

MI COVID RESPONSE DATA AND MODELING UPDATE

NOTE: All data as of August 8 unless otherwise noted

August 9, 2021

Executive Summary – All Indicators Show Increases

Michigan is now in [Substantial Transmission](#) and rising

Percent Positivity (7.0%) is increasing for six weeks (up from 5.8% last week), and **Case Rate** (77.2 cases/million) have increased for one month (up from 49.5 last week)

Michigan has the **33rd lowest number of cases (26th last week)**, and **9th lowest case rate (7th last week)** in the last 7 days (source: CDC COVID Data Tracker)

Majority of positive tests available for sequencing in Michigan are Delta variant (99% in previous 4 weeks)

Percent of inpatient beds occupied by individuals with COVID (2.9%) has increased for three weeks (up from 1.9% last week).

Michigan has the **10th lowest inpatient bed utilization (8th last week)**, and the **10th lowest adult ICU bed utilization (11th last week)** in the country (source: US HHS Protect)

Deaths (0.5 deaths/million) are increasing (0.4 deaths/million last week). There were 37 COVID deaths between Jul 27 and Aug 2.

Michigan has the **21st lowest number of deaths (T28th last week)**, and **T6th lowest death rate (T9th last week)** in the last 7 days (source: CDC COVID Data Tracker)

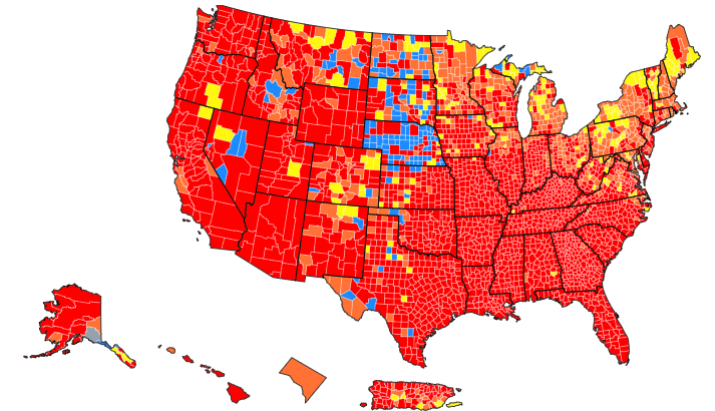
The 7-day average **state testing rate** is steady at 1,833.2 tests/million/day. **Daily diagnostic tests (PCR)** is 18.2K per day, and the **weekly average for PCR and antigen tests** conducted in Michigan is 32.6K.

9.89 million **COVID-19 vaccine** doses reported to CDC, 4.92 million people have completed their vaccine series

Global and National Comparisons: US cases increasing

What we see today (data through 8/9):

- Globally, 202,936,214 cases and 4,297,888 deaths*
- Countries with the highest case count are U.S. (35,767,260), India (31,969,954), and Brazil (20,165,672)*
- Within the U.S., North Dakota (14,734 per 100,000), Rhode Island (14,709/100,000), & South Dakota (14,197/100,000) lead the nation in cumulative cases/capita[†]
- In Michigan, there have been 10,199/100,000 since March 1, 2020[†]
- Michigan currently has identified 14,412 variants of concern (VOC)
 - Cumulatively, the vast majority are B.1.1.7 (13,648 which is 94.7%)
 - Other VOCs include B.1.351 (0.6%), P.1 (2.3%) and B.1.617.2(2.4%)
 - Using specimen collection date, there have been 179 VOC reported in the 4 most recent weeks
 - 177 Delta (B.1.617.2) 99%
 - 2 Alpha (B.1.1.7) <1%



● High ● Substantial ● Moderate ● Low ● No Data

* [Johns Hopkins COVID-19 dashboard](#); [†] [CDC COVID-19 Data Tracker](#); Michigan Disease Surveillance System (MDSS)

National Comparison

Spread

Severity

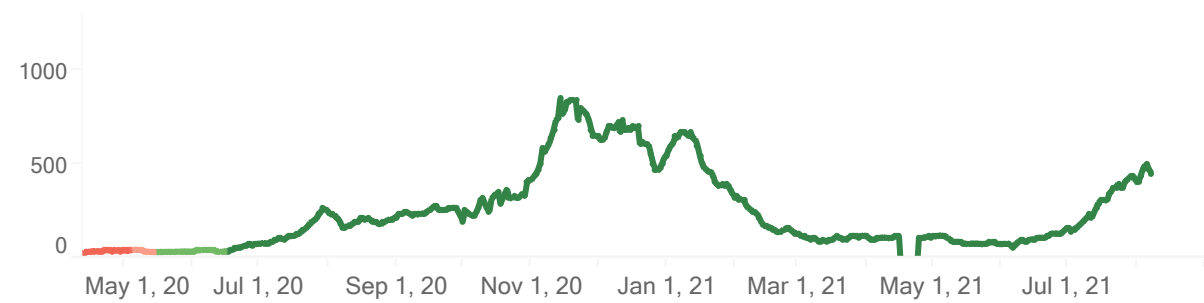
Public Health
Response

Other
Indicators

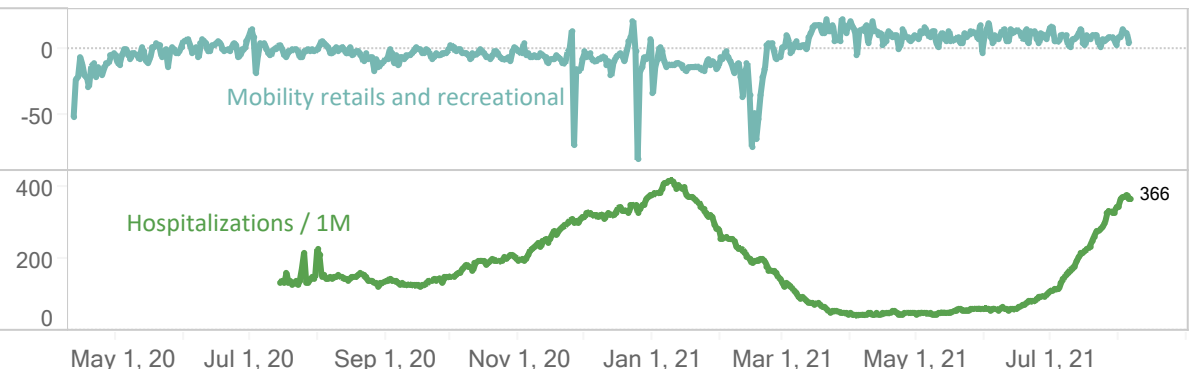
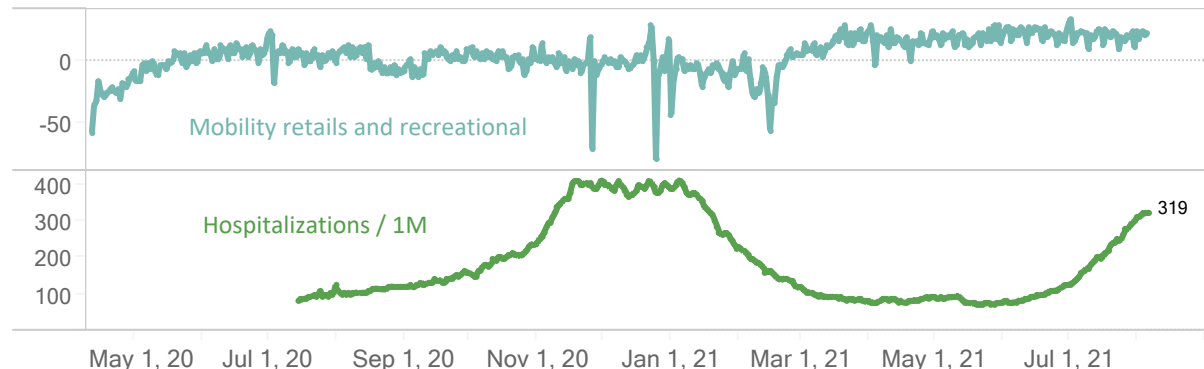
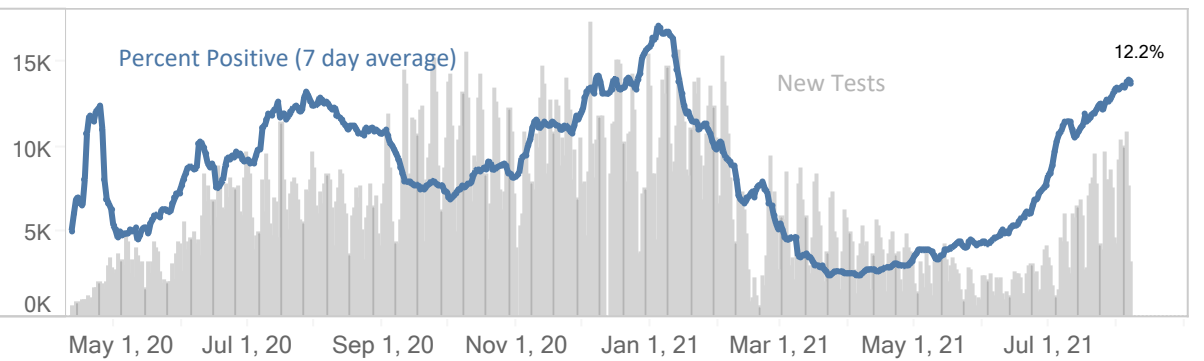
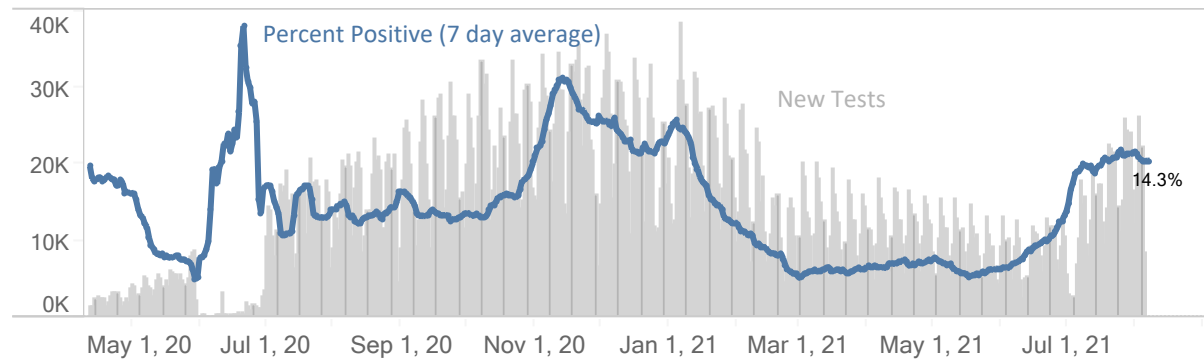
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Missouri, Arkansas

Missouri Confirmed New Cases / 1M (7 days average)

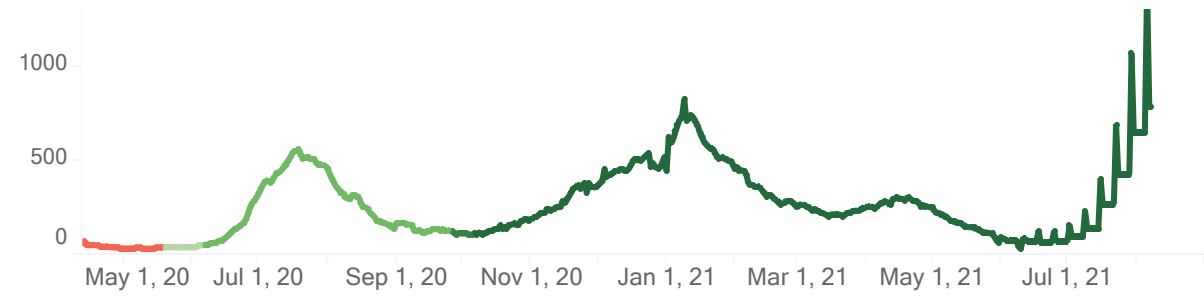


Arkansas Confirmed New Cases / 1M (7 days average)

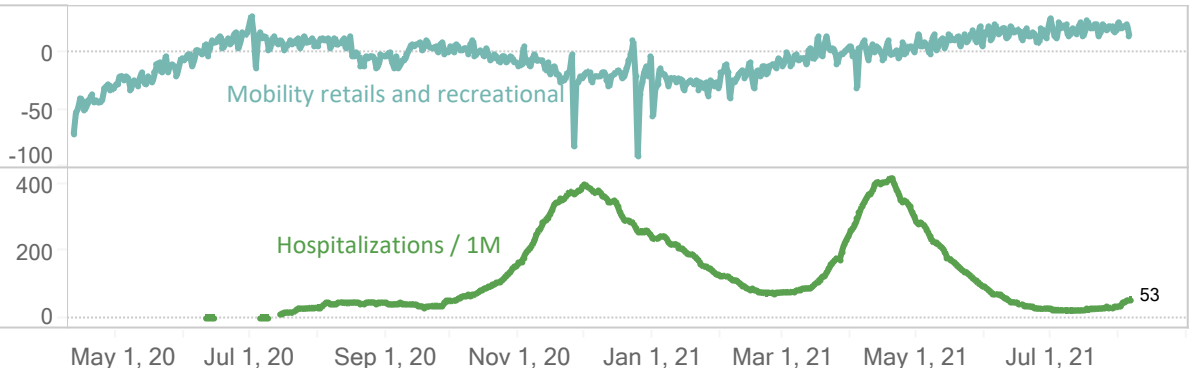
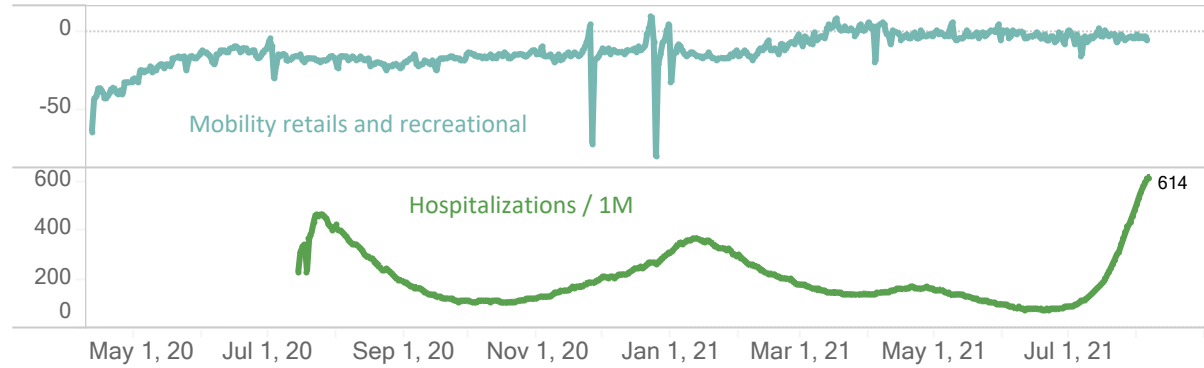
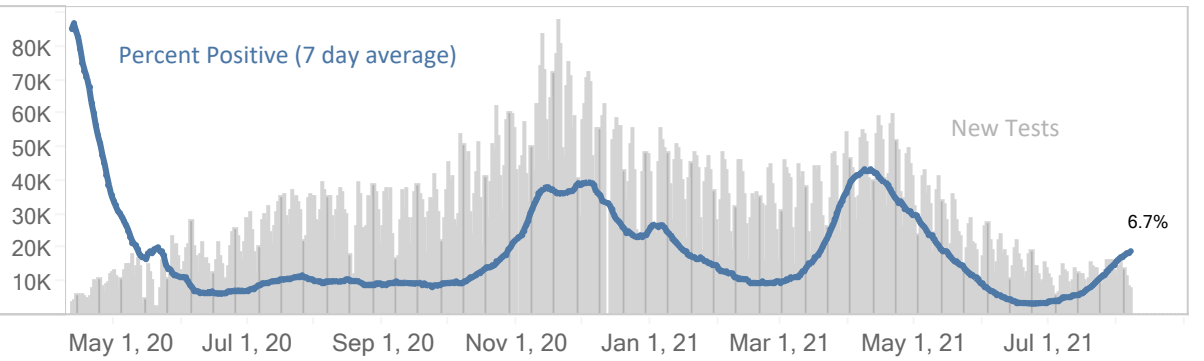
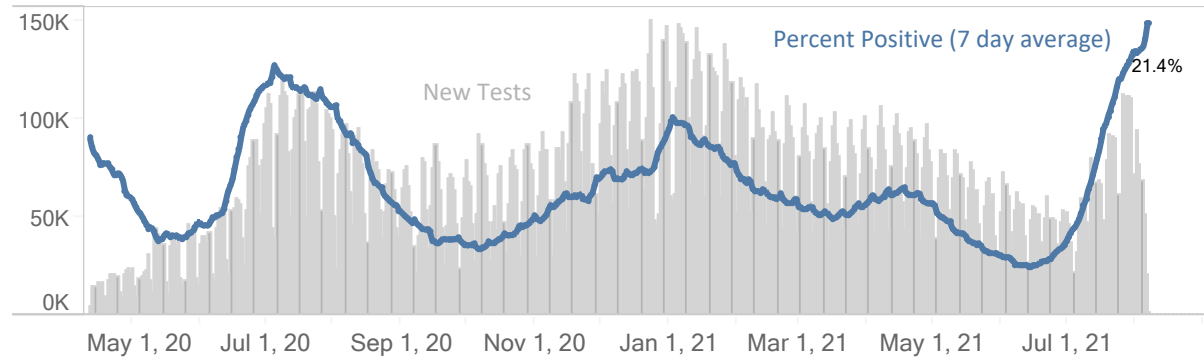
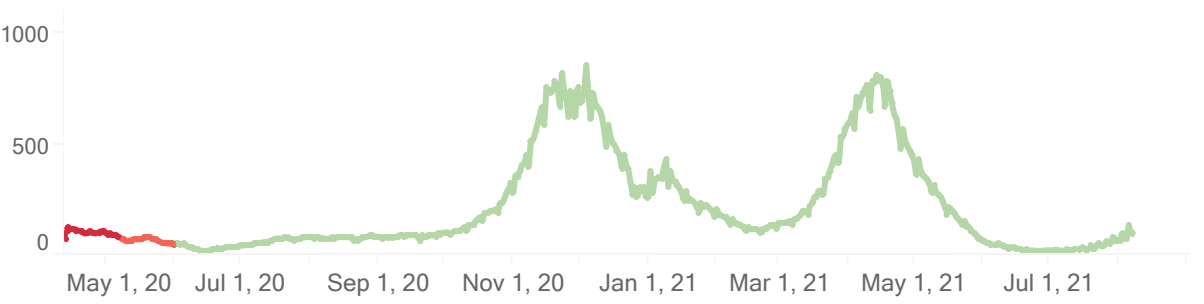


Florida, Michigan

Florida Confirmed New Cases / 1M (7 days average)

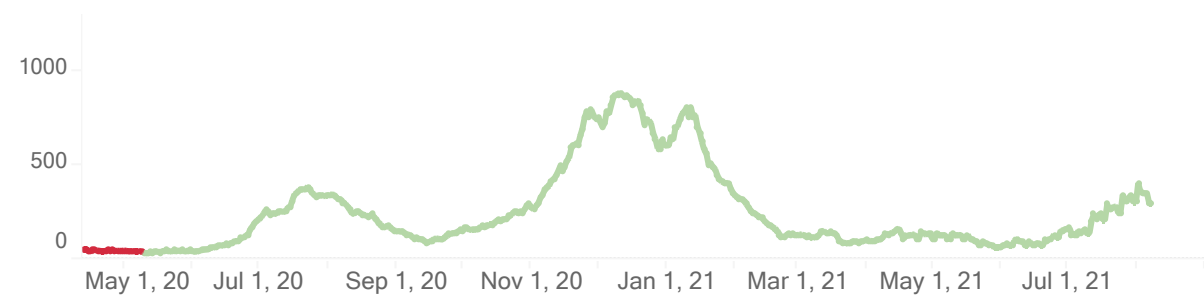


Michigan Confirmed New Cases / 1M (7 days average)

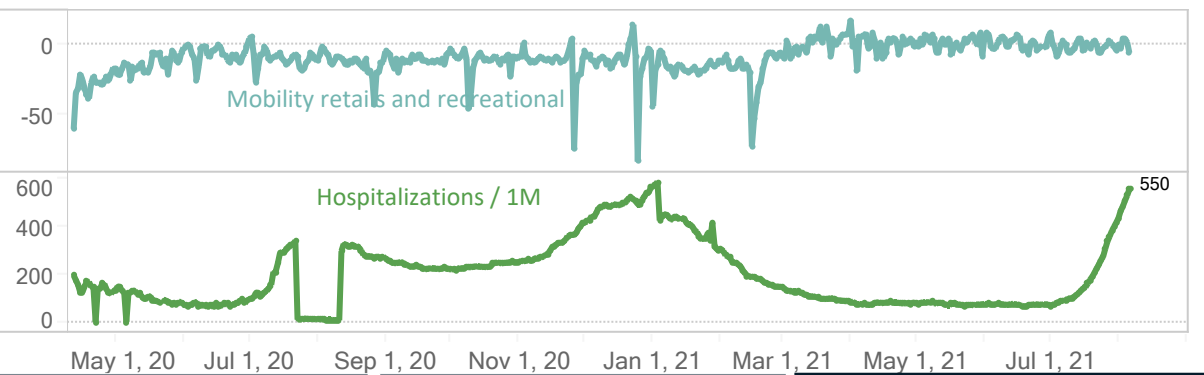
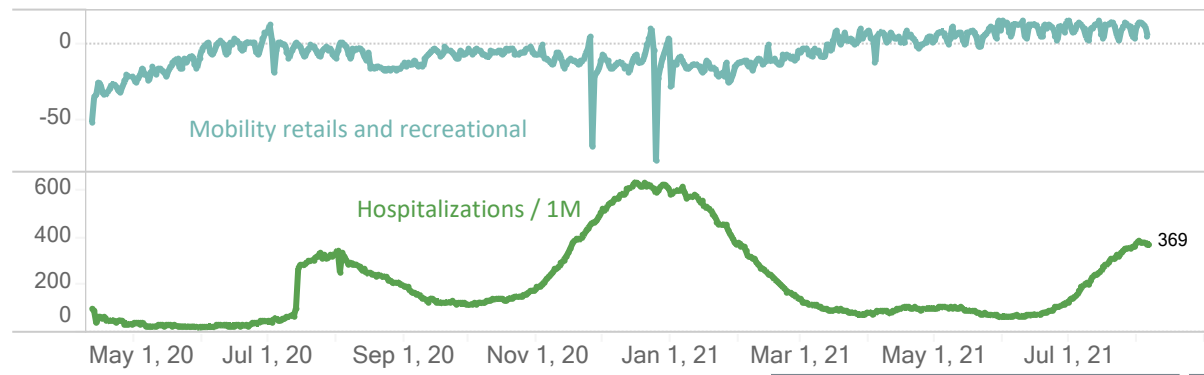
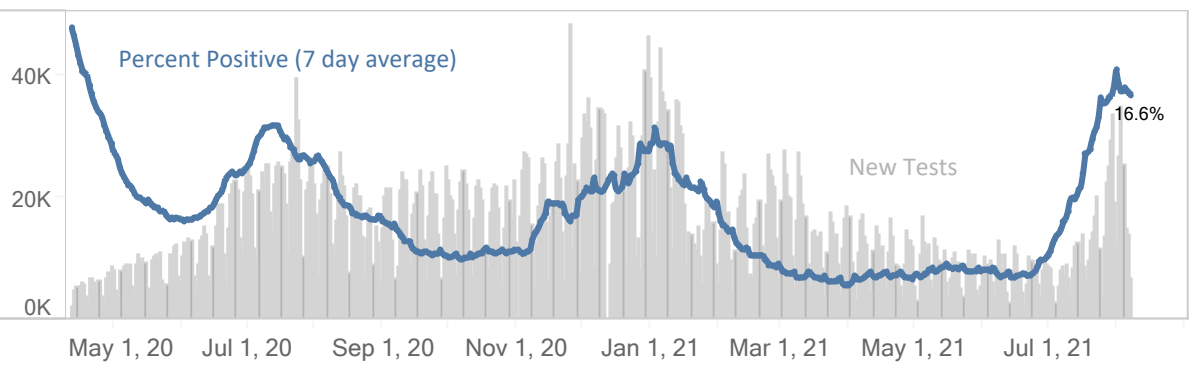
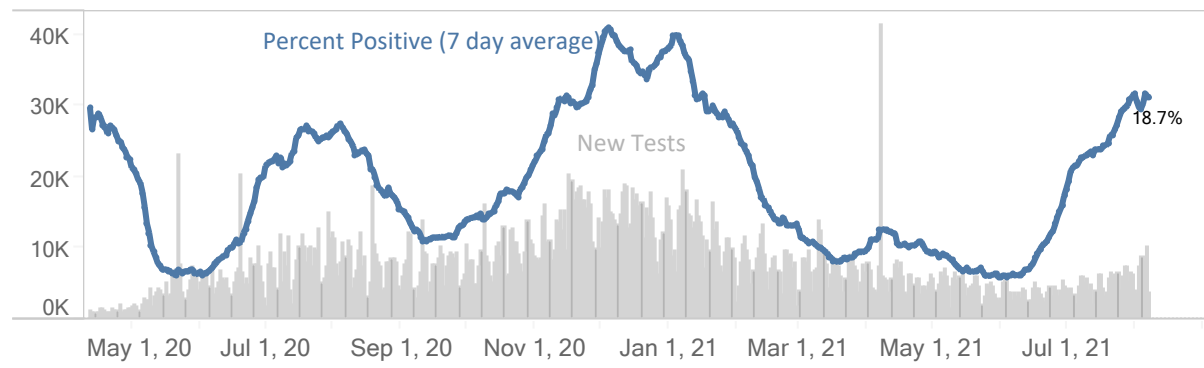
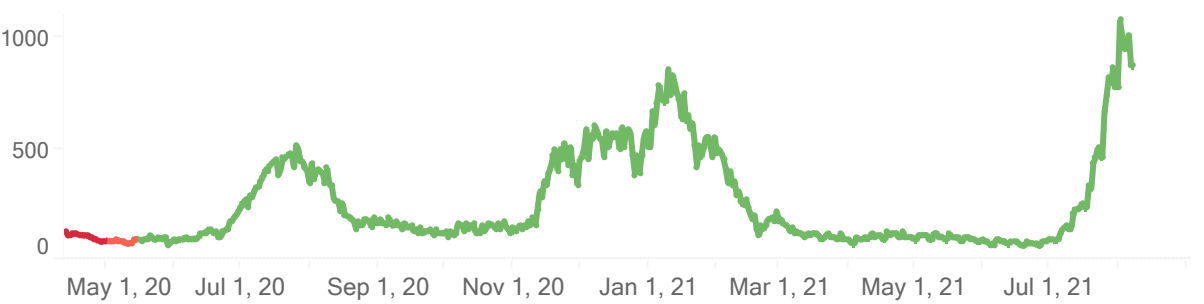


Nevada, Louisiana

Nevada Confirmed New Cases / 1M (7 days average)



Louisiana Confirmed New Cases / 1M (7 days average)



National Comparison

Spread

Severity

Public Health
Response

Other
Indicators

Science
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Key Messages: COVID-19 is Spreading Faster with Delta

Statewide positivity has increased to 7.0% (last week: 5.8%)

- One week percent change is up 21% (vs. up 40% last week)
- Increasing for six weeks (over 5 times the Jun 26 low)
- Positivity is increasing in all MERC regions and four regions are >7% and one region > 10%

Case rate (77.2 cases/million) increasing for over a month (last week: 49.5 cases/million)

- One week increase of 34% (vs. 43% increase last week)
- Increasing for over a month (451% increase since Jun 26 low)
- Cases per million are increasing in all MERC regions
- Select variants in Michigan: 13,648 confirmed Alpha (B.1.1.7); 85 confirmed Beta (B.1.351); 329 confirmed Gamma (P.1); and 350 confirmed Delta (B.1.617.2)

Michigan is now at Substantial Transmission level

- 42 counties met substantial transmission and 17 county met high transmission level
- CDC would recommend all individuals, regardless of vaccination status, should mask indoors
- The U.S. is at high transmission level (205.4 cases/100,000 in last 7 days) with 53 states/territories in substantial or high transmission

Number of active outbreaks is up 48% from last week

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

National Comparison

Spread

Severity

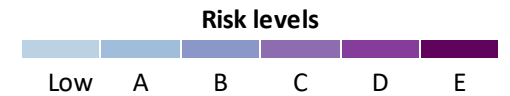
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Confirmed and probable case indicators

Table Date: 8/9/2021 (7 days from date table was produced: 8/2/2021)



	CDC Transmission Risk Level	Absolute Cases (per million)	CDC Case Trend	Average Percent Positivity	Positivity Trend	Tests (per million)	Average Percent Positivity [PCR + Antigen]	Positivity Trend [PCR + Antigen]	Tests (per million) [PCR + Antigen]	% IP Beds Occupied by COVID-19 Cases	% Occupied IP Beds Trend	Absolute Deaths (per million)	Death Trend
Detroit	Substantial	76.4	elevated incidence growth	6.0	Increase - 3wk	1946.5	5.6	Increase - 6wk	2450.4	2.9	Increase - 3wk	0.6	<20 wkly deaths
Grand Rapids	Substantial	63.1	elevated incidence growth	7.8	Increase - 5wk	1773.4	6.4	Increase - 5wk	2285.6	2.6	Increase - 3wk	0.1	<20 wkly deaths
Kalamazoo	High	103.0	elevated incidence growth	10.3	Increase - 5wk	1635.7	8.2	Increase - 5wk	2304.7	3.7	Increase - 1wk	0.9	<20 wkly deaths
Saginaw	Substantial	75.8	elevated incidence growth	9.5	Increase - 5wk	1295.4	6.4	Increase - 5wk	2076.4	1.9	Increase - 2wk	0.5	<20 wkly deaths
Lansing	Substantial	80.9	elevated incidence plateau	6.1	Increase - 6wk	1623.6	5.5	Increase - 6wk	2307.9	2.9	Increase - 3wk	0.7	<20 wkly deaths
Traverse City	Substantial	82.2	elevated incidence plateau	5.6	Increase - 2wk	1619.6	4.4	Increase - 5wk	2607.8	2.9	Increase - 2wk	0.3	<20 wkly deaths
Jackson	High	100.4	elevated incidence growth	8.9	Increase - 5wk	1820.5	7.6	Increase - 5wk	2515.9	5.1	Increase - 3wk	0.0	<20 wkly deaths
Upper Peninsula	Substantial	45.6	elevated incidence growth	6.0	Increase - 2wk	1120.6	3.1	Increase - 2wk	2690.2	0.9	Increase - 3wk	0.5	<20 wkly deaths
Michigan	Substantial	77.2	elevated incidence growth	7.0	Increase - 6wk	1833.2	5.9	Increase - 5wk	2473.3	2.9	Increase - 3wk	0.5	Increase - 1wk

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%



National Comparison

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Severity

Public Health Response

Other Indicators

Science Round-up

Overview of metrics for individuals <12 years

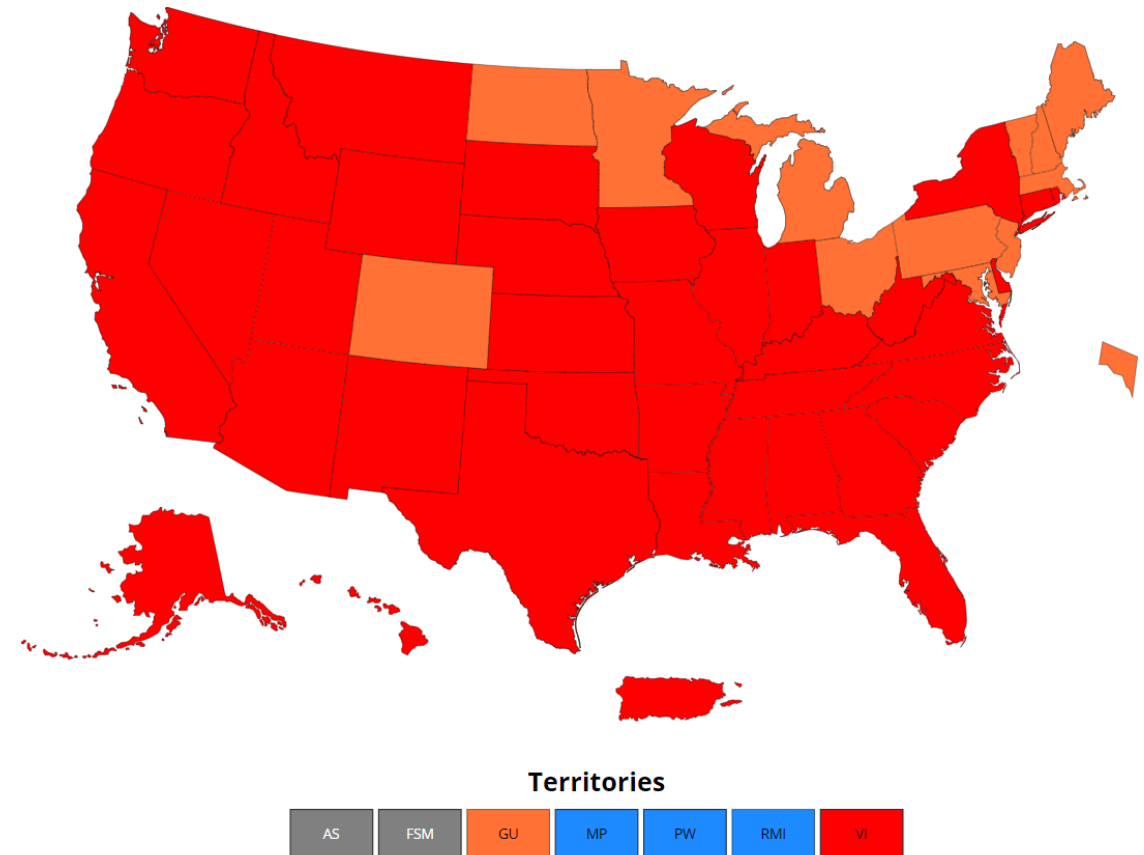
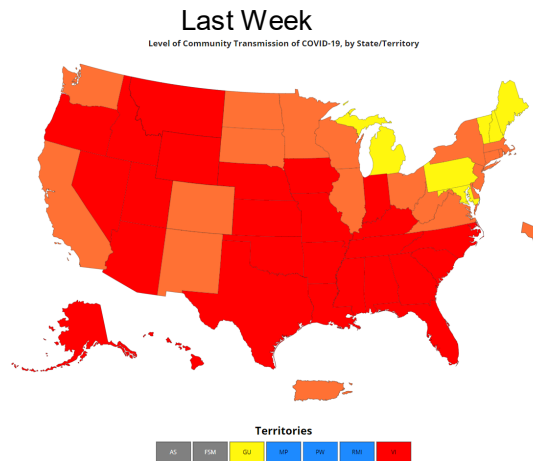
	Region	Population (<12 yrs)	Population (<18 yrs)	Cumulative Case Count (<12 yrs)	7-day Average Daily Case Count (<12 yrs)	7-day Average Daily Case Rate per Million (<12 yrs)	7-day Average Daily Pediatric Hospitalization Count (<18 yrs)	7-day Average Daily Pediatric Hospitalization Rate per Million (<18 yrs)	7-day Average Daily Death Count (<12 yrs)
1	Detroit	735529	1134247	29468	37.1	50.4	14.6	12.9	0
2	Grand Rapids	230120	350652	10042	11.6	50.4	0.7	2.0	0
3	Kalamazoo	140422	214801	5472	8.9	63.4	1.1	5.1	0
4	Saginaw	78759	122834	3327	4.1	52.1	0.3	2.4	0
5	Lansing	78140	119915	3261	4.3	55.0	0.1	0.8	0
6	Traverse City	53099	83462	1589	2.6	49.0	0.0	0.0	0
7	Jackson	41274	64091	1523	1.3	31.5	0.3	4.7	0
8	Upper Peninsula	34645	53875	1436	1.3	37.5	0.0	0.0	0
99	Michigan	1391988	2143877	56168	71.6	51.4	17.1	8.0	0

Note: Data as of 8/9; case data 8/2, hospitalization data 8/9. Hospitalization data is for pediatric patients (<18)



Nearly all States and Territories are at High CDC Transmission Level

- Michigan is at substantial transmission level
 - 75.1/100,000/7day (CDC) (high is ≥ 100)
 - 7.0% positivity
- 14 jurisdictions have substantial transmission (orange states); down 6 from 7 days ago
- 40 jurisdictions have high transmission (red states); up 13 from 7 days ago
- CDC recommends masking when indoor public spaces; regardless of vaccination status



National Comparison

Spread

Severity

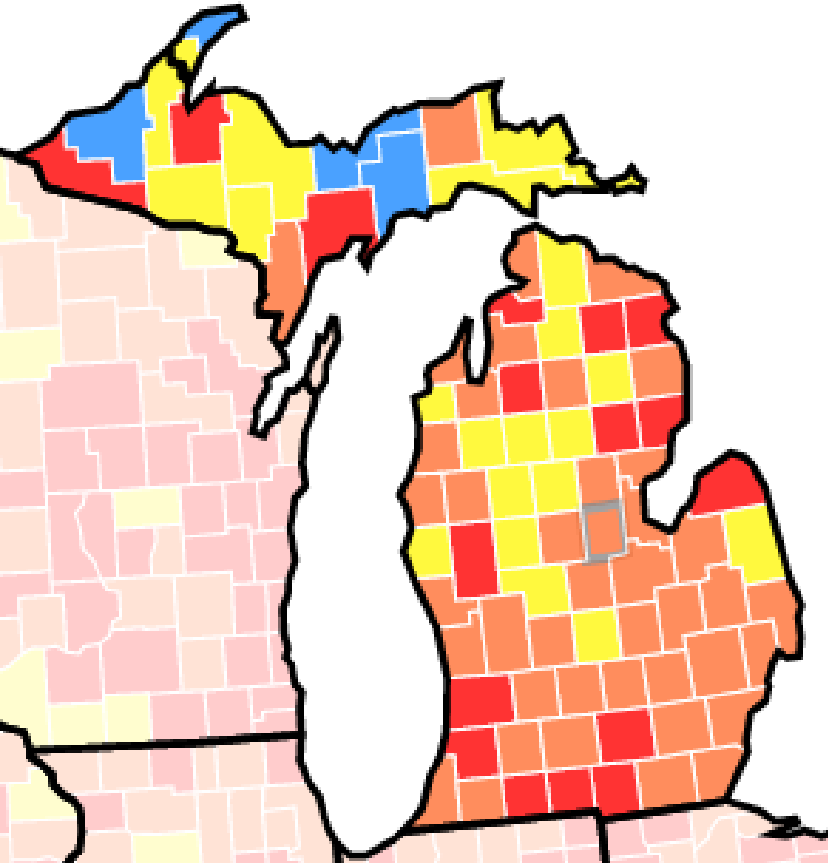
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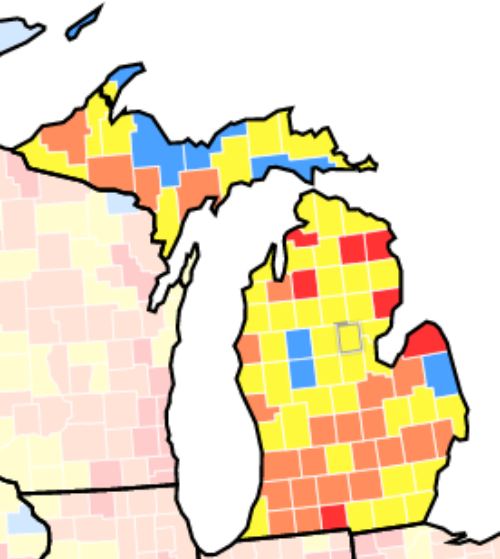
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Most Michigan Counties at Substantial or High Transmission Levels

This Week, 8/8



Last week, 8/1



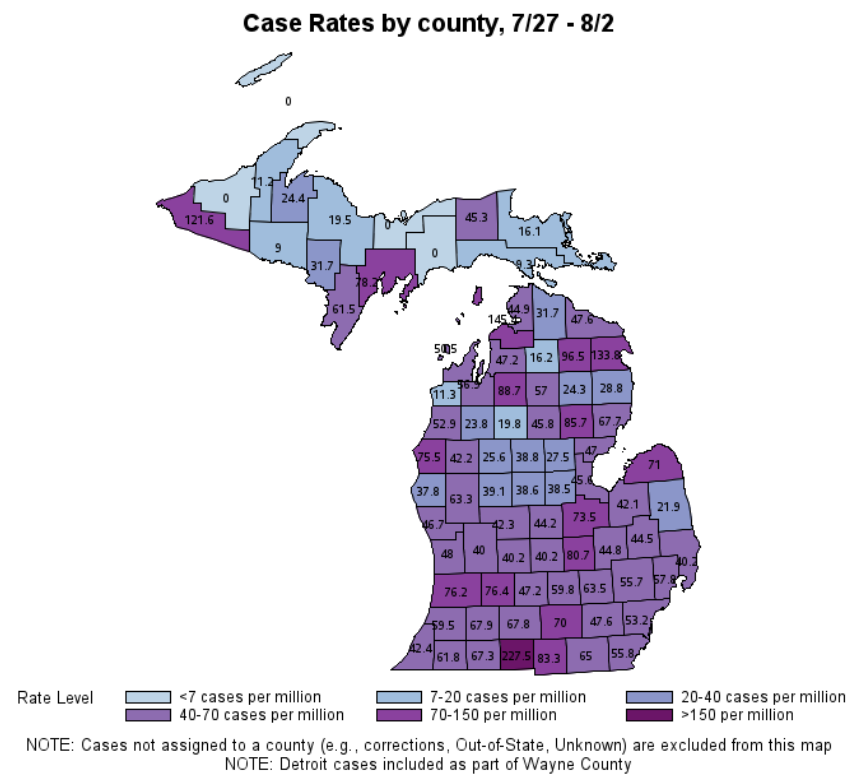
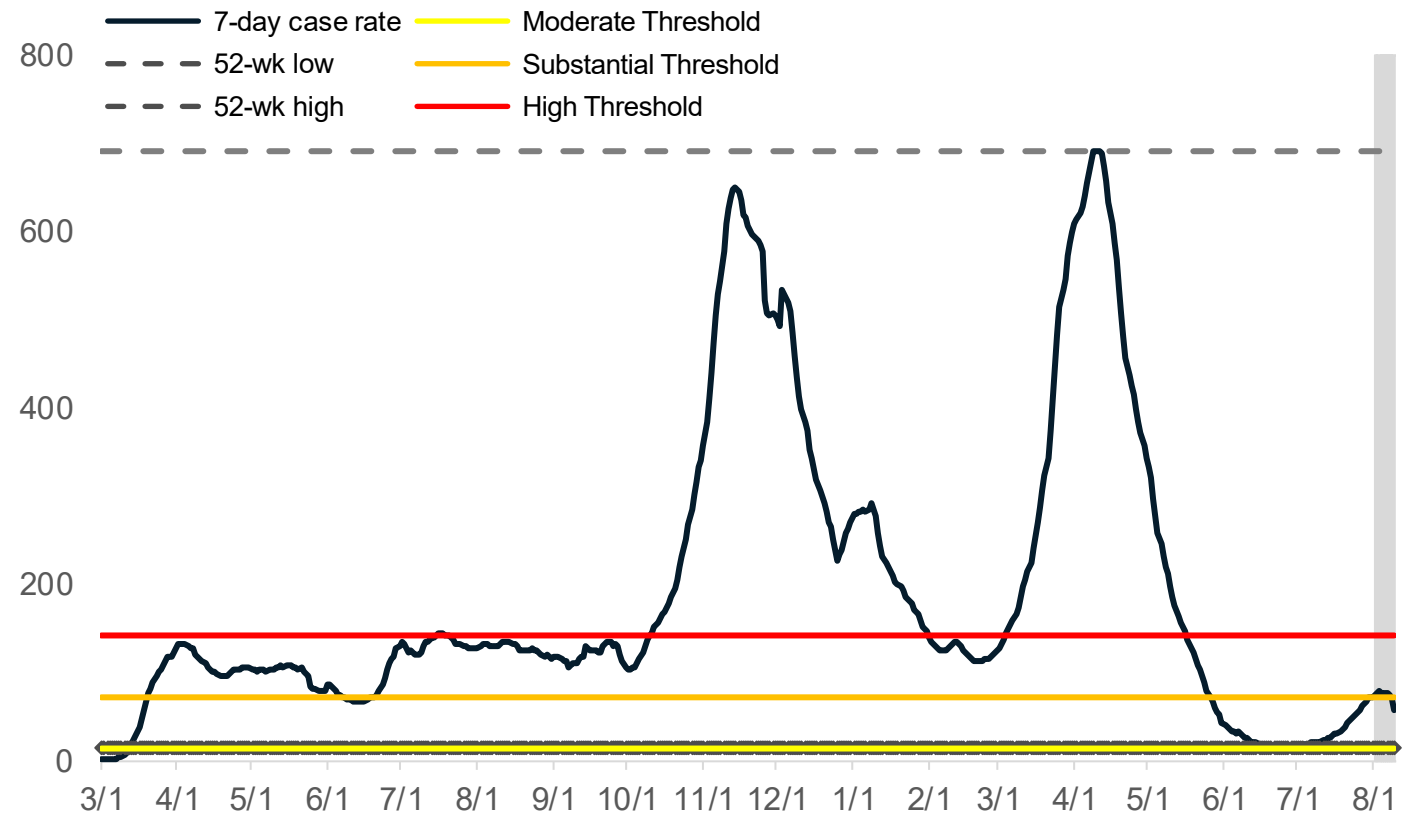
Transmission Levels	# of counties	
	■ This week	■ Last week
Low	4	7
Moderate	20	45
Substantial	42	24
High	17	7

Updates since last week:

- 4 of 83 counties met low transmission level this week, a 3 county decrease from last week
- 20 of 83 counties met moderate transmission classification, a 25 county decrease
- 42 of 83 counties met substantial transmission classification, an 18 county increase
- 17 of 83 counties met high transmission classification, a 10 county increase from last week

Cases per Capita Increasing Statewide

Daily new confirmed and probable cases per million (7-day rolling average) *by onset date*

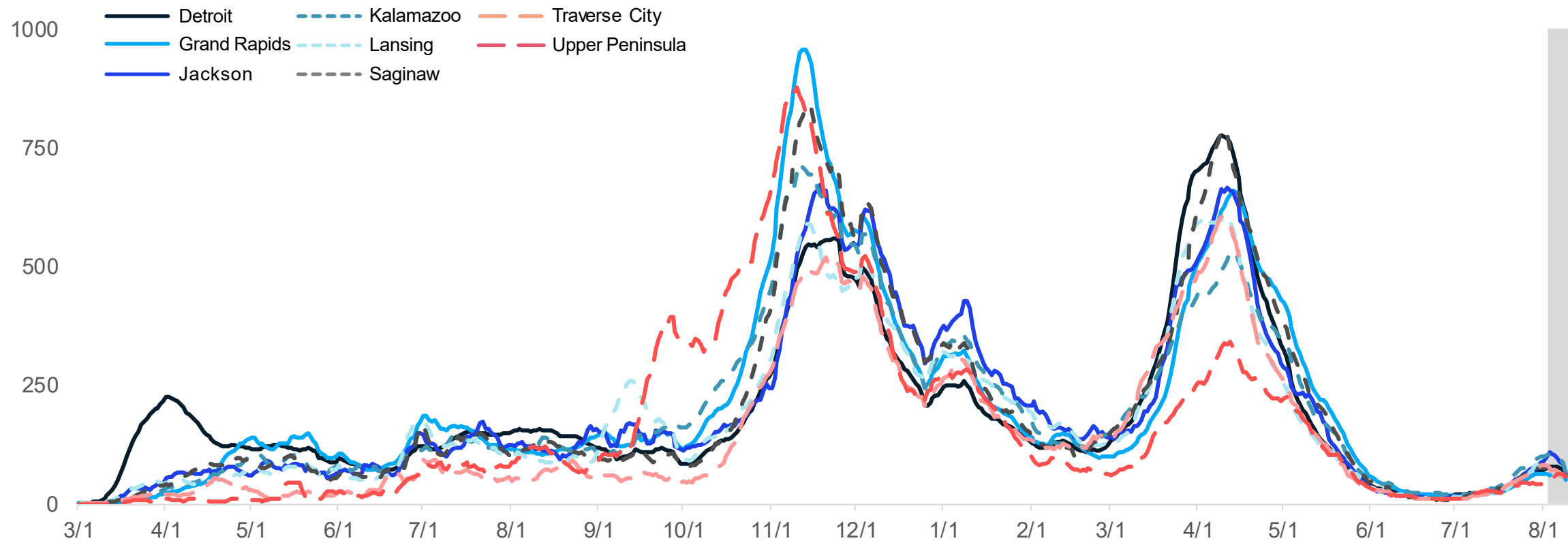


- Case rates in Michigan are in substantial transmission
- Case rates in most counties are above 40 cases per million population

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



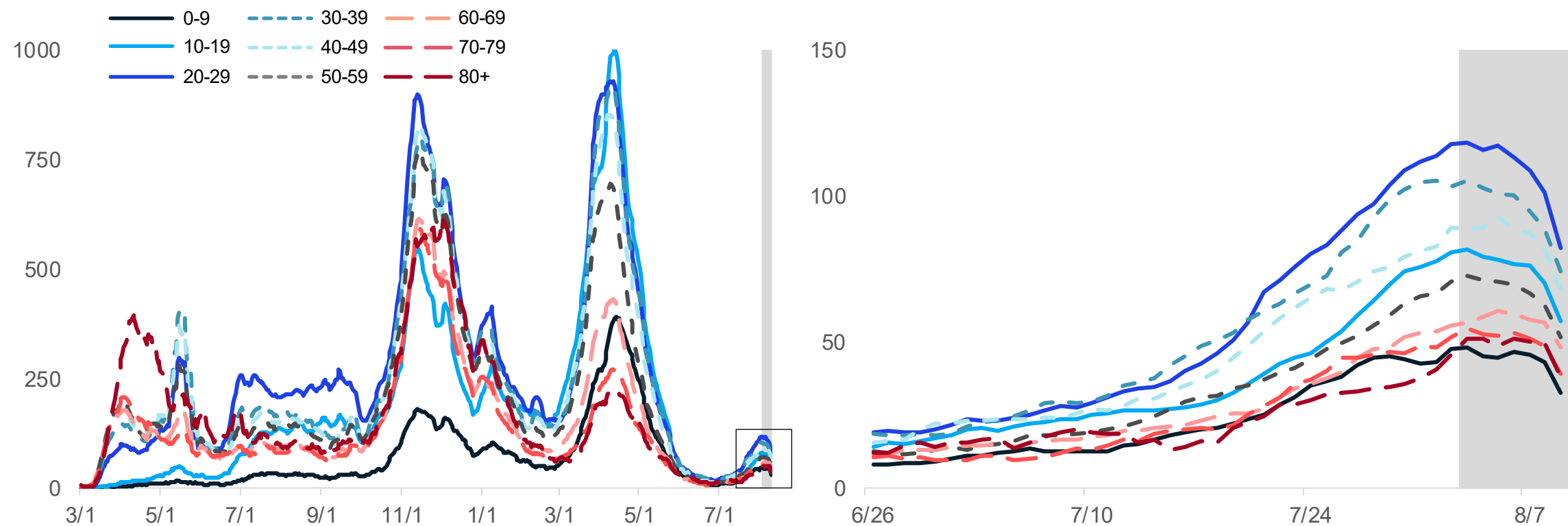
Cases per Capita Increasing Within All MERC Regions



- Case rate trends for all regions are increasing
- Kalamazoo and Jackson currently have the highest case rates

Case Rate Trends are Increasing for All Age Groups

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



- Case rate trends for all age groups are increasing
- Case rates for all age groups are between 45 and 118 cases per million (through 8/2)

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

National Comparison

Spread

Severity

Public Health
Response

Other
Indicators

Science
Round-up

Number of Cases and Case Rates are Increasing for All Age Groups

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	55.0	47.7	25% (+11)
10-19	101.1	80.6	49% (+33)
20-29	162.4	117.7	33% (+40)
30-39	125.4	103.4	28% (+28)
40-49	105.6	89.5	32% (+26)
50-59	95.3	70.6	42% (+28)
60-69	71.3	55.9	41% (+21)
70-79	39.6	51.6	15% (+1-5)
80+	18.9	45.5	39% (+1-5)
Total [¶]	775.9	77.2	34% (+197)

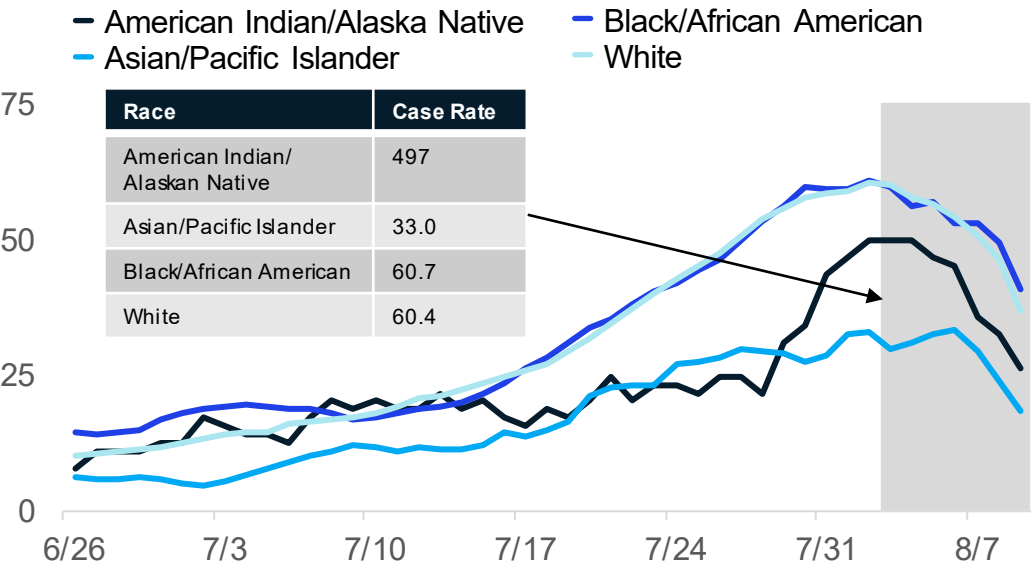
Note: Case information sourced from MDHHS and reflects date of onset of symptoms
Source: MDHHS – Michigan Disease Surveillance System

[¶] Total may not reflect state due to missing age data

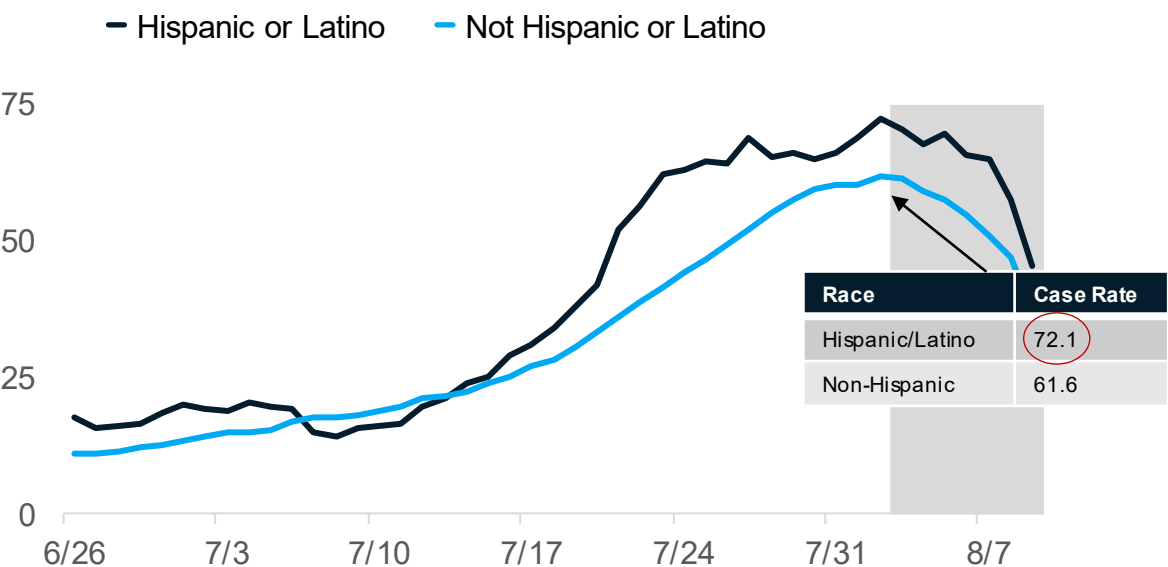
- Average daily number of cases (162) is highest for those aged 20-29
- Avg. daily case rate (117.7 cases/mil) is currently highest for 20-29
- Case rates for all age groups are between 45-118 cases per million
- Case rate trends are increasing for all age groups
- Case rates bottomed out on June 26, 2021

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

National Comparison

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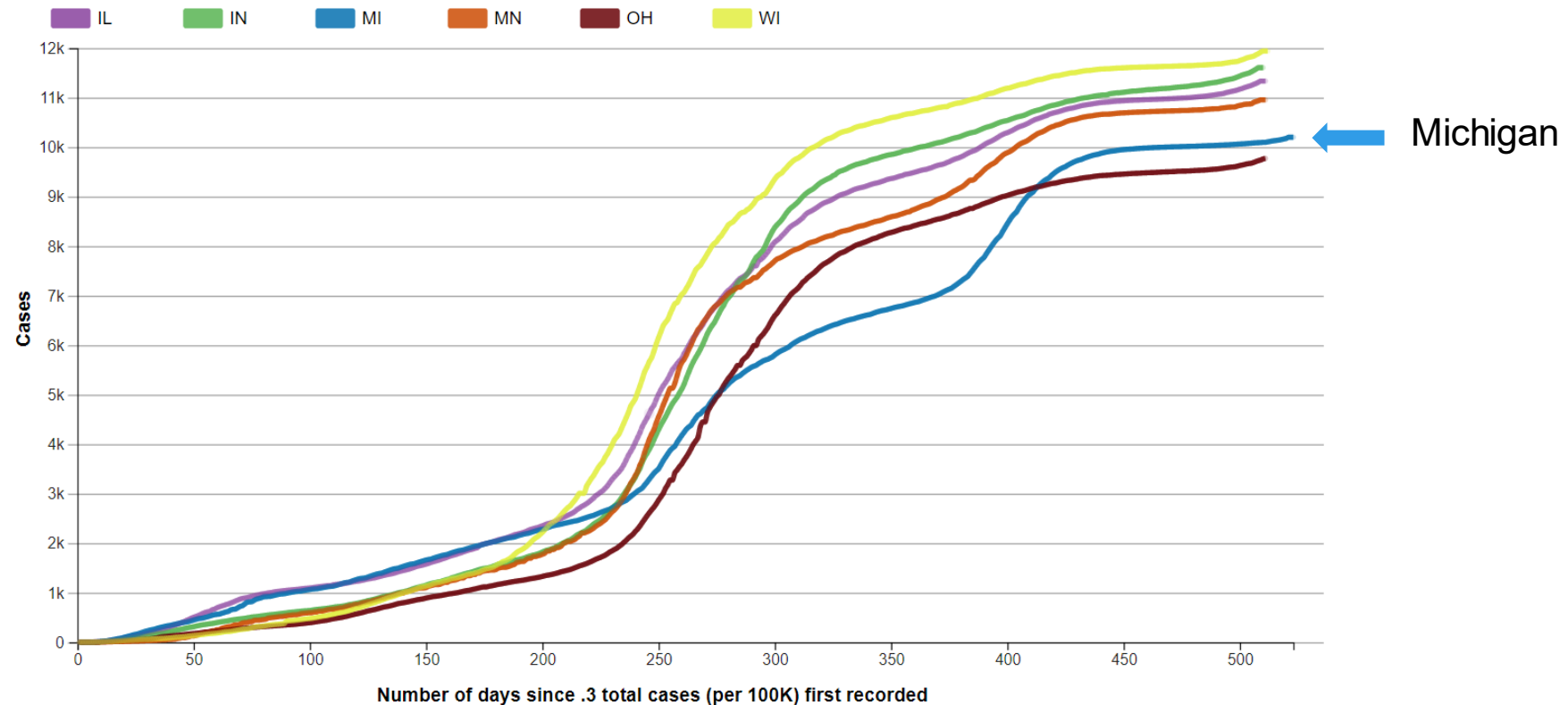
Other
Indicators

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Cumulative COVID-19 Case Rates: Midwest Comparison

Cumulative cases of Covid-19, reported to CDC, in IL, IN, MI, MN, OH, and WI

Cumulative cases (per 100K), by number of days since .3 total cases (per 100K) first recorded.



- 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

National Comparison

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Severity

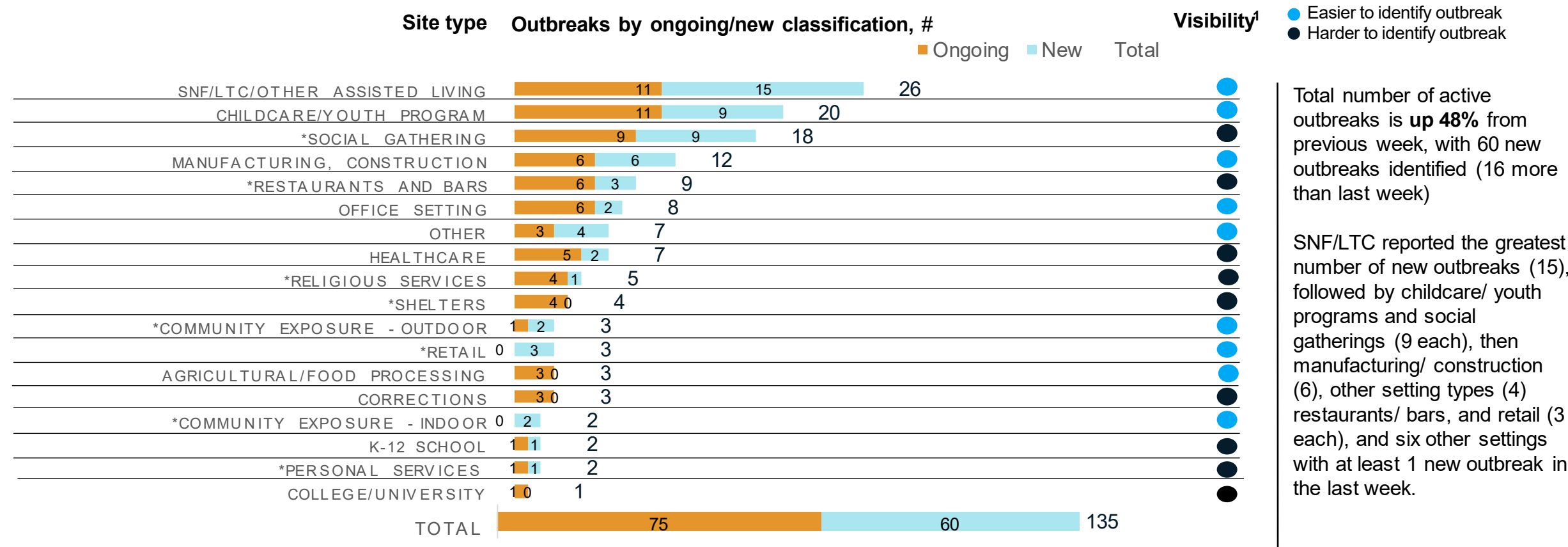
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Number of Outbreaks Reported has Increased

Number of outbreak investigations by site type, week ending Aug 5



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

Outbreaks related to festivals

- Individuals infected with COVID-19 who attend fairs and festivals can spread COVID-19 at and beyond the event.
- All attendees are encouraged to get tested for COVID-19, regardless of vaccination status.
- 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.

Event	Faster Horses	Bike Time
Event Type	Music Festival with camping in Jackson County	Motorcycle Rally in Muskegon County
Event Dates	7/15-7/19	July 15-18
Case onsets	7/17 – 7/30	7/15 – 7/28
Primary Cases	87 (5 delta) (25 vaccinated)	14 (1 delta) (2 vaccinated)
Secondary Cases	12	7 (cases at 3 work places)
Median Age	24 years (16-61)	42.0 years (20-64)
Geography	30 Counties and Ohio	3 Counties



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

Hospitalizations and ICU utilization are increasing

- COVID-like illness (CLI) is 1.6% (up from 0.9% last week)
- Hospital admissions are increasing for all age groups over 20 years in age
- Hospitalizations up 52% since last week (vs. 38% increase week prior)
- All regions are showing increasing trends in hospitalization trends this week
 - Hospitalization for COVID-19 is highest in Regions 2S and 2N
- Volume of COVID-19 patients in intensive care has increased 57% since last week (vs. 38% increase last week)

Death rate is 0.5 daily deaths per million people

- Death rate has increased over the past week (vs. plateaued from last week)
- 93% decrease since April 24 peak
- Proportion of deaths among those under 60 years of age has increased from the prior week

National Comparison

Spread

Severity

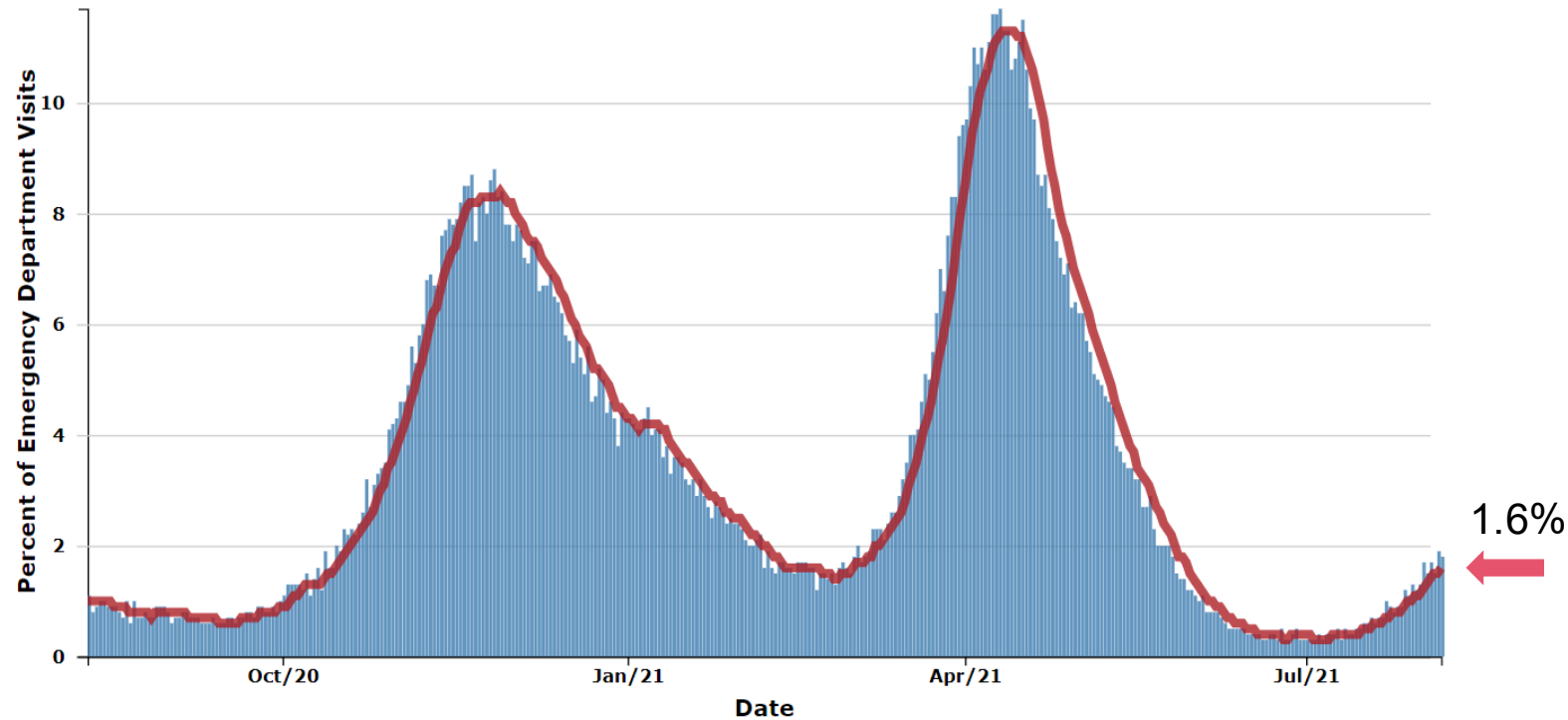
Public Health
Response

Other
Indicators

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Michigan Trends in Emergency Department (ED) Visits for COVID-19-Like Illness (CLI) saw the largest increase in over 3 months

Percentage of Emergency Department visits with Diagnosed COVID-19 in Michigan, All Ages



- Trends for ED visits have increased to 1.6% since last week (up from 0.9% 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>

National Comparison

Spread

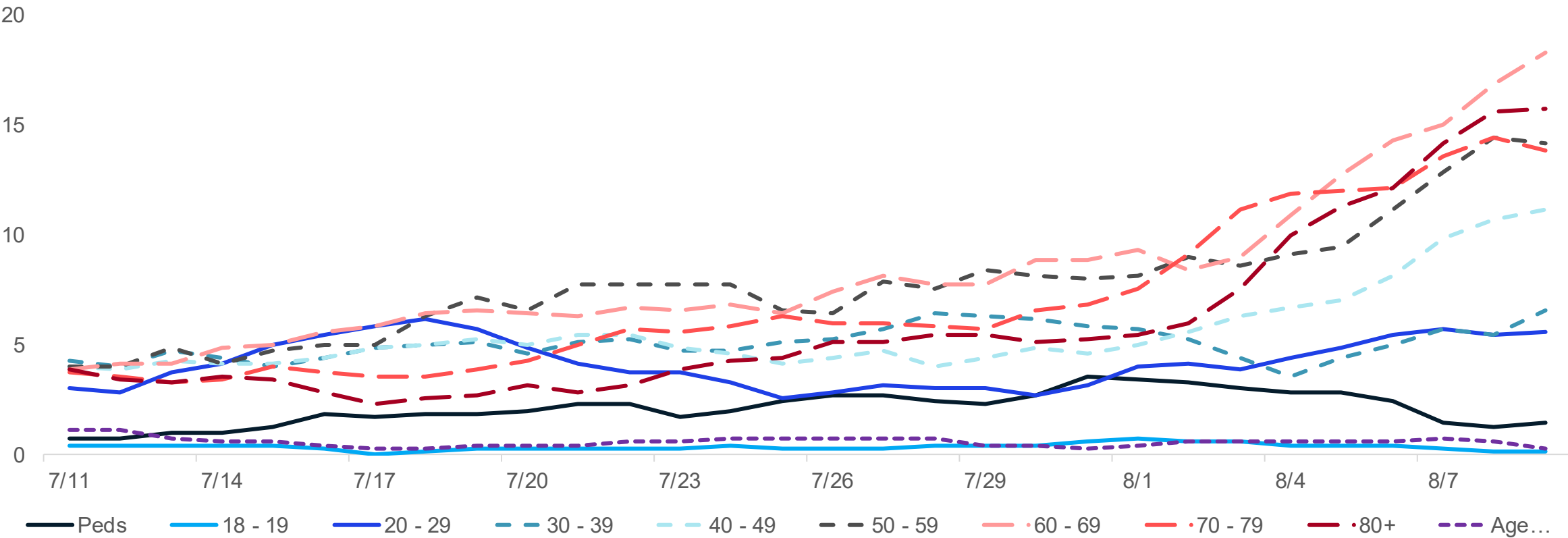
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Average Hospital Admissions Are Increase for all Age Groups 20y+



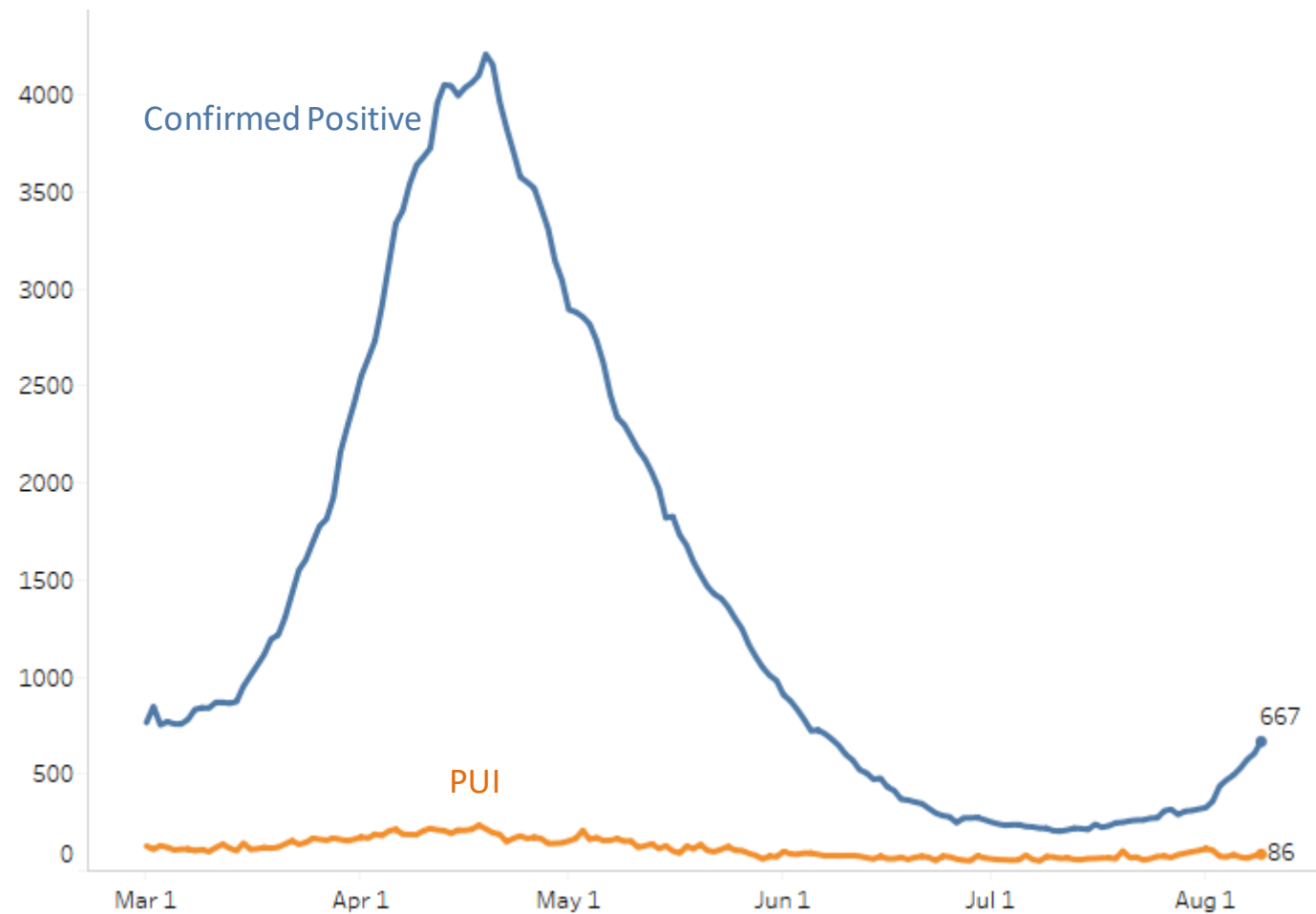
Source: CHECC & EM Resource

- Trends for daily average hospital admissions have increased 68% since last week (vs. 22% increase prior week)
- Trends within all age groups twenty and older experiences have experience increases in daily hospital admissions
- Over the past week, those 60-69 years have seen the highest number of avg. daily hospital admissions (18 admissions)



Statewide Hospitalization Trends: Total COVID+ Census

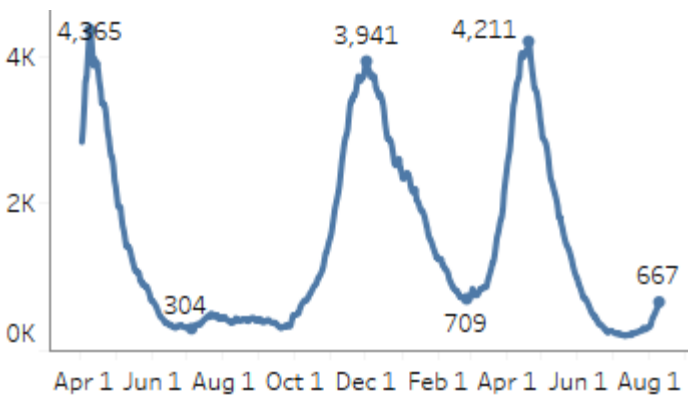
Hospitalization Trends 3/1/2021 – 8/9/2021
Confirmed Positive & Persons Under Investigation (PUI)



COVID+ census in hospitals have increased 52% from last week (previous week was up 38%).

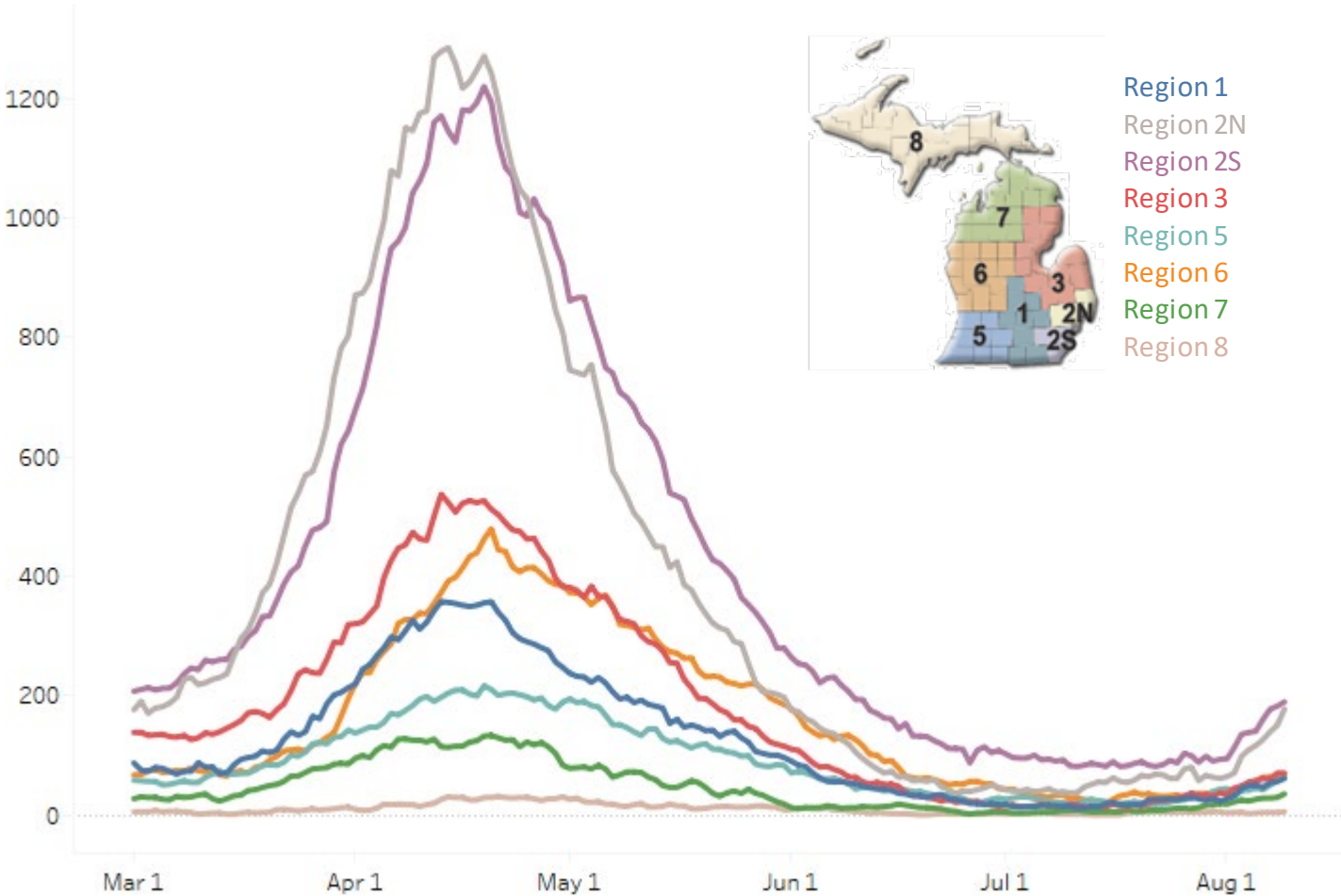
Hospitalizations are now doubling every 10 days.

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 3/1/2021 – 8/9/2021
Confirmed Positive by Region



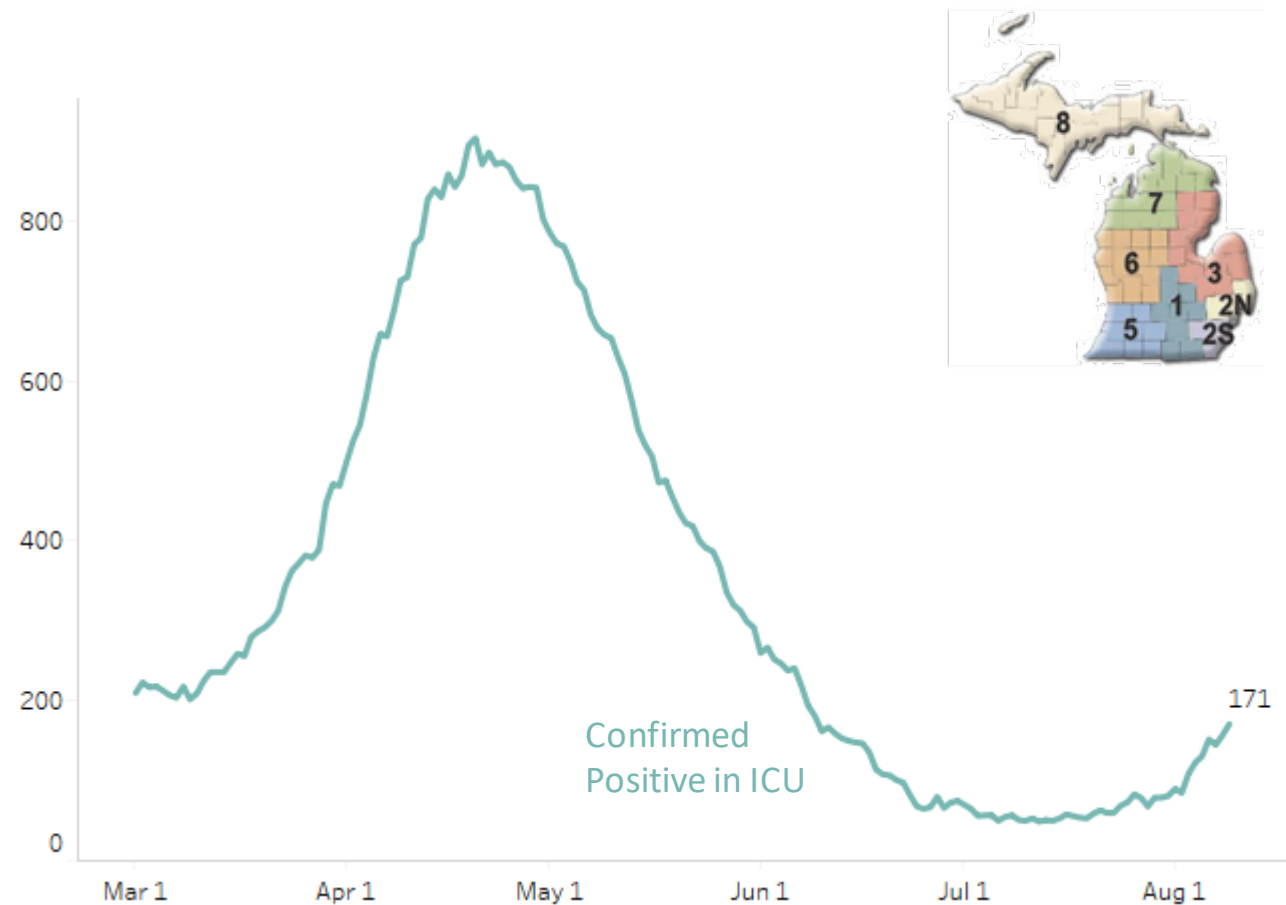
All regions show increasing hospitalization trends this week.

Six regions are now above 50/M COVID+ hospitalizations (all except Regions 6 and 8)

Region	COVID+ Hospitalizations (% Δ from last week)	COVID+ Hospitalizations / MM
Region 1	61 (39%)	56/M
Region 2N	177 (81%)	80/M
Region 2S	189 (40%)	85/M
Region 3	70 (46%)	62/M
Region 5	63 (54%)	66/M
Region 6	67 (56%)	46/M
Region 7	35 (40%)	70/M
Region 8	5 (25%)	16/M

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 3/1/2021 – 8/9/2021
Confirmed Positive in ICUs



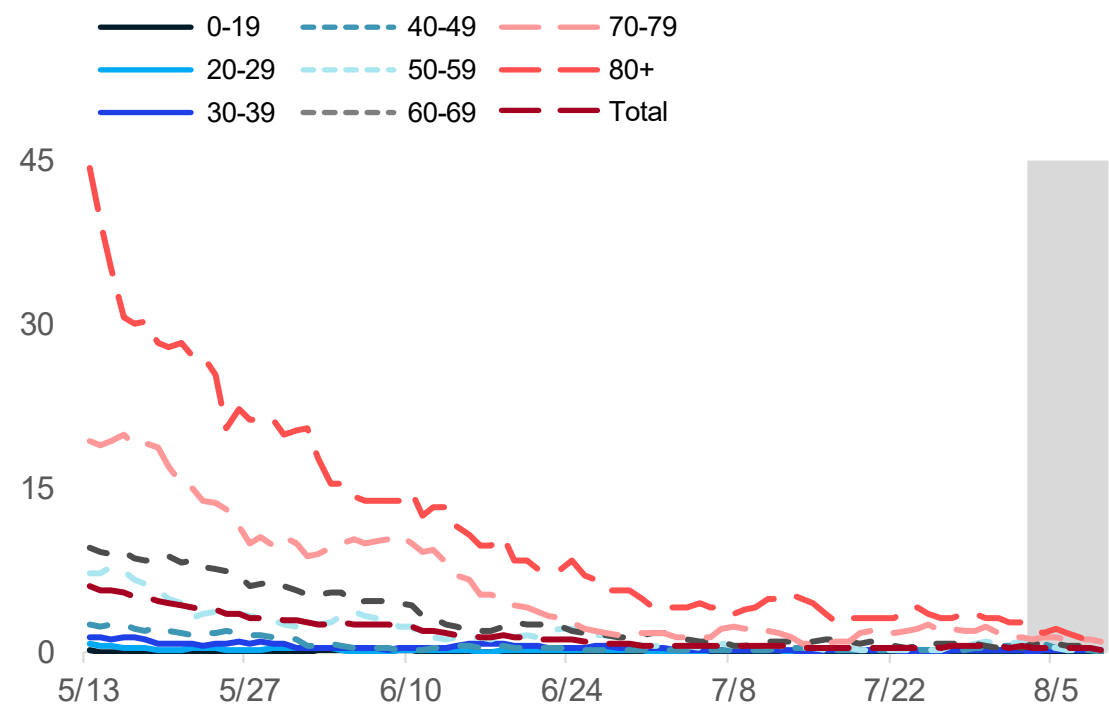
Overall, volume of COVID+ patients in ICUs has increased by 57% from last week, to 171 patients.

All regions except Region 8 have increase ICU hospitalizations from last week. All regions remain below 85% overall ICU occupancy.

Region	Adult COVID+ in ICU (% Δ from last week)	Adult ICU Occupancy	% of Adult ICU beds COVID+
Region 1	16 (78%)	81%	8%
Region 2N	38 (90%)	69%	7%
Region 2S	50 (52%)	78%	7%
Region 3	14 (56%)	82%	4%
Region 5	15 (15%)	60%	8%
Region 6	24 (41%)	75%	10%
Region 7	12 (100%)	60%	7%
Region 8	2 (0%)	57%	3%

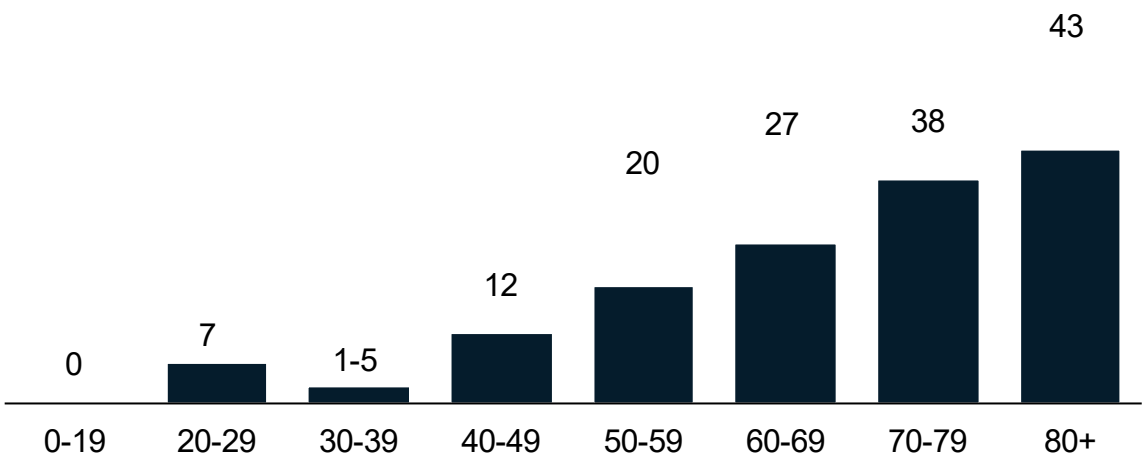
Average and total new deaths, by age group

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 8/2/2021)

- 28% of deaths below age sixty



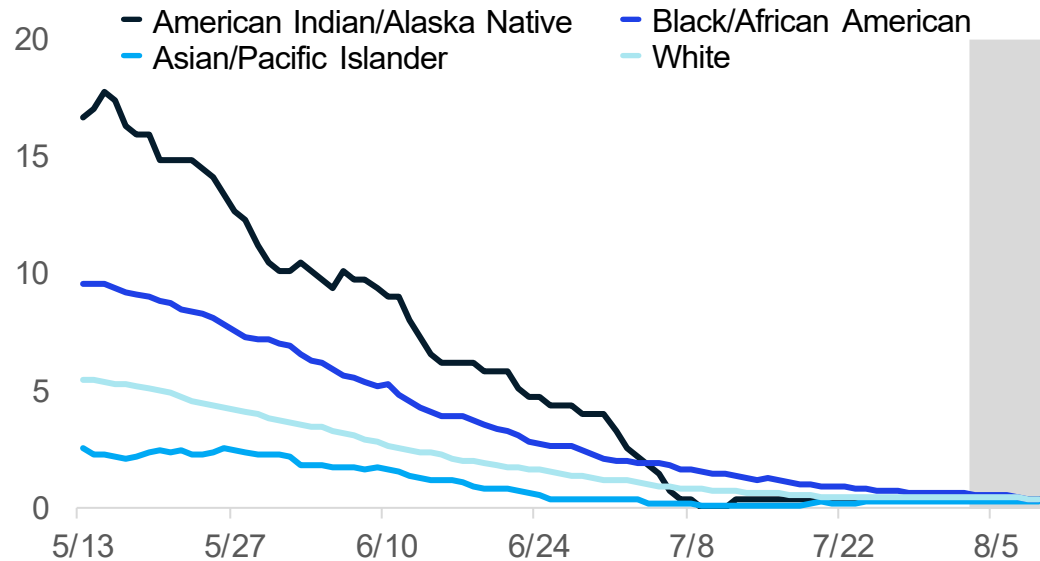
- Overall trends for daily average deaths are increasing since last week
- Through 8/2, the 7-day avg. death rate is below 1.0 daily deaths per million people for those under the age of 70

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

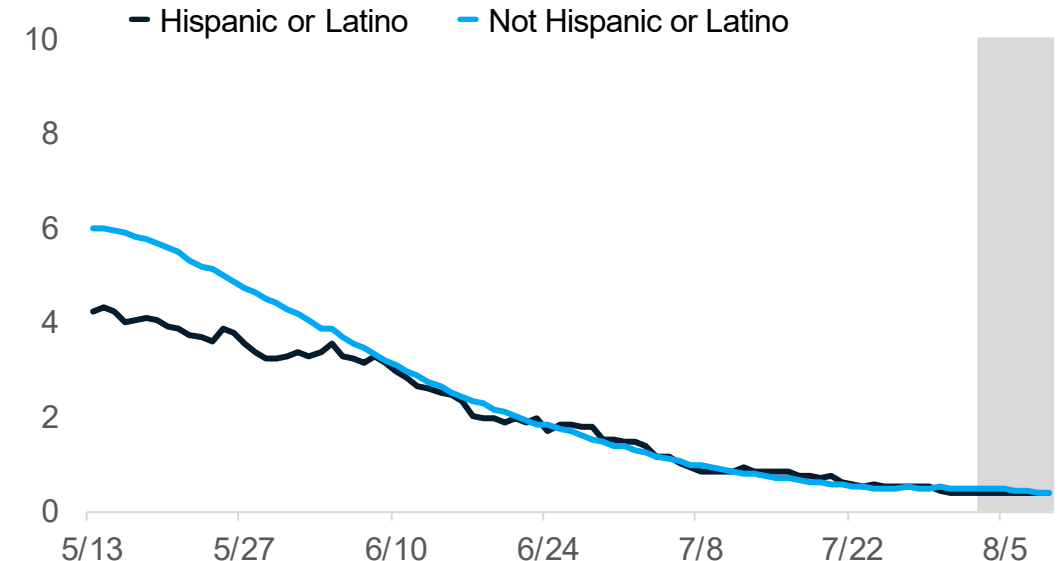


30-day rolling average daily deaths per million people by race and ethnicity

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)

- 83.3% adjusted administration ratio (excluding federal entities, [CDC channel portfolio](#) 7/23/2021)
- 5,811 first doses delivered each day (7 day rolling average): most administered frequently by pharmacies, local health departments, and hospitals

Coverage (people vaccinated)

- 64.8% (+.4) of aged 18+ have had first dose of vaccine; 86.2% (+.3) of aged 65+ have had first dose
- 4,916,256 people in Michigan have completed vaccination series (4,890,859 and 4,858,654 last 2 weeks)
- Initiation highest among Asian, Native Hawaiian or Pacific Islander and American Indian/Alaskan Native individuals (MI COVID Vaccine Dashboard 8/10/21)
- 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 8/09/2021

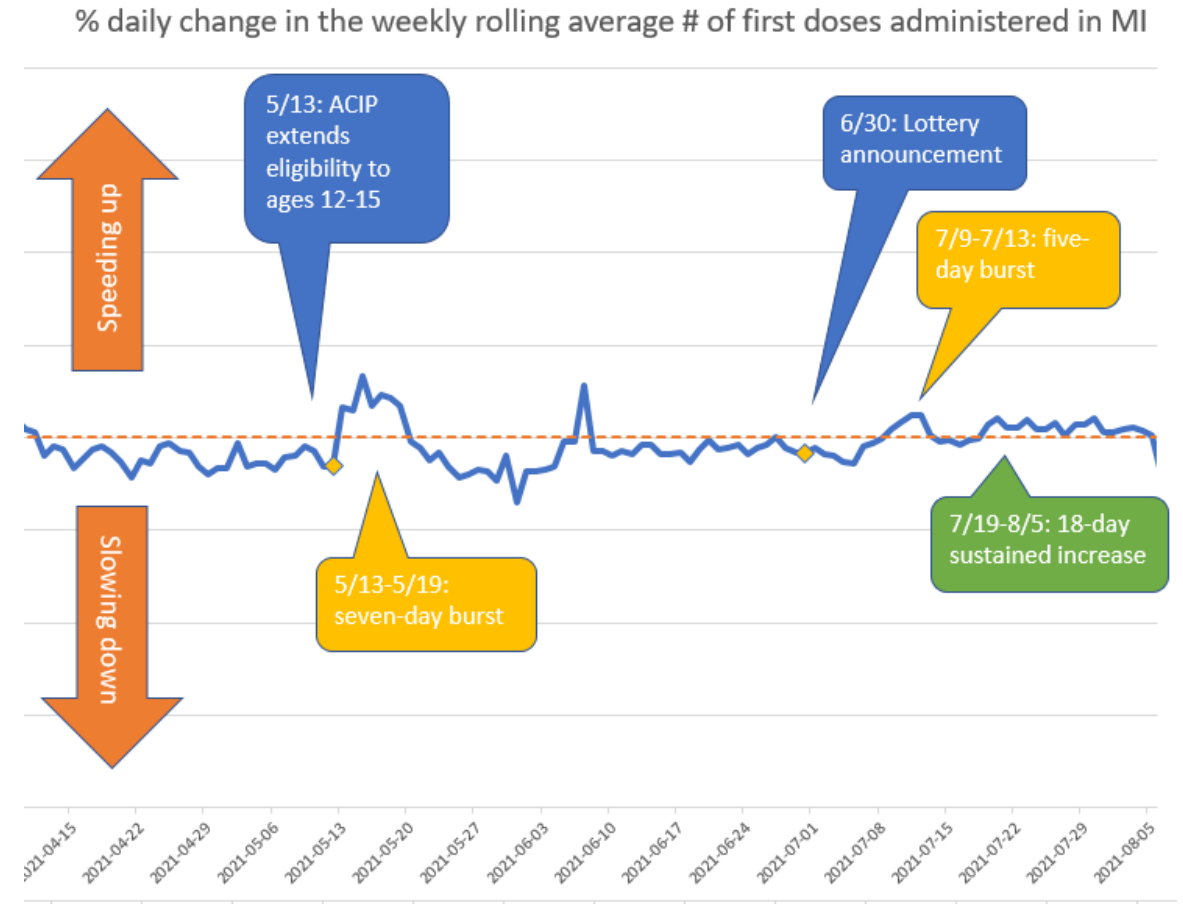
12,199,070 doses delivered to providers and 9,893,319 doses administered (CDC tracker)

83.3% adjusted administration ratio (excluding federal entities, [CDC channel portfolio](#) 7/23/2021)

- 68,382 doses administered week ending 8/7; week ending
- 6,593 first doses/day

Aug 1 – Aug 7 (inclusive), doses were most frequently administered by

- Pharmacies (49.0K)
- LHD (5.8K) and hospitals (4.3K)
- Family practice (2.5K), and FQHCs (2.5K), and Pediatricians (1,028)



National Comparison

Spread

Severity

Public Health
Response

Other
Indicators

Science
Round-up

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

National Comparison

Spread

Severity

Public Health
Response

Other
Indicators

Science
Round-up

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 8/4/21):

- 10,181 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 238 deaths (210 persons age 65 years or older)
 - 650 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 164 million people in the United States have been fully vaccinated as of August 2, 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.

National Comparison

Spread

Severity

Public Health
Response

Other
Indicators

Science
Round-up

Science Round Up

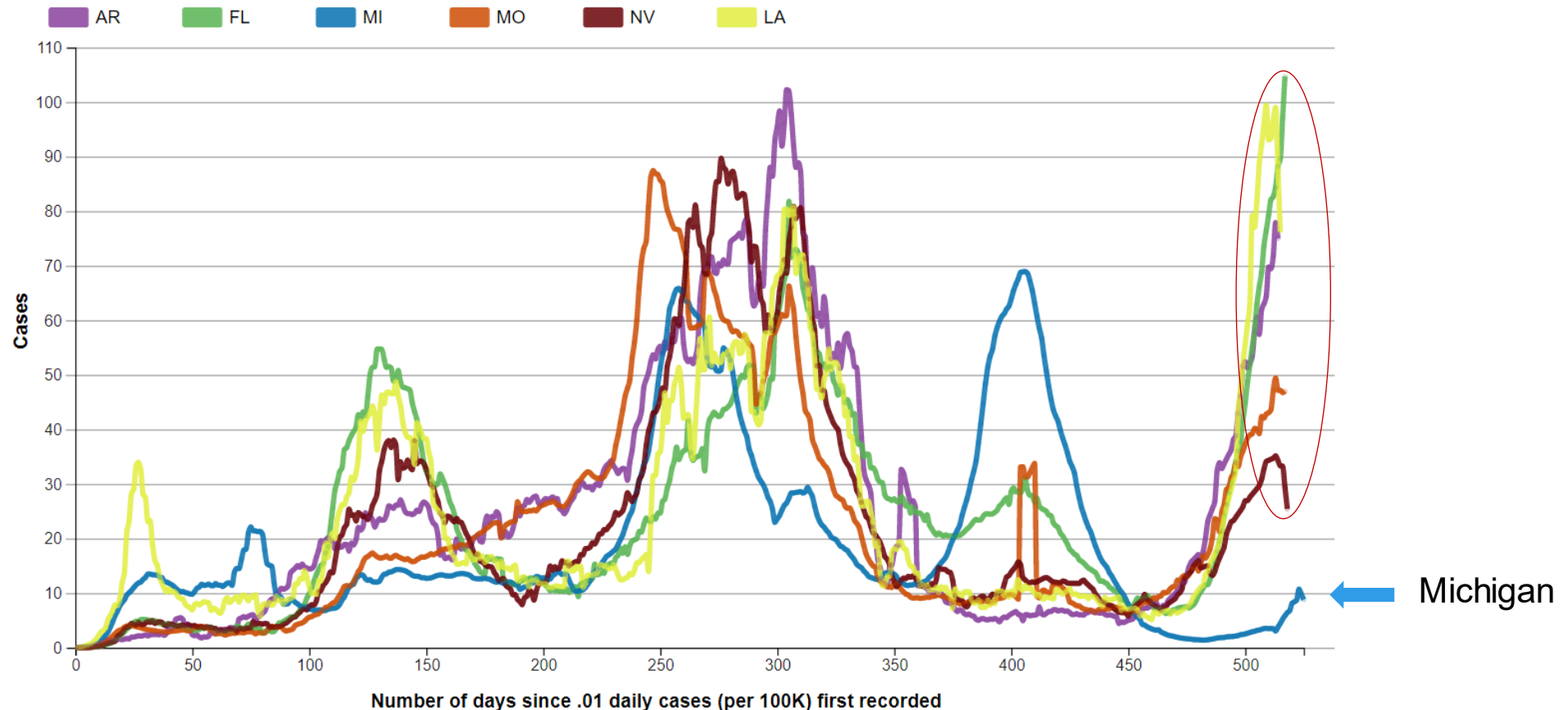
- What is delta and what does it mean?
 - The delta variant (B.1.617.2) has led to substantial transmission throughout the U.S. with some states experiencing the highest level of COVID-19 cases and hospitalizations to date
 - Within Michigan, delta has quickly become the predominant variant and is the cause for the current increase in cases and hospitalizations
 - Models are projecting a continued increase in hospitalizations and deaths over the next four to six weeks, maybe longer
 - With return to school year, lack of layered mitigation measures will likely mean increases in cases and severe outcomes among children (e.g., hospitalizations, MIS-C, and long-COVID)
- Are vaccinations working? Yes!
 - A larger proportion of those who become cases (98%), are hospitalized (95%), and died (95%) from COVID are unvaccinated
 - mRNA vaccine are 96% effective at preventing hospitalizations among elderly
 - Among individuals previously infected, vaccination provides additional protection to prevent reinfection
- What can we do about case increases?
 - Layered mitigation, especially for those not vaccinated and those not yet eligible for vaccination can avoid unnecessary surge in cases and unintended school closures due to classroom outbreaks
 - Treatment when exposed: FDA revised EUA for REGEN-COV for post-exposure prophylaxis is a new tool for preventing severe COVID-19 outcomes

What is Delta Variant and What does it mean

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

New cases of Covid-19, reported to CDC, in AR, FL, MI, MO, NV, and LA

Seven-day moving average of new cases (per 100K), by number of days since .01 average daily cases (per 100K) first recorded.



- 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](#)

National Comparison

Spread

Severity

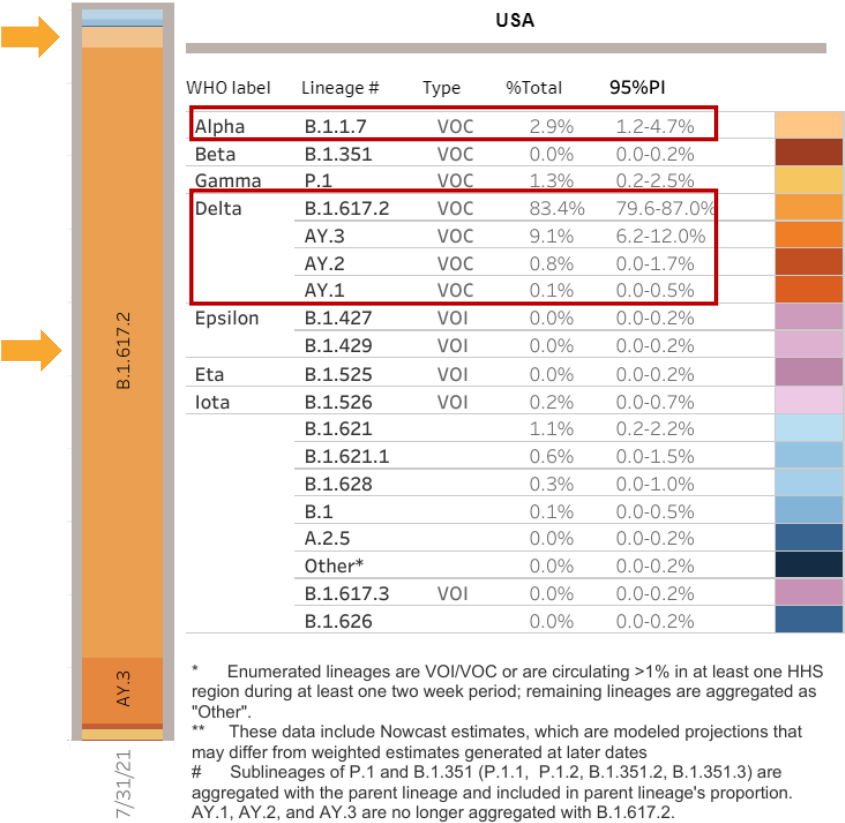
Public Health
Response

Other
Indicators

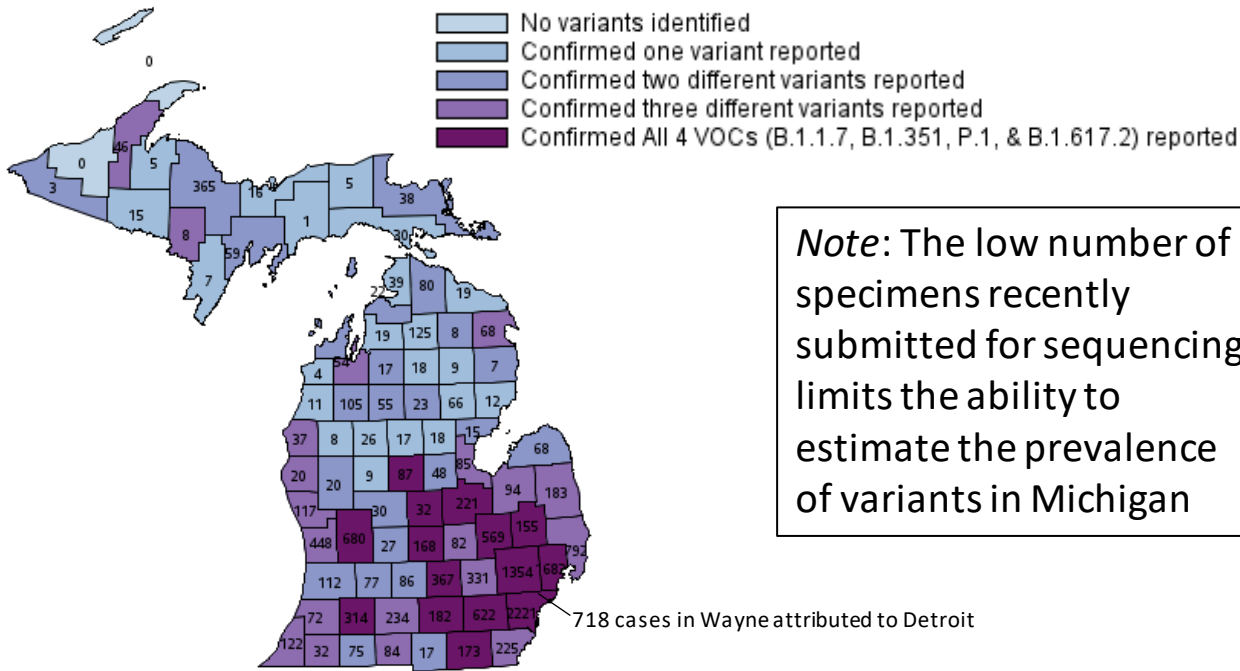
Science
Round-up

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 18 – Jul 31 (NOWCAST)



Variants of Concern in Michigan, Aug 9



Variant	MI Reported Cases [¶]	# of Counties	% Specimens in last 4 wks
B.1.1.7 (alpha)	13,648*	81	<1%
B.1.351 (beta)	85	24	<1%
P.1 (gamma)	329	35	<1%
B.1.617.2 (delta)	350(↑117)	50 (↑11)	99%

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

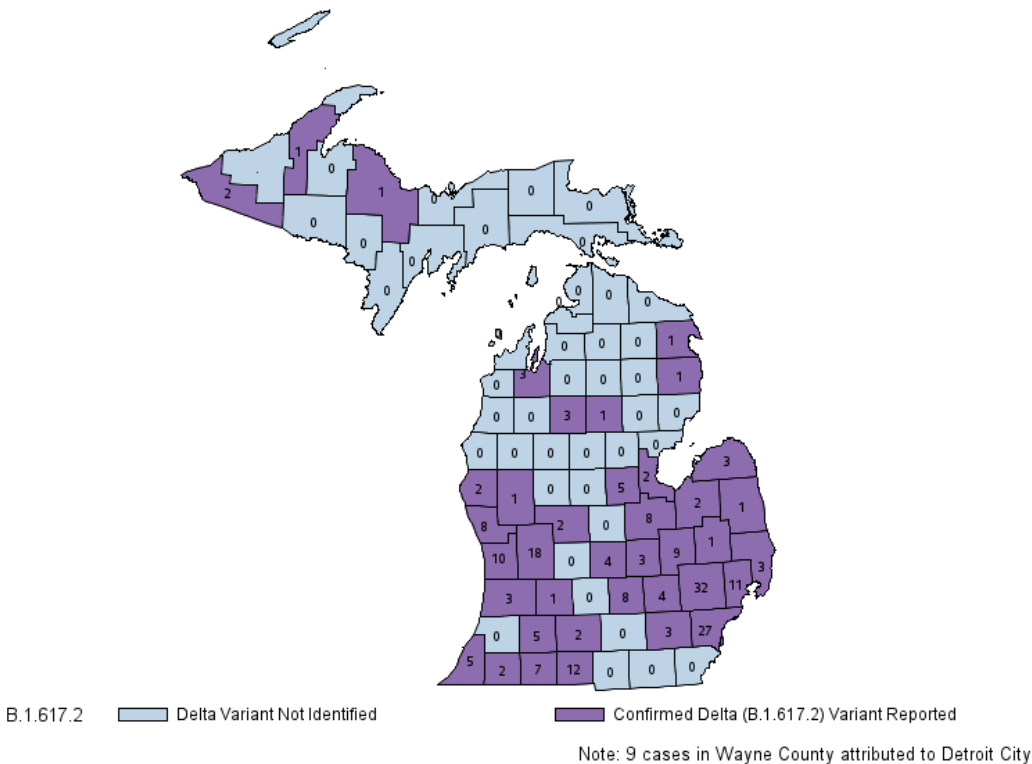
Data last updated Aug 9, 2021
Source: <https://covid.cdc.gov/covid-data-tracker/#variant-proportions> and MDSS



Identified COVID-19 Delta Variants by County

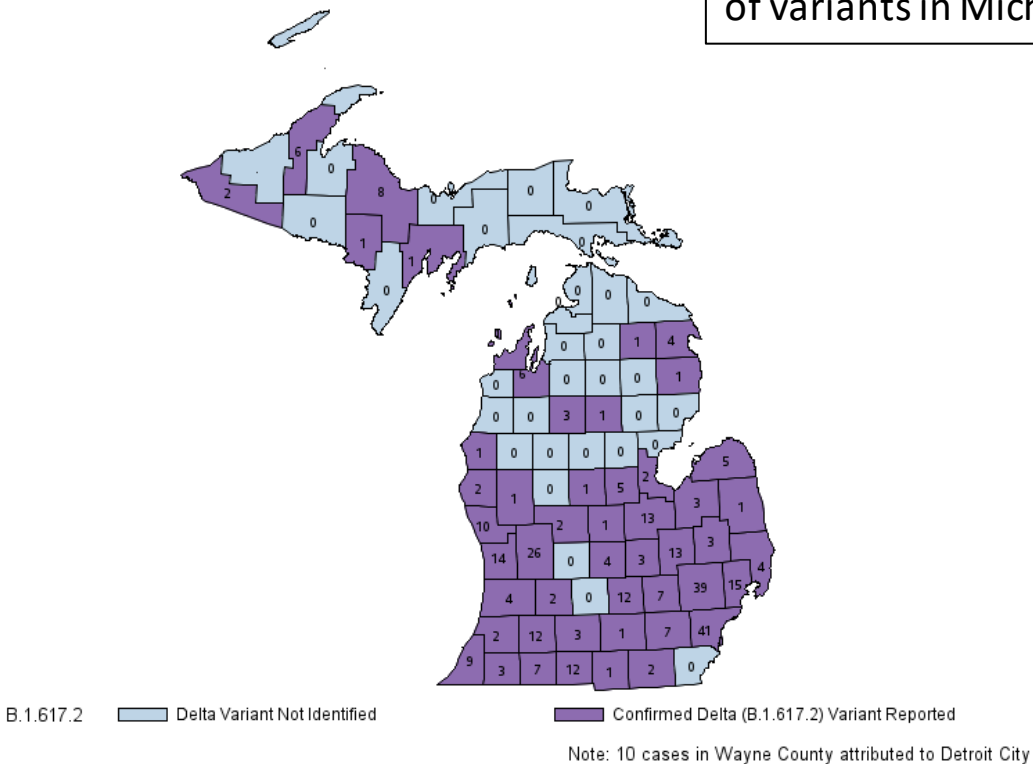
Last week (Aug 3, 2021)

Delta (B.1.617.2) Variant by County
Aug 3



This week (Aug 9, 2021)

Delta (B.1.617.2) Variant by County
Aug 9

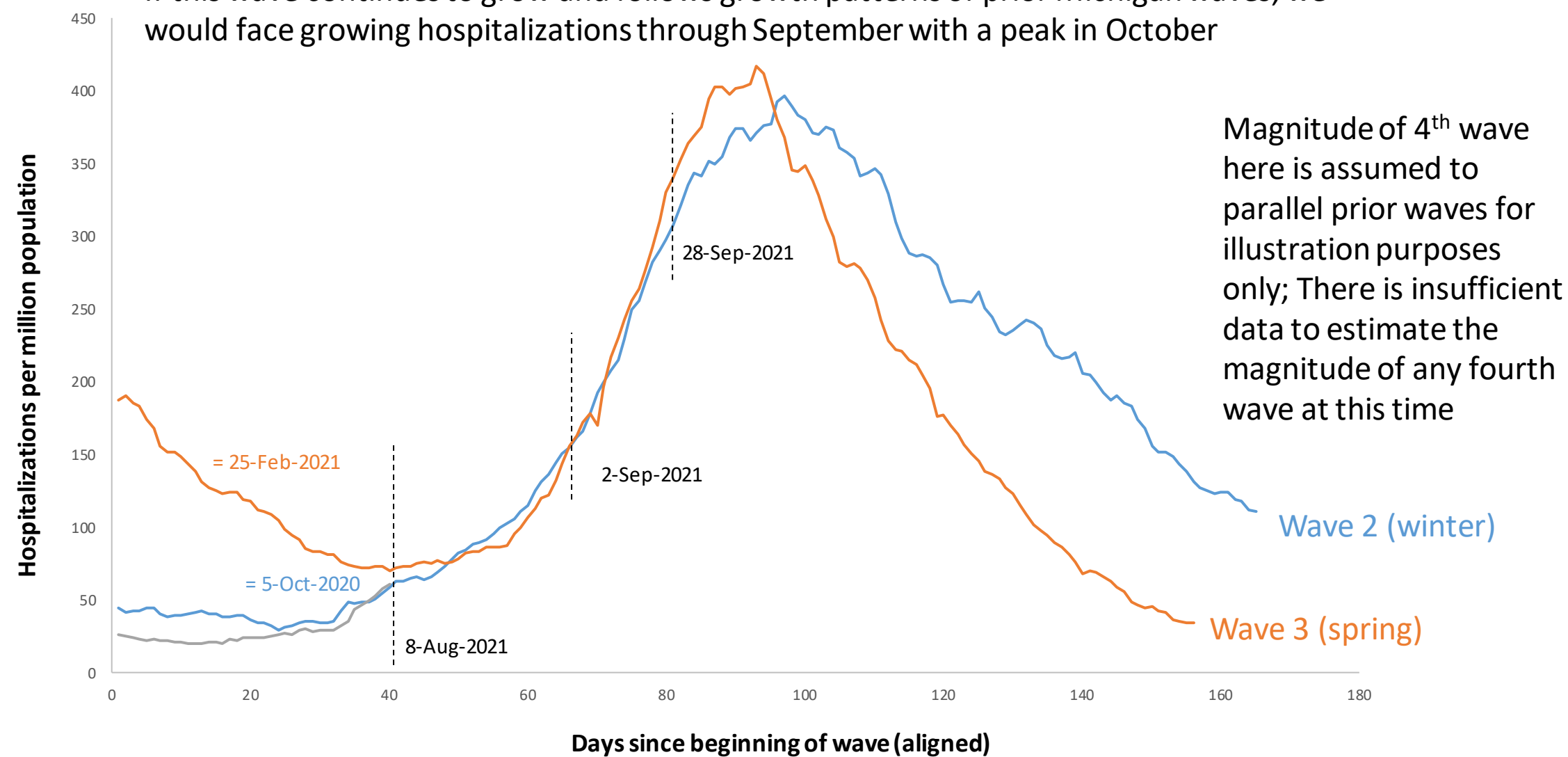


Note: The low number of specimens recently submitted for sequencing limits the ability to estimate the prevalence of variants in Michigan

Data last updated Aug 9, 2021
Source: MDSS

What if Scenarios: Hospitalizations if we follow Wave 2 or 3

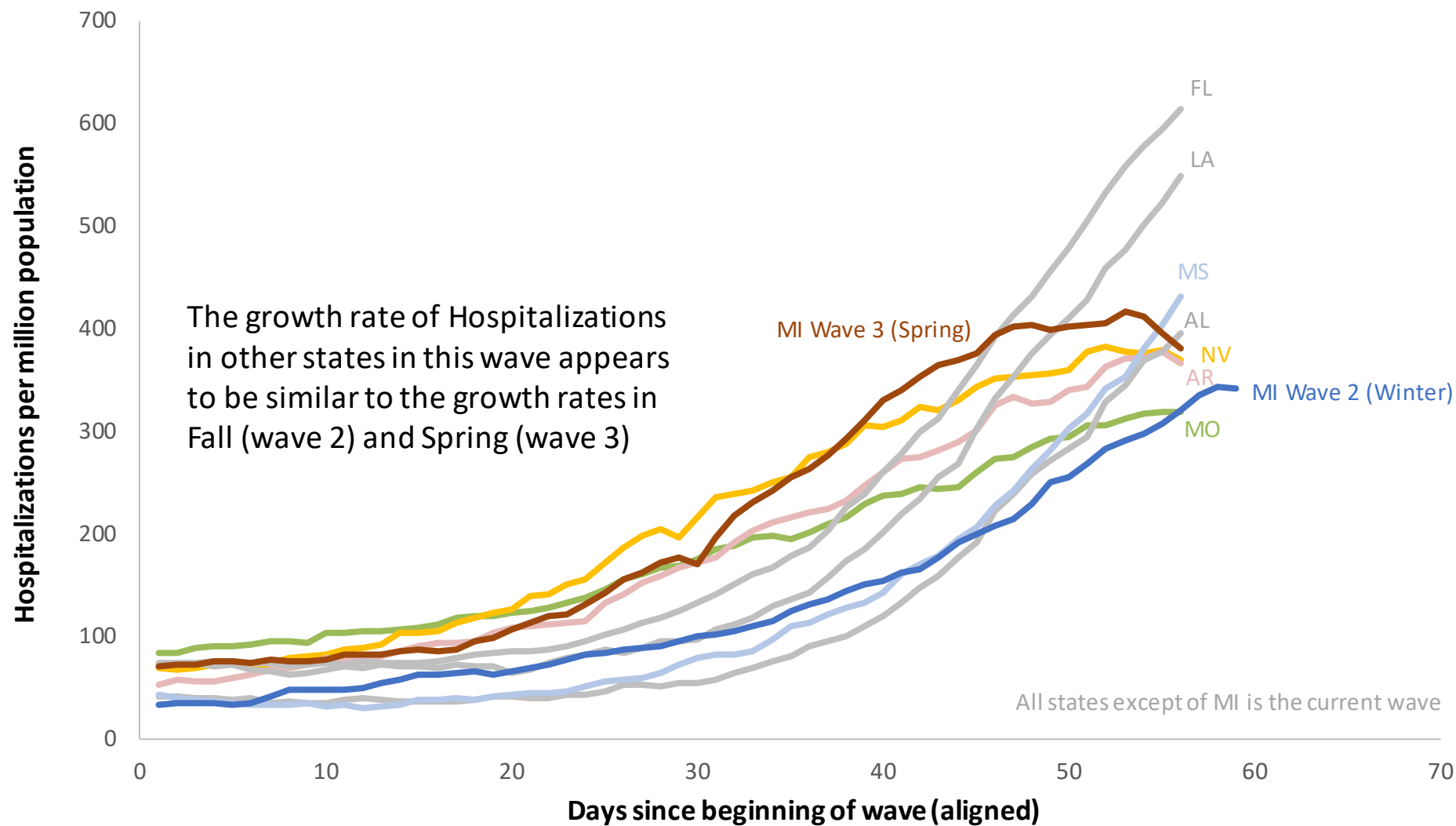
If this wave continues to grow and follows growth patterns of prior Michigan waves, we would face growing hospitalizations through September with a peak in October



Magnitude of 4th wave here is assumed to parallel prior waves for illustration purposes only; There is insufficient data to estimate the magnitude of any fourth wave at this time

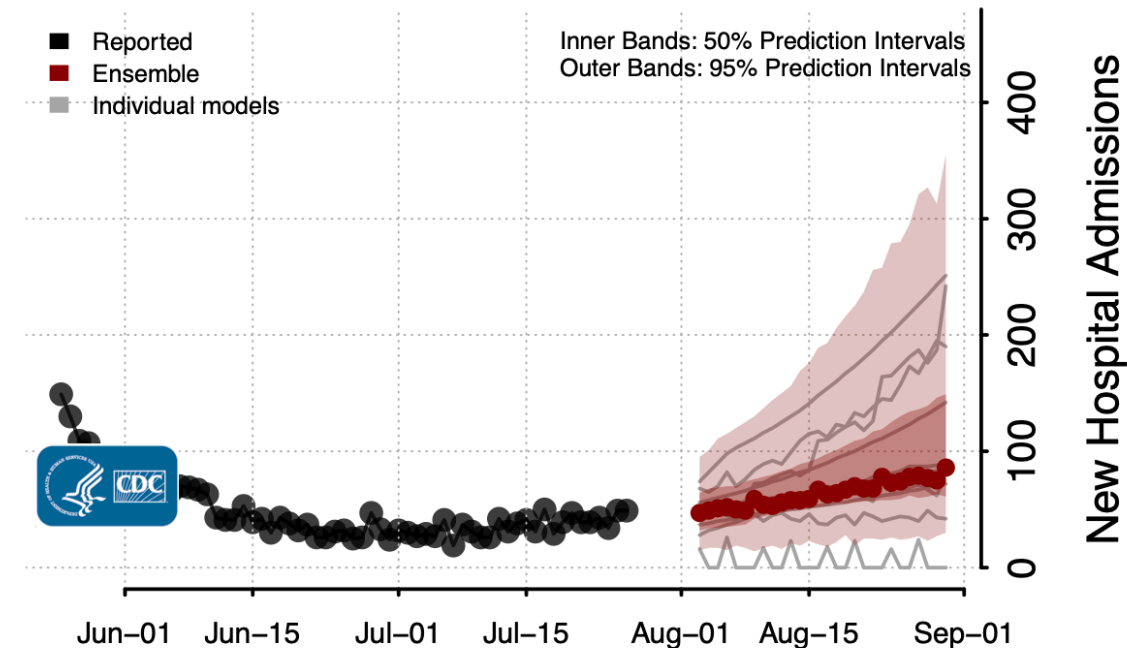
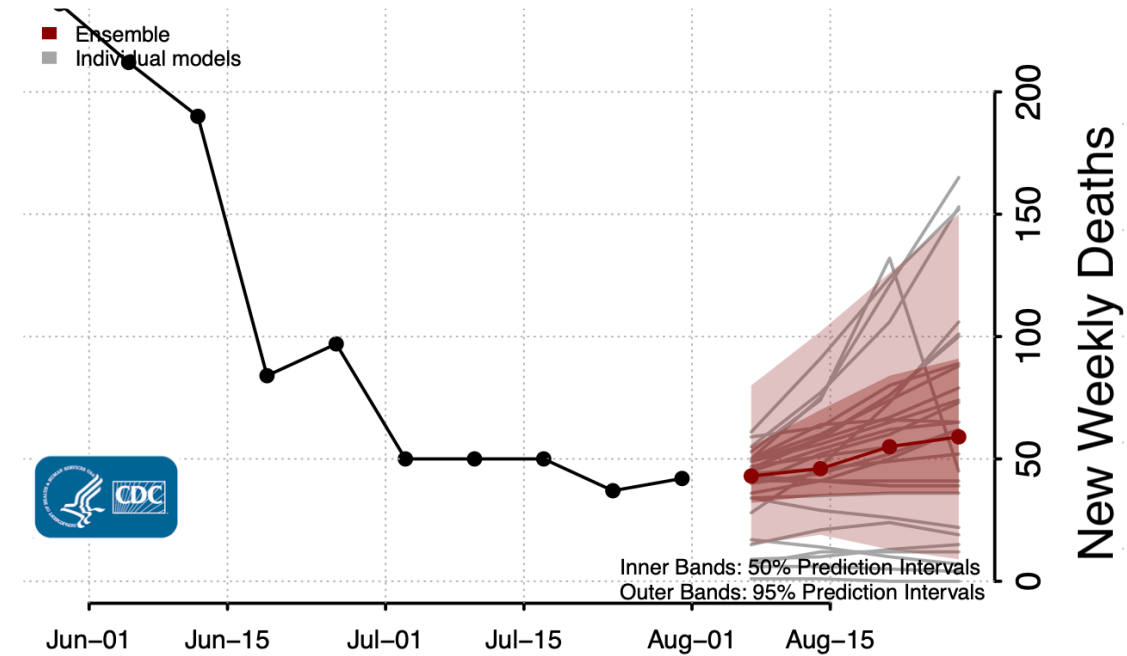
Comparing COVID hospitalization growth rates across states

Michigan Wave 2 (Fall/Winter) and Wave 3 (Spring) vs. Other states current summer 2021 waves



CDC model projections for Michigan: increasing hospitalizations and deaths

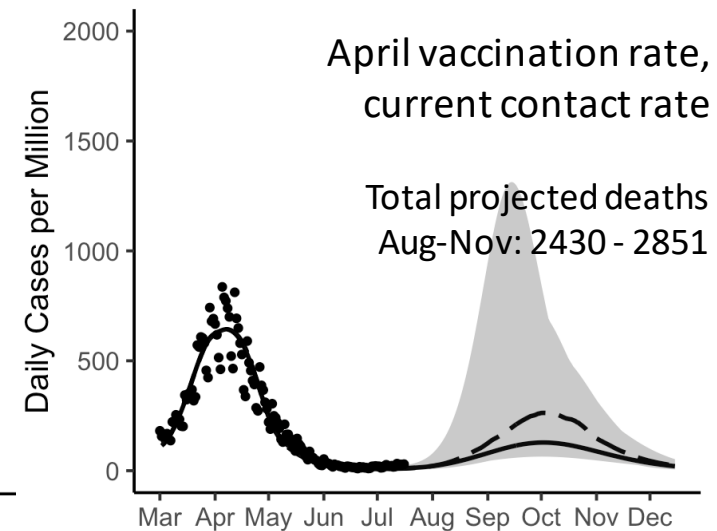
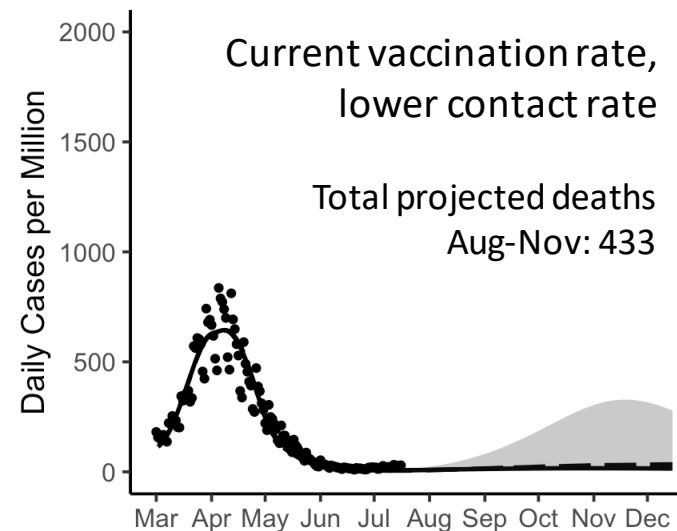
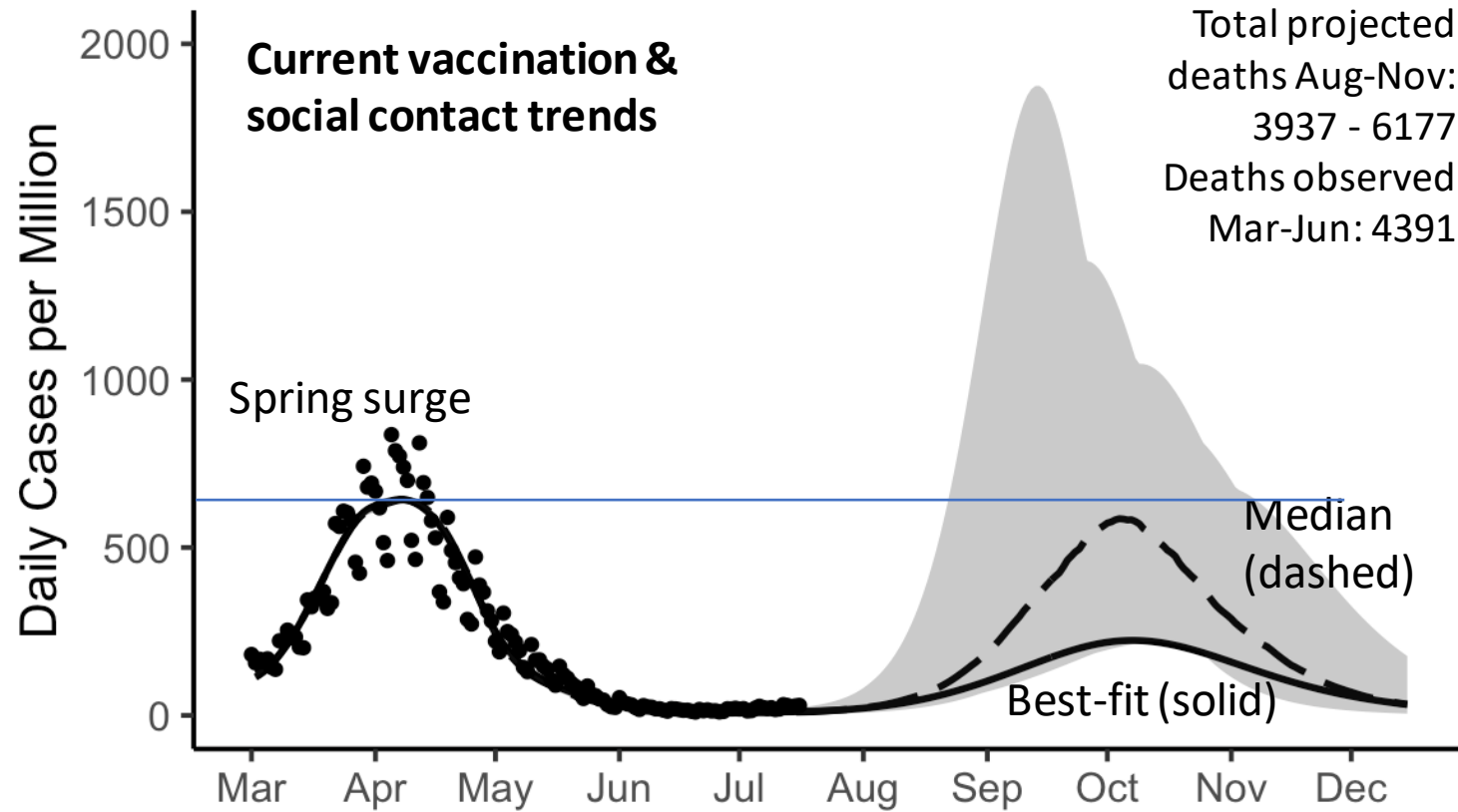
- *Ensemble model suggests increasing trends for hospitalizations and deaths*
- Uncertainty ranges from flat to increasing
- Case data projections also range from flat to increasing (not shown) and recent data has shown increases
- Individual models shown as grey lines, ensemble shown in red



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

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.



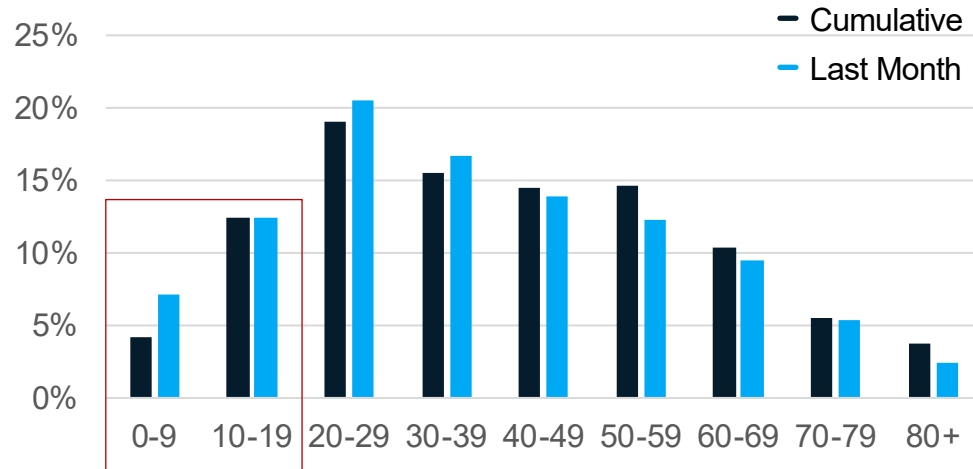
How do these cases translate to hospitalizations?

- 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

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. Yousaf, 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

Spread

Public Health
Response

Other
Indicators

Science
Round-up

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\(6\)](#)

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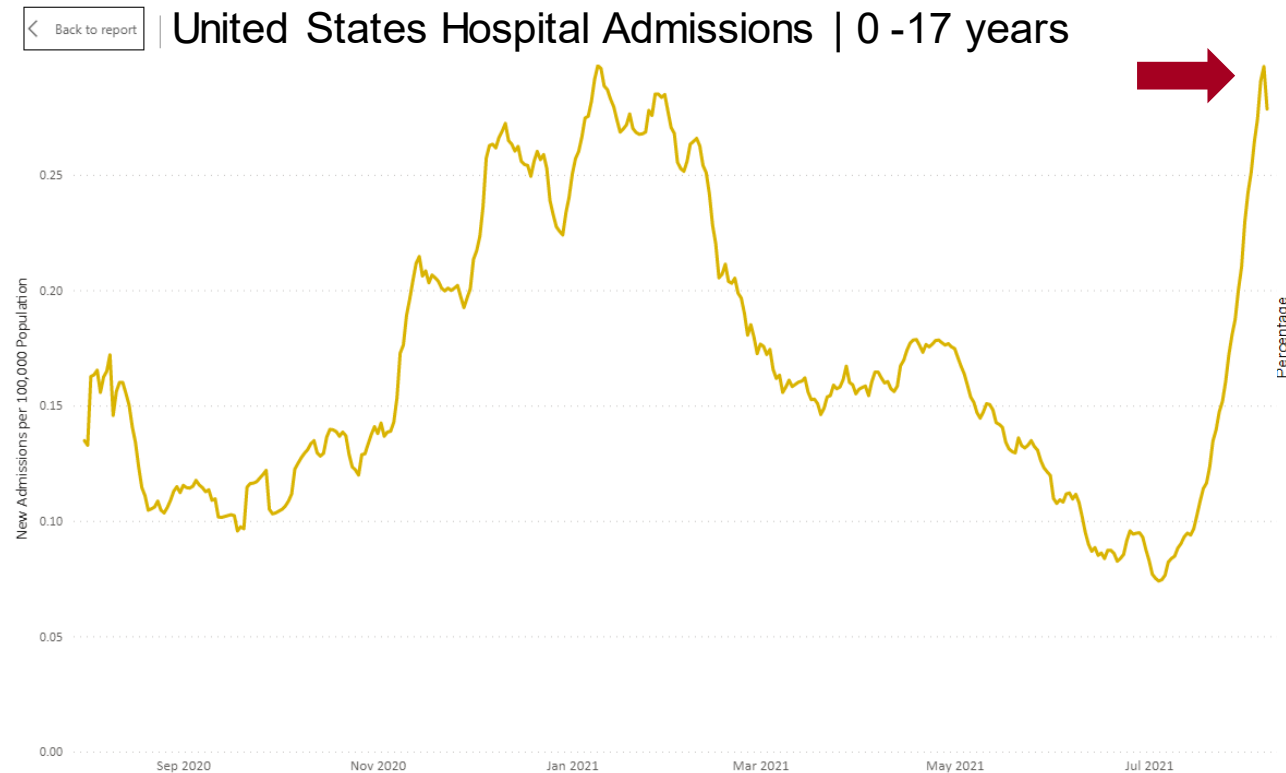
Public Health
Response

Other
Indicators

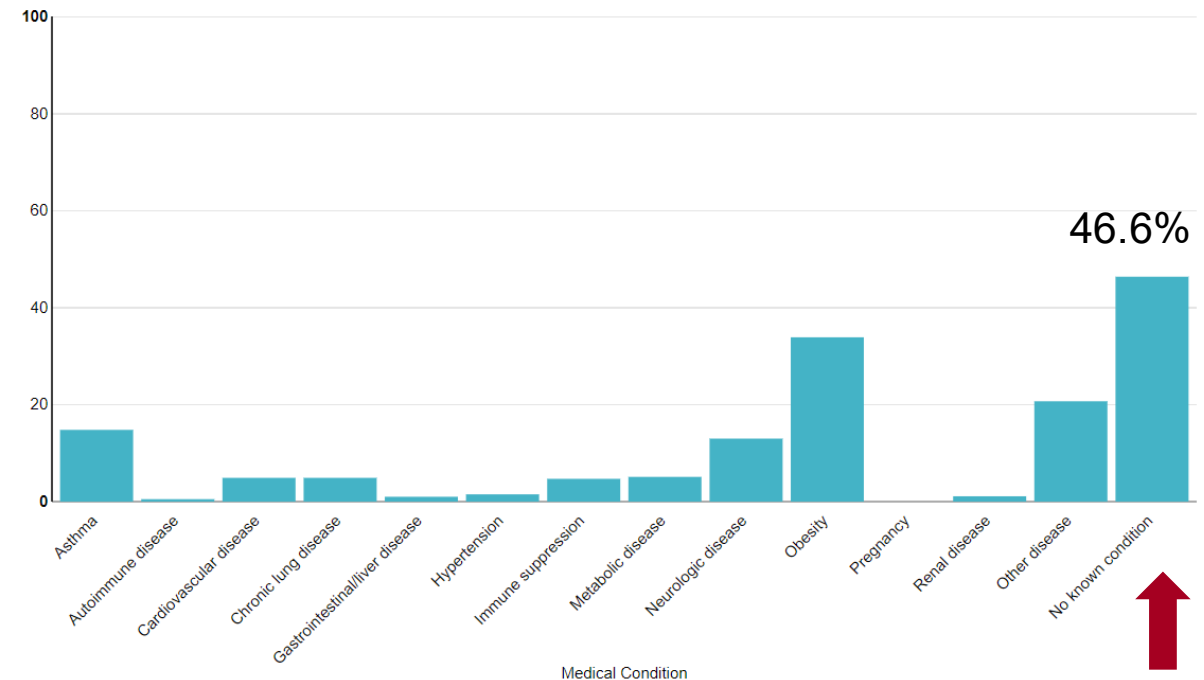
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SARS-CoV-2 can Negatively Impact Children Directly and Indirectly

- 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

Spread

Public Health
Response

Other
Indicators

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
 - Many of those who experience MIS-C in Michigan are admitted to intensive care, school age, and are Black/African American

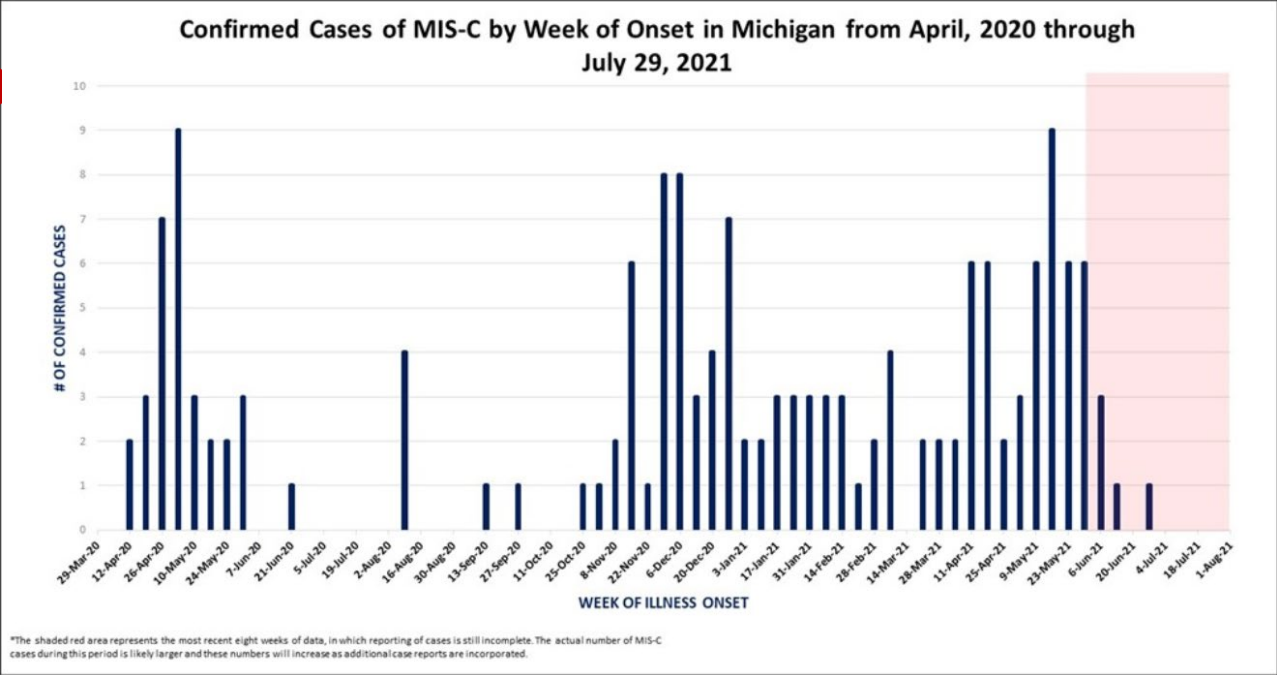
Multisystem Inflammatory Syndrome in Children (MIS-C) Michigan Data Summary 7/29/2021

# 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

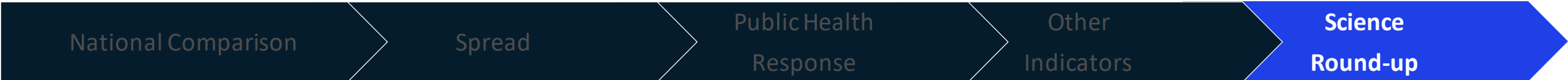
*Meets CDC Case definition
<https://emergency.cdc.gov/han/2020/han00432.asp>

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%



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



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

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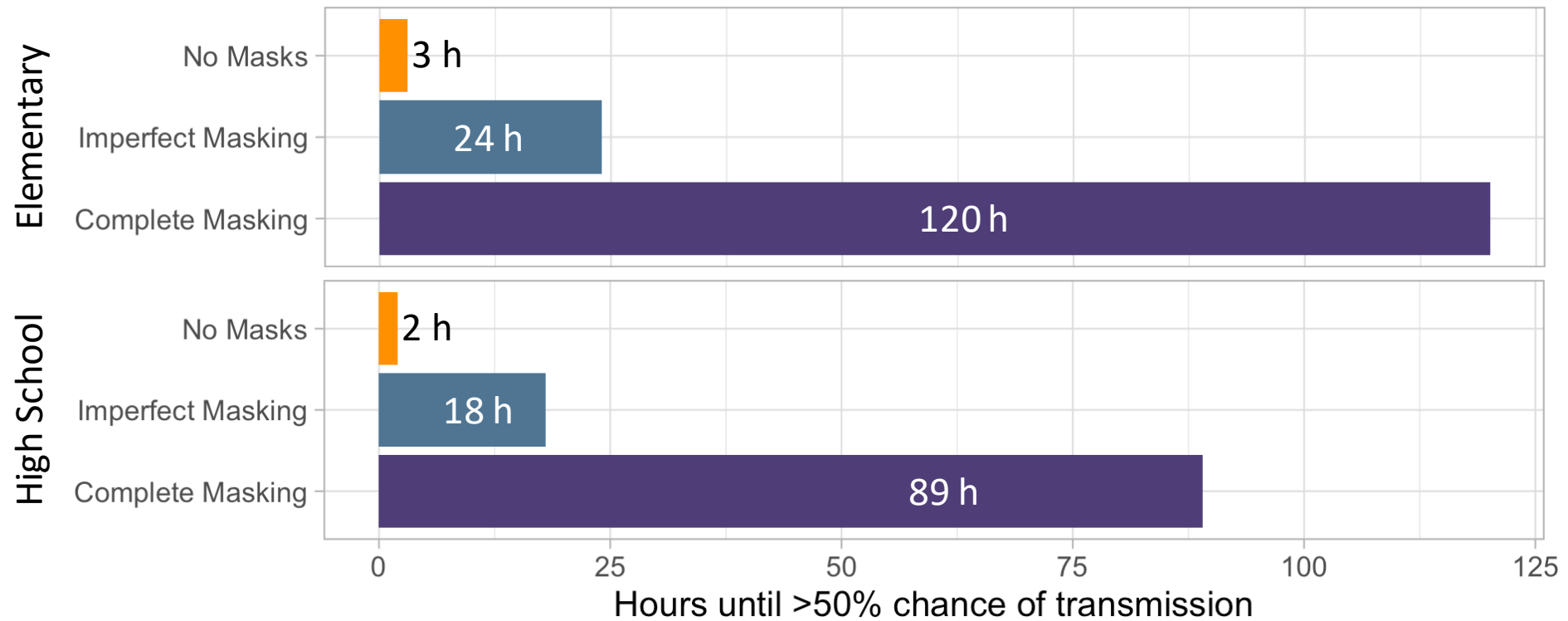
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Response

Other
Indicators

Science
Round-up

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

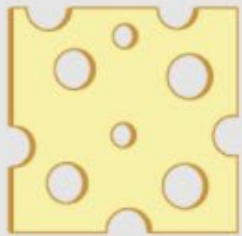
Weekly / February 26, 2021 / 70(8);289–292

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

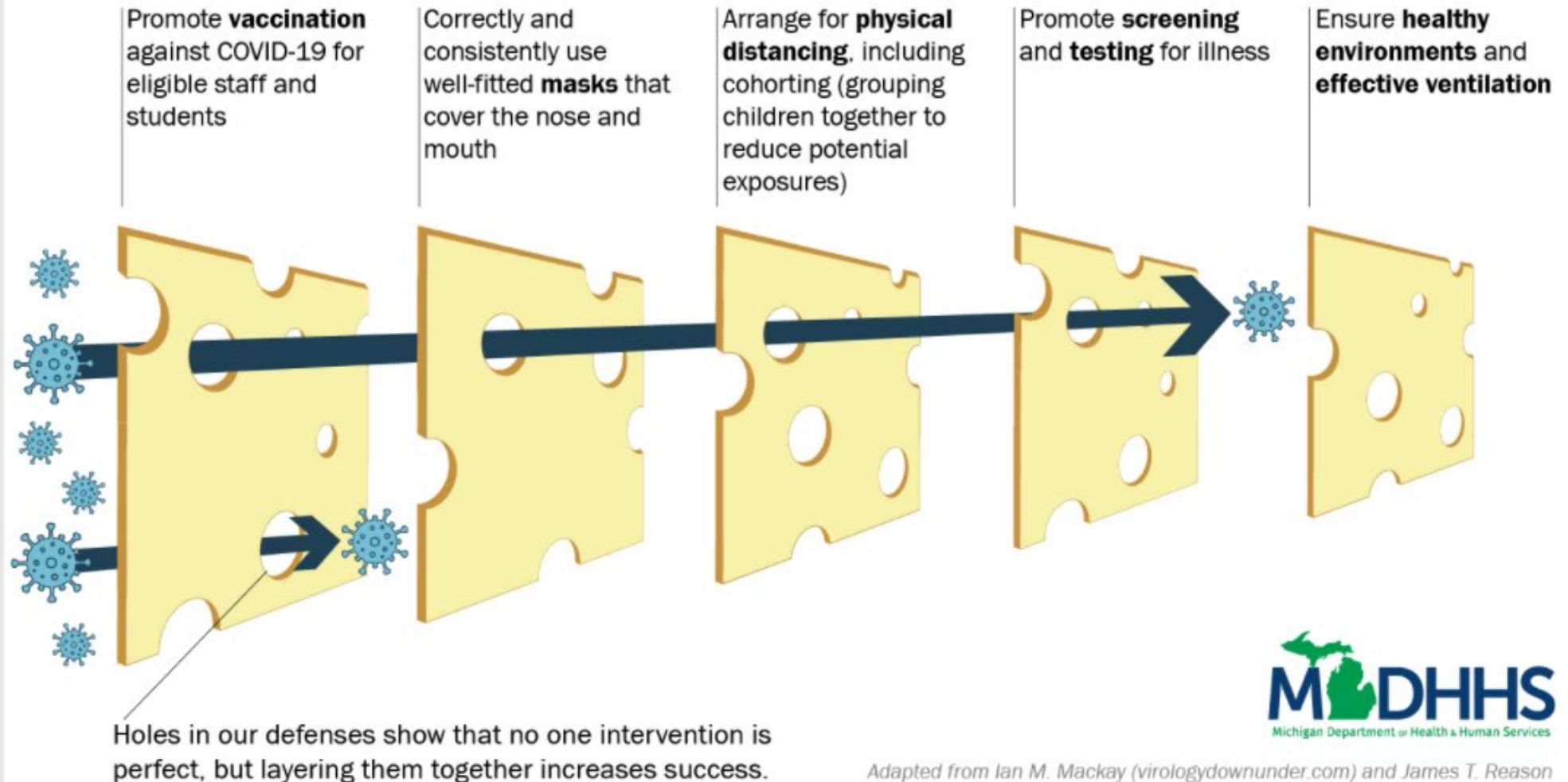
Layers of Defense Against COVID-19 in Schools

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.



Are Vaccinations Working

COVID-19 in Michigan: Cases by Vaccination Status, January 15 – July 21

Fully Vaccinated People (4,600,873)		
Cases	Hospitalization	Deaths
Percent of Cases In People Not Fully Vaccinated (384,929 / 393,631) 97.8%	Percent of Hospitalizations In People Not Fully Vaccinated (10,915 / 11,494) 95.0%	Percent of Deaths In People Not Fully Vaccinated (4,628 / 4,864) 95.1%
384,929 Total Cases Not Fully Vaccinated	10,915 Total Hospitalized Not Fully Vaccinated	4,628 Total Deaths Not Fully Vaccinated
Total Breakthrough Cases 8,702	Total Breakthrough Hospitalizations 579	Total Breakthrough Deaths 236
0.189% Percent of Fully Vaccinated People who Developed COVID-19 (8,702 / 4,600,873)	0.013% Percent of Fully Vaccinated People Who Were Hospitalized for COVID-19 (579 / 4,600,873)	0.005% Percent of Fully Vaccinated People Who Died of COVID-19 (236 / 4,600,873)
2.2% Percent of Cases Who Were Fully Vaccinated (8,702 / 393,631)	5.0% Percent of Hospitalizations Who Were Fully Vaccinated (579 / 11,494)	4.9% Percent of Deaths Who Were Fully Vaccinated (236 / 4,864)
Total Cases: 393,631	Total Hospitalizations: 11,494	Total Deaths: 4,864

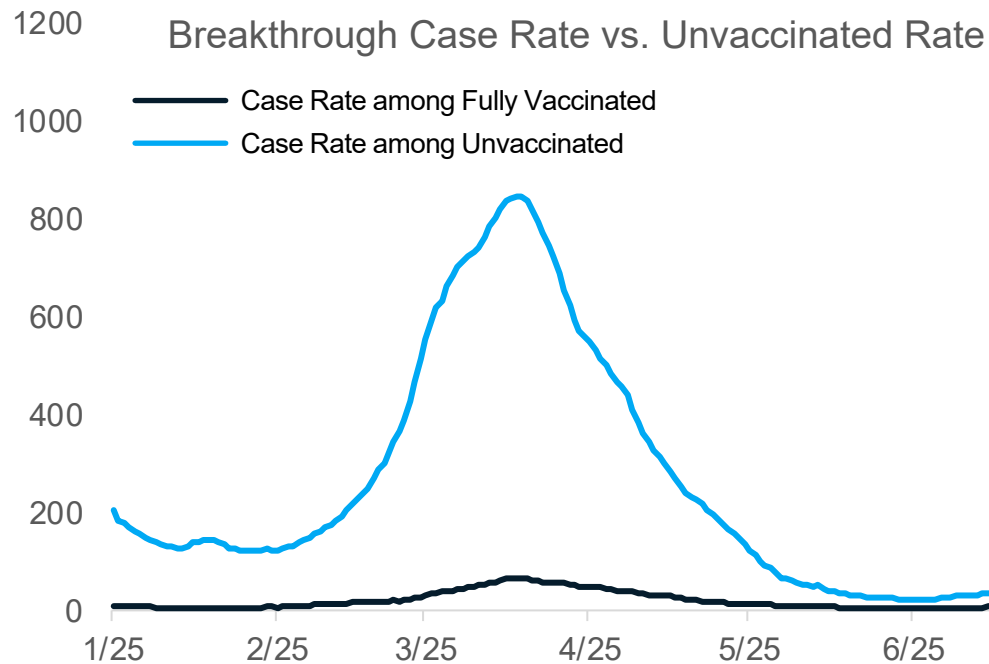
Michigan Disease Surveillance System may underestimate the frequency of COVID-19 hospitalizations:

- Case investigation and follow-up is more difficult for individuals who get vaccinated (e.g., they are too ill to speak to investigators, don't answer their phone, or otherwise).
- These hospitalizations include individuals who are hospitalized for issues other than COVID19 (the same as breakthrough COVID-19).
- Individuals who get hospitalization will lag after infection and may occur after case investigation.

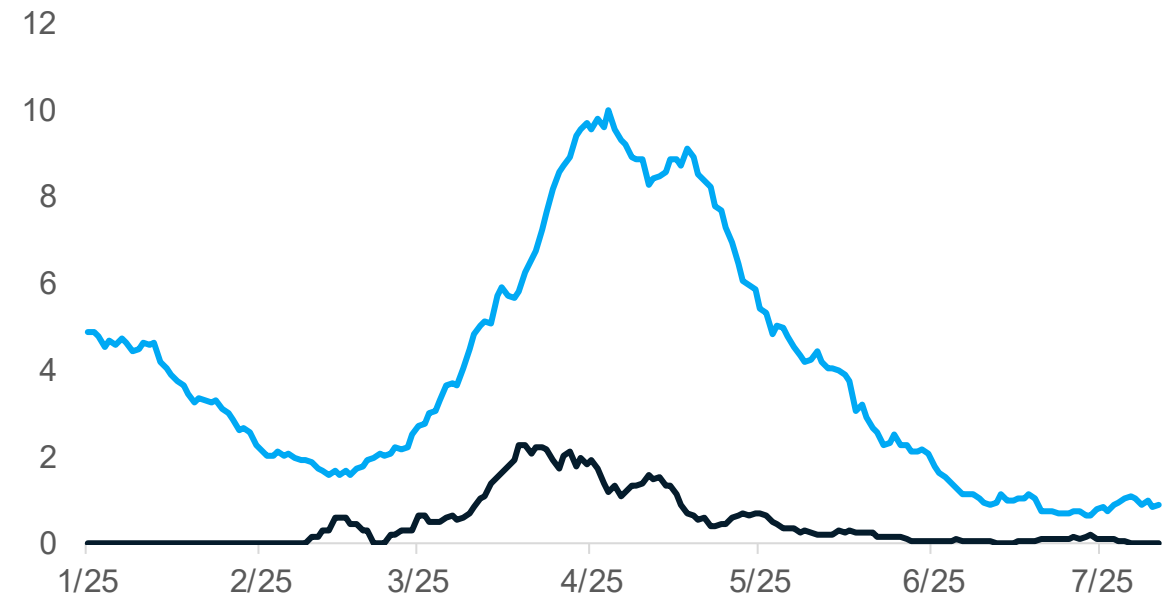


Potential COVID-19 Vaccination Breakthrough Cases

Breakthrough Case Rate vs. Unvaccinated Rate



Breakthrough Death Rate vs. Unvaccinated Death Rate



- Trends over time show that both the case rate and death rate among the vaccinated (aka breakthrough infections and deaths) are lower than the unvaccinated rate in Michigan
- The *proportion* of breakthrough cases and deaths among all cases and deaths has shown some increases as a more people become fully vaccinated (e.g., $\frac{\text{vaccinated cases}}{\text{all cases}}$ will go up)
 - However, the **risk** of infection and death **remains significantly lower among the vaccinated**
 - This principle indicates that the absolutely number or the proportion of the absolute number of breakthrough alone is not sufficient to measure and comparator, especially as more people become vaccinated. Instead, using the appropriate denominators is preferred.

All three vaccines effective at preventing hospitalization

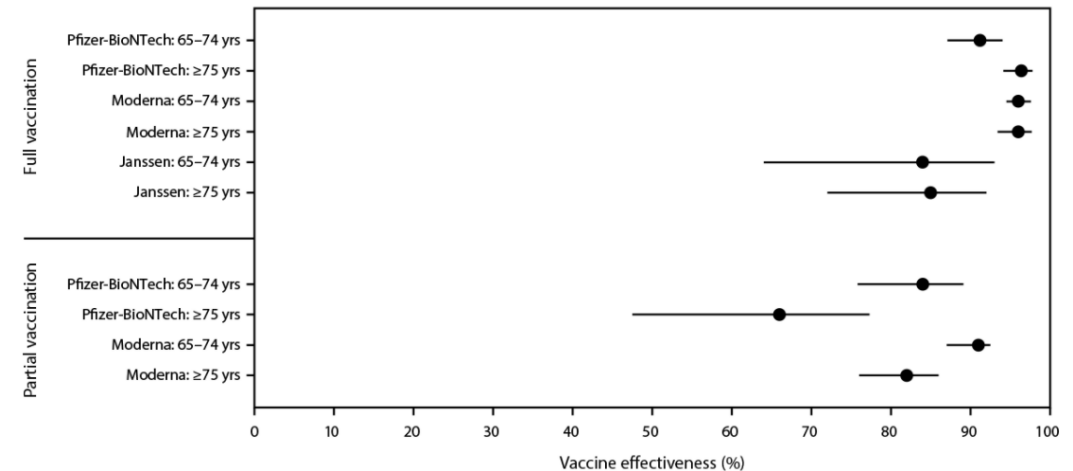
Effectiveness of COVID-19 Vaccines in Preventing Hospitalization Among Adults Aged ≥ 65 Years — COVID-NET, 13 States, February–April 2021

COVID-NET: data on laboratory-confirmed COVID-19–associated hospitalizations in 99 U.S. counties in 13 states including Michigan.

Among adults aged 65–74 years, effectiveness of full vaccination for preventing hospitalization was 96% for Pfizer-BioNTech, 96% for Moderna, and 84% for Janssen COVID-19 vaccines

Among adults aged ≥ 75 years, effectiveness of full vaccination for preventing hospitalization was 91% for Pfizer-BioNTech, 96% for Moderna, and 85% for Janssen COVID-19 vaccines.

FIGURE 2. Estimates of vaccine effectiveness in preventing COVID-19–associated hospitalization among patients aged ≥ 65 years for the COVID-NET catchment area, by vaccine product and age group using the screening method — COVID-NET, 13 states,* February 1–April 30, 2021[†]



Abbreviations: COVID-NET = Coronavirus Disease 2019–Associated Hospitalization Surveillance Network; Janssen = Janssen (Johnson & Johnson).

* COVID-NET data included in this analysis were from the following states: California, Colorado, Connecticut, Georgia, Maryland, Michigan, Minnesota, New Mexico, New York, Ohio, Oregon, Tennessee, and Utah.

[†] Confidence intervals indicated by error bars.

Moline HL, Whitaker M, Deng L, et al. Effectiveness of COVID-19 Vaccines in Preventing Hospitalization Among Adults Aged ≥ 65 Years — COVID-NET, 13 States, February–April 2021. MMWR Morb Mortal Wkly Rep. ePub: 6 August 2021. DOI: <http://dx.doi.org/10.15585/mmwr.mm7032e3externalicon>.

National Comparison

Spread

Severity

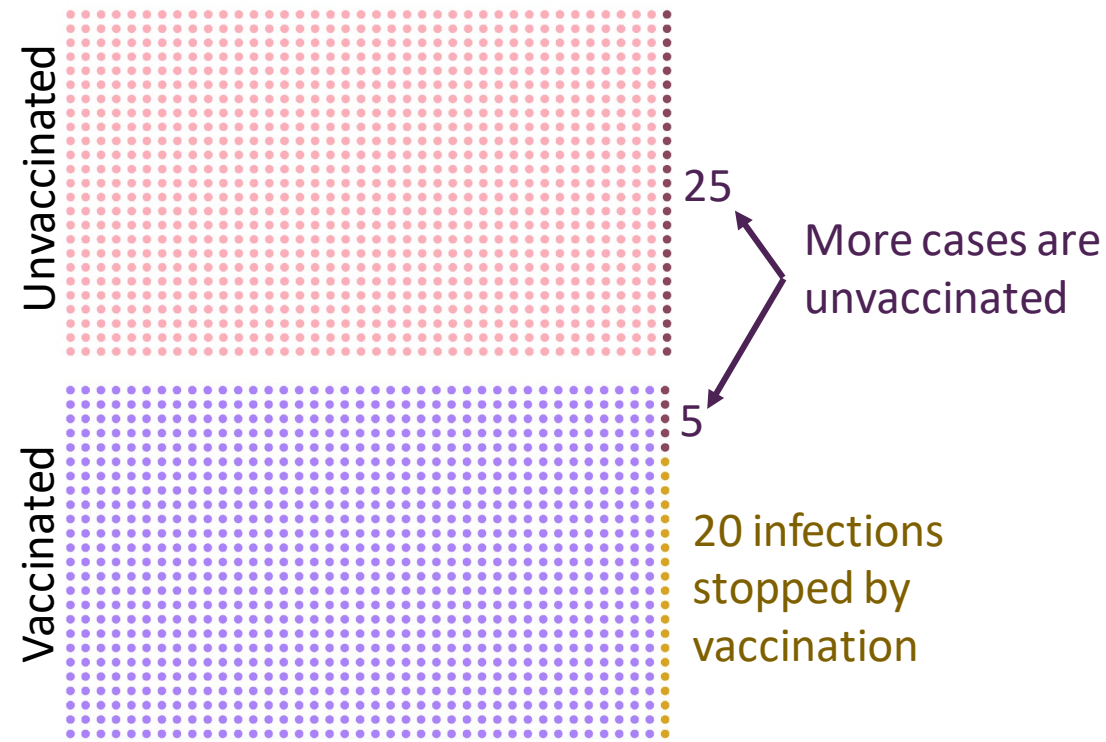
Public Health
Response

Other
Indicators

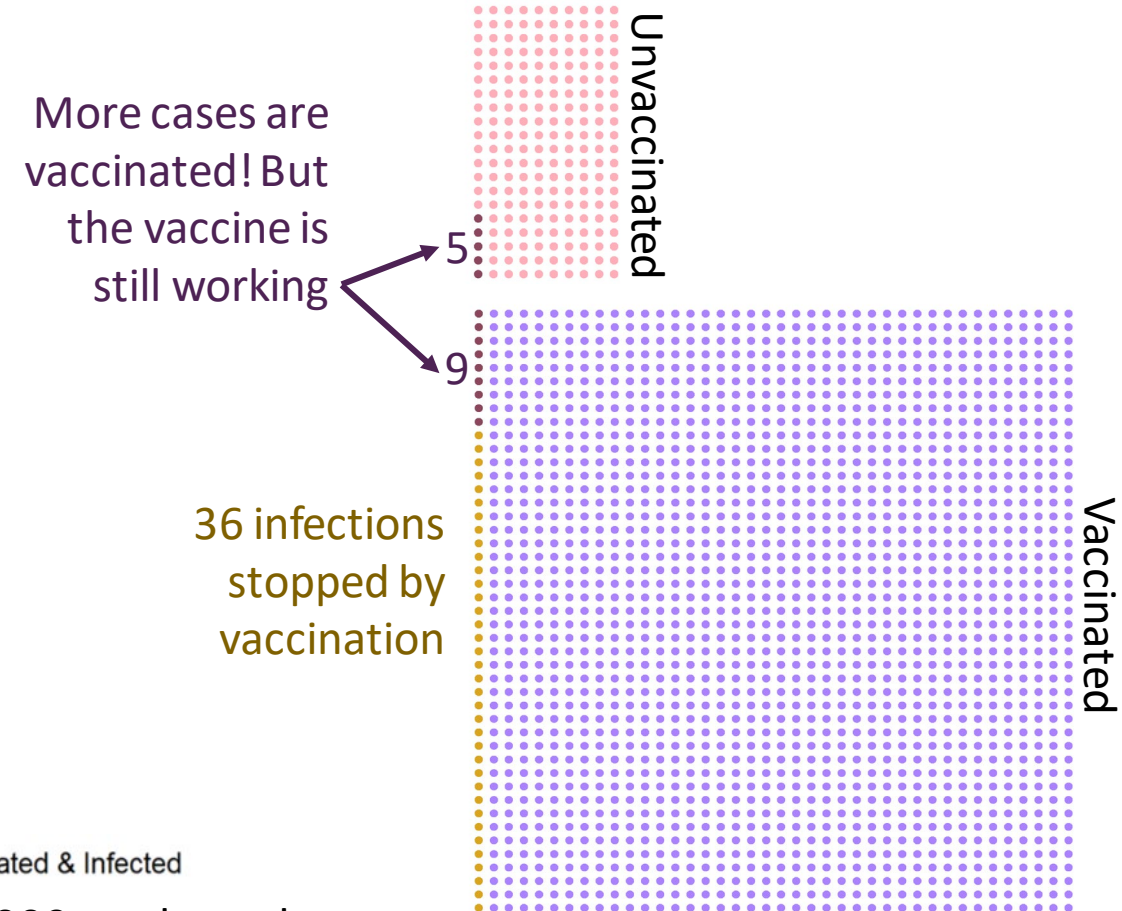
Science
Round-up

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

Scenario 1: 50% Vaccinated



Scenario 2: 90% Vaccinated

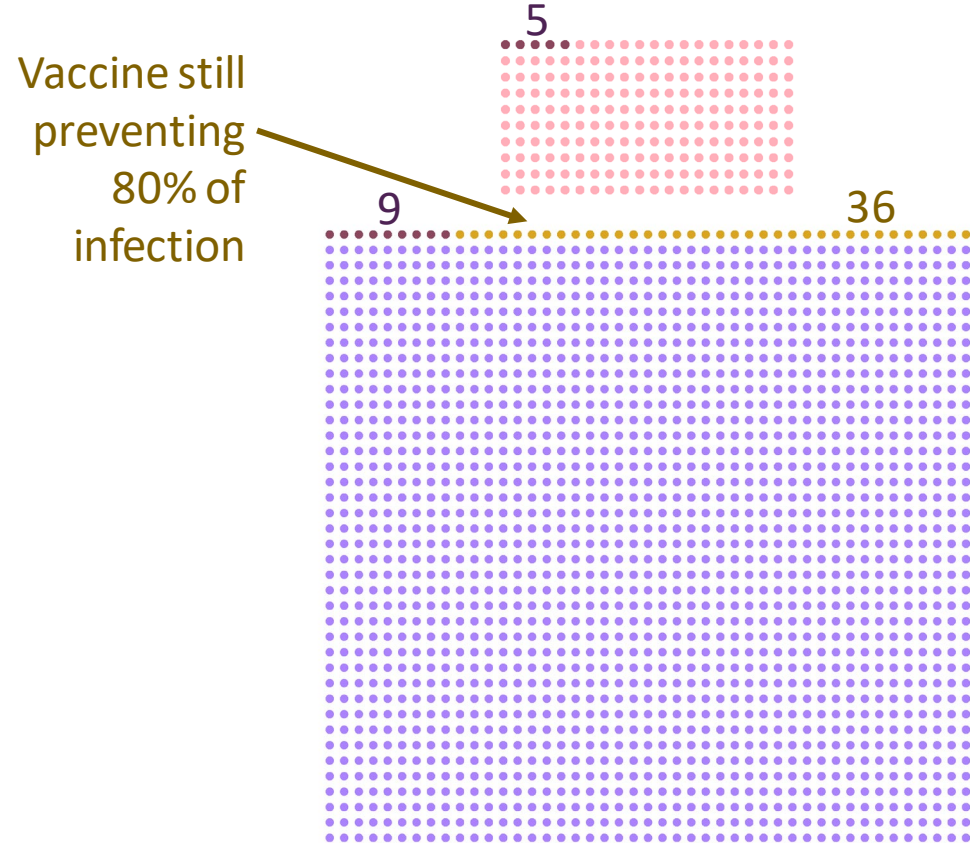


● Unvaccinated
 ● Unvaccinated & Infected
 ● Prevented Infection
 ● Vaccinated
 ● Vaccinated & Infected

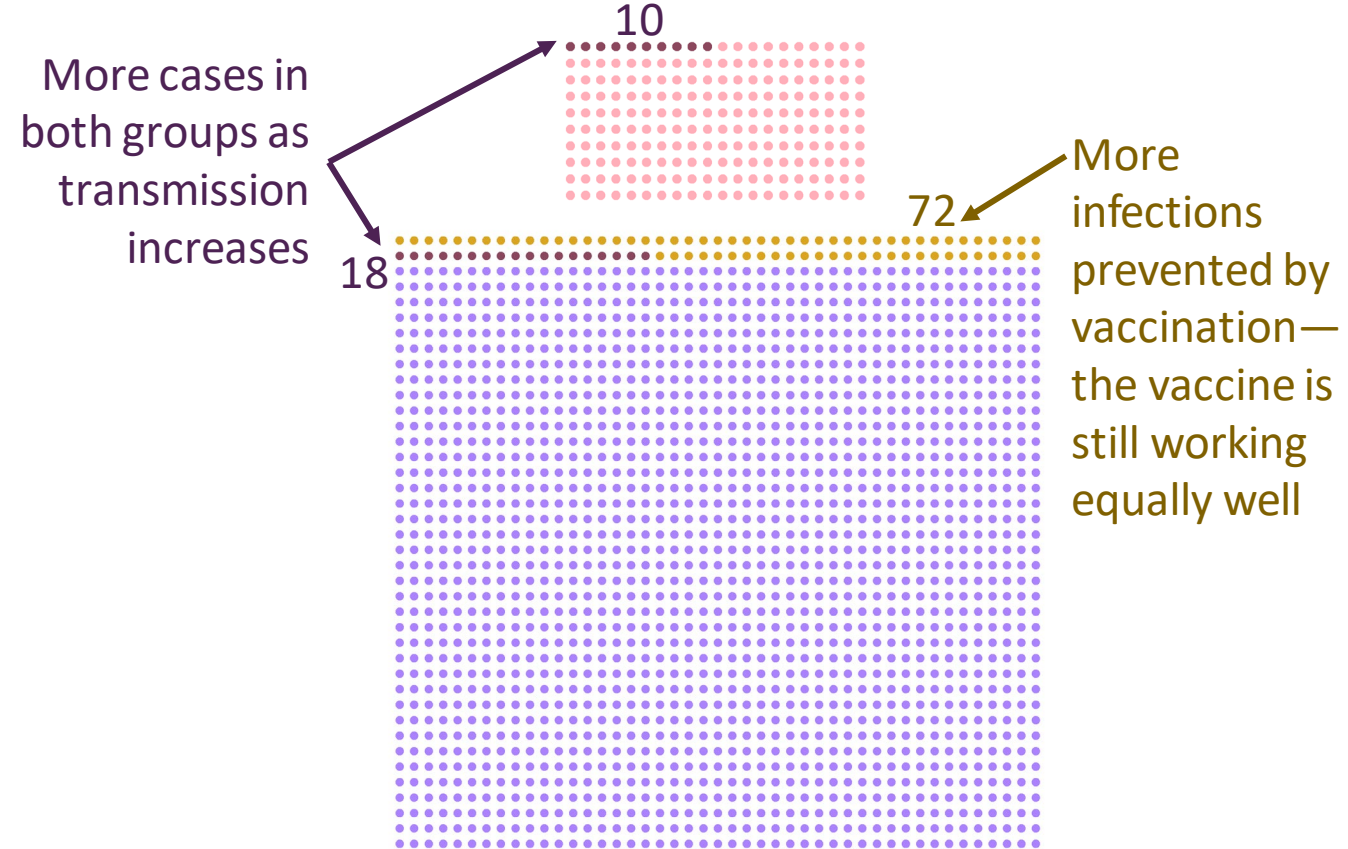
Both Scenarios: Vaccine reduces disease by 80%, 2.5% infection level, 2000 total people

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

Among previously infected individuals: **being unvaccinated is associated with significantly higher odds of reinfection compared with being fully vaccinated**

Laboratory evidence suggests that antibody responses after COVID-19 vaccination provide better neutralization than natural infection, however few epidemiologic studies under real world conditions have been completed

Recent report from a case control study in Kentucky: Among those infected with SARS-CoV-2 in 2020, **being unvaccinated was associated with 2.34 times the odds of reinfection compared with being fully vaccinated**

Among individuals previously infected, full vaccination provides additional protection against reinfection

How many people in Michigan have either been vaccinated or previously infected?

Michiganders

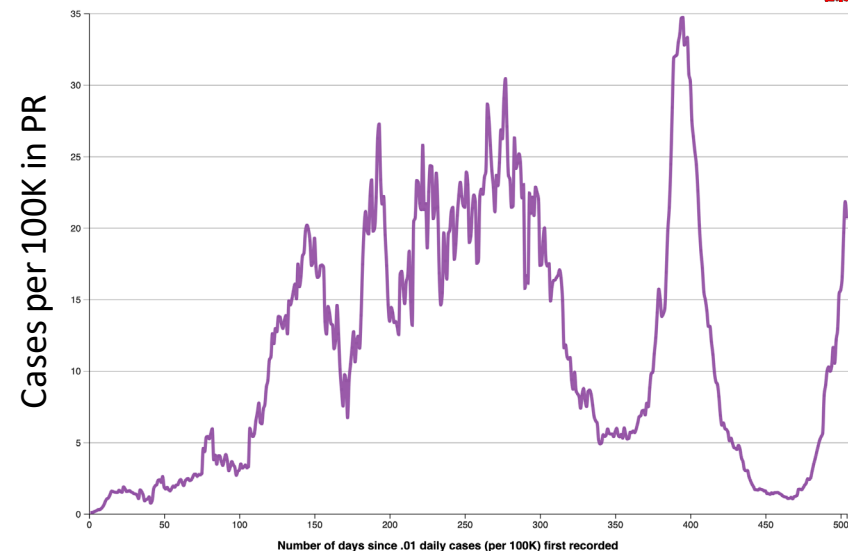
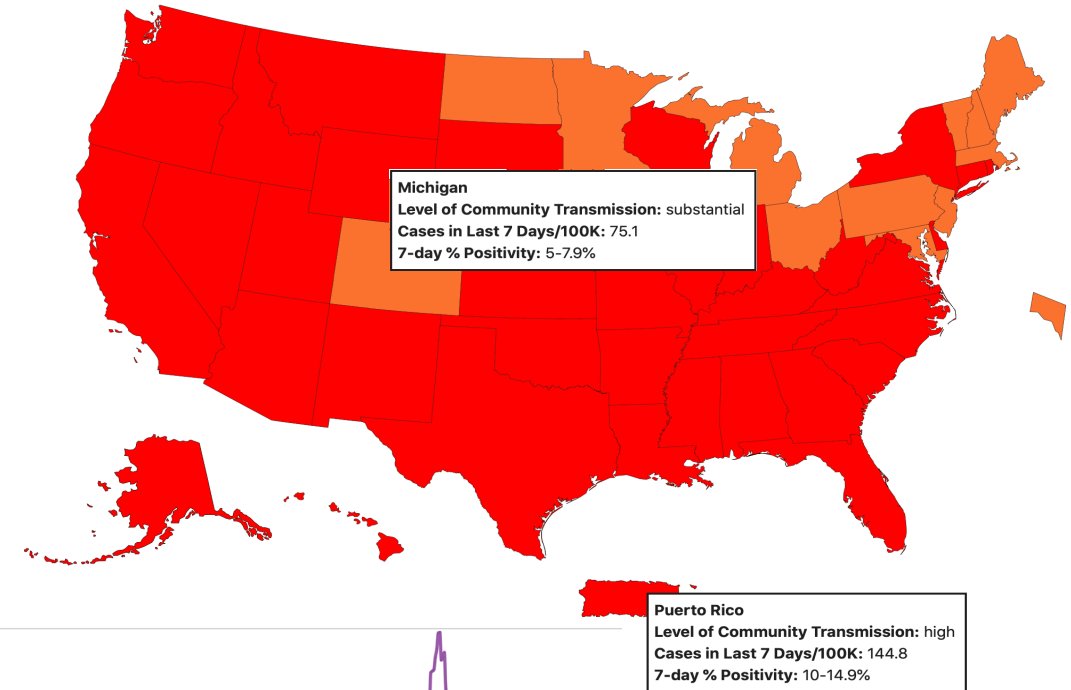
Vaccinated	
Vaccinated and previously infected	Previous infection

- 28% of Michiganders have been previously infected with COVID based on seroprevalence (nucleocapsid - measures previous infection only)
- 54% of Michiganders (all ages) have received at least one dose; 49% fully vaccinated
- **If** people are equally likely to get vaccinated whether they have been previously infected or not, then:
 - ~67% would either received at least one dose or previously infected (estimate)
 - ~63% would either fully vaccinated or previously infected (estimate)
- Uncertainty around protection from previous infection

Is this enough to prevent another surge? Puerto Rico provides comparison point—

Puerto Rico: 74.8% of the population has either been previously infected or vaccinated—but they are currently at high transmission levels

- **75% of Puerto Ricans have either been vaccinated or previously infected** based on seroprevalence (spike protein – measures vaccination or previous infection)
- 70% of Puerto Ricans (all ages) have received at least one dose; **61% fully vaccinated**
- However, **Puerto Rico is seeing a rapid surge** similar to spring peak, reaching CDC **high transmission** levels

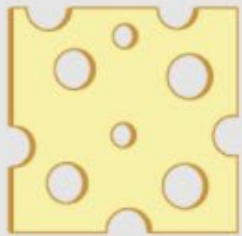


What Can We Do About
Case Increases?

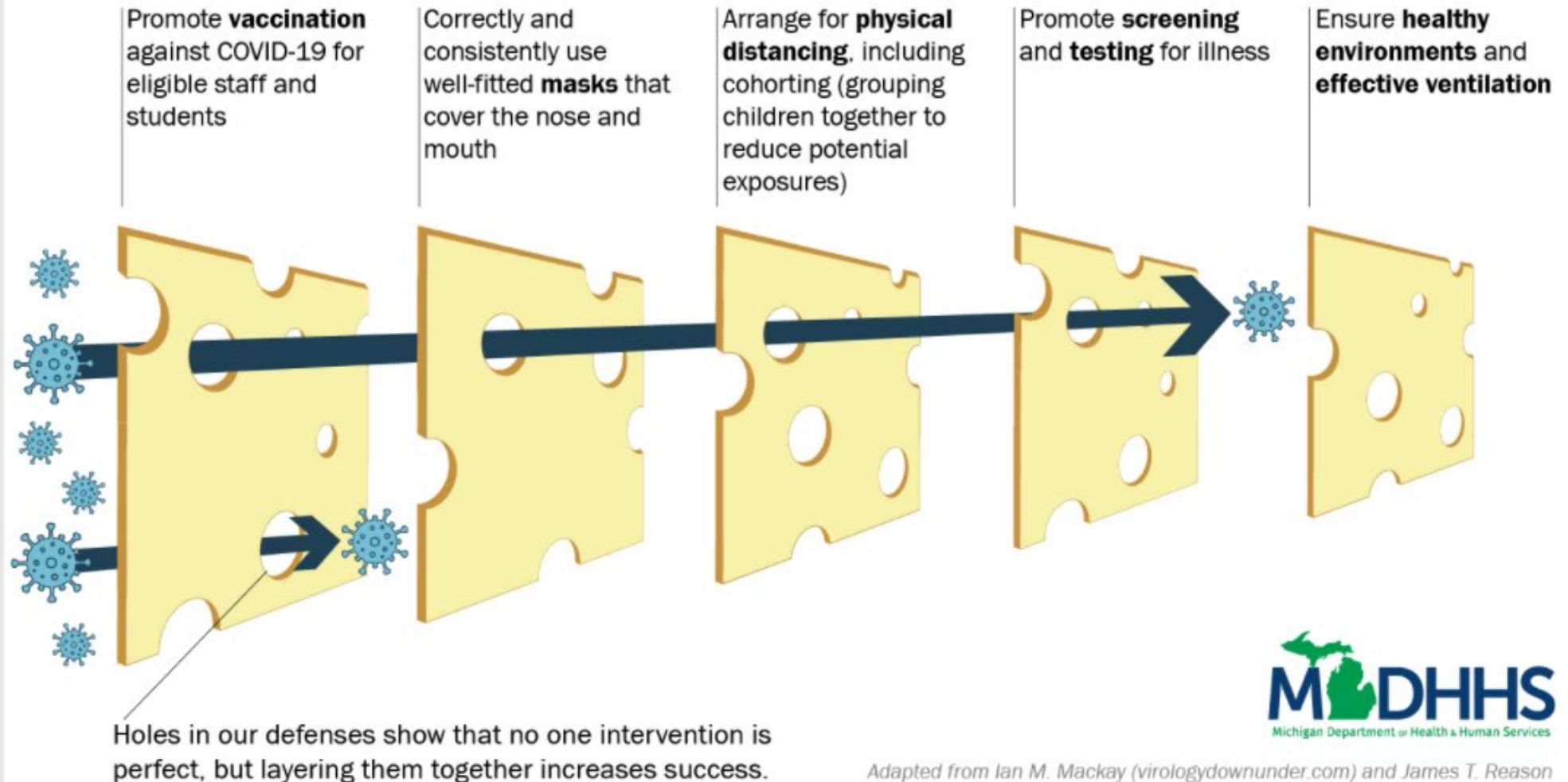
Layers of Defense Against COVID-19 in Schools

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.



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

Public health system 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

Spread

Severity

Public Health
Response

Other
Indicators

Science
Round-up

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

Post-exposure prophylaxis using REGEN-COV in individuals 12 years and older who are

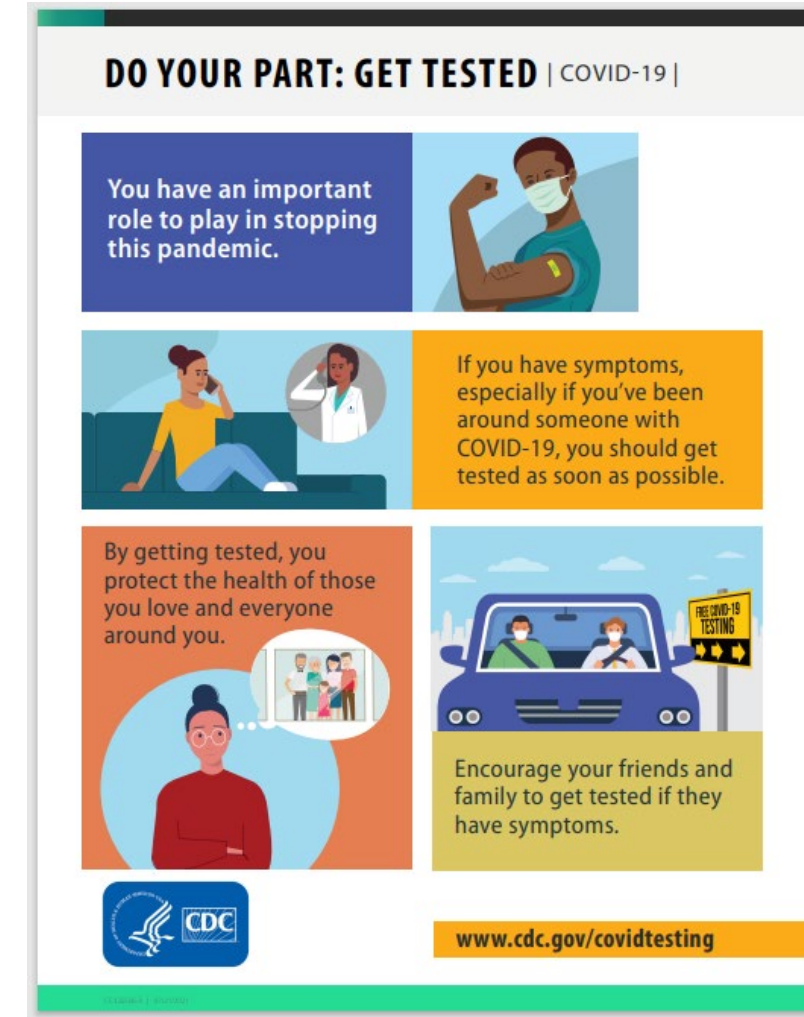
- **Are at high risk for progression to severe COVID-19**, and
- **Are not fully vaccinated** or are not expected to mount an adequate immune response, and
- **Have been exposed** to an individual infected with SARS-CoV-2 as close contact or because of COVID-19 infection in other individuals in same institutional setting (for example, nursing homes or prisons)

Use is in addition to prior authorization to treat non-hospitalized patients with mild to moderate COVID-19 in adult and pediatric patients, with positive 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.

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

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



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