

MI COVID RESPONSE DATA AND MODELING UPDATE

NOTE: All data as of Nov. 21 unless otherwise noted.

November 24, 2020

Executive summary

Michigan has recorded the **5th highest number of cases (↑1)** , **4th highest number of deaths (↑1)**, **19th highest case rate (↔)**, and **13th highest death rate (↓3)** in the last 7 days (source: CDC COVID Data Tracker)

Michigan has the **7th highest hospitalization rate as a percent of total beds (↑3)**, and **6th highest number of COVID patients in the ICU (↔)** (source: Becker's Hospital Review)

Case rates (673.2, ↑160.3), **percent positivity** (13.5%, ↑1.0%), and **coronavirus like illness (CLI)** are all increasing for eight or more weeks

More than 17.5% of available inpatient beds are filled with COVID patients and state trends for hospitalizations for COVID continue to increase for the previous 6 weeks

There were **415 deaths** (↑117) during the week of Nov 8-Nov 14 and the state death rate is **6.4 deaths/million/day**

Daily diagnostic tests averaged 60.5K per day over the last week and the state rate is **6,619.7 tests/million/day**

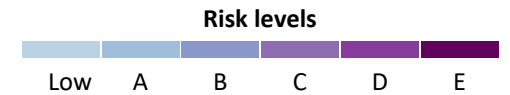
Comparison across states: Summary

What we see today:

- 46 states seeing increasing 2 week case trends (down from 50 last week)
- 46 states (up vs. 43) with significant outbreaks (high/increasing cases, increasing/high positivity increasing/high hospitalizations over 2 weeks (>100 per M))
- South Dakota, Nebraska, North Dakota, Illinois, Indiana have highest per capita hospitalized patient numbers
- Most rapid 2 week case growth: VT, LA, NM, NH, AZ
- Midwest:
 - Wisconsin showing flat/slight decline in hospitalizations (340/M), cases flattening (1100/M)
 - Indiana now in top 5 in hospitalized per capita (467/M), cases >900/M – far exceeded spring peak
 - Illinois remains in top 5 in hospitalized per capita (479/M), cases >930/M – exceeded spring peak
 - Ohio with growing hospitalizations (358/M), cases >650/M – far above spring levels
 - Michigan with slower growth in hospitalizations (360/M), cases >700/M – approaching spring peak

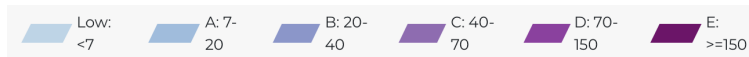
Confirmed and probable case indicators

Table Date: 2020-11-18, 7 days from date table was produced (2020-11-14)



	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	E	589.2	elevated incidence plateau	13.2	Increase - 7wk	5900.8	1.2	Decrease - 1wk	15.9	3.8	Increase - 7wk
Grand Rapids	2	6	E	929.4	elevated incidence plateau	15.2	Increase - 8wk	7351.4	2.1	Increase - 5wk	21.3	11.4	Increase - 5wk
Kalamazoo	3	5	E	723.0	elevated incidence plateau	14.8	Increase - 9wk	6749.9	1.8	Decrease - 1wk	18.5	9.0	Increase - 5wk
Saginaw	4	3	E	808.3	elevated incidence plateau	14.0	Increase - 7wk	5908.2	1.1	Increase - 2wk	25.5	14.0	Increase - 2wk
Lansing	5	1	E	640.2	elevated incidence plateau	12.7	Increase - 4wk	6700.3	0.7	Increase - 4wk	17.2	4.4	<20 wkl deaths
Traverse City	6	7	E	441.9	decline	8.7	Decrease - 1wk	5155.9	1.7	Decrease - 2wk	13.1	7.8	Decrease - 1wk
Jackson	7	1	E	686.9	elevated incidence growth	11.2	Increase - 4wk	10230.3	0.8	Increase - 1wk	19.6	3.8	<20 wkl deaths
Upper Peninsula	8	8	E	806.4	decline	14.9	Increase - 3wk	8826.2	1.6	Decrease - 1wk	16.2	7.1	<20 wkl deaths
Michigan			E	673.2	elevated incidence plateau	13.5	Increase - 8wk	6619.7	1.4	Increase - 10wk	17.5	6.4	Increase - 9wk

Cases



Positivity



1. Epidemic curve classification based on two-week incidence slope. Data omits most recent week to account for lag period.

COVID-19 Spread

Positivity increase has slowed statewide and within most regions

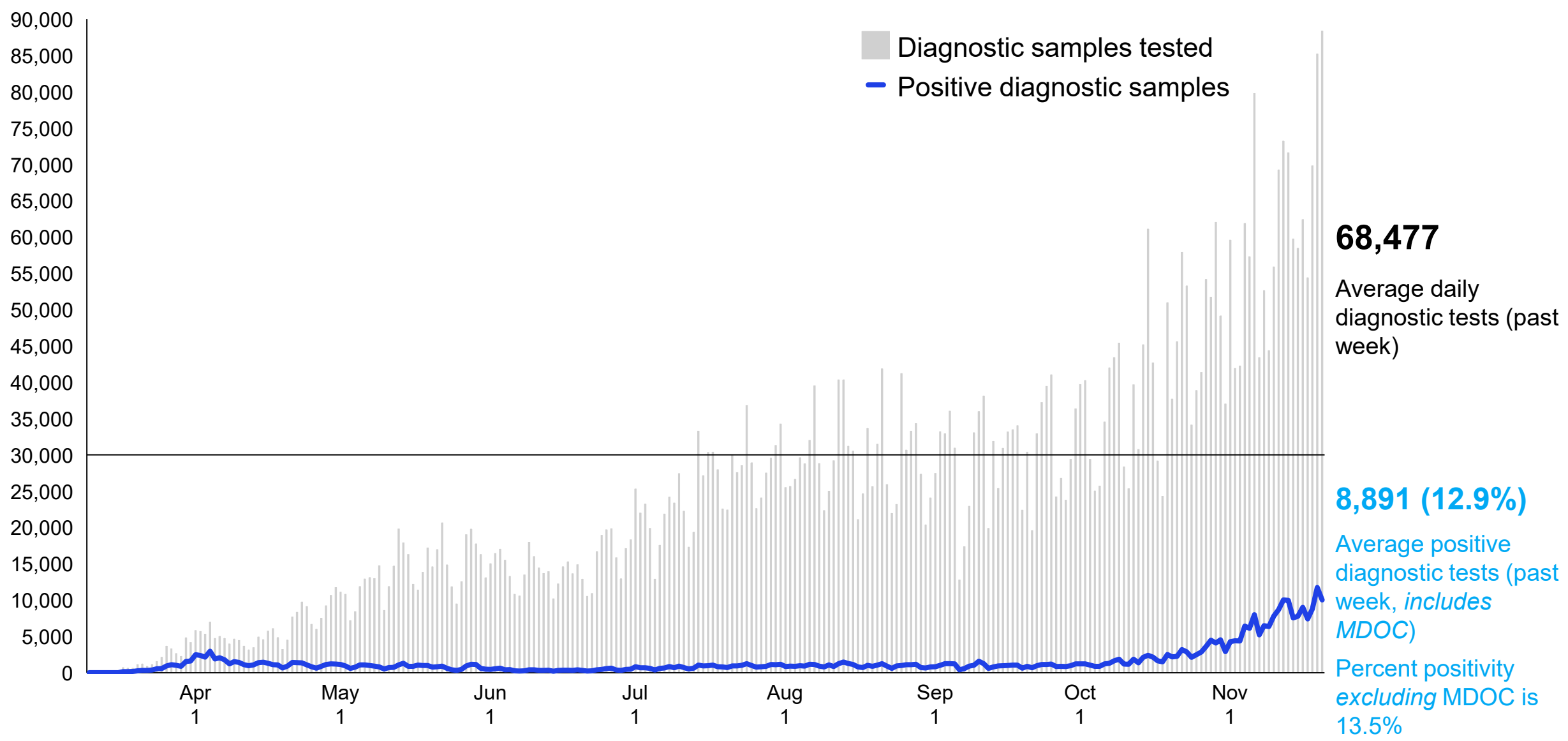
- Testing continues to increase throughout the state
- Testing has increased 110% since October 1 whereas positivity increased 320%

Cases and deaths continue to increase at an exponential pace

- Since October 1, the state case rate has increased 590% to the highest rates to date
- Cases and deaths are rising in all age groups, races, and ethnicities

Number of outbreaks continue to rise, particularly in long-term care facilities, schools, in-person workplace, and restaurants/bars

Daily diagnostic tests and positive diagnostic tests, by message date



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

Testing Turn Around Time: Collection to report

Time from sample collection to result being received by MDHSS over the last two weeks will reported on Thursdays on [Michigan.gov/coronavirus](https://michigan.gov/coronavirus), including:

- Summary (see below)
- Turn around times for individual laboratories
- Future: preparedness region as well

Summary

- Last two weeks more than 880,000 tests, majority of which were revied from commercial laboratories
- Less than a day transport time (from test collection to receipt by the laboratory)
- Average turn around time 2.84 days

Estimated Turnaround Times for COVID-19 Diagnostic Testing Results Received at MDHHS During Last 14 Calendar Days (through 11/17/2020)

Lab Type	Test Count	Transport Time (Days)	Total Turn Around Time (Days)
Commercial	573,350	0.93	3.31
Hospital	305,583	0.62	2.07
Public Health	8,072	0.51	2.18
State Total	887,005	0.76	2.84

Daily tests

State	Avg. daily tests
1. California	166.9K
2. New York	159.9K
3. Illinois	91.4K
4. Texas	87.5K
5. Michigan	60.4K
6. Ohio	50.5K
7. North Carolina	41.1K
8. New Jersey	40.0K
9. Florida	39.0K
10. Louisiana	30.7K
11. Georgia	30.3K
12. Virginia	26.3K
13. Kentucky	24.5K
14. Pennsylvania	22.5K
15. Oklahoma	22.4K
16. Massachusetts	21.0K
17. Tennessee	20.5K
18. Minnesota	20.4K
19. South Carolina	20.1K
20. Colorado	19.9K
21. Connecticut	19.4K
22. Indiana	17.2K
23. Arizona	16.8K
24. Wisconsin	16.8K
25. Washington	16.6K
26. Maryland	14.6K
27. West Virginia	12.6K
28. Arkansas	11.5K

Weekly % of pop. tested

State	Weekly % tested
1. New York	5.75%
2. District of Columbia	5.69%
3. Alaska	5.36%
4. Illinois	5.05%
5. West Virginia	4.91%
6. Louisiana	4.62%
7. Michigan	4.24%
8. Oklahoma	3.97%
9. Kentucky	3.84%
10. Connecticut	3.81%
11. Montana	3.71%
12. New Mexico	3.28%
13. New Jersey	3.15%
14. Ohio	3.02%
15. California	2.96%
16. Maine	2.95%
17. North Carolina	2.74%
18. South Carolina	2.74%
19. Arkansas	2.66%
20. Minnesota	2.53%
21. Colorado	2.42%
22. Utah	2.30%
23. Virginia	2.16%
24. Massachusetts	2.13%
25. Texas	2.11%
26. Tennessee	2.11%
27. Wisconsin	2.02%
28. Vermont	2.01%

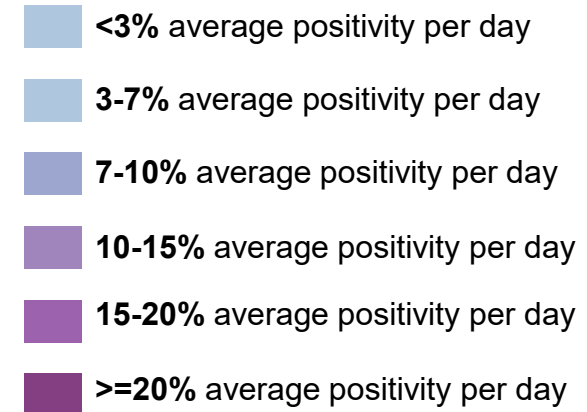
Percent positive

State	% positive
1. District of Columbia	2.9%
2. New York	3.2%
3. Maine	3.6%
4. Vermont	5.9%
5. California	7.1%
6. Louisiana	7.3%
7. Alaska	7.6%
8. South Carolina	7.6%
9. West Virginia	7.7%
10. Georgia	8.2%
11. North Carolina	8.5%
12. Virginia	8.6%
13. Connecticut	9.4%
14. New Jersey	9.6%
15. Washington	11.6%
16. Kentucky	12.0%
17. Texas	12.0%
18. Massachusetts	12.6%
19. Michigan	12.9%
20. Oklahoma	12.9%
21. Illinois	12.9%
22. Arkansas	13.5%
23. Ohio	15.1%
24. Maryland	15.9%
25. Delaware	17.1%
26. New Hampshire	17.5%
27. Oregon	17.8%
28. Florida	19.0%

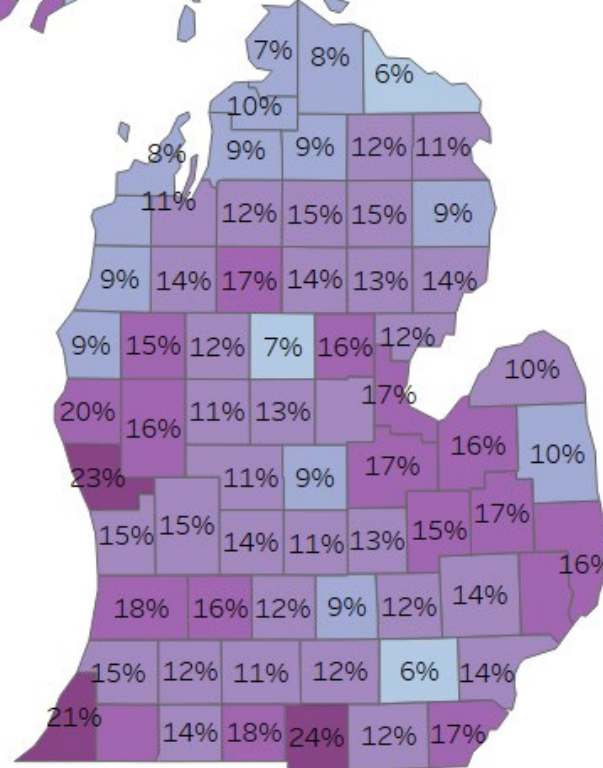
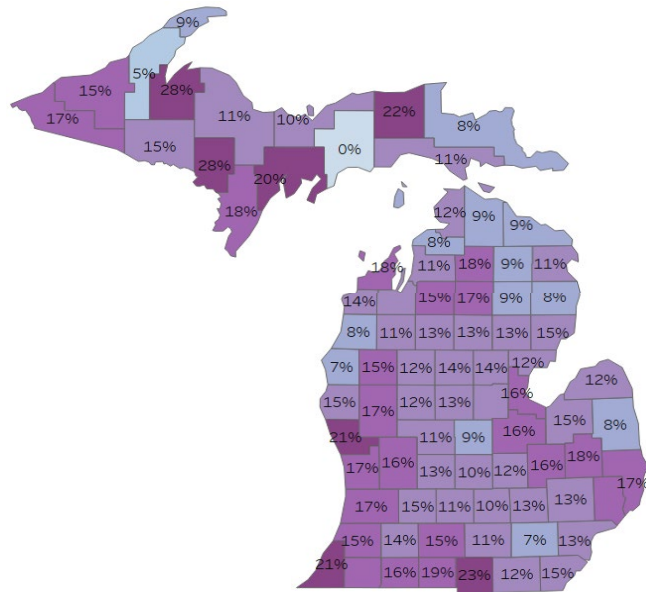
Week ending 11/21/2020 (Michigan average uses most recent MAG data and includes all tests, including MDOC and "Region Unknown")

SOURCE: Numerical Data – MDSS, COVID Tracking Project, U.S. Census Bureau.

Positivity by county, 11/14-11/20



Last week, 11/7-11/13

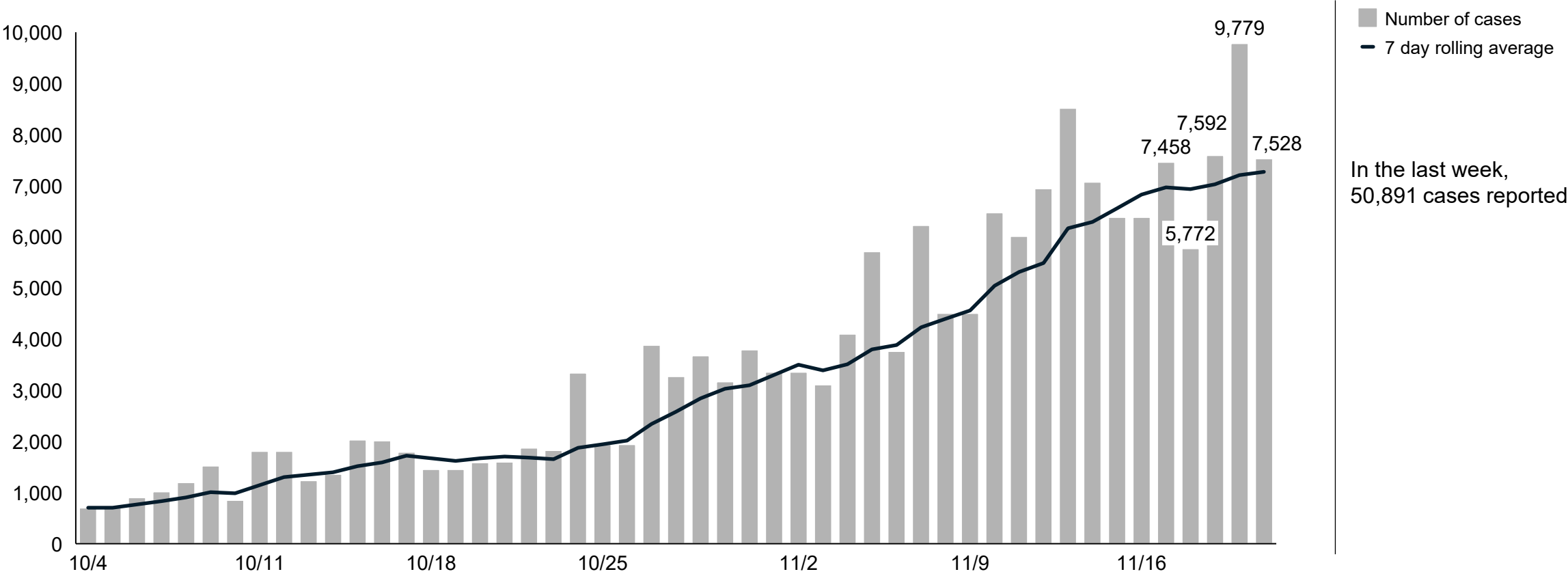


Updates since last week:

Positivity appears to have decreased in the UP over the last week

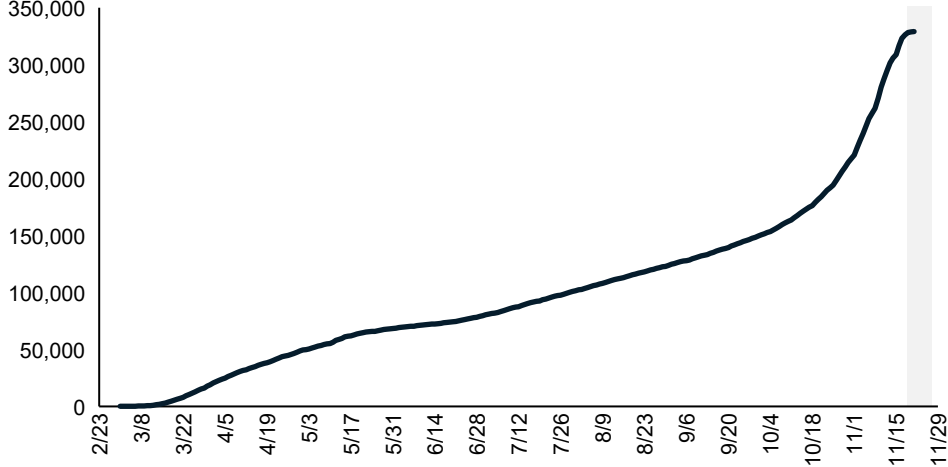
Confirmed COVID-19 cases by report date: State of Michigan

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

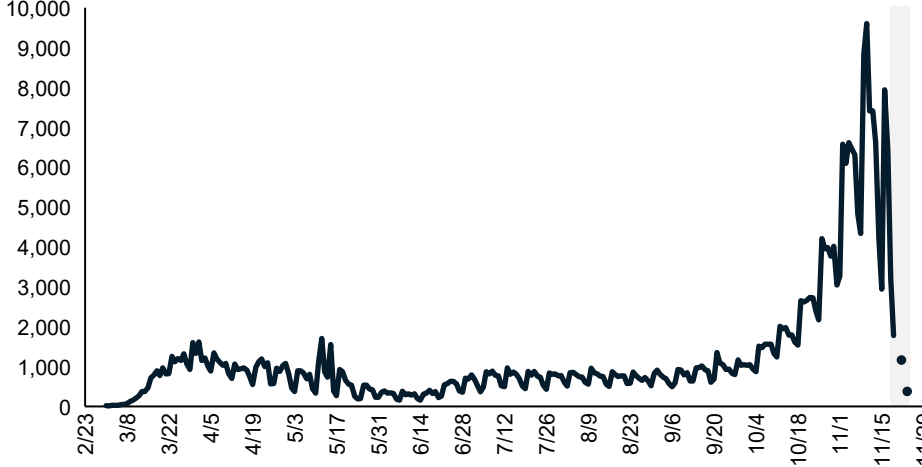


COVID-19 cases and deaths by onset date: State of Michigan

Cumulative confirmed and probable cases, by date of onset of symptoms



New confirmed and probable cases, by date of onset of symptoms

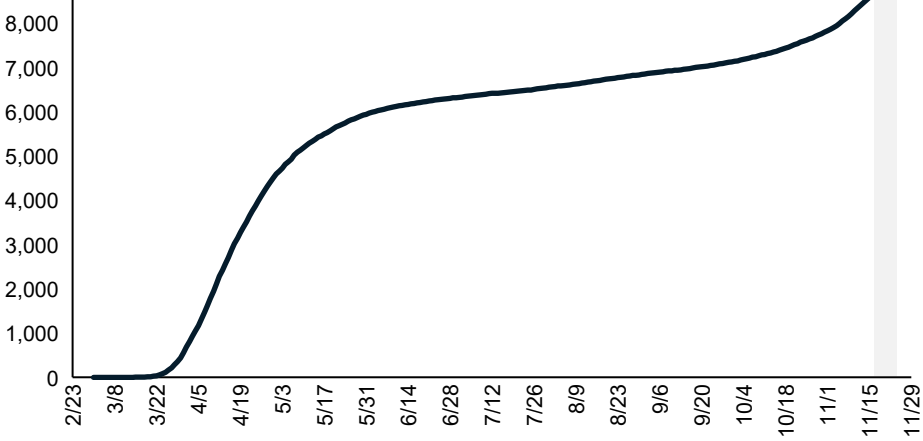


Updates since last week:

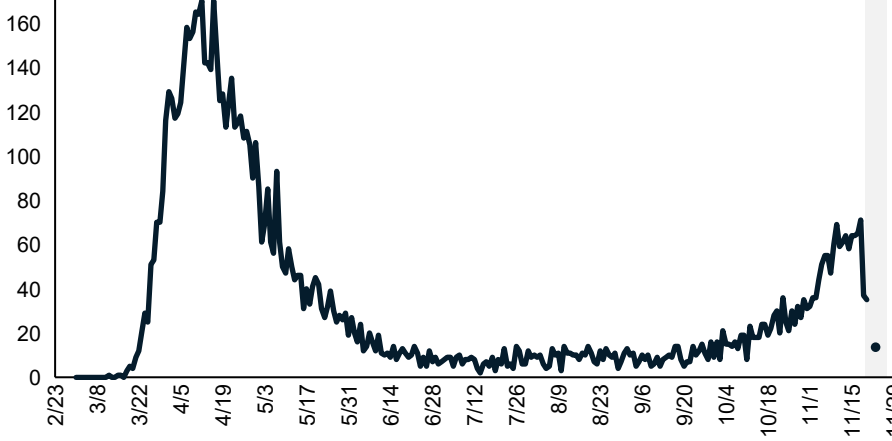
Exponential growth in cases continues through 11/14

Current daily case rate is nearly 6x the rate from early October

Cumulative confirmed and probable deaths, by reported date



New confirmed and probable deaths, by reported date



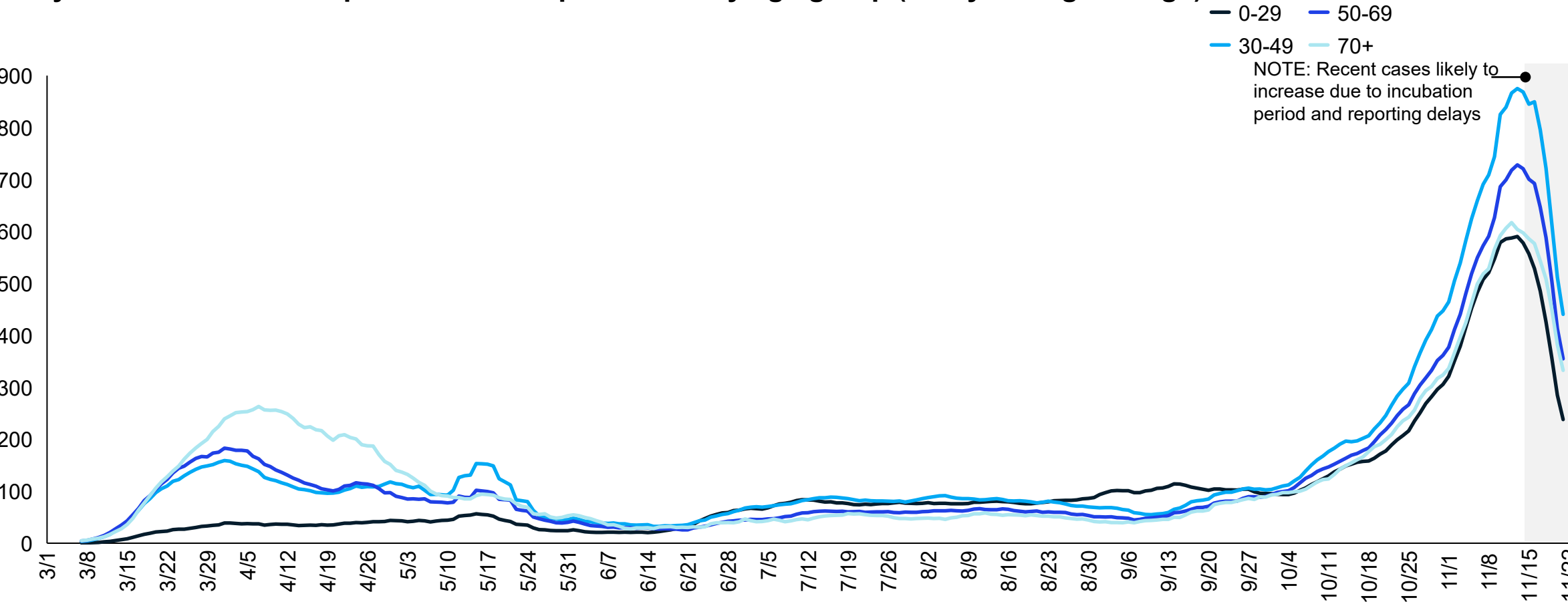
Updates since last week:

Current deaths are a lagging indicator of cases and are continuing to climb.

The current number of deaths is 4x the amount of deaths in early October

Average daily new cases per million residents, by age group

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



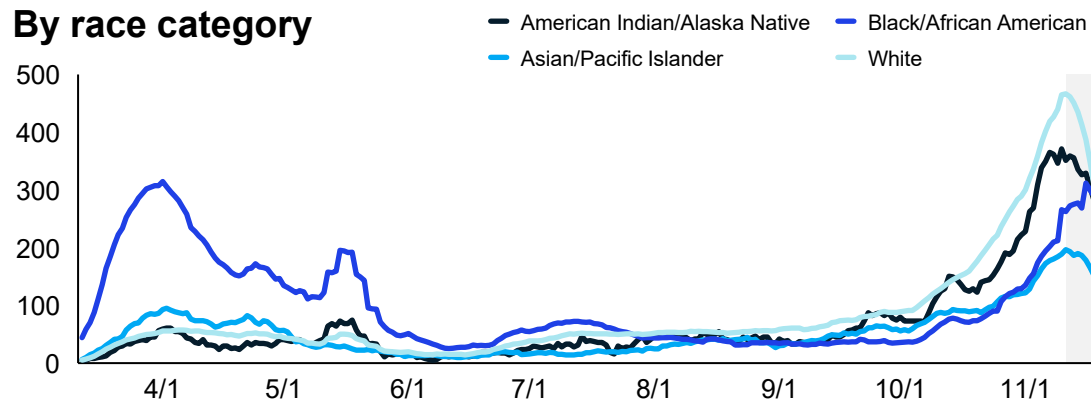
30-49 age group continues to have the highest cases per million, though cases per million have increased for all age groups

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

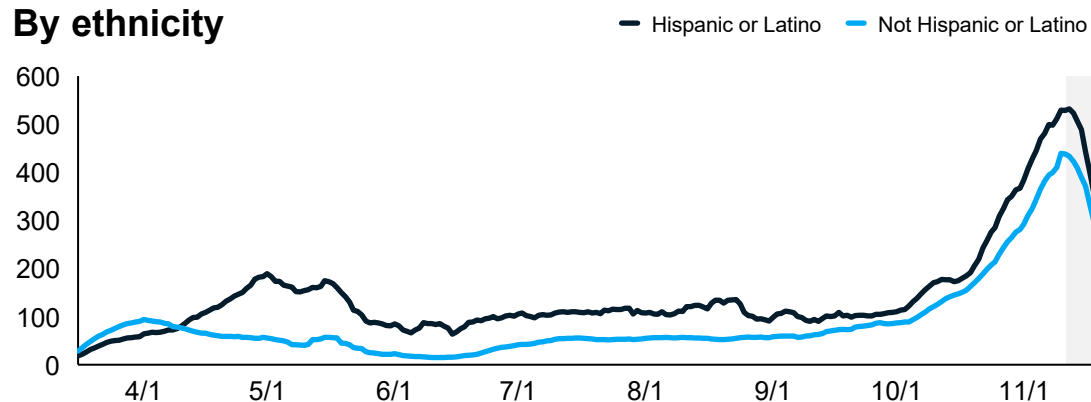
Average daily new cases per million people by race and ethnicity

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

By race category

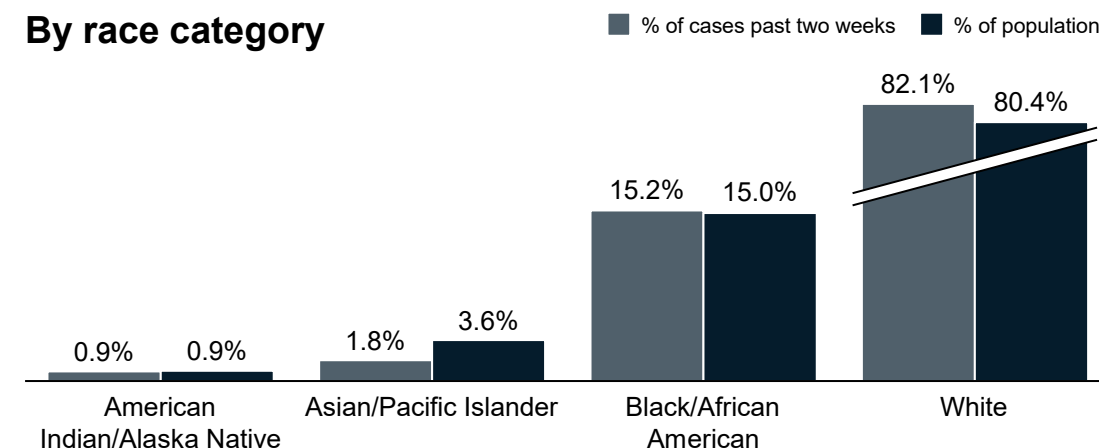


By ethnicity

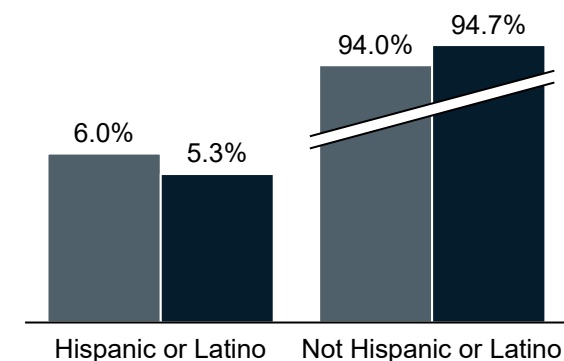


Past two weeks confirmed and probable cases vs. population, % of total

By race category



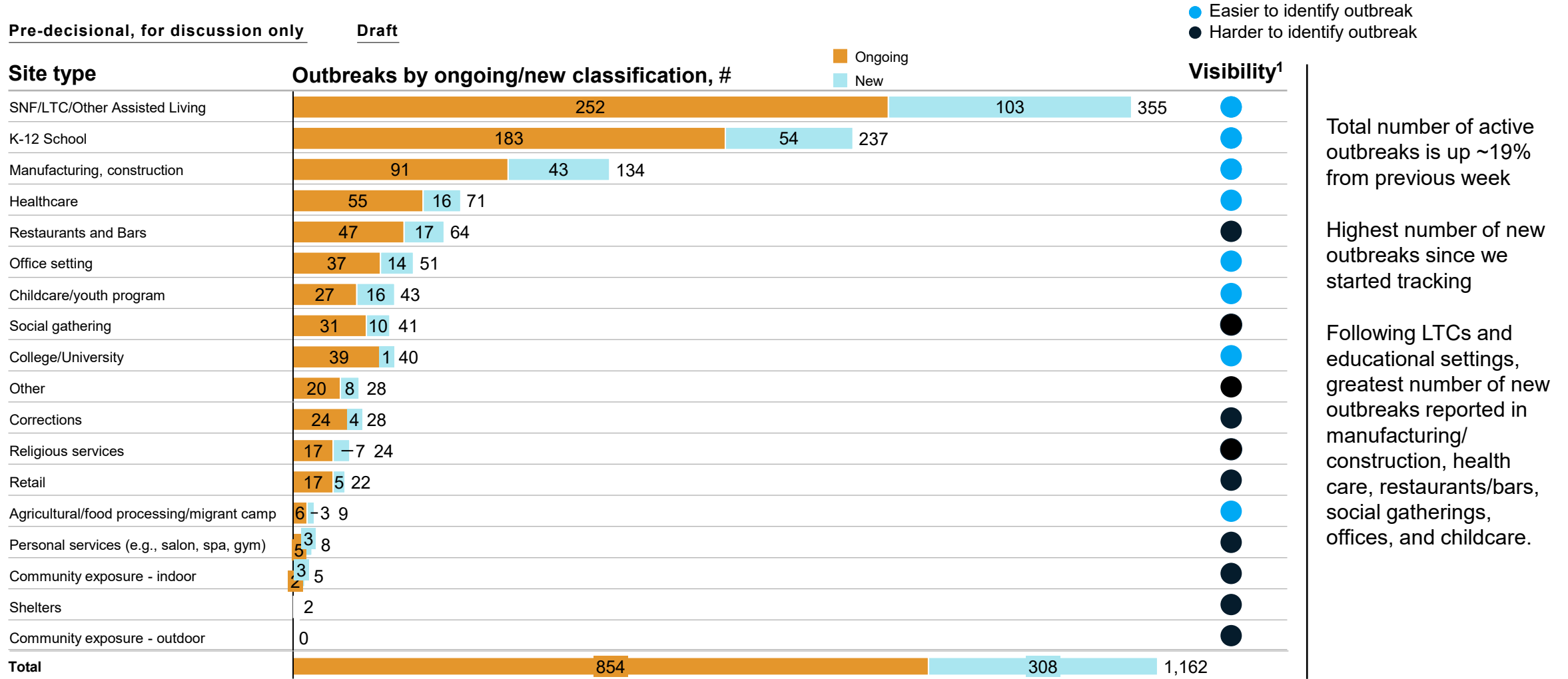
By ethnicity



Note: Cases information sourced from MDHHS and reflects date of onset of symptoms; note that Multiple Races, Other, and Unknown race/ethnicity are not included in calculations

Source: MDHHS – Michigan Disease Surveillance System

Number of outbreak investigations by site type, week ending Nov 19



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

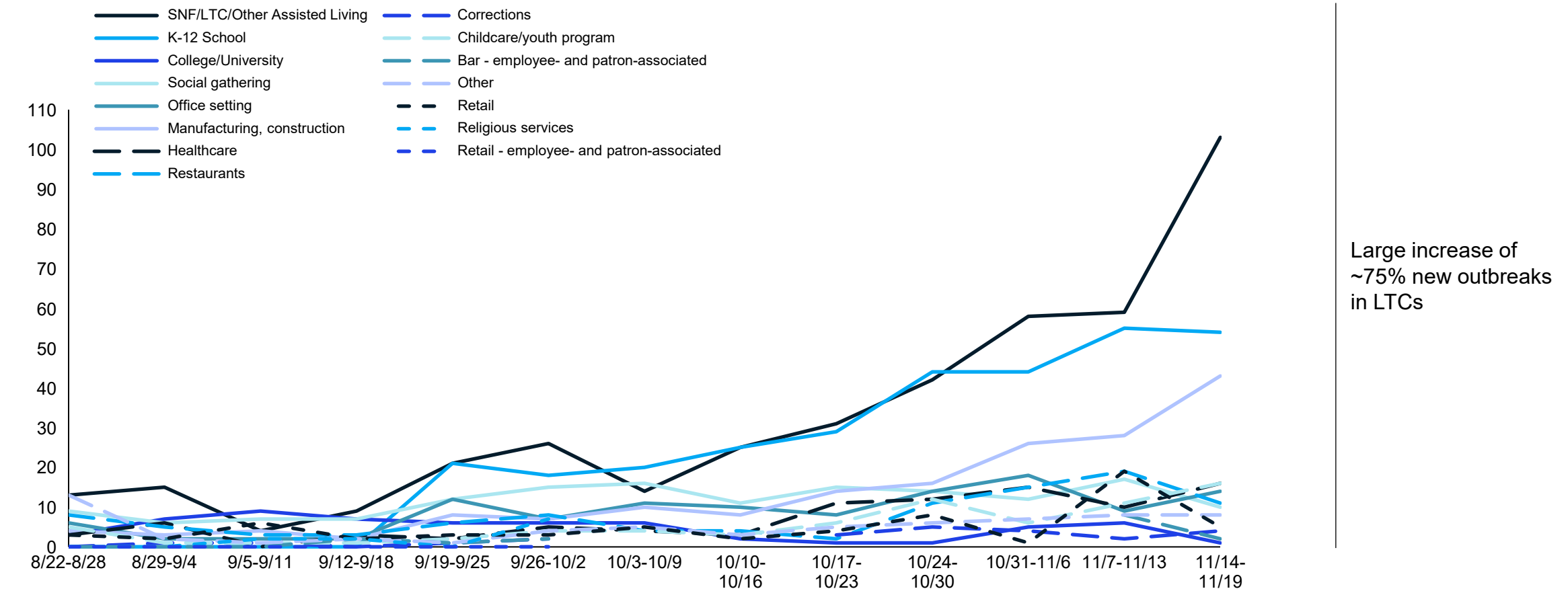
NOTE: Many factors, including the lack of ability to conduct effective contact tracing in certain settings, may result in significant underreporting of outbreaks. This chart does not provide a complete picture of outbreaks in Michigan and the absence of identified outbreaks in a particular setting in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

Source: LHD Weekly Sitreps

Weekly change in number of outbreaks by site type – new outbreaks

Pre-decisional, for discussion only Draft

New outbreaks by site type – week-over-week (only includes categories with 5+ outbreaks in any of 5 prior weeks)



Large increase of
~75% new outbreaks
in LTCs

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.

K-12 school outbreaks, recent and ongoing, week ending Nov 19

Region	Number of reported cases, #	# Ongoing - Excluding New	# New	Number of outbreaks	Range of cases per outbreak
Region 1	58 - 16 74			22	1-9
Region 2n	71 63 134			38	2-14
Region 2s	107 - 18 125			19	2-22
Region 3	120 54 174			40	1-12
Region 5	37 - 12 49			12	2-10
Region 6	334 138 472			47	2-52
Region 7	63 24 87			17	1-14
Region 8	129 44 173			27	2-27
Total	919 369 1,288			222	1-52

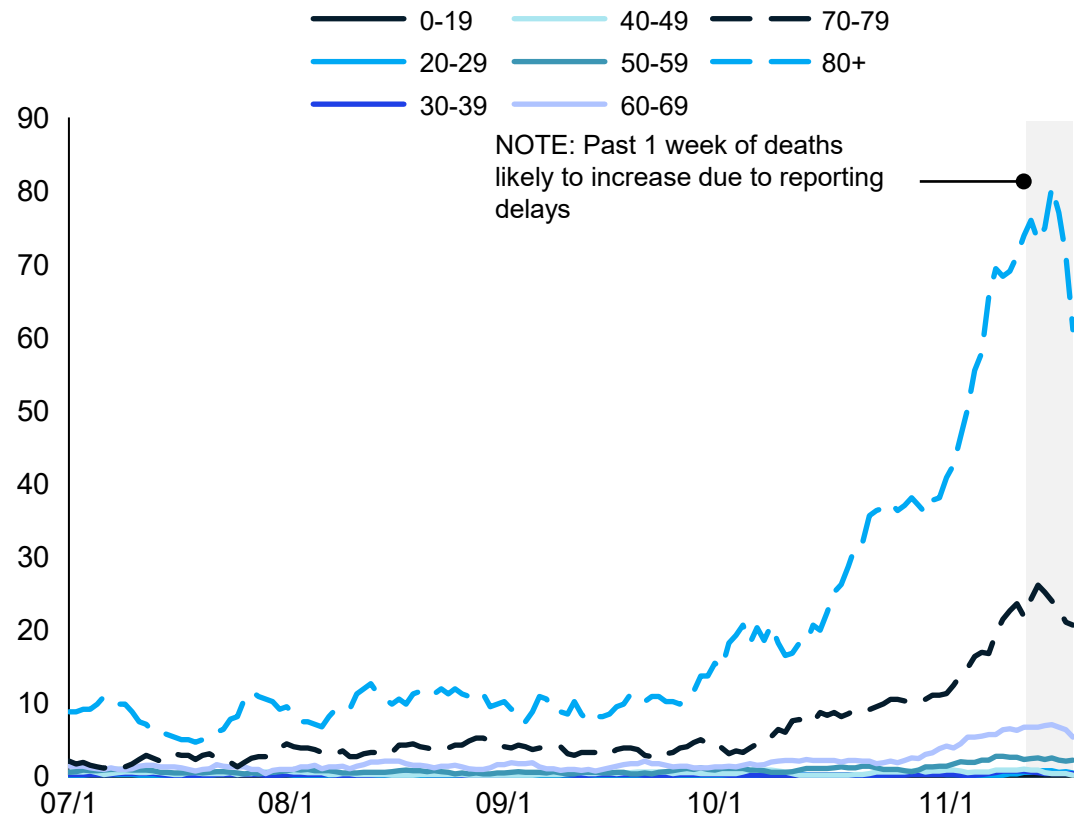
Grade level	Number of reported cases, #	Number of outbreaks	Range of cases per outbreak
Pre-school - elementary	228 100 328	84	1-14
Junior high/middle school	138 48 186	40	2-14
High school	553 221 774	98	1-52
Total	919 369 1,288	222	1-52

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.

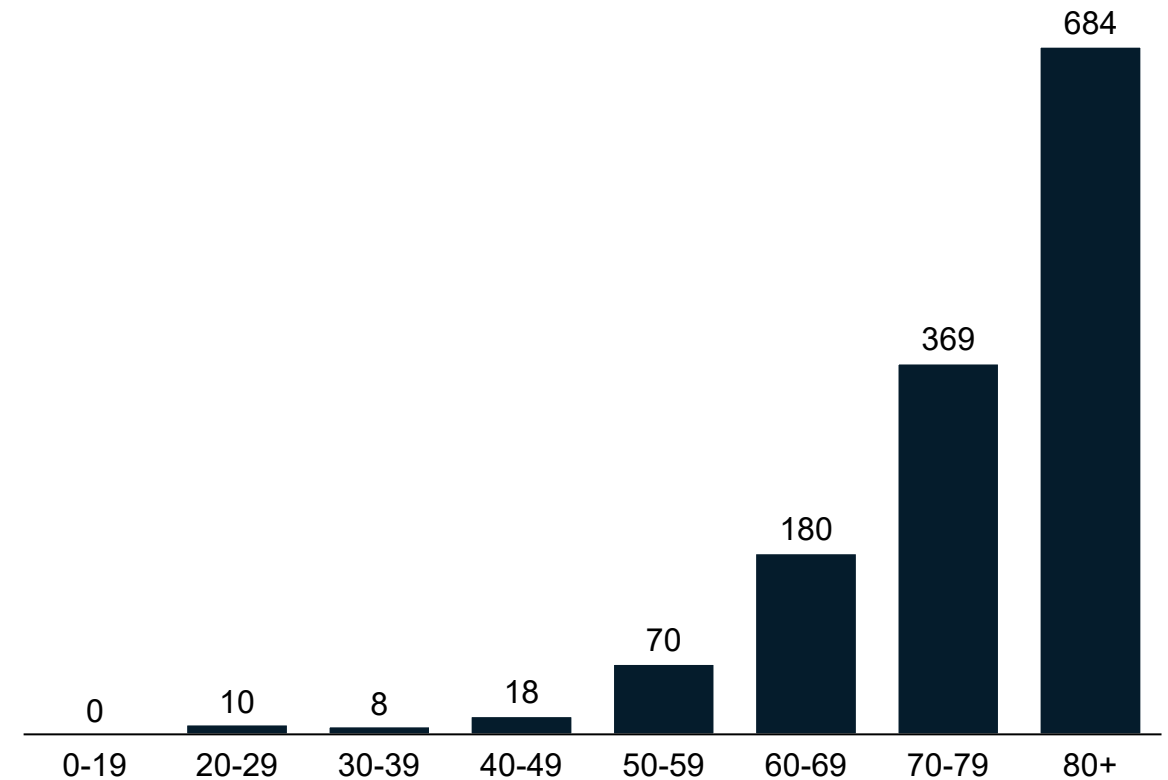
Source: LHD Weekly Sitreps

Average and total new deaths, by age group

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



Total new confirmed and probable deaths by age group (past 30 days, ending 11/21)



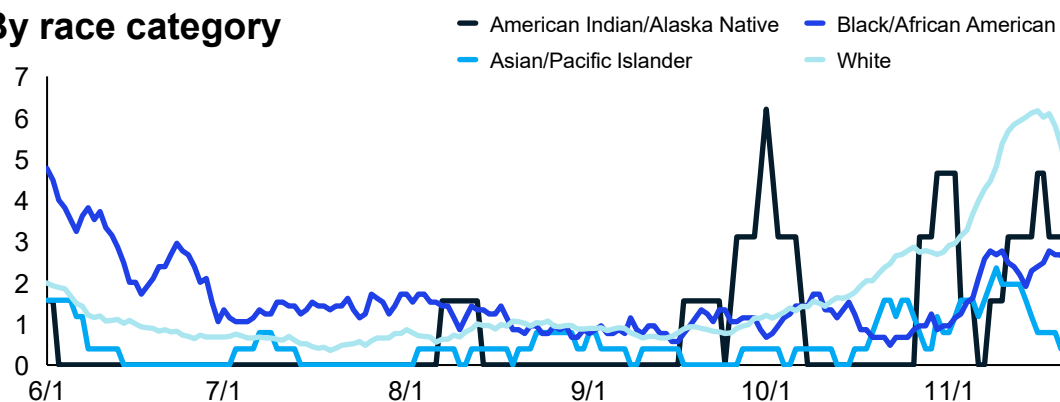
Note: Cases information sourced from MDHHS and reflects date of report

Source: MDHHS – Michigan Disease Surveillance System

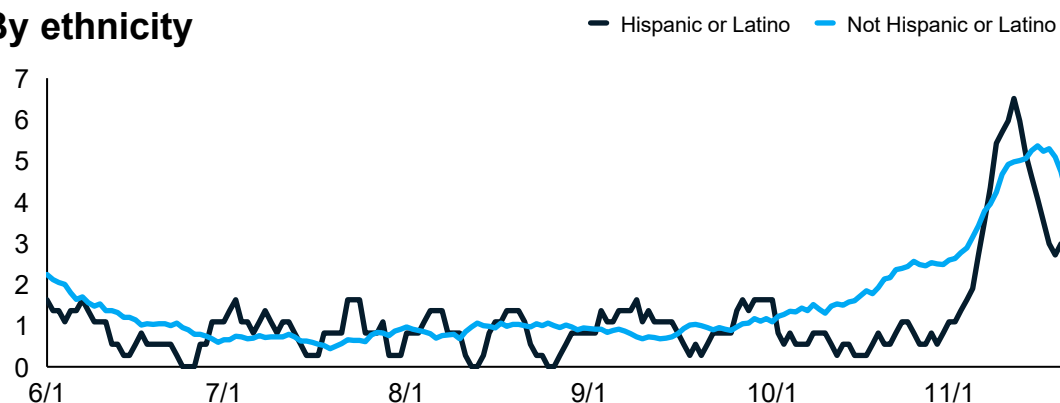
Average daily new deaths per million people by race and ethnicity

Daily new confirmed and probable deaths per million (7 day rolling average)

By race category



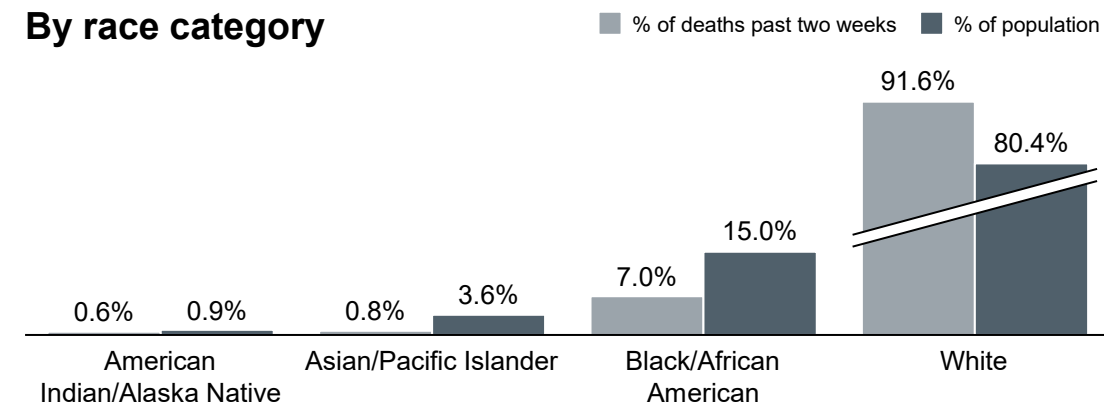
By ethnicity



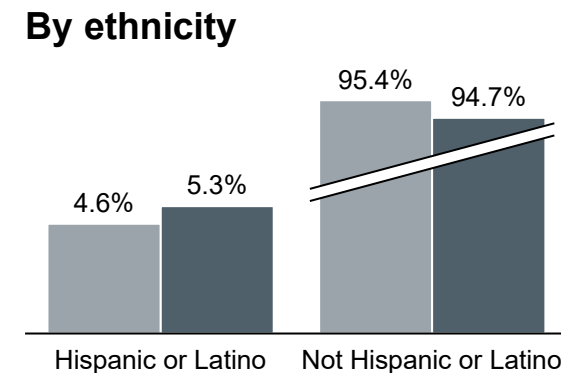
Note: Multiple Races, Other, and Unknown race/ethnicity are not included in calculations
Source: MDHHS – Michigan Disease Surveillance System

Past two weeks confirmed and probable deaths vs. population, % of total

By race category



By ethnicity



COVID-19 and Healthcare Capacity

Since September, COVID-19-like illness has gone from less than 2% to more than 7% of the emergency department visits

- Over the last week, CLI has remained steady

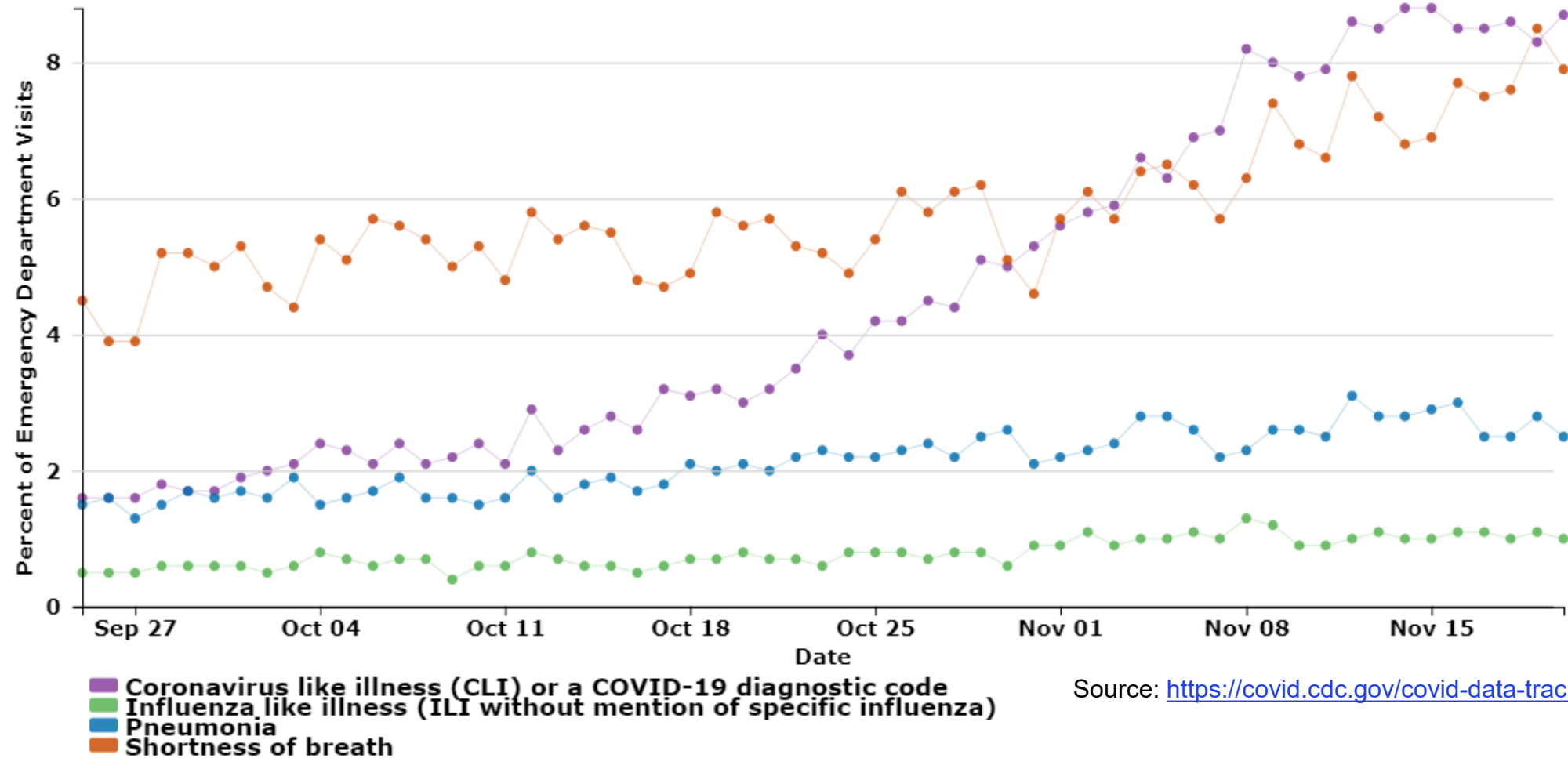
Hospitalizations and ICU utilization are increasing at a slower pace now

- Double rate of more than 4 weeks

Five of eight regions are over 30% of Adult ICU beds occupied with COVID+ patients

Michigan Trends in Emergency Department Visits for COVID-19-Like Illness (CLI)

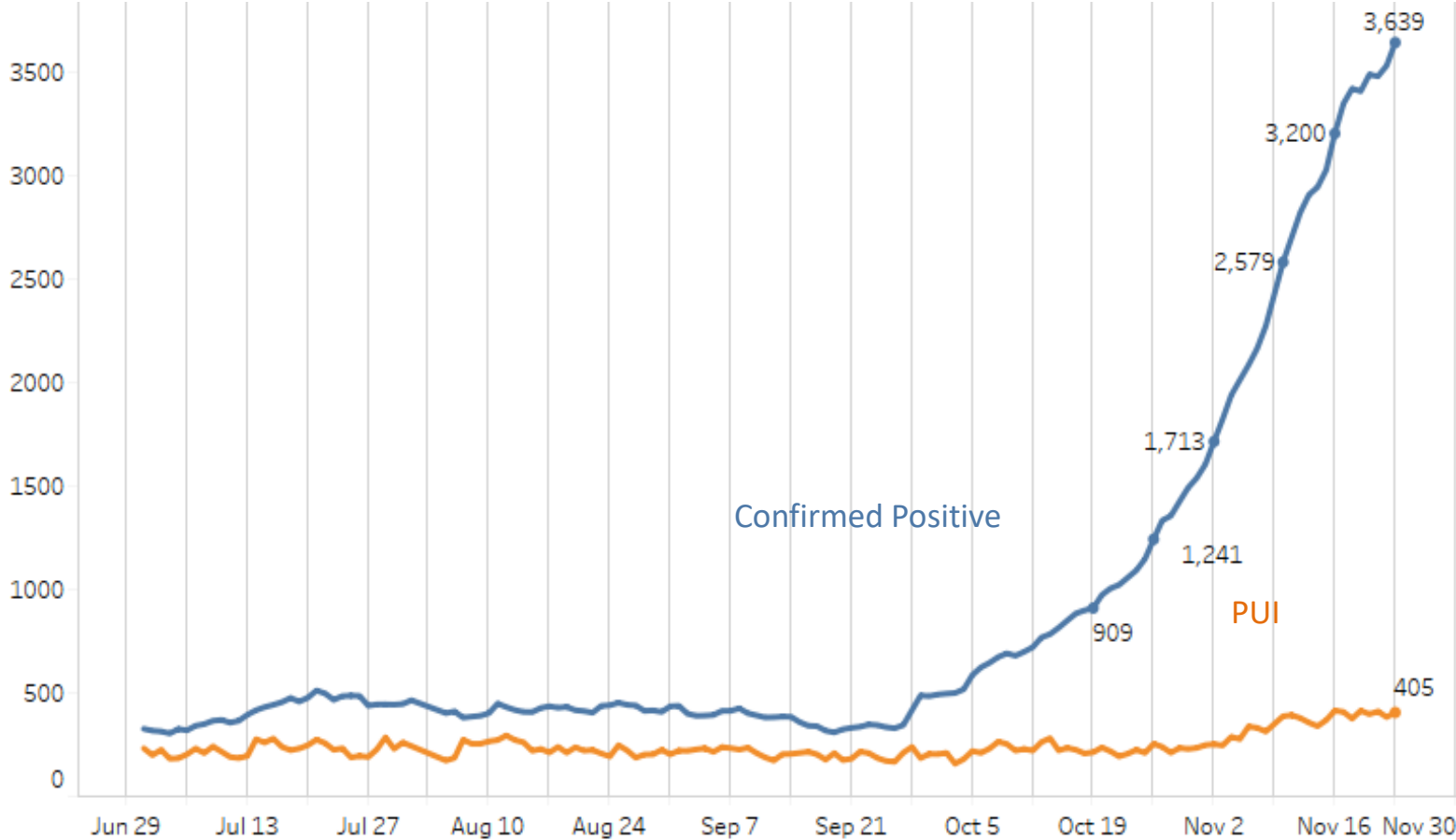
Percentage of ED visits by syndrome in Michigan: COVID-19-Like Illness, Shortness of Breath, Pneumonia, and Influenza-Like Illness



Source: <https://covid.cdc.gov/covid-data-tracker/#ed-visits>

Statewide Hospitalization Trends: Total COVID+ Census

Hospitalization Trends 7/1/2020 – 11/23/2020
Confirmed Positive

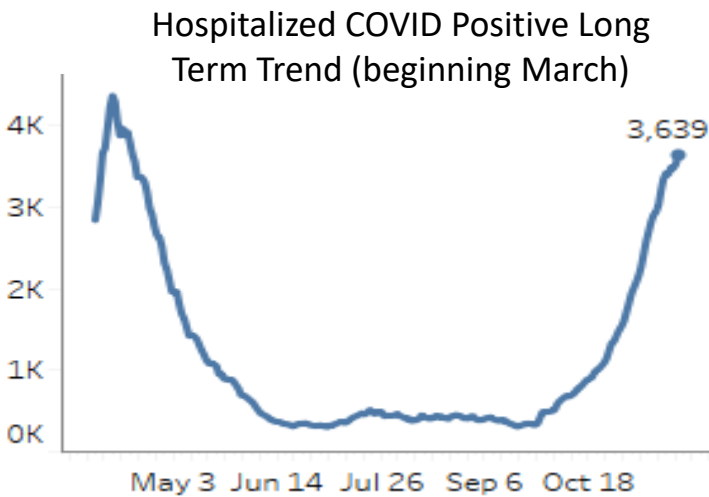


COVID+ hospital census is 14% higher than last week (vs. 33% growth week prior)

We are now at ~85% of our spring peak.

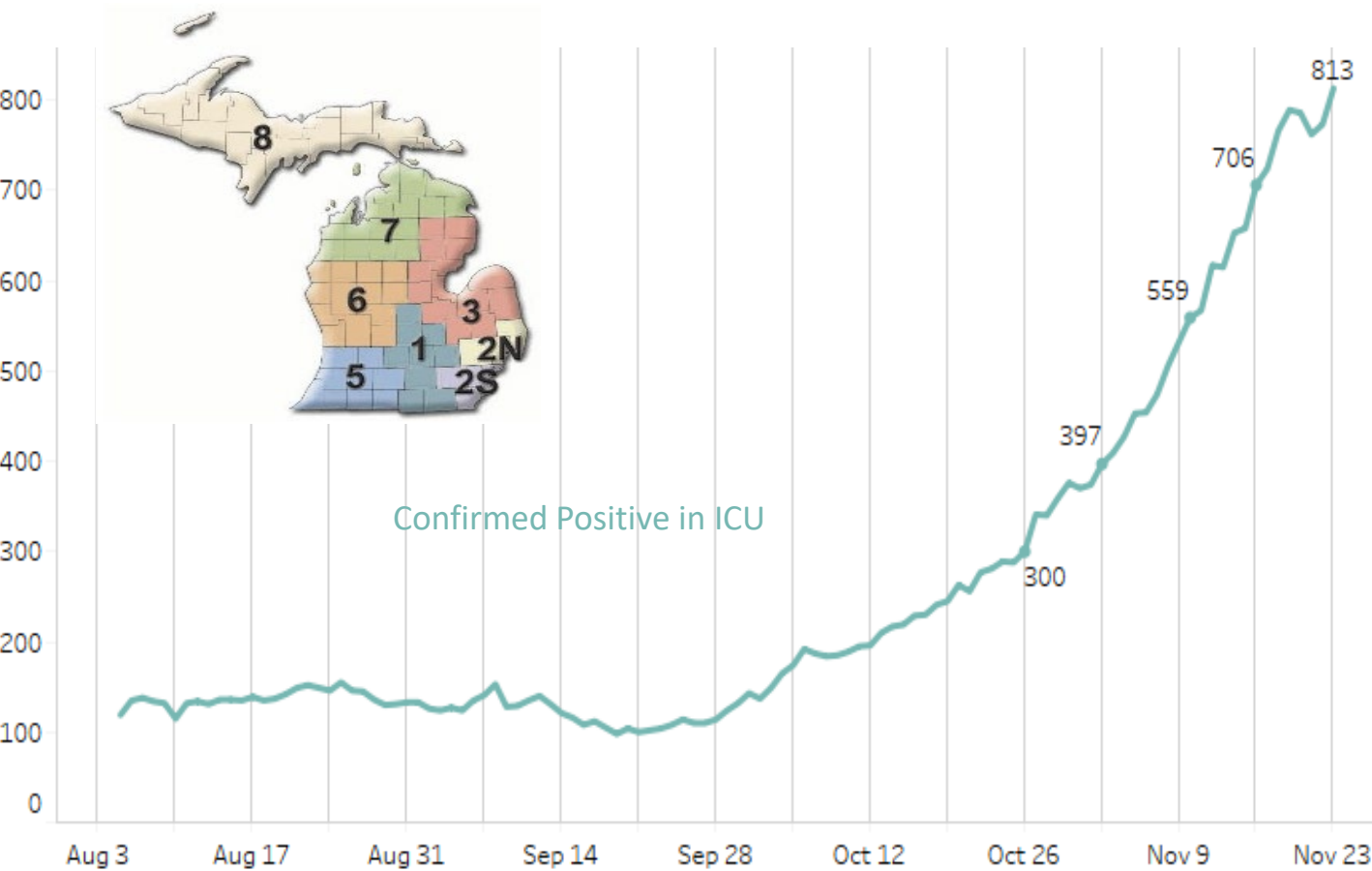
Hospitals increased COVID+ discharges by 40% against a 20% increase in admissions this week vs. last week

Doubling time of census is at >4 weeks if using most recent week's growth rate



Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 8/1/2020 – 11/23/2020
Confirmed Positive in ICUs



Hospital bed capacity updated as of 11/20

COVID+ census in ICUs increased by 15% this week
(vs. 30% growth last week)

Doubling time using last week’s growth is >4 weeks

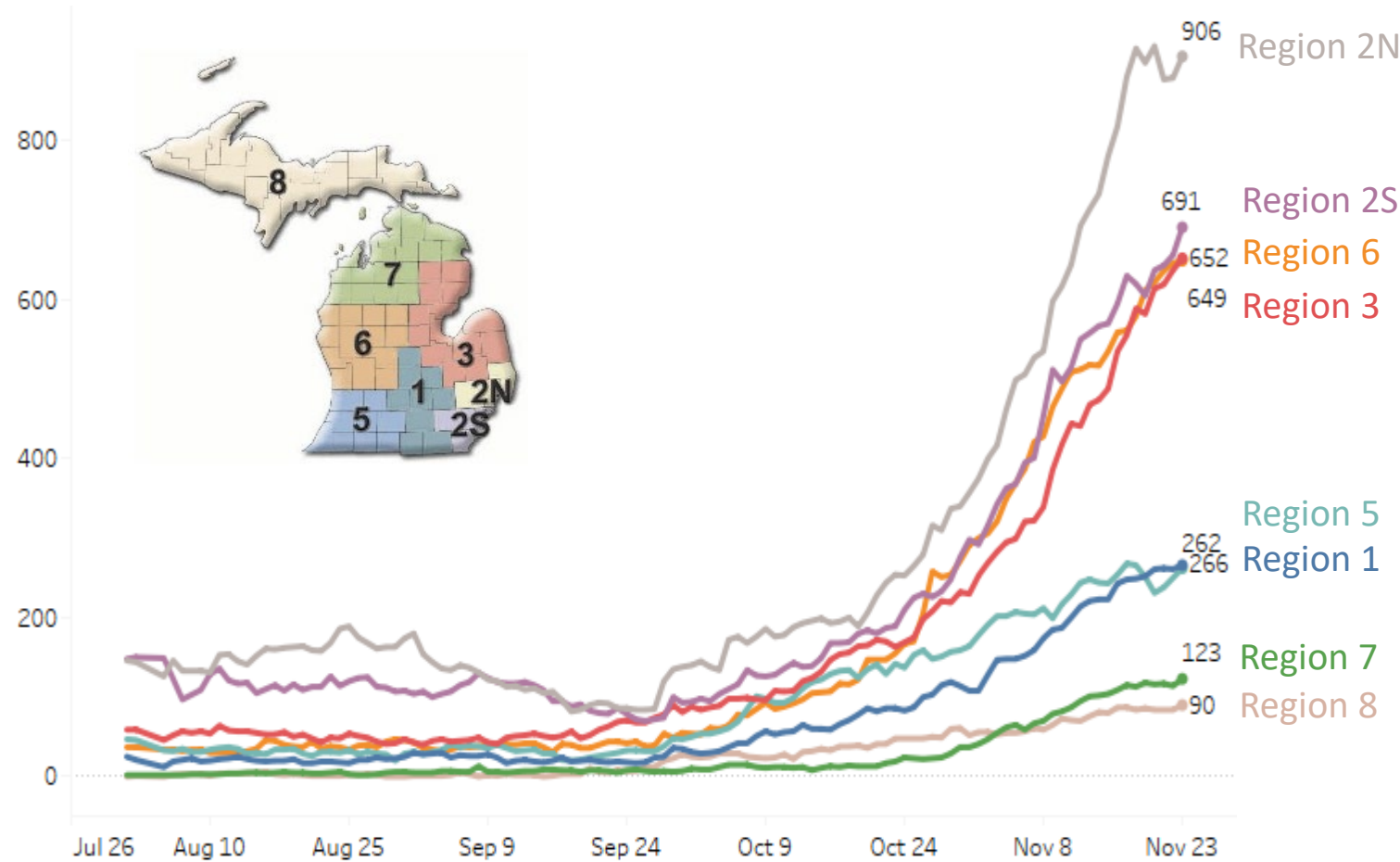
Statewide 31% of Adult ICU beds are occupied with COVID+ patients.

4/8 Regions are >40% occupied with COVID+

Region	Adult COVID+ in ICU	Adult ICU Occupancy	% of Adult ICU beds COVID+
Region 1	80	89%	41%
Region 2N	147	84%	27%
Region 2S	158	85%	21%
Region 3	155	92%	41%
Region 5	45	86%	28%
Region 6	127	80%	39%
Region 7	74	80%	42%
Region 8	27	79%	47%

Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 8/1/2020 – 11/23/2020
Confirmed Positive by Region



Overall growth has slowed across all regions with regions 1,5,8 showing slowest growth

Regions 2N, 3 and 6 show high rates of population-adjusted COVID+ hospitalizations

Region 3 in particular is heavily impacted

Region	Growth from Last Week	COVID+ Hospitalizations / MM
Region 1	8%	242/M
Region 2N	15%	408/M
Region 2S	10%	310/M
Region 3	18%	572/M
Region 5	4%	279/M
Region 6	16%	445/M
Region 7	11%	246/M
Region 8	3%	289/M

How is public health capacity?

Case investigation and contact tracing productivity is remaining steady but, given the new influx of case, the percent of cases investigated are low

New Case Investigation Metrics

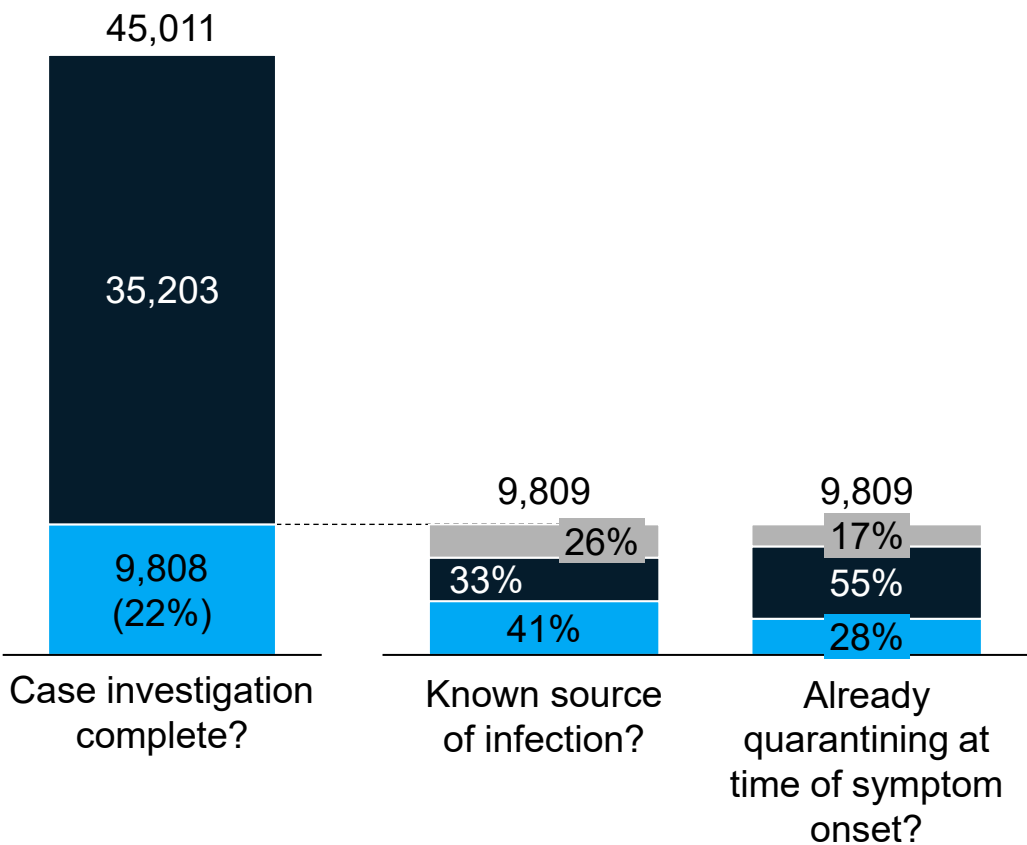
New Communicable Disease metrics slightly decreased since last week:

- 41% of investigated cases having a known source (44% last week, 47% week prior)
- 28% of investigated cases noting that they were quarantining before symptoms (28% last week)

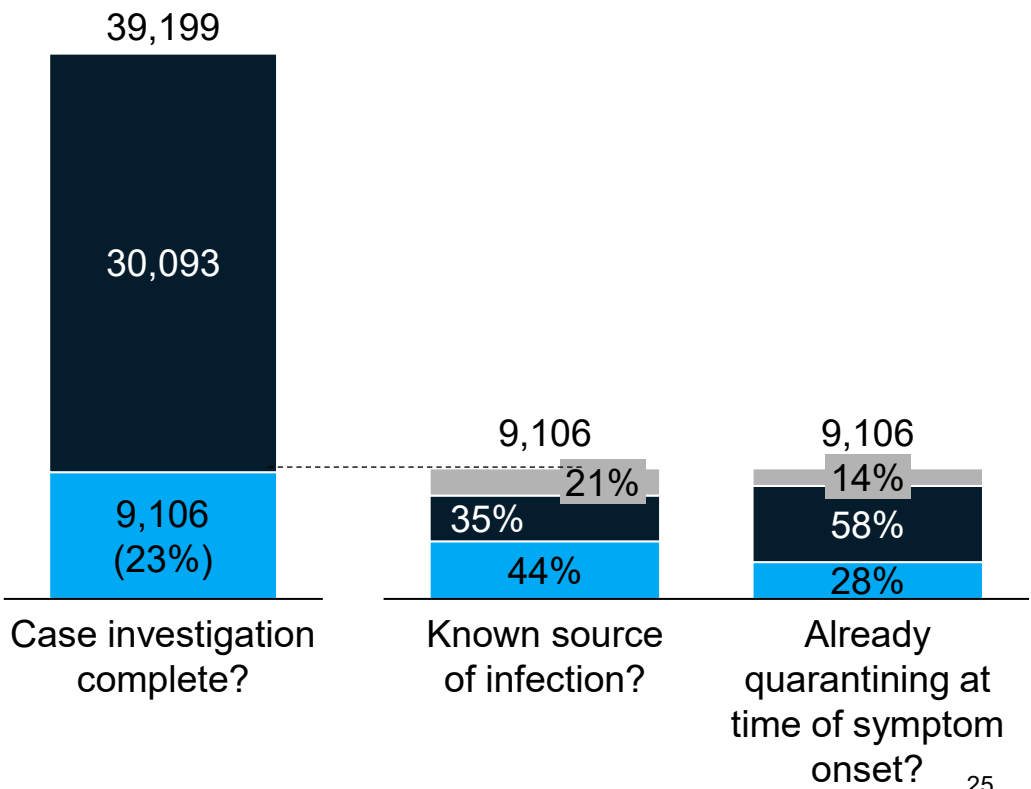
Over the last week, number of complete case investigations increased 7%, number of cases has increased 15%

Yes No Not answered

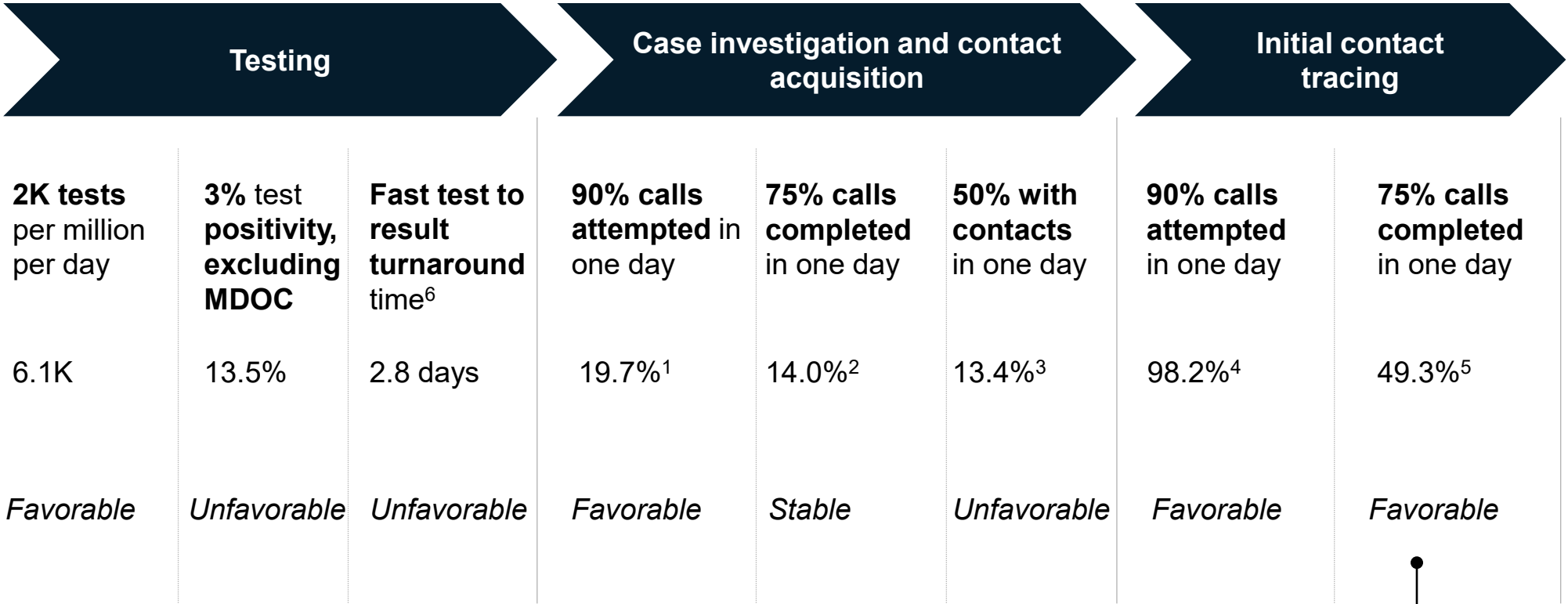
Case report form information, 11/14-11/20



Case report form information, 11/7-11/13



Testing, case investigation, and contact tracing: Current state



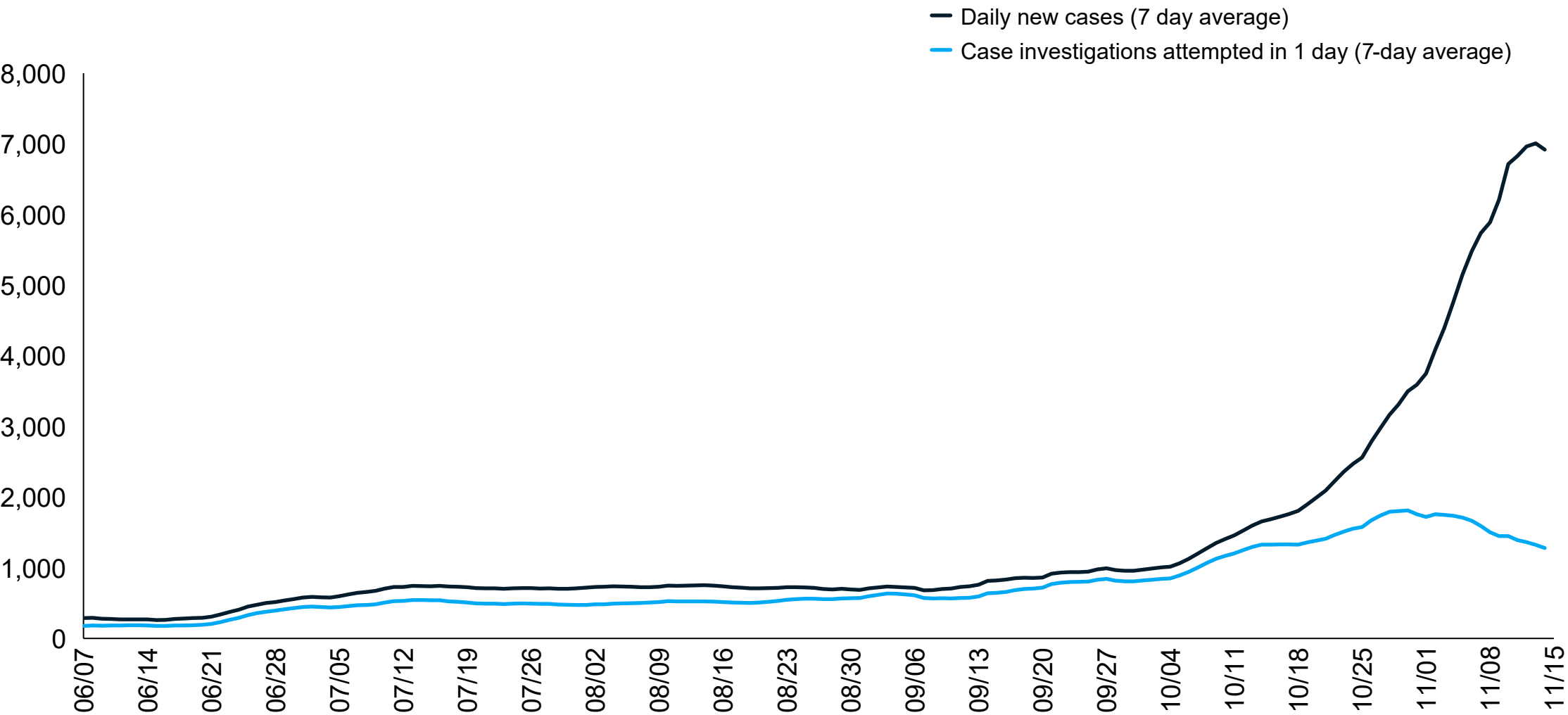
Ongoing contact monitoring still occurring through texting and calls

63% of contacts successfully complete intake within five days

1. % of cases documented as "attempted" within one day
2. % of cases documented as "successful" within one day
3. % of cases with at least one contact documented within one day
4. Weighted average of % of cases documented as "attempted" within one day in OMS, LHD survey, and Traceforce
5. Average of % of cases documented as "successful" within one day (Traceforce-only due to data accuracy concerns in other systems)
6. Sourced from weighted average of all lab turnaround times

Source: MDSS and OMS summary statistics. Traceforce summary statistics. LHD Sitrep survey. Testing information from MAG summary files (percent positivity excludes MDOC)

Cases vs. Attempted Case Investigations



Note: Cases visualized by onset date; Absolute number of case investigations estimated from daily case investigation success rate
Source: MDHHS – Michigan Disease Surveillance System