MI COVID RESPONSE DATA AND MODELING UPDATE

July 26, 2022

Epidemiologic Surveillance: Key Messages

COVID-19 pandemic is surging in some parts of the globe and within the United States

- Case rates for several European countries are showing early signs of plateaus
  - UK, Australia, and other countries globally have been experiencing an increase since early June, as BA.4 and BA.5 have become the dominant variants
- Within the U.S., case rates increased <1% over the past week
- Midwestern states (region 5) are one of the last regions to begin seeing increases within the U.S.

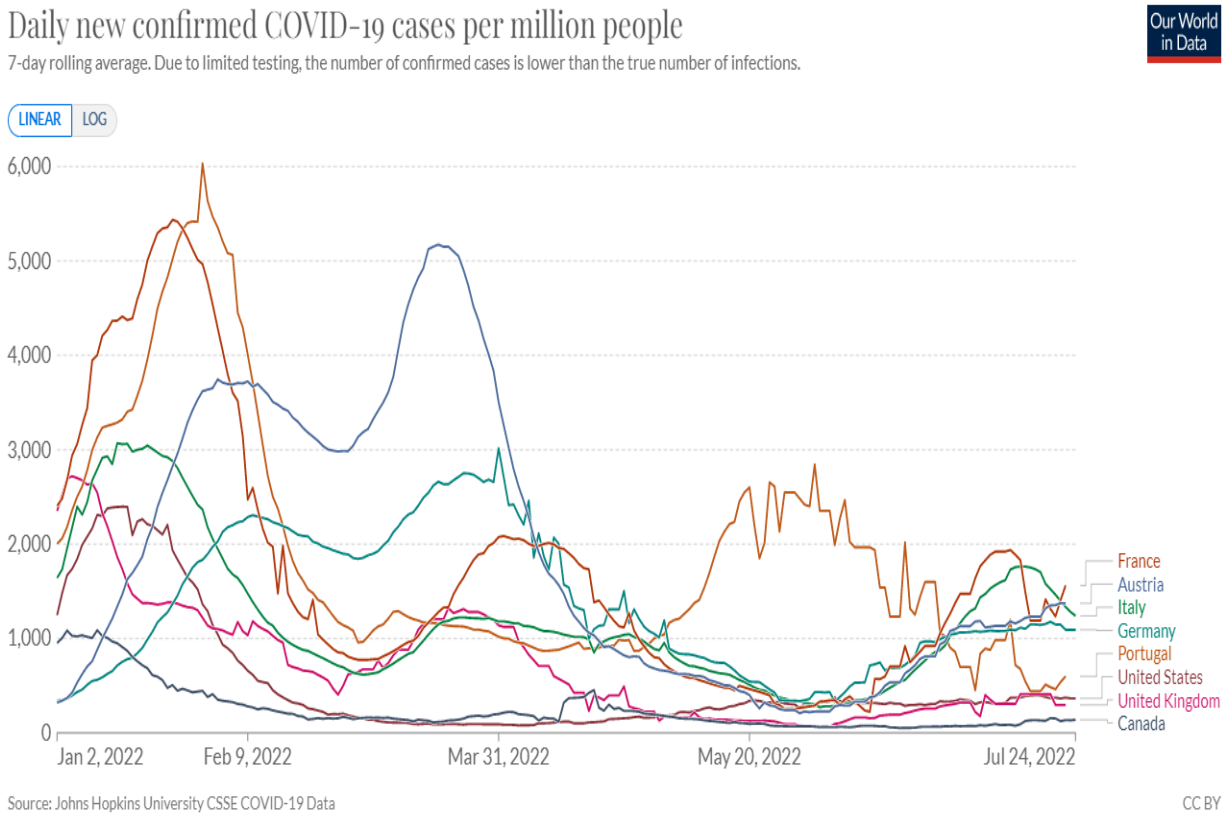
COVID spread in Michigan is increasing

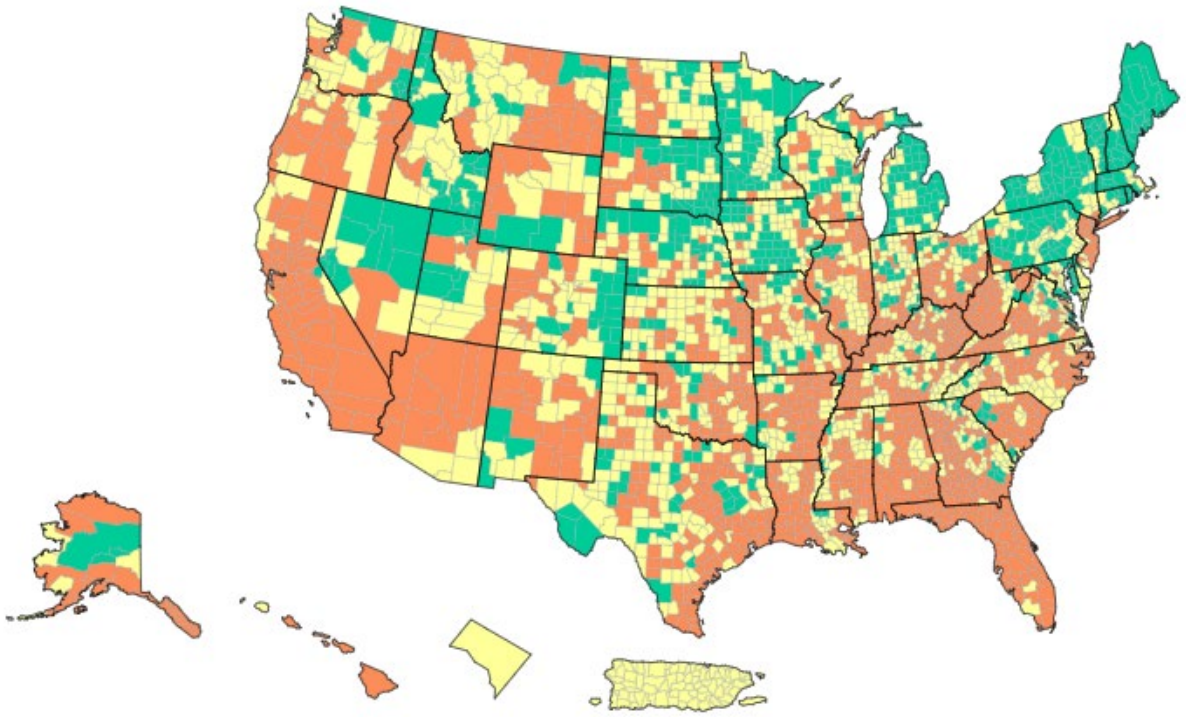
- COVID spread is assessed from many different markers including CDC community levels and other surveillance systems
- As of July 21, 41% of Michigan Counties at Medium or High COVID-19 Community Levels, which is similar to week
  - 4 Michigan counties are classified as High this week according to CDC's Community Levels
  - 28 Michigan counties are currently at Medium level (34%). This represents 31% of the population
- The R_t for Michigan is ≥1 indicating COVID is spread
- The proportion of specimens sequenced and identified as BA.5 in the U.S. and Michigan continues to rise
- 25% of SWEEP sites saw an increase in the most recent week and another 20% of sites saw a plateau

COVID-19 hospital metrics in Michigan remain lower than past surges

- COVID-19 hospital admissions and pediatric census increased this week from last week with signs of regional increases

Global and National Trends: BA.4 and BA.5 are causing resurgences





Globally, 570,253,341 cases and 6,384,539 deaths (Data* through 7/25/2022)

- Case rates for several European countries are showing early signs of plateaus

United States: Reported cases (7-day average) have increased 0.5% since the prior week¶

- In the U.S., the case rate is 265.9 cases/100,000 in last 7 days (last week: 266 cases per/100,000)

Most Region 5 (Midwest) states are increasing

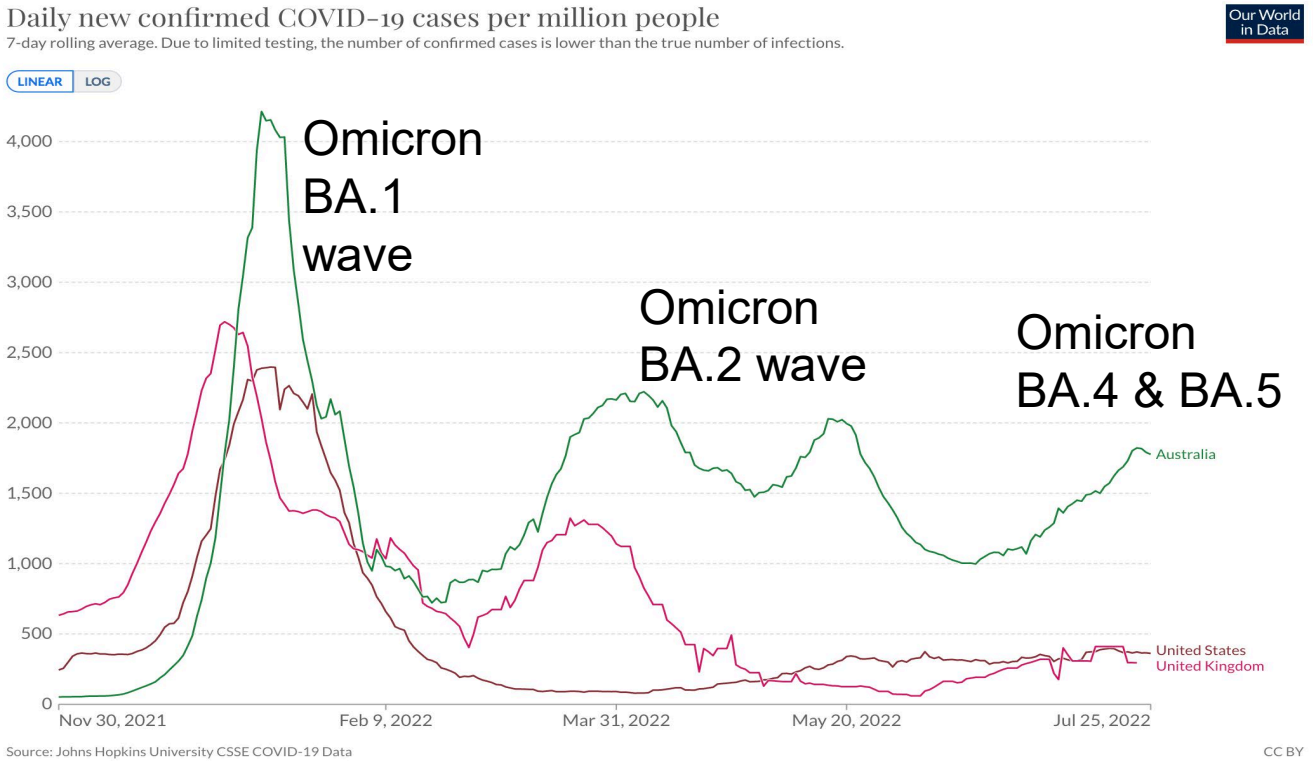
- Michigan and Minnesota have the lowest case rates *in Region 5* (7/21/2022)

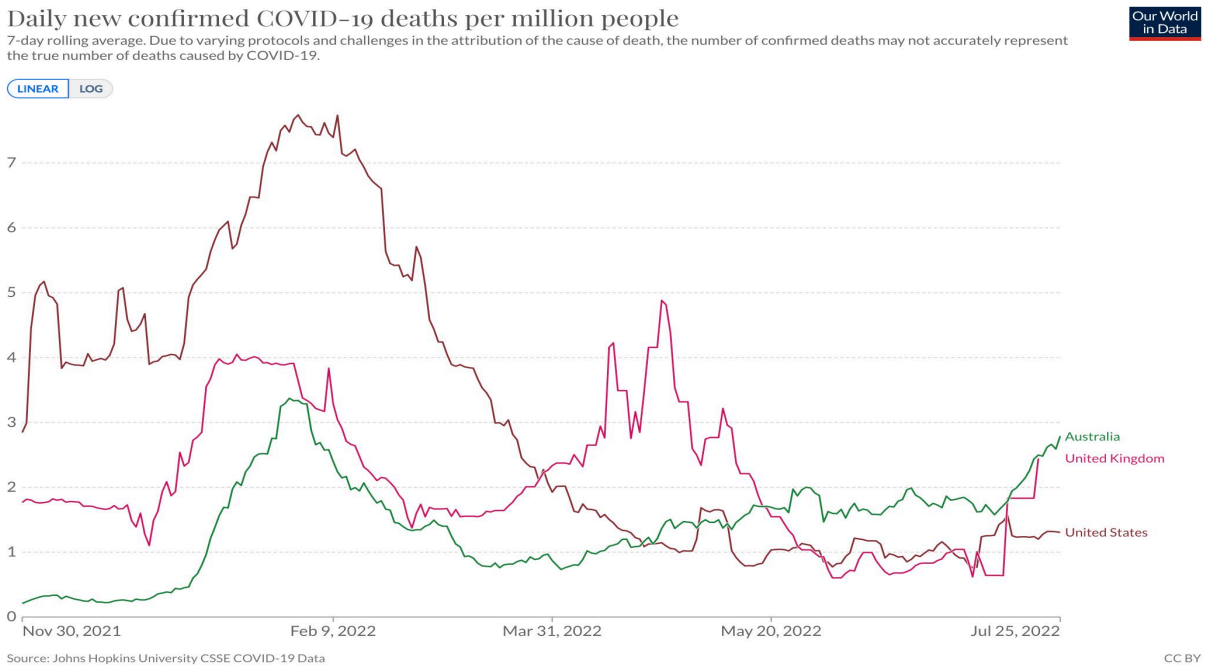
Source: * Johns Hopkins Coronavirus Resource Center; ¶ CDC COVID Data Tracker Weekly Review; † CDC COVID Data Tracker – CDC recently updated their methodology for reporting case rates

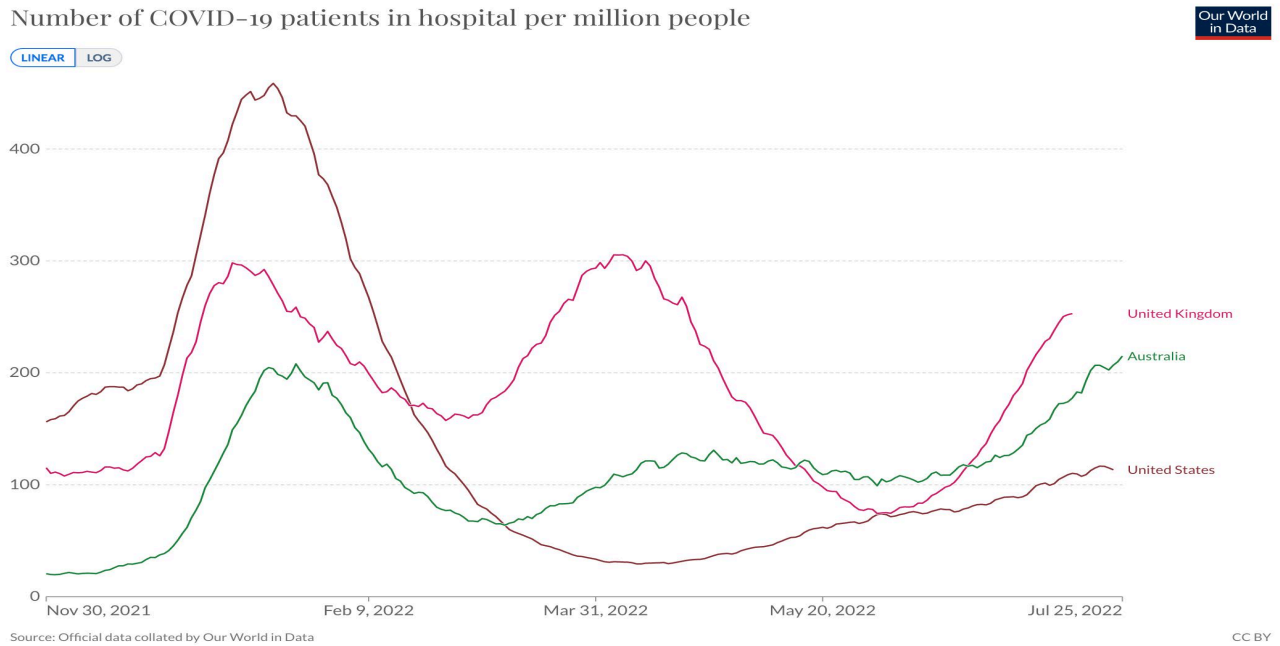
BA.4 and BA.5 driving increases in the UK, Australia, and other countries

The UK, Australia, and other countries globally have been experiencing an increase since early June, as BA.4 and BA.5 have become the dominant variants

BA.4 and BA.5 are currently estimated at over 75% of sequences in the UK and Australia





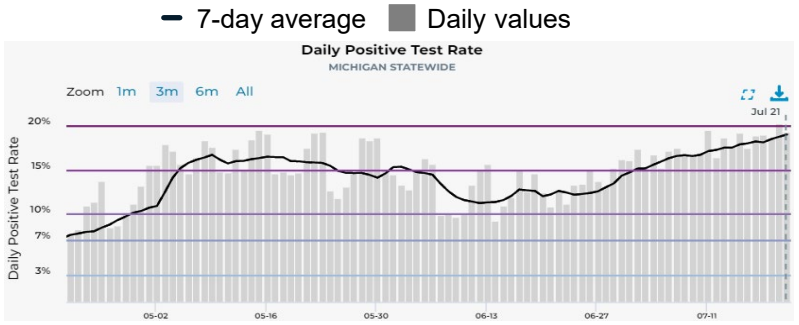


Sources: Our World In Data 7/26/22 (top), covariants.org 7/26/22 (bottom)

Recent statewide trends are increasing

Statewide trends

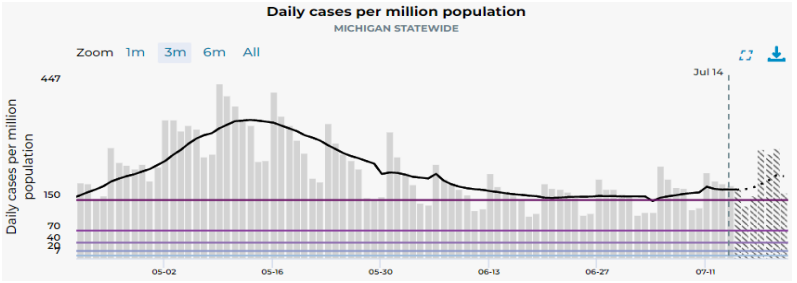
Positivity, %



Current: 19.1%

Last Week: 17.5%

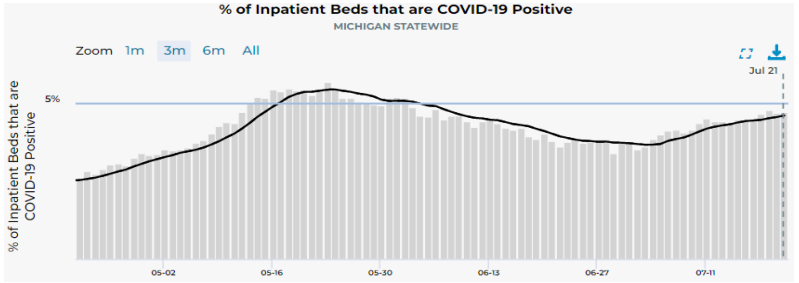
Daily cases per million



Current: 175.9

Last Week: 151.2

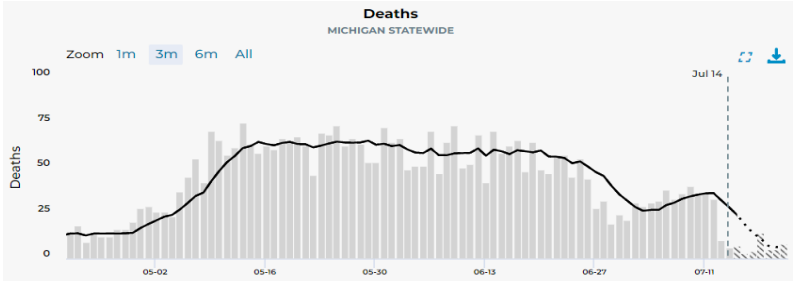
Daily hospitalization rate, %



Current: 4.6%

Last Week: 4.3%

Deaths

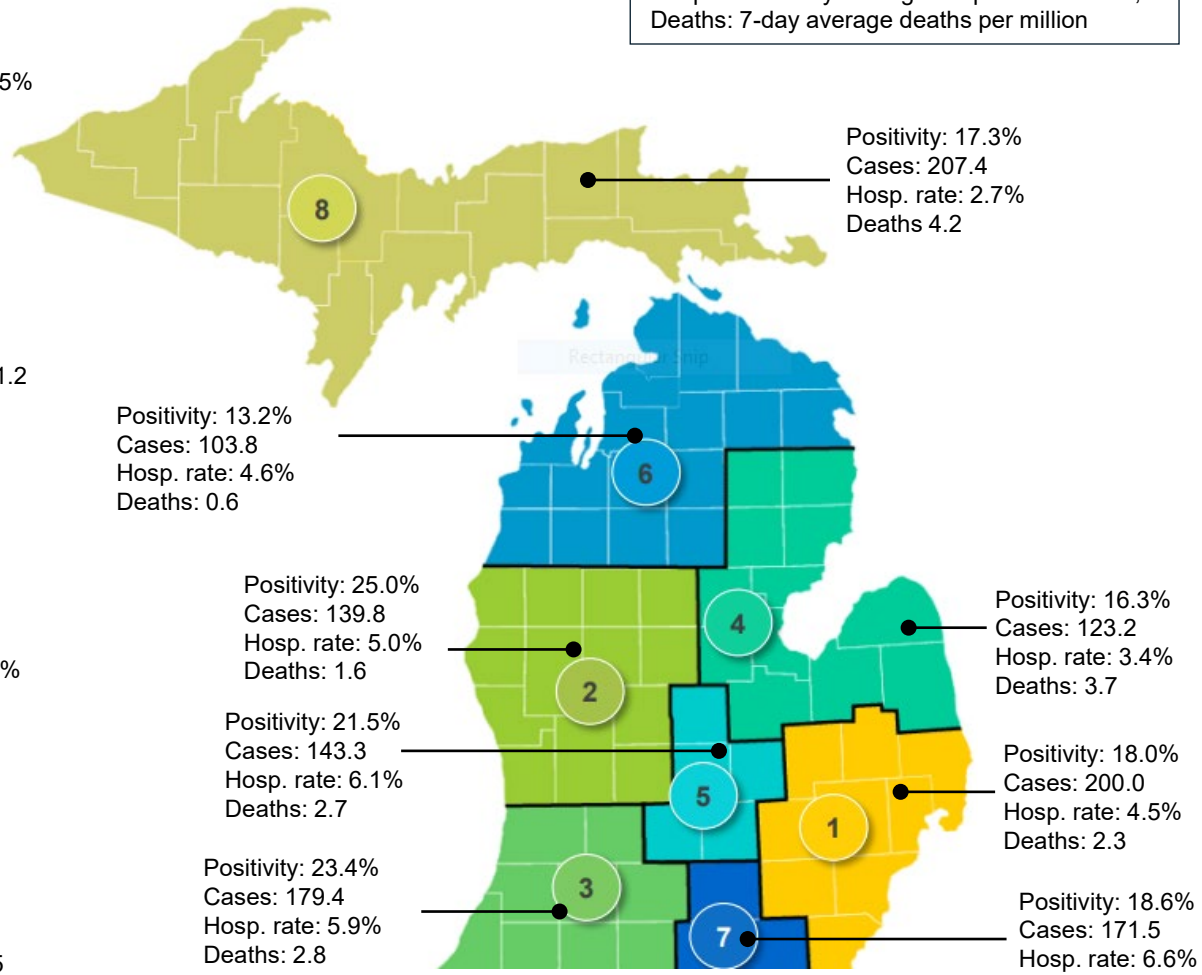


Current: 2.4

Last Week: 1.5

MERC Regional breakdown: Positivity, cases, hospitalization rate, and deaths

Positivity: 7-day average positivity, %
Cases: 7-day average cases per million
Hosp. rate: 7-day average hospitalization rate, %
Deaths: 7-day average deaths per million



Positivity: 17.3%
Cases: 207.4
Hosp. rate: 2.7%
Deaths 4.2

Positivity: 13.2%
Cases: 103.8
Hosp. rate: 4.6%
Deaths: 0.6

Positivity: 25.0%
Cases: 139.8
Hosp. rate: 5.0%
Deaths: 1.6

Positivity: 16.3%
Cases: 123.2
Hosp. rate: 3.4%
Deaths: 3.7

Positivity: 21.5%
Cases: 143.3
Hosp. rate: 6.1%
Deaths: 2.7

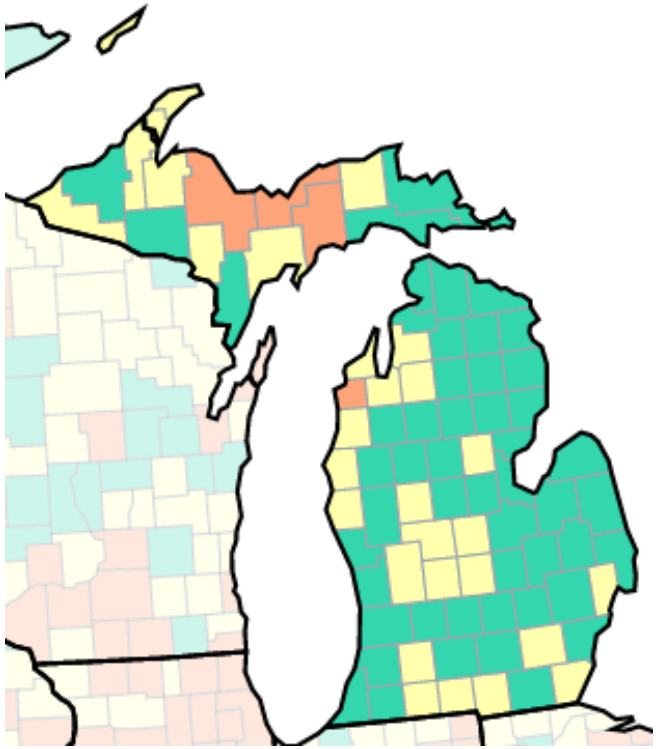
Positivity: 18.0%
Cases: 200.0
Hosp. rate: 4.5%
Deaths: 2.3

Positivity: 23.4%
Cases: 179.4
Hosp. rate: 5.9%
Deaths: 2.8

Positivity: 18.6%
Cases: 171.5
Hosp. rate: 6.6%
Deaths: 4.7

Source: https://mistartmap.info/

As of July 21, 4 Michigan Counties at High COVID-19 Community Level



- In the US, 42% of counties have high risk for medically significant disease and healthcare strain; in Michigan, 5% of counties are at high risk
  - The 4 Michigan counties this week are different from last week
- 1% of Michigan residents reside in a county with a High COVID-19 Community Level
- 28 Michigan counties are currently at Medium level (34%). This represents 31% of the population
- 51 Michigan counties are currently at Low level (61%). This represents 67% of the population

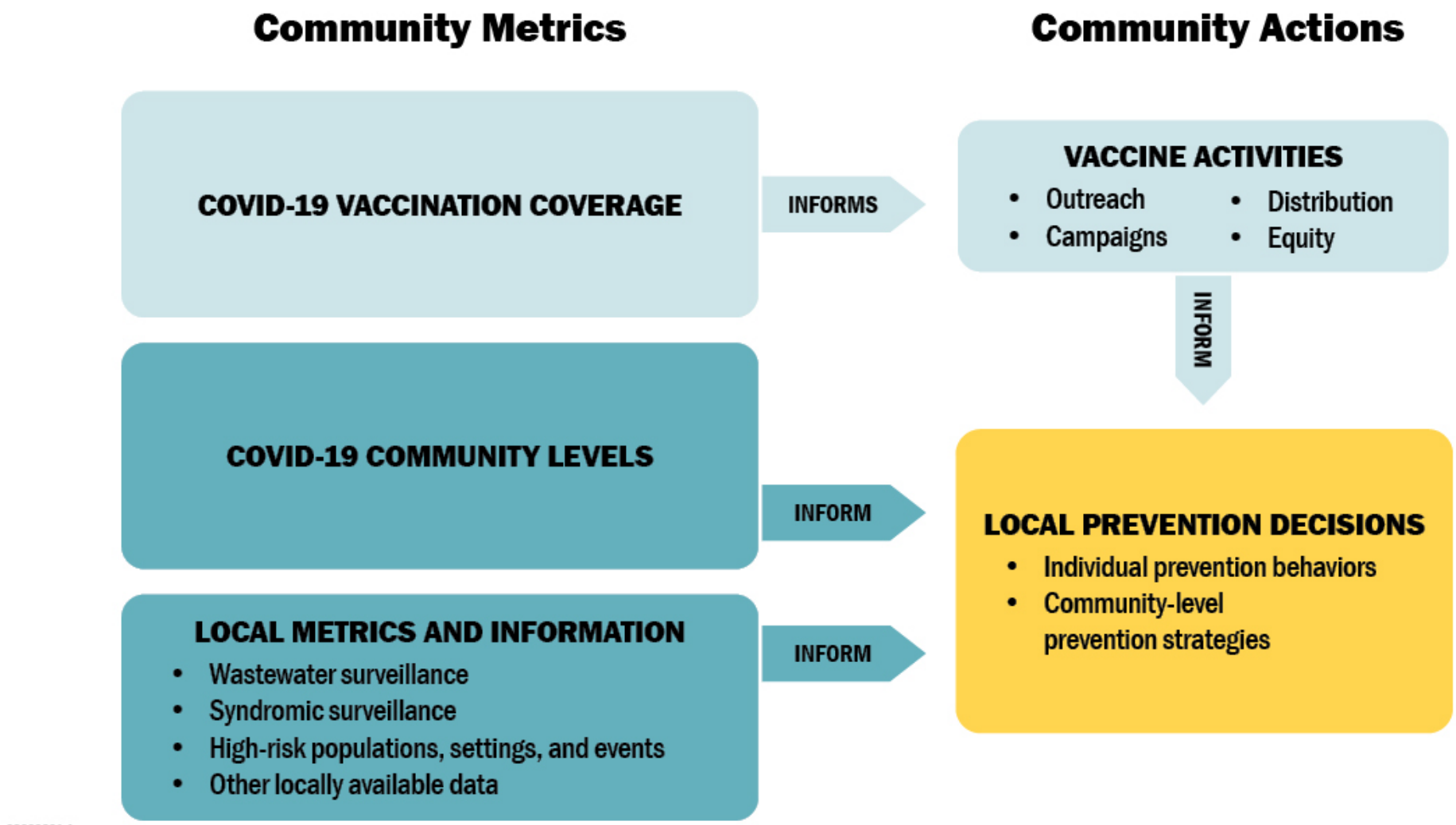
Percent of Counties

	United States	Michigan	Percent of MI Population
Low	20%	61%	67%
Medium	38%	34%	31%
High	42%	5%	1%

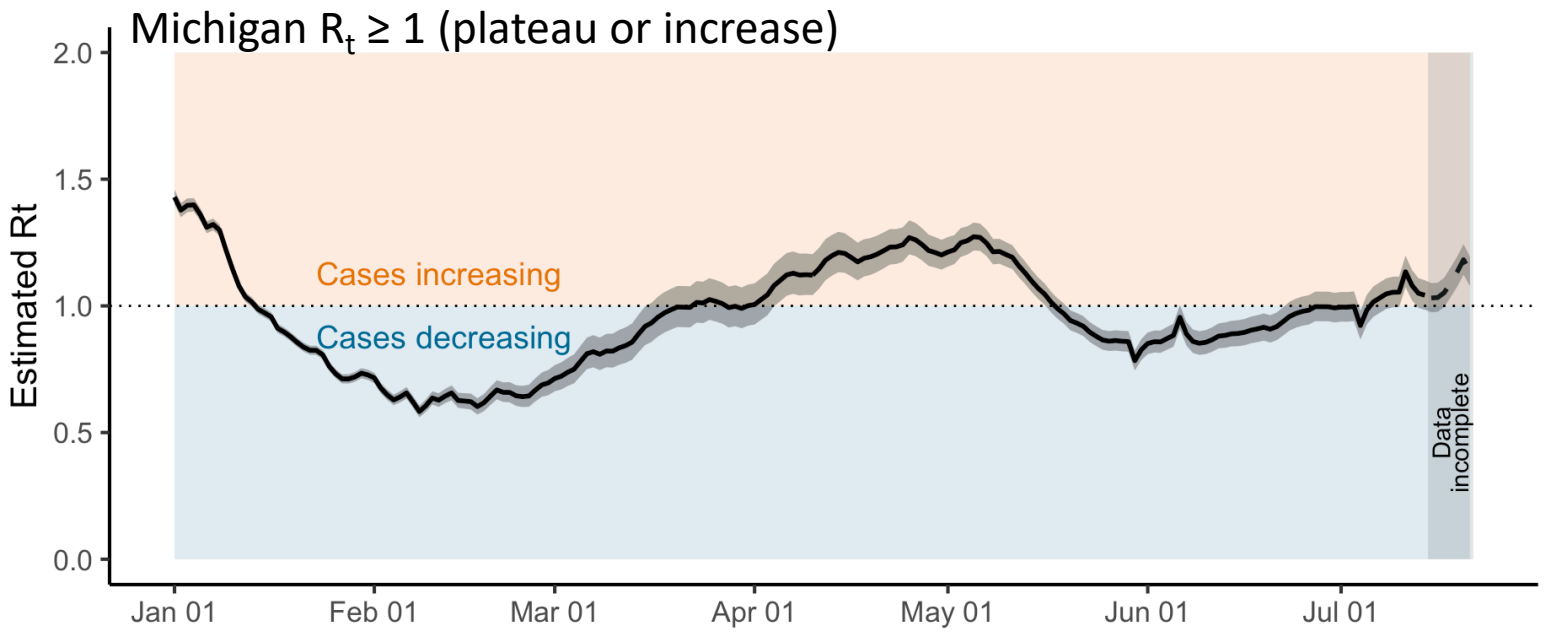
Low	Medium	High
• Stay up to date with COVID-19 vaccines • Get tested if you have symptoms	• If you are at high risk for severe illness, talk to your healthcare provider about whether you need to wear a mask and take other precautions • Stay up to date with COVID-19 vaccines • Get tested if you have symptoms	• Wear a mask indoors in public • Stay up to date with COVID-19 vaccines • Get tested if you have symptoms • Additional precautions may be needed for people at high risk for severe illness

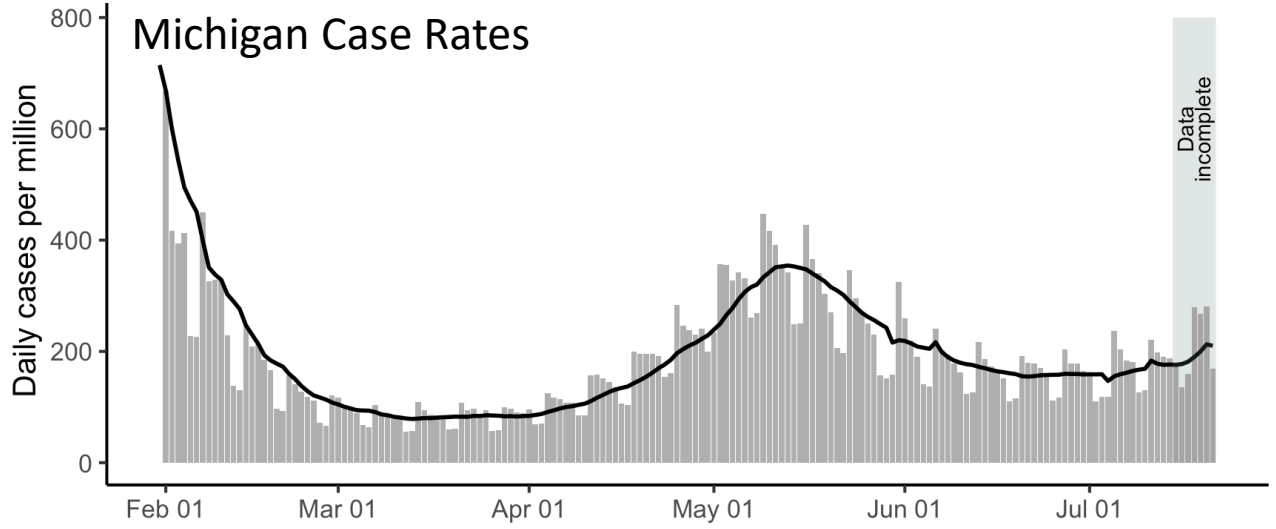
Source: CDC COVID-19 Community Levels https://covid.cdc.gov/covid-data-tracker/#county-view?list_select_state=all_states&list_select_county=all_counties&data-type=CommunityLevels

Local Prevention Decisions Should Use Community Levels in Concert with Other Pandemic Indicators

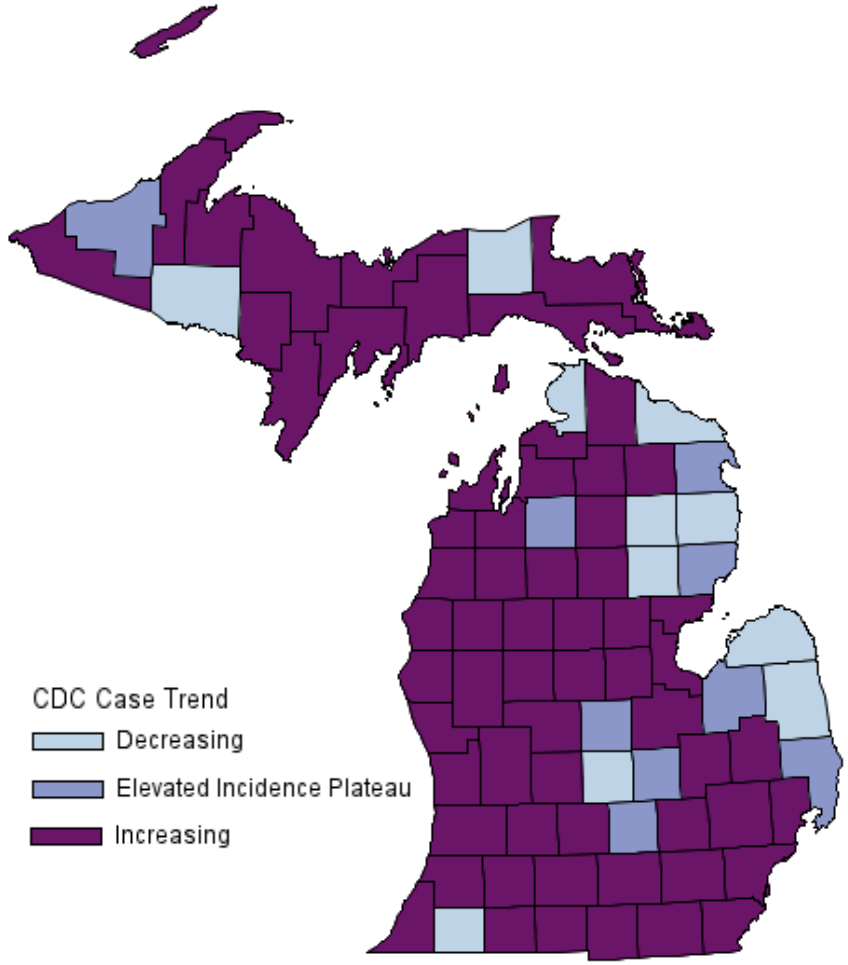


Cases are Increasing in Michigan



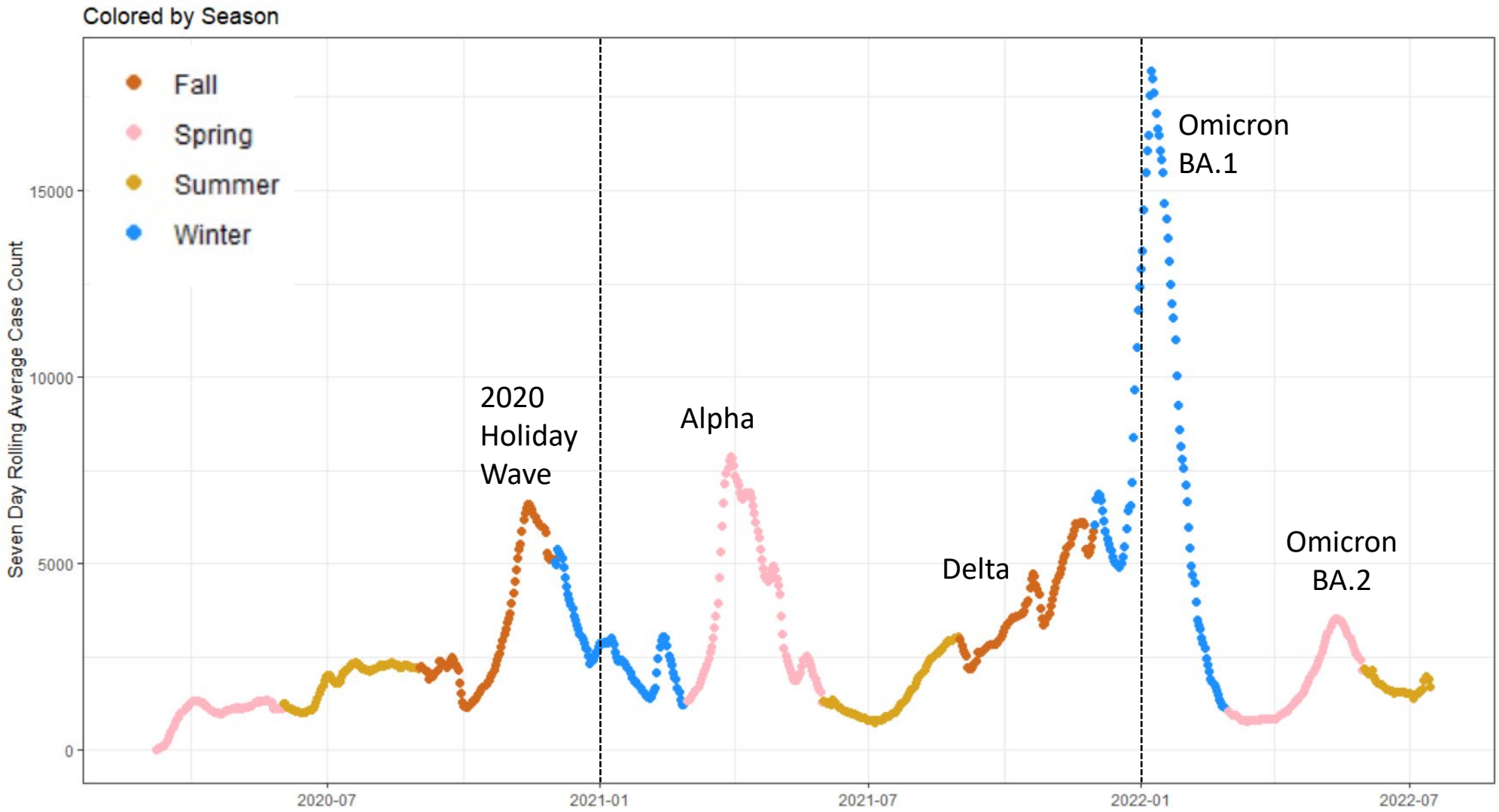


63 counties currently showing increases and 9 in elevated incidence plateaus (via mistartmap.info as of 7/22/22, data through 7/22/22).



Sources: MDSS cases plotted by onset date as of 7/22/22.

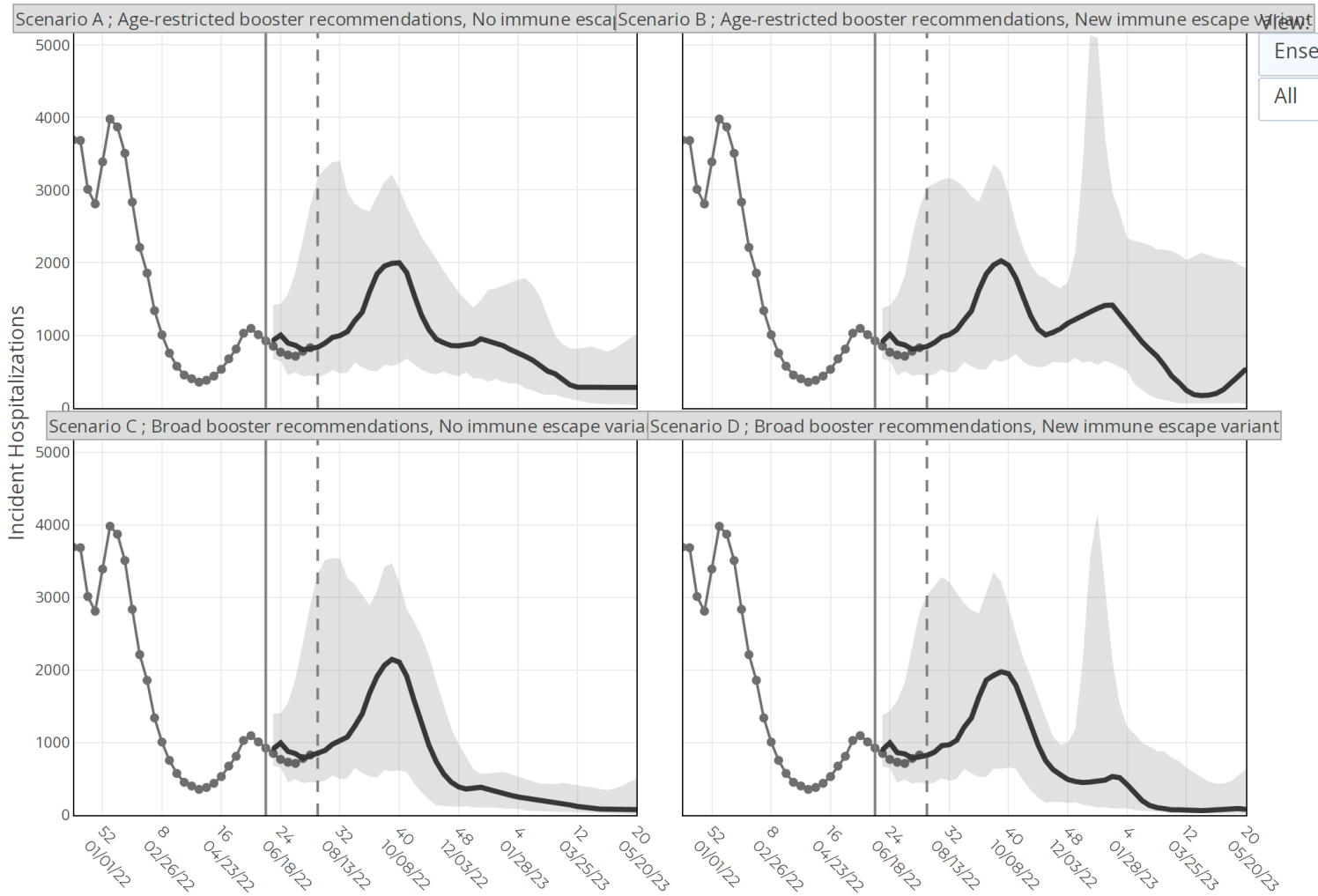
How have past surges played out? 2020 and 2021 have seen both plateaus and increases in late summer/fall



Scenario Hub projections suggest summer/fall surge + potential winter surge in cases, hospitalizations, deaths

- Summer/fall: uncertainty range includes either plateau or surge
- Winter
  - If no new immune escape variant, suggests plateau through winter (left two plots)
  - If new variant, potential for winter surge as well (right two plots)
- Similar patterns for cases and deaths (see link below)

Projected hospitalizations under four booster and variant scenarios

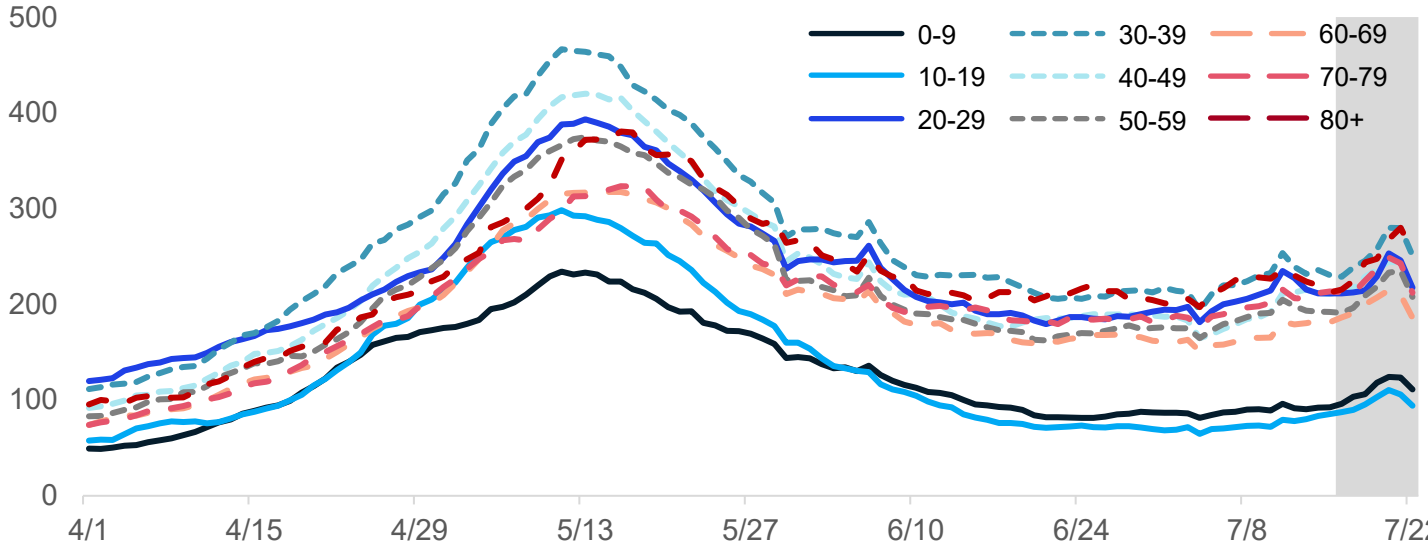


Source: [Round 14 Scenario Modeling Hub Projections]

Plotted with 50% uncertainty interval

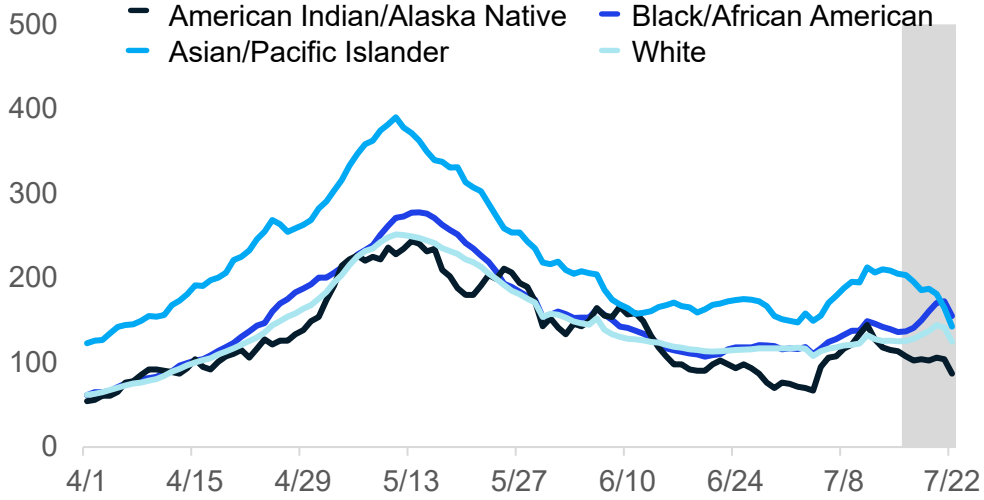
Case rates by age, race, and ethnicity are increasing

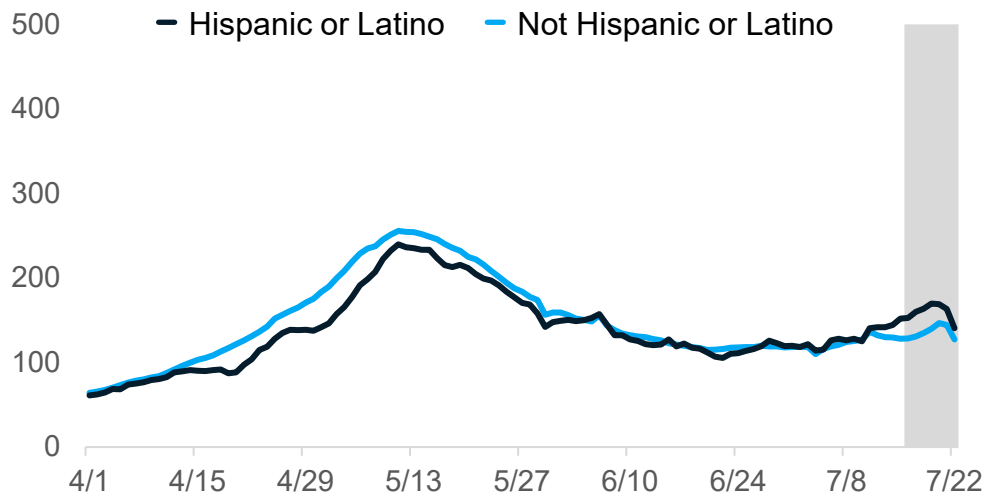
Daily new confirmed and probable cases per million by age group (7-day rolling average)



- Case rates by onset date for all age groups are between 85.3 and 230.5 cases per million (through 7/15)
- Case counts and case rates are highest for 30-39-year-olds this week, followed by 70-79-year-olds and the 80+-year-olds age groups

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



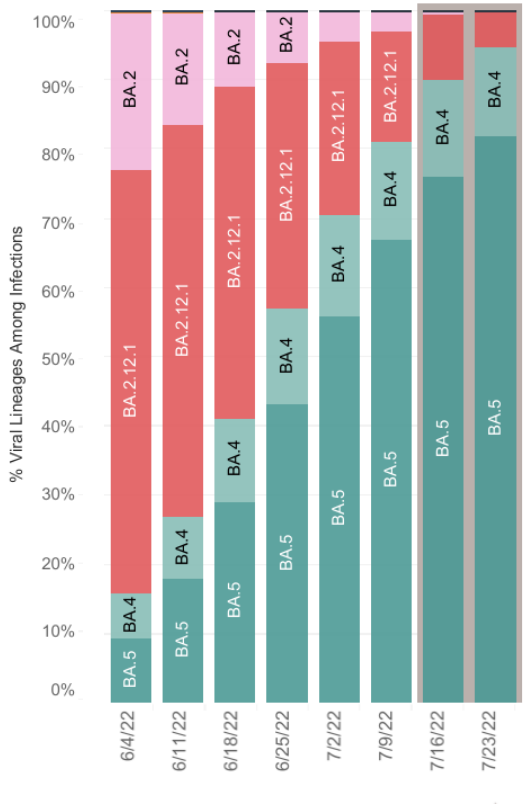


- Case rates are highest for Asian/Pacific Islander populations (204.9 cases/million)
- Between 21-26% of cases in last 30 days have missing race/ethnicity data

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

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

SARS-CoV-2 Variants Circulating in the United States, May 29 – Jul 23 (NOWCAST)

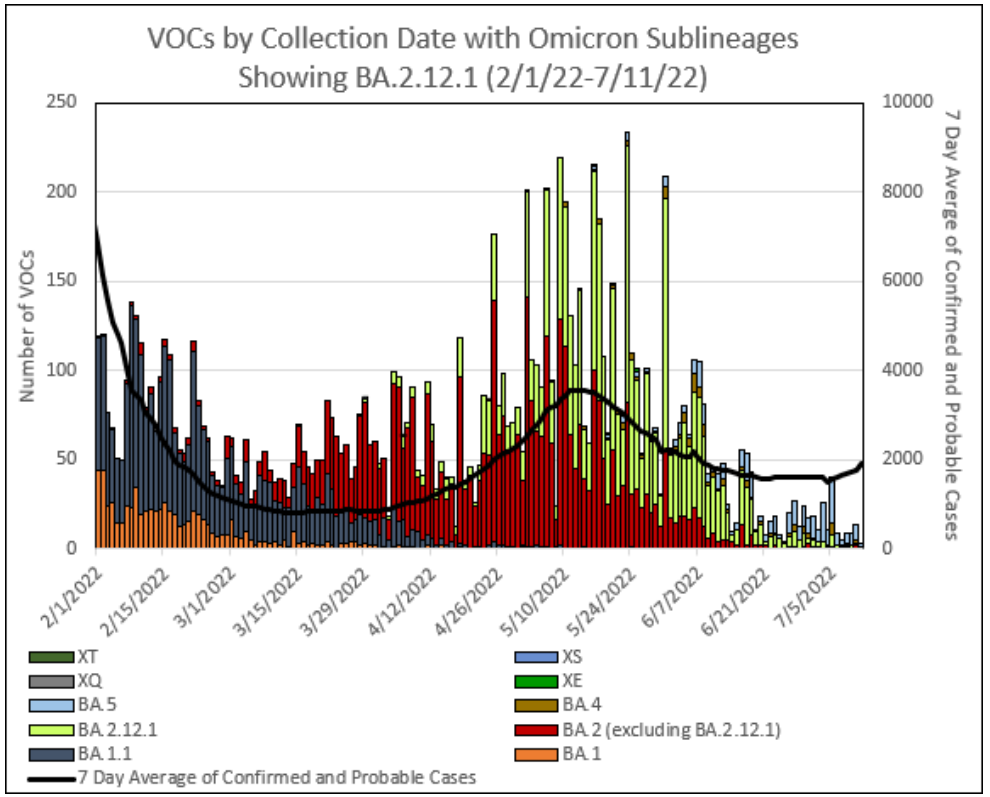


USA

WHO label	Lineage #	US Class	%Total	95%PI
Omicron	BA.5	VOC	81.9%	79.9-83.8%
	BA.4	VOC	12.9%	11.2-14.7%
	BA.2.12.1	VOC	5.0%	4.5-5.4%
	BA.2	VOC	0.3%	0.2-0.3%
	B.1.1.529	VOC	0.0%	0.0-0.0%
	BA.1.1	VOC	0.0%	0.0-0.0%
Delta	B.1.617.2	VBM	0.0%	0.0-0.0%
Other	Other*		0.0%	0.0-0.0%

* Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all weeks displayed.
** These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates
# AY.1-AY.133 and their sublineages are aggregated with B.1.617.2. BA.1, BA.3 and their sublineages (except BA.1.1 and its sublineages) are aggregated with B.1.1.529. For regional data, BA.1.1 and its sublineages are also aggregated with B.1.1.529, as they currently cannot be reliably called in each region. Except BA.2.12.1, BA.2 sublineages are aggregated with BA.2. Sublineages of BA.4 are aggregated to BA.4. Sublineages of BA.5 are aggregated to BA.5.

VOC Distribution in Michigan

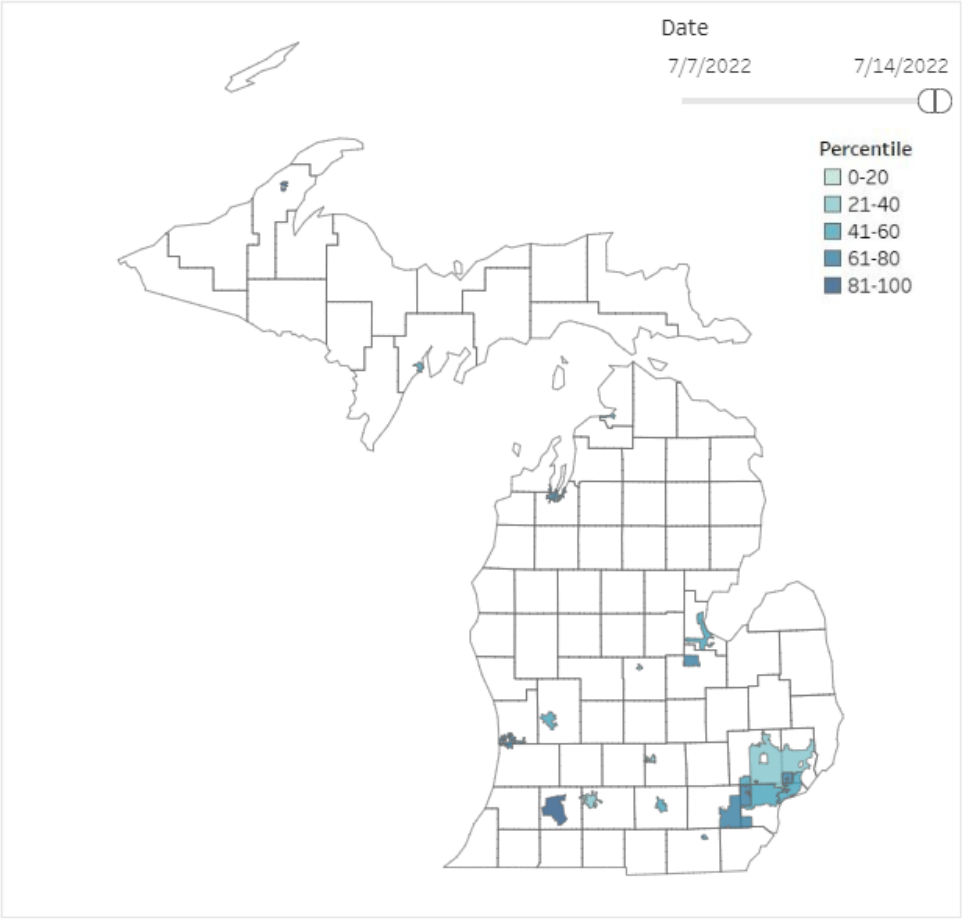


- Since June 1, there have 1,369 VOC specimens sequenced
- 100% of specimens sequenced are Omicron
  - In the two most recent weeks (July 3 - 16), a majority of specimens sequenced are BA.5 (70.9%) but the total number of specimens sequenced and reported remains low (n=141)

Data last updated Jul 19, 2022
Source: CDC COVID Data Tracker: Genomic Surveillance and Michigan's MDSS

Michigan COVID-19 SWEEP Sentinel Wastewater Dashboard

The map below shows 20 sewershed sites in Michigan where wastewater is being monitored for the presence of SARS-CoV-2, the virus that causes COVID-19. These sentinel sites serve as a subset of wastewater surveillance in Michigan distributed across the Michigan Economic Recovery Council (MERC) Regions. Click on each site on the map to see wastewater and clinical case data over time. In the top right corner of the map, slide the white buttons to select the time period for which the site-specific percentile is calculated.



Site	Sewershed Population	Consecutive Weeks of Virus Detection	Trend As Of	15-Day Trend
Alma WWTP	8976	13	7/11/2022	
Battle Creek WWTP	51093	13	7/13/2022	
Bay City WWTP	34000	4	7/13/2022	
Delhi Township WWTP	22500	15	7/7/2022	
Escanaba WWTP	12600	11	7/13/2022	
GLWA Detroit River Interce..	492000	91	7/13/2022	
GLWA North Interceptor-Ea..	1482000	68	7/13/2022	
GLWA Oakwood-Northwest..	840600	91	7/13/2022	
Grand Rapids WWTP	265000	49	7/14/2022	
Holland WWTP North	45606	13	7/13/2022	
Holland WWTP South	36912	15	7/13/2022	
Jackson WWTP	90000	52	7/14/2022	
Kalamazoo WWTP	150000	16	7/14/2022	
Petoskey WWTP	7900	13	7/14/2022	
Portage Lake WWTP	14000	44	7/13/2022	
Saginaw Township WWTP	40000	14	7/13/2022	
Tecumseh WWTP	8680	27	7/14/2022	
Traverse City WWTP	45000	18	7/14/2022	
Warren WWTP	135000	12	7/7/2022	
Ypsilanti WWTP	330000	52	7/14/2022	

Abbreviations: GLWA - Great Lakes Water Authority; WWTP - Waste Water Treatment Plant

Definitions and descriptions of data calculations can be found in the "About" tab.

Current results reflect data that were uploaded to MDHHS as of 7/20/2022. Labs are required to report test results to local partners within 24 hours. Data is subject to change as additional wastewater data and case data are received.

15-Day Trends
- 1000% or more
- 100% to 999%
- 10% to 99%
- 0% to 9%
- -1% to -9%
- -10% to -99%
- -100% to -999%
- -1000% or more

SWEEP Summary

- 25% (5/20) of sentinel sites are showing increasing trends over last 15-days
- 20% (4/20) of sites have plateaued over the last 15 days
- 55% (11/20) of sentinel sites are showing declines in the previous 15-days

Source: MDHHS – Sentinel Wastewater Epidemiology Evaluation Project - https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173-573480--,00.html

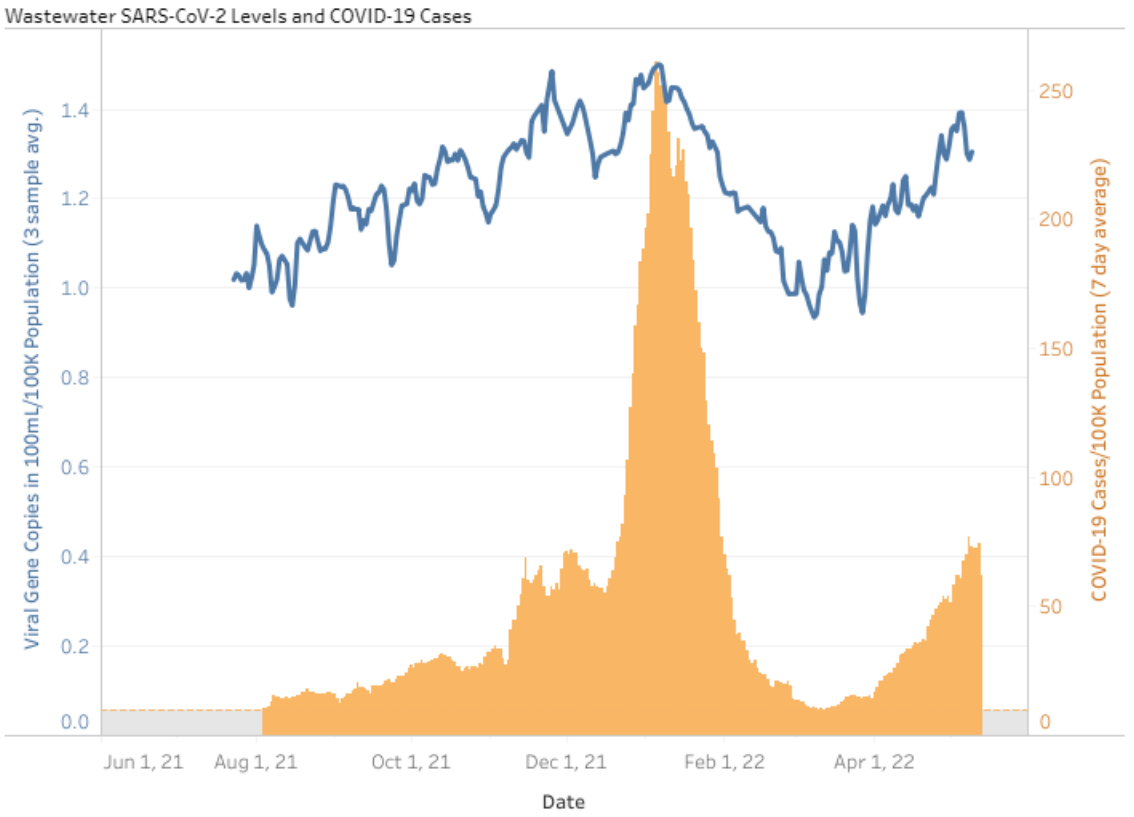
Interpreting Wastewater Should Be In Context with Other Indicators

- When levels of virus in wastewater are low, a modest increase overall in virus level can appear much larger as numbers are translated into percentages
  - This does not necessarily mean we will see major increases in transmission in the community

- When increases are seen within one wastewater site, public health officials compare with neighboring communities and other data sources to understand potential of surges
  - For example, the Ypsilanti WWTP saw increases in SARS-CoV-2 levels which correlated with increasing presence of Omicron BA.2 lineage and then followed by an increase in cases

Ypsilanti WWTP

The most recent sample concentration is higher than 84% of samples collected at this site, which puts it in the 81-100 percentile category. As of 5/10/2022, the change in viral concentration over the past 15 days is increasing.

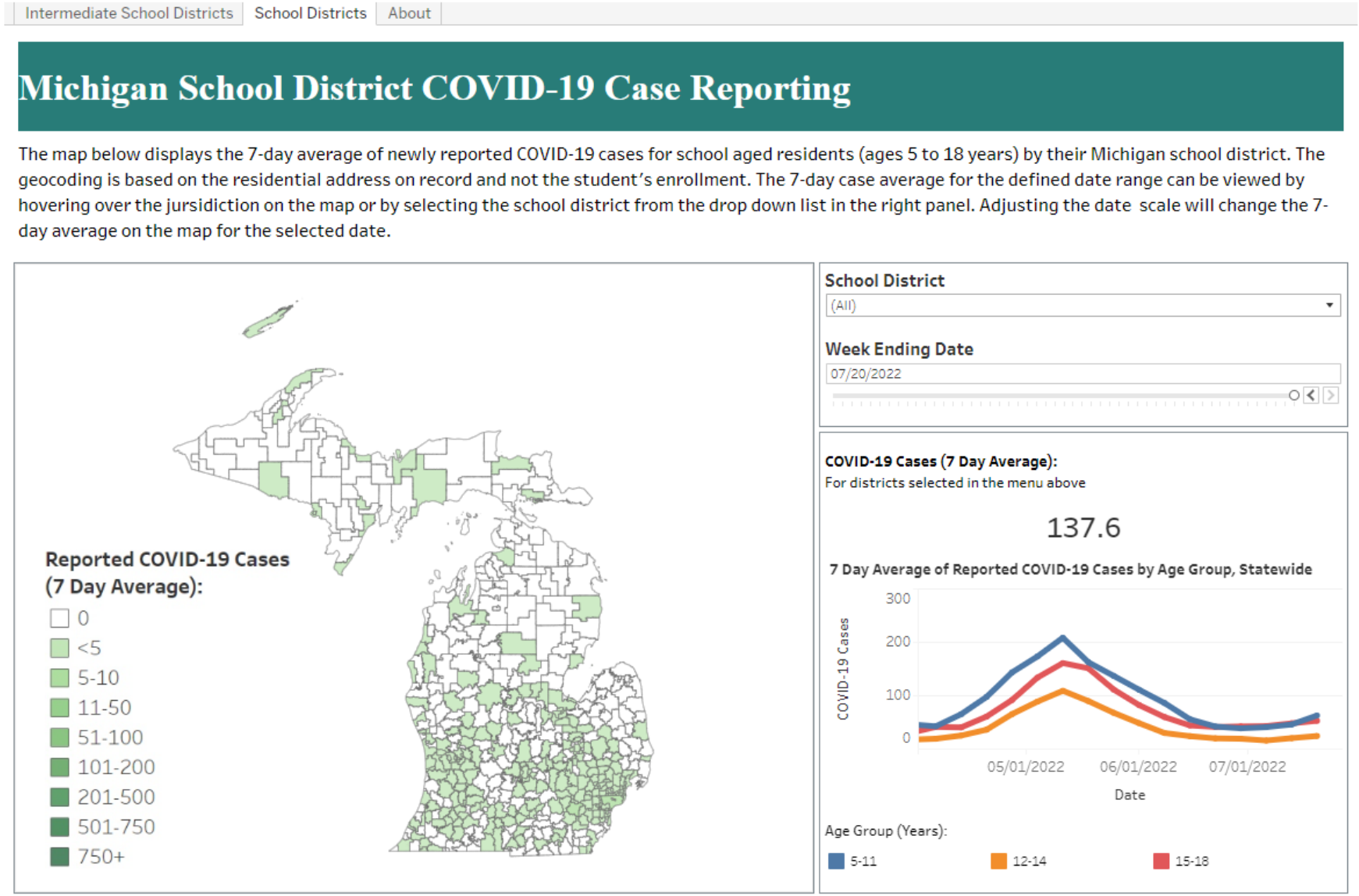


The blue line on the graph shows the levels of SARS-CoV-2, the virus that causes COVID-19, in the wastewater samples collected from Ypsilanti WWTP. Each data point is calculated by averaging the number of viral gene copies detected per 100mL of wastewater in the 3 most recent samples. The orange bars on the graph show the COVID-19 cases reported to MDHHS from the zip codes that the wastewater treatment plant serves (7-day average). Both the virus levels and COVID-19 cases are calculated per 100,000 people. Case data will not be shown on the graph when the average number of cases is fewer than 10 per 100,000 people to protect the confidentiality of individuals with infections. This will be represented by an orange dashed line with gray shading below.

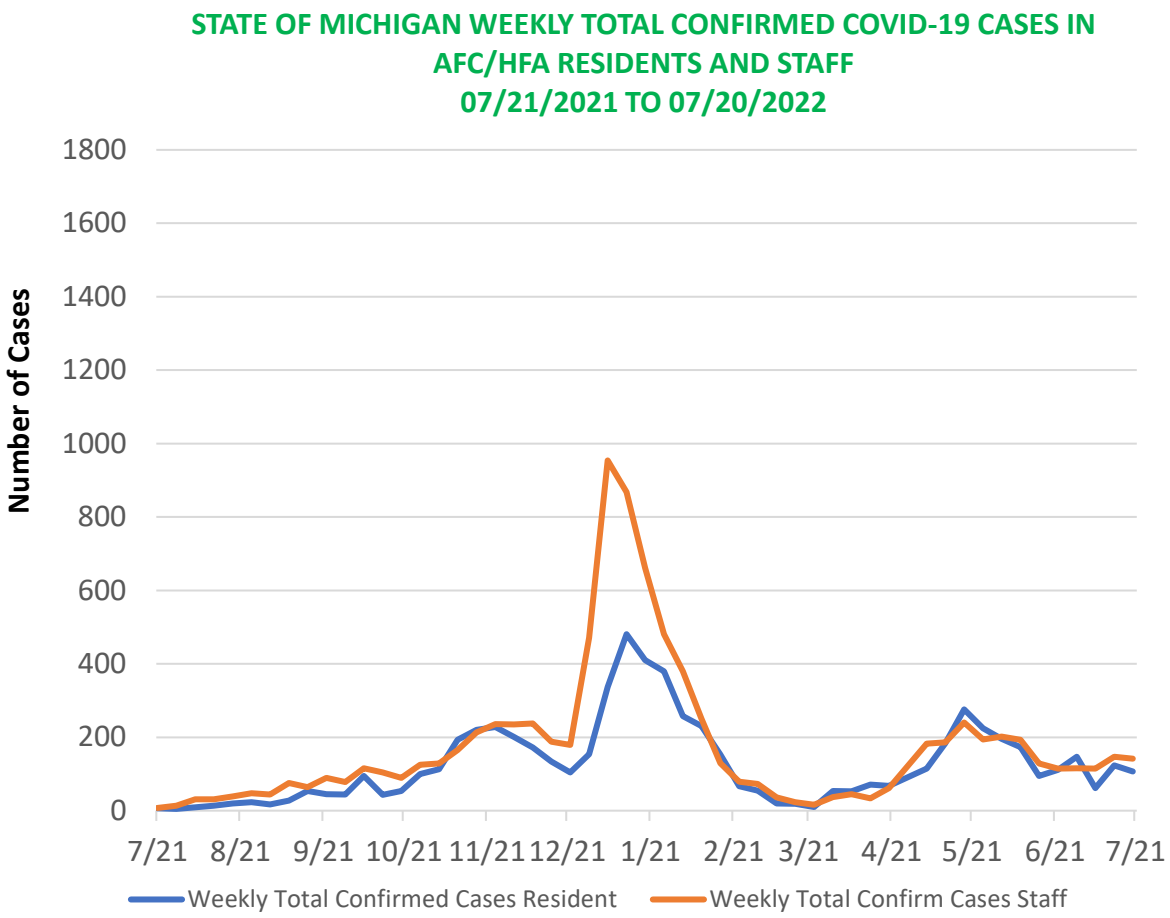
Source: MDHHS – Sentinel Wastewater Epidemiology Evaluation Project - https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173-573480--,00.html

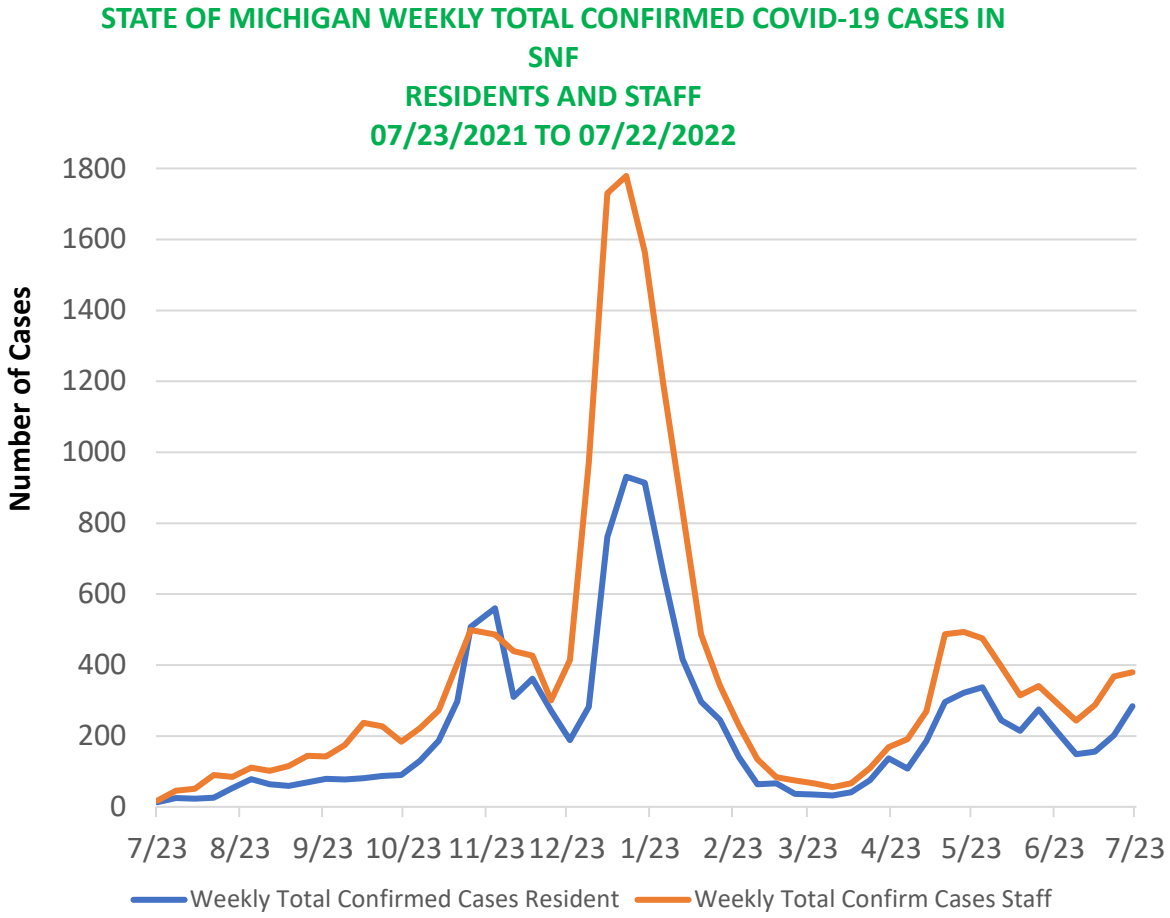
MDHHS dashboard shows cases among K-12 age individuals by ISD & School District

- Case rates among school-aged populations have plateaued
- Interactive dashboard is available & updated weekly at https://www.michigan.gov/coronavirus/stats/k-to-12-aged-isd-reporting



Cases Among Staff and Residents in Long Term Care Facilities



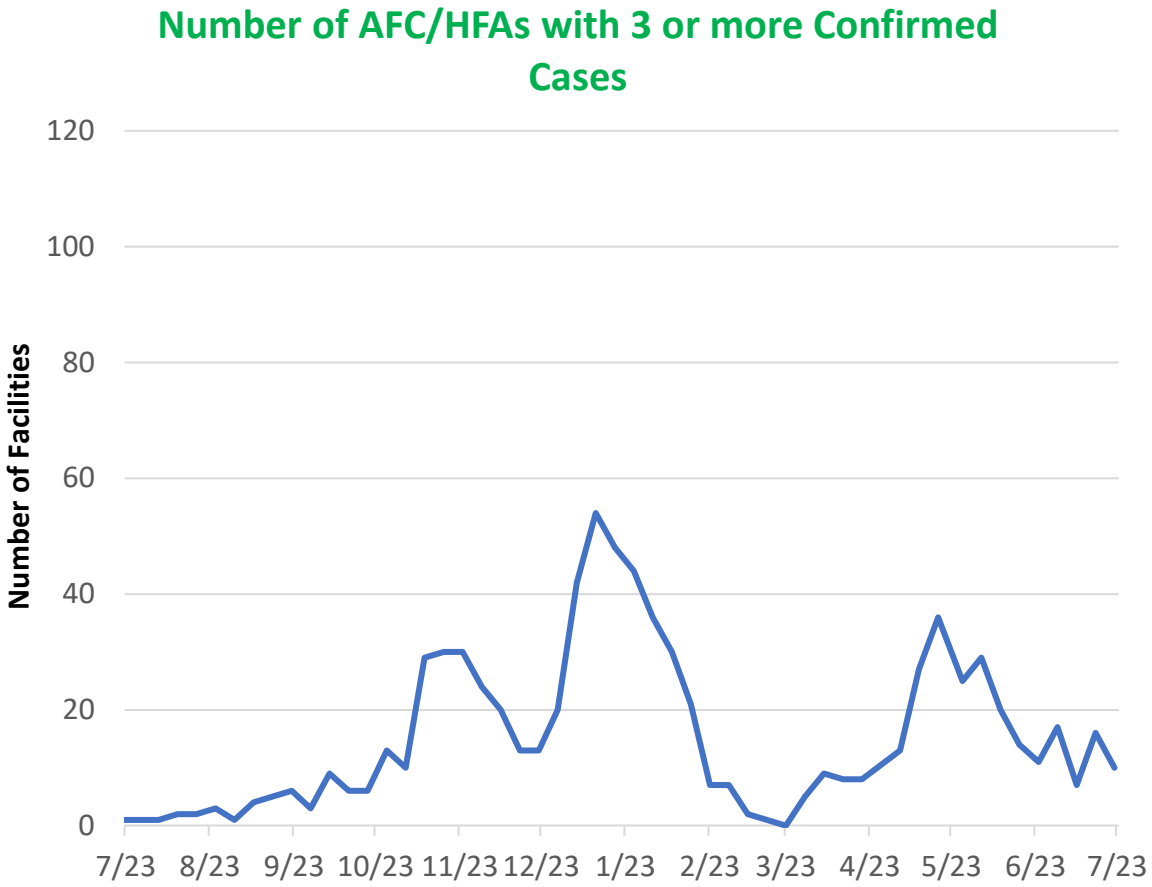


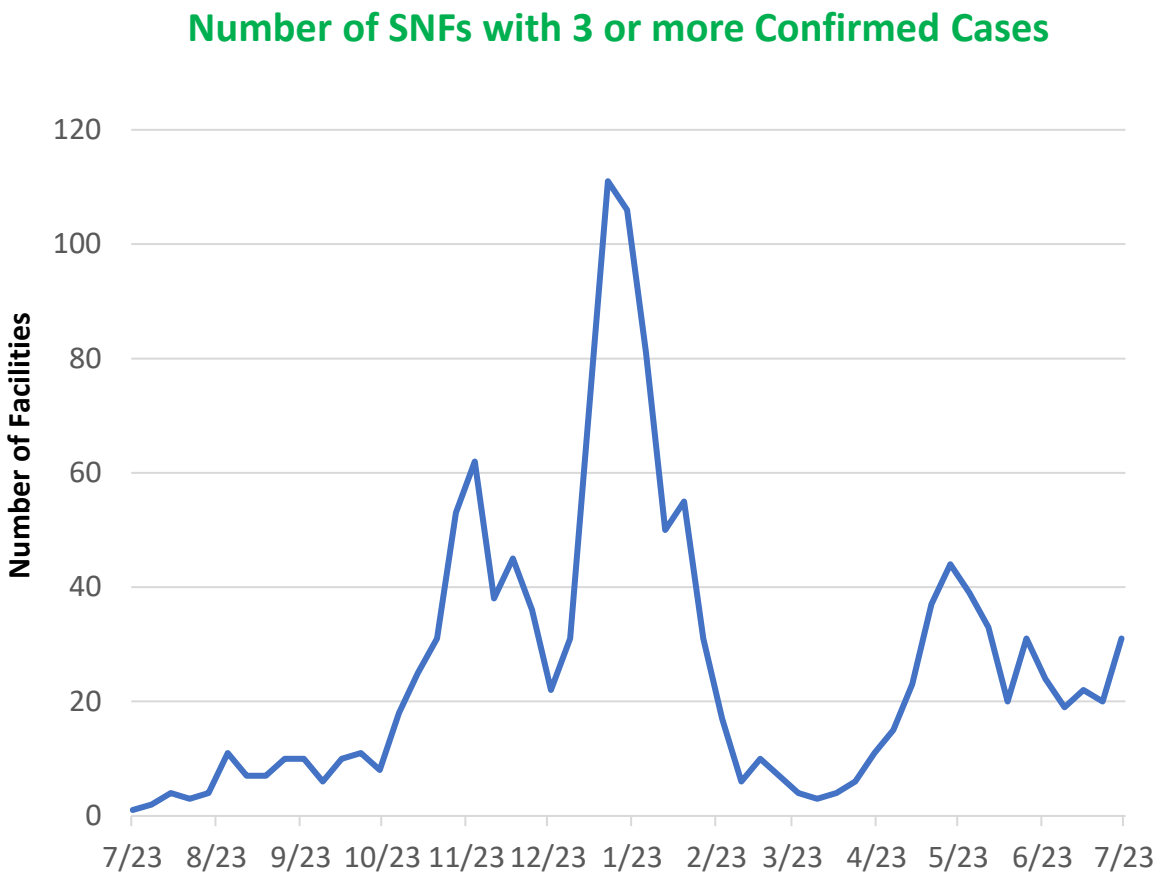
- Case counts in residents decreased in AFC/HFA (115 to 107) but increased in SNFs (202 to 284) since last week
- Case counts in staff are plateaued in AFC/HFA (147 to 142), but increased in SNFs (368 to 380) since last week
- **30%** of SNFs are reporting **nursing shortages** and **31%** of SNFs are reporting **aide shortages**, which is stable from last week

Abbreviations: AFC: Adult Foster Care; HFAs: Homes for the Aged; and SNF: Skilled Nursing Facilities

The data is from weekly reporting by facilities with bed occupancy of at least 13 beds.

Reported Number of Outbreaks in Long Term Care Facilities

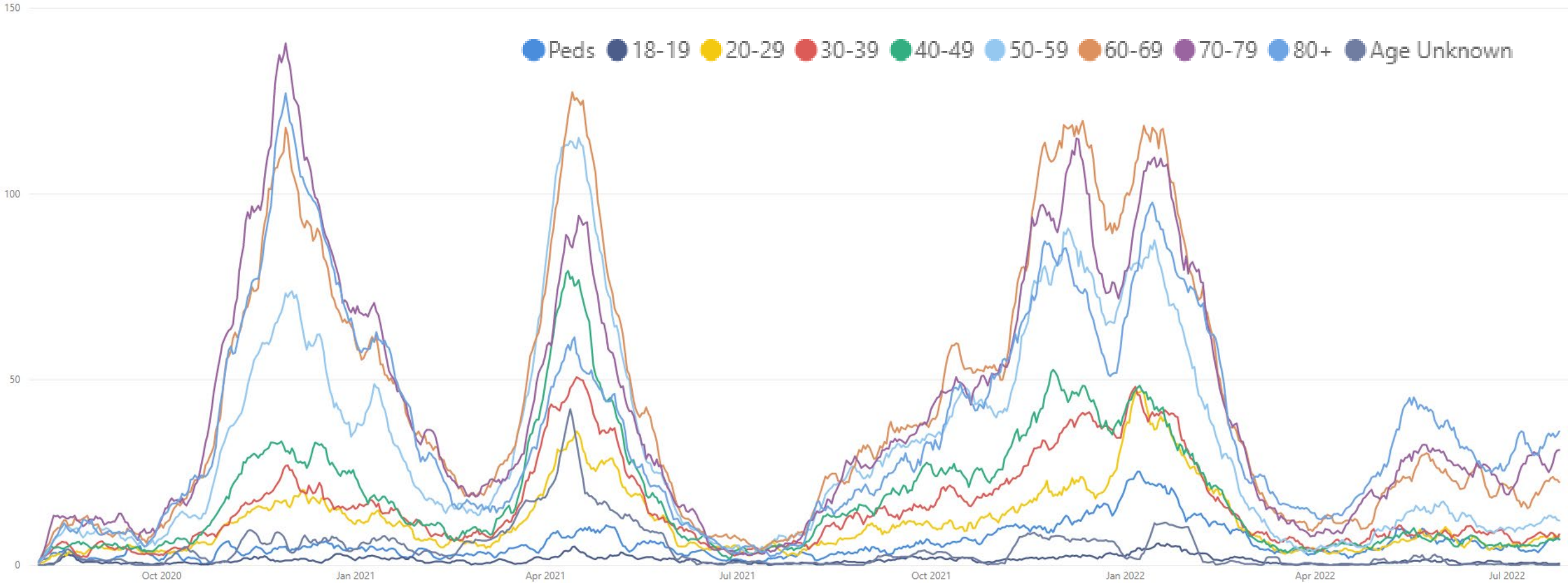




- The number of Long-Term Care Facilities reporting 3 or more cases within a single reporting period decreased in **AFC/HFAs** from 16 to 10; but increased in **SNFs** from 20 to 31 in most recent data.

The data is from weekly reporting by facilities with bed occupancy of at least 13 beds.

Hospital Admissions due to COVID-19 is Steadily Increasing



- Trends for daily average hospital admissions saw an increase (+9%) since last week (vs. +5% prior week)
- Most age groups reported an increase in hospital admissions this week compared to last week
- Those 60-69, 70-79, and 80+ are seeing between 20-35 daily hospital admissions

Source: CHECC & EM Resource

Hospital Admissions and Admission Rates by Age Group

Daily new hospital admission per million by age group (7-day rolling average)

Age Group	Average† daily number of hospital admissions	Average† Daily Hospital Admission Rate*	One Week % Change (Δ #)
0-11	4.4	3.2	+29% (+1)
12-17	1.3	1.7	+80% (+1)
18-19	0.3	1.1	-50% (-<1)
20-29	7.6	5.5	-0% (-0)
30-39	7.3	6.0	-14% (-1)
40-49	7.1	6.1	+19% (+1)
50-59	12.1	9.0	+1% (+<1)
60-69	**23.0**	**18.0**	+10% (+2)
70-79	**30.9**	**40.2**	+14% (+4)
80+	**35.0**	**84.5**	+11% (+4)
Total¶	**129.0**	**11.3**	**+9% (+11)**

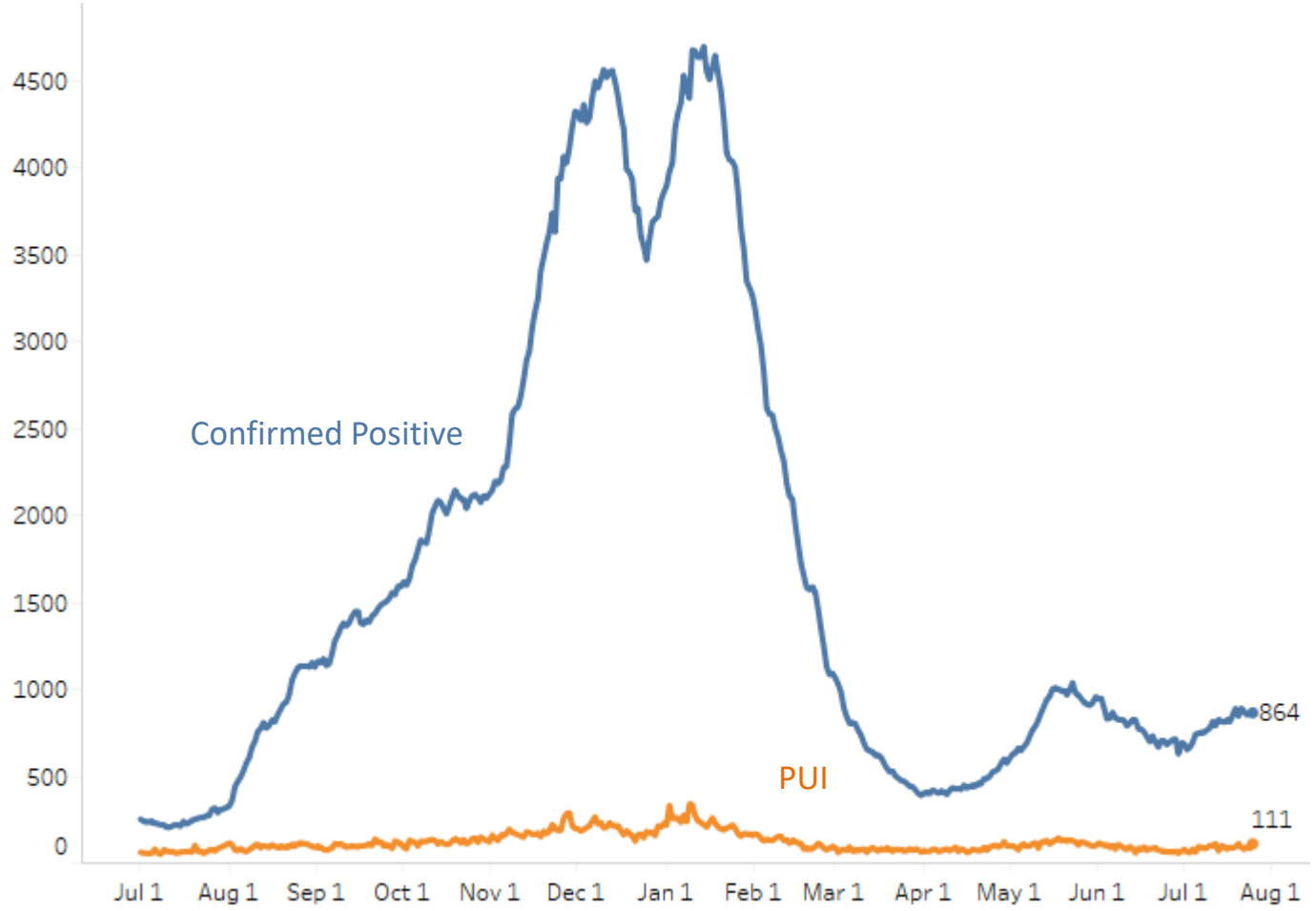
* Rate per 1 million residents; † Rolling 7-day average; ¶ Total may not reflect state due to missing age data
Note: Hospital Admission data reflects date data was submitted
Source: CHECC and EM Resource

- Through July 25, there were an average of 129.0 hospital admissions per day due to COVID-19; a modest increase from last week (+9%, +11)
- Most age groups saw an increase this week compared to last week
- Those between 70 and 79 years and 80 years and older saw the greatest daily average increase at 4 which brought the daily average hospital admissions in this age group to 31 and 35, respectively
- Average daily hospital admission count (35.0 hospital admissions per day) and average daily hospital admission rate (84.5 hospital admissions/million) was highest among those aged 80+
- Those 60-69, 70-79, and 80+ are seeing between 20-35 daily hospital admissions

Note: for some age groups, small changes in number of hospitalization admissions can cause large change in One Week Percent Change

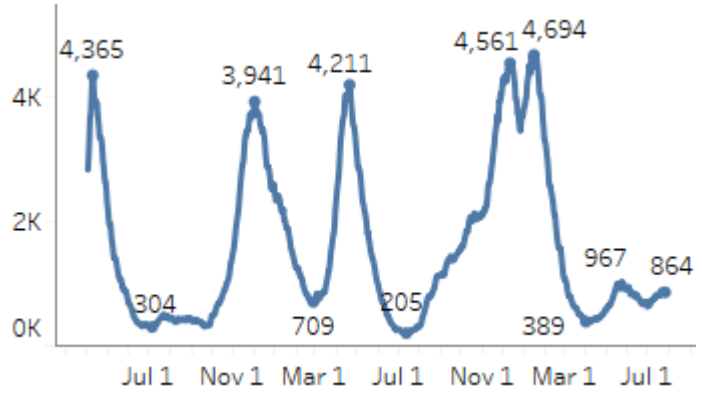
Statewide Hospitalization Trends: Total COVID+ Census

Hospitalization Trends 7/1/2021 – 7/25/2022
Confirmed Positive & Persons Under Investigation (PUI)



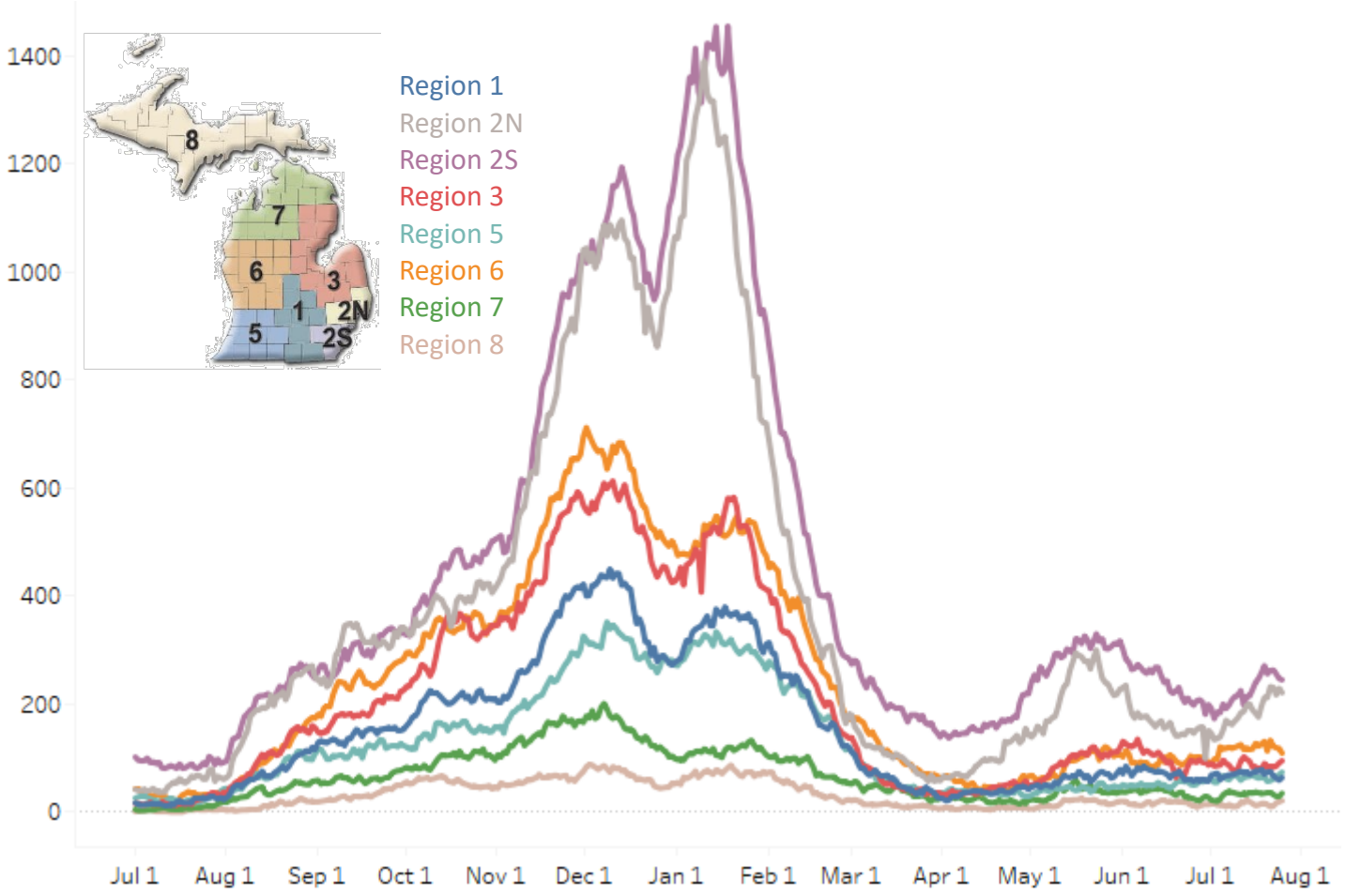
The COVID+ census in hospitals has increased by just 1% from last week (last week increased 5% from the previous week). Overall census is currently 864 patients.

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 7/1/2021 – 7/25/2022
Confirmed Positive by Region



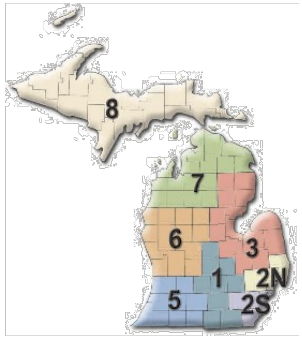
This week the COVID+ census in hospitals has increased in Regions 2N, 3, 5, 7 and 8. Hospitalizations have decreased or remained flat in Regions 1, 2S, and 6.

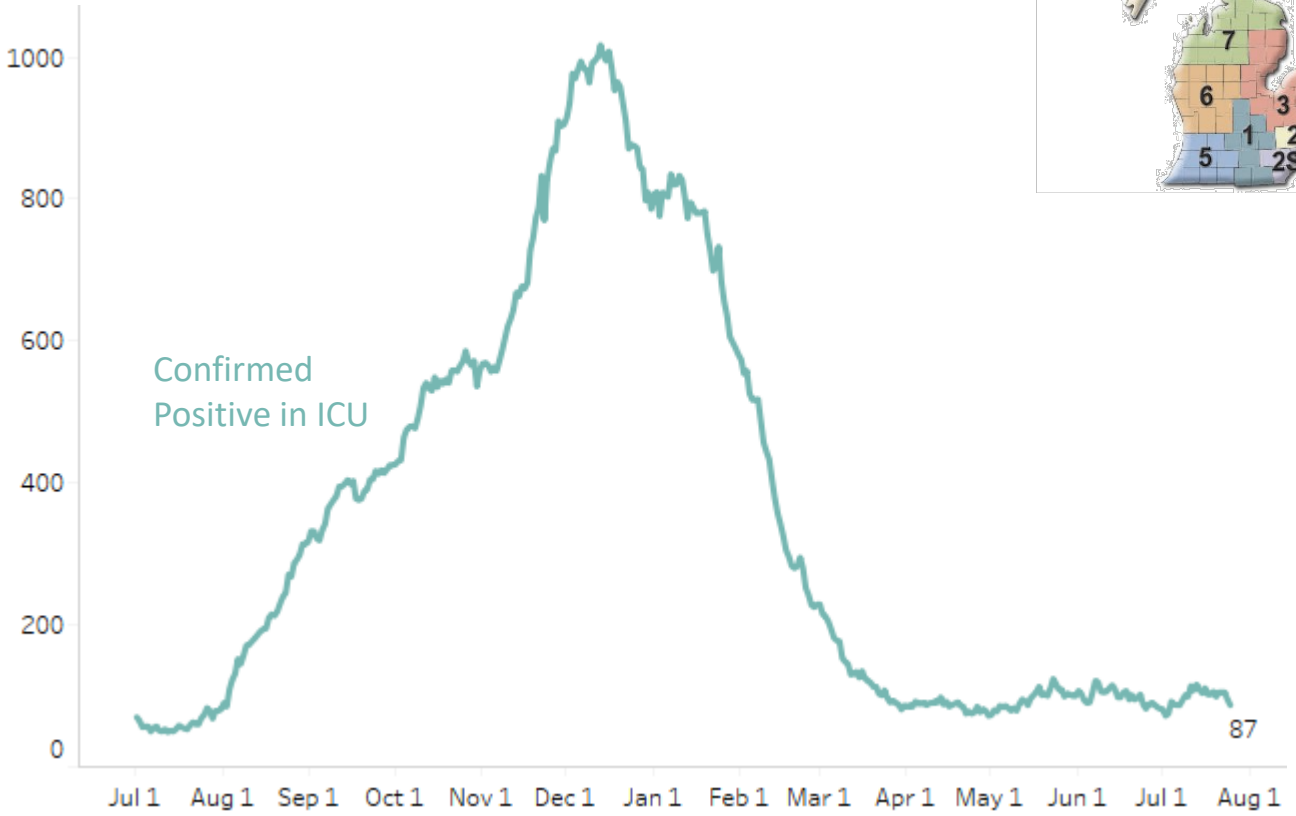
Regions 2N and 2S have greater than 100/Million population hospitalized with COVID.

Region	COVID+ Hospitalizations (% Δ from last week)	COVID+ Hospitalizations / MM
Region 1	64 (-19%)	59/M
Region 2N	221 (13%)	100/M
Region 2S	245 (-5%)	110/M
Region 3	95 (20%)	84/M
Region 5	74 (16%)	78/M
Region 6	109 (-13%)	74/M
Region 7	35 (3%)	70/M
Region 8	21 (31%)	67/M

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 7/1/2021 – 7/25/2022
Confirmed Positive in ICUs





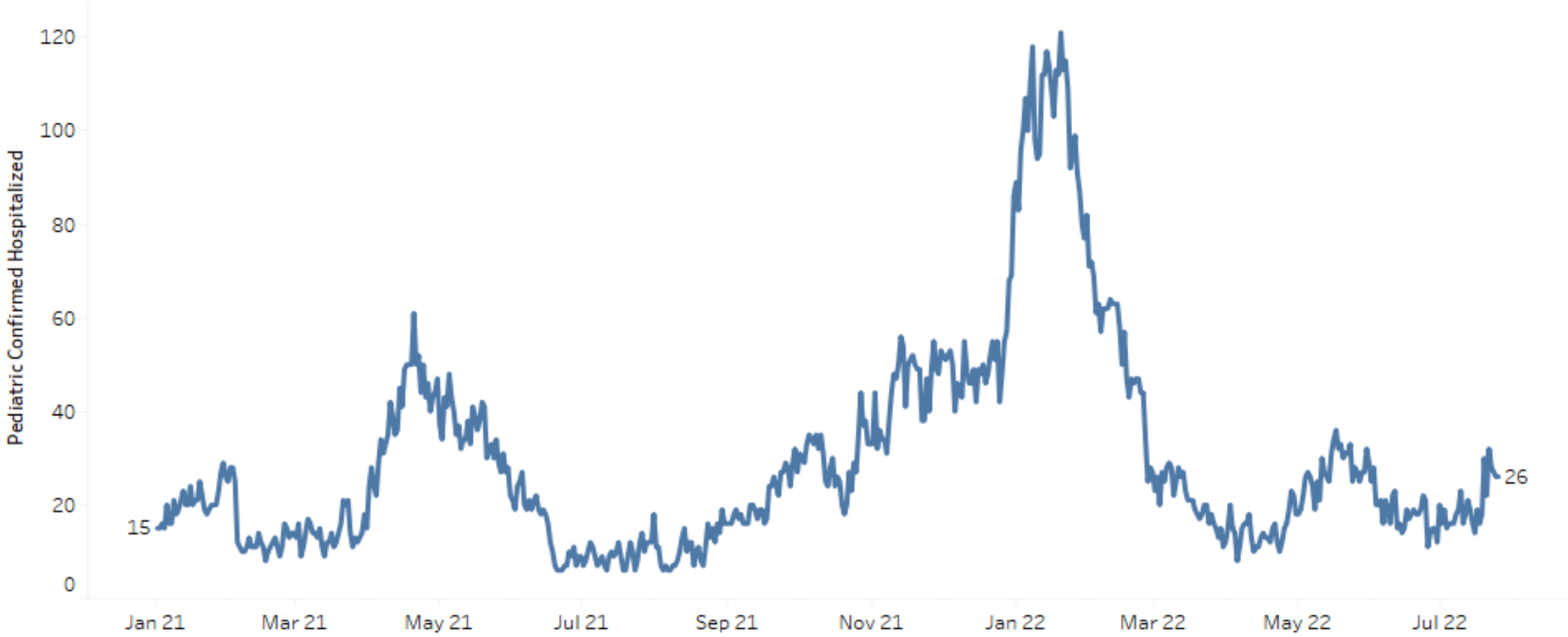
Overall, the census of COVID+ patients in ICUs has decreased by 15% from last week. There are 87 COVID+ patients in ICU beds across the state.

ICU occupancy is at or below 85% in all regions. All regions have 5% or fewer ICU beds occupied by COVID+ patients.

Region	Adult COVID+ in ICU (% Δ from last week)	ICU Occupancy	% of ICU beds COVID+
Region 1	8 (60%)	79%	5%
Region 2N	20 (-26%)	68%	3%
Region 2S	33 (-18%)	76%	5%
Region 3	3 (-63%)	83%	1%
Region 5	9 (125%)	72%	5%
Region 6	5 (-55%)	74%	2%
Region 7	6 (0%)	85%	4%
Region 8	3 (200%)	67%	5%

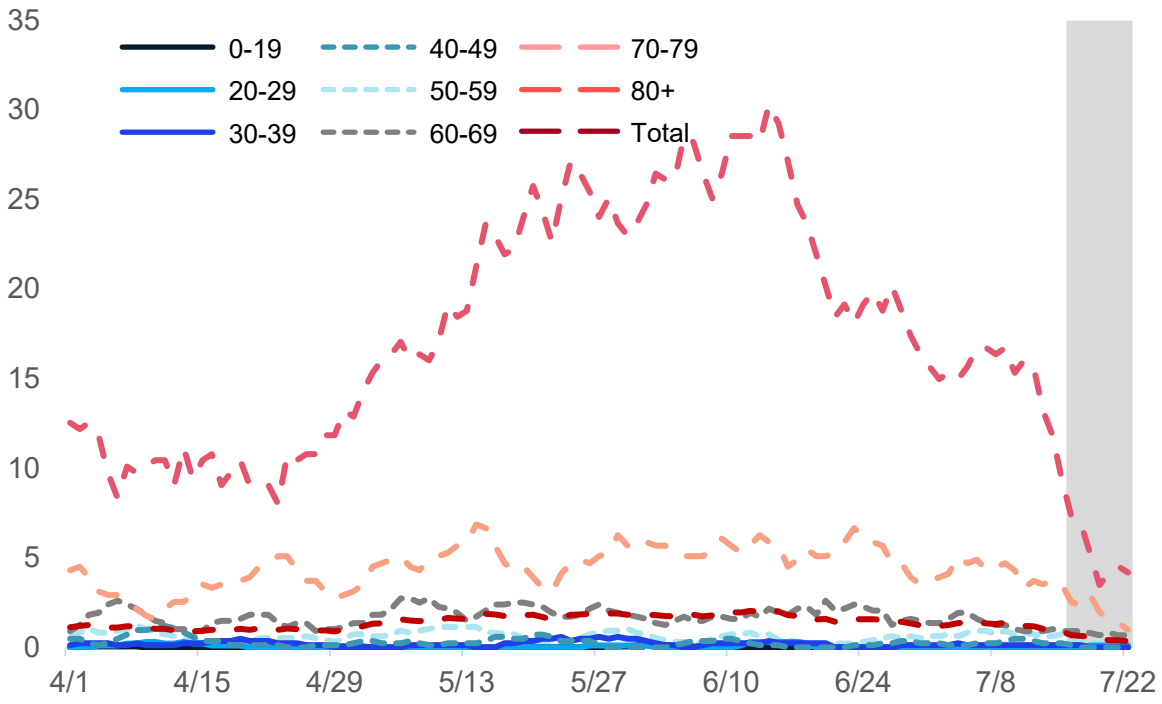
Statewide Hospitalization Trends: Pediatric COVID+ Census

Hospitalization Trends 1/1/2021 – 7/25/2022
Pediatric Hospitalizations, Confirmed



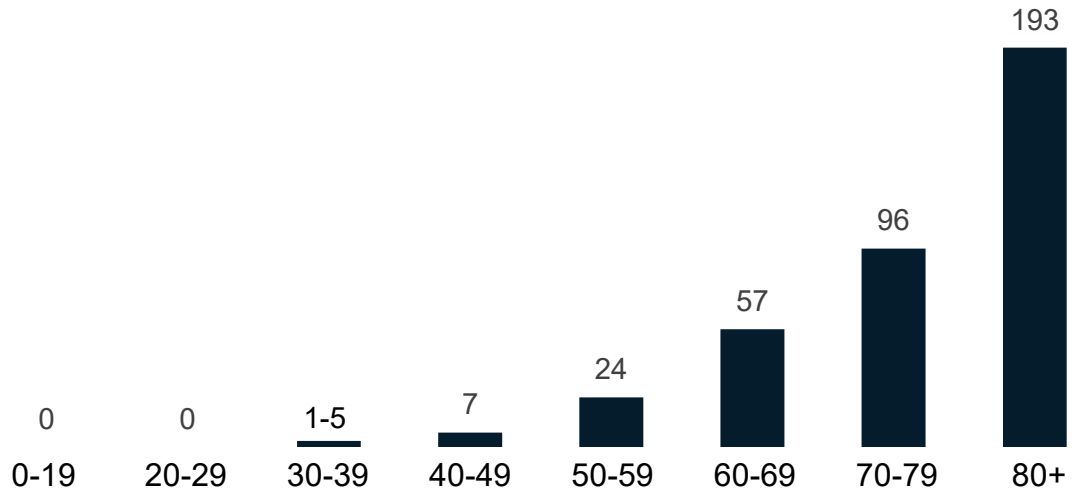
Average Daily Deaths by Age Group

Daily COVID-19 deaths in confirmed and probable cases per million by age group (7 day rolling average)



Total COVID-19 deaths in confirmed and probable cases by age group (past 30 days, ending 7/15/2022)

- 8.9% of deaths below age sixty



- Through 7/1, the 7-day avg. death rate has decreased (9.4 deaths per million people) for those over the age of 80
- In the past 30 days, there are fewer than 15 confirmed and probable COVID-19 deaths under the age of 50
- 30-day proportion of deaths among those under 60 years of age is 8.9%.

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

Harm Reduction: Key Messages

Empowering community members to make best choices for their individual circumstances and to be prepared by making a COVID plan

- Michiganders can take advantage of local, state, and national COVID-19 resources

- Get tested, and if positive, seek care with therapeutics (e.g., antibodies or antiviral medications)
  - Cumulative therapeutic availability and administration has plateaued since mid-June
  - Talk to your doctor or pharmacist about whether you should get antibody or antiviral treatment, and where you can find treatment
    - FDA recently authorized pharmacists to prescribe Paxlovid under certain limitations
  - Therapeutics are authorized for people who meet select criteria
  - Additional public health, regulatory, and policy efforts might help decrease barriers to oral antiviral access, particularly in communities with high social vulnerability

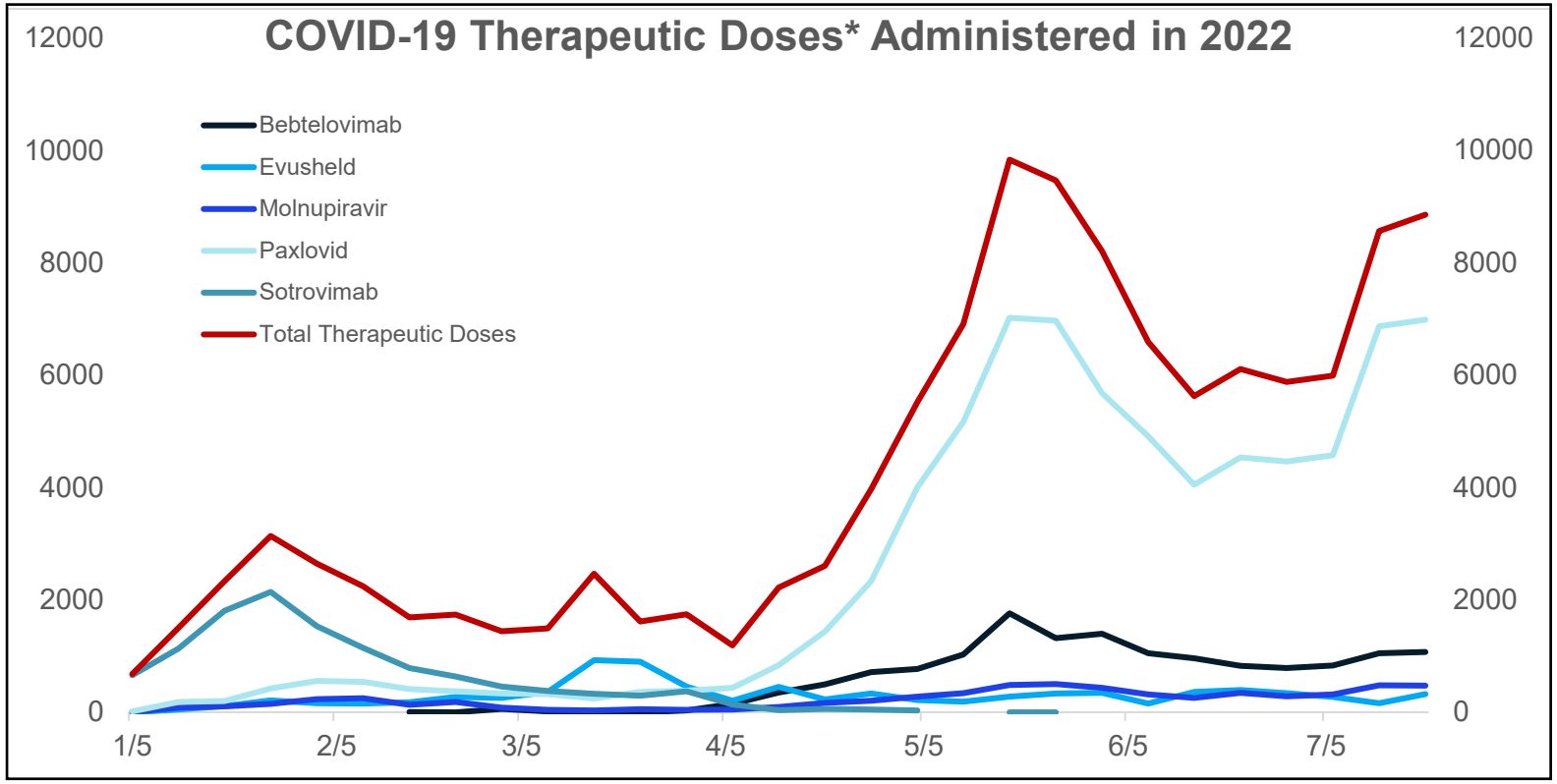
- Vaccinations remain the best way to protect from COVID-19, especially from severe disease
  - COVID-19 vaccines are now available for ages 6 months and up
    - Everyone 6 months and older should also get an age-appropriate COVID-19 booster, when eligible
  - Over 6.7 million Michiganders have received at least one dose (67.6%)
  - 55.5% of fully vaccinated Michiganders have received at least one booster
  - 28.9% of people in Michigan (622K+) with a first booster dose have received a second booster dose

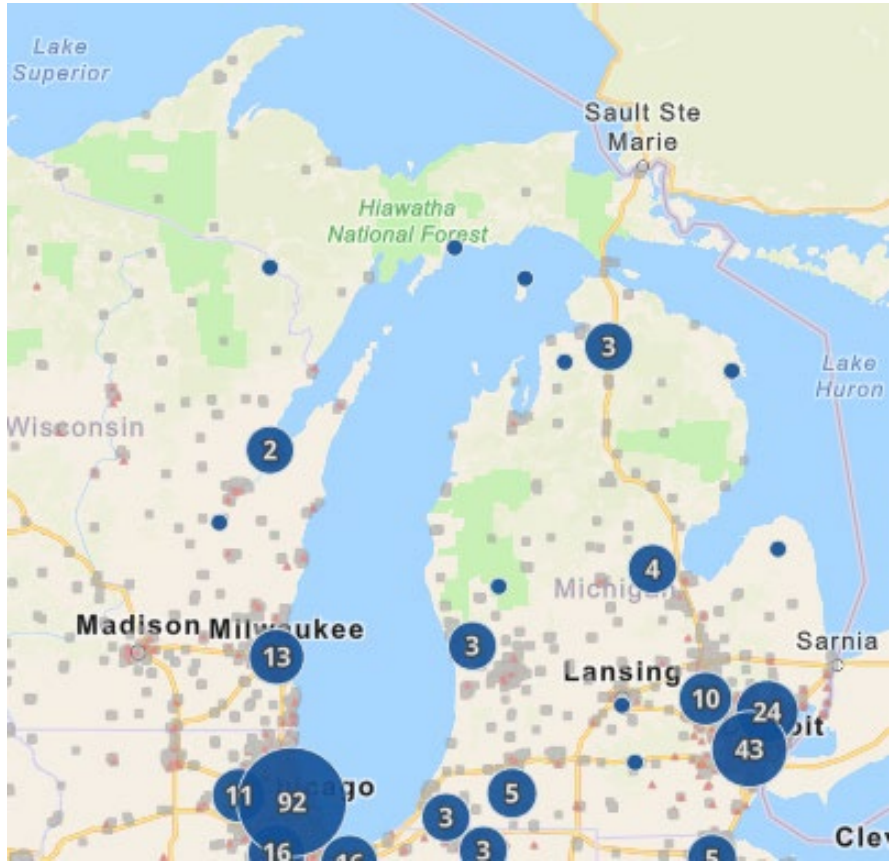
Federal & Michigan websites assist COVID positive residents find treatment

COVID-19 resources available on federal website: COVID.gov

Test-to-Treat program simplifies access to COVID treatment: Find a Test-to-Treat location near you

- If you have COVID-19 symptoms, do not wait to get treated
- You must take oral COVID-19 medication within 5 days of your first COVID-19 symptoms
- Use the tool to find a location that is right for you





Source: Screen capture of Michigan Test-to-Treat sites from linked website

Therapeutic administration increased during Michigan's Spring Omicron surge. Supply limitations in January 2022 required strategic distribution and should not be compared directly.

Source: HHS – Tiberius

*Data is reported as a single patient course, except for Evusheld, which is reported as the number of 300mg doses administered. Data Updated July 25

Dispensing of Oral Antiviral Drugs for Treatment of COVID-19 by Zip Code–Level Social Vulnerability — United States, December 23, 2021–May 21, 2022

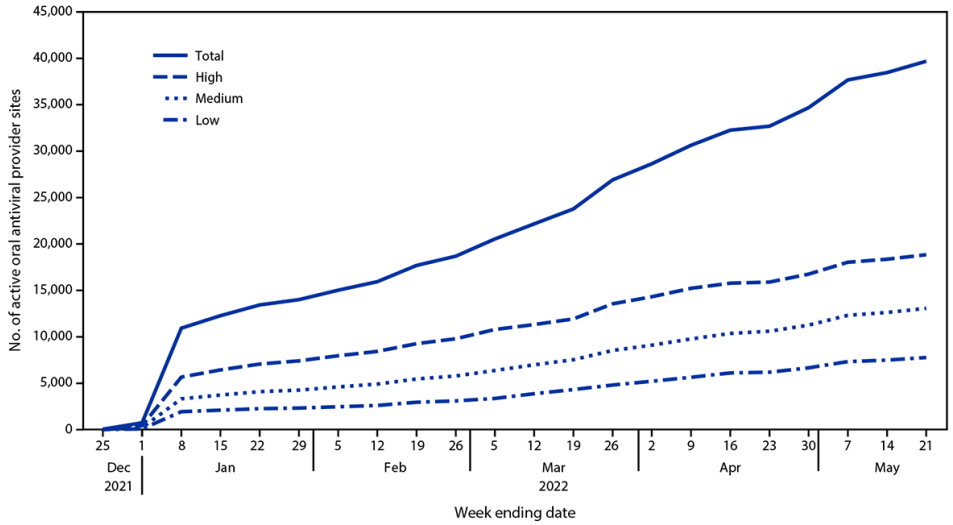
- Lagevrio and Paxlovid are oral antiviral drugs effective at preventing hospitalization and death in patients with mild to moderate COVID-19 who are at risk for progression to severe disease

- During December 23, 2021–May 21, 2022, 1,076,762 oral antiviral prescriptions were dispensed in the United States.
  - The overall number of antivirals dispensed increased
  - However, by the end of the study period, ***dispensing rates were lowest in high vulnerability zip codes***, despite these zip codes having the largest number of dispensing sites

- Additional public health, regulatory, and policy efforts might help decrease barriers to oral antiviral access, particularly in communities with high social vulnerability

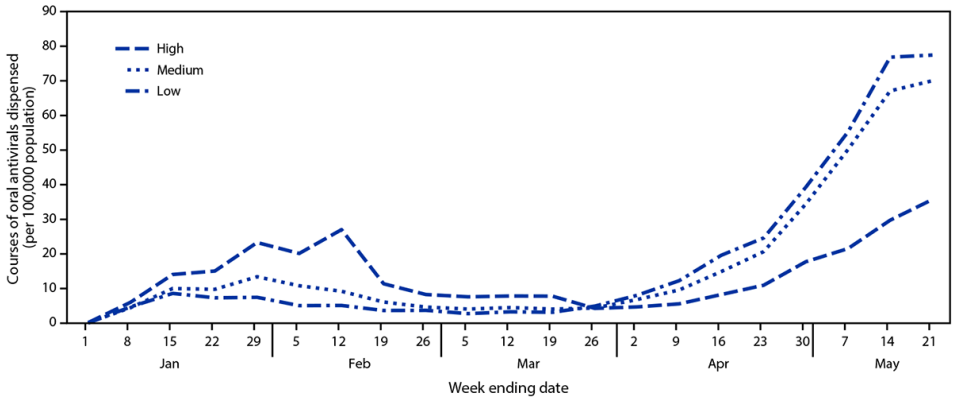
NEW THIS MONTH: FDA authorizes pharmacists to prescribe Paxlovid under certain limitations – new prescribing authority could improve access for some patients at high risk for severe COVID-19

FIGURE 2. Number of active provider sites for oral antiviral therapy against COVID-19, by week and zip code social vulnerability score* — United States, December 23, 2021–May 21, 2022



* Zip codes were classified as having low, medium, or high social vulnerability based on ranking within the lower, middle, and upper tertiles of the Equitable Distribution Index score.

FIGURE 3. Courses of oral COVID-19 antiviral therapy dispensed per 100,000 persons, by week and zip code social vulnerability level — United States, December 26, 2021–May 21, 2022*

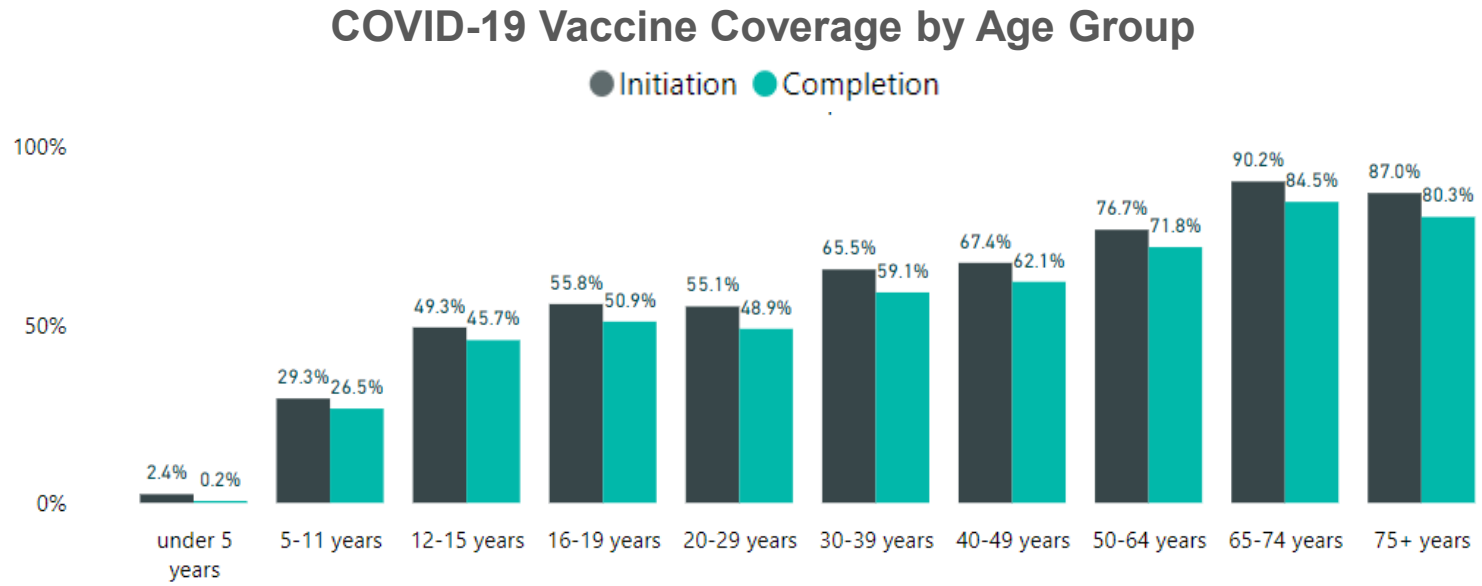


* The week ending December 25, 2021, is not shown because no oral antiviral dispensing was reported during that week. Zip codes were classified as having low, medium, or high social vulnerability based on ranking within the lower, middle, and upper tertiles of the Equitable Distribution Index score.

Sources: Gold JA, Kelleher J, Magid J, et al. Dispensing of Oral Antiviral Drugs for Treatment of COVID-19 by Zip Code–Level Social Vulnerability — United States, December 23, 2021–May 21, 2022. MMWR Morb Mortal Wkly Rep 2022;71:825-829. DOI: http://dx.doi.org/10.15585/mmwr.mm7125e
FDA Emergency Use Authorization of pharmacists to prescribe Paxlovid. https://www.fda.gov/media/155049/download

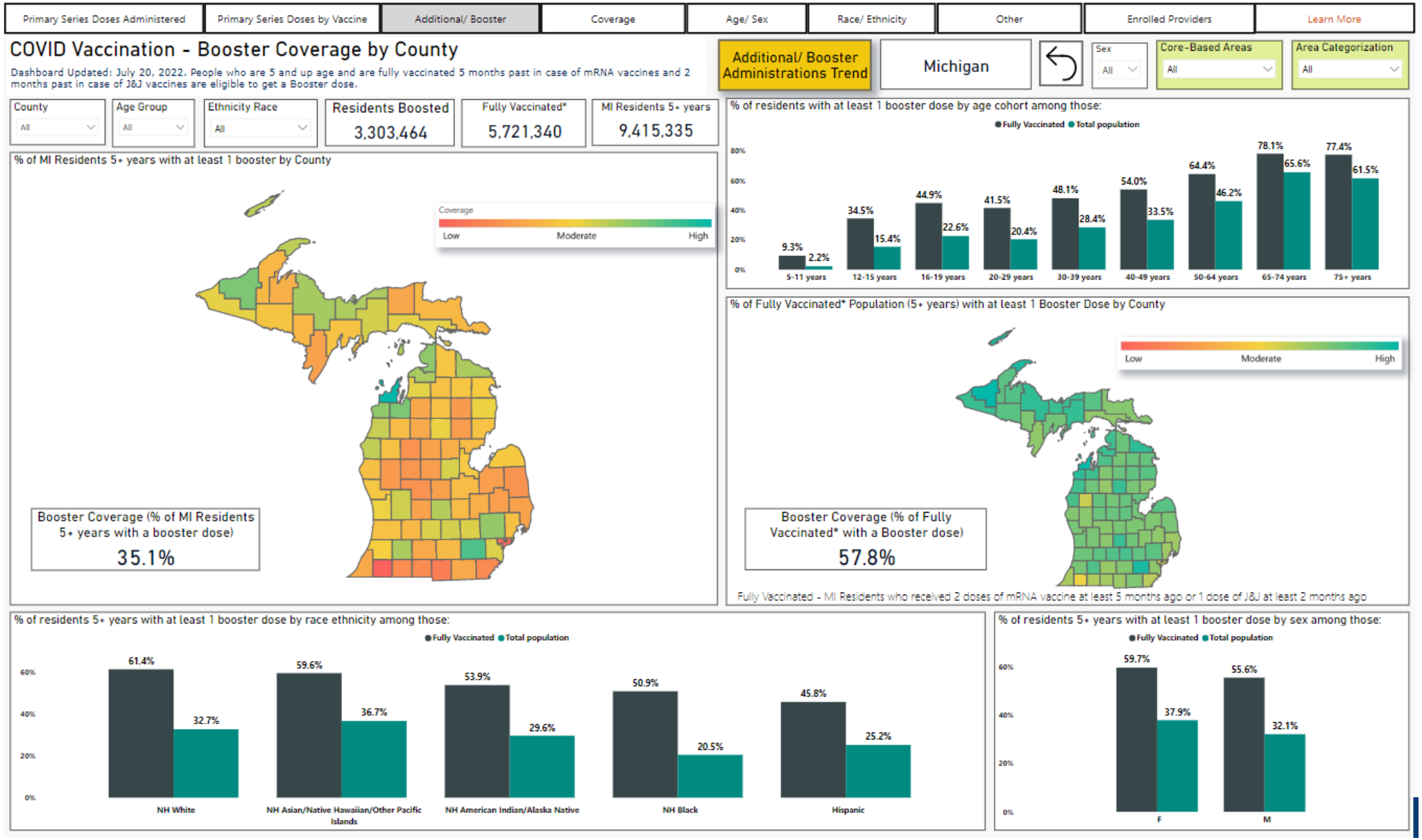
Vaccinations and Boosters

- Over 16.4 million COVID-19 vaccine doses have been administered in Michigan
  - Over 6.7 million Michiganders have received at least one dose (67.6%)
  - Over 6 million Michiganders have completed a primary series (60.7%)
  - Over 3.3 million additional/booster doses have been administered in Michigan
    - 55.5% of the fully vaccinated population has received a booster
    - 77.5% of the fully vaccinated population 65 years of age or older has received a booster
  - Nearly 622,477 Michiganders 50 years of age or older who have received a first booster dose have received second booster (28.9%)



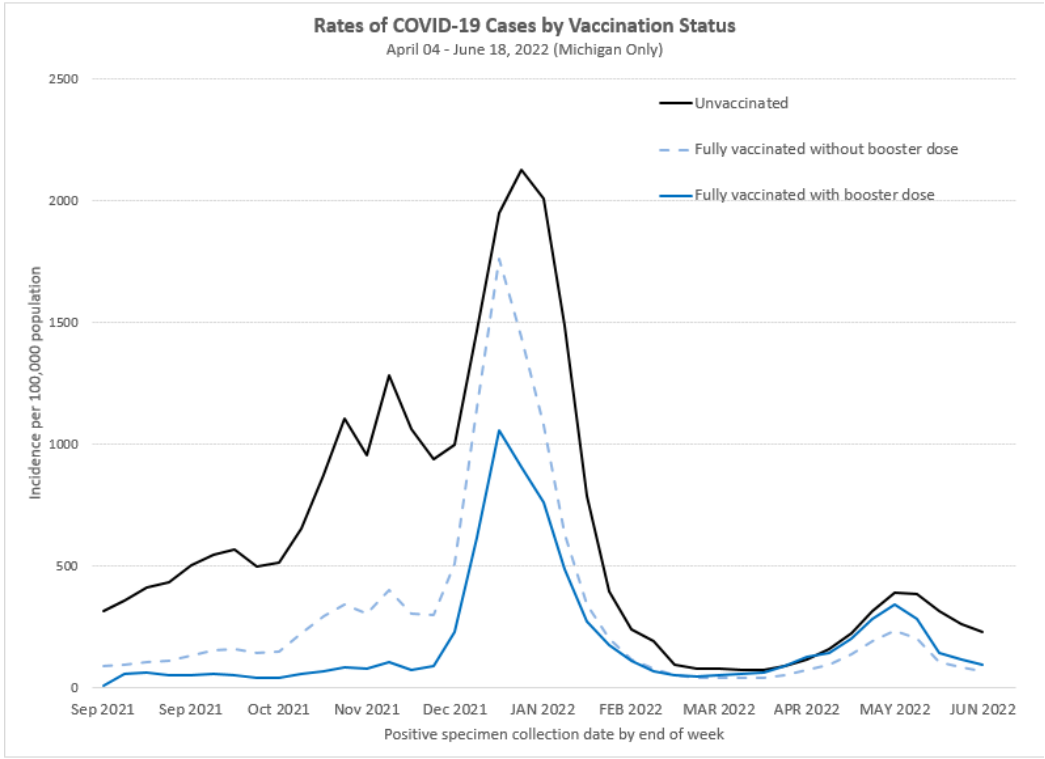
Sources: Michigan Coronavirus Vaccine Dashboard; CDC COVID-19 Data Tracker: Vaccine Coverage Dashboard

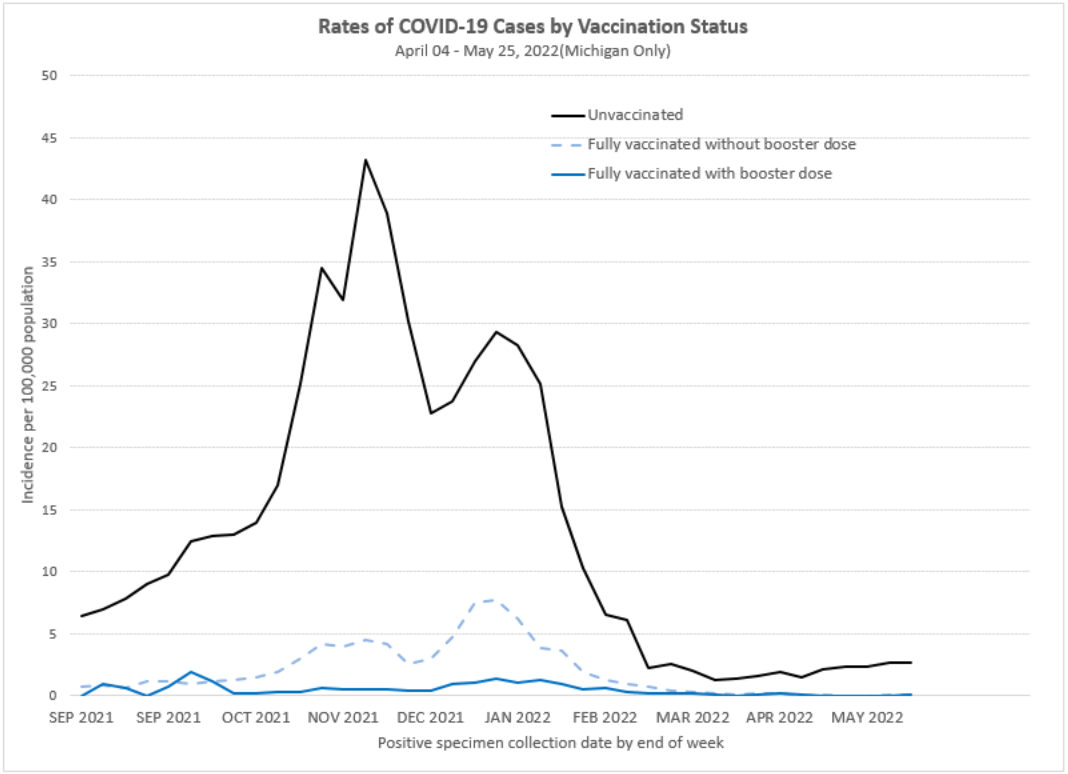
Additional Doses and Booster Coverage



Source: MDHHS – Michigan Immunizations: COVID-19 Dashboard https://www.michigan.gov/coronavirus/resources/covid-19-vaccine/covid-19-dashboard

Unvaccinated people in Michigan had 28 times the risk of dying from COVID-19 in May compared to people up to date on their vaccination





Unvaccinated people aged 12 years and older had:

1.3 X *Risk of Testing Positive for COVID-19* **AND** **28 X** *Risk of Dying from COVID-19* **in May, and**

2.5 X *Risk of Testing Positive for COVID-19* **in June,* compared to people vaccinated with a primary series and a booster dose.****

*****These data reflect cases among persons with a positive specimen collection date through June 18, 2022, and deaths among persons with a positive specimen collection date through June 18, 2022. Please note that these provisional data are subject to change. ******Data on immune status are unavailable, thus an additional dose in an immunocompromised person cannot be distinguished from a booster dose.

Nationally, unvaccinated adults had 3.5 times the risk of hospitalizations from COVID-19 in May compared to people up to date on their vaccination

In May 2022, compared to people who are up-to-date with COVID-19 vaccination, monthly rates of COVID-19-associated hospitalizations were **3.5x Higher in Unvaccinated Adults Ages 18 Years and Older.**

1.4x Higher	**2.1x** Higher	**2.7x** Higher	**3.4x** Higher	**3.8x** Higher
in Unvaccinated Children Ages 5-11 Years	**in Unvaccinated Adolescents Ages 12-17 Years**	**in Unvaccinated Adults Ages 18-49 Years**	**in Unvaccinated Adults Ages 50-64 Years**	**in Unvaccinated Adults Ages 65 Years and Older**

Reset Filters

View

Age-Adjusted Rates

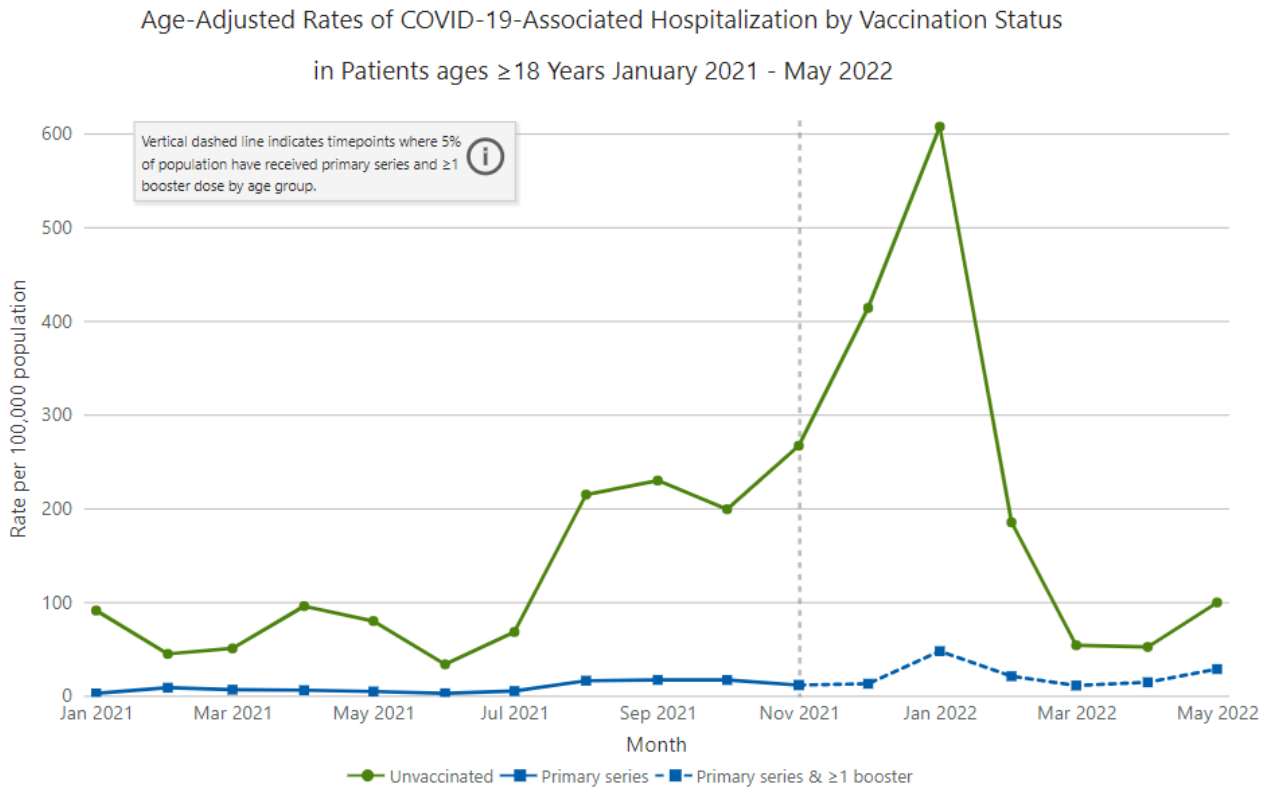
Age-Specific Rates

Filters

Season: All

Vaccine Status: All

Age Group: ≥18 Years



Download Data

These data were posted on June 23, 2022 and reflect hospitalizations through May 2022.
Note: "Primary series" refers to hospitalized patients who have completed their primary COVID-19 vaccination series regardless of whether or not they received a booster or additional dose. "Primary series & ≥1 booster" refers to hospitalized patients who have completed their primary COVID-19 vaccination series and received one or more additional or booster dose. "Unvaccinated" refers to hospitalized patients with no record of receiving any COVID-19 vaccination. "Up-to-date" refers to persons who have received all doses in the primary COVID-19 vaccination series, in addition to one additional dose or booster dose, when eligible.

APPENDIX

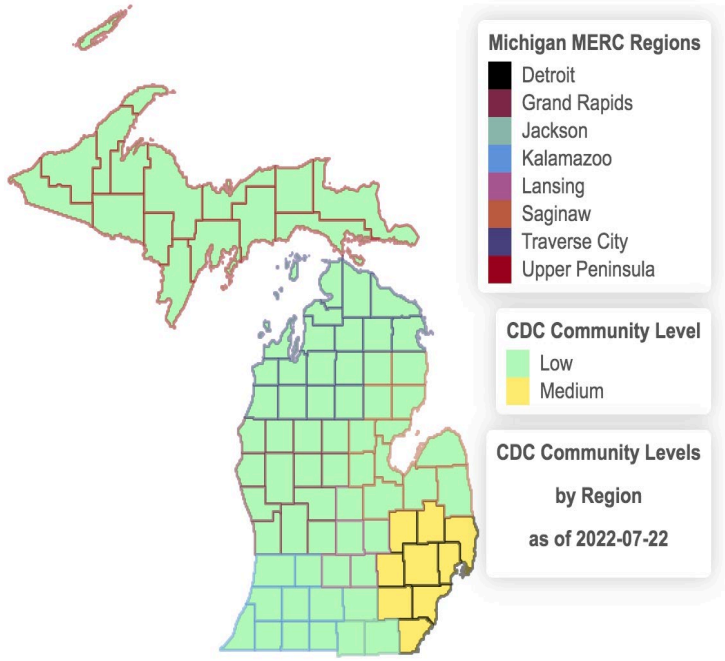
CDC Community Levels

Michigan Region & State as of 2022-07-22

		New COVID-19 Cases per 100K in previous 7 days	Percent Inpatient Beds Occupied by COVID-19 Patients (7-day Avg.)	New COVID-19 Hospital Admissions per 100K in previous 7 days	CDC Community Level
1	Detroit Region	180.7	3.9%	10.3	Medium
2	Grand Rapids Region	147.0	4.6%	9.6	Low
3	Kalamazoo Region	172.3	4.9%	7.7	Low
4	Saginaw Region	111.0	3.2%	6.9	Low
5	Lansing Region	158.3	5.3%	8.0	Low
6	Traverse City Region	111.6	4.5%	9.7	Low
7	Jackson Region	161.0	5.0%	7.3	Low
8	Upper Peninsula Region	196.1	2.6%	6.4	Low
9	State	168.4	4.1%	9.3	Low

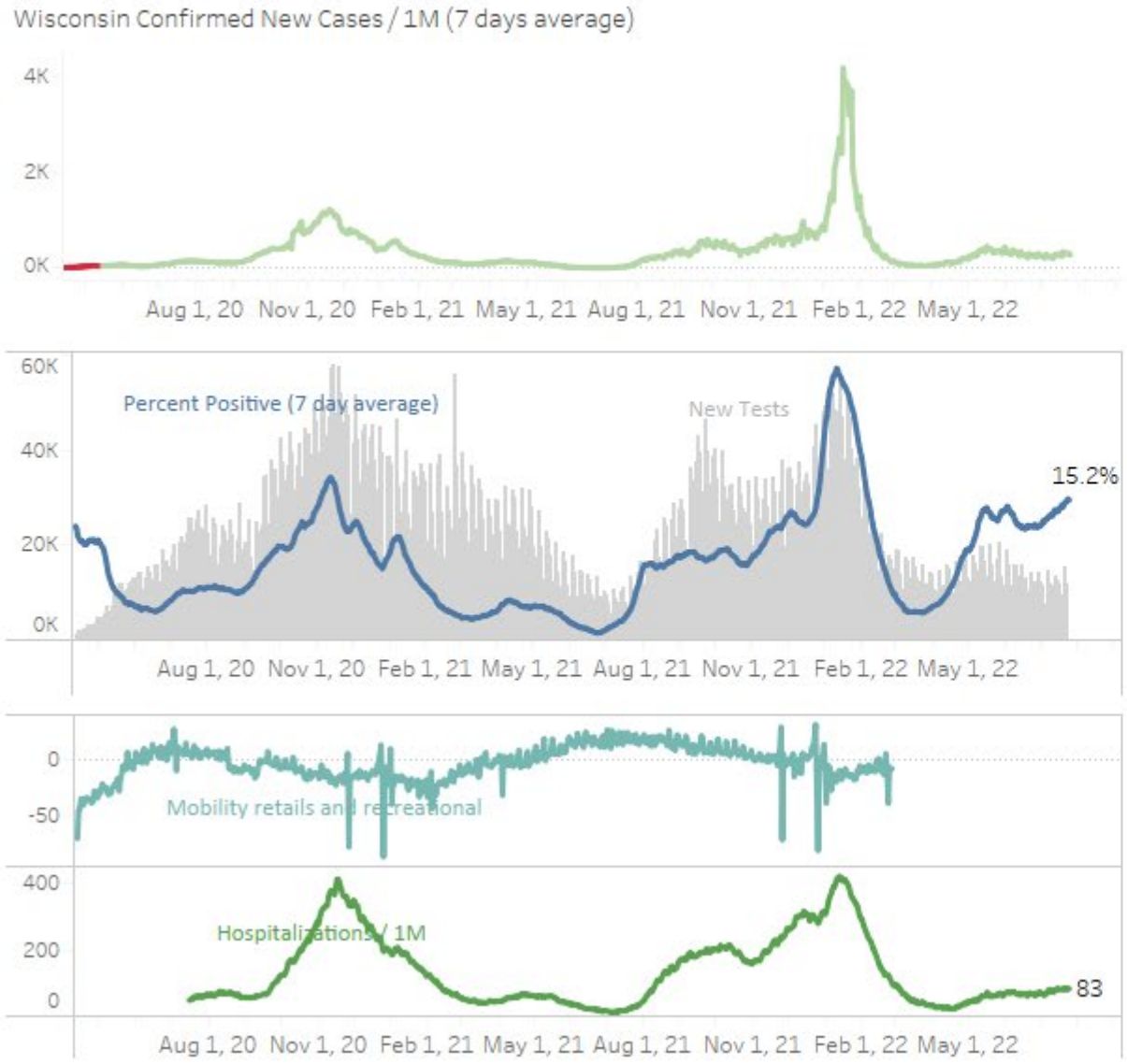
CDC Methodology is followed, though only state available data is applied.

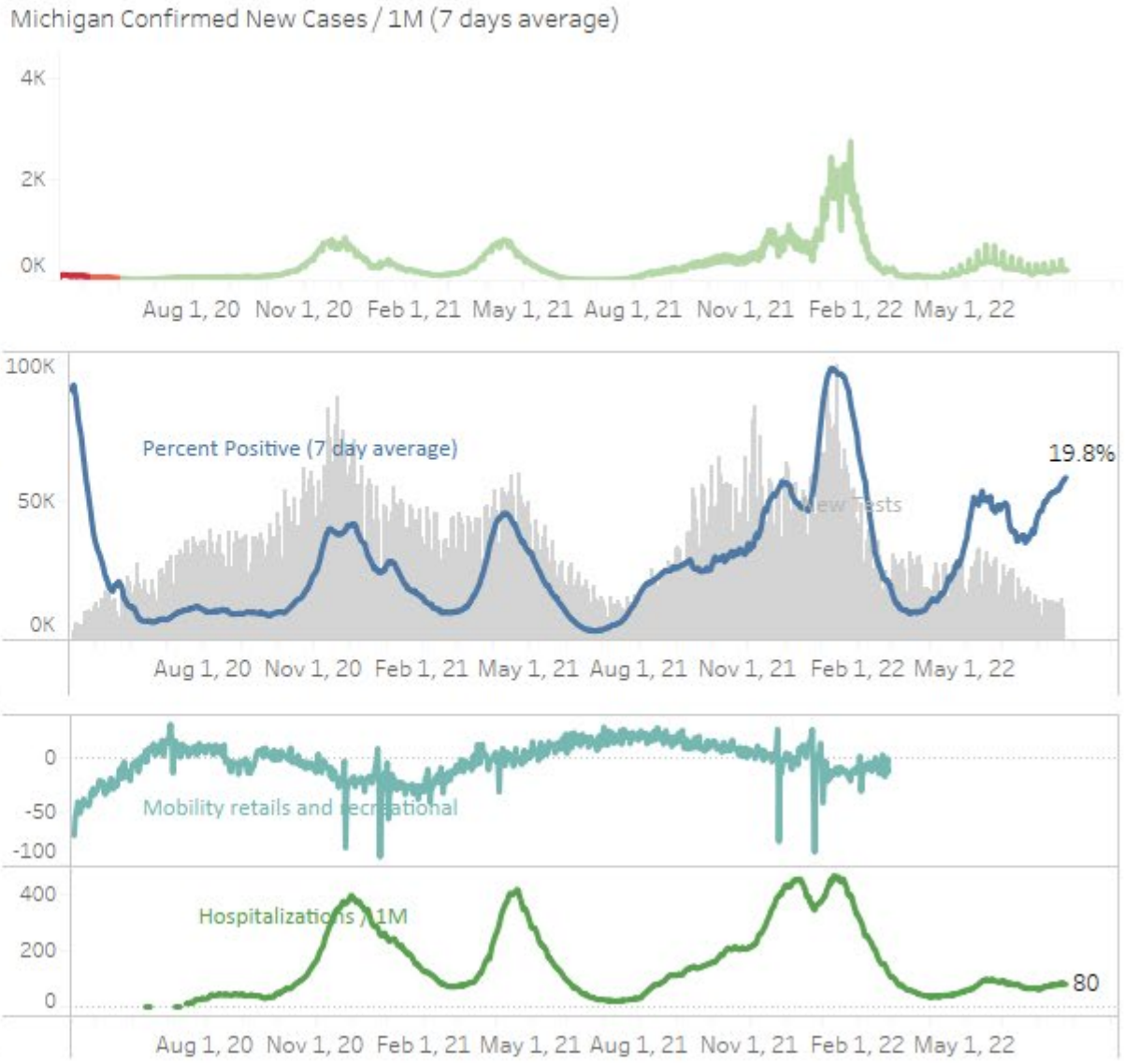
Source: mistartmap.info



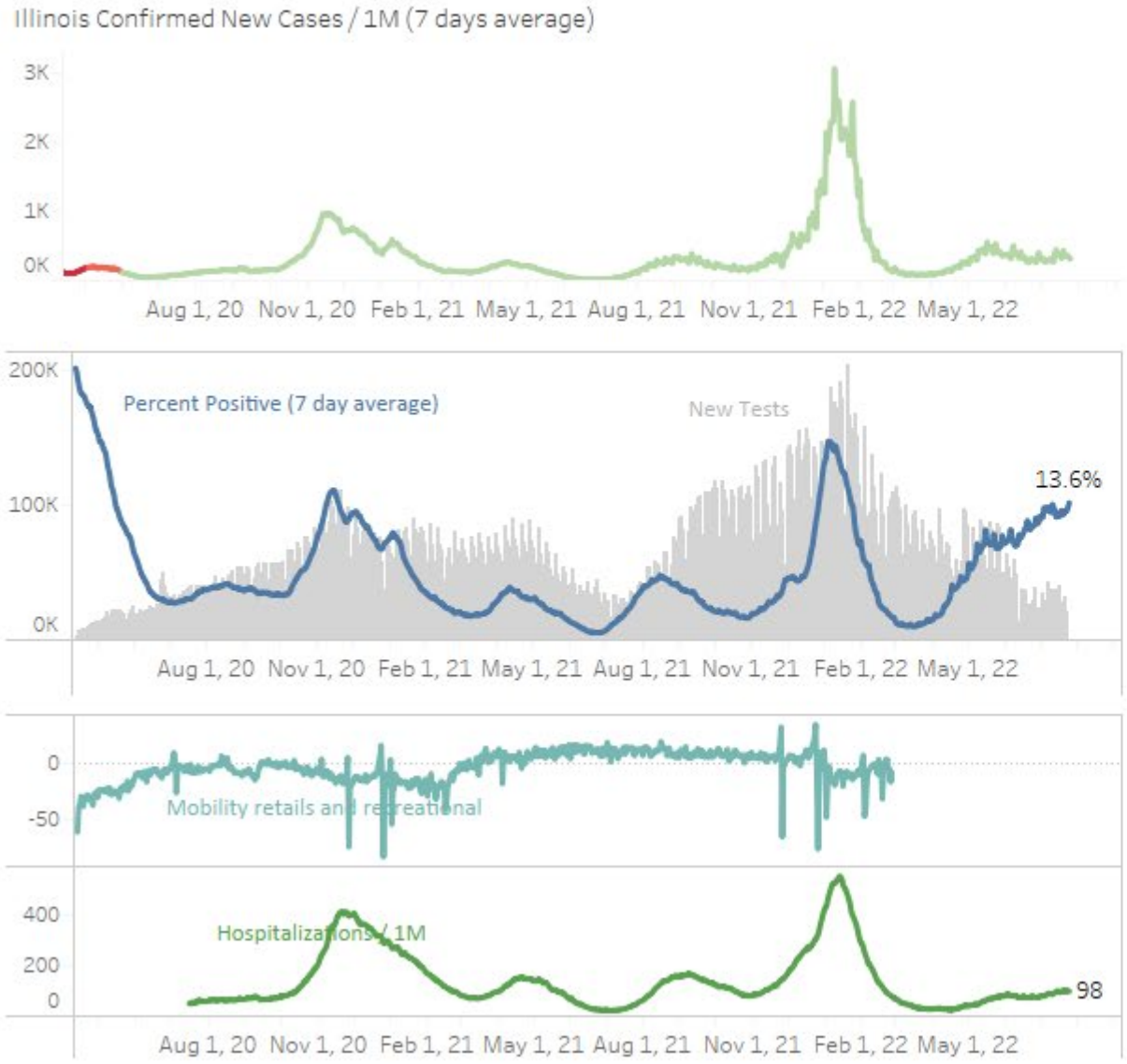
- County differences can shift week over week
- Smaller counties are more susceptible to greater shifts in COVID community levels
- Regional levels, when taking into account other COVID metrics, may help locals determine the impact of COVID-19 on communities and what actions to take

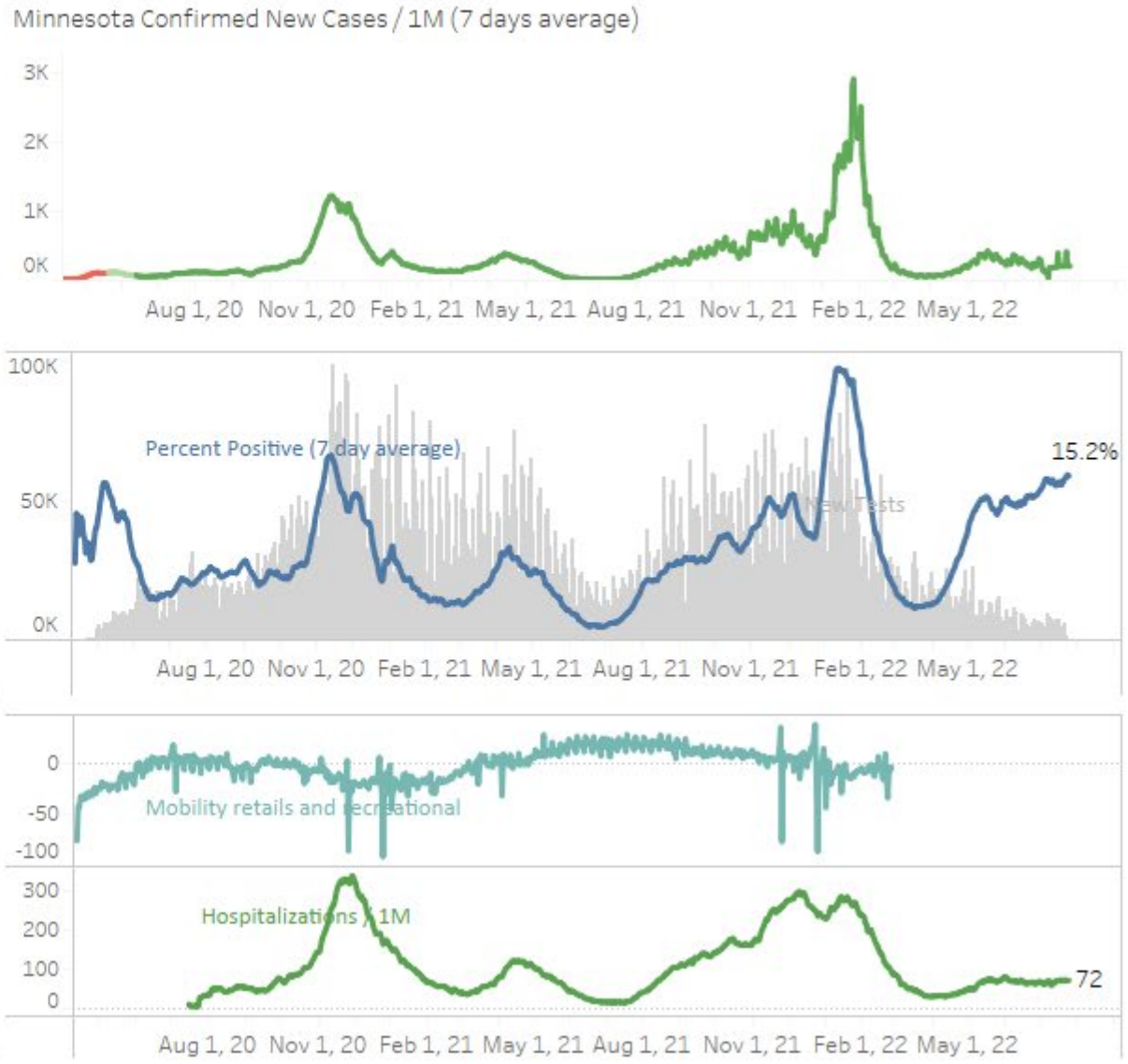
State Comparison: Wisconsin and Michigan



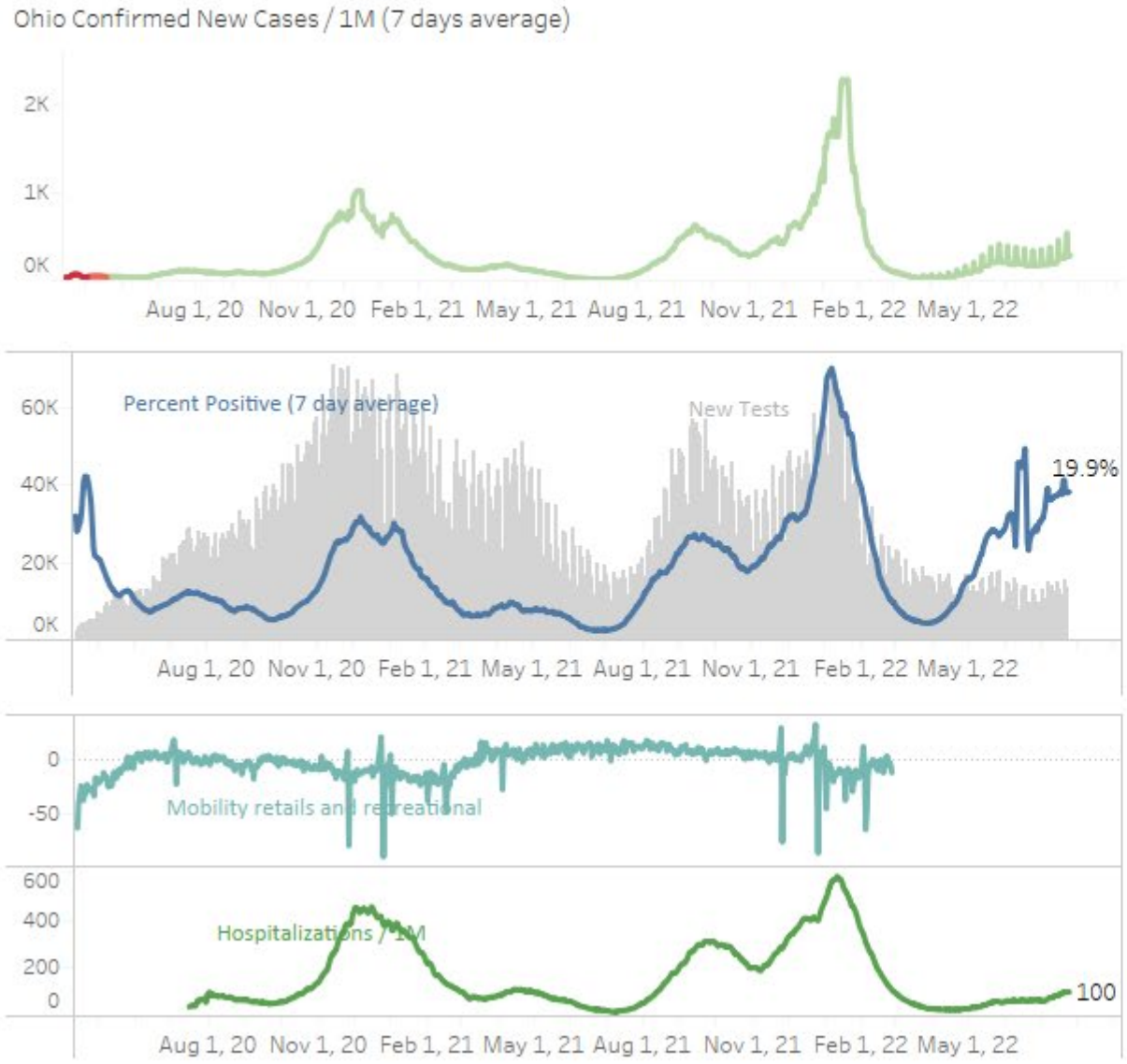


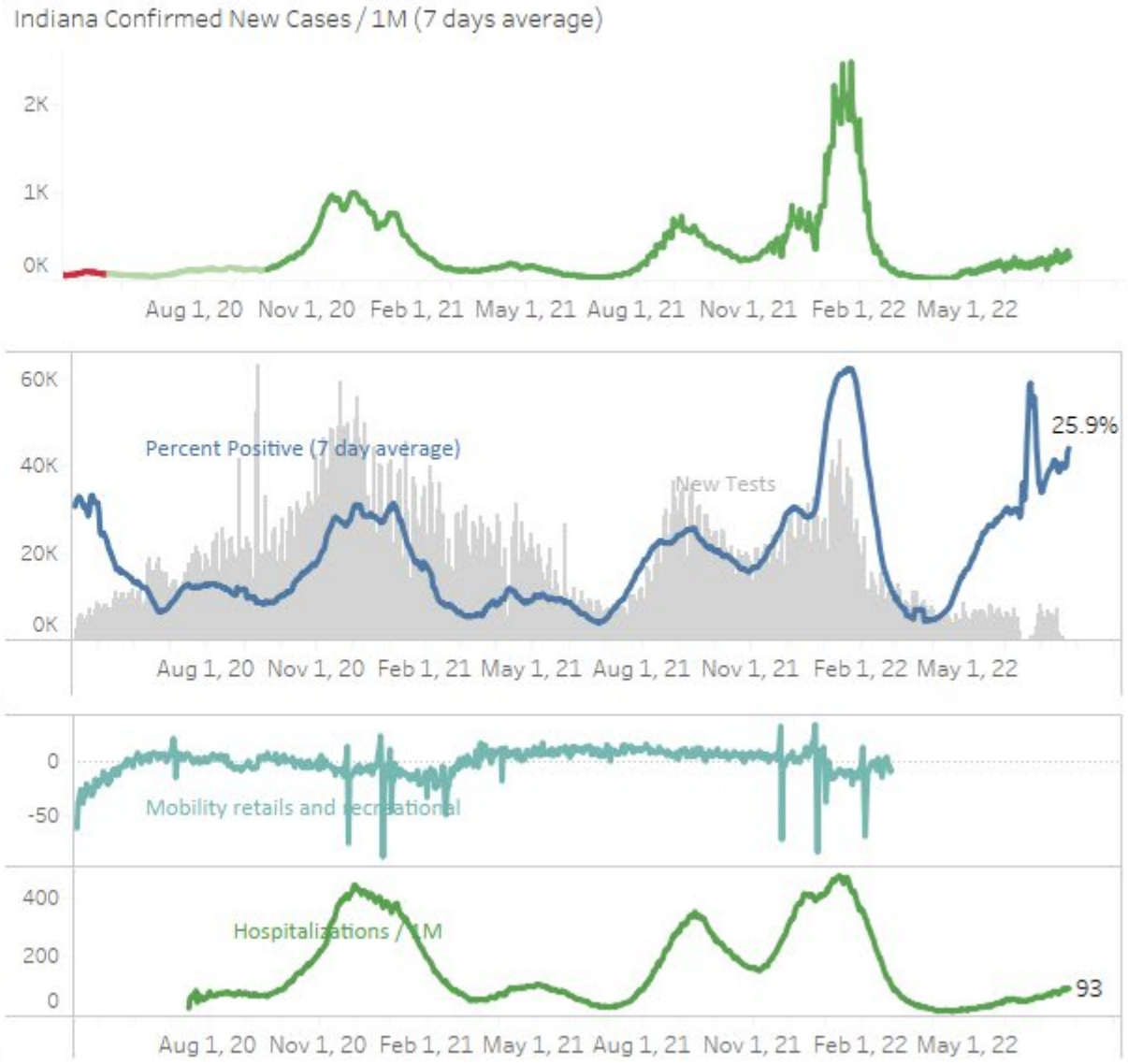
State Comparison: Illinois and Minnesota





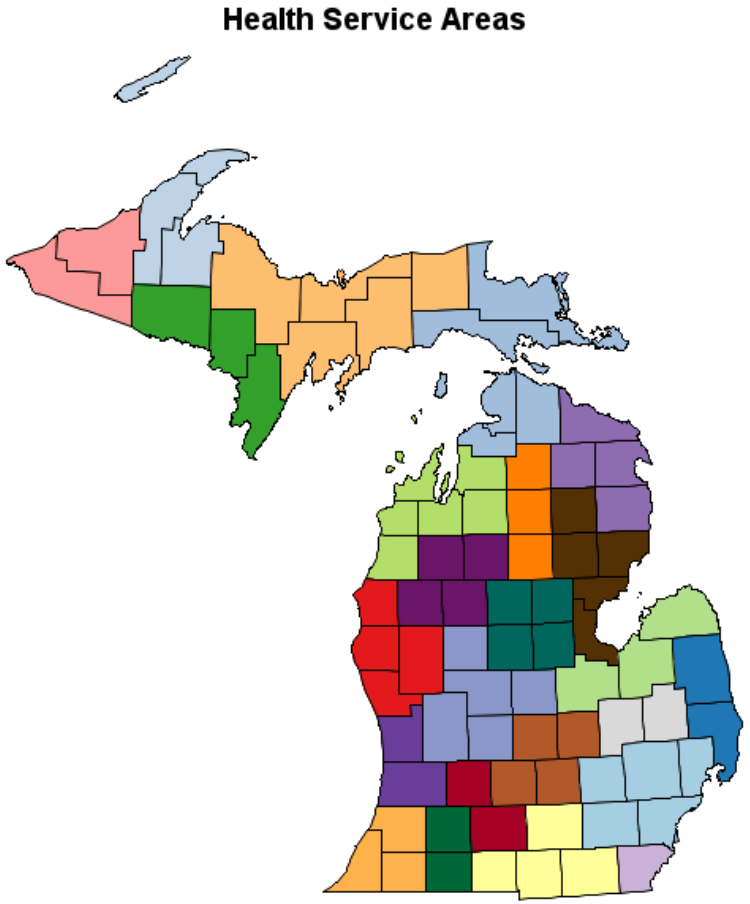
State Comparison: Ohio and Indiana





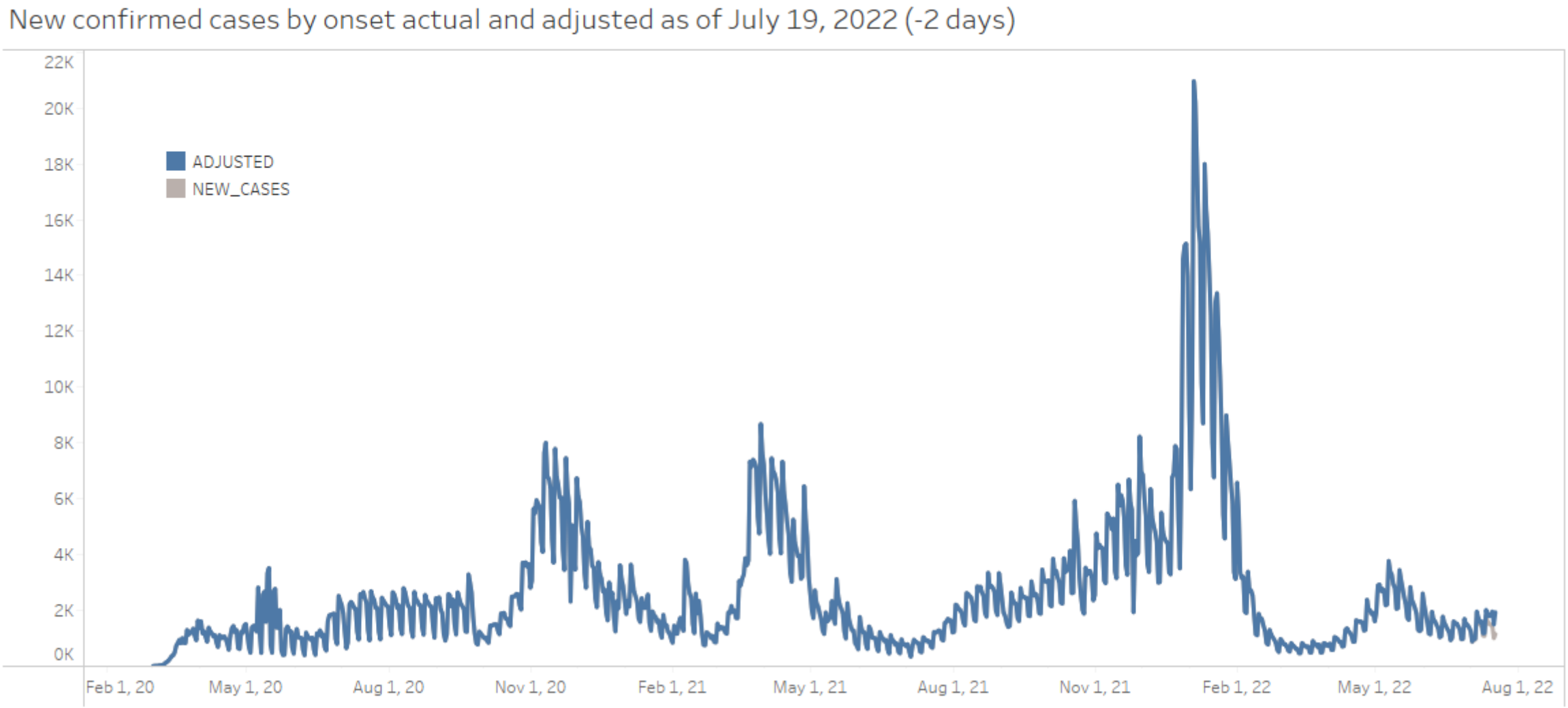
CDC COVID-19 Community Levels are defined by County Case Rates and Health Service Area (HSA) Hospitalizations

COVID-19 Community Levels – Use the Highest Level that Applies to Your Community				
New COVID-19 Cases Per 100,000 people in the past 7 days	Indicators	Low	Medium	High
Fewer than 200	New COVID-19 admissions per 100,000 population (7-day total)	<10.0	10.0-19.9	≥20.0
	Percent of staffed inpatient beds occupied by COVID-19 patients (7-day average)	<10.0%	10.0-14.9%	≥15.0%
200 or more	New COVID-19 admissions per 100,000 population (7-day total)	NA	<10.0	≥10.0
	Proportion of staffed inpatient beds occupied by COVID-19 patients (7-day average)	NA	<10.0%	≥10.0%

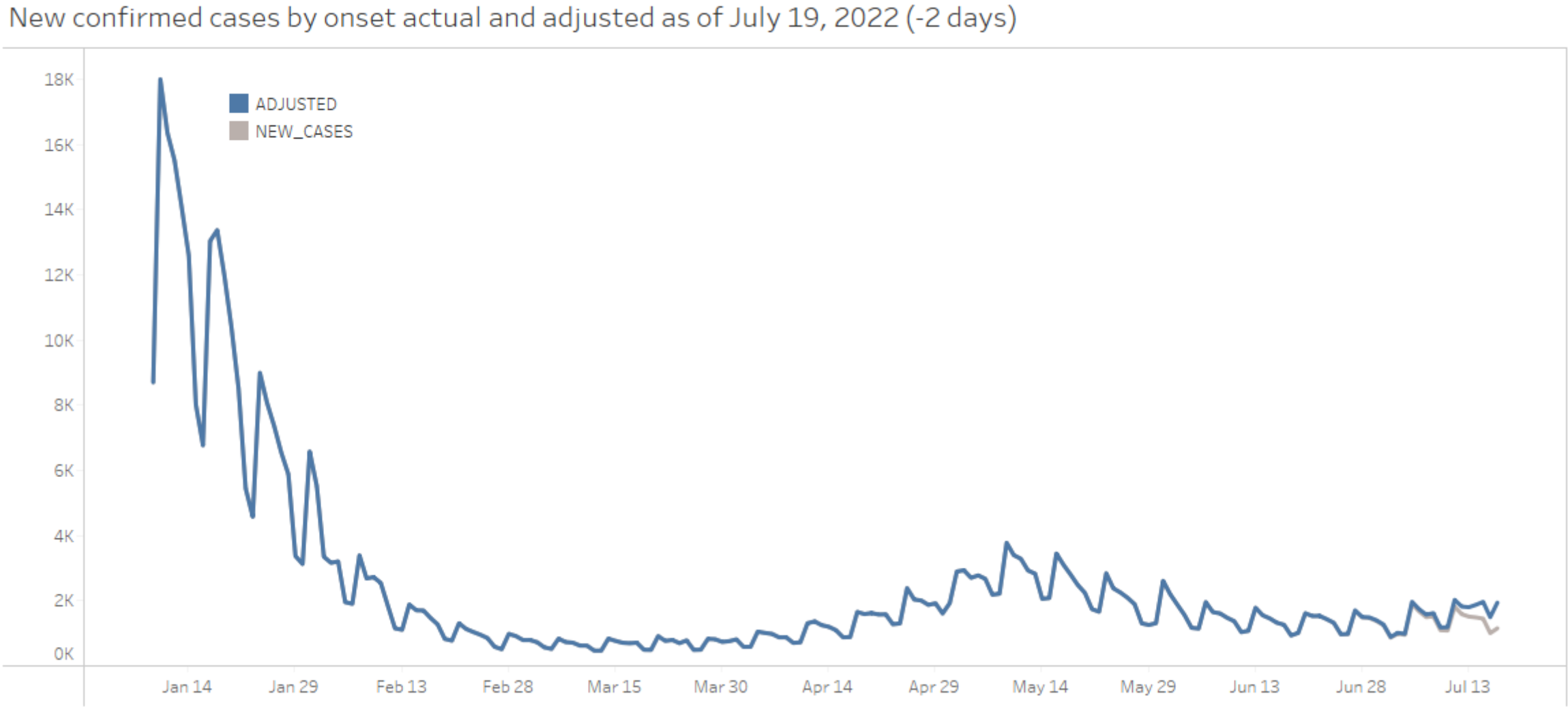


Source: CDC COVID-19 Community Levels https://www.cdc.gov/coronavirus/2019-ncov/science/community-levels.html

Michigan Lag-adjusted new COVID cases by onset date

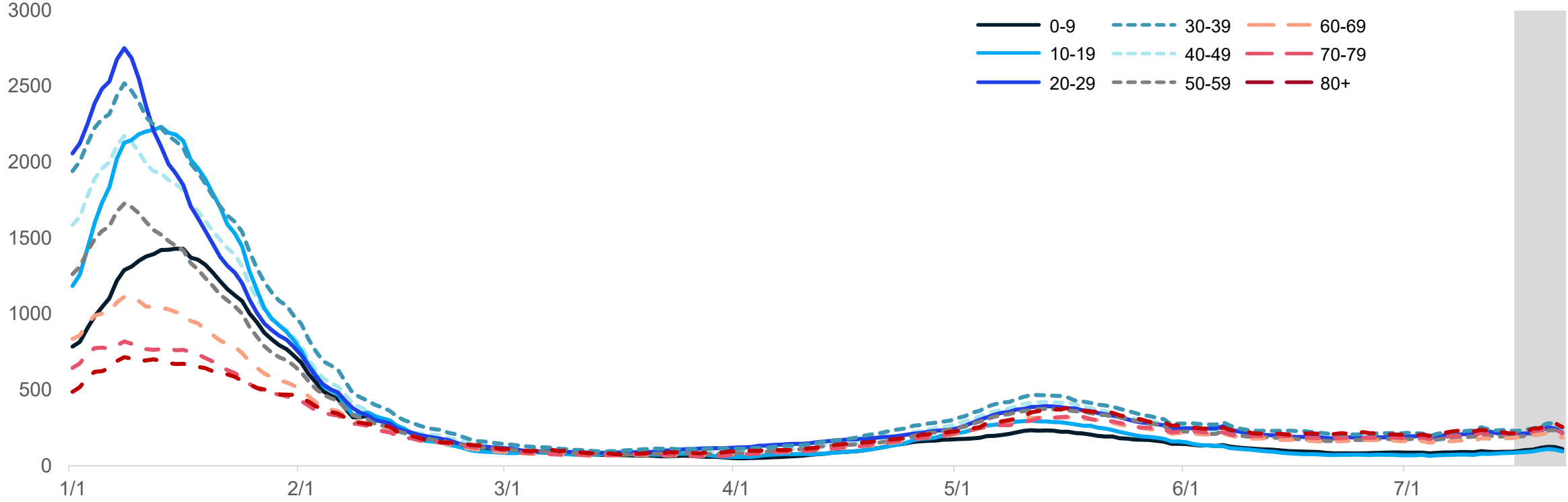


Michigan Lag-adjusted new COVID cases by onset date, recent trends



Case Rate Trends by Age Group

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

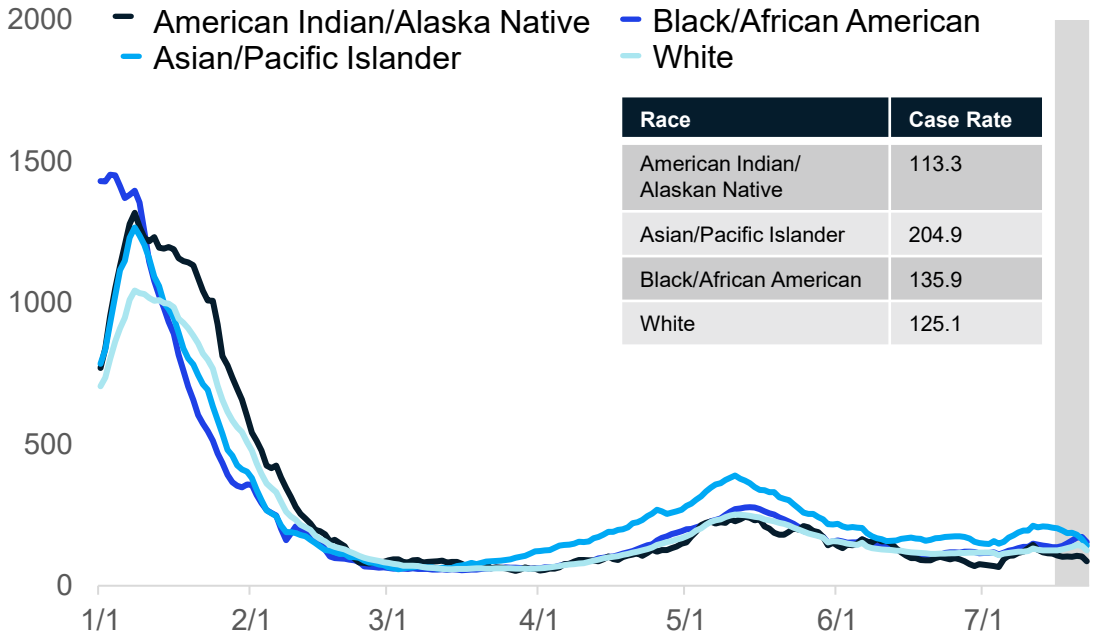


- Case rate trends for all age groups experienced a slight increase over the last week
- Case rates by onset date for all age groups are between 85.3 and 230.5 cases per million (through 7/15/22)
- Case counts and case rates are highest for 30-39-year-olds this week, followed by the 70-79-year-olds and 80+-year-olds age groups

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

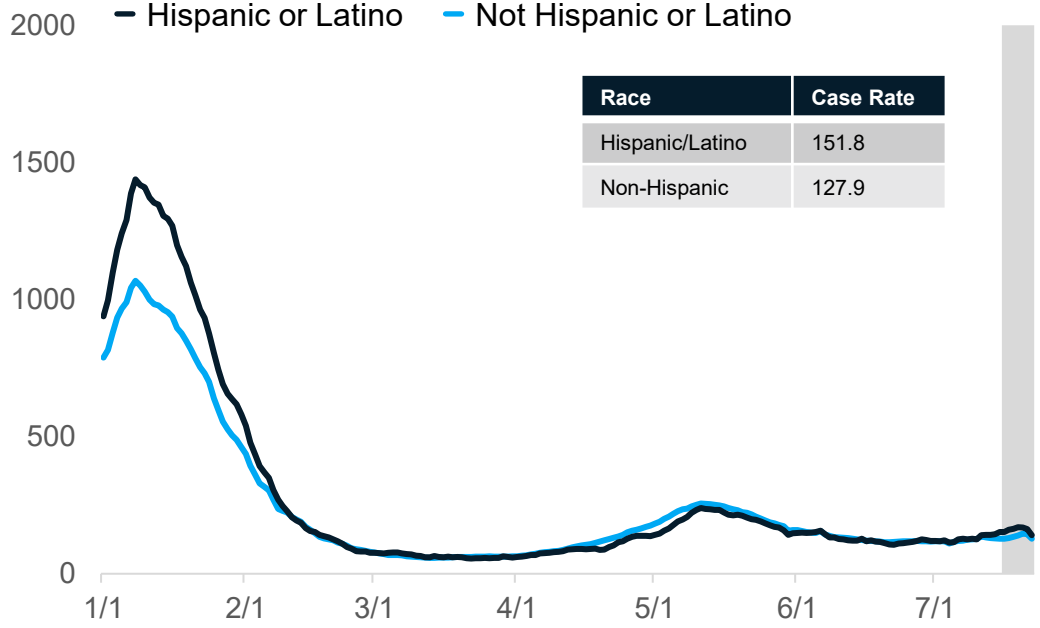
Case Rates by Reported Racial and Ethnic Group

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



Race	Case Rate
American Indian/ Alaskan Native	113.3
Asian/Pacific Islander	204.9
Black/African American	135.9
White	125.1

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



Race	Case Rate
Hispanic/Latino	151.8
Non-Hispanic	127.9

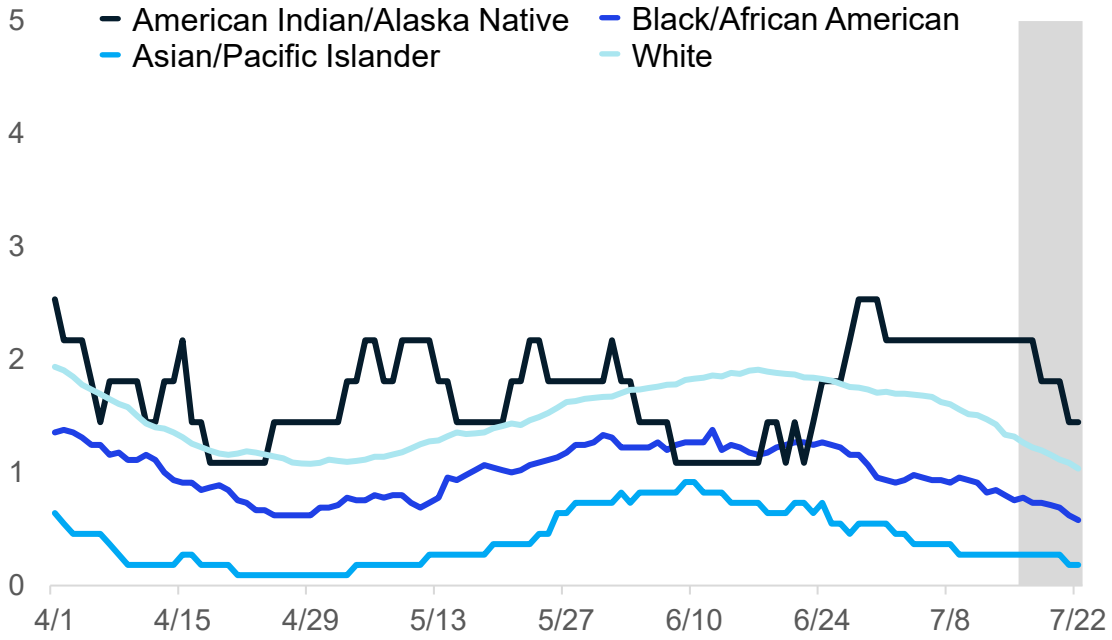
Updates since last week:

- Cases per million have increased for all reported racial and ethnic groups
- In the past 30 days, 20.9% (↔) of race data and 26.0% (↑ 0.2%) ethnicity data was either missing or reported as unknown

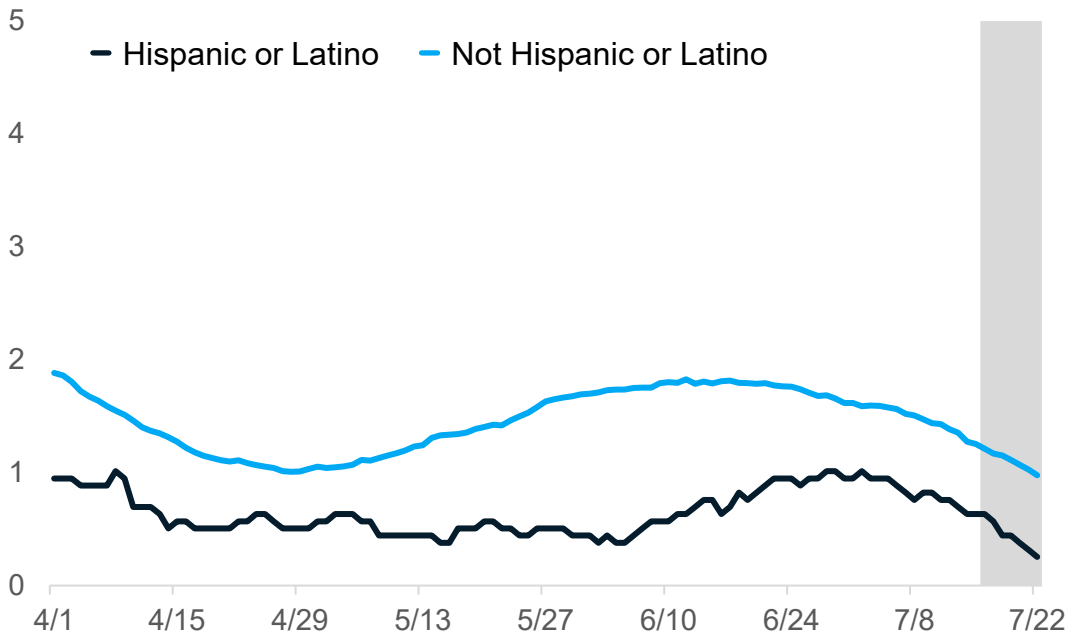
Note: Case information sourced from MDHHS and reflects date of death of confirmed and probable cases.
Source: MDHHS – Michigan Disease Surveillance System

Daily average deaths per million people by race and ethnicity have plateaued or are decreasing

Average daily deaths per million people by race



Average daily deaths per million people by ethnicity

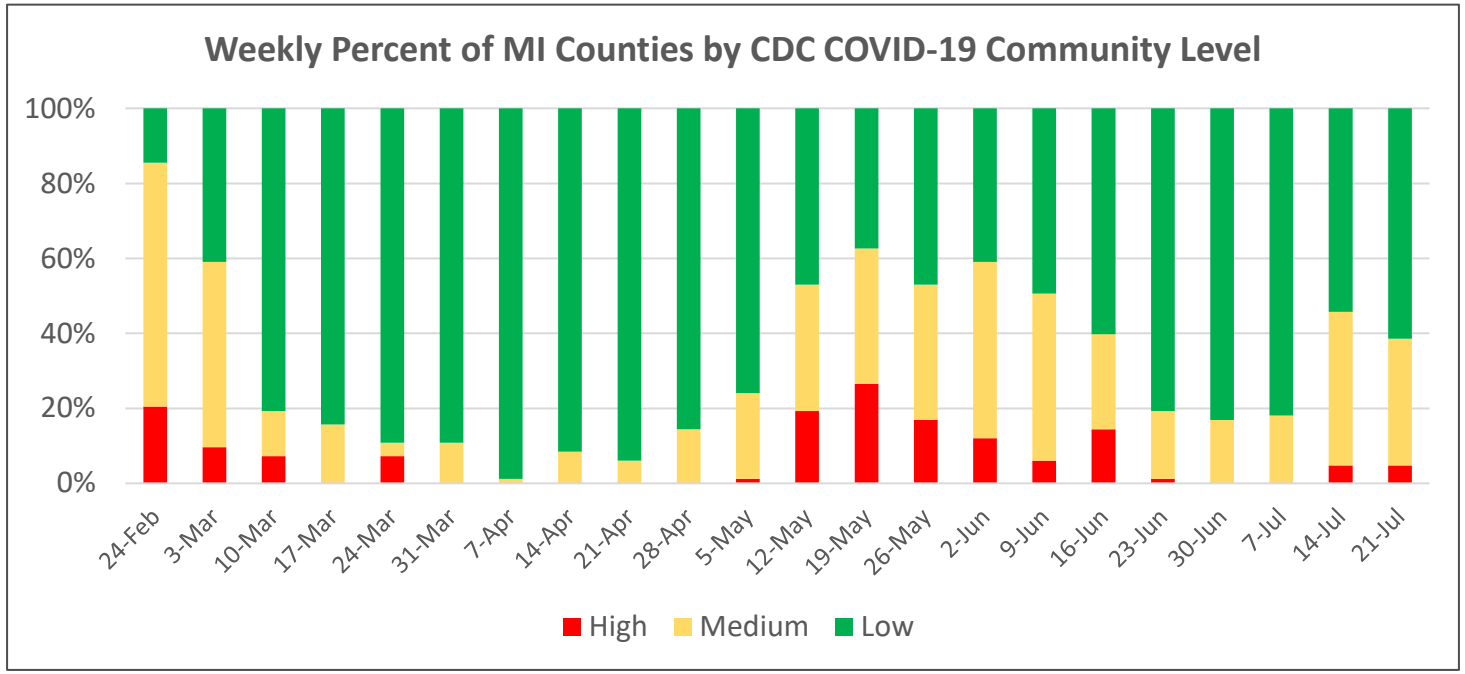


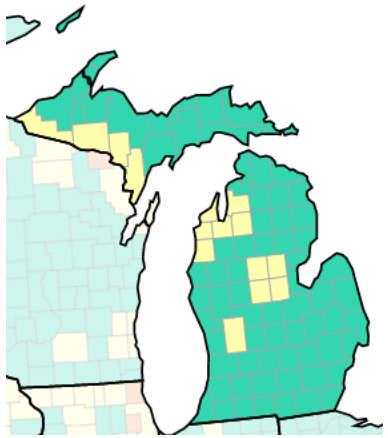
- Deaths are lagging indicator of other metrics
- Currently, the American Indian/Alaskan Native population has the highest death rate (2.2 deaths/million)

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

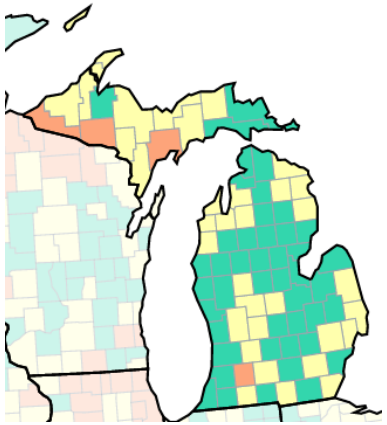
Michigan Trends of COVID-19 Community Levels

- As of July 21, 4 (5%) Michigan counties at high COVID-19 community level and another 28 Michigan counties are currently at Medium level 34%)
- The proportion of Michigan counties at medium and high is steady from last week
- Current levels are not yet as high as the first Omicron wave or the second Omicron (BA.2.12.1) wave

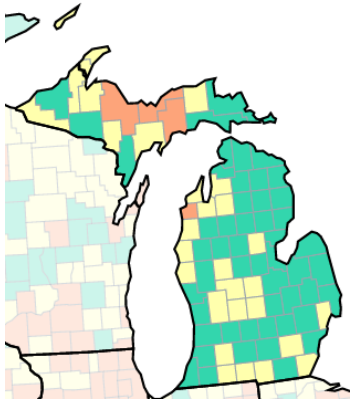




July 7 CDC Community Levels



July 14 CDC Community Levels



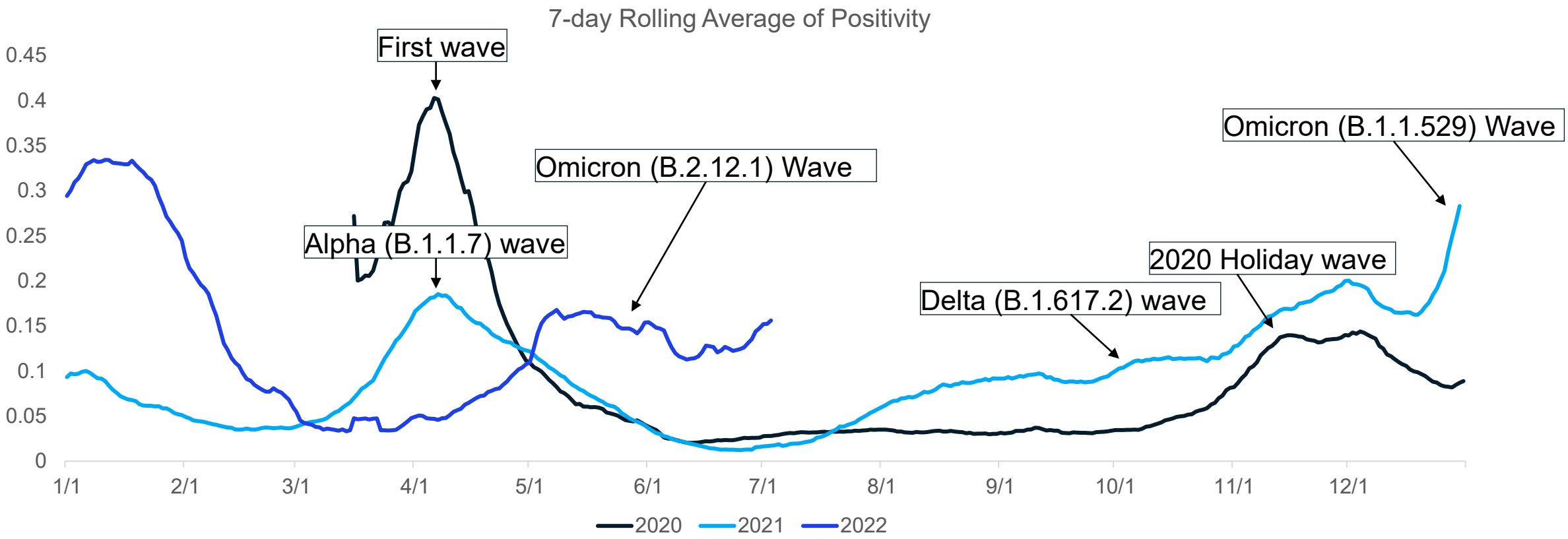
July 21 CDC Community Levels

Source: CDC COVID-19 Community Levels https://covid.cdc.gov/covid-data-tracker/#county-view?list_select_state=all_states&list_select_county=all_counties&data-type=CommunityLevels

Time Trends – Annual Comparison: Percent Positivity

- Positivity is about half as high as all-time pandemic highs
- However, testing behaviors have shifted, as such comparison year over year should be done so with caution

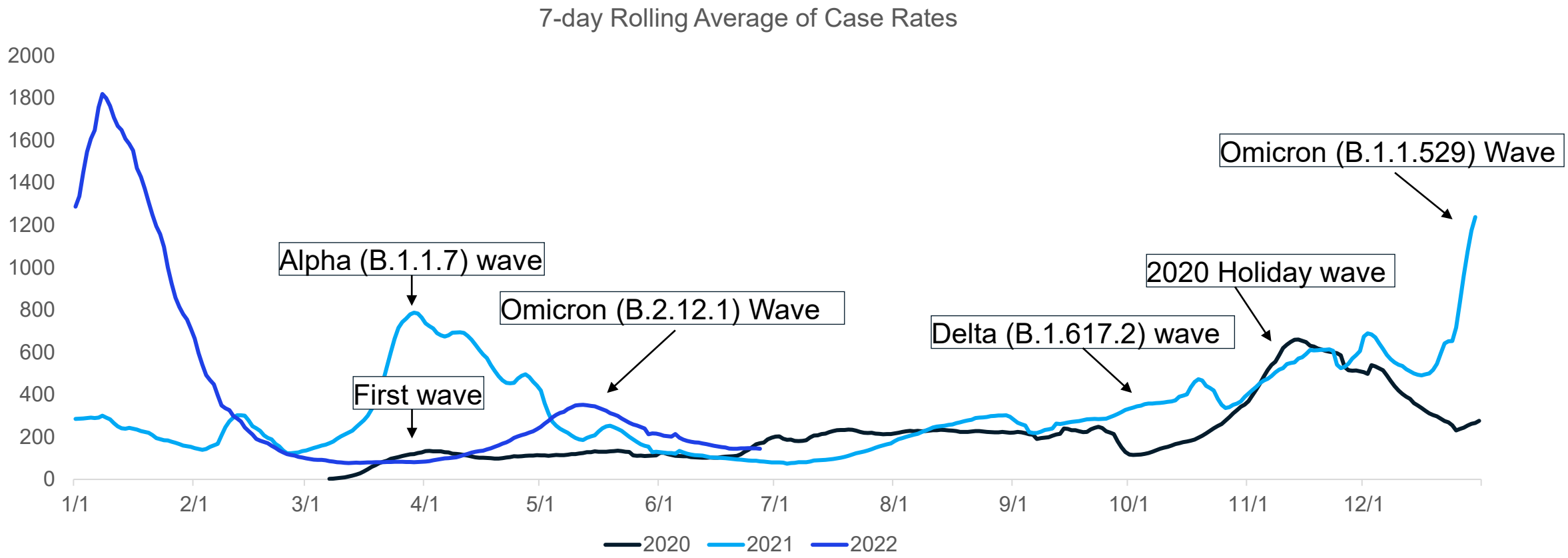
7-day Rolling Average of Positivity



Time Trends – Annual Comparison: Case Rates

- Case rates (by onset date) are increasing but remain lower than surges from past peaks
- Case rate are, however, similar to last summer's Delta levels

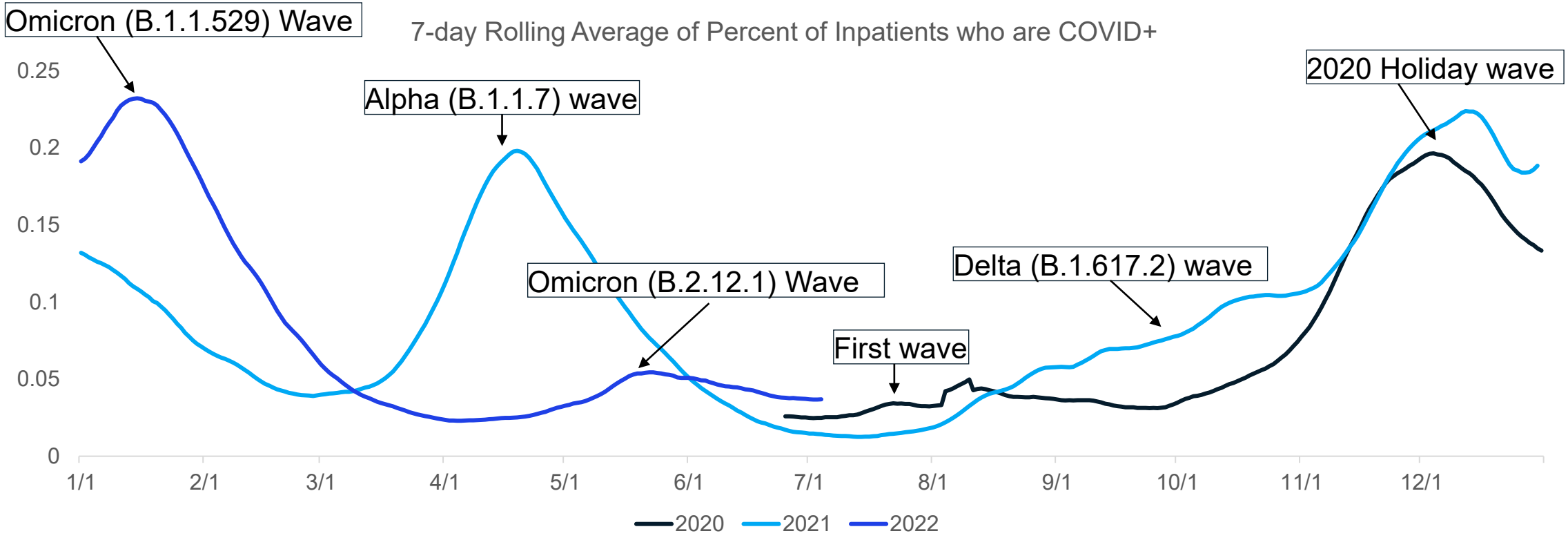
7-day Rolling Average of Case Rates



Time Trends – Annual Comparison: Percent Inpatient COVID+

- The percent of inpatients who are COVID+ remains lower than Alpha, Omicron, and holiday waves
- Current hospital levels are higher than last summer's levels as we head into the fall

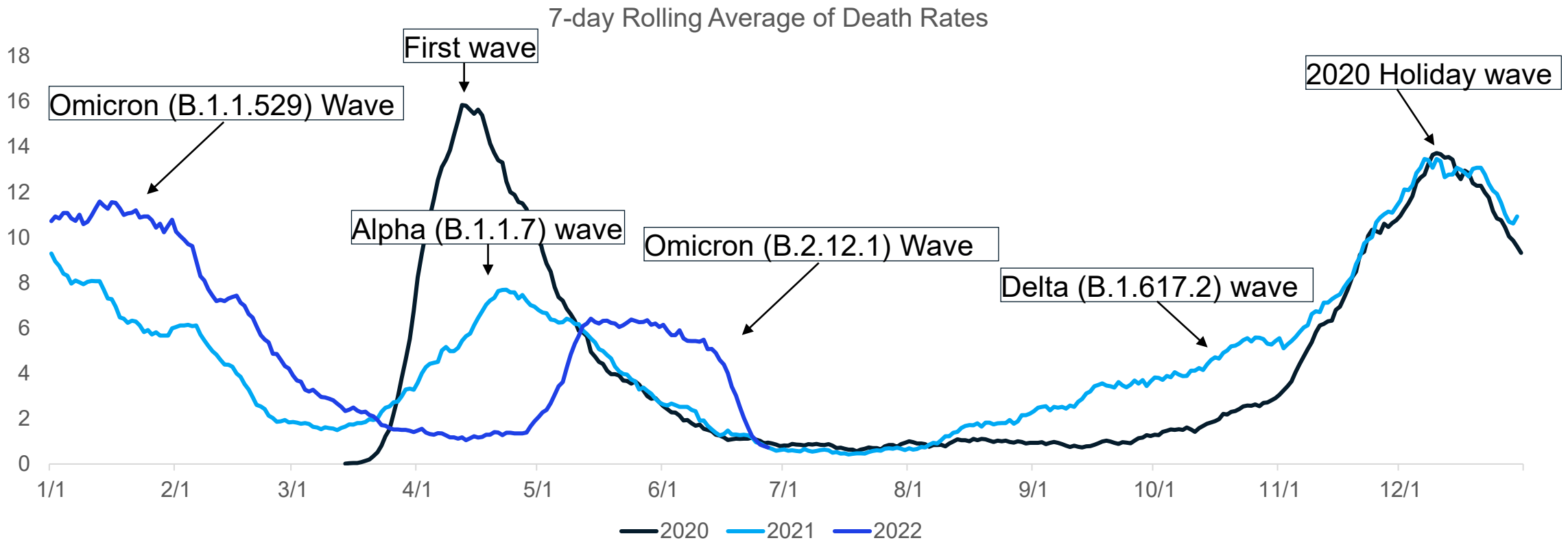
7-day rolling average of percent of inpatients who are COVID positive



Time Trends – Annual Comparison: Death Rates

- Death rates (by date of death) are near pandemic all-time lows
- Deaths are lagging indicator, typically trailing case trends by 4 o 6 weeks

7-day Rolling Average of Deaths Rates



Pediatric Vaccination for those 6 months to 5 years: Key Messages

COVID-19 vaccines are now available for ages 6 months and up

- Everyone 6 months and older should also get an age-appropriate COVID-19 booster, when eligible
- Vaccinations remain the best way to protect from COVID-19, especially from severe disease

- The youngest children can get infected and suffer from severe outcomes
  - Hospital admissions due to COVID-19 for children follow statewide trend with youngest ages accounting for majority of pediatric admissions
  - During the Omicron surge, COVID-19 hospitalizations per capita was higher for those 6 months to 4 years than for children of other ages
  - The proportion of children ages 6 months to 4 years with COVID-19 associated hospitalization were primarily admitted for COVID-19 and over half have no underlying medical conditions
  - Compared to other vaccine preventable diseases, COVID-19 is responsible for more hospitalizations and deaths
  - In Michigan, multisystem inflammatory syndrome in children (MIS-C), over a quarter of all cases have been reported from those under the age of 5
    - Nationally, over 60% of MIS-C cases under the age of 5 have been reported among Non-Hispanic Blacks and Hispanic/Latino
  - COVID-19 is a leading cause of death among all children, including one of the leading causes of death for those under 5 years
    - Based on cumulative total incidence, COVID-19 is the leading cause of death among infectious diseases for people aged 0-19
    - Among children under the age of 5, COVID-19 is the fifth most common of all causes of death

- COVID-19 vaccine has proven to be safe for children in other age groups

COVID-19 vaccines are now available for ages **6 months and up!**

Both the Pfizer and Moderna COVID-19 vaccines are now authorized and recommended for children 6 months and older. Everyone 5 years and older should also get an age-appropriate COVID-19 booster, when eligible.

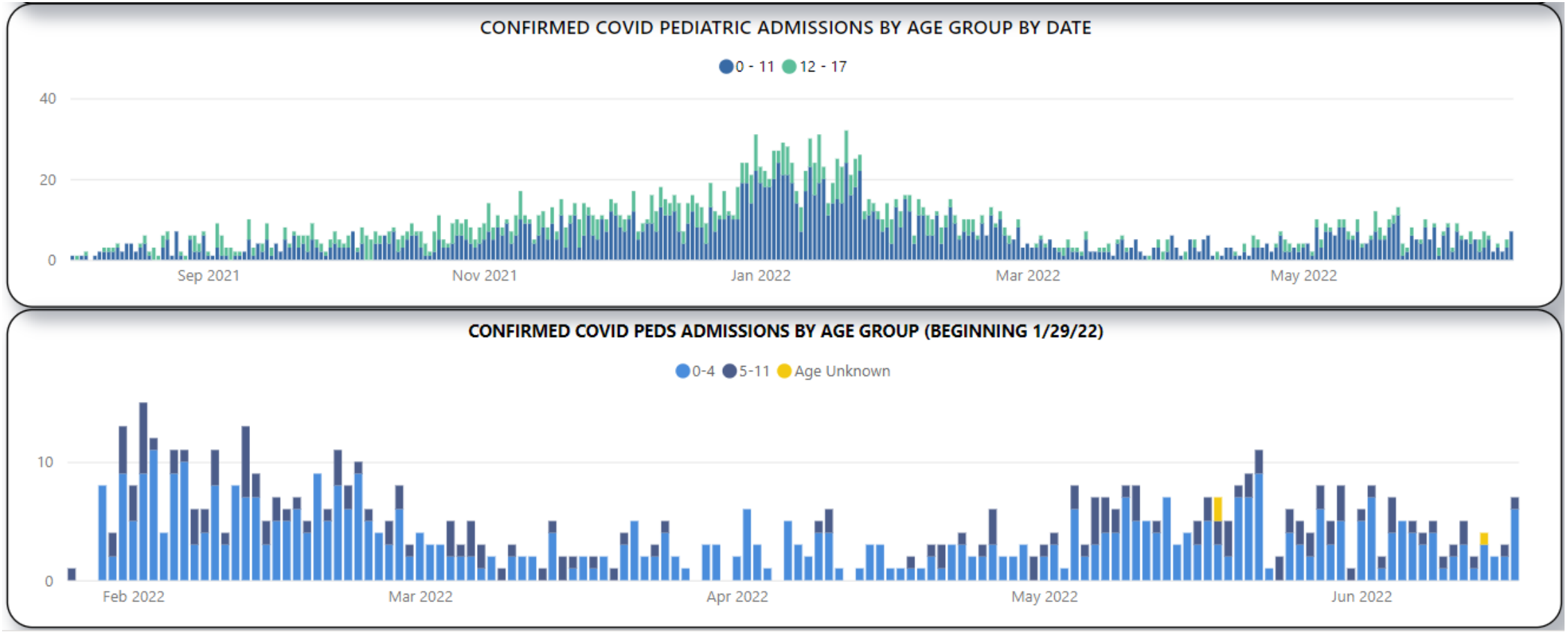
More than **4,000** providers across Michigan can administer the COVID-19 kids vaccine, including:

- Family physicians and pediatricians
- Some pharmacies (ages 3+)
- Local health departments and federally qualified health centers
- Urgent cares (ages 5+)

MDHHS
Michigan Department of Health & Human Services

For more information, visit Michigan.gov/KidsCOVIDvaccine or talk to a health care provider.

Hospital admissions due to COVID-19 for children follow statewide trend with youngest ages accounting for majority of pediatric admissions



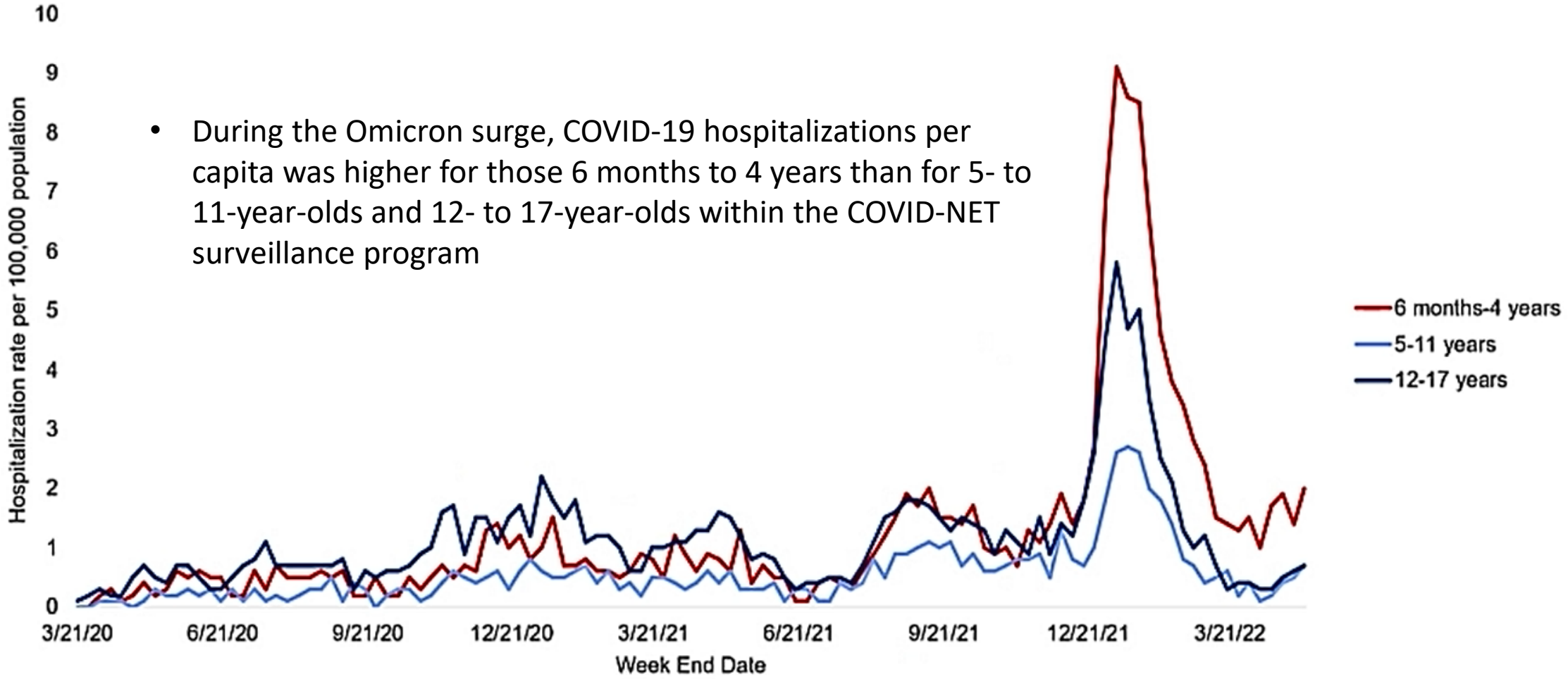
- Hospital admissions reflect statewide infection trends where admissions are higher during surges of SARS-CoV-2 transmission
- Among those under 18 years of age, the majority of hospital admissions occurred in those 0-11 in Michigan
- Among those under 12 years of age, the majority of hospital admissions occurred in those 0-4 in Michigan

Source: CHECC & EM Resource

COVID-19-associated hospitalizations among children and adolescents 6 months–17 years, COVID-NET

March 2020 – March 2022

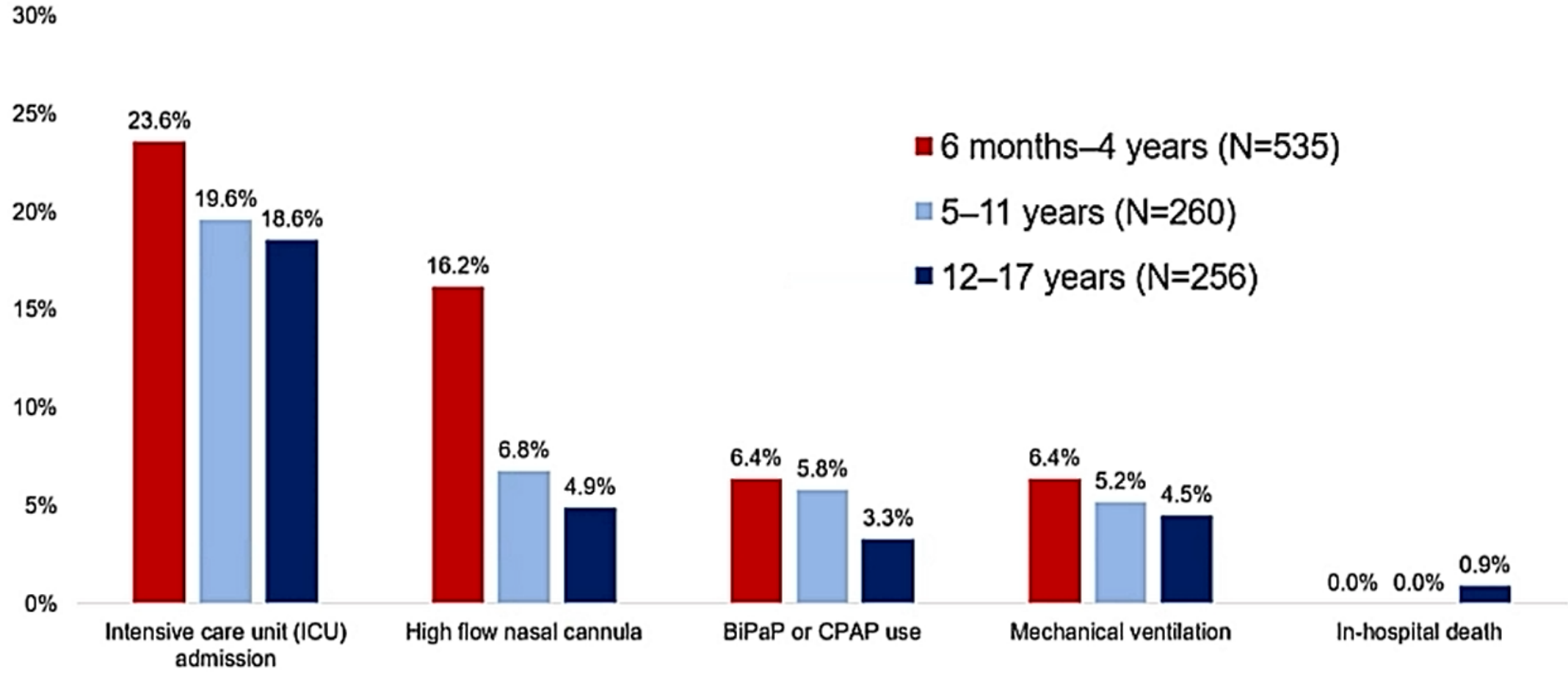
- During the Omicron surge, COVID-19 hospitalizations per capita was higher for those 6 months to 4 years than for 5- to 11-year-olds and 12- to 17-year-olds within the COVID-NET surveillance program



Reported by the CDC at the Meeting of the Advisory Committee on Immunization Practices (ACIP) to discuss immunizations for 6 months to 5 years (Moderna and Pfizer), June 22-23, 2022

Source: COVID-NET, https://gis.cdc.gov/grasp/COVIDNet/COVID19_3.html. Accessed May 21, 2022.

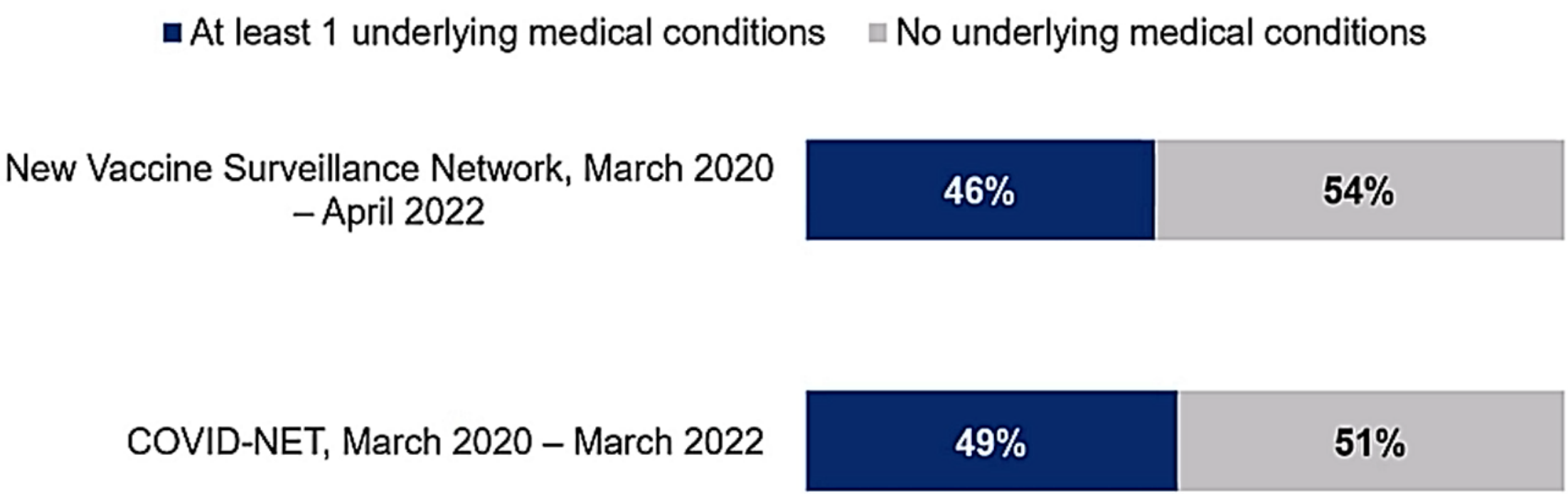
Severity of COVID-19-associated hospitalizations among children and adolescents 6 months–17 years, COVID-NET, December 19, 2021 – March 31, 2022 (Omicron period)



BiPAP: bilevel positive pressure, CPAP: continuous positive pressure

Source: COVID-NET data. Accessed May 21, 2022.

Percent of children ages 6 months–4 years with COVID-19 associated hospitalization with underlying health conditions

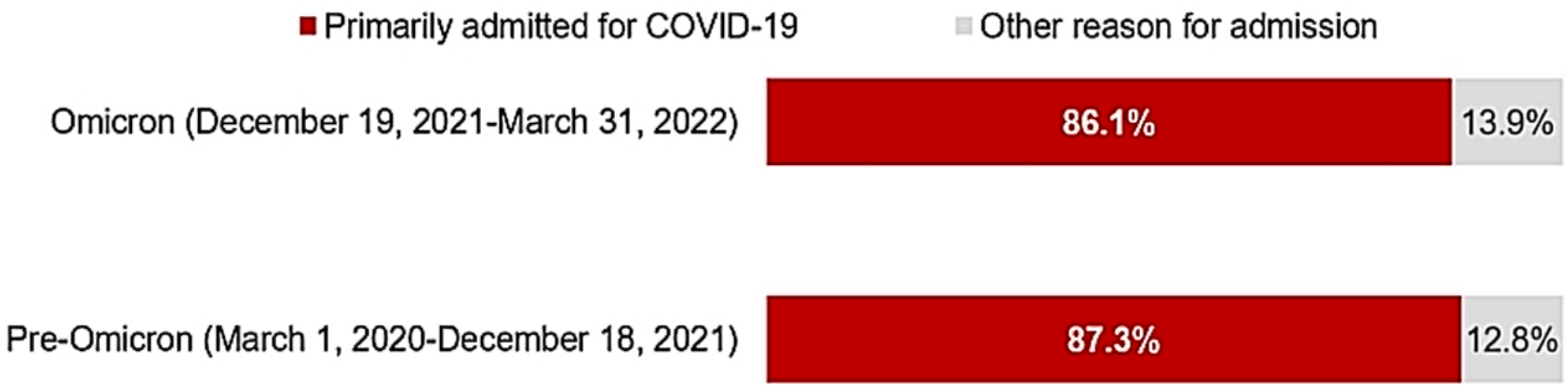


Source: 1. New Vaccine Surveillance Network. Preliminary data as of May 25, 2022, reflecting data from March 2020–April 2022

2. COVID-NET data. Accessed May 21, 2022, reflecting data from March 2020–March 2022

Reported by the CDC at the Meeting of the Advisory Committee on Immunization Practices (ACIP) to discuss immunizations for 6 months to 5 years (Moderna and Pfizer), June 22-23, 2022

Proportion of children ages 6 months–4 years with COVID-19 associated hospitalization who were primarily admitted for COVID-19, COVID-NET March 2020 – March 2022



All children in COVID-NET had a positive SARS-CoV-2 test within 14 days of or during hospital admission. "Primarily admitted for COVID-19" was defined based on the "Reason for admission" field from the case report form. If the chief complaint or history of present illness in the medical chart documents fever/respiratory illness, COVID-19-like illness, or a suspicion for COVID-19, a case is categorized as having COVID-19 as the primary reason for admission. Examples of other non-COVID-19-related reasons for admission seen in this age group include admissions for trauma or inpatient surgeries.

Source: COVID-NET data, Accessed May 21, 2022.

Reported by the CDC at the Meeting of the Advisory Committee on Immunization Practices (ACIP) to discuss immunizations for 6 months to 5 years (Moderna and Pfizer), June 22-23, 2022

Multisystem Inflammatory Syndrome in Children (MIS-C)

Michigan Surveillance

- Higher community transmissions is followed by higher incidence of MIS-C cases
- 304 cases identified in Michigan: highest numbers have occurred after most recent Omicron surge
- More than 25% of those children are those under 5 years of age
- Black/African American children are disproportionately impacted
- 63.5% (193) children with MIS-C are treated in the ICU
- Among Michigan's MIS-C cases that were eligible for vaccine (N=113), a majority of children (89.4%, n=101) were unvaccinated
  - **Scientific evidence has shown that unvaccinated kids are at much higher risk of severe MIS-C outcomes[1]**

Age Group	Count	%
<1	11	3.6%
1-4	74	24.3%
5-11	146	48.0%
12-15	54	17.8%
16-20	19	6.3%

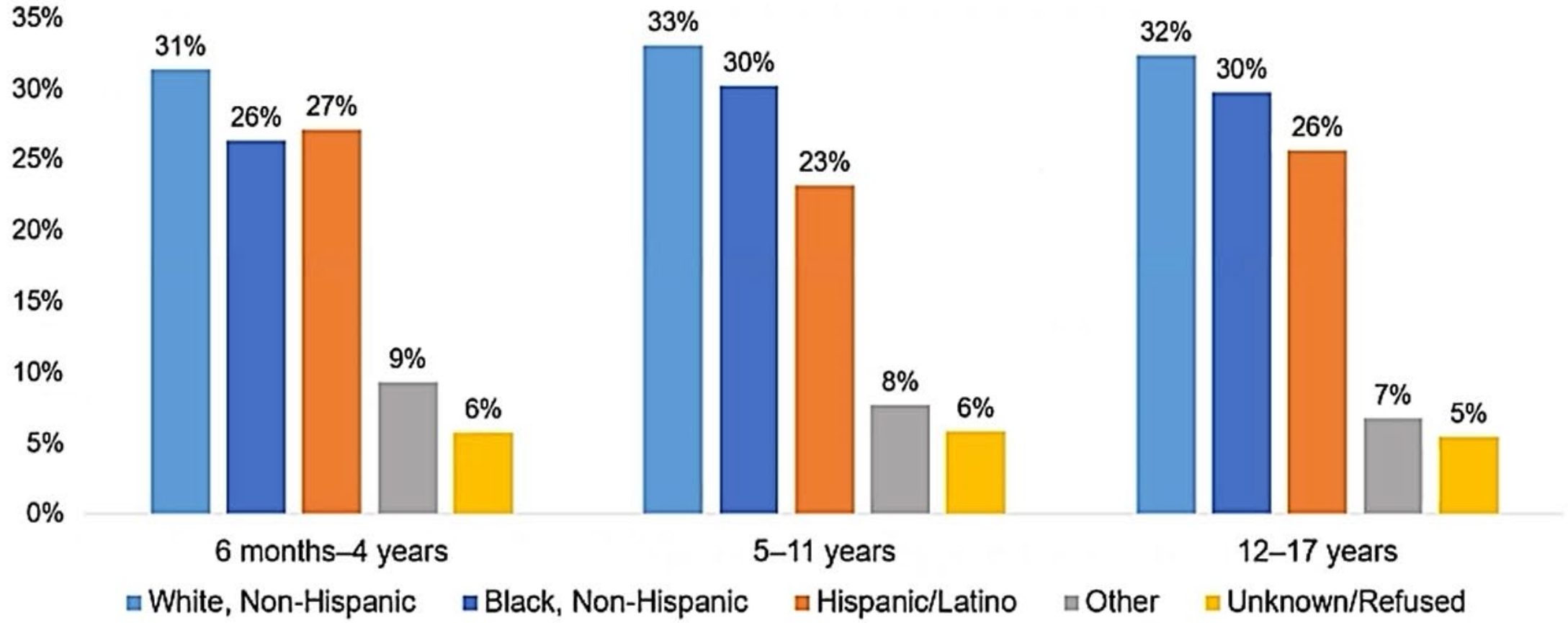
Race	Count	%
Black/African American	106	34.9%
Caucasian	146	48.0%
All Others/Unknown	52	17.1%

Ethnicity		
Not Hispanic/Non-Latino	227	74.7%
Hispanic/Latino	27	8.9%
Unknown	50	16.4%

Sources: MDHHS and MIS-C Data and Reporting; Data through 6/30; 1. Zambrano LD, Newhams MM, Olson SM, et al. Effectiveness of BNT162b2 (Pfizer-BioNTech) mRNA Vaccination Against Multisystem Inflammatory Syndrome in Children Among Persons Aged 12–18 Years — United States, July–December 2021. MMWR Morb Mortal Wkly Rep 2022;71:52–58. DOI: http://dx.doi.org/10.15585/mmwr.mm7102e1

MIS-C patients by race & ethnicity for children and adolescents ages 6 months–17 years by age group

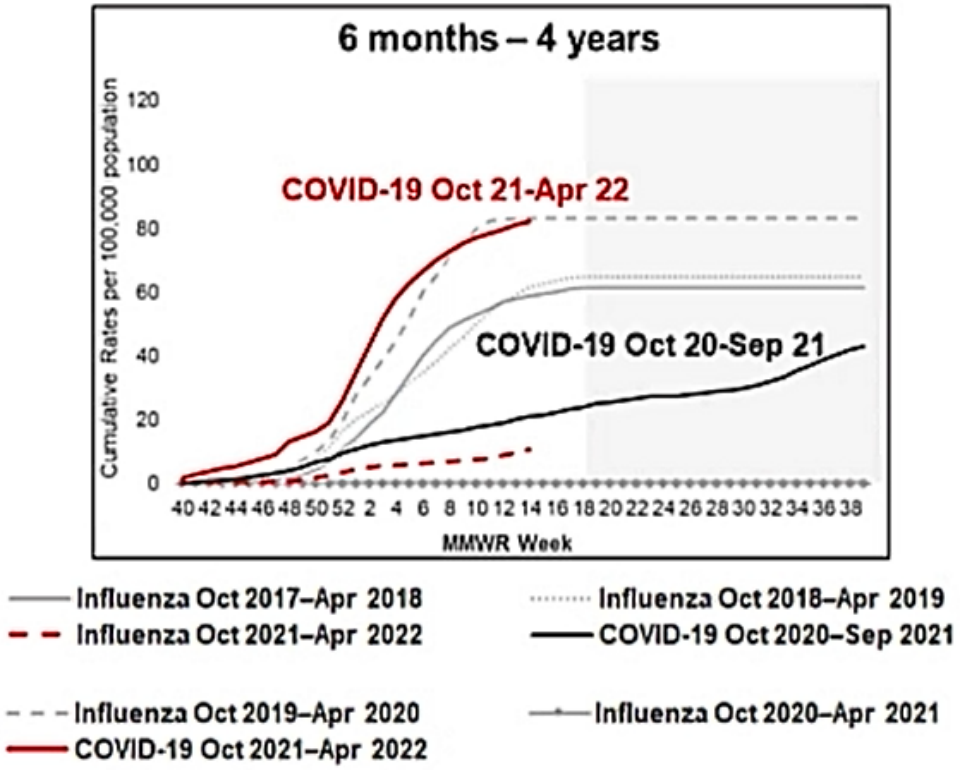
February 1, 2020 – May 31, 2022



Age is missing for 1 case.

Source: CDC data. Accessed June 7, 2022

Cumulative influenza- and COVID-19-associated hospitalization rates per 100,000 children ages 6 months–4 years, FluSurv-NET and COVID-NET, 2017–2022



Among children ages 6 months–4 years

- Oct 2020–Sep 2021 COVID-19 hospitalization rates were lower than influenza hospitalization rates during 2017–18 through 2019–20 (pre-pandemic) influenza seasons
- Oct 2021–Apr 2022 COVID-19 hospitalization rates were as high or higher than influenza hospitalization rates during 2017–18 through 2021–22 influenza seasons

Reported by the CDC at the Meeting of the Advisory Committee on Immunization Practices (ACIP) to discuss immunizations for 6 months to 5 years (Moderna and Pfizer), June 22-23, 2022

Source: Delahoy MJ, Ujamaa D, Taylor CA, et al. Comparison of influenza and COVID-19-associated hospitalizations among children < 18 years old in the United States-FluSurv-NET (October-April 2017-2021) and COVID-NET (October 2020-September 2021). Clin Infect Dis. 2022 May 20:ciac388. doi: 10.1093/cid/ciac388.

Other Pediatric Vaccine Preventable Diseases:
Hospitalizations per Year Prior to Recommended Vaccines

	Hepatitis A[1]	Varicella[2] (Chickenpox)	Vaccine-type Invasive Pneumococcal Disease[3]	COVID-19[4]
Age	**5–14 years**	**0–4 years**	**0–4 years**	**6 months–4 years**
Time period	2005	1993–1995	1998–1999	Year 1: April 2020–March 2021 Year 2: April 2021–March 2022
Hospitalization Burden (Annual rate per 100,000 population)	**<1**	**29-42**	**40** [5]	Year 1: **29.8** Year 2: **89.3**

[1] https://www.cdc.gov/mmwr/preview/mmwrhtml/ss5603a1.htm

[2] Davis MM, Patel MS, Gebremariam A. Decline in varicella-related hospitalizations and expenditures for children and adults after introduction of varicella vaccine in the United States. Pediatrics. 2004;114(3):786-792. doi:10.1542/peds.2004-0012

[3] Centers for Disease Control and Prevention (CDC). Direct and indirect effects of routine vaccination of children with 7-valent pneumococcal conjugate vaccine on incidence of invasive pneumococcal disease--United States, 1998-2003. MMWR Morb Mortal Wkly Rep. 2005 Sep 16;54(36):893-7. PMID: 16163262.

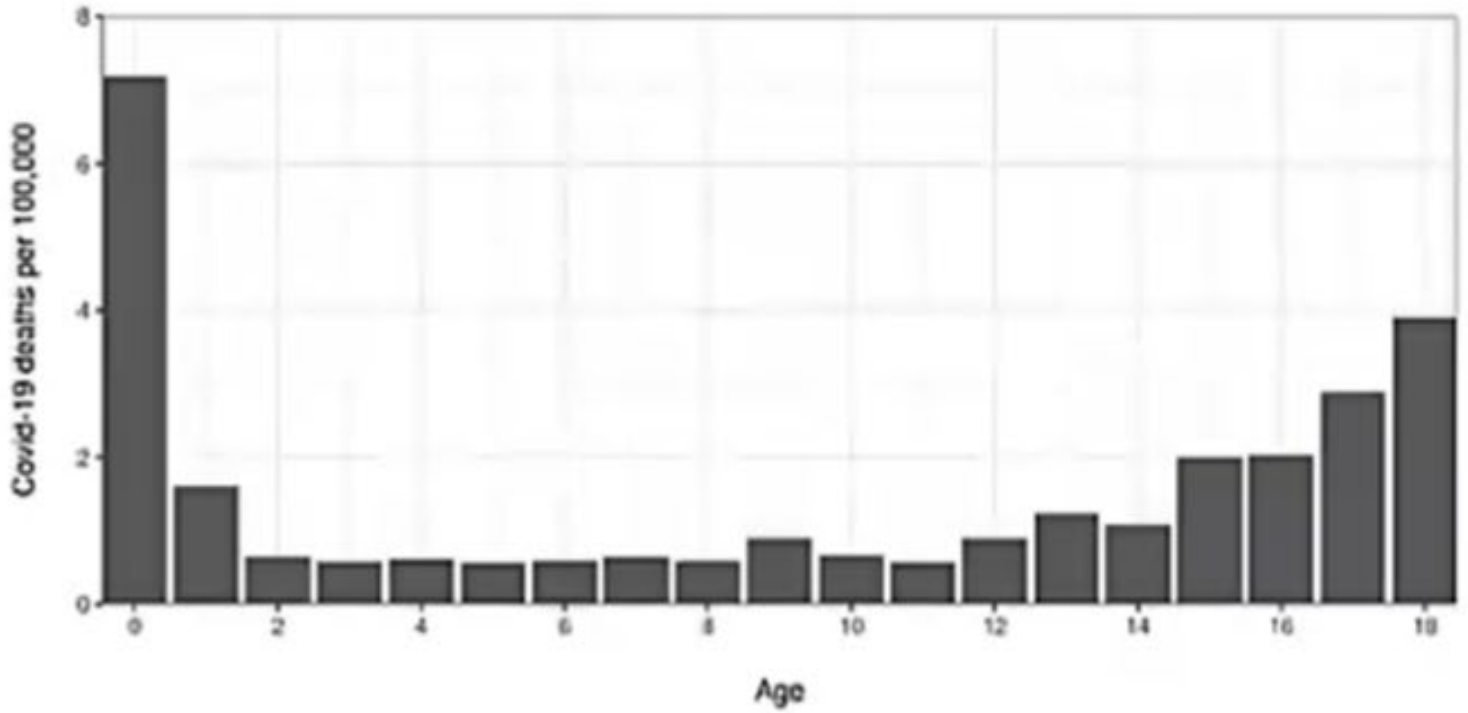
[4] COVID-NET data, Accessed May 21, 2022.

[5] Vaccine-type invasive pneumococcal disease annual rate for children <5 years in 1998-1999 was 80 per 100,000, of which about 50% were hospitalized.

Reported by the CDC at the Meeting of the Advisory Committee on Immunization Practices (ACIP) to discuss immunizations for 6 months to 5 years (Moderna and Pfizer), June 22-23, 2022

COVID-19 death rate among children by age, United States, March 1, 2020—April 30, 2022

- Based on cumulative total incidence, COVID-19 is the **leading** cause of death among **infectious diseases** for people ages 0-19
  - COVID-19 is the **seventh** most common of **all** causes of death for people ages 0-19
- Among people ages 1-4, COVID-19 is the **fifth** most common of **all** causes of death



Based on death certificate data from the National Center for Health Statistics. COVID-19 based on cumulative total incidence of COVID-19 deaths from March 1, 2020-April 30, 2022.

Source: Preprint: Flaxman S, Whittaker C, Semenova E et al. Covid-19 is a leading cause of death in children and young people ages 0-19 years in the United States. medRxiv 2022.05.23.22275458; doi: https://doi.org/10.1101/2022.05.23.22275458

COVID-19 is a leading cause of death among children ages 0–19 years

March 1, 2020–April 30, 2022

Age group	Rank of COVID-19 among causes of death
<1 year	4
1–4 years	5
5–9 years	5
10–14 years	4
15–19 years	4

Reported by the CDC at the Meeting of the Advisory Committee on Immunization Practices (ACIP) to discuss immunizations for 6 months to 5 years (Moderna and Pfizer), June 22-23, 2022

Based on death certificate data from the National Center for Health Statistics. COVID-19 based on cumulative total incidence of COVID-19 deaths from March 1, 2020-April 30, 2022.

Source: Flaxman S, Whittaker C, Semenova E et al. Covid-19 is a leading cause of death in children and young people ages 0-19 years in the United States. medRxiv 2022.05.23.22275458; doi: https://doi.org/10.1101/2022.05.23.22275458

Pediatric vaccine preventable diseases:

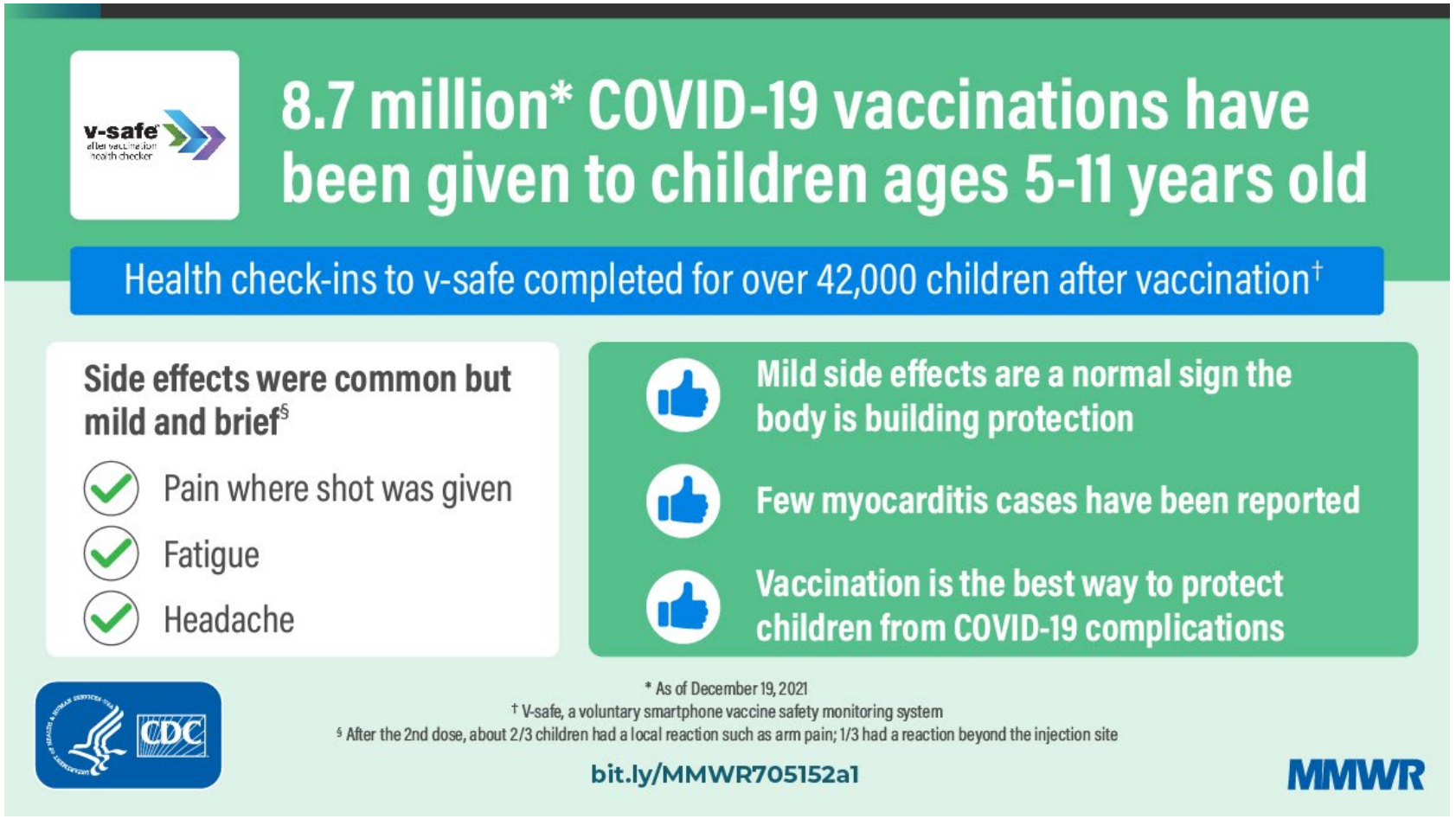
Deaths per year in the United States prior to recommended vaccines

	Hepatitis A[1]	Meningococcal (ACWY)[2]	Varicella[3]	Rubella[4]	Rotavirus[5]	COVID-19[6]
Age	**<20 years**	**11–18 years**	**5–9 years**	**All ages**	**<5 years**	**6 months – 4 years**
Time period	1990–1995	2000–2004	1990–1994	1966–1968	1985–1991	Jan 2020–May 2022
Average deaths per year	**3**	**8**	**16**	**17**	**20**	**86**

[1]Vogt TM , Wise ME, Bell BP, Finelli L. Declining hepatitis A mortality in the United States during the era of hepatitis A vaccination. J Infect Dis2008; 197:1282-8.
[2]National Notifiable Diseases Surveillance System with additional serogroup and outcome data from Enhanced Meningococcal Disease Surveillance for 2015-2019.
[3]Meyer PA, Seward JF, Jumaan AO, Wharton M. Varicella mortality: trends before vaccine licensure in the United States, 1970-1994. J Infect Dis. 2000;182(2):383-390. doi:10.1086/315714
[4]Roush SW , Murphy TV; Historical comparisons of morbidity and mortality for vaccine-preventable diseases in the United States. *JAMA* 2007; 298:2155-63.
[5] Glass RI, Kilgore PE, Holman RC, et al. The epidemiology of rotavirus diarrhea in the United States: surveillance and estimates of disease burden. J Infect Dis. 1996 Sep;174 Suppl 1:S5-11.
[6] https://data.cdc.gov/NCHS/Provisional-COVID-19-Deaths-Counts-by-Age-in-Years/3apk-4u4f/data.

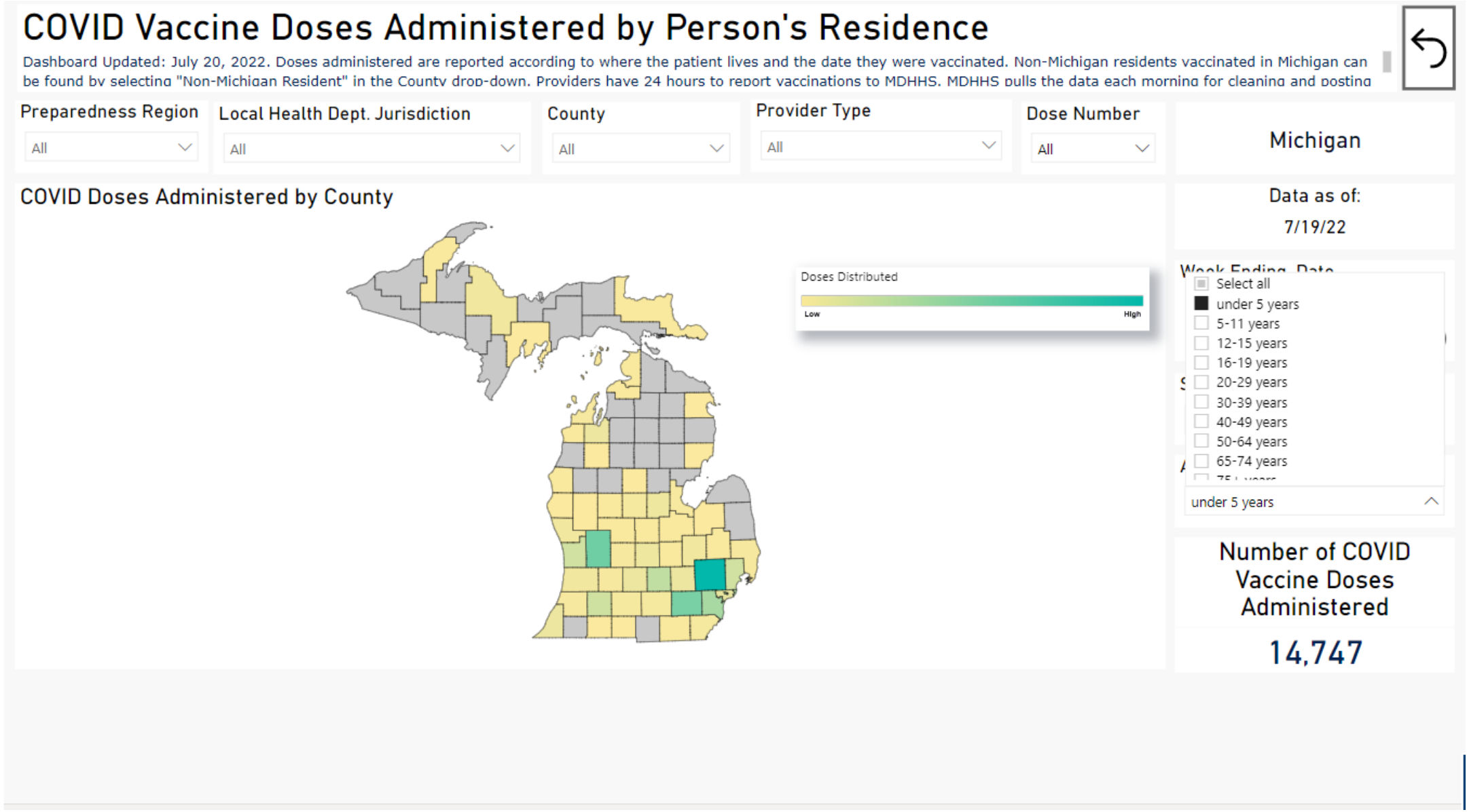
COVID-19 Vaccine Has Proven to be Safe for Children in Other Age Groups

- In *preauthorization* trials for Pfizer-BioNTech COVID-19 vaccine, vaccinated children aged 5–11 years reported mild to moderately severe local and systemic reactions
  - **No serious vaccination-related events were noted**
- *After authorization* of Pfizer-BioNTech COVID-19 vaccine for children aged 5–11 years during October 2021, and administration of approximately 8 million doses, local and systemic reactions after vaccination were reported to VAERS and v-safe for vaccinated children aged 5–11 years.
  - **Serious adverse events were rarely reported**
- Parents and guardians of children should be advised that local and systemic reactions are expected after vaccination and are more common after the second dose



Source: Hause AM, Baggs J, Marquez P, et al. COVID-19 Vaccine Safety in Children Aged 5–11 Years — United States, November 3–December 19, 2021. MMWR Morb Mortal Wkly Rep 2021;70:1755–1760. DOI: http://dx.doi.org/10.15585/mmwr.mm705152a1

Peds (< 5 years) Vaccination Progress



Source: MDHHS – Michigan Immunizations: COVID-19 Dashboard