MI COVID RESPONSE DATA AND MODELING UPDATE

November 30, 2021

Executive Summary

Michigan remains at <u>High Transmission</u>

Percent positivity (18.9%) is increasing (up from 17.4 % last week)

Case rate (556.9 cases/million) is increasing for one month (519.7 cases/million prior week)

In the last 7 days, Michigan reported the second **most cases** and **case rate** (Case Count – this week rank: 2nd highest; last week's rank: highest) (Case Rate – this week rank: 2nd highest; last week's rank: highest)

Cases among pediatric populations < 12 years have increased 2.6% since last week

Percent of inpatient beds occupied by individuals with COVID (20.0%) is increasing for 18 weeks (up from 17.2% last week)

In the last 7 days, no other state or territory has reported a higher inpatient bed utilization than Michigan (last week: highest) and 7th highest adult ICU bed utilization (6th highest last week)

Daily pediatric hospital census are slightly decreased from last week but are near 2021 highs

Death rate (6.3 deaths/million) is increasing for one week (5.8 last week). There were 439 COVID deaths between Nov 16-Nov 22

Michigan has the 6th highest number of deaths (8th highest last week), and 14th highest death rate (24th highest last week) in the last 7 days

7-day average **state testing rate** is 3,679.0 tests/million/day. **Daily diagnostic tests (PCR)** is 36.6K per day, and the weekly average for PCR and antigen tests conducted in Michigan is 46.4K.

Nearly 12.5 million **COVID-19 vaccine** doses administered, 54.4% of the population is fully vaccinated (5.4 million people)

124,810 administrations in 5- to 11-year-olds as of 11/30

SCIENCE ROUNDUP

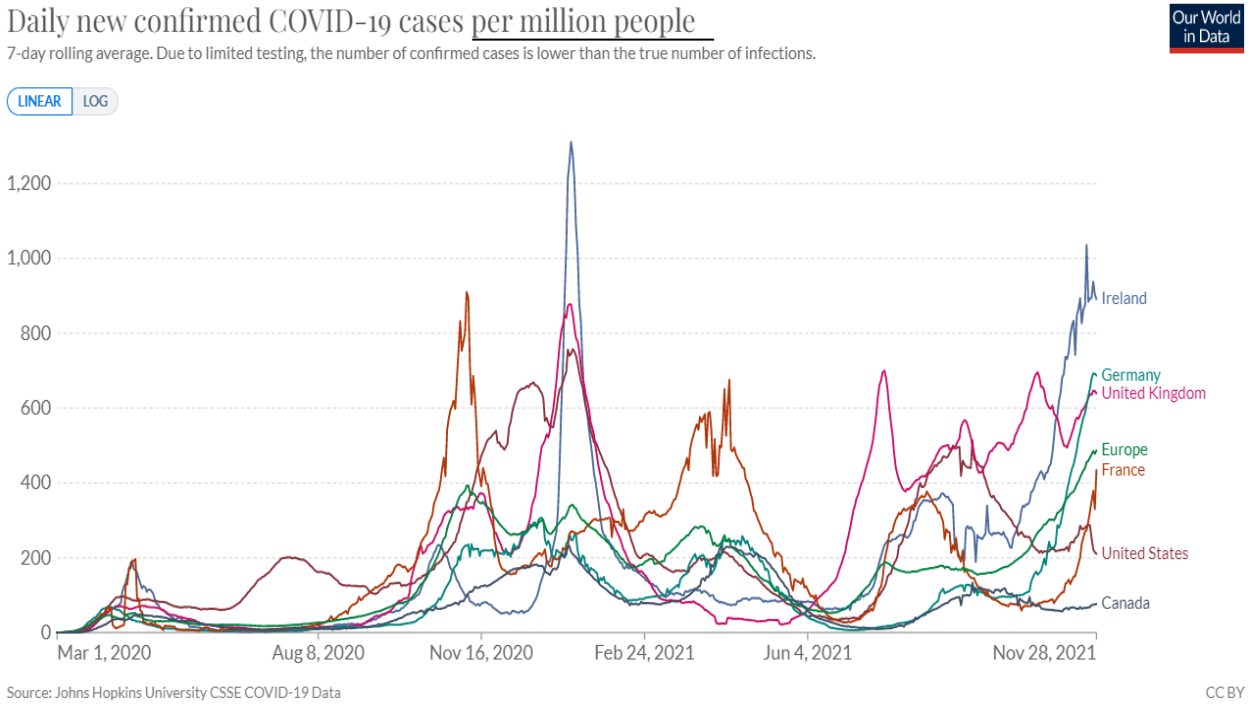
A new variant, Omicron, has been identified

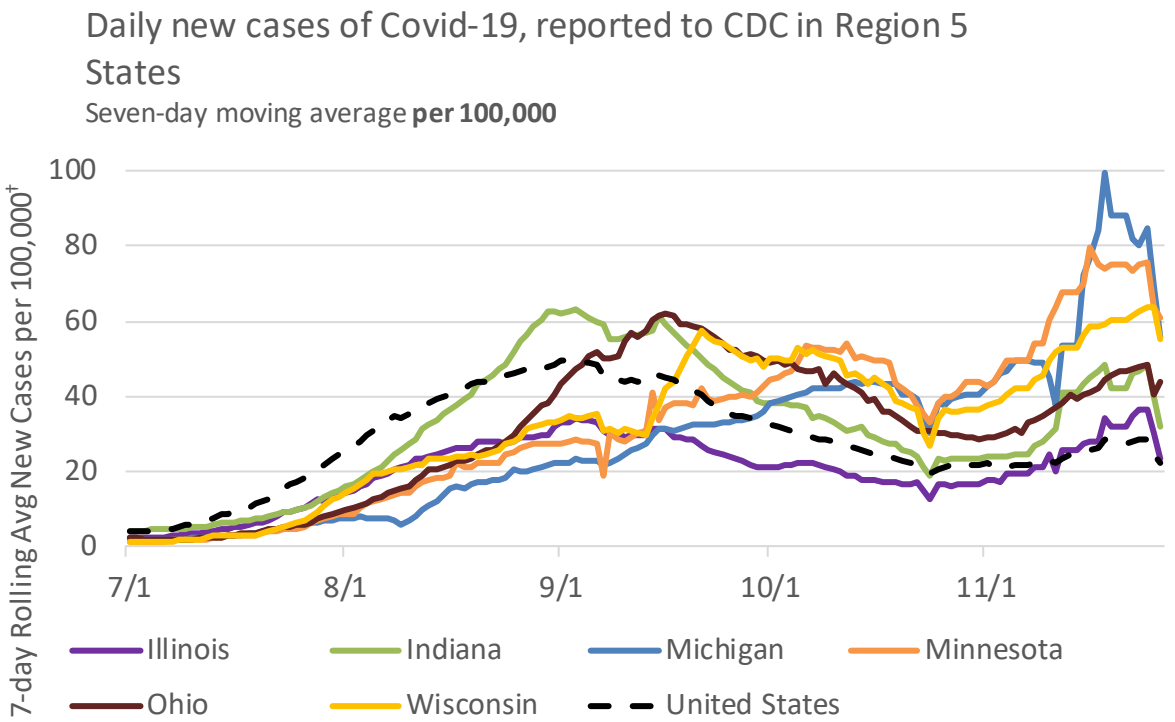
Healthcare system is expected to be greatly challenged, including increased influenza transmission this winter

Tools to control community spread, including against variants, will protect vulnerable, and prevent disruptions: Vaccinate, Mask, Test, and Antivirals

Global, National and Michigan Trends

Global and National Trends





Globally, 261,664,156 cases and 5,202,942 deaths (Data* through 11/29/2021)

- European case rates are increasing rapidly; & several European countries introduced mitigation measures for unvaccinated individuals (Greece, Germany, Italy, Austria)

United States: Nearly all US jurisdictions have High or Substantial community transmission¶

- The U.S. is at High transmission level (156 cases/100,000 in last 7 days); metrics are underestimates as reporting lags nationwide over the Thanksgiving holiday

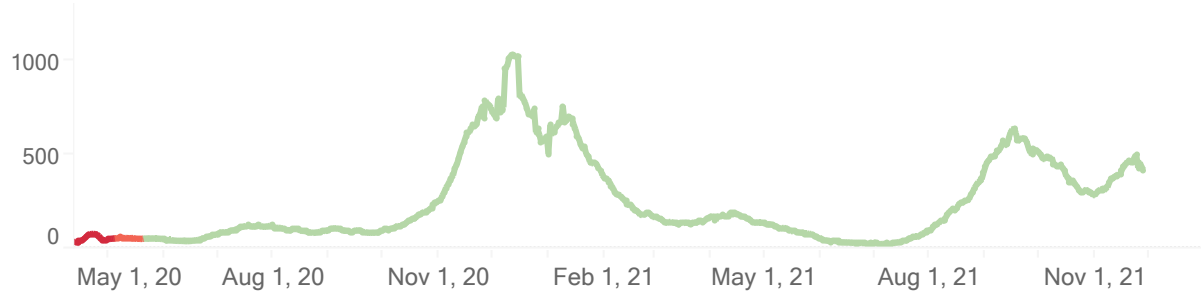
Midwest states maintain High transmission levels† and are increasing

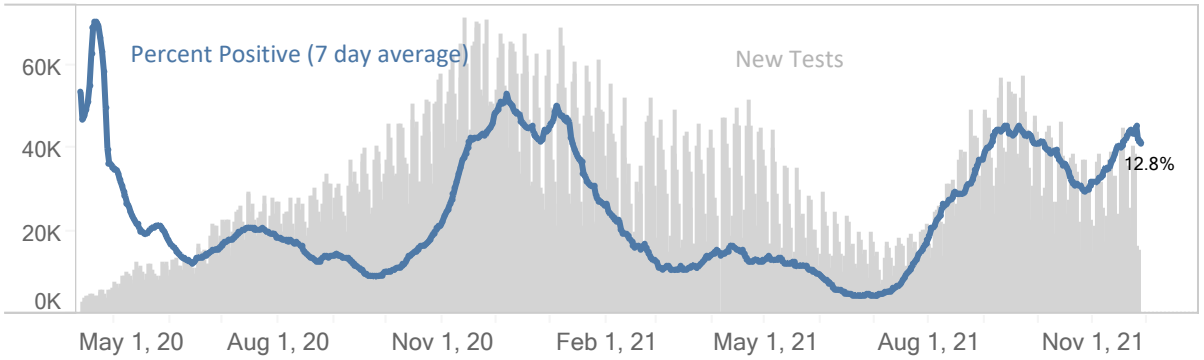
- Michigan has the 2nd highest case rate in Midwest

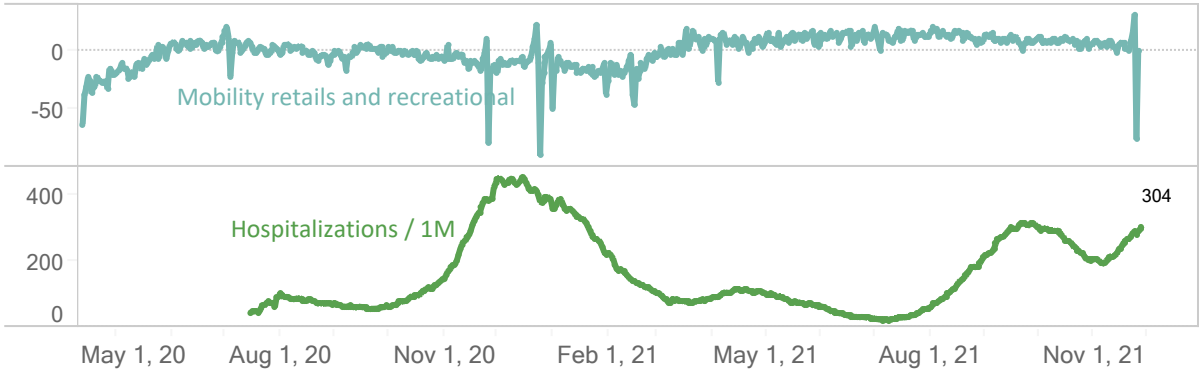
Source: *Johns Hopkins Coronavirus Resource Center; ¶ CDC COVID Data Tracker Weekly Review; † CDC COVID Data Tracker – CDC recently updated their methodology for reporting case rates

State Comparisons: Ohio and Indiana

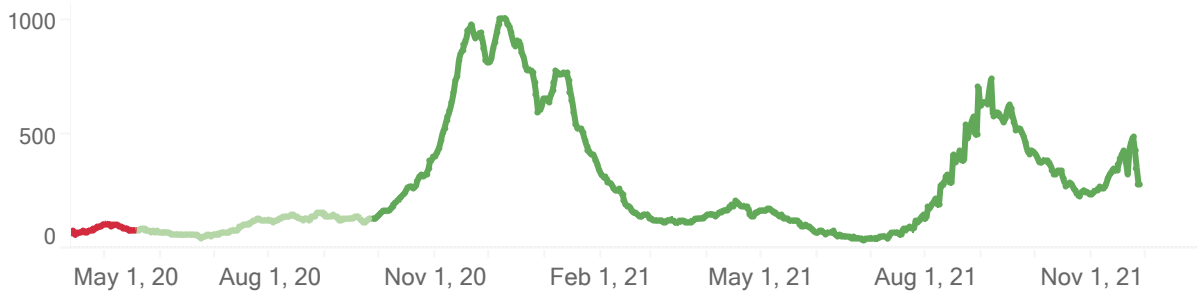
Ohio Confirmed New Cases / 1M (7 days average)

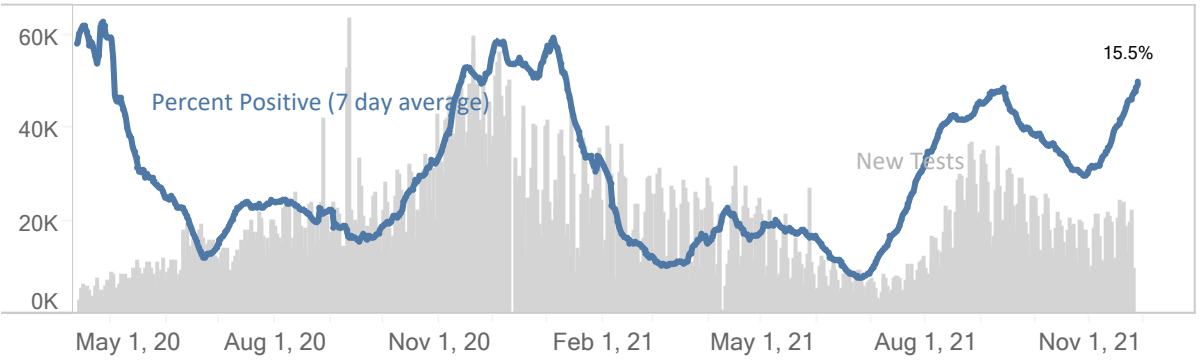


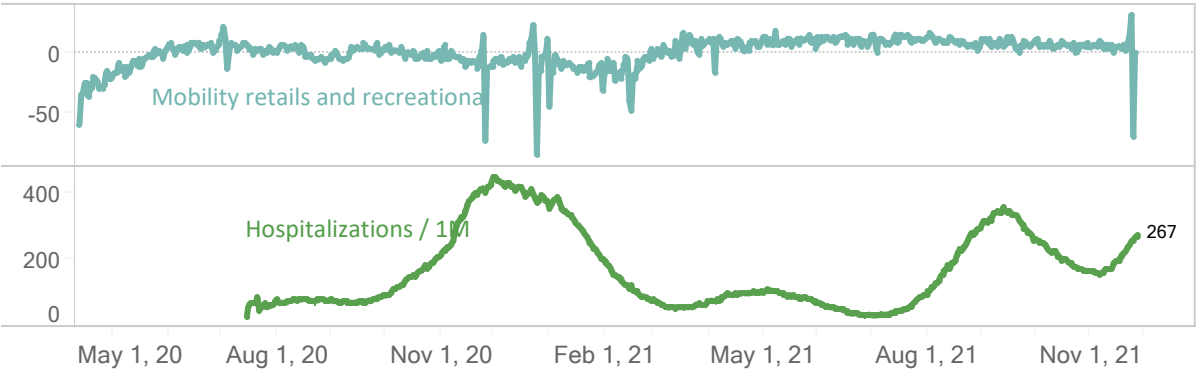




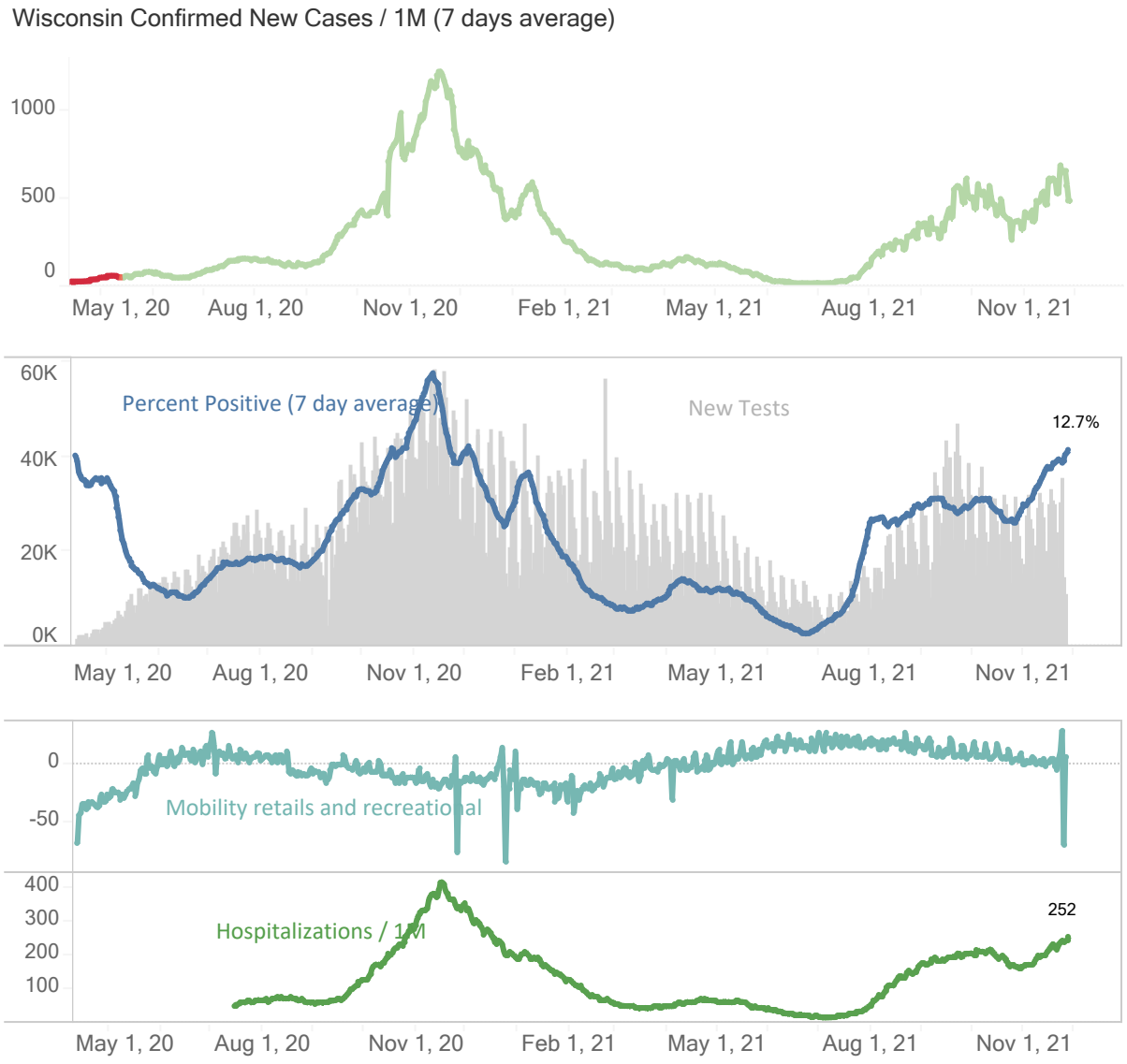
Indiana Confirmed New Cases / 1M (7 days average)

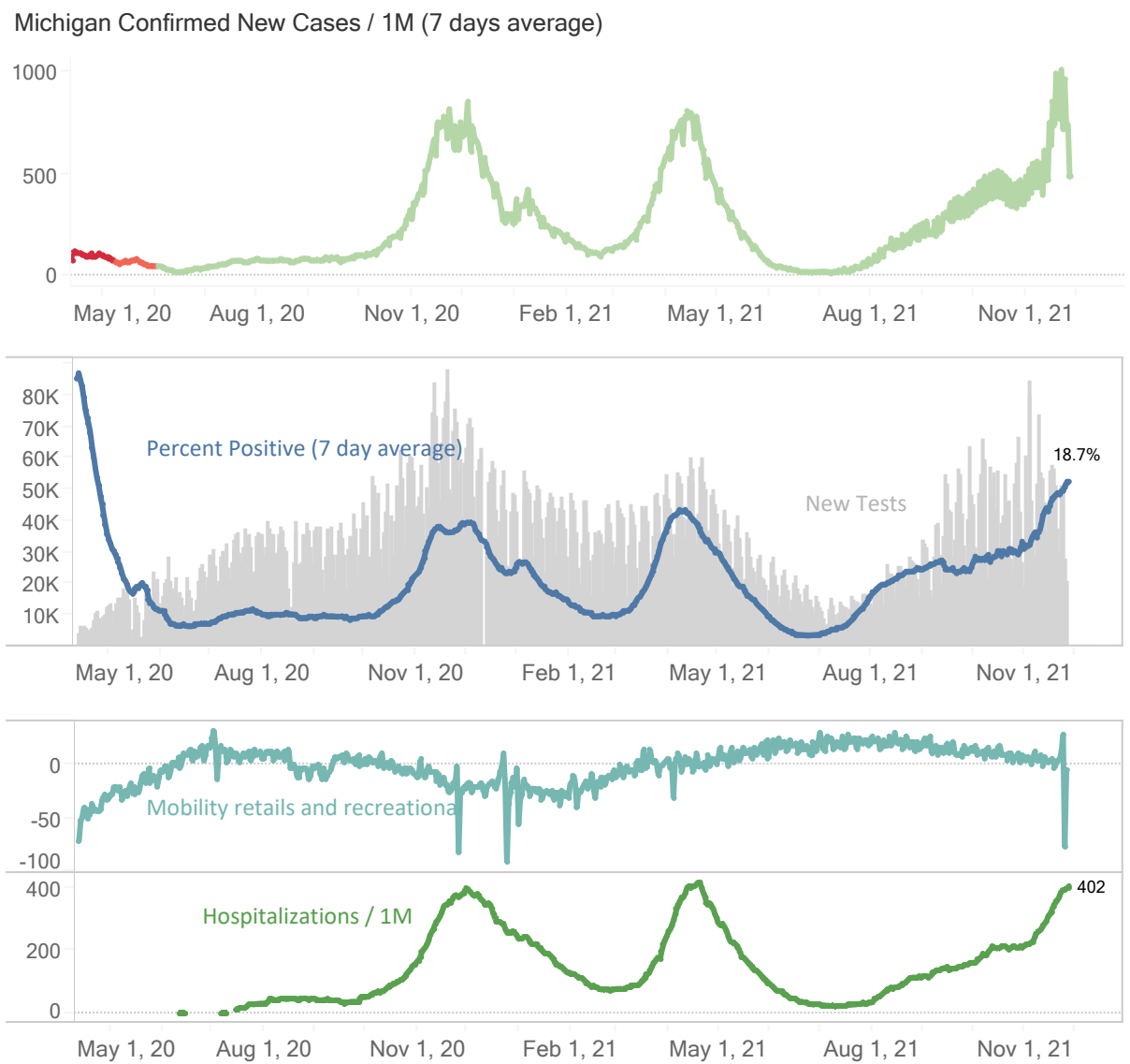






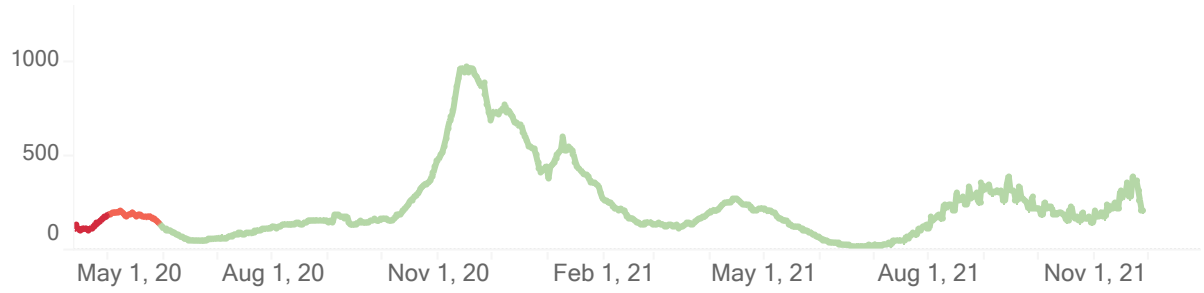
State Comparisons: Wisconsin and Michigan

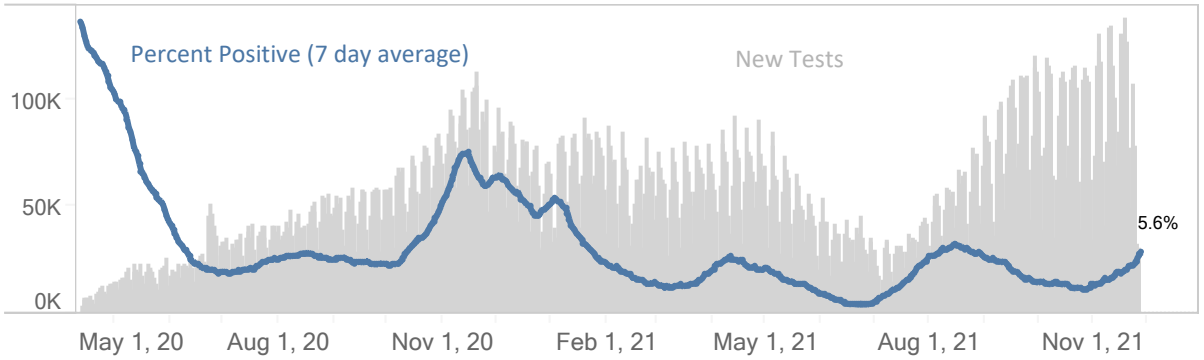


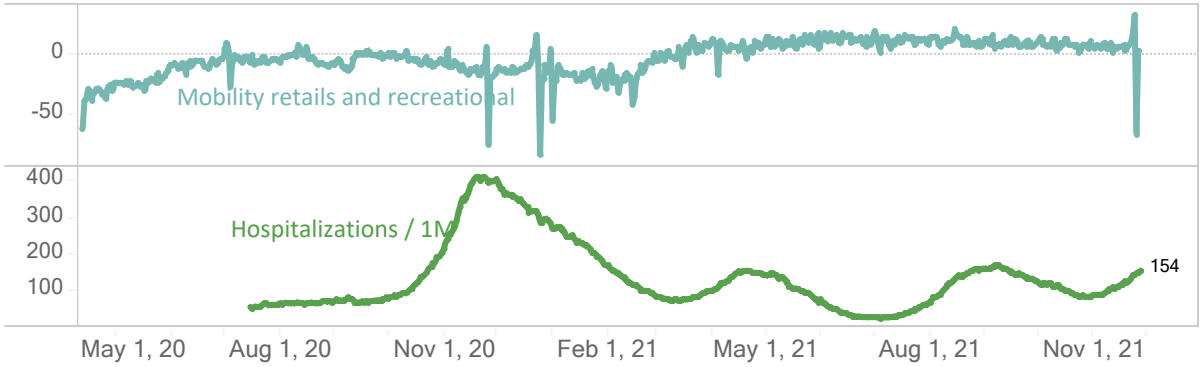


State Comparisons: Illinois and Minnesota

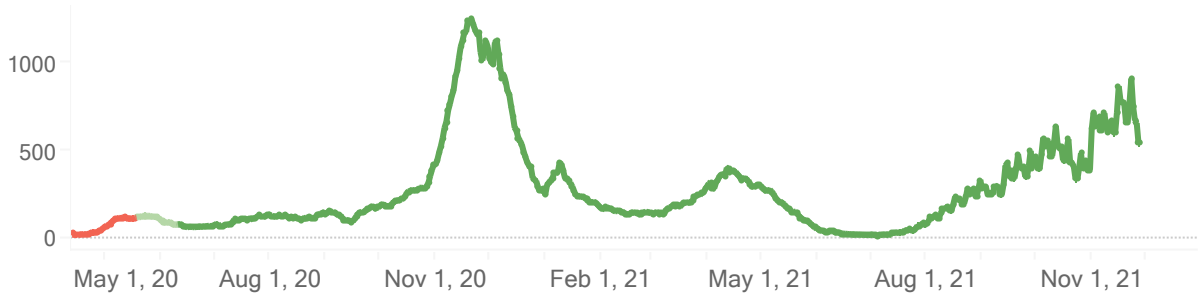
Illinois Confirmed New Cases / 1M (7 days average)

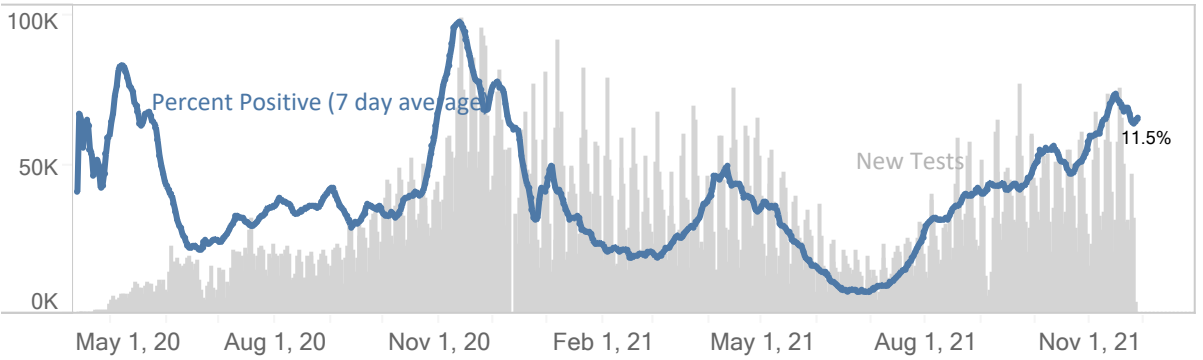


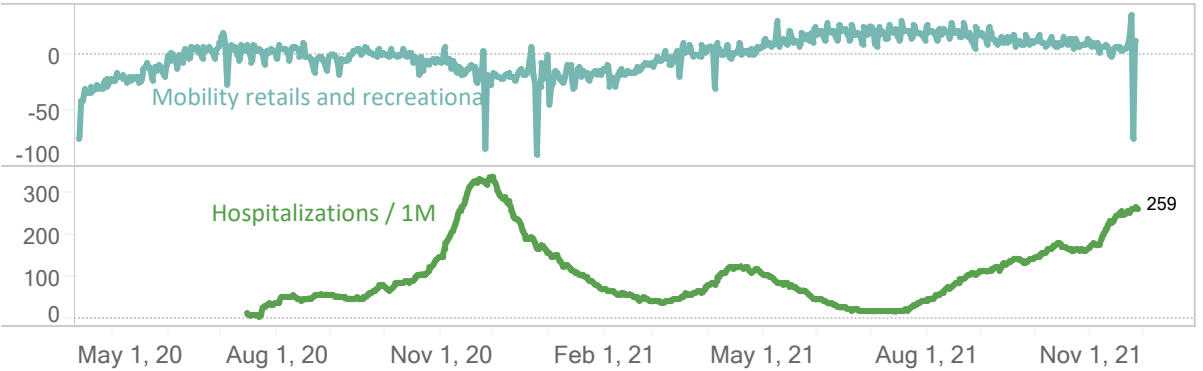




Minnesota Confirmed New Cases / 1M (7 days average)







Key Messages: All COVID-19 Transmission Metrics Increasing

Michigan continues above the High Transmission level

- All counties in Michigan are at High transmission level
- CDC recommends all individuals, regardless of vaccination status, should mask indoors

Statewide positivity is 18.9% (last week: 17.4 %)

- The trend is increasing for 5 weeks
- Positivity is increasing in 4 MERC regions (Regions Detroit, Kalamazoo, Saginaw, and Upper Peninsula)
- Positivity in all regions is above 15% and four regions are above 20%

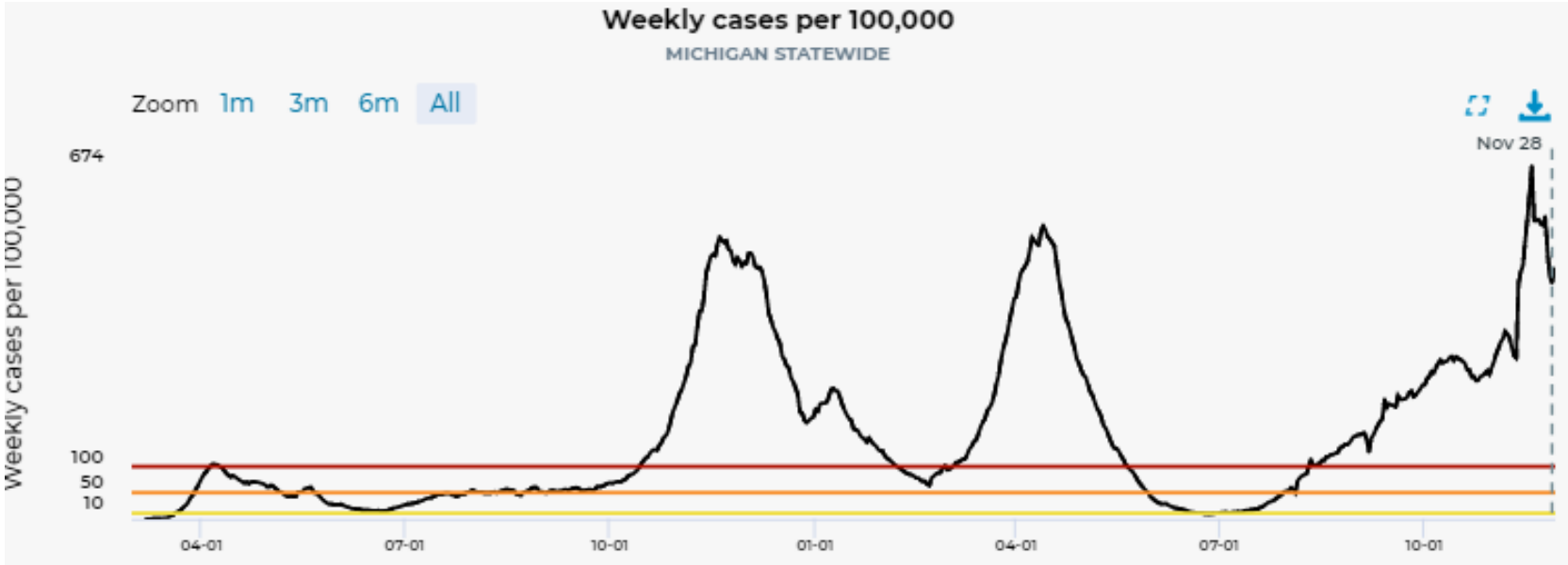
Case rate has increased to 556.9 cases/million (last week: 519.7 cases/million):

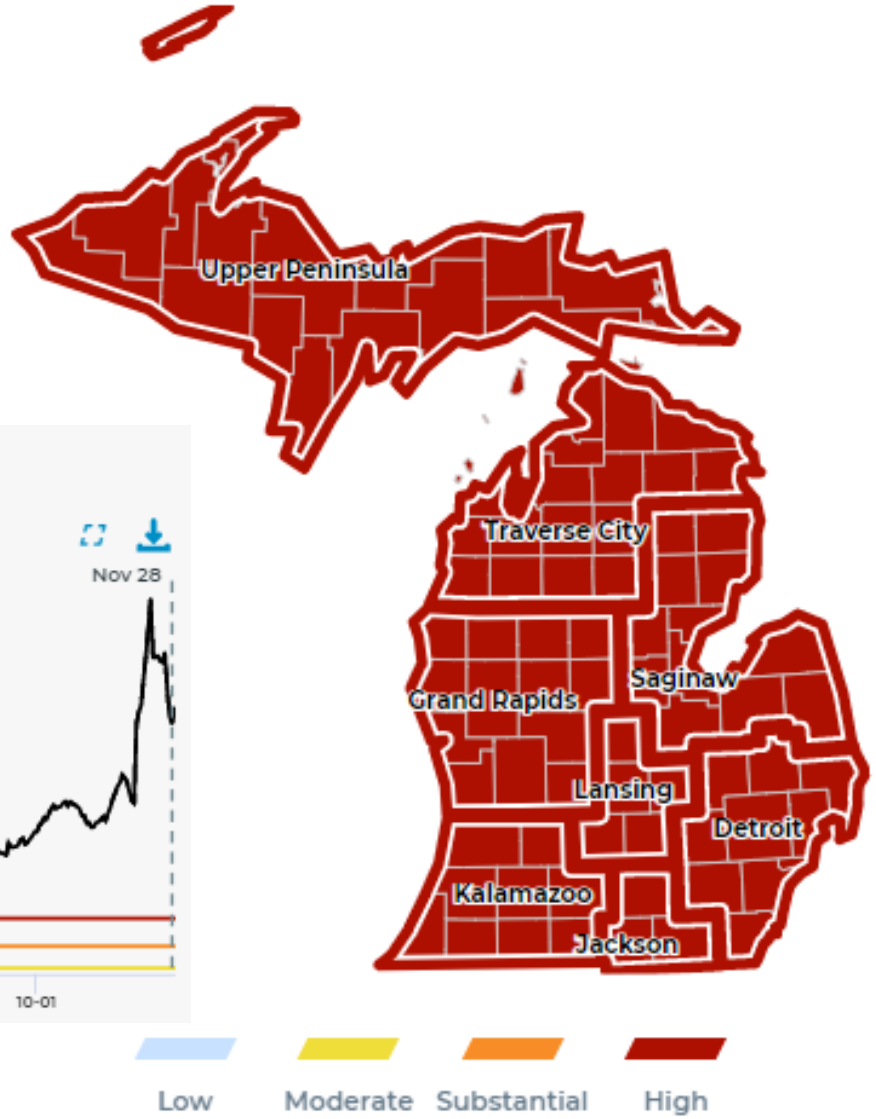
- Reported cases per million are delayed due to Thanksgiving holidays
- Cases per million are increasing among most age groups
- In the past 7 days, 30-39-years-olds are experiencing the highest number of cases (880.3 daily cases), and highest case rate (725.6 cases/mil)
- Approximately 2.0% of people who were fully vaccinated have been reported with a breakthrough infection

Cases and outbreaks increasing in the long-term care setting

Michigan experiencing highest daily case count of pandemic

[Dashboard | CDC | MI Start Map](#) for most recent data by reporting date





- Referrals declined over the holiday weekend

Confirmed and probable case indicators

Table Date: 11/29/2021 (7 days from date table was produced: 11/22/2021)

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

	CDC Transmission Risk Level	Absolute Cases (per million)	CDC Case Trend	Average Percent Positivity	Positivity Trend	Tests (per million)	% IP Beds Occupied by COVID-19 Cases	% Occupied IP Beds Trend	Absolute Deaths (per million)	Death Trend
Detroit	High	512.1	elevated incidence plateau	16.9	Increase - 5wk	4043.6	18.3	Increase - 19wk	4.3	Decrease - 1wk
Grand Rapids	High	642.7	decline [8 days]	22.8	Decrease - 1wk	3580.8	24.6	Increase - 5wk	8.6	Increase - 3wk
Kalamazoo	High	570.3	decline [7 days]	21.9	Increase - 5wk	2915.0	22.0	Increase - 4wk	7.6	Increase - 2wk
Saginaw	High	570.4	decline [8 days]	22.2	Increase - 5wk	2899.9	19.2	Increase - 4wk	9.6	Increase - 1wk
Lansing	High	633.9	decline [9 days]	18.8	Decrease - 1wk	3097.8	28.0	Increase - 4wk	7.6	Increase - 2wk
Traverse City	High	576.1	decline [11 days]	19.9	Decrease - 1wk	2229.7	19.6	Increase - 3wk	12.6	Increase - 2wk
Jackson	High	686.9	decline [10 days]	23.1	Decrease - 1wk	3416.2	33.2	Increase - 3wk	7.1	<20 wkly deaths
Upper Peninsula	High	528.1	decline [12 days]	18.6	Increase - 1wk	2334.2	12.5	Decrease - 1wk	7.1	<20 wkly deaths
Michigan	High	556.9	decline [6 days]	18.9	Increase - 5wk	3679.0	20.0	Increase - 19wk	6.3	Increase - 2wk

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

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

Overview of metrics for individuals < 12 and <18

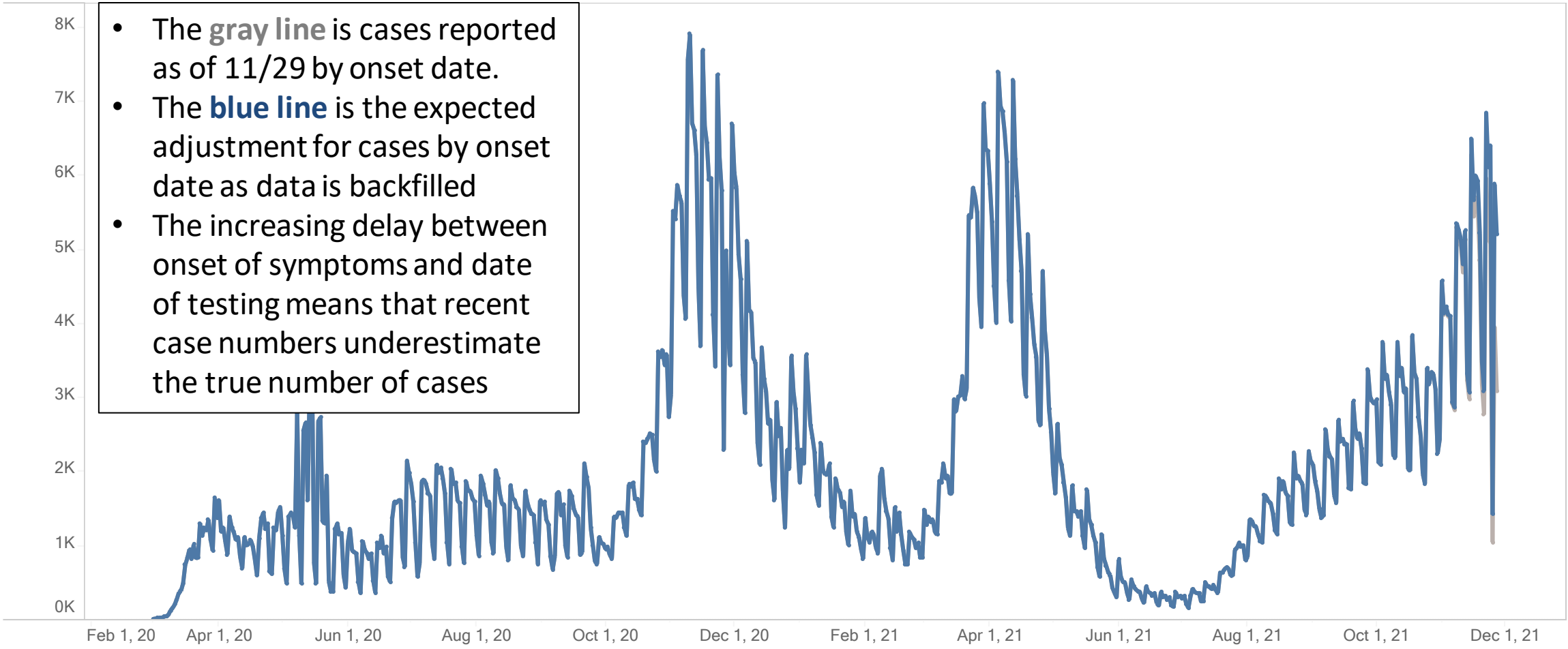
Region	Population (<12 yrs)	Population (<18 yrs)	Cumulative Case Count (<12 yrs)	7-day Average Daily Case Count (<12 yrs)	7-day Average Daily Case Rate per Million (<12 yrs)	7-day Average Daily Pediatric Hospitalization Count (<18 yrs) *	7-day Average Daily Pediatric Hospitalization Rate per Million (<18 yrs) *	7-day Average Daily Death Count (<12 yrs)	30-day Average Daily Death Count (<12 yrs)
Detroit	735529	1134247	56354	443.1	602.4	24.4	21.5	0.1	0.03
Grand Rapids	230120	350652	21058	160.4	697.0	13.0	37.1	0.0	0.07
Kalamazoo	140422	214801	10764	75.7	539.1	4.6	21.4	0.0	0.00
Saginaw	78759	122834	6894	41.4	525.7	2.0	16.3	0.0	0.00
Lansing	78140	119915	7051	65.9	843.4	2.9	24.2	0.0	0.00
Traverse City	53099	83462	3711	33.0	621.5	0.0	0.0	0.0	0.03
Jackson	41274	64091	3640	23.0	557.3	0.4	6.2	0.1	0.03
Upper Peninsula	34645	53875	3610	22.6	652.3	0.0	0.0	0.0	0.00
Michigan	1391988	2143877	113194	866.1	622.2	47.3	22.1	0.3	0.17

- Each day more than 866 children under age 12 become infected with COVID-19, 22 more than last week
- Pediatric case rates increased to 622.2 cases/million (last week: 606.3 cases/million)
- Pediatric (<18) hospital census* is averaging approximately 47 per day (last week: 49 per day)

Note: Data as of 11/15; case data 11/8, hospitalization data 11/15. Hospitalization data is for pediatric patients (<18); * includes only confirmed COVID-19

Michigan Lag-adjusted new COVID cases by onset date

New confirmed cases by onset actual and adjusted as of November 29, 2021 (-2 days)

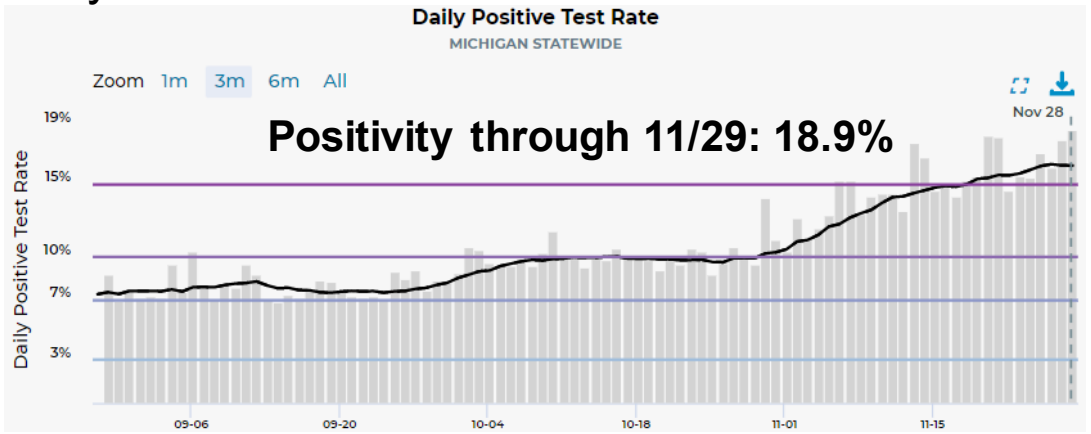


- The **gray line** is cases reported as of 11/29 by onset date.
- The **blue line** is the expected adjustment for cases by onset date as data is backfilled
- The increasing delay between onset of symptoms and date of testing means that recent case numbers underestimate the true number of cases

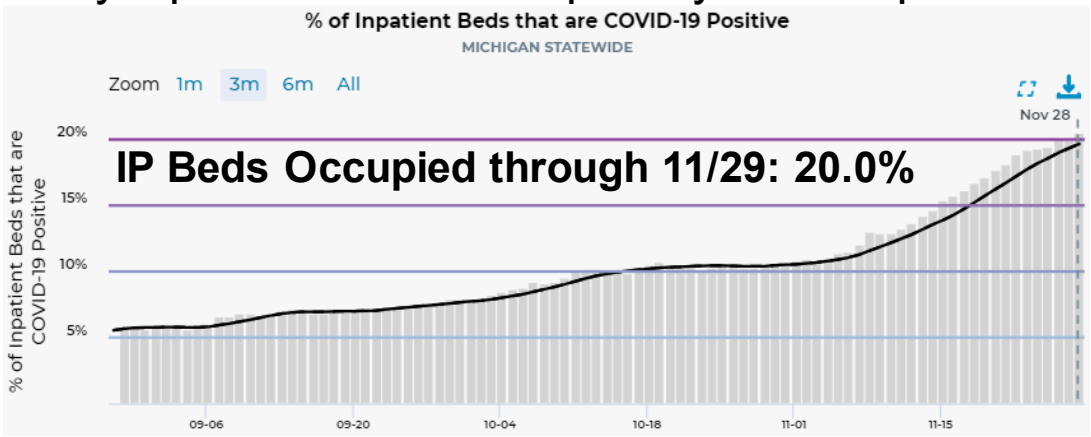
Time Trends – Positivity, Case Rates, Hospitalizations, Deaths

- Core COVID-19 indicators show that transmission is increasing, and burden remains high in Michigan

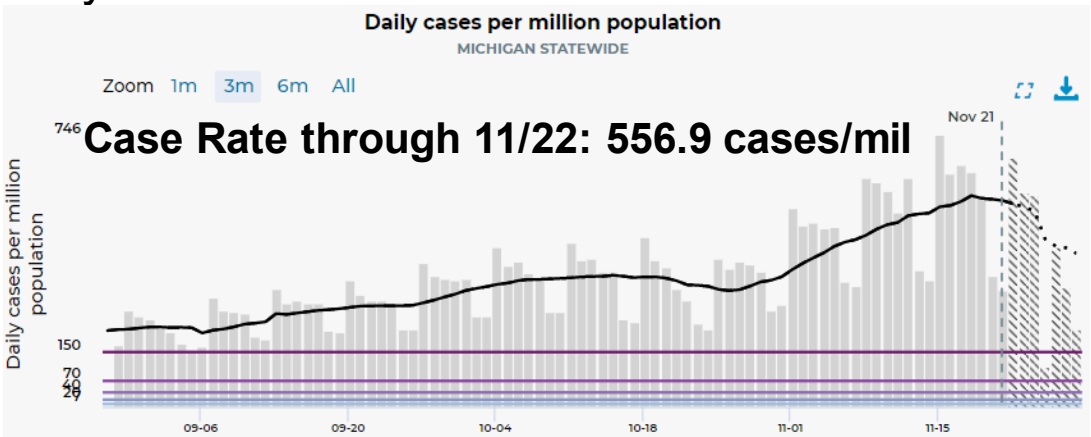
Daily Positive Test Rate



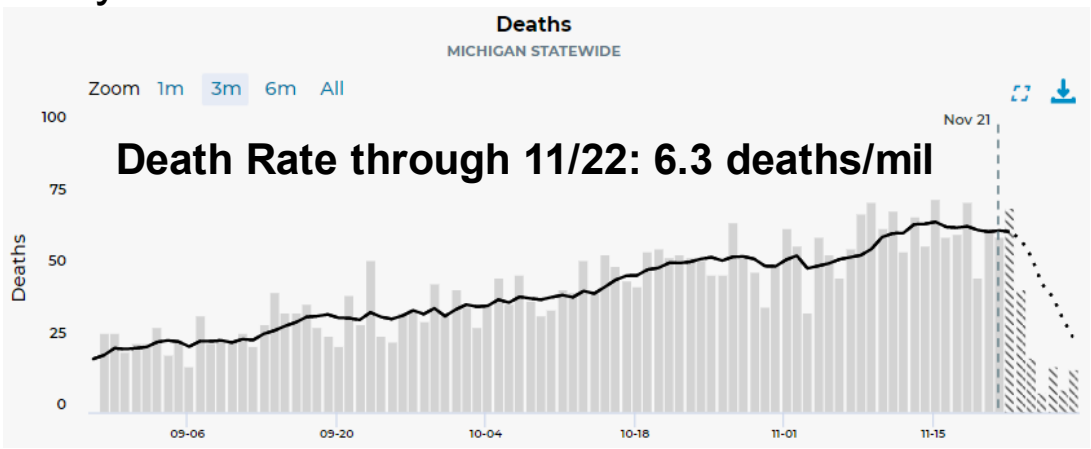
Daily Inpatient Beds Occupied by COVID patients



Daily Case Rate



Daily Deaths



Comparison to this time last year

Monday Nov. 30, 2020

- 490 case referrals per 100,000
- 13.4% positivity
- 51,502 tests/day (7-day average)

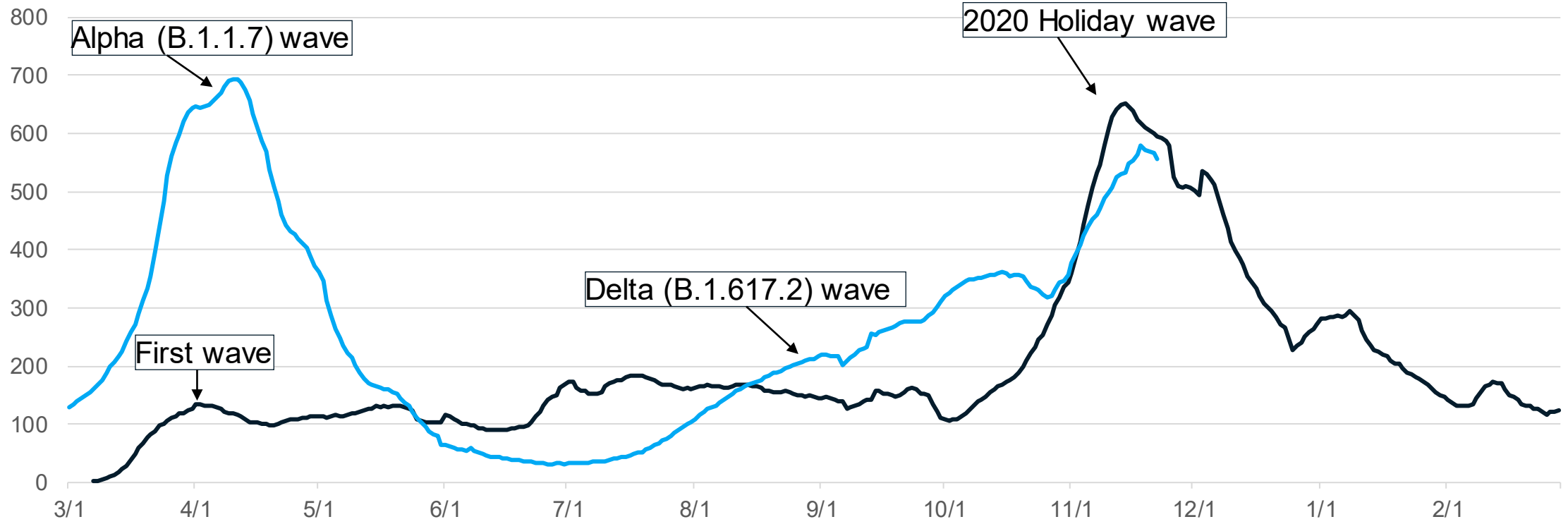
Monday Nov. 29, 2021

- 558 case referrals per 100,000
- 18% positivity
- 46,789 tests/day (7-day average)

Time Trends – Annual Comparison

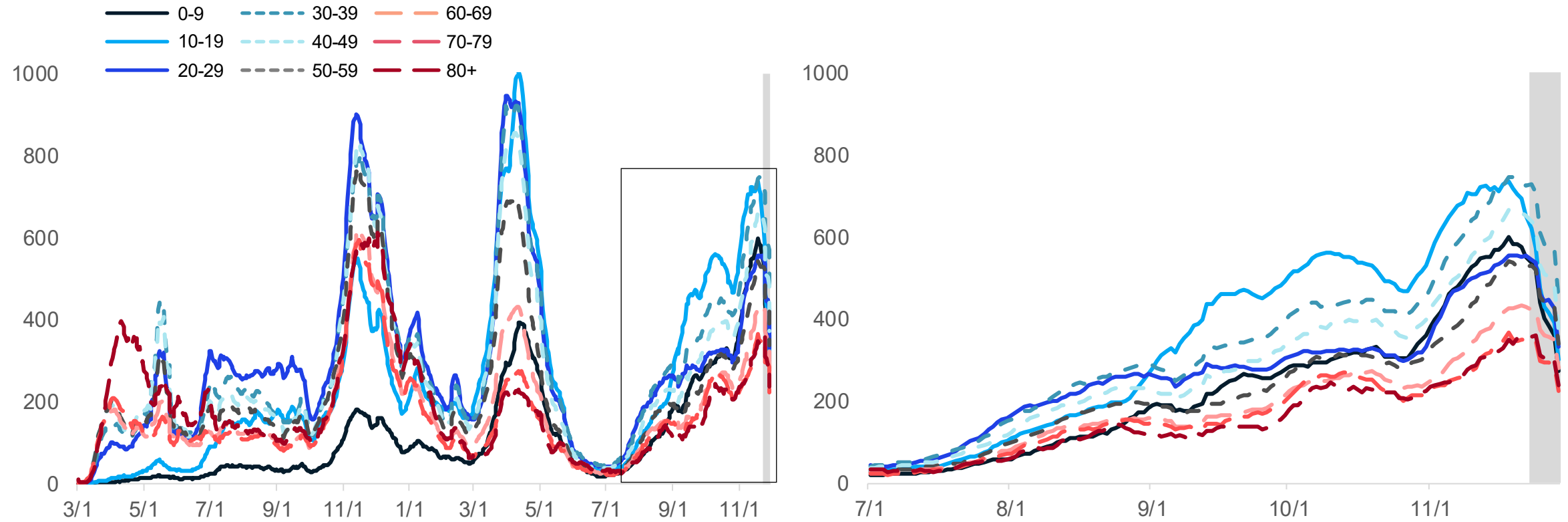
- Case rates are now at the same level as this time last year (by onset date).
- Trend is roughly following exponential curve we experienced as last fall.

7- day rolling average of Rates 2020 vs 2021



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 most age groups are increasing but trends are impacted holiday
- Case rates by onset date for all age groups are between 350 and 725 cases per million (through 11/22)
- Case counts and case rates are highest for 30-39-year-olds this week

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

Number of Cases and CaseRates by Age Group, data as of Nov 29

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

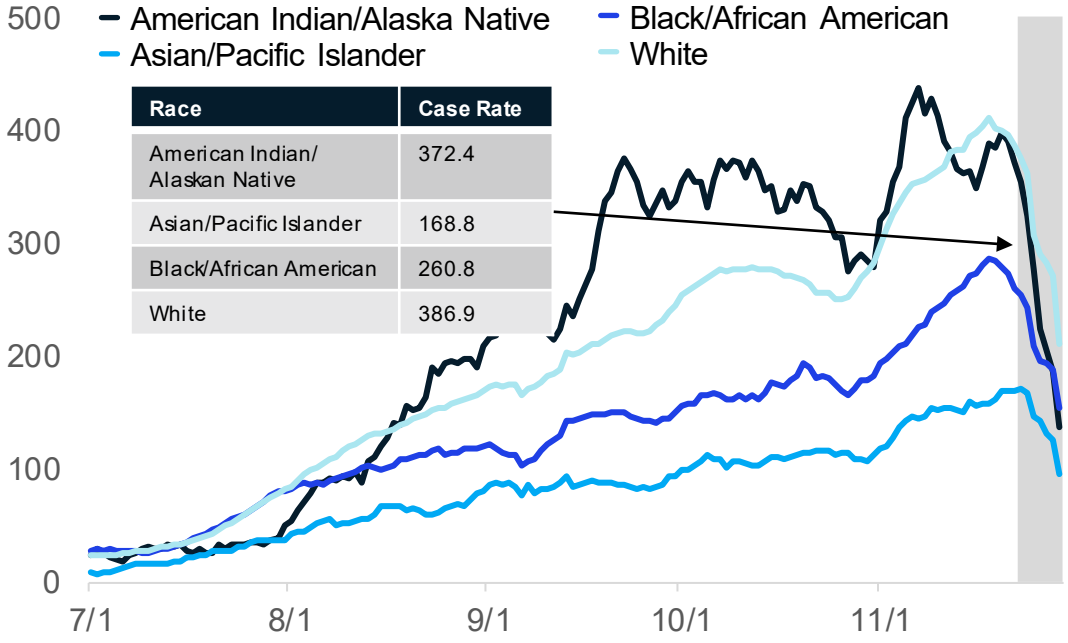
Age Group	Average† daily cases	Average† Daily Case Rate	One Week % Change (Δ #)*
0-9	636.0	551.7	-3% (-18)
10-19	818.6	**652.3**	-9% (-85)
20-29	766.0	555.2	+5% (+36)
30-39	**880.3**	**725.6**	+1% (+12)
40-49	770.7	**653.5**	+5% (+36)
50-59	711.6	527.0	+5% (+33)
60-69	547.9	429.4	**+9% (+46)**
70-79	267.3	348.6	+4% (+10)
80+	148.3	358.0	**+13% (+17)**
Total¶	**5,567.4**	**556.9**	**+1% (+84.6)**

† Rolling 7-day average; ¶ Total may not reflect state due to missing age data
Note: Case information sourced from MDHHS and reflects date of onset of symptoms
Source: MDHHS – Michigan Disease Surveillance System

- **Trend numbers and comparisons are being impacted by longer backfill times – the data in this table are comparing the two time points from the most recent data file**
- Average daily number of cases (880.3) and average daily case rate (725.6 case/mil) are highest for those aged 30-39
- The 60-69 age group saw an increase of 46 cases compared to last week
- The greatest percent change (+13%) was among those older than 80
- Case rates for age groups 10-19, 30-39, and 40-49 are higher than the state

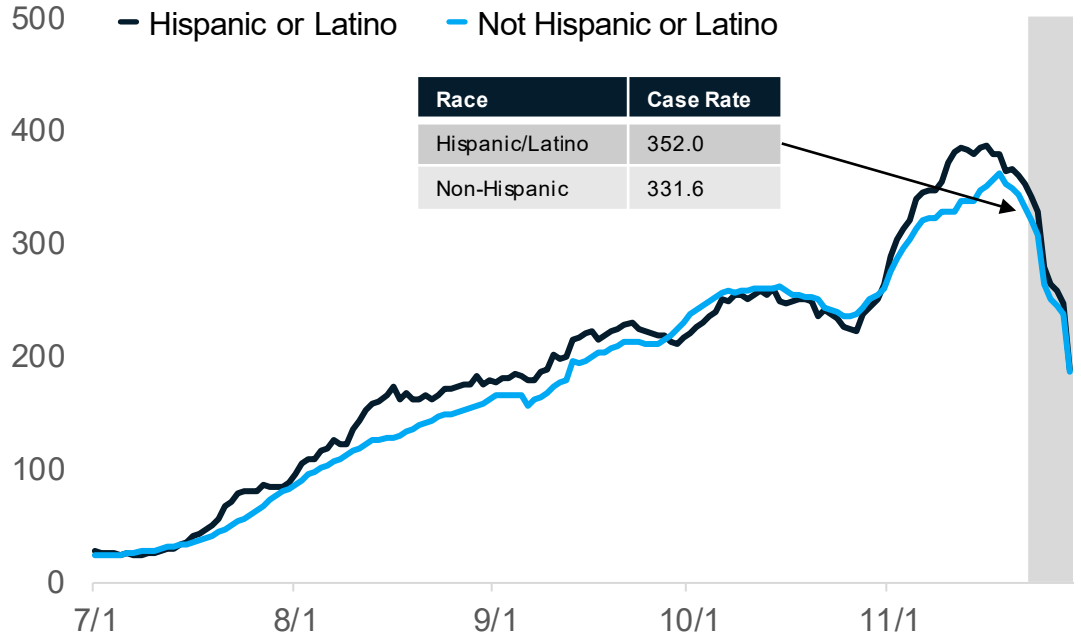
Case Rates by Reported Racial and Ethnic Group

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



Race	Case Rate
American Indian/ Alaskan Native	372.4
Asian/Pacific Islander	168.8
Black/African American	260.8
White	386.9

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



Race	Case Rate
Hispanic/Latino	352.0
Non-Hispanic	331.6

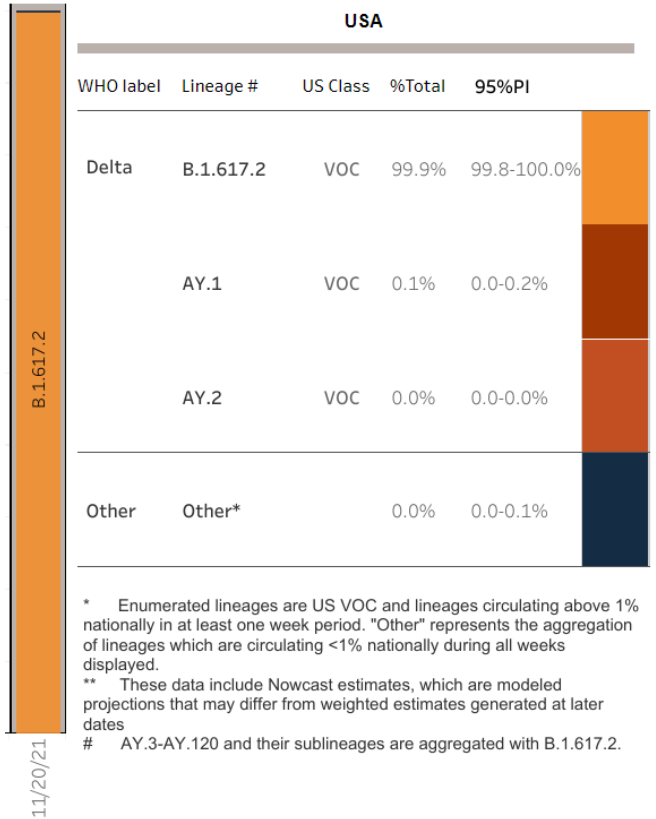
Updates since last week:

- Cases per million are increasing for most reported racial and ethnic groups, but the delay in reporting is impacting trend analysis
- The high number of cases with missing race/ethnicity data, and those multiracial or other are also impacting the case rates shown here
- In the past 30 days, 27% (↑1%) of race data and 37% (↑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

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

SARS-CoV-2 Variants Circulating in the United States, Nov 14 – Nov 20 (NOWCAST)

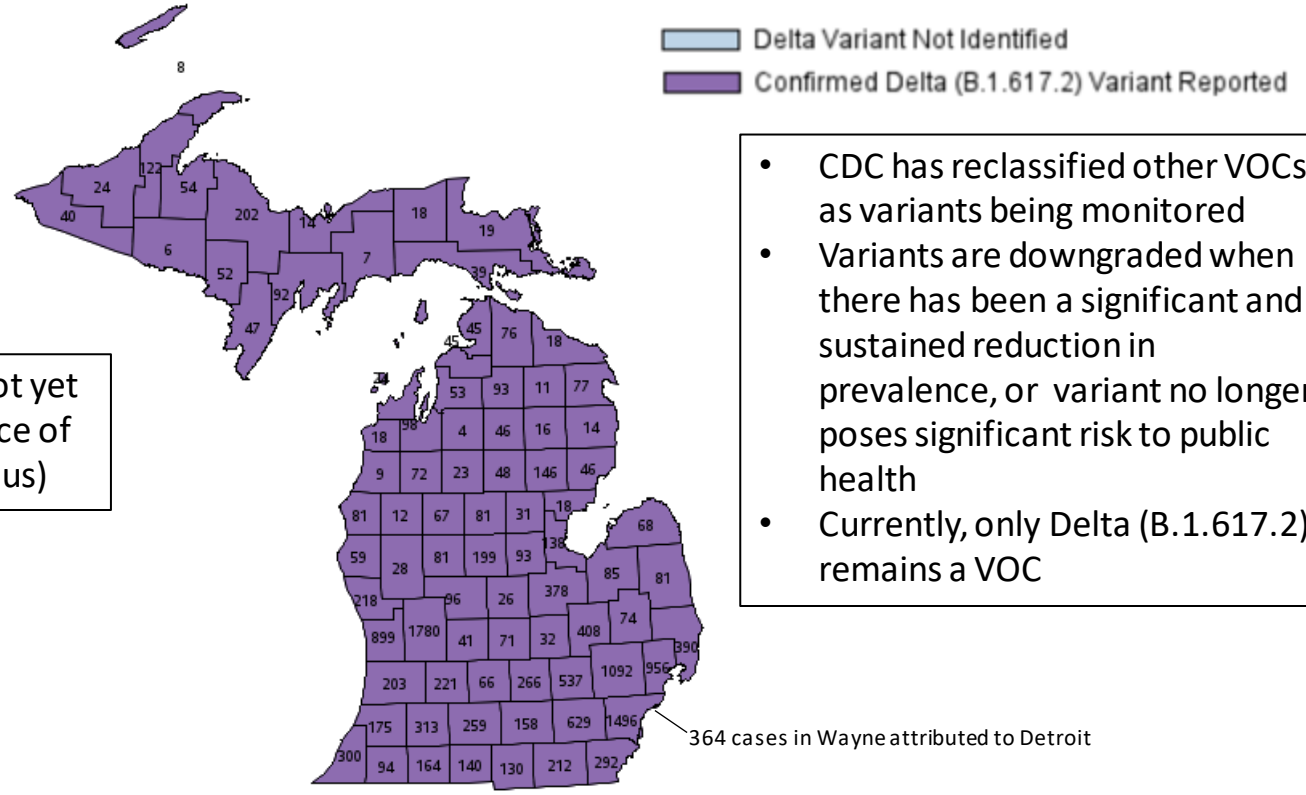


WHO label	Lineage #	US Class	%Total	95%PI
Delta	B.1.617.2	VOC	99.9%	99.8-100.0%
	AY.1	VOC	0.1%	0.0-0.2%
	AY.2	VOC	0.0%	0.0-0.0%
Other	Other*		0.0%	0.0-0.1%

* 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.3-AY.120 and their sublineages are aggregated with B.1.617.2.

Currently, CDC is not yet reporting prevalence of AY.4.2 (i.e., Delta plus)

Variants of Concern in Michigan, Nov 29



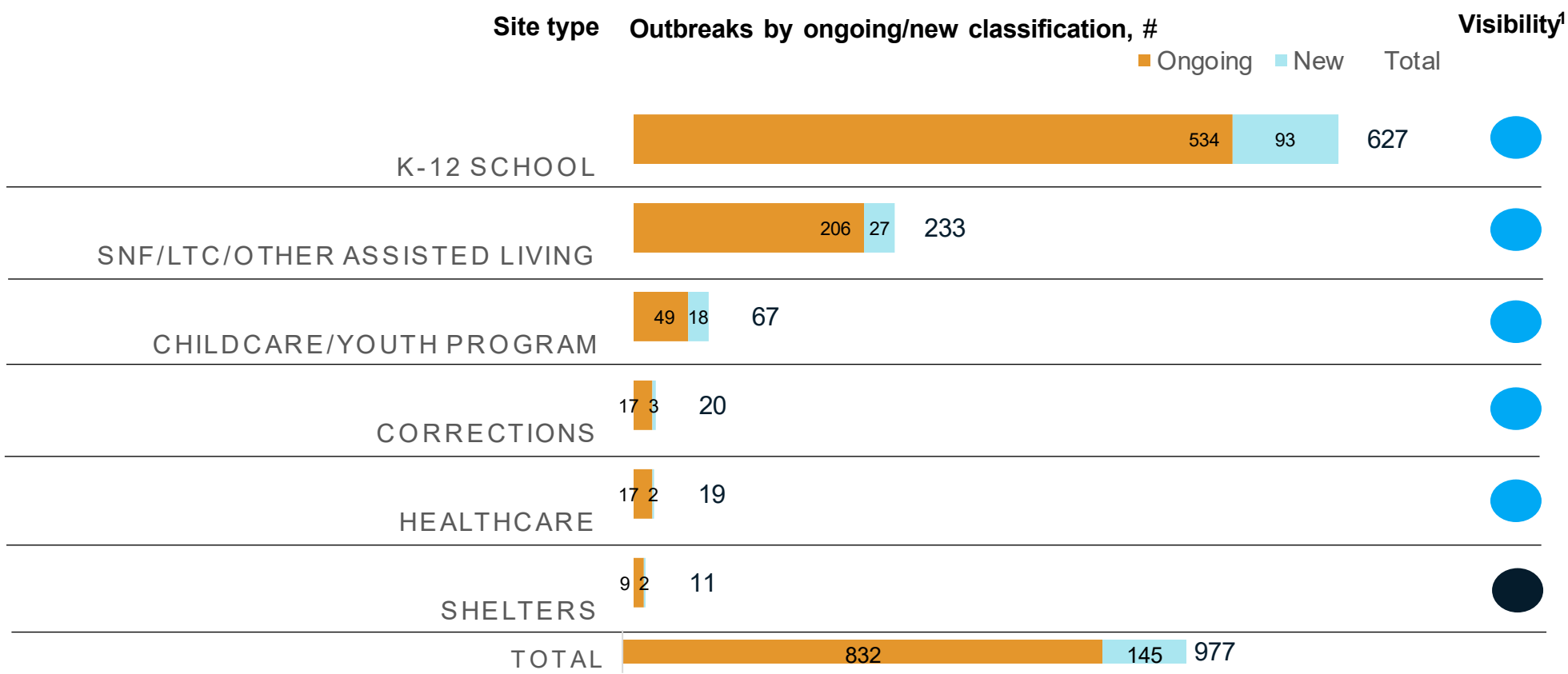
- CDC has reclassified other VOCs as variants being monitored
- Variants are downgraded when there has been a significant and sustained reduction in prevalence, or variant no longer poses significant risk to public health
- Currently, only Delta (B.1.617.2) remains a VOC

Variant	MI Reported Cases¶	# of Counties	MDHHS VOC Sequenced Prev.
B.1.617.2 (delta)	15,101	83	100%

Data last updated Nov 29, 2021
Source: MDSS

Number of Weekly Reported Outbreaks: *New Format*

Number of outbreak investigations by site type, week ending Nov 24



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

NOTE: Many factors, including the lack of ability to conduct effective contact tracing in certain settings, may result in significant underreporting of outbreaks. This chart does not provide a complete picture of outbreaks in Michigan and the absence of identified outbreaks in a particular setting in no way provides evidence that, in fact, that setting is not having outbreaks.
NOTE (10/4): MDHHS adopted the new CSTE school cluster and outbreak definition which impacts how transmissions within school-sponsored settings are reported to the health department
NOTE (11/22): The local health department weekly outbreak reporting survey was streamlined to focus on congregate settings where patients/staff might be more at risk for infection and/or experience severe outcomes from infection. This was in an effort to prioritize limited local health department capacity to populations for which the biggest public health impact could be made.

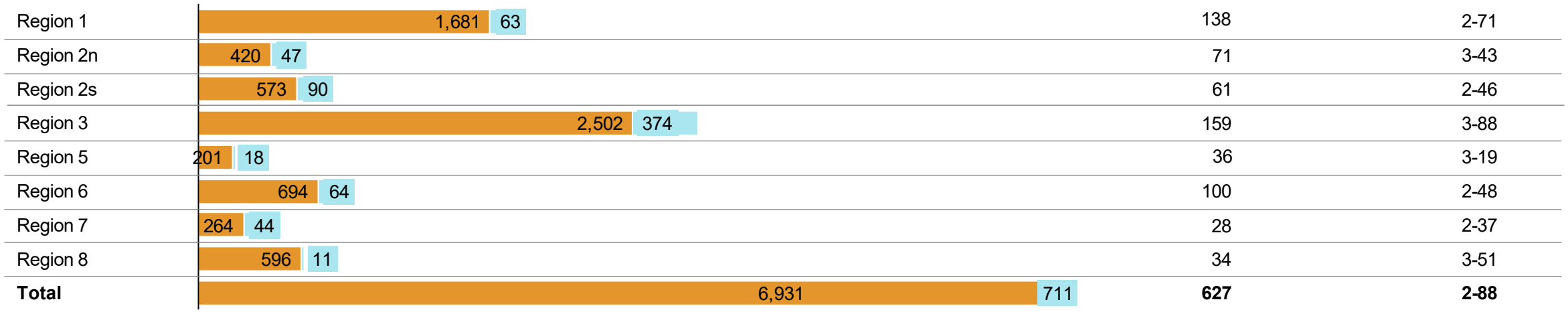
Source: LHD Weekly Sitreps

Total number of active outbreaks is **977** with 145 new outbreaks identified

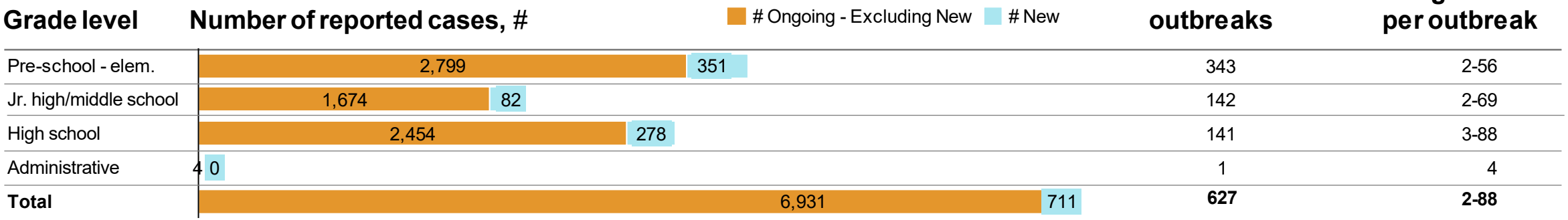
K-12 schools reported the greatest number of new outbreaks and clusters (93) this week.

K-12 school clusters and outbreaks, recent and ongoing, week ending Nov 24

Number of reported outbreaks/clusters increased since last week (610 to 627), with increases in Pre K-Elementary (315 to 343). Declines in Middle/Jr High (146 to 142), and High Schools decreased (148 to 141). Administration is steady (at 1).



Region	Number of reported cases, #		Number of outbreaks	Range of cases per outbreak
Region 1	1,681	63	138	2-71
Region 2n	420	47	71	3-43
Region 2s	573	90	61	2-46
Region 3	2,502	374	159	3-88
Region 5	201	18	36	3-19
Region 6	694	64	100	2-48
Region 7	264	44	28	2-37
Region 8	596	11	34	3-51
Total	6,931	711	**627**	**2-88**



Grade level	Number of reported cases, #		Number of outbreaks	Range of cases per outbreak
Pre-school - elem.	2,799	351	343	2-56
Jr. high/middle school	1,674	82	142	2-69
High school	2,454	278	141	3-88
Administrative	4	0	1	4
Total	6,931	711	**627**	**2-88**

Many factors, including the lack of ability to conduct effective contact tracing in certain settings, may result in significant underreporting of outbreaks. This chart does not provide a complete picture of outbreaks in Michigan and the absence of identified outbreaks in a particular setting in no way provides evidence that, in fact, that setting is not having outbreaks.
NOTE (10/4): MDHHS adopted the new CSTE school cluster and outbreak definition which impacts how transmissions within school-sponsored settings are reported to the health department

Source: LHD Weekly Sitreps

Reported Outbreaks within Long Term Care Facilities: Adult Foster Care, Homes for the Aged, and Skilled Nursing Cases

Number of AFC/HFAs with 3 or more Confirmed Cases

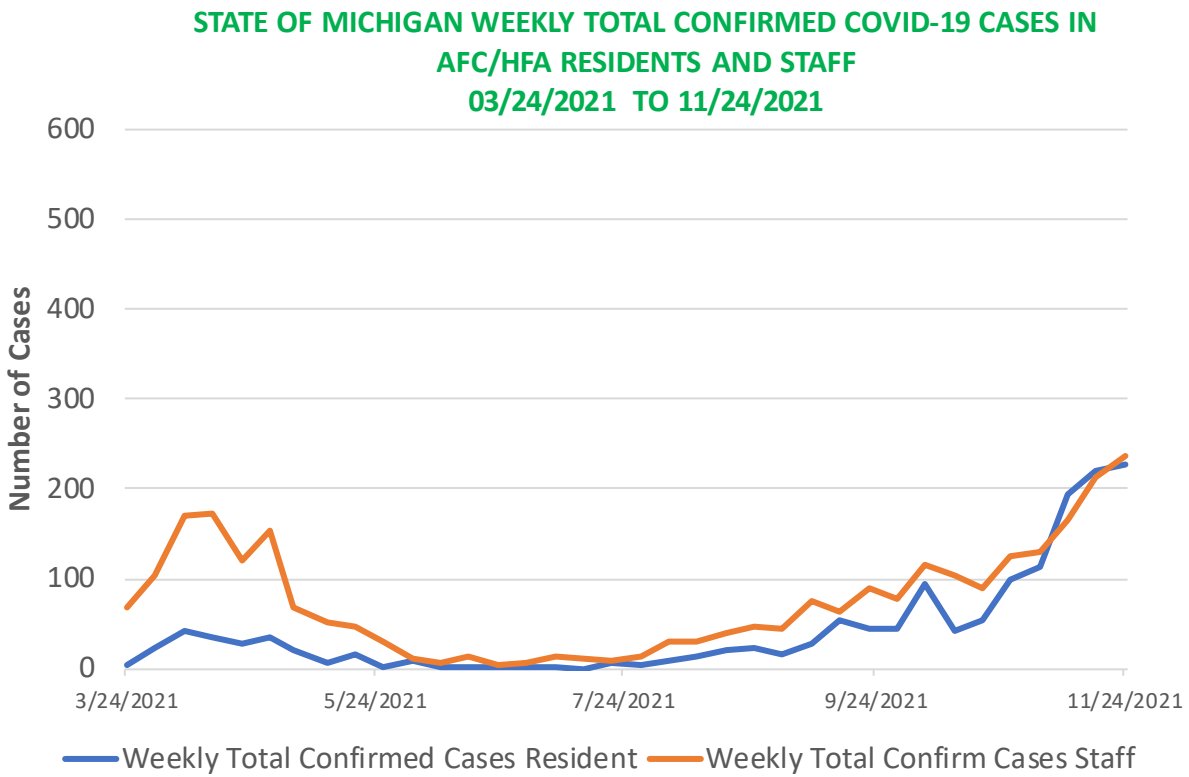
Number of SNFs with 3 or more Confirmed Cases

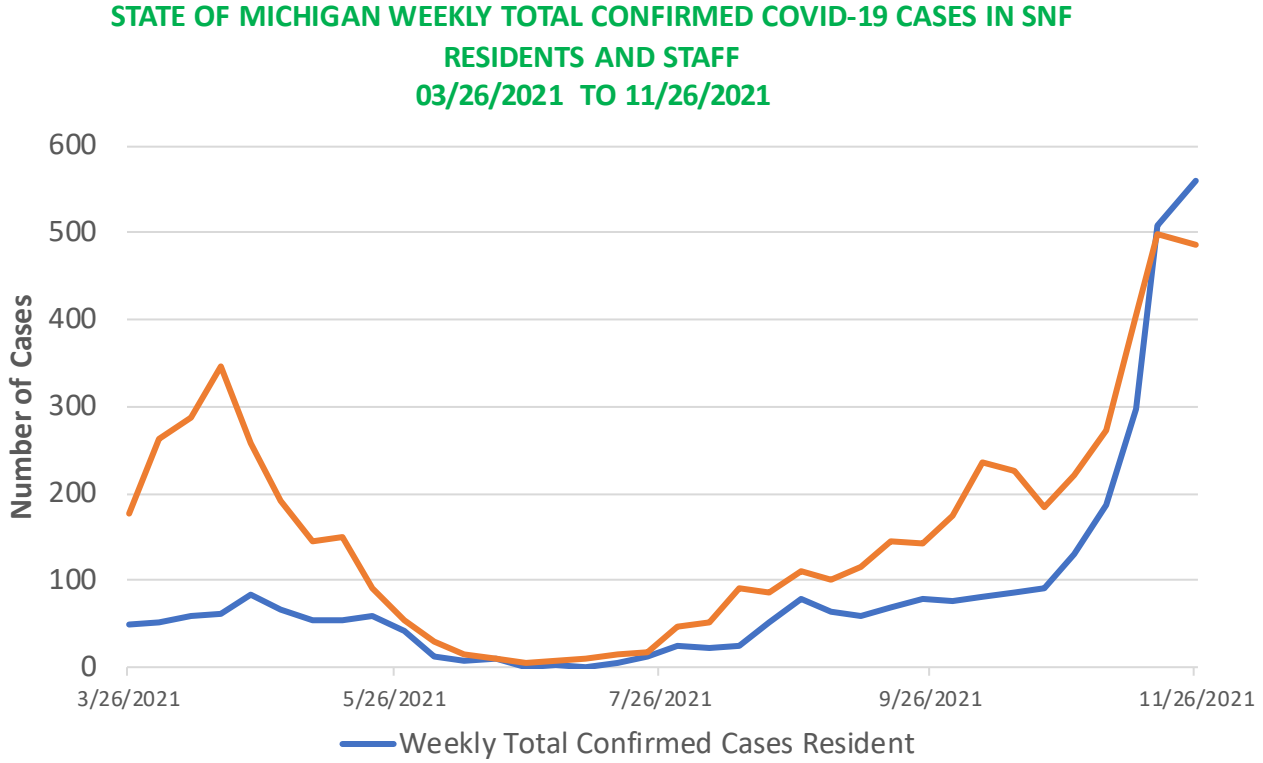
- The number of Long-Term Care Facilities reporting 3 or more cases within a single reporting period has increased from lows near 0 in June and July to 30 AFC/HFA facilities and over 60 Skilled Nursing Facilities in most recent data.

COVID-19 outbreaks within Long-Term Care Facilities are defined as three or more cases with an epidemiological linkage by place and time indicating a shared exposure outside of a household (https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173_102057---,00.html and https://www.michigan.gov/coronavirus/0,9753,7-406-98163_98173-526911--,00.html)

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

Reported Cases within Long Term Care Facilities: Adult Foster Care, Homes for the Aged, and Skilled Nursing Cases for Residents and Staff





- Since June/July, there have been general increases in the number of weekly reported COVID cases within LTCF among both residents and staff
- There have been more cases among staff than residents in these facilities, until recently

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

Update on breakthrough cases

Potential COVID-19 Vaccination Breakthrough Cases

Michigan part of CDC's nationwide investigation (COVID-19 Vaccine Effectiveness | CDC)

Cumulative Michigan Data (1/1/21 through 11/19/21):

- **104,081 cases met criteria based on a positive test 14 or more days after being fully vaccinated**
- **Approximately 2% of people who were fully vaccinated met this case definition**
  - **Includes 1,170 deaths (1,004 in persons ages 65 years or older)**
  - **2,370 cases were hospitalized**

COVID-19 Vaccines Work

- Research provides evidence that COVID-19 vaccines are effective at preventing COVID-19.
- COVID-19 vaccination helps protect adults and children ages 5 years and older from getting sick or severely ill with COVID-19 and helps protect those around them.
- To receive the most protection, adults and children ages 5 years and older should receive all recommended doses of a COVID-19 vaccine.
- Some people who are fully vaccinated against COVID-19 will still get sick because no vaccine is 100% effective. Experts continue to monitor and evaluate how often this occurs, how severe their illness is, and how likely a vaccinated person is to spread COVID-19 to others.

Cumulative COVID-19 Cases by Vaccination Status, Michigan, Jan 15 – Nov 19

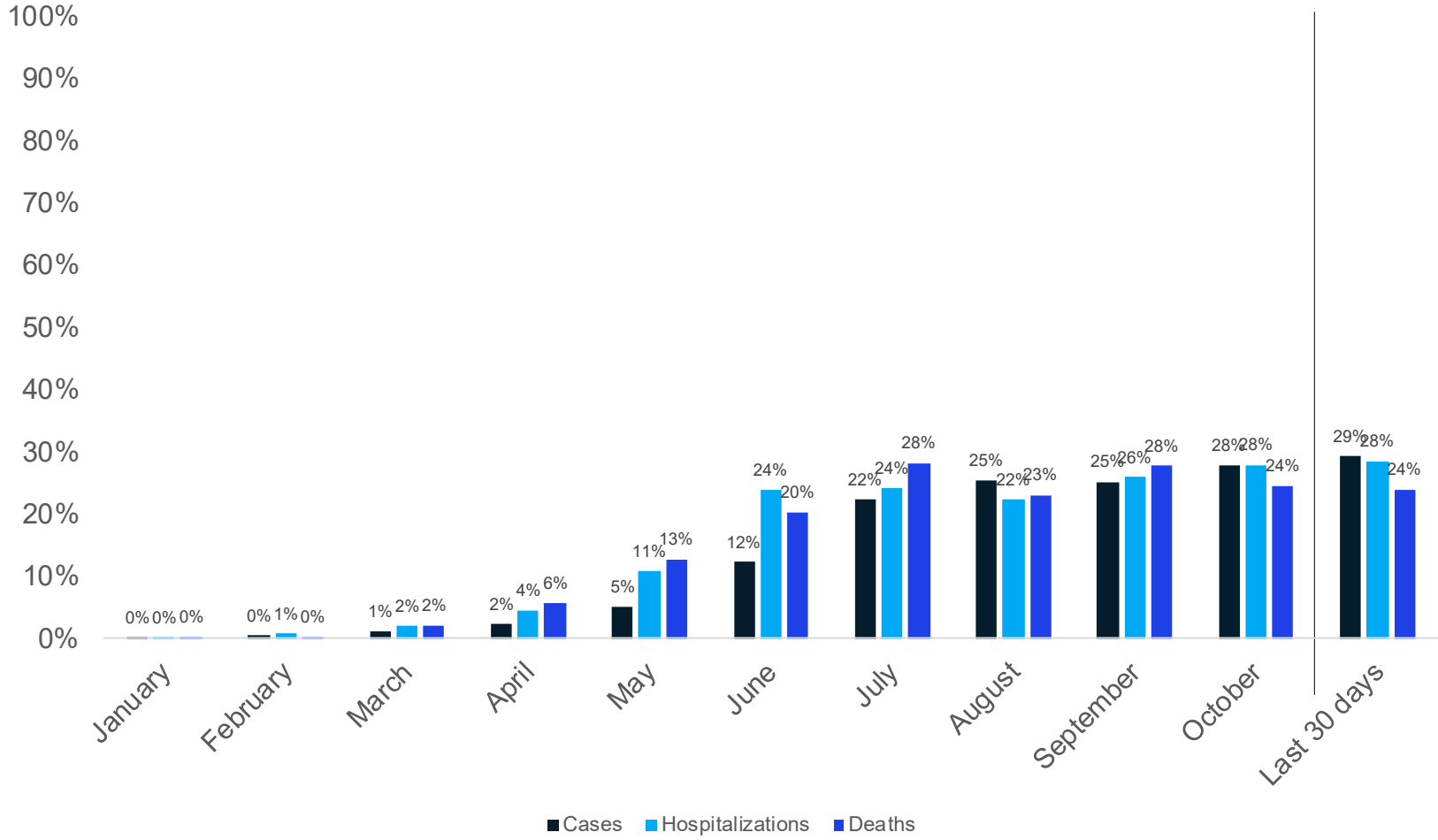
Fully Vaccinated People (5,107,217)		
Cases	**Hospitalization**	**Deaths**
Percent of Cases In People Not Fully Vaccinated (630,878 / 734,959) **85.8%**	Percent of Hospitalizations In People Not Fully Vaccinated (15,907 / 18,277) **87.0%**	Percent of Deaths In People Not Fully Vaccinated (7,404 / 8,574) **86.4%**
630,878 Total Cases Not Fully Vaccinated	**15,907** Total Hospitalized Not Fully Vaccinated	**7,404** Total Deaths Not Fully Vaccinated
Total Breakthrough Cases **104,081**	Total Breakthrough Hospitalizations **2,370**	Total Breakthrough Deaths **1,170**
2.038% Percent of Fully Vaccinated People who Developed COVID-19 (104,081 / 5,107,217)	**0.046%** Percent of Fully Vaccinated People Who Were Hospitalized for COVID-19 (2,370 / 5,107,217)	**0.023%** Percent of Fully Vaccinated People Who Died of COVID-19 (1,170 / 5,107,217)
14.2% Percent of Cases Who Were Fully Vaccinated (104,081 / 734,959)	**13.0%** Percent of Hospitalizations Who Were Fully Vaccinated (2,370 / 18,277)	**13.6%** Percent of Deaths Who Were Fully Vaccinated (1,170 / 8,574)
Total Cases: **734,959**	Total Hospitalizations: **18,277**	Total Deaths: **8,574**

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

Trends in Breakthrough Cases, Hospitalizations, and Deaths: *Transitioning*

- 54.4% of the population is fully vaccinated yet only account for ~24-29% of cases, hospitalizations, and deaths
- As the fully vaccinated population has increased, so have the percent of breakthrough incidents; but breakthrough burden remains lower

In the last 30 days (Oct 21 - Nov 19), 40,162 (29%) of 137,472 cases, 450 (28%) of 1,584 hospitalized cases, and 184 (24%) of 772 deaths were among fully vaccinated individuals.



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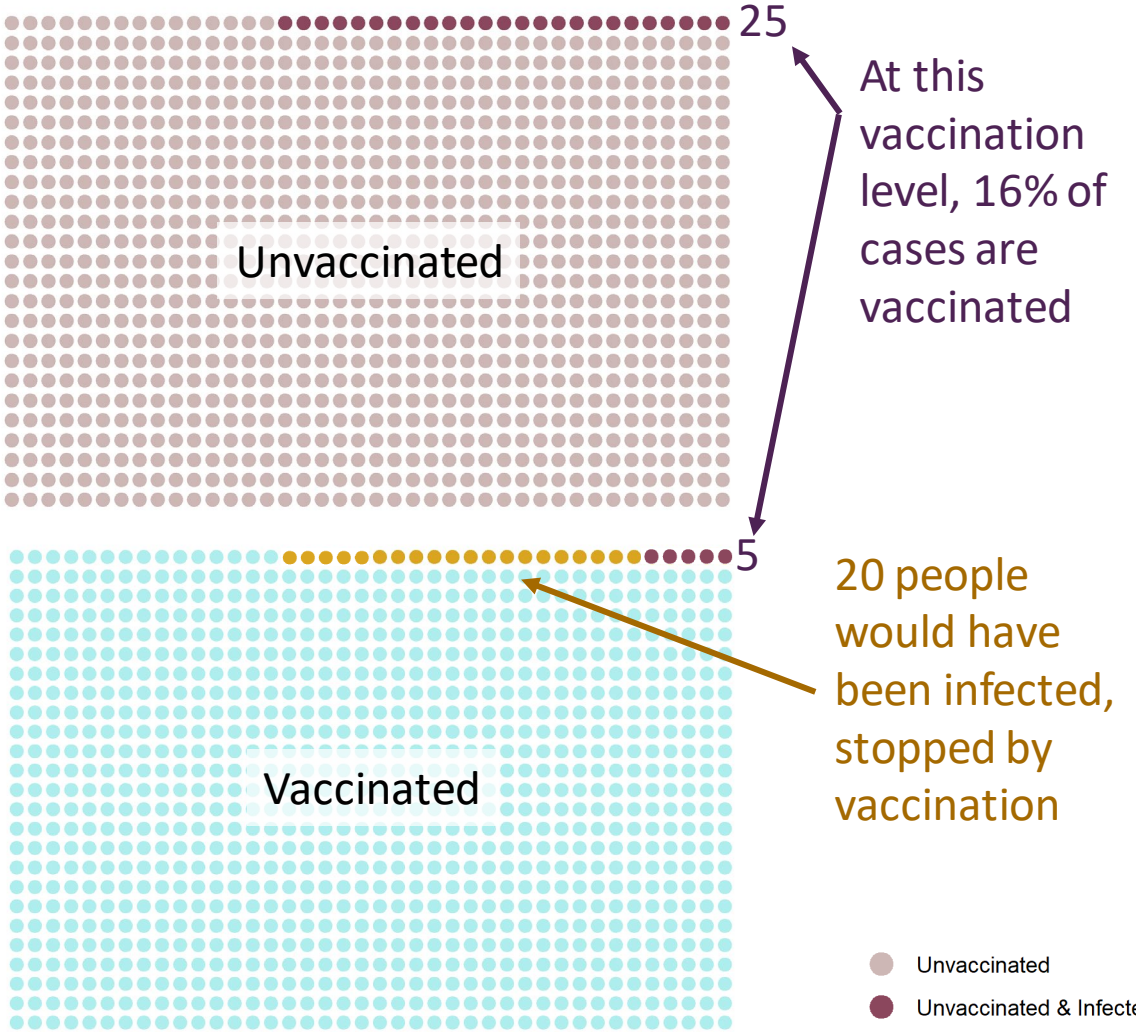
- These hospitalizations include individuals who are hospitalized for issues other than COVID19 (the same as breakthrough COVID-19).
- Individuals who get hospitalization will lag after infection and may occur after case investigation.

When more people are vaccinated, more cases will come from the vaccinated population

50% Vaccinated: 30 cases

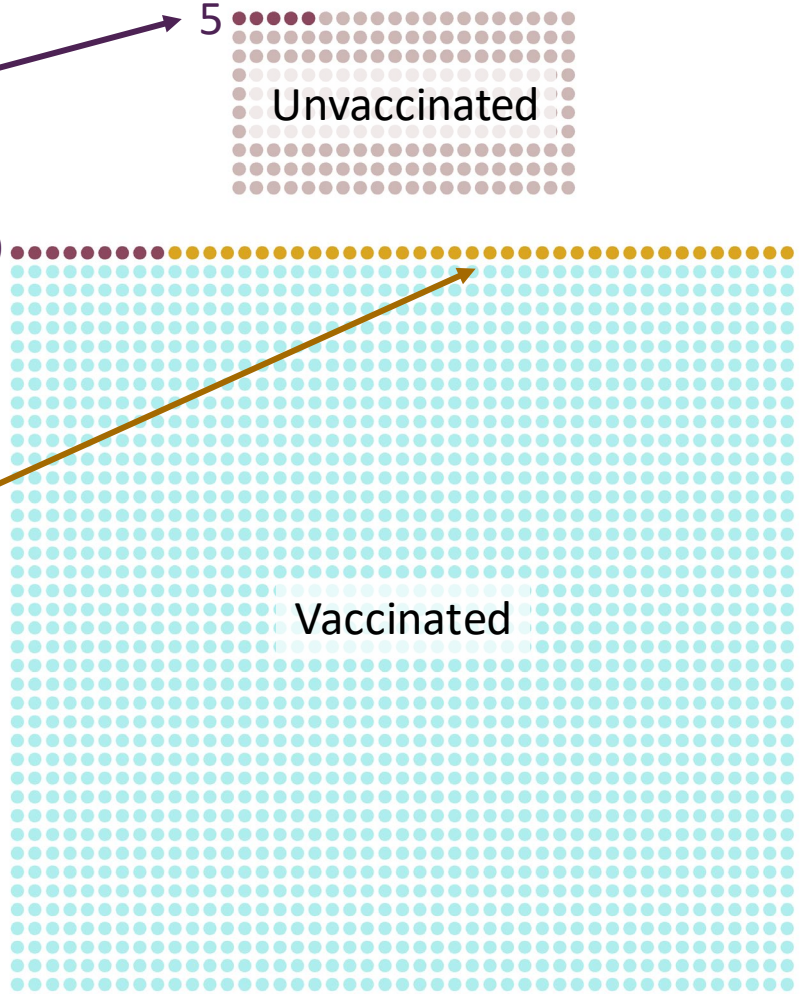


At this vaccination level, 16% of cases are vaccinated

20 people would have been infected, stopped by vaccination

90% Vaccinated: 14 cases

Now 64% of cases are vaccinated. But the vaccine is still working

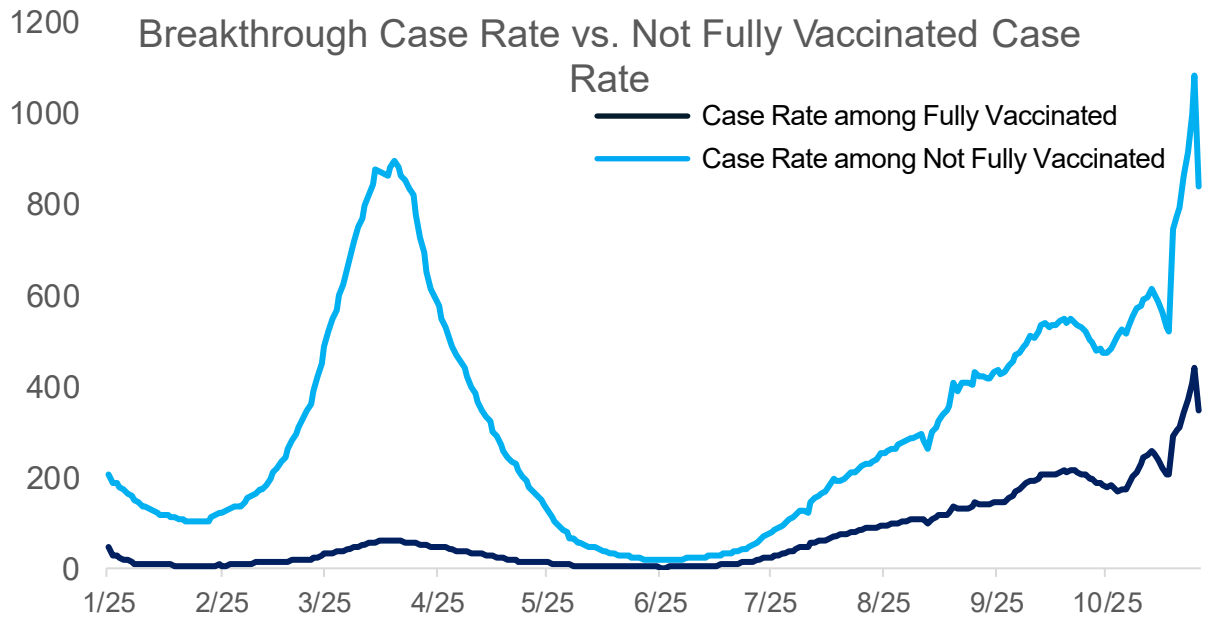


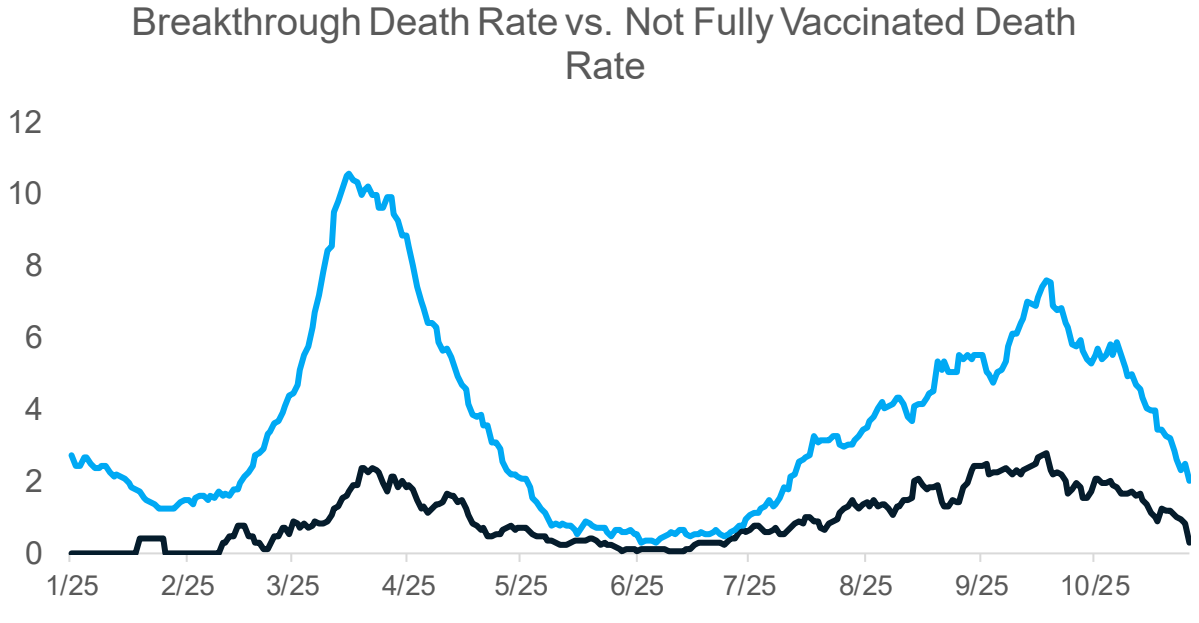
36 people would have been infected, stopped by vaccination

Unvaccinated
Unvaccinated & Infected
Prevented Infection
Vaccinated
Vaccinated & Infected

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

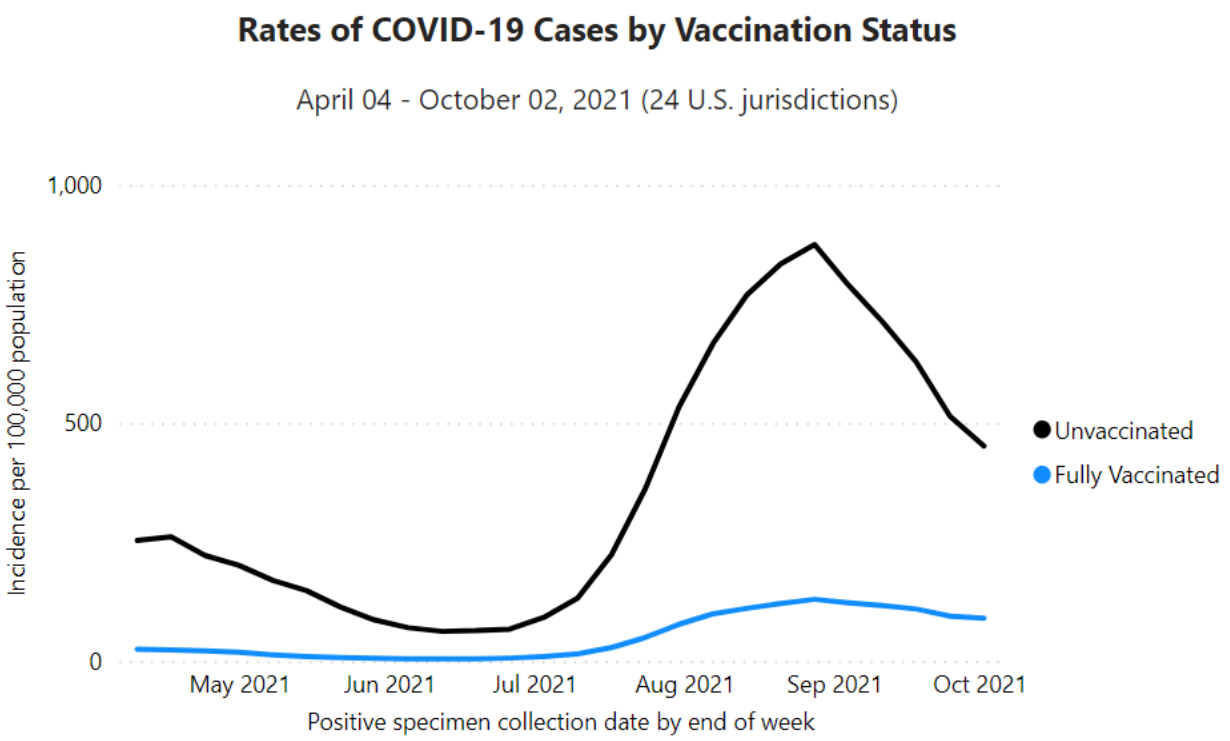
Crude COVID-19 Vaccination Breakthrough Cases and Deaths Rates: *Transitioning*

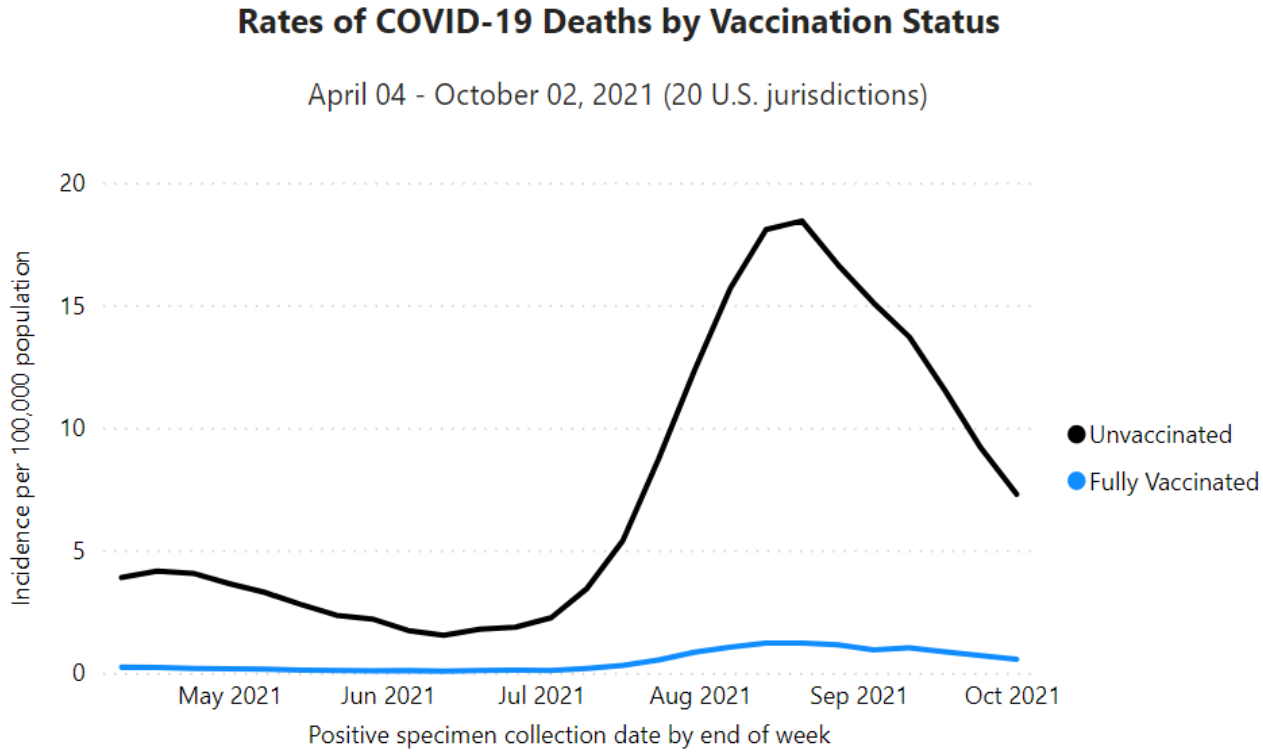




- Trends over time show that both case and death rates among the Fully Vaccinated are lower than the Not Fully vaccinated rates in Michigan
- The *proportion* of breakthrough cases and deaths among all cases and deaths has shown some increases as more people become fully vaccinated
  - However, the risk of infection and death remains significantly lower among the fully vaccinated

National Age-Standardized Rates of COVID-19 Cases and Deaths by Vaccination Status





In September, unvaccinated persons had:

5.8X
Risk of Testing Positive for COVID-19

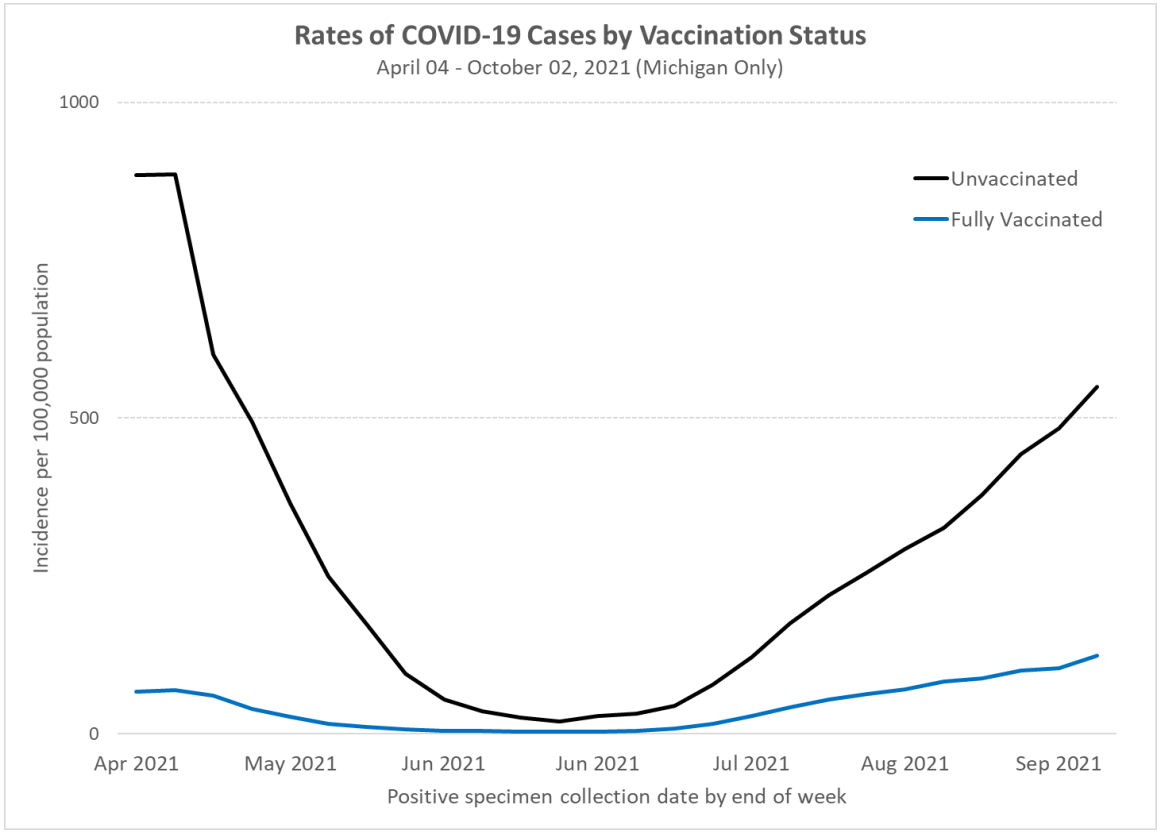
AND

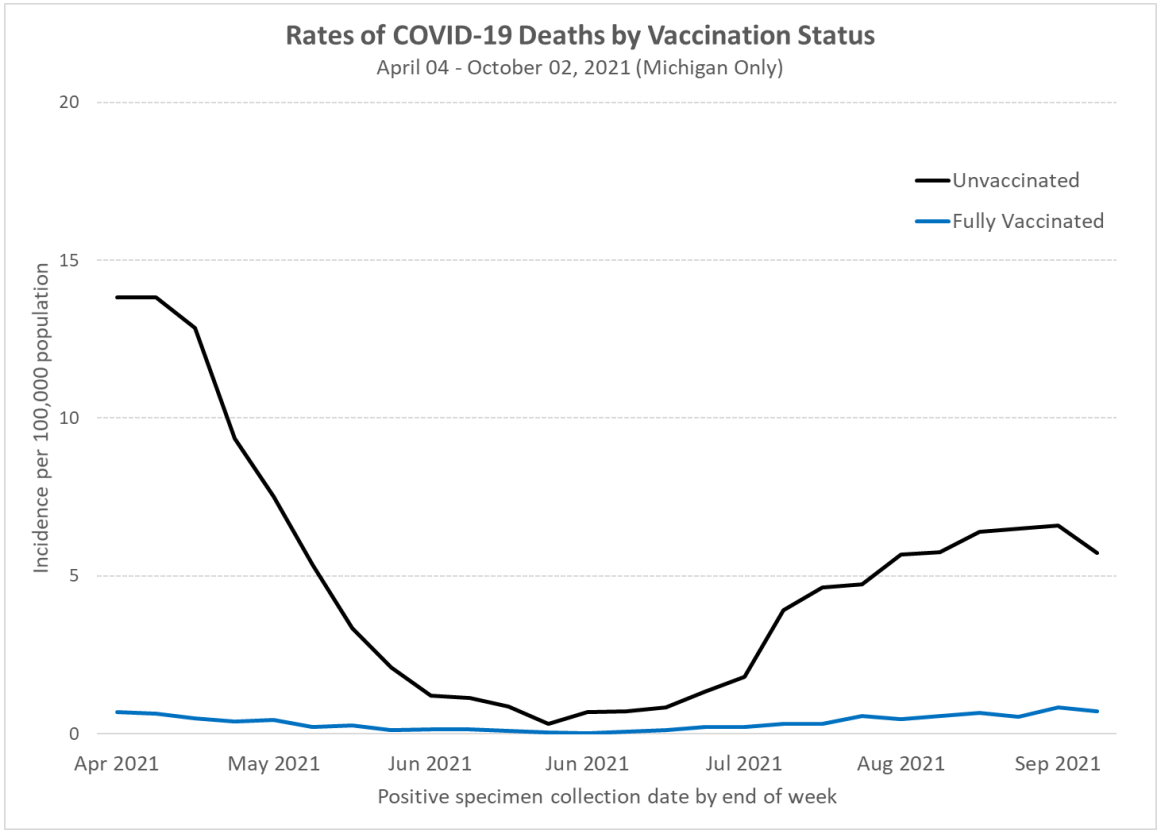
14X
Risk of Dying from COVID-19

compared to fully vaccinated persons

Footnotes: Incidence rates were age-standardized using the 2000 U.S. Census standard population; and rates are not adjusted for time since vaccination, underlying conditions, or other demographic factors besides age. | Incidence rate ratios for the past one month were calculated by dividing the average weekly incidence rates among unvaccinated people by that among fully vaccinated people.

Michigan Age-Standardized Rates of COVID-19 Cases and Deaths by Vaccination Status





In September, unvaccinated persons had:

4.4 X
Risk of Testing Positive for COVID-19

AND

9.3 X
Risk of Dying from COVID-19

compared to fully vaccinated persons

Footnotes: Incidence rates were age-standardized using the 2000 U.S. Census standard population; and rates are not adjusted for time since vaccination, underlying conditions, or other demographic factors besides age. Incidence rate ratios for the past one month were calculated by dividing the average weekly incidence rates among unvaccinated people by that among fully vaccinated people.

Risk of becoming ill or dying much higher in unvaccinated individuals

In September 2021:

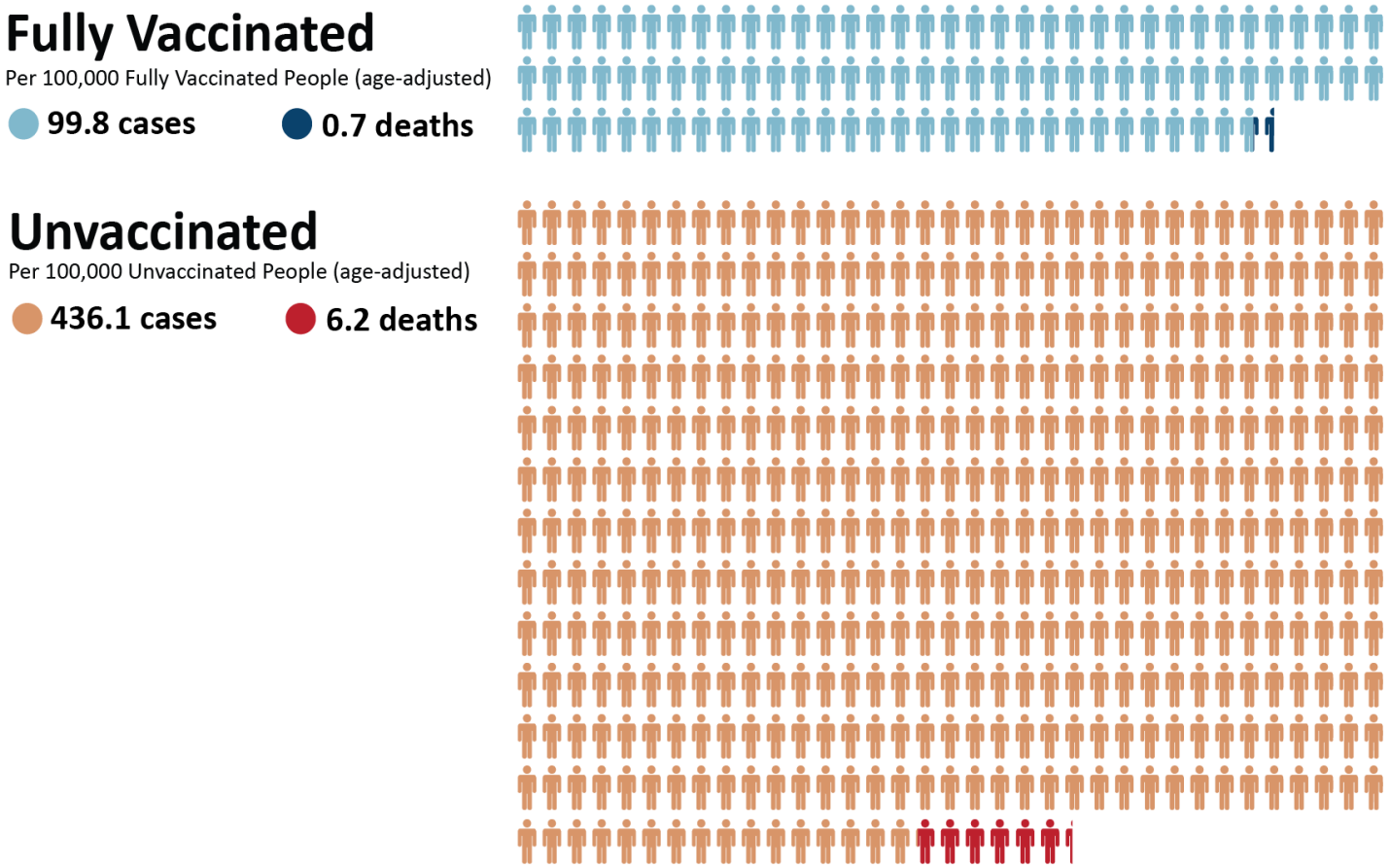
Unvaccinated persons had **4.4 times** the risk of testing positive for COVID-19 compared to fully vaccinated persons

- 436.1 cases per 100,000 unvaccinated persons compared to 99.8 cases per 100,000 fully vaccinated persons

Unvaccinated persons had **9.3 times** the risk of dying from COVID-19 compared to fully vaccinated persons

- 6.2 deaths per 100,000 unvaccinated persons compared to 0.7 deaths per 100,000 fully vaccinated persons

Age-Adjusted Case and Death Rates per 100,000 People by Vaccination Status, September 2021



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Key Messages: Healthcare Capacity and COVID Severity

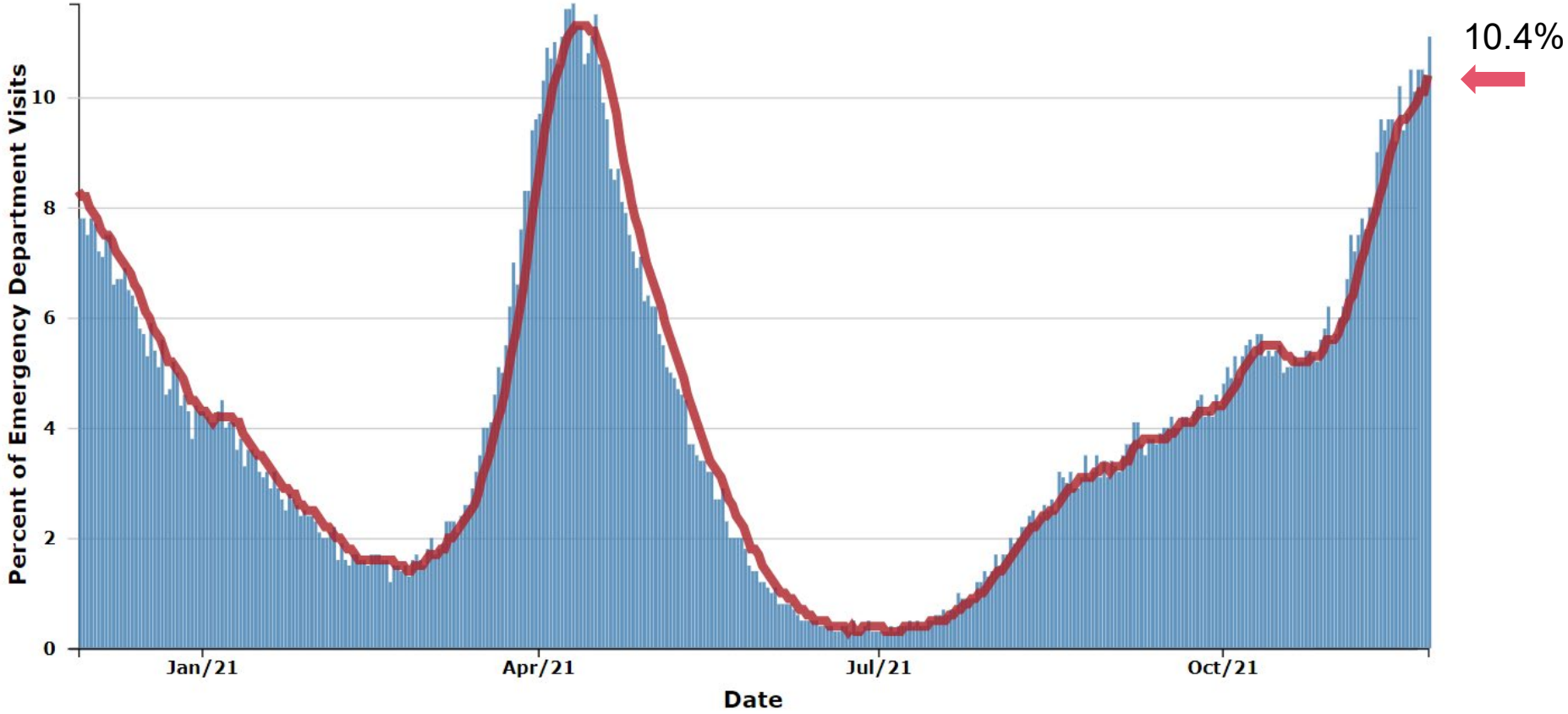
Emergency Department visits, Hospital Admissions, and Hospital Census for COVID are all increasing

- 10.4% of ED visits are for COVID diagnosis (up from 9.3% last week)
- Hospital admissions for most age groups are plateaued week
- Hospital census has increased 13% since last week (vs. 21% increase week prior)
- All regions have increasing trends in hospital census this week
  - All Regions outside the Southeast have exceeded their spring wave peaks
  - Four regions (2N, 2S, 3, 6) now have greater than 400/Million population hospitalized; Region 3 more than 500/Million
- Overall, volume of COVID-19 patients in intensive care has increased 8% (vs. 23% increase last week)

Death rate is 6.8 daily deaths/million residents over last 7 days (Last week: 5.8 deaths/million)

- Trends for daily average deaths are increasing for most reported racial and ethnic groups
- Currently, American Indian/Alaskan Natives have the highest death rate (7.6 deaths/million)
- In the past 30 days, the proportion of deaths among those over 60 is steadily increasing

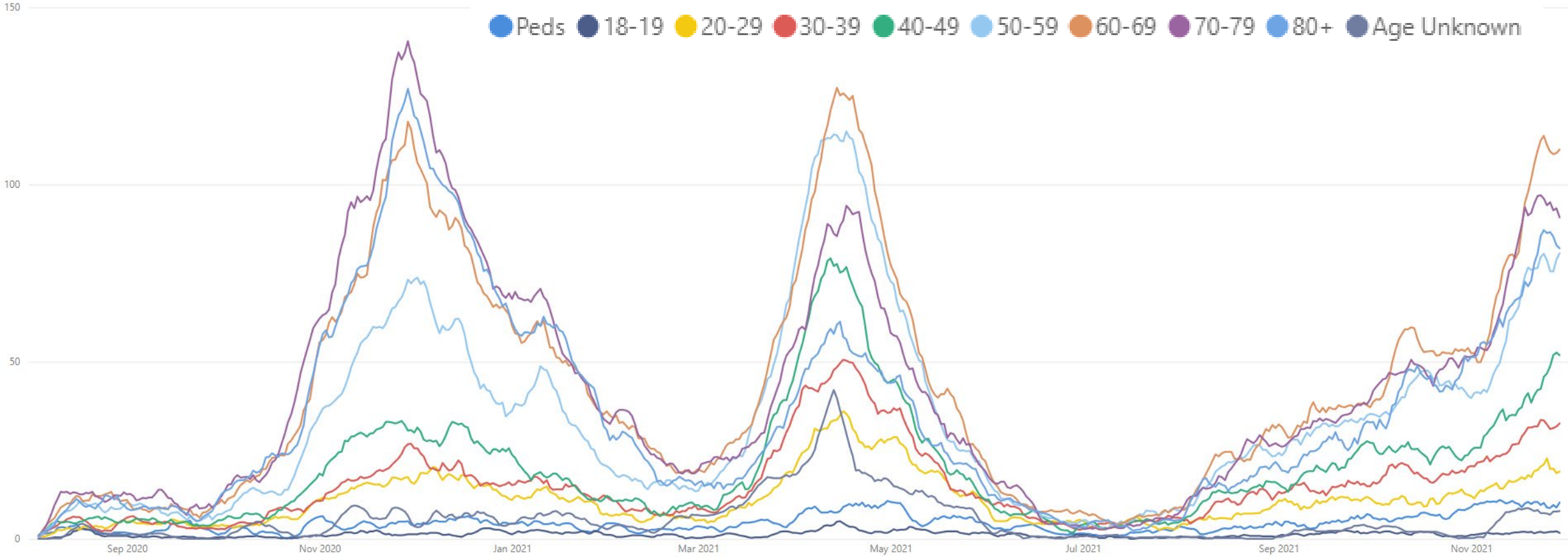
Michigan Trends in Emergency Department (ED) Visits for Diagnosed COVID-19



- Trends for ED visits have increased to 10.4% since last week (up from 9.3%), and are near Alpha surge high of 11.3%
- Trends for all age groups are increasing
- Over past week, those 50-64 years saw highest number of avg. daily ED CLI visits (13.8%), but those between 40+ all above state average

Source: https://covid.cdc.gov/covid-data-tracker/#ed-visits; data extracted on 10/18/2021

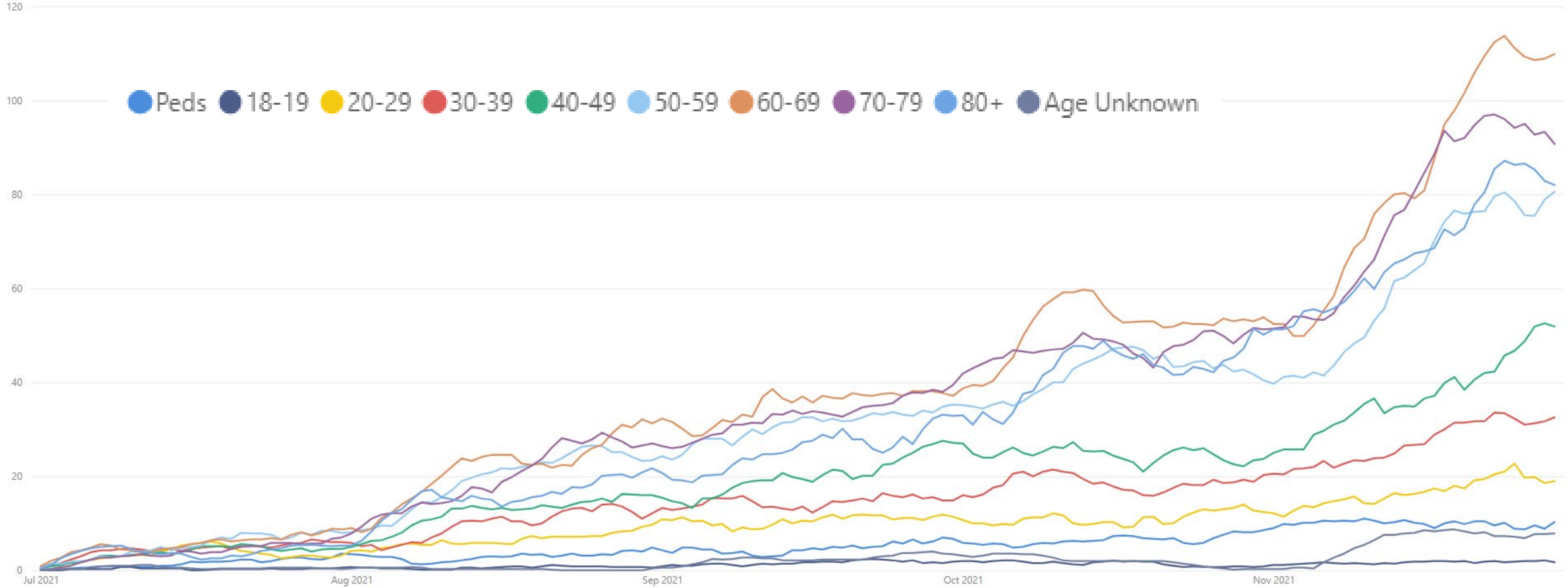
Average Hospital Admissions Are Increasing for all Age Groups



- Trends for daily average hospital admissions have increased 2% since last week (vs. 23% increase prior week)
- Nearly all age groups saw increases this week with largest increases in those between 40 and 49 years (23%, +10)
- More than 75 daily hospital admissions was seen for each of the age groups of 50-59, 60-69, 70-79, and 80+

Source: CHECC & EM Resource

Average Hospital Admissions by Age Groups



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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	8.1	5.9	+12% (+1)
12-17	3.9	5.1	0% (+0)
18-19	1.7	6.5	-8% (-<1)
20-29	19.0	13.8	-2% (-<1)
30-39	32.3	26.6	+2% (+1)
40-49	51.9	44.0	+23% (+10)
50-59	**80.6**	**59.7**	**+5% (+4)**
60-69	**109.6**	**85.9**	**0% (+0)**
70-79	**90.0**	**117.4**	**-7% (-7)**
80+	**82.0**	**198.0**	**+2% (+2)**
Total¶	**486.9**	**48.7**	**+2% (+10)**

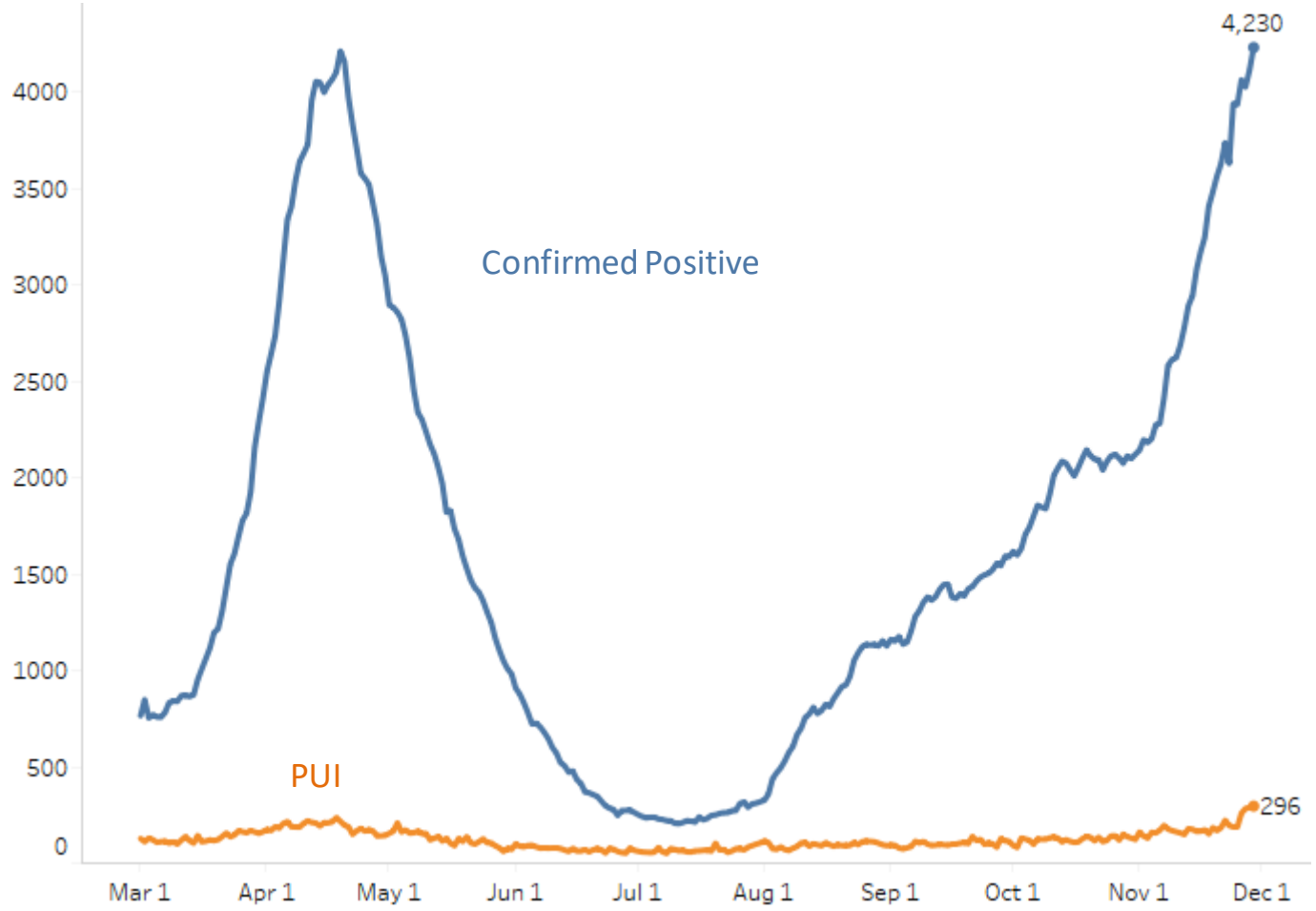
* Rate per 1 million residents; † Rolling 7-day average; ¶ Total may not reflect state due to missing age data
Note: Hospital Admission data reflects date data was submitted
Source: CHECC and EM Resource

- Through November 29, there were an average of 486.9 hospital admissions per day due to COVID-19; an increase from last week (↑2%, +10)
- Most age groups were plateaued this week
- The largest one-week increases were among those 40-69 (+10, +23%)
- More than 80 daily hospital admissions was seen for those aged 50-59, 60-69, 70-79, and 80+
- Average daily hospital admission rate (194.2 hospital admissions/million) are highest for those aged 80+

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

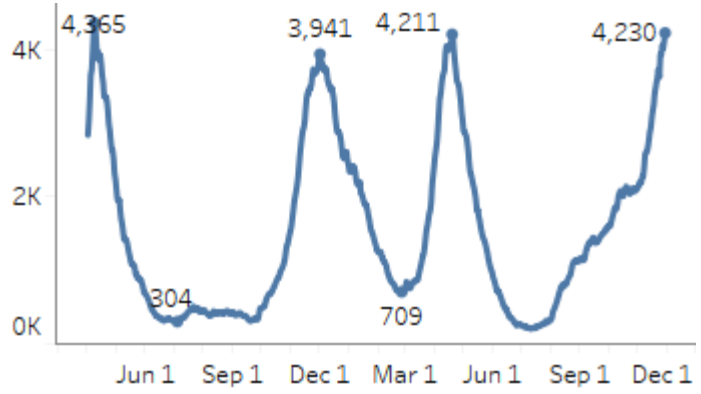
Hospitalization Trends 3/1/2021 – 11/29/2021
Confirmed Positive & Persons Under Investigation (PUI)



The COVID+ census in hospitals has increased by 13% in the past week (previous week was 21% growth).

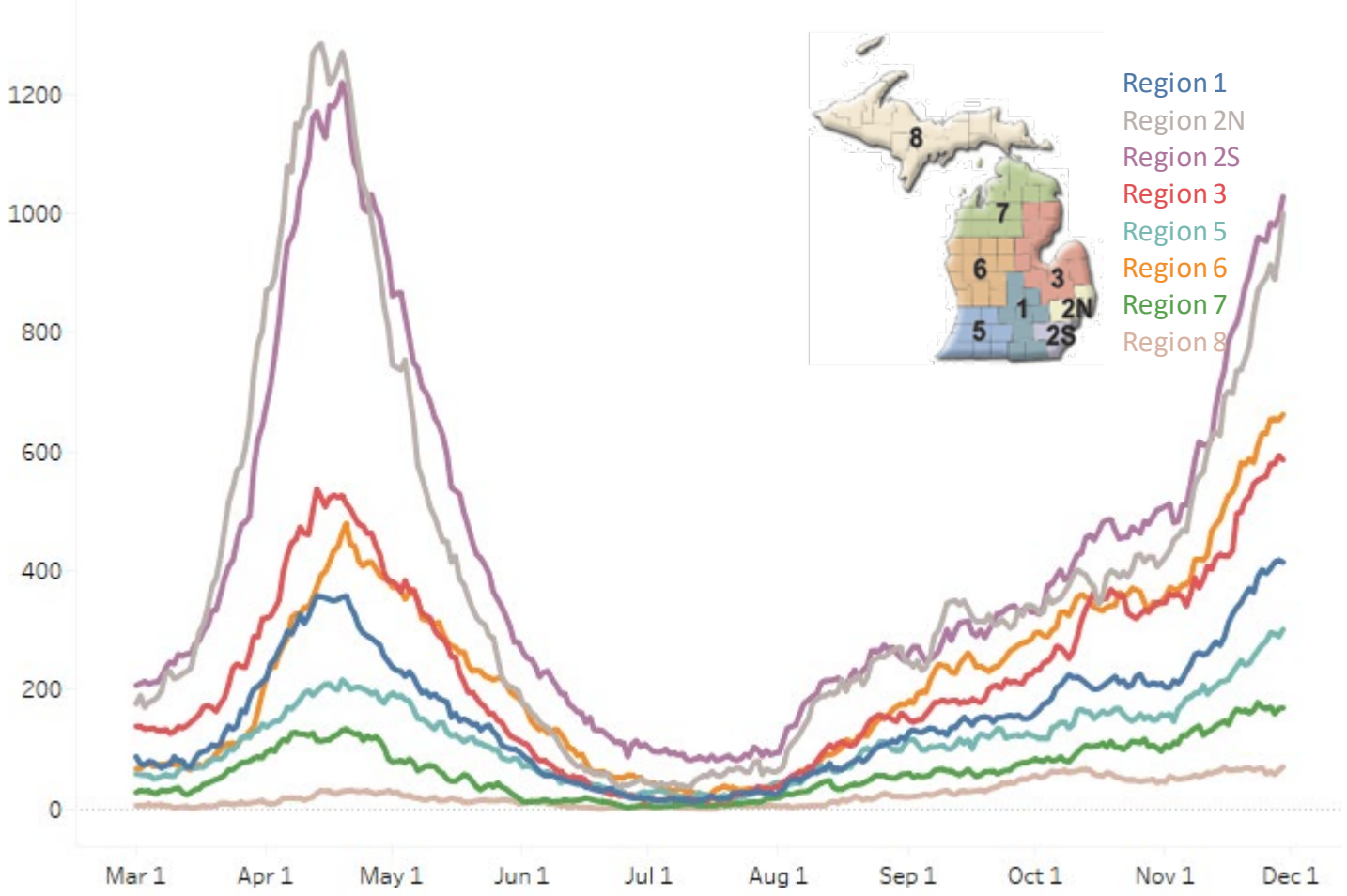
The current wave's hospitalizations have exceeded peaks of the winter 2020 and spring 2021 waves and are approaching the spring 2020 wave peak (4,365).

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 3/1/2021 – 11/29/2021
Confirmed Positive by Region



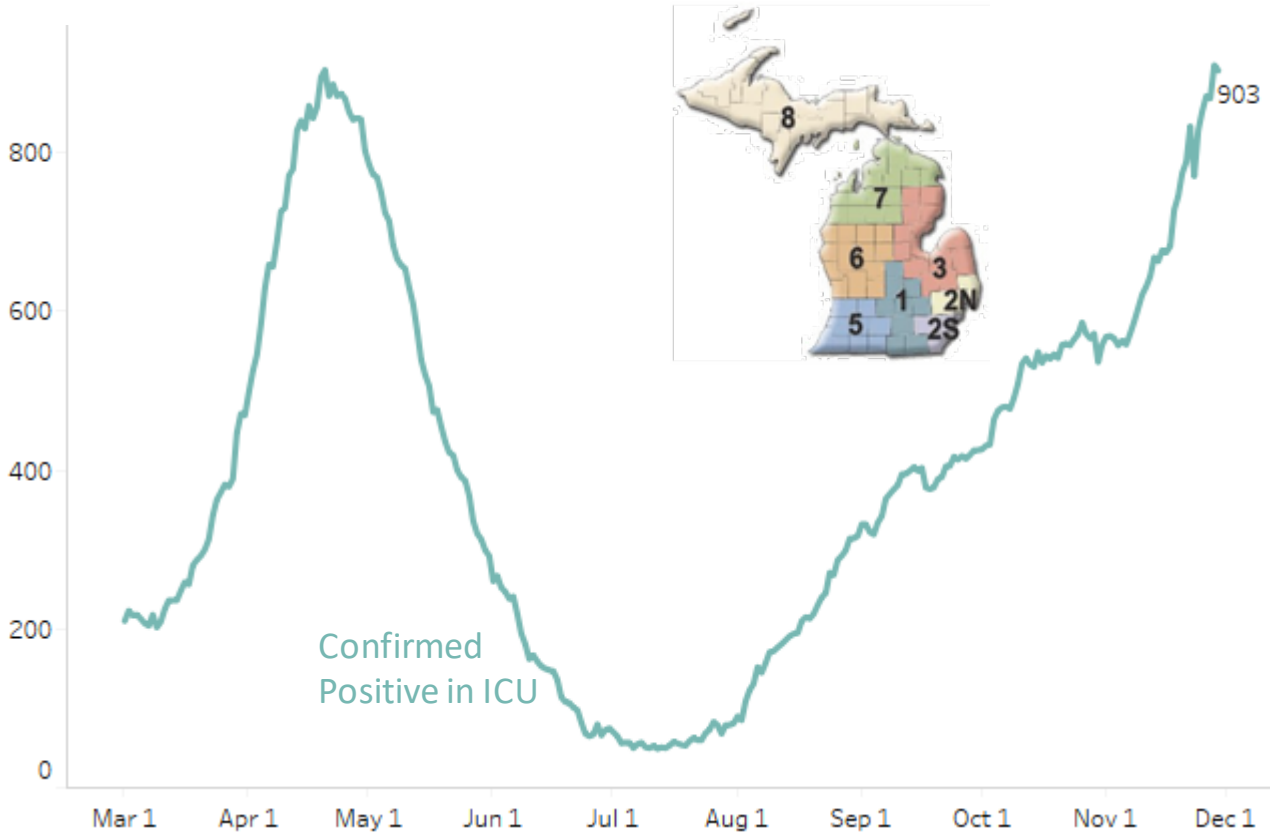
The COVID+ hospital census has increased across all regions with the fastest growth in Regions 2N and 6. Regions 1, 5, 6 and 7 currently have highest COVID+ census reported since the beginning of the pandemic.

Regions 2N, 2S, 3 and 6 now have greater than 400/M population hospitalized, and Region 3 is greater than 500/M population hospitalized.

Region	COVID+ Hospitalizations (% Δ from last week)	COVID+ Hospitalizations / MM
Region 1	414 (14%)	383/M
Region 2N	1000 (20%)	452/M
Region 2S	1028 (11%)	461/M
Region 3	586 (7%)	517/M
Region 5	301 (18%)	316/M
Region 6	662 (29%)	451/M
Region 7	169 (2%)	338/M
Region 8	70 (9%)	225/M

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 3/1/2021 – 11/29/2021
Confirmed Positive in ICUs

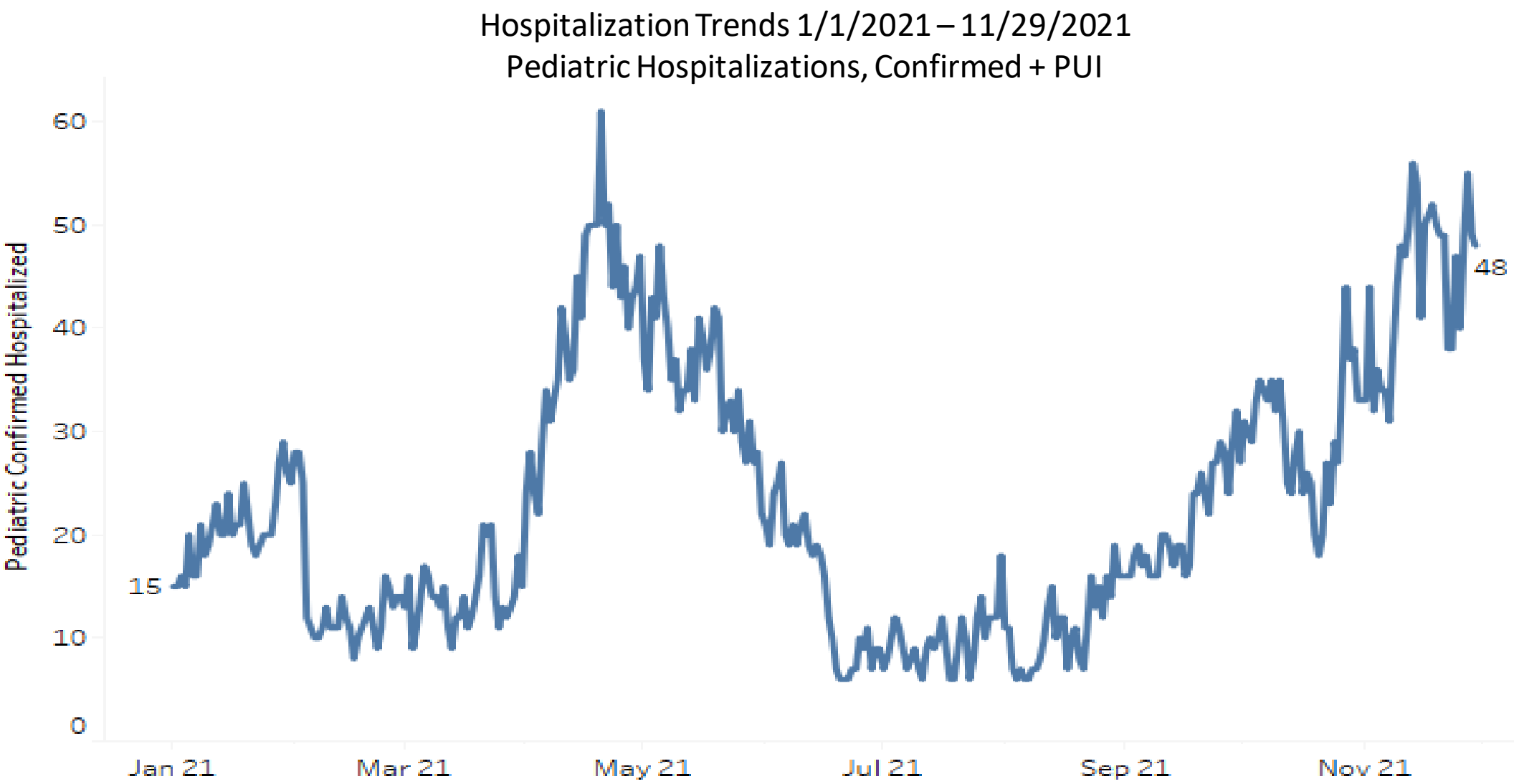


Overall, the census of COVID+ patients in ICUs has increased 8% from last week. COVID+ ICU census has surpassed the spring 2021 peak.

Regions 1, 2S, 3, 6, and 7 have overall adult ICU occupancy greater than 85%, with Regions 1, 3, 6 above 90% occupancy. Regions 1, 6, 7 and 8 have more than 40% of adult ICU beds filled with COVID+ patients. Region 6 has >50% of adult ICU beds occupied with COVID+ patients.

Region	Adult COVID+ in ICU (% Δ from last week)	Adult ICU Occupancy	% of Adult ICU beds COVID+
Region 1	100 (18%)	94%	49%
Region 2N	166 (17%)	83%	29%
Region 2S	200 (6%)	89%	28%
Region 3	128 (2%)	92%	37%
Region 5	61 (9%)	79%	36%
Region 6	157 (15%)	91%	53%
Region 7	63 (-9%)	86%	44%
Region 8	28 (17%)	62%	44%

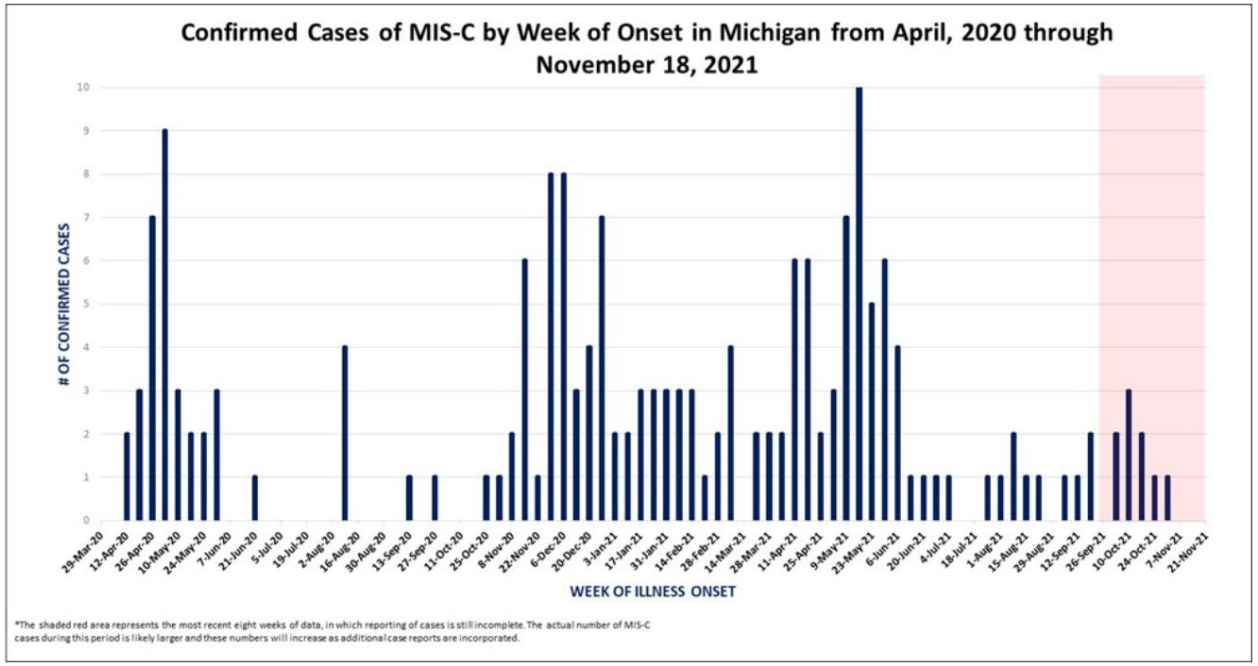
Statewide Hospitalization Trends: Pediatric COVID+ Census



Multisystem Inflammatory Syndrome in Children (MIS-C)

Michigan Surveillance

- Higher community transmissions is followed by higher incidence of MIS-C cases
- 183 cases identified in Michigan
- More than 60% of those children are elementary and pre-school aged
- Black/African American children are disproportionately impacted
- 70.5% children with MIS-C are treated in the ICU



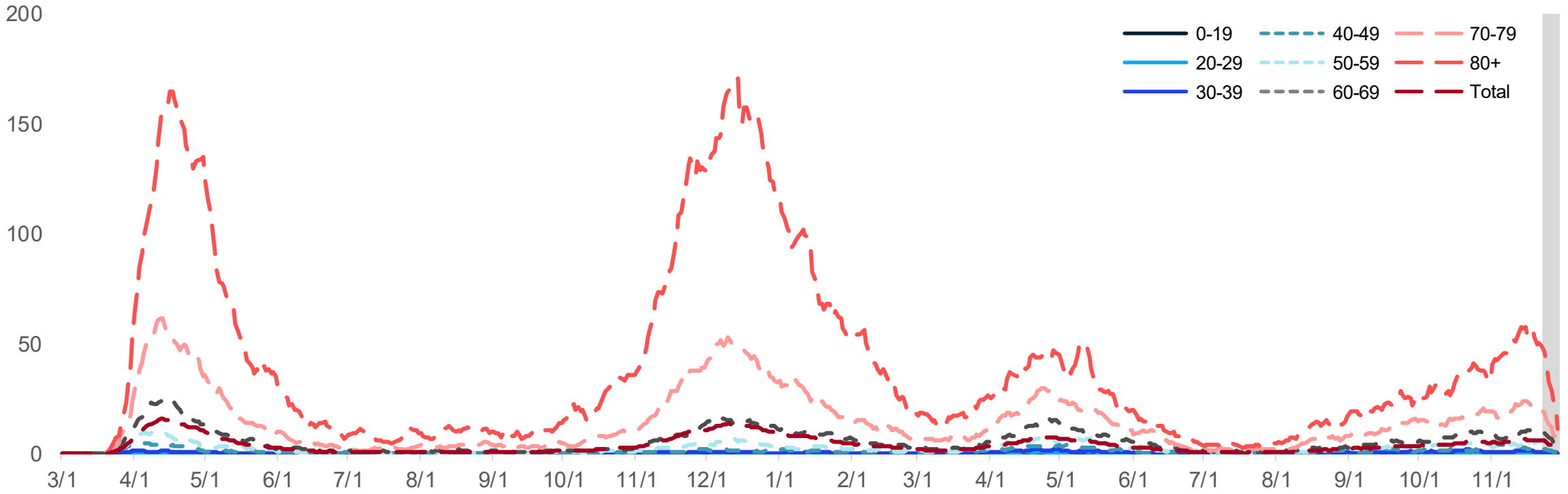
DEMOGRAPHIC INFORMATION (N=183)

Age Group	Count	%	Race	Count	%
0-4 yrs	48	26.2%	Black/African American	76	41.5%
5-10 yrs	74	40.5%	Caucasian	79	43.2%
>10 yrs	61	33.3%	All Others / Unknown	28	15.3%
Gender	Counts	%	Ethnicity	Count	%
Male	107	58.5%	Not Hispanic or Latino	133	72.7%
Female	76	41.5%	Hispanic or Latino	14	7.6%
Unknown	0	0.0%	Unknown	36	19.7%

Source: MDHHS and MIS-C Data and Reporting

Average and total new deaths, by age group

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

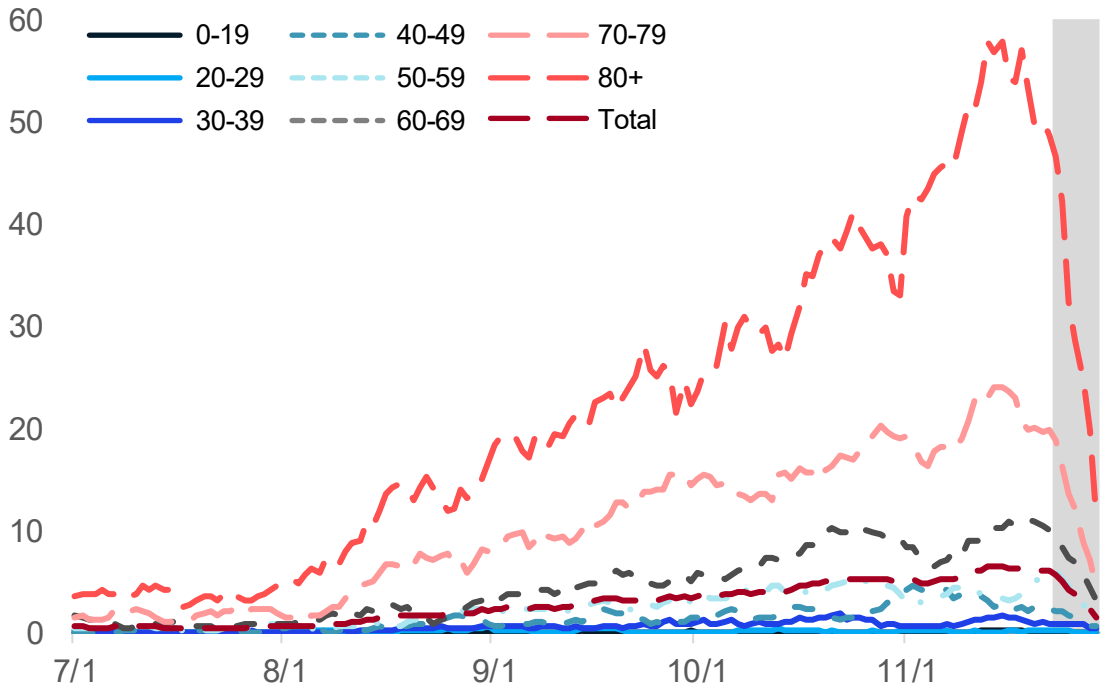


- Through 11/22, the 7-day avg. death rate is more than 45 daily deaths per million people for those over the age of 80
- COVID-19 death rates for those 80+ now are higher than the death rates during the Alpha (B.1.1.7) surge but not as high as the first two surges

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

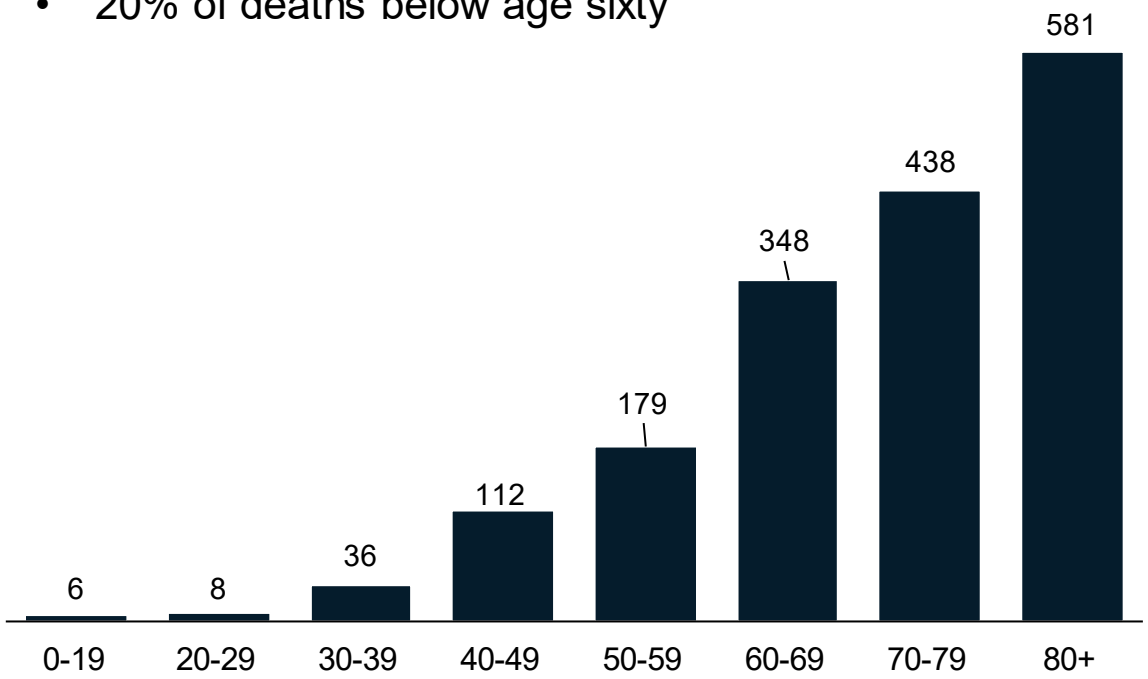
Average and total new deaths, by age group

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 11/22/2021)

- 20% of deaths below age sixty

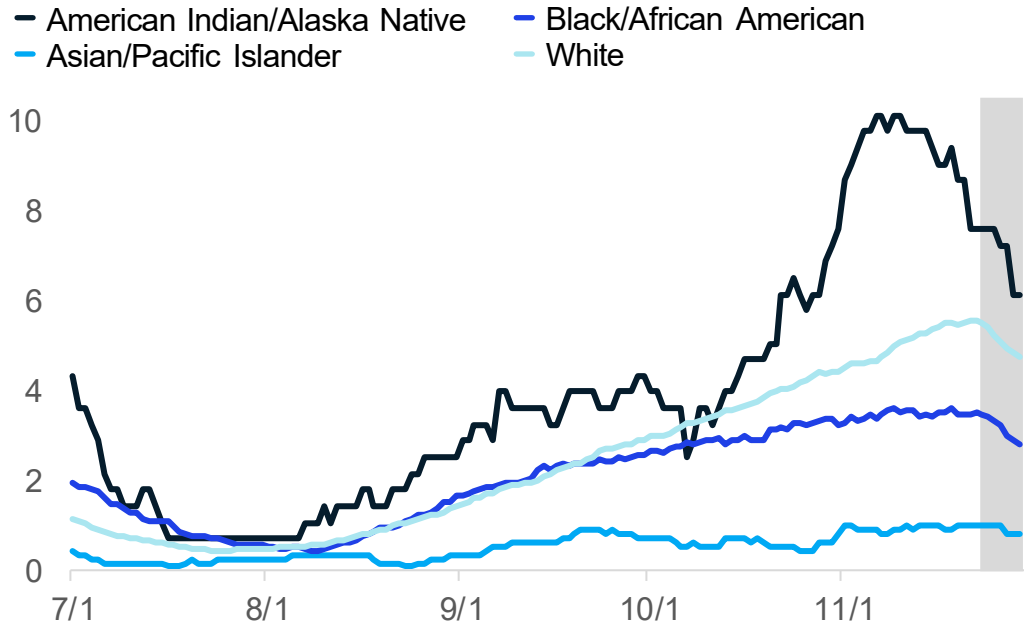


- Through 11/22, the 7-day avg. death rate is more than 45 daily deaths per million people for those over the age of 80
- In the past 30 days, the proportion of deaths among those over 60 is steadily increasing

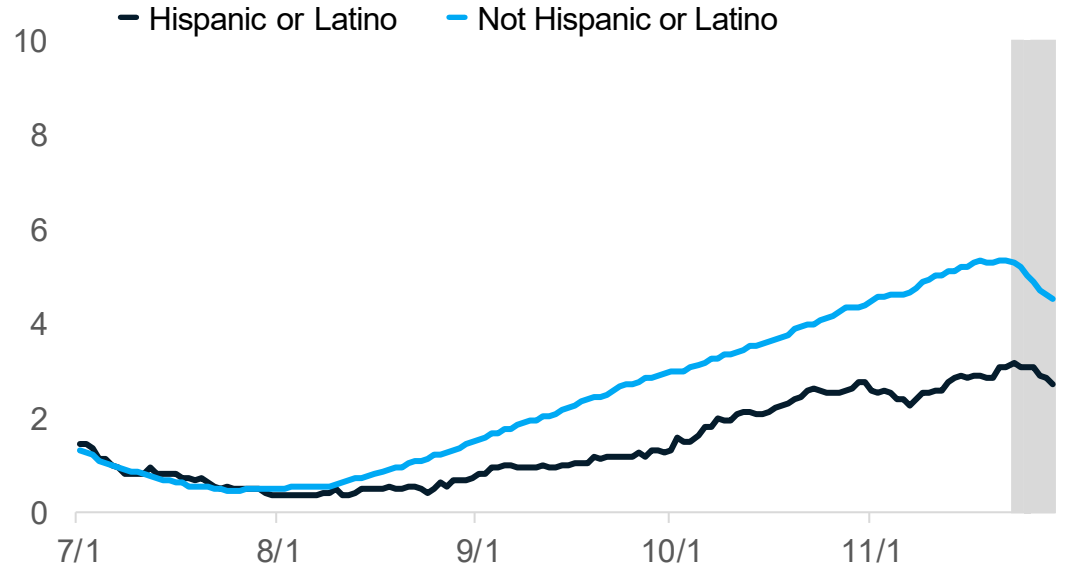
Note: Death information sourced from MDHHS and reflects date of death of confirmed and probable cases.
Source: MDHHS – Michigan Disease Surveillance System (MDSS)

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

Average daily deaths per million people by race



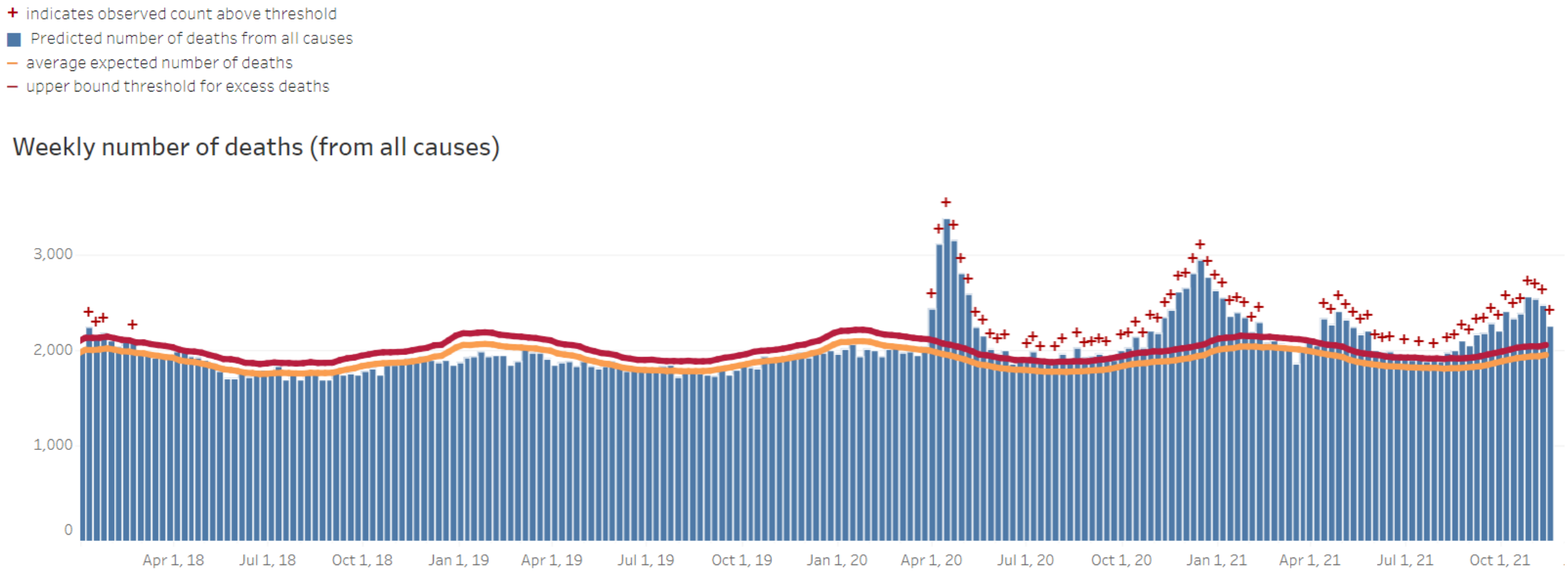
Average daily deaths per million people by ethnicity



- Deaths are lagging indicator of other metrics
- Overall trends for daily average deaths are increasing for most reported races and ethnicities
- Currently, American Indian/Alaskan Natives have the highest death rate (9.1 deaths/million)

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

Excess Deaths From All Causes in Michigan



- Excess deaths can occur from COVID-19 illness or indirectly when hospital capacity is overwhelmed
- Each of the COVID-19 case waves has resulted in a surge in excess deaths from all causes

Source: CDC Excess Deaths Associated with COVID-19: Provisional Death Counts for COVID-19

Key Messages: Public Health Response

COVID-19 Vaccination

- 8,344 first doses administered each day (7-day rolling average); administrations declined slightly over Thanksgiving holiday
- Over 5.4 million people (54.4% of the population) in the state are fully vaccinated

COVID-19 Boosters

- Over 1.4 million people have received an additional/booster dose in Michigan
- More than 50% of Michiganders over the age of 65+ have been administered a booster dose

Pediatric Vaccination

- Interactive dashboard now includes pediatrics vaccination doses (live updates effective 11/5)
- 124,810 administrations in 5- to 11-year-olds as of 11/30

Vaccine Coverage in Urban and Rural Counties

- Counties at all levels of urbanicity are experiencing increases in case rate but cases rates are higher in more rural areas
- Disparities in vaccine coverage within age groups is greater for younger ages and in non-metro areas

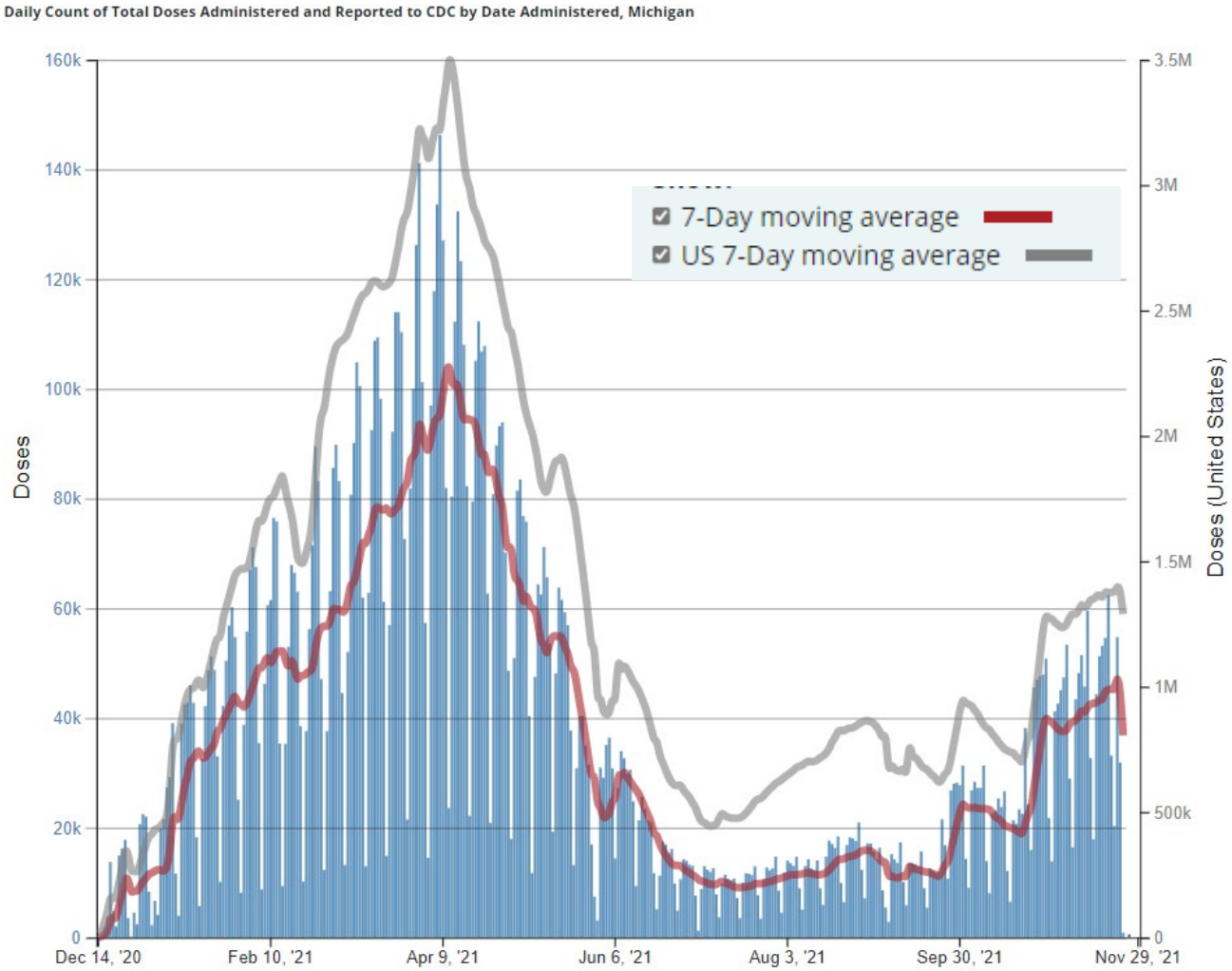
Average daily doses administered increase (data through 11/30/2021)

16,400,130 doses delivered to providers and
12,554,249 doses administered*

MI 7-day rolling average ending November 24
- 36,822 total doses/day on average† (42,714 on 11/17)
- 8,344 first doses/day on average † (11,950 on 11/17)

Total primary series doses in month of November were most frequently administered¶ by:
Pharmacies (226,518)
LHD (33,837), pediatrics (23,220), and hospitals (12,989)
Family practice (10,829) and FQHCs (8,294)

Third Doses
- 1,492,502 third doses administered as of 11/29



Source: *CDC COVID Data Tracker > Vaccinations in the US, † CDC COVID Data Tracker > Vaccination Trends; ¶ MCIR COVID-19 Vaccine Dashboard

5.4 Million Michiganders fully vaccinated and 54.4% of total population fully vaccinated

5.4 million people in the state are fully vaccinated*

85.6% of people aged 65 and older have completed the series (↔0%)*

60.9% of total population initiated (↑2%)*

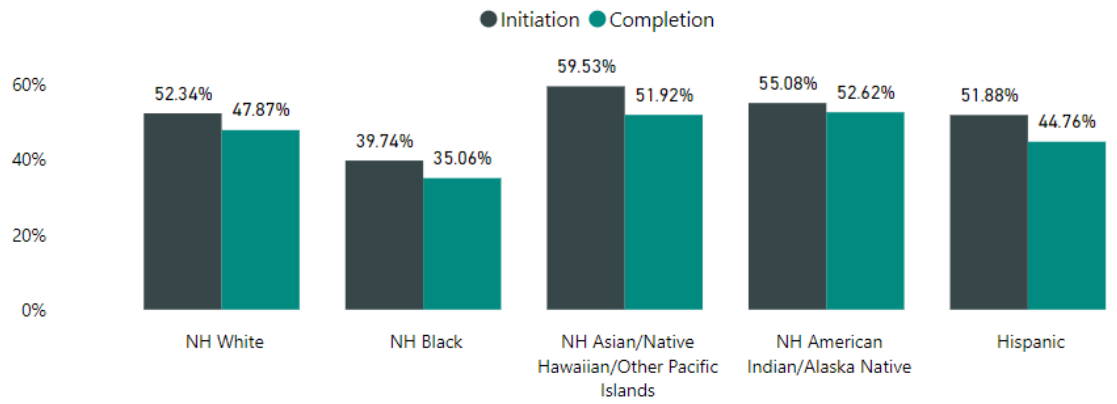
Race/Ethnicity¶ for those 12 years and older:

- Initiation coverage highest among those of Non-Hispanic (NH) Asian, Native Hawaiian or Pacific Islander Race (59.5%), then NH American Indian (55.1%), NH White (52.3%), NH Black or African American Races (39.7%).
- Initiation is at 51.9% for those of Hispanic ethnicity
- Completion follows the same pattern
- 12.3% data missing or unknown

Vaccination Coverage in Michigan as of 11/28/21

Age Group	% At Least One Dose	% Fully Vaccinated	Number Fully Vaccinated
Total Population	60.9%	**54.4%**	5,428,268
≥ 12 years	69.5%	63.3%	5,438,635
≥ 18 years	71.7%	65.4%	5,126,126
≥ 65 years	92.9%	85.6%	1,510,955

Coverage by Race*



*Data suppressed for Race/Ethnicity-by-Age populations smaller than 50 and/or where the number of vaccinated persons is 10 or less.

Source: *CDC COVID Data Tracker > Vaccinations in the US, ¶ MCIR COVID-19 Vaccine Dashboard

Booster Administration Update

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

Over 50% of fully vaccinated persons in Michigan aged 65+ have received a booster dose

CDC | Data as of: November 29, 2021 6:00am ET. Posted: Monday, November 29, 2021 6:06 PM ET

Download Data

State/Territory/Federal Entity	People with a Booster Dose by State of Residence	Percent of Fully Vaccinated People with a Booster Dose by State of Residence	People 65+ with a Booster Dose by State of Residence	Percent of Fully Vaccinated Population 65+ with a Booster Dose
California	5,084,954	20.4	2,274,344	45.7
Texas	2,816,401	17.8	1,282,205	41.4
Florida	2,626,209	19.9	1,634,655	41.4
New York State	1,960,095	14.7	963,053	33.6
Illinois	1,875,427	24	915,645	51.8
Ohio	1,611,489	26	882,694	50.6
Michigan	1,446,016	26.6	771,890	51.1
Virginia	1,295,552	23.4	622,715	51.5
New Jersey	1,209,559	20.1	576,932	44
Washington	1,111,668	[illegible]	579,018	52.8
Massachusetts	1,111,465	22.7	521,649	48.6
Pennsylvania	1,051,894	14.1	563,495	27.7
Minnesota	1,037,151	29.5	528,391	61
Wisconsin	1,002,421	29	528,902	56.1
Colorado	993,428	27.3	431,418	58.2
Maryland	974,126	23.9	462,772	52.6
Georgia	861,898	16.4	463,317	37.8
Tennessee	775,136	22.9	429,510	46.1

Now over 1.4 million Michiganders with a booster dose

Michigan is the 10th biggest state in population, but ranks 7th in terms of total COVID booster administrations
Michigan also ranks high in terms of booster administration rate, especially compared to other populous states

COVID Vaccine Coverage

Dashboard Updated: November 30, 2021. "Completion" is the percentage of Michigan residents receiving 2 doses of Pfizer or Moderna or 1 dose of J&J. "Initiation" is the percentage who have received either 1 or more doses of ANY vaccine. See the "Learn More" page to learn how percentages

Data as of :
11/29/21

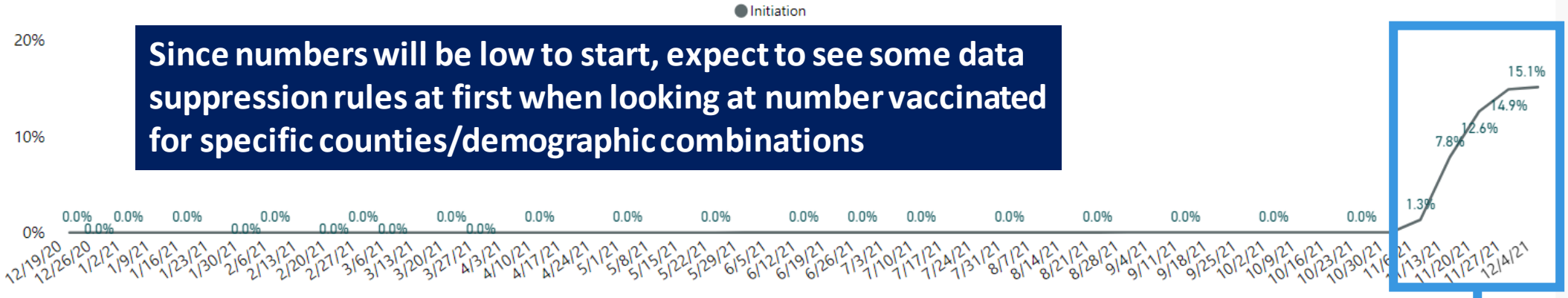
Preparedness Region
All

County
All

Local Health Dept. Jurisdiction
All

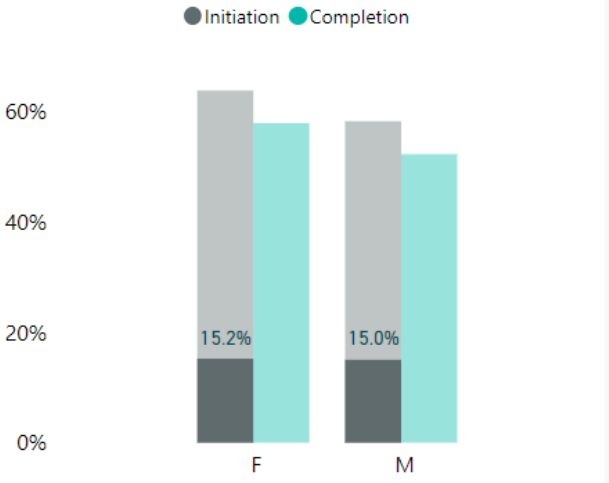
Week Ending Date
12/19/2020 — 12/4/2021

Cumulative Coverage by Week Ending Date

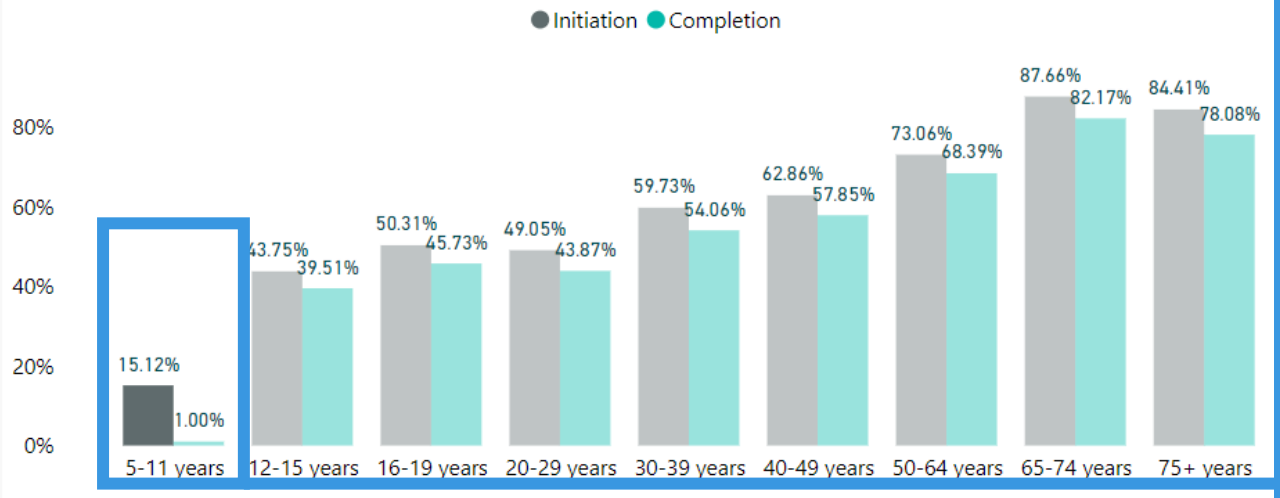


Since numbers will be low to start, expect to see some data suppression rules at first when looking at number vaccinated for specific counties/demographic combinations

COVID Vaccine Coverage by Sex



COVID Vaccine Coverage by Age Group

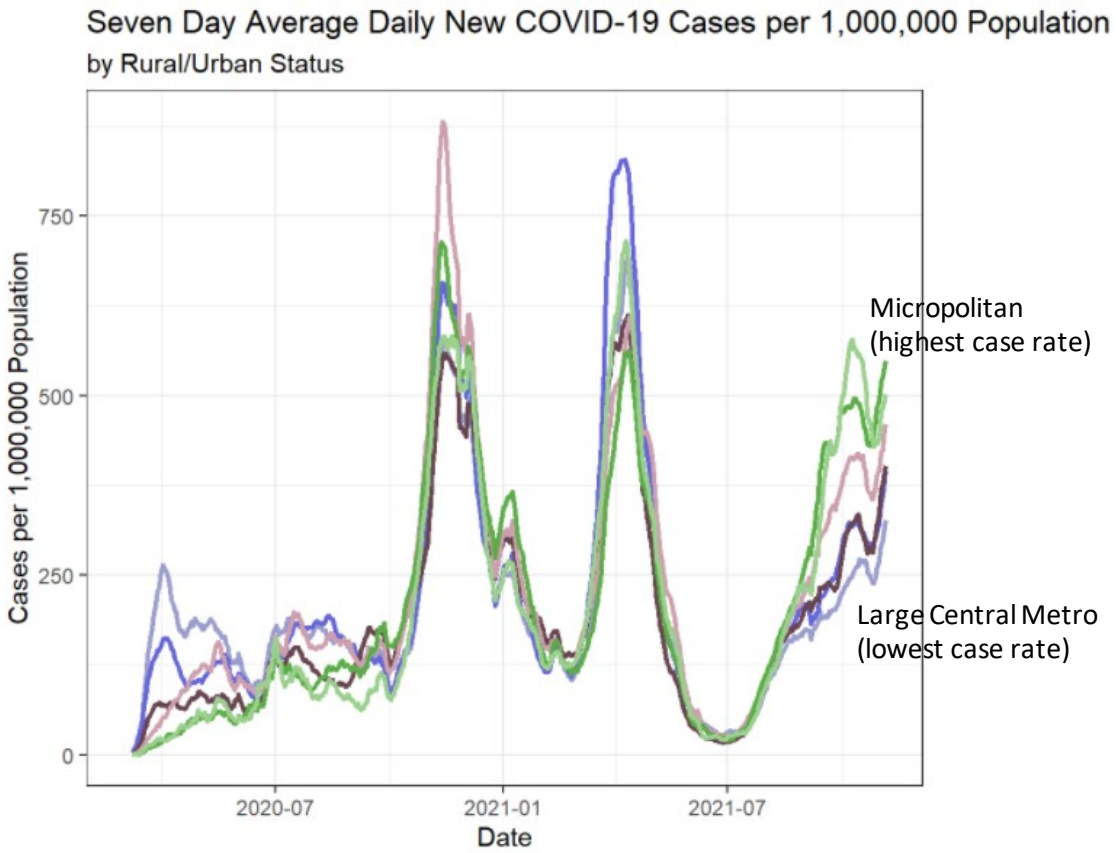


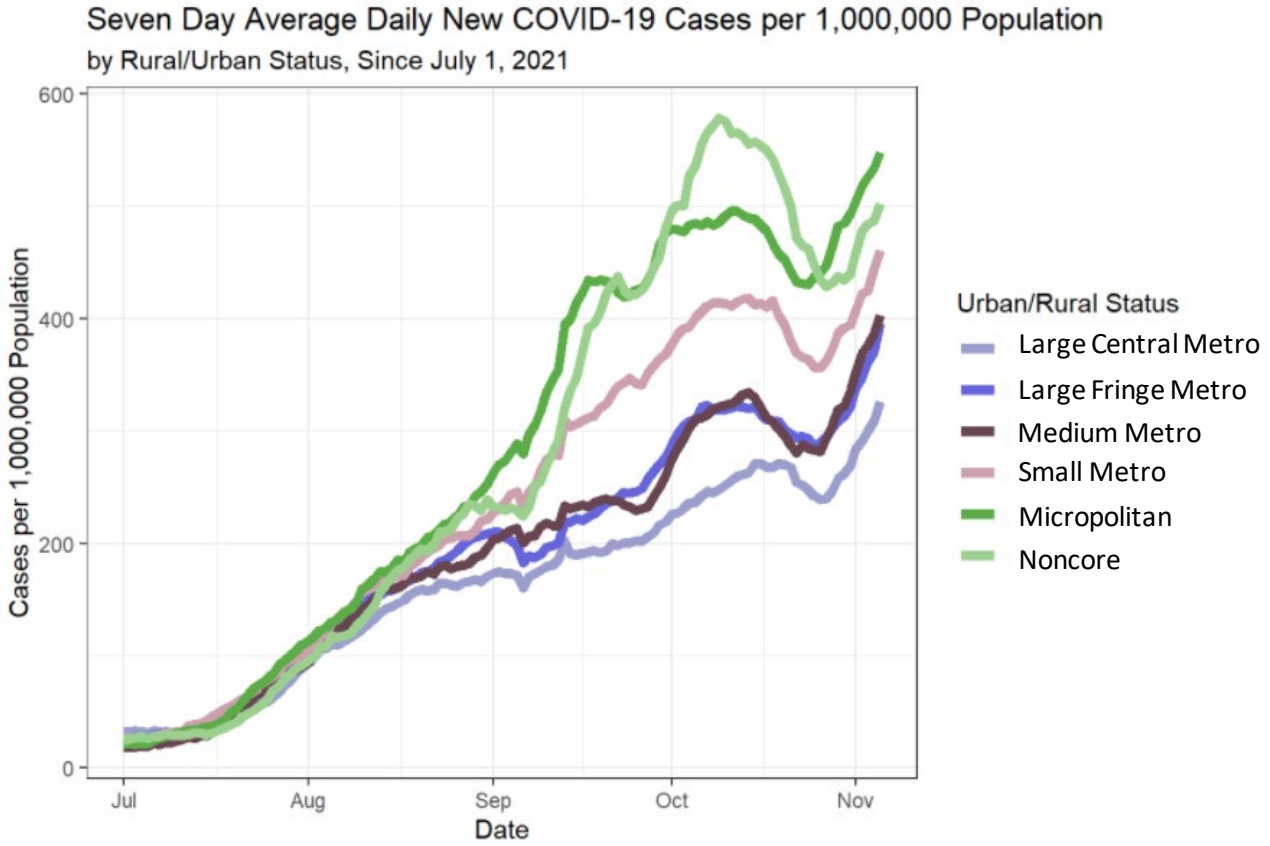
Data are refreshed Tuesdays and Friday afternoons

124,810 initial dose administrations in 5- to 11-year-olds as of 11/29

Second doses are now being administered as well

Average Daily Case Rates per Million Population by County Urbanicity Classification



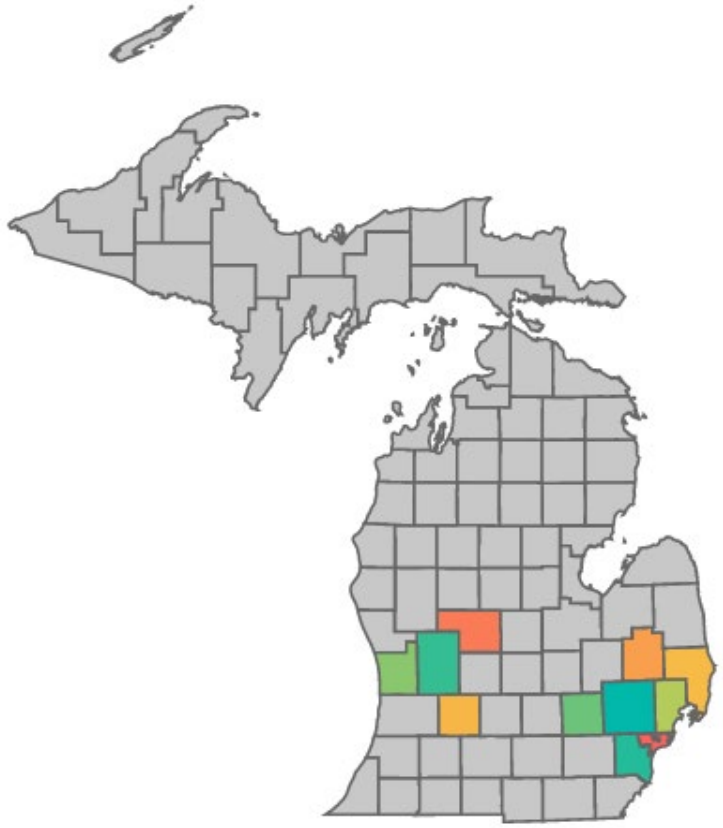


Key Messages

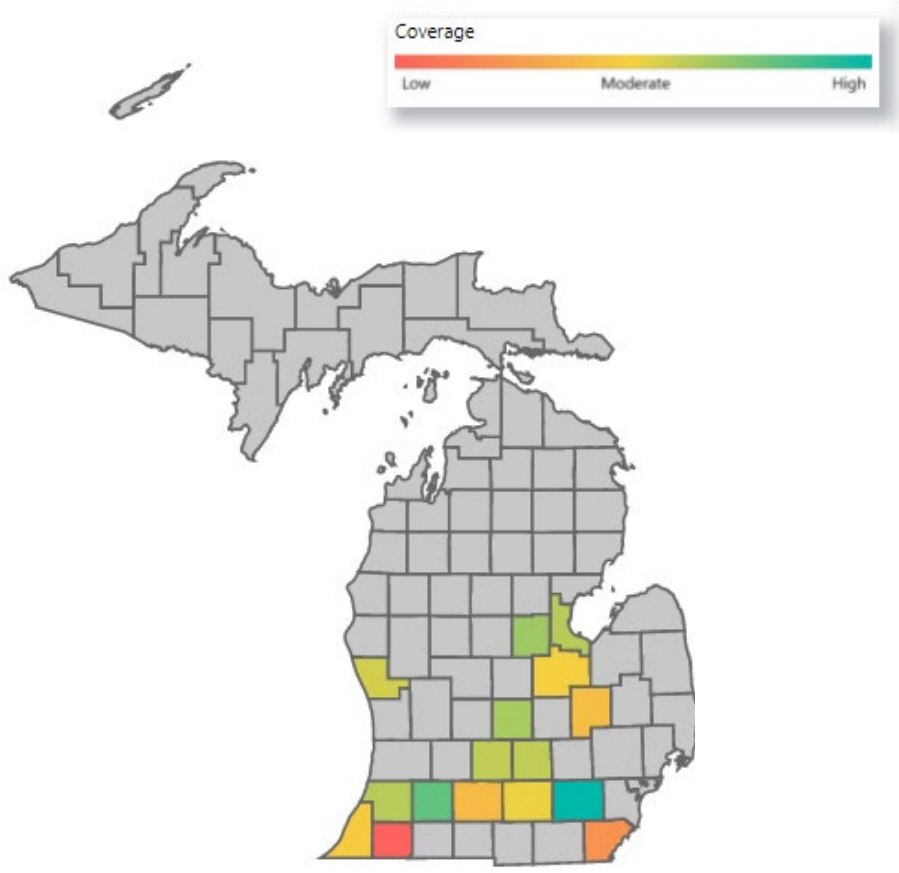
- Counties at all levels of urbanicity are experiencing increases in case rate
- A gradient with the most populous counties have lower rates than the least populous counties with the highest reported case rates

Source: UM COVID Cases and Urban/Rural Status + CDC NCHS county classification

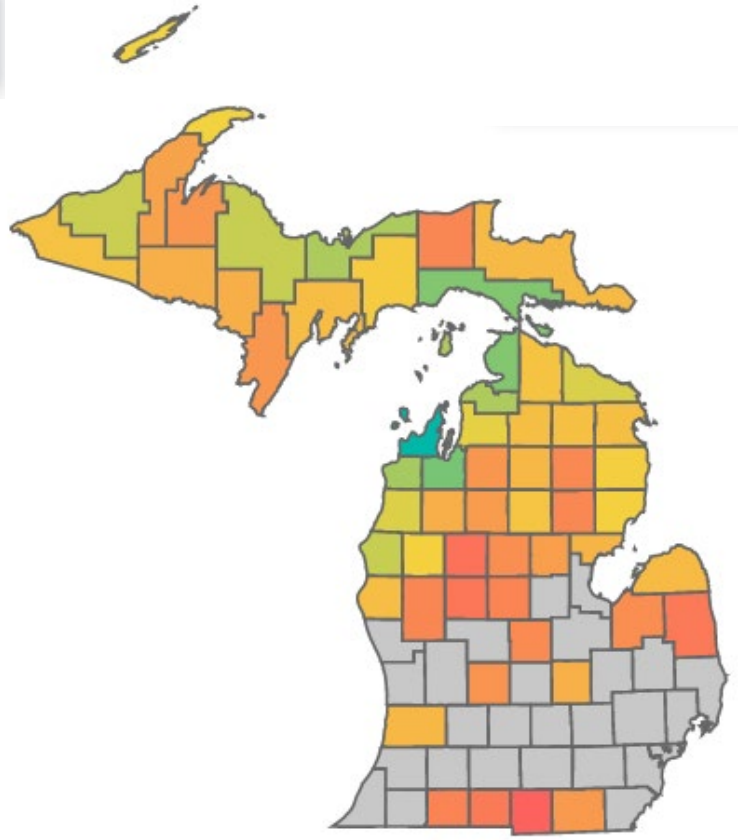
There is a Range of Vaccine Coverage Regardless of Urban/Rural Classification



Large Metro



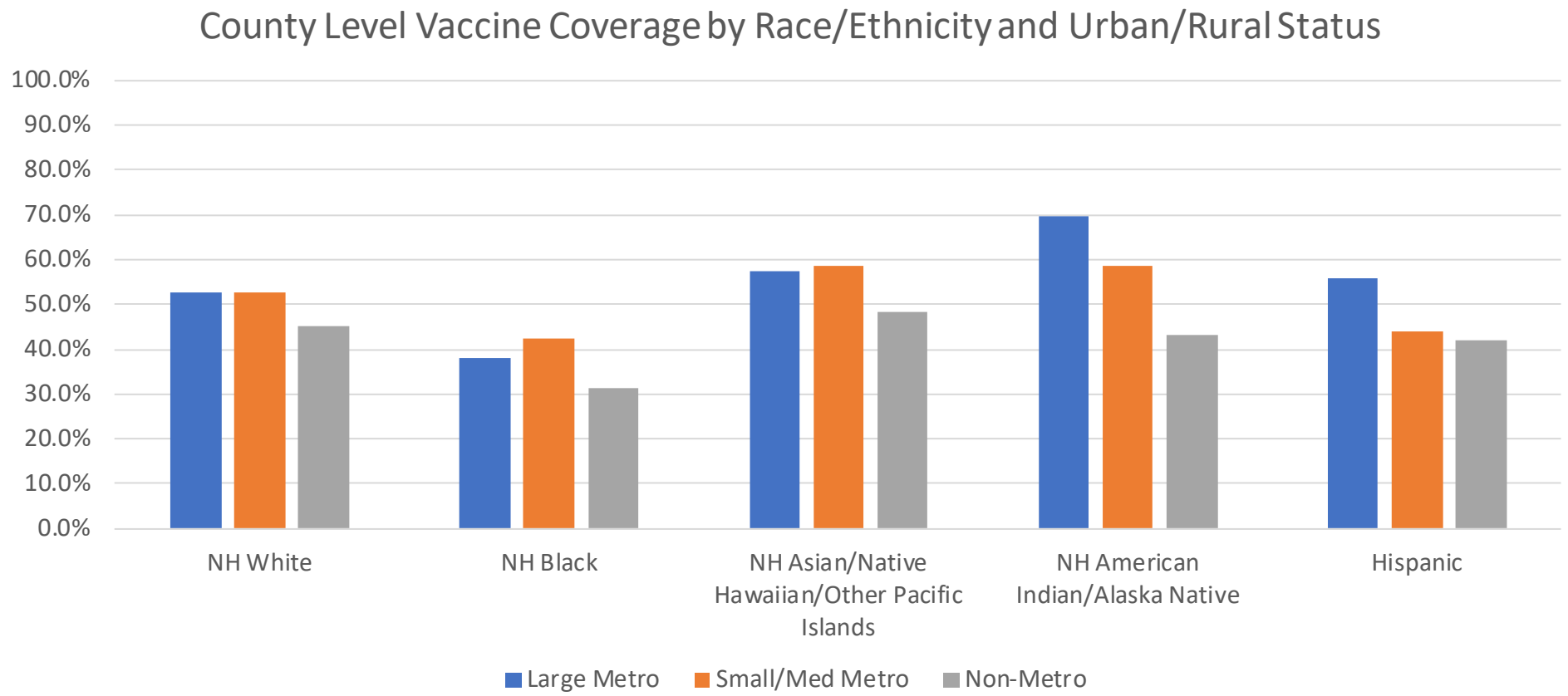
Small/Med Metro



Non-Metro

Source: MCIR and NCHS Urban-Rural Classification

Vaccine Coverage in Non-Metro Counties is Lower than Metro Counties, Regardless of Race or Ethnicity

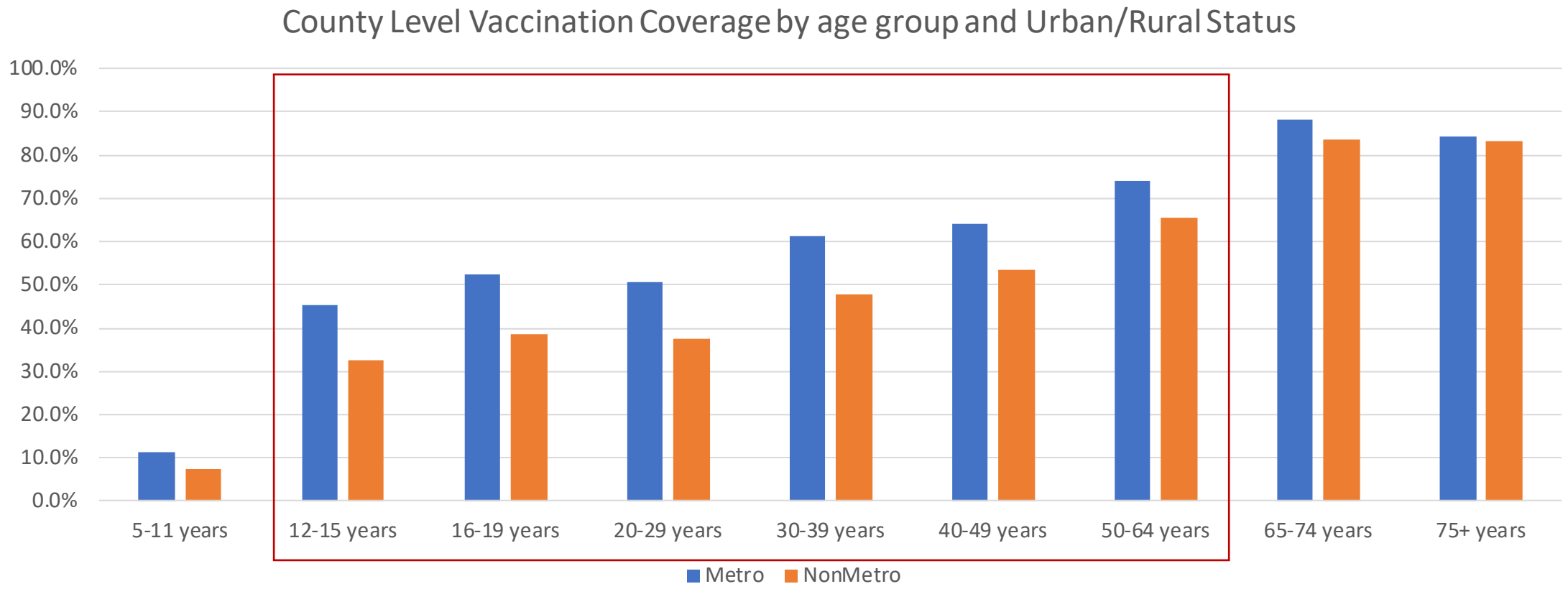


Key Messages

- Vaccine coverage is below 70% for nearly all races and ethnicities
- Vaccine coverage is lower in non-metro counties compared with metro counties, regardless of race or ethnicity

Source: MCIR and NCHS Urban-Rural Classification

Older Adults in Rural Areas Have Similar Vaccination Coverage, but Younger Ages Have Lower Coverage



Key Messages

- Vaccine coverage increases with older age, but vaccine coverage is lower in non-metro counties compared with metro counties
- Disparities in vaccine coverage within age groups is greater for younger ages

Source: MCIR and NCHS Urban-Rural Classification

Key Messages: Science Round Up

Omicron: A new variant identified

- This variant has a large number of mutations and has been classified as a Variant of Concern by the WHO
- Omicron has already spread to the several continents including North America, Europe, Africa, and Australia
- Immunologic studies are currently analyzing the viral characteristics and impacts on the pandemic; a better understanding of Omicron properties is expected in 1-2 weeks

Challenges to health case system

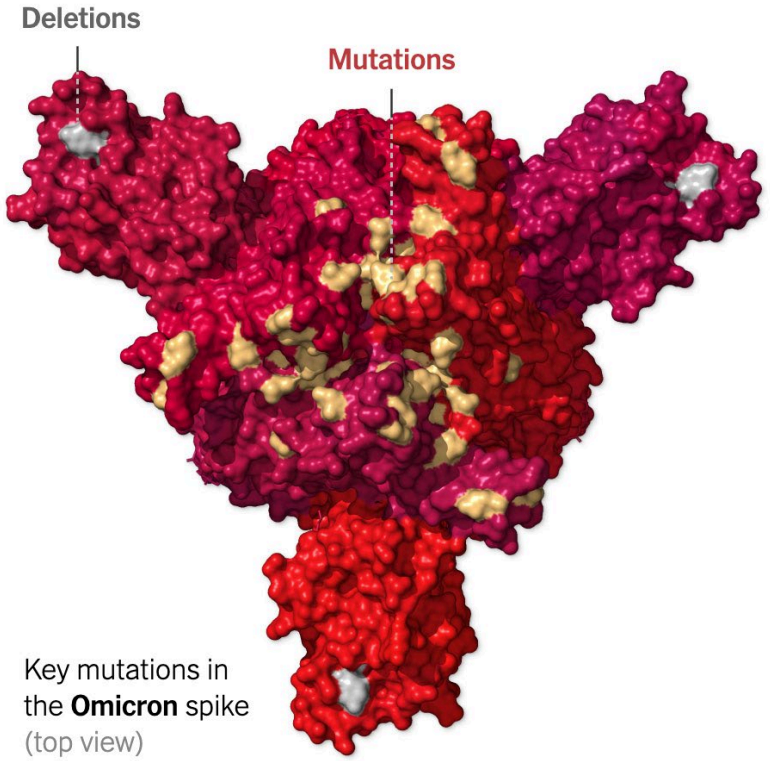
- Mobility is at pre-pandemic levels
- Based on current status, expect between 472 to 856 daily cases per million by end of January
- Increased prevention efforts could prevent an estimated 108,000 – 155,000 cases, 11,000 – 16,000 hospitalizations and 1,200 – 1,900 deaths over December and January
- Influenza is expected to add to hospital burden
- Hospital census is higher than spring 21 peak levels and rising

Response to COVID is a balance

- Get Vaccinated for COVID and influenza
- Wear a mask
- Get Tested
- New Antiretrovirals Being Approved to Provide Treatment During Infection
- Holidays can be celebrated safer when following public health recommendations

Omicron B.1.1.529

Omicron carries about 50 mutations not seen in combination before, including more than 30 mutations on the spike protein that the coronavirus uses to attach to cells.

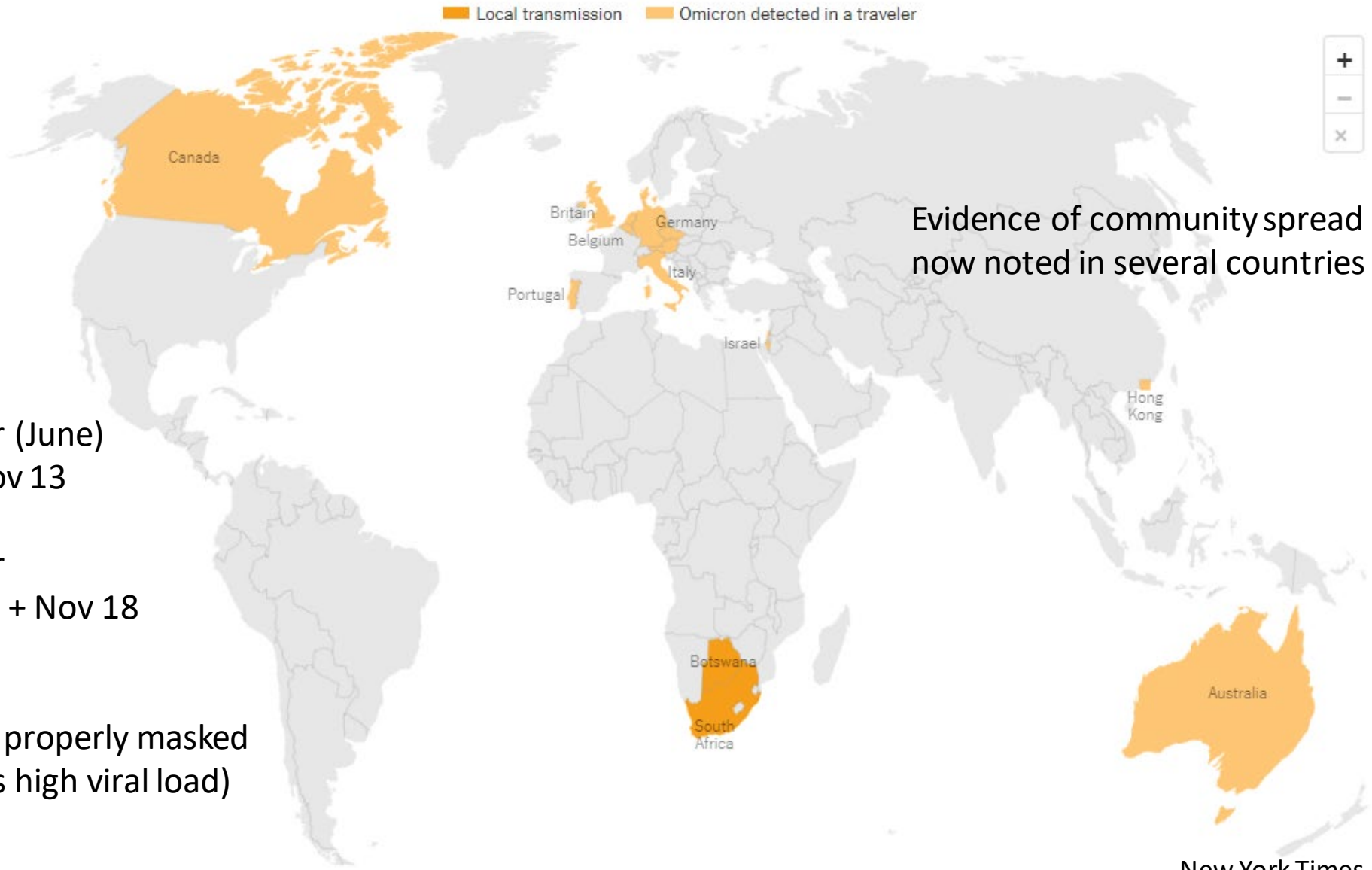


Key mutations in the **Omicron** spike (top view)

Omicron's spike protein has several mutations that are found in other variants of concern and that are thought to make the virus more infectious, including **D614G**, **N501Y** and **K417N**.

New York Times

Omicron Distribution Nov 29, 2021



Evidence of community spread now noted in several countries

Hong Kong Hotel Transmission

Patient A: Vaccinated with Pfizer (June)
Arrived from SA, Nov 11 → + Nov 13

Patient B: Vaccinated with Pfizer
Arrived from Canada, Nov 10 → + Nov 18

Rooms across the hall
Minimal contact – Patient A not properly masked
Both with low CT values (implies high viral load)

Hong Kong Free Press

New York Times

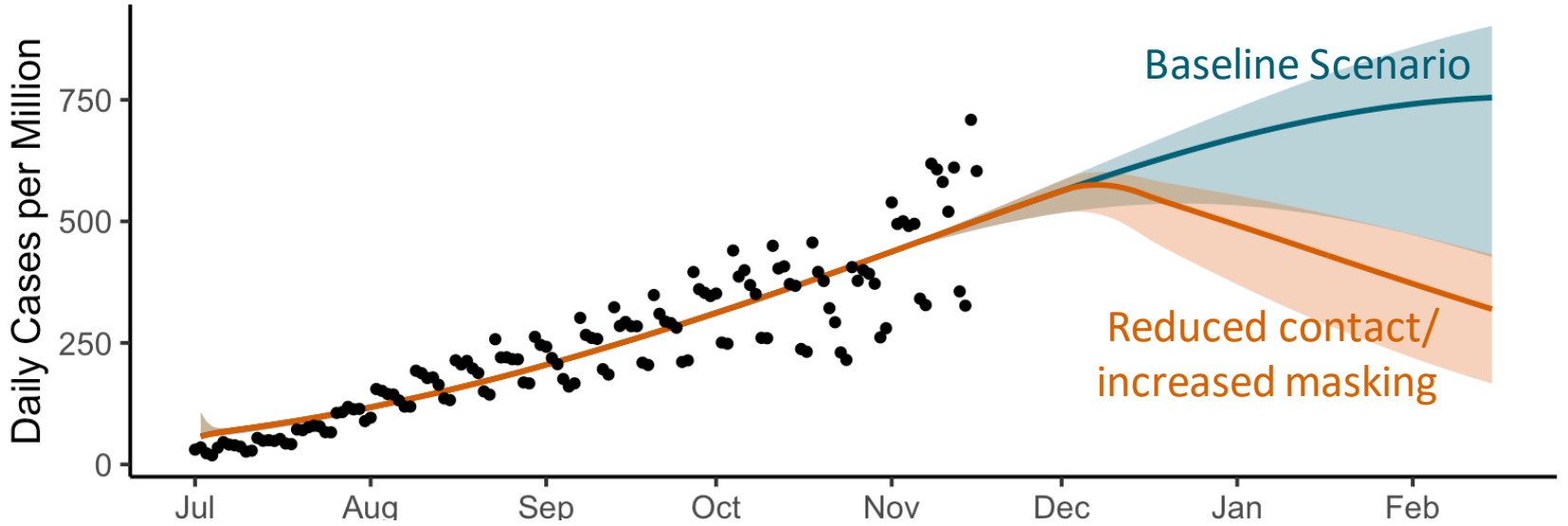
Omicron

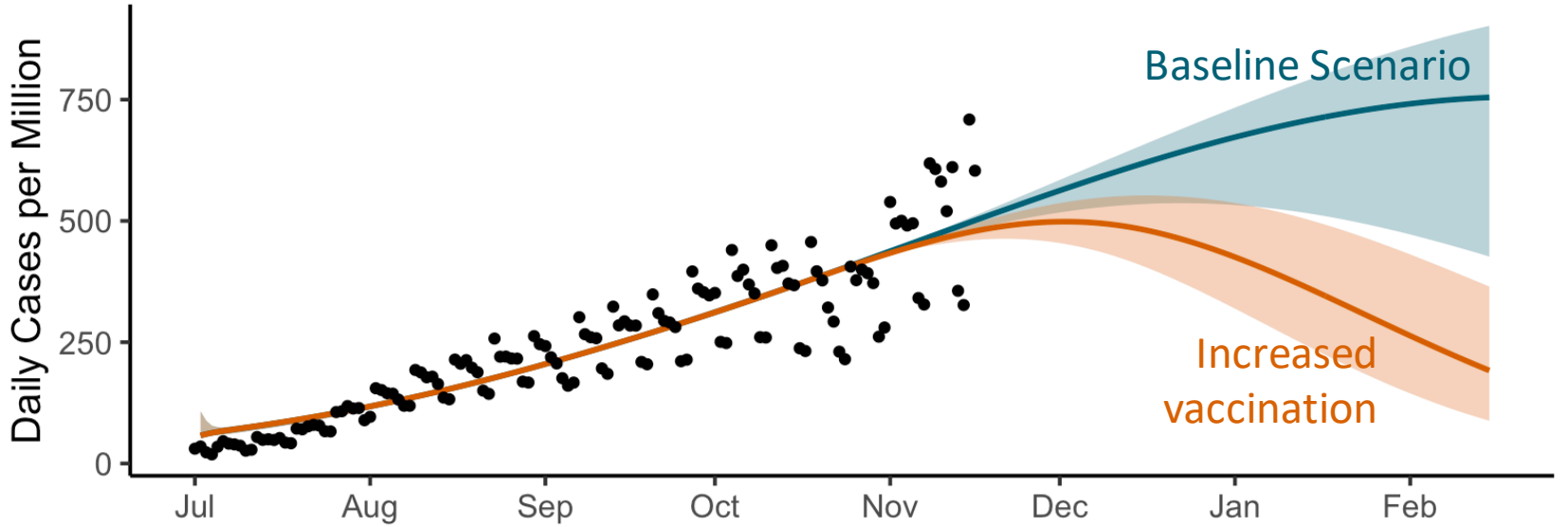
	Omicron
Transmissibility	Likely increased
Severity	Mild illness reported in young, healthy individuals. Severity will need to be assessed on a population basis.
Prior infection	Possible increased risk of reinfection
Effectiveness of vaccines	Studies underway. Current vaccines protective against infection, severe disease and death from widely circulating strains.
Effectiveness of tests	PCR detects infection. Antigen manufacturers have released statements on test effectiveness.
Effectiveness of therapeutics	Steroids and IL6 receptor blockers still useful in severe COVID-19. Studies needed on mAB and other antivirals.

Cases projected to continue rising if contact, masking, and vaccination remain unchanged—but can decrease if we increase prevention efforts

- Model projections: continued increase if no change to contact patterns or vaccination (blue)
- With intervention (orange): cases are projected to decrease if either:
  - Top: masking increases and/or contact rates decrease, or
  - Bottom: vaccination increases to reach **60% of the overall population by Jan 1**
- **Increased prevention efforts could prevent an estimated 108,000 – 155,000 cases, 11,000 – 16,000 hospitalizations and 1,200 – 1,900 deaths over December and January**

Contact reduction scenarios (orange, top plot) assume 20% reduction in effective contact by Dec 15 due to masking, distancing, and/or reduced social contact. Shaded regions: best 50% of estimates, line: best fit estimate. Outcomes prevented based on best fit estimates. Data sources: MDSS case and death data, HHS Protect hospital data, and Tiberius vaccine coverage data by age group.

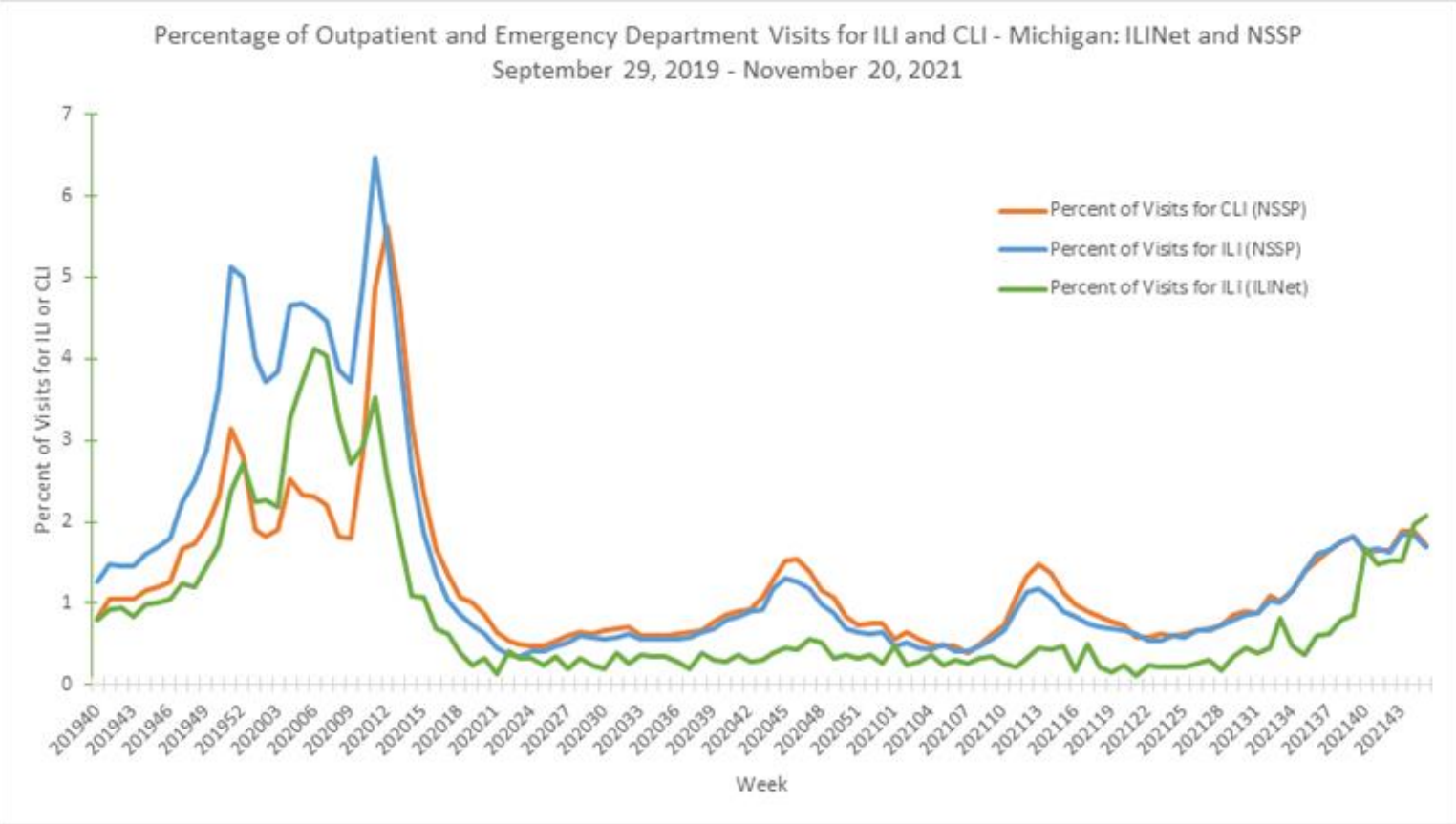




Influenza Like Illness in Emergency Department

Percent of emergency department visits for influenza like illness in Michigan (green line) are higher this year than in the same weeks in 2019.

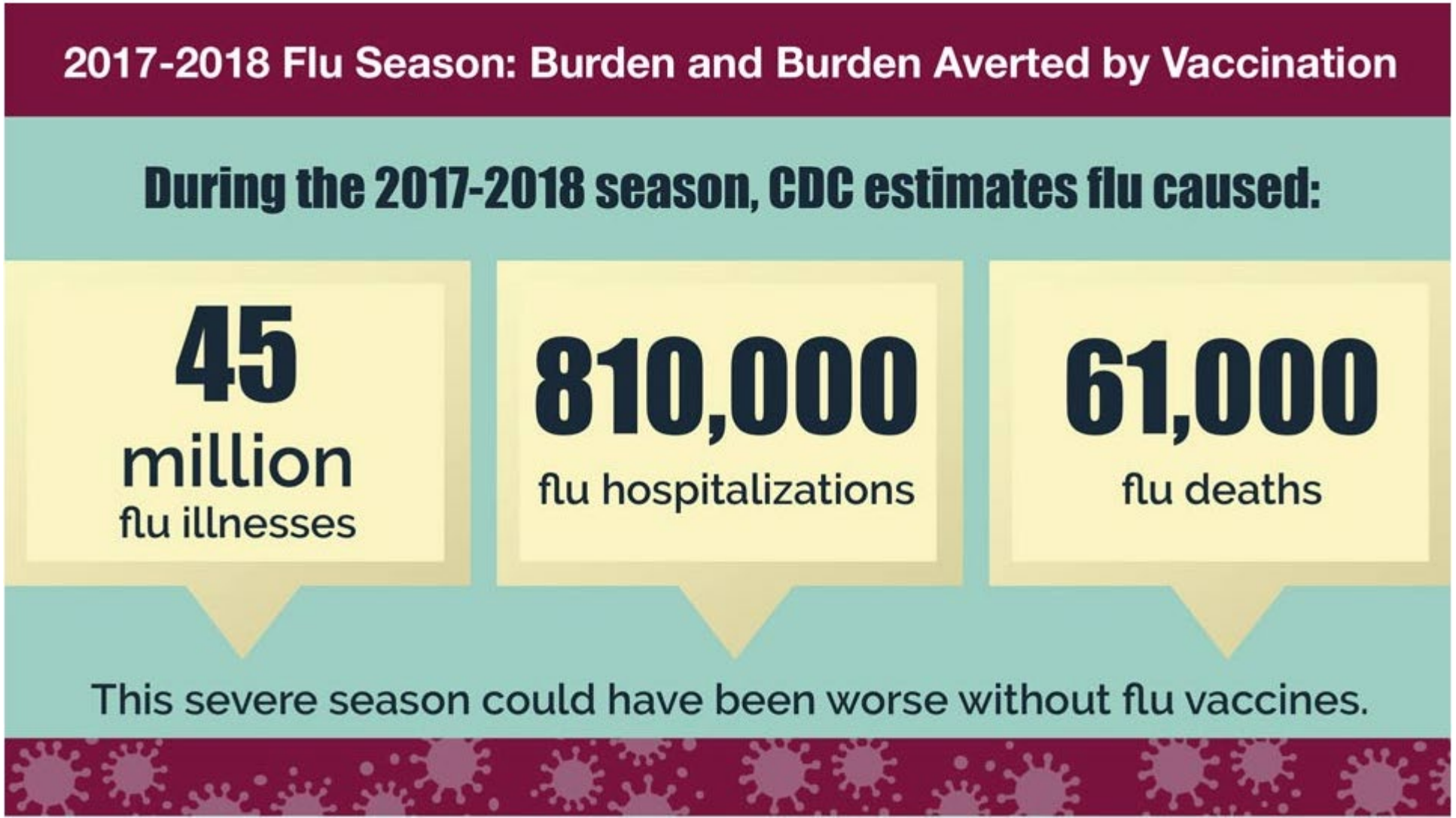
There is still time to benefit from getting an annual influenza vaccine. See www.Michigan.gov/flu to find a site near you



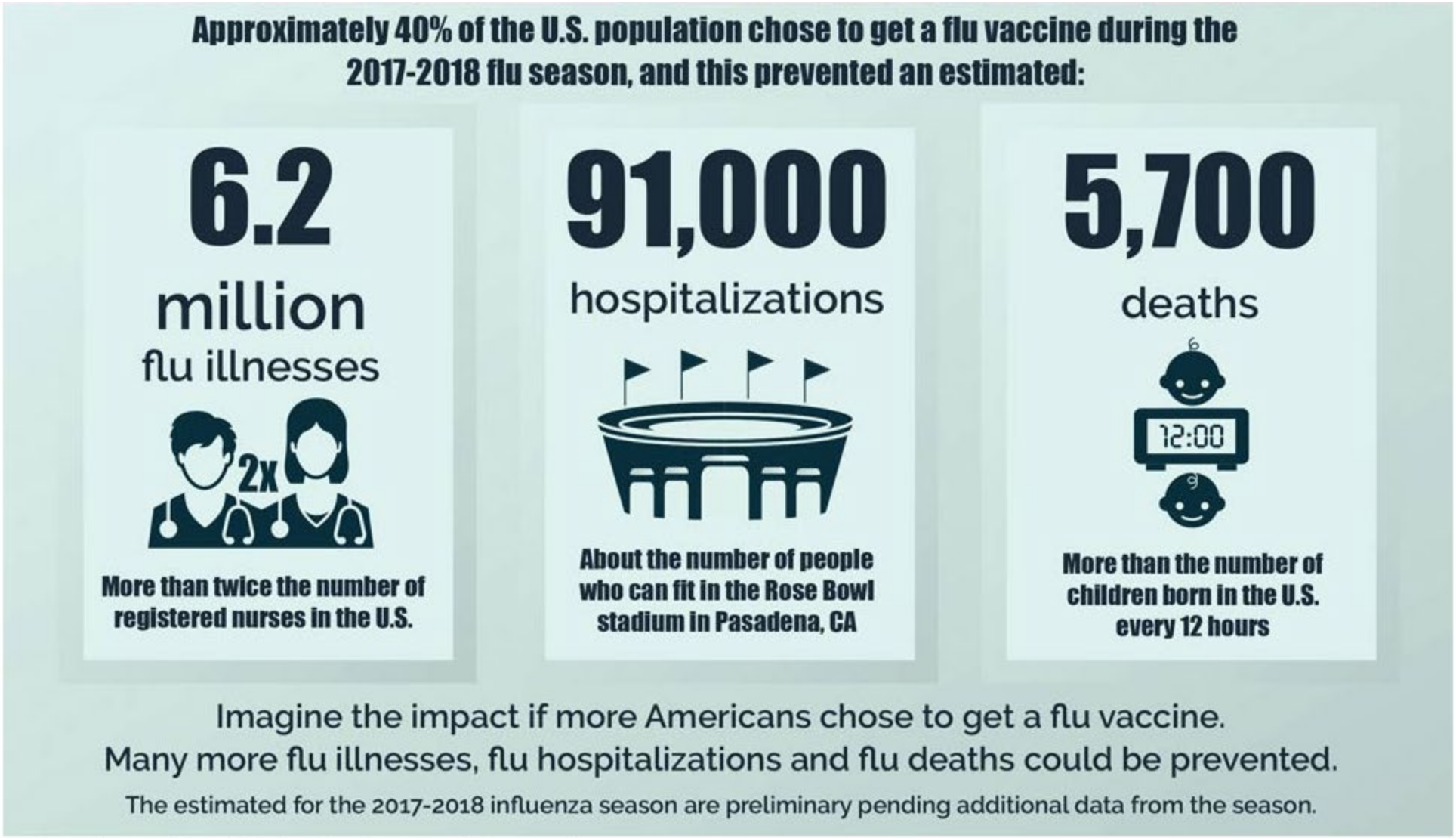
UM Student Influenza Cases

- 745 cases from October 6 through November 19.
- Subtype identified as A(H3N2)
- Percent positivity: 24%
- Vaccination ~26%.
- Influenza vaccine coverage is lower than last year in all age groups, including 18-24 year olds.
- This is among early outbreaks around the US after no influenza spread since March of 2020.

Influenza has historically led to substantial strain on healthcare systems.

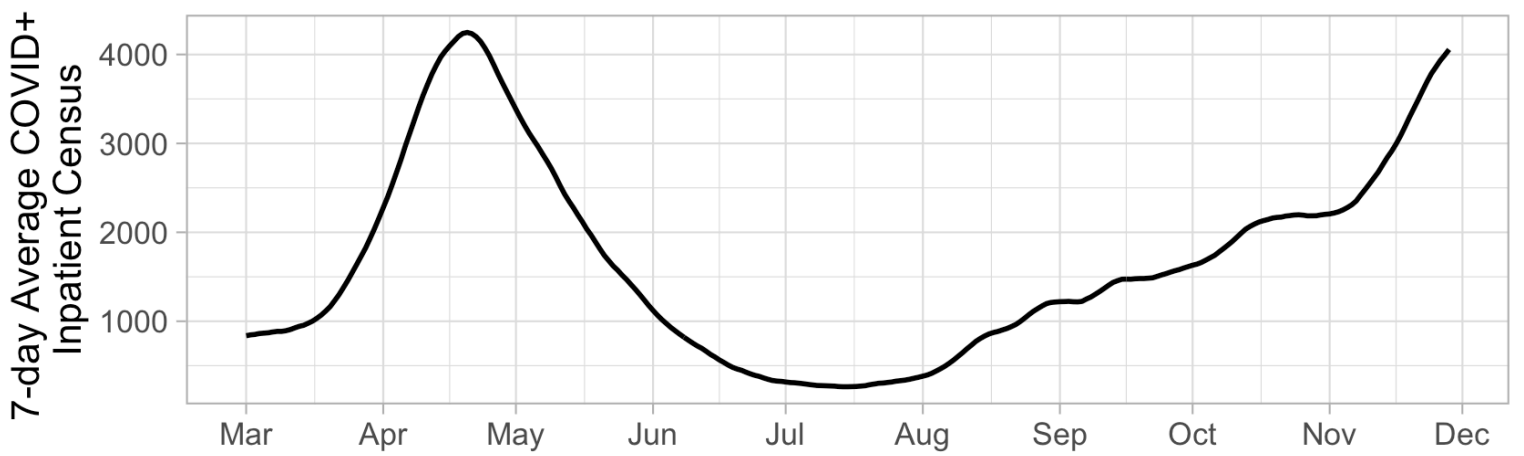


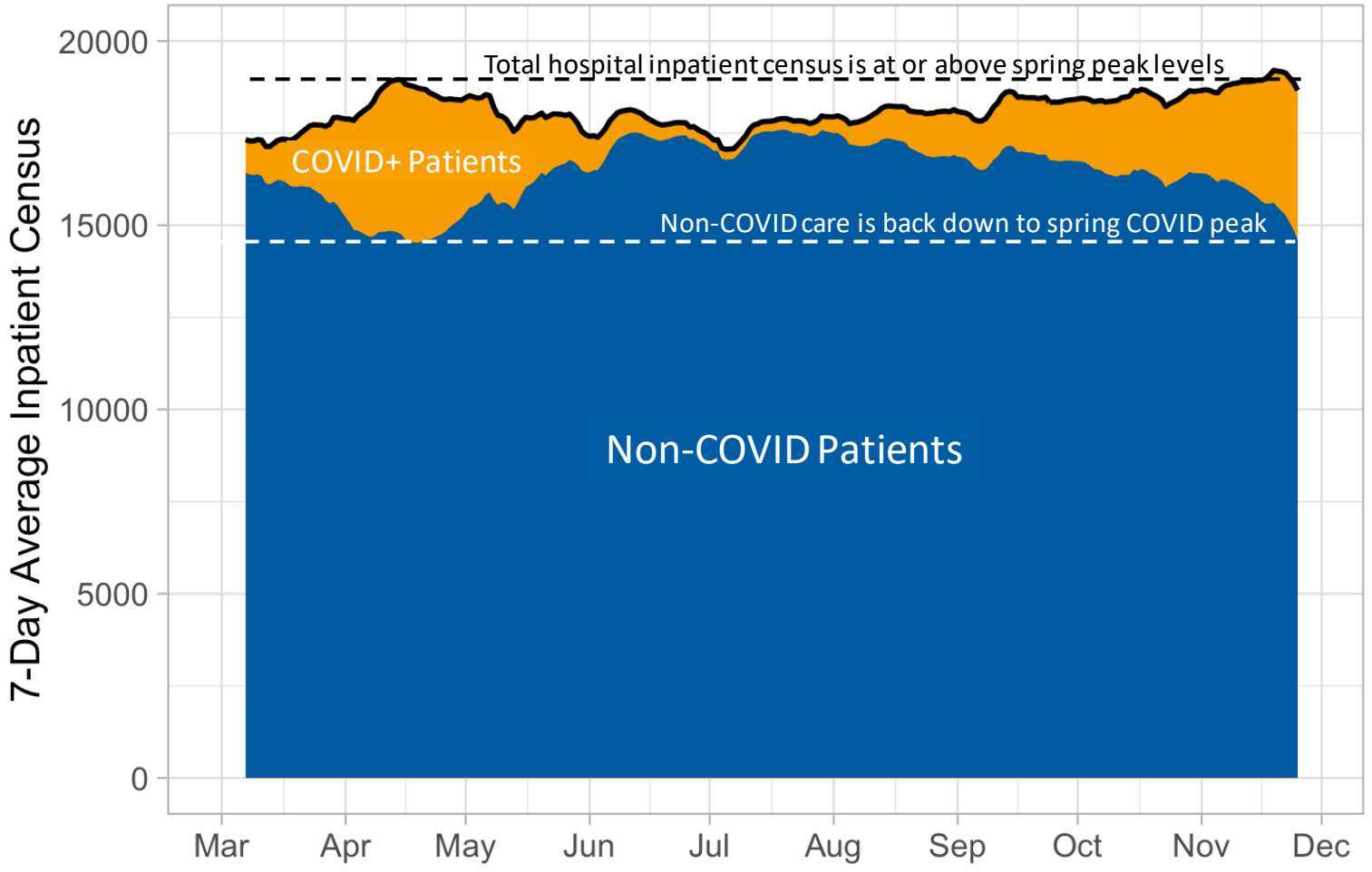
Even in years with high influenza transmission, vaccine prevents many hospitalizations and deaths



Hospital census is at spring peak levels and is rising

- Cases and COVID+ census are rising
- Non-COVID care has been reduced back to spring peak levels (white dashed line)
- Together, overall inpatient census is at or above spring peak levels (black dashed line) but has been high for longer
- Likely to increase further if COVID and flu continue to grow

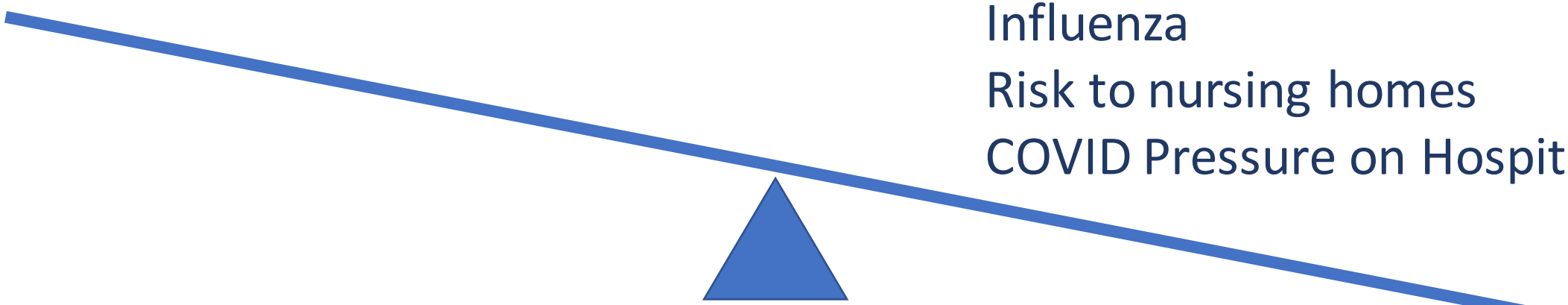




PUBLIC HEALTH

Data Sources: MDSS (case data as of 9/15/21), HHS Protect (hospital admissions and inpatient census data through 9/14/2021). New articles: Munson, Spectrum

Mitigation needed to keep balance

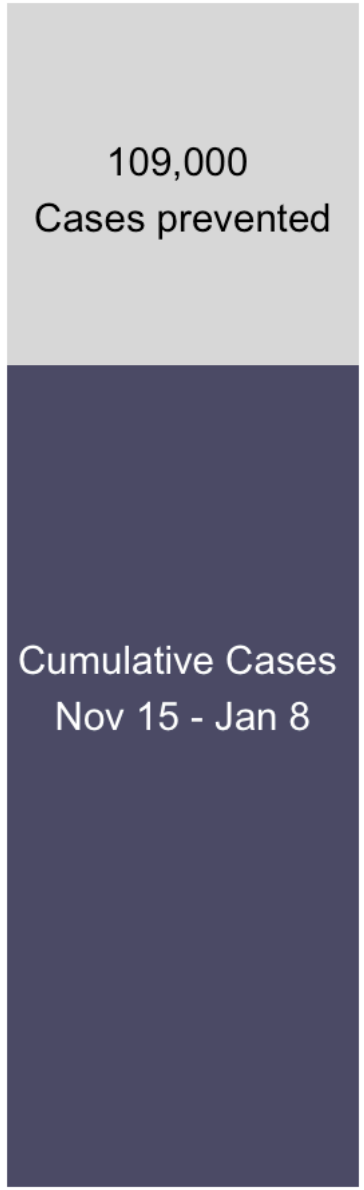


Key Messages

- Without mitigations in place, COVID-19 transmission will create increased burden on Michigan population, particularly impacting individuals at high risk of severe outcomes and therefore overwhelming healthcare capacity
- Additional factors like emerging variants and influenza transmission will exacerbate these burdens

Model estimates that increased social distancing following the Pause to Save Lives prevented over 109,000 cases

- Modeling the impact of social distancing following November 15 (Pause to Save Lives), using daily case data and mobility data
- Simulations project that from November 15 to January 8, increased social distancing prevented ~109,000 cases
- Based on Michigan case fatality rate estimates (1.8 - 2.6%), this translates to preventing ~1960 - 2800 deaths

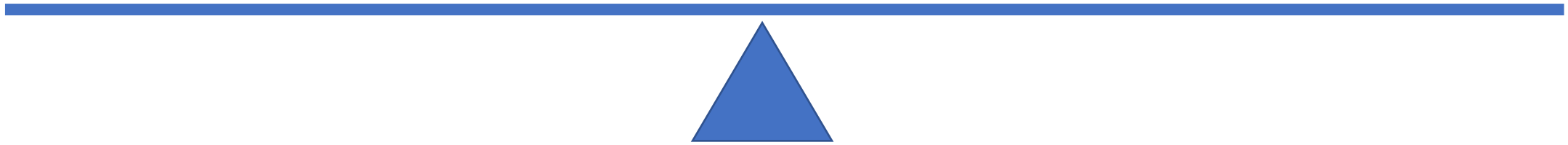


Sources: UM COVID-19 Modeling, MDSS case data, Unacast encounter rate data,
Case fatality rate estimated based on MDSS data for the entire pandemic and for 11/15 – 12/31

Mitigation needed to keep balance

Wearing Masks
Vaccination
Testing
Antiviral Treatment

Variants (e.g., Delta, Omicron)
Influenza
Risk to nursing homes
COVID Pressure on Hospitals

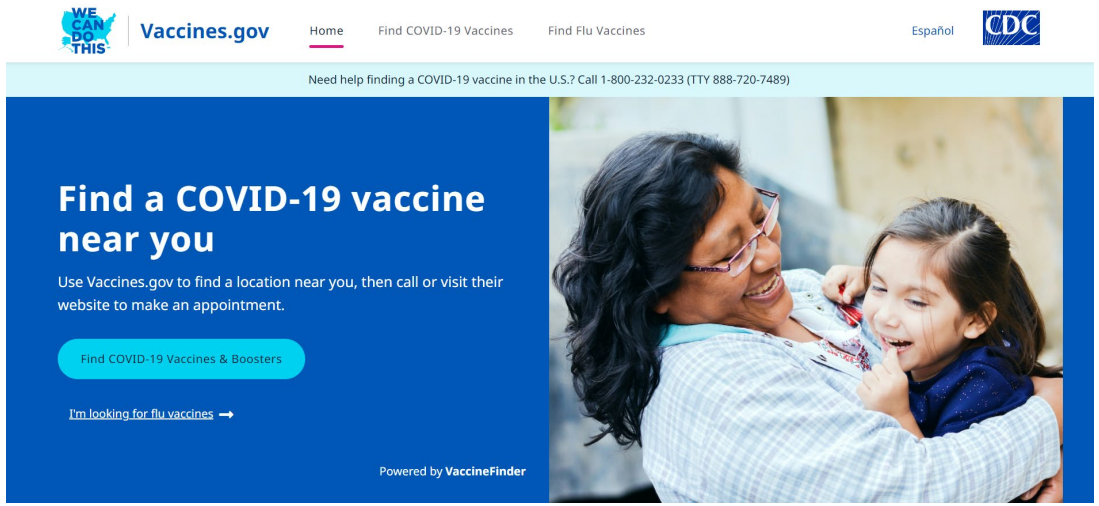


Key Messages

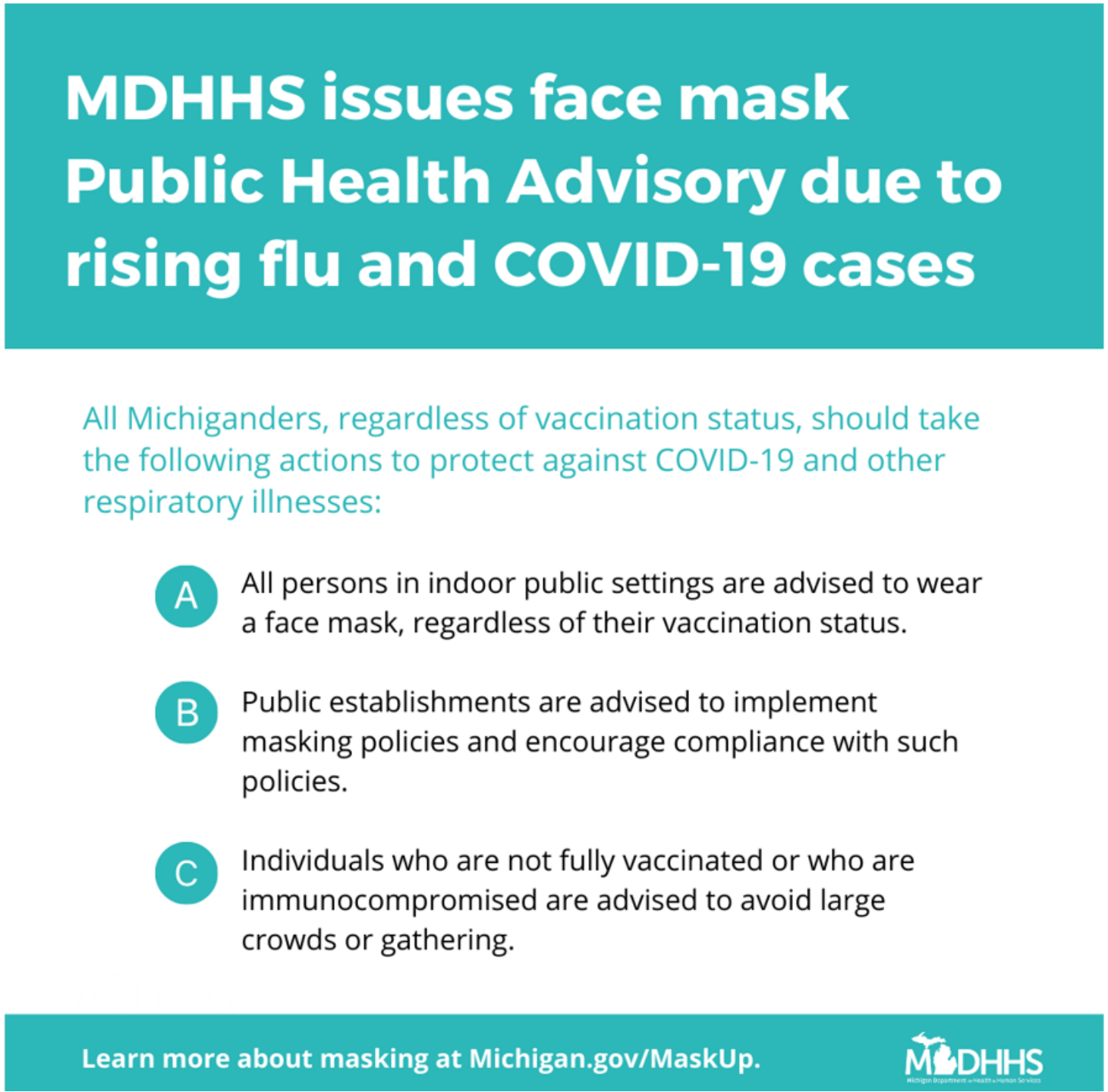
- We have the tools to control community spread, protect those at high risk of severe disease, and prevent disruptions (e.g., prevent quarantine, prevent overwhelmed hospitals)
- Together, these mitigation tools will work against emerging variant strains

Get Vaccinated Now

- Nationally, recent data indicates that unvaccinated persons had 5.8 times greater risk of testing positive for COVID-19 compared to fully vaccinated persons.
- Covid vaccines, including boosters and doses for children are available now
  - **Everyone ages 18 and older should get a booster shot**
- There is still time to be fully vaccinated by the holiday season



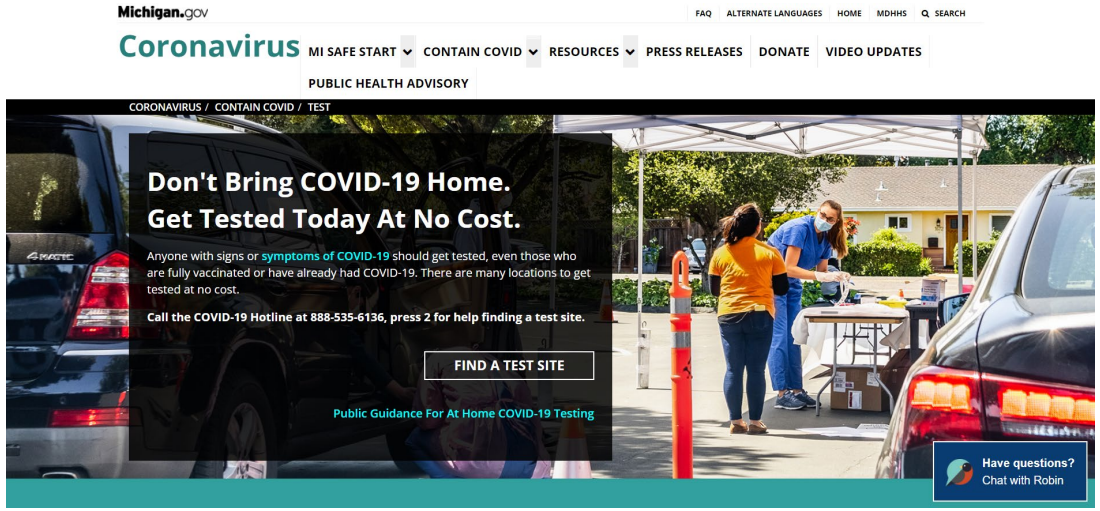
Sources: CDC COVID Vaccination and Booster Guidelines and MDHHS Vaccine References



Public Health Advisory Issued 11/9/21

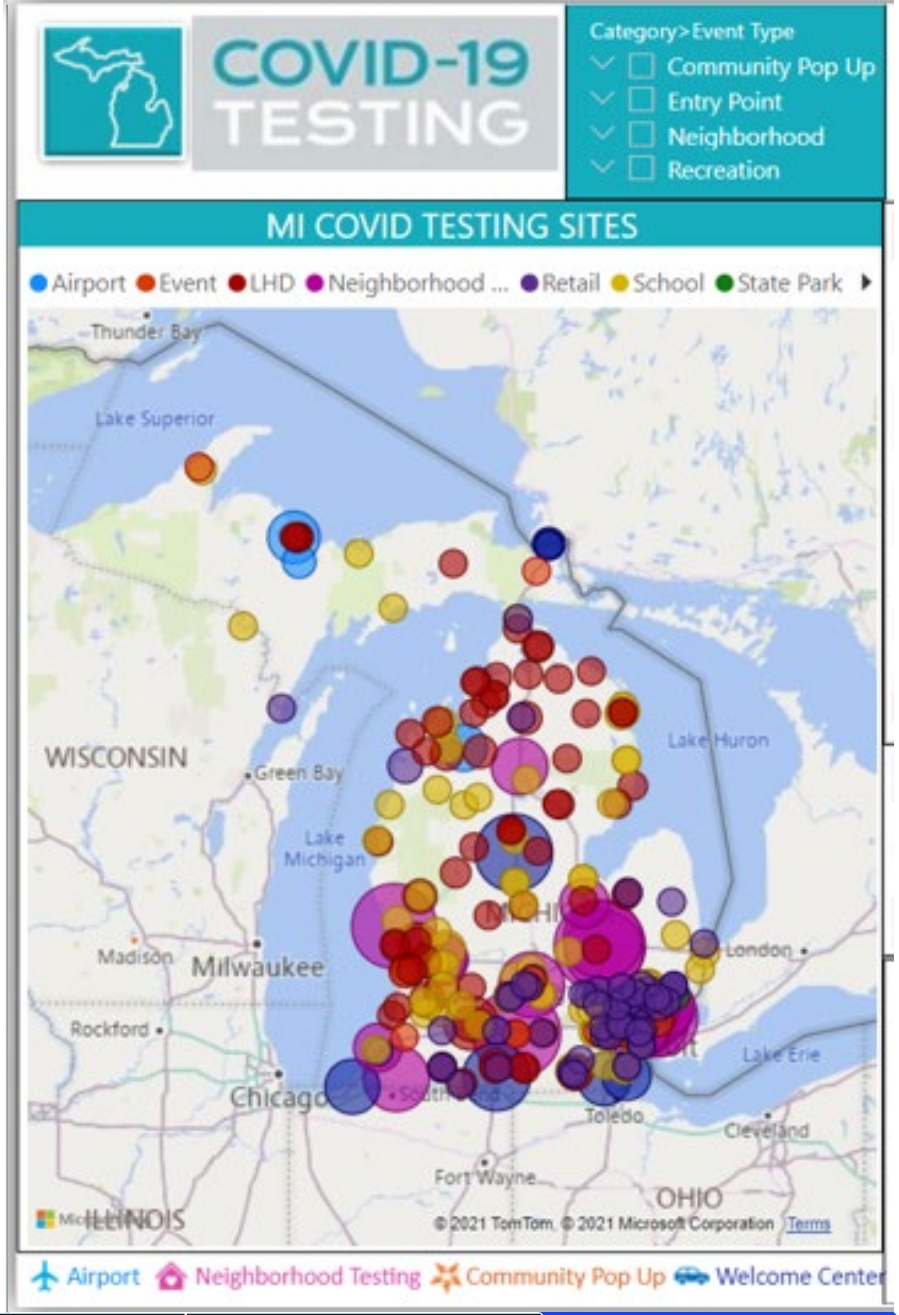
- While vaccination continues to be the most important public health action to end the COVID-19 pandemic, the surge in cases across Michigan has prompted the Michigan Department of Health and Human Services (MDHHS) to issue a public health advisory.
- Michigan is presently experiencing another wave of infection driven by the Delta variant, which is estimated to be twice as infectious as the original strain. The greatly increased infectiousness of the Delta variant has driven sharp increases in COVID-19 infections among both adults and children. In addition to COVID-19, Michigan is experiencing an uptick in cases of other respiratory illnesses, including influenza and respiratory syncytial virus (RSV). The widespread use of face masks would significantly reduce the spread of these viruses.

Get Tested



- Anyone with signs or **symptoms of COVID-19** should get tested, even those who are fully vaccinated or have already had COVID-19
- Anyone with close contact with someone who is infected or suspected of being infected with SARS-CoV-2
- Unvaccinated people who have engaged in high-risk activities where transmission can have occurred (e.g., travel, social/mass gatherings, crowded indoor settings)
- People who have been asked to test by their healthcare provider
- Special circumstances like travel requirements

Sources: CDC COVID Testing Guidelines and MDHHS COVID-19 Testing Resource



Antivirals

Merck Pill (Molnupiravir)

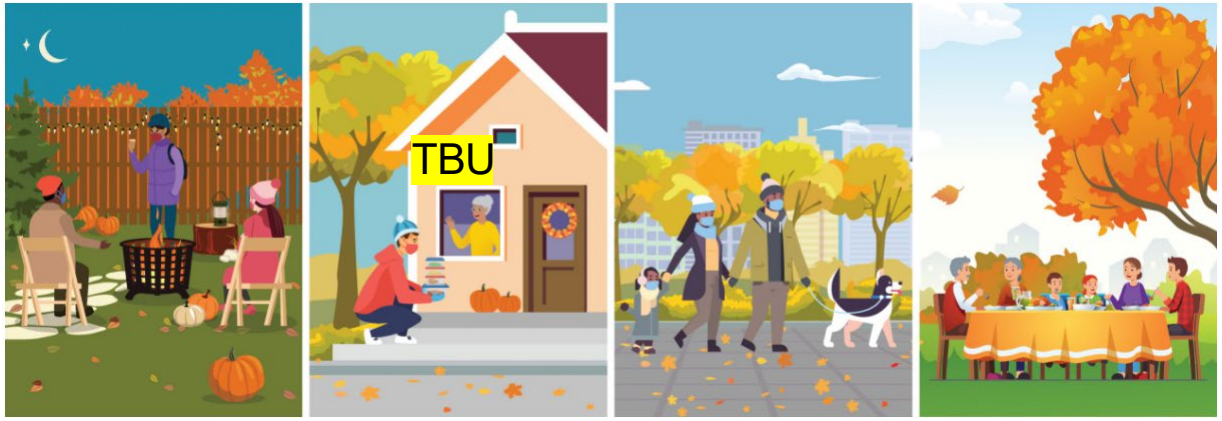
- Tx regimen: Twice daily x 5d
- Mechanism of action: ribonucleoside analog - promotes mutations in viral replication
- Efficacy: 30% reduction in risk of hospitalization or death if taken within 5 days of symptom onset

Pfizer pill (Paxlovid)

- Tx regimen: Twice daily x 5d
- Mechanism of action: 3CL protease inhibitor - blocks an enzyme in replication
- Efficacy: 89% reduction in risk of hospitalization or death if taken within 3-5 days of symptom onset

Safer Ways to Celebrate Holidays

Holiday traditions are important for families and children. There are several ways to enjoy holiday traditions and protect your health. Many generations tend to gather to celebrate holidays. Here are some ways to celebrate the holidays more safely:



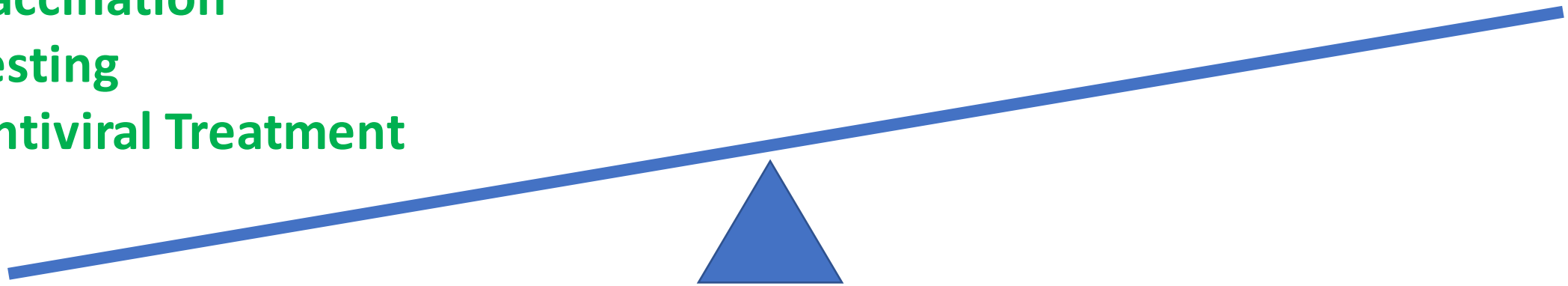
- The best way to minimize COVID-19 risk and keep your family and friends safer is to **get vaccinated** if you're eligible.
- If you are sick or have symptoms, don't host or attend a gathering.
- Regardless of vaccination status, all those aged 2 or older, you should **wear a mask in indoor public places** in areas of substantial or high SARS-CoV-2 transmission and in crowded, poorly ventilated outdoor areas.
- **Before a multihousehold gathering, consider taking a rapid antigen test**, regardless of whether you've been in contact with someone with COVID-19; if you test positive, stay home until you consult your provider and rule out any possibility of infecting others.
- Consider a setting where people can spread out and where there can be good ventilation.
- If you are traveling for a holiday event, follow domestic and international travel guidelines and public health recommendations.
- Practice healthy hygiene – e.g., proper respiratory etiquette, wash your hands frequently, and avoid touching your face.
- People who have a condition or are taking medications that weaken their immune system may not be fully protected even if they are fully vaccinated. They should continue to take all precautions recommended for unvaccinated people, including wearing a well-fitted mask, until advised otherwise by their healthcare provider.
- Visit the CDC COVID-19 Safer Ways to Celebrate Holidays and Travel Guidelines for more information on how to keep yourself and your loved ones safe this holiday season.

Source: CDC Holiday Celebrations

When Mitigation Measures Are Widely Implemented, Pandemic Burden is Offset

Variants (e.g., Delta, Omicron)
Influenza
Risk to nursing homes
COVID Pressure on Hospitals

Wearing Masks
Vaccination
Testing
Antiviral Treatment



Key Messages

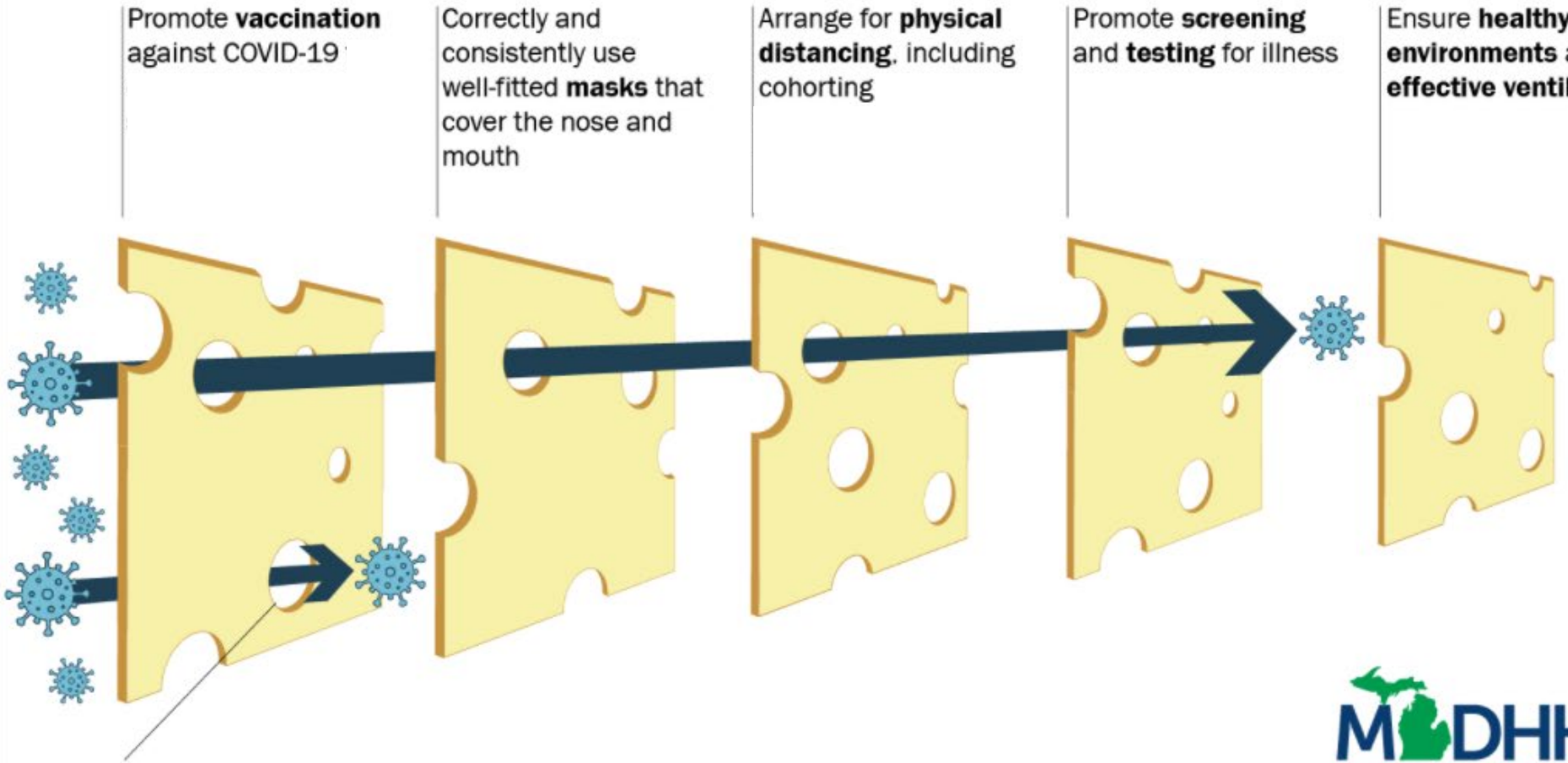
- We have the tools to control community spread, protect the vulnerable, and prevent disruptions (e.g., quarantine, hospitals overwhelmed)
- Together, these tools work even against variant strains

Layers of Defense Against COVID-19

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

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

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



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

MDHHS Michigan Department of Health & Human Services

Adapted from Ian M. Mackay (virologydownunder.com) and James T. Reason