

MI COVID RESPONSE DATA AND MODELING UPDATE

NOTE: All data as of Feb. 20 unless otherwise noted

February 23, 2021

Executive summary

Michigan has the **18th highest number of cases (↑5)**, **18th highest number of deaths (↑2)**, **48th highest case rate (↓1)**, and **T35th highest death rate (↑1)** in the last 7 days (source: CDC COVID Data Tracker)

Michigan has the **37th highest hospitalization rate as a percent of total beds (↔)**, and **18th highest number of COVID patients in the ICU (↓4)** (source: Becker's Hospital Review)

Case rates (94.7, ↓18.2) and **percent positivity** (3.5%, ↓0.4%) are declining for 6 weeks

4.9% of available inpatient beds are filled with COVID patients (↓0.9%) and state trends for COVID hospitalizations are decreasing

There were **195 deaths (↓87)** between Feb 7 and Feb 13, and the **death rate** is 2.8 deaths per million residents (↓1.2)

The 7-day average **state testing rate** is 2,691.3 tests/million/day (↓429.7). **Daily diagnostic tests (PCR)** decreased to 26.7K per day (↓4.3K), and the **weekly average for PCR and antigen tests** conducted in Michigan is 35.5K (↓2.9K).

1.94 million **COVID-19 vaccine** doses reported to MDHHS, 15.5% of Michigan population has at least one dose

Comparison across states: Summary 2/22/21

What we see today:

- Two states (ND, WY) are seeing increasing 1 week case trends (stable vs. last week)
- 31 states (down vs. 32) with significant outbreaks (high/increasing cases, increasing/high positivity increasing/high hospitalizations over 2 weeks (>100 per M))
- New York (296/M), Georgia, Texas, New Jersey, Arizona have highest per capita hospitalized patient numbers
- Midwest:
 - Wisconsin showing drop in hospitalizations (61/M) and drop in cases (123/M)
 - Indiana with decline in hospitalizations (129/M), and drop in cases (142/M)
 - Illinois showing decline in hospitalizations (116/M), cases dropping (138/M)
 - Ohio with declining hospitalizations (123/M) and drop in cases (176/M)
 - Michigan showing continued decline in hospitalizations (72/M) and decline in cases (105/M)

COVID-19 Spread

Statewide positivity has decreased to 3.5%, and is decreasing in all MERC regions

- All eight MERC regions now below 7% (Risk Level A)
- One region, Upper Peninsula, is below 3% (Risk Level Low)
- All counties (83) have positivity below 10%

Case rates have steadily declined to 94.7 cases per million (Risk Level D)

- 87% decrease from the mid-November peak and first time the state rate is below the Oct 1 rate
- Declines are seen among all age groups, races, and ethnicities
- In the past 30 days, about than one of six cases have unknown race and ethnicity
- Variant is in Michigan: increased vigilance in use of masks and social distancing and increase testing
 - 1,661 cases with the B.1.1.7 variant have been identified in the US (↑488), 314 in Michigan (↑247)

Number of active outbreaks is down 14% from previous week

- Reported school outbreaks have decreased since last week (107 to 104) with reported outbreaks decreasing among Pre K-Elementary and administration.

Confirmed and probable case indicators

Table Date: 2/20/2021 (7 days from date table was produced: 2/13/2021)

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											Risk levels						
											Low	A	B	C	D	E	
											% inpatient beds occupied by COVID-19 cases			Absolute deaths (per million)			Death trend
	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							
Detroit	1	2N + 2S	D	88.6	decline [41 days]	3.3	Decrease - 6wk	2584.8	0.4	Decrease - 2wk	4.1				2.6	Decrease - 2wk	
Grand Rapids	2	6	D	112.7	decline [42 days]	4.1	Increase - 1wk	2790.5	0.7	Decrease - 5wk	3.9				2.5	Decrease - 4wk	
Kalamazoo	3	5	D	94.9	decline [40 days]	4.1	Decrease - 6wk	2570.3	0.7	Decrease - 2wk	4.8				2.4	<20 wkly deaths	
Saginaw	4	3	D	82.3	decline [93 days]	3.4	Decrease - 6wk	2429.6	0.4	Increase - 2wk	5.2				5.1	Increase - 1wk	
Lansing	5	1	D	123.3	decline [42 days]	4.8	Decrease - 6wk	2180.5	0.1	Increase - 1wk	7.3				2.9	Increase - 1wk	
Traverse City	6	7	D	86.7	decline [40 days]	3.1	Decrease - 5wk	1937.0	1.0	Increase - 2wk	2.1				2.9	<20 wkly deaths	
Jackson	7	1	D	113.1	decline [40 days]	4.9	Decrease - 6wk	2728.8	0.3	Increase - 2wk	6.9				5.2	<20 wkly deaths	
Upper Peninsula	8	8	D	73.8	decline [40 days]	2.0	Increase - 1wk	2659.2	0.4	Decrease - 1wk	1.3				1.9	<20 wkly deaths	
Michigan			D	94.7	decline [41 days]	3.5	Decrease - 6wk	2691.3	0.5	Decrease - 11wk	4.3				2.8	Decrease - 9wk	

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%

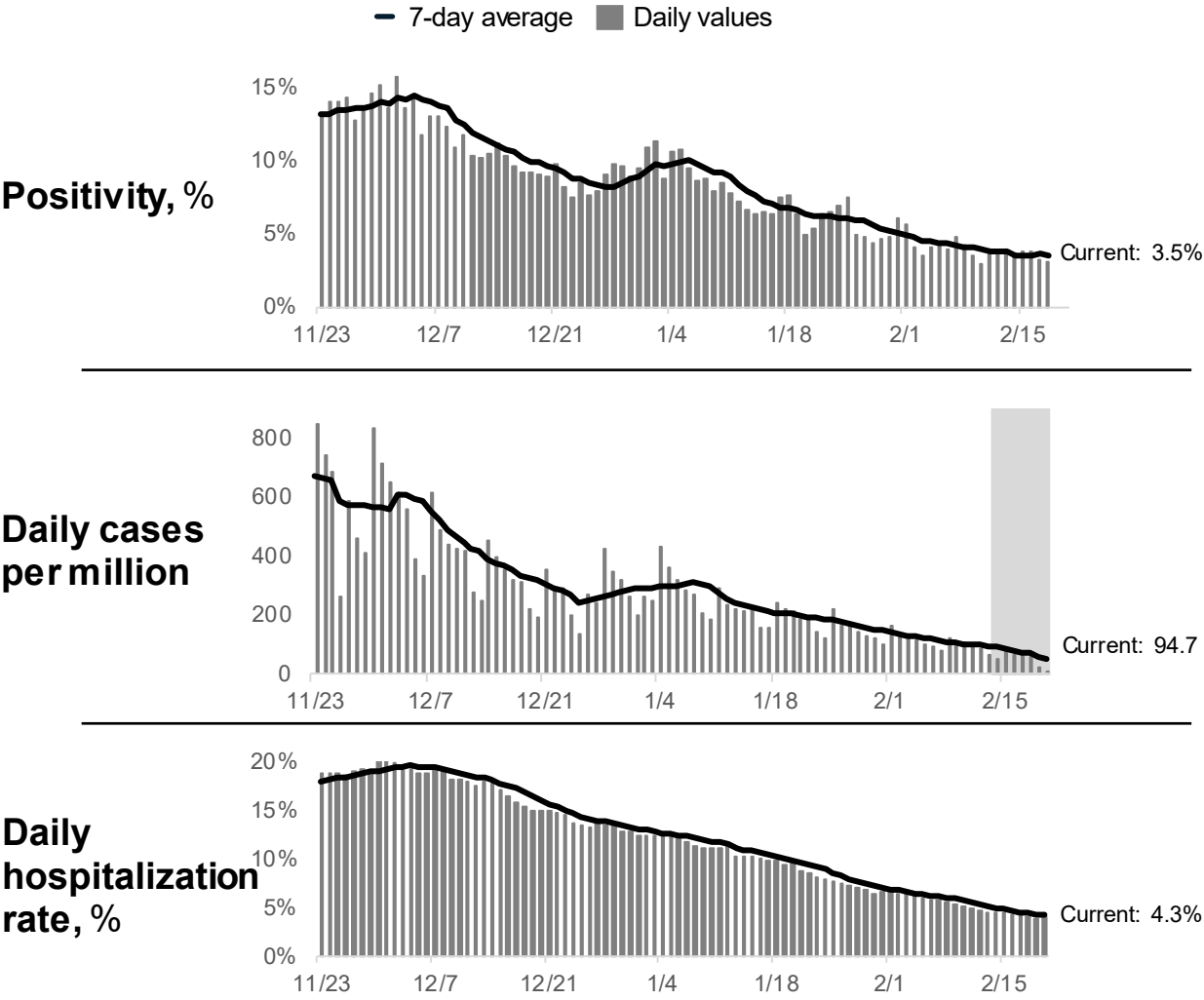
C: 10-15%

D: 15-20%

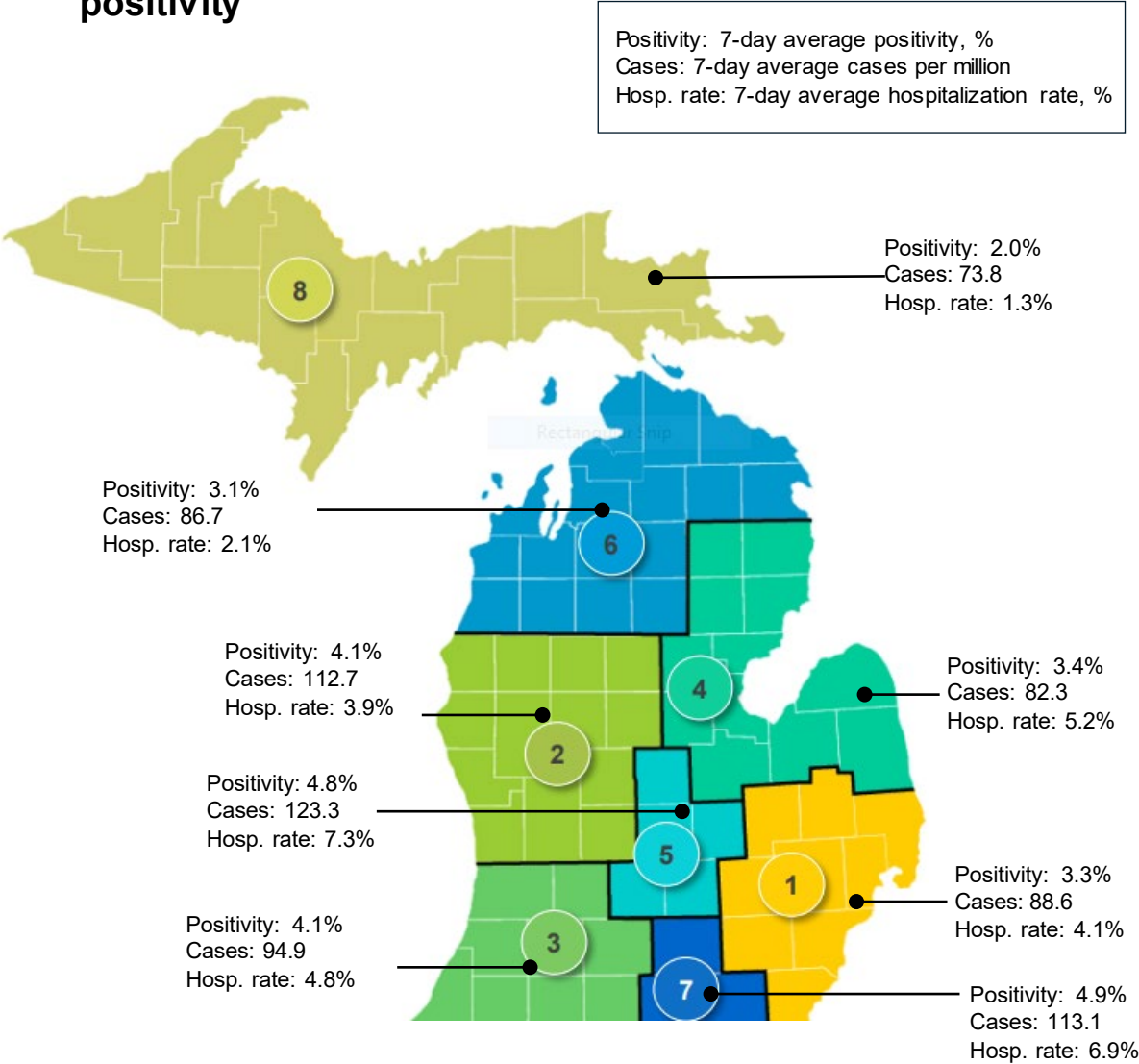
E: >=20%

Recent statewide trends

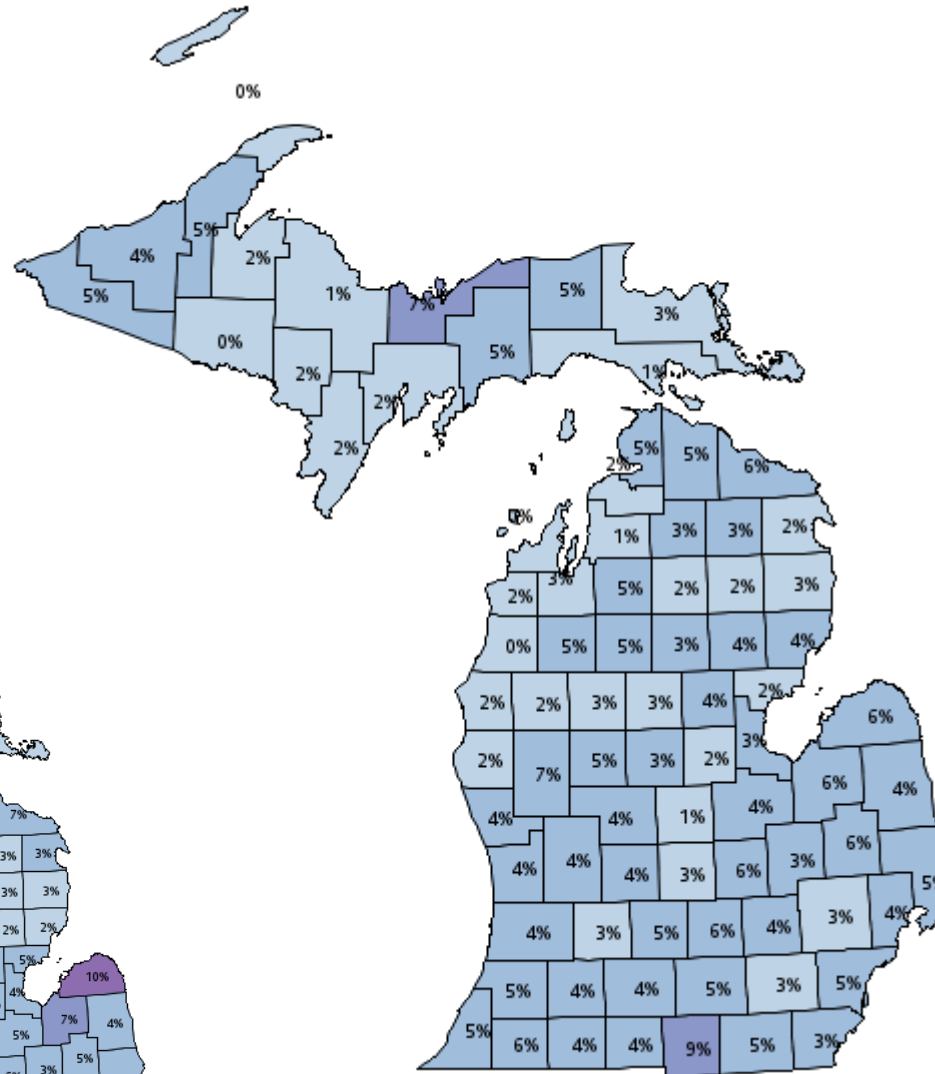
Statewide trends



Regional breakdown: Cases, hospitalization rate, and positivity



Positivity by county, 2/12-2/18



Last week, 2/5-2/11

Average
positivity per day

of counties

■ This week
■ Last week

<3%	31	25
3-7%	50	47
7-10%	2	7
10-15%	0	3
15-20%	0	0
>=20%	0	1

Updates since last week:

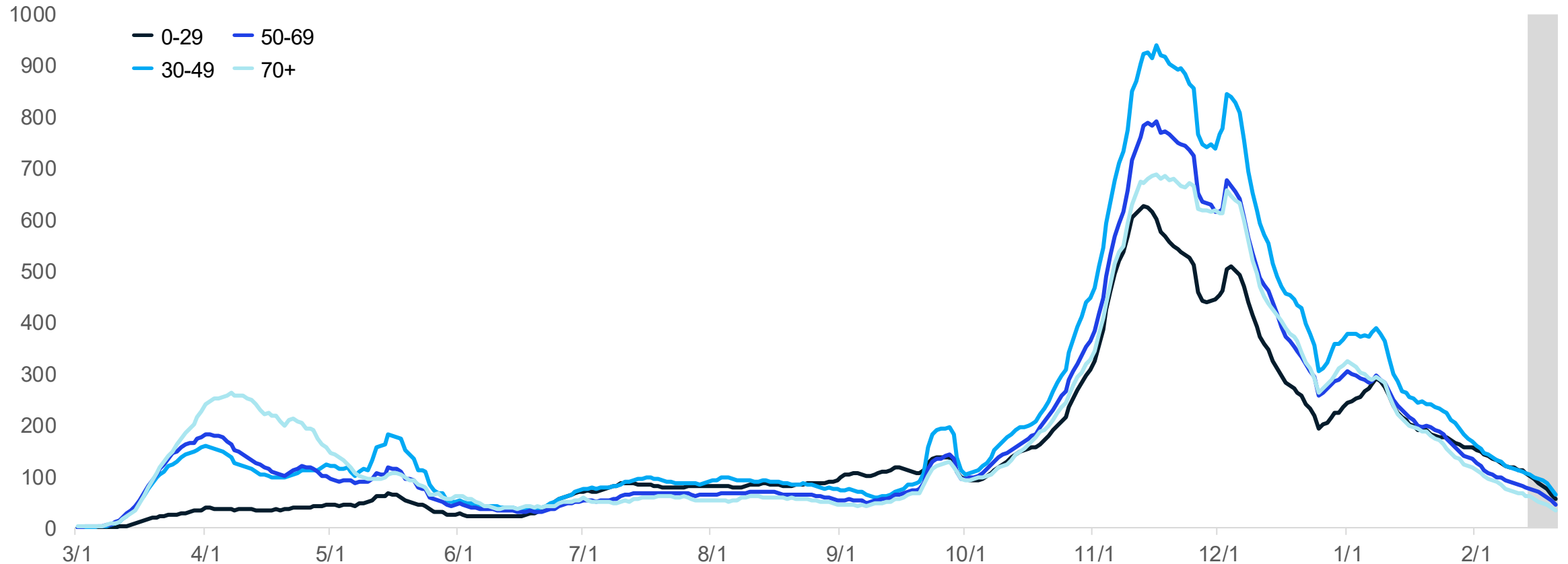
0 of 83 counties saw double digit positivity in the last week (4 county decrease)

2 of 83 counties saw positivity > 7% in the last week (9 county decrease)

52 of 83 counties saw positivity > 3% in the last week (6 county decrease)

Age group: average new daily cases

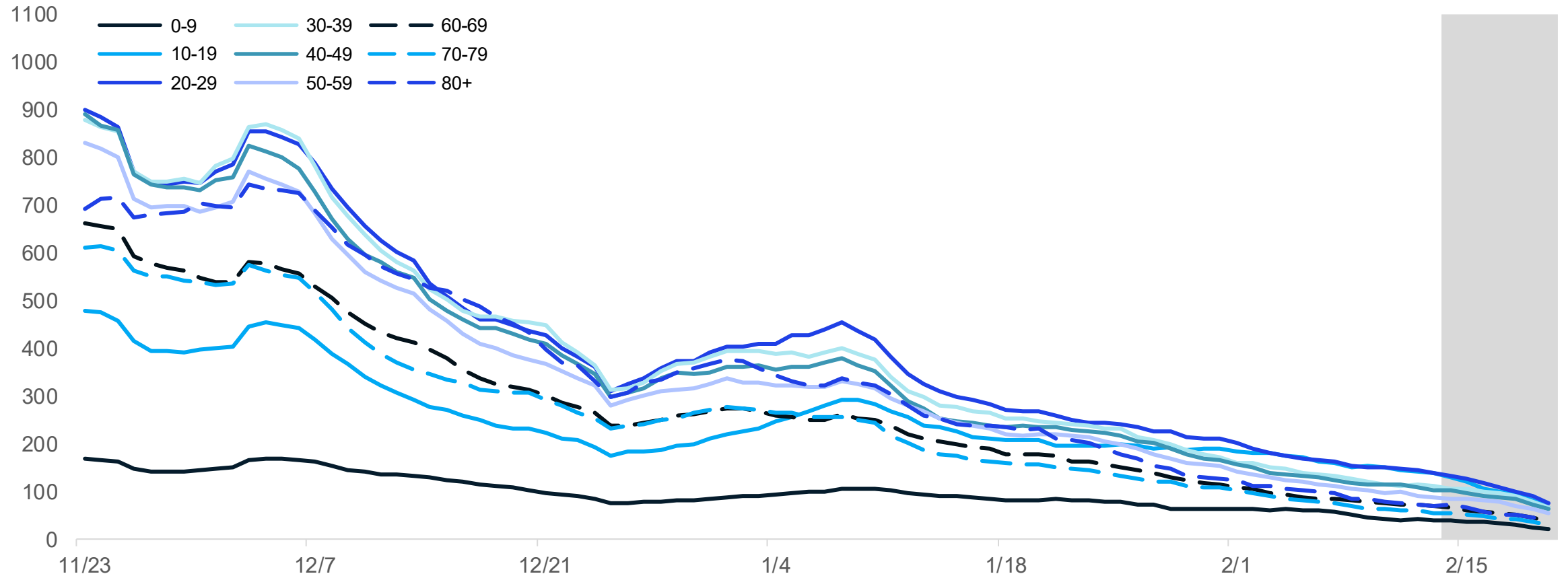
Daily new confirmed and probable cases per million by age group (7-day rolling average)



- All four age groups are decreasing
- Compared to other ages groups, 0-29 have decreased more slowly

Age group: average new daily cases

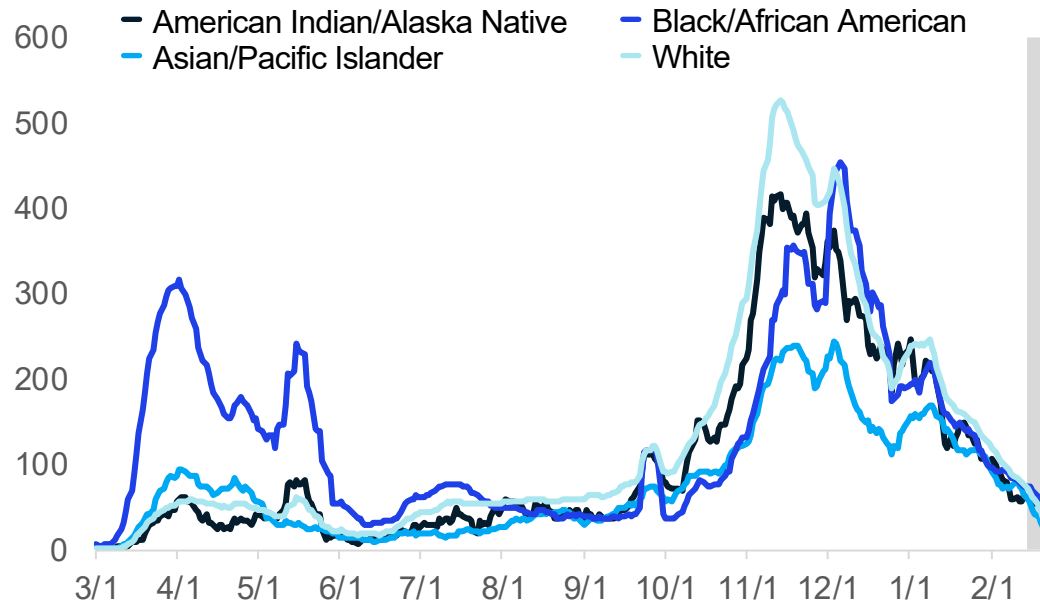
Daily new confirmed and probable cases per million by age group (7-day rolling average)



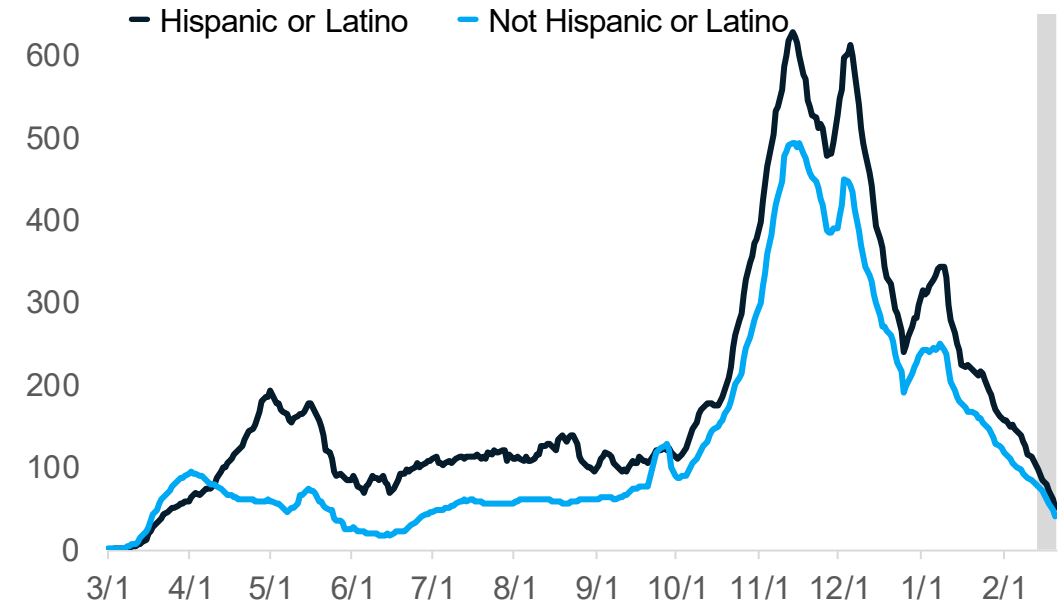
- Ages by decade are all decreasing
- Within the 0-29, those aged 10-19 and 20-29 are the two highest groups

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

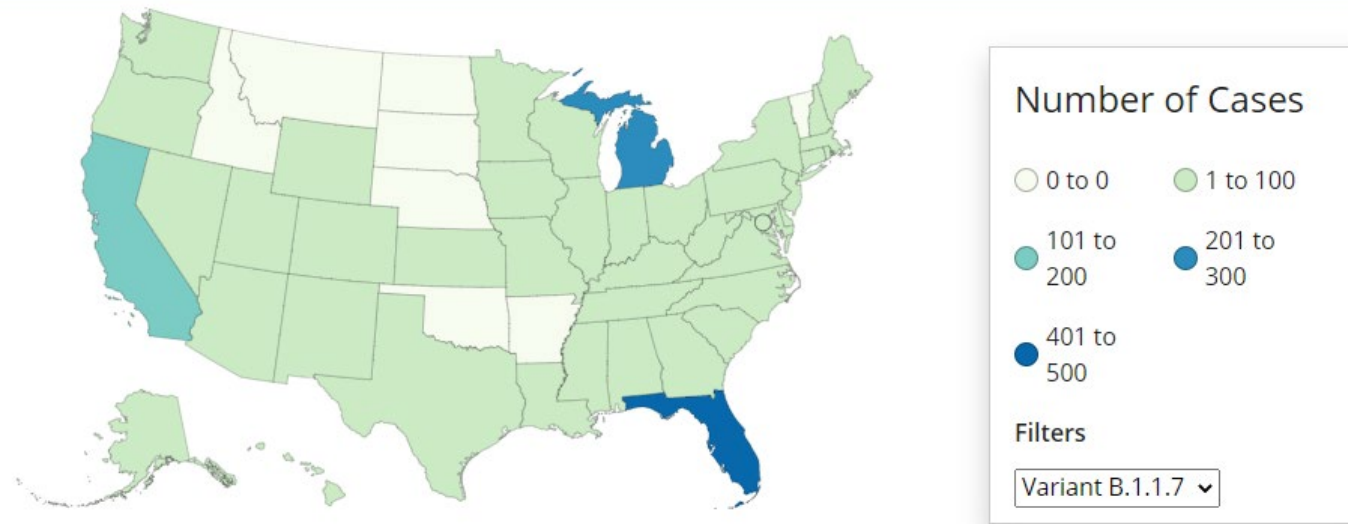


Updates since last week:

- 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, 22% of all cases represent unknown, multiple, or other races (14% of race is unknown, ↔)
- In the past 30 days, 17% of all cases have an unknown ethnicity reported (↓1%)

Identified US COVID-19 Cases Caused by All Variants of Concern

Emerging Variant Cases in the United States**



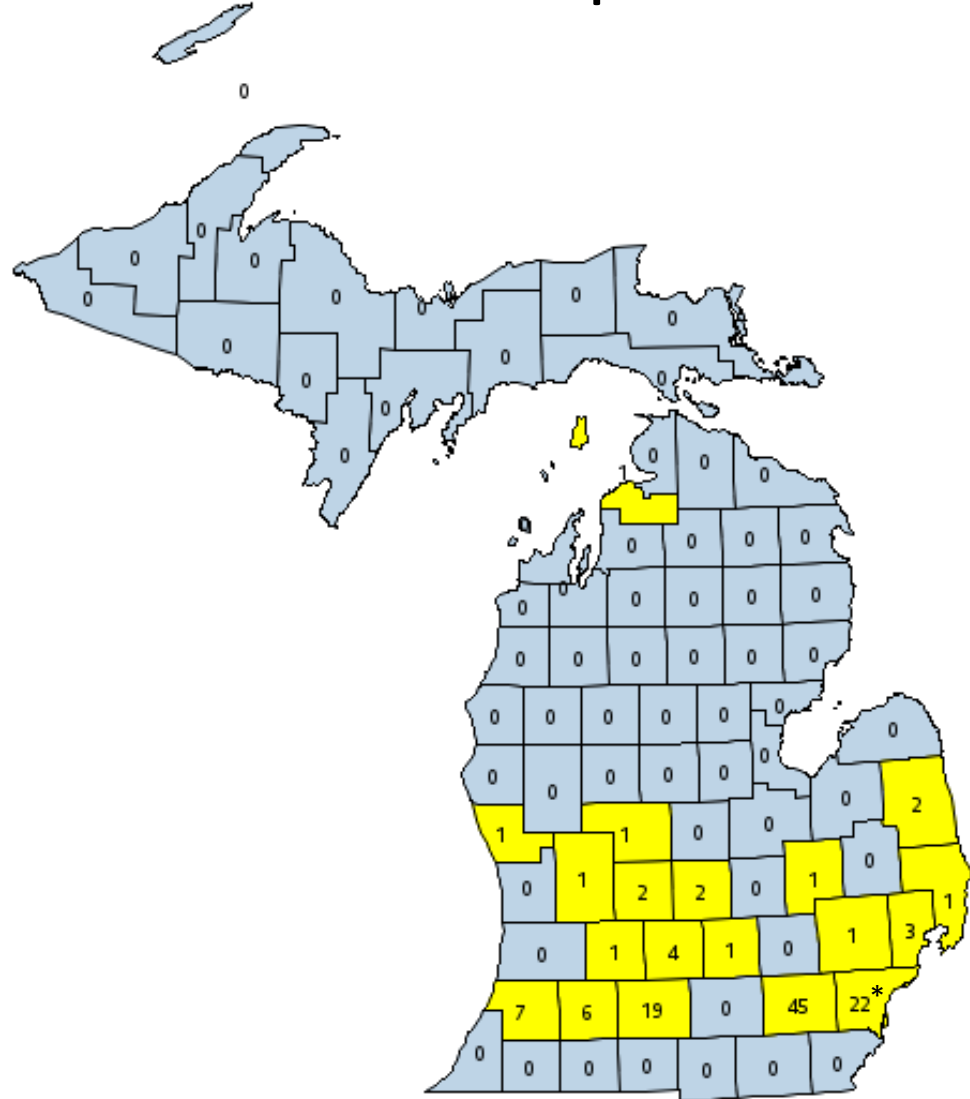
Variant	Reported Cases in US	Number of States Reporting
B.1.1.7	1661	44
B.1.351	22	10
P.1	5	4

State	Cases Count
FL	433
MI*	314
CA	195
GA	85
NY	82
CO	71
TX	60
NJ	50
34 other states	< 50

* 104 additional cases identified within MDSS that do not yet appear on the CDC dashboard

Michigan COVID-19 Variant and Response

- 314 B.1.1.7 cases and counting
- 19 counties
- 192 cases within MDOC (61%)
 - Not including MDOC staff
- 1 case undergoing investigation to determine county
- Goal: Slow spread of B.1.1.7 to allow for vaccination of vulnerable individuals
- Public Action:
 - Masks
 - Social Distancing
 - Hand washing
 - Get tested if traveled out of MI in last 14 days

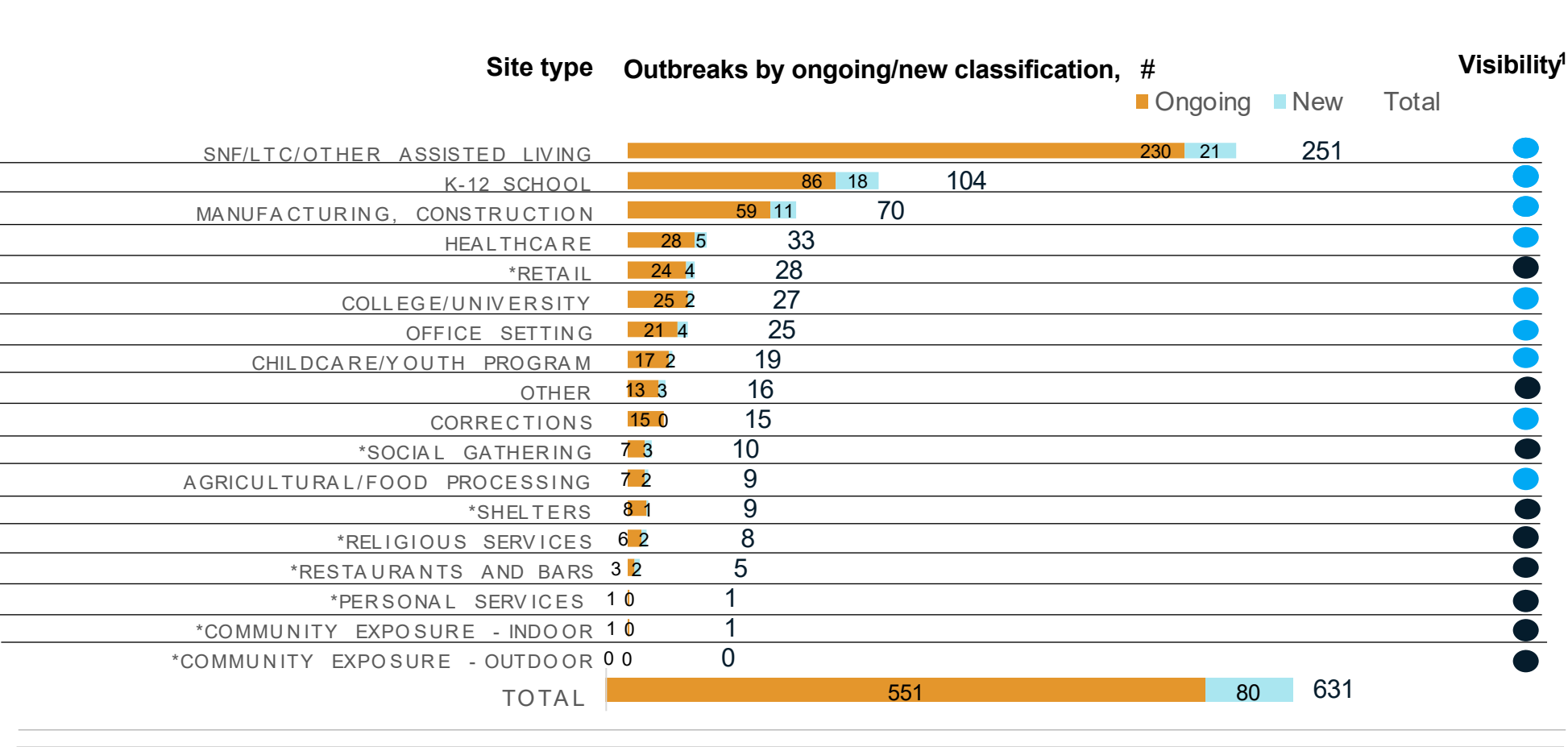


* Six cases within Detroit City

Number of outbreak investigations by site type, week ending Feb 4

Pre-decisional, for discussion only Draft

- Easier to identify outbreak
- Harder to identify outbreak



Total number of active outbreaks is down 14% from previous week

Following SNF/LTC, the greatest number of new outbreaks were reported in K-12 (18), and manufacturing/construction (11).

LHDs reported new outbreaks in all settings except outdoor community exposures, indoor community exposures, and personal services

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 4

Number of reported outbreaks decreased since last week (107 to 104) including decreases in Pre K-Elementary (38 to 32), and Administrative (4 to 3). Only Middle/Jr High (21 to 24), and High Schools (44 to 45) had an increase in reported outbreaks.

Region	Number of reported cases,#		# Ongoing - Excluding New	# New	Number of outbreaks	Range of cases per outbreak
Region 1		93	13		19	2-24
Region 2n	18		16		12	2-5
Region 2s	17		11		8	2-6
Region 3		212	18		19	2-48
Region 5	22		8		9	2-8
Region 6		96	22		19	2-24
Region 7		51	6		15	2-8
Region 8	29		3		3	5-20
Total		538	97		104	2-48

Grade level	Number of reported cases,#		# Ongoing - Excluding New	# New	Number of outbreaks	Range of cases per outbreak
Pre-school - elem.		121	21		32	2-23
Jr. high/middle school		149	16		24	2-20
High school		261	58		45	2-48
Administrative	7		2		3	2-5
Total		538	97		104	2-48

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Source: LHD Weekly Sitreps

COVID-19 and Healthcare Capacity and COVID Severity

Hospitalizations and ICU utilization are decreasing

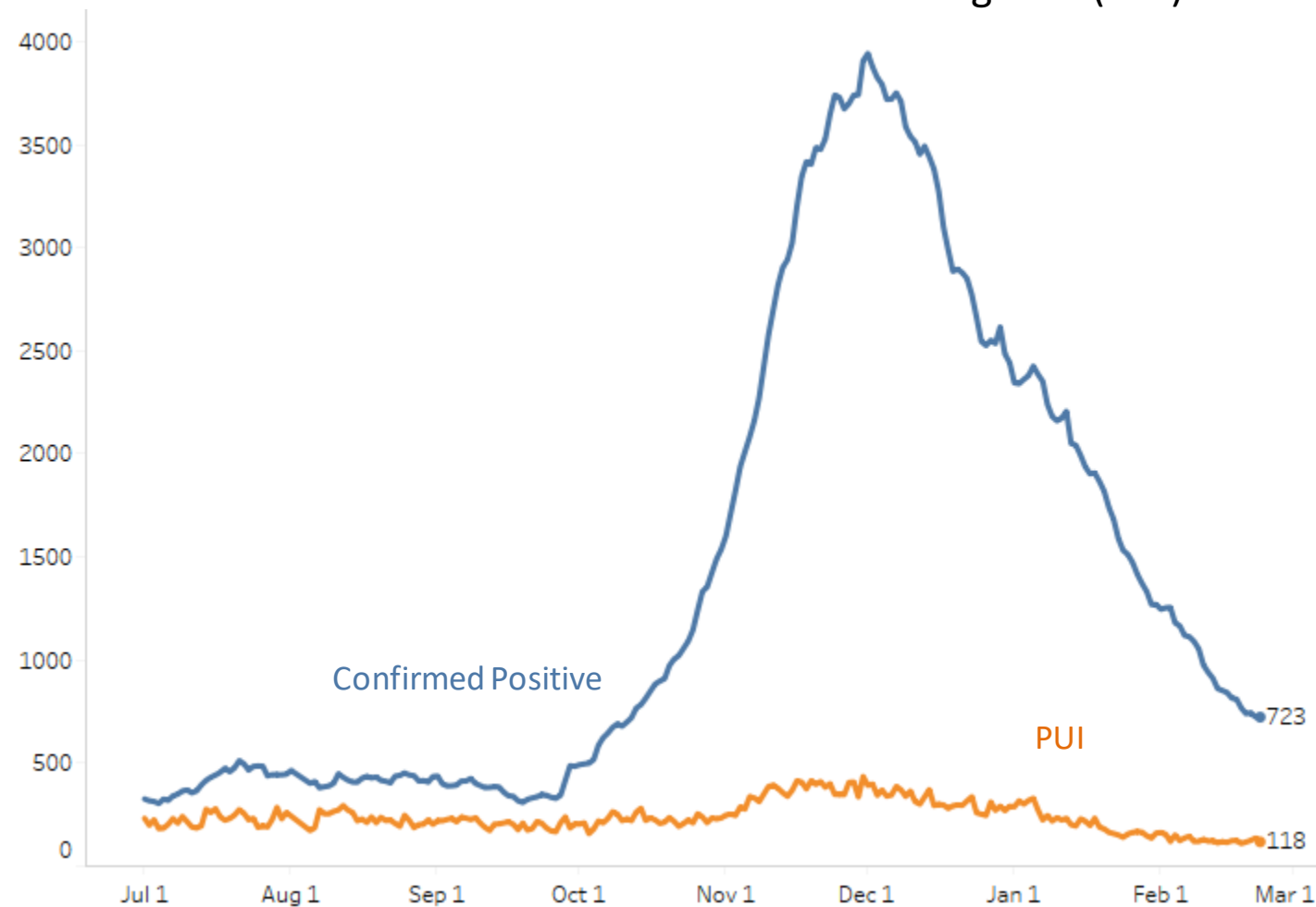
- COVID-like illness (CLI) continues with downward trend and is below 2% (data in appendix)
- Hospitalizations down 82% since December 1st peak
- ICU occupancy declined 13% over last week
- Eight regions below 15% of Adult ICU beds with patients positive for COVID; six regions below 10%

Current deaths are a lagging indicator of cases, but the number of deaths have declined for nine weeks

- 79% decrease from the peak on December 10
- Decreases in deaths seen among most ages, races, and ethnicities

Statewide Hospitalization Trends: Total COVID+ Census

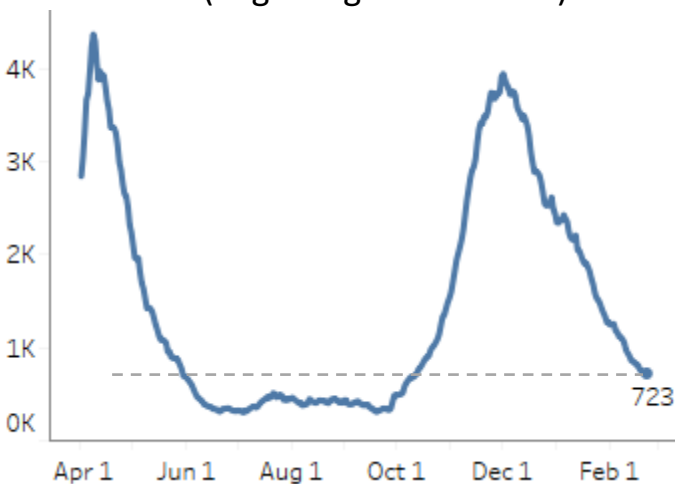
Hospitalization Trends 7/1/2020 – 2/22/2021
Confirmed Positive & Persons Under Investigation (PUI)



This week, COVID+ census in hospitals is down 14% from the previous week and down 82% from the December 1 peak.

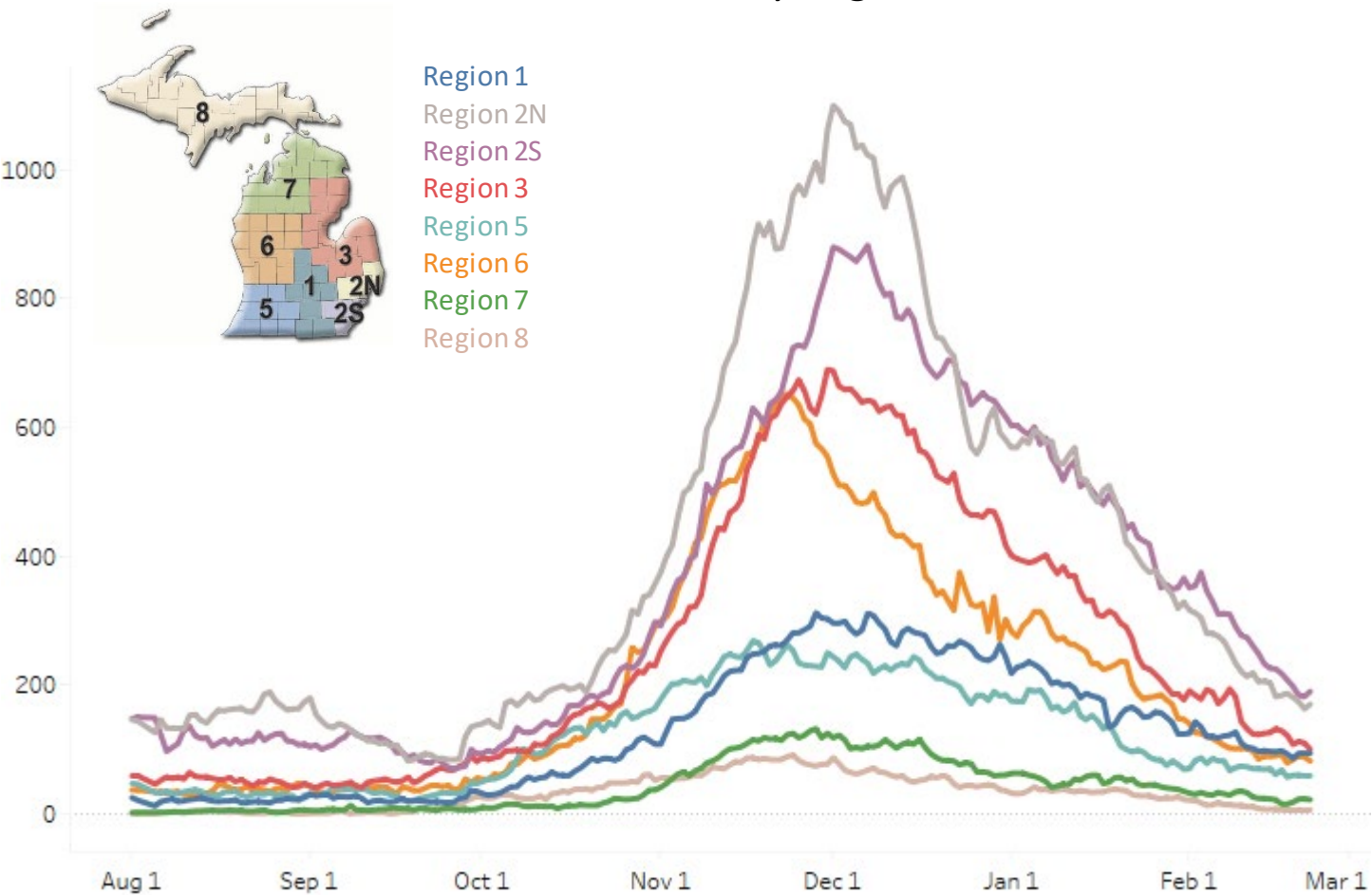
Hospitalizations are similar to levels seen in Oct 2020.

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 8/1/2020 – 2/22/2021
Confirmed Positive by Region



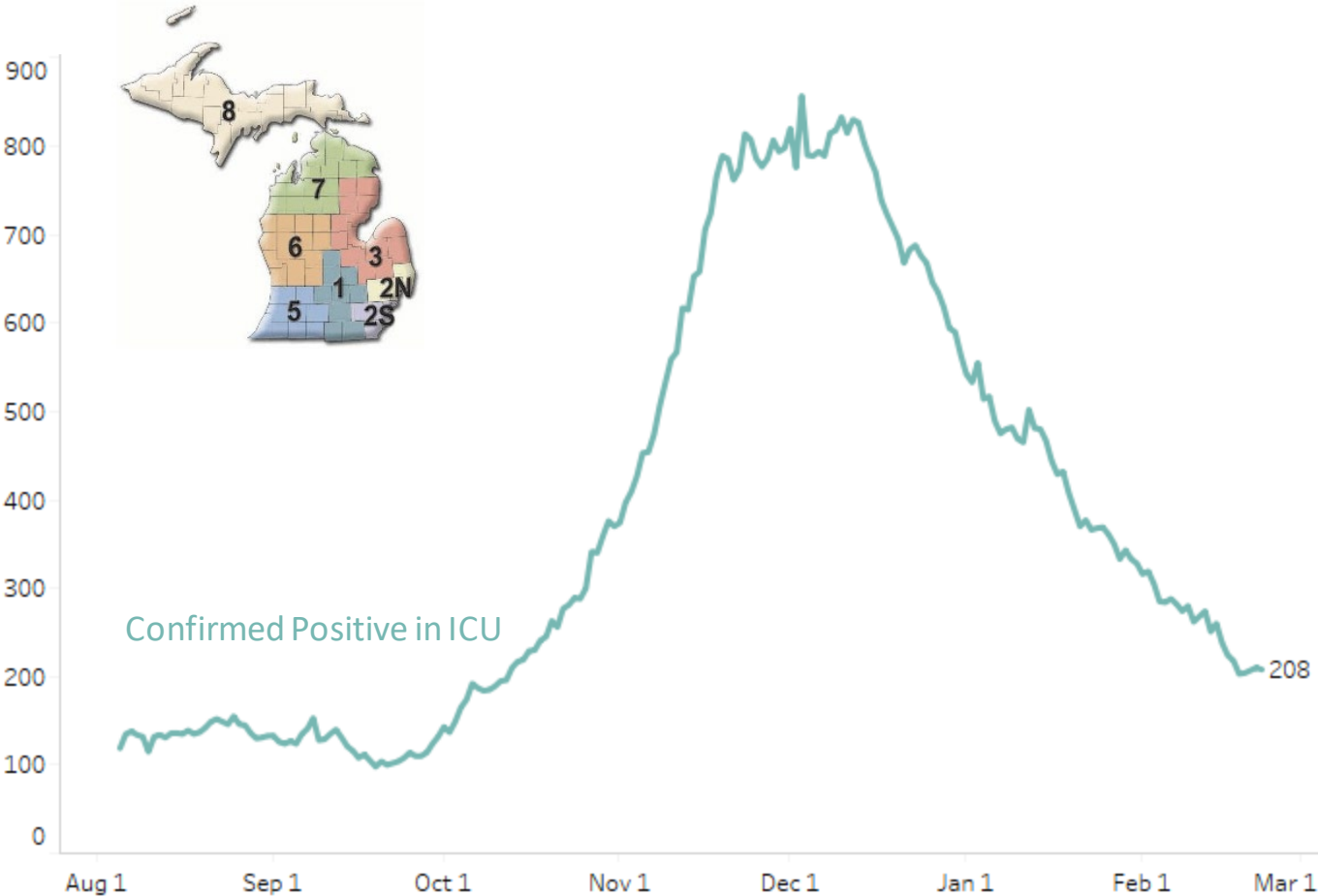
All regions are showing decreasing or flat trends in COVID+ hospitalizations.

All regions are below 100 hospitalized per million of the population for the first time since October.

Region	COVID+ Hospitalizations (% Δ from last week)	COVID+ Hospitalizations / MM
Region 1	94 (-3%)	87/M
Region 2N	170 (-17%)	77/M
Region 2S	190 (-16%)	85/M
Region 3	100 (21%)	88/M
Region 5	59 (-16%)	62/M
Region 6	82 (-8%)	56/M
Region 7	22 (-4%)	44/M
Region 8	6 (-14%)	19/M

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 8/1/2020 – 2/22/2021
Confirmed Positive in ICUs



The census of COVID+ patients in ICUs continue to decline overall, with nearly all regions showing declining trend. Overall, this week is down 13% from the previous.

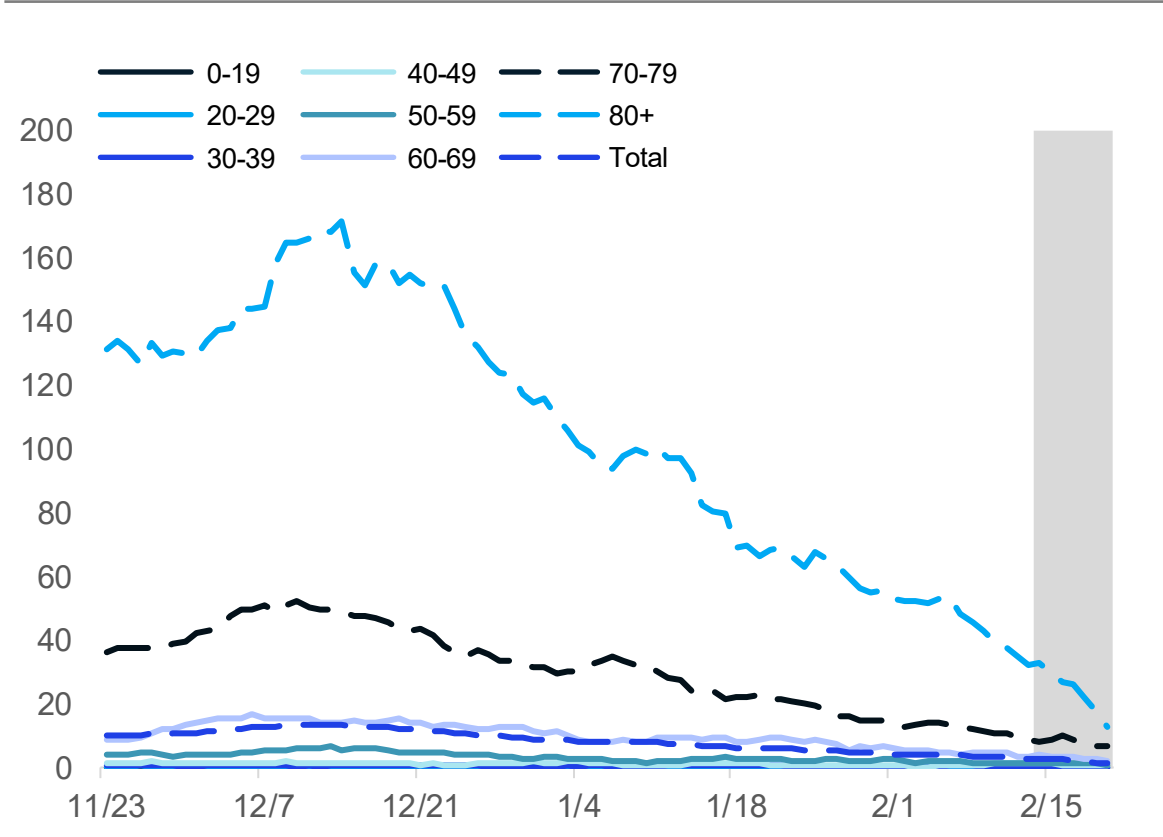
All regions are at/below 85% overall ICU occupancy and 6/8 regions have less than 10% of ICU beds occupied with COVID+ patients.

Region	Adult COVID+ in ICU	Adult ICU Occupancy	% of Adult ICU beds COVID+
Region 1	23	84%	12%
Region 2N	42	68%	7%
Region 2S	49	76%	6%
Region 3	25	85%	7%
Region 5	21	79%	14%
Region 6	32	71%	9%
Region 7	11	62%	6%
Region 8	5	50%	9%

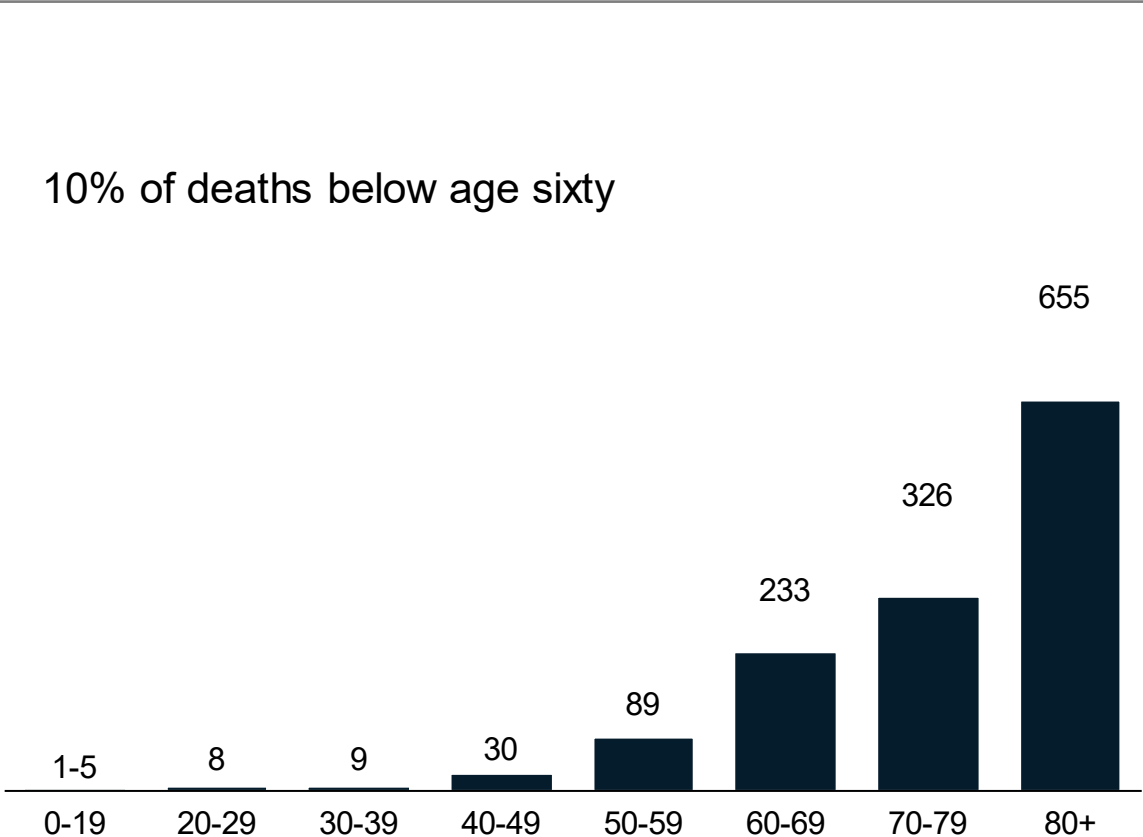
Hospital bed capacity updated as of 2/19

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 2/13/2021)

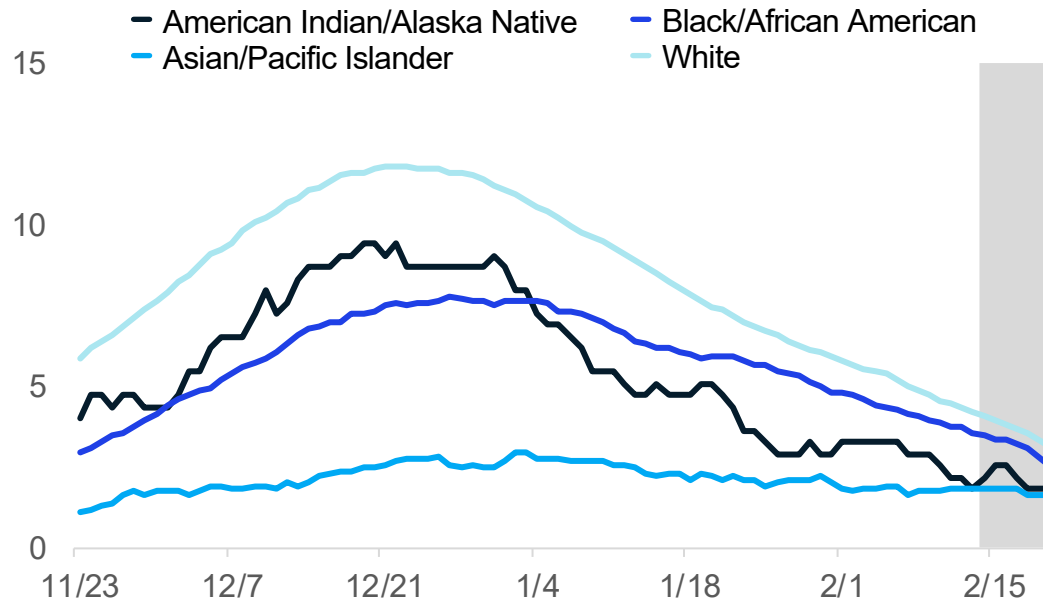


Note: Death information sourced from MDHHS and reflects date of death of confirmed and probable cases.

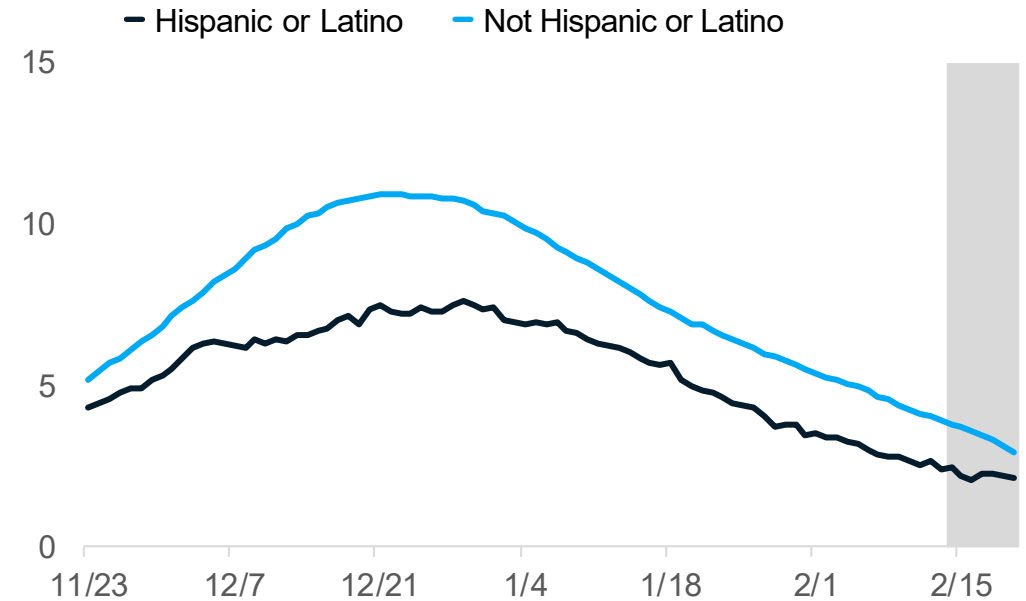
Source: MDHHS – Michigan Disease Surveillance System

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)

How is public health capacity?

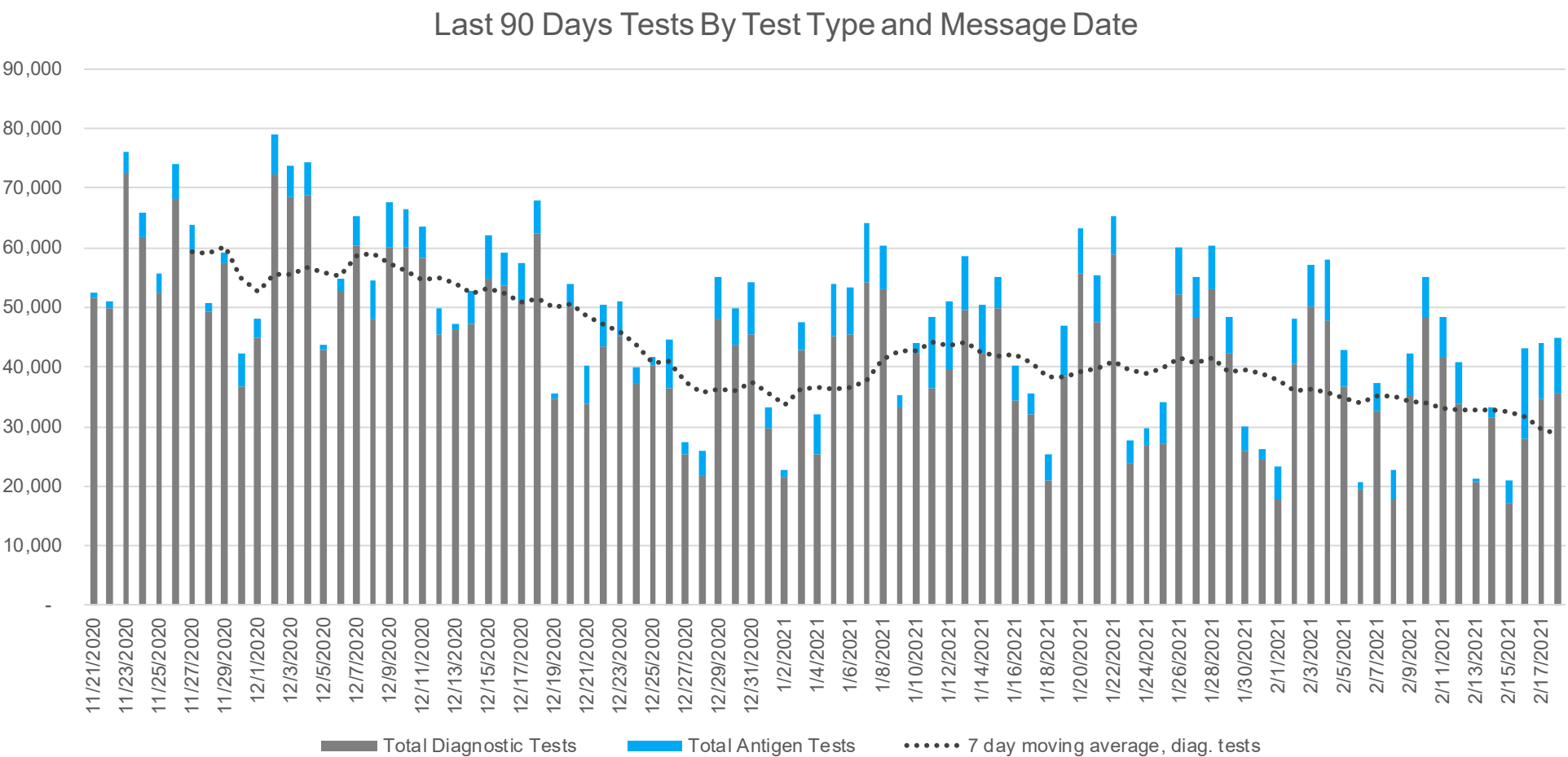
Diagnostic testing volume (PCR and antigen) has decreased from last week to 35,462

- PCR testing has also decreased (28,764)
- 18.9% are antigen tests (6,697)

Cases identified for investigations has plateaued

- Proportion of completed interviews has dropped since previous week
- 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

- 35,462 rolling 7-day average daily diagnostic tests reported to MDHHS (PCR + Ag)
- 28,764 average daily PCR tests
- 18.9% are antigen tests over the past week
- 2.5% positivity in antigen tests

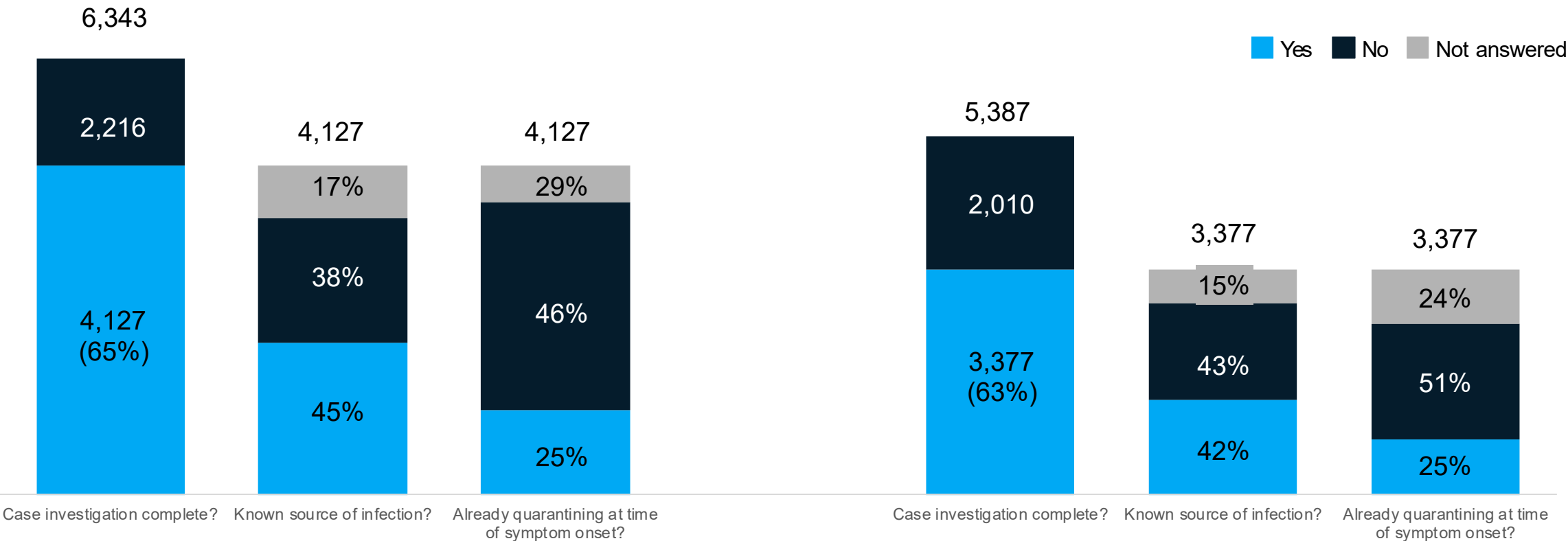
New Case Investigation Metrics (Statewide)

New Communicable Disease metrics slightly increased since last week:

- 42% of investigated cases having a known source (45% last week, 47% week prior)
- 25% of investigated cases noting that they were quarantining before symptoms (25% last week)

02/06-02/12 Case report form information

02/13-02/19 Case report form information



COVID-19 Vaccination

22nd in nation for doses administered per 100,000 people

More than 1.94 million doses reported to MDHHS

15.5% of aged 16+ years have first dose of vaccine (up from 13.7% last week)

- **674,668 people fully vaccinated**
- 37.3% of people 65-74 years and 40.8% of people over 75 have had at least one dose

Of all doses reported in the last week, 31% are first doses administered to people aged 65 and older

Race data added to website

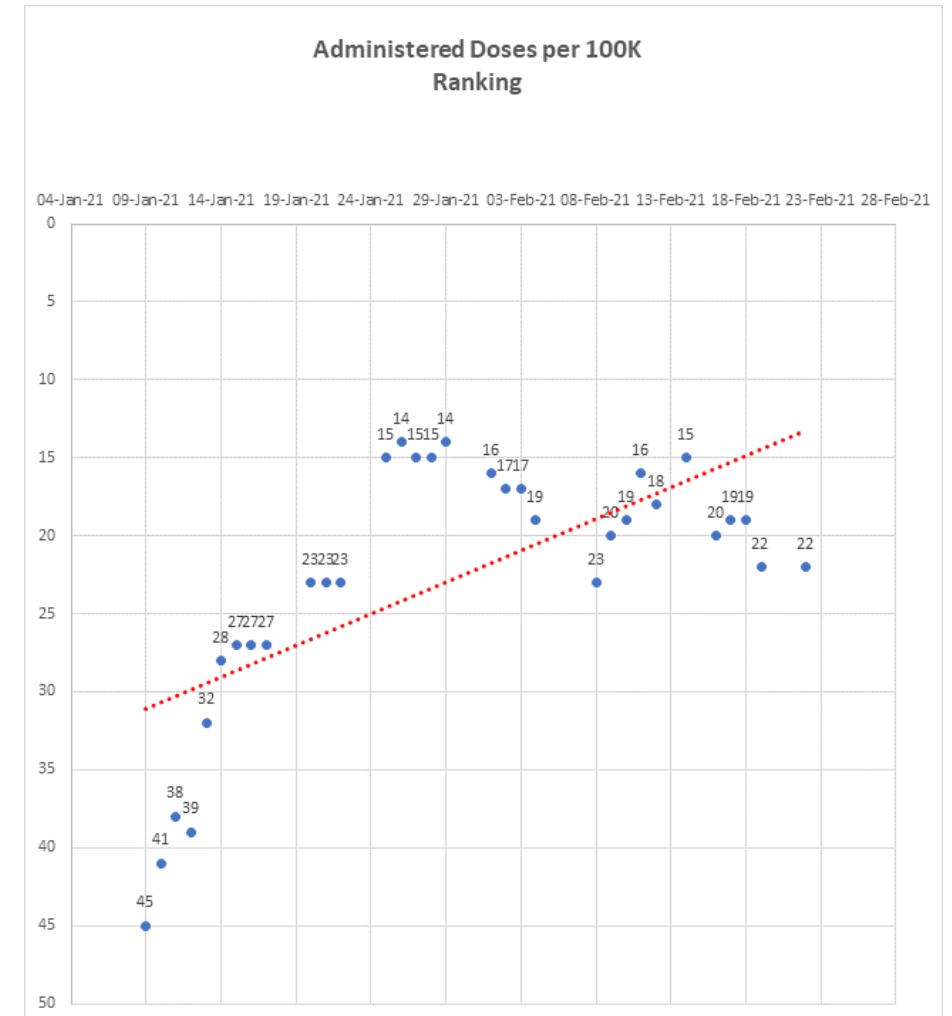
- Caveat: 43.7% missing race information
- Coverage was highest among those of White Race (7.9% and 4.7%)

LTC Federal Pharmacy Partnership:

- Percent of LTC with first clinic completed at 82% (up from 76% last week)
- 297,416 doses provided to residents and staff (up from 166,717 week prior)
- 695 clinics scheduled this week

Michigan COVID Vaccine Distribution & Administration as of 02/22/2021

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



Doses Shipped and Administered

13.7% of Michigan residents have initiated their COVID vaccination series and 6.3% have completed their series.

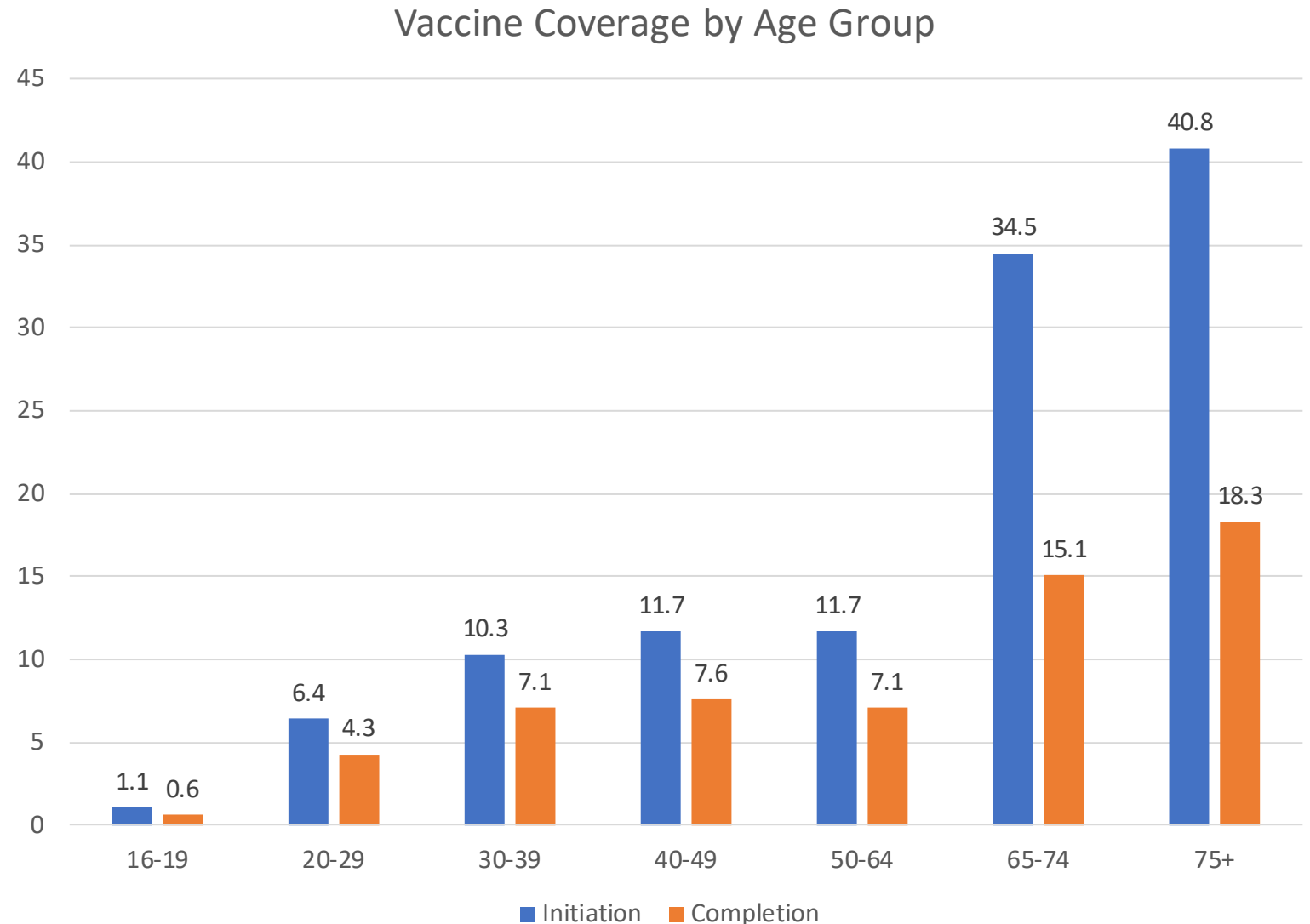
	Enrolled Providers	Doses Shipped	Total Doses Administered			1 st Dose Coverage, 16+	2 nd Dose Coverage, 16+
Data as of	2/22/21	2/23/21	2/22/21	1 st Dose	2 nd Dose	2/22/21	2/22/21
Michigan Distributed	2,433	2,119,825	1,942,759	1,261,798	380,961	15.5%	8.3%
Federal Programs		499,200					
Total Distribution		2,619,025					

Vaccination by Age Group (2/22/21 data)

More than 660,036 people aged 65 years or older have received one or more doses of vaccine (up 17% from 561,553 last week).

Persons 75 years of age and older have the highest initiation coverage (40.8% up from 35.4% last week)

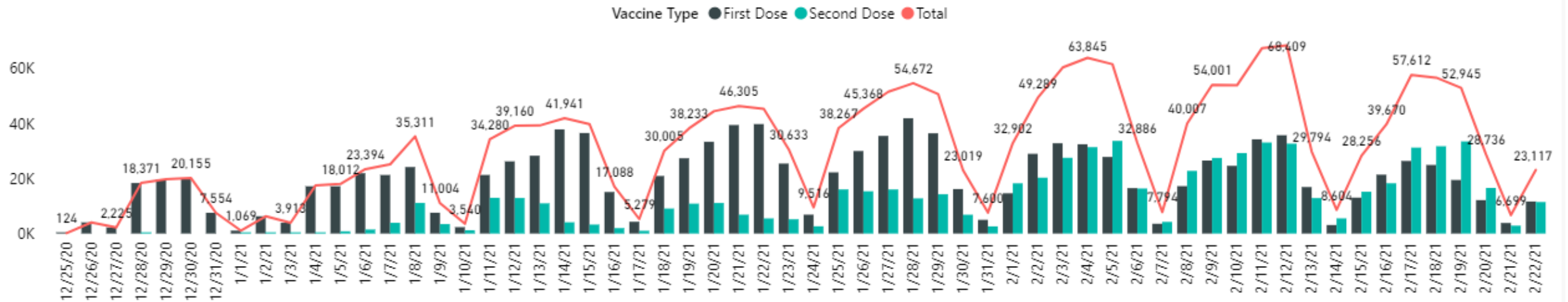
31% of all doses have been administered in the last week have been to people aged 65 and older



Doses Administered Per Day (2/22/21)

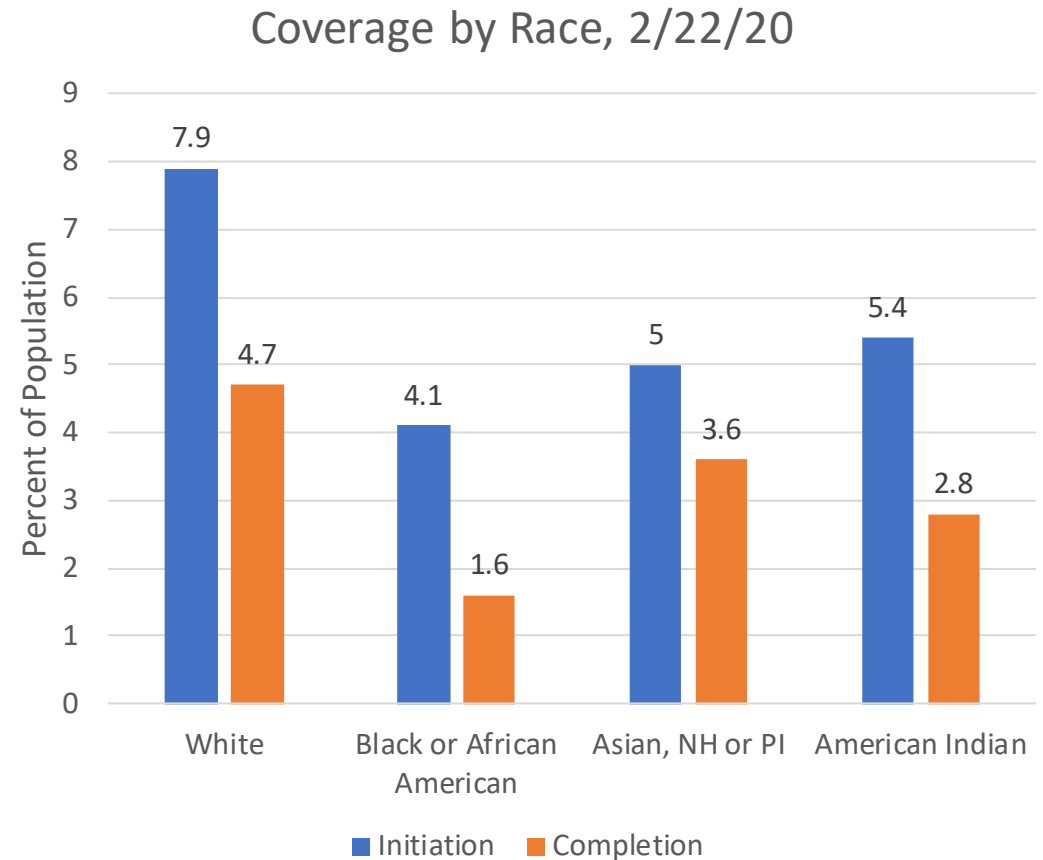
5 days administering more than 60,000 doses/day
13 days administering more than 50,000 doses/day
Over 68,000 doses administered in a single day.

COVID Vaccine Doses Administered by Date / Week (units in K = Thousand, units in M = Million)



Data on Race and Ethnicity

- 1,252,497 Michigan residents received ≥ 1 dose of vaccine
 - $>70\%$ missing ethnicity information
 - 43.7% missing race information
 - 41.7% were of White race
 - $\sim 5\%$ were of Black or African American (3.7%), Asian or Pacific Islander (1.1%) or American Indian/Alaskan Native (0.3%) race
- Coverage was highest among those of White Race (7.9% and 4.7%)



Federal Long-Term Care Facility (LTCF) Pharmacy Partnership Program Data as of 2/18/21 (most recent available)

Pharmacy and Phase	Facilities	1st Clinic Complete	%	2 nd Clinic Complete	Residents & Staff Vaccinated	Clinics Next 7 Days
CVS Part A (SNF)	269	269	100%	100%	56,712	0
CVS Part B (Other LTCF)	717	717	100%	76%	52,334	0
Walgreens Part A (SNF)	145	145	100%	100%	30,057	29
Walgreens Part B (Other LTCF)	2,056	2,056	100%	34%	64,266	550
Managed Health Care Assoc (Other LTCF)	1,192	410	32%	2%	4,047	116
Totals	4,379	3,597	82%		207,416	695

Percent of LTC with first clinic completed at 82% (up from 76% last week)
 207,416 doses provided to residents and staff (up from 166,717 week prior)
 695 clinics scheduled this week

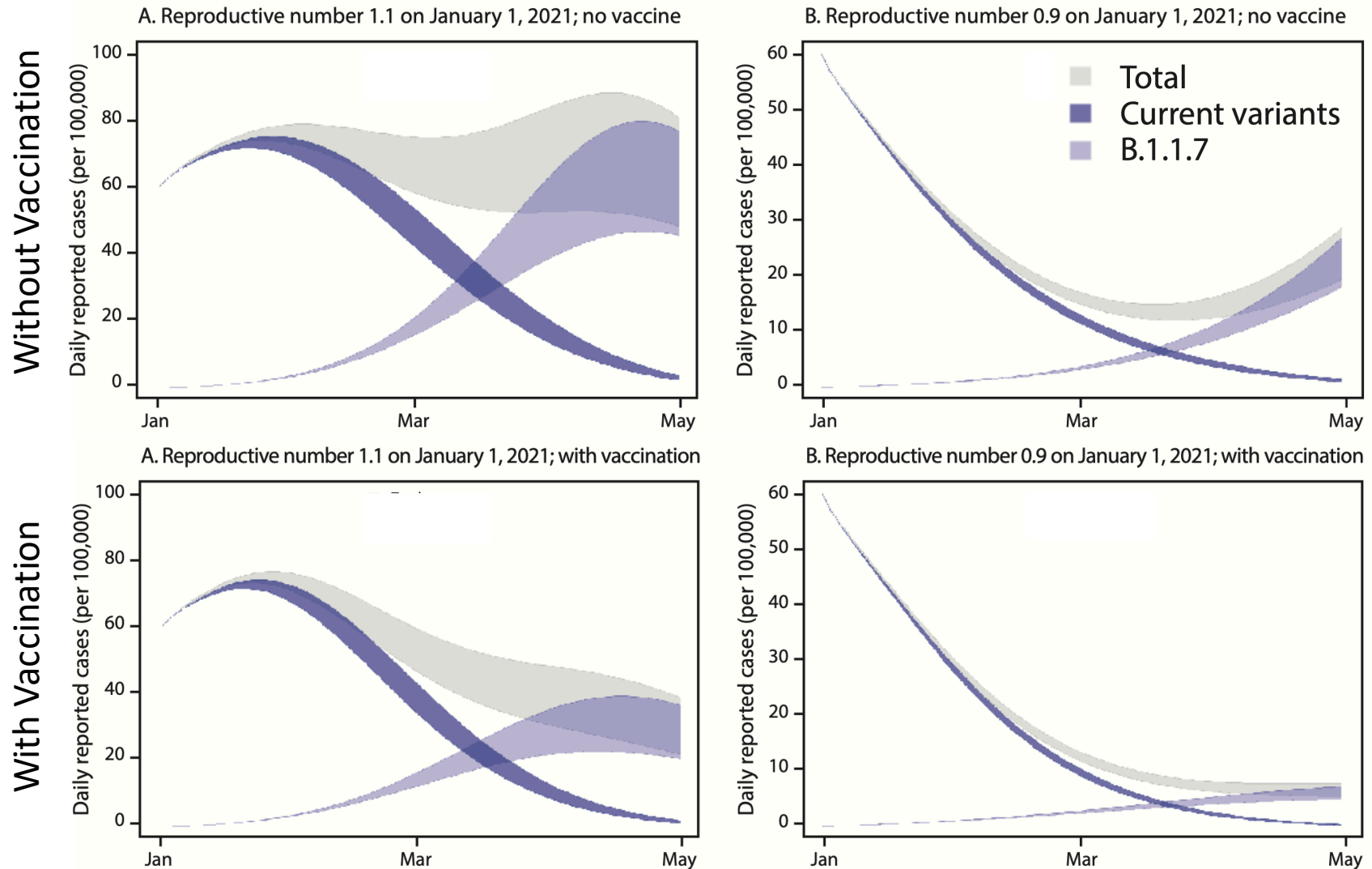
Science Round Up

- CDC modeling study suggests B.1.1.7 could become the predominant variant by the end of March
- Most recent mobility data shows some return toward baseline mobility patterns, particularly for numbers of trips taken and non-essential visits

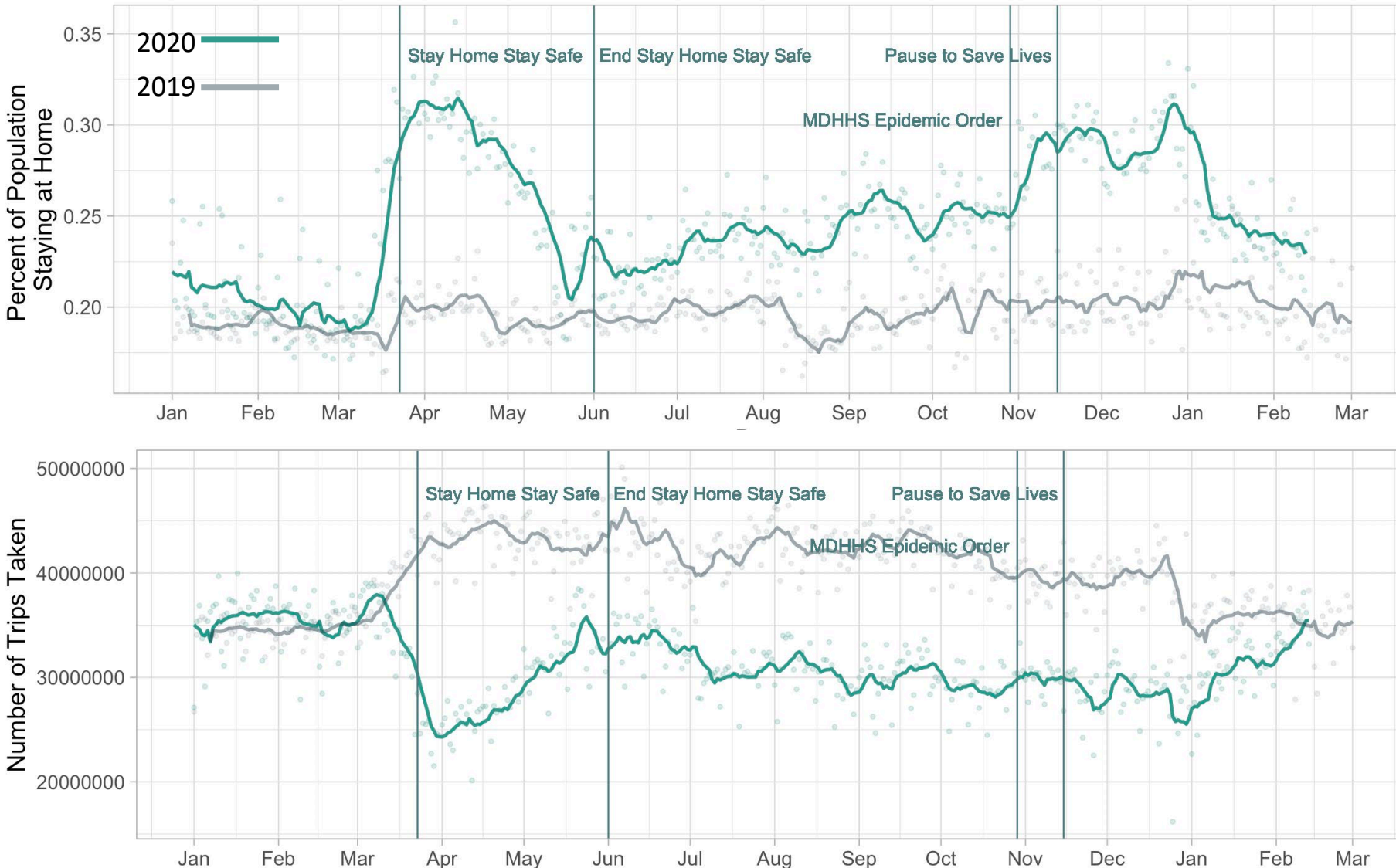
CDC modeling study suggests B.1.1.7 could become the predominant variant by the end of March

- Model suggests B.1.1.7 may become predominant by end of March based on UK data suggesting 1.5x transmissibility for B.1.1.7
- However, with mitigation measures and vaccination (assuming 1 million doses/day across the US), overall spread can be contained even as variant transmission grows

[Galloway et al., MMWR 2021](#). Compartmental model assuming an initial R_t of 1.1 or 0.9 for existing lineages, with B.1.1.7 $R_t = 1.5 \times R_t$ for existing lineages. Initial prevalence of B.1.1.7 estimated at 0.5% based on SGTF data, and the model assumed an initial incidence of 60 daily cases per 100,000. Bands represent simulations with 10%–30% population-level immunity as of January 1, 2021.



How many people are staying at home in Michigan?



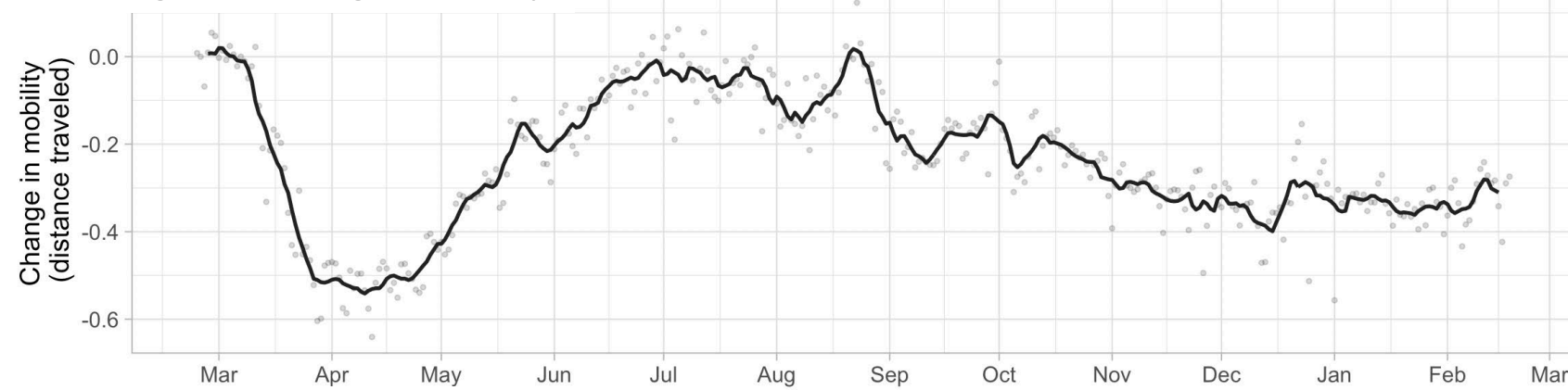
- % Stay-at-home levels increased in November
- Recently declined back to pre-November levels, though still higher than 2019
- Number of trips taken/day has recently increased to 2019 levels
- Most recent data is 2/22/21

Data Source: [Bureau of Transportation Statistics](#)

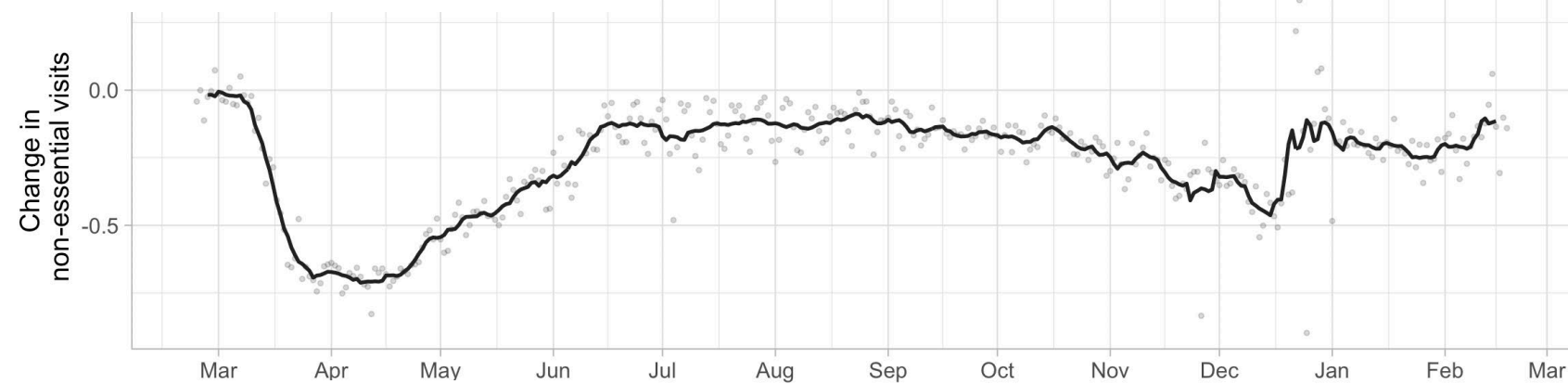
Unacast mobility patterns in MI

- Most recent data shows some return toward baseline mobility patterns, particularly for non-essential visits.
- Encounter density has stayed relatively low.
- Data through 2/22/21

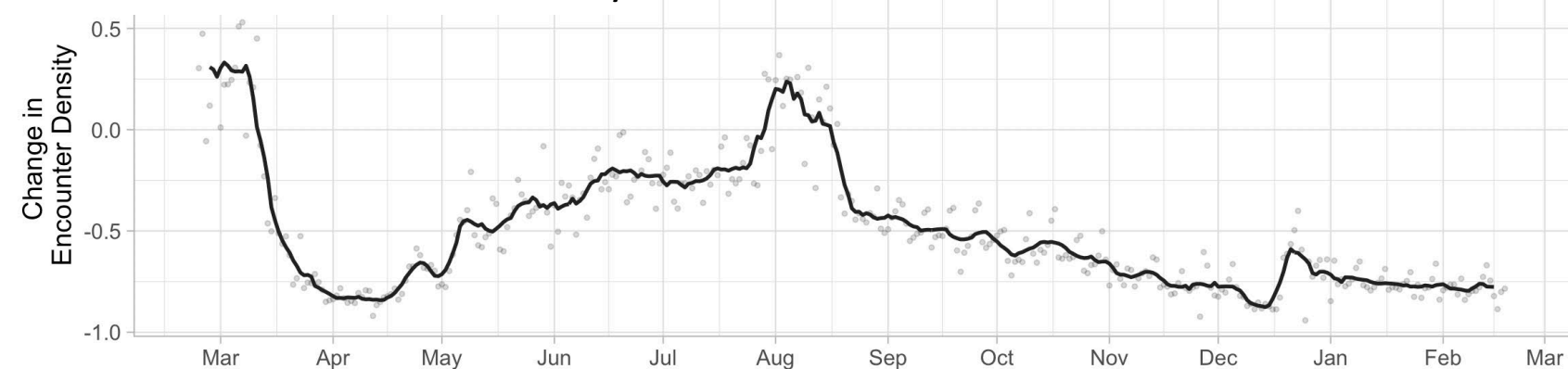
Change in average mobility



Change in non-essential visits



Difference in encounter density



unacast social distancing
scoreboard

<https://www.unacast.com/covid19/social-distancing-scoreboard>