MI COVID RESPONSE DATA AND MODELING UPDATE

NOTE: All data as of March 13 unless otherwise noted

March 16, 2021

Executive summary

Case rates (143.6, ↑29.8) and **percent positivity** (5.1%, ↑1.0%) have increased since the previous week

Michigan has the **9th highest number of cases (↑3),** and **10th highest case rate (↑17)** in the last 7 days (source: CDC COVID Data Tracker)

4.4% of available inpatient beds are filled with COVID patients (↑0.3 %) and trends for COVID hospitalizations are increasing

Michigan has the **20th highest inpatient bed utilization (↑5),** and the **24th highest adult ICU bed utilization (↑6)** (source: US HHS Protect)

There were **97 deaths** (↓28) between Feb 28 and Mar 6, and **death rate** decreased to 1.4 deaths per million residents (↓0.4)

Michigan has the **24th highest number of deaths (↓4)**, and **T42nd highest death rate (↓4)** in the last 7 days (source: CDC COVID Data Tracker)

The 7-day average **state testing rate** has plateaued around 3,089.2 tests/million/day (↑17.8). **Daily diagnostic tests (PCR)** is 30.8K per day (↑0.3K), and the **weekly average for PCR and antigen tests** conducted in Michigan is 42.9K (↑1.6K).

3.1 million **COVID-19 vaccine** doses administered, ~25% of Michigan population 16+ has at least one dose

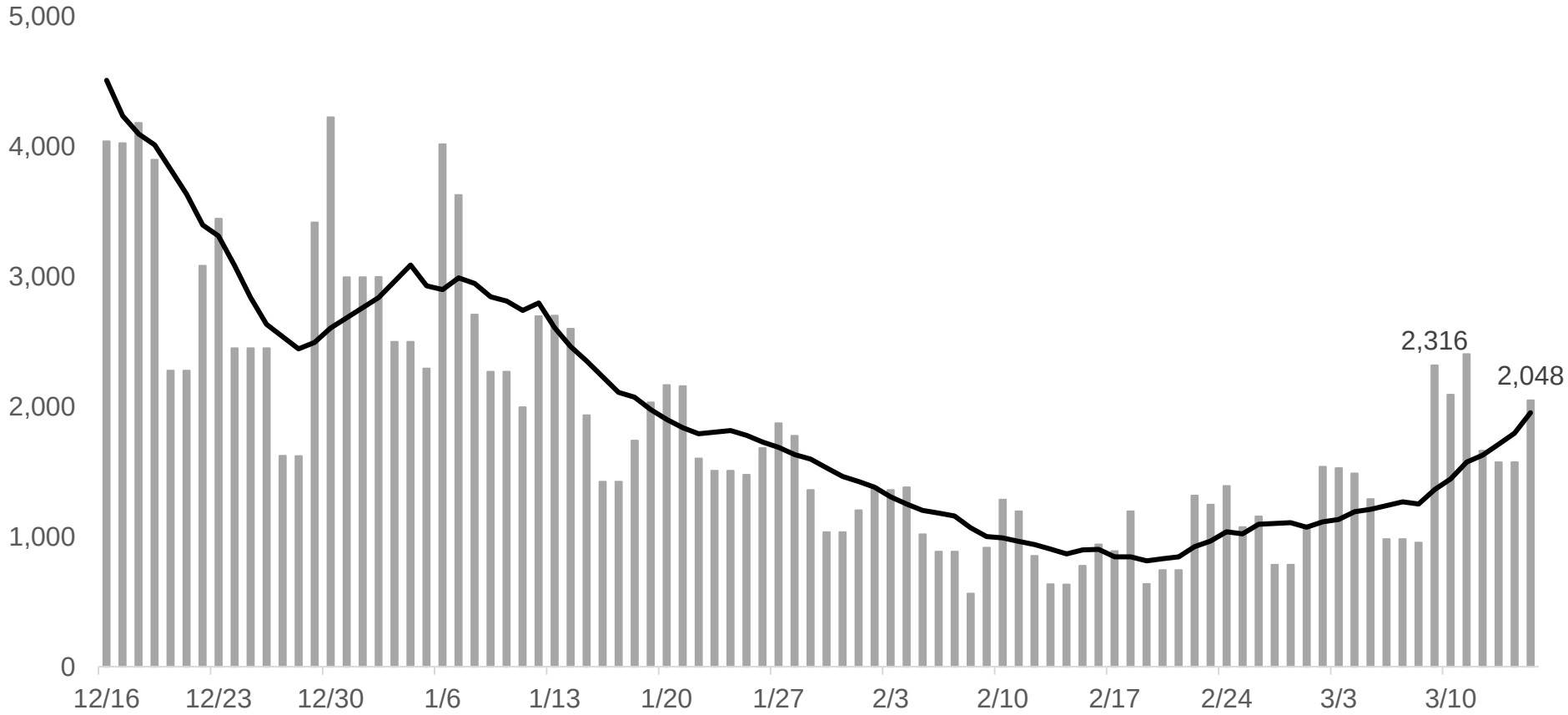
Comparison across states: Summary 3/15/21

What we see today:

- Eleven states are seeing increasing 1 week case trends (>=10% rise) (up vs. 5 last week)
- 22 states (down vs. 23) with significant outbreaks (high/increasing cases, increasing/high positivity increasing/high hospitalizations over 2 weeks (>100 per M))
- New York, New Jersey, Florida, Texas and Maryland have highest per capita hospitalized patient numbers
- Midwest (case data from CDC):
  - Wisconsin showing stable hospitalizations (52/M) and small decrease in cases (64/M)
  - Indiana with decline in hospitalizations (88/M), and slight drop in cases (79/M)
  - Illinois showing stable hospitalizations (95/M), slight drop in cases (87/M)
  - Ohio with slight increase in hospitalizations (79/M) and stable cases (92/M)
  - Michigan showing increase in hospitalizations (95/M) and increase in cases (140/M)

Confirmed COVID-19 cases by report date: State of Michigan

Confirmed cases reported on prior day (7-day rolling average)

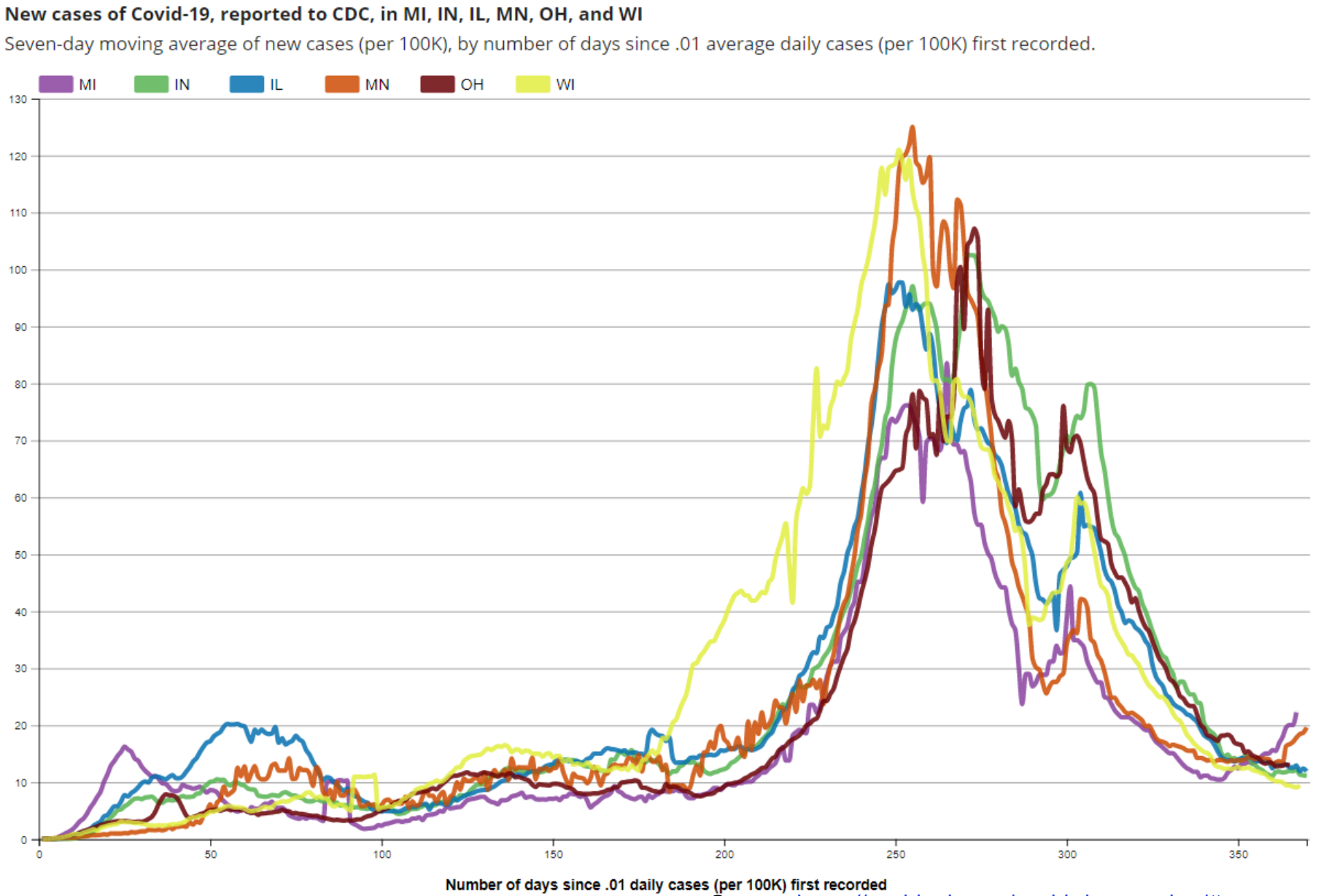


The number of **weekly reported cases** to public health is **increasing**

13,660 cases reported **in the last week**

Source: MDHHS – Michigan Disease Surveillance System

Daily Reported Case Rates per 100,000 in Midwestern States Bordering Michigan

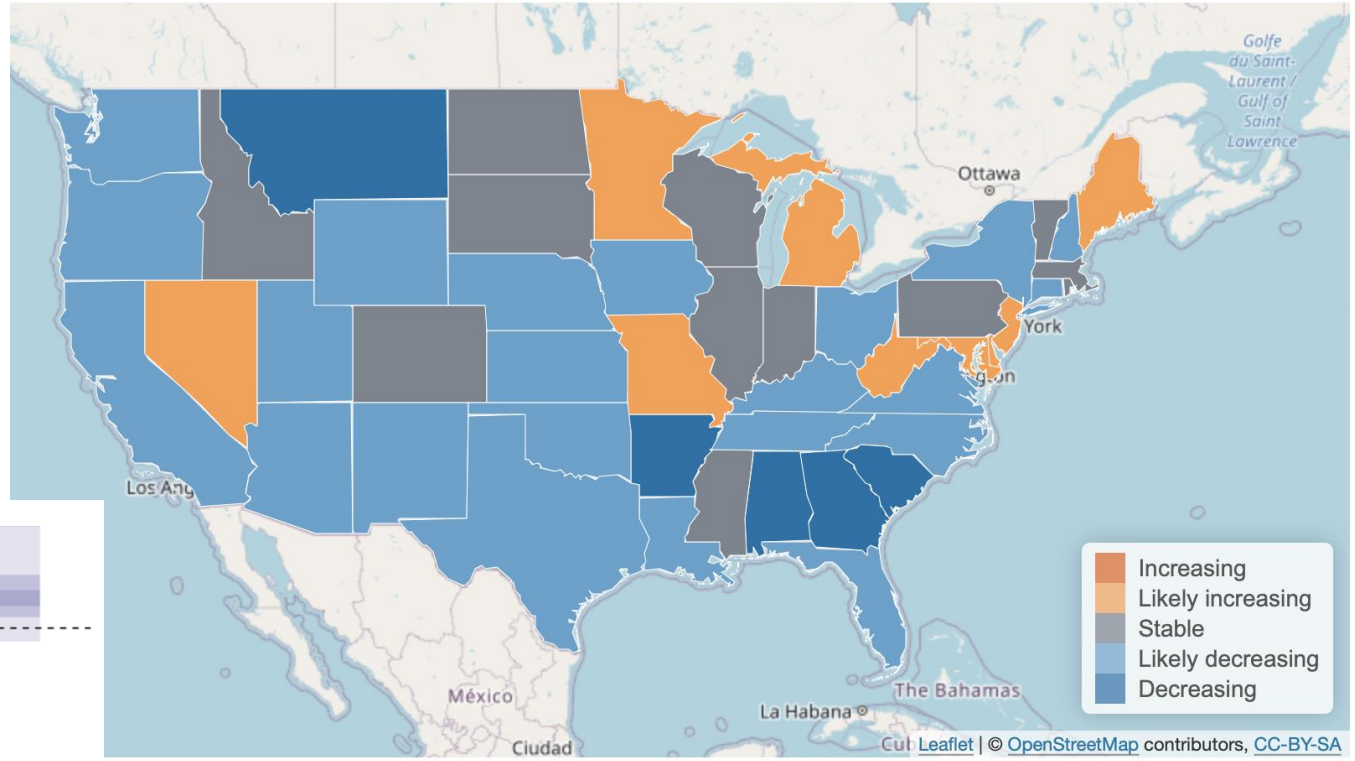


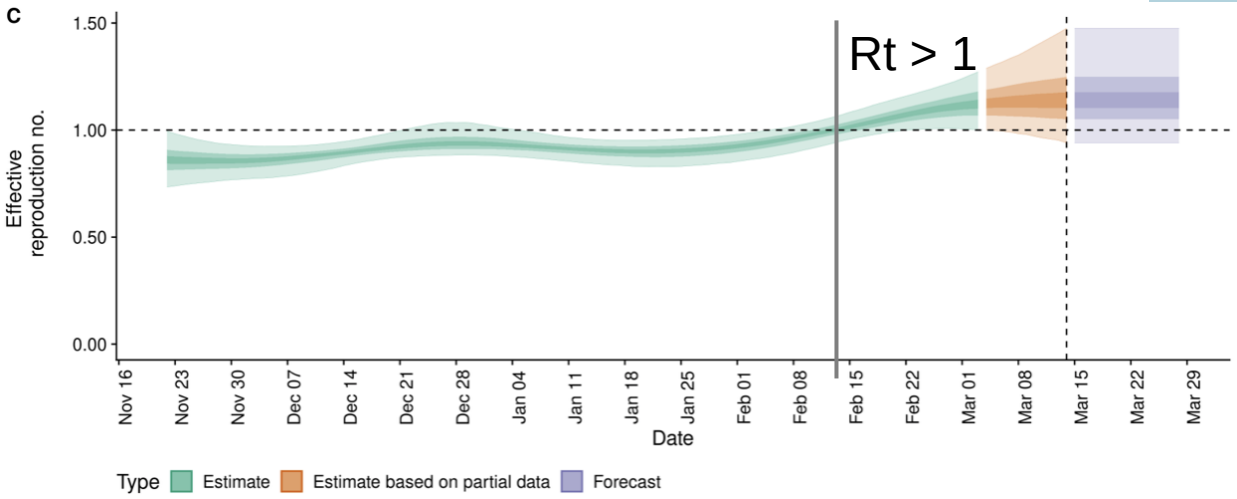
Source: https://covid.cdc.gov/covid-data-tracker/#compare-trends_newcasesper100k

Michigan case increases projected to continue COVID reproductive number Rt >1

Several states across the US have recently begun seeing increases, including MI

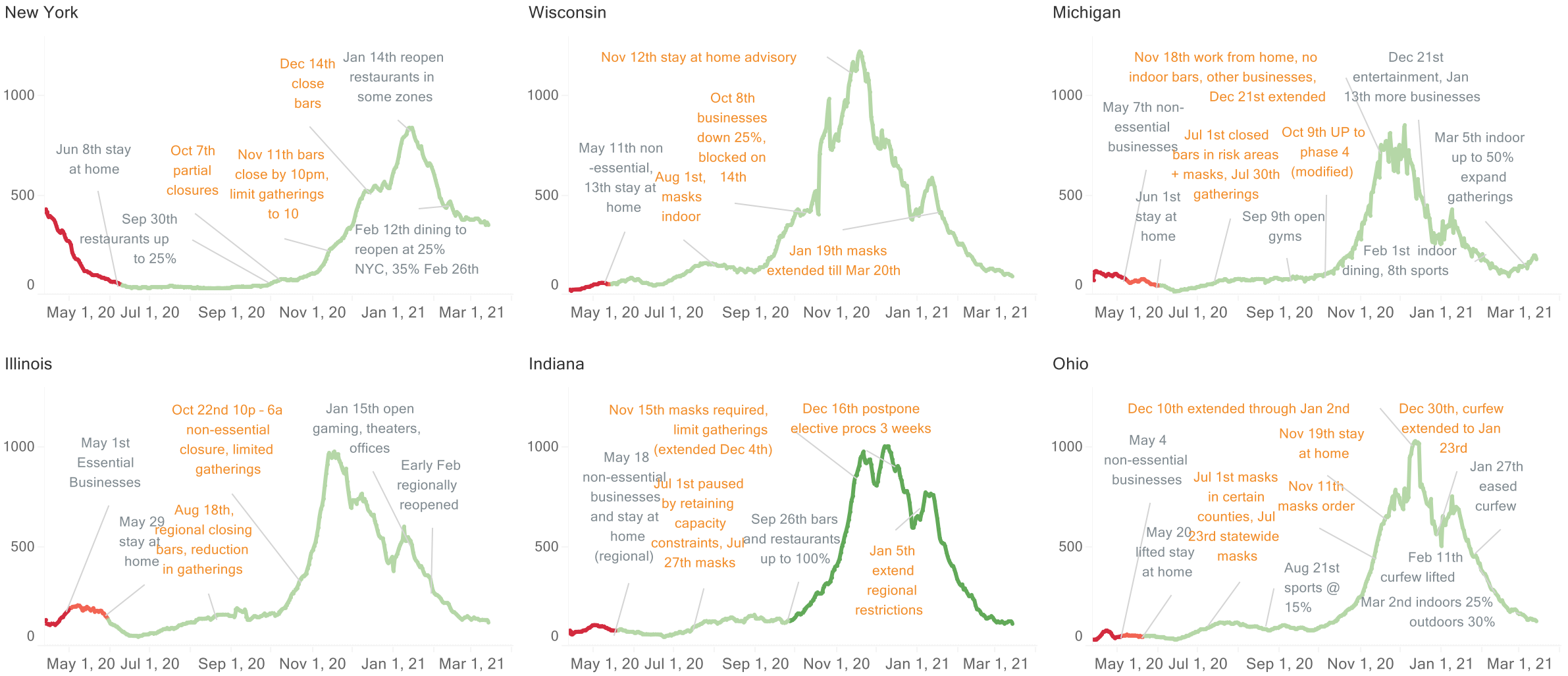
Rt for Michigan estimated at 1.1 (0.94 – 1.5) and projected to remain >1





Data from epiforecasts.io as of 3-14-2

State Comparisons: 7 day avg. of daily new cases per 1M population



Updated Mar 15th 2021

COVID-19 Spread

Statewide positivity has increased to 5.1%, and is either increasing or plateauing in most MERC regions

- Seven MERC regions remain below 7% (Risk Level A)
- One region, Kalamazoo, has seen positivity increase above 7% (Risk Level B)
- Upper Peninsula remains below 3% (Risk Level Low)
- Increasing positivity trends are also seen at the county level

Case rates (143.6 cases/million) have also increased in the state

- 80% decrease from the mid-November peak
- 50% increase from mid-February low
- Five MERC regions showing an increase in case rates
- Increases and plateaus are seen among most age groups, races, and ethnicities
- Variant is in Michigan: increased vigilance in use of masks and social distancing and increase testing
  — 4,690 cases with the B.1.1.7 variant have been identified in the US (↑1,653), 725 in Michigan (↑162)

- Number of active outbreaks is up 9% from previous week
  — Reported school outbreaks have increased since last week (121 to 162) and all settings

Confirmed and probable case indicators

Table Date: 3/13/2021 (7 days from date table was produced: 3/6/2021)

Risk levels: Low A B C D E

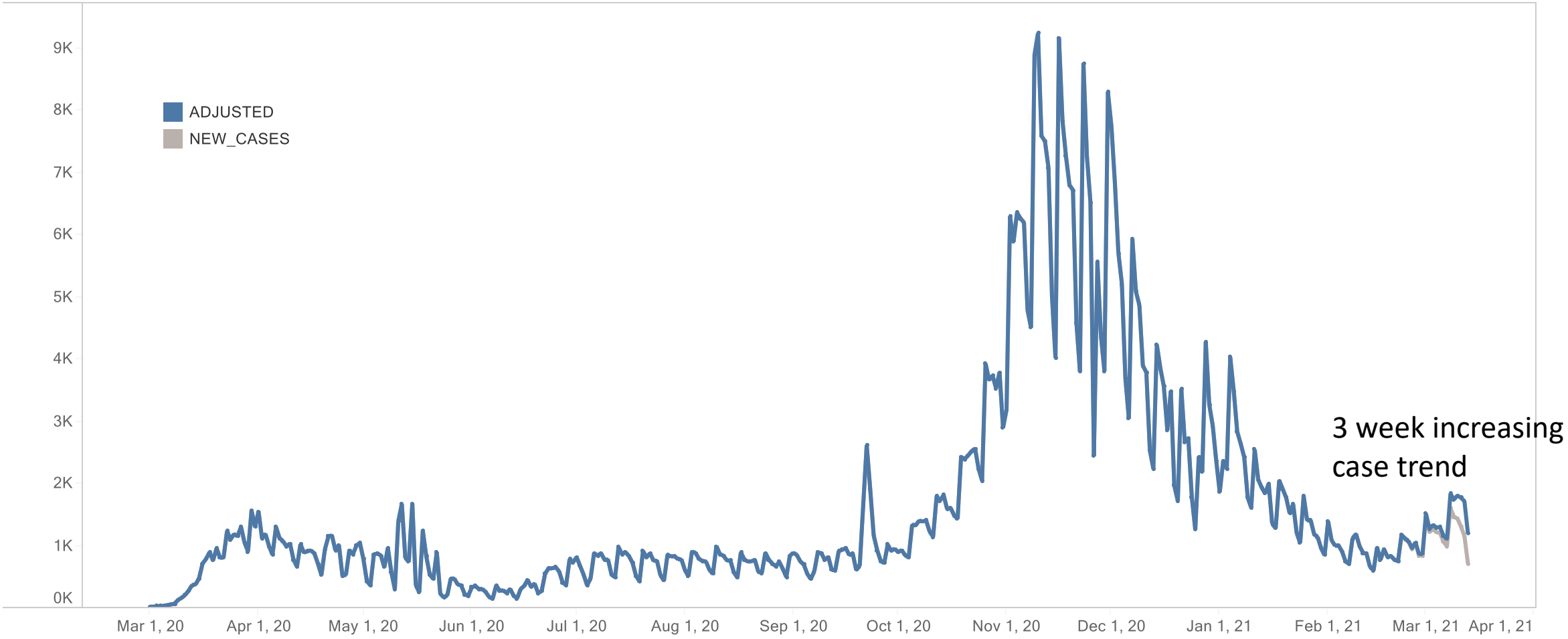
	Overall Risk Level	Absolute Cases (per million)	CDC Case Trend	Average Percent Positivity	Positivity Trend	Tests (per million)	% IP Beds Occupied by COVID-19 Cases	% Occupied IP Beds Trend	Absolute Deaths (per million)	Death Trend
Detroit	E	153.4	elevated incidence growth	5.2	Increase - 3wk	3151.8	4.8	Increase - 2wk	1.1	Decrease - 11wk
Grand Rapids	D	104.7	elevated incidence plateau	4.3	Increase - 2wk	2658.5	3.1	Increase - 1wk	1.1	<20 wkly deaths
Kalamazoo	E	171.9	elevated incidence growth	7.4	Increase - 1wk	2871.5	4.7	Increase - 1wk	1.3	<20 wkly deaths
Saginaw	E	150.2	elevated incidence growth	6.4	Increase - 2wk	2485.1	4.3	Decrease - 1wk	2.8	<20 wkly deaths
Lansing	E	132.8	elevated incidence growth	4.9	Increase - 1wk	2660.6	6.3	Decrease - 6wk	2.4	<20 wkly deaths
Traverse City	E	154.3	elevated incidence growth	5.7	Increase - 3wk	2385.6	3.2	Increase - 2wk	1.0	<20 wkly deaths
Jackson	D	144.6	elevated incidence plateau	5.2	Decrease - 9wk	3352.6	5.1	Decrease - 9wk	2.4	<20 wkly deaths
Upper Peninsula	C	69.1	elevated incidence plateau	1.2	Increase - 1wk	3560.1	0.9	Decrease - 1wk	1.9	<20 wkly deaths
Michigan	E	143.6	elevated incidence growth	5.1	Increase - 3wk	3089.2	4.4	Increase - 1wk	1.4	Decrease - 12wk

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%

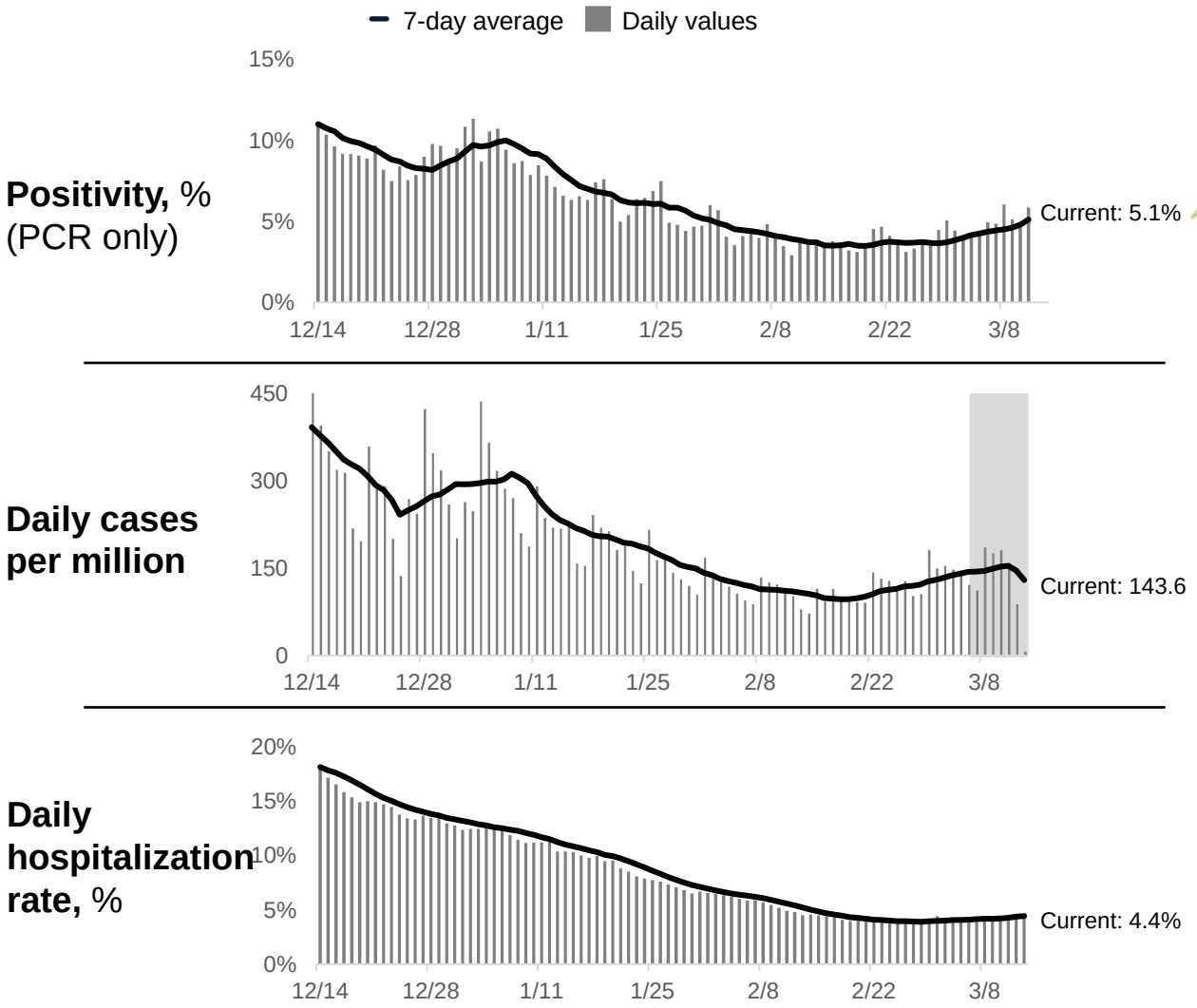
Lag adjusted daily new COVID+ cases by onset date

New confirmed cases by onset actual and adjusted as of March 15, 2021 (-2 days)



Recent statewide trends

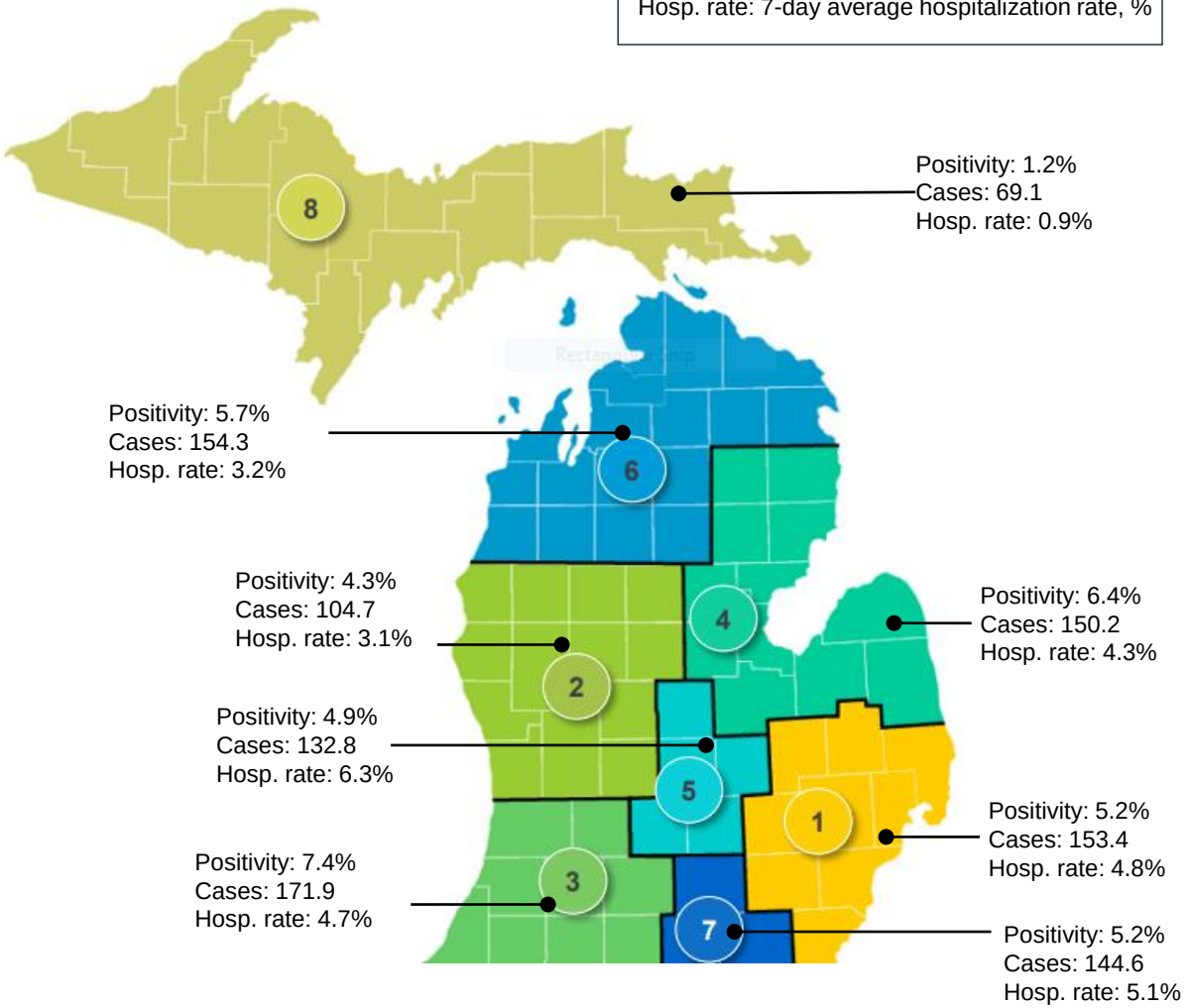
Statewide trends



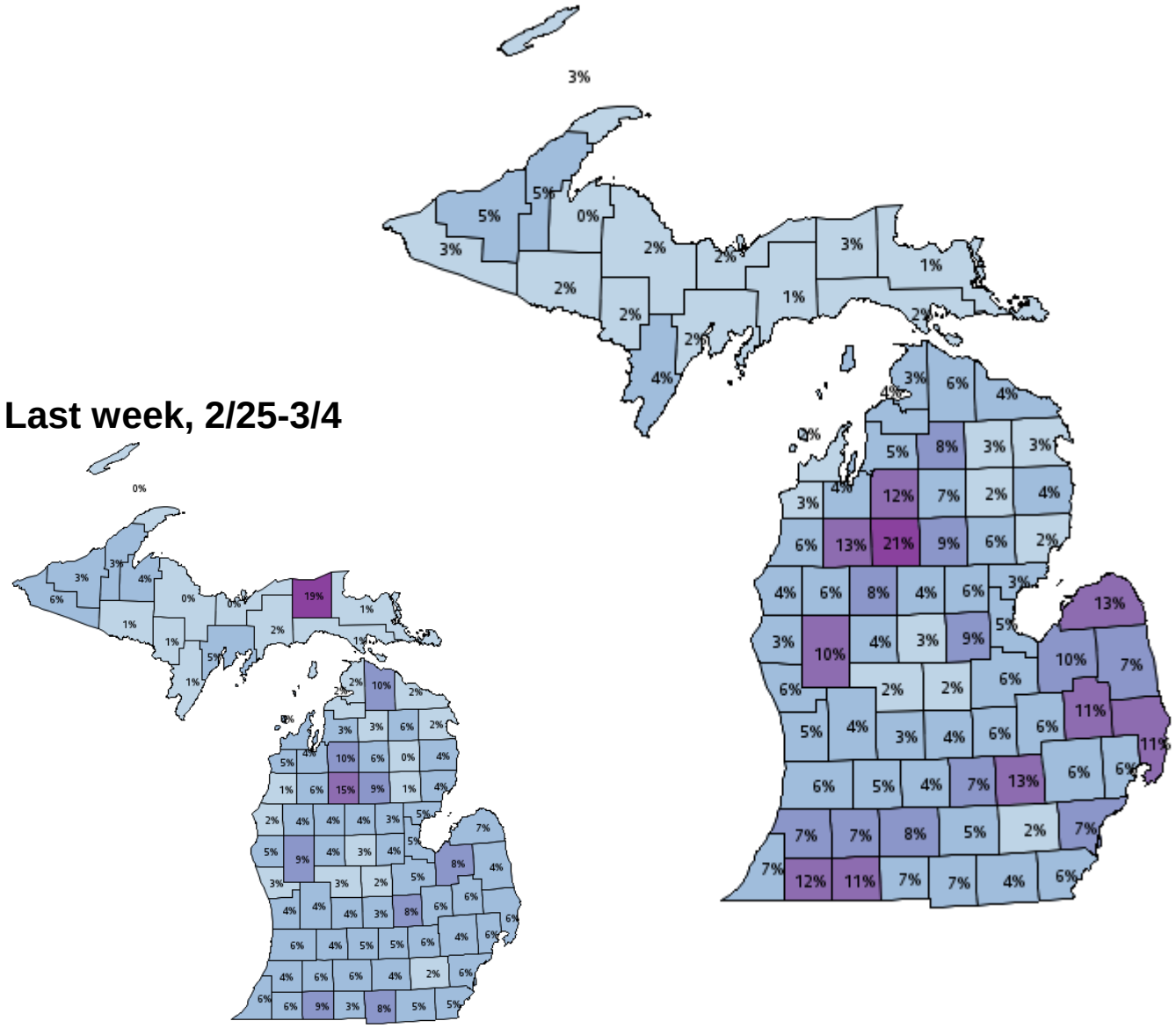
Source: https://mistartmap.info/

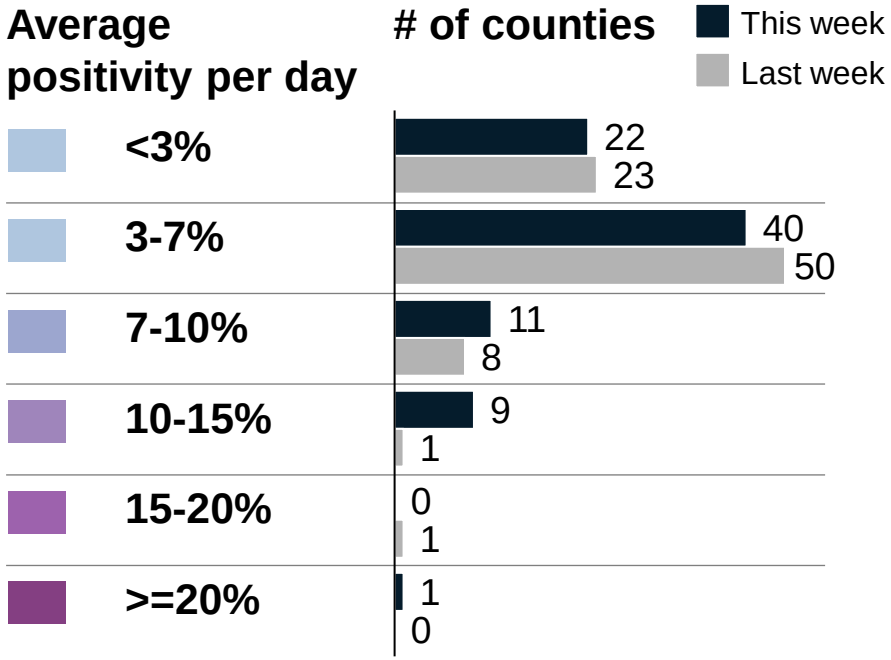
Regional breakdown: Case rate, hospitalization rate, and positivity

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



Positivity by county, 3/5-3/11





Updates since last week:

10 of 83 counties saw double digit positivity in the last week (8 county increase)

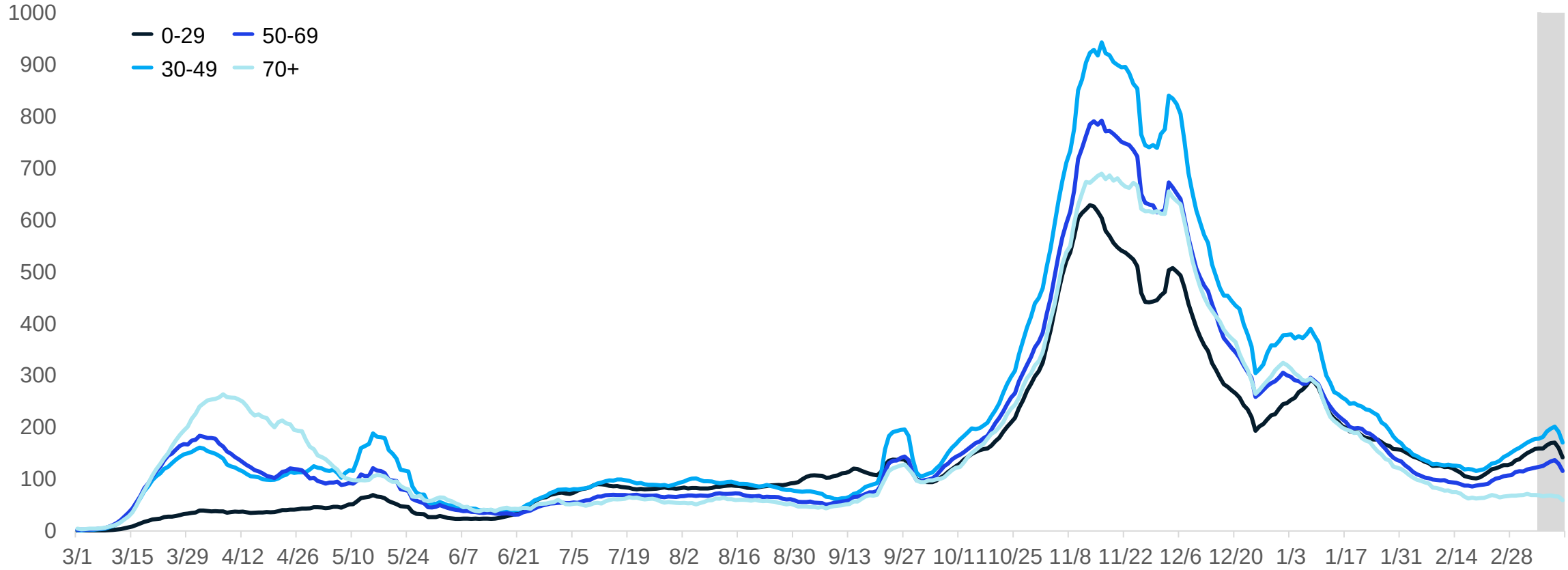
21 of 83 counties saw positivity > 7% in the last week (11 county increase)

61 of 83 counties saw positivity > 3% in the last week (1 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)

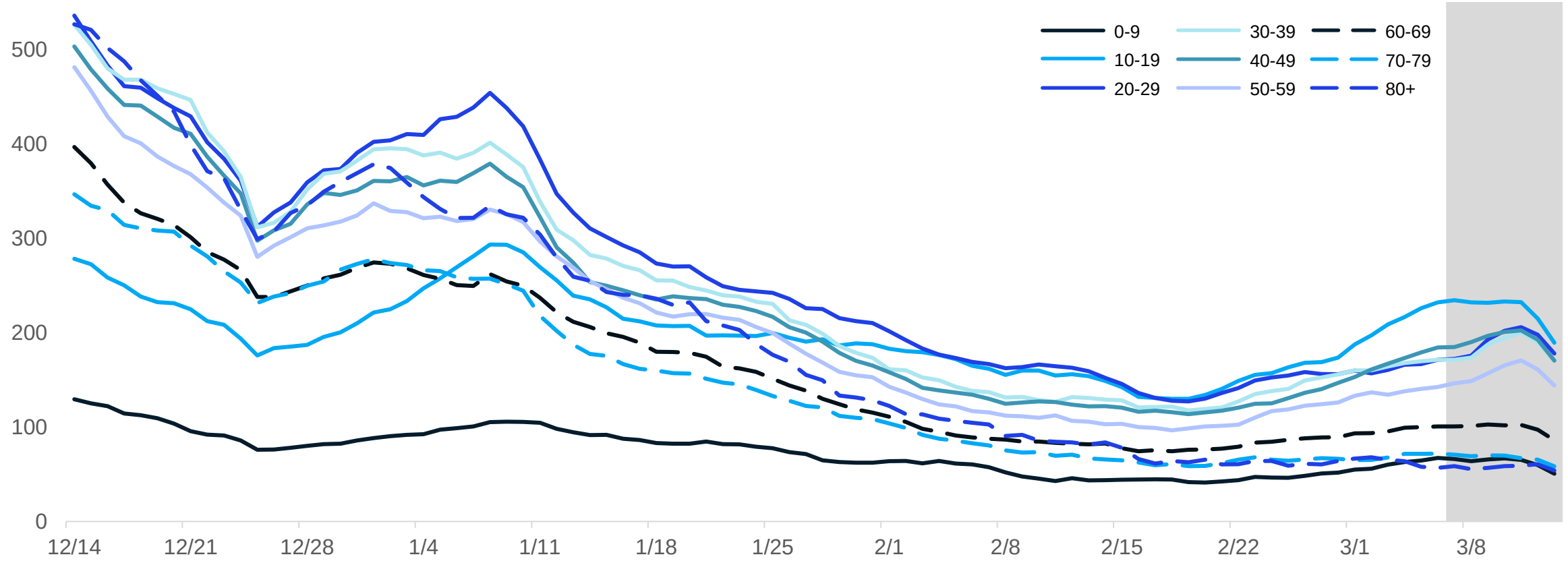


- Case rates are increasing for those under 70
- Cases per million is highest among the 30–49- and 0–29-year-olds

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

Age group: average new daily cases

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

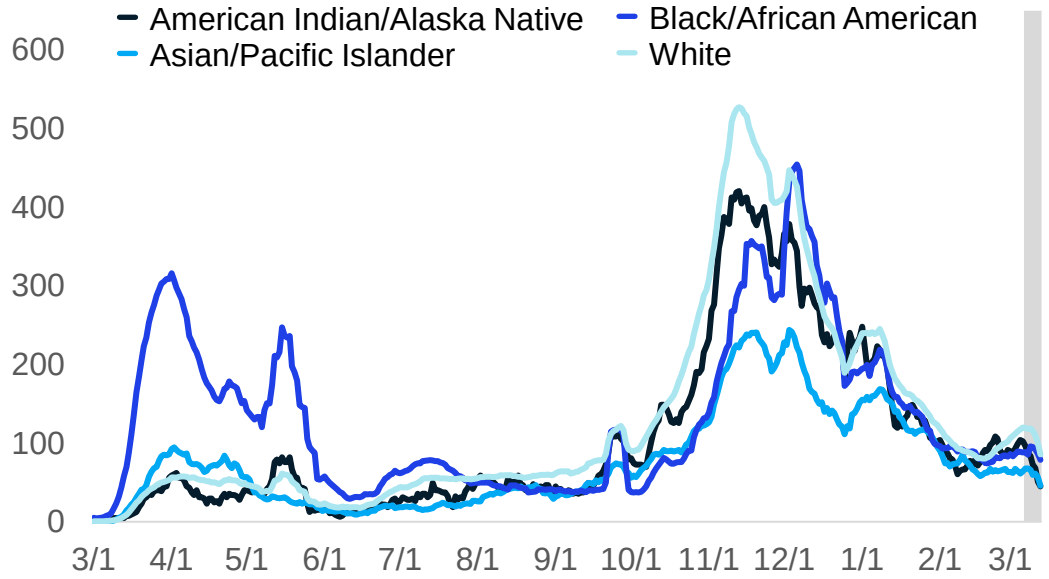


- Most age groups by decade are also plateauing
- Those aged 10-19 have the highest case rate and are increasing faster than other age groups
- Other ages groups with notable increases over the past week are 40-49, 20-29, 30-39, and 50-59

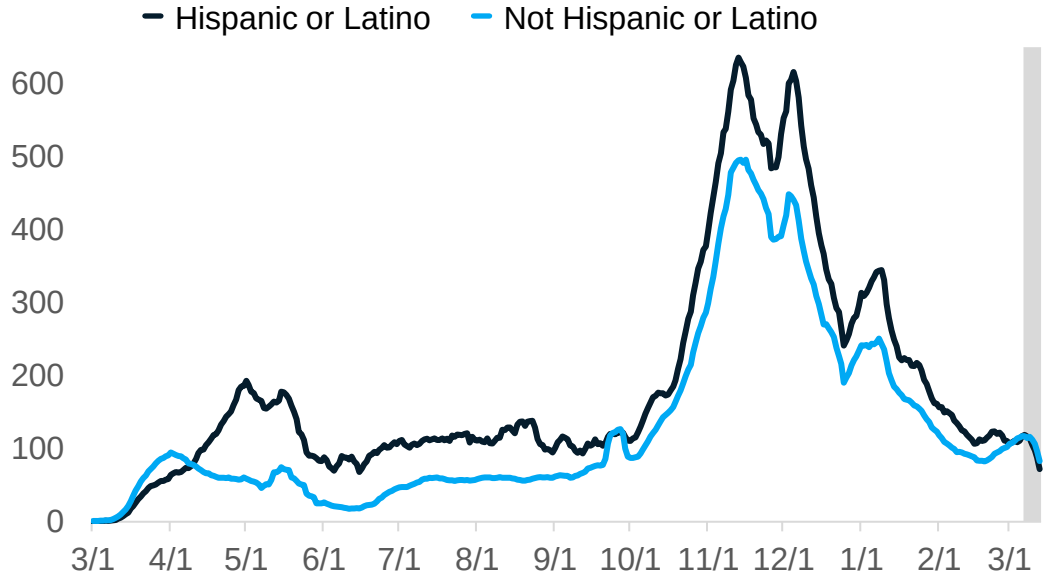
Note: Case information sourced from MDHHS and reflects date of onset of symptoms
Source: MDHHS – Michigan Disease Surveillance System

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



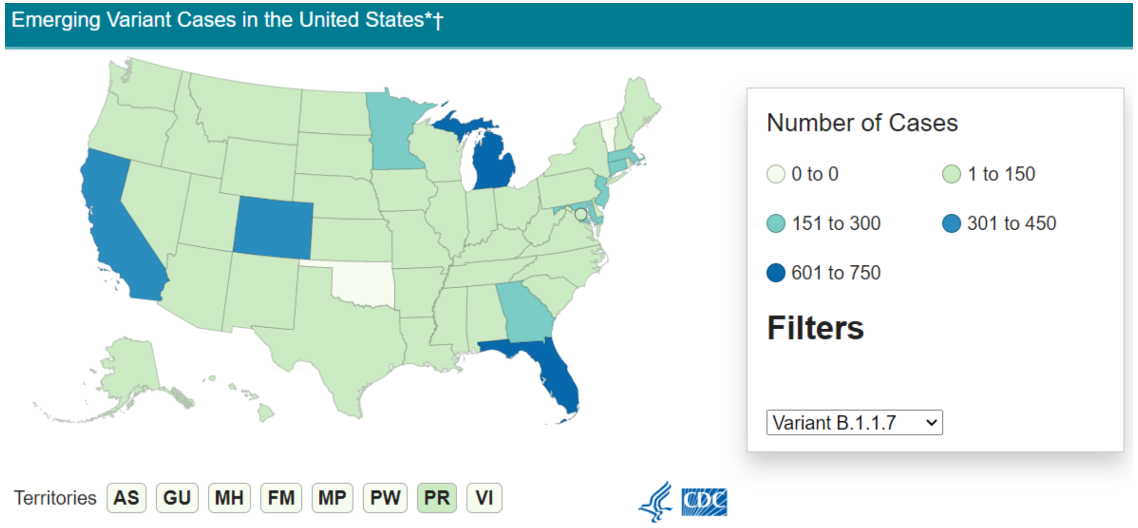
Updates since last week:

- Cases per million are now increasing Whites, Blacks/African American, and American Indian/Alaskan Native, and Non-Hispanic/Latinos
- In the past 30 days, 25% of all cases represent unknown, multiple, or other races (18% of race is unknown, ↑3%)
- In the past 30 days, 22% 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

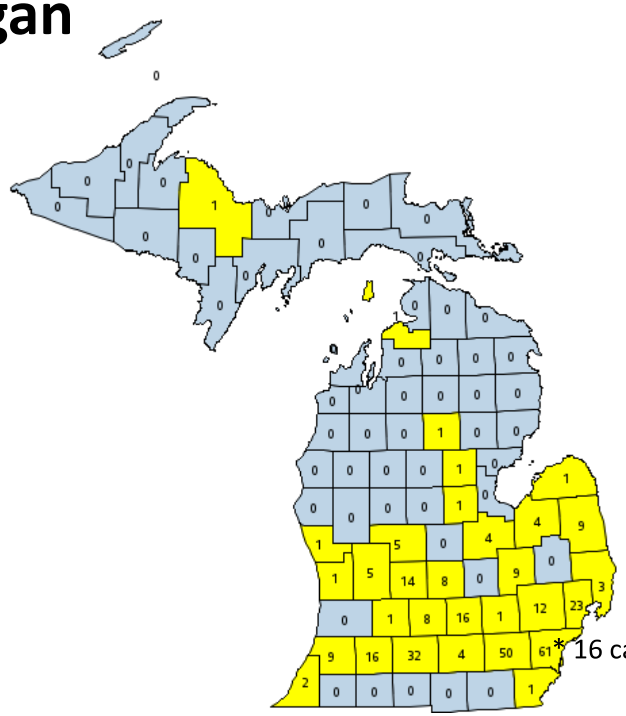
Identified COVID-19 Cases Caused by All Variants of Concern in US and Michigan

Emergent B.1.1.7 Variant Cases in the United States



Variant	Reported Cases in US	Number of Jurisdictions Reporting
B.1.1.7	4690	50
B.1.351	143	25
P.1	25	10

Emergent B.1.1.7 Variant Cases in Michigan



*16 cases within Wayne are in Detroit

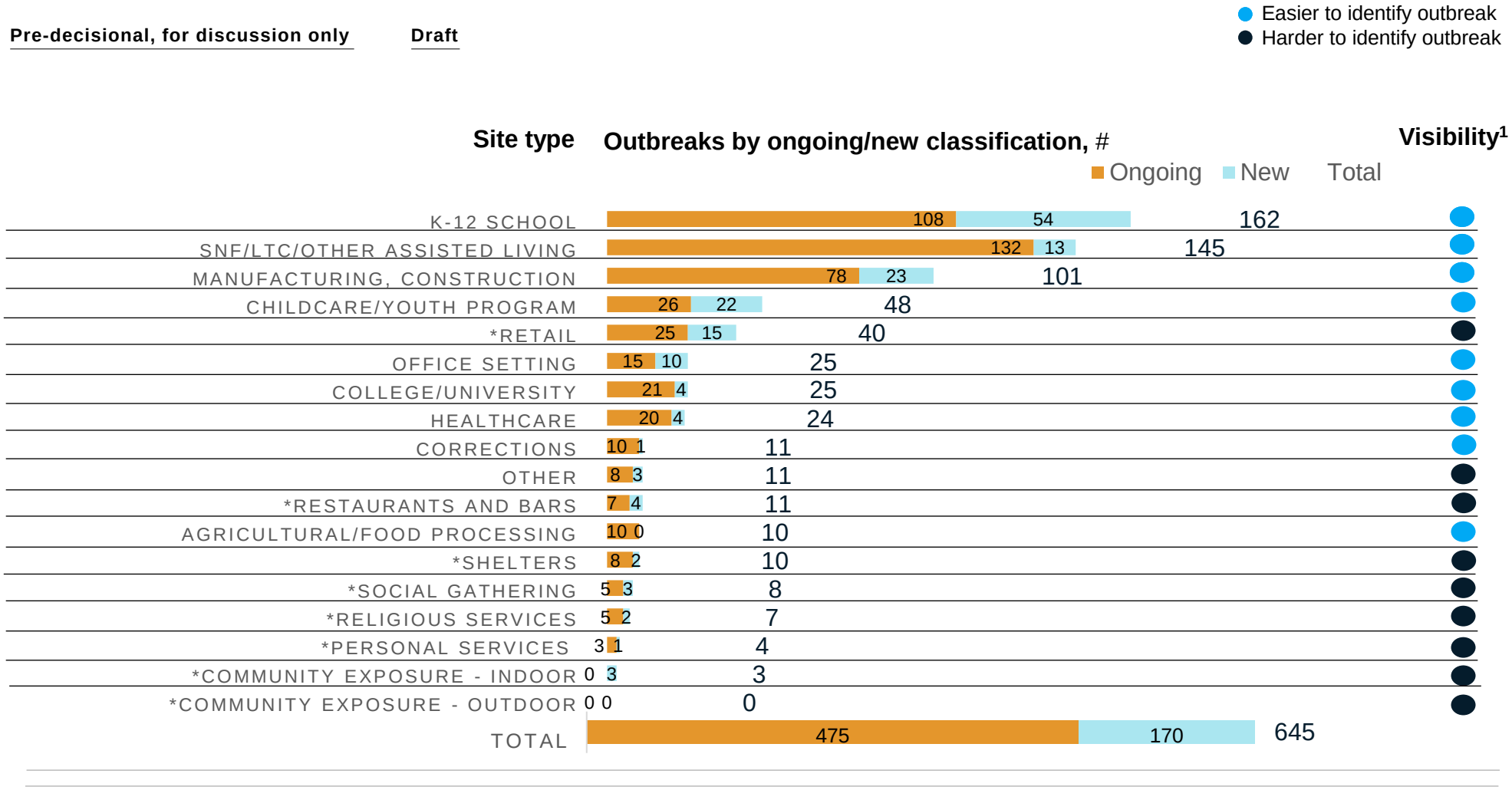
- **725 B.1.1.7** reported cases (15% of all cases nationally)
  - 31 counties
  - 420 cases within MDOC (58% of all cases in MI)
- One case reported with **B.1.351** variant

Data last updated March 14, 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 Mar 11

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



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

Following K-12 (54), the greatest number of new outbreaks were reported in manufacturing/ construction (23), childcare/youth programs (22), retail (15), SNF/LTC (13), and office setting (10).

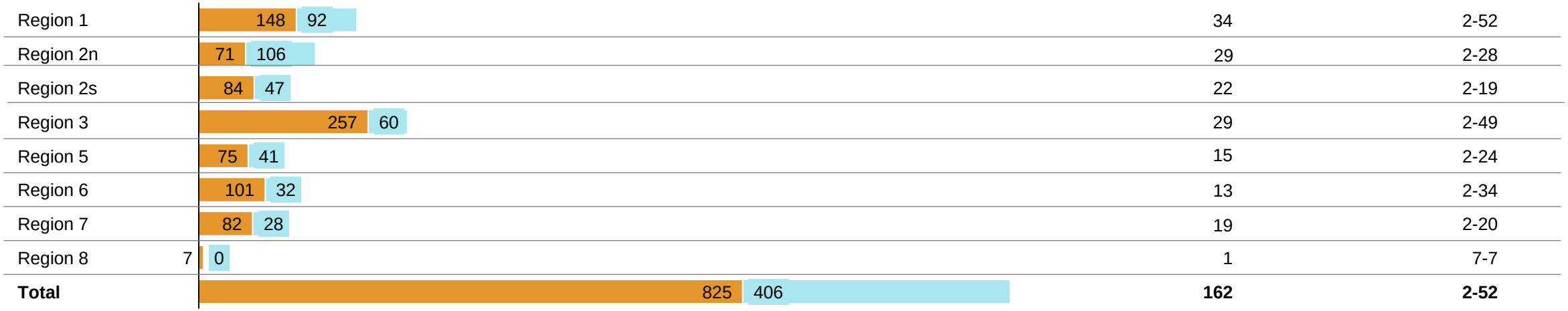
LHDs reported new outbreaks in all settings except outdoor community exposures, and agriculture/ food processing.

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

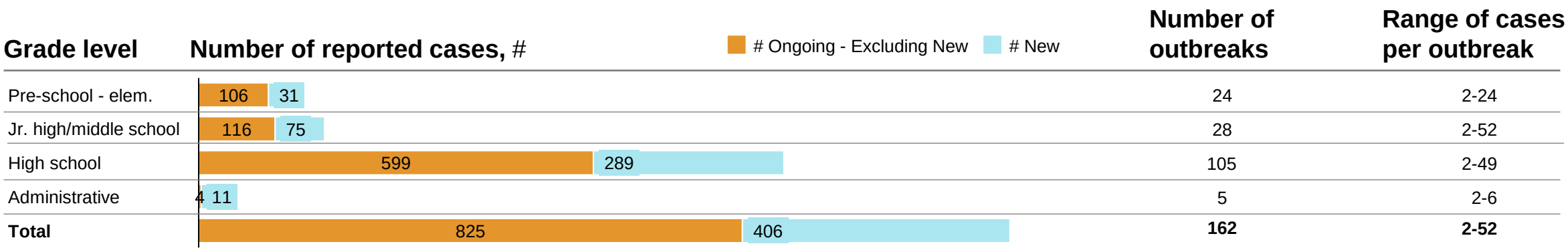
NOTE: Many factors, including the lack of ability to conduct effective contact tracing in certain settings, may result in significant underreporting of outbreaks. This chart does not provide a complete picture of outbreaks in Michigan and the absence of identified outbreaks in a particular setting in 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 Mar 11

Number of reported outbreaks increased since last week (121 to 162) including increases in High Schools (75 to 105), Middle/Jr High (21 to 28), Pre-K-Elementary (22 to 24), and Administrative (3 to 5).



Region	Number of reported cases, #	Number of outbreaks	Range of cases per outbreak
Region 1	148 92	34	2-52
Region 2n	71 106	29	2-28
Region 2s	84 47	22	2-19
Region 3	257 60	29	2-49
Region 5	75 41	15	2-24
Region 6	101 32	13	2-34
Region 7	82 28	19	2-20
Region 8	7 0	1	7-7
Total	825 406	**162**	**2-52**



Grade level	Number of reported cases, #	Number of outbreaks	Range of cases per outbreak
Pre-school - elem.	106 31	24	2-24
Jr. high/middle school	116 75	28	2-52
High school	599 289	105	2-49
Administrative	4 11	5	2-6
Total	825 406	**162**	**2-52**

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 increasing

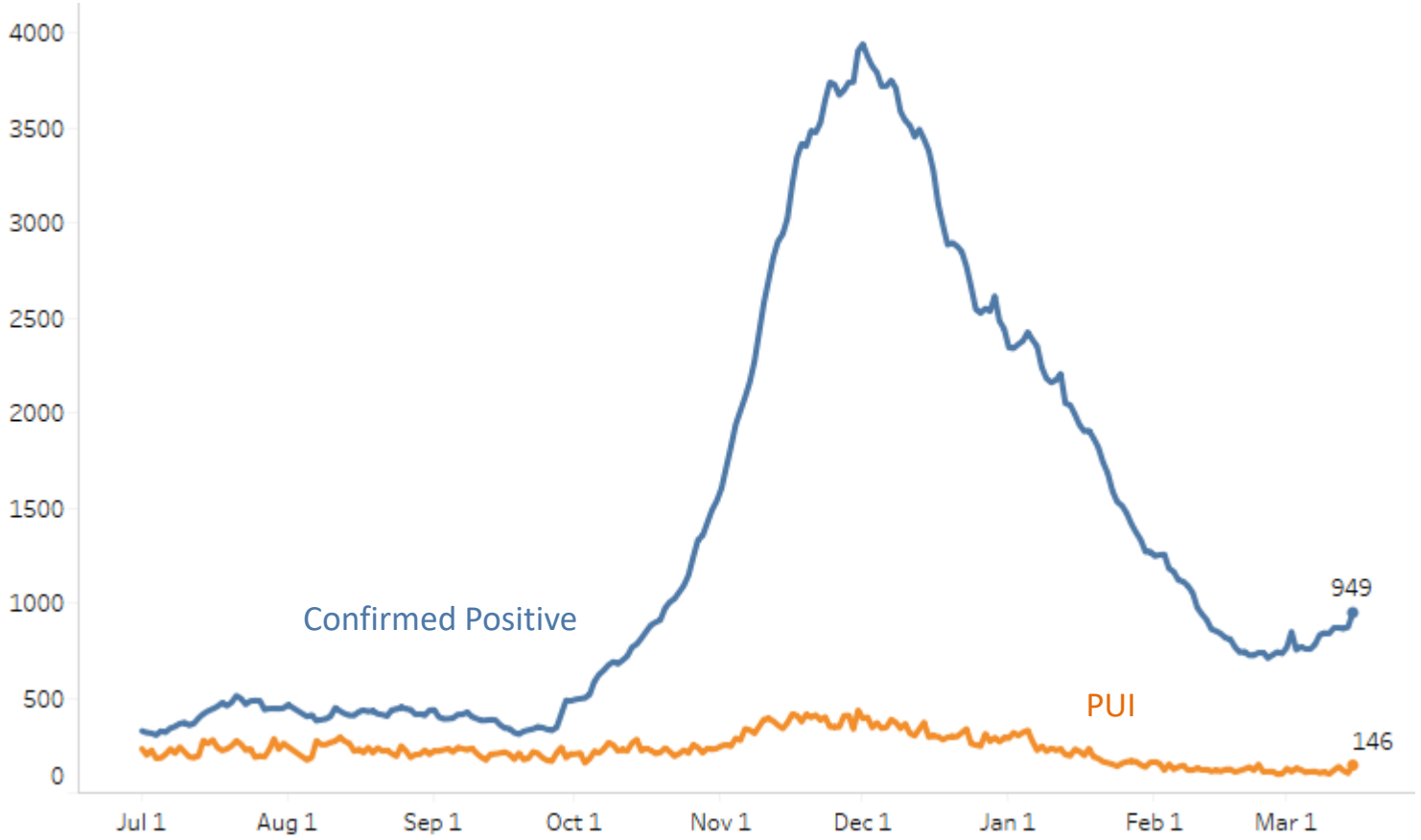
- COVID-like illness (CLI) has increased to 2.8% (graph in appendix)
- Hospitalizations up 14% since last week (third consecutive week)
- Six regions are showing increasing hospitalization trends this week (regions 1, 2N, 2S, 3, 5, 7)
- The census of COVID+ patients in ICUs have risen in 5 regions this week (regions 1, 2N, 2S, 3, 6)

Deaths have declined for 12 weeks to 1.4 deaths per million

- Deaths are a lagging indicator of cases and hospitalization
- 89% decrease from the peak on December 10
- Current death rate is near the death rate from early October
- Proportion of deaths among those 60+ is slowly declining

Statewide Hospitalization Trends: Total COVID+ Census

Hospitalization Trends 7/1/2020 – 3/15/2021
Confirmed Positive & Persons Under Investigation (PUI)

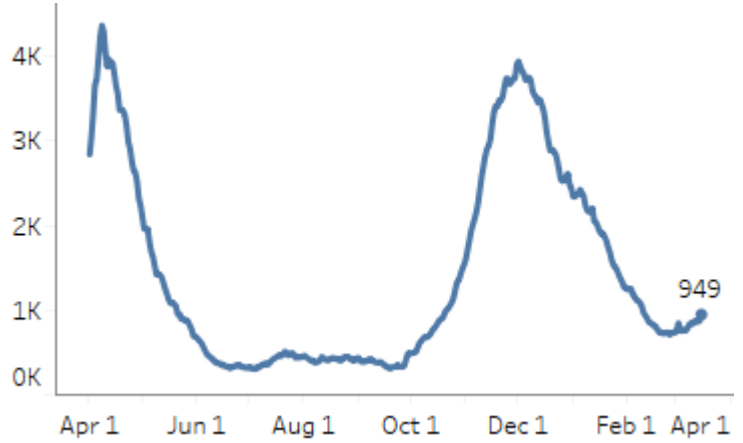


COVID+ census in hospitals has increased for the past 3 weeks. This week is up 14% vs last week.

This is an accelerated growth rate from prior weeks (compared to a 9% increase last week).

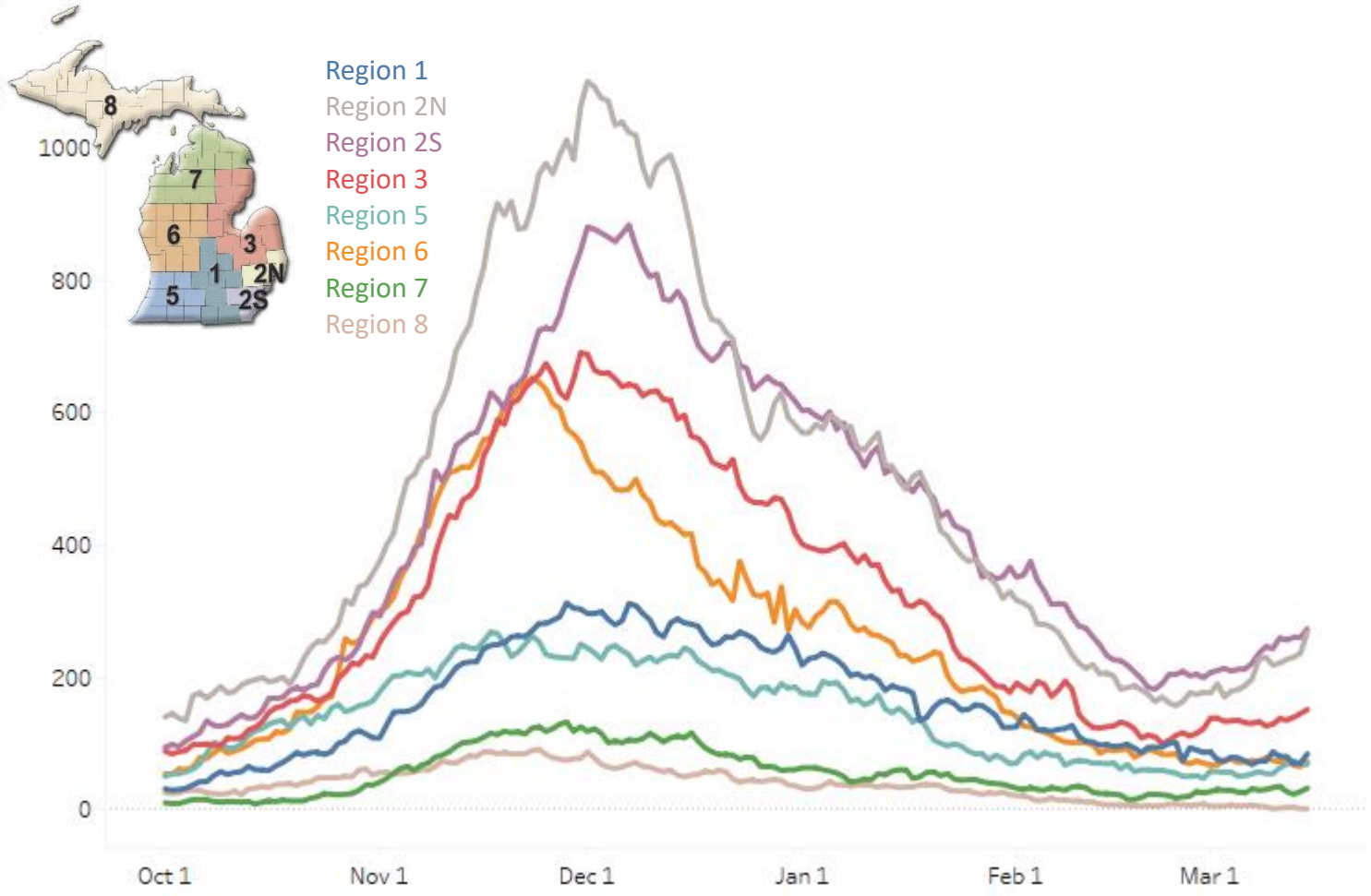
Doubling time at this growth rate would be approximately 5 weeks.

Hospitalized COVID Positive Long Term Trend (beginning March 2020)



Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 10/1/2020 – 3/15/2021
Confirmed Positive by Region



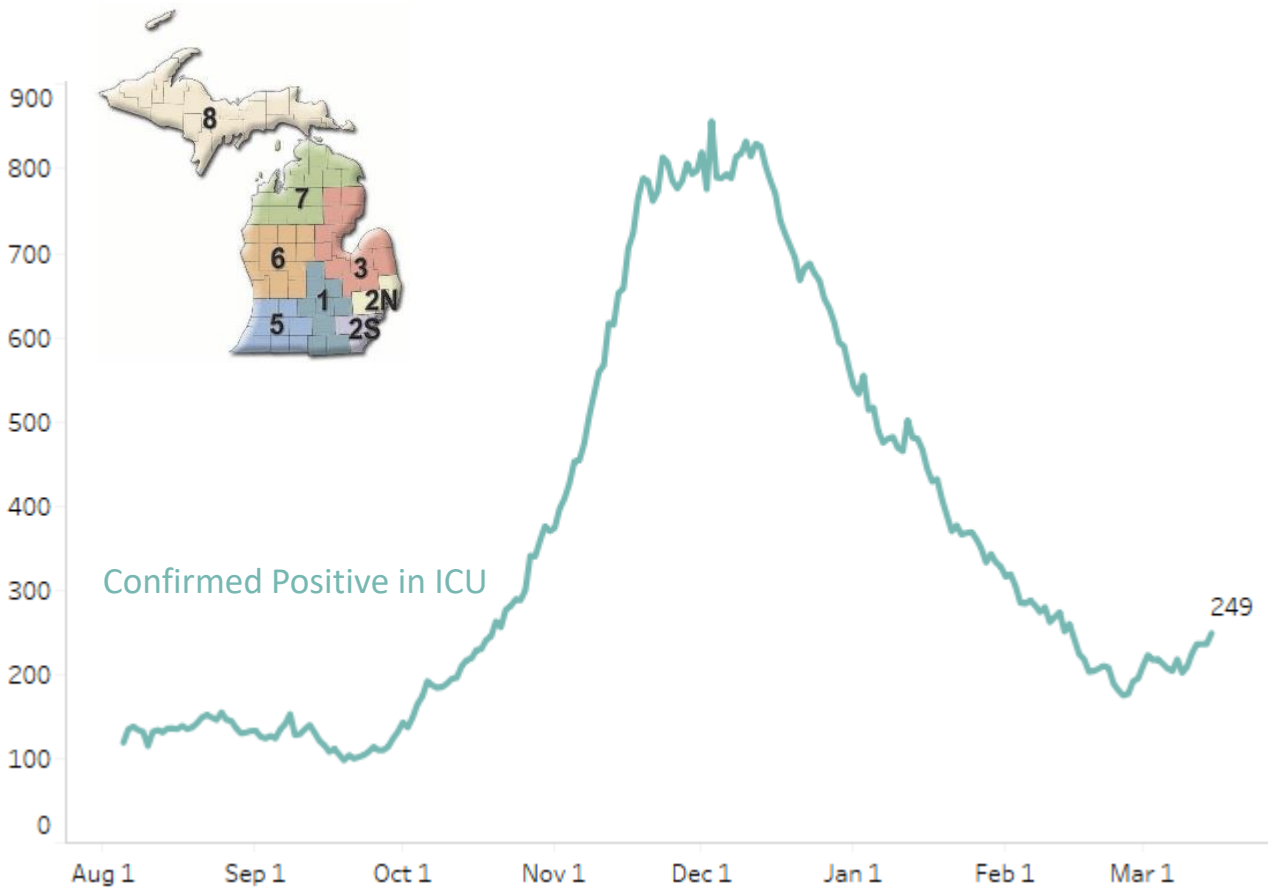
6 of 8 regions are showing increasing hospitalization trends this week. The UP is showing continued declines with only 1 COVID patient currently hospitalized.

Three regions (2S/2N/3) are above 100 hospitalized per million of the population.

Region	COVID+ Hospitalizations (% Δ from last week)	COVID+ Hospitalizations / MM
Region 1	84 (15%)	78/M
Region 2N	268 (18%)	121/M
Region 2S	273 (16%)	122/M
Region 3	151 (14%)	133/M
Region 5	68 (19%)	71/M
Region 6	72 (-1%)	49/M
Region 7	32 (10%)	64/M
Region 8	1 (-80%)	3/M

Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 8/1/2020 – 3/15/2021
Confirmed Positive in ICUs



The census of COVID+ patients in ICUs have risen in 5 regions this week (regions 1, 2N, 2S, 3, 6).

Overall, statewide ICU COVID+ patient census has increased 14% from last week.

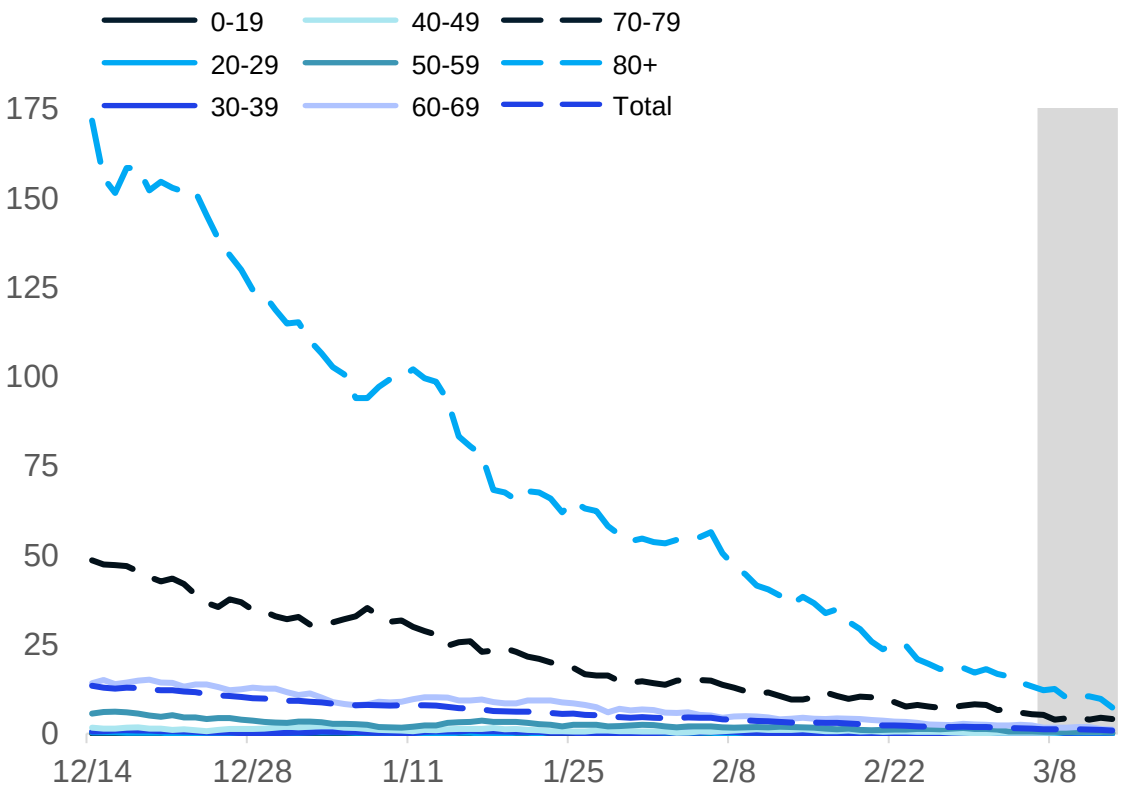
4 of 8 Regions have >10% of ICU beds occupied with COVID+ patients.

Region	Adult COVID+ in ICU	Adult ICU Occupancy	% of Adult ICU beds COVID+
Region 1	15 (36%)	78%	8%
Region 2N	72 (38%)	77%	12%
Region 2S	66 (16%)	83%	9%
Region 3	42 (2%)	92%	12%
Region 5	19 (-24%)	78%	13%
Region 6	27 (23%)	68%	11%
Region 7	8 (-11%)	56%	4%
Region 8	0	41%	0%

Hospital bed capacity updated as of 3/12

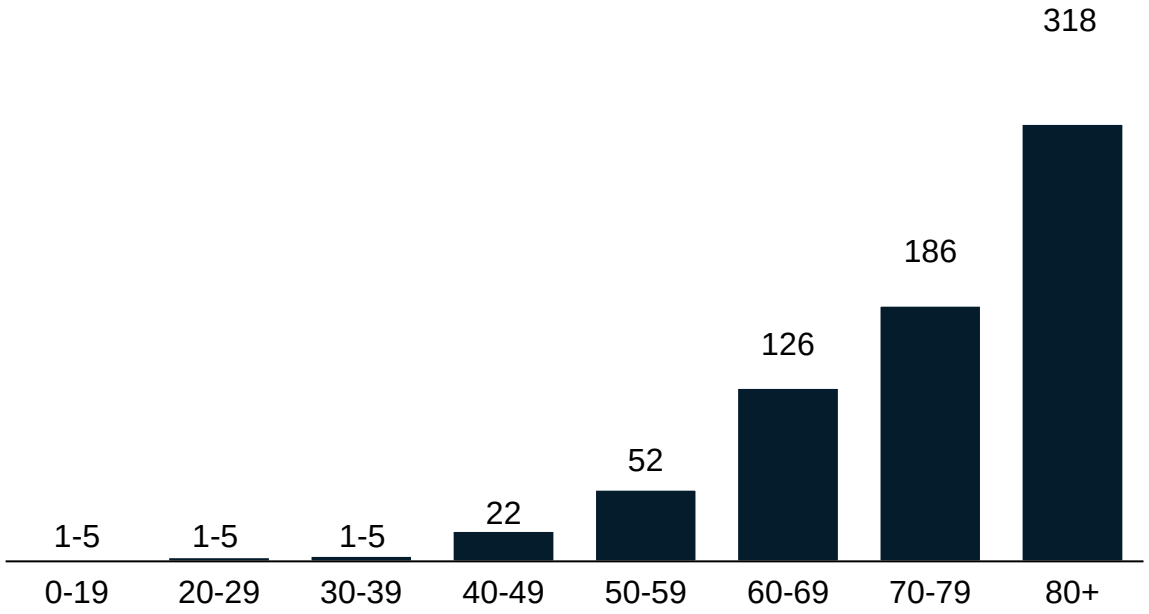
Average and total new deaths, by age group

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 3/6/2021)

11% of deaths below age sixty

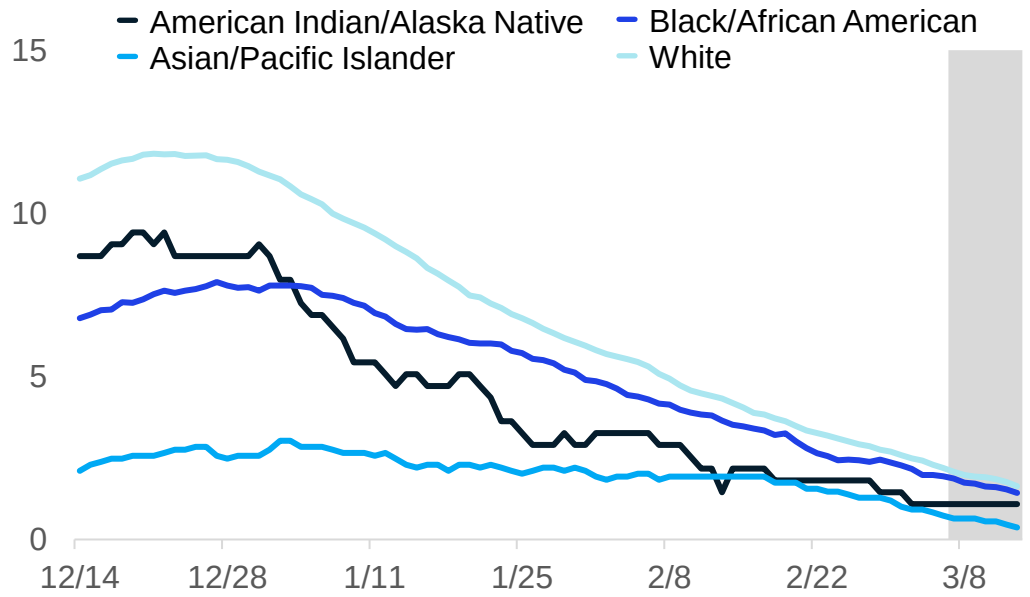


Note: Death information sourced from MDHHS and reflects date of death of confirmed and probable cases.

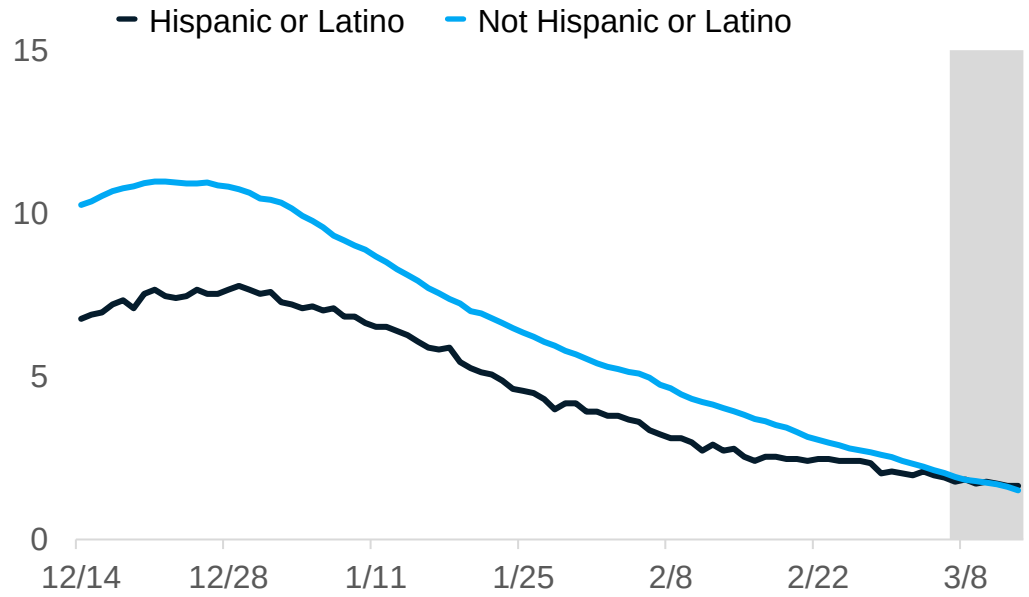
Source: MDHHS – Michigan Disease Surveillance System

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 have the most reported deaths per capita while Hispanic/Latinos and Non-Hispanic Latino are about the same
- 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 remained steady from last week (42,851)

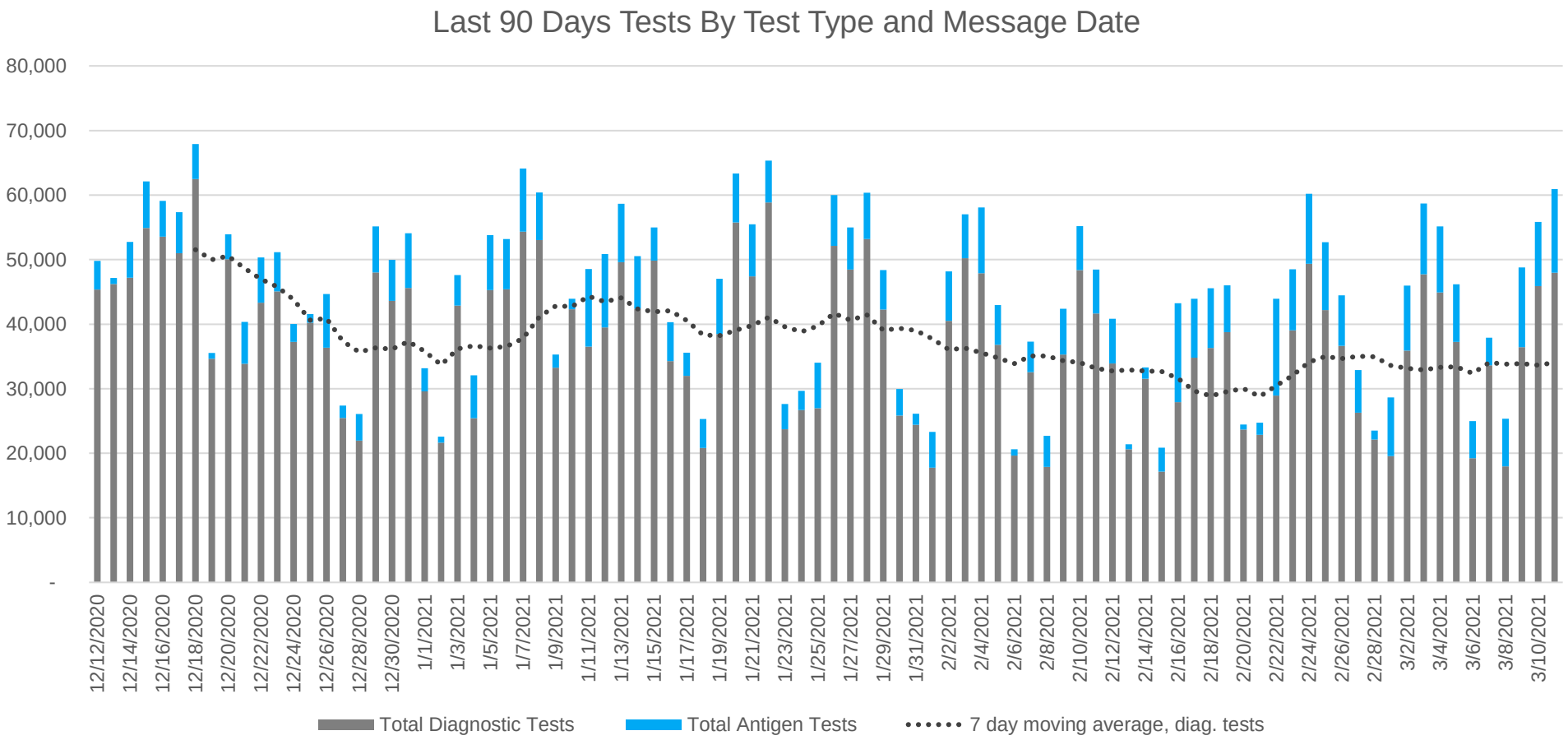
- PCR testing is similar to last week (34,059)
- Percent (20.5%) of antigen tests have increased (8,791)

Cases identified for investigations has increased

- Proportion of completed interviews decreased from prior 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)

Number of contacts per case is increasing, as expected

Daily diagnostic tests, by message date



Weekly Update

- 42,851 rolling 7-day average daily diagnostic tests reported to MDHHS (PCR + Ag) (↔)
- 34,059 average daily PCR tests (↔)
- 20.5% are antigen tests over the past week (↑)
- 5.1% positivity in PCR tests (↑)
- 3.8% positivity in antigen tests (↑)

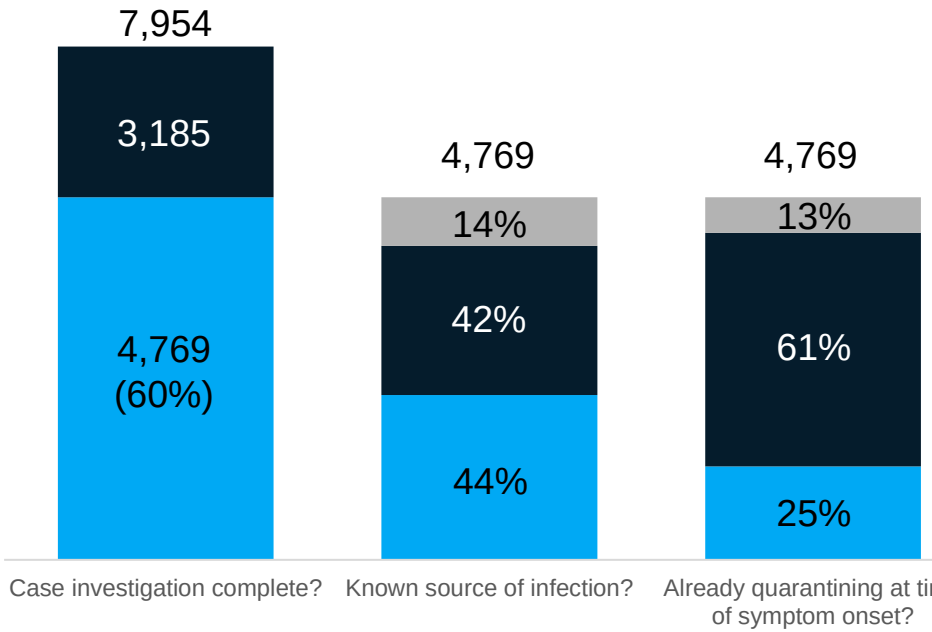
Source: MDSS/Michigan Medical Advantage Group, MDHHS, testing labs

New Case Investigation Metrics (Statewide)

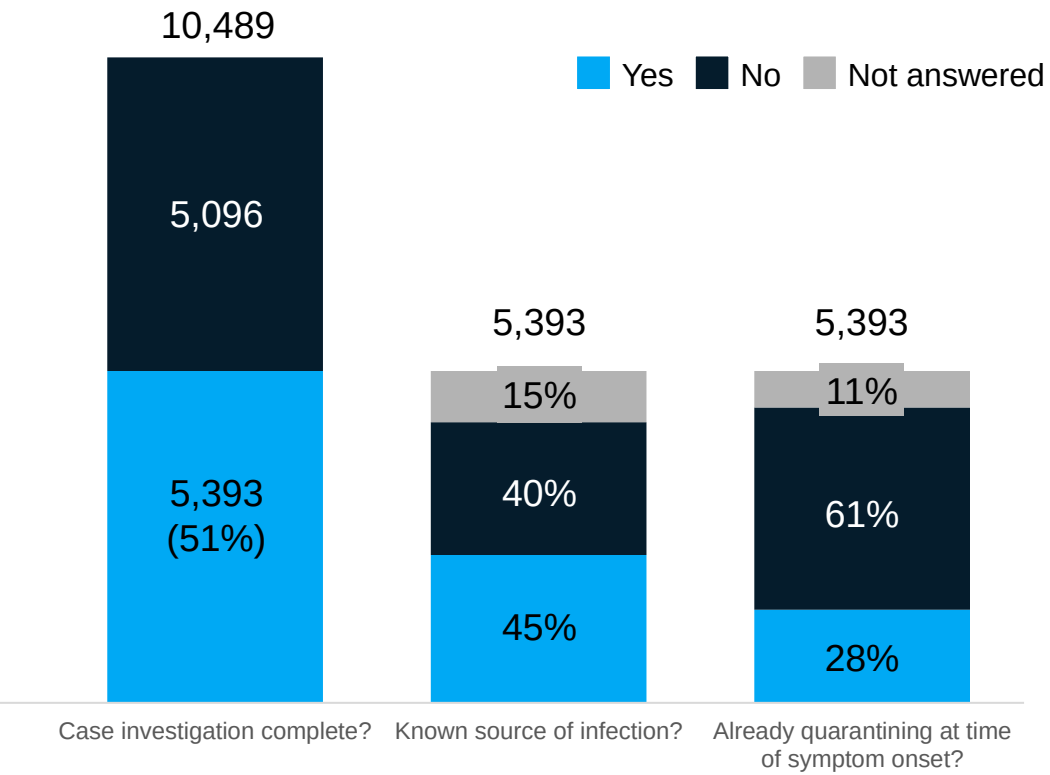
New communicable disease metrics decreased since last week:

- 45% of investigated cases having a known source (42% last week, 44% week prior)
- 28% of investigated cases noting that they were quarantining before symptoms (25% last week)

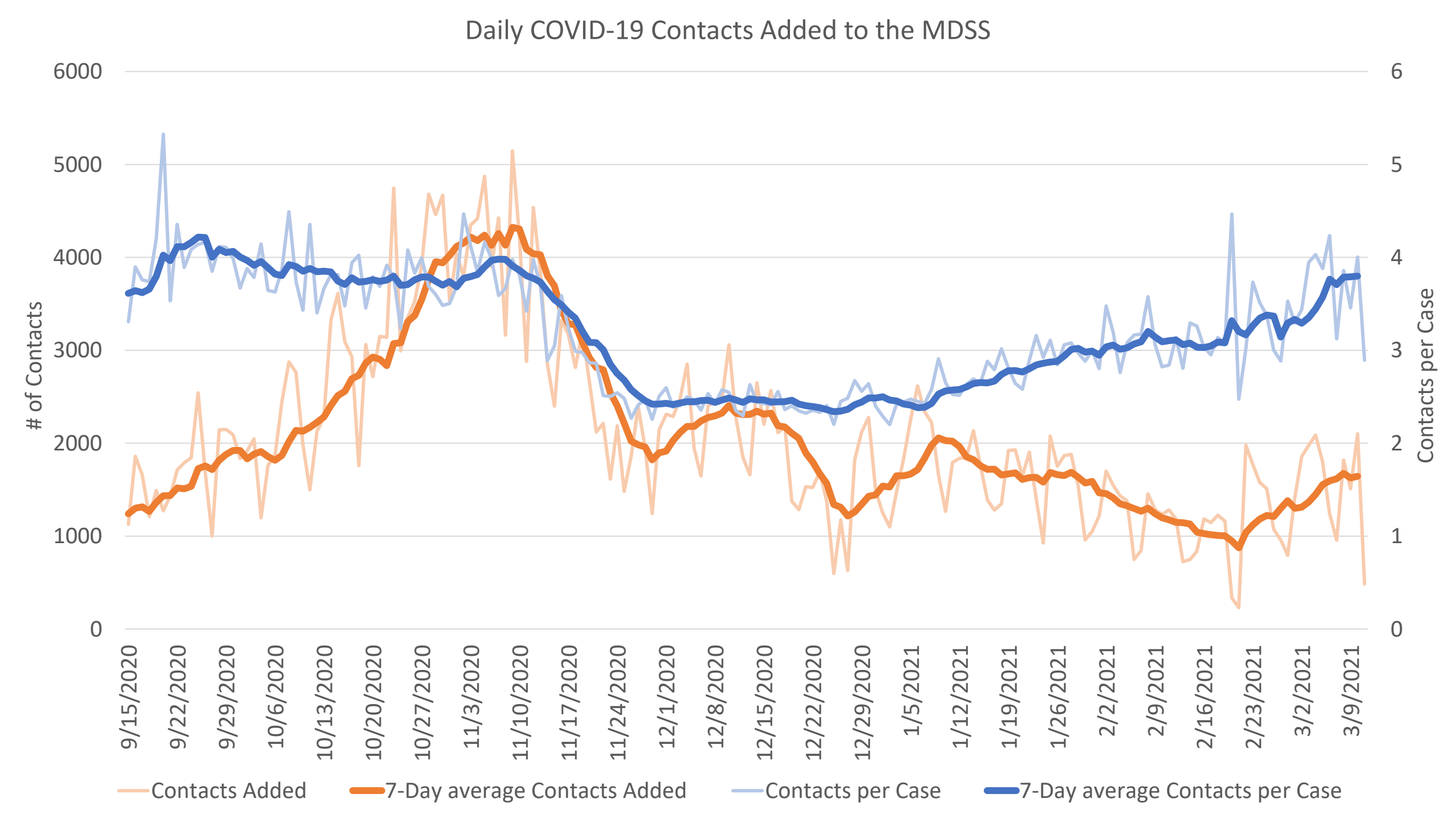
02/27-03/05 Case report form information



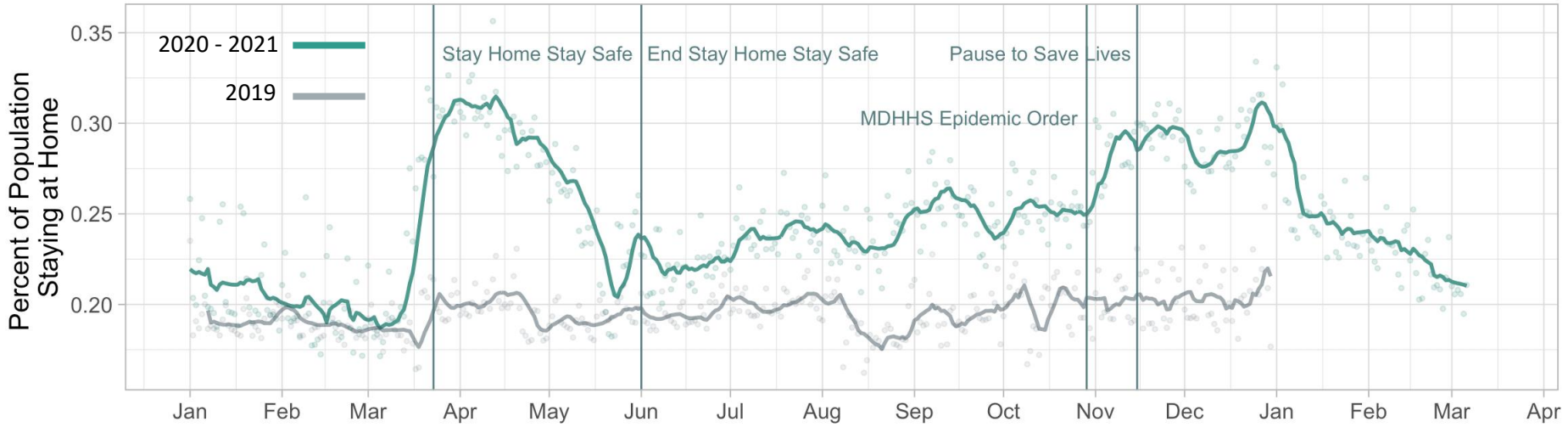
03/06-03/12 Case report form information

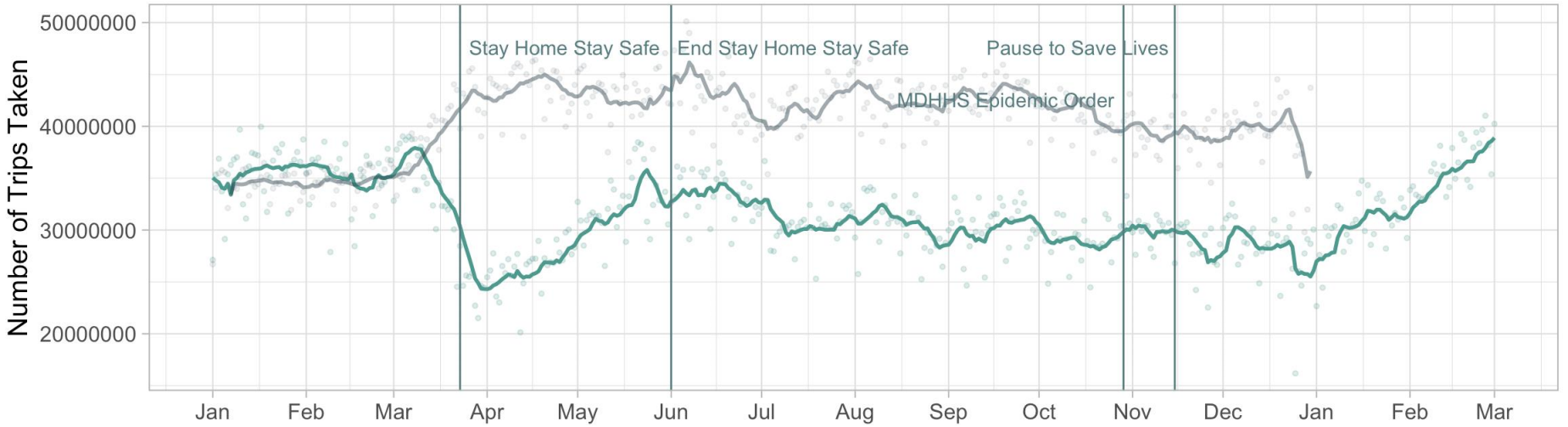


Source: MDHHS – Michigan Disease Surveillance System


Daily COVID-19 Contacts Added to the MDSS
# of Contacts
Contacts per Case
6000
5000
4000
3000
2000
1000
0
6
5
4
3
2
1
0
9/15/2020
9/22/2020
9/29/2020
10/6/2020
10/13/2020
10/20/2020
10/27/2020
11/3/2020
11/10/2020
11/17/2020
11/24/2020
12/1/2020
12/8/2020
12/15/2020
12/22/2020
12/29/2020
1/5/2021
1/12/2021
1/19/2021
1/26/2021
2/2/2021
2/9/2021
2/16/2021
2/23/2021
3/2/2021
3/9/2021
Contacts Added
7-Day average Contacts Added
Contacts per Case
7-Day average Contacts per Case

How many people are staying at home in Michigan?





- % Stay-at-home levels have recently declined to 2019-2020 levels
- Number of trips taken/day has recently increased to 2019-2020 levels
- Most recent data is 3/6/21 (data as of 3/15/21)

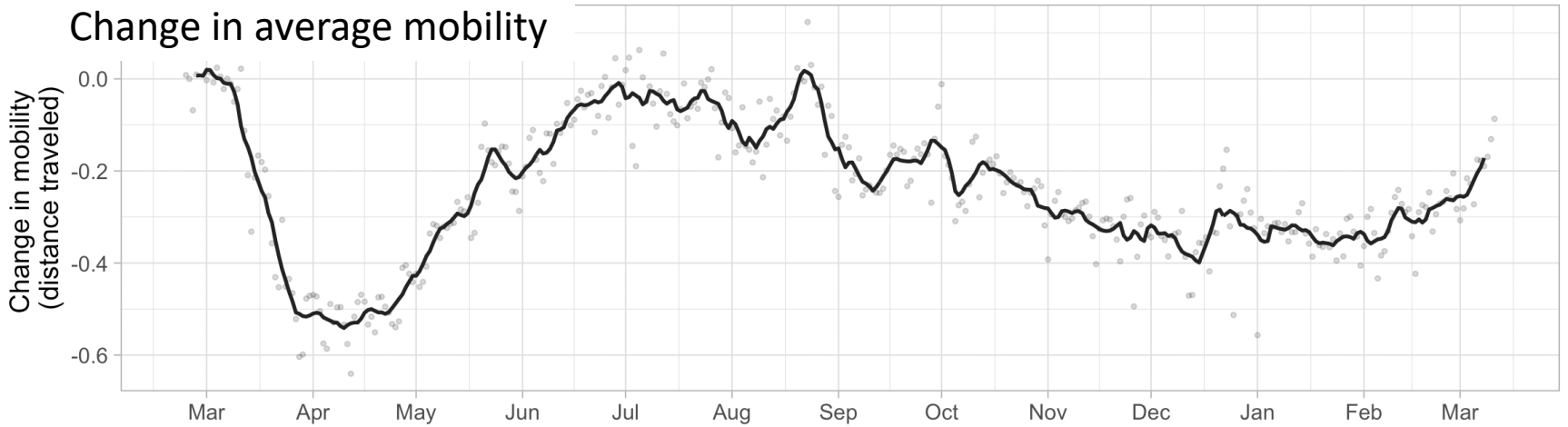
Data Source: [Bureau of Transportation Statistics]

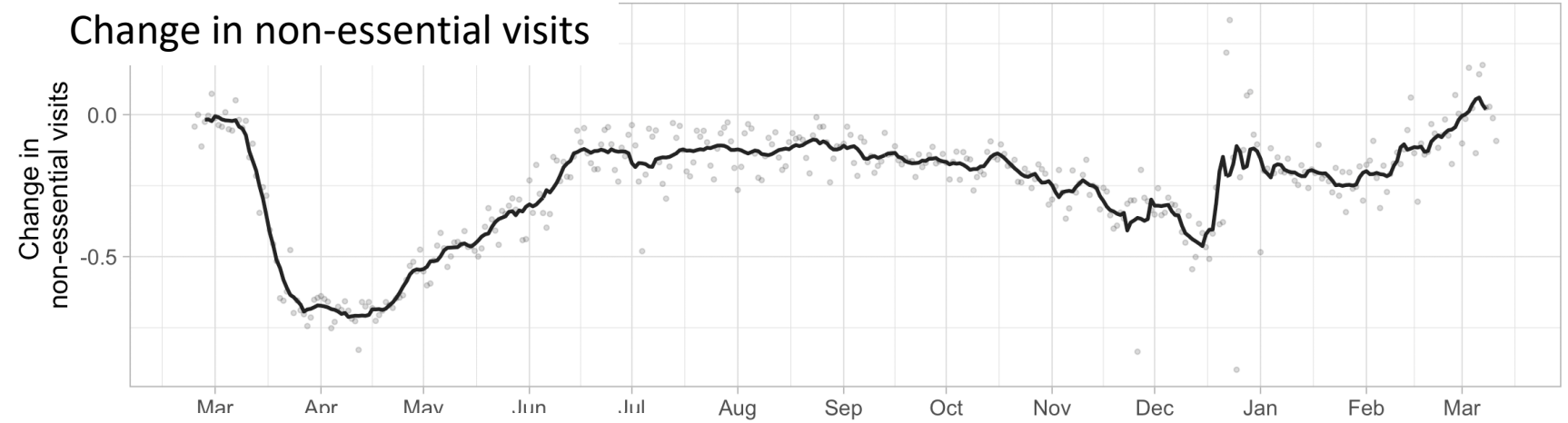
PUBLIC HEALTH

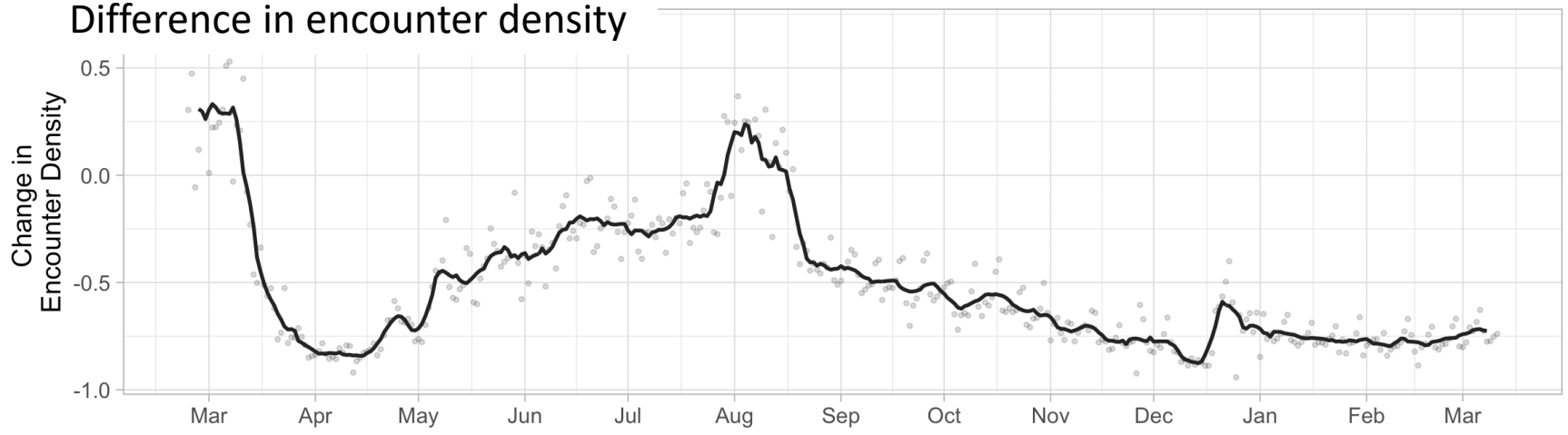
Unacast mobility patterns in MI

- Most recent data shows a return toward baseline mobility patterns, particularly for non-essential visits.
- Encounter density has stayed relatively low.
- Data through 3/11/21 (data as of 3/15/21)

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







How is public health capacity? COVID-19 Vaccination

- 9th in nation for number of people fully vaccinated
- 36th in nation for percent of people with first doses; 14th among most populous states

- More than 3.1 million doses reported to MDHHS:

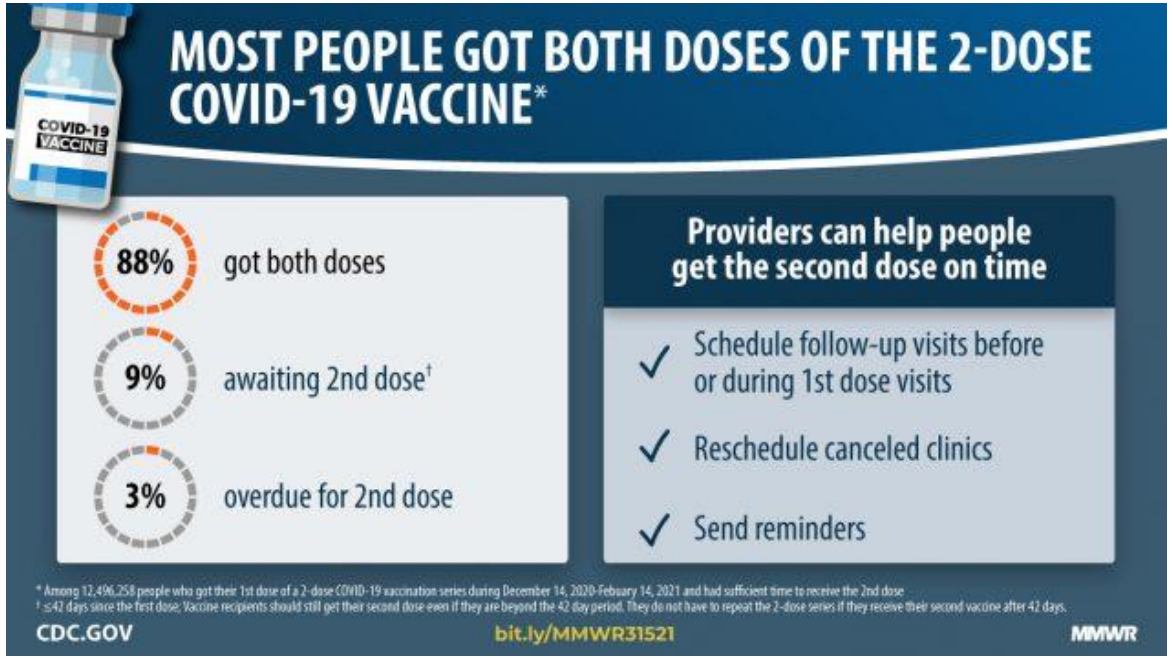
- 24.9% of aged 16+ years have first dose of vaccine (up from 15.5% last week): **2 million people**
  - **1,134,392 people fully vaccinated**
  - People 65 and older: 60.4% have had one dose, and 33.1% have completed series

- Race and ethnicity data becoming more complete: 33.2% missing race information (down from 38.7%)
- Coverage was highest among those of Asian/Native Hawaiian/Other Pacific Islander

Vaccine Distribution & Administration 20 Most Populous States (3/13/21 data)

	Total Doses Delivered	Number with 1+ Dose	% with 1+ Dose	Number Fully Vaccinated	% Fully Vaccinated
1	California	California	Massachusetts	California	Massachusetts
2	Texas	Texas	New Jersey	Texas	Wisconsin
3	Florida	Florida	Wisconsin	Florida	Indiana
4	New York	New York	New York	New York	Virginia
5	Pennsylvania	Illinois	Illinois	Illinois	New Jersey
6	Illinois	Pennsylvania	Pennsylvania	Ohio	Maryland
7	Ohio	Ohio	Arizona	Pennsylvania	Washington
8	North Carolina	North Carolina	Virginia	North Carolina	Arizona
9	Georgia	New Jersey	Maryland	**Michigan**	Illinois
10	**Michigan**	**Michigan**	Washington	New Jersey	Ohio
11	New Jersey	Virginia	North Carolina	Virginia	North Carolina
12	Virginia	Massachusetts	California	Georgia	Florida
13	Washington	Georgia	Florida	Washington	**Michigan (34)**
14	Arizona	Washington	**Michigan (36)**	Massachusetts	New York
15	Massachusetts	Arizona	Ohio	Arizona	Pennsylvania
16	Tennessee	Wisconsin	Indiana	Indiana	Missouri
17	Indiana	Indiana	Missouri	Wisconsin	California
18	Maryland	Maryland	Texas	Maryland	Texas
19	Missouri	Tennessee	Tennessee	Tennessee	Georgia
20	Wisconsin	Missouri	Georgia	Missouri	Tennessee

United States, December 14, 2020–February 14, 2021



Michigan comparison:
- 95.4% got both doses
- 3.4% awaiting 2nd dose
- 1.2% overdue for 2nd dose

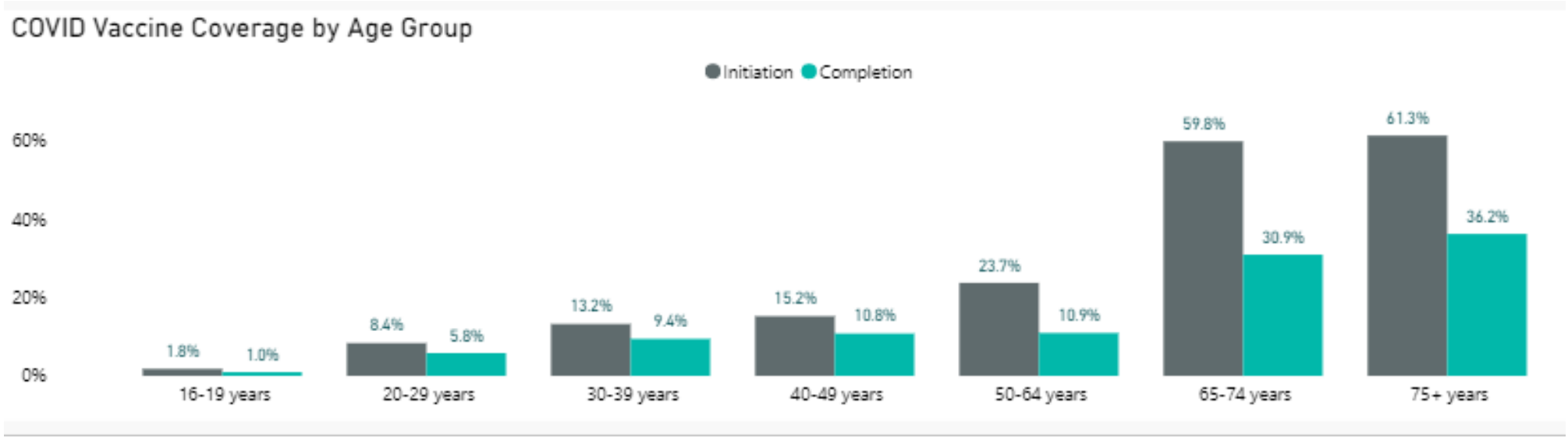
Source: Kriss JL, Reynolds LE, Wang A, et al. COVID-19 Vaccine Second-Dose Completion and Interval Between First and Second Doses Among Vaccinated Persons — United States, December 14, 2020–February 14, 2021. MMWR Morb Mortal Wkly Rep. ePub: 15 March 2021. DOI: http://dx.doi.org/10.15585/mmwr.mm7011e2external icon.

Doses Shipped and Administered

	Enrolled Providers	Doses Shipped	Total Doses Administered			1st Dose Coverage, 16+	2nd Dose Coverage, 16+
			Total	First	Second		
Michigan Distributed	2,764	3,344,175	3,145,617	2,027,613	1,118,004	24.9	14.0
Federal Programs		423,460					
Total Distribution		3,767,635					

5 weeks administering more than 300,000 doses/week; 1 over 400K
Over 92,507 doses administered in a single day.

Vaccination by Age Group (3/16/21 data)

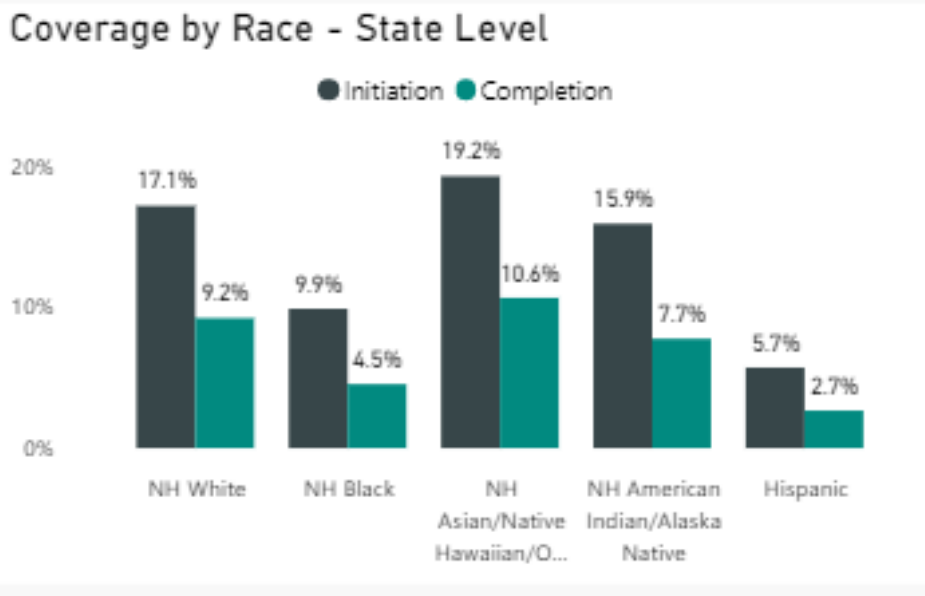


More than 1M people aged 65 years or older have received one or more doses of vaccine (60.4% coverage).

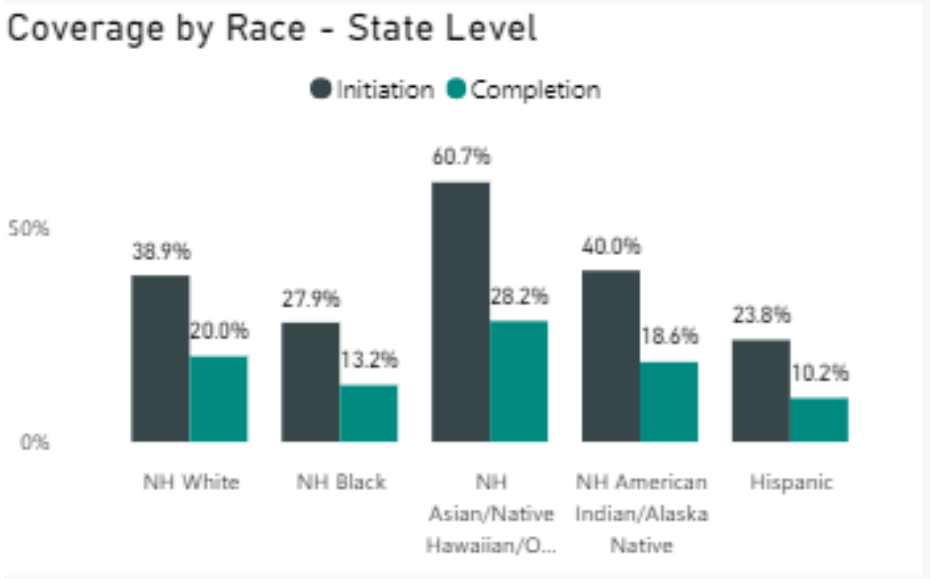
Persons 75 years of age and older have the highest initiation coverage (61.3%)

Coverage by Race and Ethnicity: State Level

16 and older



65 and older



33.2% data missing or unknown

Coverage was highest among those of Asian, Native Hawaiian or Pacific Islander (19.2%), White (17.1%), then American Indian (15.9%), Black or African American (9.9%) and Hispanic (5.7%) race or ethnicity

Initial Coverage disparities are seen in 65+ age group as well

Science Round Up

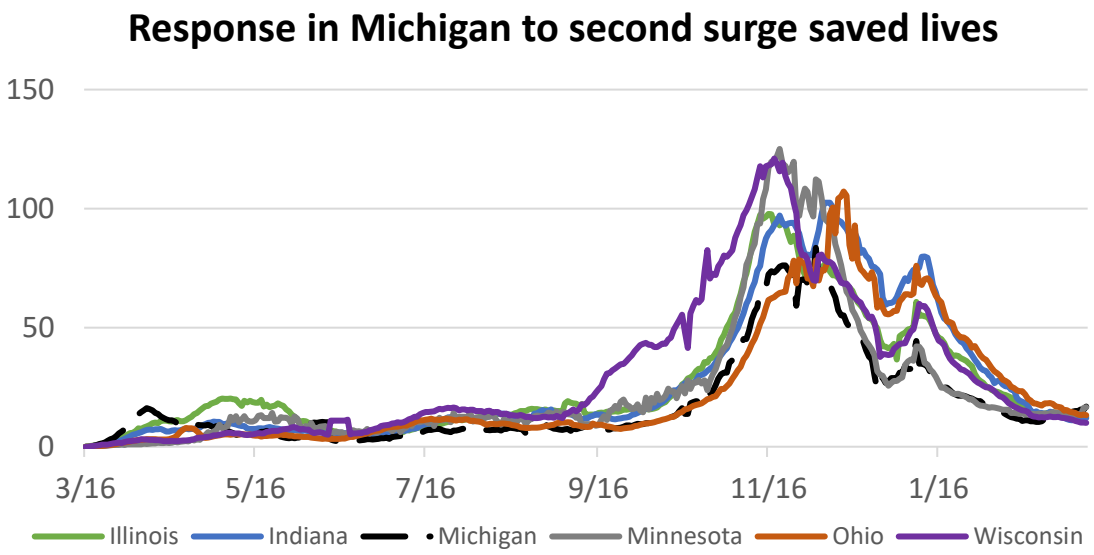
One Year of COVID-19

- Compared to other Midwestern states, there were fewer cases per million during the surge from October-January
- The response in Michigan has addressed disparities and worked to be equitable to all Michiganders
- Collaborations have developed new applications that will benefit public health after COVID-19
- Vaccine response has been rapid and robust

Carefully balancing factors that influence spread

- Factors like variants, increased travel, and large gatherings can undermine prior successes
- Variants B.1.1.7, B.1.351, and P.1 all complicate the response and trajectory of the pandemic
- Masks and social distancing work

One Year of COVID-19: Progress in Michigan

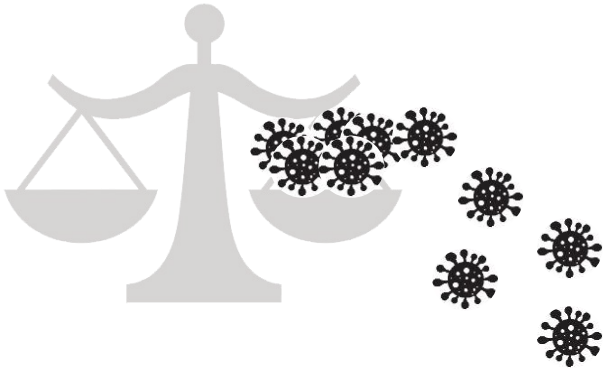


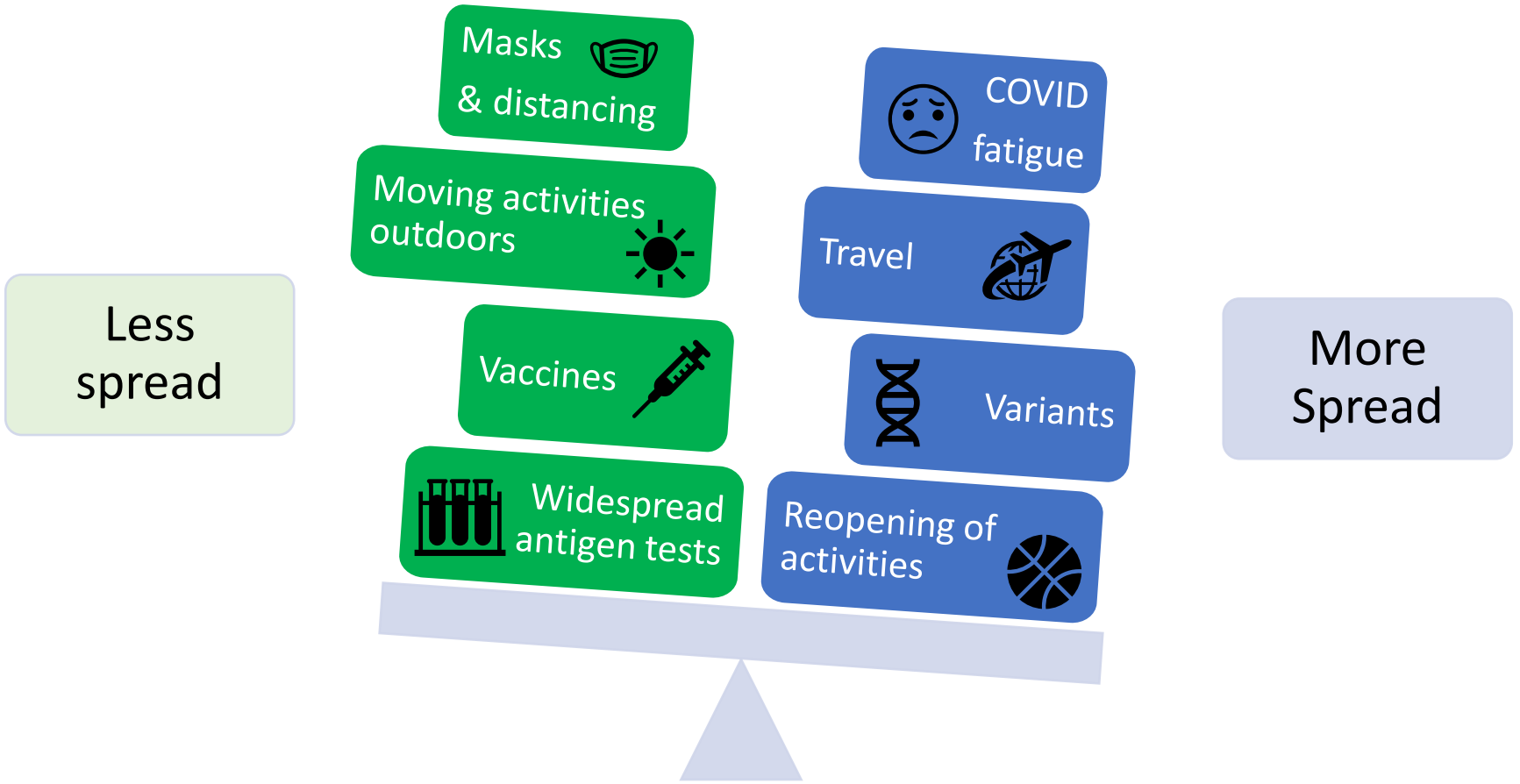
- **Response in addressing disparities**
  - Equitable testing
  - Access to care
  - Vaccine response

- **Cross applicability for public health tools**
  - Dashboards
  - Trace Force
  - Mi Symptom
  - Mi Covid Alert
  - VSafe

- **Vaccinations**
  - 1 million residents completely vaccinated
  - ~25% of eligible population with at least 1 dose
  - ~60% of 65+ vaccinated with at least 1 dose

Tipping the scale





QUESTIONS?

Michigan.gov/Coronavirus