

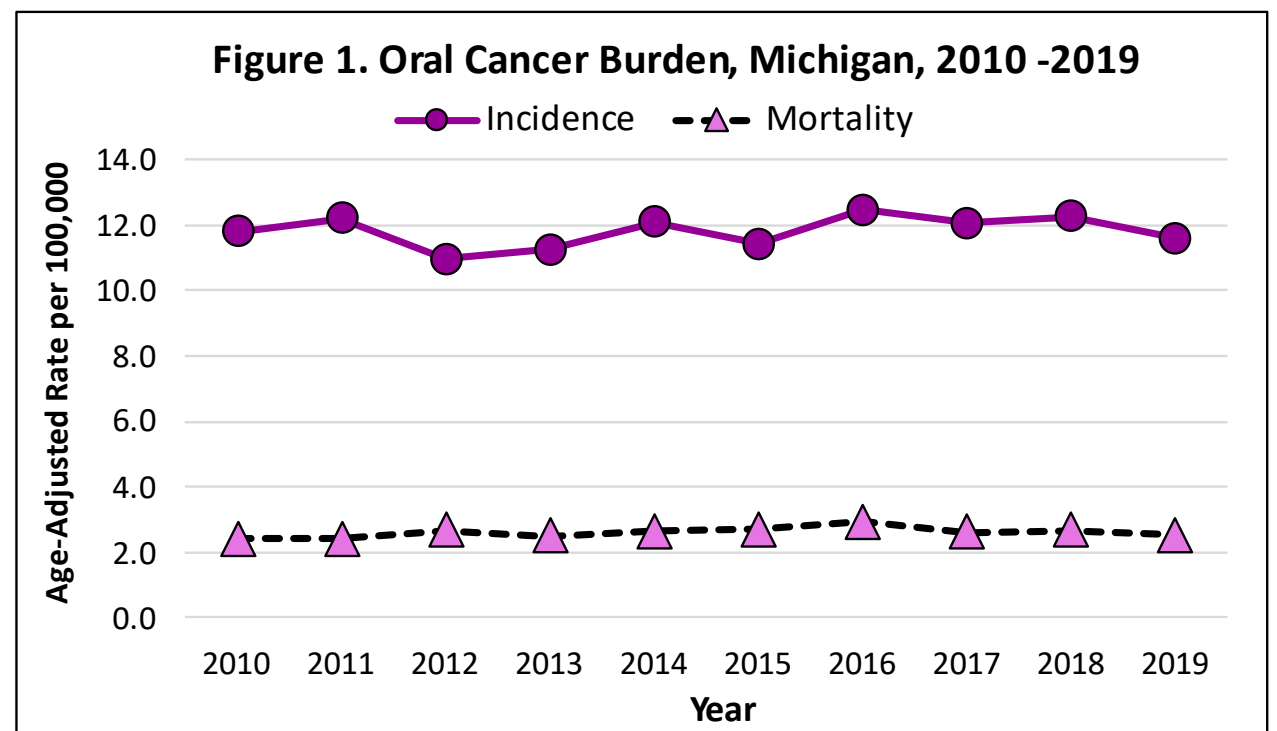
# Surveillance Brief: Oral Cancer Burden and Prevention in Michigan

## BACKGROUND

- Oral cancer is any cancerous growth located in the tissues of the mouth or the part of the throat at the back of the mouth (oropharynx).<sup>1</sup>
- The American Cancer Society estimates about 54,000 new cases of oral cavity or oropharyngeal cancer and about 11,230 deaths due to these cancers will occur nationwide in 2022.<sup>2</sup>
- The risk of developing oral cancer increases with age, with the average age of diagnosis around 63 years. However, about one in five oral cancer cases occur in patients younger than 55 years.<sup>2</sup>
- Most oral cancers are related to tobacco use, alcohol use, or infection by the human papilloma virus (HPV).<sup>3</sup>

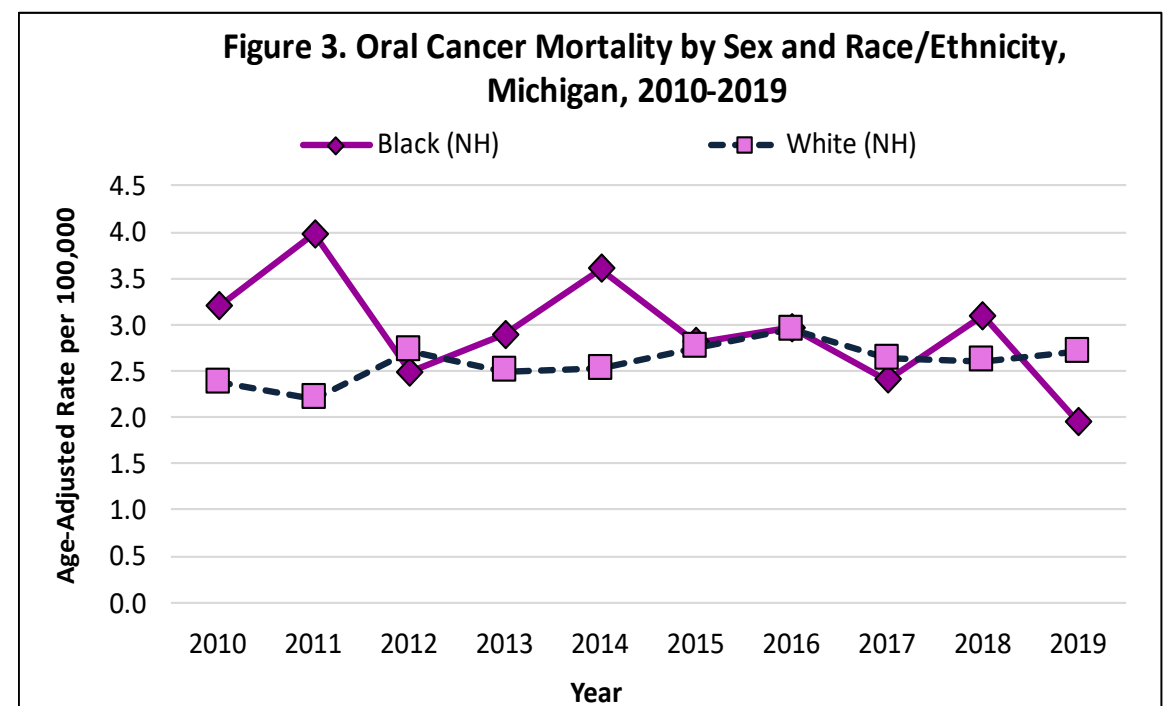
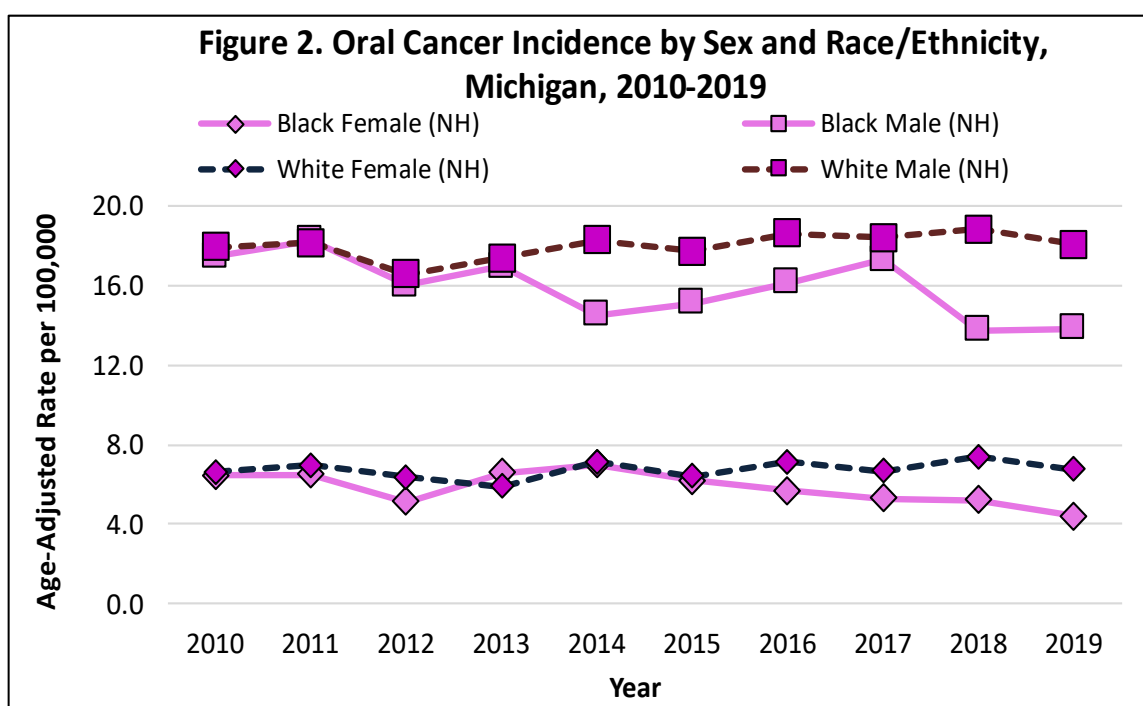
## MICHIGAN ORAL CANCER BURDEN

- In 2019, more than 1,500 new cases of invasive oral cancer were diagnosed in Michigan, for an age-adjusted incidence rate of 11.6 per 100,000 (Figure 1).
- In the same year, there were 344 deaths due to oral cancer in Michigan, for an age-adjusted mortality rate of 2.5 per 100,000 (Figure 1).
- From 2010-2019, Michigan's oral cancer incidence and mortality rates have remained relatively stable. (Figure 1).



## MICHIGAN ORAL CANCER BURDEN – BY SEX AND RACE/ETHNICITY

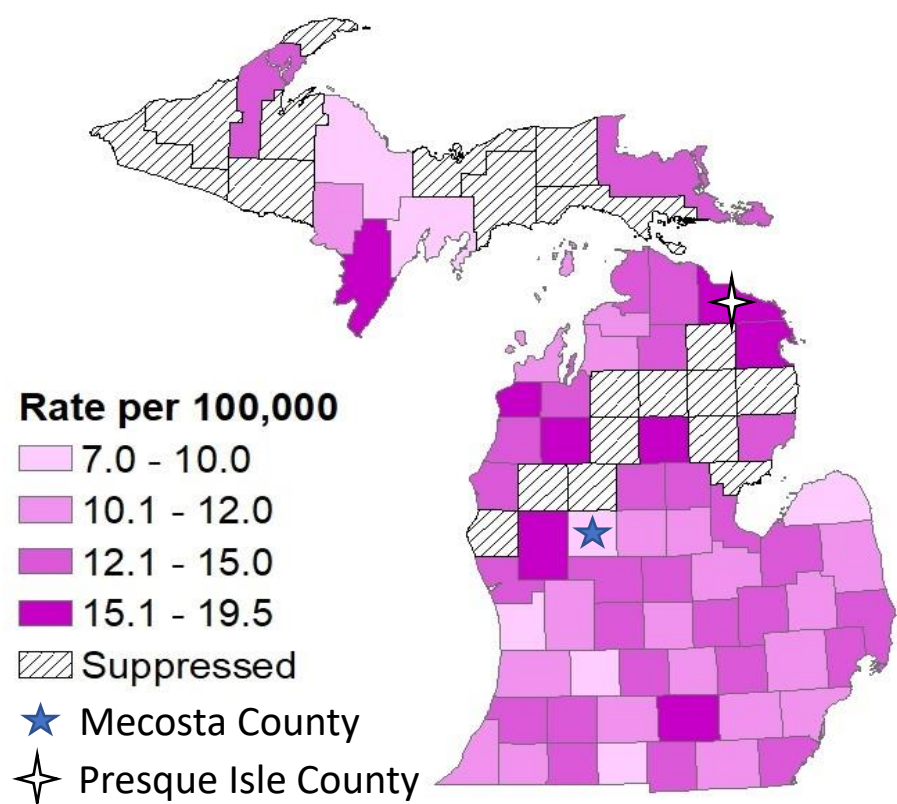
- Michigan males have had higher oral cancer incidence rates than females consistently from 2010-2019 (Figure 2).
- By comparing confidence intervals, the incidence rate among white non-Hispanic (NH) males was found significantly higher than that of Black (NH) males since 2018, and the rate among white (NH) females was significantly higher than Black (NH) females in 2019 (Figure 2).
- The mortality rate among Black (NH) residents has decreased nearly 40% since 2010, while the mortality rate among white (NH) residents increased 13.9% (Figure 3).



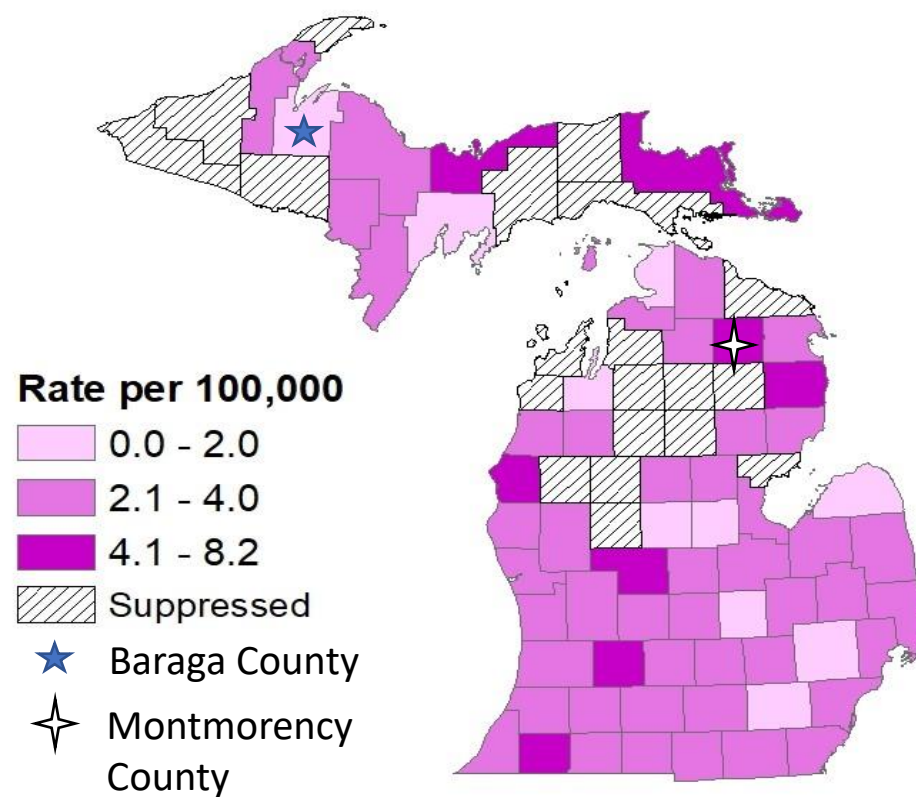
# MICHIGAN ORAL CANCER BURDEN – BY COUNTY

- Oral cancer incidence rates ranged from 7.0 per 100,000 in Mecosta County to 19.5 per 100,000 in Presque Isle County (Figure 4).
- Oral cancer mortality ranged from 0 per 100,000 in Baraga County to 8.2 per 100,000 in Montmorency County (Figure 5).

**Figure 4: Oral Cancer Incidence by County, 2015-2019**



**Figure 5: Oral Cancer Mortality by County, 2015-2019**



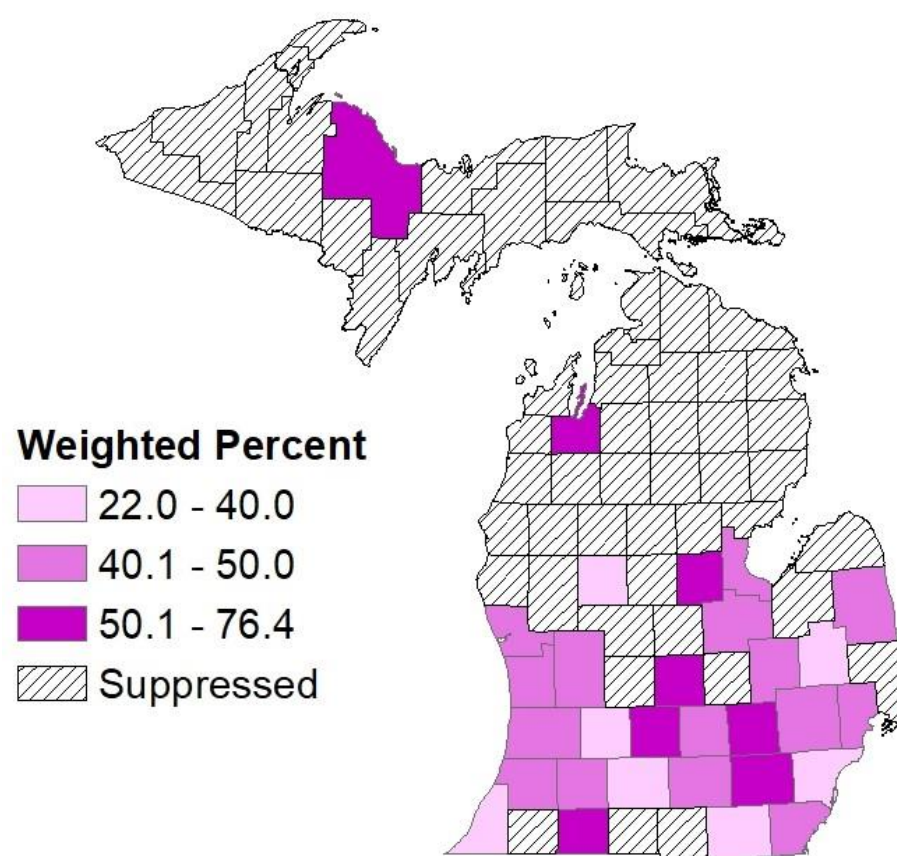
## ORAL CANCER EXAMS IN MICHIGAN

- Regular dental checkups that include an exam of the entire mouth is important in finding oral cancers (and pre-cancers) early.<sup>4</sup>
- From 2016-2020, about 45% of Michigan adults had an oral cancer exam within the past year (Table 1).
- White (NH) adults had a higher oral cancer exam rate than other race categories (Table 1).
- The prevalence of oral cancer exams increased significantly with education, income (Table 1) and age (data not shown).

Table 1. Oral Cancer Exams Among Michigan Adults 2016, 2018 & 2020		
	Exam Within Past Year	
	Percent (%)	95% Confidence Interval
<b>Total (N=4,304)</b>	44.7	(43.3-46.1)
<b>Race/Ethnicity</b>	--	--
White (NH)	49.9	(48.3-51.5)
Black (NH)	28.0	(24.2-32.1)
Hispanic	22.1	(16.0-29.6)
Other or Multiple Races (NH)	25.8	(20.7-31.7)
<b>Education</b>	--	--
Less than High School	15.4	(11.5-20.4)
High School Graduate	36.9	(34.4-39.6)
Some College	45.1	(42.7-47.6)
College Graduate	63.5	(61.4-65.6)
<b>Income Category</b>	--	--
<\$20,000	19.7	(16.8-22.8)
\$20,000-34,999	30.8	(27.7-34.1)
\$35,000-49,999	41.6	(37.7-45.6)
\$50,000-74,999	53.3	(49.5-57.0)
>\$75,000	62.9	(60.2-65.5)

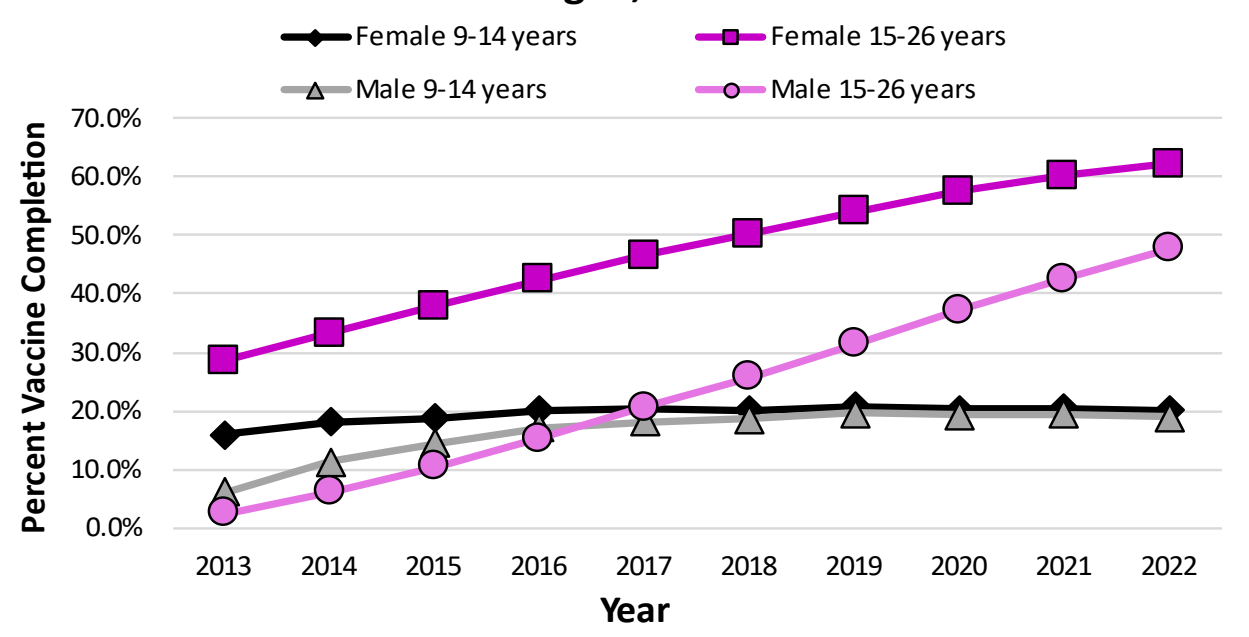
- The percent of adult residents receiving oral cancer exams within the past year was suppressed for most counties. Of unsuppressed counties, the percent of adults receiving oral cancer exams ranged from 22.0% in Calhoun County to 76.4% in Midland County (Figure 6).

**Figure 6: Oral Cancer Exams Among Michigan Adults by County of Residence 2016, 2018 & 2020**

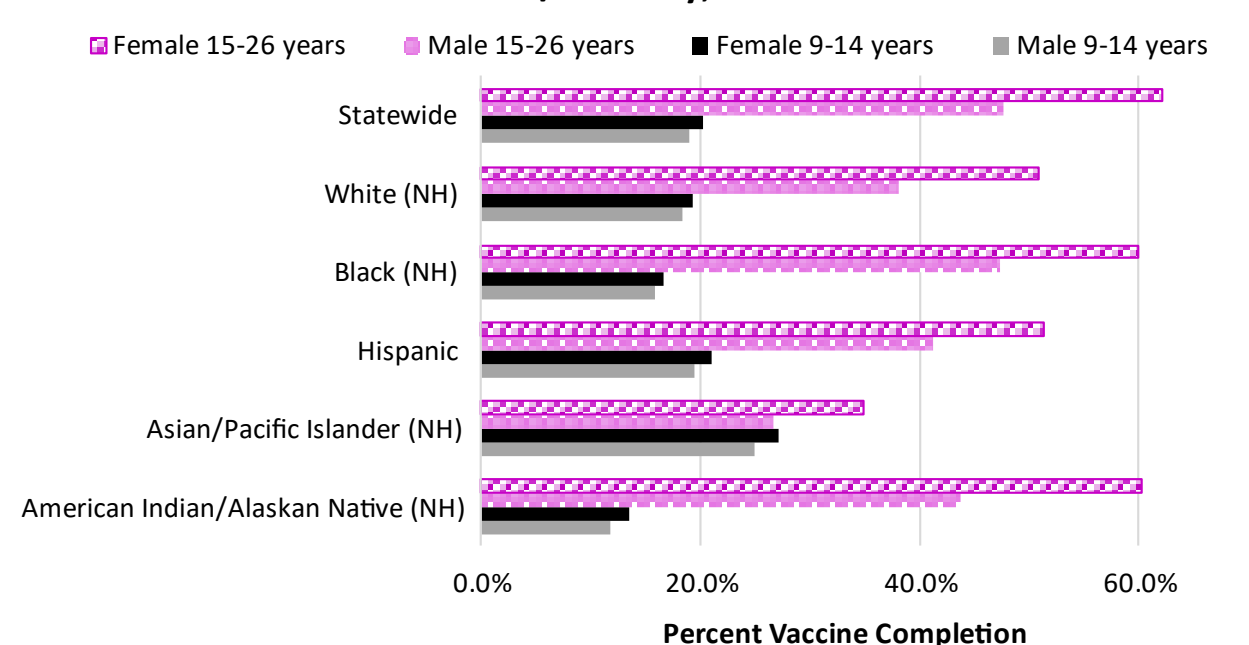


**HPV VACCINATION IN MICHIGAN**

**Figure 7: Trends in HPV Vaccination Completion in Michigan, 2013-2022**



**Figure 8: HPV Vaccination Completion in Michigan, by Race/Ethnicity, 2022**



- HPV infection of the throat or mouth is thought to cause 70% of oral cancers in the United States.<sup>5</sup>
- A vaccine that protects against the types of HPV that cause oral cancer is available and recommended for people aged 9-26 years. Individuals aged 27-45 may also decide to receive HPV vaccination after speaking with their doctor about their risk of HPV infection.<sup>5</sup>
- From 2013 to 2022, complete HPV vaccination among Michigan residents aged 9-26 has improved, increasing from 13.9% to 43.7% (data not shown).
- In that same time period, complete HPV vaccination among females 15-26 has more than doubled (30% to 62%), while completion among males 15-26 rose from 3% to 48% (Figure 7).
- As of 2022, Black (NH) residents had the highest vaccination coverage among those aged 15-26 years. Black (NH) females and Black (NH) males had higher coverage rates than their white counterparts -- 60.0% versus 50.8% and 47.3% versus 38.0%, respectively (Figure 8).
- Asian and Pacific Islander (NH) residents have the highest vaccination coverage among children aged 9-14 years but the lowest coverage among those aged 15-26 years.

## CONCLUSIONS

- Less than half of Michigan adults have received oral cancer exams within the past year. Michigan dental providers should consider pursuing continued education and resources to conduct routine oral cancer exams, especially among patients of lower socioeconomic status. The American Dental Association has an oral cancer guideline that clinicians are recommended to utilize when conducting these exams.<sup>6</sup>
- There is still room for improvement for Michigan young adults receiving HPV vaccination. Continued vaccination efforts will likely result in lower oral cancer morbidity and mortality in years to come. The lower vaccine coverage seen among white non-Hispanic residents compared to other racial and ethnic groups has also been observed in adolescents aged 13-17 nationwide, which suggests this finding is part of a larger trend.<sup>7</sup>
- This surveillance brief will be shared with the Michigan Oral Health Coalition, the Michigan Cancer Consortium, and the Michigan Department of Health and Human Services' Tobacco Section and among other partners. The findings in this brief will be useful to them as they implement efforts to increase oral cancer exams and to reduce late-stage cancer diagnoses, alcohol use, and tobacco use.<sup>8-10</sup>

## DATA & METHODOLOGY

- Oral cancer incidence data are from the 2010-2019 Michigan Resident Cancer Incidence File, which includes cases processed by the Michigan Department of Health and Human Services, Division for Vital Records and Health Statistics. All analyses with this dataset were conducted with SAS 9.4. Age-adjusted rates derived from counts less than 20 were suppressed.
- Oral cancer mortality data are from the 1985-2019 Michigan Resident Death Files, from the Michigan Department of Health and Human Services, Division for Vital Records and Health Statistics. All analyses with this dataset were conducted with SAS 9.4. Age-adjusted rates derived from counts less than four were suppressed.
- Oral cancer exam data are from the Michigan Behavioral Risk Factor Survey, an annual telephone survey conducted on Michigan adults. All analyses of this dataset were conducted with SAS 9.4 and SAS-callable SUDAAN. Estimates calculated from this dataset were suppressed if they were based on <50 survey respondents or if the relative standard error was >30%.
- HPV vaccination data are from the Michigan Care Improvement Registry (MCIR). MCIR is a real-time relational database where immunization providers are required to report all vaccinations administered to children (ages 0 to 18). The numerator for coverage rates is the number of individuals in a given category who meet the CDC definition for HPV vaccination completion as of May 22 of the given year. The denominator used is from the Census Bridged-Race yearly estimates. Data was processed by the Michigan Department of Health and Human Services, Division of Immunizations.

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