

Update of Racial Disparities in Michigan & COVID-19

Aug 13, 2021

Disparities Data Committee

Purpose

- *Provide relevant data to aid the Lt. Governor-appointed Racial Disparities Task Force in better understanding and addressing the needs of racial and ethnic minority communities.*
 - *Outline existing upstream factors that result in disparities and put some people at greater risk of severe impact of COVID-19 epidemic and response*
 - *Identify a set of actionable downstream indicators that can be used to measure change in disparity in short term*

Disparity Indicators

Indicator: Rationale	Sample of Proposed Metrics
<p>SARS-CoV-2 Testing: Are we testing enough in all communities?</p>	<p>Testing by Race and Ethnicity Testing Rate in Socially Vulnerable Communities Turn Around Time for Positive and Negative Tests</p>
<p>SARS-CoV-2 Spread: What is the spread of COVID-19 in Michigan populations?</p>	<p>Number & Percent of COVID-19 Cases by Race and Ethnicity Case Rate per Million People by Race and Ethnicity Missingness of Race/Ethnicity data for COVID-19 cases</p>
<p>COVID-19 Severity: Are some groups experiencing more severe outcomes?</p>	<p>COVID-like Illness (CLI) and COVID-19 diagnosis in EDs Number & Percent of COVID-19 deaths by Race and Ethnicity Death Rate per Million People by Race and Ethnicity</p>
<p>Access to Services for COVID-19: Is case investigation and contact tracing equitable? Are supportive services available for quarantine/isolation compliance? Is vaccine distributed equitably?</p>	<p>Percent of cases who were followed up with CI/CT Percent of cases who indicated need for services and services provided Total vaccines administered by race % population with first dose, completed vaccine series</p>
<p>Impact of Pandemic Response (<i>rotating metrics</i>): How are non-COVID outcomes impacted by COVID-19? And is the impact the same in all populations? Are preventive services and access to care equitable?</p>	<p>Excess deaths Maternal and Child Health Indicators (pre/antenatal, CLPPP) Substance use disorder services Health Screening (HIV, STD, Noncommunicable Diseases)</p>

Key Messages

SARS-CoV-2 Testing

- Among neighborhood testing sites, the number of tests conducted is increasing since the last presentation, particular among minority groups
- In past 2 weeks at neighborhood testing sites, positivity is increasing for nearly all groups

SARS-CoV-2 Spread

- State of Michigan is at substantial transmission level and rising. CDC recommends everyone mask in crowded indoor settings regardless of vaccine status
- Cases per million are increasing for all races and ethnicities but remains highest for Hispanics, Blacks, and Whites.
- In the past 30 days, 17% (↔) of race data and 20% (↔) ethnicity data was either missing or reported as unknown

COVID-19 Severity

- The proportion of ED Visits with coronavirus symptoms or a COVID-19 diagnosis is increasing for all racial and ethnic groups
- In past 28 days, Blacks/African Americans, and Other Race have been flagged as having more than their expected share of hospitalizations
- Deaths per million are increasing for most racial/ethnic groups but are highest for Blacks

Access to COVID-19 Services

- Vaccine coverage for those 12 and older was highest among those of Asian, Native Hawaiian or Pacific Islander Race (52.9%), followed by Non-Hispanic (NH) American Indian (49.1%), NH White (46.0%), Hispanic (45.8%) ethnicity, and NH Black or African American (34.9%)
- Levels of vaccine coverage by census tract vary within counties and are < 60% in Berrien, Calhoun, Genesee, Saginaw, and Detroit Region of Wayne

Pandemic Response: Children

- Children can get infected with SARS-CoV-2, spread and be a source for outbreaks, experience severe outcomes of COVID-19, and can experience negative outcomes from uncontrolled spread
- To protect children and keep them in school, we should maximize all prevention strategies: vaccination, masking, appropriate physical distancing measures (e.g., cohorts and pods), provide appropriate testing (e.g., rapid antigen testing), proper ventilation in classrooms, and effective case investigation/tracing

Testing by Race and Ethnicity (Sentinel Sites)

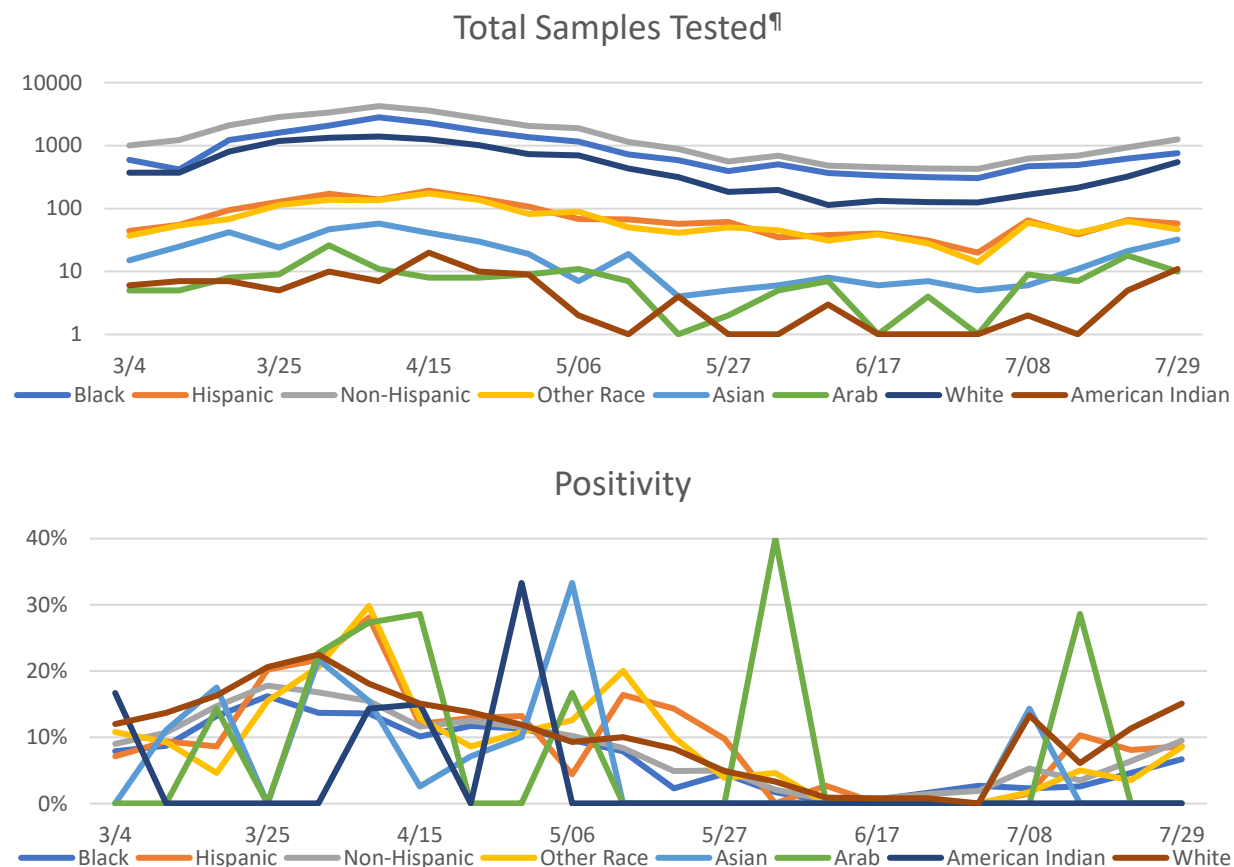
Cumulative Neighborhood Testing Demographics (22 sites)

Percent Tested		% Positive (7/22 – 8/4)	
Race*			
1%	Asian	0.0%	Asian Positivity
< 1%	American Indian or Alaskan Native	0.0%	American Indian or Alaskan Native Positivity
39%	Black/African American	5.8%	Black/African American Positivity
3%	Other Race	3.8%	Other Race Positivity
31%	White	13.7%	White Positivity
Ethnicity*			
4%	Hispanic/Latino	8.3%	Hispanic/Latino Positivity
70%	Non-Hispanic/Latino	8.2%	Non-Hispanic/Latino Positivity
< 1%	Arab	0.0%	Arab Positivity †

* May not add to 100% due to those who responded unknown or preferred not to answer

† Only 25 individuals with Arab ethnicity were tested for COVID in this 2-week period

Time Trends



[¶] Note: axis is on the logarithmic scale to better view trends over time for smaller populations

NxGen Testing by Race and Ethnicity

79 testing sites, 120,991 cumulative samples tested

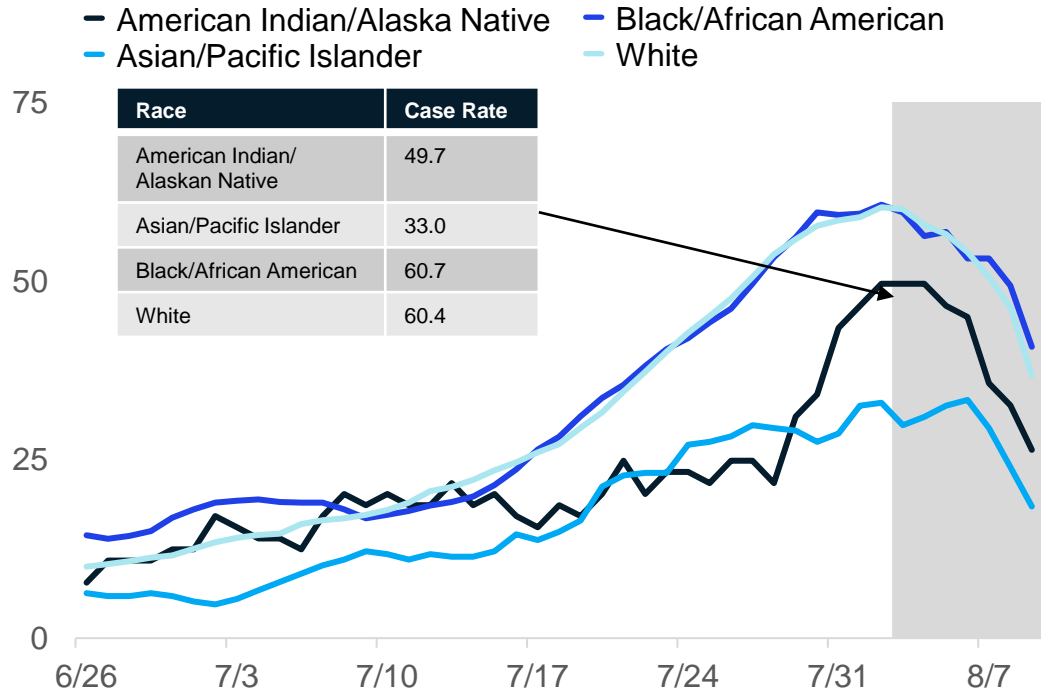
Percent Tested		Percent Positive (7/18-8/2)	
Race*			
1%	Asian	0%	Asian Positivity†
< 1%	American Indian or Alaskan Native	0%	American Indian or Alaskan Native Positivity
6%	Black/ African American	2%	Black/African American Positivity
< 1%	Native Hawaiian/Pacific Islander	0%	Native Hawaiian/Pacific Islander Positivity
2%	Other Race	0%	Other Race Positivity
58%	White	6%	White Positivity
Ethnicity*			
3%	Hispanic/Latino	5%	Hispanic/Latino Positivity
36%	Non-Hispanic/Latino	5%	Non-Hispanic/Latino Positivity
< 1%	Jewish	NT	Jewish Positivity

* May not add to 100% due to those who responded unknown or did not to answer
 NT – No tested conducted during this reporting period

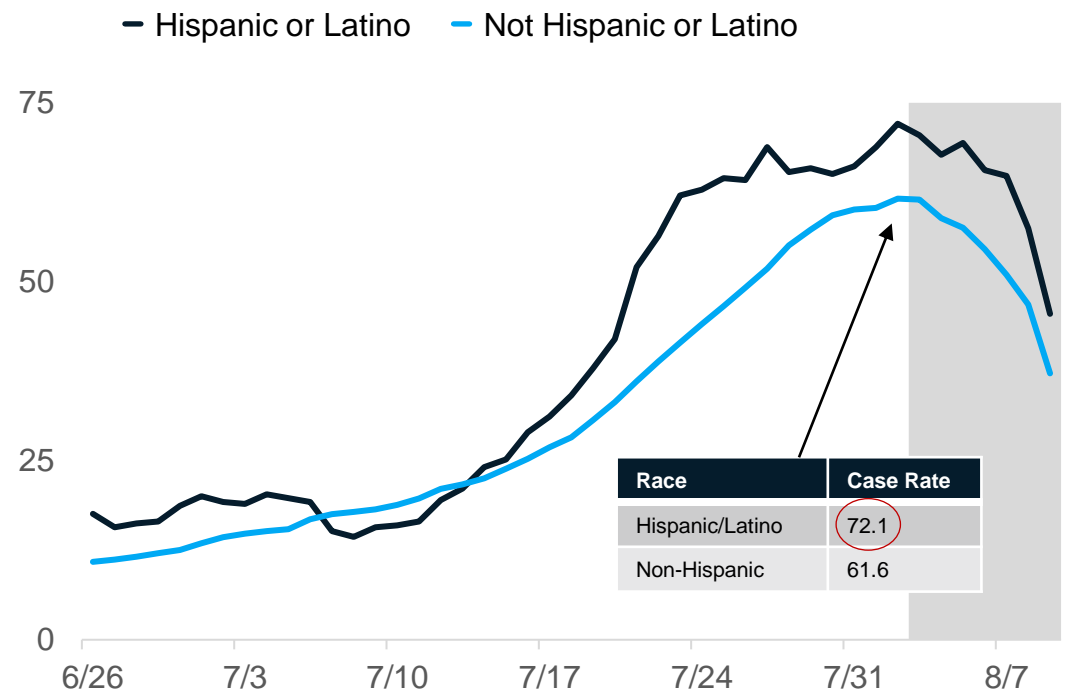
†Only 11 individuals with Arab ethnicity were tested for COVID in this 2-week period

Racial and Ethnic Case Rates are Increasing

Daily new confirmed and probable cases per million (7 day rolling average) by race category



Daily new confirmed and probable cases per million (7 day rolling average) by ethnicity category



Updates since last week:

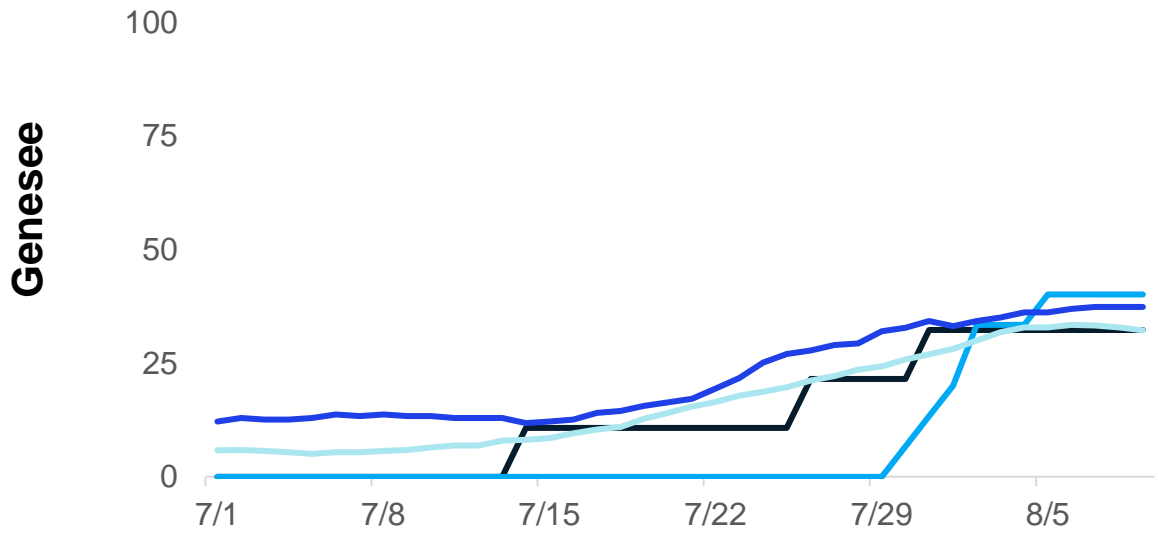
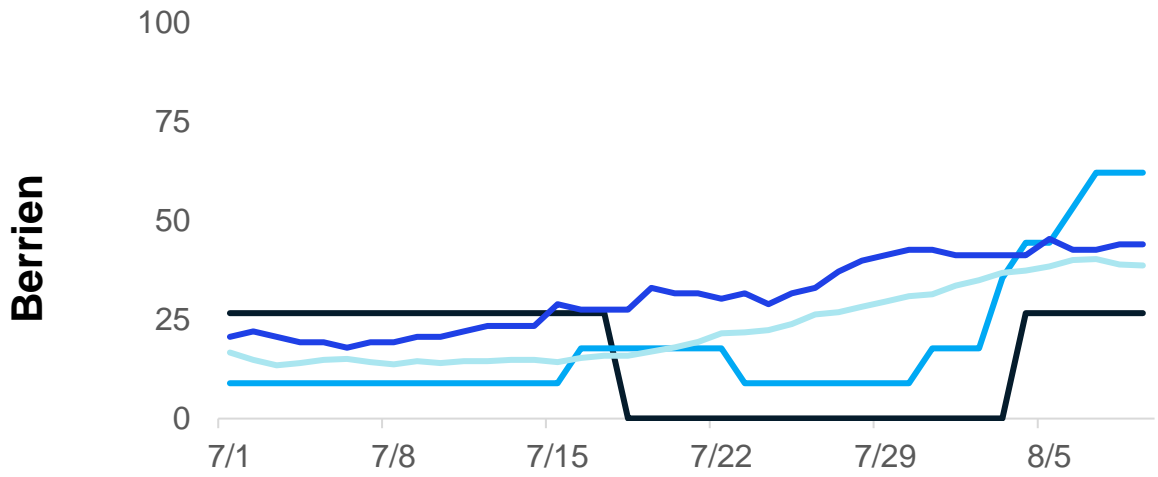
- Cases per million are increasing for all races and ethnicities
- **Hispanics, Blacks/African Americans, and Whites have the highest case rates**
- In the past 30 days, 17% (↔) of race data and 20% (↔) ethnicity data was either missing or reported as unknown

Note: Case information sourced from MDHHS and reflects date of death of confirmed and probable cases.
 Source: MDHHS – Michigan Disease Surveillance System

Average daily new cases per million people by race and ethnicity

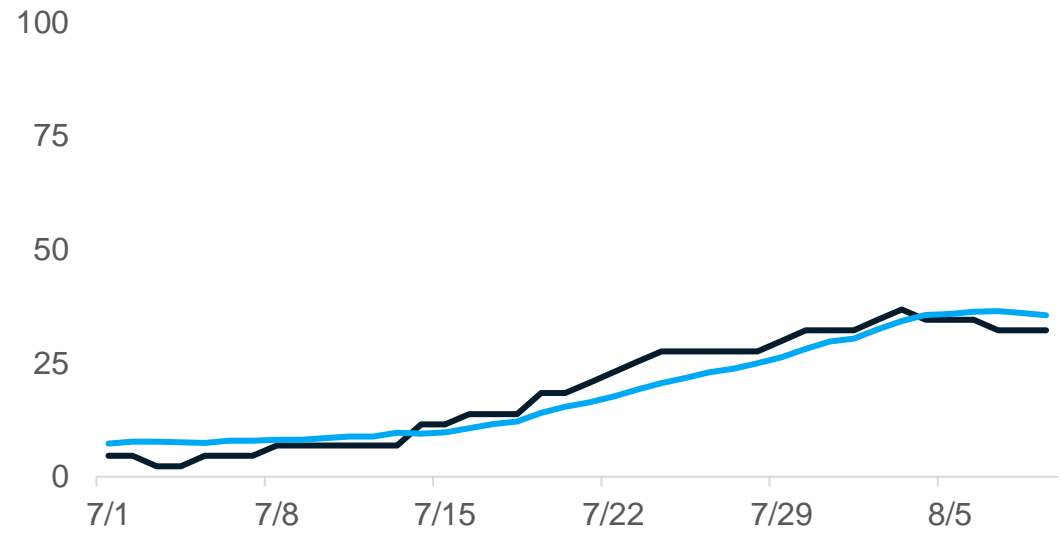
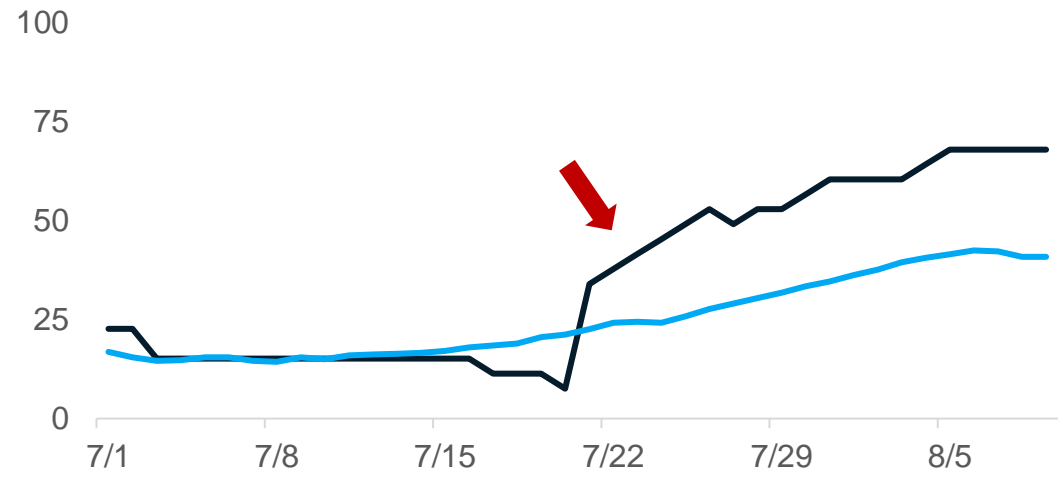
Daily new confirmed and probable cases per million (30-day rolling average) by race category

- American Indian/Alaska Native
- Black/African American
- Asian/Pacific Islander
- White



Daily new confirmed and probable cases per million (30-day rolling average) by ethnicity category

- Hispanic or Latino
- Not Hispanic or Latino

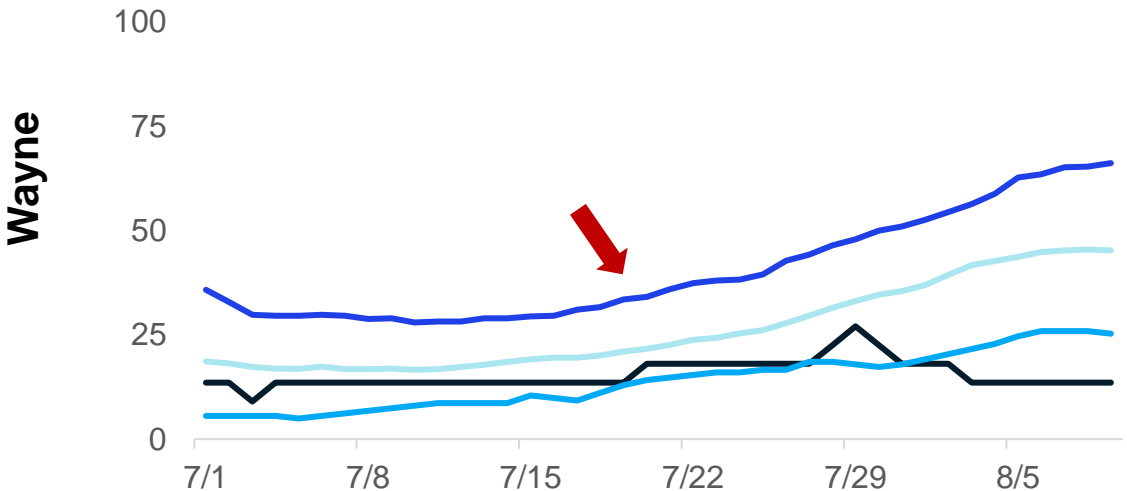
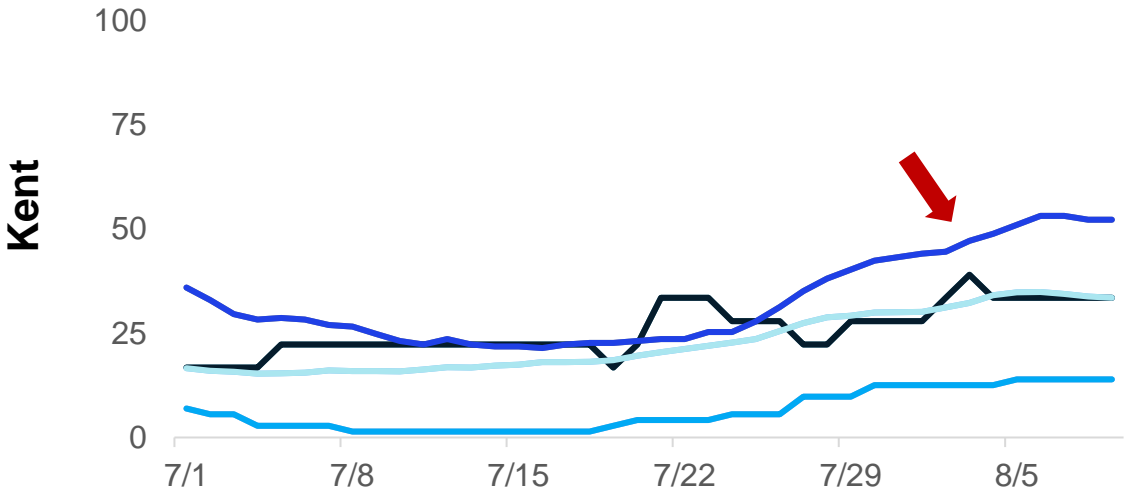


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 Source: MDHHS – Michigan Disease Surveillance System

Average daily new cases per million people by race and ethnicity

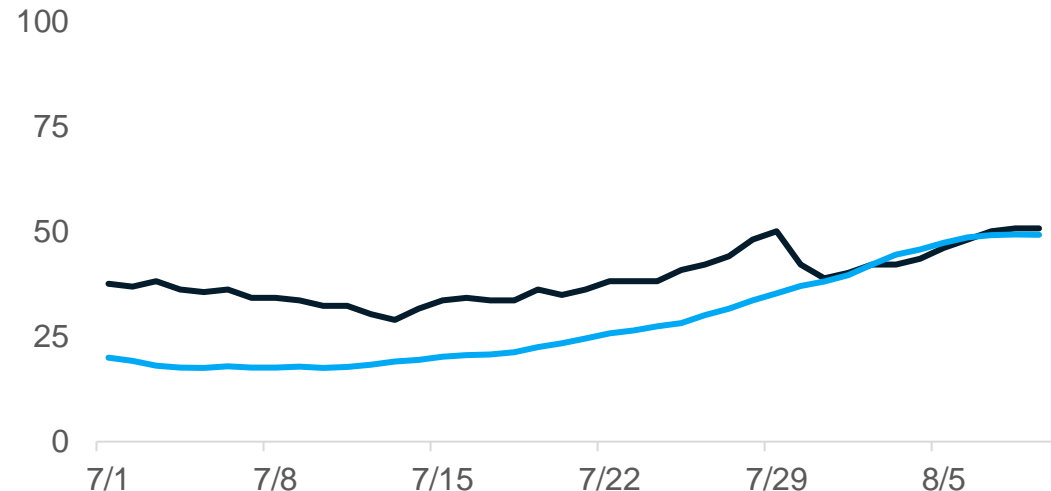
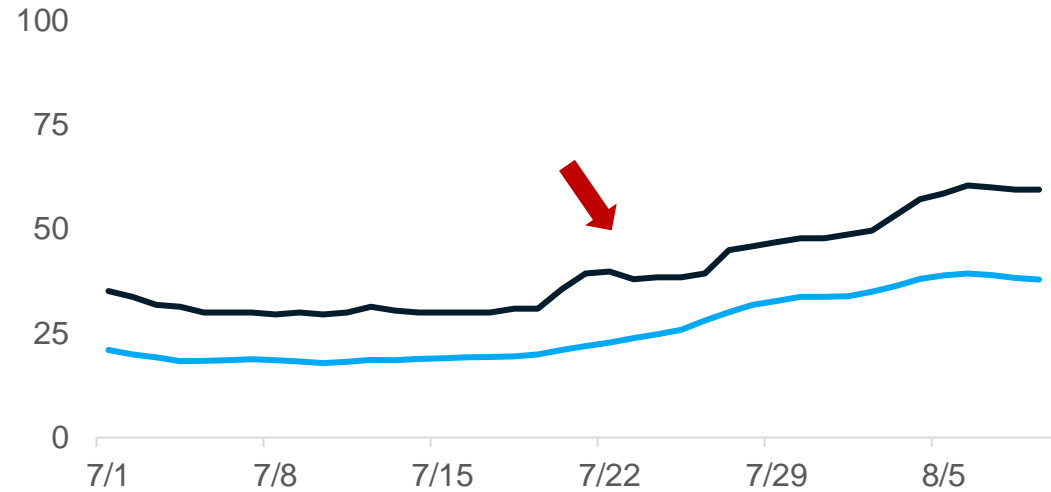
Daily new confirmed and probable cases per million (30-day rolling average) by race category

- American Indian/Alaska Native
- Black/African American
- Asian/Pacific Islander
- White



Daily new confirmed and probable cases per million (30-day rolling average) by ethnicity category

- Hispanic or Latino
- Not Hispanic or Latino



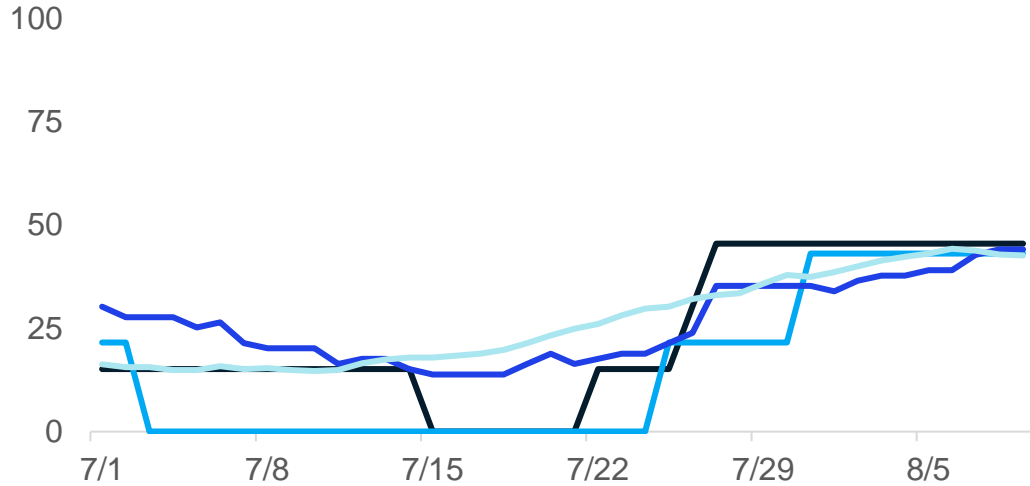
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 Source: MDHHS – Michigan Disease Surveillance System

Average daily new cases per million people by race and ethnicity

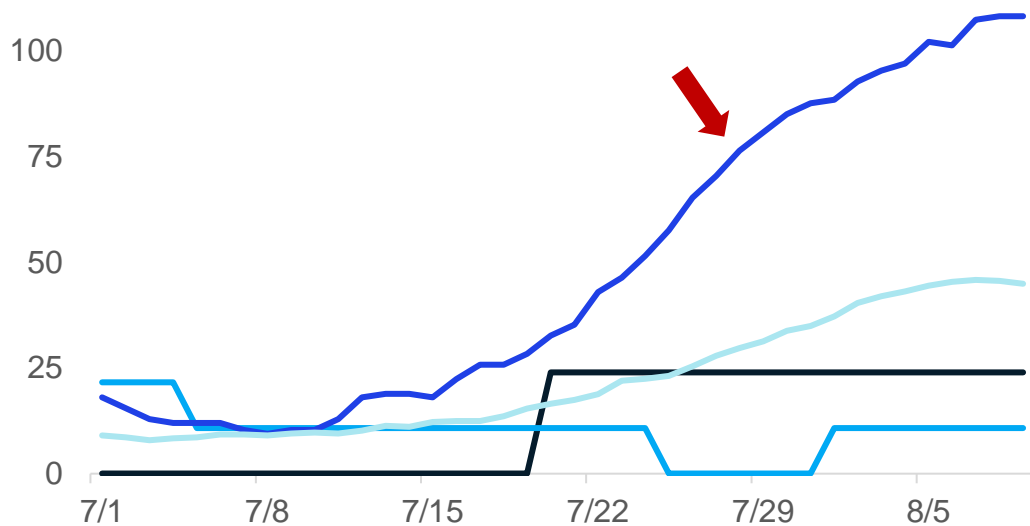
Daily new confirmed and probable cases per million (30-day rolling average) by race category

- American Indian/Alaska Native
- Black/African American
- Asian/Pacific Islander
- White

Muskegon

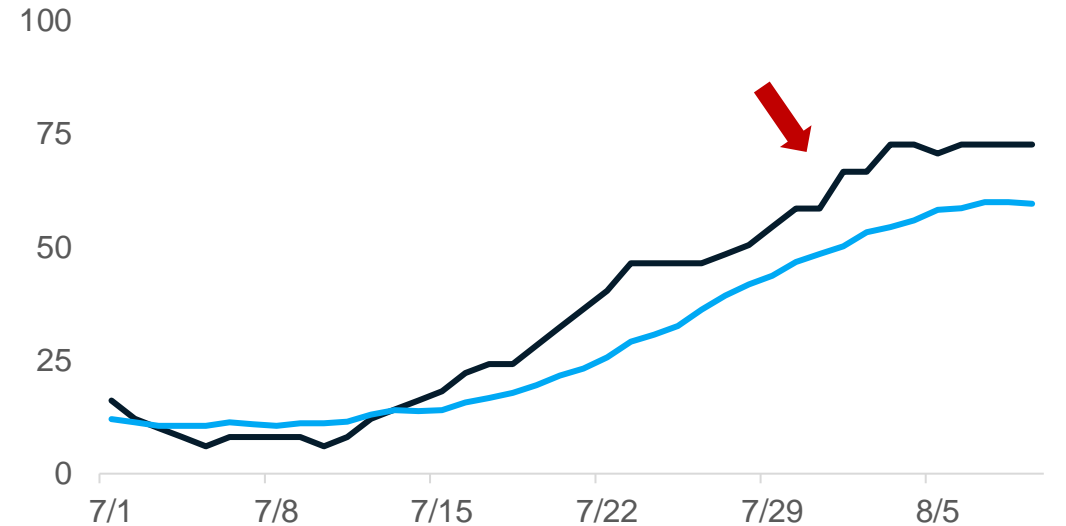
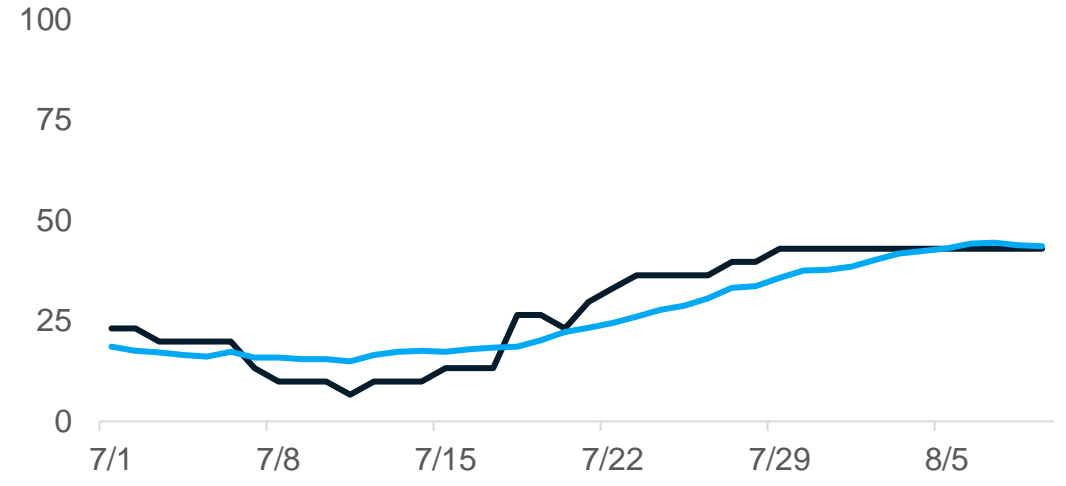


Saginaw



Daily new confirmed and probable cases per million (30-day rolling average) by ethnicity category

- Hispanic or Latino
- Not Hispanic or Latino

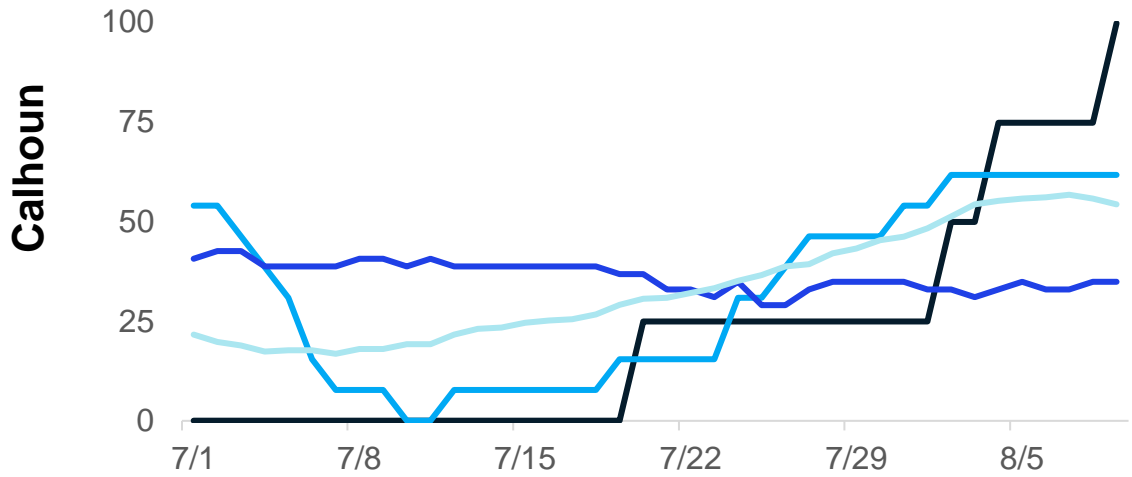


Note: Case information sourced from MDHHS and reflects date of death of confirmed and probable cases. * Note y-axis for Wayne; much higher case burden than other three counties for Blacks/African Americans
 Source: MDHHS – Michigan Disease Surveillance System

Average daily new cases per million people by race and ethnicity

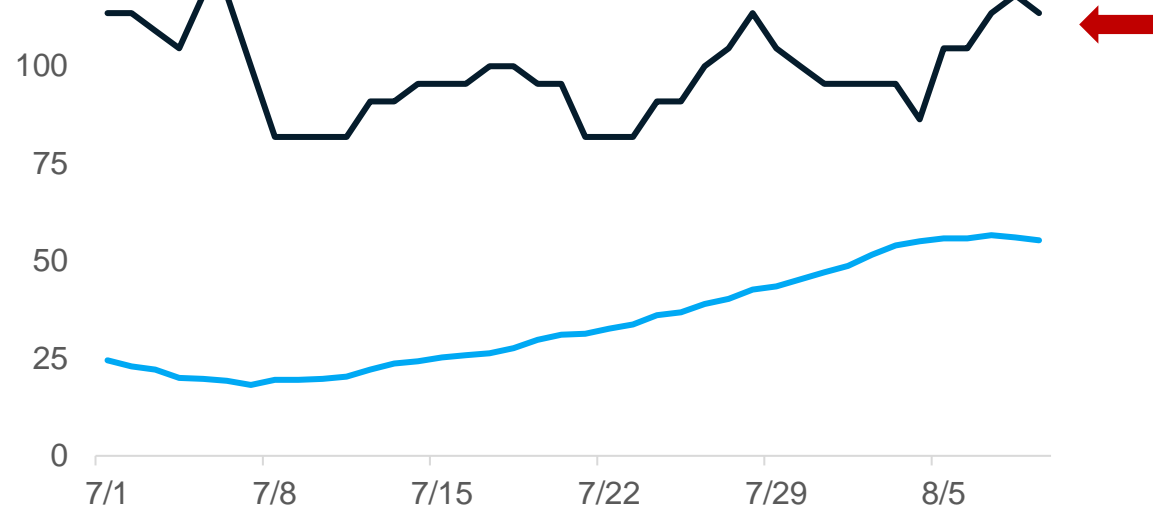
Daily new confirmed and probable cases per million (30-day rolling average) by race category

- American Indian/Alaska Native
- Black/African American
- Asian/Pacific Islander
- White



Daily new confirmed and probable cases per million (30-day rolling average) by ethnicity category

- Hispanic or Latino
- Not Hispanic or Latino




Note: Case information sourced from MDHHS and reflects date of death of confirmed and probable cases. * Note y-axis for Wayne; much higher case burden than other three counties for Blacks/African Americans
 Source: MDHHS – Michigan Disease Surveillance System

Prior 28 Days Metrics By Race (Jul 6, 2021 – Aug 3, 2021)

RACE	% OF CASES	% OF DEATHS	% OF HOSPITALIZED CASES	CASES PER MIL.	DEATHS PER MIL.	HOSPITALIZED CASES PER MIL.
Known	86.7%	95.9%	97.0%	1,324.6	14.2	58.9
Unknown	13.2%	4.0%	2.9%	--	--	--
Any	--	--	--	1,526.7	14.8	60.7

KNOWN RACE ONLY	% OF POP	% OF CASES	% OF DEATHS	% OF HOSPITALIZED CASES	CASES PER MIL.	DEATHS PER MIL.	HOSPITALIZED CASES PER MIL.
American Indian / Alaskan Native	0.5%	0.5%	0.7%	0.6%	1,483.9	18.7	75.1
Asian	3.0%	1.8%	2.1%	1.3%	791.7	9.8	26.2
Black / African American	13.8%	13.5%	15.4%	23.3%	1,298.5	15.9	99.6
Hawaiian / Pacific Islander	< 0.1%	< 0.1%	--	--	4,028.1	--	--
Multiple Race	2.8%	3.5%	0.7%	2.0%	1,638.9	3.5	42.2
Other	1.1%	5.0%	3.5%	2.7%	5,564.8	41.9	134.2
White	78.5%	75.3%	77.4%	69.8%	1,271.8	14.0	52.4

 disparity present ⓘ

 disparity present but based on small absolute numbers

Prior 28 Days Metrics By Ethnicity (Jul 6, 2021 – Aug 3, 2021)

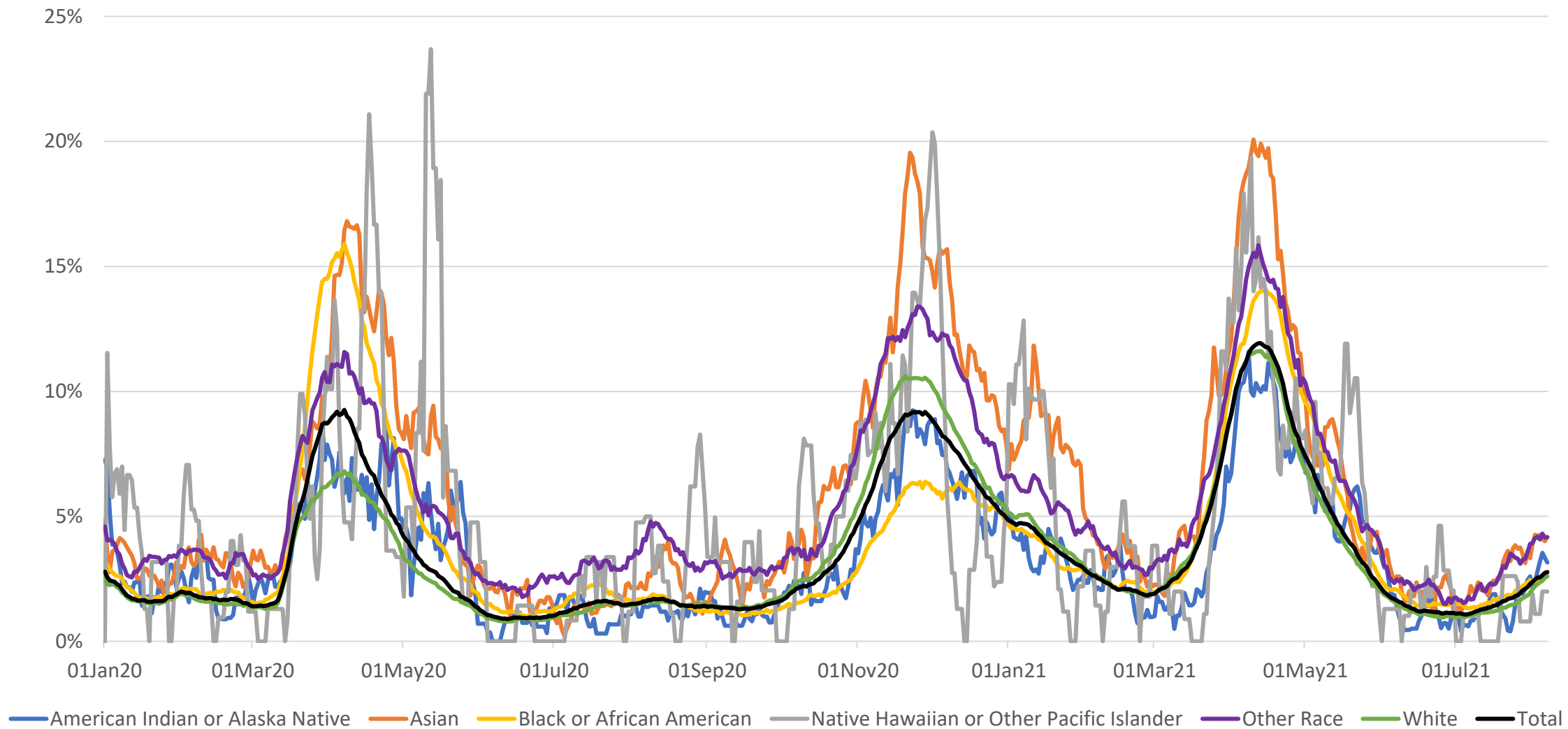
ETHNICITY (HISPANIC) ⚡		% OF CASES ⚡	% OF DEATHS ⚡	% OF HOSPITALIZED CASES ⚡	CASES PER MIL. ⚡	DEATHS PER MIL. ⚡	HOSPITALIZED CASES PER MIL. ⚡
Known ⓘ		83.9%	93.9%	95.7%	1,282.0	13.9	58.1
Unknown ⓘ		16.0%	6.0%	4.2%	--	--	--
Any		--	--	--	1,526.7	14.8	60.7
KNOWN ETHNICITY ONLY ⚡	% OF POP ⚡	% OF CASES ⚡	% OF DEATHS ⚡	% OF HOSPITALIZED CASES ⚡	CASES PER MIL. ⚡	DEATHS PER MIL. ⚡	HOSPITALIZED CASES PER MIL. ⚡
Hispanic or Latino	5.0%	6.2%	4.3%	4.6%	1,602.7	12.0	54.2
Not Hispanic or Latino	94.9%	93.7%	95.6%	95.3%	1,265.1	14.0	58.3

ETHNICITY (ARAB) ⚡		% OF CASES ⚡	% OF DEATHS ⚡	% OF HOSPITALIZED CASES ⚡
Known ⓘ		68.4%	58.1%	78.0%
Unknown ⓘ		31.5%	41.8%	21.9%
Any		--	--	--
KNOWN ETHNICITY ONLY ⚡		% OF CASES ⚡	% OF DEATHS ⚡	% OF HOSPITALIZED CASES ⚡
Arab Ethnicity		4.9%	2.3%	3.1%
Not Arab Ethnicity		95.0%	97.6%	96.8%

ⓘ disparity present ⓘ

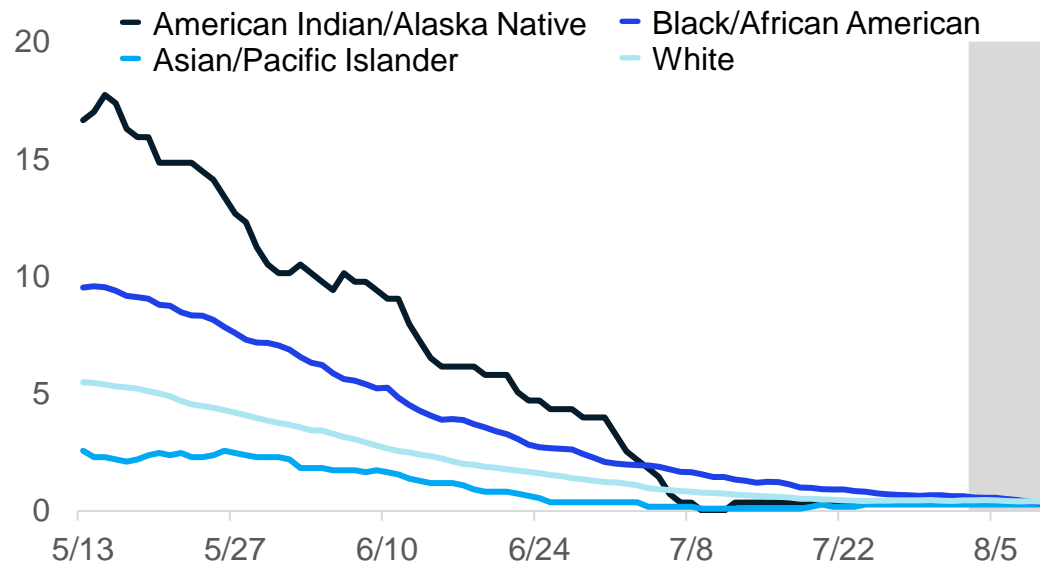
Population denominators are based on Census data, which does not include Arab ethnicity information. Because we do not have denominator data for Arab ethnicity, only a limited set of metrics can be shown.

Proportion of ED Visits with Coronavirus Symptoms or a COVID-19 Diagnosis Code by Race - Michigan

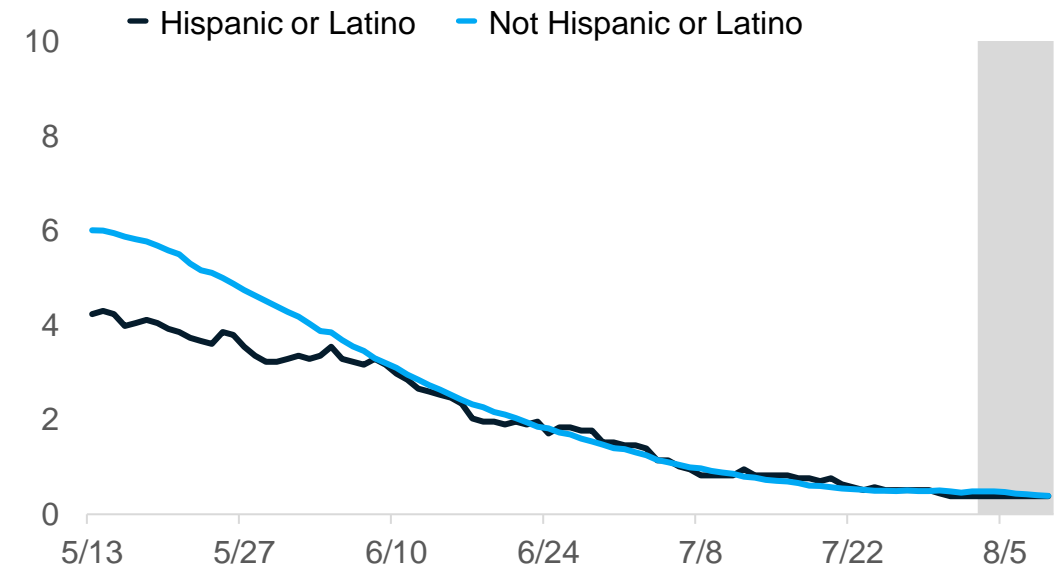


30-day rolling average daily deaths per million people by race and ethnicity

Average daily deaths per million people by race



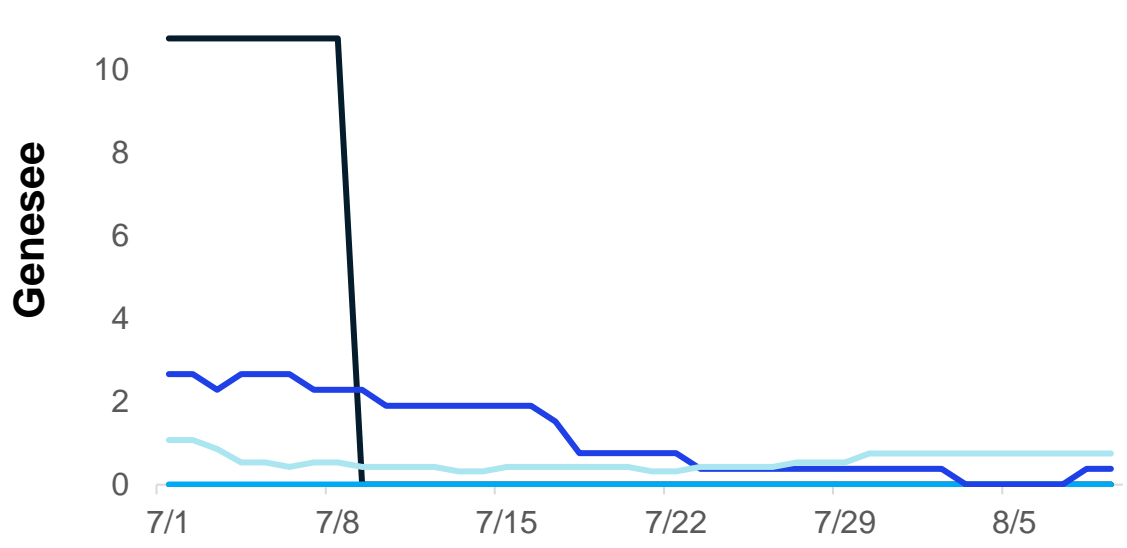
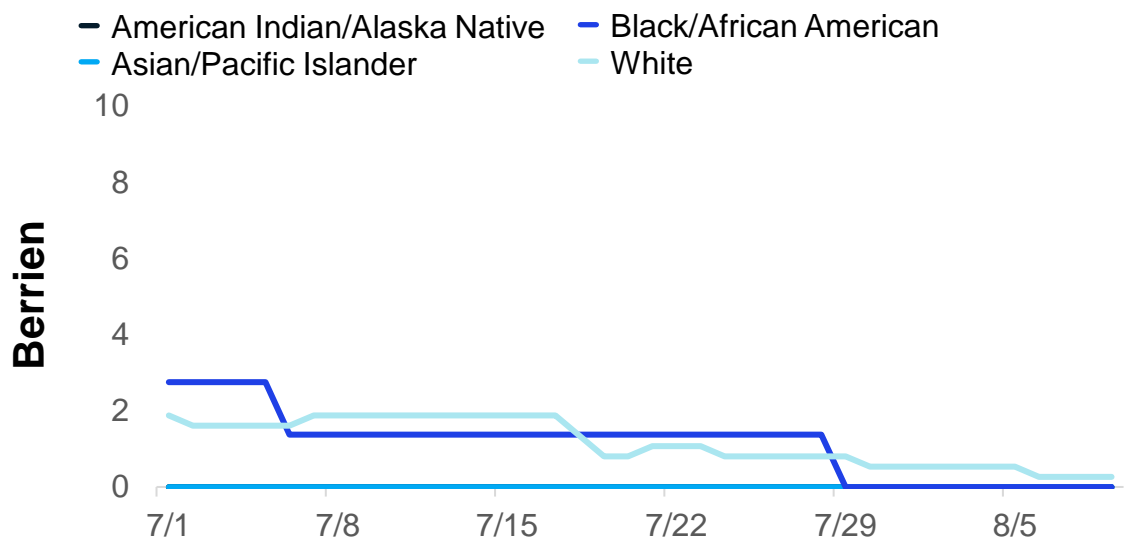
Average daily deaths per million people by ethnicity



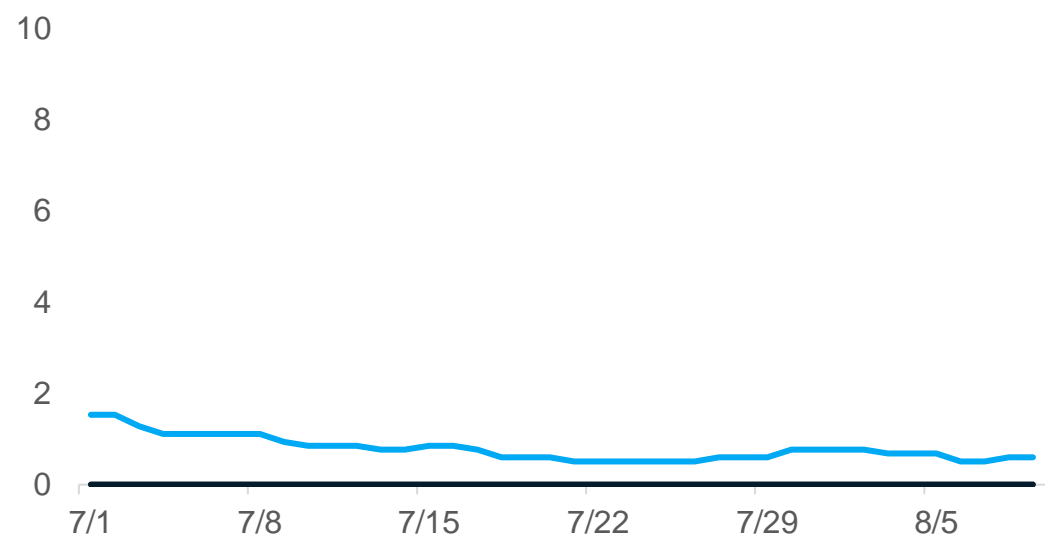
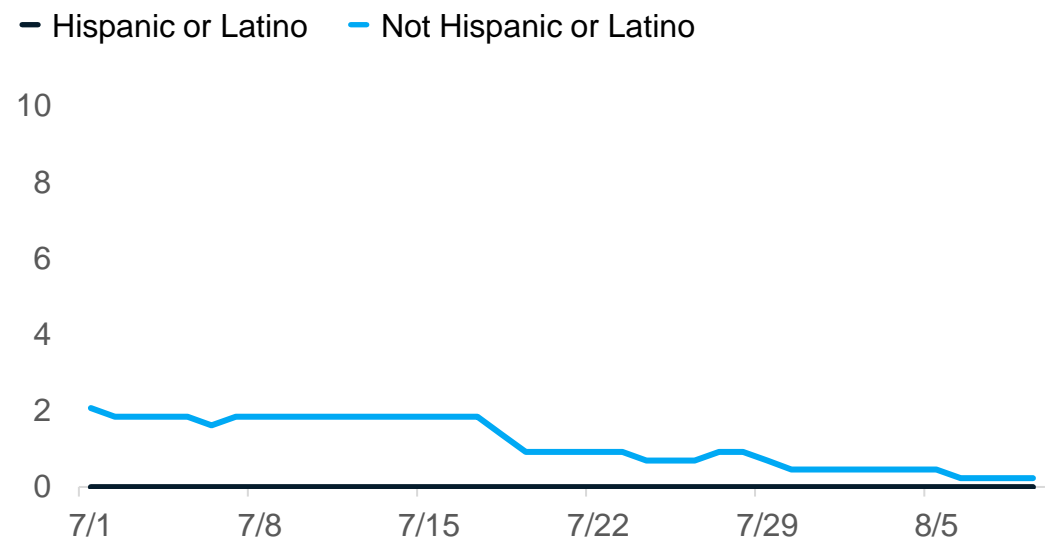
- An additional review of vital records death data was performed the week of 6/30-7/6 to search for race and ethnicity
- This review has resulted in an adjustment of deaths for American Indian and Alaskan Natives from previous weeks
- **Currently, Blacks/African American have the highest death rate**

Average deaths per million people by race and ethnicity

Deaths per million (30-day rolling average) by race



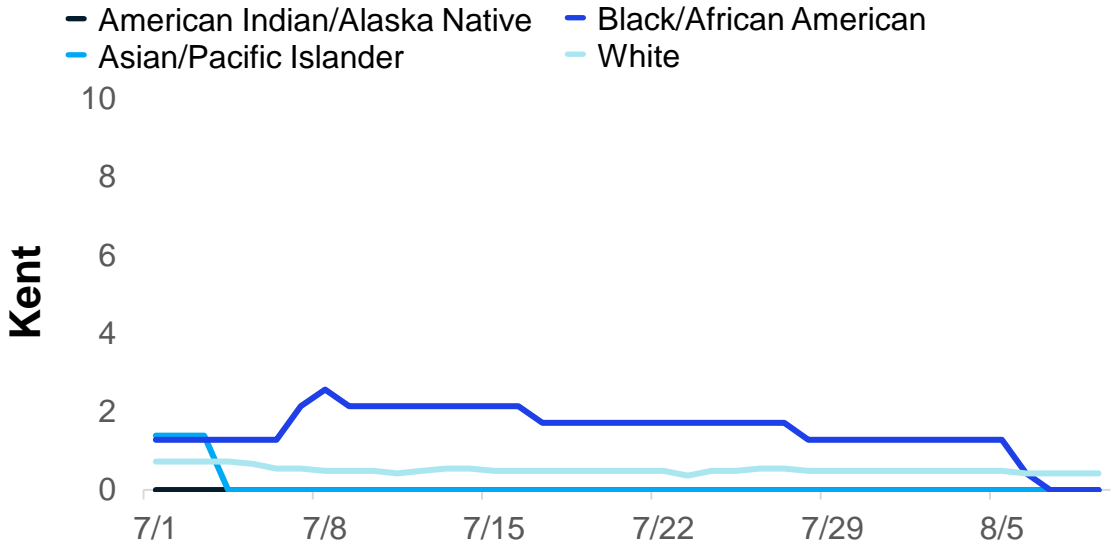
Deaths per million (30-day rolling avg) by ethnicity



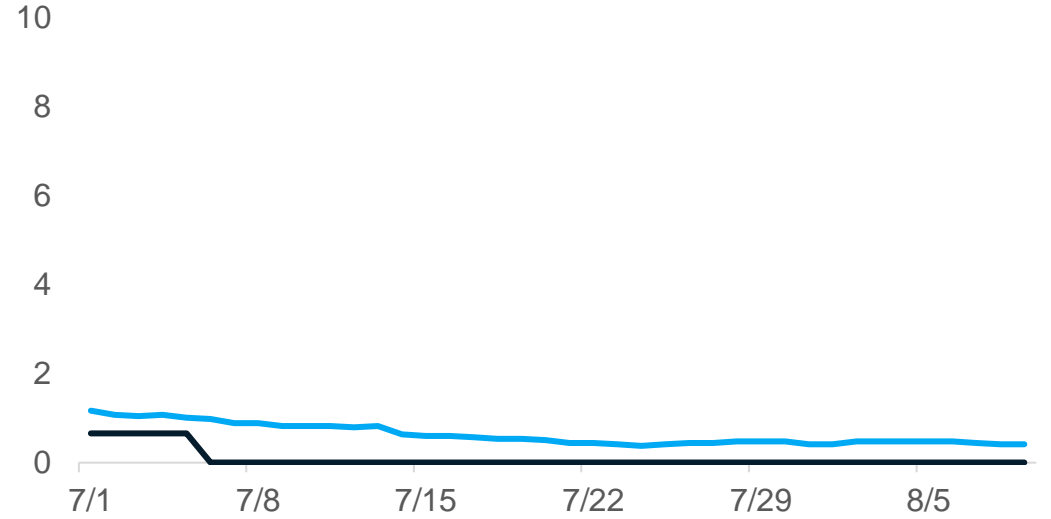
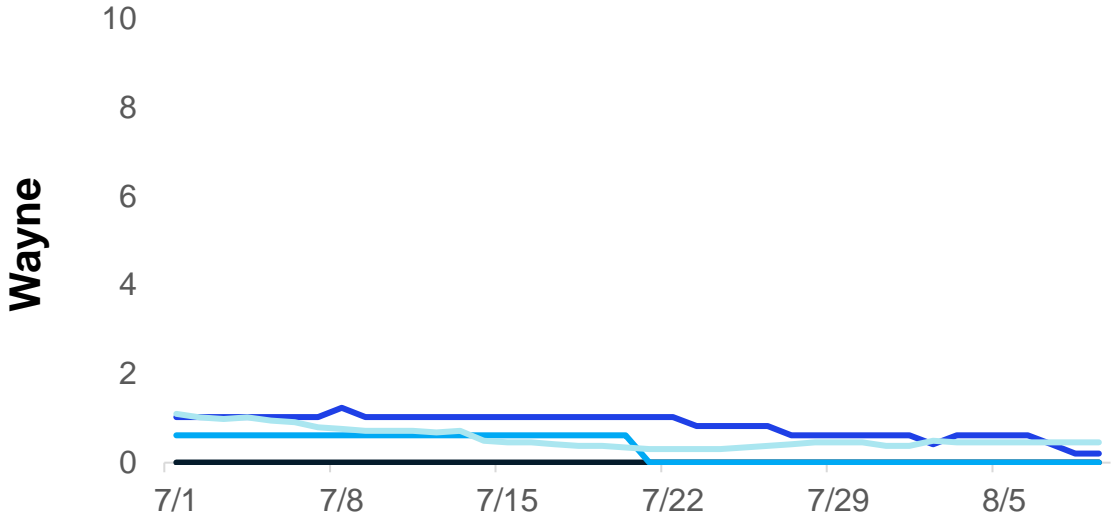
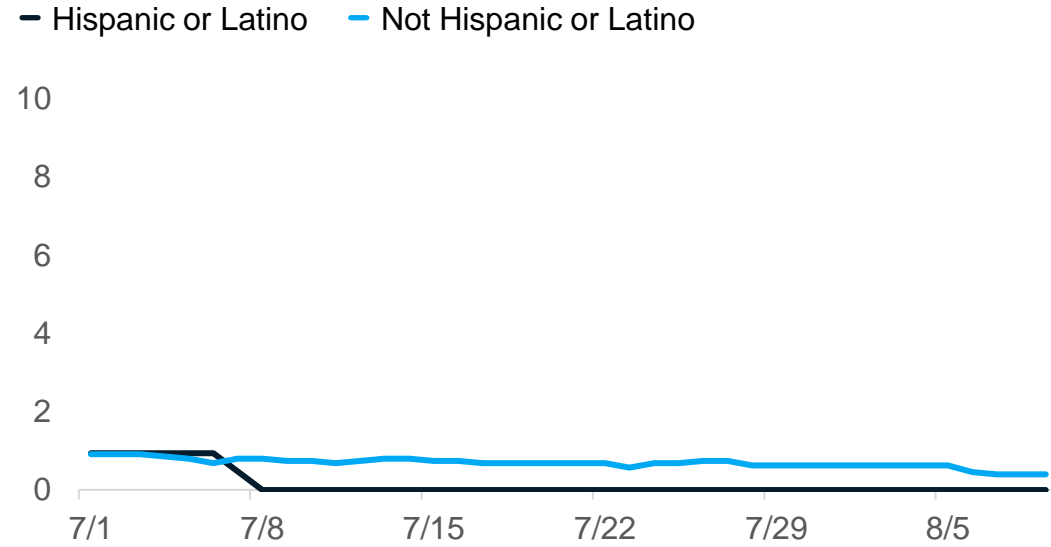
Note: Case information sourced from MDHHS and reflects date of death of confirmed and probable cases. Source: MDHHS – Michigan Disease Surveillance System

Average deaths per million people by race and ethnicity

Deaths per million (30-day rolling average) by race



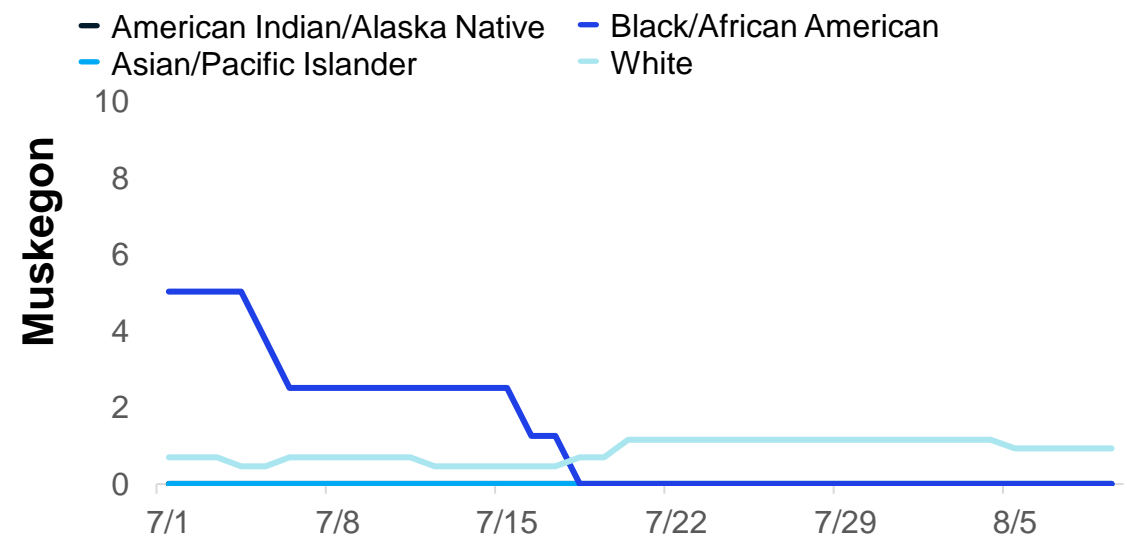
Deaths per million (30-day rolling avg) by ethnicity



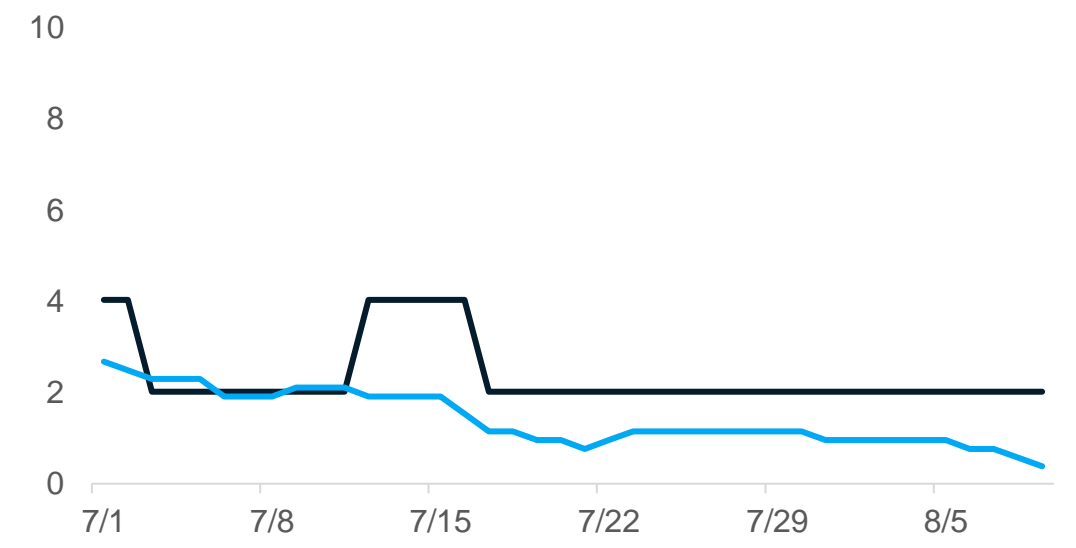
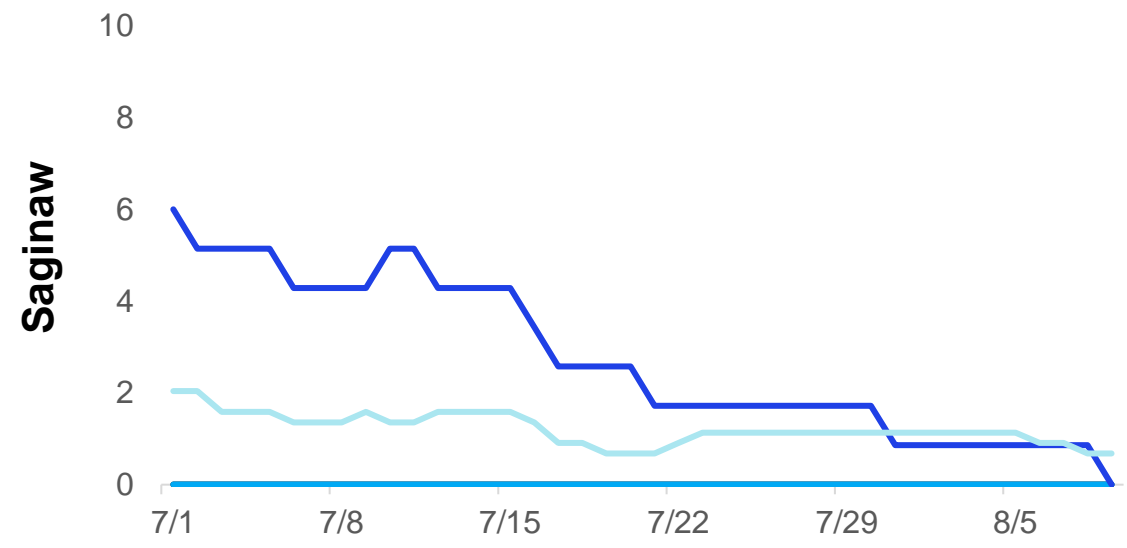
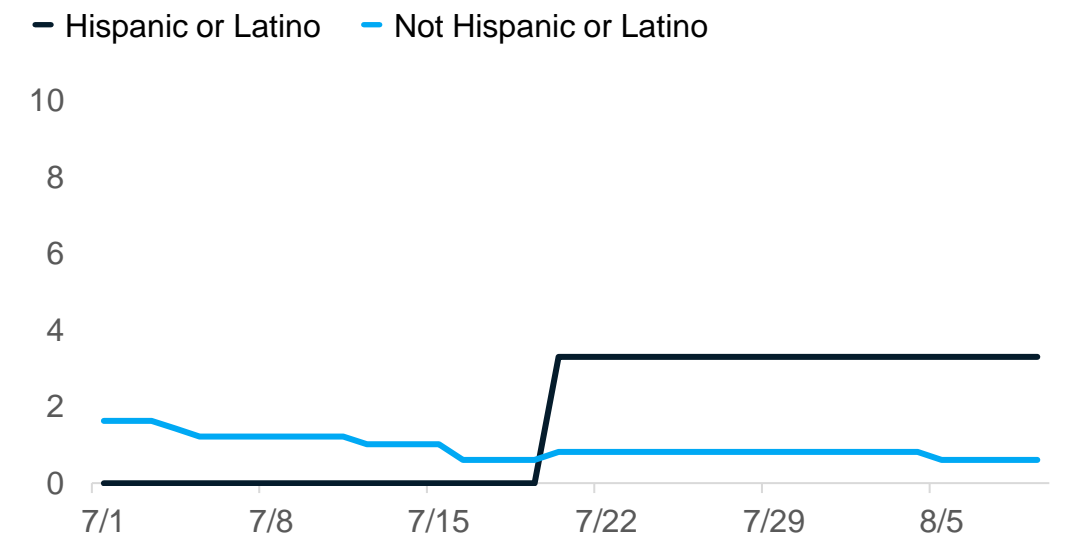
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Average deaths per million people by race and ethnicity

Deaths per million (30-day rolling average) by race



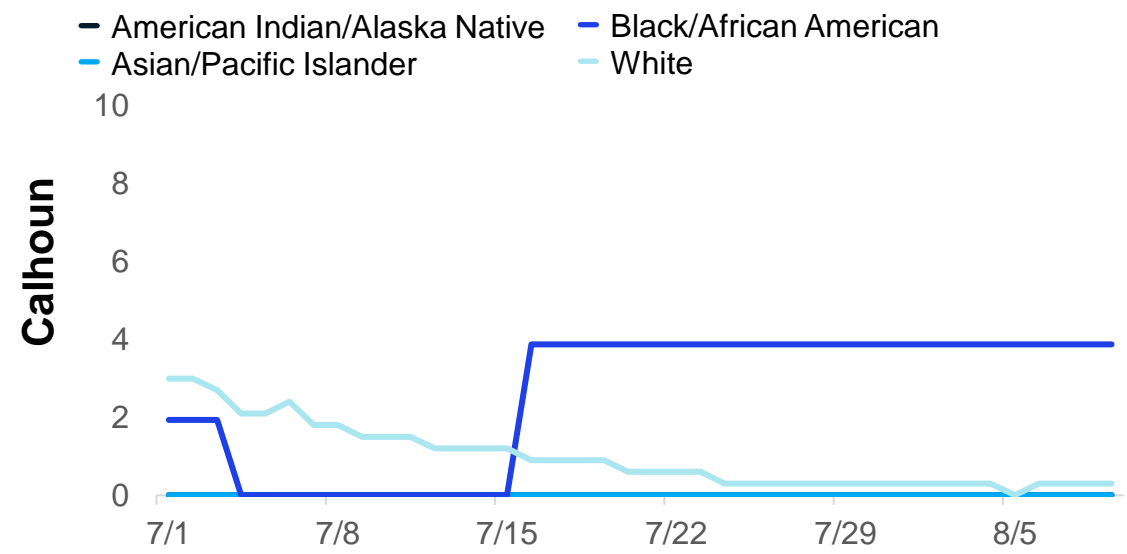
Deaths per million (30-day rolling avg) by ethnicity



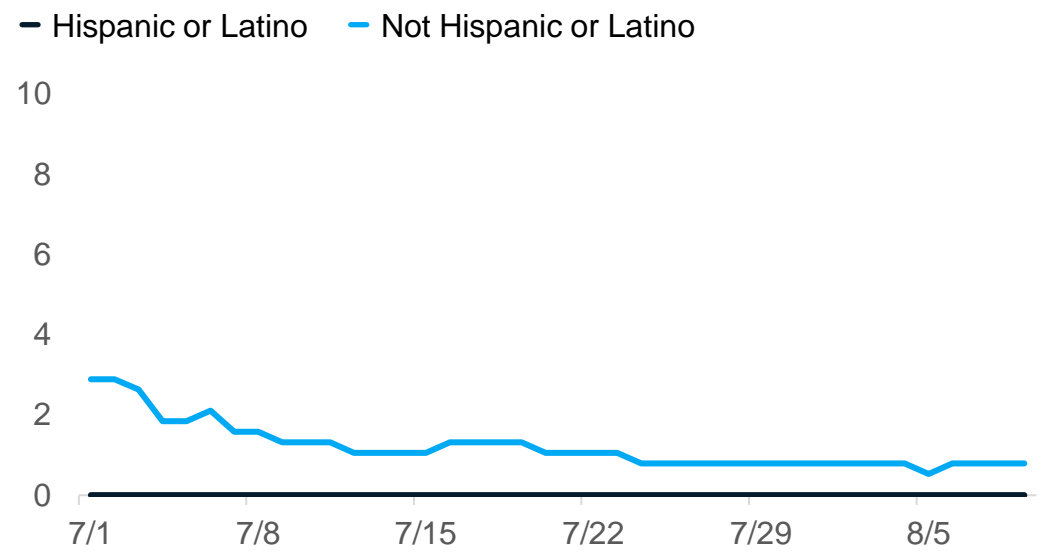
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Average deaths per million people by race and ethnicity

Deaths per million (30-day rolling average) by race



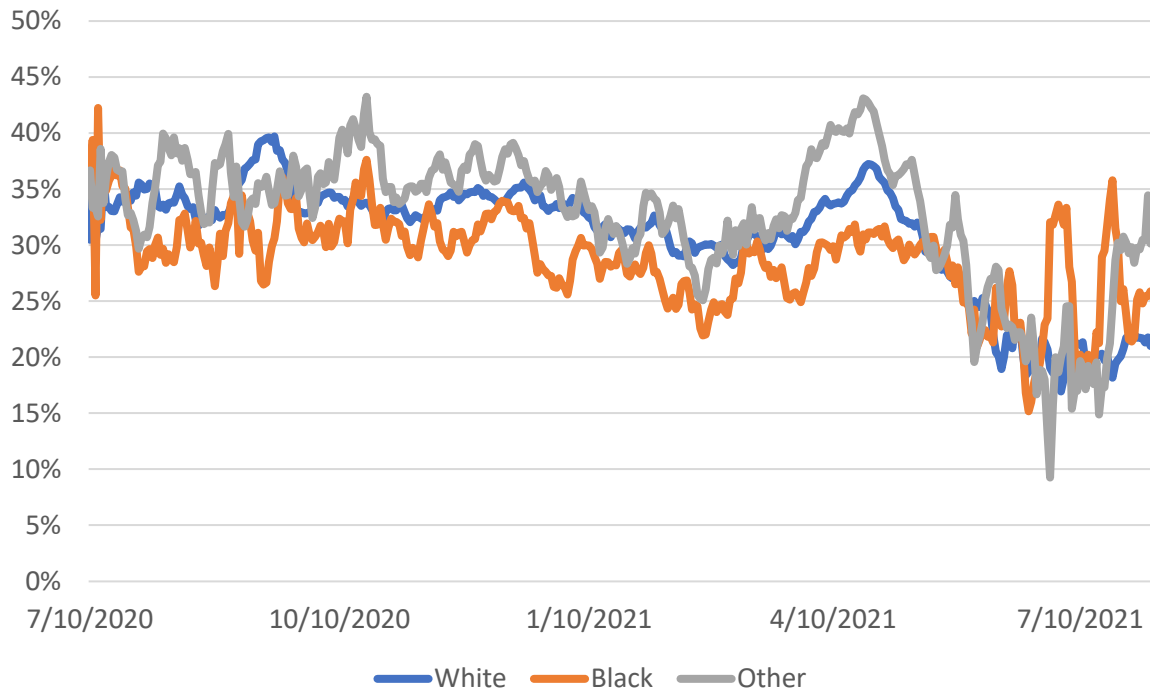
Deaths per million (30-day rolling avg) by ethnicity



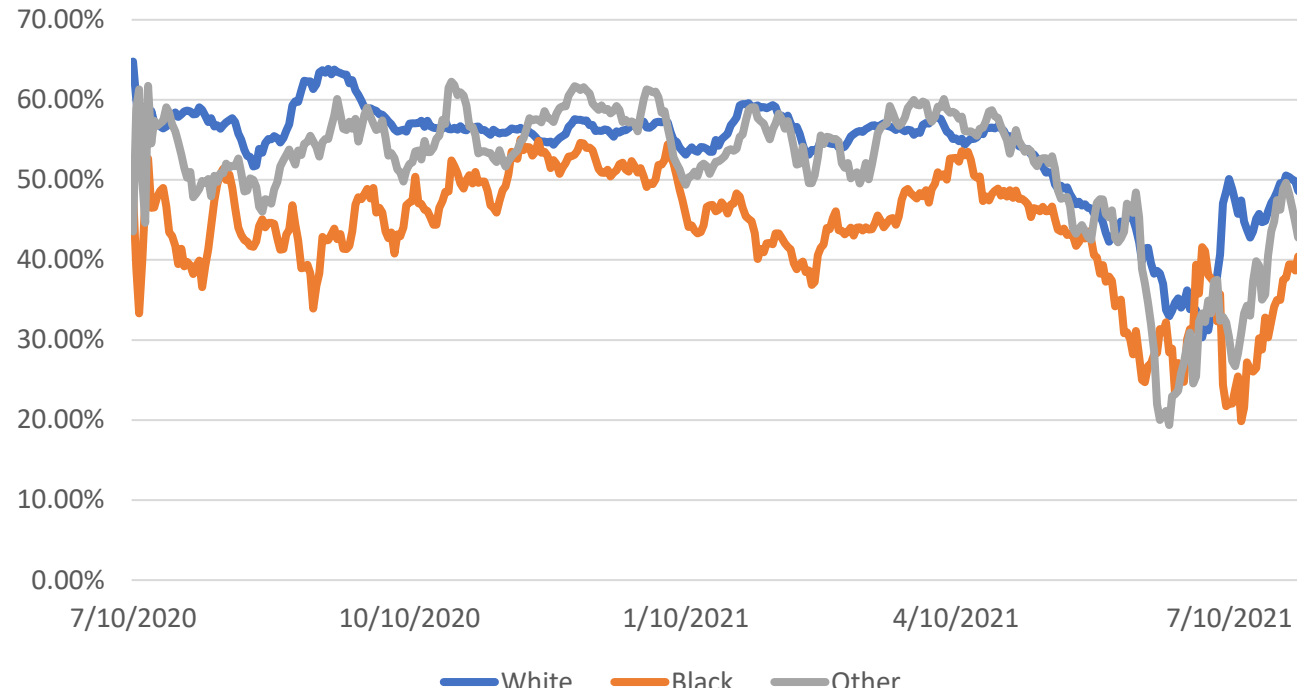
Note: Case information sourced from MDHHS and reflects date of death of confirmed and probable cases. Source: MDHHS – Michigan Disease Surveillance System

COVID-19 Case Investigation Metrics

% of Cases Quarantining at Symptom Onset by Race (7-day Moving Average)



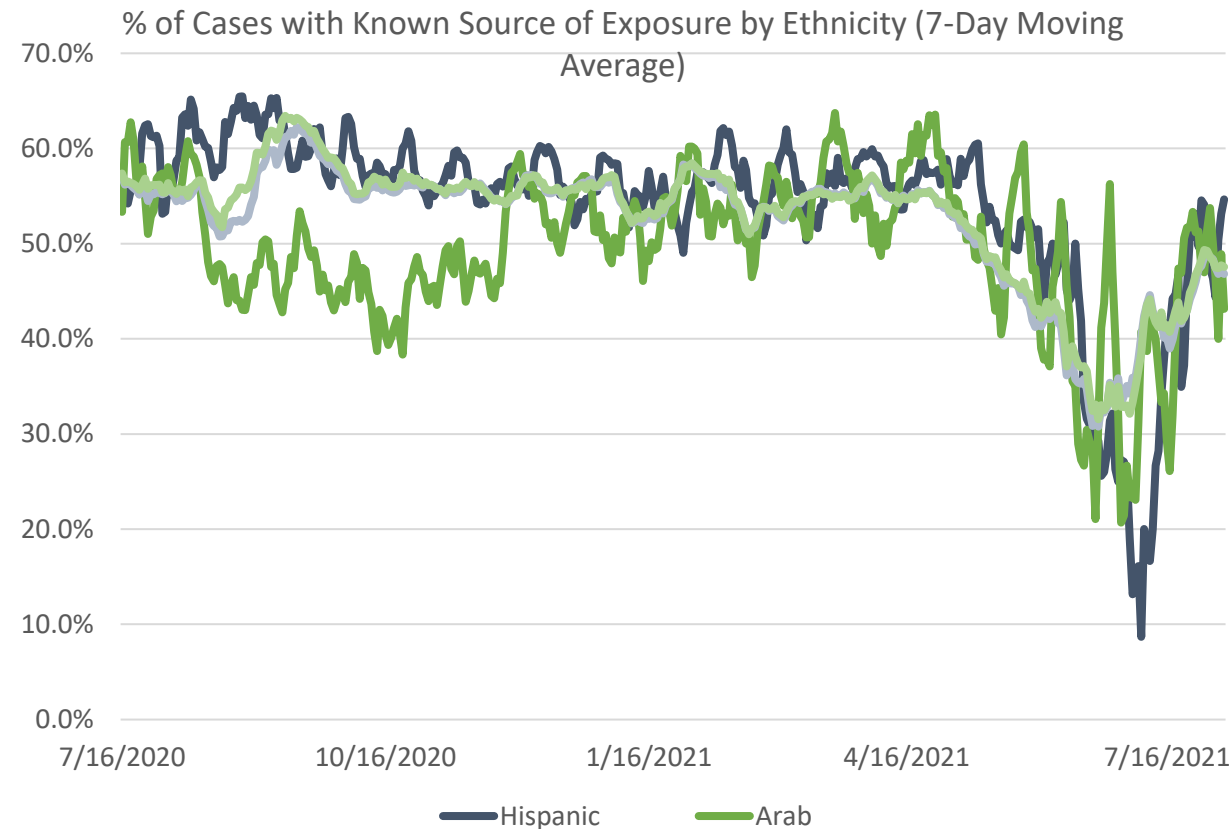
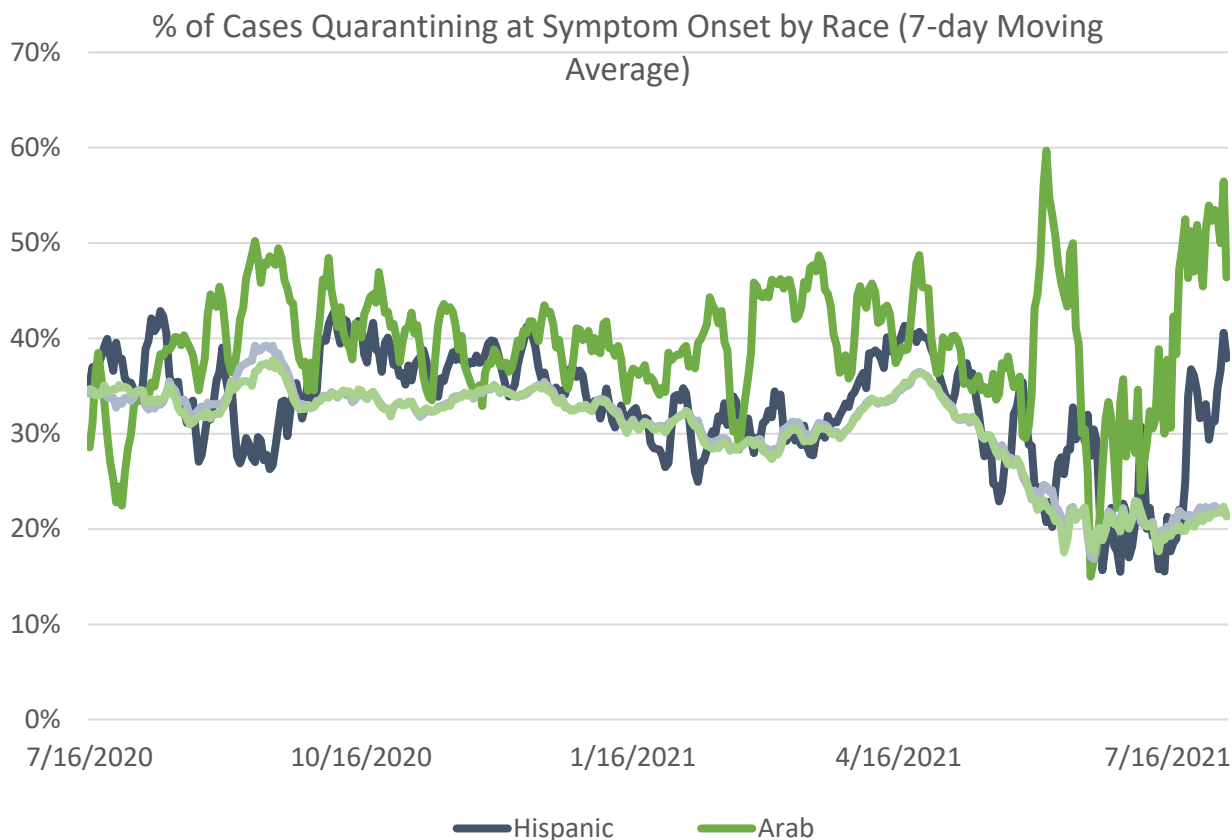
% of Cases with Known Source of Exposure by Race (7-Day Moving Average)



Updates since last week:

- Cases who are quarantining at symptom onset and who are aware of the source of infection are signals that case investigation and contact tracing resources are working successfully
- The sharp decline in June and July suggests the general public was no longer adhering to public health recommendations
- Data excludes those with blank or unknown race and ethnicity data

COVID-19 Case Investigation Metrics



Updates since last week:

- Cases who are quarantining at symptom onset and who are aware of the source of infection indicate that case investigation and contract tracing resources are working successfully
- The sharp decline in June and July suggests the general public was no longer adhering to public health recommendations
- Data excludes those with blank or unknown race and ethnicity data

Over 4.9 Million Michiganders fully vaccinated

4.91 million people in the state are fully vaccinated

81.9% of people aged 65 and older have completed the series

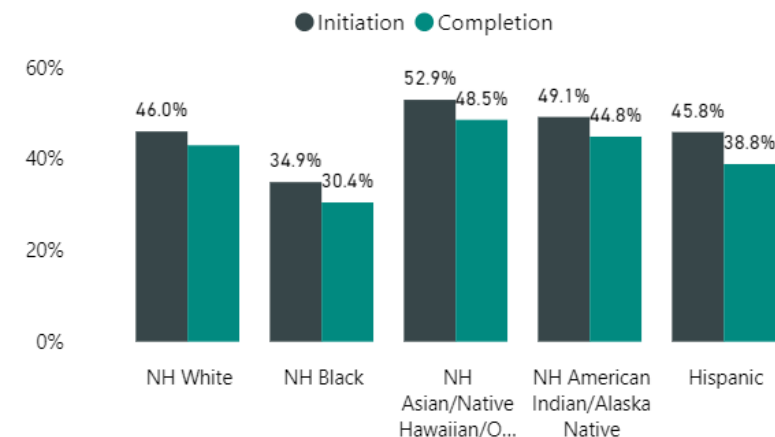
Race/Ethnicity for those 12 years and older:

- Completion coverage highest among those of Non-Hispanic (NH) Asian, Native Hawaiian or Pacific Islander Race (52.9%), then NH American Indian (49.1%), NH White (46.0%), NH Black or African American Races (34.9%).
- Completion is at 45.8% for those of Hispanic ethnicity
- Initiation follows the same pattern
- 20.8% data missing or unknown

Vaccination Coverage in Michigan as of 8/9/21

Age Group	% At Least One Dose	% Fully Vaccinated	Number Fully Vaccinated
Total Population	53.8	49.3	4,921,730
≥ 12 years	62.6	57.3	4,921,634
≥ 18 years	64.9	59.8	4,686,972
≥ 65 years	86.2	81.9	1,446,180

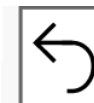
Coverage by Race - State Level



Berrien: vaccine coverage for all ages and races by census tract

COVID Vaccine Coverage

Dashboard Updated: August 6, 2021. **FOR INTERNAL USE ONLY.** Use this page to look at coverage of individual census tracts. Use



Region 5

Census Tracts

All

Preparedness Region

All

Person's County

Berrien

Person's LHD

All

Dose

Initiation

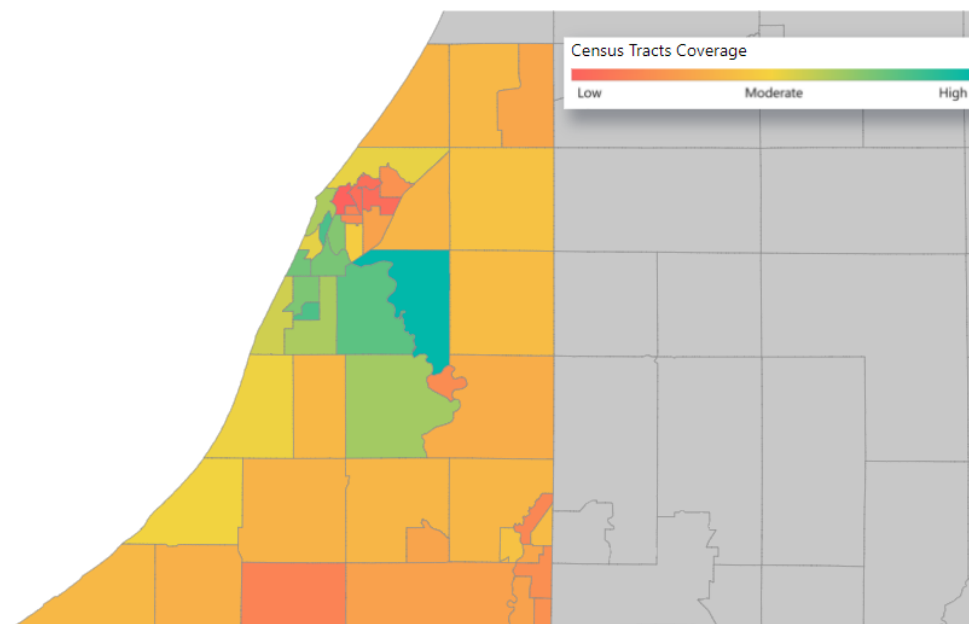
Census Tracts SVI

All

Age

18+ years

COVID Vaccine Coverage by Census Tracts



Bubble Chart 18 years

Bubble Chart 65 years

Week Ending Date

12/19/2020 8/7/2021

Coverage (% of Residents Vaccinated)

57%

Residents Vaccinated

68,548

MI Population*

9,957,488

*2019 US Census estimates

Calhoun County vaccine coverage by census tract

COVID Vaccine Coverage

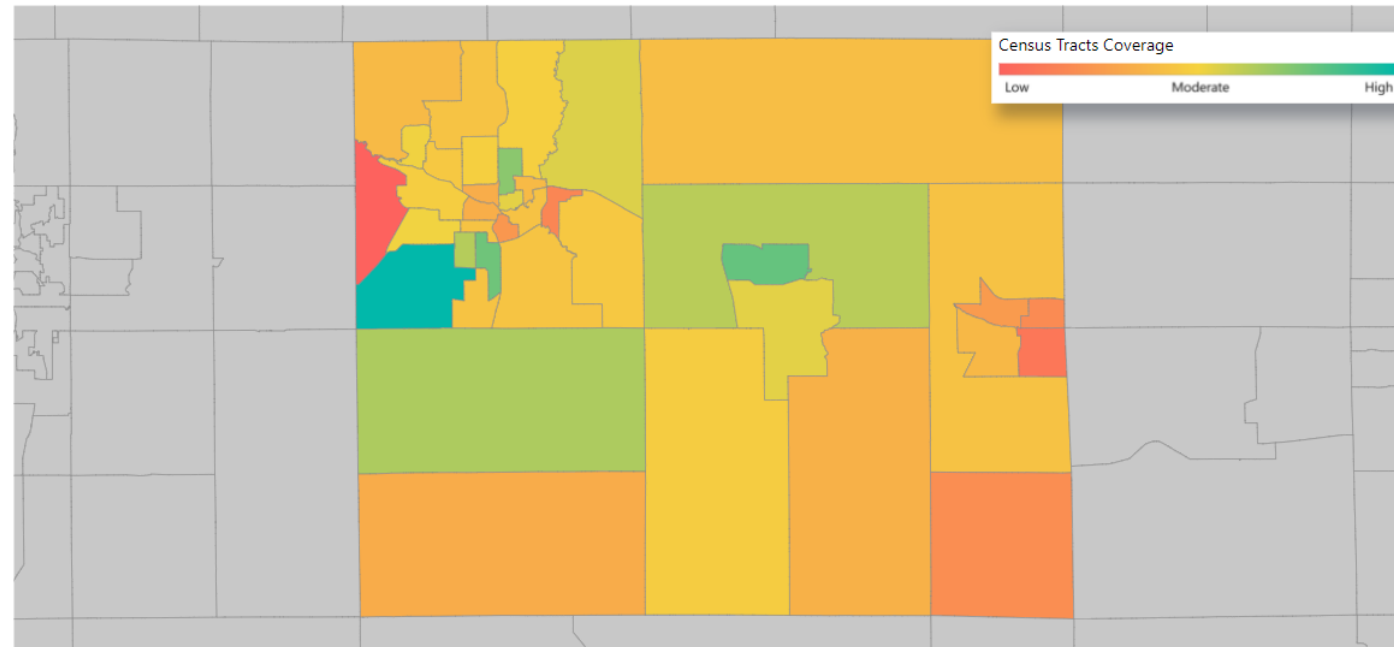
Dashboard Updated: August 6, 2021. **FOR INTERNAL USE ONLY.** Use this page to look at coverage of individual census tracts. Use



Region 5

Census Tracts: All | Preparedness Region: All | Person's County: Calhoun | Person's LHD: All | Dose: Initiation | Census Tracts SVI: All | Age: 18+ years

COVID Vaccine Coverage by Census Tracts



Bubble Chart 18 years

Bubble Chart 65 years

Week Ending Date

12/19/2020 8/7/2021

Coverage (% of Residents Vaccinated)

54%

Residents Vaccinated

55,740

MI Population*

9,957,488

*2019 US Census estimates

Genesee County vaccine completion by census tract

COVID Vaccine Coverage

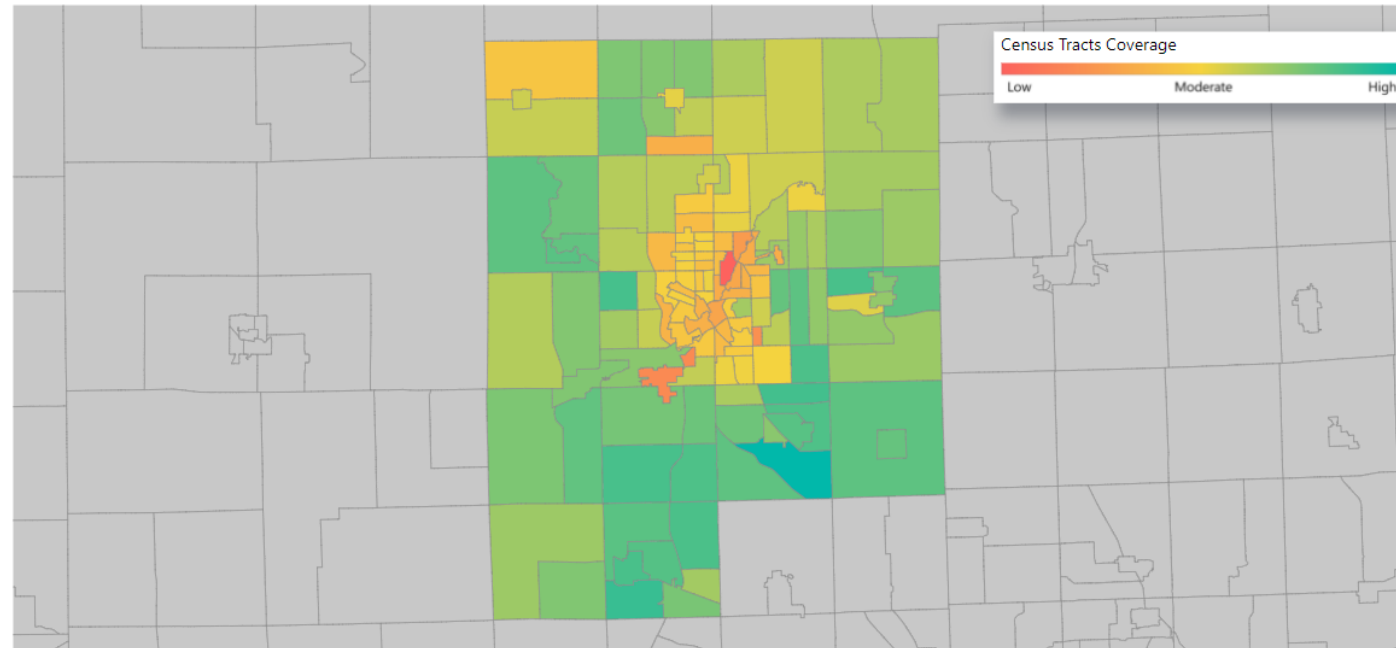
Dashboard Updated: August 6, 2021. **FOR INTERNAL USE ONLY.** Use this page to look at coverage of individual census tracts. Use



Region 3

Census Tracts: All | Preparedness Region: All | Person's County: Genesee | Person's LHD: All | Dose: Initiation | Census Tracts SVI: All | Age: 18+ years

COVID Vaccine Coverage by Census Tracts



Bubble Chart 18 years

Bubble Chart 65 years

Week Ending Date

12/19/2020 | 8/7/2021

Coverage (% of Residents Vaccinated)

55%

Residents Vaccinated

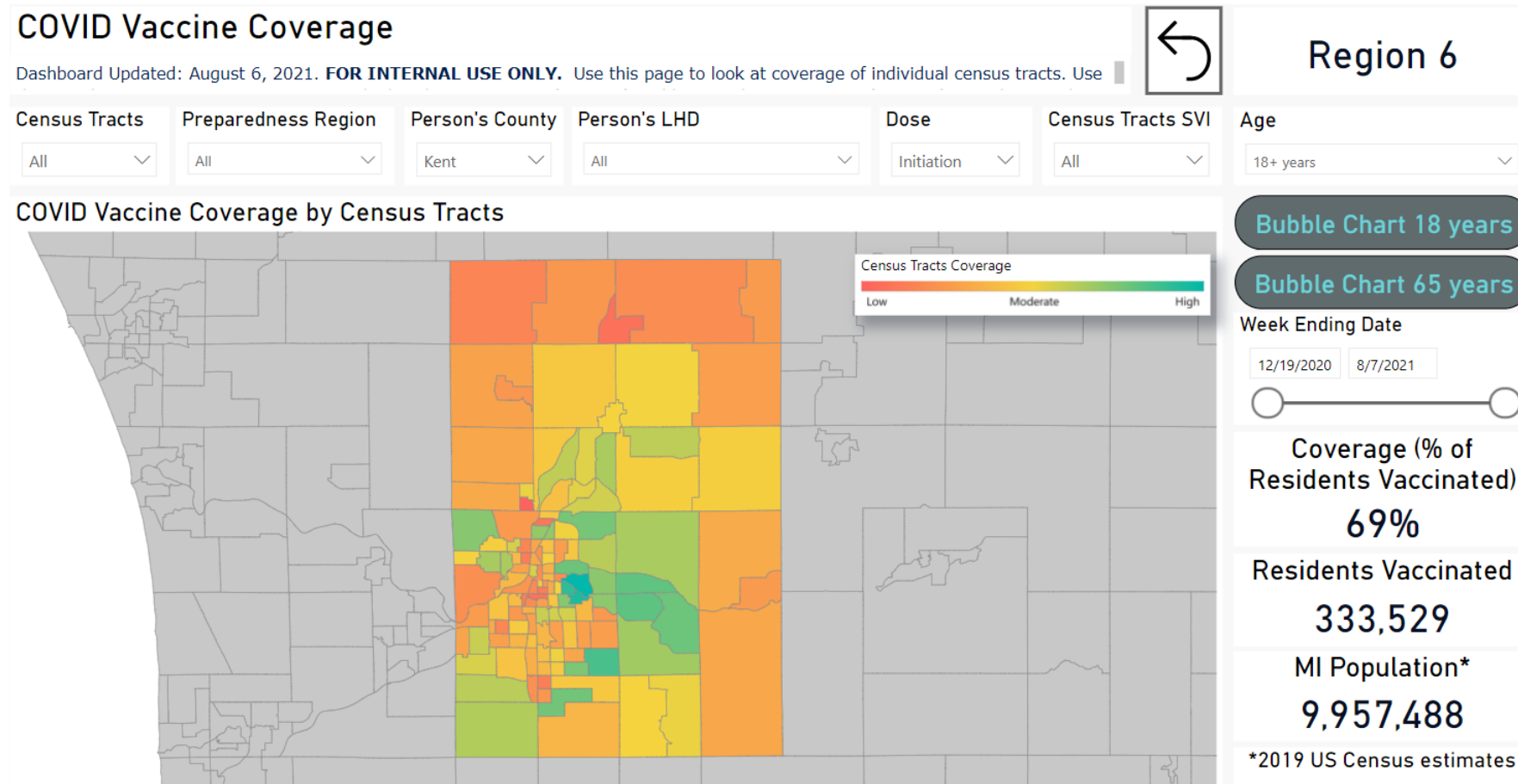
172,674

MI Population*

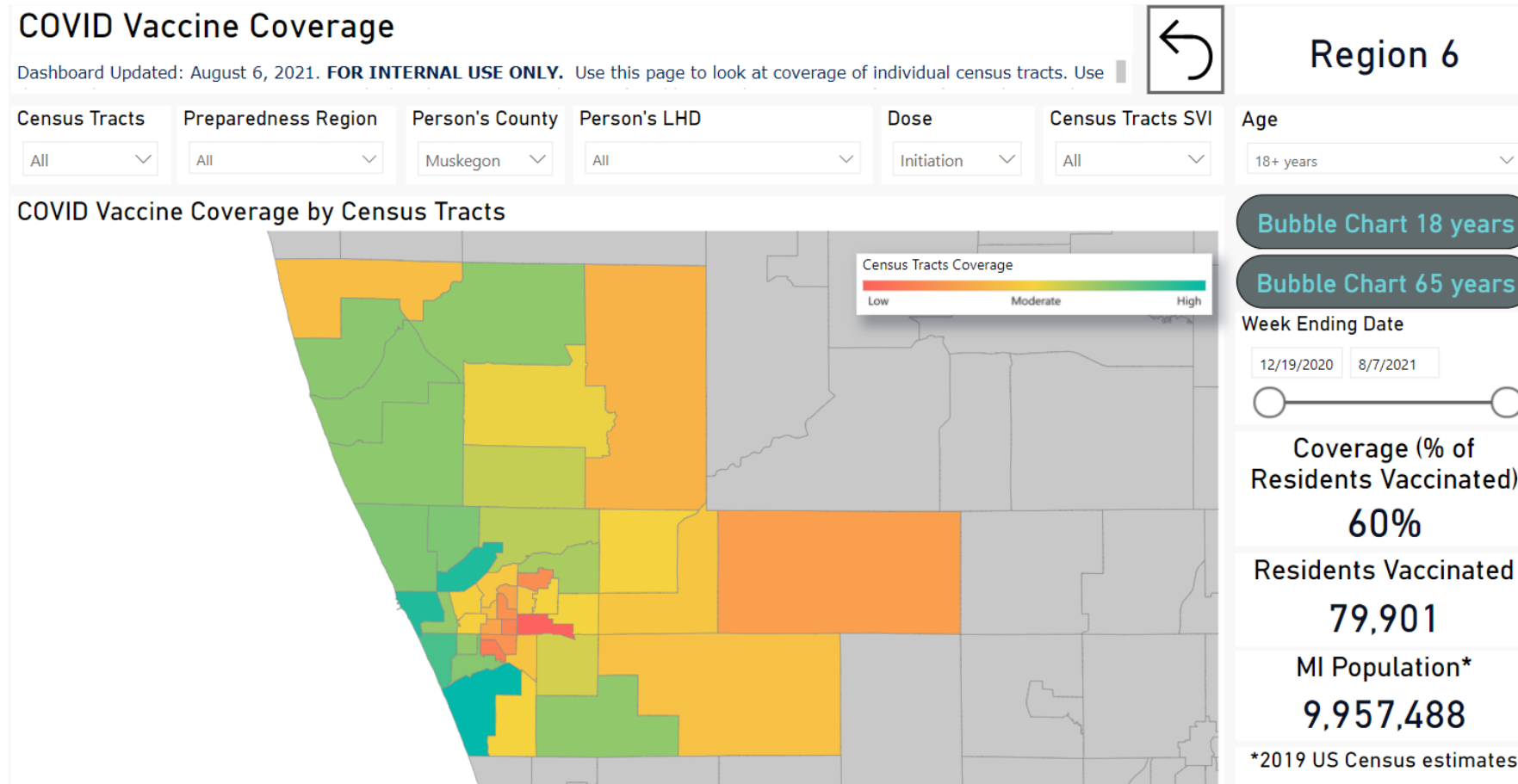
9,957,488

*2019 US Census estimates

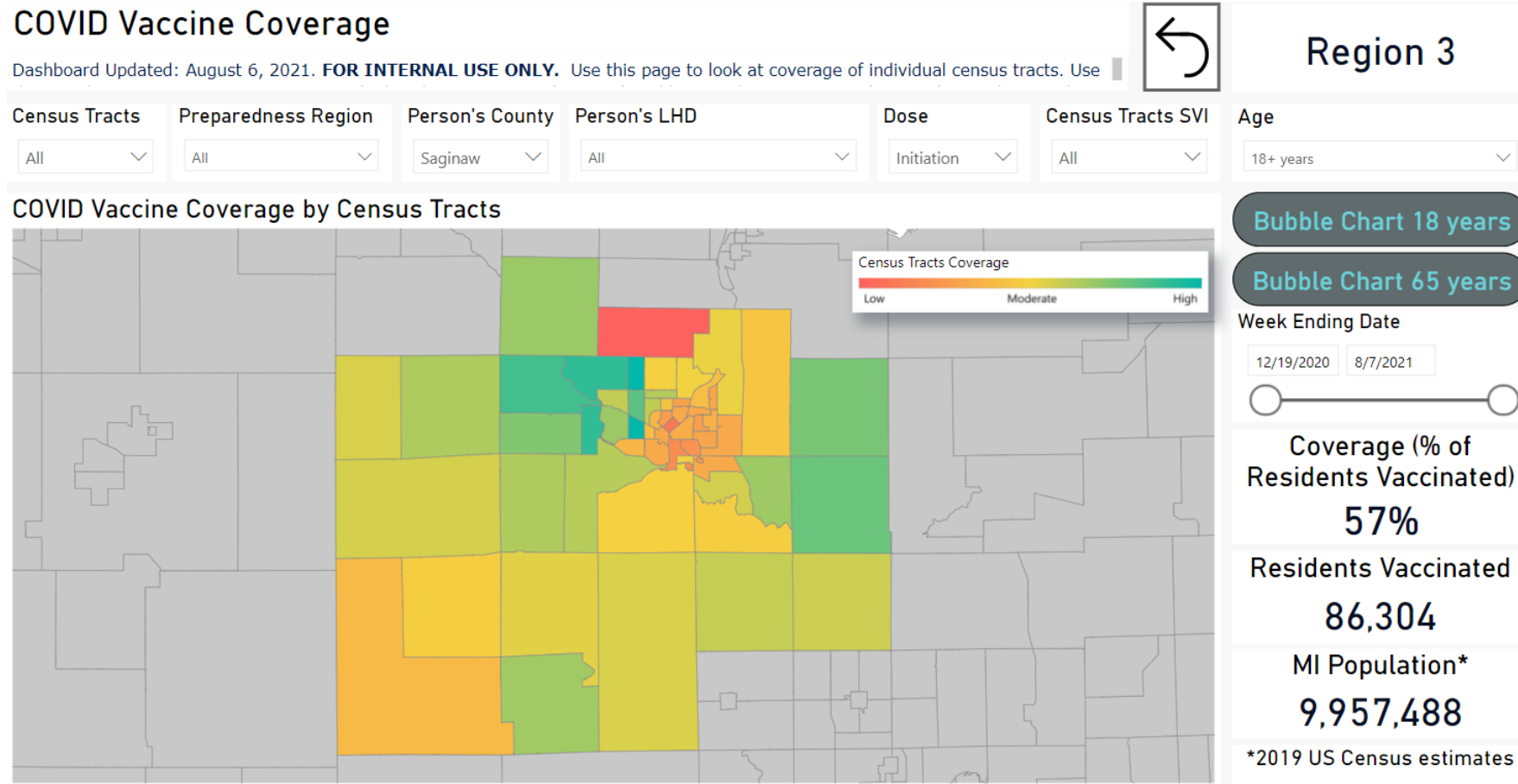
Kent County vaccine coverage by census tract



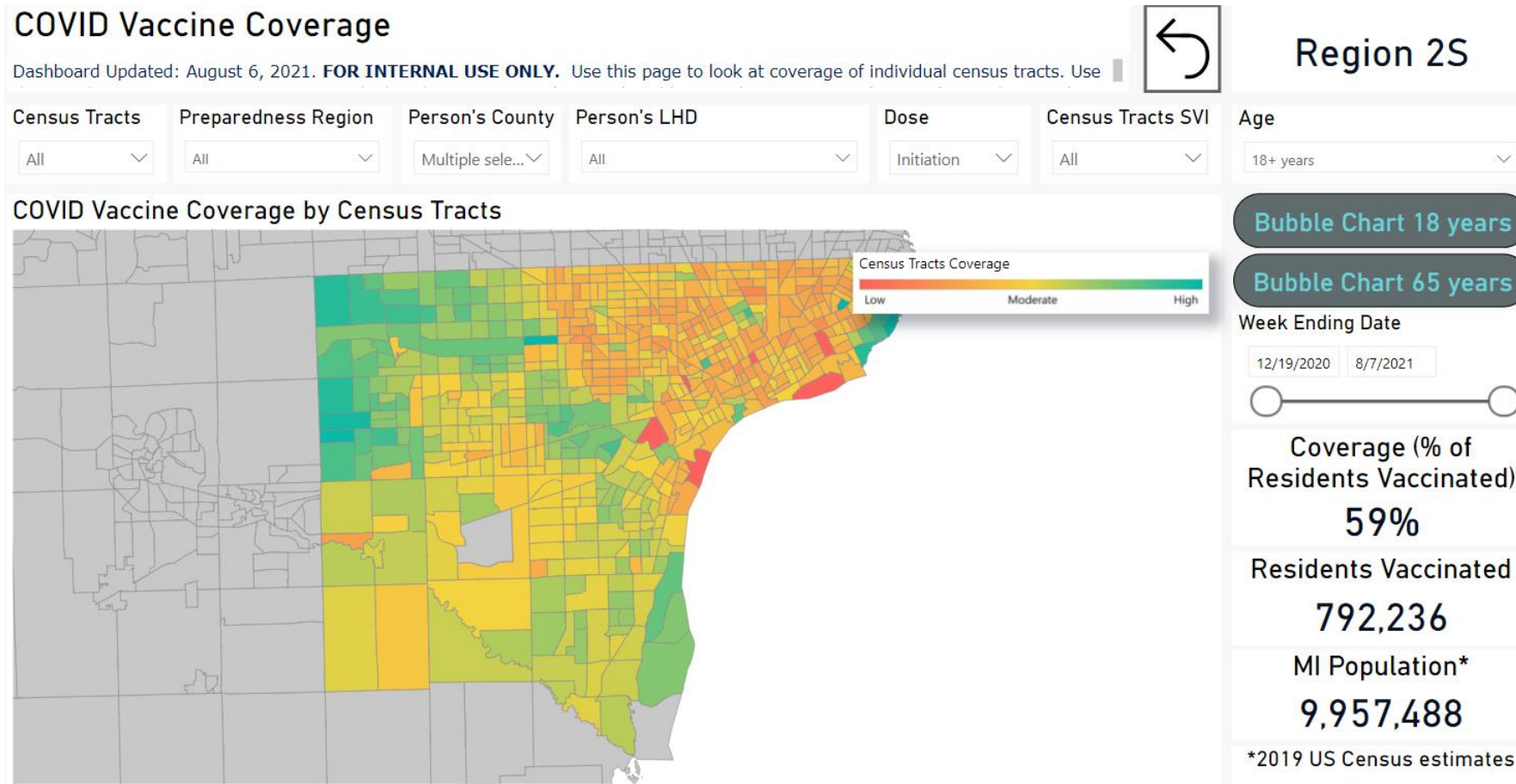
Muskegon County vaccine coverage by census tract



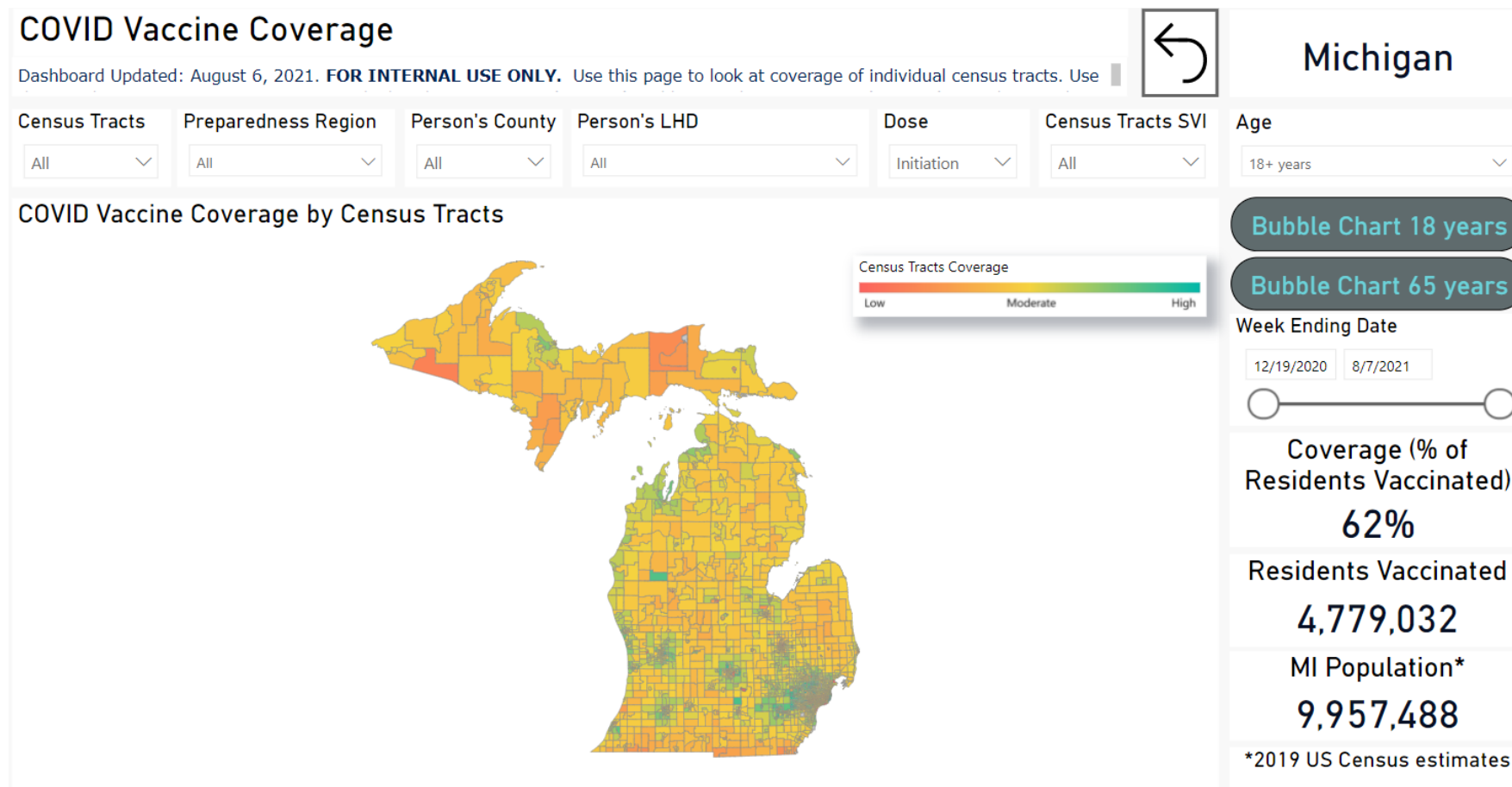
Saginaw County vaccine coverage by census tract



Wayne County (including Detroit) vaccine completion by census tract

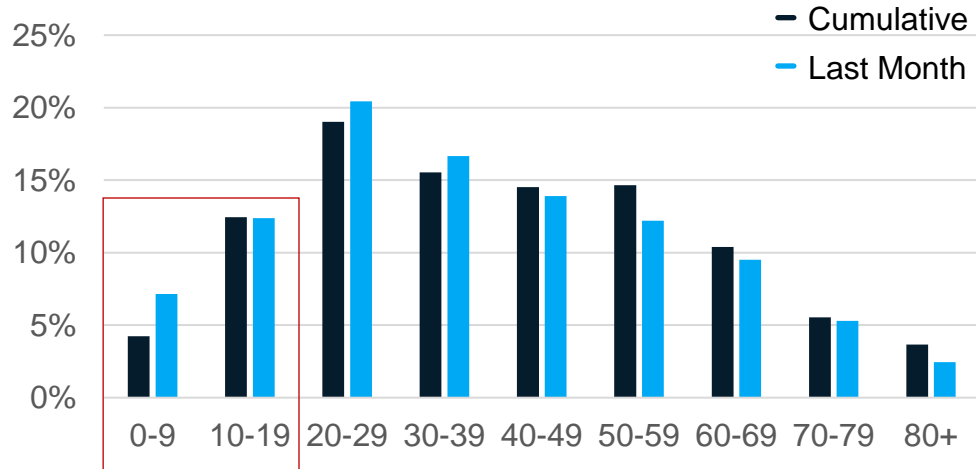


Michigan: vaccine coverage for all ages and races by census tract



SARS-CoV-2 can Negatively Impact Children Directly and Indirectly

- Children can get infected with SARS-CoV-2 and the proportion of kids getting sick with COVID-19 is increasing



- Children can transmit the virus to others and can be sources for outbreaks

Characteristics of COVID-19 Cases and Outbreaks at Child Care Facilities — District of Columbia, July–December 2020

Weekly / May 21, 2021 /
Christine Kim, PhD^{1,*}; S.
Nesbitt, MD³ ([View author profile](#))

SARS-CoV-2 Transmission and Infection Among Attendees of an Overnight Camp — Georgia, June 2020

Weekly / August 7, 2020 / 69(31);1023–1025

On July 31, 2020, this report was posted online as an MMWR Early Release.

Christine M. Szablewski, DVM^{1,2}; Karen T. Chang, PhD^{2,3}; Marie M. Brown, MPH¹; Victoria T. Chu, MD^{2,3}; Anna R. Yousof, MD^{2,3}; Ndubuisi Anyalechi, MD¹; Peter A. Aryee,

Sources: Case data: MDSS; [Kim C. et al. Characteristics of COVID-19 Cases and Outbreaks at Child Care Facilities — District of Columbia, July–December 2020. MMWR Morb Mortal Wkly Rep 2021;70](#); [Szablewski CM, et al. SARS-CoV-2 Transmission and Infection Among Attendees of an Overnight Camp — Georgia, June 2020. MMWR Morb Mortal Wkly Rep 2020;69](#)

National Comparison

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SARS-CoV-2 can Negatively Impact Children Directly and Indirectly

- Missed in person school negatively impacts children and can occur from statewide lockdowns or large uncontrolled outbreaks within schools
 - Remote learning disproportionately affects minorities and lower income children

Association of Children's Mode of School Instruction with Child and Parent Experiences and Well-Being During the COVID-19 Pandemic — COVID Experiences Survey, United States, October 8–November 13, 2020

Weekly / March 19, 2021 / 70(11);369–376

Jorge V. Verlenden, PhD^{1,2}; Sanjana Pampati, MPH^{1,3}; Catherine N. Rasberry, PhD^{1,2}; Nicole Liddon, PhD¹; Marci Hertz, MS^{1,2}; Greta Kilmer, MS¹; Melissa Heim Viox, MPH⁴;

- Children can experience severe health outcomes from COVID-19 including MIS-C, Hospitalization, and Death
 - A JAMA study reported MIS-C incidence was 5.1 persons per 1,000,000 person-months and 316 persons per 1,000,000 SARS-CoV-2 infections in persons younger than 21 years
 - Incidence was higher among Black, Hispanic or Latino, and Asian or Pacific Islander persons compared with White persons and in younger persons compared with older persons

Sources: [Verlenden JV, Pampati S, Rasberry CN, et al. Association of Children's Mode of School Instruction with Child and Parent Experiences and Well-Being During the COVID-19 Pandemic — COVID Experiences Survey, United States, October 8–November 13, 2020. MMWR Morb Mortal Wkly Rep 2021;70](#); [Payne AB, et al. Incidence of Multisystem Inflammatory Syndrome in Children Among US Persons Infected With SARS-CoV-2. JAMA Netw Open. 2021;4\(6\)](#)

National Comparison

Spread

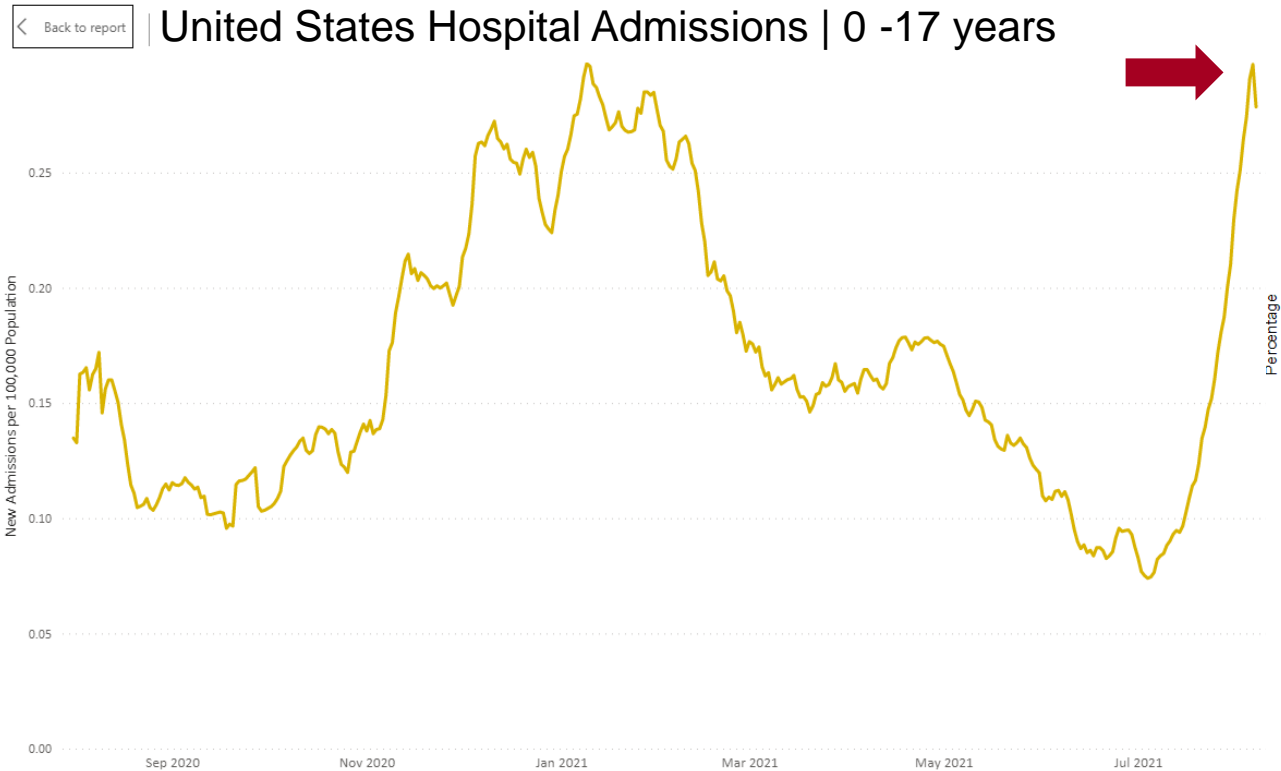
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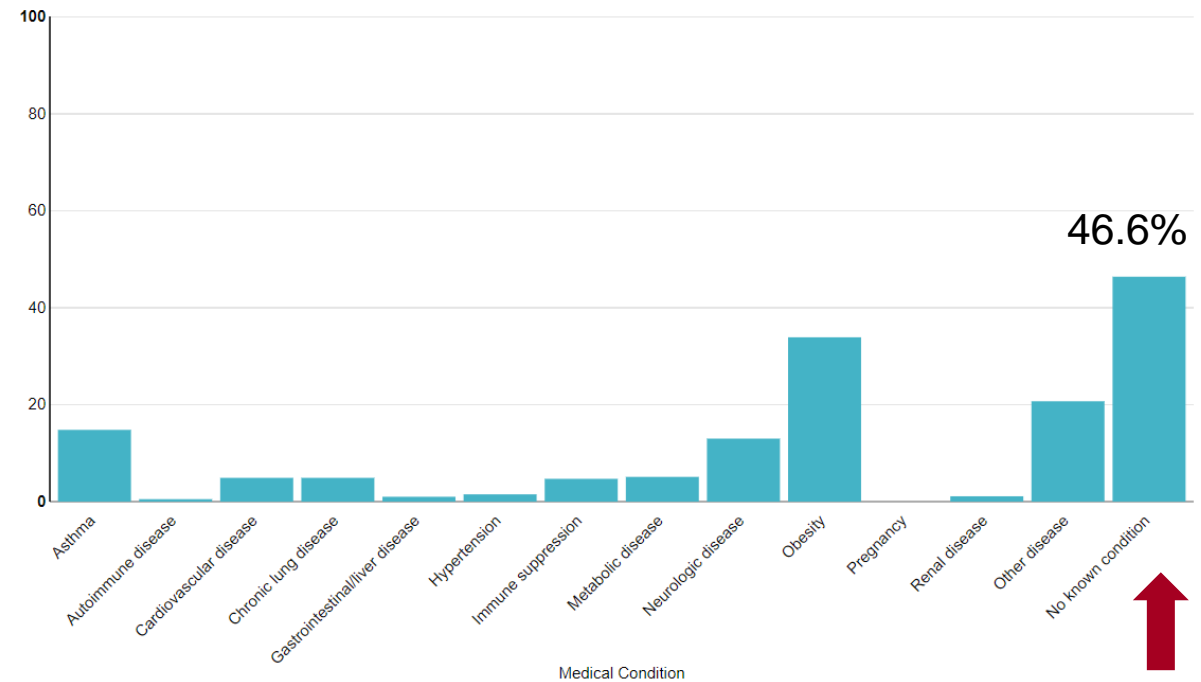
Science
Round-up

SARS-CoV-2 can Negatively Impact Children Directly and Indirectly

- Children can experience severe health outcomes from COVID-19 including MIS-C and Hospitalization
 - Hospitalizations among children nationwide is higher than it's ever been*
 - Nearly half of children hospitalized have no reported underlying conditions†



U.S. Pediatric Hospitalizations | Underlying Medical Conditions



Sources: * [CDC COVID Data Tracker > New Hospital Admissions](#); † [COVIDNET](#)

National Comparison

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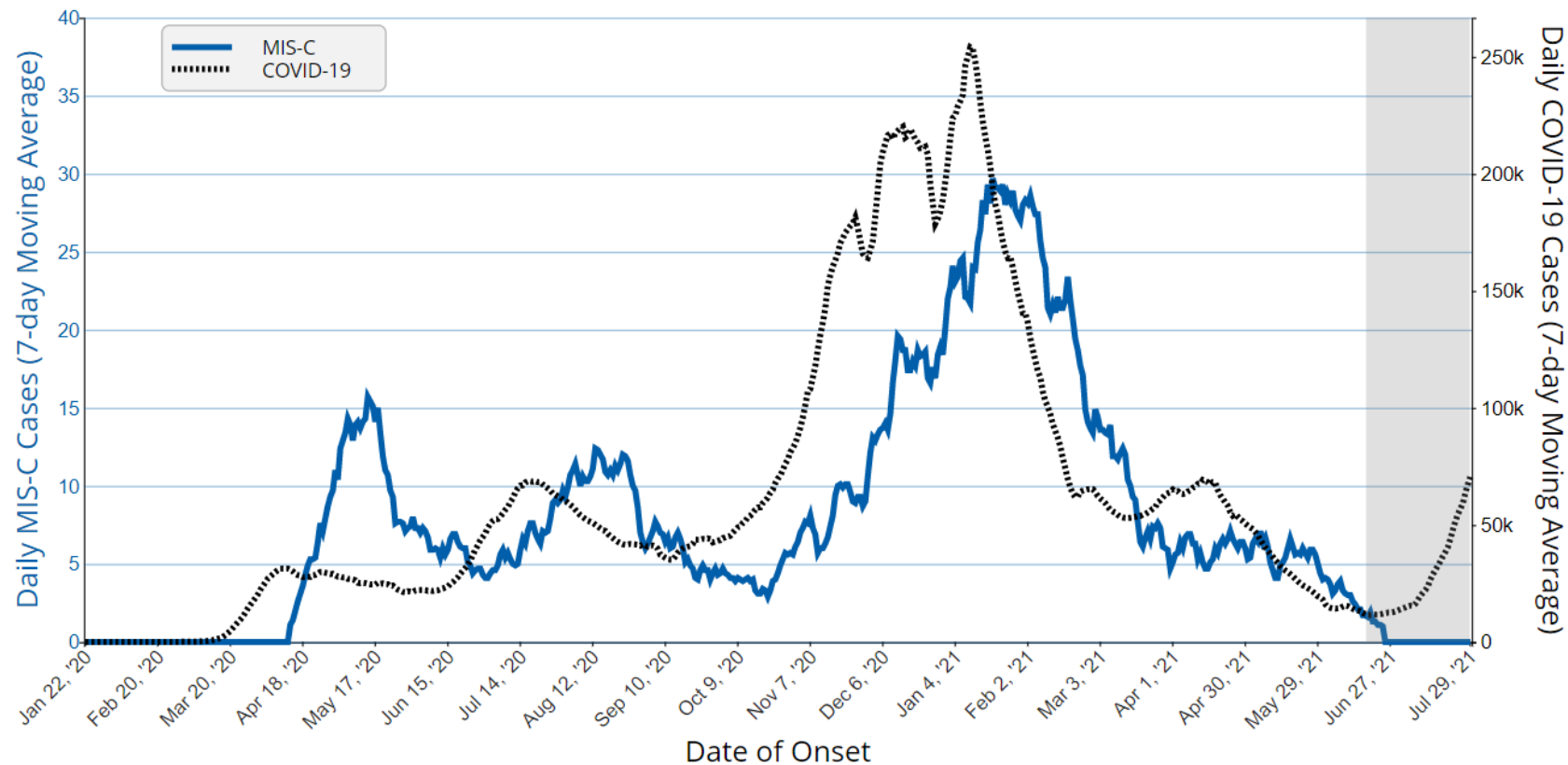
Science
Round-up

SARS-CoV-2 can Negatively Impact Children Directly and Indirectly

Multisystem Inflammatory Syndrome in Children (MIS-C)

- Higher community transmissions is followed by higher incidence of MIS-C cases

Daily MIS-C Cases and COVID-19 Cases Reported to CDC (7-Day Moving Average)



Source: [MDHHS and MIS-C Data and Reporting](#)

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SARS-CoV-2 can Negatively Impact Children Directly and Indirectly

Multisystem Inflammatory Syndrome in Children (MIS-C)

- Higher community transmissions is followed by higher incidence of MIS-C cases
 - Many of those who experience MIS-C in Michigan are admitted to intensive care, school age, and are Black/African American

Multisystem Inflammatory Syndrome in Children (MIS-C) Michigan Data Summary 7/29/2021

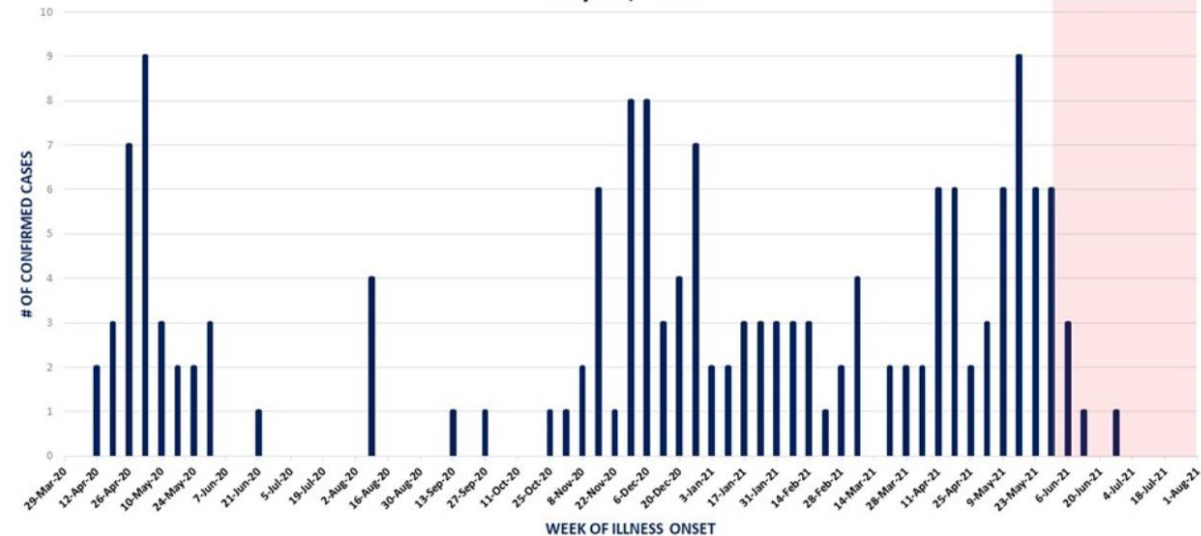
# Cases Confirmed and Reported to CDC*	160
MIS-C associated Deaths	5 or fewer
Cases admitted to ICU	113 (70.6%)
Onset Date Range	4/14/20 to 7/2/2021
Age Range	0-20 years

*Meets CDC Case definition
<https://emergency.cdc.gov/han/2020/han00432.asp>

DEMOGRAPHIC INFORMATION (N=160)

Age Group	Count	%	Race	Count	%
0-4 yrs	42	26.3%	Black/African American	70	43.7%
5-10 yrs	65	40.6%	Caucasian	66	41.3%
>10 yrs	53	33.1%	All Others / Unknown	24	15.0%
Gender	Counts	%	Ethnicity	Count	%
Male	92	57.5%	Not Hispanic or Latino	114	71.3%
Female	68	42.5%	Hispanic or Latino	12	7.5%
Unknown	0	0.0%	Unknown	34	21.2%

Confirmed Cases of MIS-C by Week of Onset in Michigan from April, 2020 through July 29, 2021



*The shaded red area represents the most recent eight weeks of data, in which reporting of cases is still incomplete. The actual number of MIS-C cases during this period is likely larger and these numbers will increase as additional case reports are incorporated.

Source: [MDHHS and MIS-C Data and Reporting](#)

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SARS-CoV-2 can Negatively Impact Children Directly and Indirectly

- While many school-aged children fully recover from COVID-19, 1 in 20 can experience symptoms last longer than four weeks and 1 in 50 can experience symptoms for more than 8 weeks

Illness duration and symptom profile in symptomatic UK school-aged children tested for SARS-CoV-2

Erika Molteni, Carole H Sudre*, Liane S Canas, Sunil S Bhopal, Robert C Hughes, Michela Antonelli, Benjamin Murray, Kerstin Kläser, Eric Kerfoot,*

- Children Experience Many Indirect Impacts when there is uncontrolled spread of SARS-CoV-2
 - Loss of loved ones/caregivers: more than 136,000 children in the US lost a primary or secondary care giver ([orphanhood-report.pdf \(cdc.gov\)](#))
 - Adverse outcome to mental and physical health
 - Interferences with developmental milestones

Sources: [Aerosol Dynamics Model for Estimating the Risk from Short-Range Airborne Transmission and Inhalation of Expiratory Droplets of SARS-CoV-2](#); [Southern Nevada Health District](#); [LA County](#); [Retraction Notice](#).

National Comparison

Spread

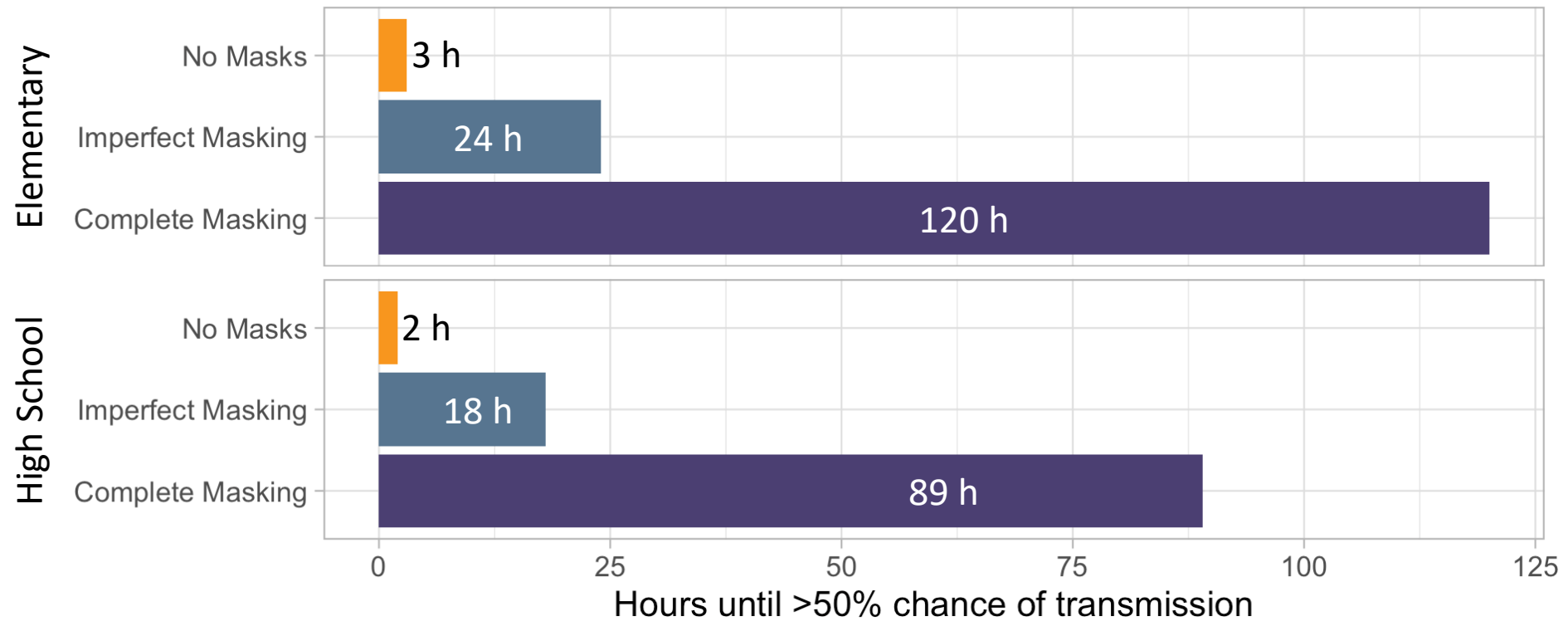
Public Health
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Modeling: Masks can substantially reduce transmission in school settings

If 1 infectious child attends a class of 25 students, how long does it take for there to be a >50% chance of transmission occurring?



Estimates from the [COVID-19 Indoor Safety Guideline](#), based on [Bazant and Bush, A guideline to limit indoor airborne transmission of COVID-19, PNAS 2021](#). Simulations assume: delta strain, normal talking (not singing/etc.), with child age group for elementary and average between adult and child age groups for high school. Vaccine coverage was assumed to be 0% for elementary and 33% for high school, based on age-specific coverage rates as of 8/6/21. We assumed 95% mask fit/compliance for 'Complete Masking' and 75% for 'Imperfect Masking'.

Low SARS-CoV-2 Transmission in Elementary Schools — Salt Lake County, Utah, December 3, 2020–January 31, 2021

Weekly / March 26, 2021 / 70(12);442–448

- Layered strategy: high adherence to masking + classroom cohorting and other measures—but classroom seats were a median of 3 ft apart
- “In a high community transmission setting, low school-associated transmission was observed with a 0.7% secondary attack rate.”

Pilot Investigation of SARS-CoV-2 Secondary Transmission in Kindergarten Through Grade 12 Schools Implementing Mitigation Strategies — St. Louis County and City of Springfield, Missouri, December 2020

Weekly / March 26, 2021 / 70(12);449–455

Layered prevention strategies including masking

Secondary transmission in only 2 of 102 close contacts tested

Clusters of SARS-CoV-2 Infection Among Elementary School Educators and Students in One School District — Georgia, December 2020–January 2021

Weekly / February 26, 2021 / 70(8);289–292

Five of the nine transmission clusters involved inadequate mask use by students

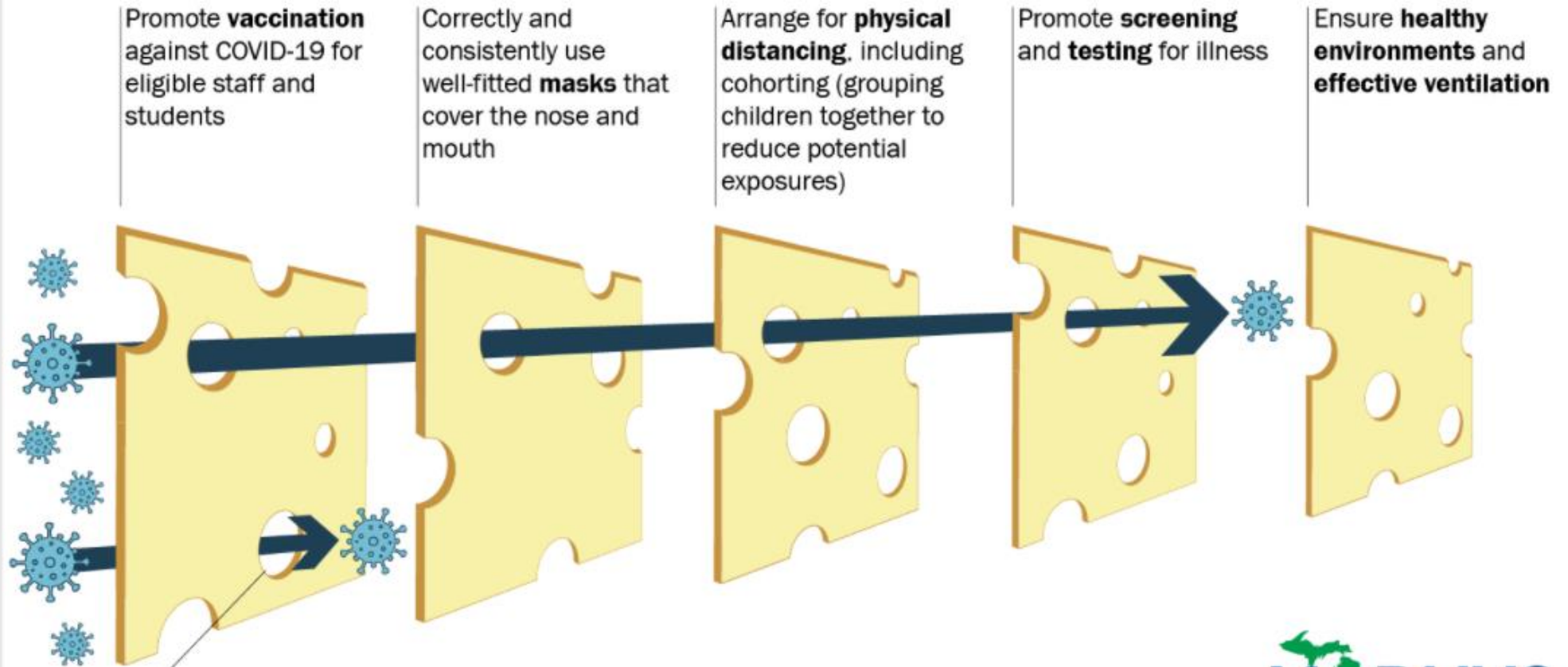
Layers of Defense Against COVID-19 in Schools

CDC recommended prevention strategies can be layered in different ways – the number and intensity of the layers can increase if community transmission increases

As community transmission increases, more holes appear in the defenses, meaning more layers of protection may be needed.



As the vaccination rate within a building or facility increases, fewer holes will appear in the defenses.



Holes in our defenses show that no one intervention is perfect, but layering them together increases success.

Implementing COVID-19 Prevention Strategies in the Context of Varying Community Transmission Levels and Vaccination Coverage Can Protect People and Limit Spread

Public health systems needs to assess use of prevention strategies to avoid stressing health care capacity to provide adequate COVID-19 and non-COVID-19 care

CDC recommends five critical factors be considered to inform local decision making:

- 1) Level of SARS-CoV-2 community transmission
- 2) Health system capacity
- 3) COVID-19 vaccination coverage
- 4) Capacity for early detection of increases in COVID-19 cases
- 5) Populations at increased risk for severe outcomes from COVID-19

Proven effective strategies against transmission, beyond vaccination:

- 1) Using masks consistently and correctly
- 2) Maximizing ventilation
- 3) Maintaining physical distance and avoiding crowds
- 4) Staying home when sick
- 5) Handwashing
- 6) Regular cleaning of high-touch surfaces

Prevention strategies should be strengthened or added if transmission worsens.

Prevention strategies should only be relaxed after several weeks of continuous improvement in level of community transmission



Sources: [Guidance for Implementing COVID-19 Prevention Strategies in the Context of Varying Community Transmission Levels and Vaccination Coverage](#)

National Comparison

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