MI COVID RESPONSE DATA AND MODELING UPDATE

NOTE: All data as of February 28 unless otherwise noted

March 2, 2021

Executive summary

Michigan has the **16th highest number of cases (↑2), 21st highest number of deaths (↓3)**, **42nd highest case rate (↑6)**, and **T43rd highest death rate (↓8)** in the last 7 days (source: CDC COVID Data Tracker)

Michigan has the **36th highest hospitalization rate as a percent of total beds (↑1)**, and **15th highest number of COVID patients in the ICU (↑3)** (source: Becker's Hospital Review)

Case rates (91.2) and **percent positivity** (3.7%) have plateaued since the previous week

3.9% of available inpatient beds are filled with COVID patients and trends for COVID hospitalizations are now increasing in some regions

There were **156 deaths** (↓39) between Feb 14 and Feb 20, and **death rate** is 2.2 deaths per million residents (↓0.6)

The 7-day average **state testing rate** is 3161.5 tests/million/day (↑470.2). **Daily diagnostic tests (PCR)** decreased to 31.4K per day (↑4.7K), and the **weekly average for PCR and antigen tests** conducted in Michigan is 42.8K (↑7.3K).

2.3 million **COVID-19 vaccine** doses reported to MDHHS, 18% of Michigan population 16+ has at least one dose

Comparison across states: Summary 3/1/21

What we see today:

- Nineteen states are seeing increasing 1 week case trends (>=10% rise) (up vs. 2 last week)
- 28 states (down vs. 31) with significant outbreaks (high/increasing cases, increasing/high positivity increasing/high hospitalizations over 2 weeks (>100 per M))
- New York (270/M), Georgia, New Jersey, Texas and Missouri have highest per capita hospitalized patient numbers
- Midwest (case data from CDC):
  - Wisconsin showing drop in hospitalizations (50/M) and slight increase in cases (123→126/M)
  - Indiana with decline in hospitalizations (116/M), and drop in cases (142→130/M)
  - Illinois showing decline in hospitalizations (100/M), cases steady (139/M)
  - Ohio with declining hospitalizations (98/M) and drop in cases (176→167/M)
  - Michigan showing slight increase in hospitalizations (76/M) and increase in cases (105→133/M)

COVID-19 Spread

Statewide positivity has plateaued at 3.7%, and is plateauing in most MERC regions

- All eight MERC regions remain below 7% (Risk Level A)
- One region, Upper Peninsula, remains below 3% (Risk Level Low)
- Plateauing trends at the state and regional levels are also seen at the county level
- Nearly all counties (82) have positivity below 10%

Case rates (91.2 cases/million) have also plateaued in the state (Risk Level D)

- 88% decrease from the mid-November peak and remain below the Oct 1 rate for now
- Two MERC regions showing an increase in case rates
- Plateaus are seen among most age groups, races, and ethnicities
- In the past 30 days, about than one of five cases have unknown race and ethnicity
- Variant is in Michigan: increased vigilance in use of masks and social distancing and increase testing
  - 2,400 cases with the B.1.1.7 variant have been identified in the US (↑739), 437 in Michigan (↑123)

- Number of active outbreaks is down 9% from previous week
  - Reported school outbreaks have decreased since last week (104 to 99) with reported outbreaks decreasing among Pre-K-Elementary and administration.

Confirmed and probable case indicators

Table Date: 2/27/2021 (7 days from date table was produced: 2/20/2021)

Risk levels

Low A B C D E

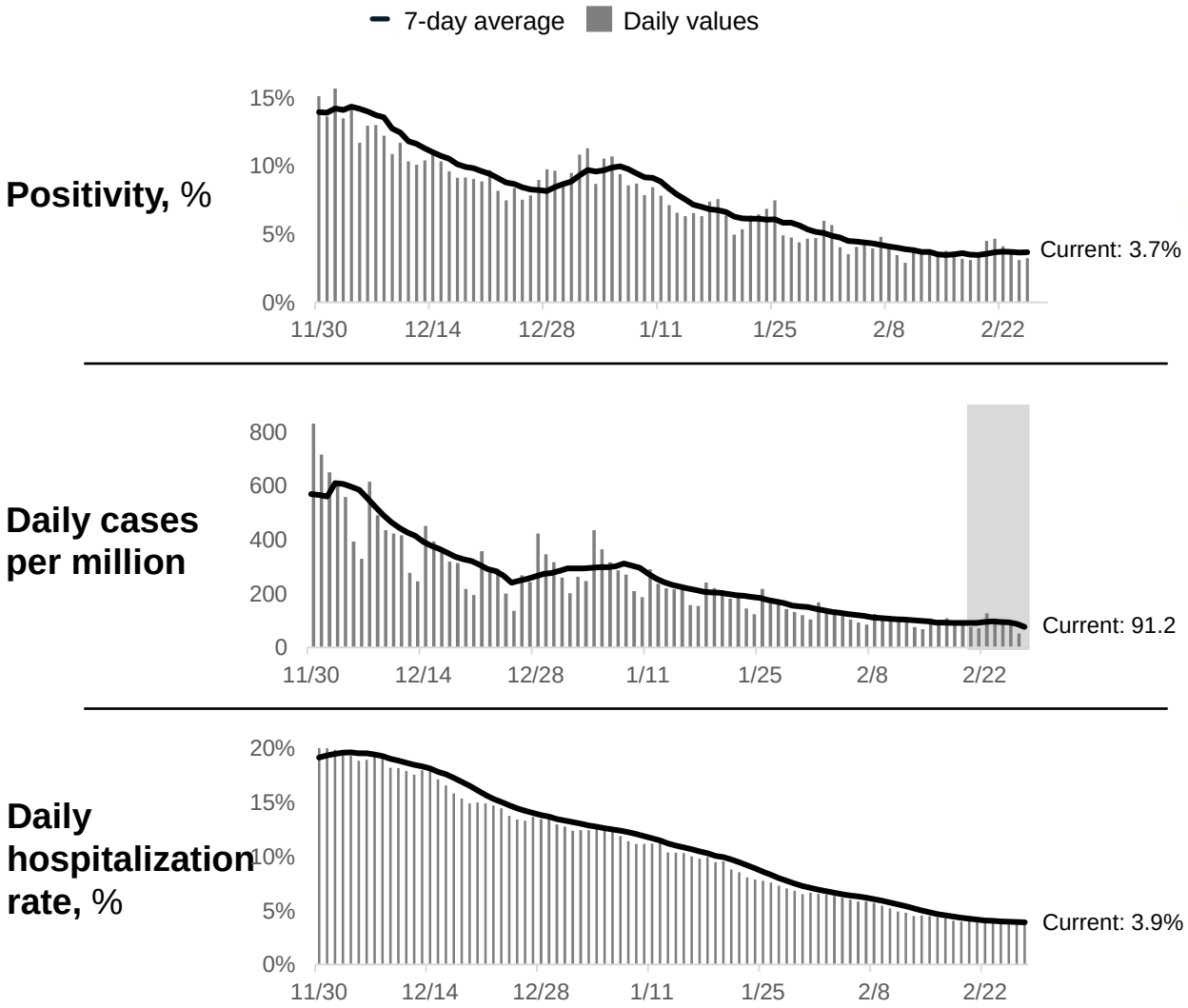
	MERC Region Number	Public Health Region	Overall Risk Level	Absolute cases (per million)	CDC Case Trend	Average percent positivity	Positivity trend	Tests per million	Weekly % CLI cases	Weekly % CLI cases trend	% inpatient beds occupied by COVID-19 cases	Absolute deaths (per million)	Death trend
Detroit	1	2N + 2S	D	88.8	elevated incidence plateau	3.6	Increase - 1wk	3041.1	0.4	Decrease - 4wk	3.8	2.0	Decrease - 9wk
Grand Rapids	2	6	D	92.5	decline [49 days]	3.4	Decrease - 1wk	3085.0	0.6	Decrease - 1wk	3.6	1.3	Decrease - 5wk
Kalamazoo	3	5	D	93.7	elevated incidence plateau	4.9	Increase - 1wk	2862.9	0.5	Decrease - 1wk	4.2	2.8	Increase - 1wk
Saginaw	4	3	D	85.8	elevated incidence growth	4.2	Decrease - 7wk	2785.3	0.3	Decrease - 1wk	4.8	4.4	Decrease - 1wk
Lansing	5	1	D	102.4	decline [49 days]	4.5	Increase - 1wk	2758.3	0.2	Decrease - 1wk	6.9	2.2	<20 wkly deaths
Traverse City	6	7	D	97.4	elevated incidence growth	4.6	Increase - 1wk	2151.4	0.8	Increase - 1wk	2.2	2.3	<20 wkly deaths
Jackson	7	1	D	125.3	elevated incidence plateau	4.9	Decrease - 7wk	4659.1	0.1	Decrease - 2wk	6.6	4.7	<20 wkly deaths
Upper Peninsula	8	8	C	65.4	decline [47 days]	1.7	Decrease - 1wk	3460.9	0.6	Increase - 1wk	1.4	2.8	<20 wkly deaths
Michigan			D	91.2	elevated incidence plateau	3.7	Increase - 1wk	3161.5	0.4	Decrease - 13wk	3.9	2.2	Decrease - 10wk

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%

Recent statewide trends

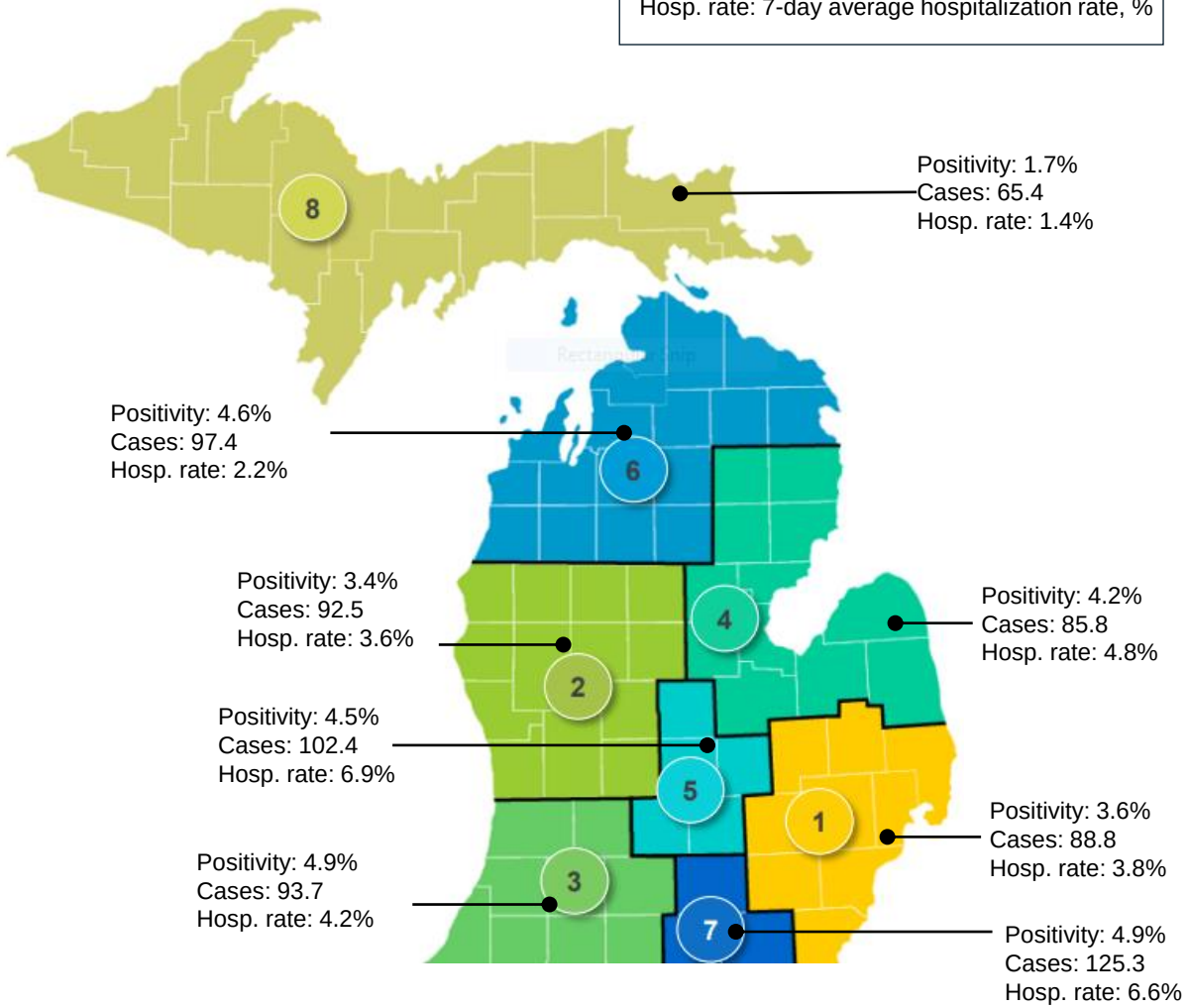
Statewide trends



Source: https://mistartmap.info/

Regional breakdown: Cases, hospitalization rate, and positivity

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

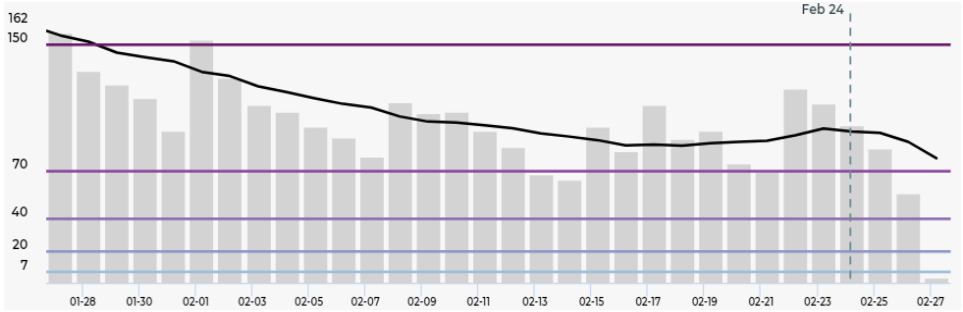


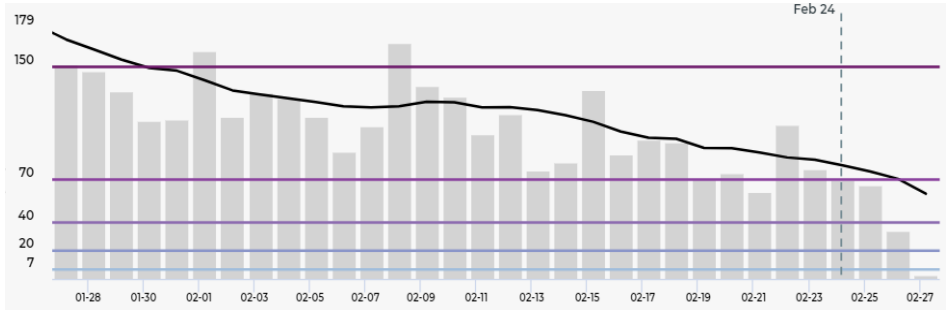
Draft

Recent trends: Detroit (↔)

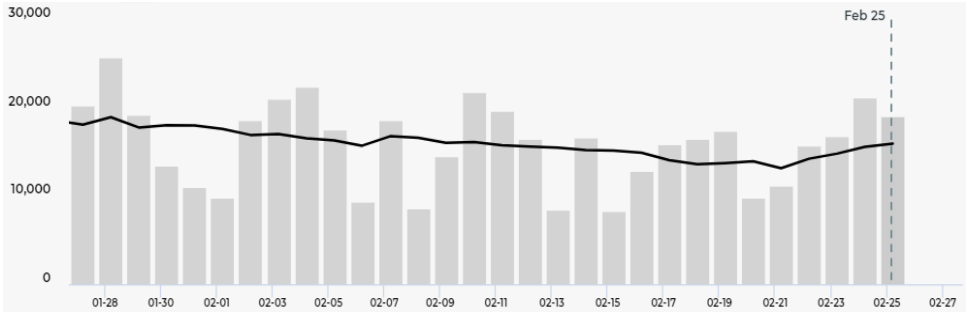
Recent trends: Grand Rapids (↓)

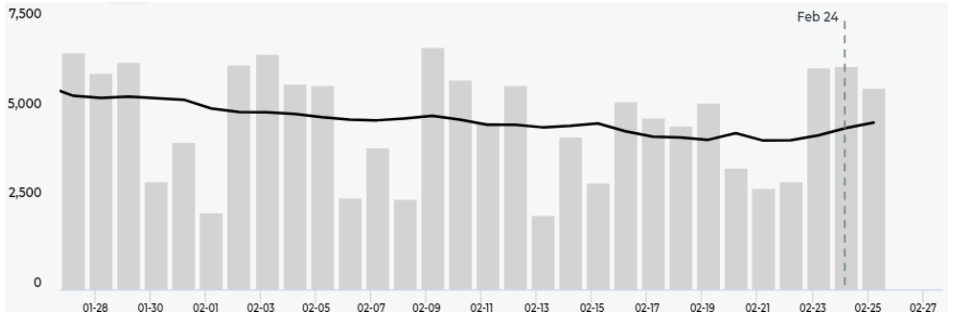
Confirmed & probable cases per million



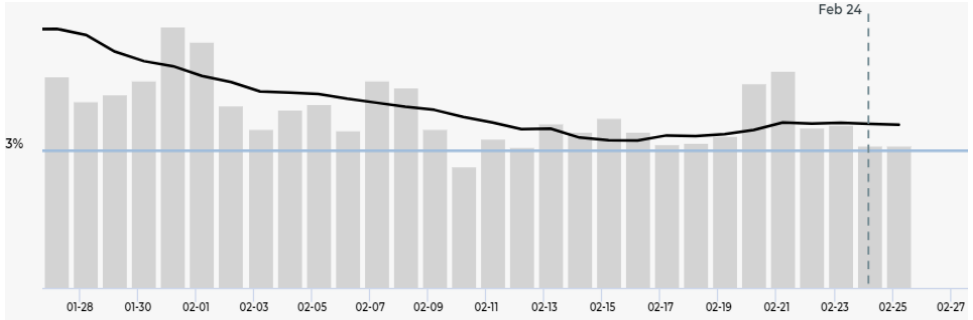


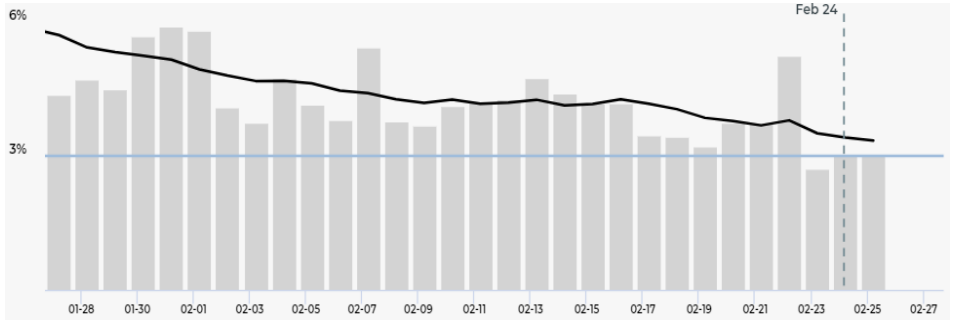
Daily tests per million





Percent positivity





All charts represent data from 1/27/21 – 2/27/21

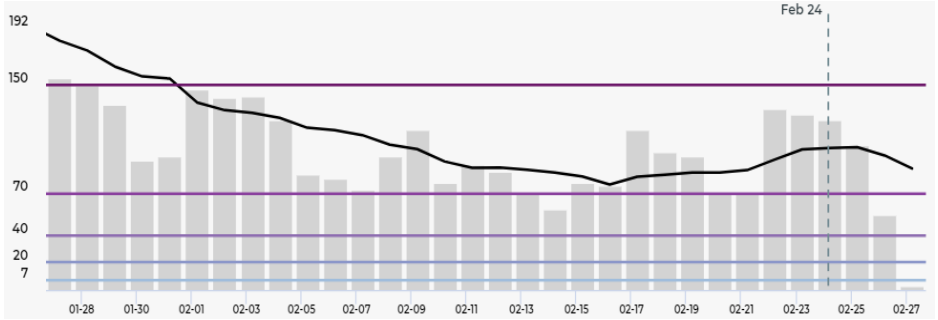
Source: MI Start Map; MDOC excluded

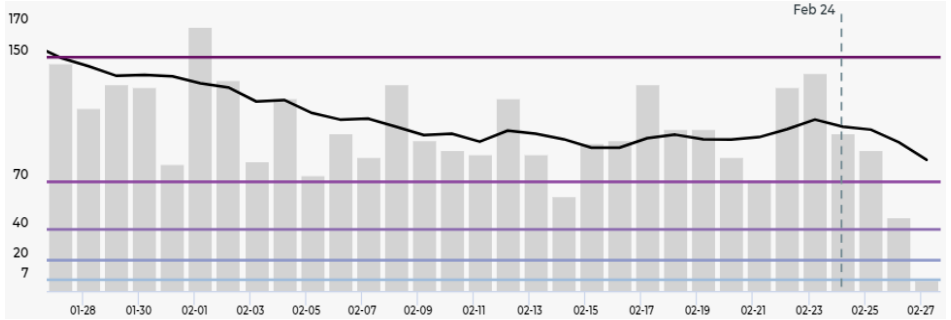
Draft

Recent trends: Saginaw (↑)

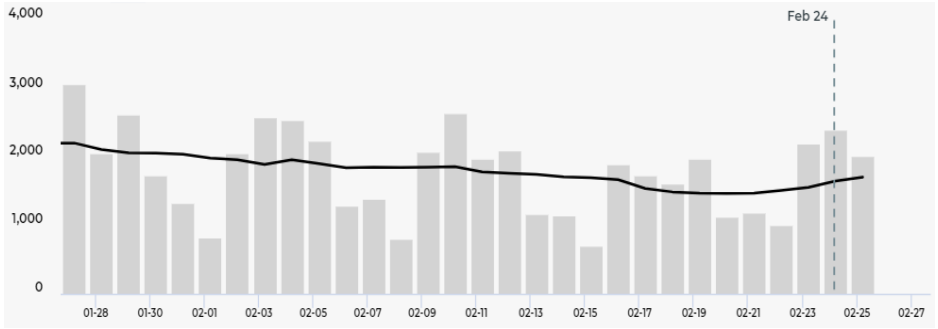
Recent trends: Traverse City (↑)

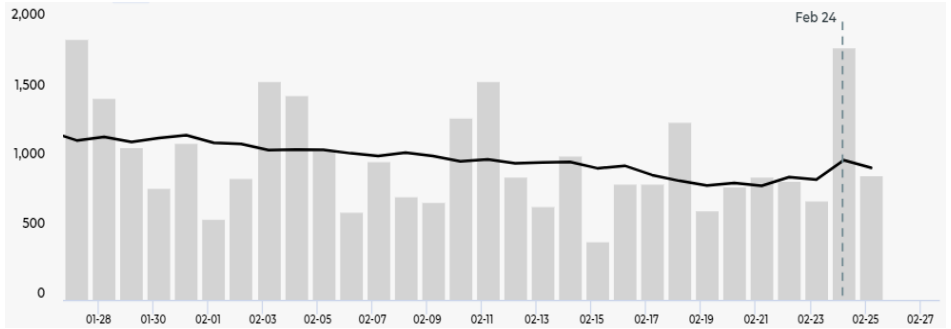
Confirmed & probable cases per million



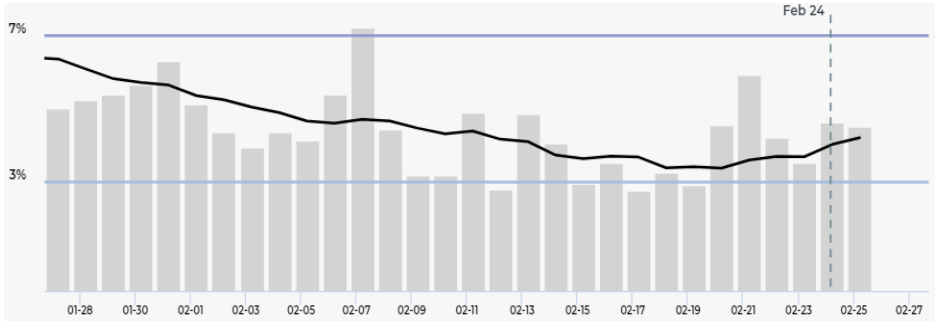


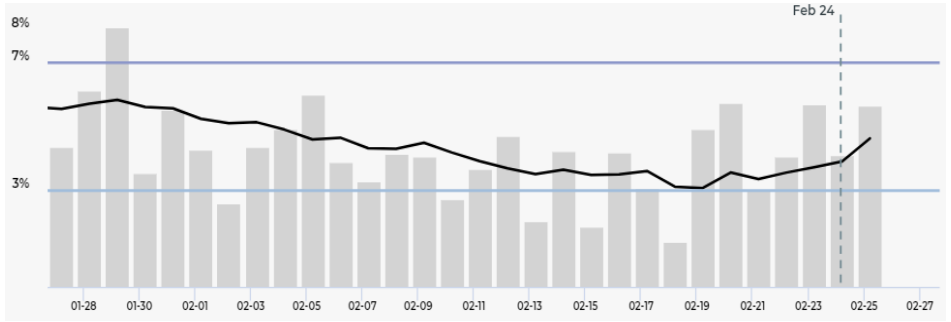
Daily tests per million





Percent positivity

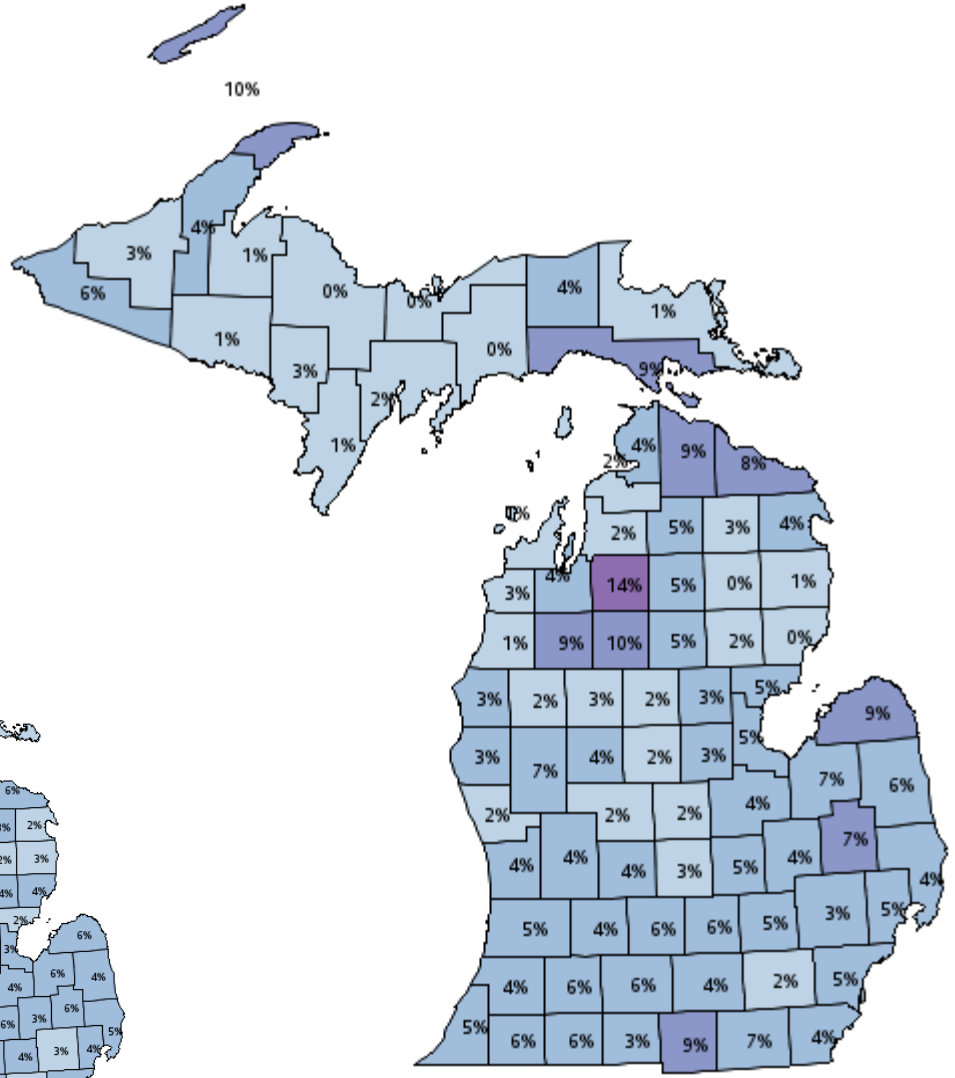




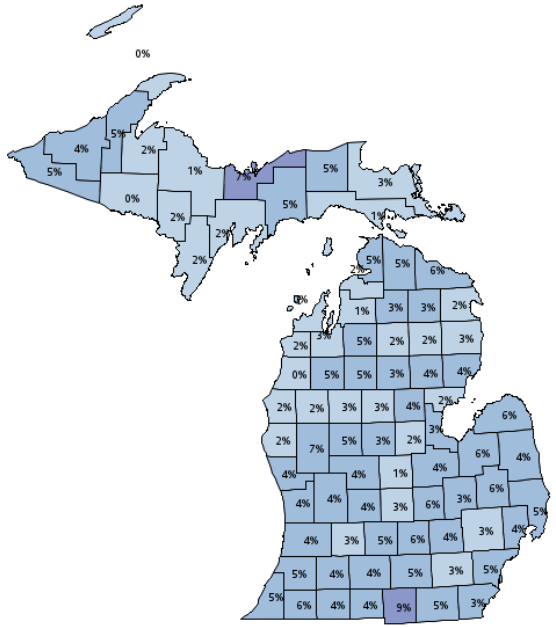
All charts represent data from 1/27/21 – 2/27/21

Source: MI Start Map; MDOC excluded

Positivity by county, 2/19-2/25



Last week, 2/12-2/18



Average positivity per day	# of counties (This week)	# of counties (Last week)
<3%	29	31
3-7%	44	50
7-10%	9	2
10-15%	1	0
15-20%	0	0
>=20%	0	0

Updates since last week:

1 of 83 counties saw double digit positivity in the last week (1 county increase)

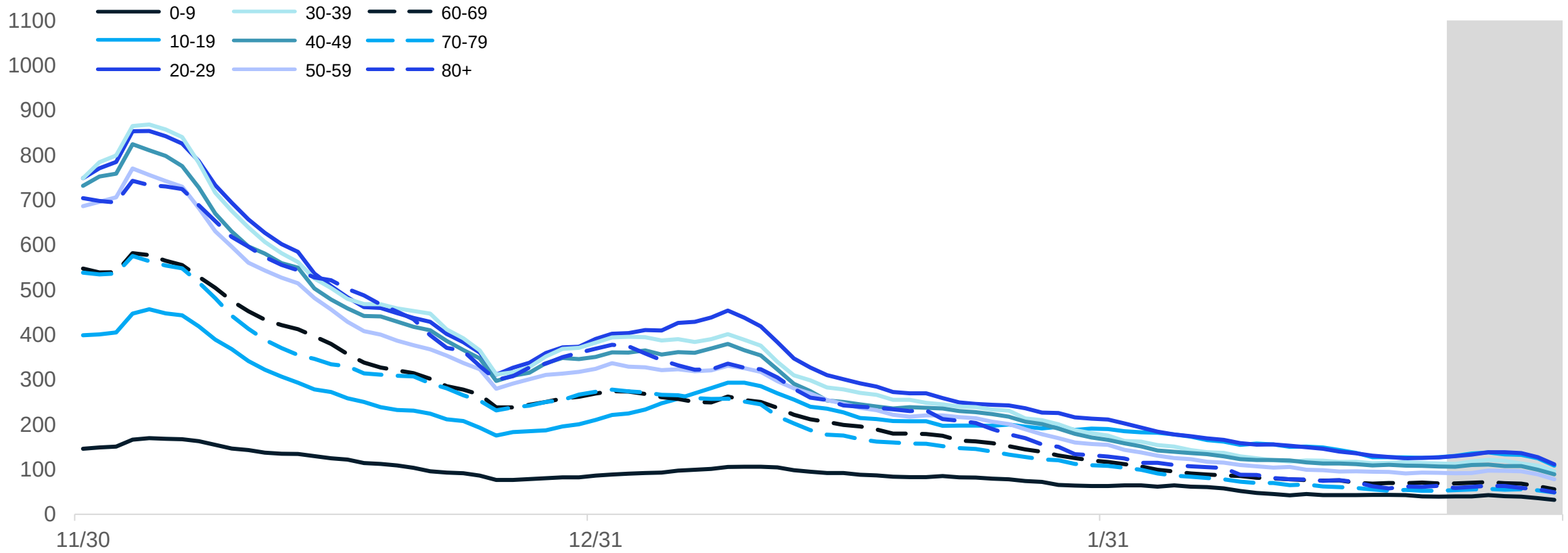
10 of 83 counties saw positivity > 7% in the last week (8 county increase)

54 of 83 counties saw positivity > 3% in the last week (2 county increase)

Source: SEOC Testing Results – Excluding MDOC

Age group: average new daily cases

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

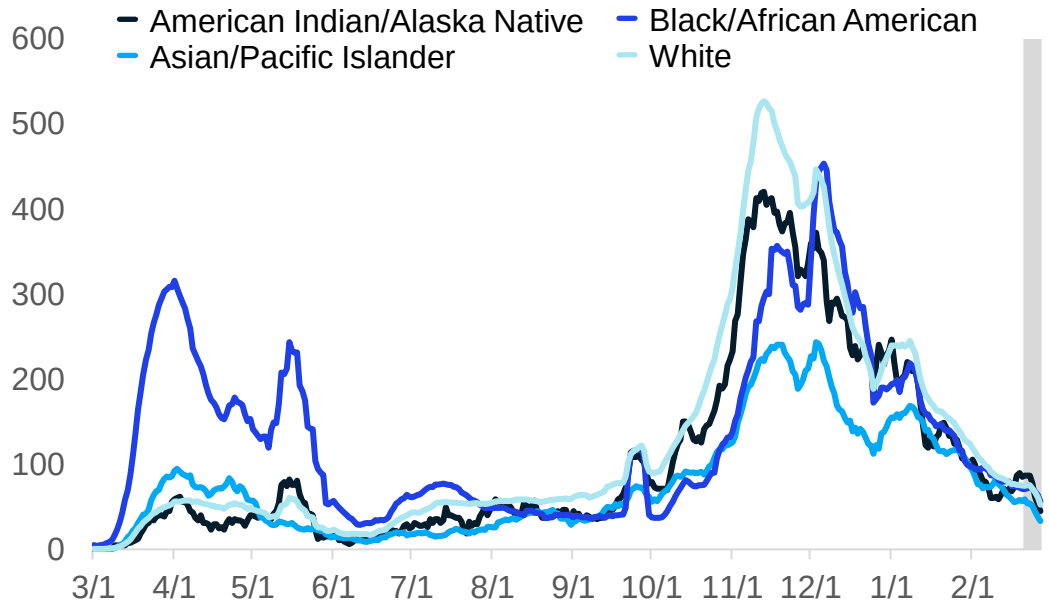


- Most age groups by decade are also plateauing
- Those aged 10-19 and 20-29 are the two highest groups
- Those aged 0-9, 10-19, 20-29, and 30-39 are also seeing early increases

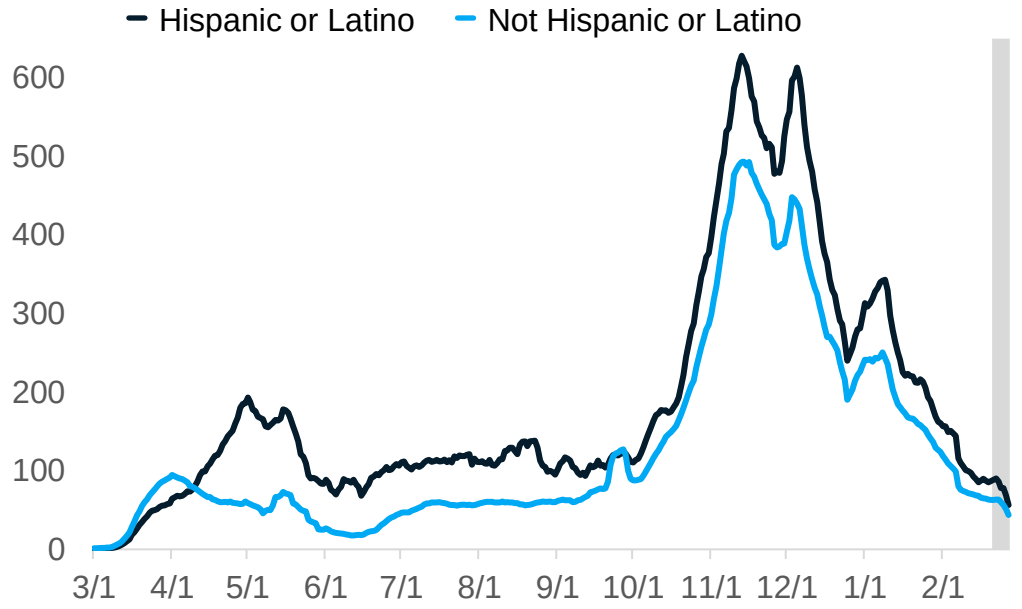
Note: Case information sourced from MDHHS and reflects date of onset of symptoms
Source: MDHHS – Michigan Disease Surveillance System

Average daily new cases per million people by race and ethnicity

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



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



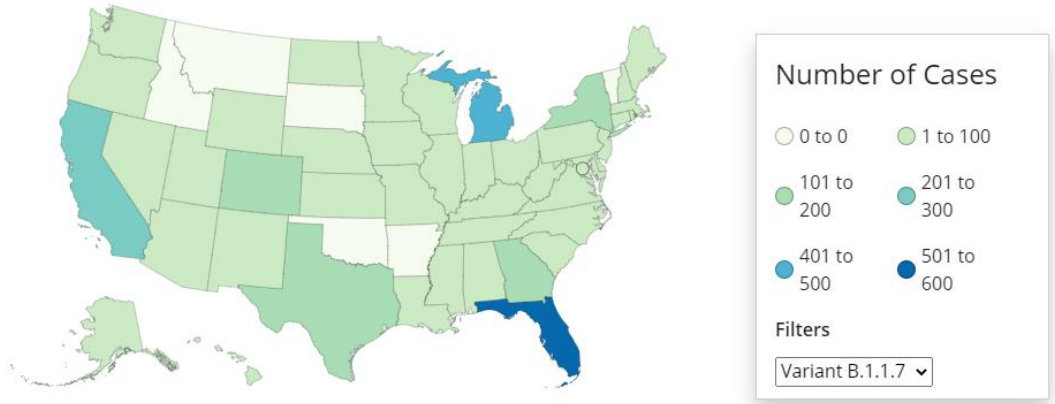
Updates since last week:

- Cases per million are now decreasing for all racial groups, as well as both Hispanic/Latinos and non-Hispanic/Latinos
- In the past 30 days, 23% of all cases represent unknown, multiple, or other races (14% of race is unknown, ↔)
- In the past 30 days, 20% of all cases have an unknown ethnicity reported (↑3%)

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 All Variants of Concern in US and Michigan

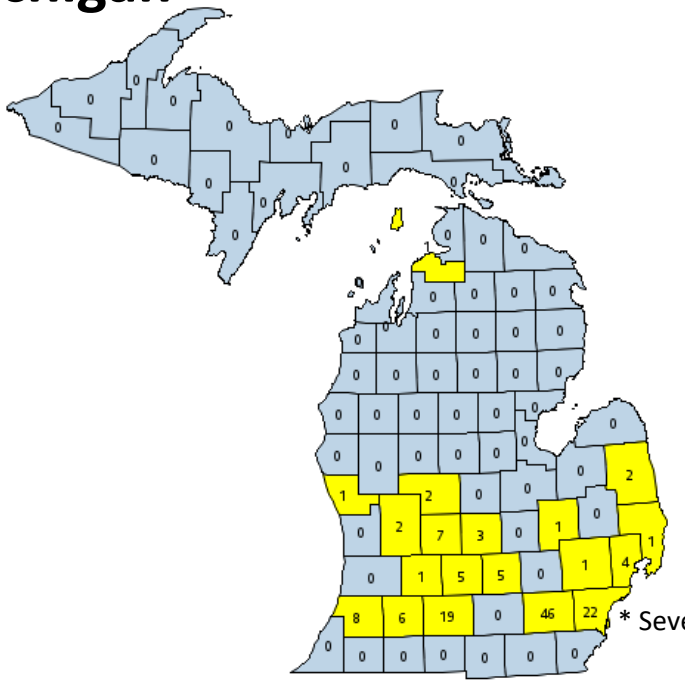
Emergent B.1.1.7 Variant Cases in the United States



Territories AS GU MH FM MP PW PR VI

Variant	Reported Cases in US	Number of Jurisdictions Reporting
B.1.1.7	2400	46
B.1.351	53	16
P.1	10	5

Emergent B.1.1.7 Variant Cases in Michigan



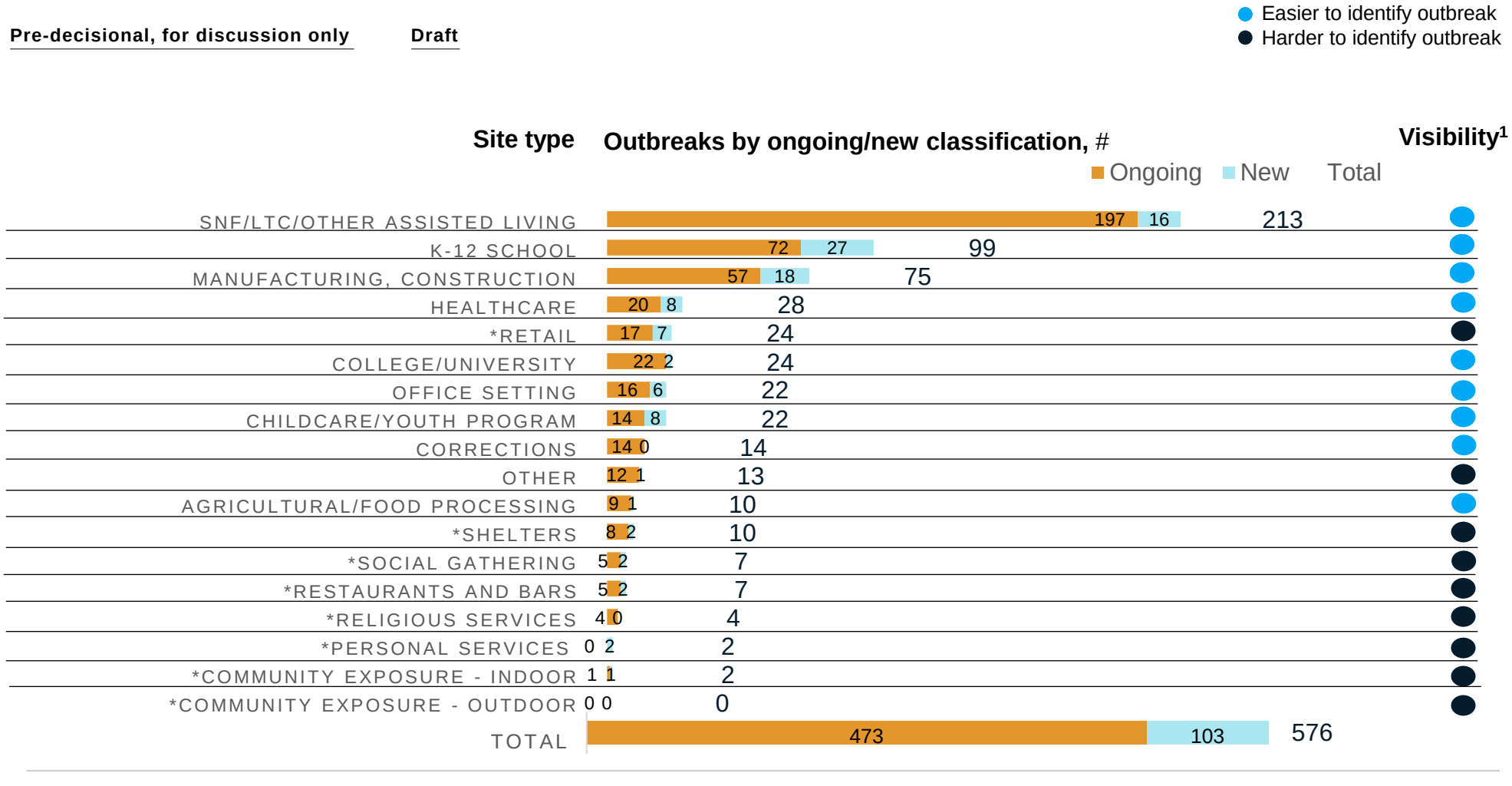
* Seven cases within Wayne are in Detroit

- 437 B.1.1.7 reported cases (18% of all cases nationally)
  - 19 counties
  - 299 cases within MDOC (68% of all cases in MI)
- 1 case undergoing investigation to determine county

Data last updated March 2, 2021
Source: https://www.cdc.gov/coronavirus/2019-ncov/transmission/variant-cases.html and Michigan Disease Surveillance System (MDSS)

Number of outbreak investigations by site type, week ending Feb 25

Pre-decisional, for discussion only **Draft**



Total number of active outbreaks is down 9% from previous week

Following K-12 (27), the greatest number of new outbreaks were reported in manufacturing/ construction (18), and SNF/LTC (16).

LHDs reported new outbreaks in all settings except outdoor community exposures, religious services, and corrections

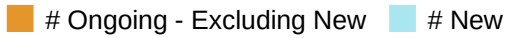
1. Based on a setting's level of control and the extent of time patrons/residents spend in the particular setting, different settings have differing levels of ability to ascertain whether a case derived from that setting

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

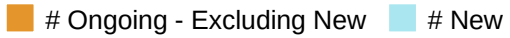
K-12 school outbreaks, recent and ongoing, week ending Feb 25

Number of reported outbreaks decreased since last week (104 to 99) including decreases in Pre K-Elementary (32 to 23), and Administrative (3 to 2). High Schools (45 to 50) had an increase in reported outbreaks, while Middle/Jr High remained the same (at 24) .

Region	Number of reported cases, #	Number of outbreaks	Range of cases per outbreak
Region 1	93 48	21	2-24
Region 2n	31 13	14	2-6
Region 2s	25 30	13	2-9
Region 3	200 42	19	2-48
Region 5	21 24	6	3-15
Region 6	88 20	13	2-28
Region 7	32 24	11	2-10
Region 8	12 0	2	5-7
Total	502 201	**99**	**2-48**



Grade level	Number of reported cases, #	Number of outbreaks	Range of cases per outbreak
Pre-school - elem.	100 23	23	2-23
Jr. high/middle school	128 21	24	2-23
High school	270 157	50	2-48
Administrative	4 0	2	2-2
Total	502 201	**99**	**2-48**



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

COVID-19 and Healthcare Capacity and COVID Severity

Hospitalizations and ICU utilization are plateaued

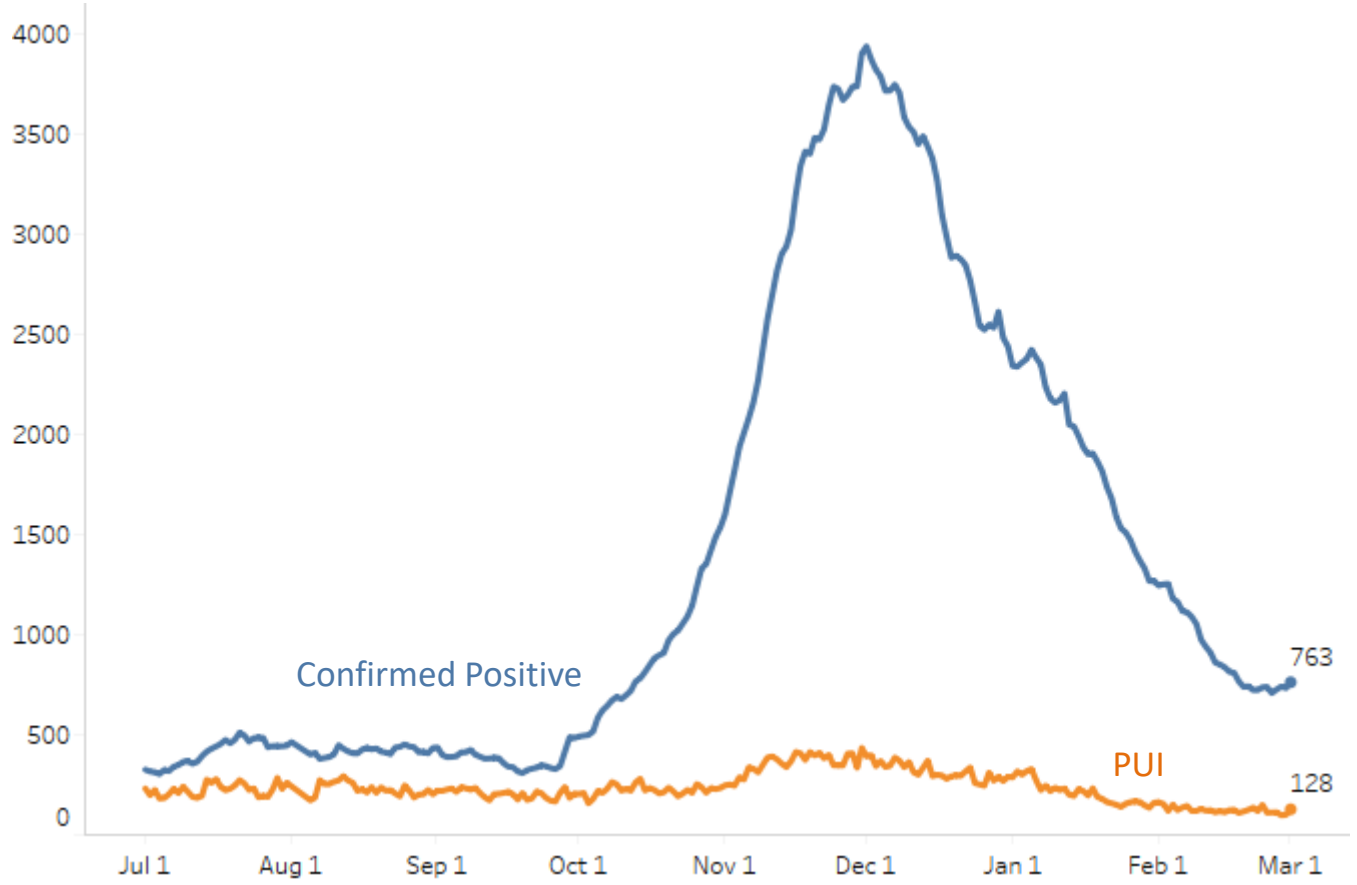
- COVID-like illness (CLI) continues with downward trend and is below 2% (data in appendix)
- Hospitalizations up 5% since last week (first increase since December)
- Four regions are showing increasing hospital census trends this week (regions 2N, 2S, 3, 7)
- The census of COVID+ patients in ICUs has risen in 3 regions (regions 2S, 3, 5)

Deaths have declined for 10 weeks to 2.2 deaths per million

- Deaths are a lagging indicator of cases and hospitalization
- 84% decrease from the peak on December 10
- Current death rate is more than 1.5x greater than death rate in early October

Statewide Hospitalization Trends: Total COVID+ Census

Hospitalization Trends 7/1/2020 – 3/1/2021
Confirmed Positive & Persons Under Investigation (PUI)

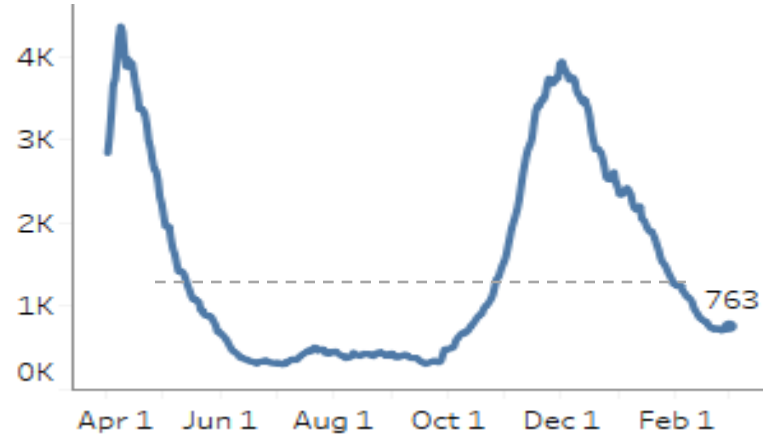


This week, the COVID+ census in hospitals has increased for the first week since December marking a turn in trajectory.

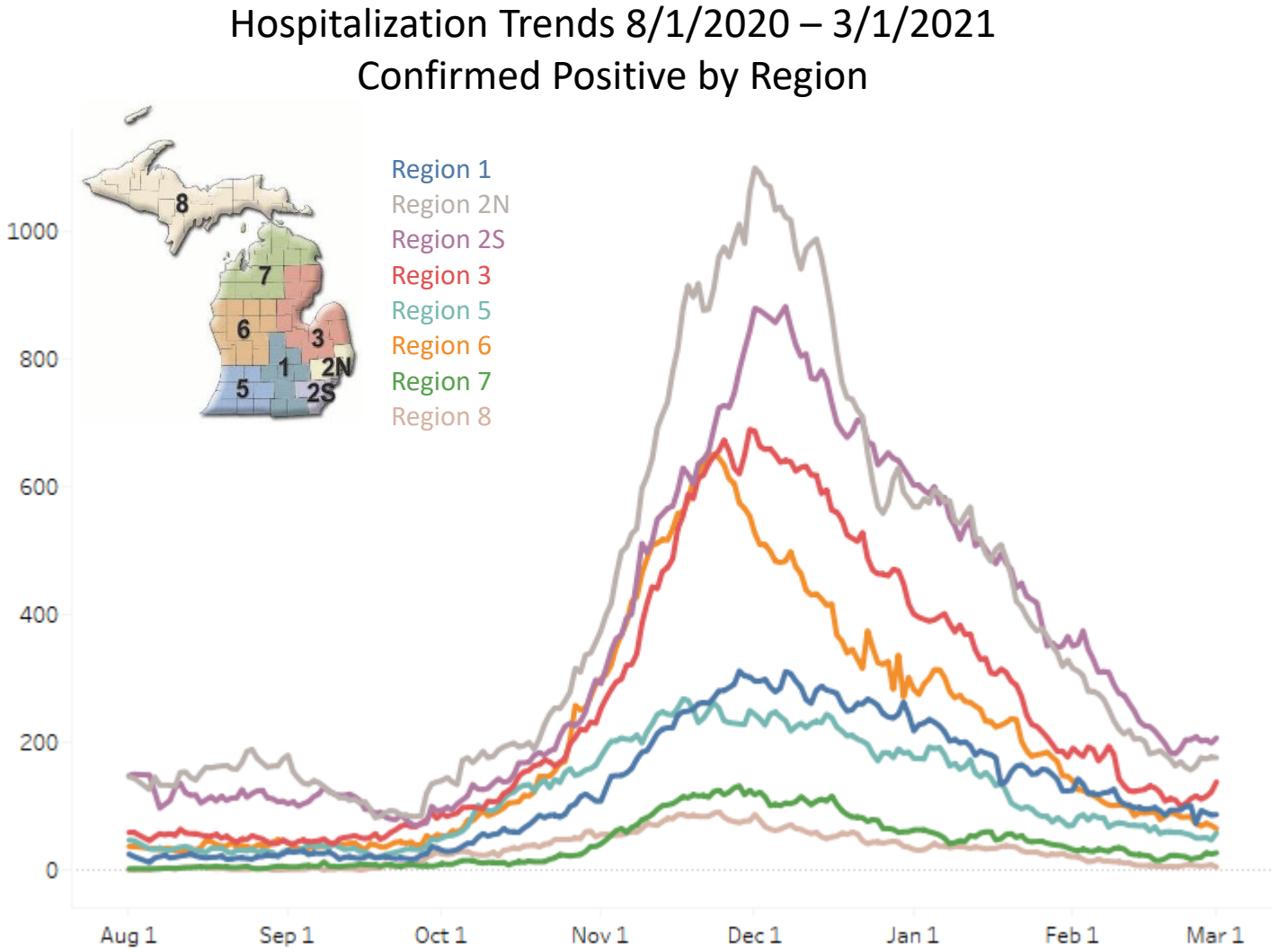
This week census is up 5% from the previous week.

The increase appears to be driven by a small increase in new admissions

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census



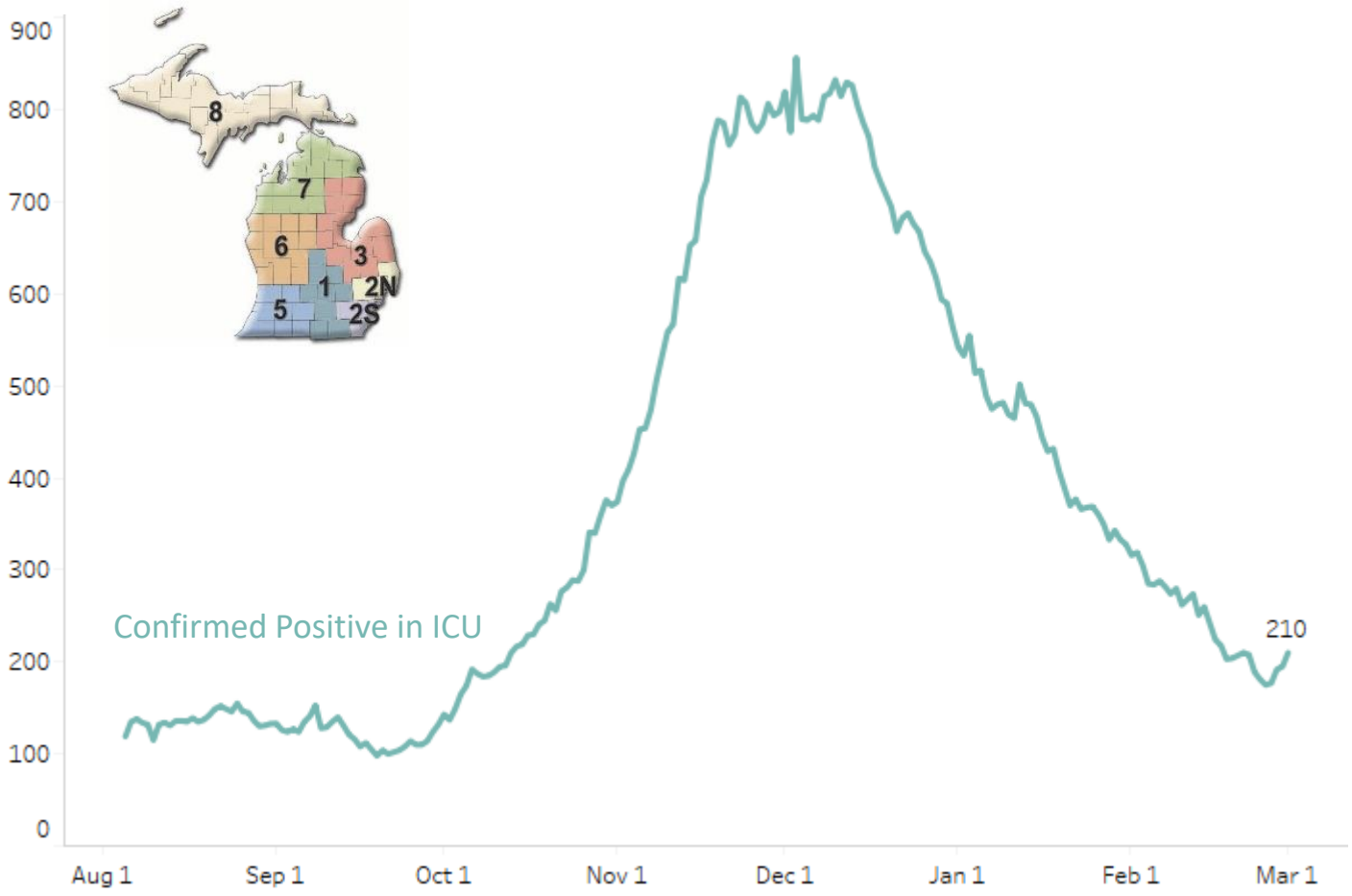
Four regions are showing increasing hospital census trends this week (regions 2N, 2S, 3, 7). Region 3 (38%) and 7 (23%) show the largest increases in census.

All regions except Region 3 remain below 100 hospitalized per million of the population.

Region	COVID+ Hospitalizations (% Δ from last week)	COVID+ Hospitalizations / MM
Region 1	87 (-7%)	80/M
Region 2N	176 (+4%)	79/M
Region 2S	207 (+9%)	93/M
Region 3	138 (+38%)	122/M
Region 5	58 (-2%)	61/M
Region 6	65 (-21%)	44/M
Region 7	27 (+23%)	54/M
Region 8	5 (-17%)	16/M

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 8/1/2020 – 3/1/2021
Confirmed Positive in ICUs



The census of COVID+ patients in ICUs has risen in 3 regions (regions 2S, 3, 5). Overall, statewide ICU census has increased only 1% from last week.

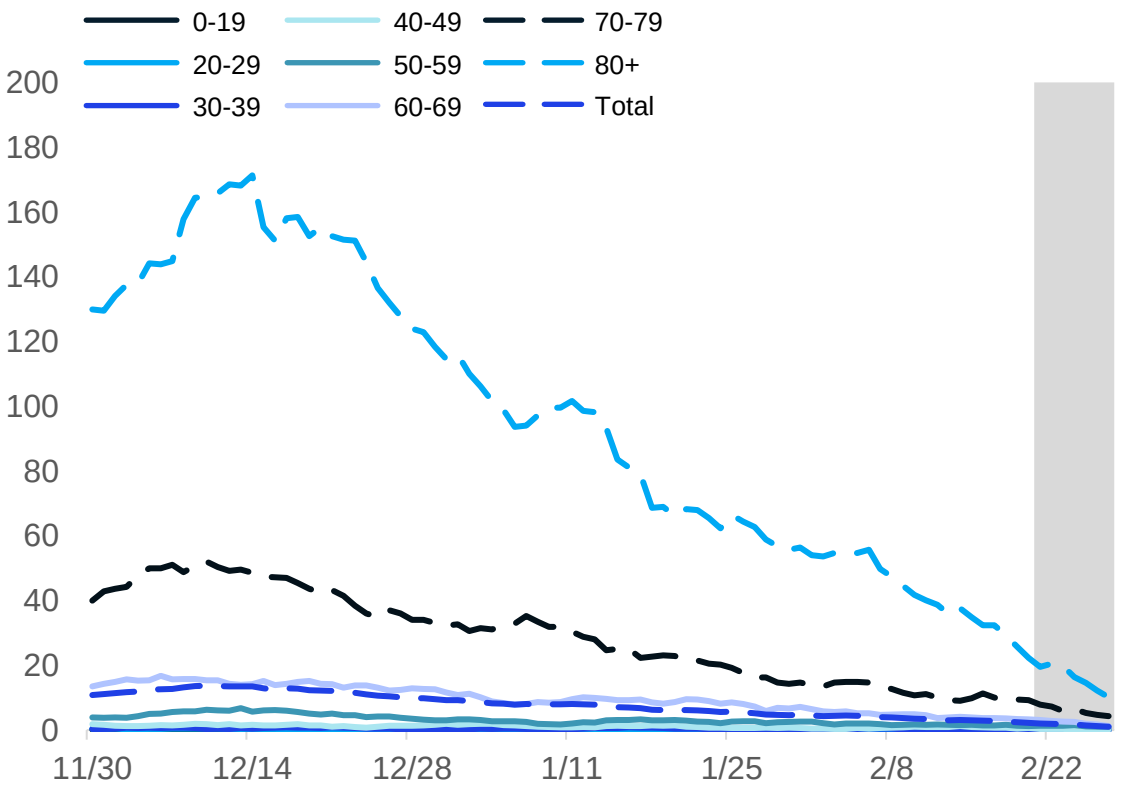
Only region 3 has >15% of ICU beds occupied by COVID+ patients.

Region	Adult COVID+ in ICU	Adult ICU Occupancy	% of Adult ICU beds COVID+
Region 1	17 (-26%)	86%	9%
Region 2N	41 (-2%)	73%	7%
Region 2S	61 (+24%)	75%	8%
Region 3	29 (+16%)	74%	9%
Region 5	27 (+29%)	83%	18%
Region 6	28 (-13%)	71%	8%
Region 7	5 (-55%)	61%	3%
Region 8	2 (-60%)	60%	3%

Hospital bed capacity updated as of 2/19

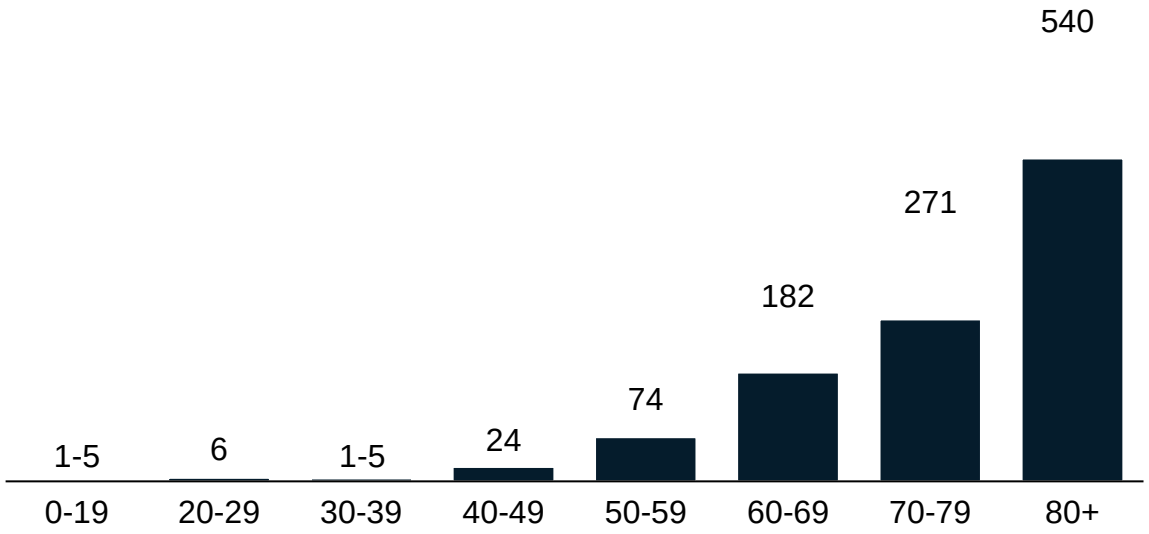
Average and total new deaths, by age group

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



Total confirmed and probable deaths by age group (past 30 days, ending 2/20/2021)

10% of deaths below age sixty

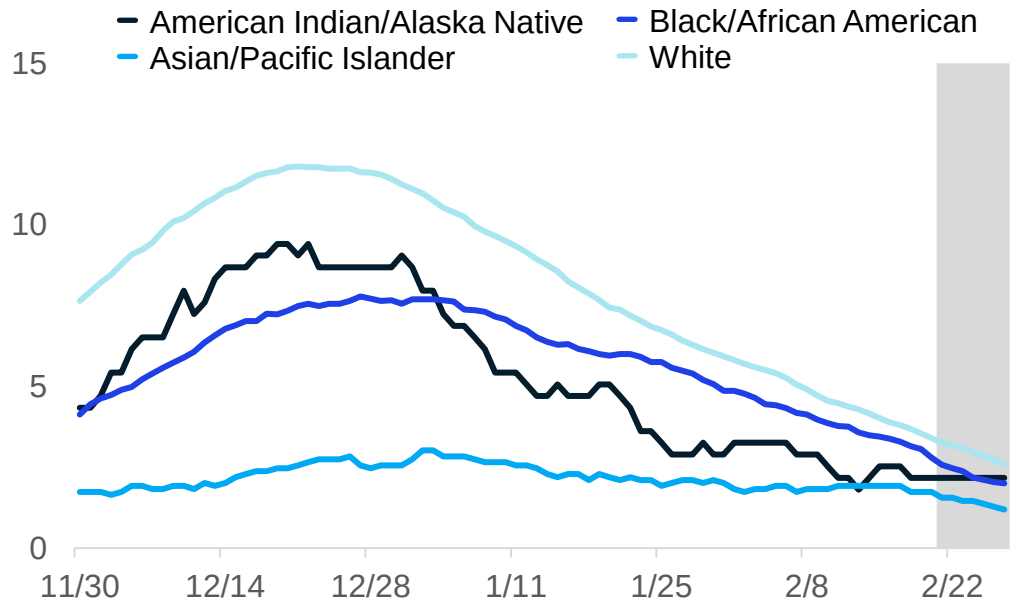


Note: Death information sourced from MDHHS and reflects date of death of confirmed and probable cases.

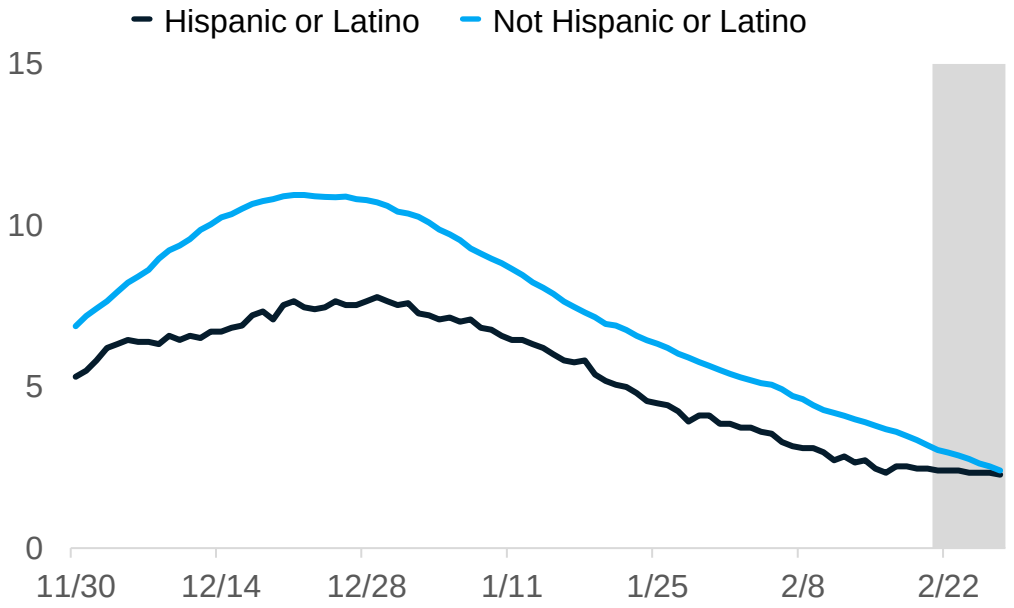
Source: MDHHS – Michigan Disease Surveillance System

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

Average daily deaths per million people by race



Average daily deaths per million people by ethnicity



Updates since last week:

- Deaths are a lagging indicator of cases, and death rates are decreasing among racial and ethnic groups
- Whites and Non-Hispanic/Latino have the most reported deaths per capita
- Deaths are not adjusted for confounders (e.g., age, sex, comorbidities)

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

How is public health capacity?

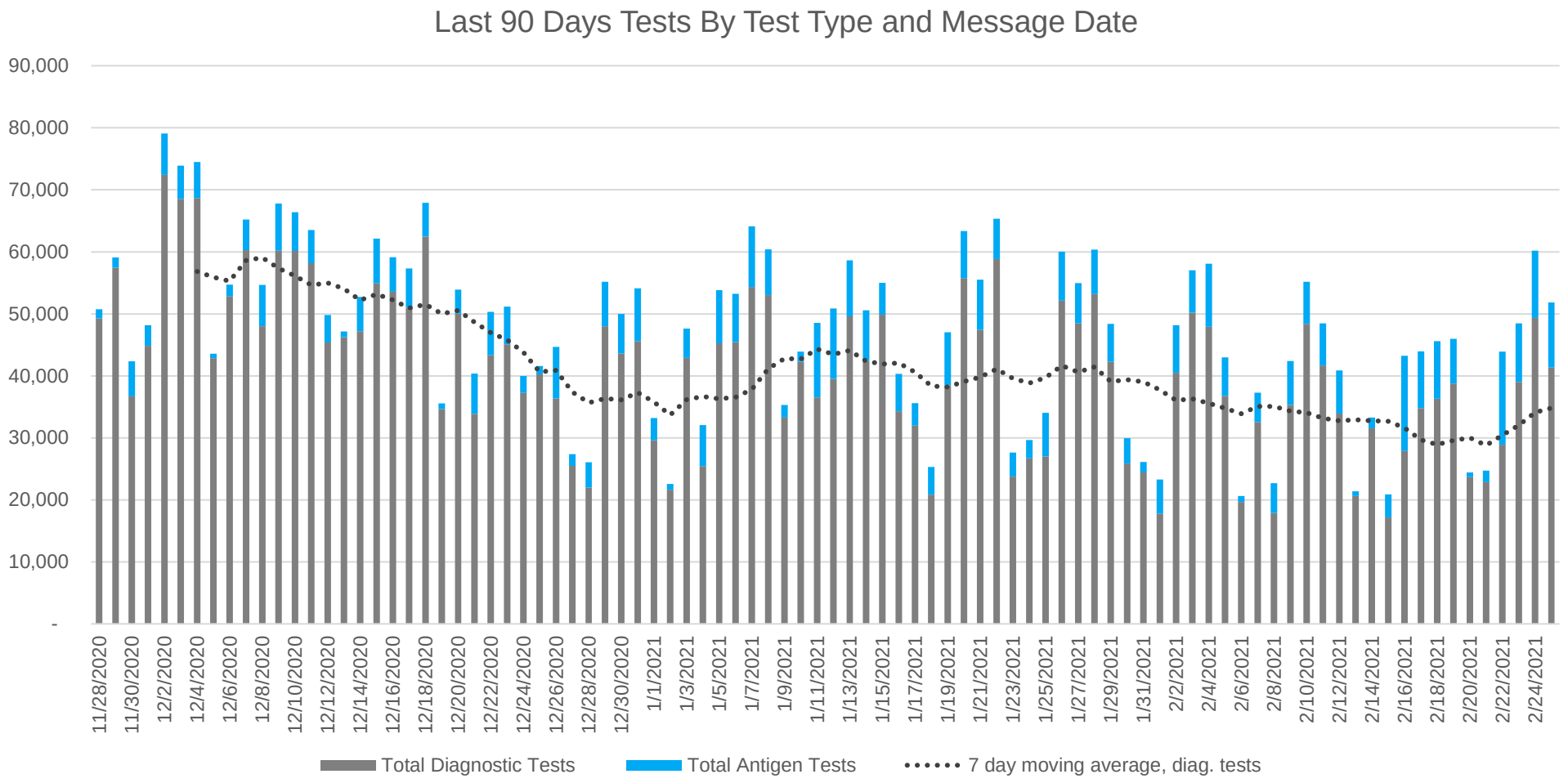
Diagnostic testing volume (PCR and antigen) has increased from last week to 42,786

- PCR testing has increased since last week (34,831)
- Percent (18.6%) of antigen tests which is similar to last week, but number of Ag tests have increased (7,955)

Cases identified for investigations has increased

- Proportion of completed interviews has dropped since previous week (↓2%)
- Consistent low proportion of cases interviewed with a source of known infection (indicating community acquisition)
- Consistent low proportion of those quarantining when their symptoms begin (indicating no effective halt in community transmission)

Daily diagnostic tests, by message date



Weekly Update

- 42,786 rolling 7-day average daily diagnostic tests reported to MDHHS (PCR + Ag) (↑)
- 34,831 average daily PCR tests (↑)
- 18.6% are antigen tests over the past week (↔)
- 3.7% positivity in PCR tests (↑)
- 2.4% positivity in antigen tests (↓)

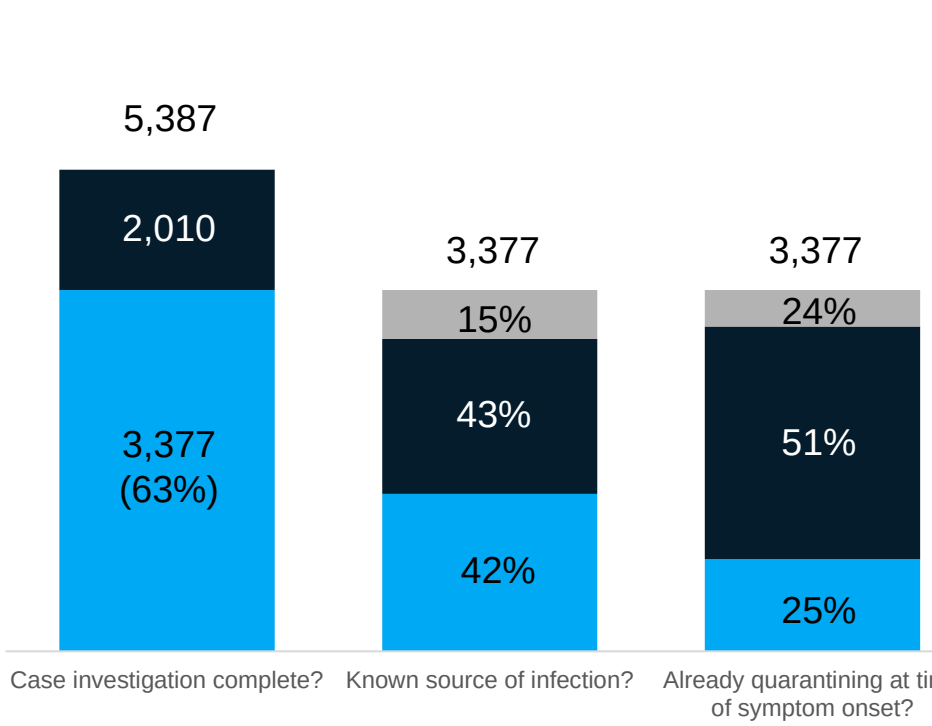
Source: MDSS/Michigan Medical Advantage Group, MDHHS, testing labs

New Case Investigation Metrics (Statewide)

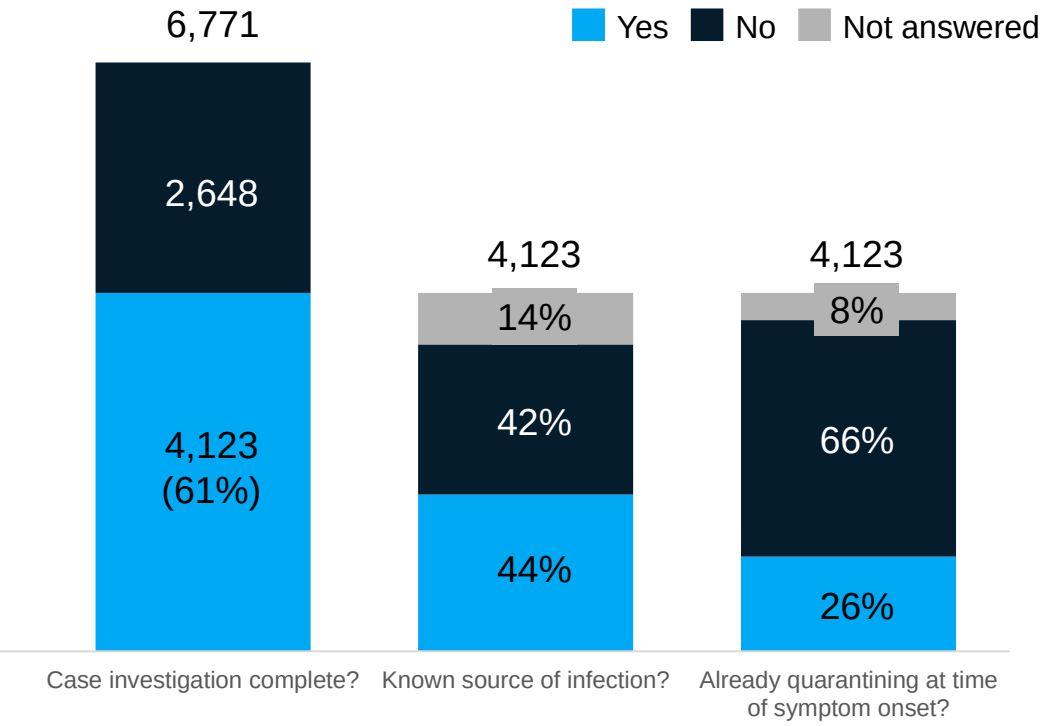
New Communicable Disease metrics slightly increased since last week:

- 44% of investigated cases having a known source (42% last week, 45% week prior)
- 26% of investigated cases noting that they were quarantining before symptoms (25% last week)

02/13-02/19 Case report form information



02/20-02/26 Case report form information



Source: MDHHS – Michigan Disease Surveillance System

COVID-19 Vaccination

26th in nation for doses administered per 100,000 people

More than 2.3 million doses reported to MDHHS

18.0% of aged 16+ years have first dose of vaccine (up from 15.5% last week)

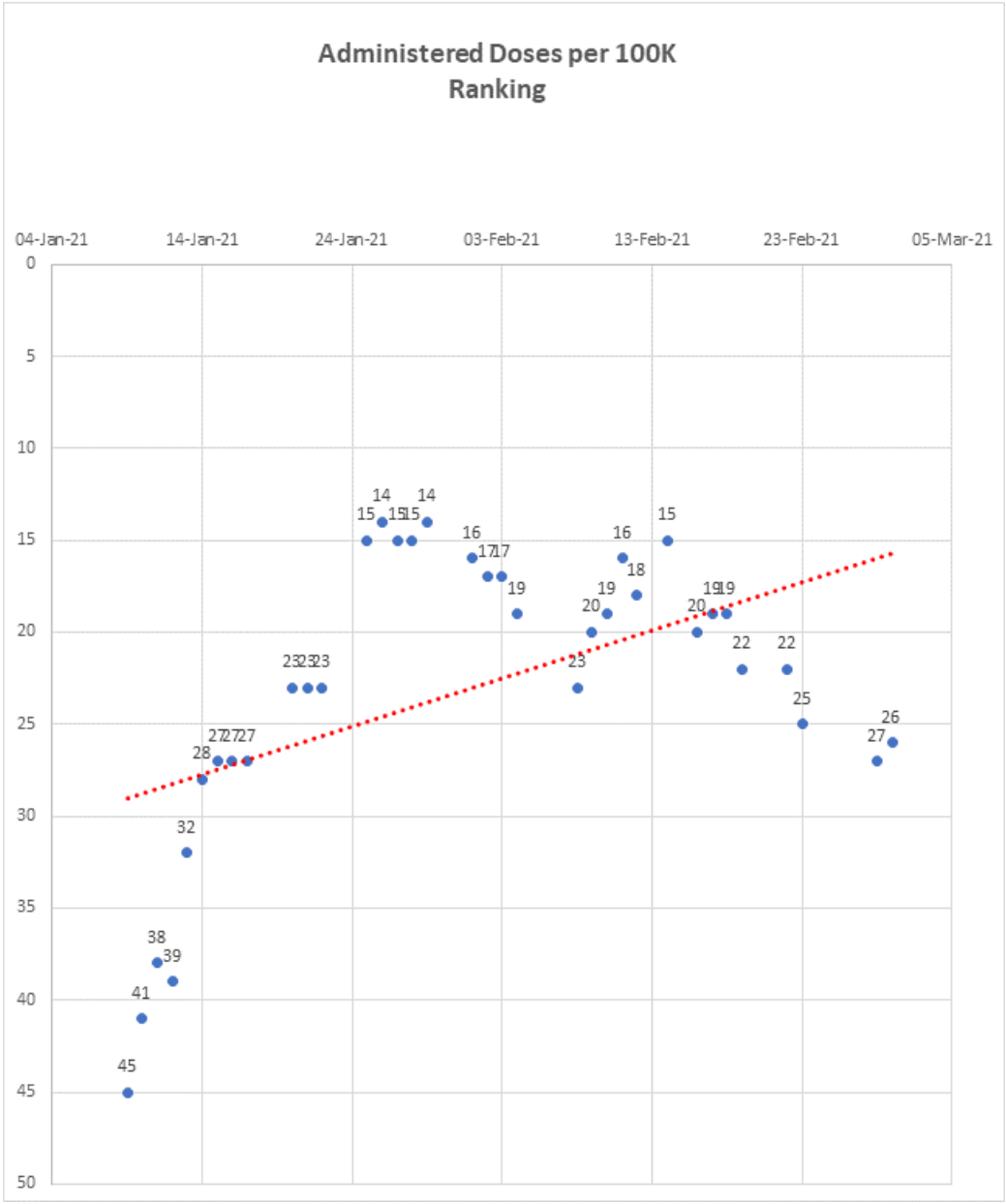
- **834,738 people fully vaccinated**
- 45.9% of people over 65 years have had one dose; 21.8% have completed series

Race data becoming more complete: 38.7 missing race information (down from 43.7%)

- Coverage was highest among those of White Race

Michigan COVID Vaccine Distribution & Administration as of 3/1/2021

	State Rank (Prior)
Total Distributed (Number)	10 (10)
Total Administered (Number)	9 (9)
Administered per 100K*	26 (22)
People with One+ Doses (Number)	9 (9)
% People with One+ Doses	31 (36)
People with Two Doses (Number)	8 (7)
% People with Two Doses	15 (16)



Doses Shipped and Administered

18% of Michigan residents have initiated their COVID vaccination series and 10.1% have completed their series.

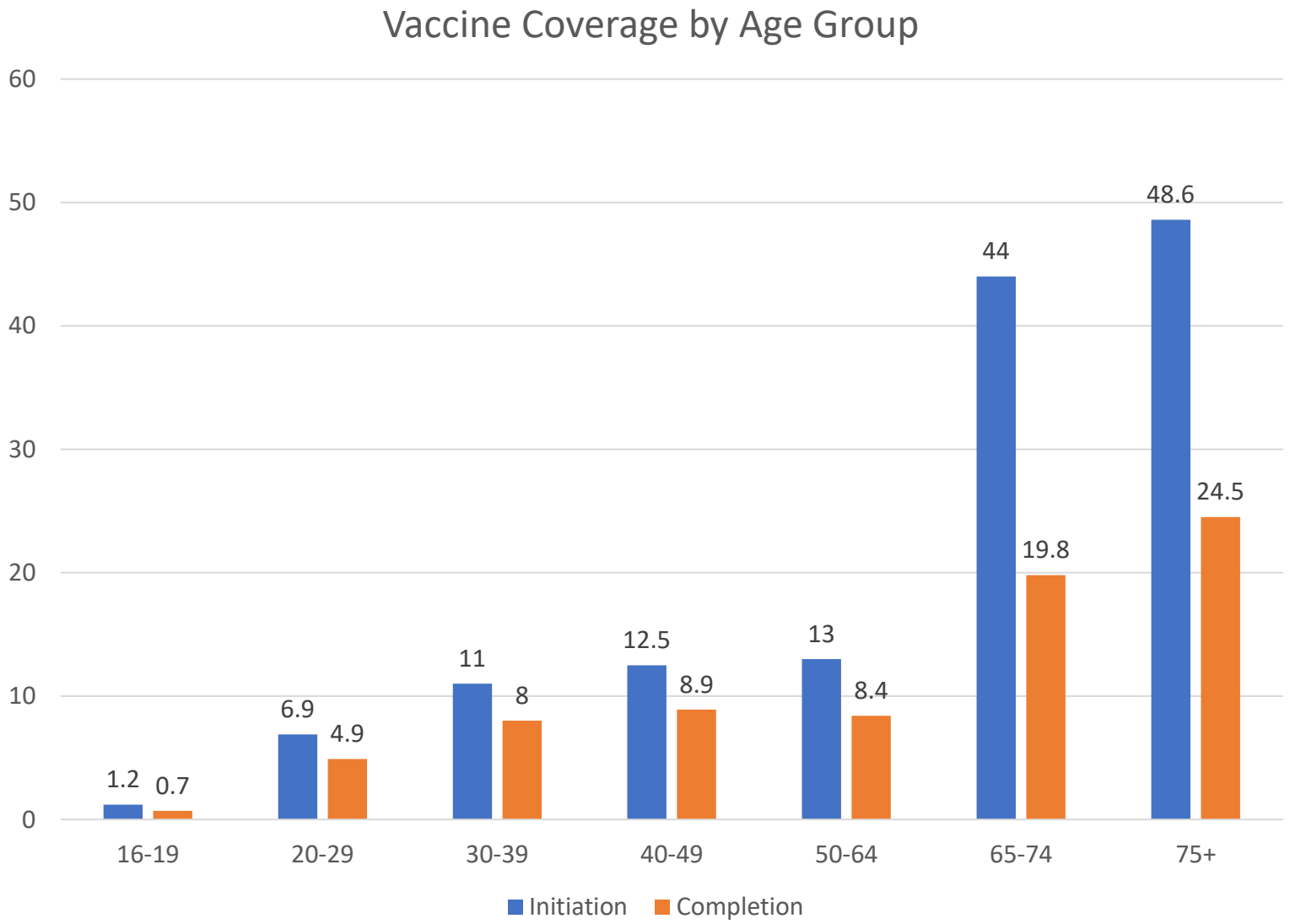
	Enrolled Providers	Doses Shipped	Total Doses Administered			1st Dose Coverage, 16+	2nd Dose Coverage, 16+
Data as of	2/28/21	3/2/21	3/1/21	1st Dose	2nd Dose	3/1/21	3/1/21
Michigan Distributed	2521	2,528,315	2,303,548	1,468,810	834,738	18.0	10.2
Federal Programs		436,260					
Total Distribution		2,94,575					

3 weeks administering more than 300,000 doses/week
Over 79,000 doses administered in a single day
Already 23,000 doses of J and J in state

Vaccination by Age Group (3/1/21 data)

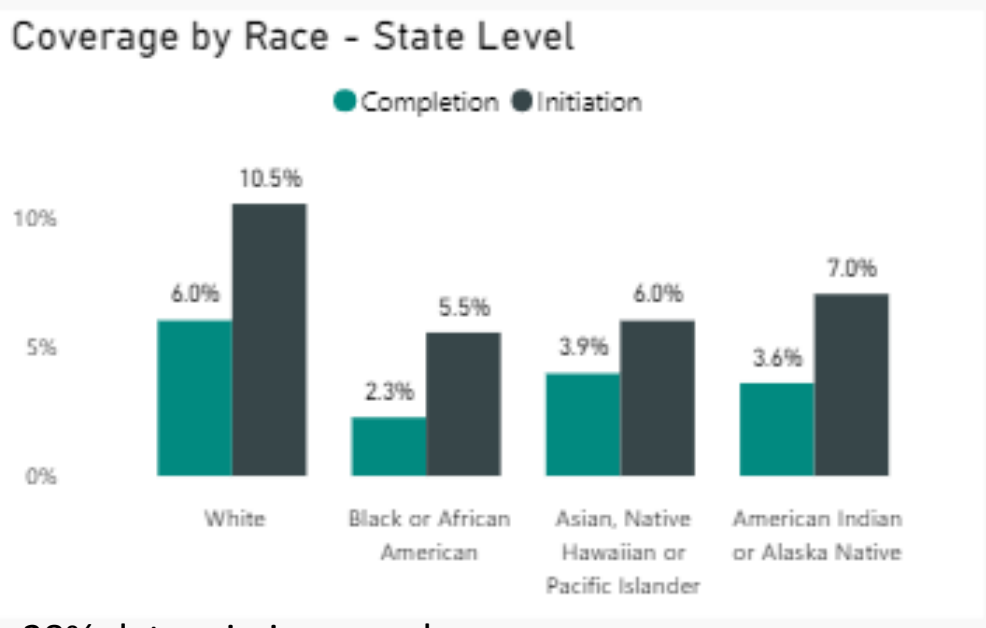
More than 810,646 people aged 65 years or older have received one or more doses of vaccine (up 18.5% from 660,036 last week).

Persons 75 years of age and older have the highest initiation coverage (48.6% up from 40.8% last week)

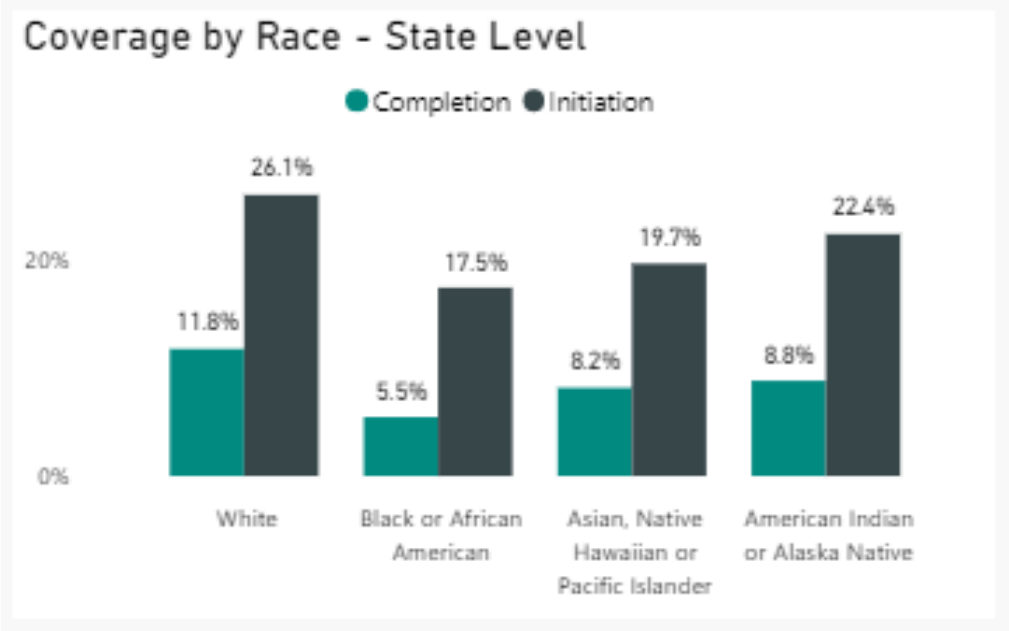


Coverage by Race: State Level

16 and older



65 and older



38% data missing or unknown

Coverage was highest among those of White Race (10.5%), then American Indian (7.0%), Asian, Native Hawaiian or Pacific Islander (6.0) and Black or African American (5.5%)

Initial Coverage disparities are seen in 65+ age group as well: 26.1% White, 22.4 American Indian or Alaskan Native, 19.7% Asian, Native Hawaiian or Pacific Islander, and 17.5% Black or African American

Science Round Up

- Johnson & Johnson COVID-19 Vaccine Authorized by U.S. FDA For Emergency Use
  - This is an adenovirus vector vaccine
  - There are several advantages of this vaccine including single dose, and easier storage

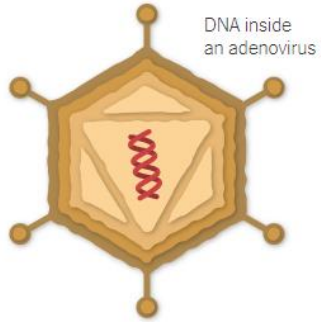
- Herd Immunity from Vaccination is Impacted by Variant Spread
  - Simulations to help us understand various scenarios with vaccination uptake and virus transmissibility

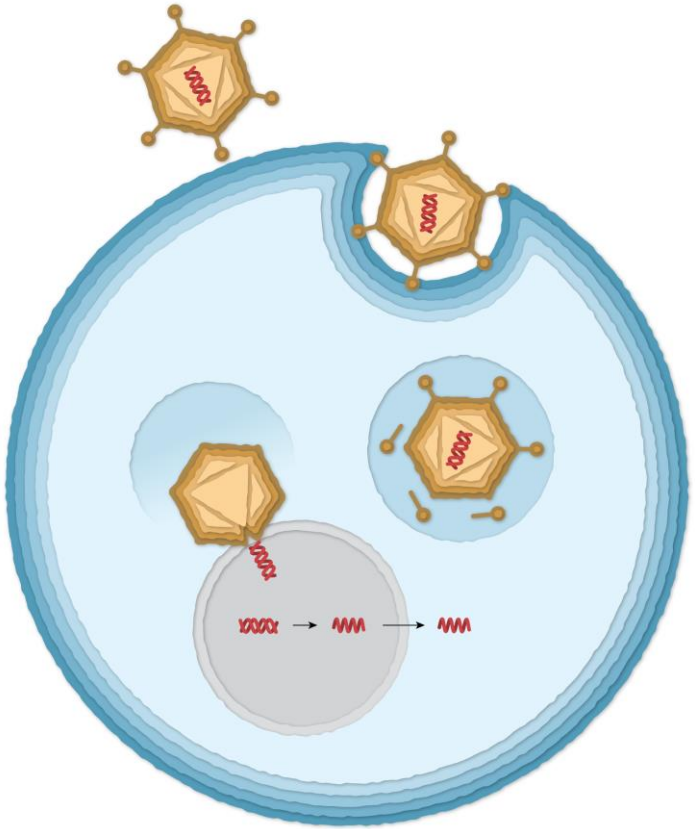
- Social vulnerability index (SVI) is associated with COVID-19 incidence and mortality
  - Counties with higher SVI (greater sociodemographic disadvantage) had higher COVID-19 incidence and mortality rates

- Fitness and exercise facilities can be superspreading events for SARS-CoV-2
  - Two recent CDC studies explore the transmission within gyms
  - Recommendations remain consistent – physical distance, consistent and correct masking, and proper hygiene

- Mobility Data: Percent of stay-at-home levels have been declining

How does the J&J vaccine work?





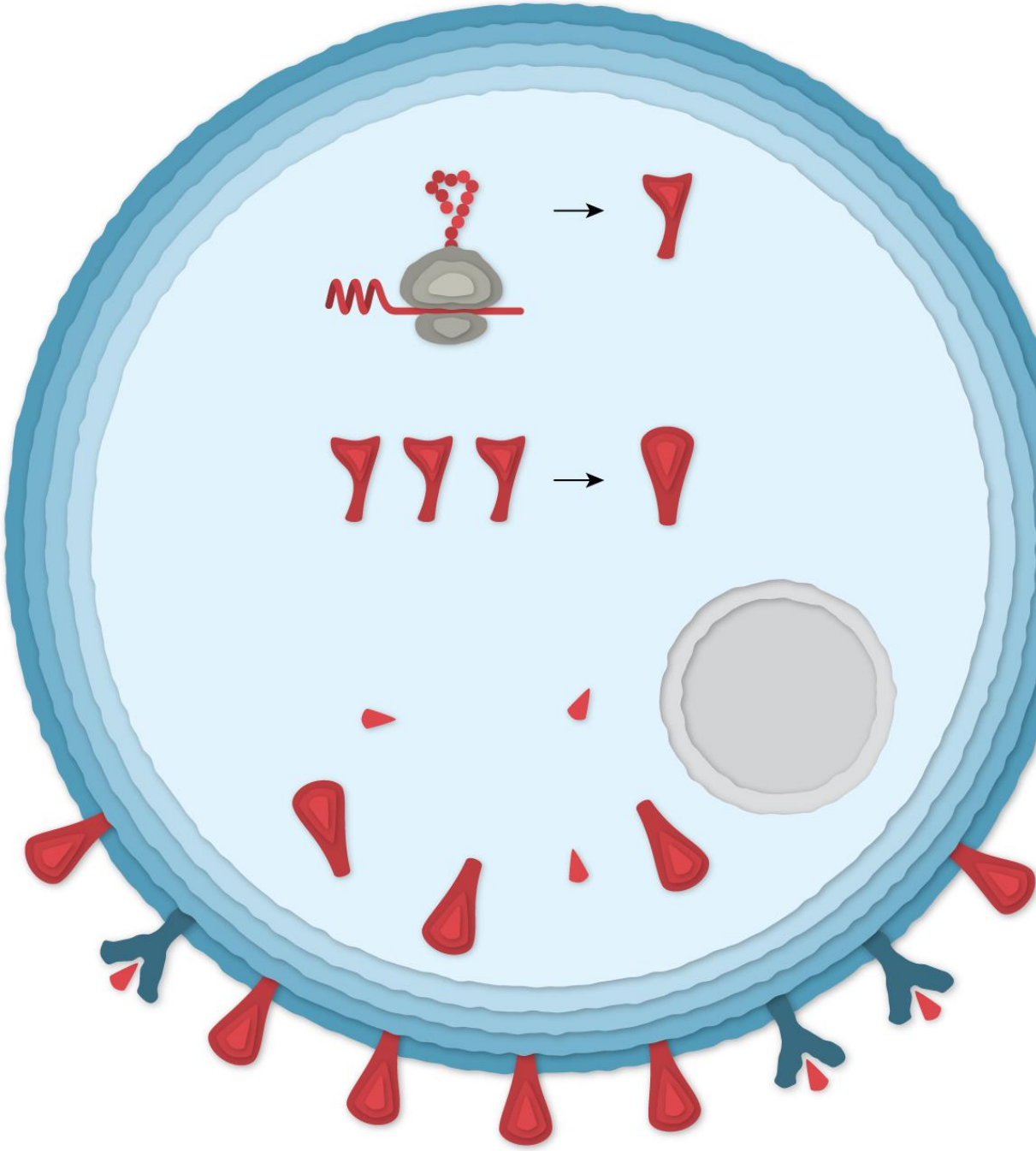
Researchers added the gene for the coronavirus **spike protein** to a virus called **Adenovirus 26**.

- Adenoviruses typically cause colds or flu-like symptoms
- The modified adenovirus can enter cells but can’t replicate or cause illness

www.nytimes.com

The J&J Vaccine

- The gene for the coronavirus spike protein is copied by the cell into mRNA
- The mRNA leaves the nucleus, and the cell begins assembling spike proteins
- These spike proteins (or fragments) can be recognized by the immune system



www.nytimes.co

Vector Vaccines

- Scientists began creating viral vectors in the 1970s
  - They have been studied for gene therapy, to treat cancer, and for molecular biology research

- Hundreds of scientific studies on viral vector vaccines
  - Vaccines recently used for Ebola outbreaks
  - Studies on these vaccines for Zika, flu, and HIV

Facts about COVID-19 Viral Vector Vaccines

They cannot give someone COVID-19 or other infections.

- Viral vectors cannot cause infection with COVID-19 or with the virus used as the vaccine vector.

They do not affect or interact with our DNA in any way.

- The genetic material delivered by the viral vector does not integrate into a person's DNA.

www.cdc.gov

Table 6: Analyses of Vaccine Efficacy Against Centrally Confirmed Moderate to Severe/Critical COVID-19 – With Onset at Least 14 Days and at Least 28 Days Post-Vaccination - Primary Efficacy Analysis Population

	Janssen COVID-19 Vaccine N=19,630		Placebo N=19,691		
Subgroup	COVID-19 Cases (n)	Person-Years	COVID-19 Cases (n)	Person-Years	% Vaccine Efficacy (95% CI)
14 days post-vaccination					
All subjects[a]	116	3116.6	348	3096.1	66.9 (59.0; 73.4)
18 to 59 years of age	95	2106.8	260	2095.0	63.7 (53.9; 71.6)
60 years and older	21	1009.8	88	1001.2	76.3 (61.6; 86.0)
28 days post-vaccination					
All subjects[a]	66	3102.0	193	3070.7	66.1 (55.0; 74.8)[b]
18 to 59 years of age	52	2097.6	152	2077.0	66.1 (53.3; 75.8)
60 years and older	14	1004.4	41	993.6	66.2 (36.7; 83.0)

[a] Co-primary endpoint.
[b] The adjusted CI implements type I error control for multiple testing and is presented upon meeting the prespecified testing conditions.

Table 7: Analyses of Vaccine Efficacy: Secondary Endpoints of Centrally Confirmed Severe/Critical COVID-19 – in Adults 18 Years of Age and Older With Onset at Least 14 Days and at Least 28 Days Post-Vaccination – Primary Efficacy Analysis Population

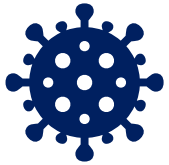
	Janssen COVID-19 Vaccine N=19,630		Placebo N=19,691		
Subgroup	COVID-19 Cases (n)	Person-Years	COVID-19 Cases (n)	Person-Years	% Vaccine Efficacy (95% CI)
14 days post-vaccination					
Severe/critical	14	3125.1	60	3122.0	76.7 (54.6; 89.1)[a]
28 days post-vaccination					
Severe/critical	5	3106.2	34	3082.6	85.4 (54.2; 96.9)[a]

[a] The adjusted CI implements type I error control for multiple testing and is presented upon meeting the prespecified testing conditions.

Advantages

Single dose

Easier storage requirements



Tested in countries with circulating variants of concern (VOC)

Table 8: Summary of Vaccine Efficacy against Moderate to Severe/Critical and Severe/Critical COVID-19 for Countries With >100 Reported Moderate to Severe/Critical Cases

		Severity	
	Onset	Moderate to Severe/Critical Point estimate (95% CI)	Severe/Critical Point estimate (95% CI)
US	at least **14 days** after vaccination	74.4% (65.0; 81.6)	78.0% (33.1; 94.6)
	at least **28 days** after vaccination	72.0% (58.2;81.7)	85.9% (-9.4; 99.7)
Brazil	at least **14 days** after vaccination	66.2% (51.0; 77.1)	81.9% (17.0; 98.1)
	at least **28 days** after vaccination	68.1% (48.8; 80.7)	87.6% (7.8; 99.7)
South Africa	at least **14 days** after vaccination	52.0% (30.3; 67.4)	73.1% (40.0; 89.4)
	at least **28 days** after vaccination	64.0% (41.2; 78.7)	81.7% (46.2; 95.4)

Herd Immunity from Vaccination is Impacted by Variant Spread

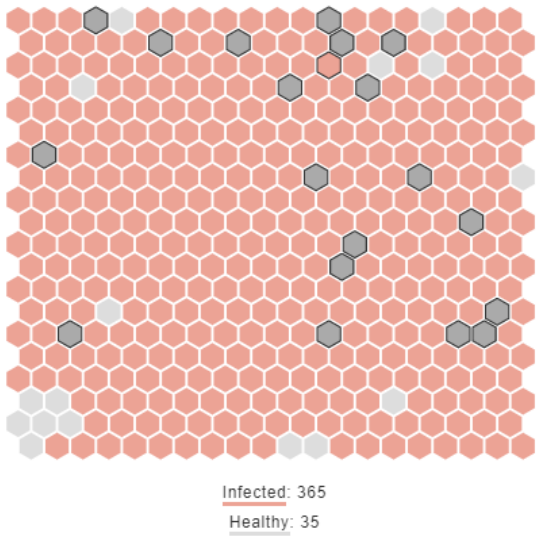
Current Strains

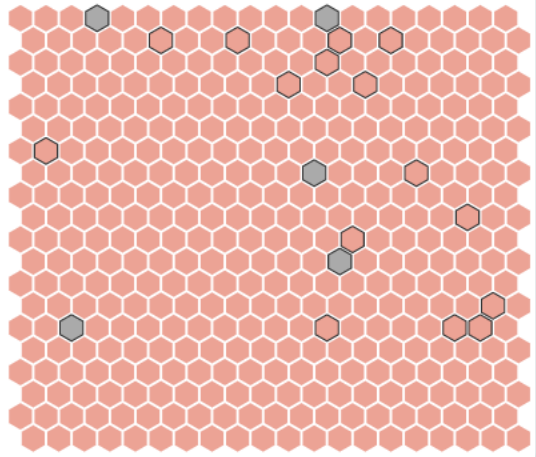
More Infectious Variants

NPR Herd Immunity Simulation

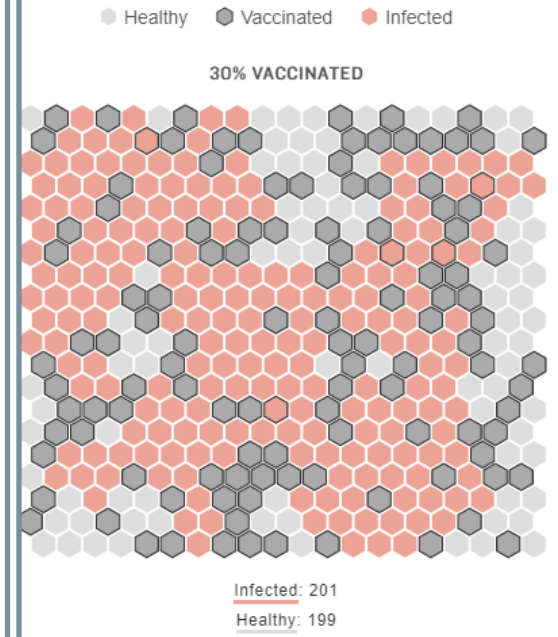
https://www.npr.org/sections/health-shots/2021/02/18/967462483/how-herd-immunity-works-and-what-stands-in-its-way

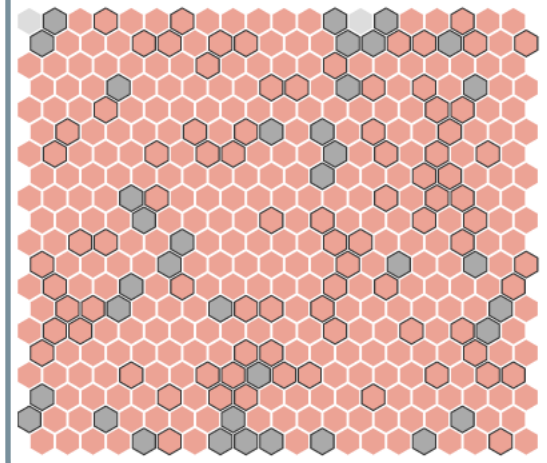
5% Vaccinated



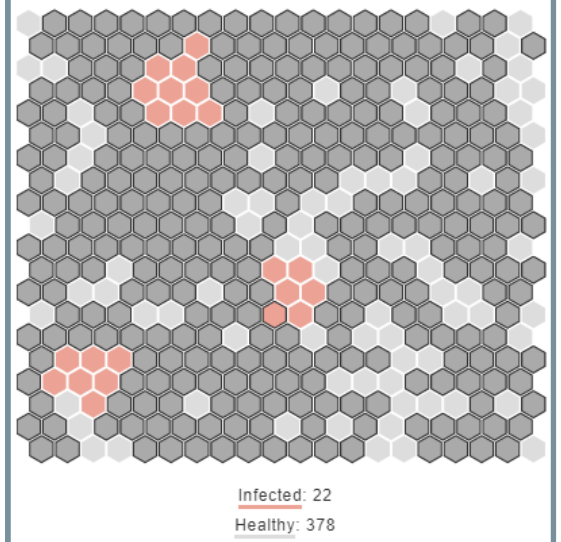


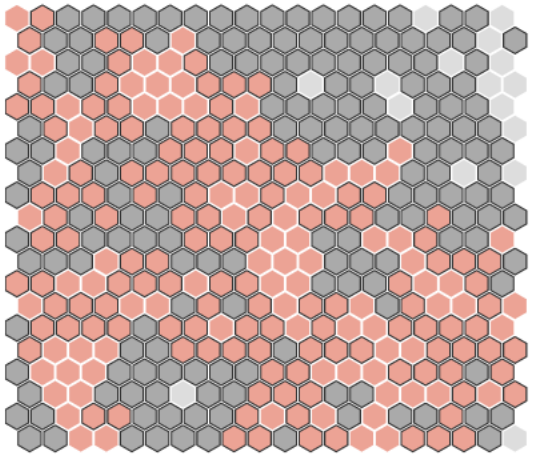
30% Vaccinated





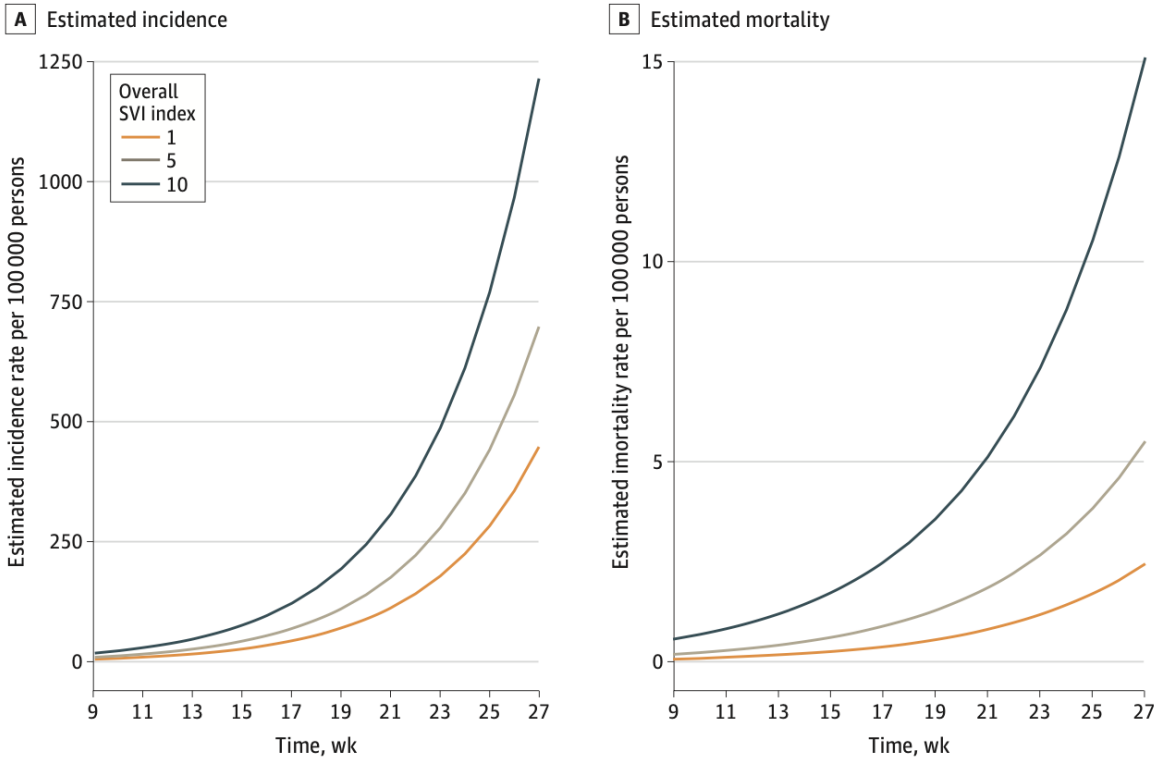
70% Vaccinated



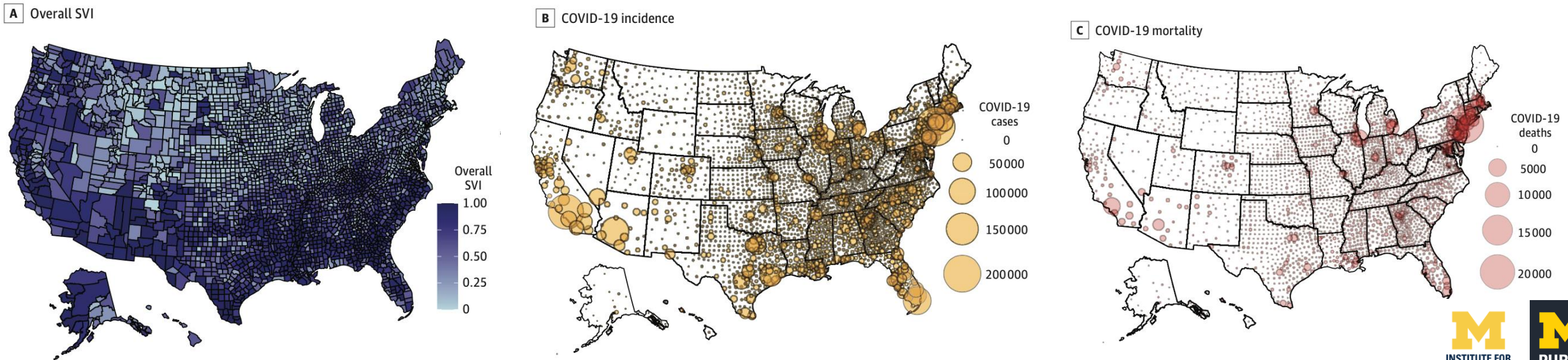


Social vulnerability index (SVI) is associated with COVID-19 incidence and mortality

- Counties with higher SVI (greater sociodemographic disadvantage) had higher COVID-19 incidence and mortality rates.
- A 0.1-point increase in overall SVI was associated with a 14.3% increase in incidence rate and 13.7% increase in mortality rate.



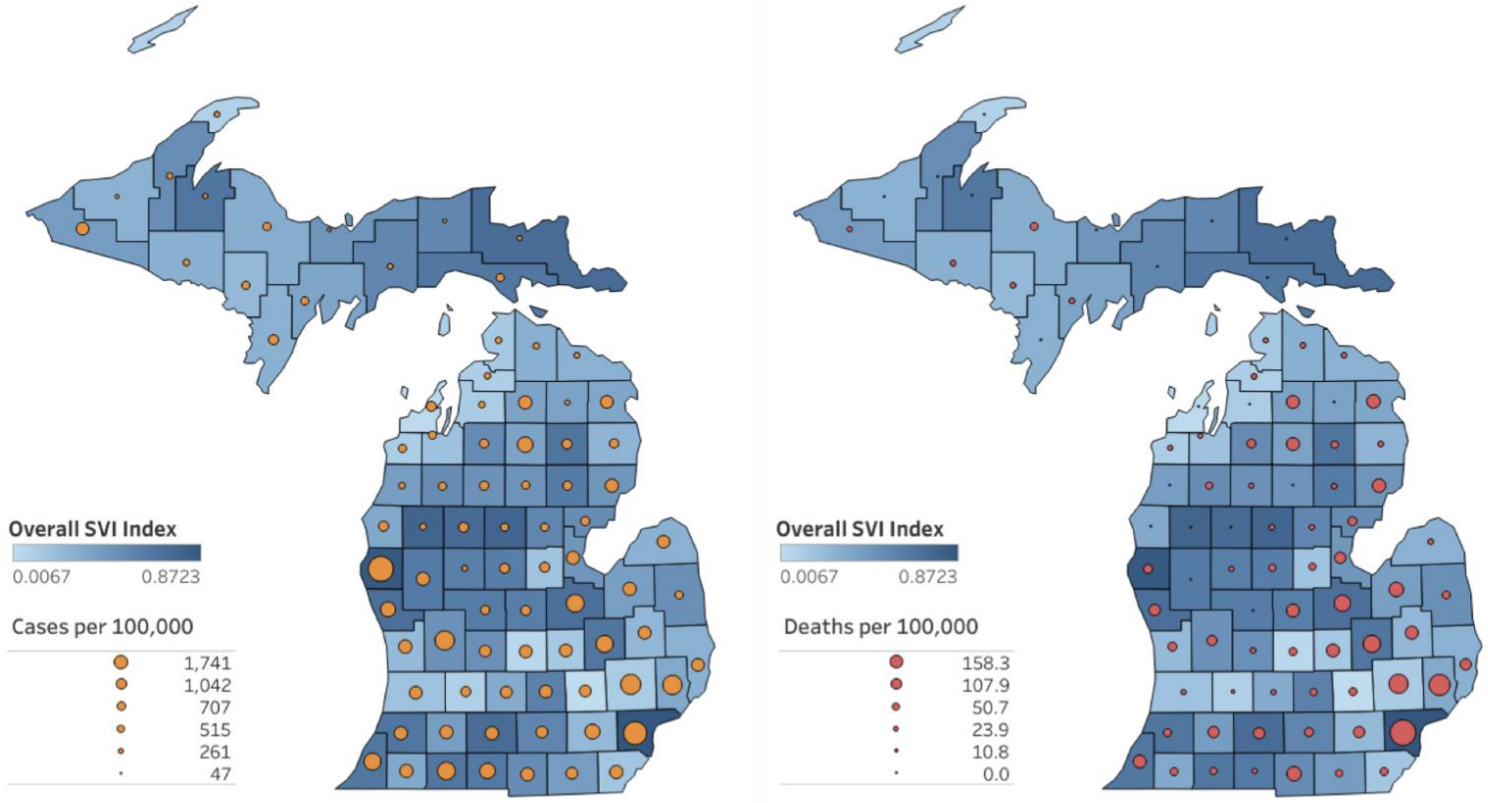
Estimated effect of SVI for an example metropolitan-adjacent county (pop. 2500 - <20,000)



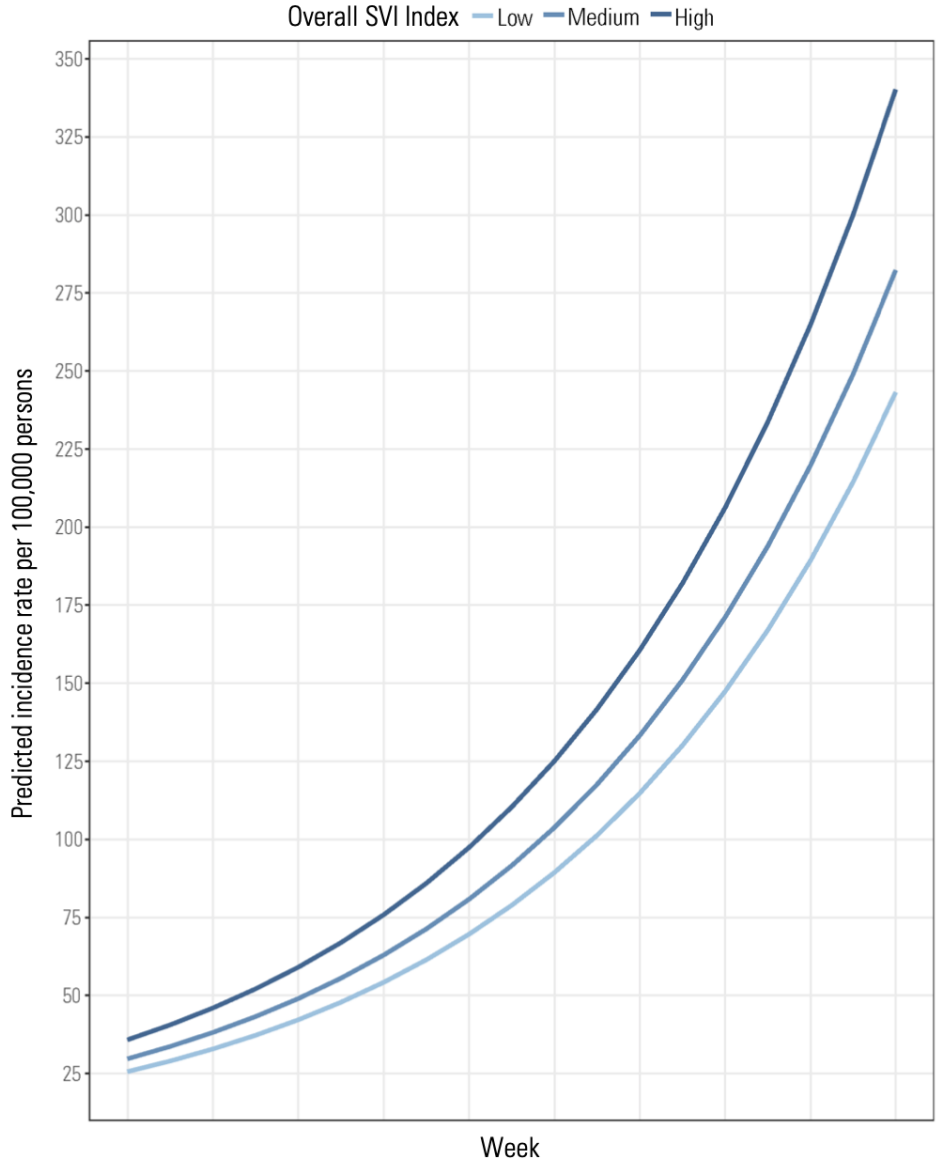
Source: Karmakar et al., JAMA Network Open. 2021

Counties in Michigan with higher SVI had higher COVID-19 incidence and mortality

An increase of 0.1 in SVI (e.g. Ingham vs. Genesee) was associated with ~13.3 excess COVID-19 cases and 0.5 excess deaths per 100,000 population.



Note: Data are as of July 29, 2020



Note: Data are as of July 29, 2020

Sources: UM Report on SVI and COVID-19
Karmakar et al., JAMA Network Open. 2021

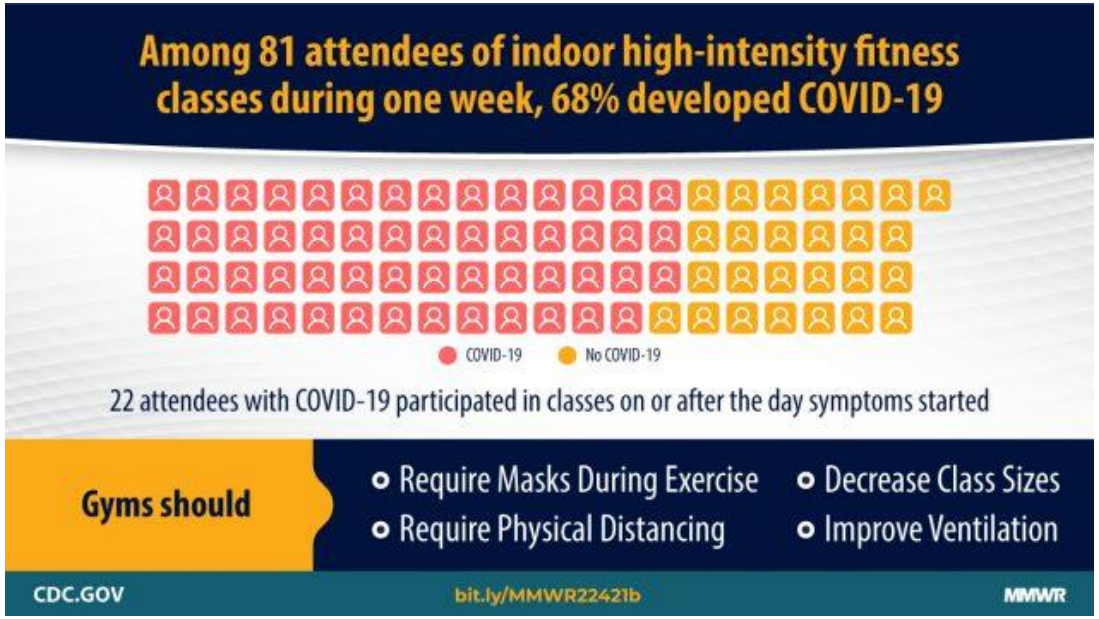
INSTITUTE FOR HEALTHCARE POLICY & INNOVATION
UNIVERSITY OF MICHIGAN

PUBLIC HEALTH

COVID-19 spread in fitness and exercise facilities

Study 1: An infected fitness instructor teaching exercise classes

- 21 cases linked to this instructor
- The instructor infected most attendees *one day prior* to symptom onset with an attack rate of 95%
- Majority of those infected by this instructor became symptomatic
- 10% of cases required hospitalization



Study 2: Outbreak among attendees of an exercise facility

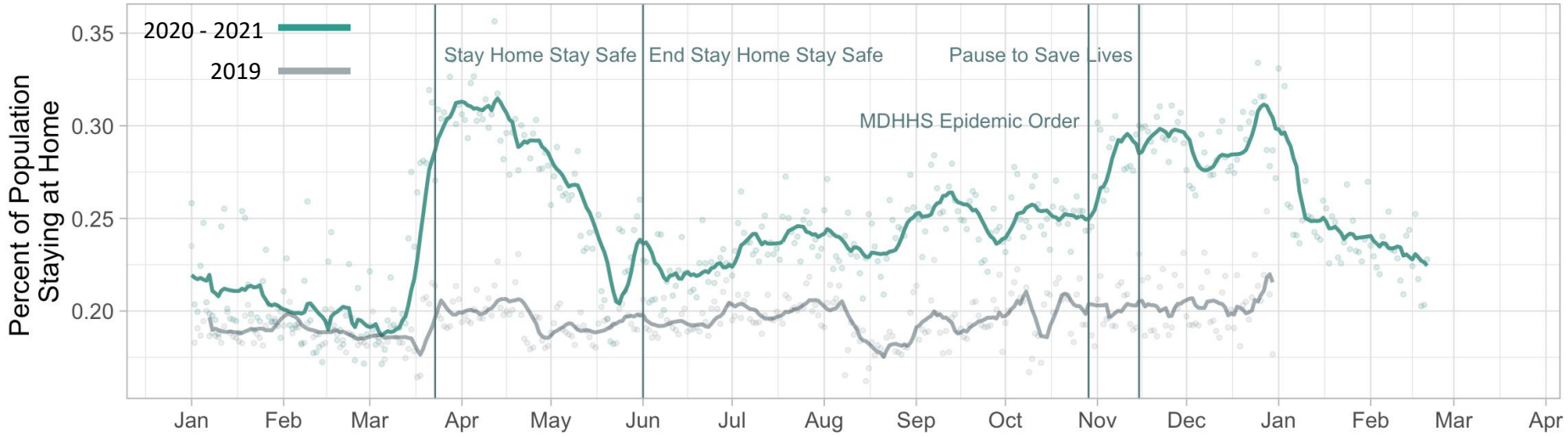
- 55 of 81 cases were identified from in-person classes held Aug 24-Sep 1
- Majority of attendees with COVID-19 participated in multiple classes while potentially infectious (include on day of or after symptom onset)
- Majority of infected attendees reported infrequent or no mask use

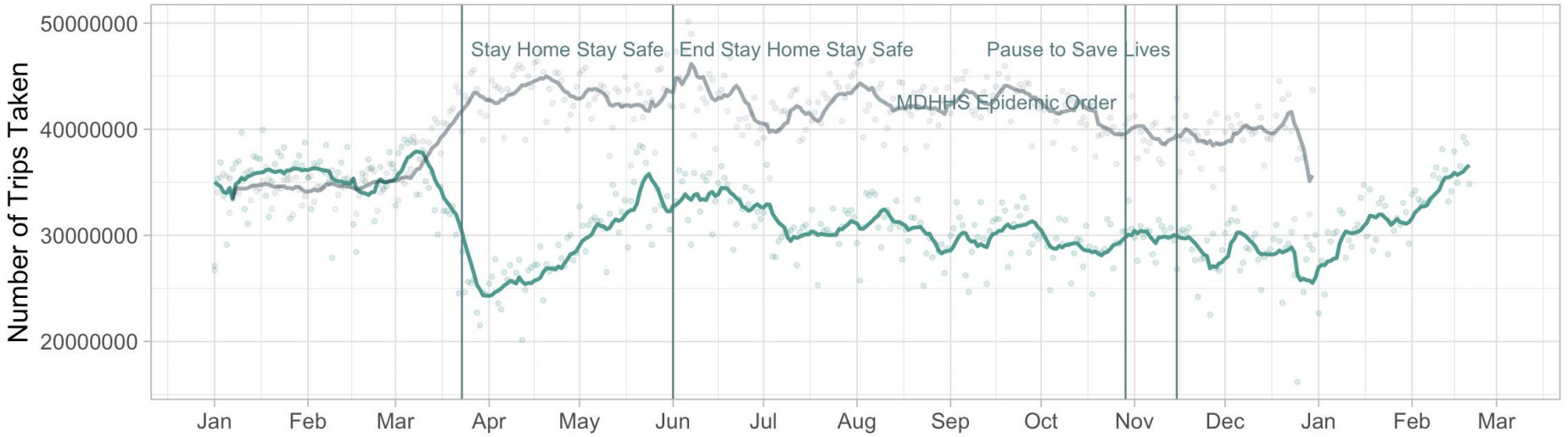
Recommendations

- Conducting exercise activities virtually or entirely outdoors
- Enforce consistent and correct mask use (including during high-intensity activities)
- Require physical distancing (limit class sizes and prevent crowds)
- Improve ventilation
- Increase opportunities for hand hygiene
- Remind participants (patrons, staff, coaches) to stay home when ill

Lendacki, FR et al. COVID-19 Outbreak Among Attendees of an Exercise Facility — Chicago, Illinois, August–September 2020 https://www.cdc.gov/mmwr/volumes/70/wr/mm7009e2.htm?s_cid=mm7009e2_w
Groves, LM et al. Community Transmission of SARS-CoV-2 at Three Fitness Facilities — Hawaii, June–July 2020 https://www.cdc.gov/mmwr/volumes/70/wr/mm7009e1.htm?s_cid=mm7009e1_w

How many people are staying at home in Michigan?





- % Stay-at-home levels have been declining
- Number of trips taken/day has recently increased to 2019-2020 levels
- Most recent data is 2/20/21 (data as of 3/1/21)

Data Source: Bureau of Transportation Statistics

PUBLIC HEALTH