MI COVID RESPONSE DATA AND MODELING UPDATE

June 28, 2022

Epidemiologic Surveillance: Key Messages

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

- While some countries are either plateauing or decreasing, several European counties are showing signs of resurgence
- Within the U.S., case rates declined 6% over the past week
- Most midwestern states (region 5) are also at a decline but parts of the U.S. (Southeast and West) are seeing increases

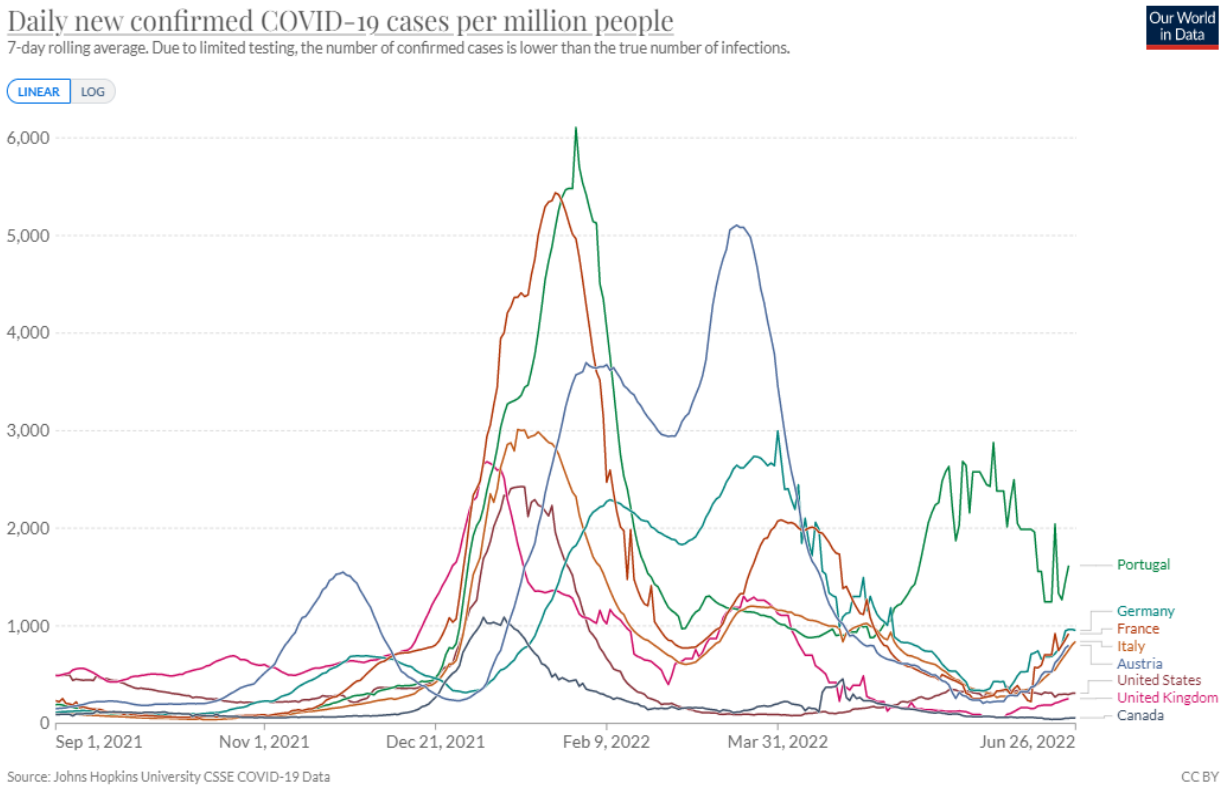
COVID spread in Michigan has moderately declined in the past week

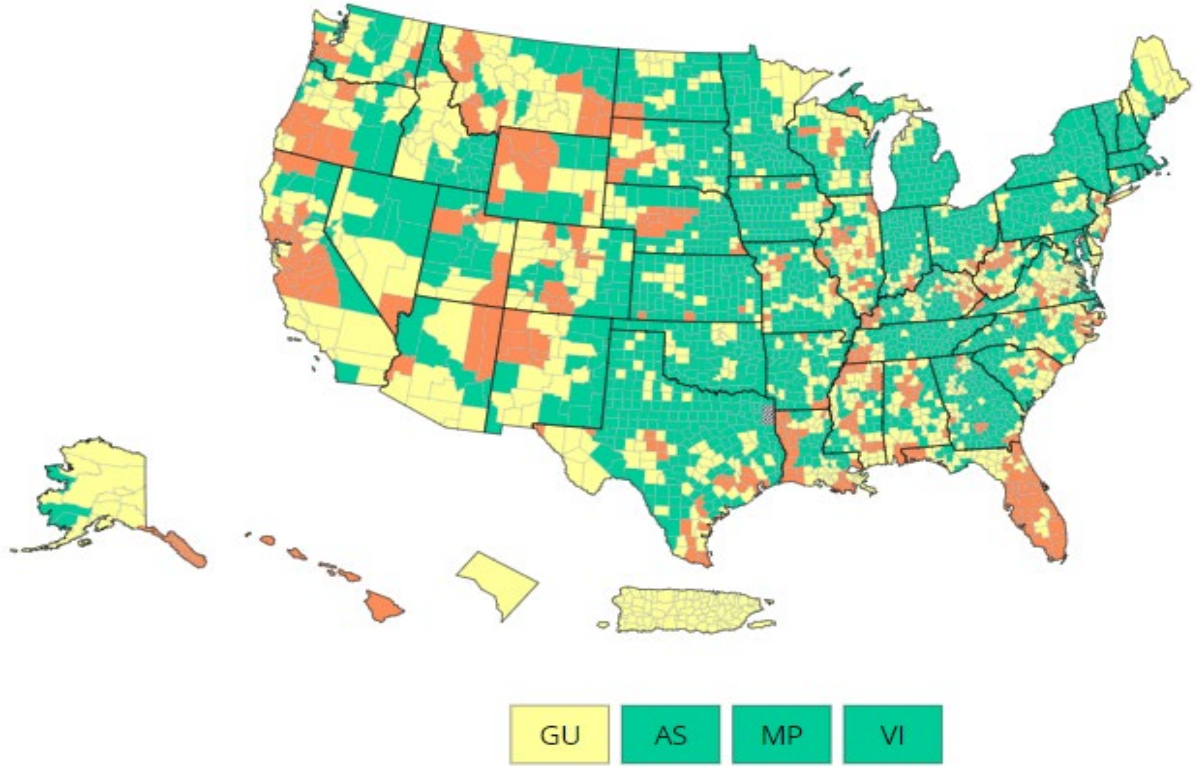
- COVID spread is assessed from many different markers including CDC community levels and other surveillance systems
- As of June 24, 19% of Michigan counties at medium or high COVID-19 community levels, which is a slight improvement from last week
  - Less than 1% of Michigan residents reside in a county (1 county) classified as High according to CDC's Community Levels
  - 15 Michigan counties are currently at Medium level (18%). This represents 5% of the population.
- The R_t for Michigan is slightly below 1 indicating COVID spread is moderately declining
- The proportion of specimens sequenced and identified as BA.4, and BA.5 in the U.S. and Michigan continues to rise
- 30% of SWEEP sites saw an increase in the most recent week and another 20% of sites saw a plateau in trends

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

- COVID-19 hospital admissions, hospital census, ICU census, and pediatric hospitalizations are decreasing
- In the current surge, there is a dissociation between patients hospitalized with COVID-19 and severity metrics, like ICU and ventilator usage

Global and National Trends





Globally, 543,654,808 cases and 6,329,235 deaths (Data* through 6/27/2022)

- Case rates for several European countries are increasing

United States: Reported cases (7-day average) have decreased over 5.6% since the prior week¶

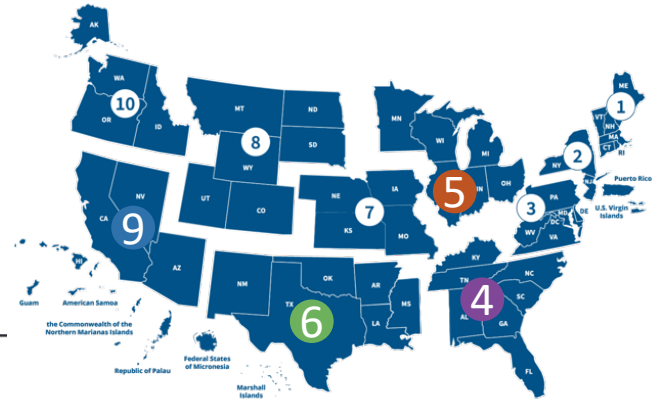
- In the U.S., the case rate is 216 cases/100,000 in last 7 days (last week: 228 cases per/100,000)

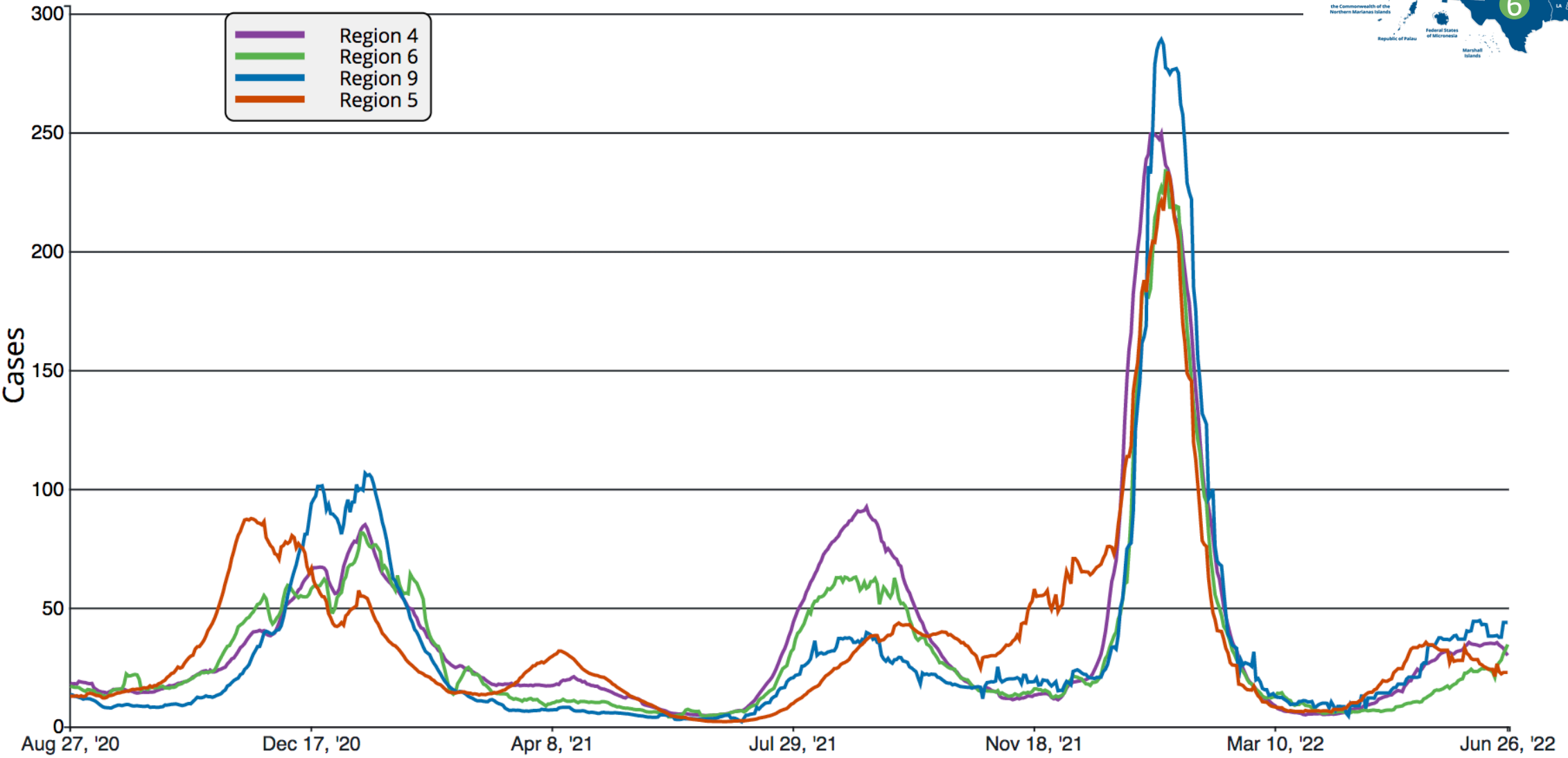
Continued signs of plateaus/declines in some parts of Region 5 (Midwest) states, including Michigan

- Illinois and Wisconsin have the highest case rates *in Region 5* (6/27)

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

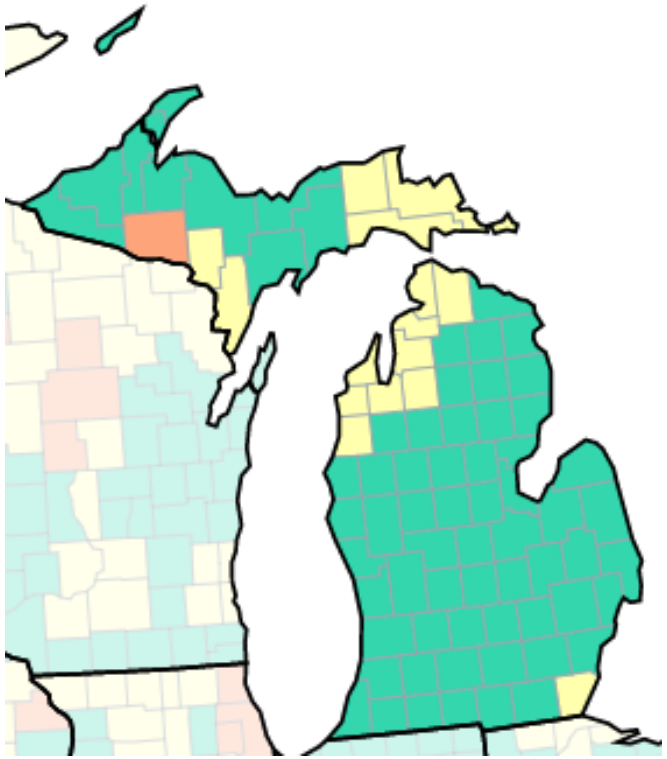
Cases are increasing in the south and southwest/CA





Source: Regional 7-day average cases per 100K from CDC Data Tracker as of 6/27/22

As of June 24, 1 Michigan County at High COVID-19 Community Level



- In the US, 12% of counties have high risk for medically significant disease and healthcare strain; in Michigan, 1% of counties are at high risk
- 95% of Michigan residents reside in a county with **Low** COVID-19 Community Level
- The one county that is categorized as High has a case rate that is greater than 200 per 100,000 and the HSA COVID hospital admissions per 100k is above 10.
- 15 Michigan counties are currently at Medium level (18%). This represents 5% of the population.

Percent of Counties

	United States	Michigan	Percent of MI Population
Low	57%	81%	95%
Medium	31%	18%	5%
High	12%	1%	<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

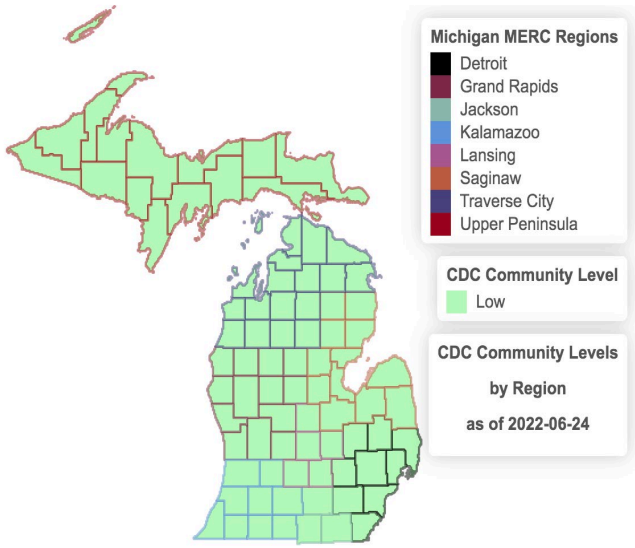
CDC Regional/State Community Levels

CDC Community Levels

Michigan Region & State as of 2022-06-24

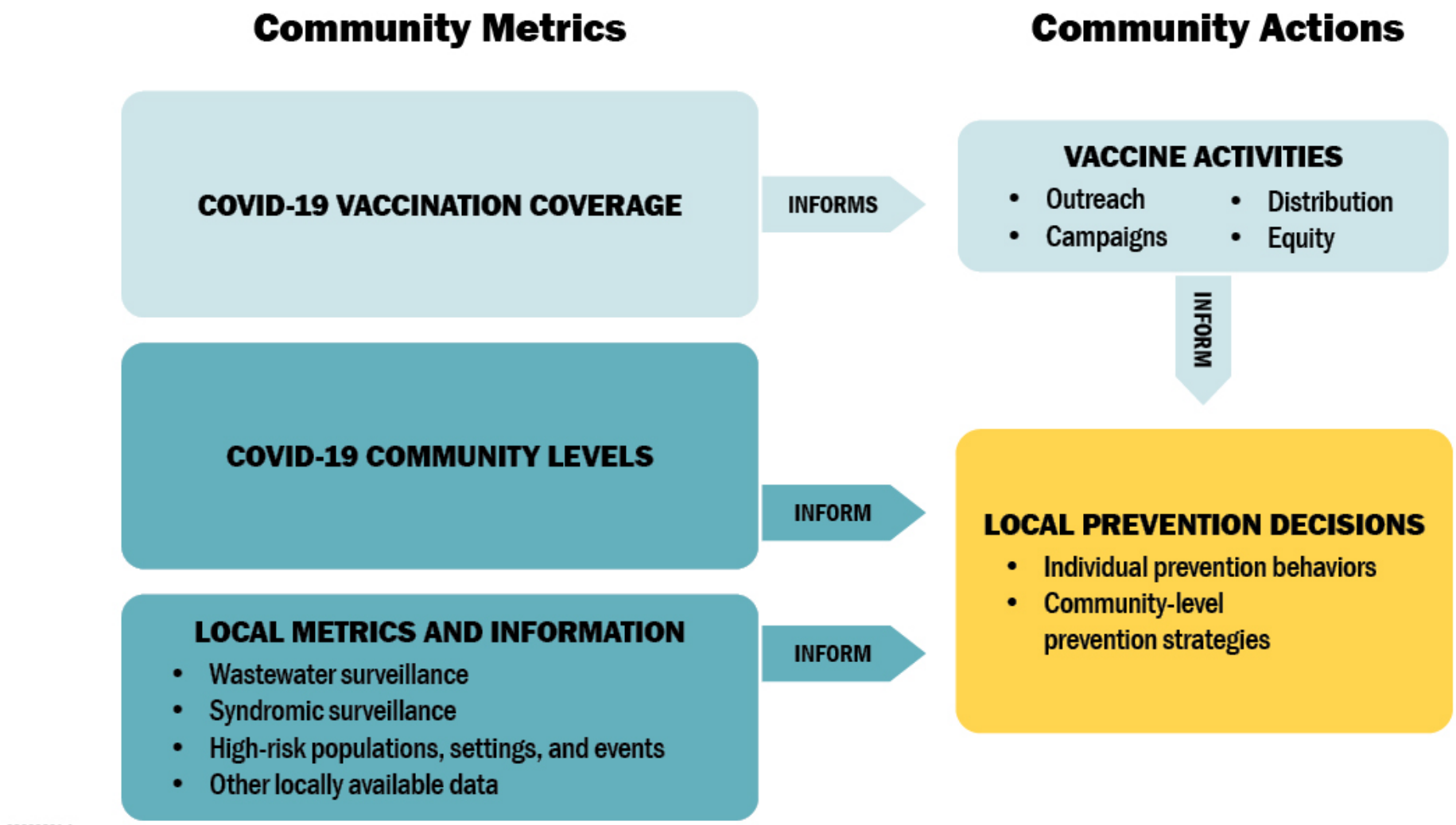
		New COVID-19 Cases per 100K in previous 7 days	Percent Inpatient Beds Occupied by COVID-19 Patients (7-day Avg.)	New COVID-19 Hospital Admissions per 100K in previous 7 days	CDC Community Level
1	Detroit Region	131.8	3.2%	8.0	Low
2	Grand Rapids Region	107.8	3.5%	7.0	Low
3	Kalamazoo Region	120.3	4.2%	7.1	Low
4	Saginaw Region	78.3	2.7%	4.3	Low
5	Lansing Region	125.7	5.0%	6.9	Low
6	Traverse City Region	93.4	4.0%	9.2	Low
7	Jackson Region	97.2	3.9%	5.9	Low
8	Upper Peninsula Region	117.5	3.5%	6.7	Low
9	State	121.2	3.3%	7.4	Low

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

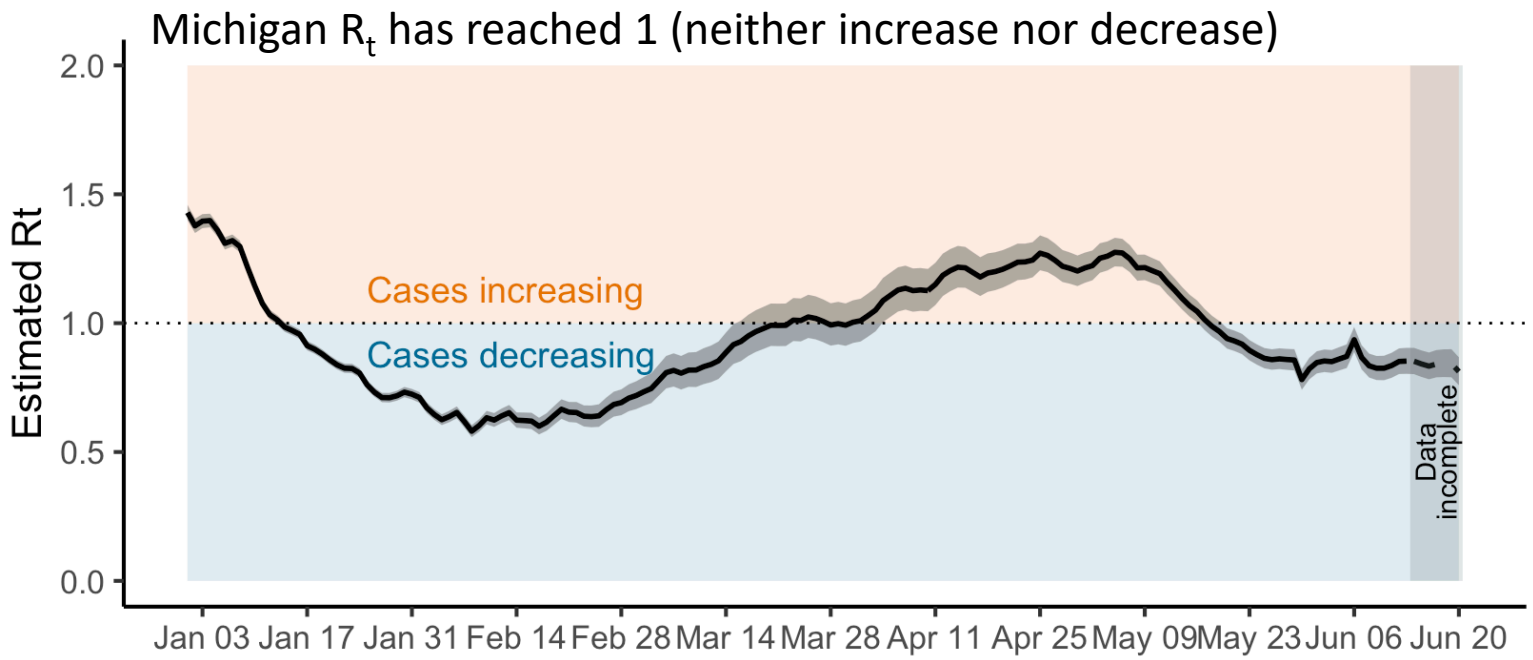


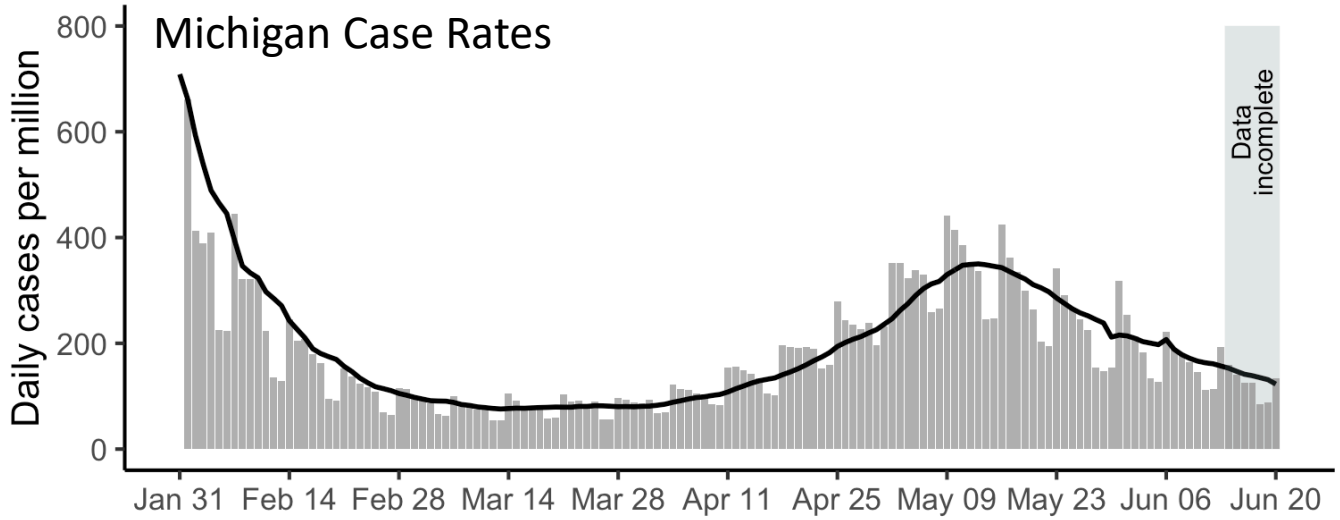
Source: mistartmap.info

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

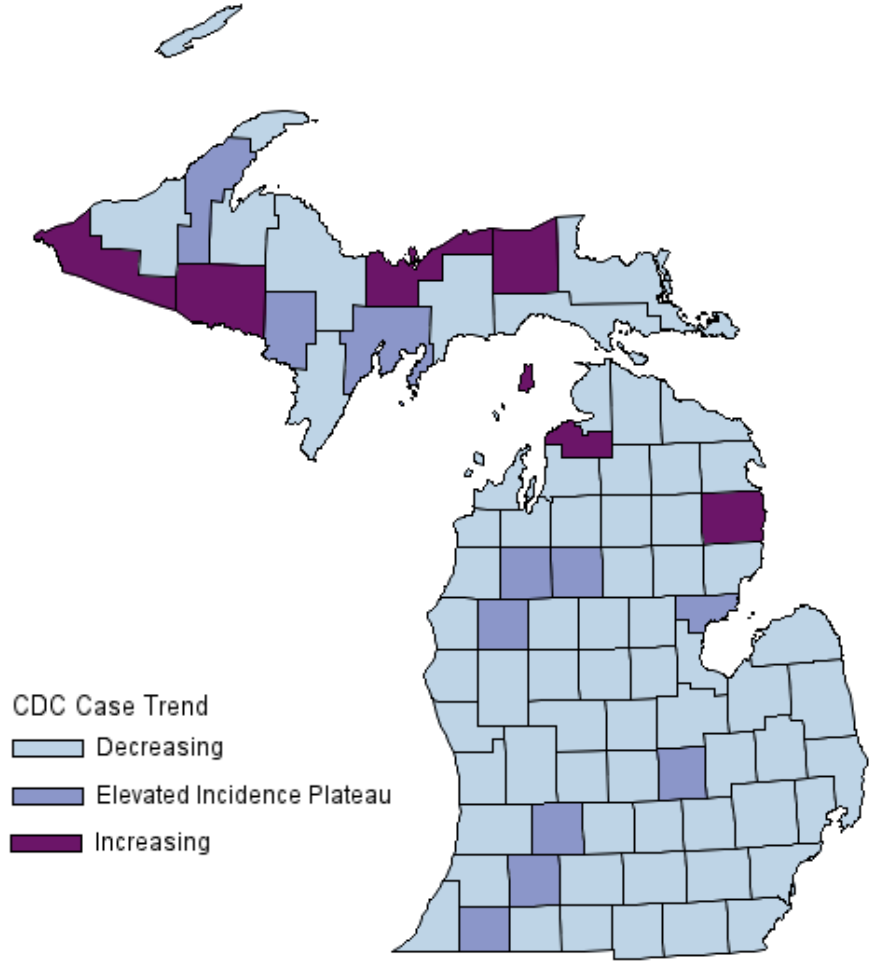


Case rates are moderately declining in Michigan





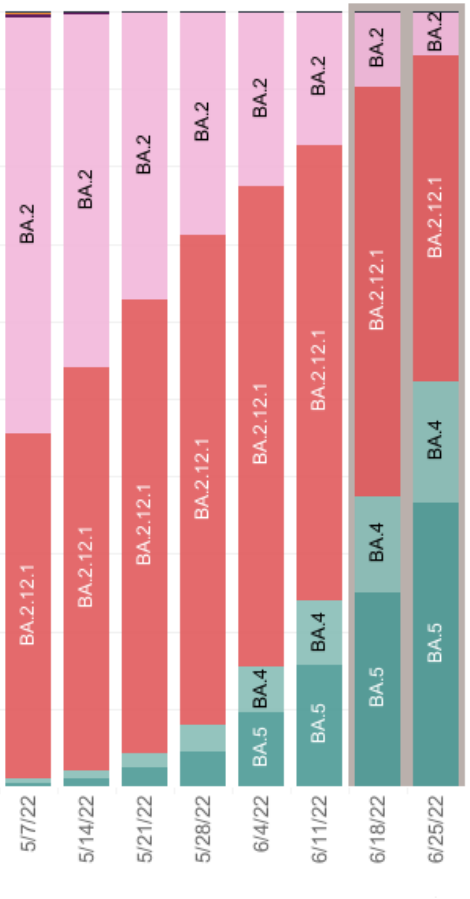
4 counties currently showing increases and 3 in elevated incidence plateaus (via mistartmap.info as of 6/27/22, data through 6/20/22).



Sources: MDSS cases plotted by onset date as of 6/24/22.

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

SARS-CoV-2 Variants Circulating in the United States, May 8 – Jun 18 (NOWCAST)

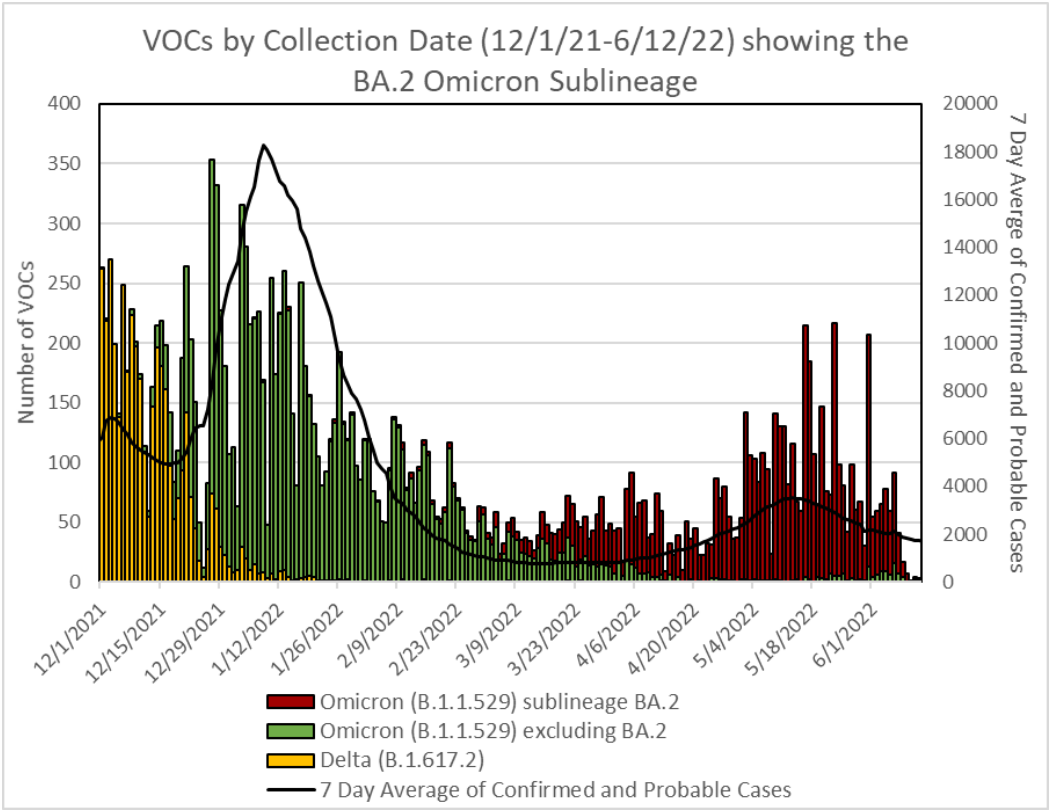


USA

WHO label	Lineage #	US Class	%Total	95%PI
Omicron	BA.2.12.1	VOC	42.0%	38.8-45.3%
	BA.5	VOC	36.6%	32.8-40.6%
	BA.4	VOC	15.7%	13.6-18.0%
	BA.2	VOC	5.7%	5.1-6.4%
	BA.1.1	VOC	0.0%	0.0-0.0%
	B.1.1.529	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. BA.5.1 is aggregated with BA.5.

VOC Distribution in Michigan

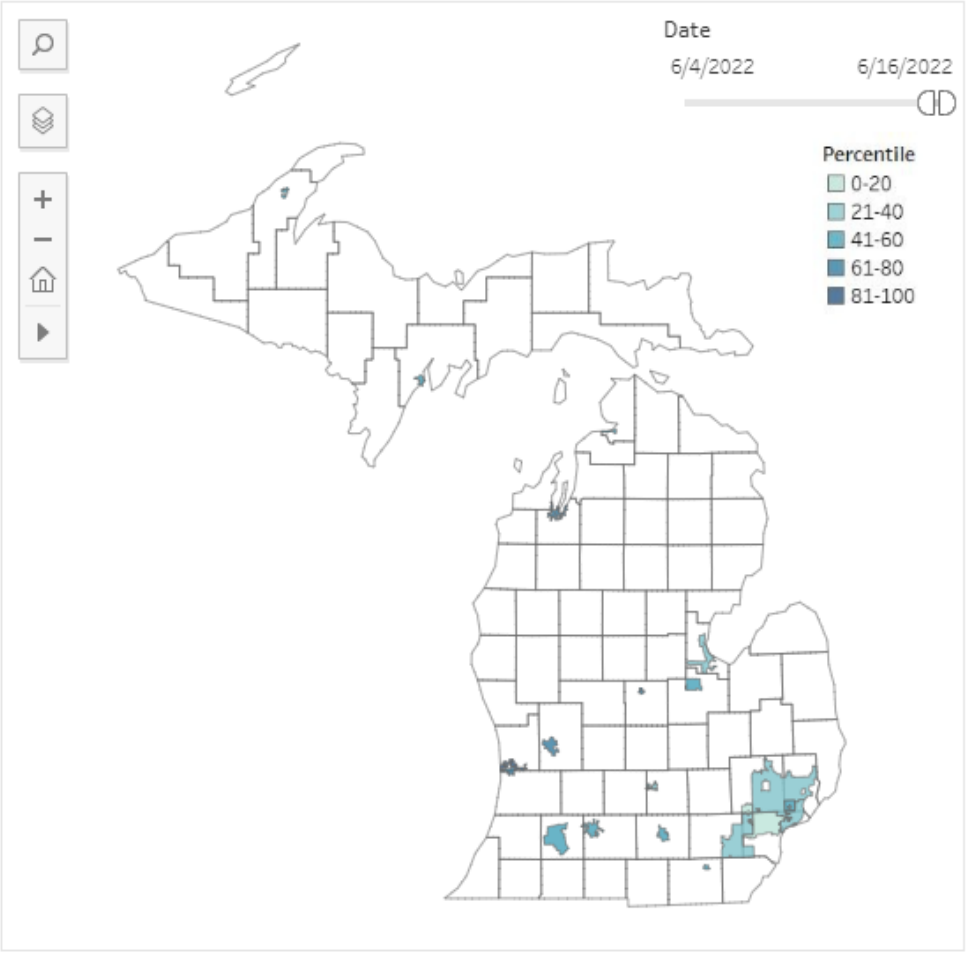


- Since May 15, there have 2,306 VOC specimens sequenced
- 100% of specimens sequenced are Omicron
  - A majority of those are BA.2 (94.6%)
  - The fraction of specimens identified as BA.4 (n=64) and BA.5 (n=61), and recombinant is increasing

Data last updated Jun 28, 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	9	6/13/2022	
Battle Creek WWTP	51093	9	6/15/2022	
Bay City WWTP	34000	0	6/15/2022	
Delhi Township WWTP	22500	11	6/9/2022	
Escanaba WWTP	12600	7	6/15/2022	
GLWA Detroit River Interce..	492000	86	6/8/2022	
GLWA North Interceptor-	1482000	63	6/8/2022	
GLWA Oakwood-	840600	86	6/8/2022	
Grand Rapids WWTP	265000	45	6/16/2022	
Holland WWTP North	45606	9	6/16/2022	
Holland WWTP South	36912	11	6/16/2022	
Jackson WWTP	90000	48	6/16/2022	
Kalamazoo WWTP	150000	12	6/16/2022	
Petoskey WWTP	7900	9	6/16/2022	
Portage Lake WWTP	14000	40	6/15/2022	
Saginaw Township WWTP	40000	10	6/15/2022	
Tecumseh WWTP	8680	23	6/16/2022	
Traverse City WWTP	45000	14	6/16/2022	
Warren WWTP	135000	8	6/9/2022	
Ypsilanti WWTP	330000	48	6/16/2022	

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 6/22/2022. 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

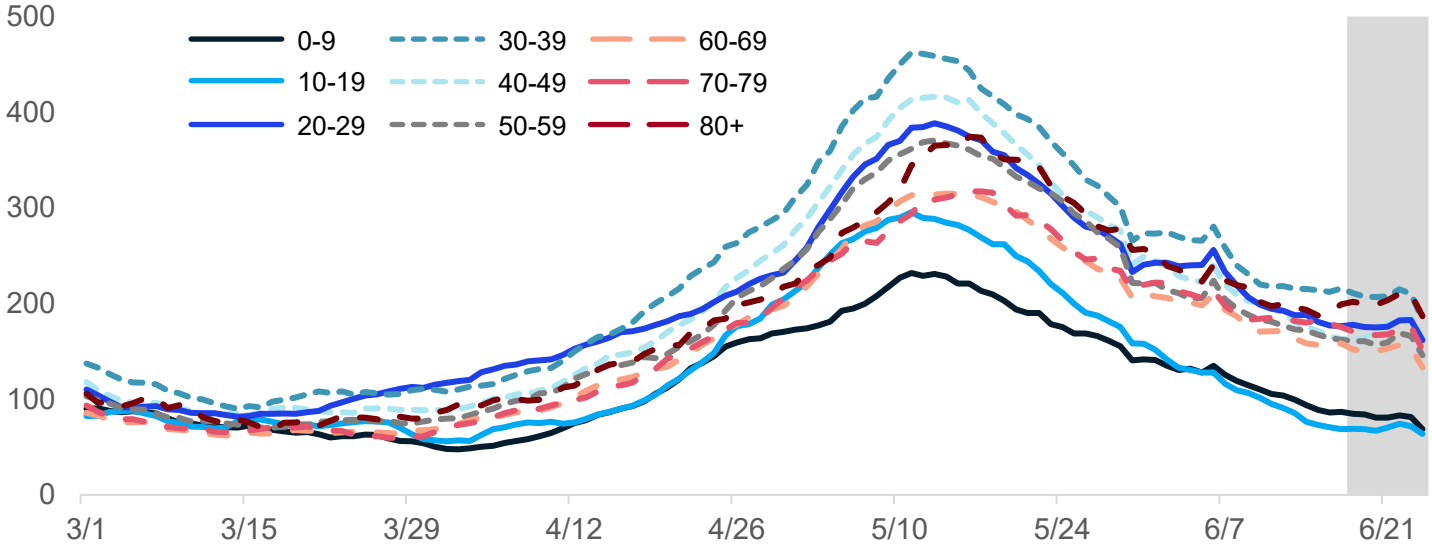
SWEEP Summary

- 30% (6/20) of sentinel sites are showing increasing trends over last 15-days
- 20% (4/20) of sites have plateaued over the last 15 days
- 50% (10/20) 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

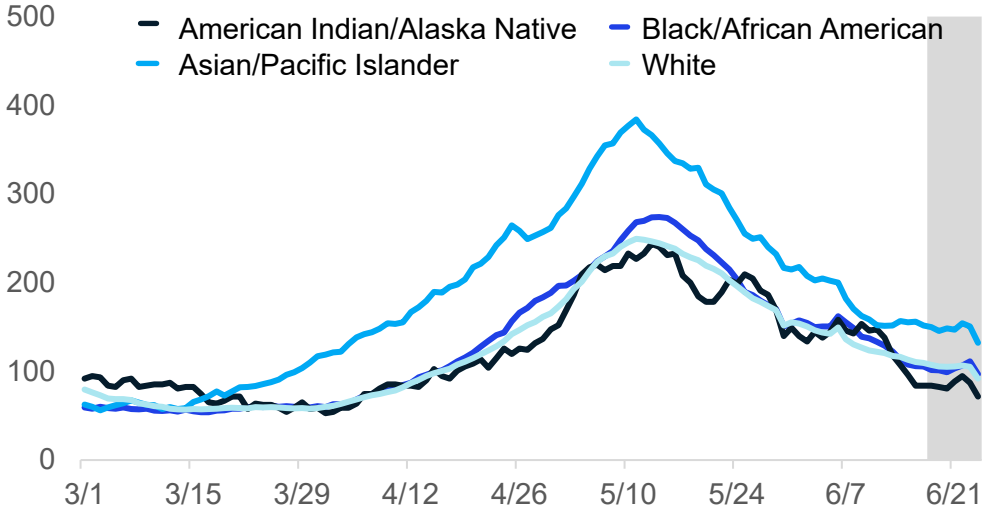
Case rate are decreasing or plateaued for all stratified groups

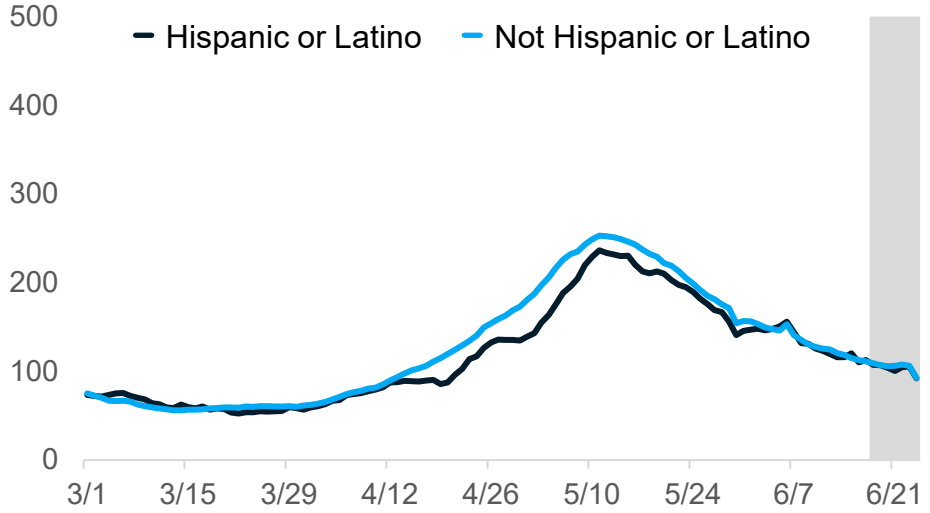
Daily new confirmed and probable cases per million by age group (7-day rolling average)



- Case rates by onset date for all age groups are between 68.6 and 215.9 cases per million (through 6/17)
- Case counts and case rates are highest for 30-39-year-olds this week, followed by 80+year-olds and the 20-29-year age groups

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



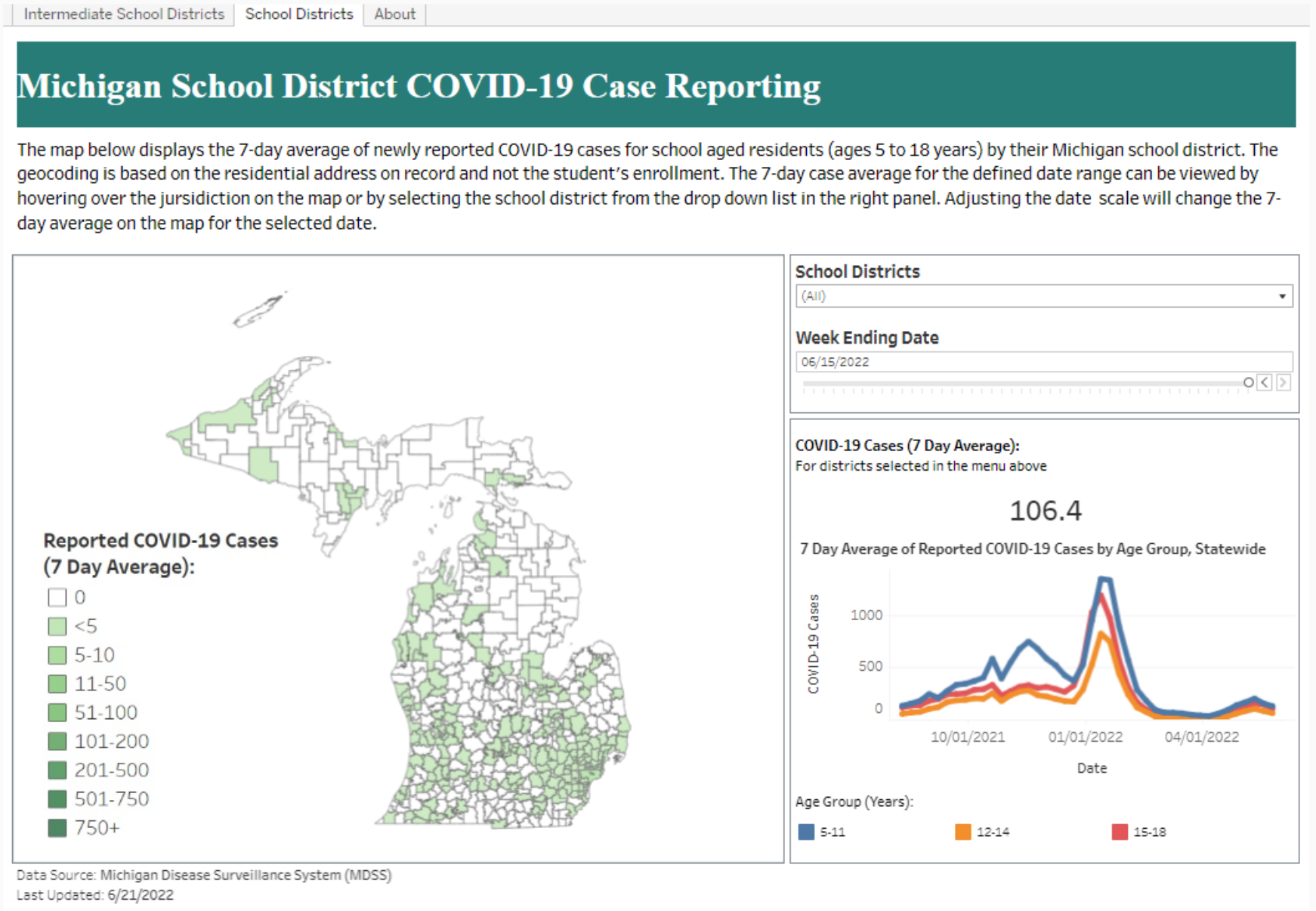


- Case rates are highest for Asian/Pacific Islander populations (151.5 cases/million)
- Between 22-27% of cases in last 30 days have missing race/ethnicity data

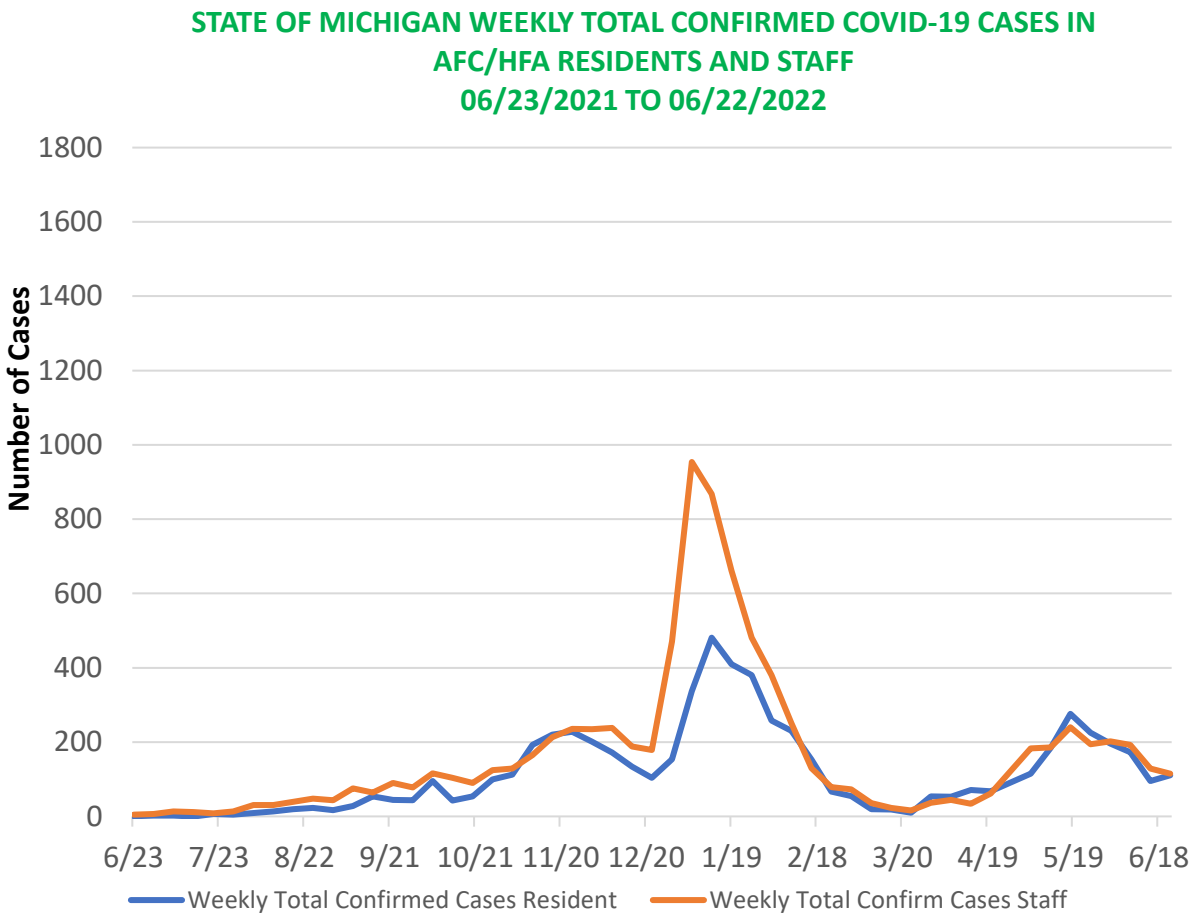
Note: Case information sourced from MDHHS and reflects date of onset of symptoms
Source: MDHHS – Michigan Disease Surveillance System

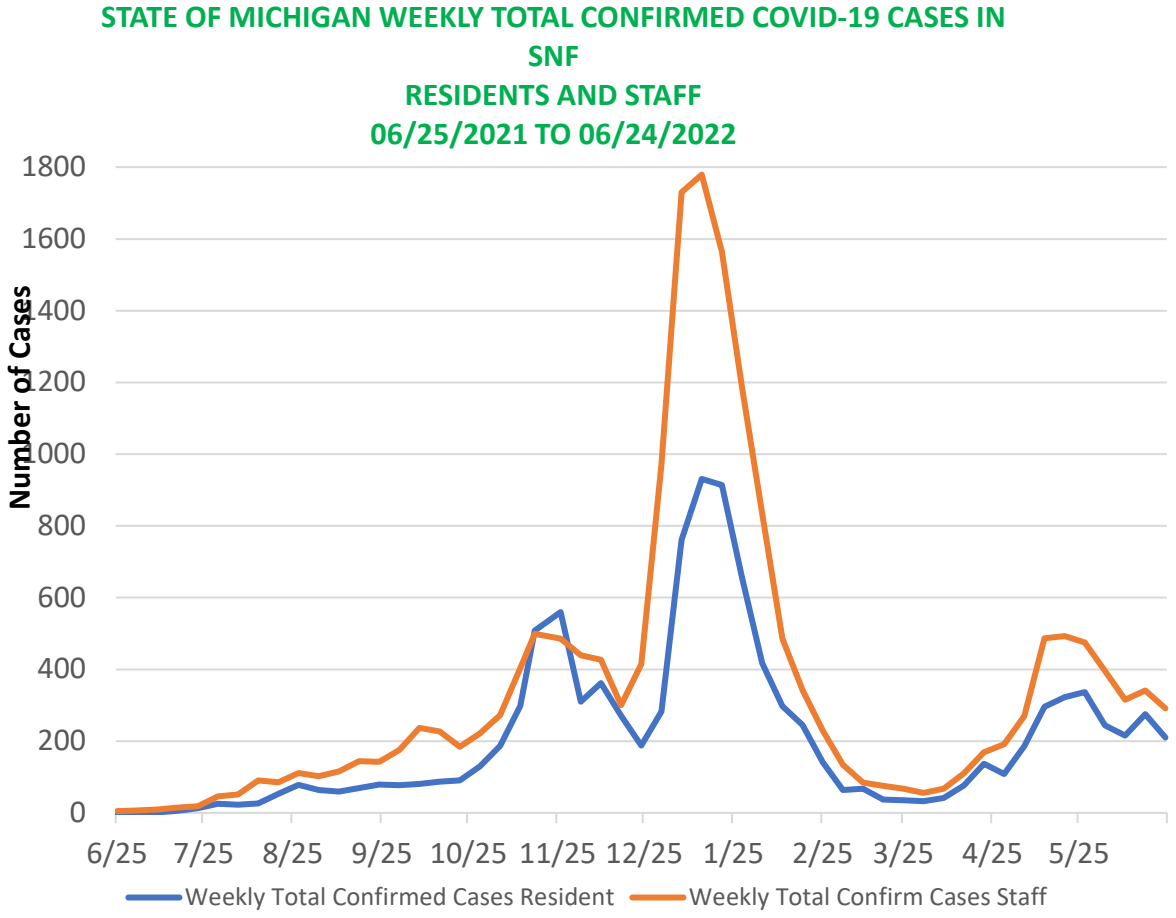
New MDHHS dashboard shows cases among K-12 age individuals by ISD & School District

- Case rates among school-aged populations show signs of decline along with other age groups
- Interactive dashboard is available & updated weekly at https://www.michigan.gov/coronavirus/stats/k-to-12-aged-isd-reporting



Cases Among Staff and Residents Experienced Signs of Plateaus and Decreases in Long Term Care Facilities



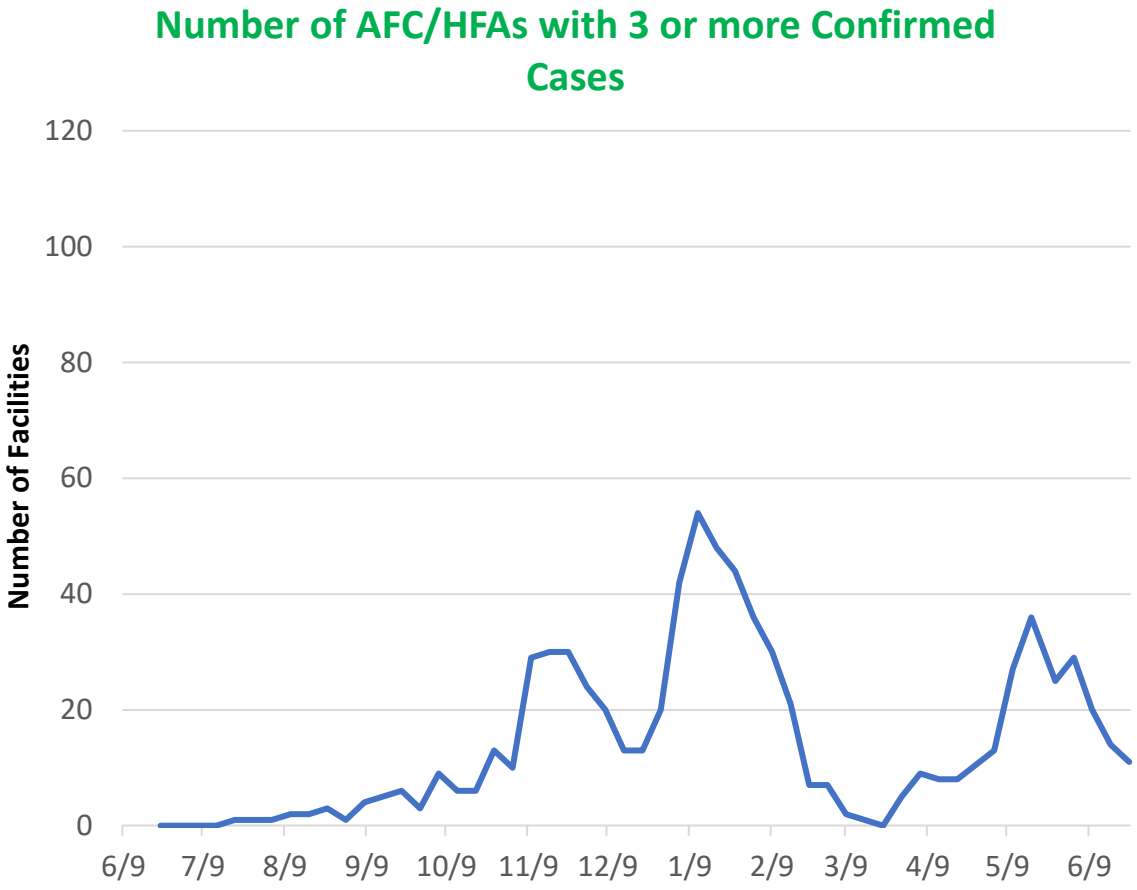


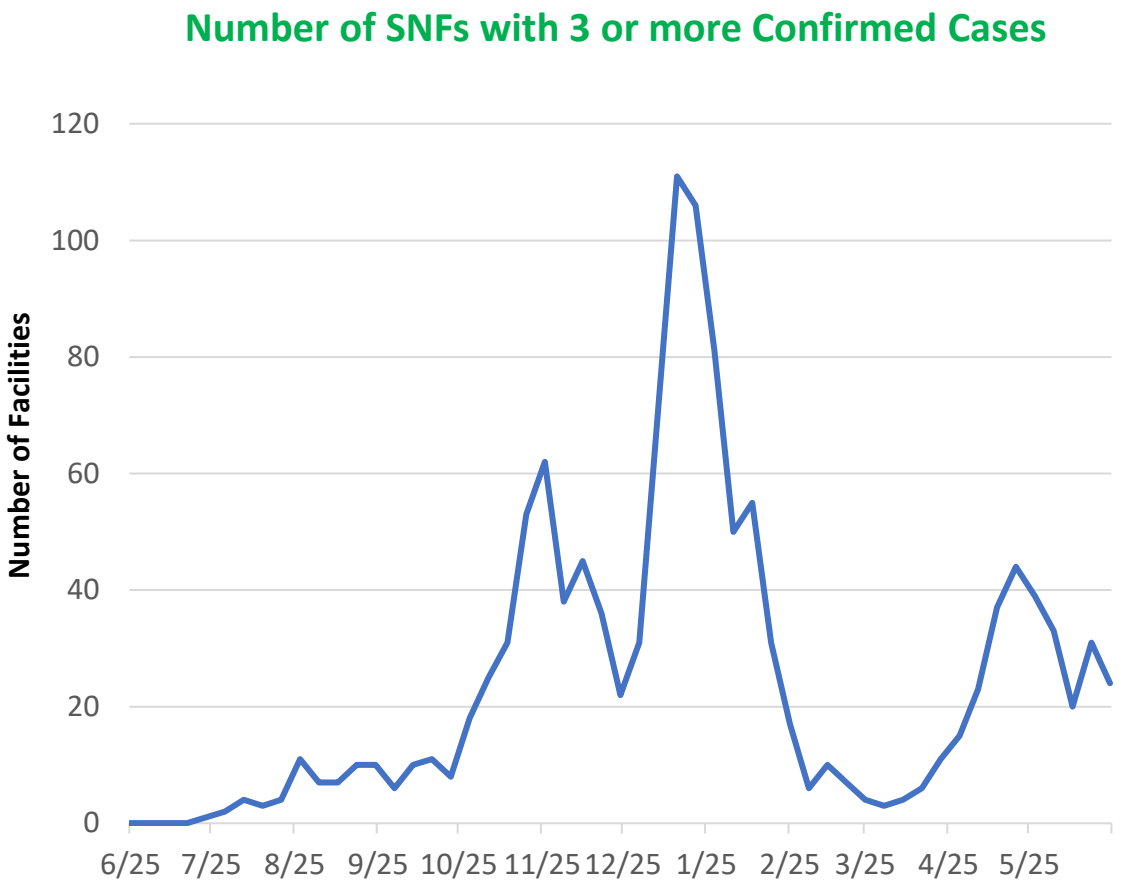
- Case counts in residents increased in AFC/HFA (95 to 111) but decreased in SNFs (275 to 210) since last week
- Case counts in staff decreased in AFC/HFA (129 to 115) and in SNFs (341 to 291) since last week
- **30%** of SNFs are reporting **nursing shortages** and **31%** of SNFs are reporting **aide shortages**, which are slightly down 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 are Decreasing

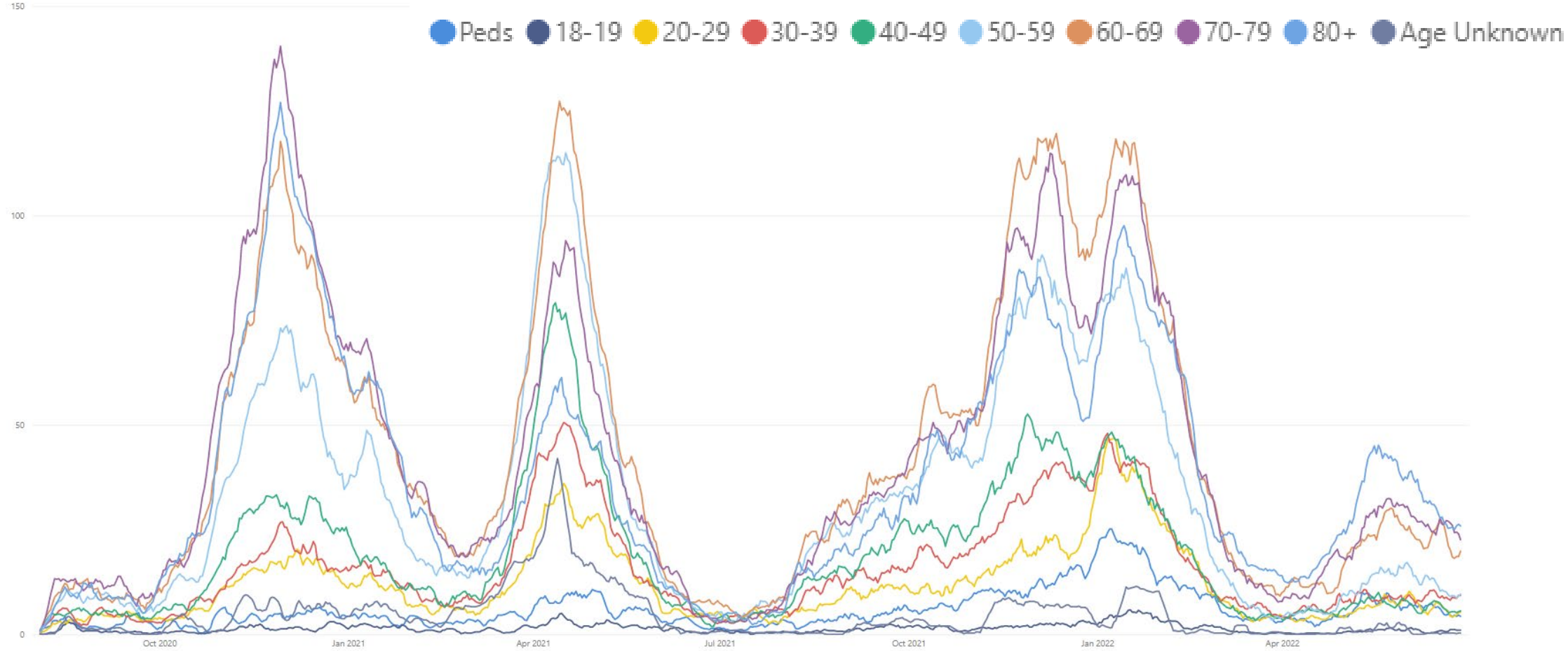




- The number of Long-Term Care Facilities reporting 3 or more cases within a single reporting period decreased in **AFC/HFA** from 14 to 11; and decreased in **SNF** from 31 to 24 in most recent data.

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

Hospital admissions due to COVID-19 remain lower than past surges and are decreasing



- Trends for daily average hospital admissions saw a continued decrease (-8%) since last week (vs. -8% prior week)
- Most reported age groups saw decreases this week
- Those 60-69, 70-79, and 80+ are seeing between 19-26 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	3.6	2.6	-0% (-0)
12-17	0.6	0.8	-33% (-<1)
18-19	1.0	3.8	+75% (+<1)
20-29	5.6	3.8	-8% (-<1)
30-39	9.3	7.7	+5% (+<1)
40-49	5.6	4.7	-7% (-<1)
50-59	9.6	7.1	-6% (-1)
60-69	**19.9**	**15.6**	-16% (-4)
70-79	**22.6**	**29.4**	-18% (-5)
80+	**25.9**	**62.4**	-0% (-0)
Total¶	**103.4**	**9.1**	**-8% (-10)**

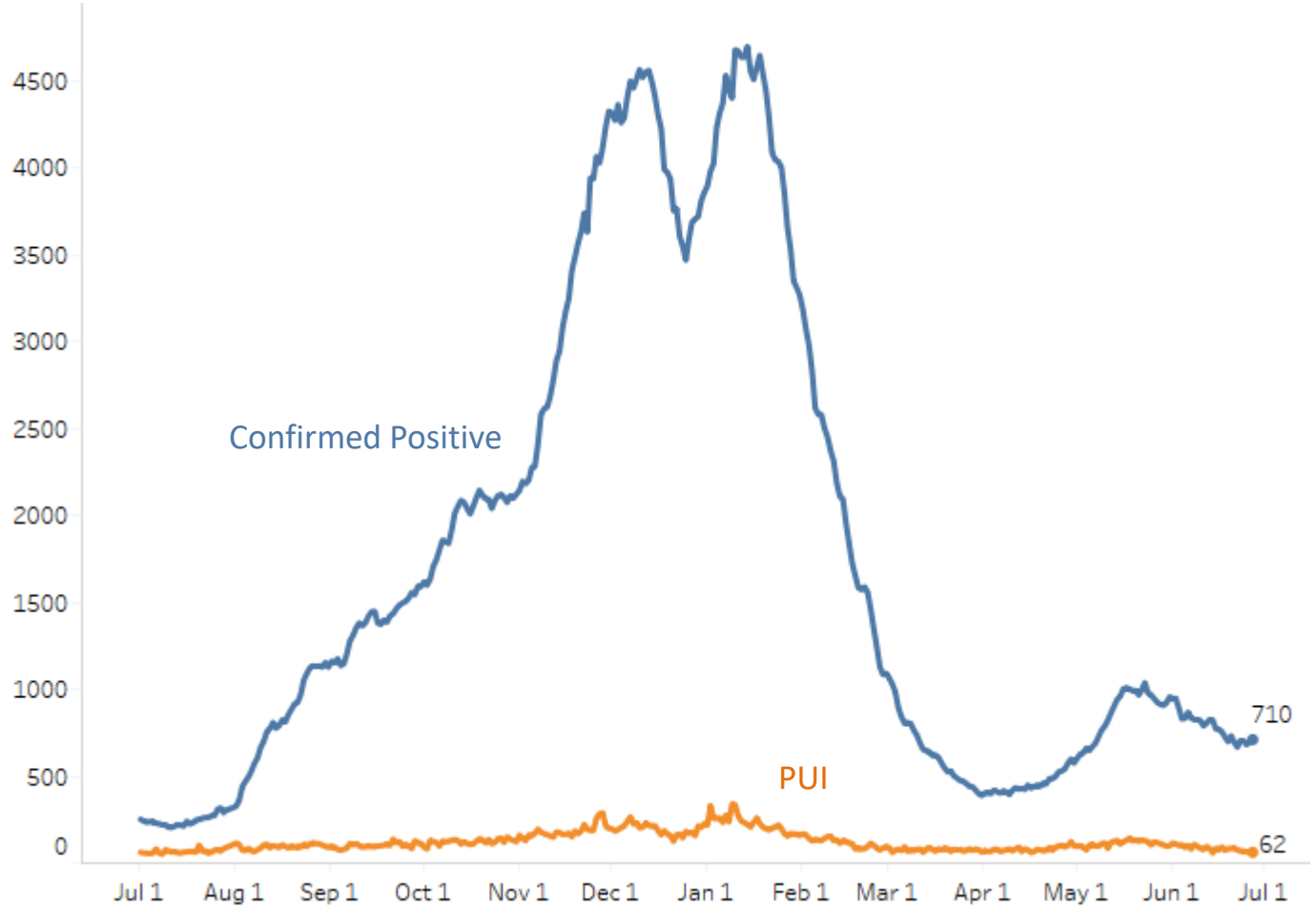
* Rate per 1 million residents; † Rolling 7-day average; ¶ Total may not reflect state due to missing age data
Note: Hospital Admission data reflects date data was submitted
Source: CHECC and EM Resource

- Through June 27, there were an average of 103.4 hospital admissions per day due to COVID-19; a decrease from last week (-8%, -10)
- Most age groups saw a decrease this week
- Of the two age groups with increases, none were more than an average of 1 additional hospital admissions per day
- Average daily hospital admission count (25.9 hospital admissions per day) and average daily hospital admission rate (62.4 hospital admissions/million) was highest among those aged 80+
- Those 60-69, 70-79, and 80+ are seeing between 19-26 daily hospital admissions

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

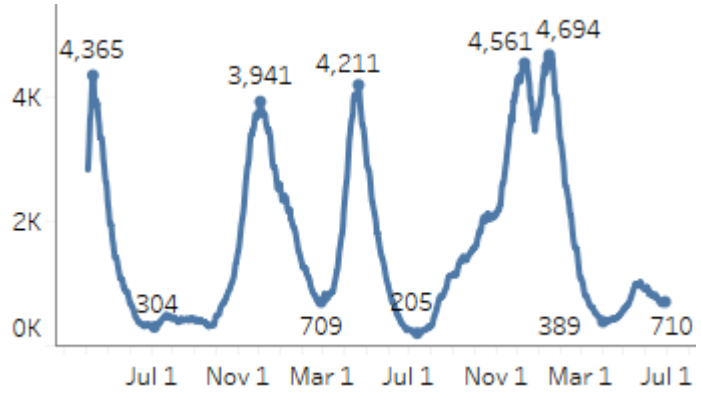
Statewide Hospitalization Trends: Total COVID+ Census

Hospitalization Trends 7/1/2021 – 6/27/2022
Confirmed Positive & Persons Under Investigation (PUI)



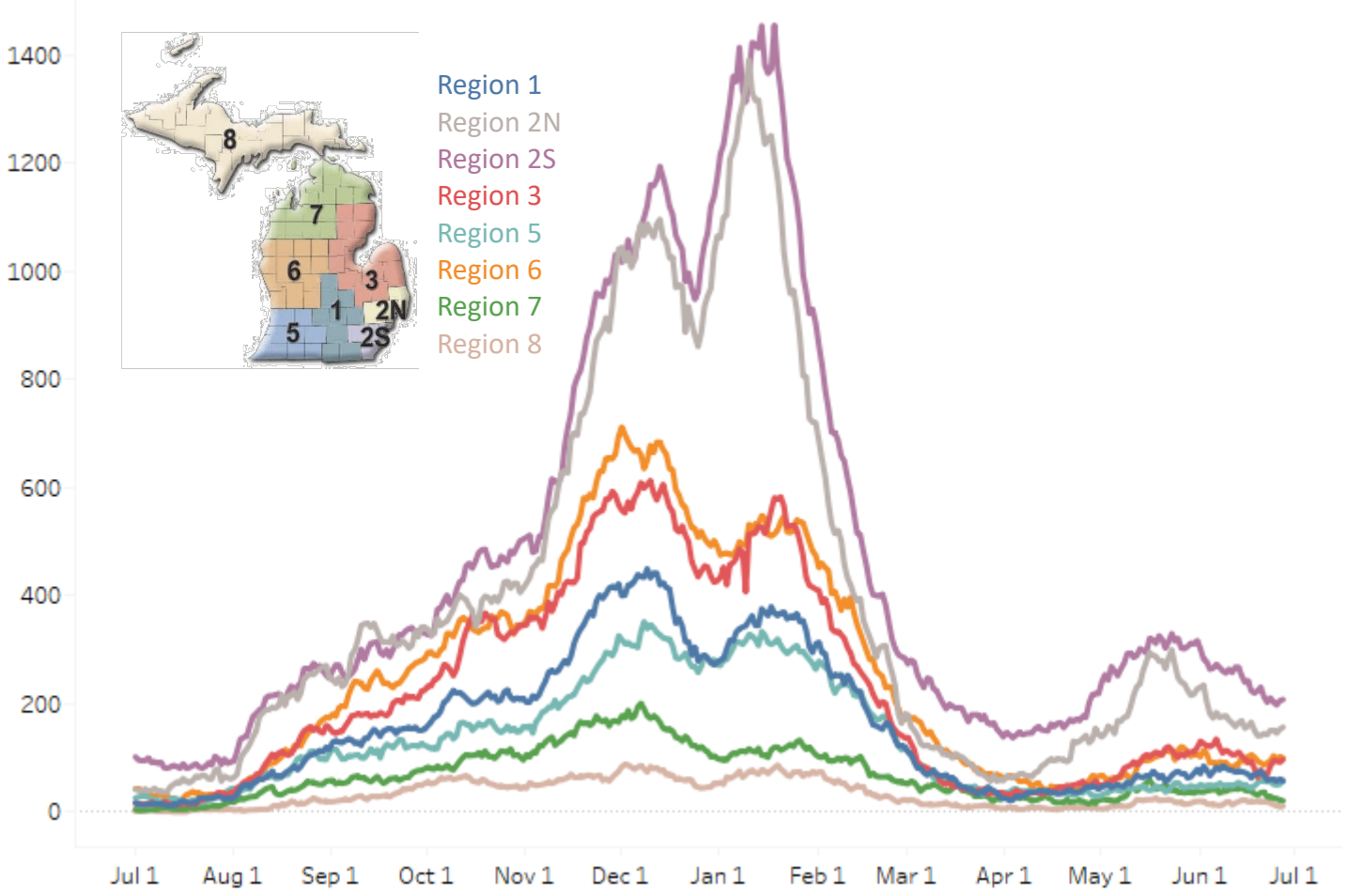
COVID+ census in hospitals has decreased by 3% from last week (last week decreased 11% from the previous week). Overall census is currently 710 patients.

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 7/1/2021 – 6/27/2022
Confirmed Positive by Region



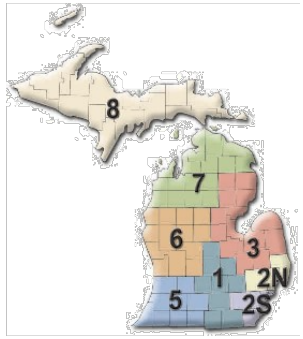
This week hospitalizations have decreased or remained flat in Regions 1, 2S, 5, 7, and 8. Hospitalizations have increased in Regions 2N, 3, and 6.

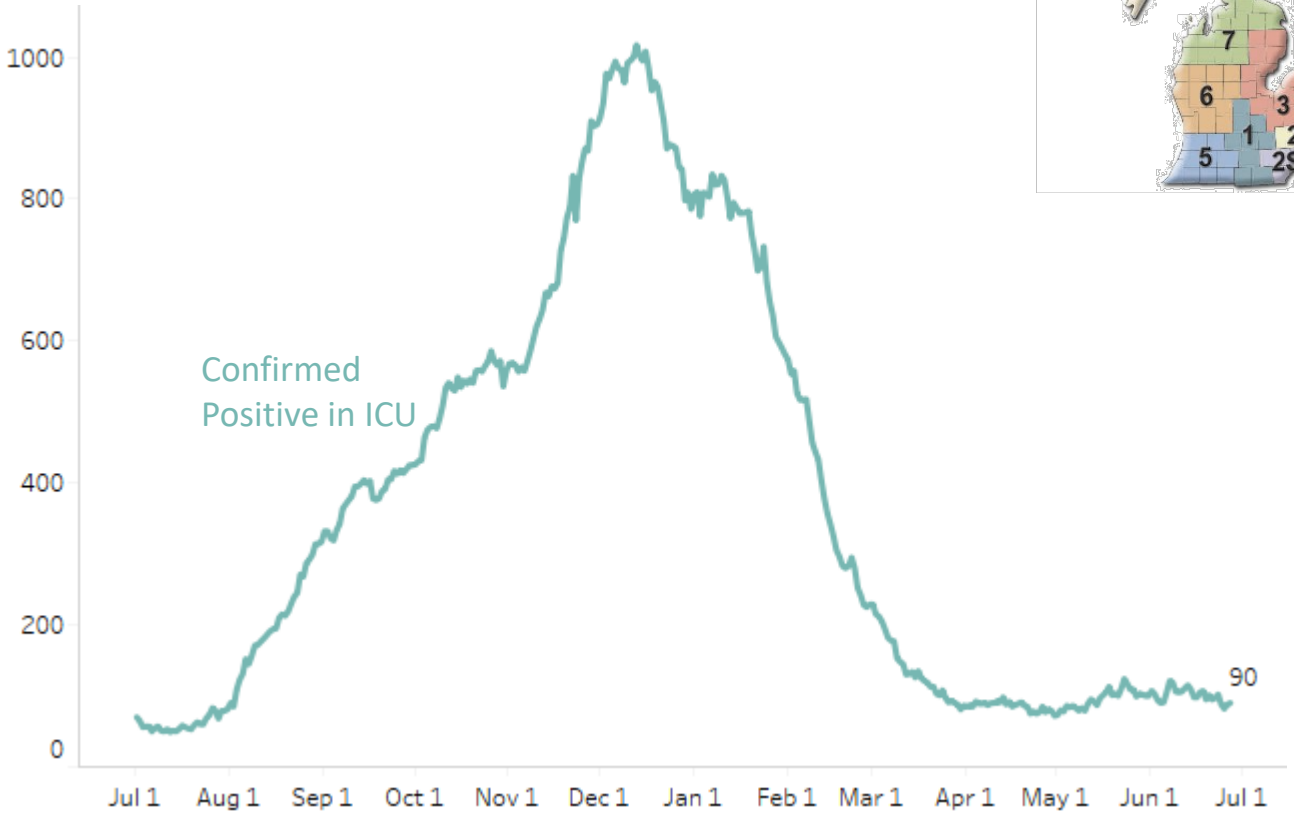
All regions have less than 100 hospitalizations/M.

Region	COVID+ Hospitalizations (% Δ from last week)	COVID+ Hospitalizations / MM
Region 1	57 (-24%)	53/M
Region 2N	157 (11%)	71/M
Region 2S	208 (-10%)	93/M
Region 3	97 (24%)	86/M
Region 5	59 (0%)	62/M
Region 6	100 (10%)	68/M
Region 7	21 (-42%)	42/M
Region 8	11 (-45%)	35/M

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 7/1/2021 – 6/27/2022
Confirmed Positive in ICUs



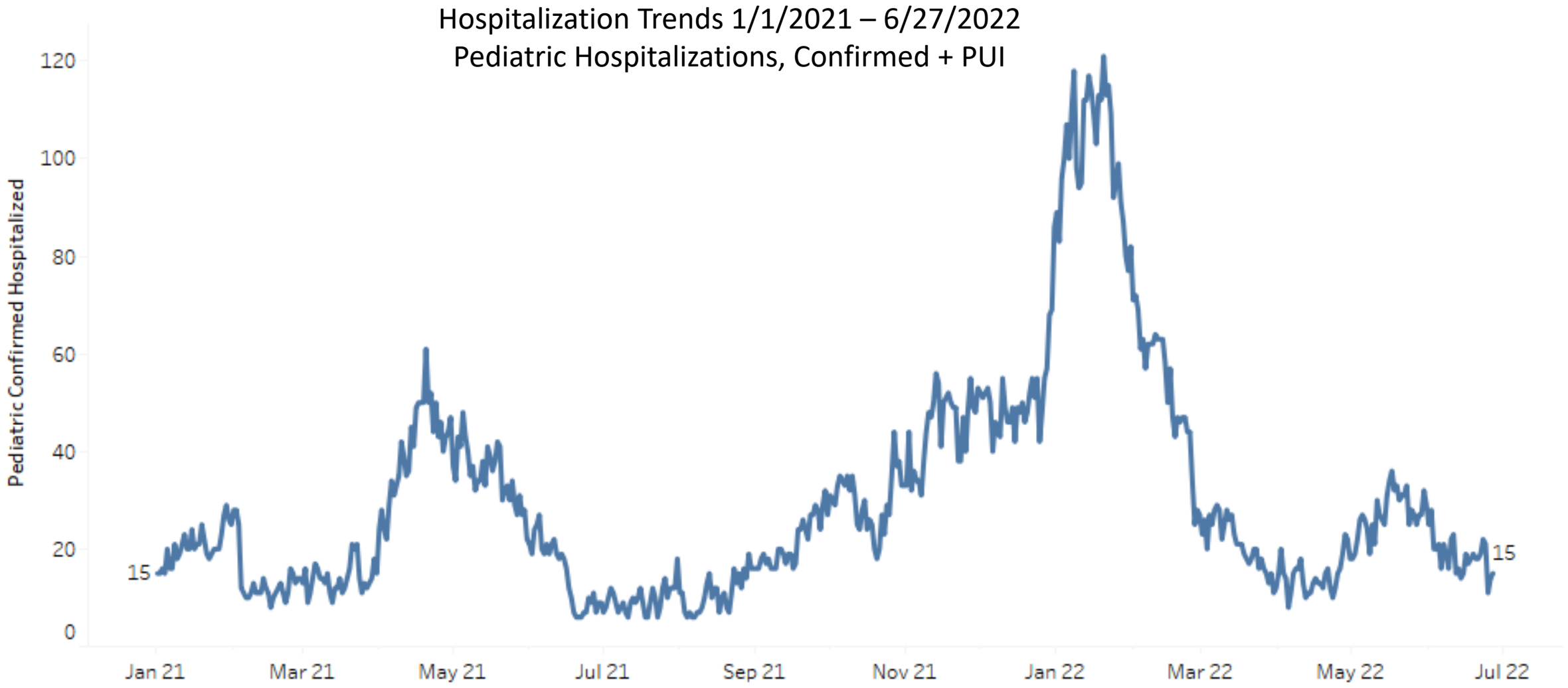


Overall, the volume of COVID+ patients in ICUs has decreased by 12% from last week. There are 90 COVID+ patients in ICU beds across the state.

COVID+ ICU census has decreased or remained flat in all regions except Region 6. ICU occupancy is below 85% in all regions. All regions have 5% or fewer ICU beds occupied by COVID+ patients.

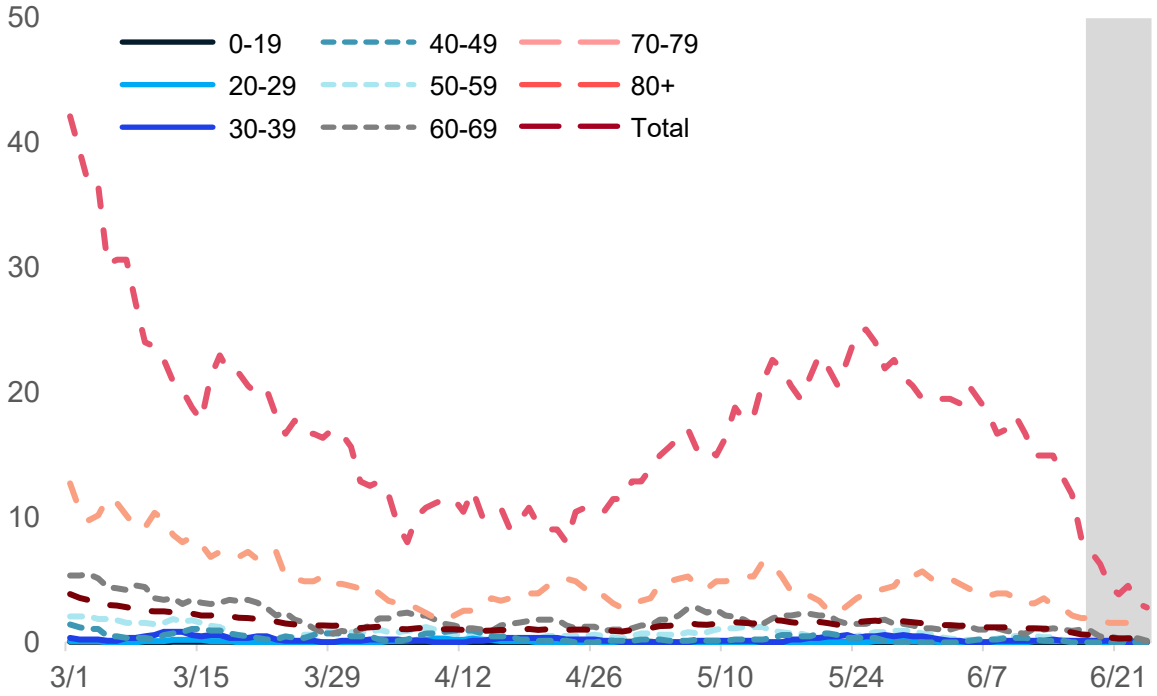
Region	Adult COVID+ in ICU (% Δ from last week)	ICU Occupancy	% of ICU beds COVID+
Region 1	7 (-22%)	82%	4%
Region 2N	15 (-29%)	67%	3%
Region 2S	32 (-6%)	81%	5%
Region 3	14 (-7%)	83%	5%
Region 5	9 (-25%)	66%	5%
Region 6	7 (133%)	74%	3%
Region 7	3 (-40%)	72%	2%
Region 8	3 (0%)	57%	5%

Statewide Hospitalization Trends: Pediatric COVID+ Census



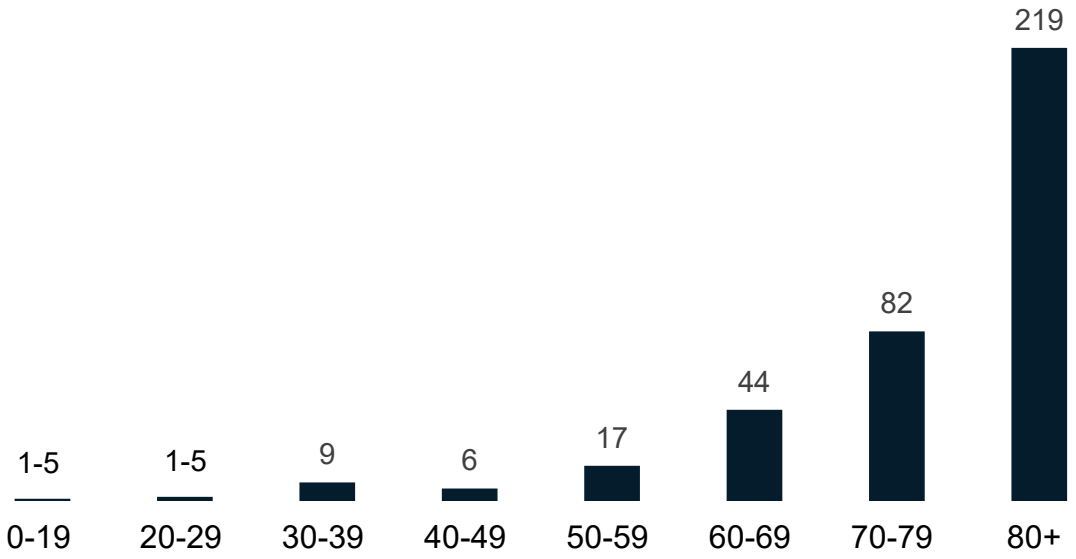
Average new deaths have decreased for those over the age of 80

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 6/17/2022)

- 9.2% of deaths below age sixty

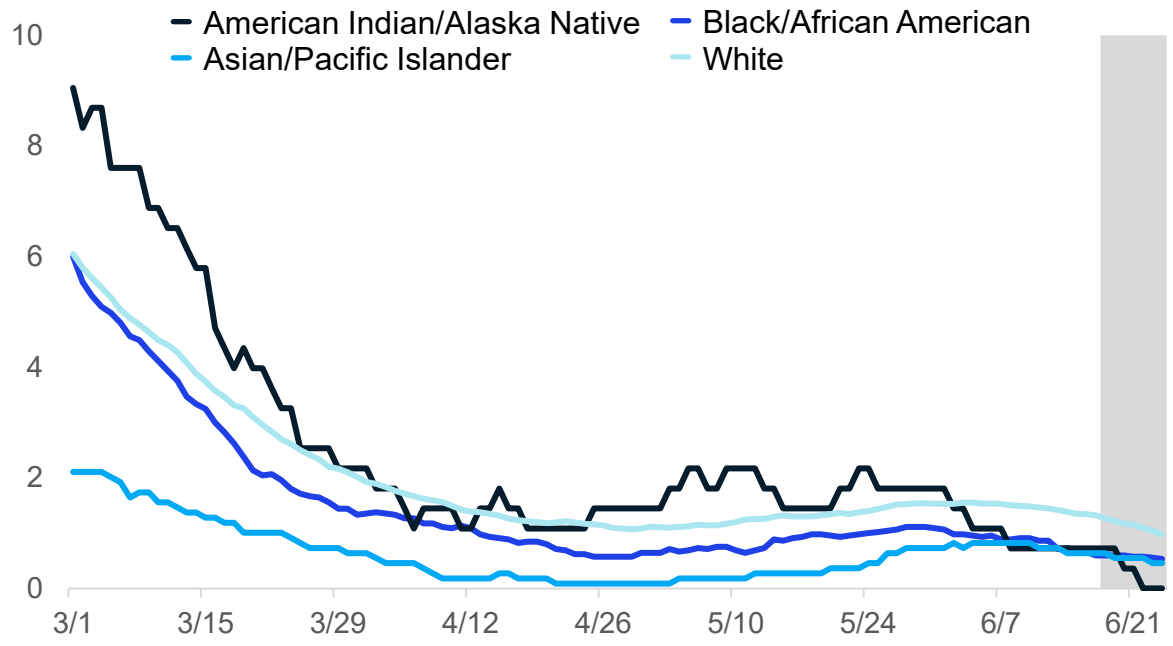


- Through 6/17, the 7-day avg. death rate has decreased (3.4 deaths per million people) for those over the age of 80
- In the past 30 days, there are fewer than 15 among confirmed and probable COVID-19 cases under the age of 40
- 30-day proportion of deaths among those under 60 years of age is 9.2%. This proportion has decreased incrementally over the last 6 weeks (last week 10.3%)

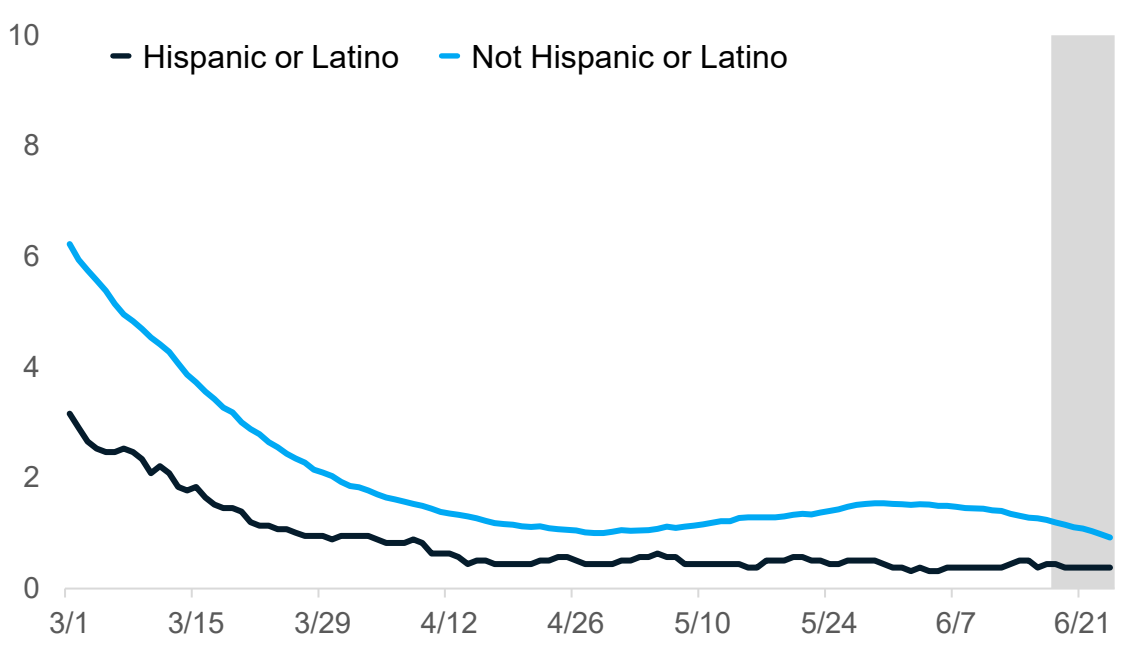
Note: Death information sourced from MDHHS and reflects date of death of confirmed and probable cases.
Source: MDHHS – Michigan Disease Surveillance System (MDSS)

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 White population has the highest death rate (1.3 deaths/million)

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

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 increased dramatically since April but have decreased with declining cases and hospitalizations
  - Talk to your doctor about whether you should get antibody or antiviral treatment, and where you can find treatment.
  - 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 (67.4%)
  - 55.1% of fully vaccinated Michiganders have received at least one booster
  - 26.4% of people in Michigan (567K+) with a first booster dose have received a second booster dose

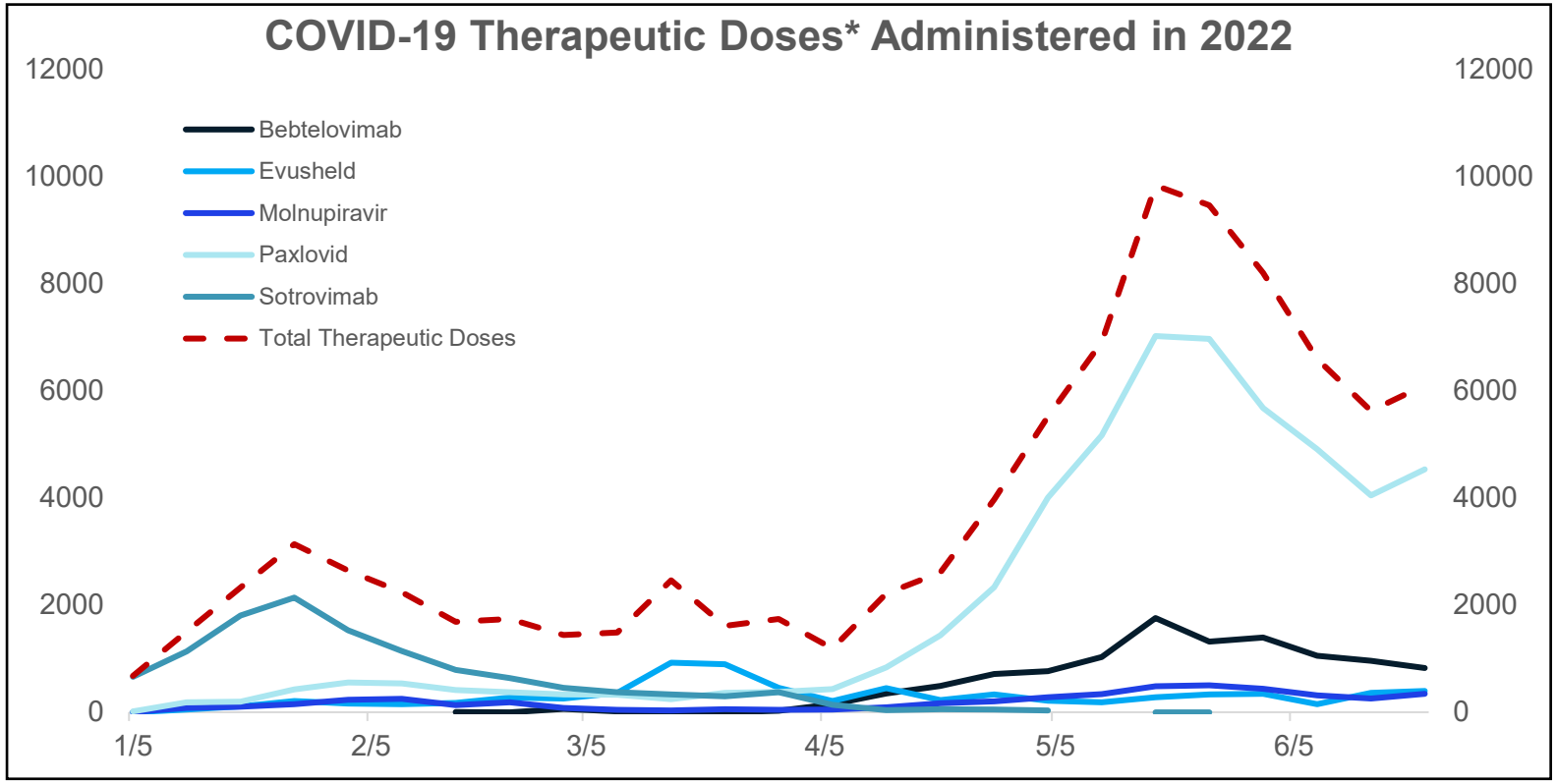
- Improving ventilation in schools can help reduce spread of COVID-19
  - School-based strategies to improve ventilation are associated with reduced incidence of COVID-19 in schools.
  - Substantial federal resources are available to improve ventilation in schools

Federal & Michigan websites assist COVID positive residents find treatment

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

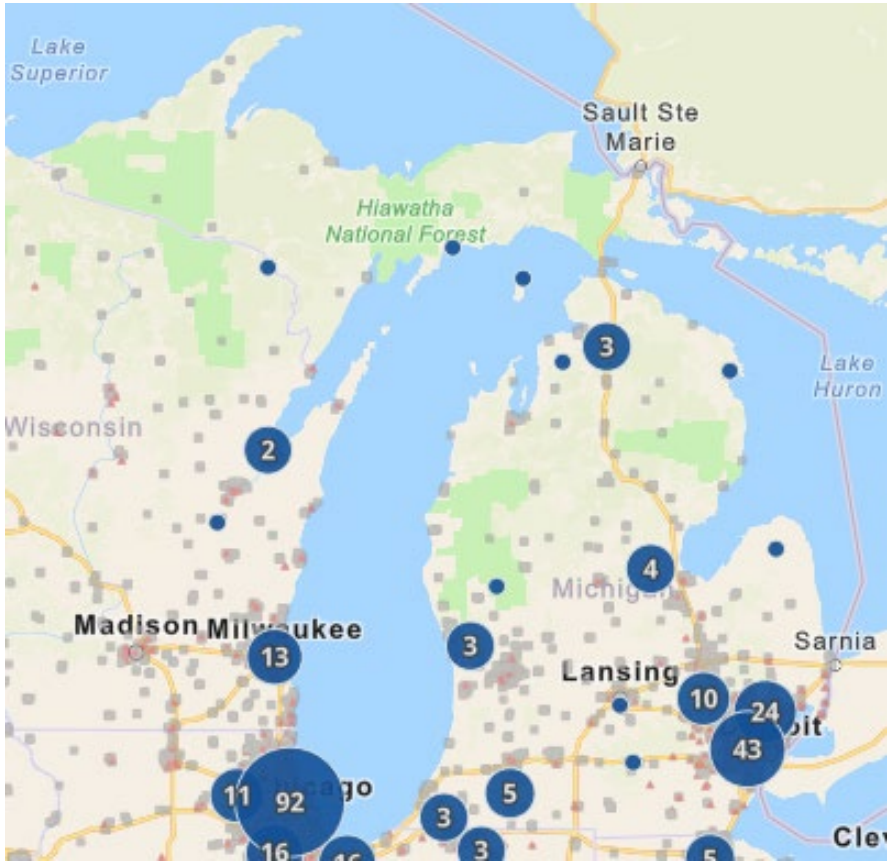
Test-to-Treat program simplifies access to COVID treatment: [Find a Test-to-Treat location near you]

- 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: HHS – Tiberius

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



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.

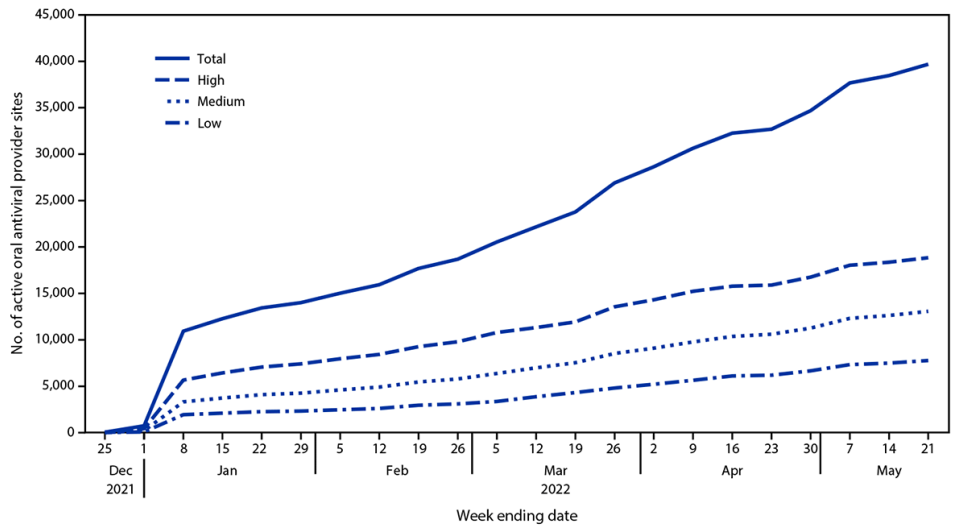
Dispensing of Oral Antiviral Drugs for Treatment of COVID-19 by Zip Code–Level Social Vulnerability — United States, December 23, 2021–May 21, 2022

- 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

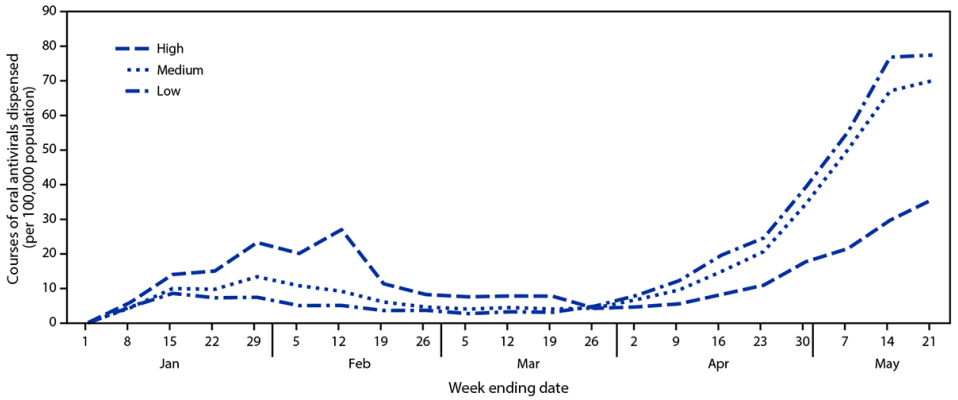
- Additional public health, regulatory, and policy efforts might help decrease barriers to oral antiviral access, particularly in communities with high social vulnerability

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*

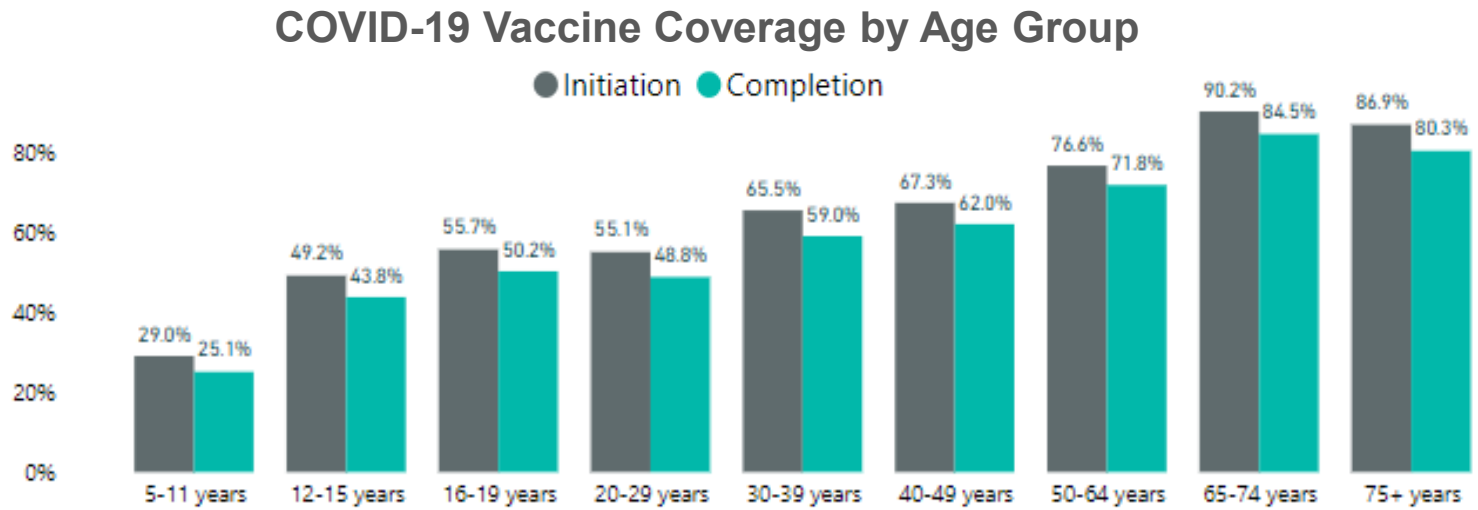


* The week ending December 25, 2021, is not shown because no oral antiviral dispensing was reported during that week. Zip codes were classified as having low, medium, or high social vulnerability based on ranking within the lower, middle, and upper tertiles of the Equitable Distribution Index score.

Source: 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

Vaccinations and Boosters

- Over 16.2 million COVID-19 vaccine doses have been administered in Michigan
  - Over 6.7 million Michiganders have received at least one dose (67.4%)
  - Over 6 million Michiganders have completed a primary series (60.6%)
  - Over 3.3 million additional/booster doses have been administered in Michigan
    - 55.1% of the fully vaccinated population has received a booster
    - 77.3% of the fully vaccinated population 65 years of age or older has received a booster
  - Nearly 567,146 Michiganders 50 years of age or older who have received a first booster dose have received second booster (26.4%)



https://www.michigan.gov/coronavirus/0,9753,7-406-98178_103214_103272-547150--,00.html

https://covid.cdc.gov/covid-data-tracker/#vaccinations

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.

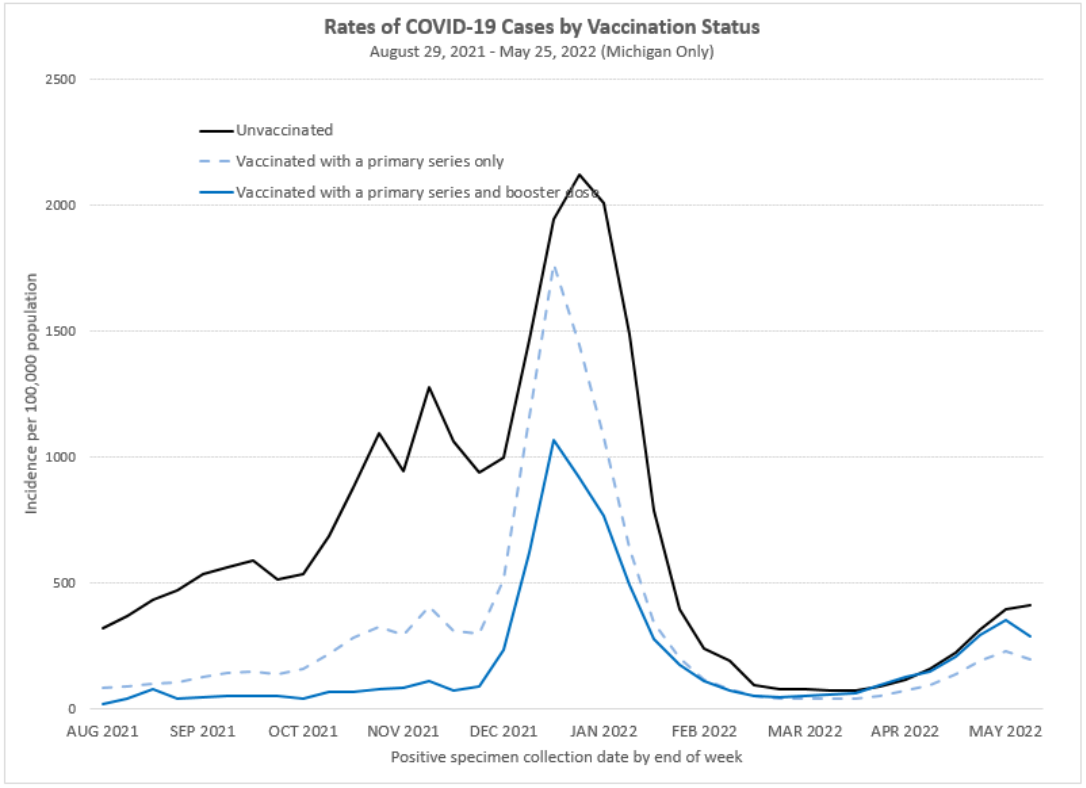
More than **4,000** providers across Michigan can administer the COVID-19 kids vaccine, including:

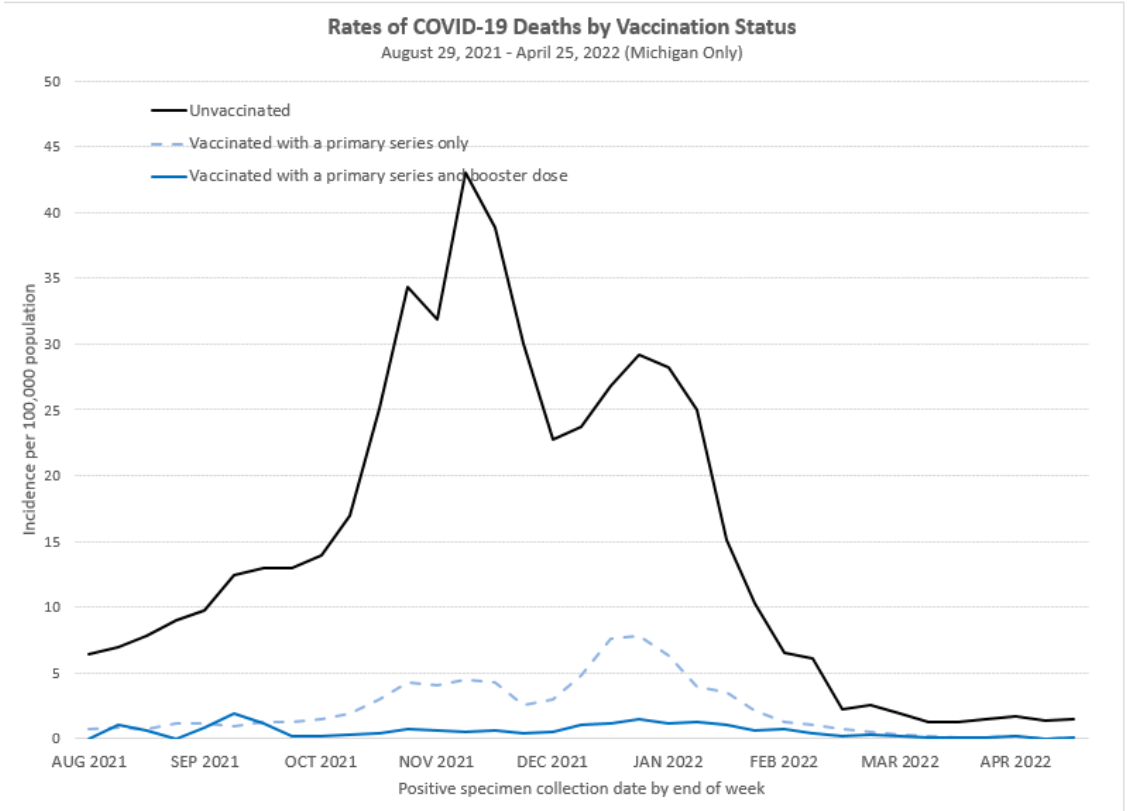
- Family physicians and pediatricians
- Some pharmacies (ages 3+)
- Local health departments and federally qualified health centers
- Urgent cares (ages 5+)

MDHHS
Michigan Department of Health & Human Services

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

Unvaccinated people in Michigan had 33 times the risk of dying from COVID-19 in April compared to people up to date on their vaccination





Unvaccinated people aged 12 years and older had:

1.0 X
Risk of Testing Positive for COVID-19

AND

33 X
Risk of Dying from COVID-19

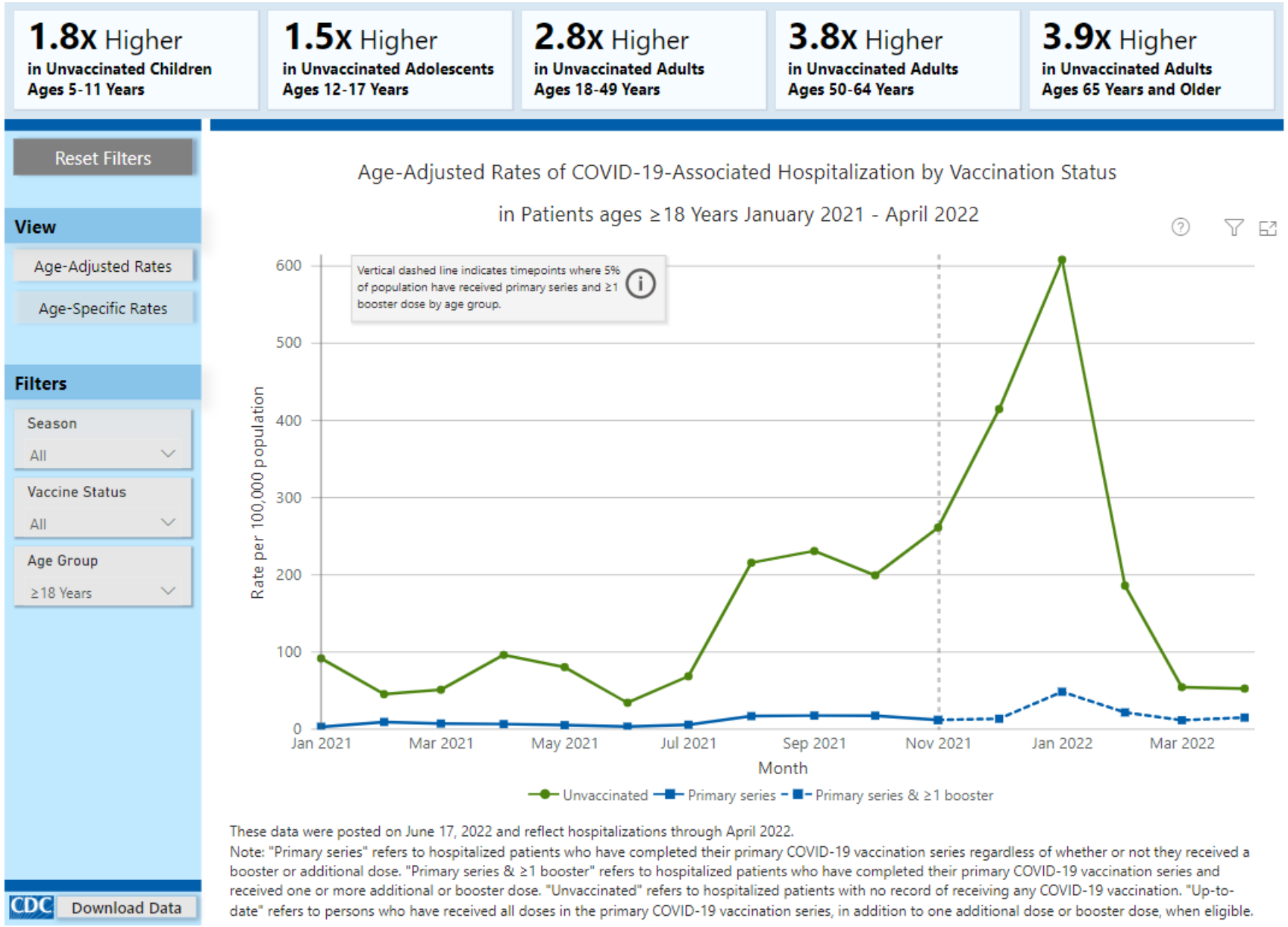
in April, and

1.2 X
Risk of Testing Positive for COVID-19

in May,* 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 March 19, 2022, and deaths among persons with a positive specimen collection date through February 26, 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 3.6 times the risk of hospitalizations from COVID-19 in April compared to people up to date on their vaccination



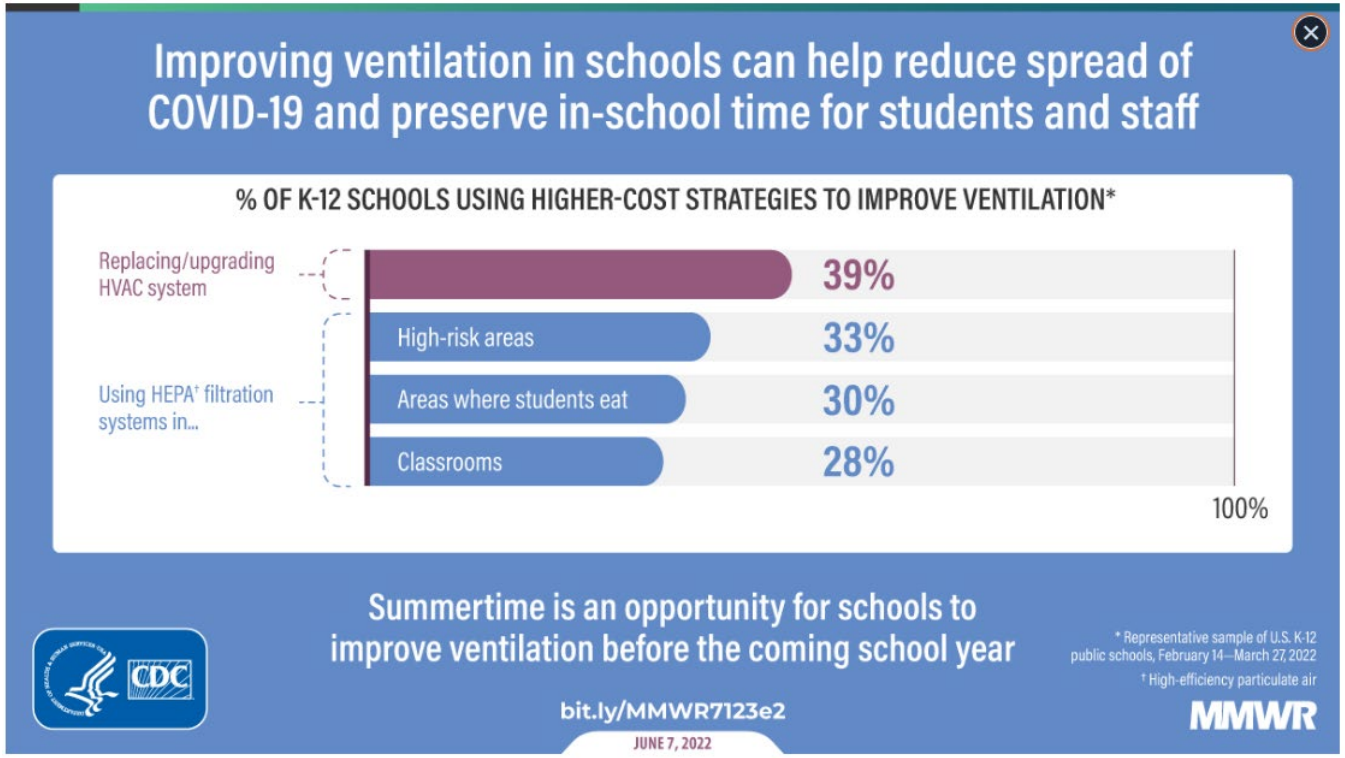
CDC Study: Improving ventilation can help reduce spread of COVID-19. Summertime is an opportunity for schools to improve ventilation before the coming school year.

Ventilation Improvement Strategies Among K–12 Public Schools — The National School COVID-19 Prevention Study, United States, February 14–March 27, 2022

What is already known about this topic?
School-based strategies to improve ventilation are associated with reduced incidence of COVID-19 in schools. Substantial federal resources are available to improve ventilation in schools.

What is added by this report?
Among a nationally representative sample of U.S. K–12 public schools, higher-cost and resource-intensive ventilation improvement strategies, such as using portable high-efficiency particular air (HEPA) filtration systems in classrooms were less frequently reported. Overall, rural and mid-poverty schools were the least likely to report implementing several resource-intensive ventilation strategies.

What are the implications for public health practice?
Ensuring use of ventilation improvement resources might reduce transmission of SARS-CoV-2 and other infectious diseases in schools. Focusing support on schools least likely to have implemented resource-intensive ventilation strategies might facilitate equitable implementation.



Citation: Pampati S, Rasberry CN, McConnell L, et al. Ventilation Improvement Strategies Among K–12 Public Schools — The National School COVID-19 Prevention Study, United States, February 14–March 27, 2022. MMWR Morb Mortal Wkly Rep 2022;71:770–775. DOI: http://dx.doi.org/10.15585/mmwr.mm7123e2

Make a COVID-19 Plan

MDHHS
Michigan Department of Health & Human Services

Visit Michigan.gov/Coronavirus for current COVID-19 information.

Make a plan for vaccination or learn if you are eligible for boosters.

- Ages 6 months and older can get vaccinated.
- Ages 5 and older can get the booster.
- Ages 50 and older, or 12 and older and moderately to severely immunocompromised, can schedule a second booster.

Learn more about vaccines and whether you're up to date at Michigan.gov/COVIDVaccine.

Keep a supply of well-fitting masks.

Masks are helpful tools to reduce COVID-19 transmission, especially if:

- You are unwell or test positive for COVID-19.
- You have been exposed to someone with COVID-19.
- You are concerned about the risk of transmission in a particular setting. Respect that others may have a risk different than yours.

Learn more about masking at Michigan.gov/MaskUp.

Keep a supply of over-the-counter COVID-19 tests.

Tests are useful for early detection of COVID-19, especially if:

- You have symptoms of or have been exposed to COVID-19.
- You are traveling or will be attending a large or unmasked gathering. Test before and after attending large events.

Over-the-counter tests are available at libraries and schools through MIbackpack, also through federal distribution programs.

Learn more about COVID-19 testing at Michigan.gov/COVIDTest.

Learn if you are eligible for COVID-19 therapeutics.

- Talk to a primary care provider about whether you are eligible for preventative antibodies or for COVID-19 antiviral treatment if you become infected.

Learn more about COVID-19 therapeutics at Michigan.gov/COVIDTherapy.

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

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

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

- 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 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.

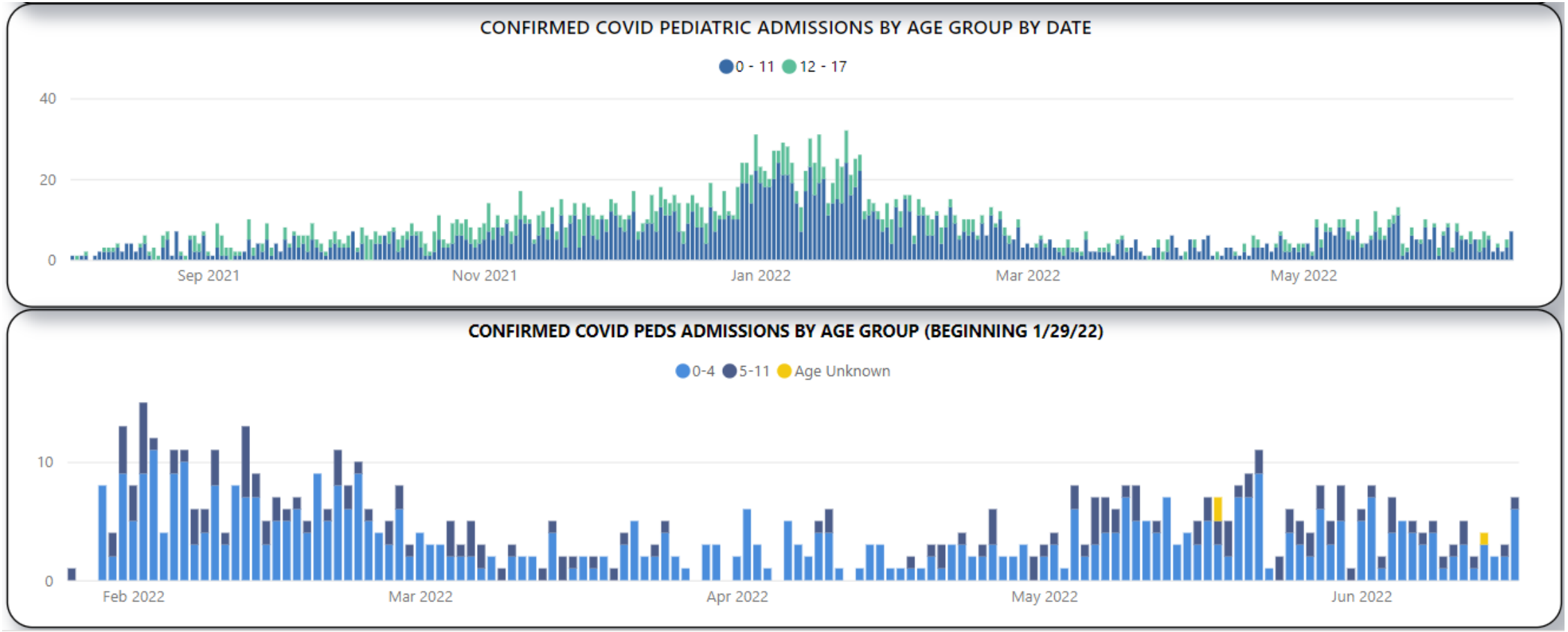
More than **4,000** providers across Michigan can administer the COVID-19 kids vaccine, including:

- 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



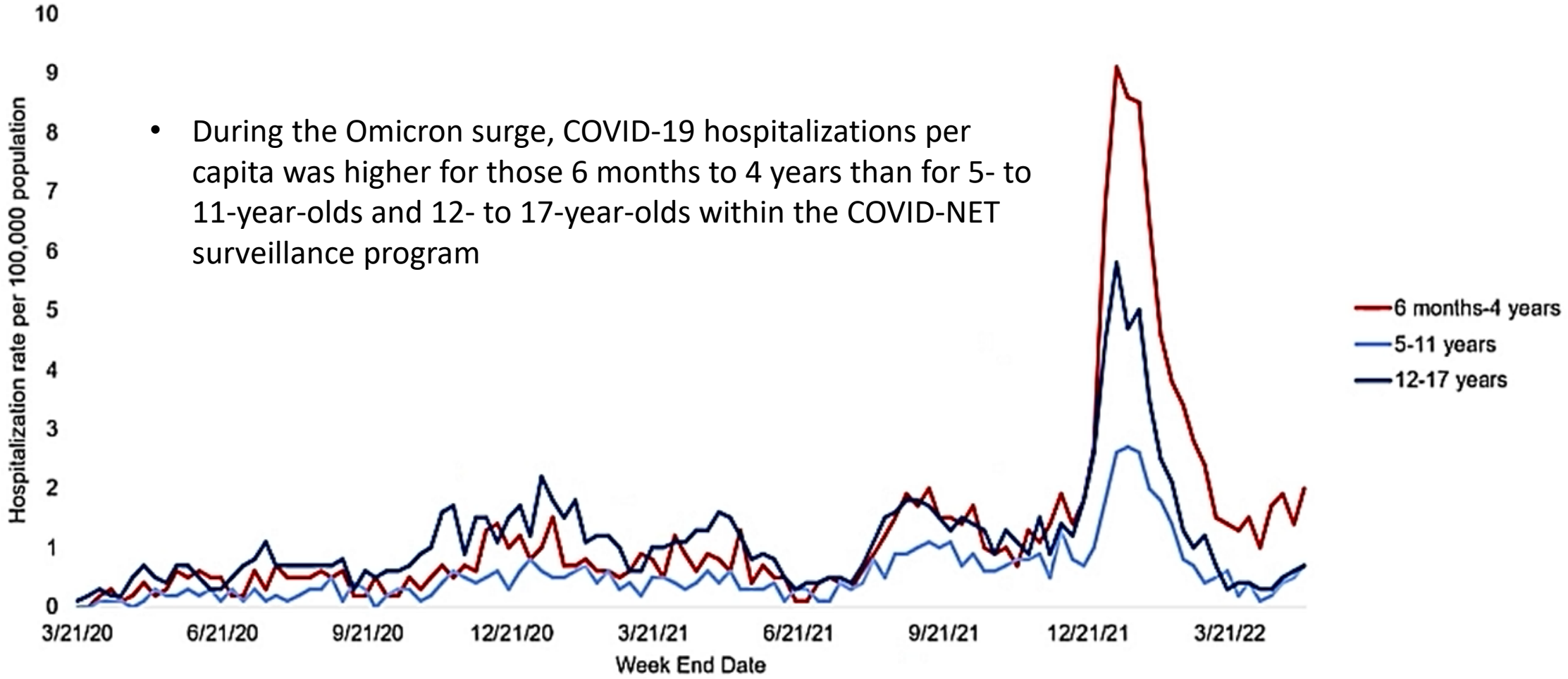
- Hospital admissions reflect statewide infection trends where admissions are higher during surges of SARS-CoV-2 transmission
- Among those under 18 years of age, the majority of hospital admissions occurred in those 0-11 in Michigan
- Among those under 12 years of age, the majority of hospital admissions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

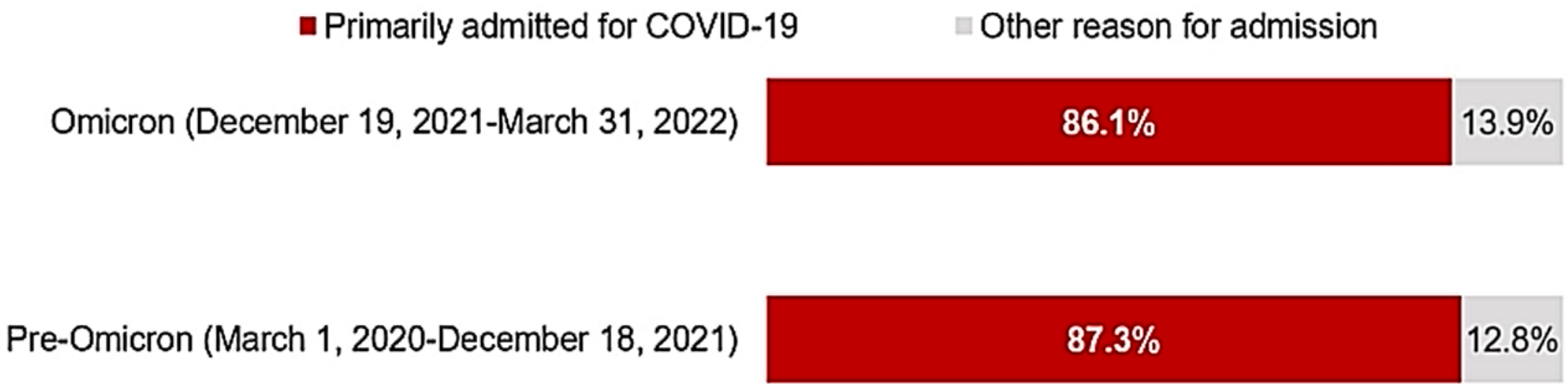


Reported by the CDC at the Meeting of the Advisory Committee on Immunization Practices (ACIP) to discuss immunizations for 6 months to 5 years (Moderna and Pfizer), June 22-23, 2022

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

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

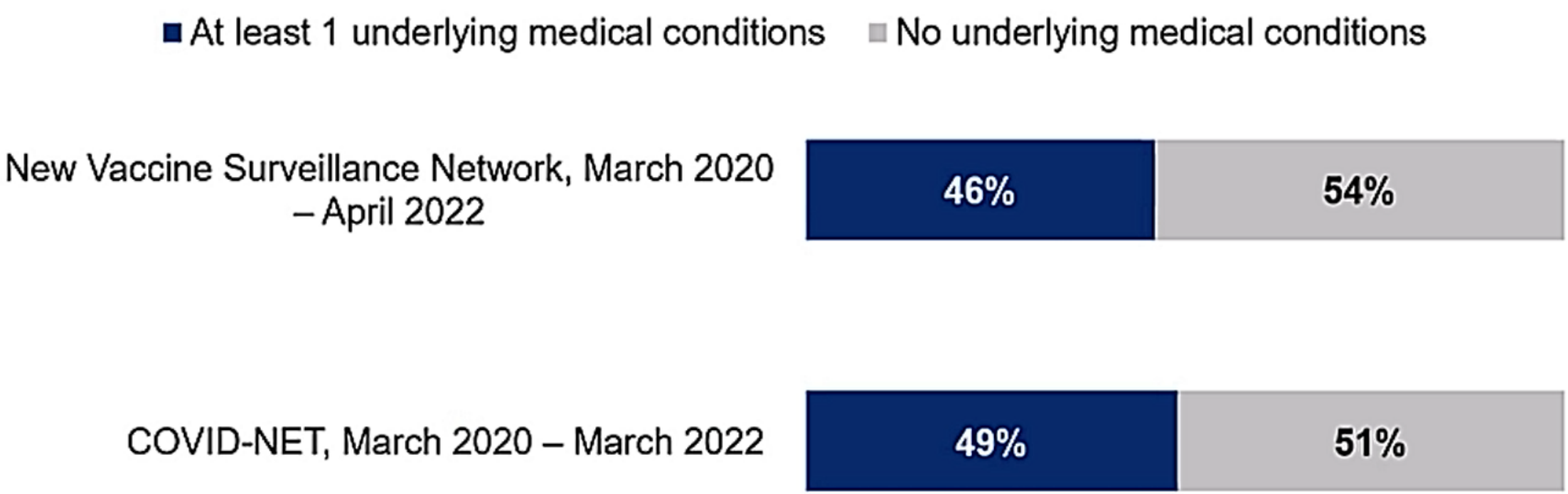


All children in COVID-NET had a positive SARS-CoV-2 test within 14 days of or during hospital admission. "Primarily admitted for COVID-19" was defined based on the "Reason for admission" field from the case report form. If the chief complaint or history of present illness in the medical chart documents 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

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

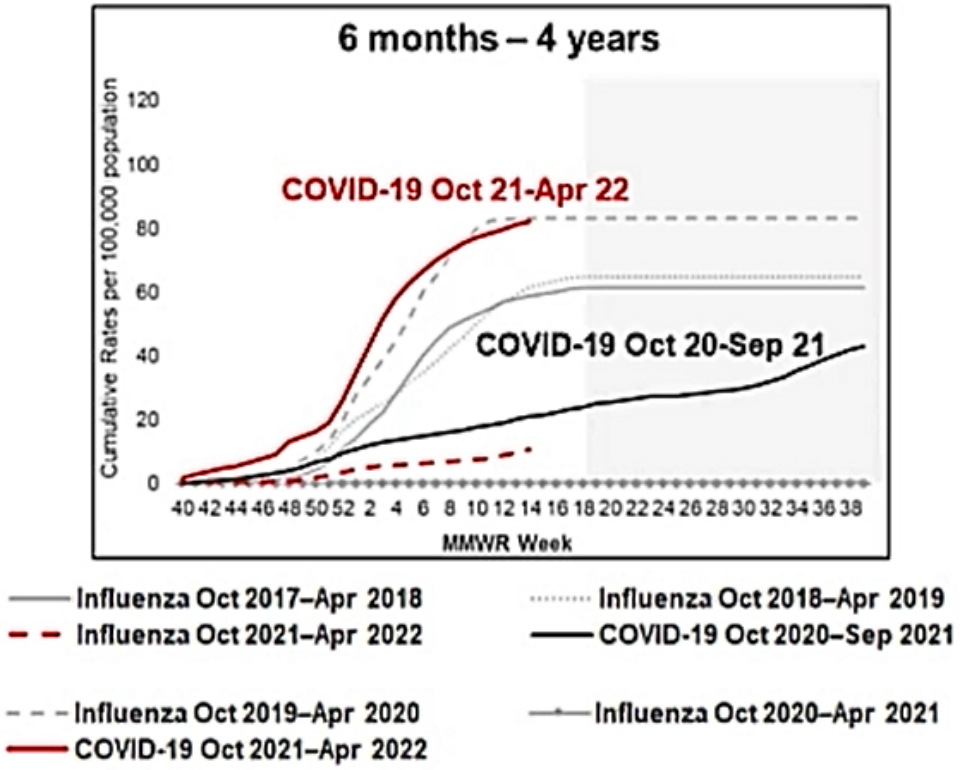


Source: 1. New Vaccine Surveillance Network. Preliminary data as of May 25, 2022, reflecting data from March 2020–April 2022

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

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.

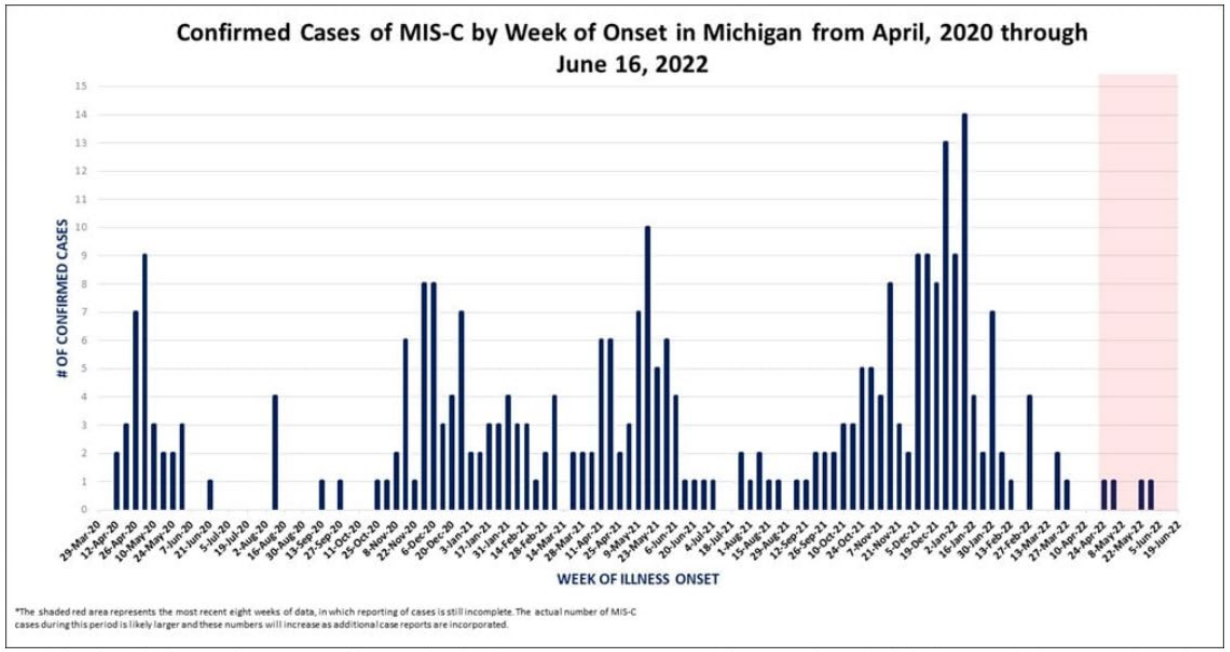
[5] Vaccine-type invasive pneumococcal disease annual rate for children <5 years in 1998-1999 was 80 per 100,000, of which about 50% were hospitalized.

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

Multisystem Inflammatory Syndrome in Children (MIS-C)

Michigan Surveillance

- Higher community transmissions is followed by higher incidence of MIS-C cases
- 302 cases identified in Michigan: highest numbers have occurred after most recent omicron surge
- More than 70% of those children are elementary and pre-school aged
- Black/African American children are disproportionately impacted
- 65.6% (192) children with MIS-C are treated in the ICU



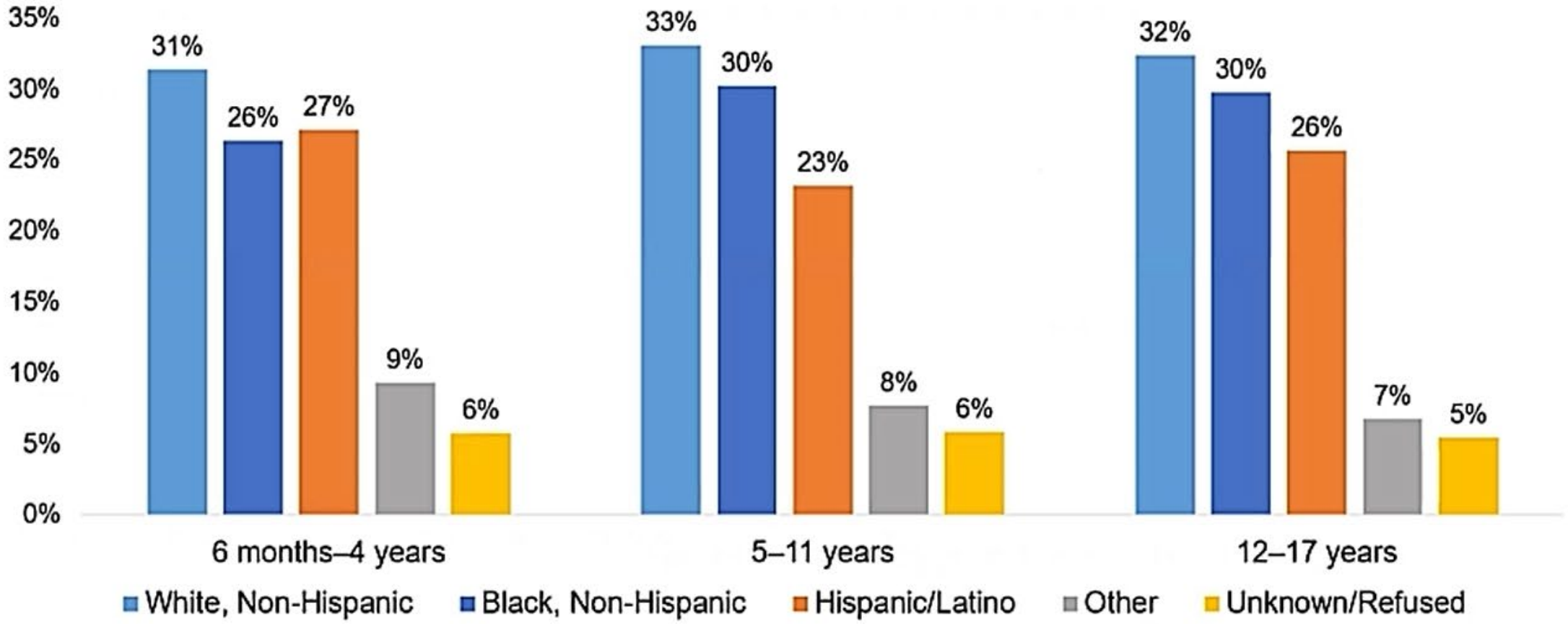
Red shading indicates the expected reporting lag for new cases. Cases with onset dates in this time period may not have been detected or reported yet.

Age Group	Count	%	Race	Count	%
<1	10	3.3%	Black/African American	105	34.8%
1-4	74	24.5%	Caucasian	146	48.3%
5-11	145	48.0%	All Others/Unknown	51	16.9%
12-15	54	17.9%	**Ethnicity**		
16-20	19	6.3%	Not Hispanic/Non-Latino	225	74.5%
			Hispanic/Latino	27	8.9%

Source: MDHHS and MIS-C Data and Reporting; Data through 4/4

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

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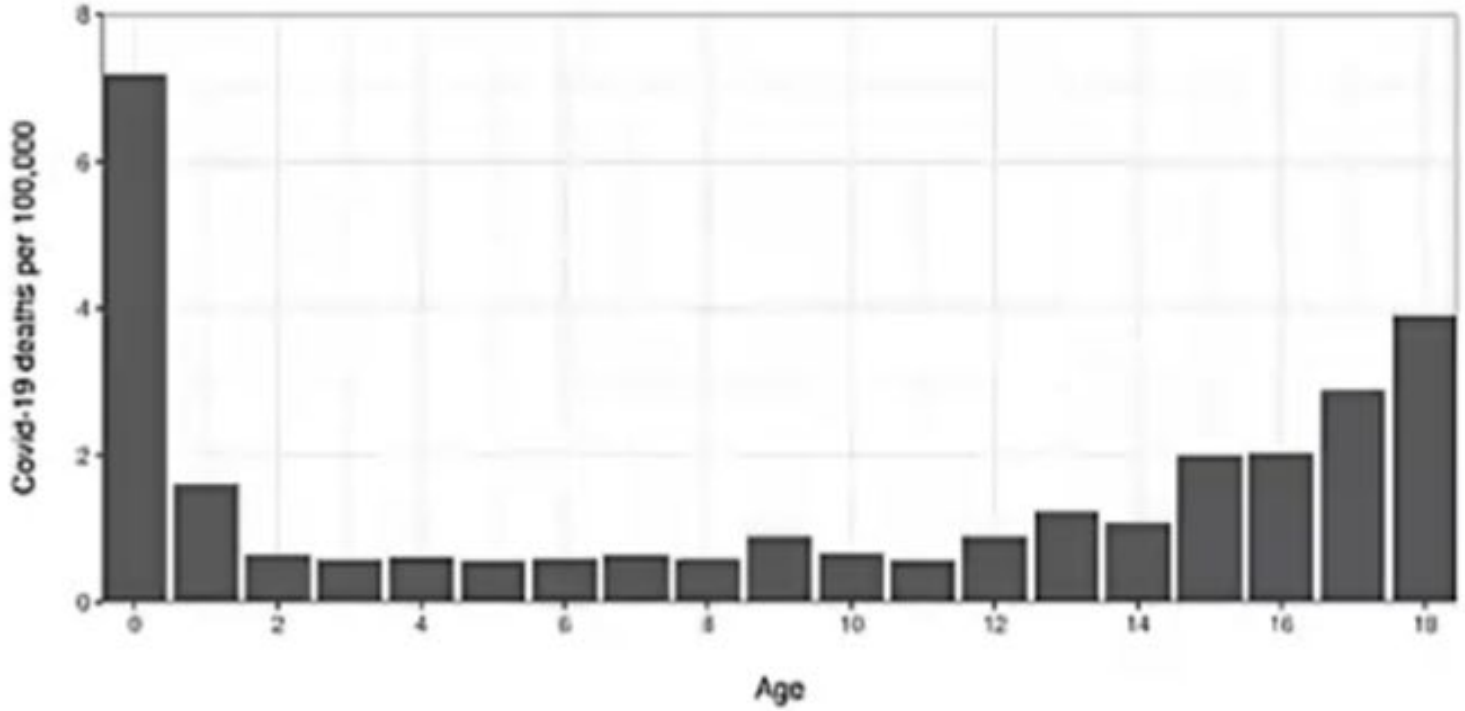
COVID-19 death rate among children by age, United States, March 1, 2020—April 30, 2022

- 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

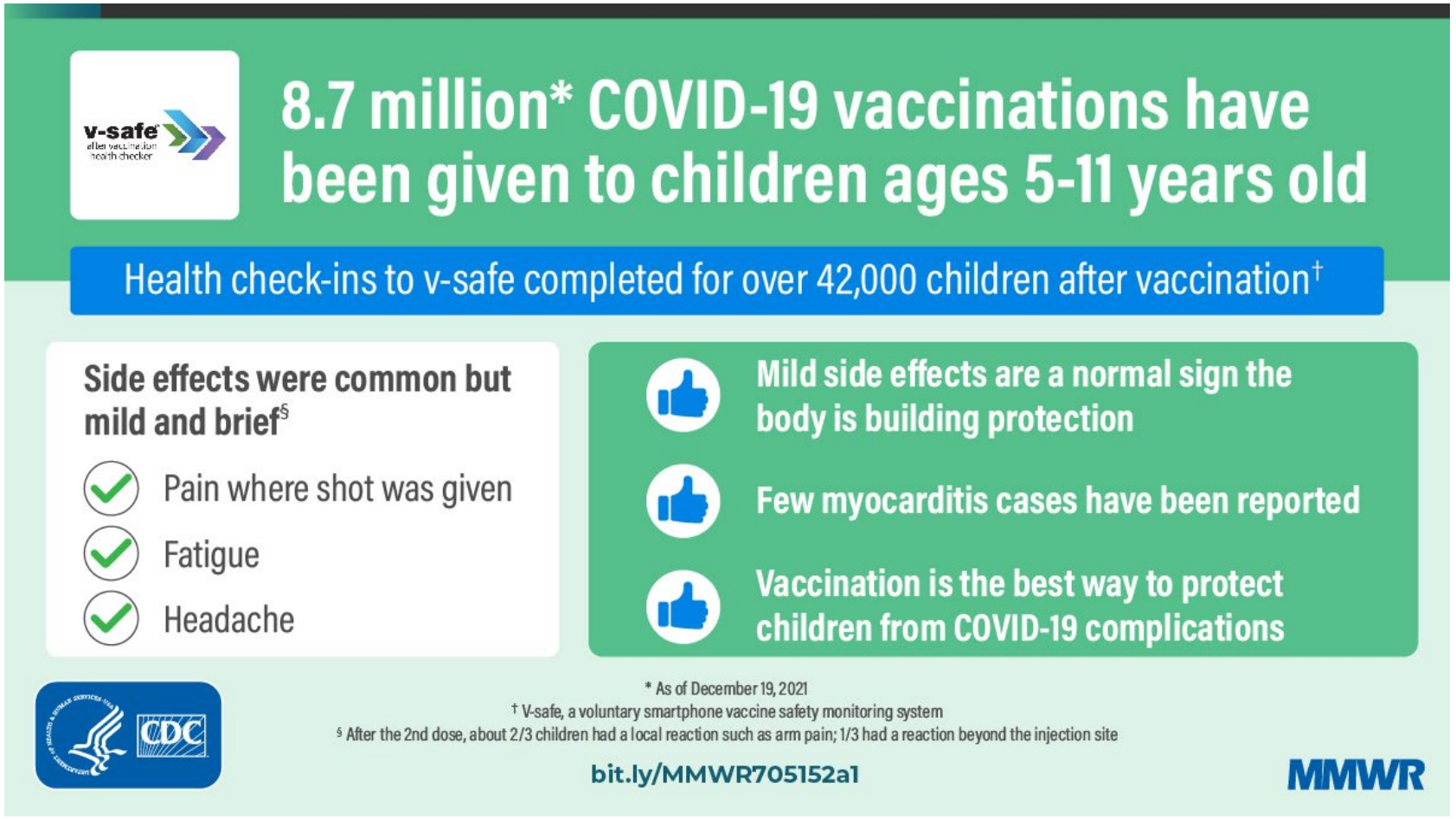
Reported by the CDC at the Meeting of the Advisory Committee on Immunization Practices (ACIP) to discuss immunizations for 6 months to 5 years (Moderna and Pfizer), June 22-23, 2022

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

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