provider and primary care

ORAL HEALTH CARE SPENDING

- Americans made 2.1 million visits to emergency departments for dental conditions in 2010.[37]
- The total cost of spending for dental services, including costs associated with treating preventable oral disease, was $111 billion in 2013.[38]

provider integration, health care spending to treat both oral health diseases and chronic health diseases can be reduced.

The road to professional integration is not an easy one and several barriers must be addressed to foster professional integration between oral health and primary care providers. A few of these barriers include separate education and training programs, separate payment structures, and few/no models for referrals and communication between providers from these fields.[33,35]

ASTDD GUIDELINES

The nonprofit Association of State and Territorial Dental Directors (ASTDD) has created guidelines to assist state health agency officials and public health administrators in developing and operating state oral health programs. Below are the ten essential services that states should consider for a productive and successful oral health program.

Ten Essential Public Health Services to Promote Oral Health:

1. Assess oral health status and implement an oral health surveillance system.
2. Analyze determinants of oral health and respond to health hazards in the community.
3. Assess public perceptions about oral health issues and educate/empower people to achieve and maintain optimal oral health.
4. Mobilize community partners to leverage resources and advocate for/act on oral health issues.
5. Develop and implement policies and systematic plans that support state and community oral health efforts.
6. Review, educate about and enforce laws and regulations that promote oral health and ensure safe oral health practices.
7. Reduce barriers to care and assure use of personal and population-based oral health services.
8. Assure an adequate and competent public and private oral health workforce.
9. Evaluate effectiveness, accessibility and quality of personal and population-based oral health promotion activities and oral health services.
10. Conduct and review research for new insights and innovative solutions to oral health problems.

Developing a State Oral Health Plan for Michigan

Plan History, Need, and Development of the 2020 Plan

In line with previous efforts to build structured goals, strategic activities, and measurable outcomes, plans to develop the 2020 State Oral Health Plan were officially initiated in the spring of 2015. Planning, development, and implementation of the 2020 State Oral Health Plan was a joint collaboration between MDHHS and MOHC, with the input and contributions of numerous stakeholders within the State's oral health system. MDHHS and MOHC partnered with the Michigan Public Health Institute to facilitate the action planning process and to draft the 2020 State Oral Health Plan. The action planning process was carried out using Technology of Participation (ToP) facilitation methods (below).

ToP FACILITATION METHODS

- Emphasized participation among all stakeholders
- Utilized data and team knowledge
- Considered past efforts to positively impact the state of oral health in Michigan
- Resulted in a set of prioritized actions that were included in the 2020 State Oral Health Plan

The process of drafting the 2020 State Oral Health Plan officially began with an invitation for a wide range of stakeholders within the state's oral health system to participate in the planning process. Invited stakeholders included a strategic and comprehensive range of direct service providers, state government, community-based services, third-party payers, higher and professional education, policymakers, and public representatives. Stakeholders interested in participating in the overall planning process and in-person planning meeting were asked to complete several pre-work assignments. These assignments included answering focus questions related to a long term vision for oral health in Michigan, reviewing and responding to a Data Snapshot which outlined state oral health indicators that align with Healthy People 2020 objectives, a brainstorm of the factors supporting and hindering the oral health system, and a ranking of potential priority areas of focus for action planning. A total of 42 stakeholders attended an in-person, all-day planning meeting in Lansing, MI on August 27, 2015 after which, the group developed a practical vision to guide the work of the 2020 Michigan Oral Health Plan, reviewed an environmental scan of the current landscape of oral health in Michigan, selected priority goal areas for focus, and initiated the development of SMART objectives and suggested activities. MDHHS and MOHC worked with the Michigan Public Health Institute to refine the goals, objectives and activities and presented them to the Michigan Oral Health Coalition for feedback during their fall meeting on October 16, 2015.

The completed 2020 plan is intended to guide policy makers, providers, community members, and other stakeholders as they work together to improve oral health across the state of Michigan through 2020. This plan will be reviewed on an ongoing basis and progress on achieving the plan goals and objectives will be shared at the Michigan Oral Health Coalition annual meetings.

Developing a State Oral Health Plan for Michigan

Stakeholders

The planning and development of this document relied heavily on input and contributions from numerous stakeholders within the State's oral health system. Successful implementation of this plan will rely on the collective effort of this same group of stakeholders. The icons presented below represent each of the various types of organizations and individuals needed to achieve the goals presented in the following pages. To identify how you or your organization can contribute to this collaborative effort, identify the activities noted with your stakeholder icon. Notice that many activities have multiple icons, demonstrating a need for strategic coordination and collaboration among stakeholders.

COALITIONS/COUNCILS
Statewide or local alliances that foster collaboration between oral health advocates

COMMUNITY-BASED ORGANIZATIONS
Public or private organizations that are engaged in providing care within a community

EDUCATORS
Providers of information or training to the public or to health professionals

GOVERNMENT AND POLICYMAKERS
People, groups, and agencies who influence federal, state, and local laws, policies, and funding

INSURERS/THIRD PARTY PAYERS
Organizations that pay or insure health or expenses on behalf of beneficiaries or recipients

PROFESSIONAL ORGANIZATIONS
Associations or societies who seek to further a particular profession, the interests of individuals engaged in the profession, and the public interest related to that profession

PROVIDERS
Individual health care professionals responsible for delivering health services

PUBLIC HEALTH AGENCIES
State, county, or local agencies tasked with promoting or protecting public health

Goal 1: Professional Integration

By September 30, 2020, enhance professional integration between oral health providers, medical providers and social services providers across the lifespan.

Introduction

Professional integration is the management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs, over time and across different levels of the health system. Historically, dental, medical, and other service providers have had few opportunities to train and work alongside one another. The fragmentation of these fields has done little to foster collaboration, despite sharing a common goal for their patients. Due to the impact that oral health has on quality of life and the link between oral health and chronic disease, as well as adverse pregnancy outcomes, it is now recognized that the coordination of care across provider types is crucial for reducing both oral health diseases and other poor health outcomes.

Enhancing professional integration between oral health providers, medical providers, and social service providers across the lifespan promotes a more patient-centered approach to health care, increases understanding among providers and patients of the relationship between oral health and overall health, and helps to increase access to health services. Specifically, the objectives and activities within this goal aim to: increase provider knowledge of interprofessional care and the number of providers working as an integrated team, reduce barriers to professional integration, and integrate oral health into existing medical practice guidelines, performance measures, and National standards for providing care within diverse populations.

Goal 1: Professional Integration
Objectives & Strategies

Professional integration is the management and delivery of health services so that clients receive a continuum of preventive and curative services, according to their needs, over time and across different levels of the health system.

Objective 1.1: Increase the number of oral health care providers who have formal relationships (e.g., Memorandum of Understanding for patient referrals) with other healthcare providers by 10%.

1.1.1 Continue to promote dental providers as part of the health team (e.g., during chronic disease management when conducting blood pressure screenings, cancer screenings, addressing smoking cessation, etc.).

1.1.2 Develop and distribute a Memorandum of Understanding template for dental and medical providers when referring patients for services.

1.1.3 Create a process and associated forms to provide structured referrals that includes patient consent and relevant patient health information.

1.1.4 Incentivize dental & medical practices who create & adopt HIPAA compliant record sharing.

Objective 1.2: Increase the number of educational opportunities that allow oral health and other health care providers to work as a single team to address patient health care needs by 10%.

1.2.1 Create, maintain, and distribute a list of higher education interprofessional training opportunities.

1.2.2 Increase the number of dental residency programs that offer interprofessional experiences for their residents.

1.2.3 Promote the free online continuing medical education activities that teach practical oral health knowledge and skills available at http://www.smilesforlifeoralhealth.org/.

Objective 1.3: Establish an equitable payment rate for oral health services among both medical and dental providers.

1.3.1 Convene a workgroup that includes a broad array of stakeholders to review and make recommendations on current oral health policies (e.g., supervision of dental hygienists by medical providers) and payment rates for medical and dental providers.

1.3.2 Implement workgroup recommendations on payment rates for medical & dental providers.

1.3.3 Educate medical providers on how to bill for oral health services.

Objective 1.4: Update oral health guidelines within the Michigan Quality Improvement Consortium (MQIC) guidelines.

1.4.1 Continuously review the current MQIC guidelines and determine gaps related to oral health.

1.4.2 Create new oral health MQIC guidelines for current evidence-based care and prevention

Objective 1.5: Increase the number of programs that educate oral health providers on the social determinants of oral health among underserved or marginalized populations by 10%.

1.5.1 Incorporate the National Standards for Culturally and Linguistically Appropriate Services in dental curricula. Ensure that continuing education opportunities include information on the impact of social determinants on oral health.

1.5.2 Ensure that continuing education opportunities include information on the impact of social determinants on oral health.

1.5.3 Ensure dental school curricula and continuing education courses identify and address the medical/oral health needs of underserved or marginalized populations (i.e., older adults, pregnant women, Hispanics, Native Americans, etc.).

Goal 2: Health Literacy

By September 30, 2020, increase knowledge and awareness of the importance of oral health to overall health among health professionals, policy makers, and consumers.

Introduction

Health literacy is the ability to obtain health information, understand it, and use it to make appropriate decisions for improved health. Limited health literacy can affect the use of oral health services and patient outcomes, and is associated with inaccurate knowledge about preventive measures such as water fluoridation, dental care visits, and oral health-related quality of life. The objectives and activities within this goal engage various organization types to promote evidence-based prevention strategies for oral health, and to develop and disseminate information that is accurate and accessible to the public and health professionals.

Goal 2: Health Literacy
Objectives & Strategies

Health literacy is the ability to obtain, understand, and use health information to make appropriate decisions for improved health.

Objective 2.1: Develop and promote consistent messages to educate providers and consumers on oral health through the internet.

2.1.1 Create a workgroup to discuss a state website portal for oral health providers and consumers.

2.1.2 Based on workgroup recommendations, develop/edit website to include content to educate providers (e.g. describes the MQIC guidelines, smiles for life curricula, and PA-161 program) and consumers (e.g. insurance options, referral locations, link between oral health and overall health, evidence-based prevention strategies, resource inventory) on oral health.

2.1.3 Conduct a statewide poll to assess consumer knowledge of oral health and its relevance to overall health.

2.1.4 Based on the results of the statewide consumer knowledge poll, create a section on the website to address common myths.

2.1.5 Develop a dental resource inventory which includes all of the dental providers throughout the state.

2.1.6 Include oral health communications in existing social media outlets (e.g., Facebook, newsletters, etc.) and link existing outlets to the "official" oral health website.

2.1.7 Create a workgroup that sustains the website through updates to the website/ educational information and tracks the various stakeholder educational activities.

Objective 2.2: Increase the number of programs and/or interventions that educate parents on how to prevent early childhood caries among children aged 0-3 by 10%.

2.2.1 Develop messages for pregnant women and community organizations that serve children on oral health preventive measures (e.g., sealants).

2.2.2 Promote fluoride varnish as an early prevention strategy which can be implemented by medical and dental providers.

Objective 2.3: Increase consumer and health care provider use of evidence-based prevention strategies by 10%.

2.3.1 Partner with local stakeholders to develop and deliver consistent messages on how to prevent oral cancers.

2.3.2 Incorporate oral health into the curriculum objectives within the Michigan Community Health Worker Certificate Program.

2.3.3 Promote the SEAL! Michigan program and school-based sealant programs.

2.3.4 Work with municipal leaders and local health boards to expand community water fluoridation within public water systems.

2.3.5 Establish a multidisciplinary team of oral health and water system professionals to serve as experts/advocacy resources to communities who are considering water fluoridation or who experience threats to water fluoridation.

Objective 2.4: Create and support county advocacy networks across the state of Michigan.

2.4.1 Recruit an Oral Health champion in each legislative district.

2.4.2 Align local/legislative district level coalition activities and messages with Michigan Oral Health Coalition activities and messages.

2.4.3 Maintain relationships with state legislators so that oral health is always on their minds.

Objective 2.5: Collaborate with Michigan's 900 public school districts, including school health and safety programs and school based health centers, to increase oral health awareness activities.

2.5.1 Integrate messages about oral health throughout the K-12 school environment (e.g., in vending machines, school based flyers and posters etc.).

2.5.2 Engage partners from the Department of Education to brainstorm the best way(s) to integrate the importance of oral health into the school curriculum.

2.5.3 Continue to monitor & strengthen the Michigan Model for Health oral health curriculum.

2.5.4 Educate school nurses and teachers on evidence-based prevention programs (e.g., SEAL! Michigan).

2.5.5 Increase the number of students who are interested in dental careers by creating more opportunities for students to be mentored by oral health workers through the STRIDE program (as developed by the Michigan Health Council).

2.5.6 Promote the SEAL! Michigan program and school-based sealant programs.

Goal 3: Increase Access to Oral Health Care

By September 30, 2020, increase access to oral health care among underserved and/or hard to reach populations.

Introduction

Many people in Michigan have access to quality oral health care that enables them to experience the numerous benefits of oral health. Compared to the National average, Michigan has better oral health utilization and clinical outcomes. However, some population groups within Michigan encounter barriers that make it difficult to obtain preventive and treatment services and, therefore, disparately experience the burden of disease. Improving access to care is a critical component of decreasing these health disparities.

Access to oral health care is a complex issue influenced by several factors, such as the availability of services, insurance coverage, and oral health professionals, as well as health literacy. The objectives and activities within this goal work towards making services and dental coverage more obtainable, increasing the number of providers, increasing provider knowledge, increasing the public's awareness on the importance of oral health, and decreasing barriers to receiving oral health care.

Goal 3: Increase Access to Oral Health Care

Objectives & Strategies

Some population groups in Michigan encounter barriers making it difficult to obtain preventive treatment services and, therefore, disparately experience the burden of disease. Improving access to care is critical to decreasing these health disparities.

Objective 3.1: Decrease the proportion of children, young adults, adults, and older adults who are underinsured or without dental insurance by 10%.

3.1.1 Advocate to include comprehensive oral health benefits in Medicaid Adult Dental, Healthy Michigan Plan, MI Health Link and Medicare.

3.1.2 Expand efforts to insure persons without dental coverage.

3.1.3 Use public service announcements and other innovative outreach methods (e.g., social media) to educate the public on the benefits of dental care and insurance.

Objective 3.2: Reduce the proportion of children, young adults, adults and older adults who experience difficulty, delays or barriers to receiving oral health care by 10%.

3.2.1 Add questions to existing surveys (e.g., Behavioral Risk Factor Surveillance System) on barriers to accessing oral health care.

3.2.2 Work with state transportation vendors (e.g., Logisticare) to provide transportation services for dental visits.

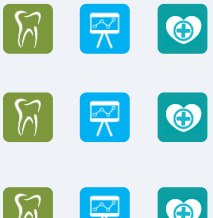
3.2.3 Conduct Geographic Information System (GIS) Mapping to visualize dental providers across the state.

3.2.4 Incentivize providers to establish practices in dental shortage areas across the state (e.g., loan repayment programs).

3.2.5 Increase the establishment & utilization of all workforce and delivery models within dental shortage areas (e.g., dental clinics in non-traditional sites, mobile/portable dental clinics).

3.2.6 Develop and distribute resources to publicize and promote the oral health profession within career centers at Michigan's colleges and universities.

Objective 3.3: Increase the proportion of infants, children, and young adults who received comprehensive dental services during the past year by 10%.



3.3.1 Create a communication plan to educate parents and caregivers on the importance of a dental home for infants, children and young adults.

3.3.2 Use public service announcements and other innovative outreach methods (e.g., social media) to educate the public on the benefits of dental care at a young age.

3.3.3 Use public service announcements and other innovative outreach methods (e.g., social media) to educate Medicaid beneficiaries on Healthy Kids Dental program benefits.

3.3.4 Increase the number of school-based sealant programs.

3.3.5 Increase dental provider incentives for age 1 dental visits.

Objective 3.4: Increase the proportion of adults and children with disabilities who received comprehensive dental services during the past year by 10%.

3.4.1 Create and maintain a list of dental providers who understand the complex treatment needs and are comfortable providing care for persons with disabilities.

3.4.2 Increase the number of organizations that represent individuals with disabilities (e.g., Community Mental Health, Developmental Disabilities Council, Michigan Statewide Independent Living Council, etc.) on the Michigan Oral Health Coalition.

3.4.3 Convene a multidisciplinary workgroup to review/make recommendations on payment rates (e.g., billing codes for additional time needed to treat persons with disabilities) and provide guidance on how to properly care for patients with disabilities when providing dental services.

3.4.4 Ensure that dental school curricula include training on the complex treatment needs of persons with disabilities.

3.4.5 Include training on the complex treatment needs of persons with disabilities in continuing education courses.

Objective 3.5: Increase the proportion of pregnant women who received comprehensive oral health care during pregnancy by 10%.

3.5.1 Promote the Michigan Perinatal Oral Health Guidelines.

3.5.2 Transition fee-for-service Medicaid dental coverage for pregnant women to managed care coverage (e.g., Healthy Michigan Plan and Healthy Kids Dental coverage).

3.5.3 Increase the number of providers who offer dental care for pregnant women.

Monitoring Implementation of the State Oral Health Plan

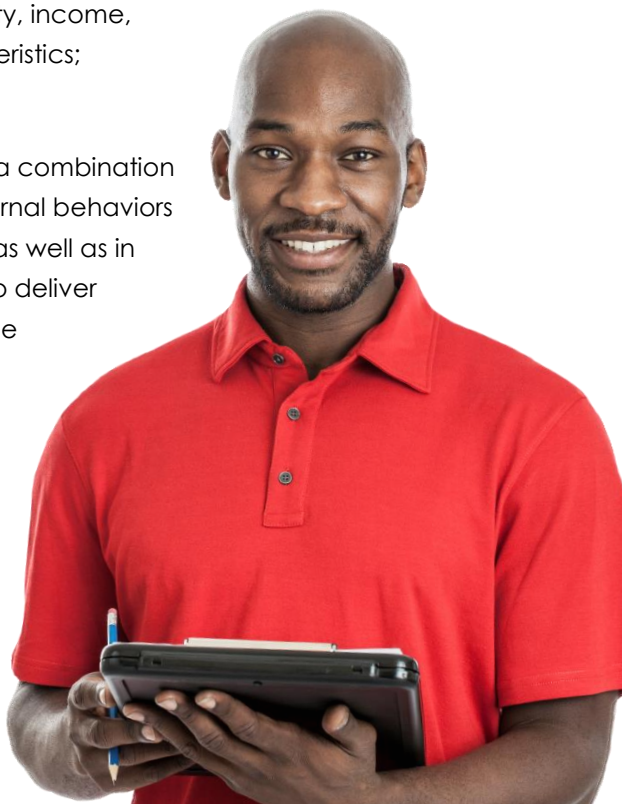
The implementation of activities within the State Oral Health Plan will be monitored on a yearly basis. Outcome measures for this plan were developed and will be used to assess the extent to which oral health stakeholders in Michigan have implemented plan activities and achieved success moving towards accomplishing each goal. Many of the outcome measures in this report were identified by utilizing existing data currently being collected through state or national sources. Other outcome measures will be collected through an annual survey of the Michigan Oral Health Coalition (MOHC) membership and other oral health stakeholders in the state. The baseline indicators reflect the most recently available data and the 2020 target indicators reflect a 10% increase from the 2015 baseline.

Explanation of Data Sources used for Monitoring

The MDHHS conducts the Count Your Smiles (CYS) survey, a statewide Basic Screening Survey to assess the oral health status of third grade students in a sample of Michigan public schools. The screening is conducted by trained personnel using a validated, nationally recognized open-mouth survey tool developed by the ATSDD. The survey observes the presence of dental caries, fillings, and significant caries-related infection that requires immediate care. These data are used to assess and monitor the oral health status of Michigan third graders to guide future planning and allocation of funding as well as the ability to monitor the burden of oral disease at a level consistent with the Healthy People objectives; www.michigan.gov/oralhealth.

Michigan Behavioral Risk Factor Survey (MI BRFS) is an annual phone-based self-reported statewide survey of adults 18 years and older. The MI BRFS is the only source of state-specific, population-based estimates of the prevalence of various behaviors, medical conditions, and prevalence of health practices. Questions in the oral health component of the MI BRFS are included in the survey every other year with the most recent data collected in 2014; www.michigan.gov/mdhhs/0,5 885,7-339-71550_5104_39424---,00.html.

US National Survey on Children's Health (NSCH) is a phone-based survey of households of children ages 1 to 17 years and includes multiple aspects of children's lives, including oral health. The survey includes health status, access to quality health care, as well as information on the child's family, neighborhood, and social context. State and National data can be refined to assess differences by race/ethnicity, income, special care needs, and other demographic and health status characteristics; http://childhealthdata.org/learn/ NSCH.



The Michigan Pregnancy Risk Assessment Monitoring System (PRAMS) is a combination mail/telephone survey designed to monitor selected self-reported maternal behaviors and experiences of mothers that occur before and during pregnancy, as well as in the early postpartum period. Annually over 2,000 Michigan women who deliver a live birth are selected at random to participate from a frame of eligible birth certificates. Questions in the oral health component of the survey include utilization of dental services before, during, and after pregnancy; www.michigan.gov/prams.

Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute works to provide information on cancer statistics in an effort to reduce the burden of cancer among the US population. SEER routinely collects data on every case of cancer reported from 20 US geographic areas. These areas cover about

28% of the US population and are representative of the demographics of the entire US population; http://seer.cancer.gov/.

Water Fluoridation Reporting System (WFRS) is a system developed by the CDC in partnership with the ASTDD and is the basis for national surveillance reports that describes the percentage of the US or state population on community water systems who receive optimally fluoridated drinking water. Water system information is available by state and county, including state fluoridation reports, through the WFRS website; https://nccd.cdc.gov/DOH_MWF/Default/Default.aspx.

TABLE 3.

Monitoring Plan for Professional Integration Goal:
Enhance professional integration between oral health providers, medical providers, and social services providers across the lifespan.

OBJECTIVE	MEASURABLE OUTCOMES	DATA SOURCE	BASELINE	2020 TARGET
Increase the number of oral health care providers who have formal relationships (e.g., Memorandum of Understanding for patient referrals) with other healthcare providers by 10%.	1. Number of MOHC members with formal relationships	1. Annual survey of MOHC members and other stakeholders	TBD	TBD
Increase the number of educational opportunities that allow oral health and other health care providers to work as a single team to address patient health care needs by 10%.	1. Number of interprofessional experience opportunities offered by dental residency program 2. Number of MOHC members who have viewed one or more modules at www.smilesforlife.org	1. Dental Schools 2. Annual survey of MOHC members and other stakeholders	TBD TBD	TBD TBD
Establish an equitable payment rate for oral health services among both medical and dental providers.	1. Equitable pay rate established	1. NA	NA	NA
Update oral health guidelines within the Michigan Quality Improvement Consortium (MQIC) guidelines.	1. Oral health guidelines within MQIC are continuously updated	1. NA	NA	NA
Increase the number of programs that educate oral health providers on the social determinants of oral health among underserved or marginalized populations by 10%.	1. Number of courses for continuing education that include the impact of social determinants on oral health 2. Number of dental school curricula that address the health needs of underserved or marginalized populations	1. Continuing Education courses submitted to professional associations 2. Dental Schools	TBD TBD	TBD TBD

TABLE 4.

Monitoring Plan for Health Literacy Goal:
Increase knowledge and awareness of the importance of oral health to overall health among health professionals, policy makers, and consumers.

OBJECTIVE	MEASURABLE OUTCOMES	DATA SOURCE	BASELINE	2020 TARGET
Develop and promote consistent messages to educate providers and consumers on oral health through the internet.	1. Number of MOHC members using social media to educate providers and/or consumers on oral health	1. Annual survey of MOHC members and other stakeholders	TBD	TBD
	2. Number of MOHC members whose social media sites or organization websites link to official oral health website	2. Annual survey of MOHC members and other stakeholders	TBD	TBD
Increase parent knowledge on how to prevent early childhood caries among children aged 0-3 by 10%.	1. Number of MOHC members who educate pregnant women on oral health preventive measures	1. Annual survey of MOHC members and other stakeholders	TBD	TBD
	2. Number of Medicaid medical providers implementing Babies Too! Program	2. Michigan Varnish Babies Too! program records	TBD	TBD
Increase consumer and health care provider use of evidence-based prevention strategies by 10%.	1. Incidence rate of oral cavity and pharynx cancer in Michigan	1. SEER	10.6 per 100,000	9.5 per 100,000
	2. Proportion of Michigan adults with oral cancer exam in past year	2. MI BRFS	46%	51%
	3. Proportion of Michigan population served by community water systems who receive fluoridated water	3. WFRS	90%	99%
	4. Number of SEAL! Michigan locations	4. SEAL! Michigan program records	138	142
Create and support county advocacy networks across the state of Michigan.	1. Number of county advocacy networks	1. Annual survey of MOHC members and other stakeholders	TBD	TBD
Implement oral health awareness activities within Michigan's 900 public school districts.	1. Number of MOHC members who provide and/or facilitate education on oral health within Michigan's school system	1. Annual survey of MOHC members and other stakeholders	TBD	TBD

TABLE 5.

Monitoring Plan for Access to Oral Health Services:

Increase access to oral health care among underserved and/or hard to reach populations.

OBJECTIVE	MEASURABLE OUTCOMES	DATA SOURCE	BASELINE	2020 TARGET
Decrease the proportion of children, young adults, and older adults who are underinsured or without dental insurance by 10%	1. Number of adults with dental insurance	1. MI BRFS	66%	72%
	2. Number of children receiving dental services through Healthy Kids Michigan	2. MDHHS	810,000	890,000
Reduce the proportion of children, young adults, adults and older adults who experience difficulty, delays or barriers to receiving oral health care by 10%.	1. Number of MI adults who experienced barriers to receiving oral health services	1. MI BRFS	TBD	TBD
Increase the proportion of infants, children, and young adults who received comprehensive dental services during the past year by 10%.	1. Proportion of MI third graders with a caries experience	1. CYS survey	56%	50%
	2. Proportion of MI third graders with dental sealants on at least one permanent molar tooth	2. CYS survey	26%	29%
	3. Proportion of MI third graders with untreated tooth decay	3. CYS survey	24%	22%
	4. Children (age 1 to 17 years) with teeth in excellent/very good condition in MI	4. NSCH	78%	86%
	5. Children (age 1 to 17 years) with one or more oral health problems (toothache or decayed teeth) in MI	5. NSCH	15%	14%
	6. Children (1 to 17 years) that had at least one preventive dental visit in past year in MI	6. NSCH	75%	83%
	7. Number of young children 1 to 5 years with a dental visit in past year	7. NSCH	48%	53%
Increase the proportion of adults and children with disabilities who received comprehensive dental services during the past year by 10%.	1. Proportion of disabled adults who had a dental visit in past year	1. MI BRFS	58%	64%
	2. Children (age 1 to 17 years) with special care needs	2. NSCH	69%	76%

	with teeth in excellent/very good condition in MI			
	3. Children (age 1 to 17 years) with special care needs with one or more oral health problems (toothache or decayed teeth) in MI	3. NSCH	19%	17%
	4. Children (1 to 17 years) with special care needs that had at least one preventive dental visit in the past year in MI	4. NSCH	86%	95%
Increase the proportion of pregnant women who received comprehensive oral health care during pregnancy by 10%.	1. Proportion of pregnant women who needed dental care and did visit a dentist	1. PRAMS	58%	64%
	2. Proportion of pregnant women who had teeth cleaned during pregnancy	2. PRAMS	47%	52%

Appendix

A. Healthy People 2020 Indicators, Target Levels, and Current Status in the United States and Michigan

HEALTHY PEOPLE 2020 OBJECTIVE			
Oral Health	**Target**	**U.S. Status**	**MI Status**
OH-1 **Dental caries experience in primary teeth**			
Young children, ages 3-5	30%	33.3%	DNA
Children, ages 6-9	49%	54.4%	55.9% (2010)
Adolescents, age 13-15	48.3%	53.7%	DNA
OH-2 **Untreated dental decay**			
Young children, ages 3-5 (primary teeth)	21.4%	23.8%	DNA
Children, ages 6-9 (primary and permanent teeth)	25.9%	28.8%	27.1% (2010)
Adolescents, age 13-15 (permanent teeth)	15.3%	17%	DNA
OH-3 **Untreated dental decay**			
Adults, ages 35-44 (overall dental decay)	25%	27.8%	DNA
Adults ages 65-74 (coronal caries)	15.4%	17.1%	DNA
Older adults aged 75 and older (root surface)	34.1%	37.9%	DNA
OH-4 **Permanent tooth extracted because of caries or periodontal disease**			
Adults, ages 45-64	68.8%	76.4%	DNA
Older adults, ages 65-74 (lost all natural teeth)	21.6%	16.9%	13.1% (2010)
OH-5 **Moderate to severe periodontitis, adults ages 45-74**	11.4%	12.7%	DNA
OH-6 **Oral and pharyngeal cancers detected at earliest stage**	35.8%	32.0%	33.2% (2007)
OH-7 **Oral health care system use in the past year by children, adolescents and adults**	49.0%	44.5%	DNA
OH-8 **Low-income children and adolescents who received any preventive dental service during past year**	29.4%	26.7%	32.5% (2008)
OH-9 **School-based health centers (SBHC) with an oral health component**			
Includes dental sealants	26.5%	24.1%	DNA
Oral health component that includes dental care	11.1%	10.1%	DNA
Includes topical fluoride	32.1%	29.2%	DNA
OH-10 **Local Health Departments (LHDs) and Federally Qualified Health Centers (FQHCs) that have an oral health component**			
FQHCs with an oral health component	83%	75%	82.8% (2011)
LHDs with oral health prevention or care programs	28.4%	25.8%	40% (2011)
OH-11 **Patients who receive oral health services at FQHCs each year**	33.3%	17.5%	28.8% (2009)
OH-12 **Dental sealants**			
Children, age 3-5 (primary molars)	1.5%	1.4%	DNA
Children, ages 6-9 (permanent 1st molars)	28.1%	25.5%	26.4 (2010)
Adolescents, ages 13-15 (permanent molars)	21.9%	19.9%	DNA
OH-13 **Population served by optimally fluoridated water systems**	79.6%	72.4%	92% (2014)
OH-14 **Adults who receive preventive interventions in dental offices (*developmental*)**			
Tobacco and smoking cessation information in past year	N/A	N/A	DNA
Oral and pharyngeal cancer screening in past year	N/A	N/A	DNA
OH-15 **States with system for recording and referring infants with cleft lip and palate (*developmental*)**	N/A	N/A	No referral system
OH-16 **Oral and craniofacial health surveillance system**	100%	62.7%	100% (2012)

Appendix

A. Healthy People 2020 Indicators, Target Levels, and Current Status in the United States and Michigan – *continued*

HEALTHY PEOPLE 2020 OBJECTIVE			
Oral Health – continued	**Target**	**U.S. Status**	**MI Status**
OH-17 **State and local dental programs directed by public health professionals (PHP)**	25.7%	23.4%	DNA
Indian Health Service and Tribal dental programs directed by PHP	12	11	
Health Literacy	**Target**	**U.S. Status**	**MI Status**
HC/HIT-8 **Increase the proportion of quality, health-related websites**			
Proportion of health-related websites that meet three or more evaluation criteria for disclosing information that can be used to assess information reliability	70.5%	58.0	DNA
Increase the proportion of health-related website that follow established usability principles	55.7%	42.0	DNA
HC/HIT-13 **Increase social marketing in health promotion and disease prevention**			
Number of State health departments that report using social marketing in health promotion and disease prevention	50	8	DNA

Appendix

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