MI COVID RESPONSE DATA AND MODELING UPDATE

NOTE: All data as of August 1 unless otherwise noted

August 2, 2021

Executive summary

Michigan is currently in Moderate Transmission

Percent Positivity (5.8%) is increasing for five weeks (up from 4.1% last week), and **Case Rate** (49.5 cases/million) have increased for one month (up from 29.5 last week)

Michigan has the **26th lowest number of cases (31st last week),** and **7th lowest case rate (8th last week)** in the last 7 days (source: CDC COVID Data Tracker)

Percent of inpatient beds occupied by individuals with COVID (1.9%) has increased for three weeks (up from 1.6% last week).

Michigan has the **8th lowest inpatient bed utilization (9th last week),** and the **11th lowest adult ICU bed utilization (11th last week)** in the country (source: US HHS Protect)

Deaths (0.4 deaths/million) are plateaued (0.3 deaths/million last week). There were 25 COVID deaths between Jul 20 and Jul 26.

Michigan has the **T28th lowest number of deaths (T38th last week),** and **T9th lowest death rate (T18th last week)** in the last 7 days (source: CDC COVID Data Tracker)

The 7-day average **state testing rate** has increased to 1,842.2 tests/million/day. **Daily diagnostic tests (PCR)** is 13.0K per day, and the **weekly average for PCR and antigen tests** conducted in Michigan is 25.1K.

9.83 million **COVID-19 vaccine** doses reported to CDC, 4.89 million people have completed their vaccine series

Agenda

Status of COVID-19 Epidemiological Risk

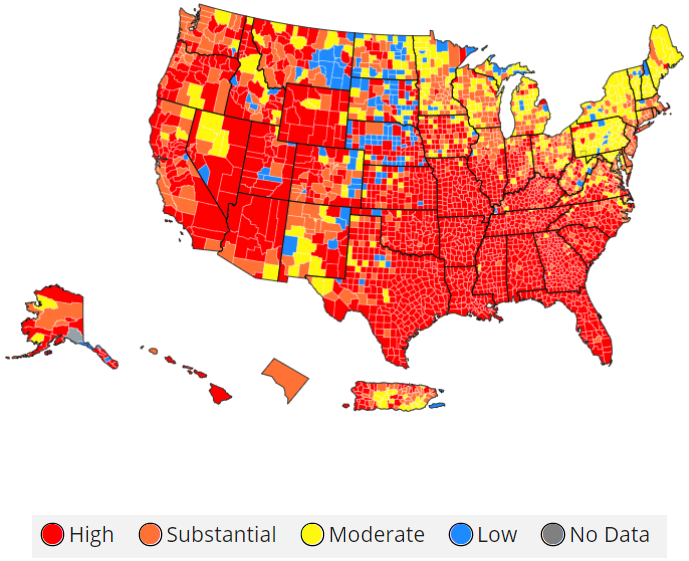
- **State-by-state comparison of epidemic spread**
- Michigan epidemic spread
- Public health response

Science round-up

Global and National Comparisons

What we see today (data through 8/2):

- Globally, 198,513,748 cases and 4,228,153 deaths
- Countries with the highest number of cases are U.S. (35,007,081), India (31,695,958), and Brazil (19,938,358)
- Within the U.S., North Dakota (14,650 per 100,000), Rhode Island (14,569/100,000), & South Dakota (14,154/100,000) lead the nation in cumulative case rates
- Michigan currently has identified 14,224 variants of concern (VOC)*
  - Cumulatively, the vast majority are B.1.1.7 (13,638 which is 95.9%)
    - Other VOCs include B.1.351 (0.6%), P.1 (2.3%) and B.1.617.2(1.2%)
  - Using specimen collection date, there have been 99 VOC reported in the 4 most recent weeks
    - 127 Delta (B.1.617.2) 96%
    - 5 Alpha (B.1.1.7) 4%



Key Messages: COVID-19 Spread

Statewide positivity has increased to 5.8% (last week: 4.1%)

- One week percent change is up 40% (vs. up 46% last week)
- Increasing for five weeks (up 370% since Jun 26 low)
- Positivity is increasing in all MERC regions and two regions are >7%

Case rate (49.5 cases/million) is at an incidence plateau (last week: 29.5 cases/million)

- One week increase of 43% (vs. 26% increase last week)
- Increasing for one month (257% increase since Jun 26 low)
- Cases per million are increasing in all MERC regions
- Select variants in Michigan: 13,645 confirmed Alpha (B.1.1.7); 85 confirmed Beta (B.1.351); 328 confirmed Gamma (P.1); and 233 confirmed Delta (B.1.617.2)

Michigan is in Moderate Transmission level

- 24 counties met substantial transmission and 7 county met high transmission level and CDC would recommend all individuals, regardless of vaccination status, should mask indoors
- The U.S. is at high transmission level (133.4 cases/100,000 in last 7 days) with 48 states/jurisdictions in substantial or high transmission

Number of active outbreaks is up 112% from last week

- Forty-two new outbreaks were identified in the past week
- Long-Term Care/Skilled Nursing Facilities reported the most new and ongoing outbreaks this week

Confirmed and probable case indicators

Table Date: 8/2/2021 (7 days from date table was produced: 7/26/2021)

Risk levels: Low | A | B | C | D | E

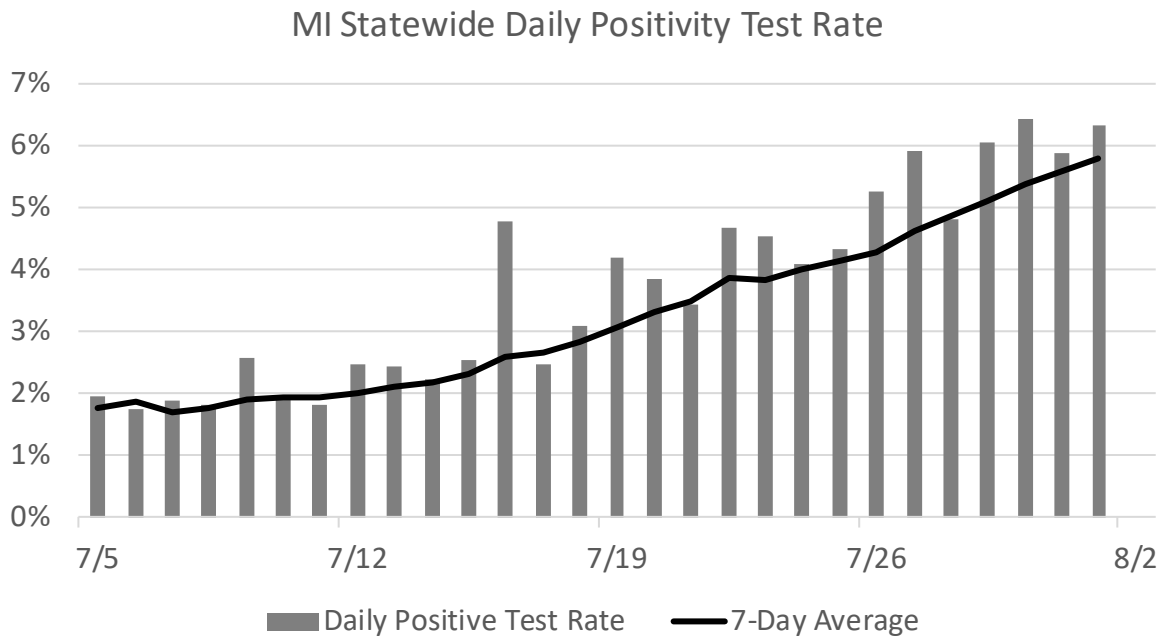
	Overall Risk Level	Absolute Cases (per million)	CDC Case Trend	Average Percent Positivity	Positivity Trend	Tests (per million)	% IP Beds Occupied by COVID-19 Cases	% Occupied IP Beds Trend	Absolute Deaths (per million)	Death Trend
Detroit	C	46.5	elevated incidence growth	5.1	Increase - 2wk	1392.5	1.9	Increase - 2wk	0.2	<20 wkly deaths
Grand Rapids	C	42.6	elevated incidence growth	5.5	Increase - 4wk	1234.8	1.7	Increase - 2wk	0.7	<20 wkly deaths
Kalamazoo	D	74.0	elevated incidence growth	7.9	Increase - 4wk	1159.4	2.9	Decrease - 1wk	0.0	<20 wkly deaths
Saginaw	C	53.9	elevated incidence growth	7.6	Increase - 4wk	1009.9	0.8	Increase - 1wk	0.9	<20 wkly deaths
Lansing	C	50.2	elevated incidence growth	5.9	Increase - 5wk	1245.1	2.1	Increase - 2wk	0.2	<20 wkly deaths
Traverse City	C	50.5	elevated incidence growth	5.4	Increase - 1wk	1087.5	1.7	Increase - 1wk	0.6	<20 wkly deaths
Jackson	C	55.1	elevated incidence growth	5.8	Increase - 4wk	1099.2	2.5	Increase - 2wk	0.9	<20 wkly deaths
Upper Peninsula	B	40.0	elevated incidence plateau	3.4	Increase - 1wk	988.0	1.0	Increase - 2wk	0.0	<20 wkly deaths
Michigan	C	49.5	elevated incidence growth	5.8	Increase - 5wk	1314.7	1.9	Increase - 2wk	0.4	Plateau – 3wk

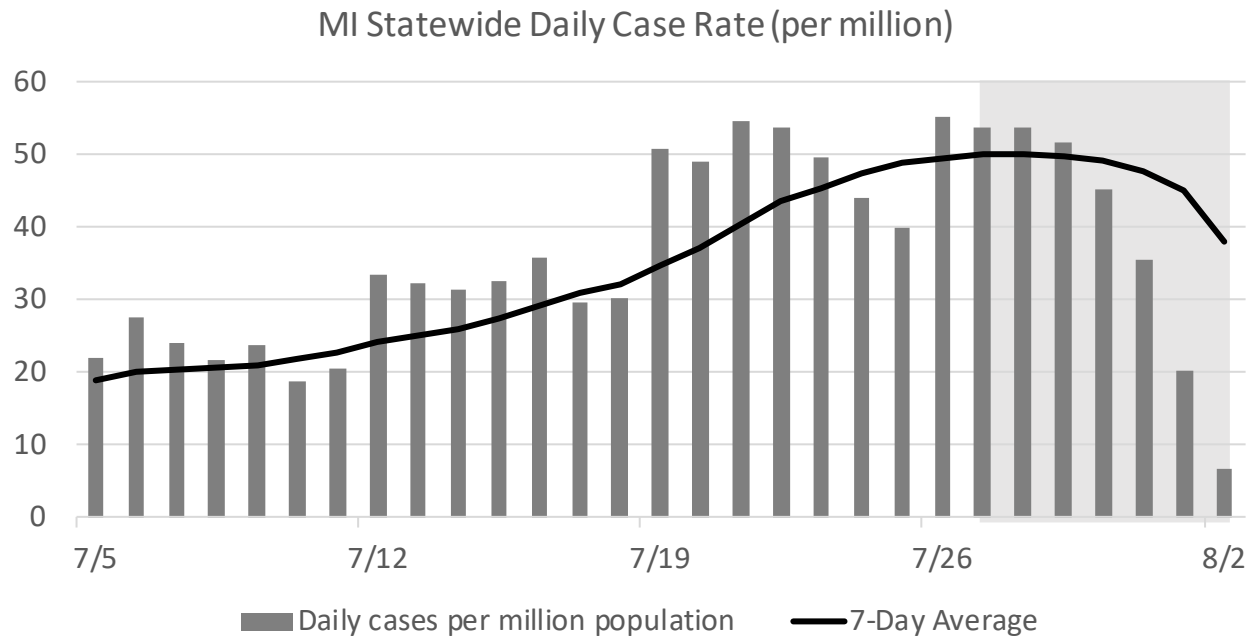
Cases Low: <7 | A: 7-20 | B: 20-40 | C: 40-70 | D: 70-150 | E: >=150

Positivity Low: <3% | A: 3-7% | B: 7-10% | C: 10-15% | D: 15-20% | E: >=20%

PUBLIC HEALTH

Percent Positivity and Case Rate Trends





- Positivity has been gradually increasing for the previous five weeks
- Case rates have been increasing for a month and growth rate is increasing more rapidly

*Source: MDSS and MiStartMap.info, cases displayed by onset date

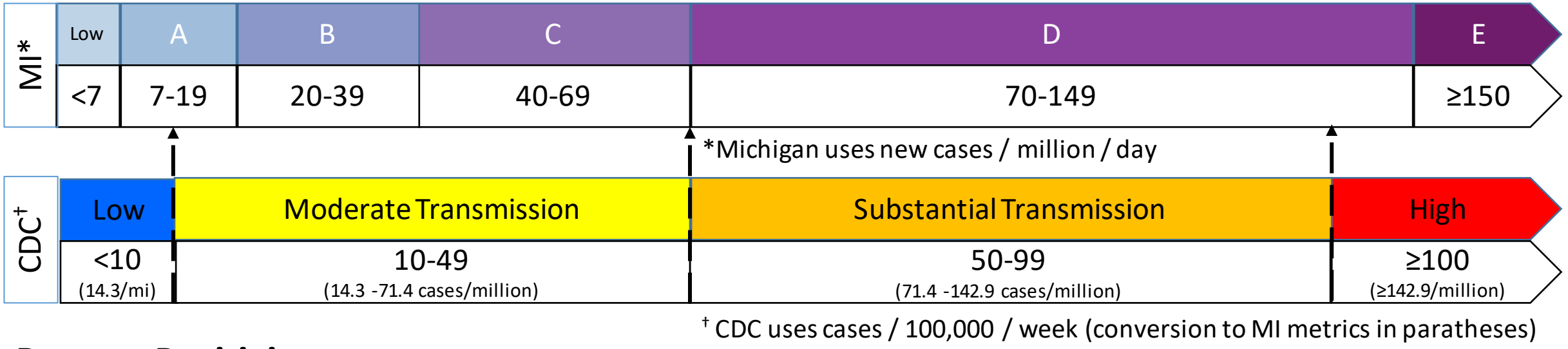
Overview of metrics for individuals <12 years

	Region	Population (<12 yrs)	Population (<18 yrs)	Cumulative Case Count (<12 yrs)	7-day Average Daily Case Count (<12 yrs)	7-day Average Daily Case Rate per Million (<12 yrs)	7-day Average Daily Pediatric Hospitalization Count (<18 yrs)	7-day Average Daily Pediatric Hospitalization Rate per Million (<18 yrs)	7-day Average Daily Death Count (<12 yrs)
1	Detroit	735529	1134247	29139	25.0	34.0	25.1	22.1	0
2	Grand Rapids	230120	350652	9951	6.9	30.0	0.4	1.1	0
3	Kalamazoo	140422	214801	5405	5.9	42.0	2.9	13.5	0
4	Saginaw	78759	122834	3295	2.4	30.5	0.0	0.0	0
5	Lansing	78140	119915	3220	5.0	64.0	0.9	7.5	0
6	Traverse City	53099	83462	1569	1.9	35.8	0.3	3.6	0
7	Jackson	41274	64091	1512	1.6	38.8	0.1	1.6	0
8	Upper Peninsula	34645	53875	1424	1.4	40.4	0.0	0.0	0
99	Michigan	1391988	2143877	55561	50.4	36.2	29.7	13.9	0

Note: Data as of 8/2; case data 7/26, hospitalization data 8/2. Hospitalization data is for pediatric patients (<18)

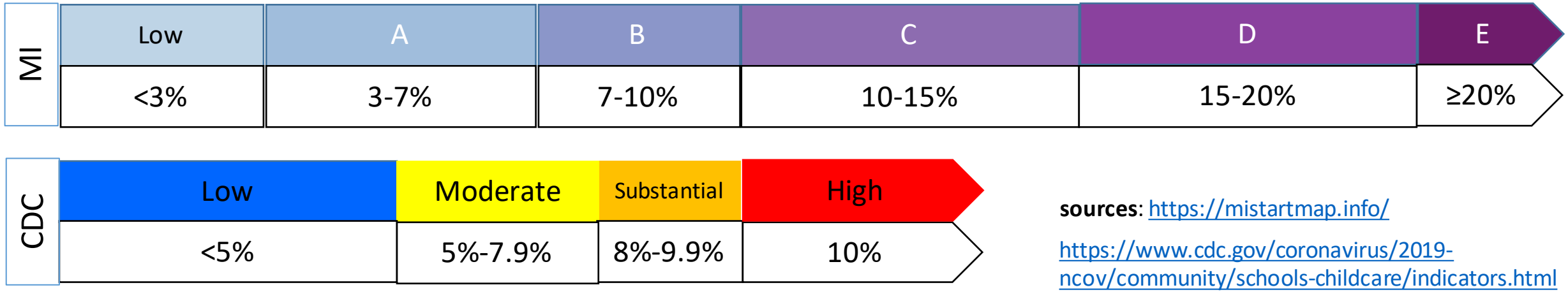
Comparing CDC community transmission thresholds to MI levels

Case Rate*†



† CDC uses cases / 100,000 / week (conversion to MI metrics in paratheses)

Percent Positivity



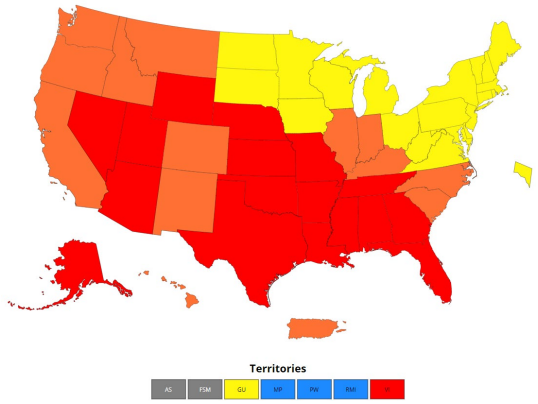
sources: https://mistartmap.info/

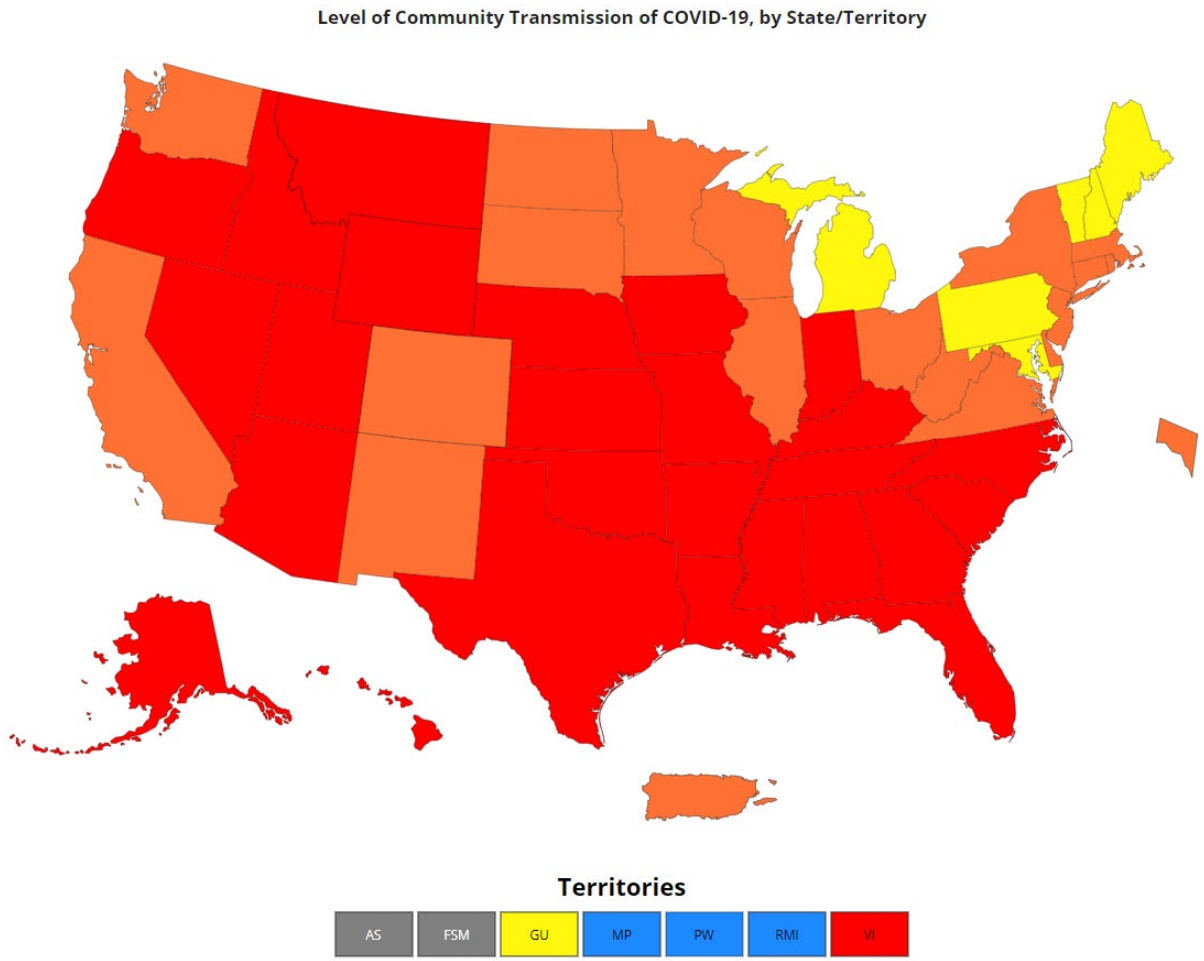
https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/indicators.html

CDC Transmission Levels, U.S. state (data through 8/2/2020)

- Michigan is at moderate transmission level
  - 47.4/100,000/7day (CDC) (substantial is 50+)
  - 5.8% positivity
- The number of jurisdictions at low is the same from 7 days ago (3 blue colored jurisdictions)
- 20 jurisdictions have substantial transmission (orange states); up 7 from 7 days ago
- 27 jurisdictions have high transmission (red states); up 9 from 7 days ago

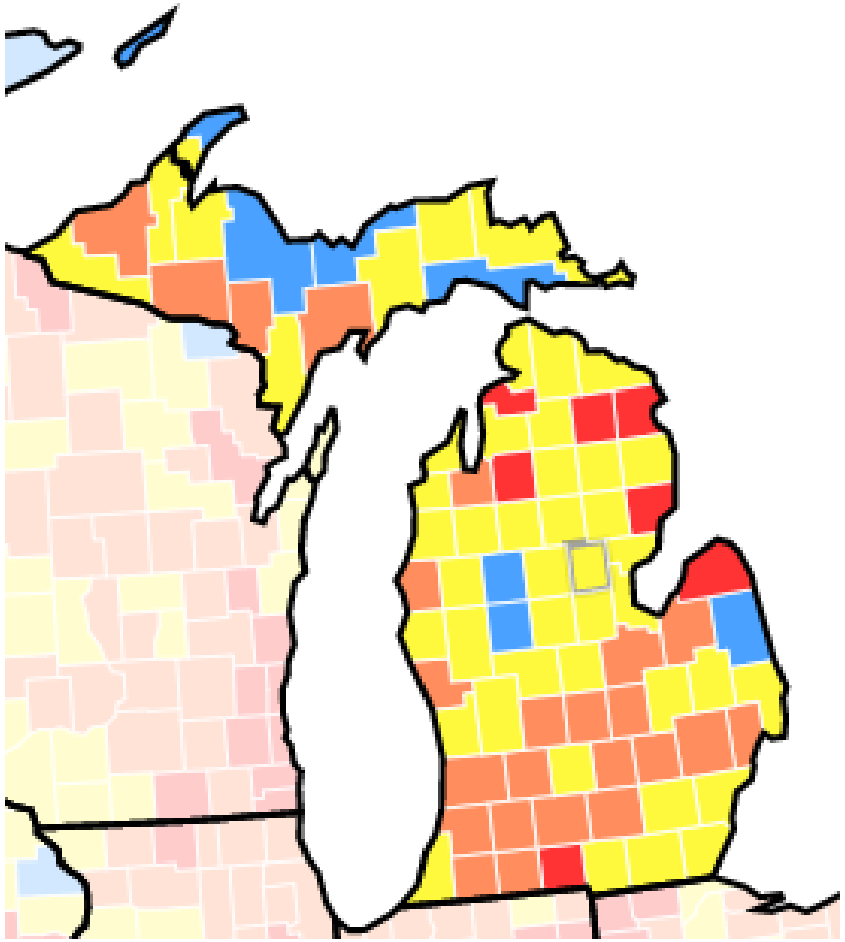
Last Week



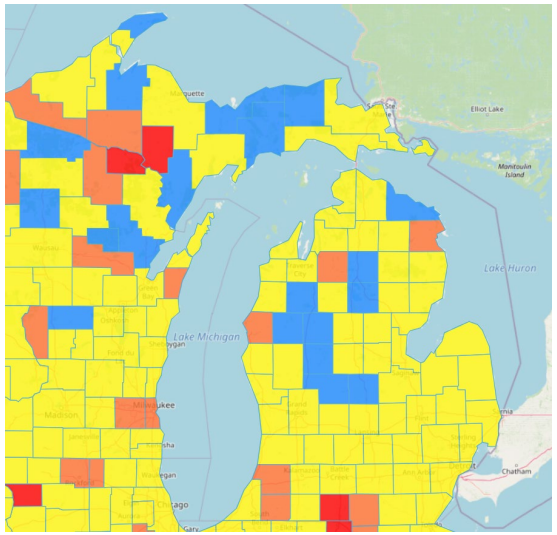


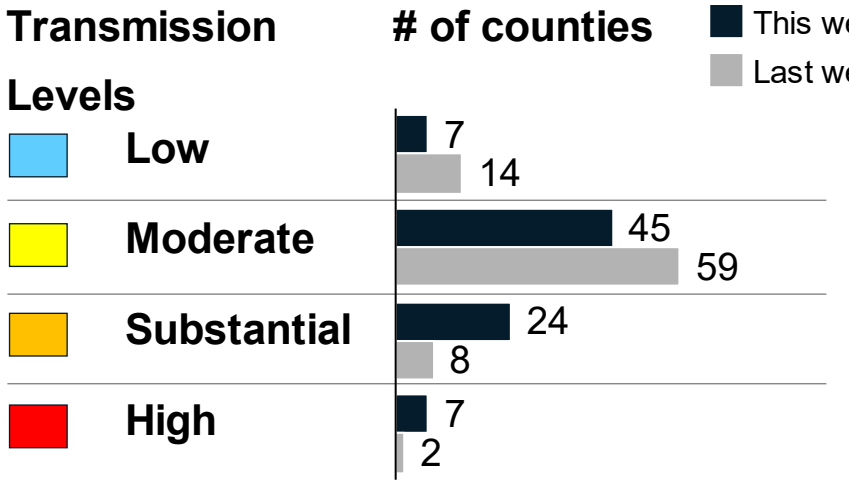
CDC County Transmission Levels, 8/2

This Week, 8/1



Last week, 7/24





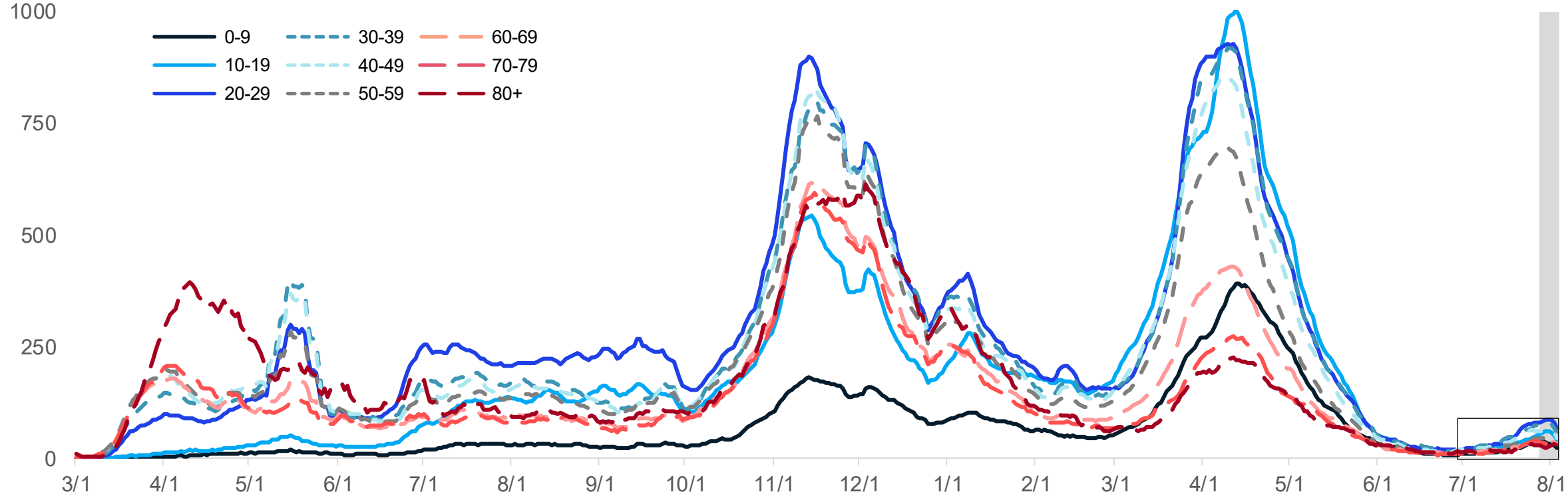
Updates since last week:

- 7 of 83 counties met low transmission level this week, a 7 county decrease from last week
- 45 of 83 counties met moderate transmission classification, an 14 county decrease
- 24 of 83 counties met substantial transmission classification, a 16 county increase from last week
- 7 of 83 counties met high transmission classification, a 5 county increase from last week

*Source: CDC Levels of Community Transmission at https://covid.cdc.gov/covid-data-tracker/#county-view

Age group: average new daily cases

Daily new confirmed and probable cases per million by age group (7-day rolling average)

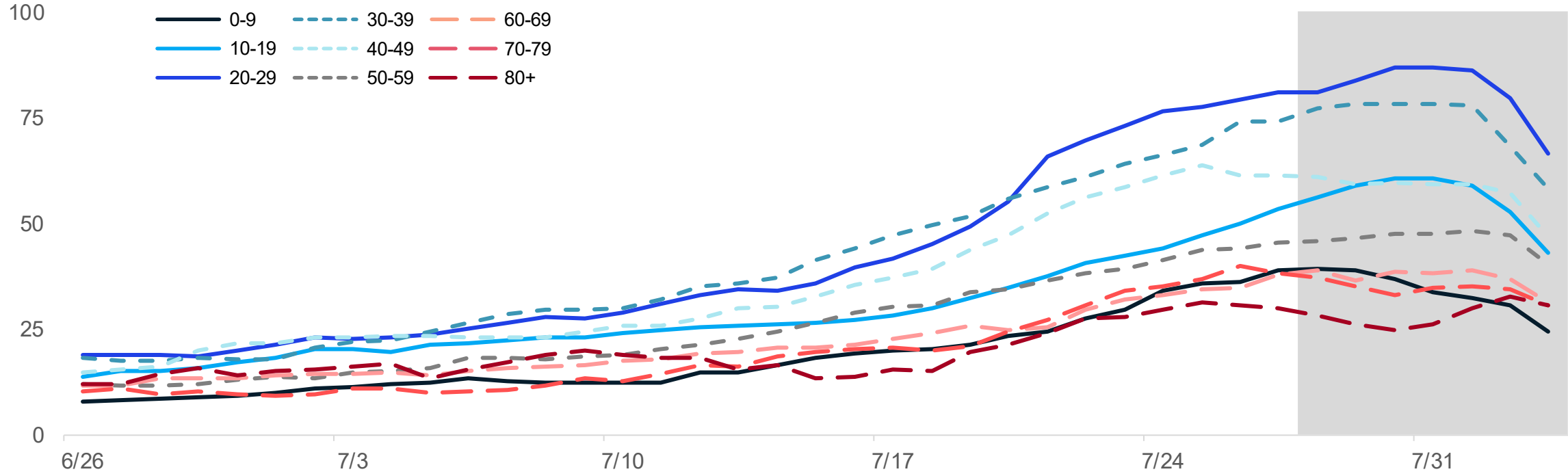


- Case rate trends for most age groups by decade are increasing
- Case rates for all age groups are between 30 and 81 cases per million (through 7/27)

Note: Case information sourced from MDHHS and reflects date of onset of symptoms
Source: MDHHS – Michigan Disease Surveillance System

Age group: average new daily cases, last 30 days

Daily new confirmed and probable cases per million by age group (7-day rolling average)



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Note: Case information sourced from MDHHS and reflects date of onset of symptoms
Source: MDHHS – Michigan Disease Surveillance System

Age group: average new daily cases and daily case rate

Daily new confirmed and probable cases per million by age group (7-day rolling average)

Age Group	Average daily cases	Average Daily Case Rate	One Week % Change (Δ #)
0-9	44.9	38.9	67% (+18)
10-19	66.9	**53.3**	53% (+23)
20-29	111.7	**81.0**	47% (+36)
30-39	90.0	**74.2**	33% (+22)
40-49	72.4	**61.4**	30% (+17)
50-59	61.3	45.4	32% (+15)
60-69	48.4	38.0	53% (+17)
70-79	29.3	38.2	56% (+11)
80+	12.4	30.0	40% (+1-5)
Total¶	538.9	49.5	43% (+106.3)

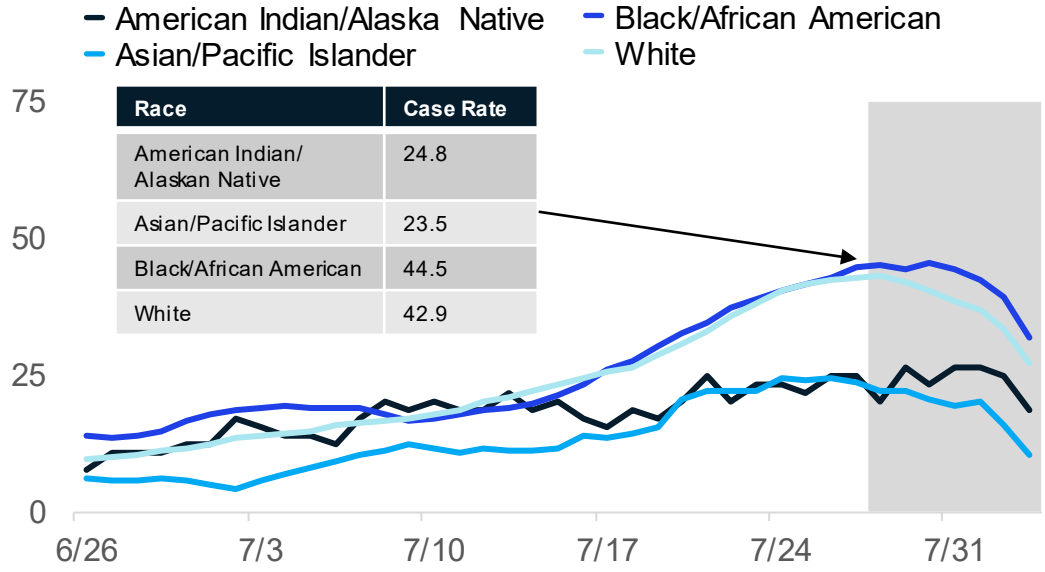
Note: Case information sourced from MDHHS and reflects date of onset of symptoms
Source: MDHHS – Michigan Disease Surveillance System

- Average daily number of cases (112) is highest for those aged 20-29
- Avg. daily case rate (81.0 cases/mil) is currently highest for 20-29
- Case rates for all age groups are between 30-81 cases per million
- Case rate trends are increasing
- Case rates bottomed out on June 26, 2021

* Highest 7-day avg. following spring 2021 surge
¶ Total may not reflect state due to missing age data

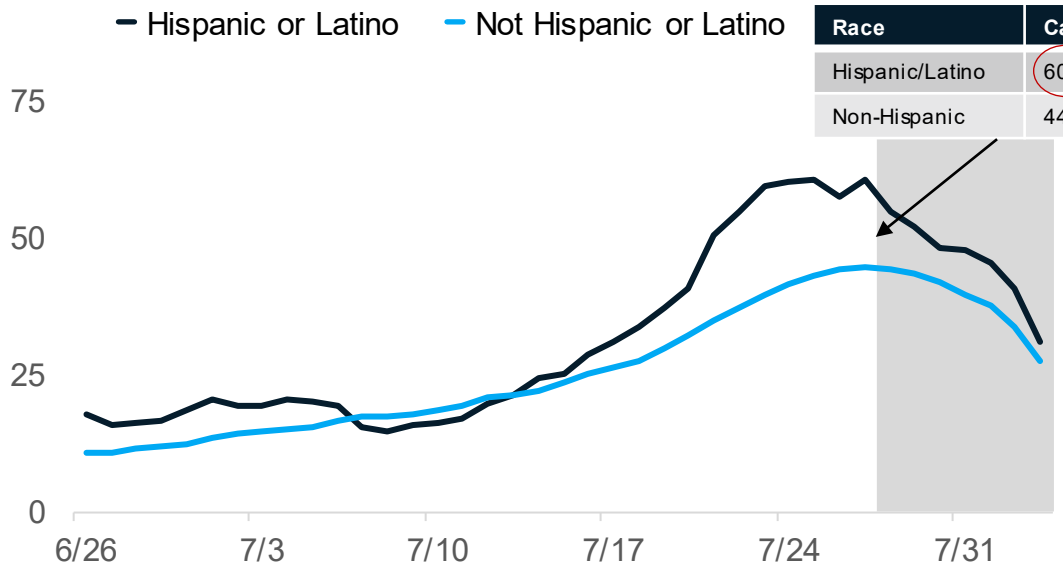
Average daily new cases per million people by race and ethnicity

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



Race	Case Rate
American Indian/ Alaskan Native	24.8
Asian/Pacific Islander	23.5
Black/African American	44.5
White	42.9

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



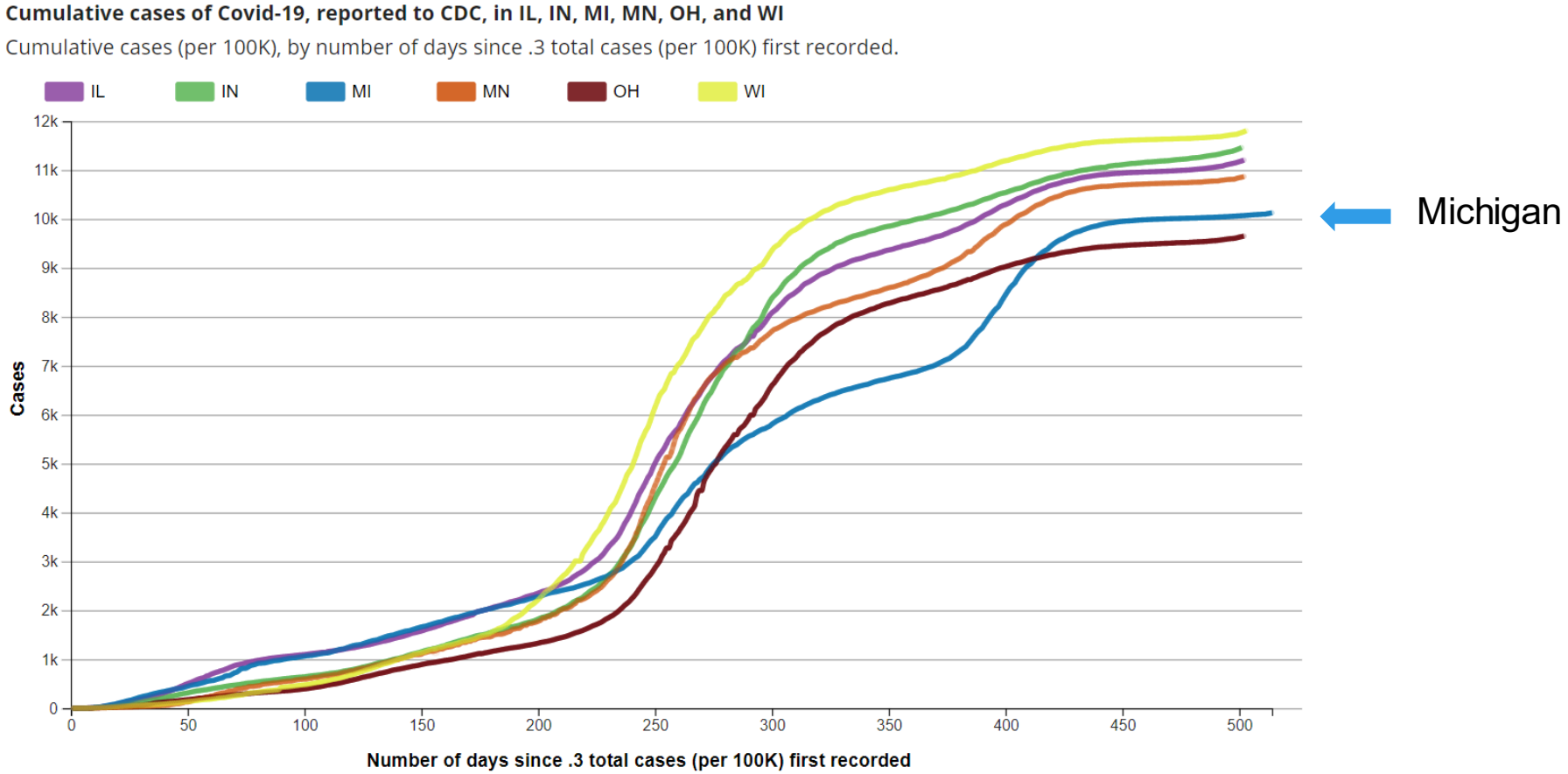
Race	Case Rate
Hispanic/Latino	60.7
Non-Hispanic	44.5

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% (↑1%) of race data and 20% (↑1%) 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

Cumulative COVID-19 Case Rates: Midwest Comparison

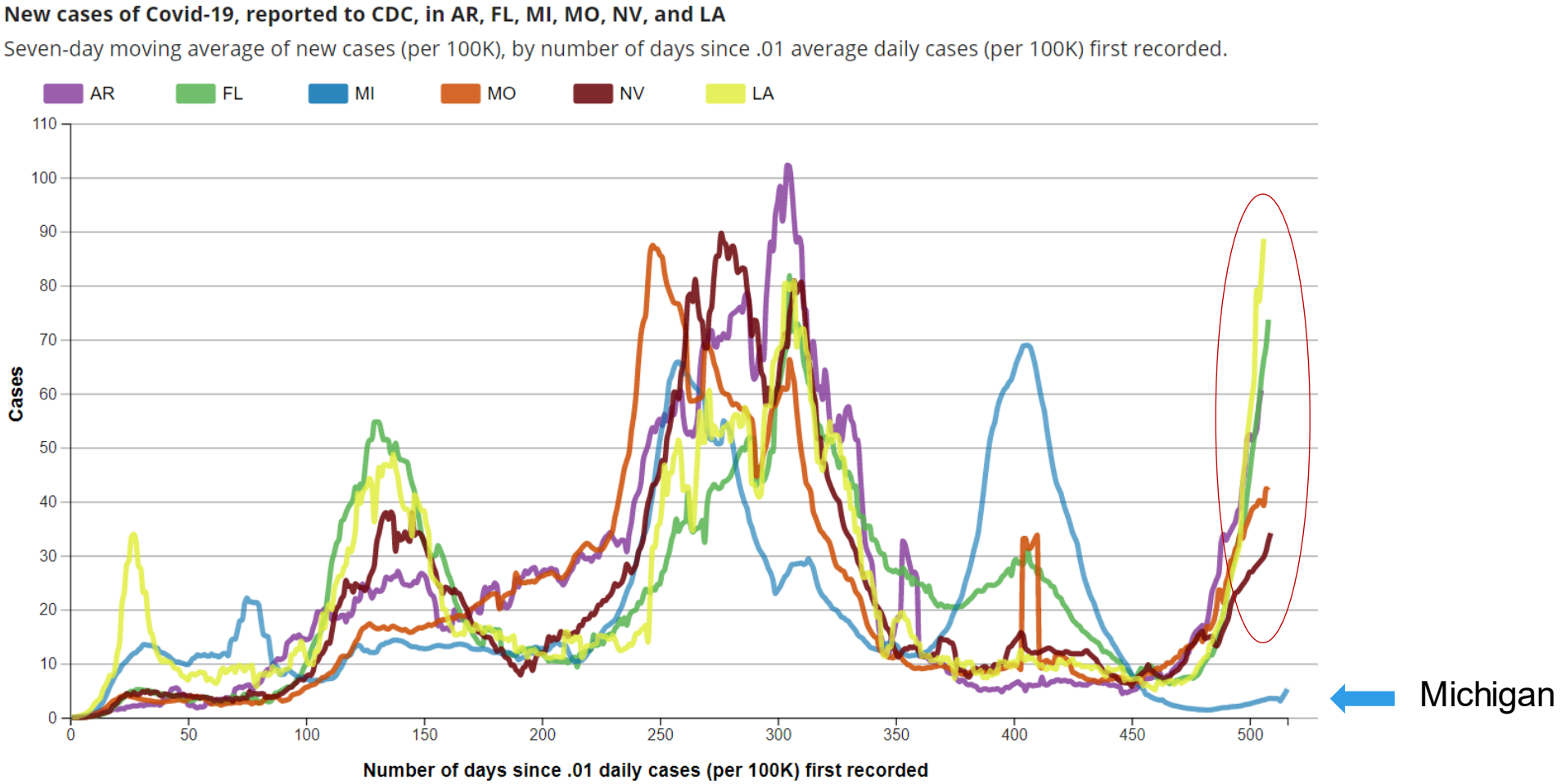


Michigan

- Cumulative incidence per 100,000 cases in Michigan has been lower than other states in the Midwest following spring 2020 surge
- Michigan's mitigation policies helped control the spread of SARS-CoV-2 relative to other states in the Midwest, particular during surge in November and December
- The current trajectory in Michigan continues to be in the range of cumulative case rates of our Midwest neighbors

Source: CDC – COVID Data Tracker

Cumulative COVID-19 Case Rates: States with high Delta Comparison



- Average daily incidence per 100,000 cases in Michigan is currently lower than other states experiencing a surge in delta cases

Source: CDC COVID Data Tracker – State Trend Comparison

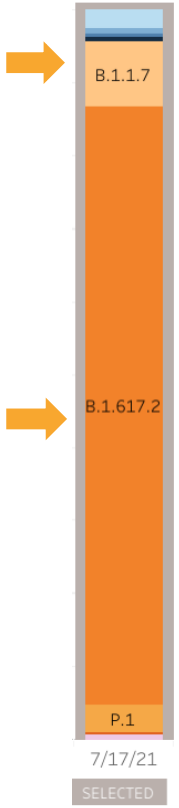
Variants, transmissibility, severity, and vaccine effectiveness

Strain	New WHO nomenclature	Transmissibility	Immune Invasiveness	Increased Severity	Vaccine effective at disease reduction?
Wild Type		-	-	-	✓
B.1.1.7	Alpha	~50% increased transmission	-	Increased hospitalizations and death	✓
B.1.351	Beta	~50% increased transmission	Reduced susceptibility to antibody treatment	-	✓
P.1	Gamma	-	Reduced susceptibility to antibody treatment	-	✓
B.1.427/B.1.429	Epsilon	~20% increased transmissibility	Modest decrease in susceptibility to monoclonal antibody treatment	-	✓
B.1.617.2	Delta	> 50% increased transmission	Reduced susceptibility to antibody treatment	Increased hospitalizations and death	✓

Source: CDC https://www.cdc.gov/coronavirus/2019-ncov/variants/variant-info.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fcases-updates%2Fvariant-surveillance%2Fvariant-info.html World Health Organization, accessed June 8, 2021. https://www.who.int/en/activities/tracking-SARS-CoV-2-variants/

Identified COVID-19 Cases Caused by All Variants of Concern (VOC) in US and Michigan

SARS-CoV-2 Variants Circulating in the United States, Jul 4 – Jul 17 (NOWCAST)



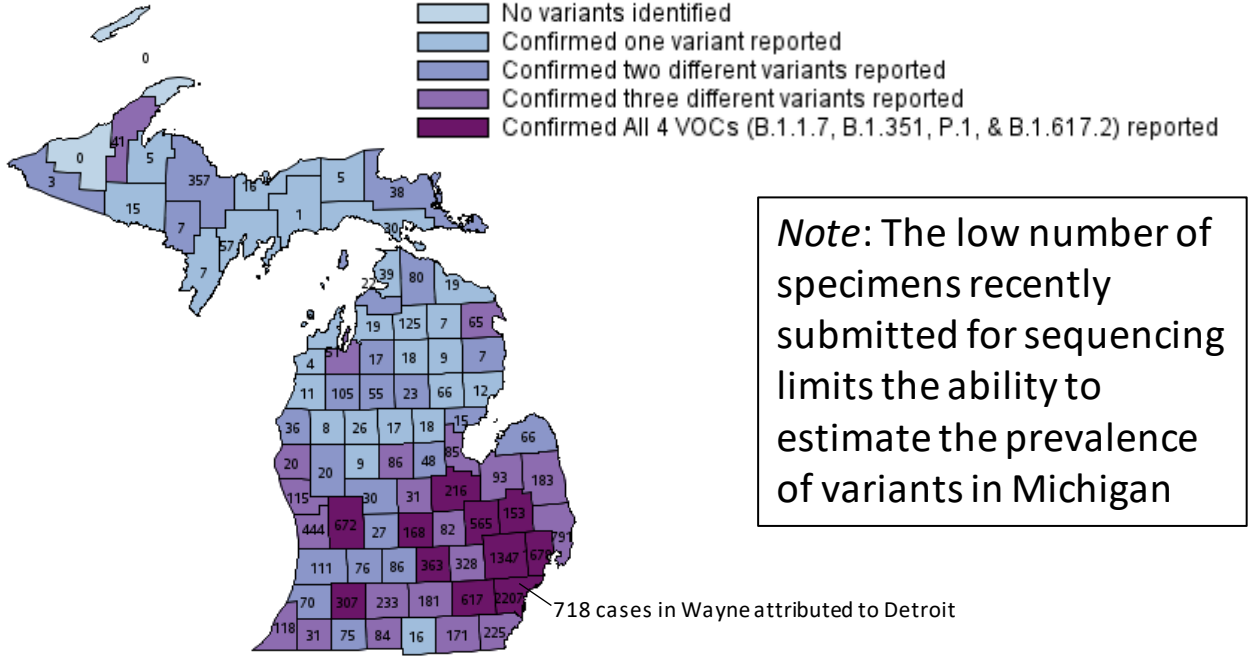
USA

Lineage		Type	%Total	95%PI
B.1.617.2	Delta	VOC	82.2%	78.3-86.0%
B.1.1.7	Alpha	VOC	9.0%	6.3-12.0%
P.1	Gamma	VOC	3.8%	2.0-5.8%
B.1.621			2.4%	1.0-4.0%
B.1.628			0.8%	0.0-1.8%
B.1.621.1			0.7%	0.0-1.5%
B.1.526	Iota	VOI	0.8%	0.0-1.8%
B.1.351	Beta	VOC	0.1%	0.0-0.5%
B.1.525	Eta	VOI	0.0%	0.0-0.2%
B.1.617.3		VOI	0.0%	0.0-0.2%
B.1.429	Epsilon	VOI	0.0%	0.0-0.2%
B.1.427	Epsilon	VOI	0.0%	0.0-0.2%
Other			0.4%	0.0-3.5%

* Other represents lineages each circulating at <1% of viruses over the last 4 weeks of weighted data.
** These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates
\# Sublineages of P.1 and B.1.351 (P.1.1, P.1.2, B.1.351.2, B.1.351.3) are aggregated with the parent lineage and included in parent lineage's proportion. AY.1, AY.2, and AY.3 are aggregated with B.1.617.2.

Data last updated Aug 3, 2021
Source: https://covid.cdc.gov/covid-data-tracker/#variant-proportions and MDSS

Variants of Concern in Michigan, Aug 3



Note: The low number of specimens recently submitted for sequencing limits the ability to estimate the prevalence of variants in Michigan

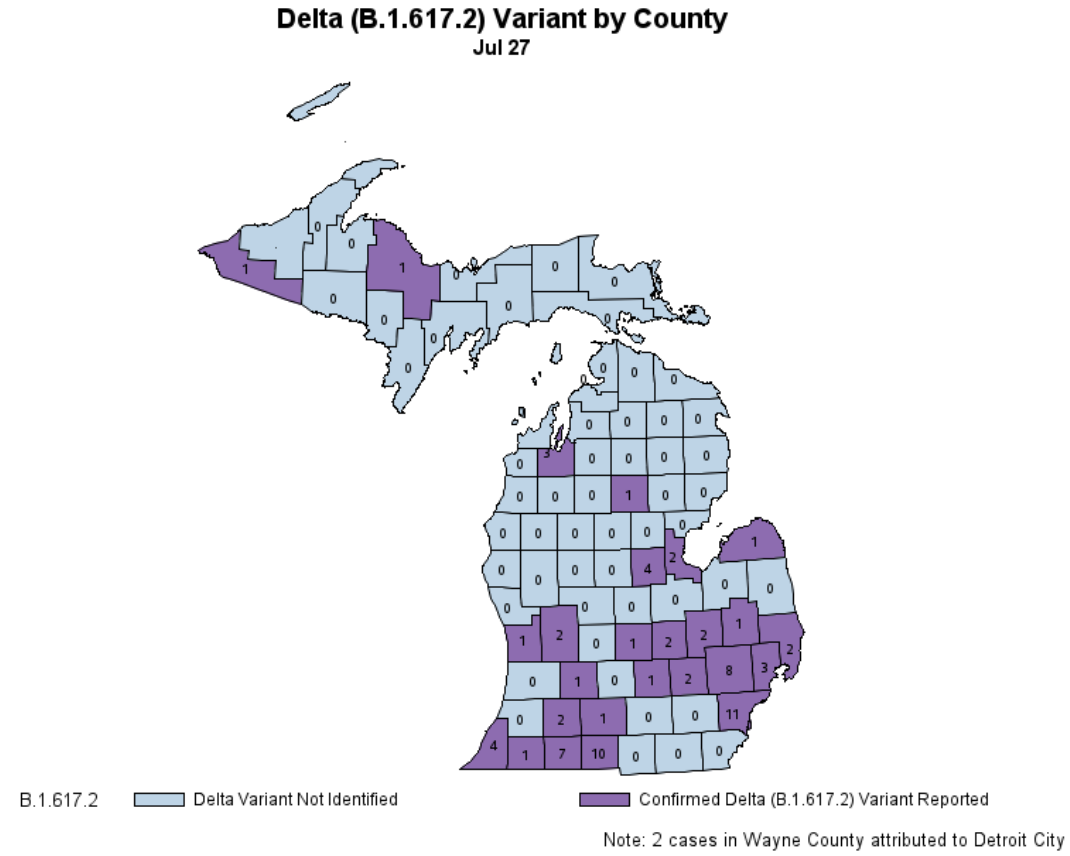
Variant	MI Reported Cases¶	# of Counties	CDC est. prevalence for MI
B.1.1.7 (alpha)	13,645*	81	NA
B.1.351 (beta)	85	24	NA
P.1 (gamma)	328	35	NA
B.1.617.2 (delta)	233(↑145)	39 (↑13)	NA

* 534 cases within MDOC; ¶ 37 cases with county not yet determined

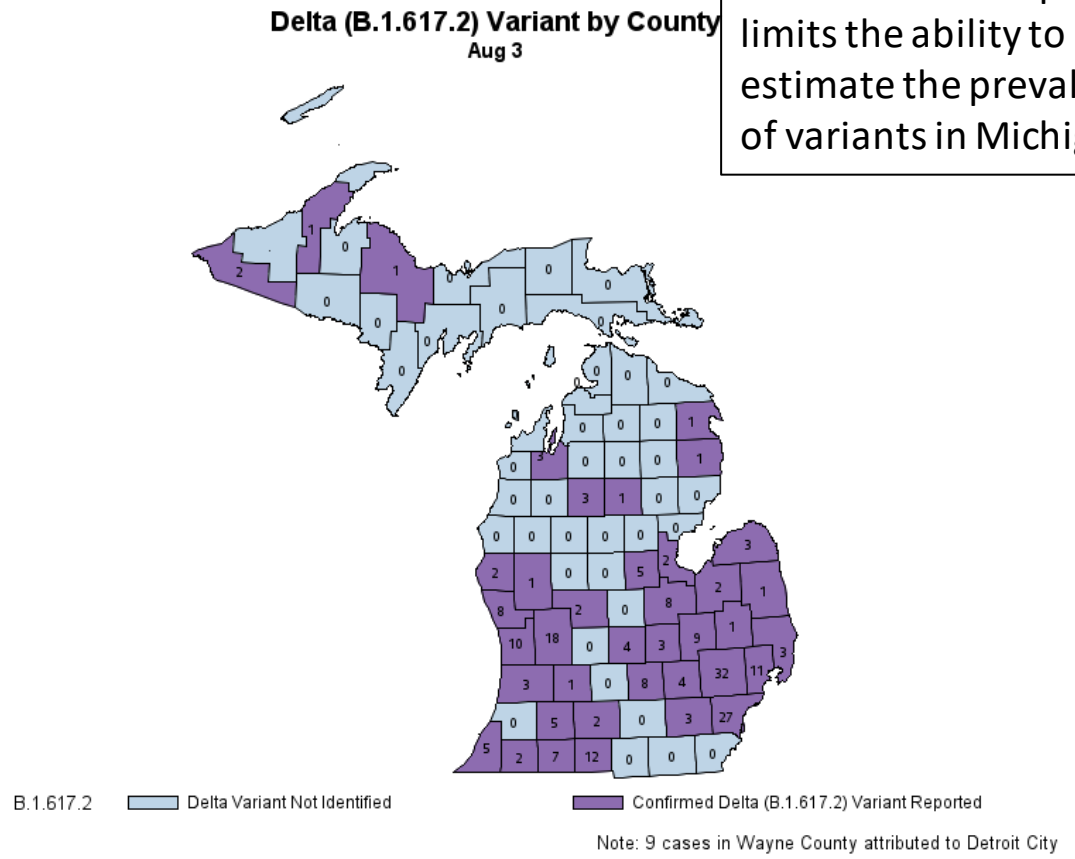
Identified COVID-19 Delta Variants by County

Note: The low number of specimens recently submitted for sequencing limits the ability to estimate the prevalence of variants in Michigan

Last week (Jul 27, 2021)

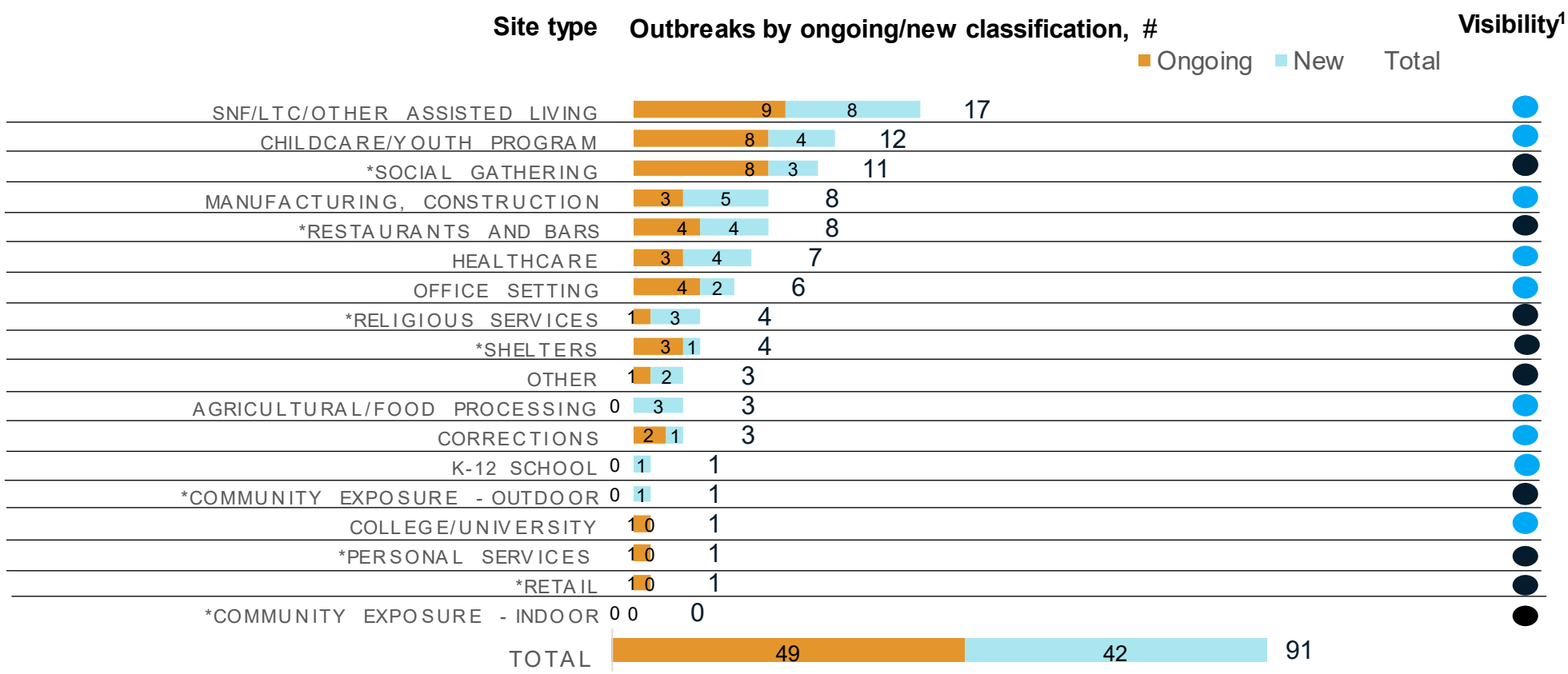


This week (Aug 3, 2021)



Data last updated Aug 3, 2021
Source: MDSS

Number of outbreak investigations by site type, week ending Jul 29



Total number of active outbreaks is **up 112%** from previous week, with 42 new outbreaks identified (21 more than last week)

SNF/LTC reported the greatest number of new outbreaks (8), followed by manufacturing/ construction (5), childcare/ youth programs, restaurants/ bars, and healthcare (4 each), and nine other settings with at least 1 new outbreak in the last week.

1. Based on a setting's level of control and the extent of time patrons/residents spend in the particular setting, different settings have differing levels of ability to ascertain whether a case derived from that setting

NOTE: Many factors, including the lack of ability to conduct effective contact tracing in certain settings, may result in significant underreporting of outbreaks. This chart does not provide a complete picture of outbreaks in Michigan and the absence of identified outbreaks in a particular setting in no way provides evidence that, in fact, that setting is not having outbreaks.

Source: LHD Weekly Sitreps

Key Messages: COVID-19 and Healthcare Capacity and COVID Severity

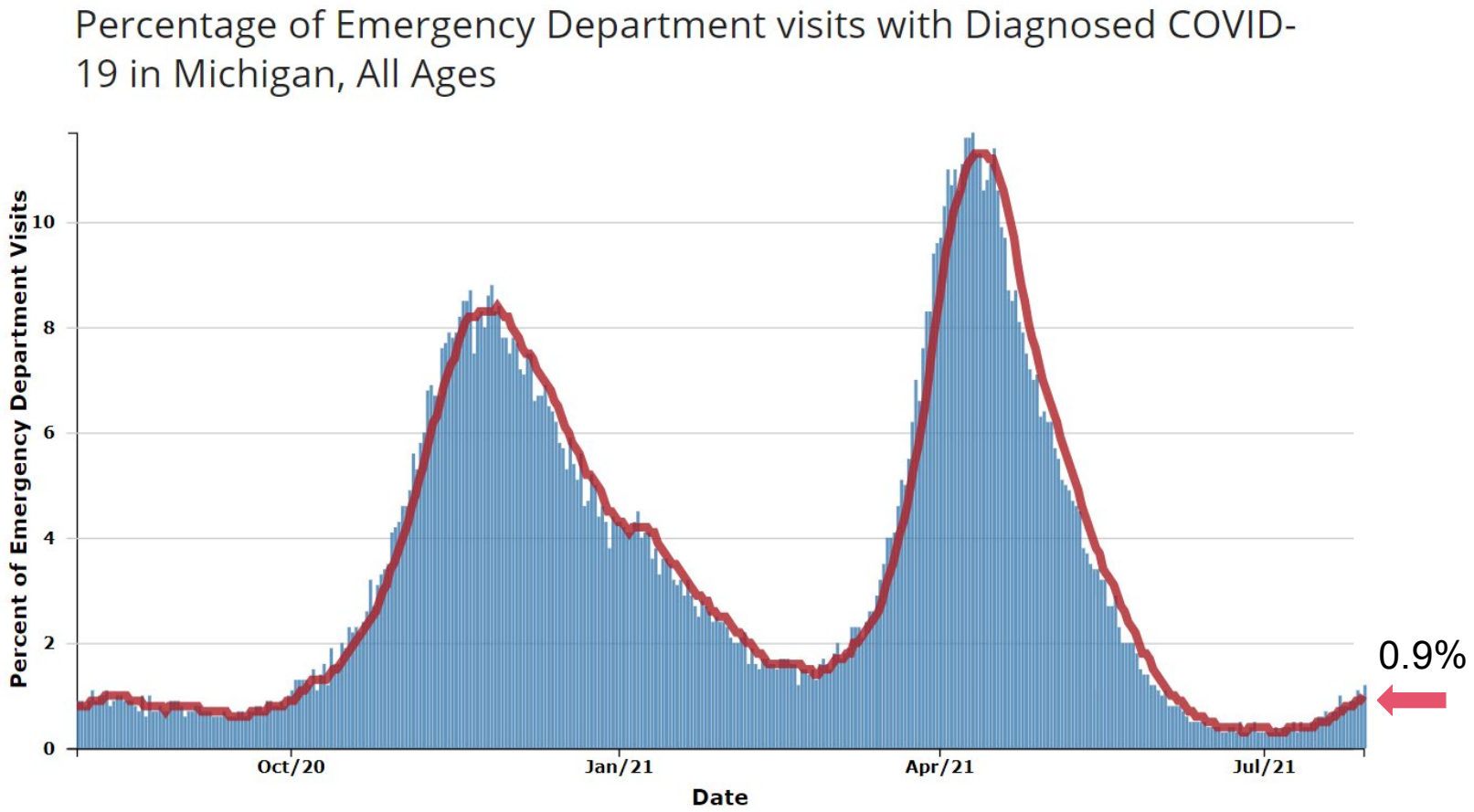
Hospitalizations and ICU utilization are plateaued or increasing

- COVID-like illness (CLI) is 0.9% (up from 0.7% last week)
- Hospital admissions are plateaued or increasing for most age groups
- Hospitalizations up 38% since last week (vs. 27% increase week prior)
- Seven regions are showing increasing trends in hospitalization trends this week
  - Hospitalization for COVID-19 is highest in Regions 2S and 7
- Volume of COVID-19 patients in intensive care has increased 38% since last week (vs. 34% increase last week)

Death rate is 0.4 daily deaths per million people

- Death rate has remained steady over the past week (vs. plateaued from last week)
- 95% decrease since April 24 peak
- Proportion of deaths among those under 60 years of age has declined from the prior week

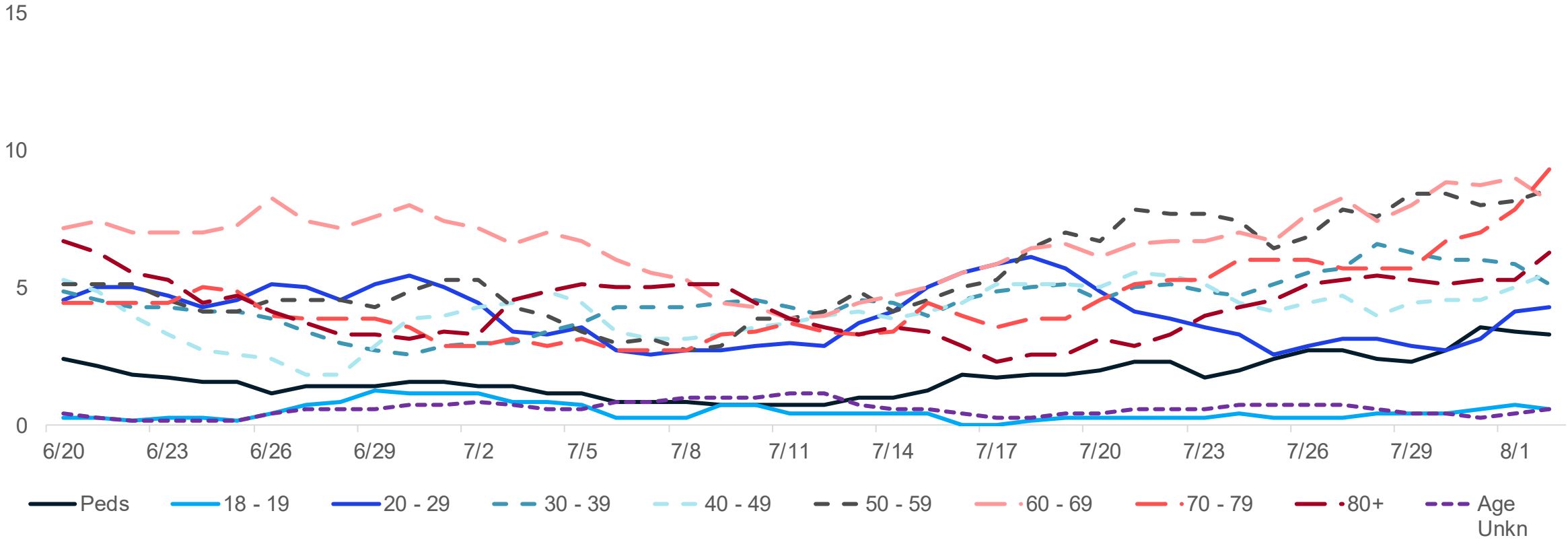
Michigan Trends in Emergency Department (ED) Visits for COVID-19-Like Illness (CLI)



- Trends for ED visits have increased to 0.9% since last week (up from 0.7% week prior)
- Trends vary by age groups with all age groups seeing an increase
- Over the past week, those 40-49 years have seen the highest number of avg. daily ED CLI visits, but those between 25 and 49 are all above the state average

Source: https://covid.cdc.gov/covid-data-tracker/#ed-visits

Average Hospital Admissions by Age

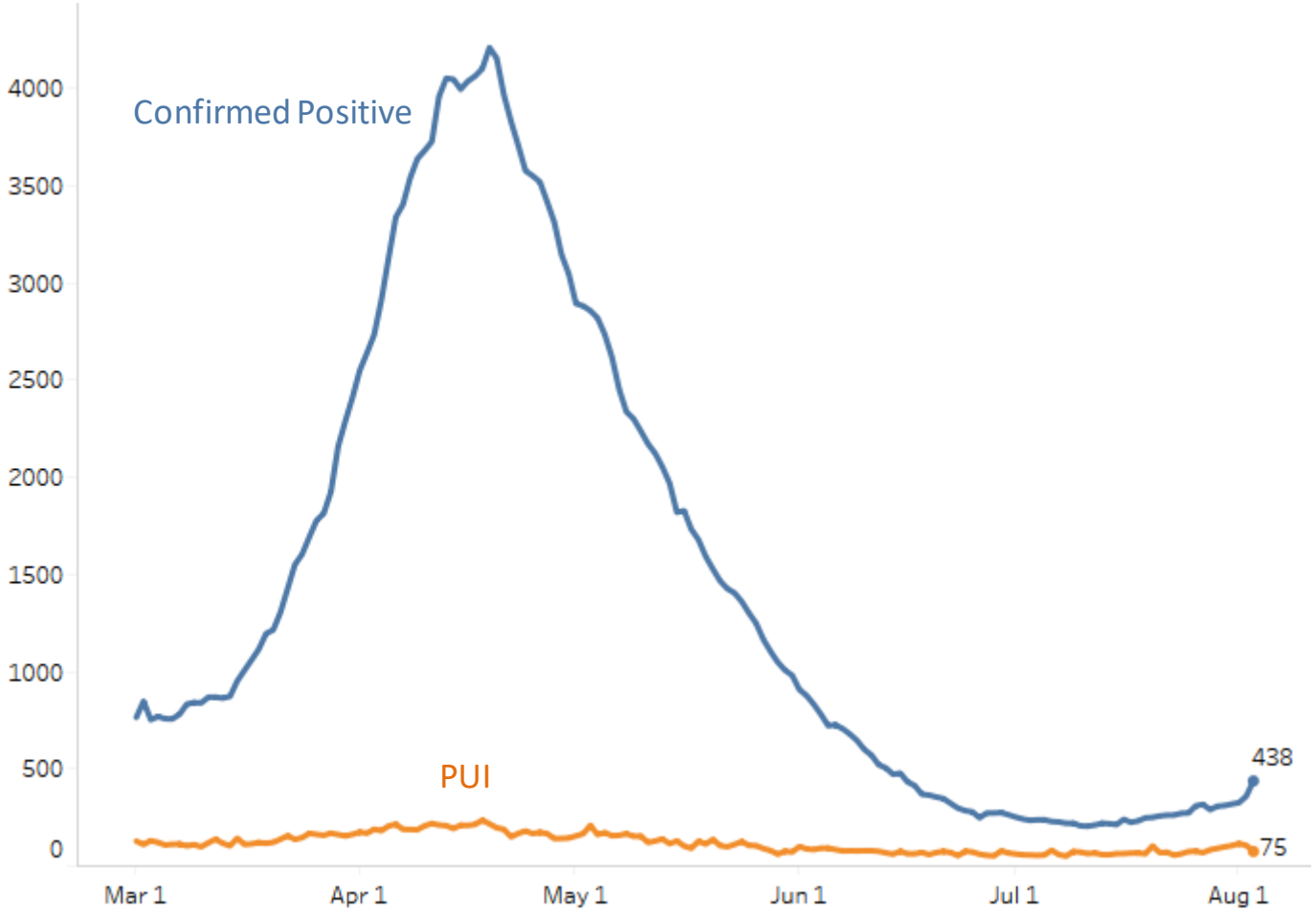


Source: CHECC & EM Resource

- Trends for daily average hospital admissions have increased 22% since last week (vs. 10% increase prior week)
- Trends within all age groups experiences increases in daily hospital admissions
- Over the past week, those 70-79 years have seen the highest number of avg. daily hospital admissions (9 admissions)

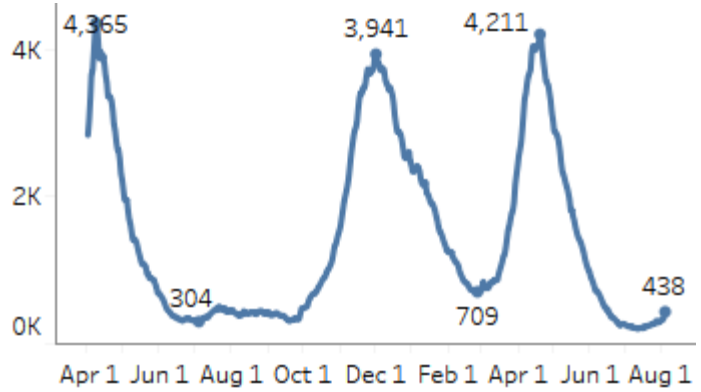
Statewide Hospitalization Trends: Total COVID+ Census

Hospitalization Trends 3/1/2021 – 8/3/2021
Confirmed Positive & Persons Under Investigation (PUI)



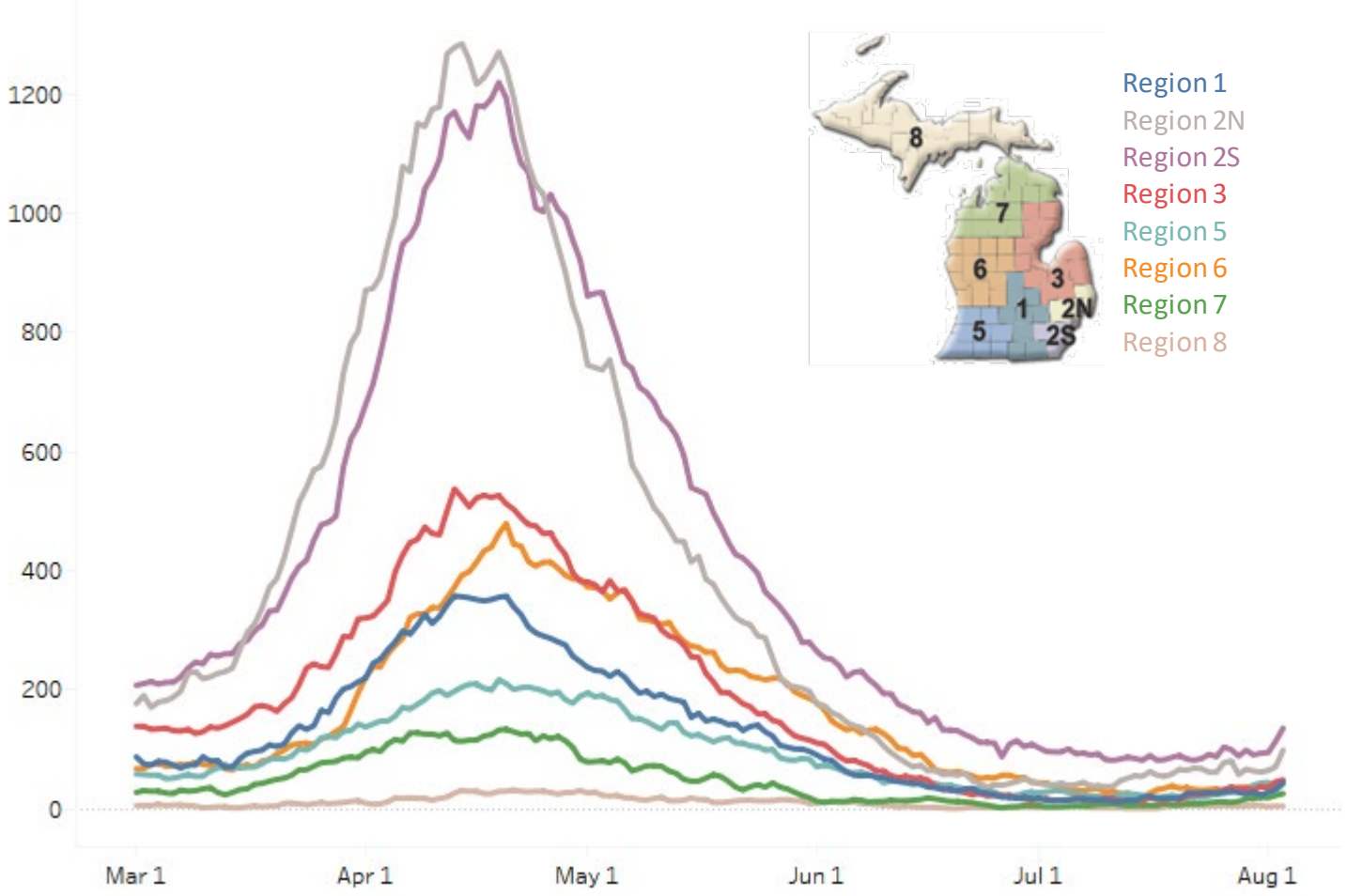
COVID+ census in hospitals has increased 38% from last week (previous week was up 27%).

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 3/1/2021 – 8/3/2021
Confirmed Positive by Region



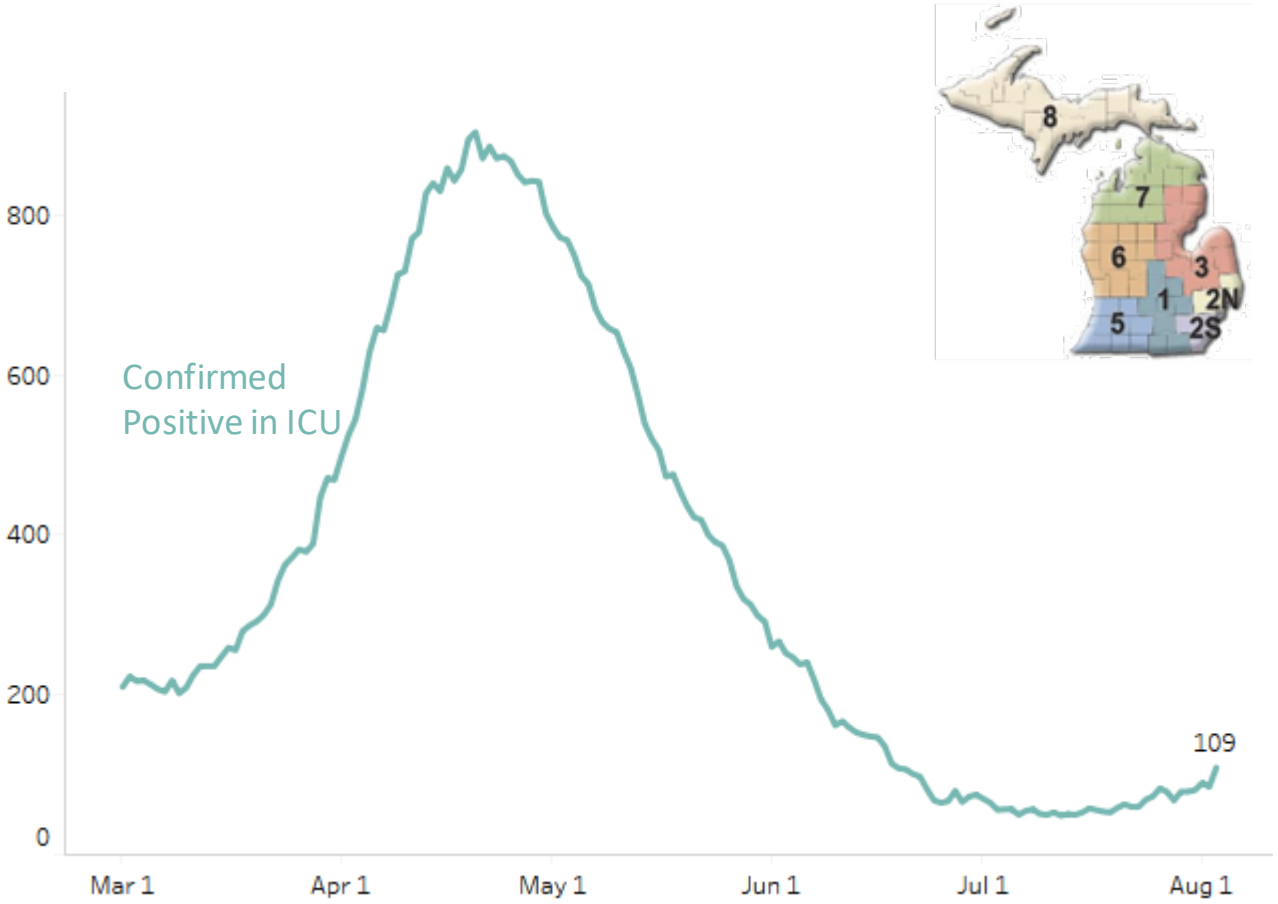
All regions except for Region 8 show increasing hospitalization trends this week. Region 7 showed a very large increase this week.

2 regions (Regions 2S and 7) are now at or above 50/M population hospitalized

Region	COVID+ Hospitalizations (% Δ from last week)	COVID+ Hospitalizations / MM
Region 1	44 (52%)	41/M
Region 2N	98 (23%)	44/M
Region 2S	135 (36%)	61/M
Region 3	48 (33%)	42/M
Region 5	41 (41%)	43/M
Region 6	43 (43%)	29/M
Region 7	25 (150%)	50/M
Region 8	4 (0%)	13/M

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 3/1/2021 – 8/3/2021
Confirmed Positive in ICUs



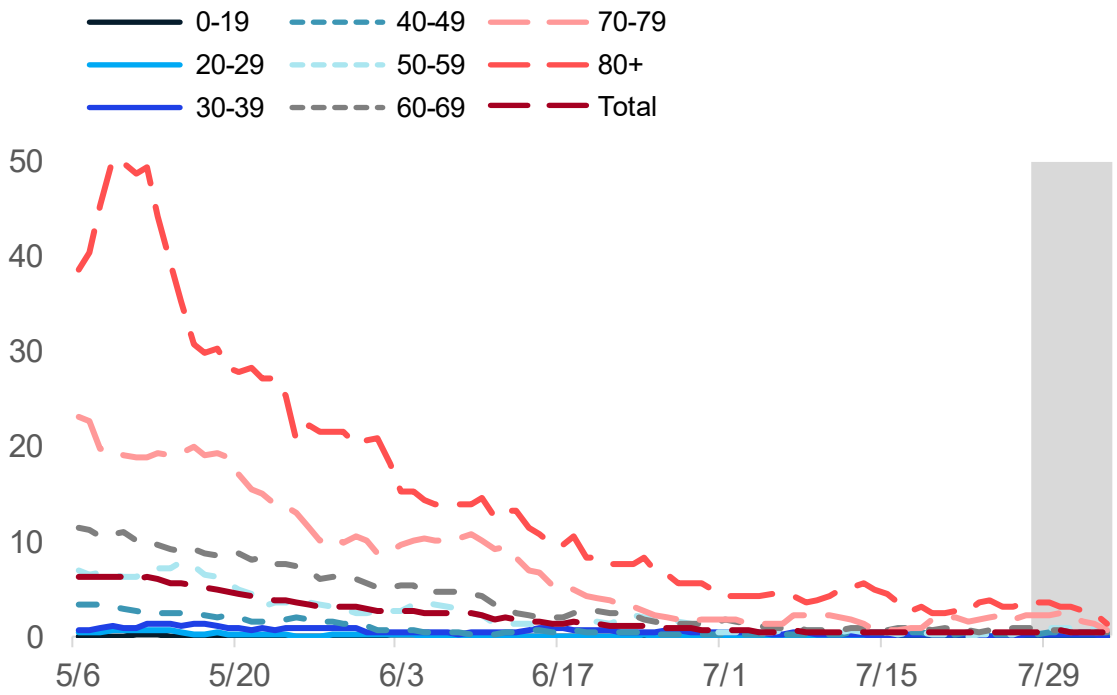
Overall, the census of COVID+ patients in ICUs has increased by 38% from last week.

4 regions (Regions 1, 2S, 5, 6) now have 5% or greater of ICU beds occupied with COVID patients.

Region	Adult COVID+ in ICU (% Δ from last week)	Adult ICU Occupancy	% of Adult ICU beds COVID+
Region 1	9 (80%)	76%	5%
Region 2N	20 (11%)	72%	4%
Region 2S	33 (32%)	85%	5%
Region 3	9 (13%)	80%	3%
Region 5	13 (63%)	65%	7%
Region 6	17 (113%)	79%	7%
Region 7	6 (20%)	67%	3%
Region 8	2 (0%)	56%	3%

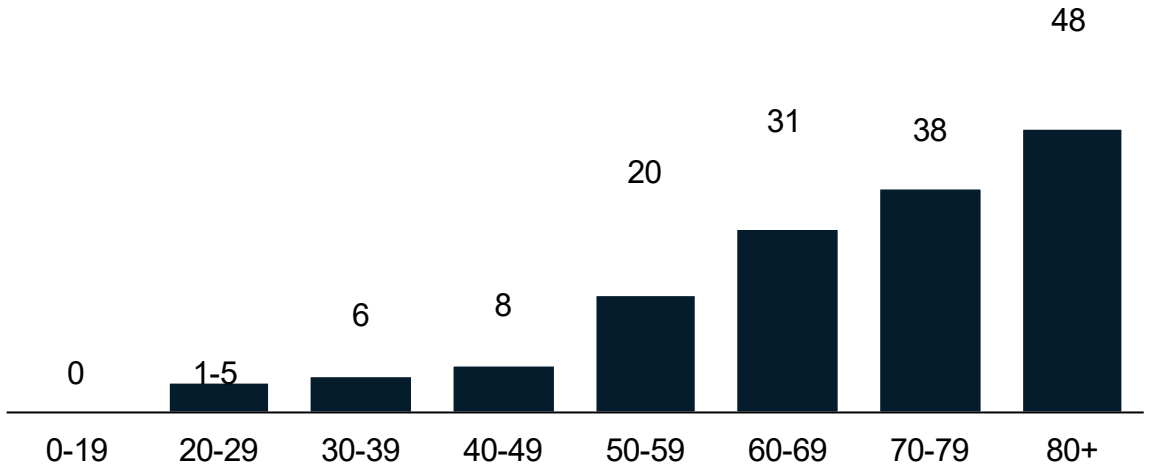
Average and total new deaths, by age group

Daily confirmed and probable deaths per million by age group (7 day rolling average)



Total confirmed and probable deaths by age group (past 30 days, ending 7/27/2021)

- 25% of deaths below age sixty

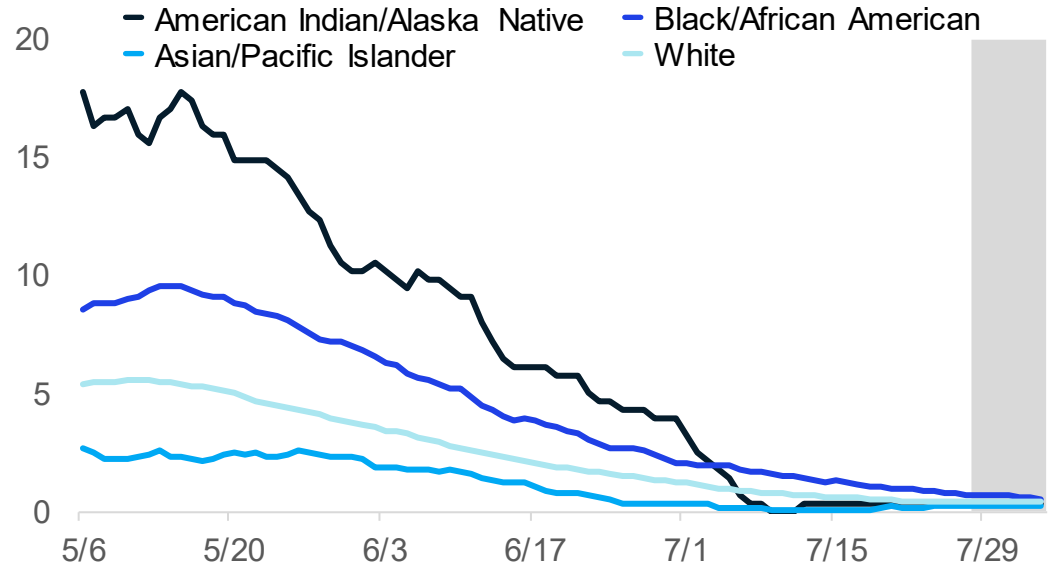


- Overall trends for daily average deaths are steady since last week
- Through 7/27, the 7-day avg. death rate is below 1.0 daily deaths per million people for those under the age of 70

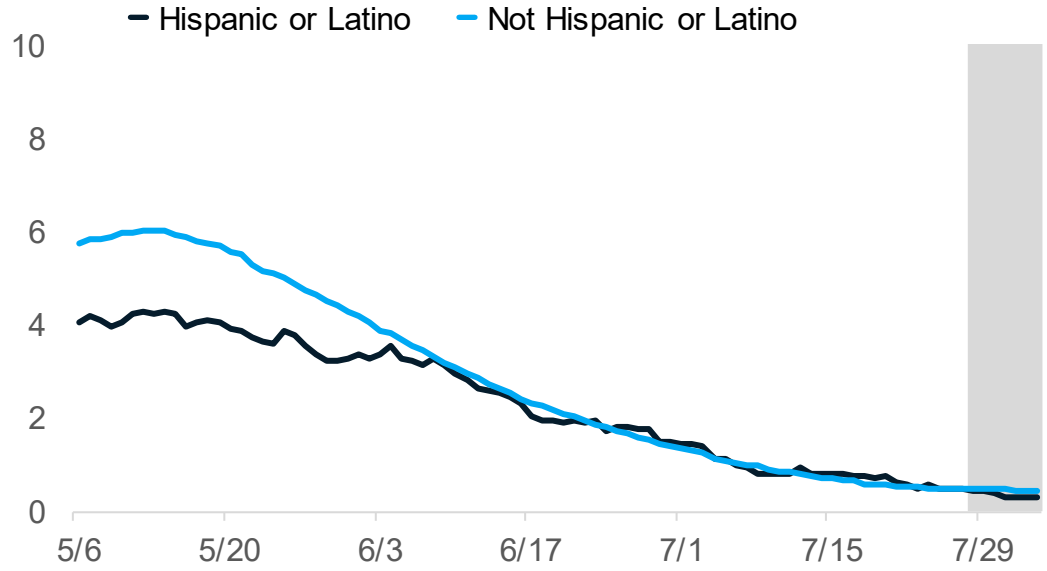
Note: Death information sourced from MDHHS and reflects date of death of confirmed and probable cases.
Source: MDHHS – Michigan Disease Surveillance System

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**

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

COVID-19 Vaccination

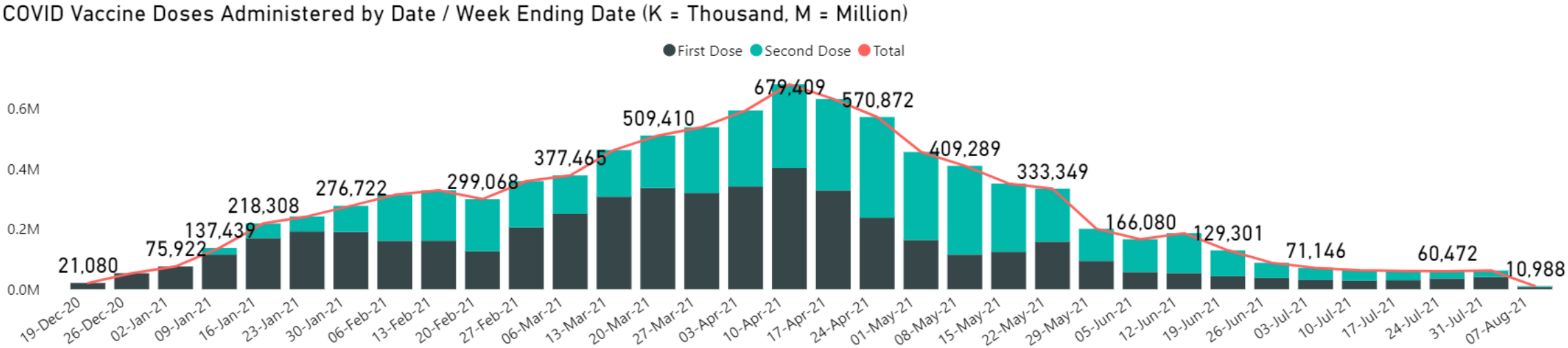
Administration (doses administered)

- 8th state in doses delivered; 12th in first doses provided and number of completed individuals 8/2/2021)
- 82.2% adjusted administration ratio (excluding federal entities, CDC channel portfolio 7/23/2021
- 41,150 first doses were administered week ending 7/31/21 (62,466 total): most administered frequently by pharmacies, local health departments, and hospitals (MCIR data only, will be undercount of all doses administered)

Coverage (people vaccinated)

- 64.4% of those 18+ have received first dose of vaccine; 85.9% of people aged 65 or older have had first dose
- 4,890,859 people in Michigan have completed vaccination series (4,858,654 last week)
- Initiation highest among Asian, Native Hawaiian or Pacific Islander and American Indian/Alaskan Native individuals (MI COVID Vaccine Dashboard 8/3/21)
- Less than 1% of Vaccinated Individuals Later Tested Positive for COVID-19 (Number of cases who are fully vaccinated (n= 9,504)

Doses Administered as of 8/3/2021



12,051,770 doses delivered to providers and 9,828,892 doses administered (CDC tracker)

82.2% adjusted administration ratio (excluding federal entities, CDC channel portfolio 7/23/2021)

- 58,550 doses administered last week; on average 8.4K/day (3,352-10,870)
- 35,015 first doses administered last week; on average 5K/day (1,741-6,433)

July 25-July 31 (inclusive), doses were most frequently administered by
- Pharmacies (45.0K) (MCIR data may undercount)
- LHD (5.5K) and hospitals (3.5K)
- Pediatricians (927), family practice (2.5K), and FQHCs (2.4K)

Over 4.8 Million Michiganders fully vaccinated

4.89 million people in the state are fully vaccinated

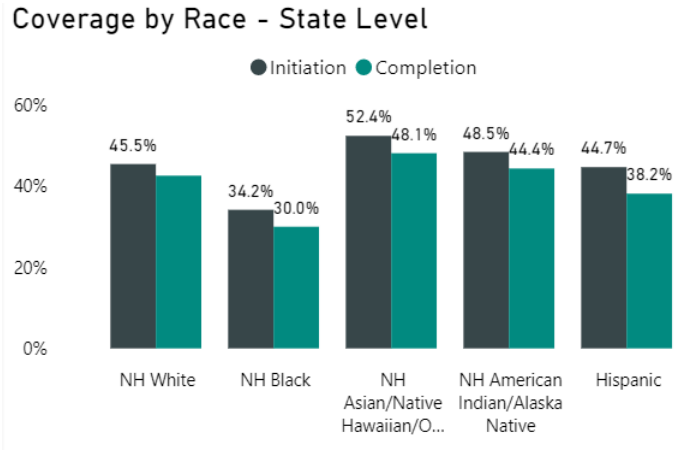
81.7% of people aged 65 and older have completed the series

Race/Ethnicity for those 12 years and older:

- Initiation coverage highest among those of Non-Hispanic (NH) Asian, Native Hawaiian or Pacific Islander Race (52.4%), then NH American Indian (48.5%), NH White (45.5%), NH Black or African American Races (34.2%).
- Initiation is at 43.7% for those of Hispanic ethnicity
- Completion follows the same pattern
- 21.0% data missing or unknown

Vaccination Coverage in Michigan as of 8/3/21

Age Group	% At Least One Dose	% Fully Vaccinated	Number Fully Vaccinated
Total Population	53.3	49.0	4,890,859
≥ 12 years	61.9	56.9	4,890,768
≥ 18 years	64.4	59.4	4,661,562
≥ 65 years	85.9	81.7	1,442,400



Potential COVID-19 Vaccination Breakthrough Cases

Michigan part of CDC's nationwide investigation (COVID-19 Breakthrough Case Investigations and Reporting | CDC)

Michigan Data (1/1/21 through 7/30/21):

- 9,504 cases met criteria based on a positive test 14 or more days after being fully vaccinated
- Less than 1% of people who were fully vaccinated met this case definition
  - Includes 229 deaths (204 persons age 65 years or older)
  - 622 cases were hospitalized

- Vaccine breakthrough cases are expected. COVID-19 vaccines are effective and are a critical tool to bring the pandemic under control. However, no vaccines are 100% effective at preventing illness in vaccinated people. There will be a small percentage of fully vaccinated people who still get sick, are hospitalized, or die from COVID-19.
- More than 163 million people in the United States have been fully vaccinated as of July 26, 2021. Like with other vaccines, vaccine breakthrough cases will occur, even though the vaccines are working as expected. Asymptomatic infections among vaccinated people will also occur.
- There is some evidence that vaccination may make illness less severe for those who are vaccinated and still get sick.
- Current data suggest that COVID-19 vaccines authorized for use in the United States offer protection against most SARS-CoV-2 variants currently circulating in the United States. However, variants will cause some vaccine breakthrough cases.

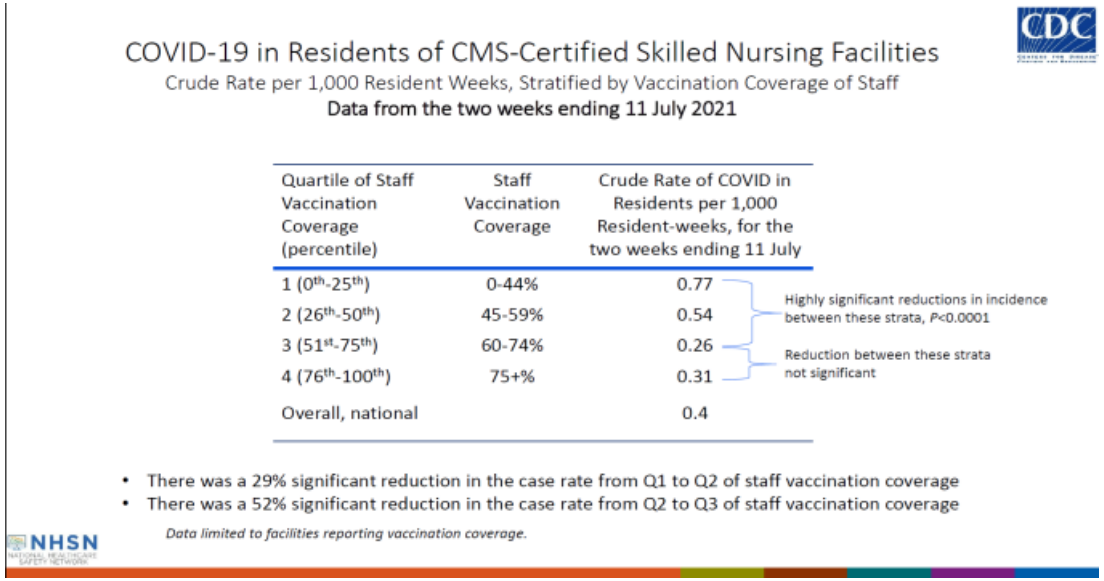
Science Round Up

- CDC updating guidance and urging vaccination
  - Health Alert: urgent need to increase COVID-19 vaccination coverage across the United States to prevent surges in new infections that could increase COVID-19 related morbidity and mortality, overwhelm healthcare capacity, and widen existing COVID-19-related health disparities.
  - MMWR: Guidance for Implementing COVID-19 Prevention Strategies in the Context of Varying Community Transmission Levels and Vaccination Coverage
- FDA revised EUA for REGEN-COV for post-exposure prophylaxis is a new tool for preventing severe COVID-19 outcomes
- Delta variant expected to increase cases in fall and will impact hospital capacity
- Events that congregate many people together (indoor or outdoor) for long periods of time can result in superspreading events
  - Recently, Michigan has seen outbreaks related to fairs and festivals in summer 2021
  - When outbreaks are identified, attendees are encouraged to get tested for COVID-19, regardless of vaccination status
- Rates of cases lower among people who are fully vaccinated
- As percent of the population that is vaccinated increases, the number of cases among fully vaccinated may be higher than the number among those who are unvaccinated; this does not mean the effectiveness of vaccine has changed

CDC Health Alert Network Health Advisory (7/27/21)

Notifies public health practitioners and clinicians about urgent need to increase COVID-19 vaccination coverage to prevent surges in new infections that could increase morbidity and mortality, overwhelm healthcare, and widen existing health disparities.

- COVID-19 vaccination is our most effective strategy to prevent infection and severe disease.
- Vaccination coverage at skilled nursing facilities helps prevent infection.
- Increasing coverage especially urgent in areas where current coverage is low.
- Unvaccinated persons account for majority of new COVID-19 infections, hospitalizations, and deaths.
- Variants of concern, especially the highly infectious Delta variant, are accelerating spread of infection.
- Unvaccinated and partially vaccinated people need to practice all recommended prevention measures.
- In areas with substantial and high transmission, CDC recommends fully vaccinated individuals wear a mask in public indoor settings.



COVID-19 in Residents of CMS-Certified Skilled Nursing Facilities

Crude Rate per 1,000 Resident Weeks, Stratified by Vaccination Coverage of Staff

Data from the two weeks ending 11 July 2021

Quartile of Staff Vaccination Coverage (percentile)	Staff Vaccination Coverage	Crude Rate of COVID in Residents per 1,000 Resident-weeks, for the two weeks ending 11 July
1 (0th-25th)	0-44%	0.77
2 (26th-50th)	45-59%	0.54
3 (51st-75th)	60-74%	0.26
4 (76th-100th)	75+%	0.31
Overall, national		0.4

Highly significant reductions in incidence between these strata, $P<0.0001$

Reduction between these strata not significant

- There was a 29% significant reduction in the case rate from Q1 to Q2 of staff vaccination coverage
- There was a 52% significant reduction in the case rate from Q2 to Q3 of staff vaccination coverage

Data limited to facilities reporting vaccination coverage.

NHSN

CDC Guidance for Implementing COVID-19 Prevention Strategies in the Context of Varying Community Transmission Levels and Vaccination Coverage

- Until vaccination coverage is high and community transmission is low, public health practitioners, as well as schools, businesses, and institutions need to regularly assess the need for prevention strategies to avoid stressing health care capacity and imperiling adequate care for both COVID-19 and other non–COVID-19 conditions
- 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 SARS-CoV-2 transmission, beyond vaccination, include
  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
- **To maximize protection of the community, 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

MONOCLONAL ANTIBODY POST EXPOSURE PROPHYLAXIS: FDA revision of Emergency Use Authorization of REGEN-COV

The new authorization is for post-exposure prophylaxis use of REGEN-COV (casirivimab and imdevimab) in **individuals 12 years of age and older** who are

- **Are at high risk for progression to severe COVID-19** (including hospitalization or death), and
- **Are not fully vaccinated** or who are not expected to mount an adequate immune response to complete SARS-CoV-2 vaccination, and
- **Have been exposed** to an individual infected with SARS-CoV-2 consistent with close contact criteria per CDC or because of occurrence of COVID-19 infection in other individuals in the same institutional setting (for example, nursing homes or prisons)

This new authorized use is in addition to the prior authorization of REGEN-COV to treat non-hospitalized patients with mild to moderate COVID-19 in adult and pediatric patients, with positive results of direct SARS-CoV-2 viral testing, and who are at high risk for progression to severe COVID 19.

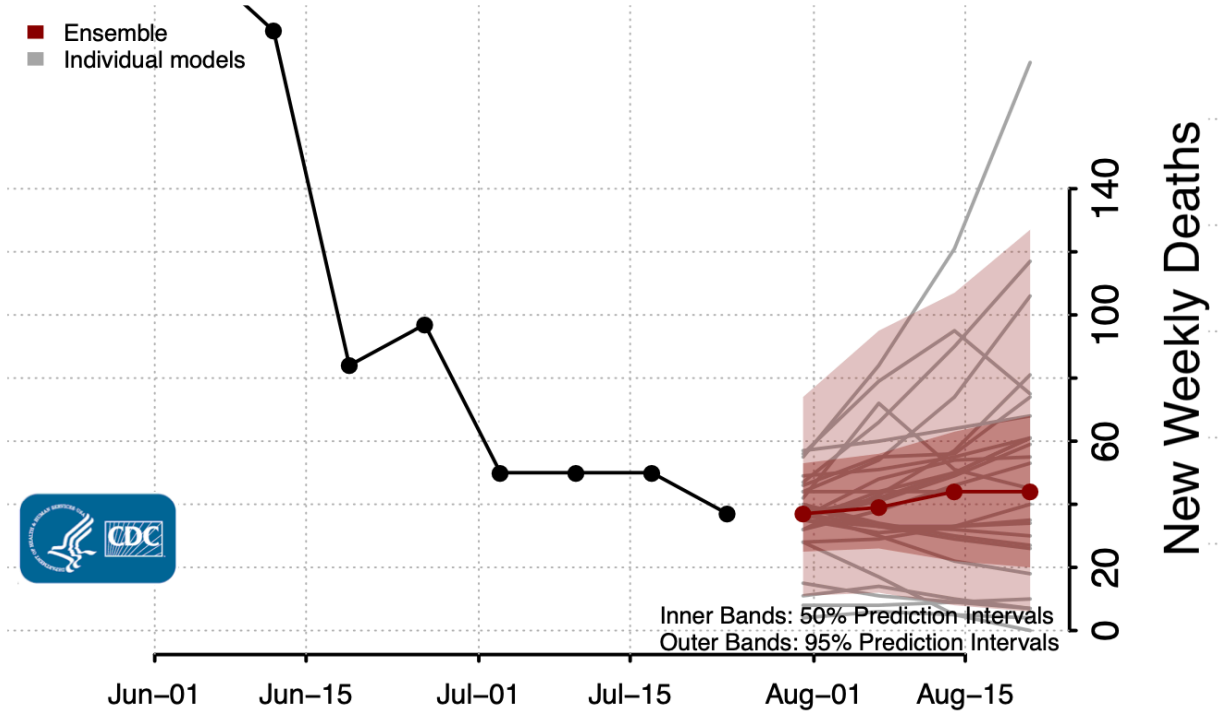
REGEN-COV is expected to be effective against circulating variants, including the Delta variant.

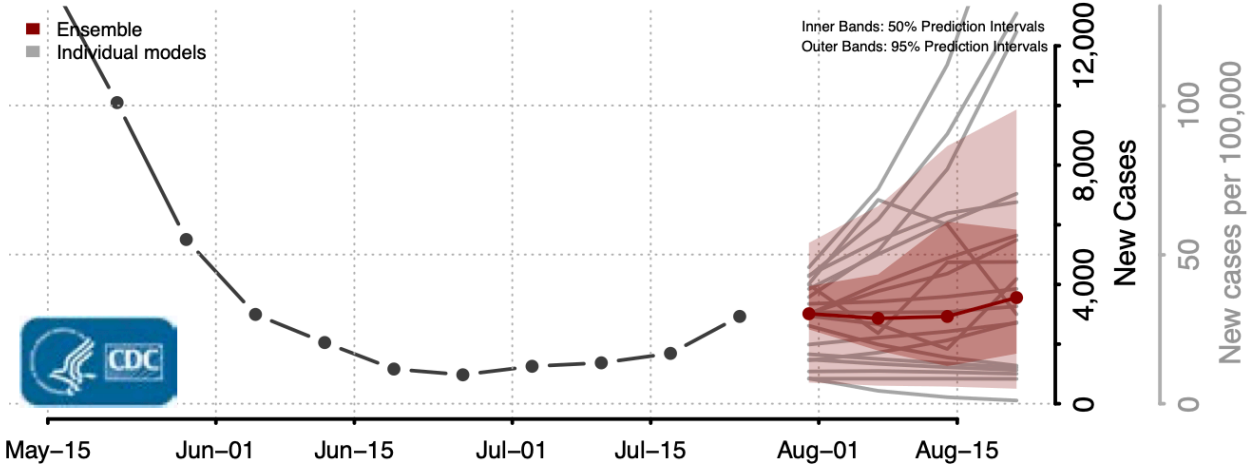
Post-exposure prophylaxis with REGEN-COV is not a substitute for vaccination against COVID-19.

Additional information on monoclonal antibody therapy is available at www.michigan.gov/covidtherapy.

CDC model projections for Michigan showing signs of increase

- Ensemble model suggests slowly increasing trends for cases and deaths
- Uncertainty ranges from flat to increasing and recent data has shown increasing cases
- Individual models shown as grey lines, ensemble shown in red

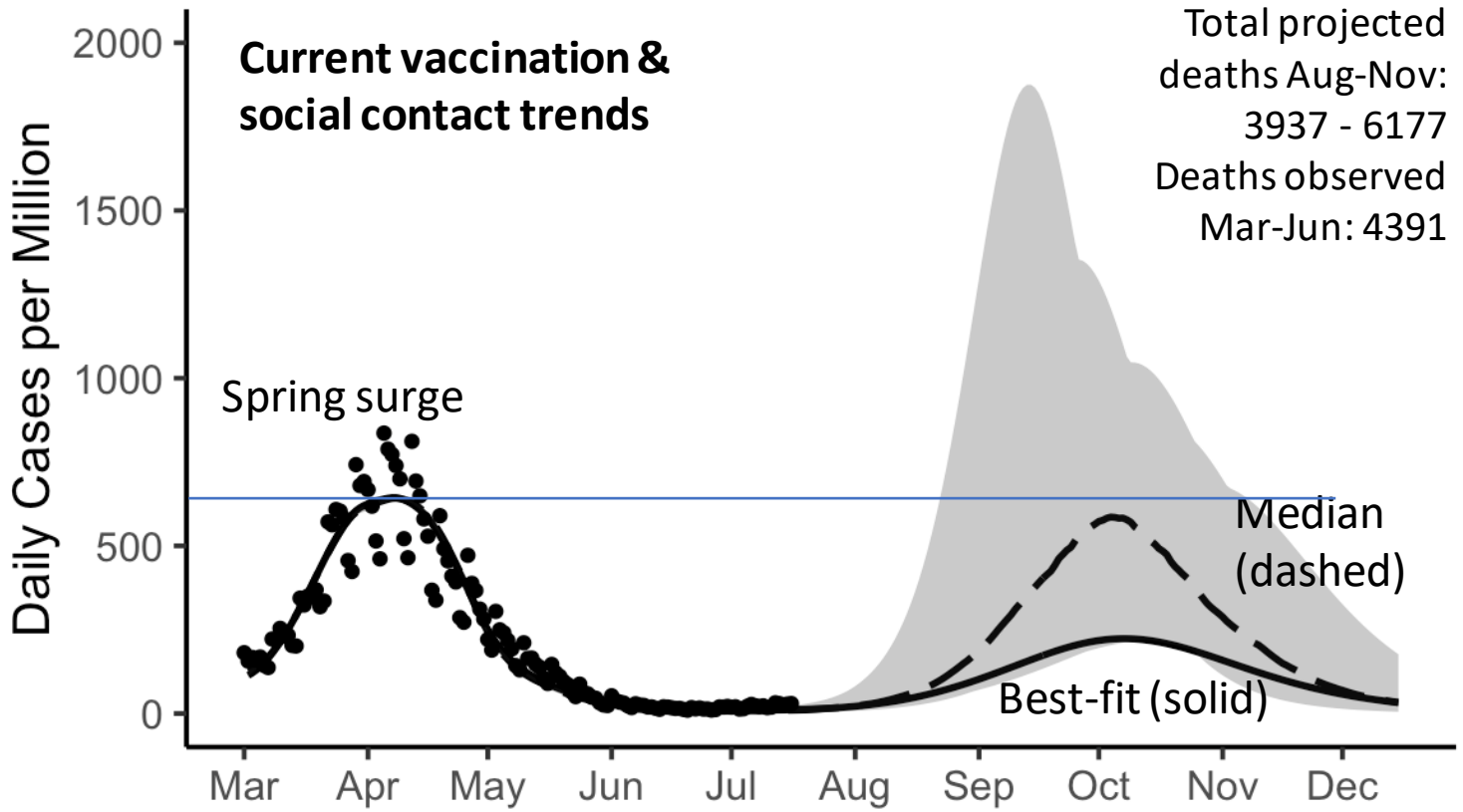


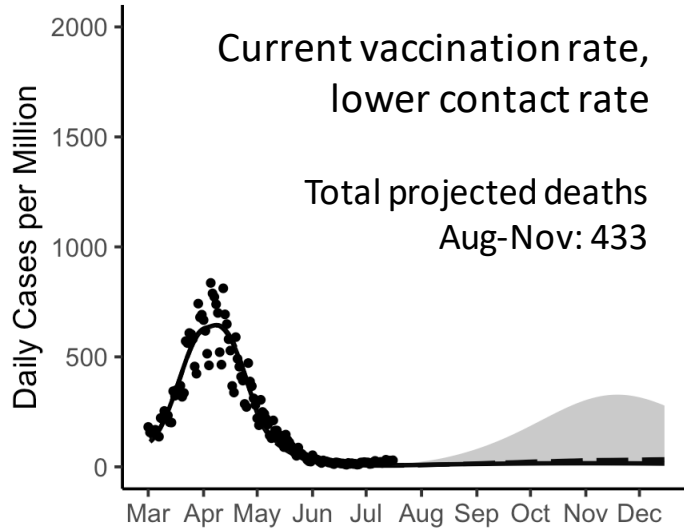


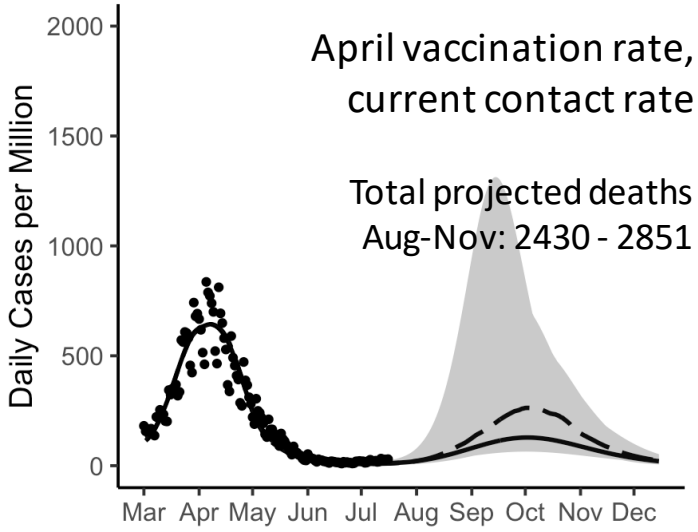
Data Sources: CDC mathematical model forecasting, CovidComplete Data Center model forecast evaluations

Modeling scenarios for Michigan: COVID surge on the horizon

- If vaccination slowing and increased social contact rates continue, model simulations project a surge is likely, potentially similar size to spring
- If contact rates return to low levels and/or vaccinations increase to April uptake, the surge can be reduced/stopped







PUBLIC HEALTH

Model projections are scenarios rather than forecasts—actual contact patterns may not reflect the projected scenarios. Model calibrated to MDSS case data (through 7/16, as of 7/23), using mobility data (Unacast encounter rate), increased transmission probability in June for the Delta variant. Vaccination rates based on MCIR. Uncertainty: top 10% of 1000 parameter estimates.

How do these cases translate to hospitalizations?

- Projected hospital admissions, based on the model simulations and fraction of hospital admissions for different age groups over March-May
- These projections assume the same age distribution of cases and hospitalizations as the spring surge
- Projected hospital admissions ranges are based only on the best fit and median simulations (not the full uncertainty range)

Age group	Projected total hospital admissions Aug-Nov
0-17	204 – 428
18-19	110 – 229
20-29	959 – 2007
30-39	1217 – 2547
40-49	1463 – 3061
50-59	2256 – 4722
60-69	2550 – 5336
70-79	2041 – 4271
80+	1592 – 3331
Total	12,186 – 25,505

PUBLIC HEALTH

Model calibrated to MDSS case data (through 7/16, as of 7/23), using mobility data (Unacast encounter rate), increased transmission probability in June for the Delta variant. Vaccination rates based on MCIR. Uncertainty: top 10% of 1000 parameter estimates.

Outbreaks related to festivals

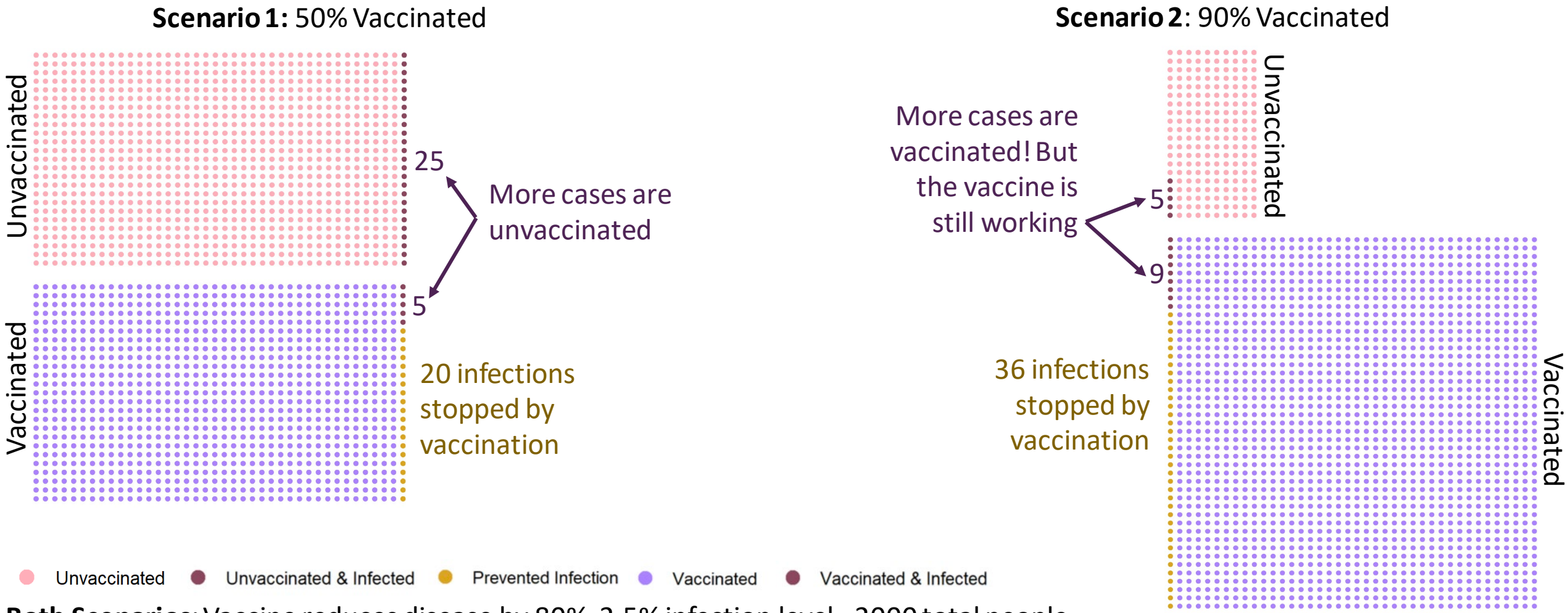
- Individuals infected with COVID-19 who attend fairs and festivals can spread COVID-19.
- When cases are identified, attendees are encouraged to get tested for COVID-19, regardless of vaccination status. Information on testing is available at www.Michigan.gov/coronavirustest
- If you are in an outdoor crowded setting or participating in activities with close contact with others who are not fully vaccinated, CDC recommends wearing a mask, particularly in areas with high numbers of cases.

78 cases in 25 counties to date

16 cases to date

10 cases to date

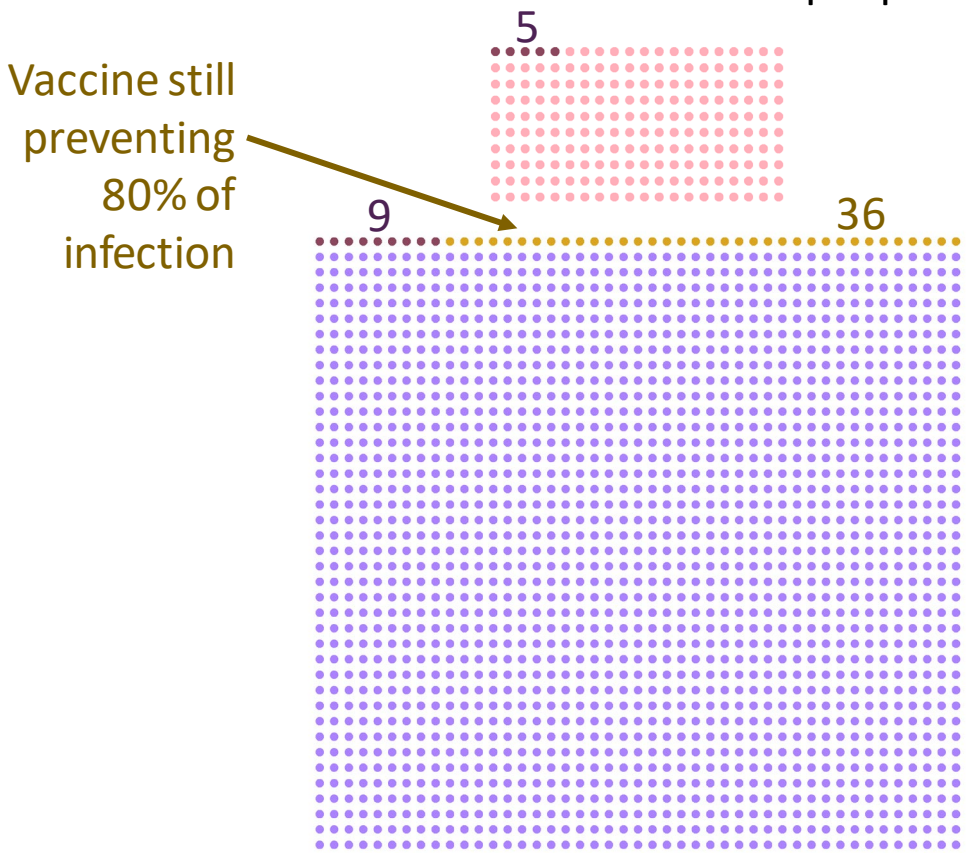
Understanding breakthrough cases: When more people are vaccinated, more cases will come from the vaccinated population—even if the vaccine is working



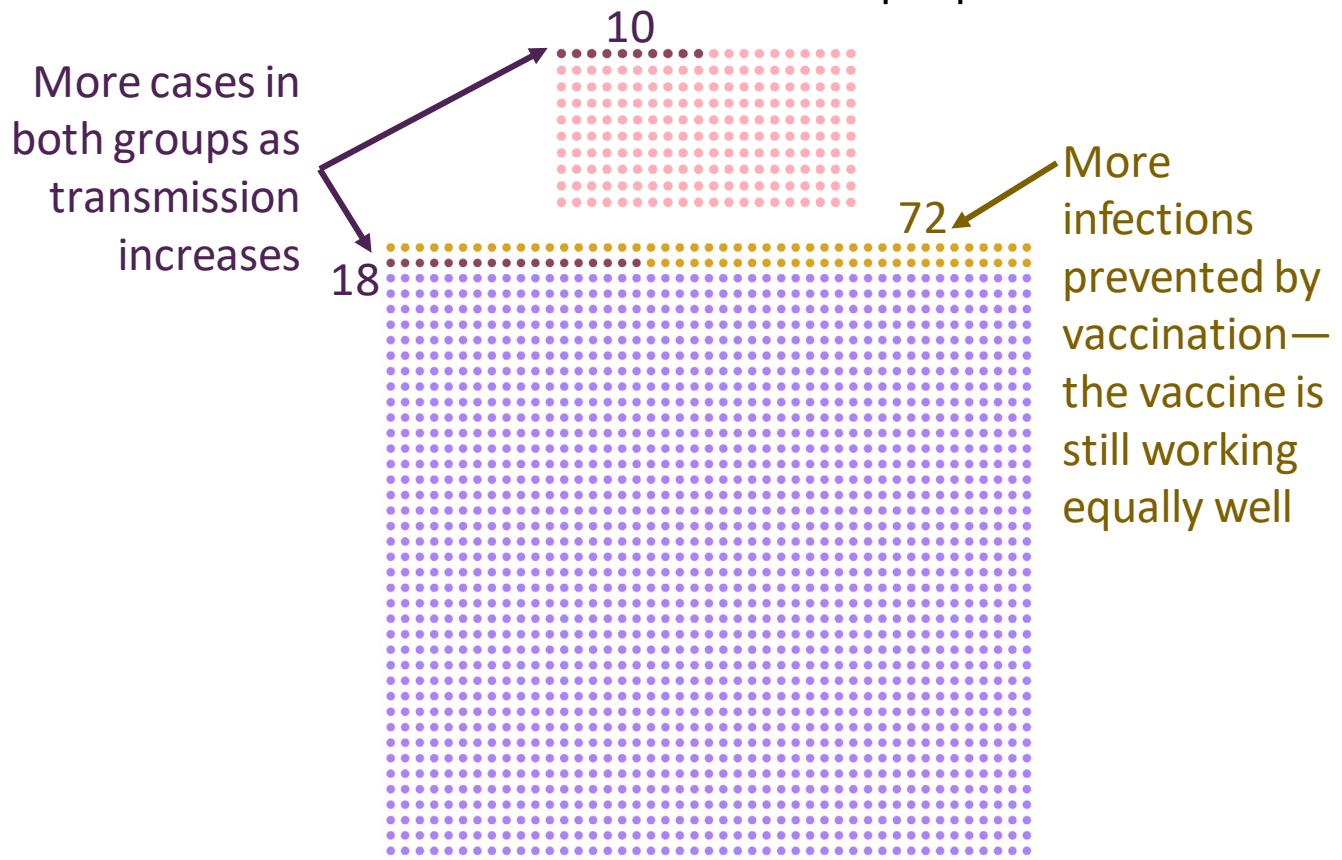
Both Scenarios: Vaccine reduces disease by 80%, 2.5% infection level, 2000 total people

Understanding breakthrough cases: as more people are infected, there will be more cases among both vaccinated and unvaccinated people

Scenario 2: 2.5% of unvaccinated people infected



Scenario 3: 5% of unvaccinated people infected



Unvaccinated Unvaccinated & Infected Prevented Infection Vaccinated Vaccinated & Infected

Both Scenarios: 90% Vaccinated, Vaccine reduces disease by 80%, 2000 total people