

# MI COVID RESPONSE DATA AND MODELING UPDATE

**NOTE:** All data as of Dec. 12 unless otherwise noted

December 15, 2020

# Executive summary

Michigan has recorded the **13<sup>th</sup> highest number of cases (↓6)** , **5<sup>th</sup> highest number of deaths (↓1)**, **38<sup>th</sup> highest case rate (↓13)**, and **8<sup>th</sup> highest death rate (↔)** in the last 7 days (source: CDC COVID Data Tracker)

Michigan has the **12<sup>th</sup> highest hospitalization rate as a percent of total beds (↓6)**, and **8<sup>th</sup> highest number of COVID patients in the ICU (↓1)** (source: Becker's Hospital Review)

**Case rates** (559.8), and **coronavirus like illness (CLI)** are decreasing for the past 3 or more weeks but **percent positivity** (12.3%) has plateaued for the past 4 weeks but recently appears to be declining

**More than 18.5% of available inpatient beds are filled with COVID patients** and state trends for hospitalizations for COVID has plateaued for last week

There were **791 deaths (↑131)** during the week of Nov 29-Dec 5 and the state death rate is **11.3 deaths/million/day**

**Daily diagnostic tests dropped to an average of 53.8K per day (↑2.0K)** over the last week and the state rate is **5,613.5 tests/million/day**

# Comparison across states: Summary 12/14

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What we see today:

- 34 states seeing increasing 2 week case trends (stable vs. 33 last week)
- 48 states (stable) with significant outbreaks (high/increasing cases, increasing/high positivity increasing/high hospitalizations over 2 weeks (>100 per M))
- Nevada, Arizona, South Dakota, Pennsylvania, Indiana have highest per capita hospitalized patient numbers
- Most rapid 2 week case growth: ME, NH, CA, GA, SC
- Midwest:
  - Wisconsin showing continued decline in hospitalizations (249/M), declining cases (649/M)
  - Indiana dropped to #5 in hospitalized per capita (462/M), cases high but slowing growth (930/M)
  - Illinois showed slight decline in hospitalizations (400/M), cases down (690/M)
  - Ohio with slowing growth in hospitalizations (441/M), cases remain high and growing at 900/M
  - Michigan with slow decline in hospitalizations (350/M), decline in cases ~550/M

# COVID-19 Spread

Positivity appears to be in a state of plateau statewide

- Testing dropped following the Thanksgiving holiday but is starting to increase again
- Test turn around time has increased

Cases continue to decrease for third straight week

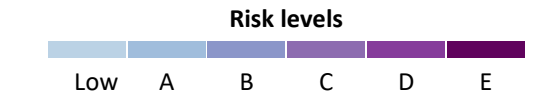
- Decreases are seen among most age groups, races, and ethnicities
- Fewer cases have race and ethnicity documented
- Current case rates remain some of the highest to date during the pandemic
- Number of active outbreaks is down ~2% from previous week

The increasing rate of deaths has slowed from previous weeks

- In the last 30 days, 10% deaths occur among those younger than 60
- Death rate highest for white residents but peaks among Native American is concerning

# Confirmed and probable case indicators

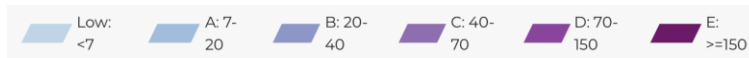
Table Date: 2020-12-12, 7 days from date table was produced (2020-12-08)



% inpatient beds  
occupied  
by COVID-19  
cases

	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	516.5	decline [18 days]	12.3	Decrease - 1wk	5369.6	0.9	Decrease - 2wk	18.2	8.6	Increase - 11wk
Grand Rapids	2	6	E	642.8	decline [24 days]	13.2	Increase - 2wk	5964.9	1.3	Decrease - 2wk	17.6	14.1	Decrease - 1wk
Kalamazoo	3	5	E	596.6	decline [24 days]	12.4	Decrease - 1wk	5631.5	1.1	Decrease - 2wk	17.6	10.6	Increase - 1wk
Saginaw	4	3	E	691.9	decline [23 days]	14.8	Increase - 1wk	5273.2	0.8	Decrease - 1wk	25.3	28.0	Increase - 4wk
Lansing	5	1	E	552.7	decline [23 days]	11.6	Increase - 1wk	4535.0	0.7	Increase - 1wk	20.5	11.0	Increase - 4wk
Traverse City	6	7	E	442.2	decline [17 days]	10.8	Increase - 3wk	4244.6	1.3	Decrease - 1wk	13.1	10.7	Decrease - 1wk
Jackson	7	1	E	719.4	decline [18 days]	11.5	Increase - 7wk	8105.0	0.5	Decrease - 2wk	22.3	9.0	<20 wkly deaths
Upper Peninsula	8	8	E	537.5	decline [27 days]	8.1	Increase - 1wk	5654.1	1.0	Decrease - 4wk	13.7	18.3	Decrease - 1wk
Michigan			E	559.8	decline [22 days]	12.3	Increase - 2wk	5613.5	0.9	Decrease - 2wk	18.5	11.3	Increase - 11wk

## Cases



## Positivity

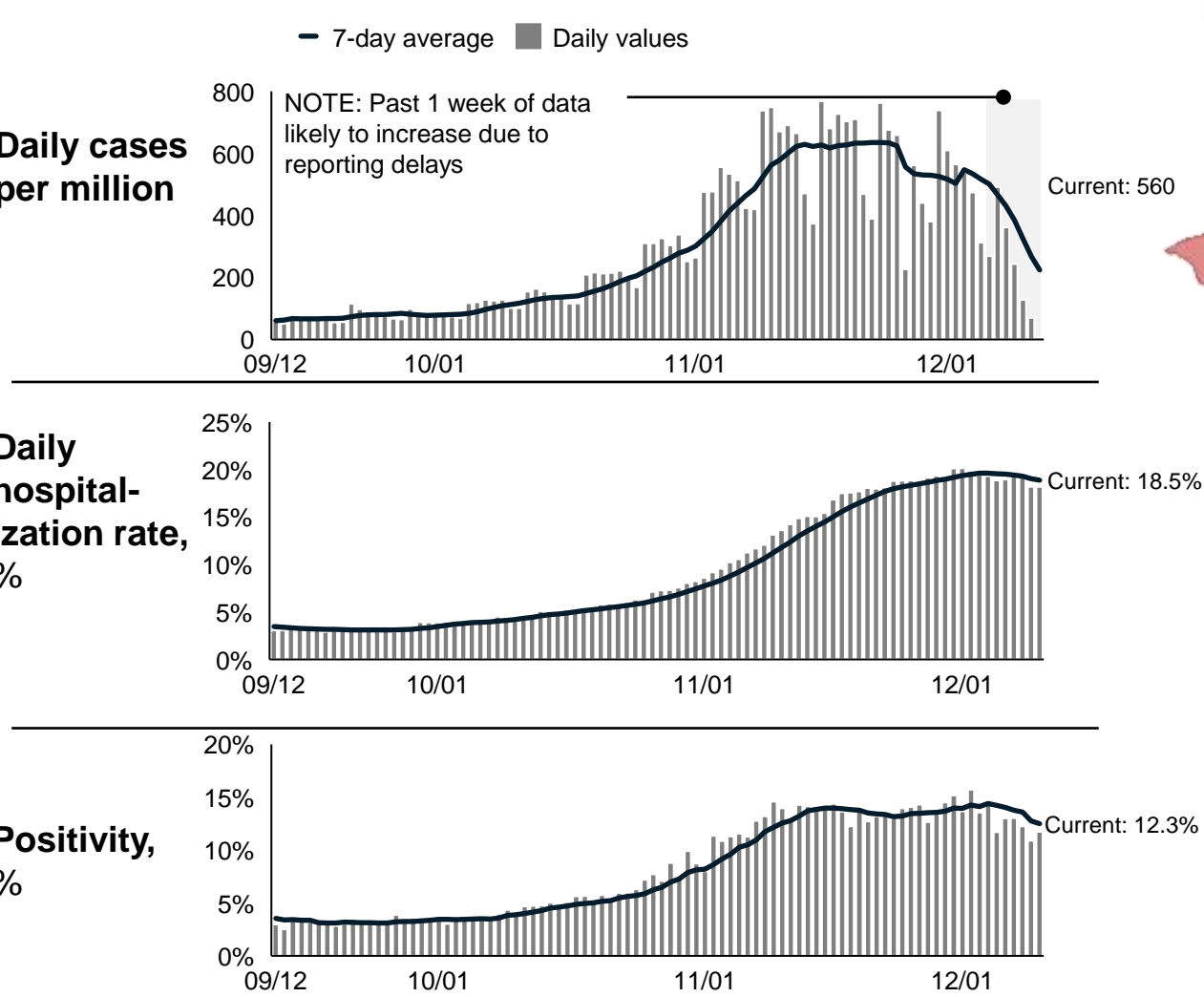


1. Epidemic curve classification based on two-week incidence slope. Data omits most recent week to account for lag period.
2. Positivity Trend calculated on Tuesdays.

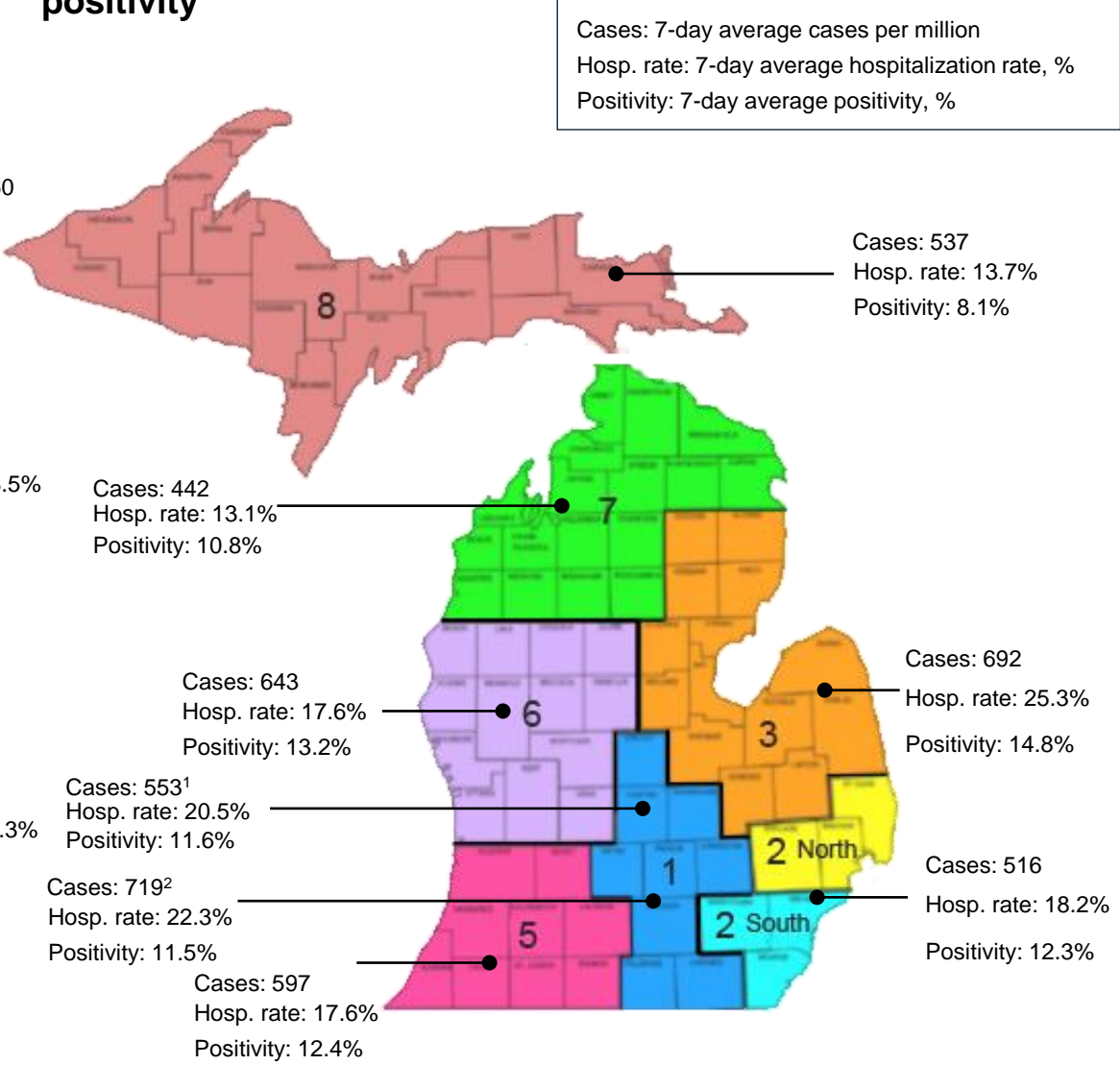
# Recent statewide trends

Cases data as reported 12/12

## Statewide trends



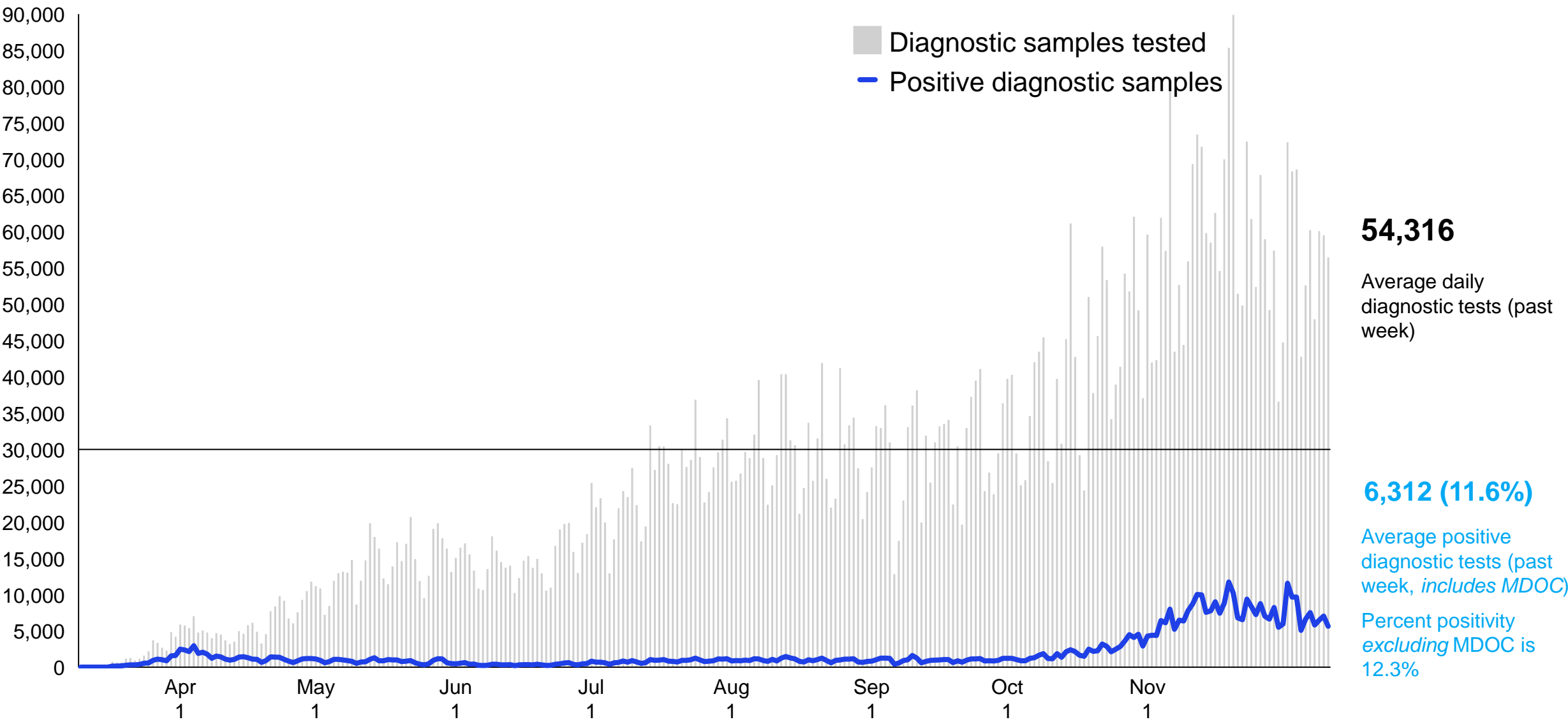
## Regional breakdown: Cases, hospitalization rate, and positivity



Source: <https://mistartmap.info/>

1. Represents Lansing portion of region 1  
2. Represents Jackson portion of region 1

# 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

## Summary

- Last two weeks nearly 800K tests, ~68% from commercial laboratories
- Less than a day transport time (from test collection to receipt by the laboratory)
- Average turn around time 3.36 days

Estimated Turnaround Times for COVID-19 Diagnostic Testing Results Received at MDHHS During Last 14 Calendar Days (through 12/09/2020)

Lab Type	Test Count	Transport Time (Days)	Total Turn Around Time (Days)
Commercial	534,829	0.97	4.18
Hospital	245,784	0.42	1.78
Public Health	5,916	0.64	3.06
State Total	786,579	0.7	3.36

Lab Type	Test Count	Transport Time (Days)	Total Turn Around Time (Days)
Region 1	74,707	0.51	2.51
Region 2N	159,963	0.66	4.29
Region 2S	179,694	0.50	3.28
Region 3	73,298	0.62	4.25
Region 5	71,723	0.39	3.95
Region 6	113,713	0.66	2.32
Region 7	23,710	0.79	3.35
Region 8	20,701	1.01	3.33



## Daily tests

State	Avg. daily tests
1. California	264.2K
2. New York	190.9K
3. Texas	103.3K
4. Illinois	96.5K
5. Ohio	62.3K
<small>Change from last week</small> - 6. Michigan	57.5K
7. New Jersey	51.6K
8. North Carolina	49.4K
9. Florida	48.2K
10. Washington	43.1K
11. Connecticut	35.2K
12. Virginia	35.2K
13. Georgia	32.2K
14. Tennessee	30.9K
15. Pennsylvania	27.3K
16. Oregon	24.7K
17. South Carolina	23.6K
18. Louisiana	23.3K
19. Massachusetts	23.2K
20. Kentucky	22.4K
21. Arizona	19.4K
22. Minnesota	19.1K
23. Maryland	18.1K
24. Oklahoma	17.8K
25. Colorado	17.6K
26. Indiana	16.6K
27. West Virginia	14.8K
28. Arkansas	13.8K

## Weekly % of pop. tested

State	Weekly % tested
1. Alaska	9.96%
2. Connecticut	6.91%
3. New York	6.87%
4. District of Columbia	6.78%
5. West Virginia	5.77%
6. Illinois	5.33%
7. California	4.68%
8. New Mexico	4.57%
9. Maine	4.44%
10. Oregon	4.11%
<small>Change from last week</small> ↓ -1 11. New Jersey	4.06%
12. Michigan	4.03%
13. Washington	3.97%
14. Ohio	3.73%
15. Kentucky	3.51%
16. Louisiana	3.51%
17. North Carolina	3.30%
18. South Carolina	3.21%
19. Arkansas	3.21%
20. Tennessee	3.17%
21. Oklahoma	3.15%
22. Montana	3.13%
23. Virginia	2.88%
24. Rhode Island	2.52%
25. Texas	2.49%
26. Minnesota	2.37%
27. Massachusetts	2.36%
28. Delaware	2.23%

## Percent positive

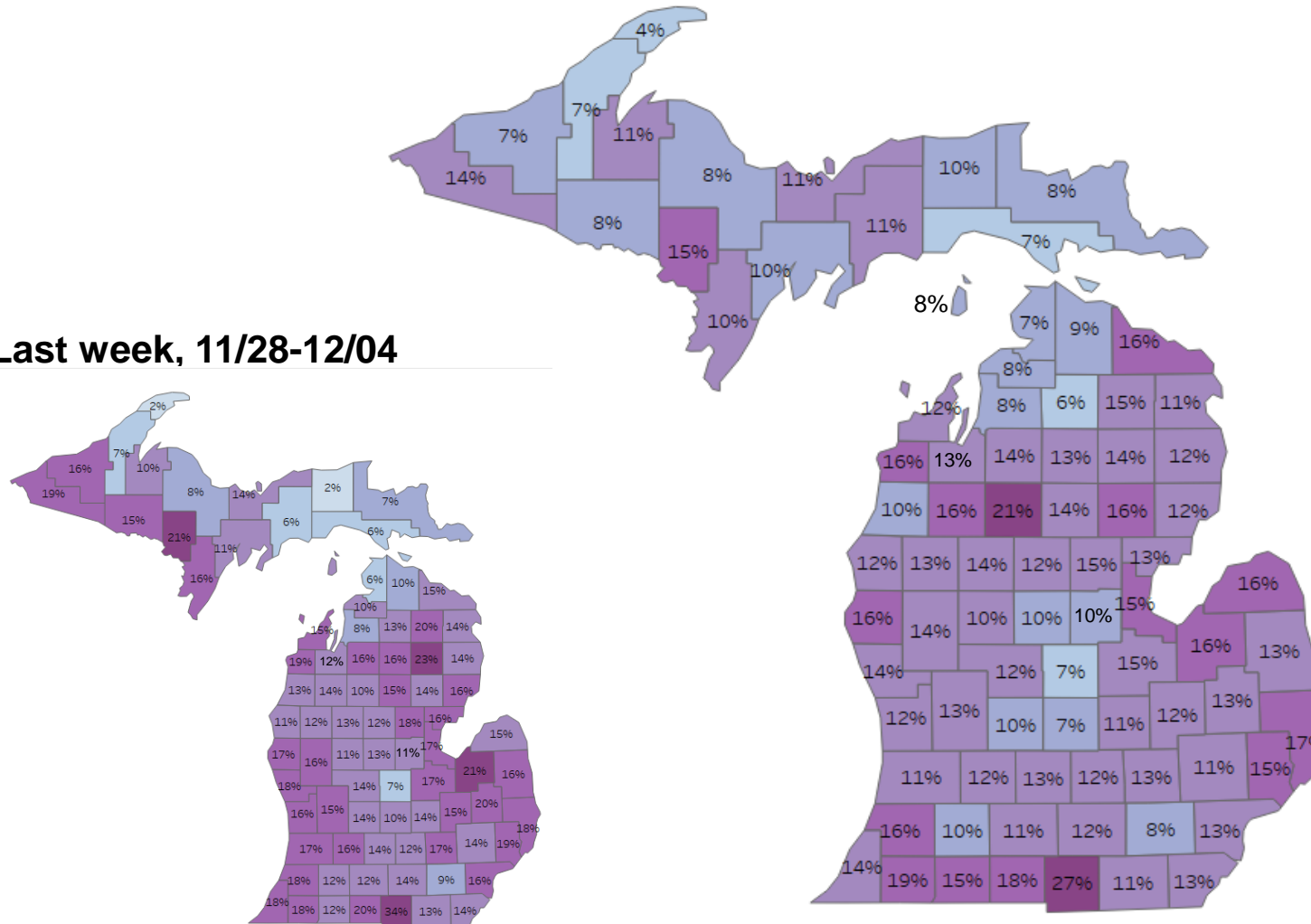
State	% positive
1. Maine	3.9%
2. District of Columbia	4.0%
3. New York	5.2%
4. Oregon	6.1%
5. Alaska	6.4%
6. Washington	6.5%
7. Vermont	6.6%
8. Connecticut	6.8%
9. West Virginia	8.4%
10. Illinois	9.5%
11. New Jersey	9.9%
12. California	10.0%
13. Louisiana	10.6%
14. Virginia	10.8%
15. North Carolina	11.2%
16. South Carolina	11.3%
<small>Change from last week</small> ↓ -2 17. New Mexico	12.4%
18. Michigan	12.5%
19. Georgia	12.8%
20. Texas	13.8%
21. Kentucky	14.6%
22. Arkansas	15.0%
23. Maryland	16.1%
24. Oklahoma	17.2%
25. Montana	17.3%
26. Tennessee	18.8%
27. Florida	19.0%
28. Ohio	19.5%

Week ending 12/12/2020 (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.

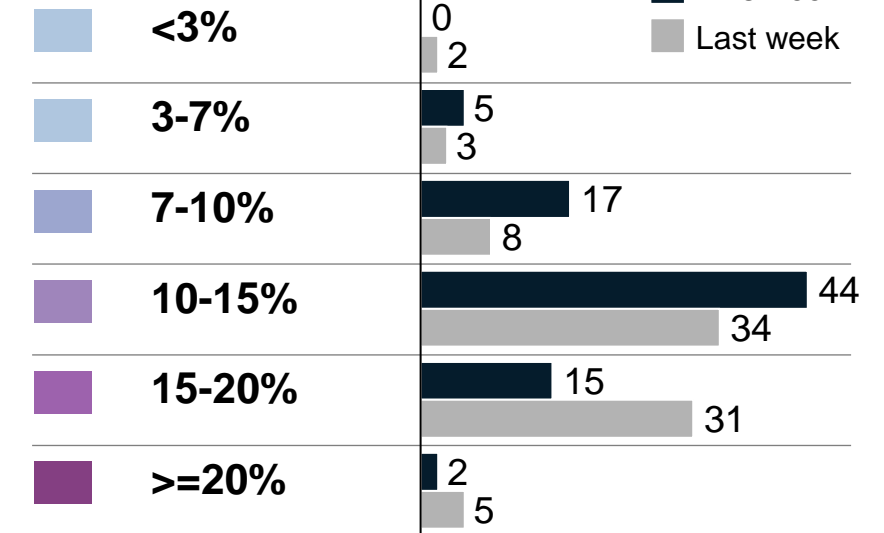
# Positivity by county, 12/05-12/11

Last week, 11/28-12/04



Average  
positivity per day

# of counties

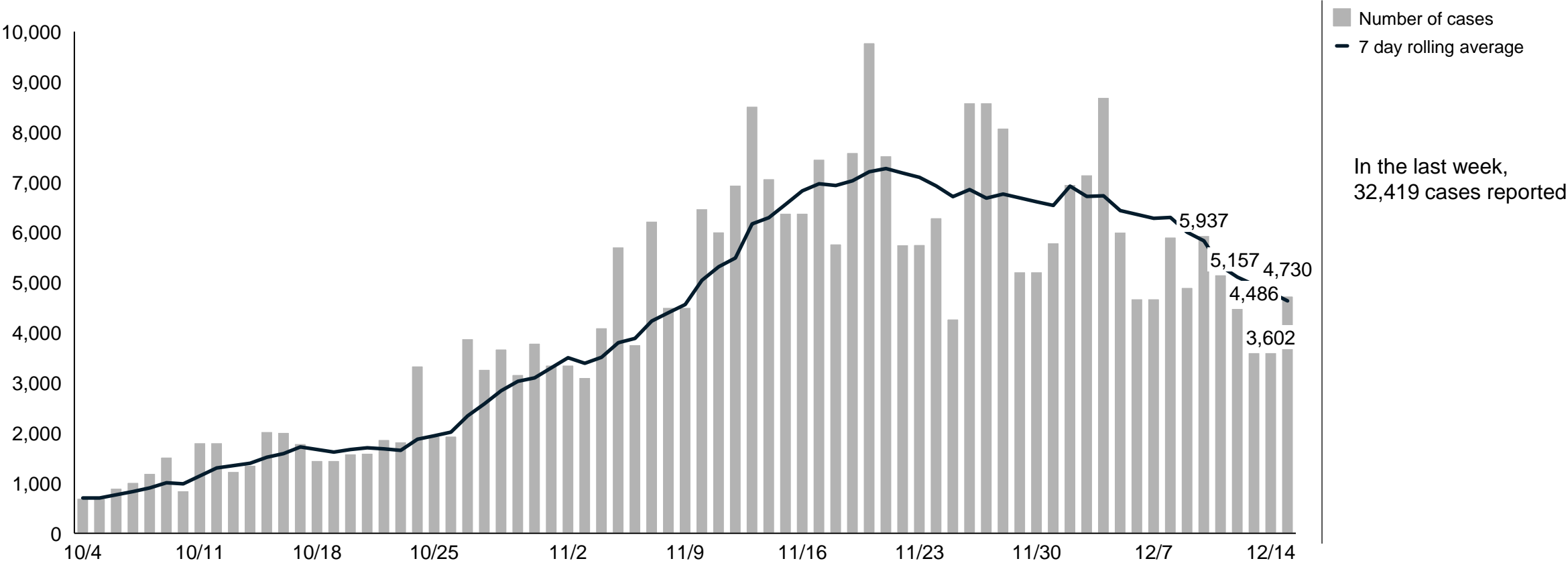


Updates since last week:

61 of 83 counties saw double digit positivity in the last week (reduction)

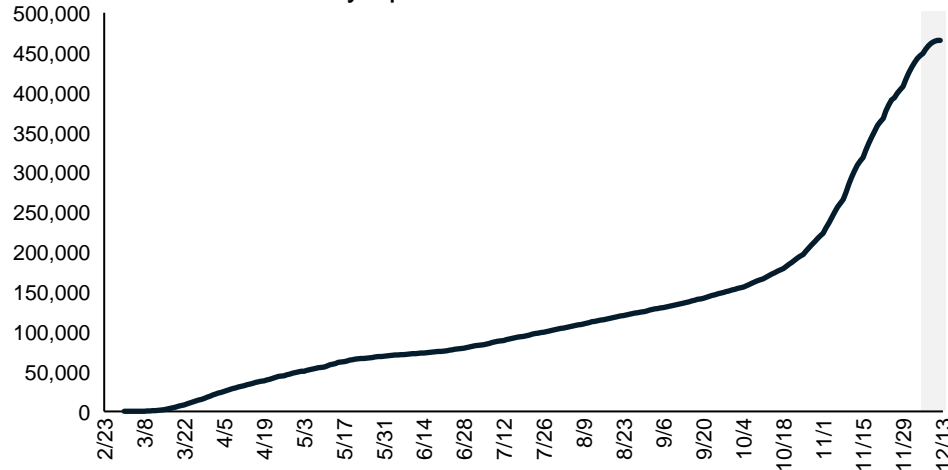
# Confirmed COVID-19 cases by report date: State of Michigan

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

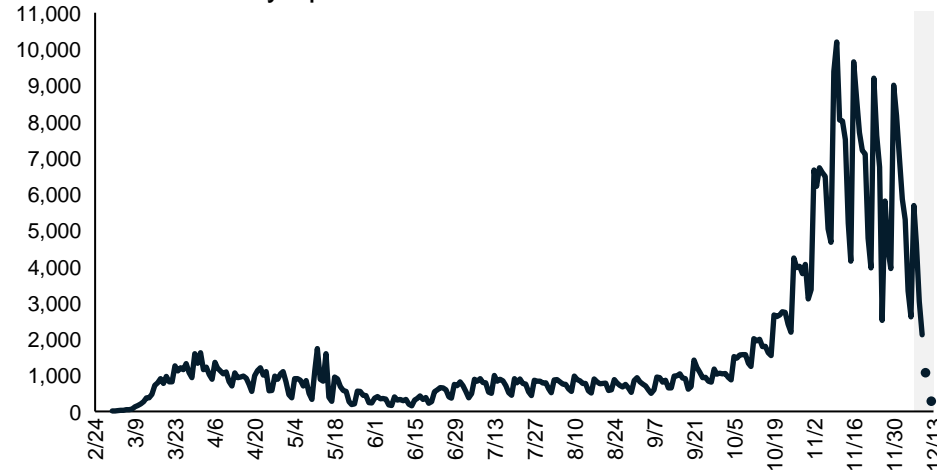


# COVID-19 cases and deaths by onset date: State of Michigan

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



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

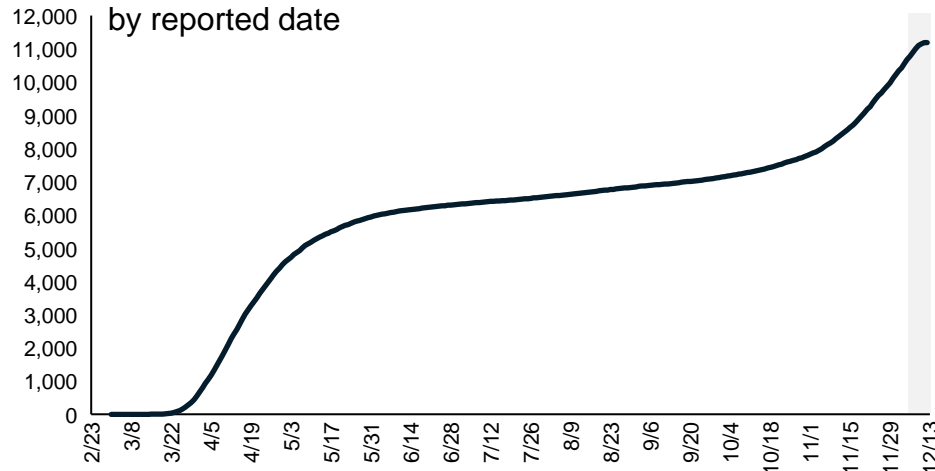


**Updates since last week:**

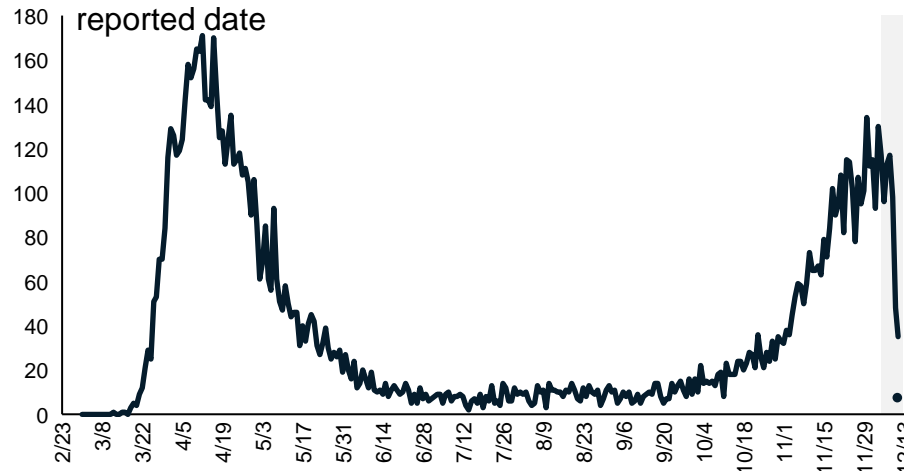
Cases have dropped for the third week in a row

Current daily case rate remains more than 5x the rate from early October

**Cumulative confirmed and probable deaths, by reported date**



**New confirmed and probable deaths, by reported date**



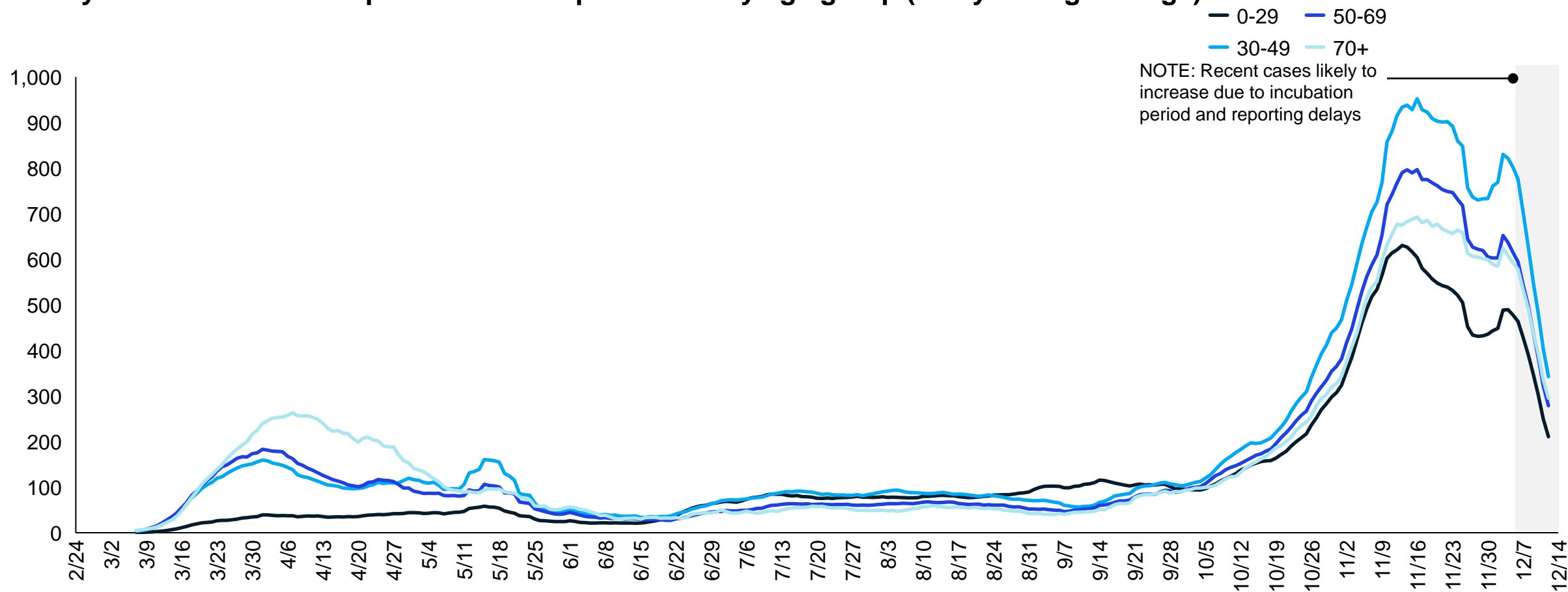
**Updates since last week:**

Current deaths are a lagging indicator of cases, but the rate of increase continues to slow

The current number of deaths is more than 8x the number 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)

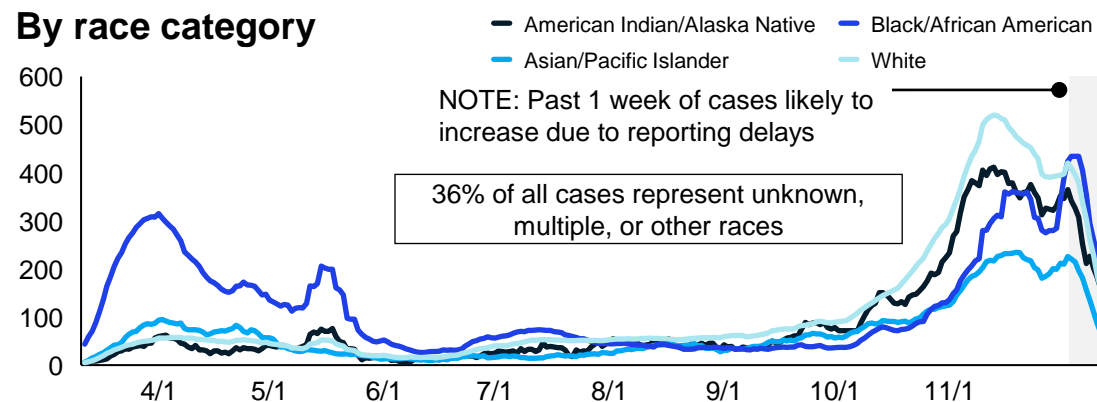


30-49 age group continues to have the highest cases per million, though cases per million have decreased for all age groups over the past 5 weeks

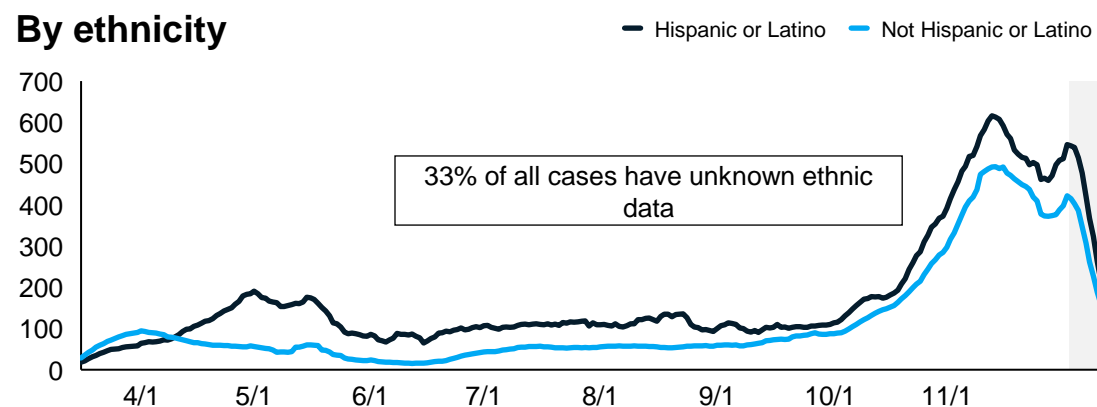
# Average daily new cases per million people by race and ethnicity

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

## By race category

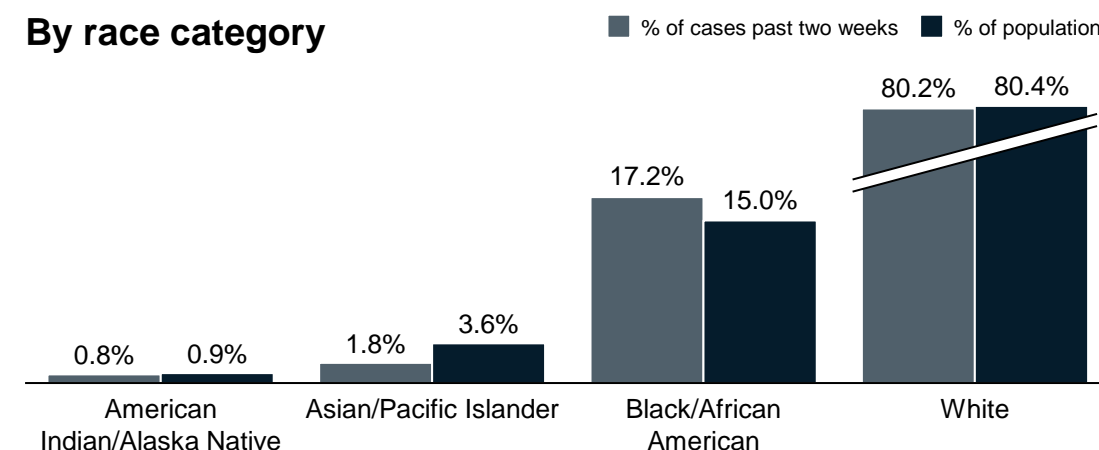


## By ethnicity

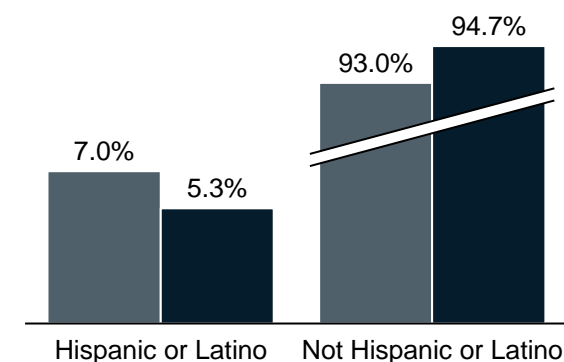


Past two weeks confirmed and probable cases vs. population, % of total

## By race category



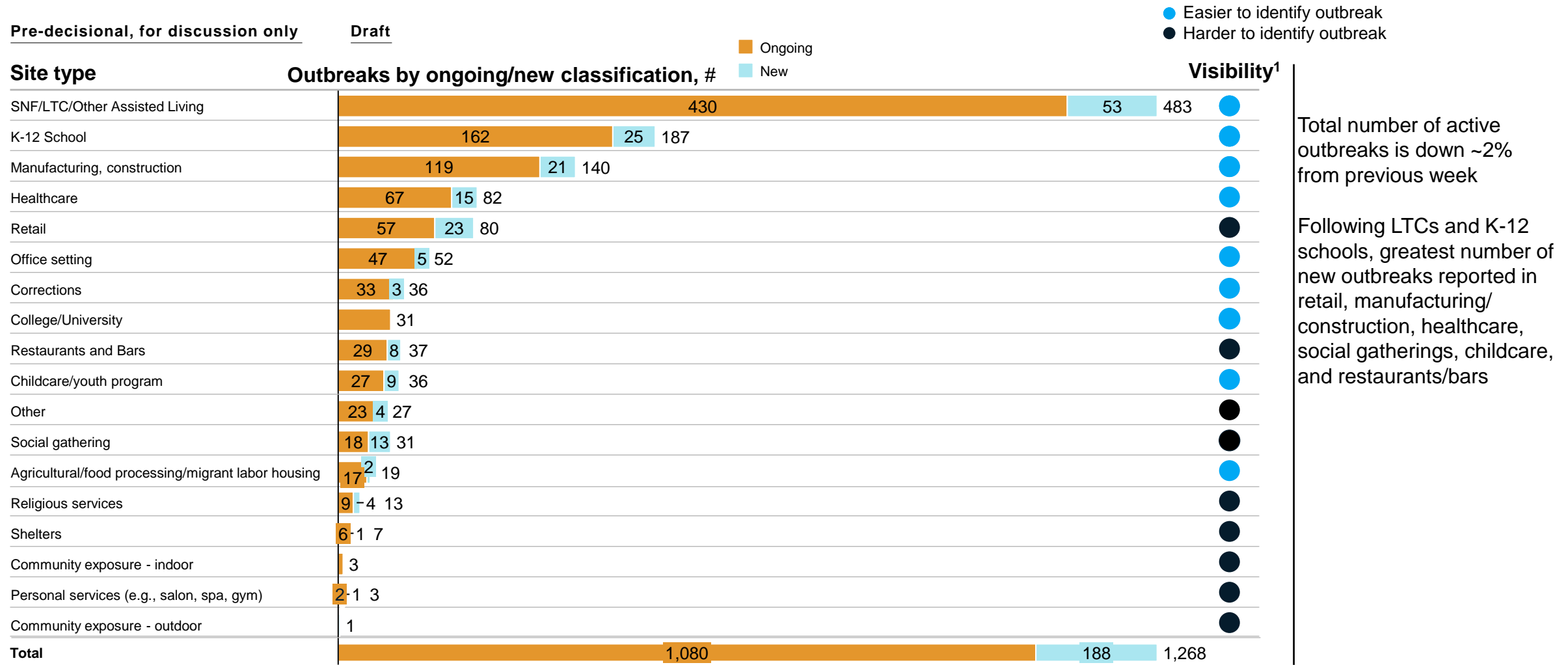
## By ethnicity



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 Dec 10



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 Dec 10

Region	Number of reported cases, #	# Ongoing - Excluding New	# New	Number of outbreaks	Range of cases per outbreak
Region 1	10618124			27	2-11
Region 2n	681785			25	2-9
Region 2s	521365			16	2-11
Region 3	15124175			30	2-18
Region 5	1311427			10	2-4
Region 6	60425629			47	2-79
Region 7	59160			14	1-11
Region 8	1502152			19	2-28
Total	1,2031141,317			188	1-79

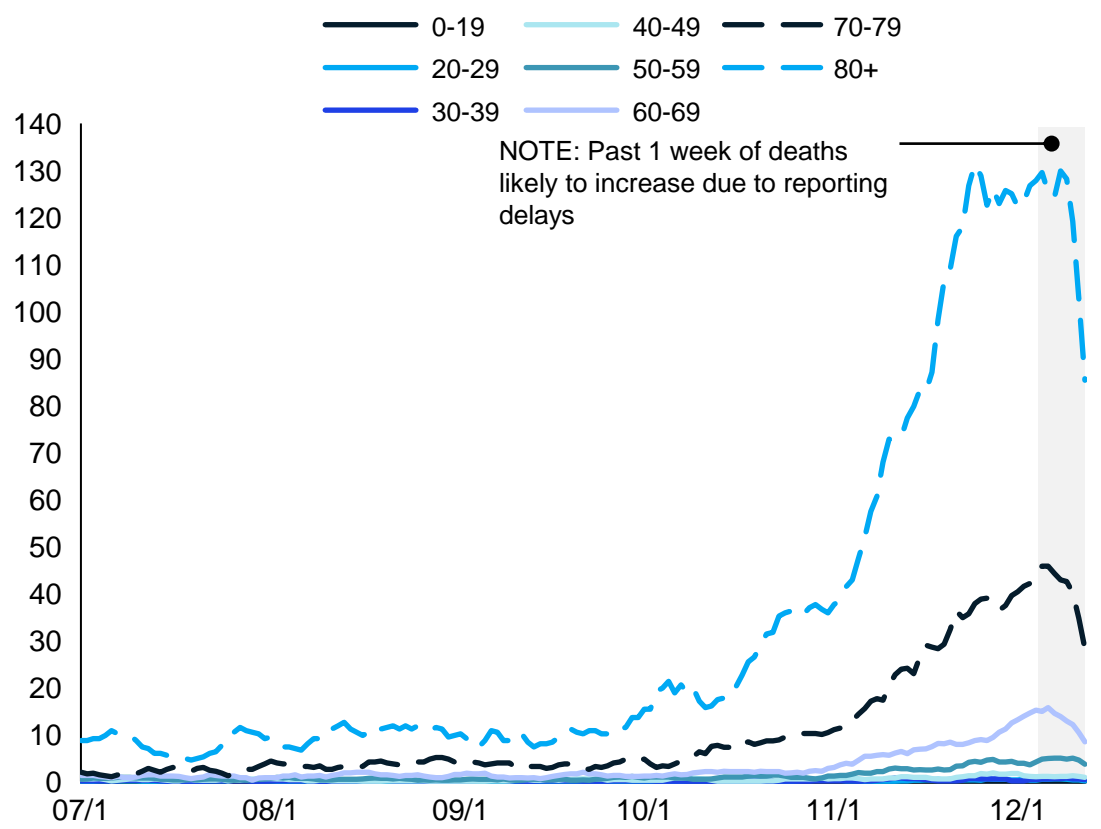
Grade level	Number of reported cases, #	# Ongoing - Excluding New	# New	Number of outbreaks	Range of cases per outbreak
Pre-school - elem.	27768345			75	1-18
Jr. high/middle school	17418192			34	1-16
High school	72714741			68	2-79
Administrative	251439			7	1-6
Total	1,2031141,317			188	1-79

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

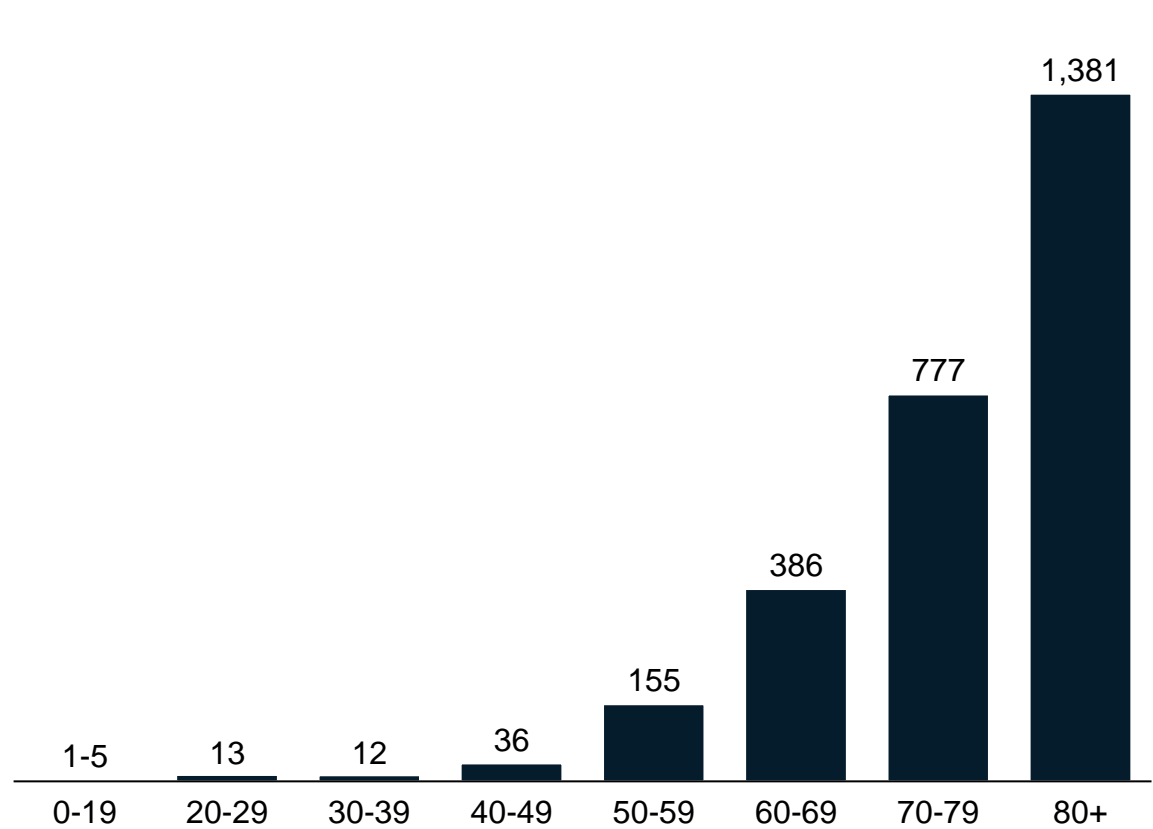


# Average and total new deaths, by age group

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 12/12)



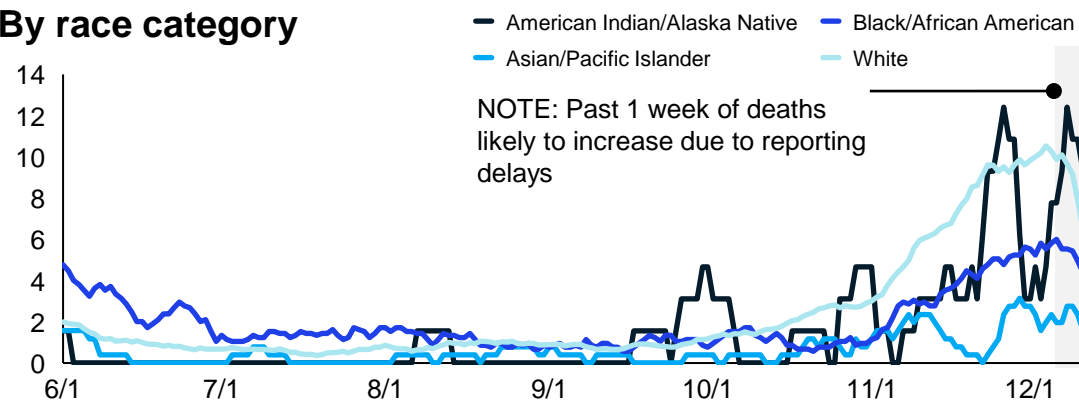
Note: Cases information sourced from MDHHS and reflects date of report

Source: MDHHS – Michigan Disease Surveillance System

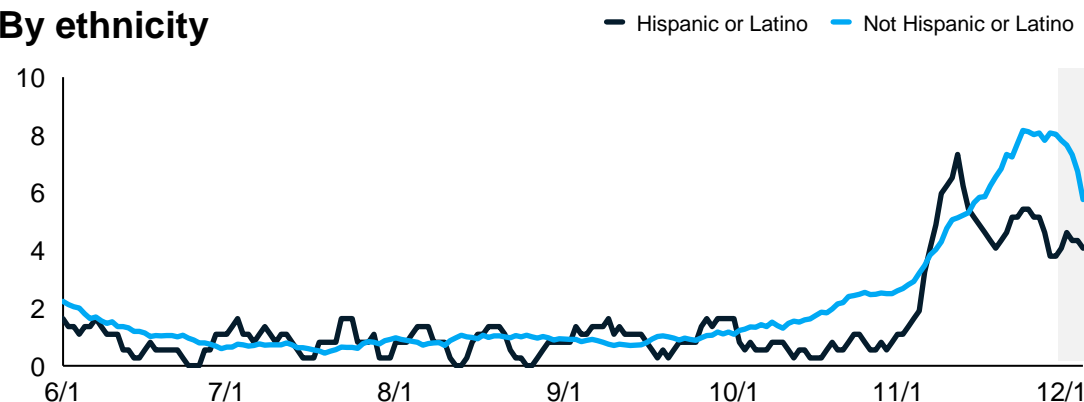
# Average daily new deaths per million people by race and ethnicity

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

## By race category



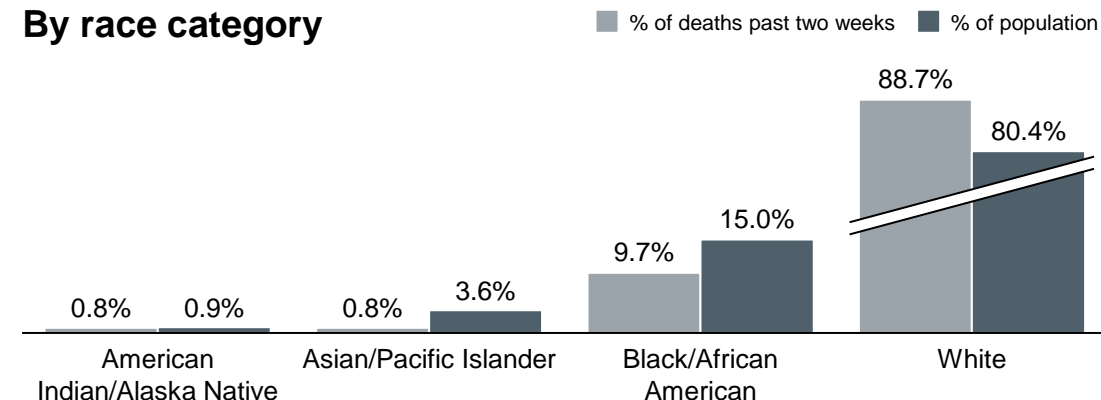
## By ethnicity



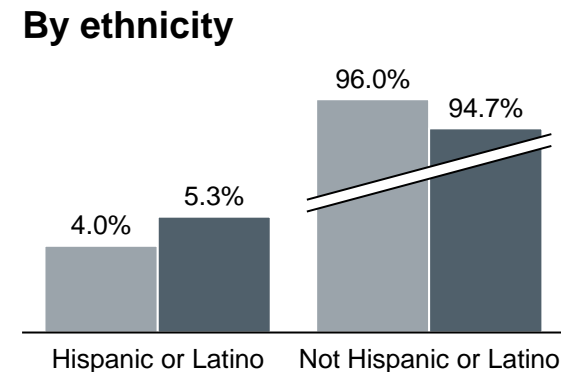
Note: Multiple Races, Other, and Unknown race/ethnicity are not included in calculations  
Source: MDHHS – Michigan Disease Surveillance System

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

## By race category



## By ethnicity



# COVID-19 and Healthcare Capacity

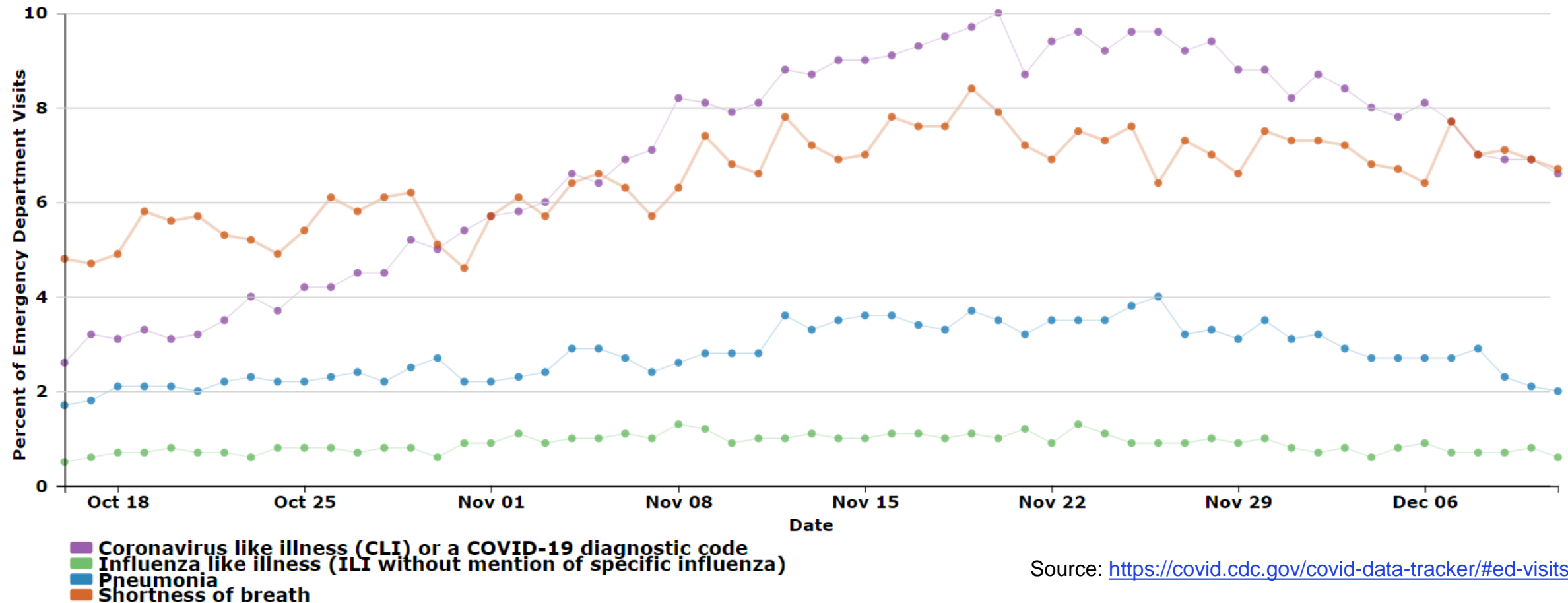
COVID-19-like illness decreased over the past three week and is now around 6%

Hospitalizations and ICU utilization are plateauing or decreasing

- Hospitalizations declining and now 80% of spring high
- ICU occupancy > 30% but flat over three weeks
- Four regions have >30% of Adult ICU beds with patients positive for COVID

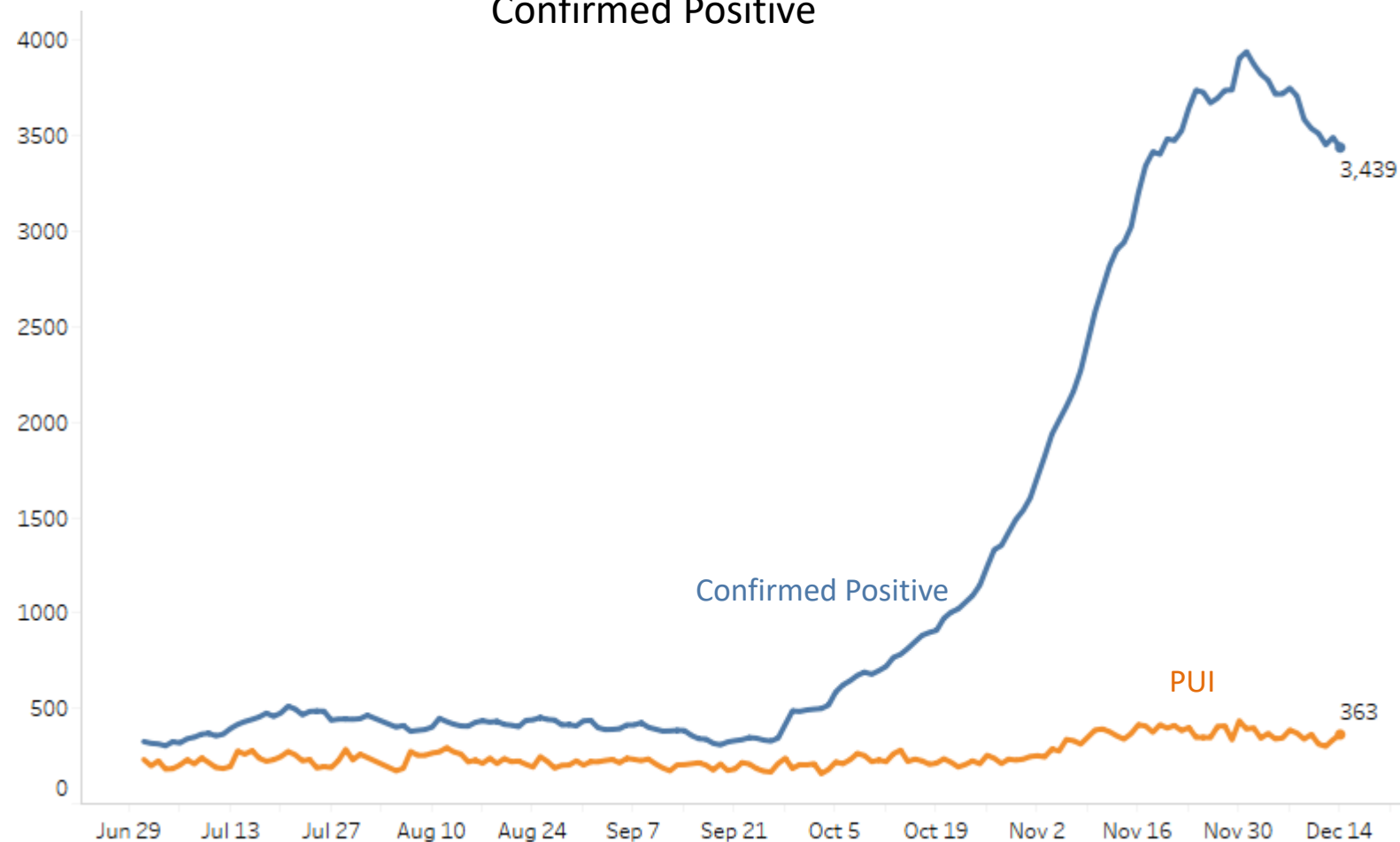
# Michigan Trends in Emergency Department Visits for COVID-19-Like Illness (CLI)

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



# Statewide Hospitalization Trends: Total COVID+ Census

Hospitalization Trends 7/1/2020 – 12/14/2020  
Confirmed Positive

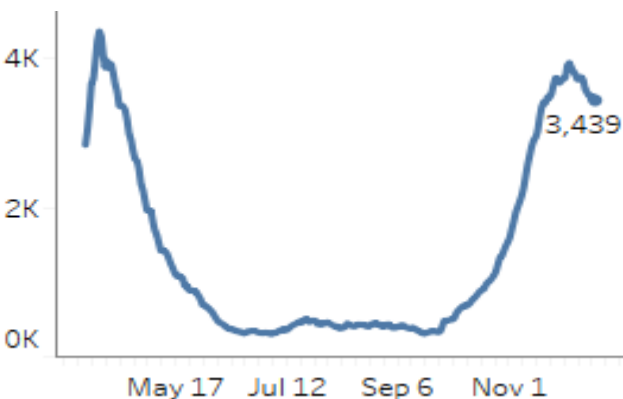


This week, hospital COVID census is down 8% from the previous week and down 13% from the December 1 peak

We are at about 80% of our spring peak levels

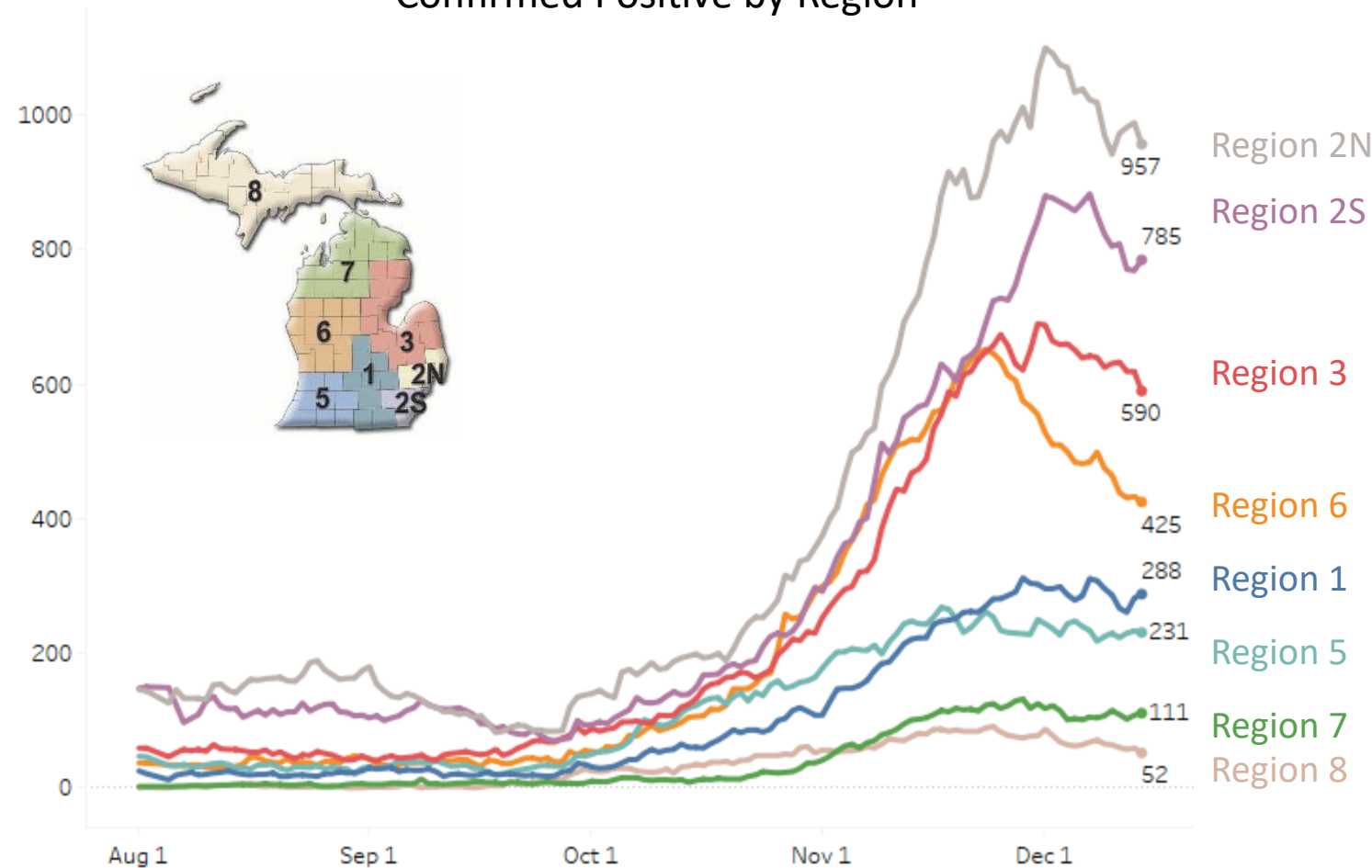
New COVID admissions are down approximately 10% vs. the prior week

Hospitalized COVID Positive Long Term Trend (beginning March)



# Statewide Hospitalization Trends: Regional COVID+ Census

Hospitalization Trends 8/1/2020 – 12/14/2020  
Confirmed Positive by Region



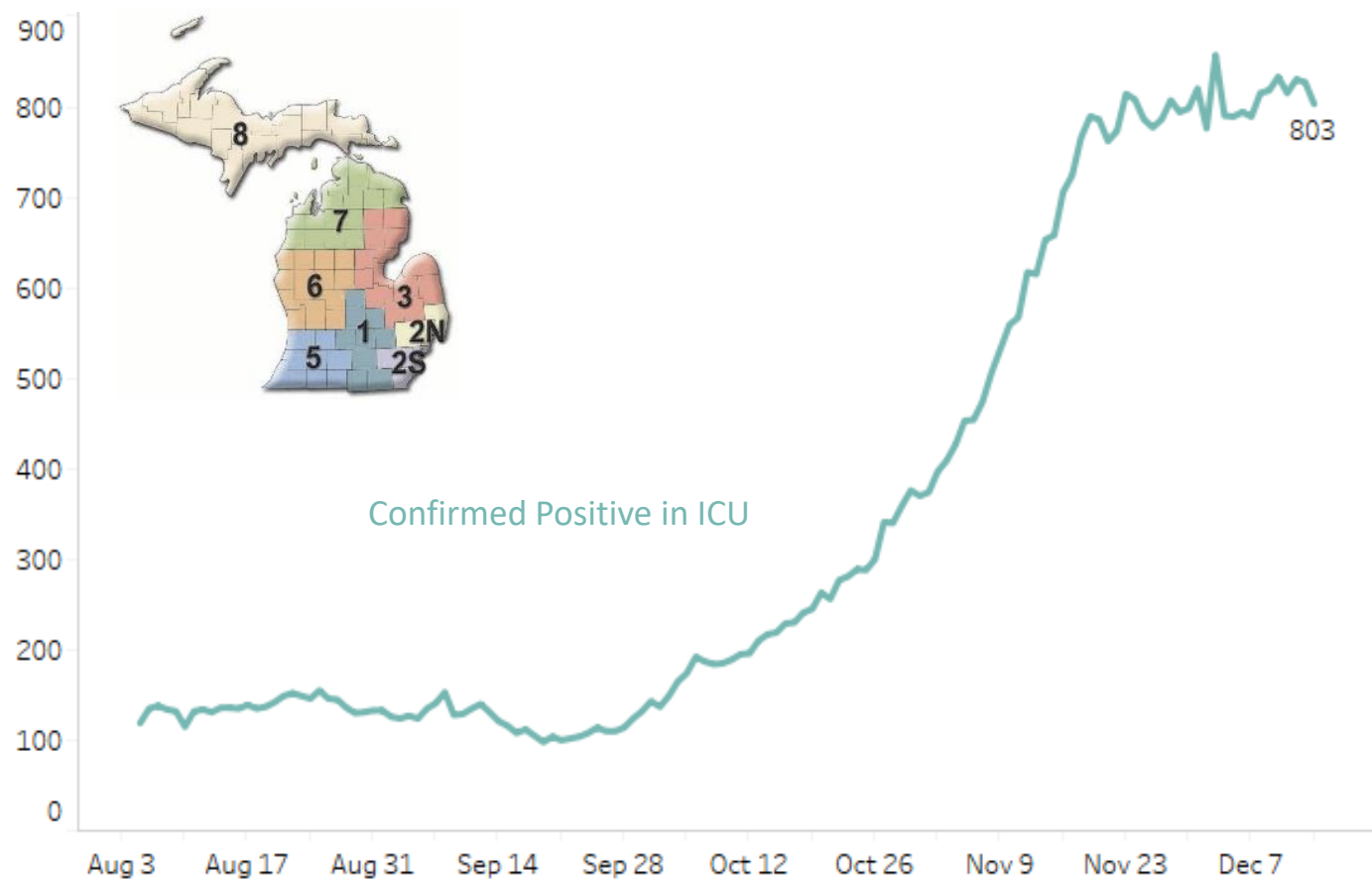
Only Region 7 shows growth in COVID+ hospital census from last week. All other regions show decreasing rates with Region 8 showing the biggest percentage decrease.

Regions 2N and 3 remain the most impacted on a population adjusted basis.

Region	Growth from Last Week	COVID+ Hospitalizations / MM
Region 1	-7%	266/M
Region 2N	-6%	432/M
Region 2S	-11%	352/M
Region 3	-8%	520/M
Region 5	-1%	242/M
Region 6	-12%	290/M
Region 7	6%	222/M
Region 8	-24%	167/M

# Statewide Hospitalization Trends: ICU COVID+ Census

Hospitalization Trends 8/1/2020 – 12/14/2020  
Confirmed Positive in ICUs



Overall COVID+ census in ICUs has been flat over the past 3 weeks and ~30% of Adult ICU Beds.

Regions 1, 2N, 2S, 7 show some modest growth in ICU census vs. week prior

4/8 regions continue to have >30% of beds occupied with COVID patients

Region	Adult COVID+ in ICU (% Δ from last week)	Adult ICU Occupancy	% of Adult ICU beds COVID+
Region 1	76 (+10%)	93%	39%
Region 2N	176 (+12%)	84%	33%
Region 2S	205 (+7%)	86%	27%
Region 3	146 (-7%)	94%	39%
Region 5	36 (-18%)	86%	24%
Region 6	100 (-6%)	76%	31%
Region 7	50 (+14%)	73%	27%
Region 8	14 (-33%)	69%	24%

Hospital bed capacity updated as of 12/11

# Public health capacity

Case investigation and contact tracing increasing although numbers still low relative to goals.

Many jurisdictions continuing to prioritize case investigation due to overwhelming high number of cases

Metrics for cases investigation and contact tracing are all trending in a favorable direction



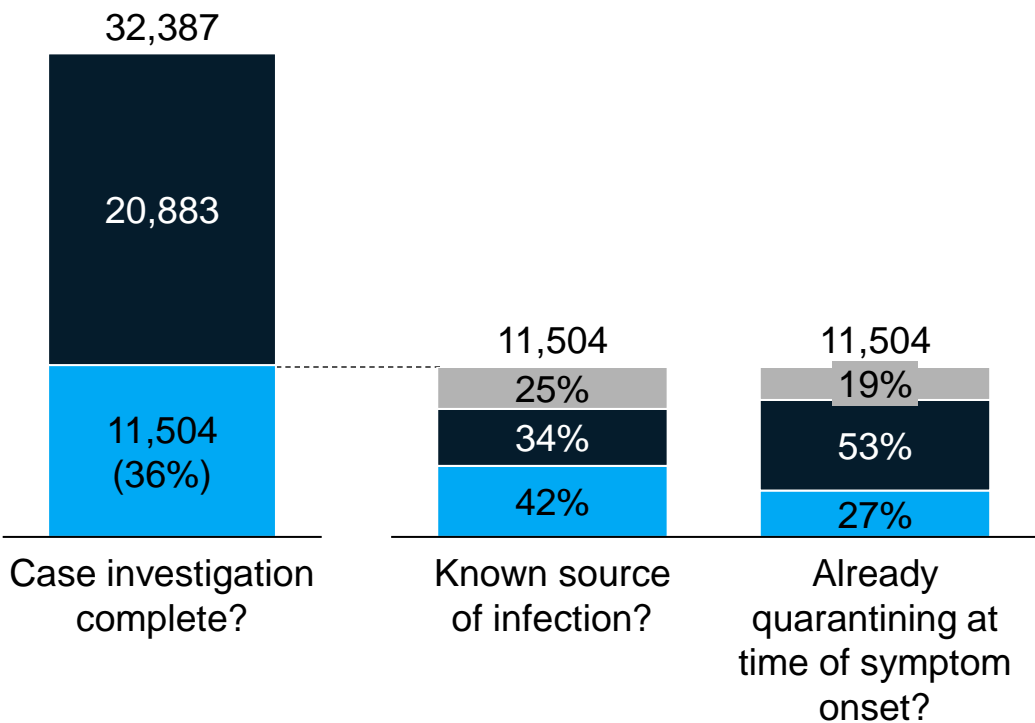
# New Case Investigation Metrics

New Communicable Disease metrics slightly increased since last week:

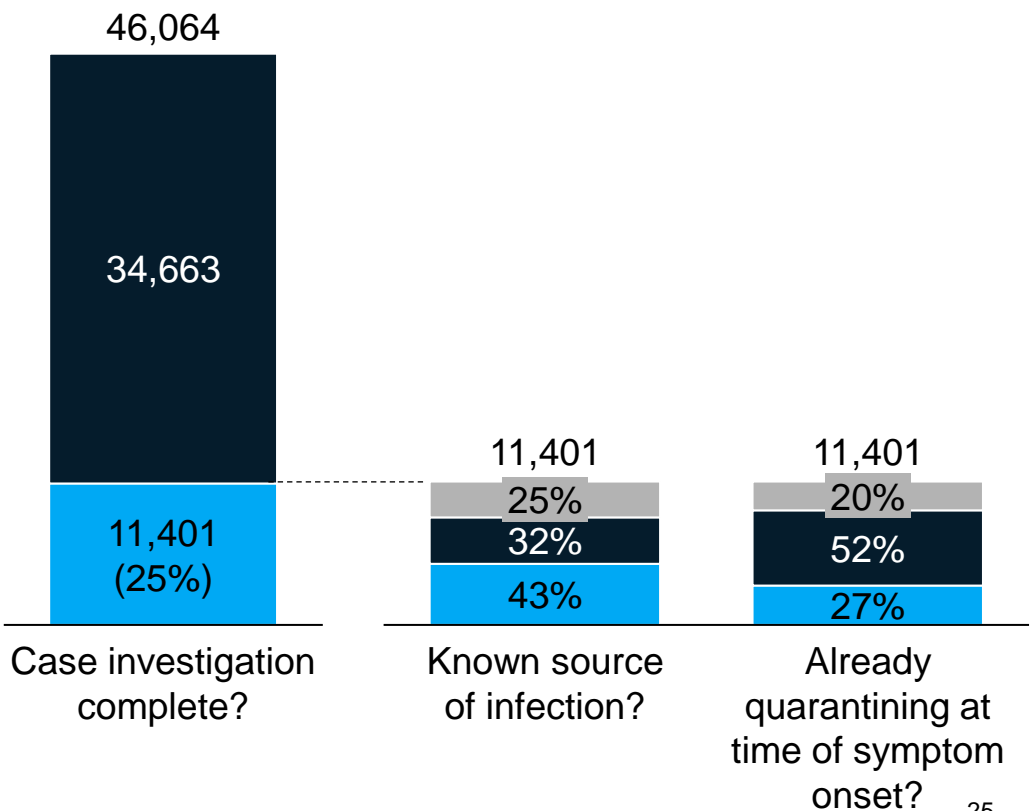
- 42% of investigated cases having a known source (43% last week, 38% week prior)
- 27% of investigated cases noting that they were quarantining before symptoms (27% last week)

Yes No Not answered

Case report form information, 12/04-12/11



Case report form information, 11/28-12/04



# Testing, case investigation, and contact tracing: Current state

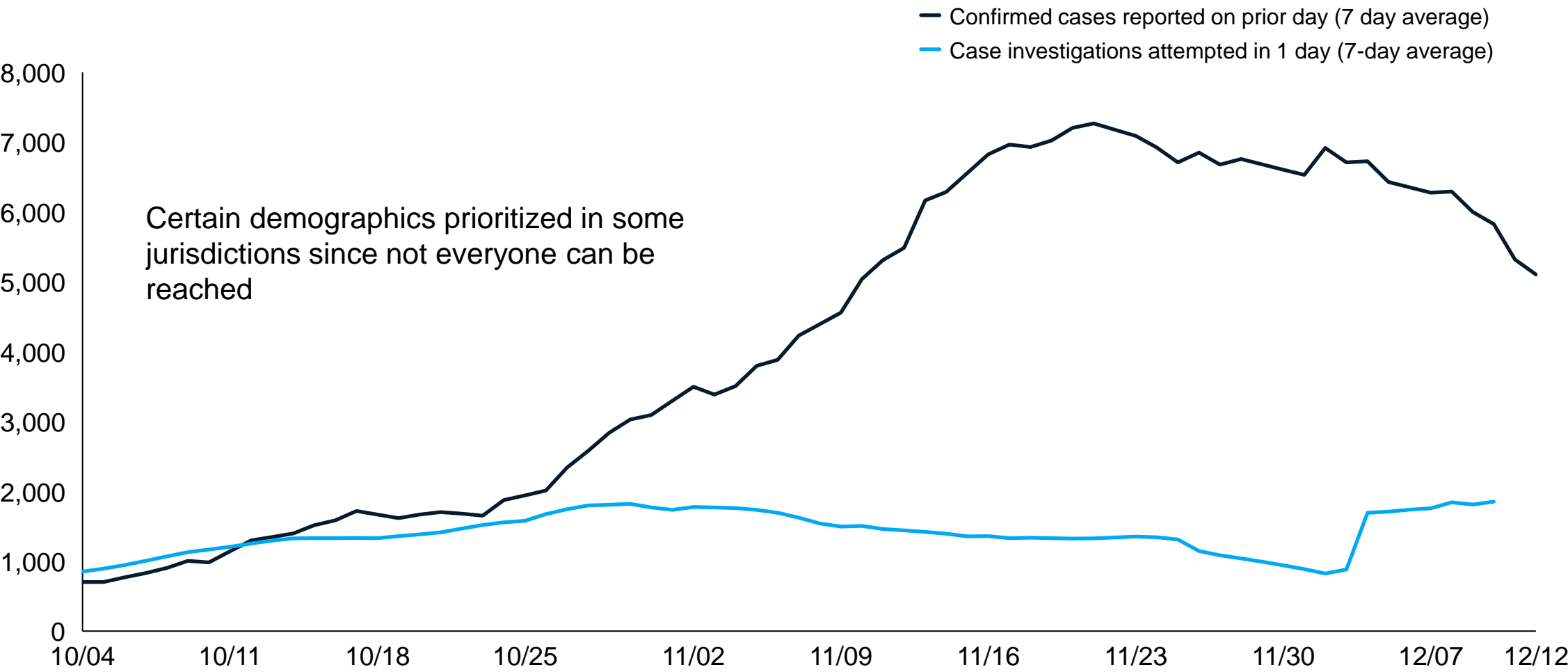
	Testing			Case investigation and contact acquisition			Initial contact tracing		Ongoing contact monitoring still occurring through texting and calls
Goal	2K tests per million per day	3% test positivity, excluding MDOC	Fast test to result turnaround time <sup>6</sup>	90% calls attempted in one day	75% calls completed in one day	50% with contacts in one day	90% calls attempted in one day	75% calls completed in one day	
Performance	5.4K	12.8%	3.36 days	31.8% <sup>1</sup>	22.9% <sup>2</sup>	22.1% <sup>3</sup>	96.8% <sup>4</sup>	62.7% <sup>5</sup>	73.9%
Trend since last week	Favorable	Unfavorable	Favorable	Favorable	Favorable	Favorable	Stable	Stable	

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 report date; Absolute number of case investigations estimated from daily case investigation success rate  
Source: MDHHS – Michigan Disease Surveillance System

# Indirect Impacts

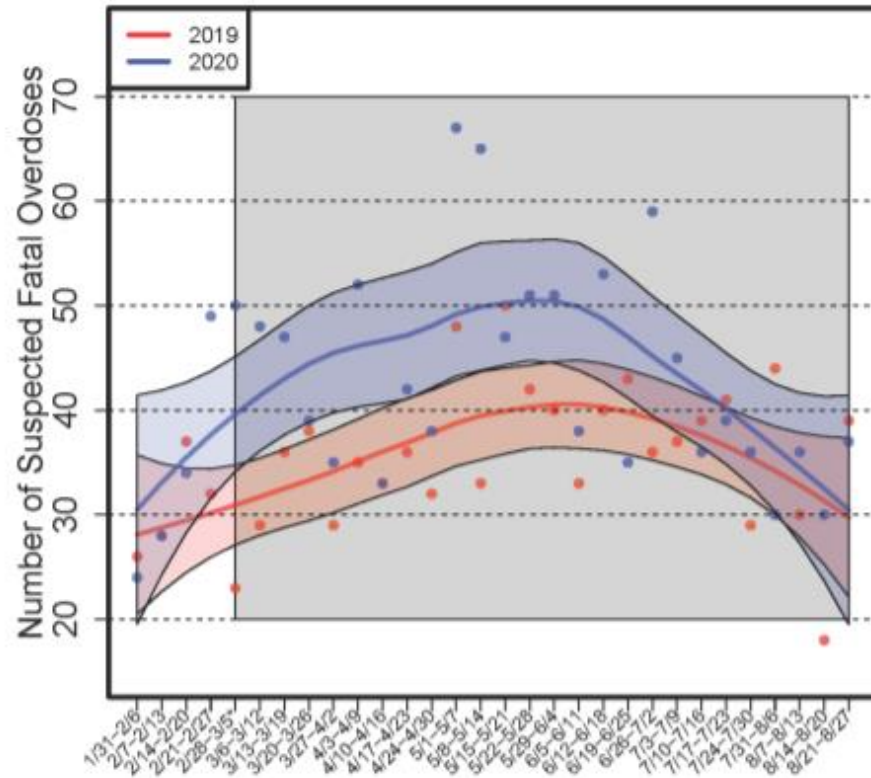
Fatal overdoses are 15.0% higher and EMS naloxone administrations are 28.8% higher than in 2019

Provisional suicide deaths from January 2019 to July 2020 do not appear to have significantly fluctuated

Proportion of injury-related ED visits in 2020 has been comparable to previous years' data

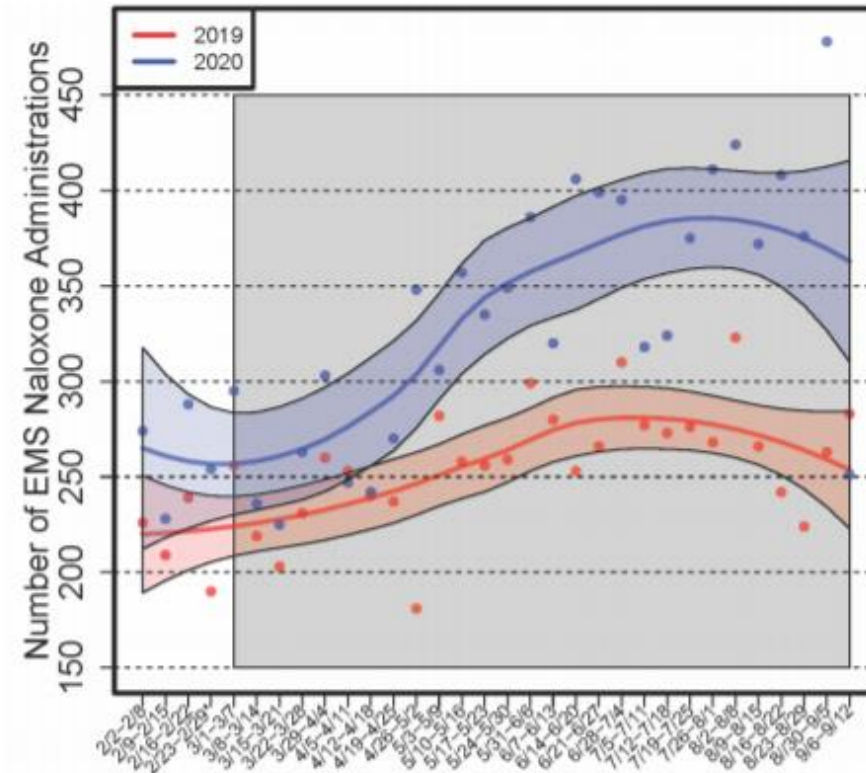
# Fatal overdoses are 15.0% higher and EMS naloxone administrations are 28.8% higher than in 2019

FIGURE 1. SUSPECTED FATAL OVERDOSES BY WEEK IN 2019 VS. 2020



Counts of suspected fatal overdoses from counties with available data, by week, with the smoothed trajectory (line) and pointwise 95% confidence interval (shaded region) superimposed  
\*: Date range excludes 2/29 in 2019

FIGURE 2. STATEWIDE EMS NALOXONE ADMINISTRATIONS BY WEEK IN 2019 VS. 2020



Counts of statewide EMS naloxone administrations, by week, with the smoothed trajectory (line) and pointwise 95% confidence interval (shaded region) superimposed  
\*: Date range excludes 2/29 in 2019

# Changes from 2019 to 2020 in both data sources varied across both time and space

FIGURE 3. PERCENT CHANGE  
IN SUSPECTED FATAL OVERDOSE

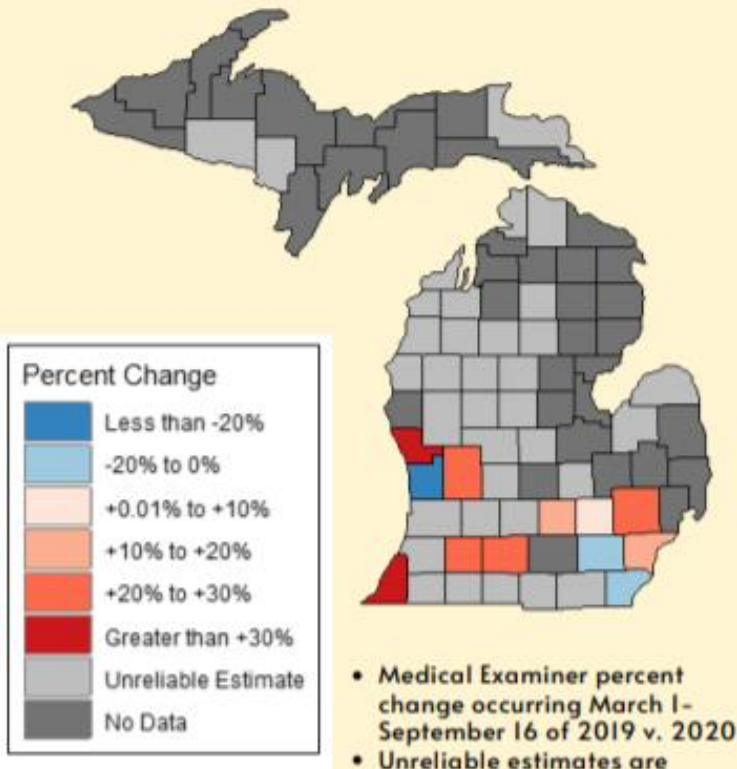
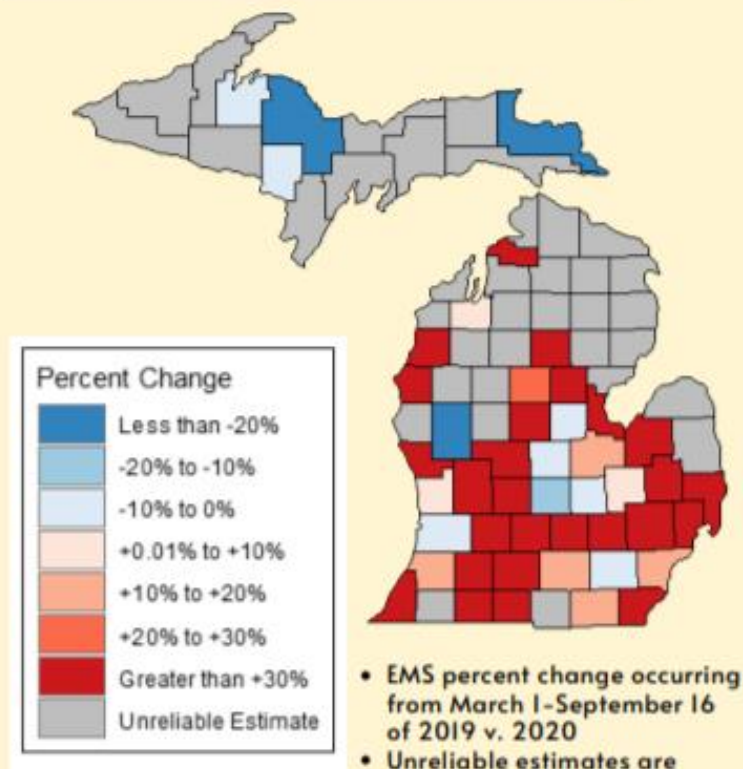


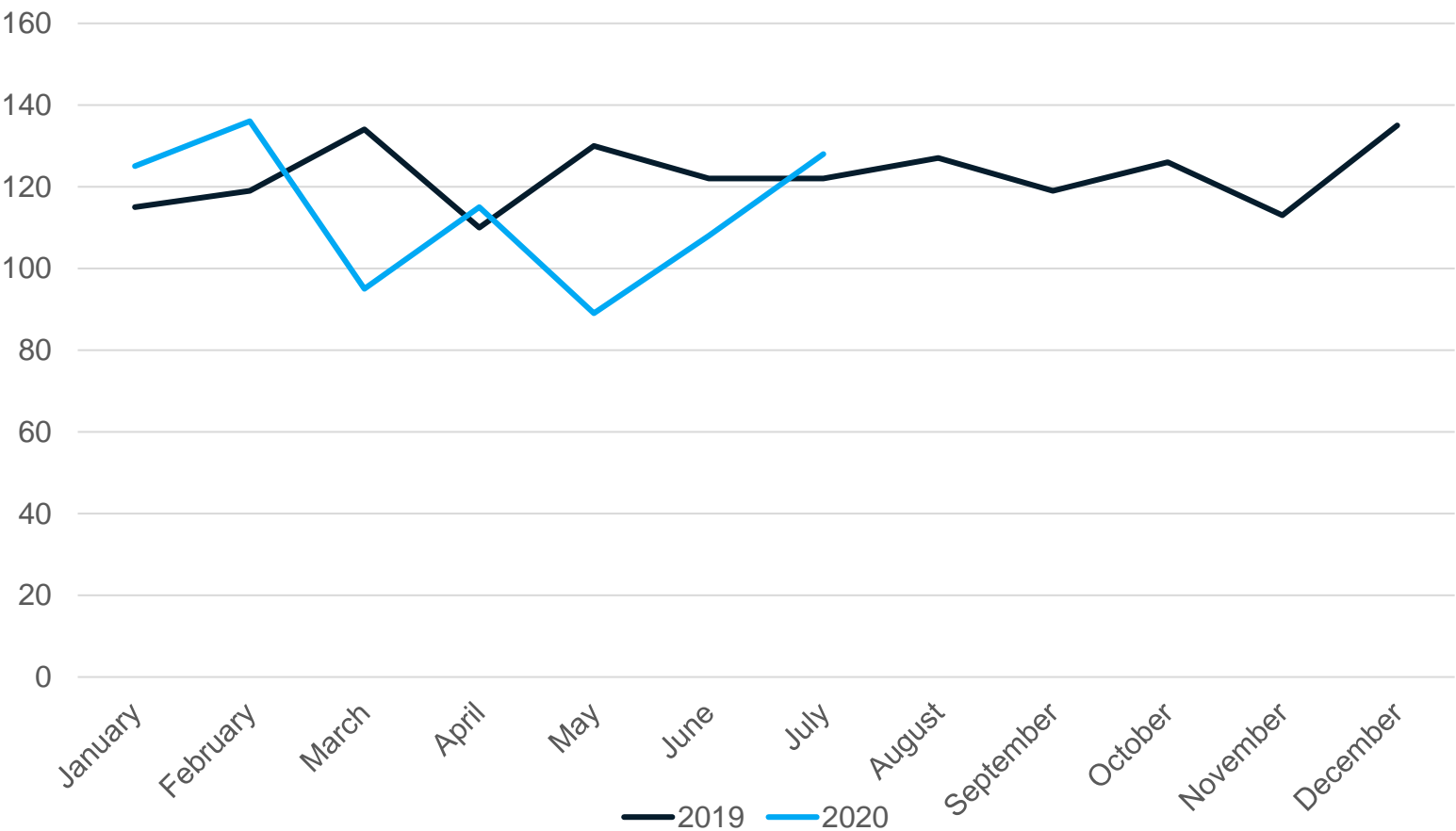
FIGURE 4. PERCENT CHANGE IN  
EMS NALOXONE ADMINISTRATION



# Michigan Suicide Deaths by Month, 2019 and 2020

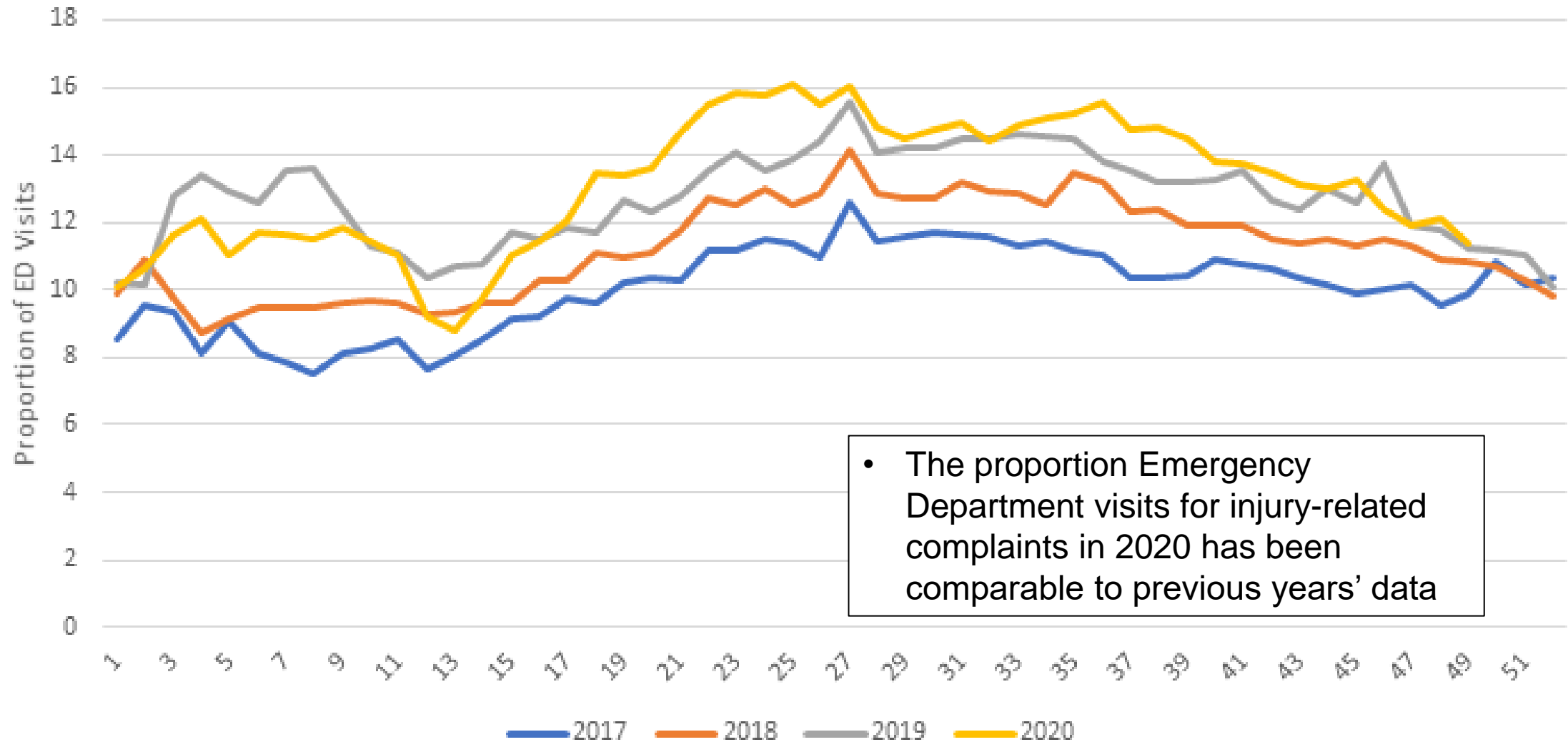
The number of suicide deaths in Michigan from January 2019 to July 2020 do not appear to have significantly fluctuated.

2020 data are provisional and not final.



Note that 2020 data are preliminary. Data after July 2020 are too recent to provide due to under-ascertainment.

## Proportion of Injury-Related ED Visits by MMWR Week - Michigan



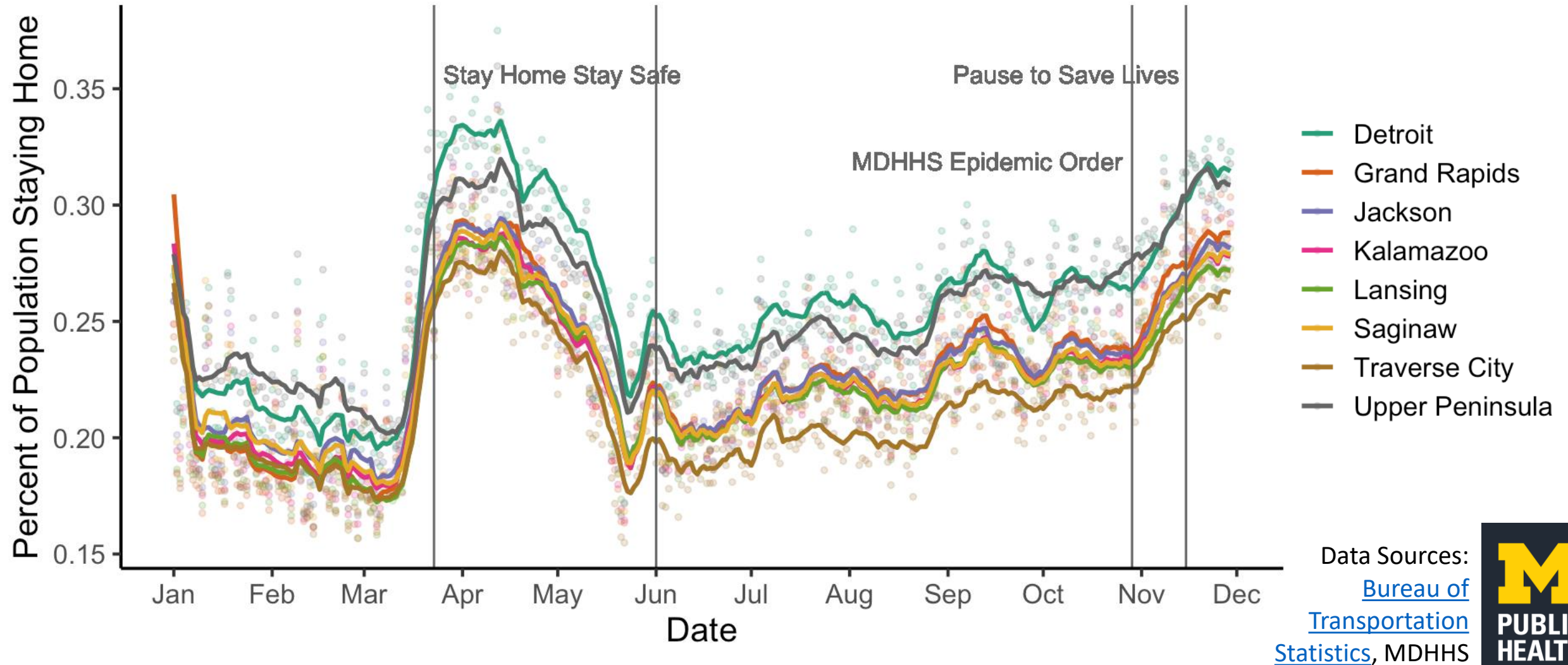


# Science Round Up

Mobility data show that Michiganders are staying home including over the Thanksgiving holiday

Waste water surveillance systems can inform public health response in congregate and community settings

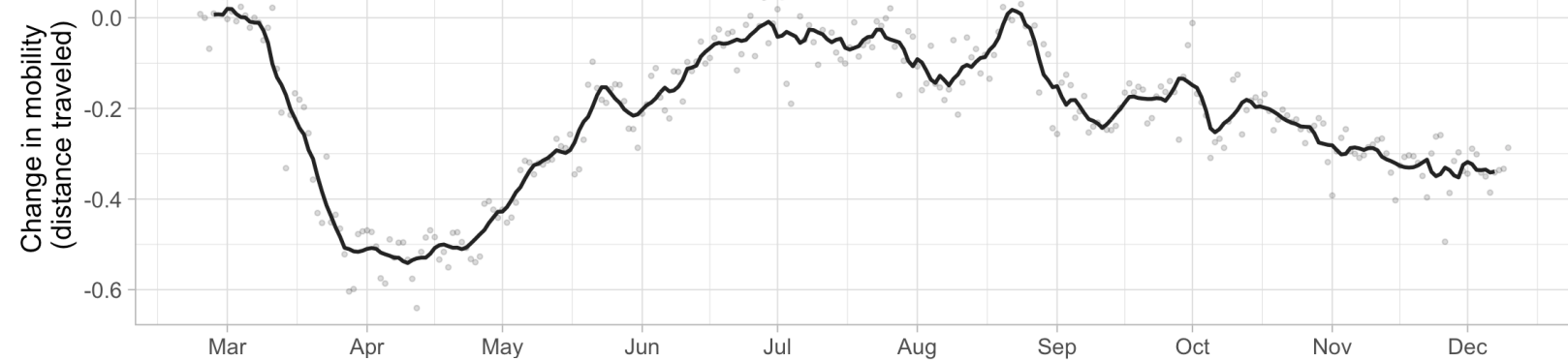
# Regional patterns in percent staying home



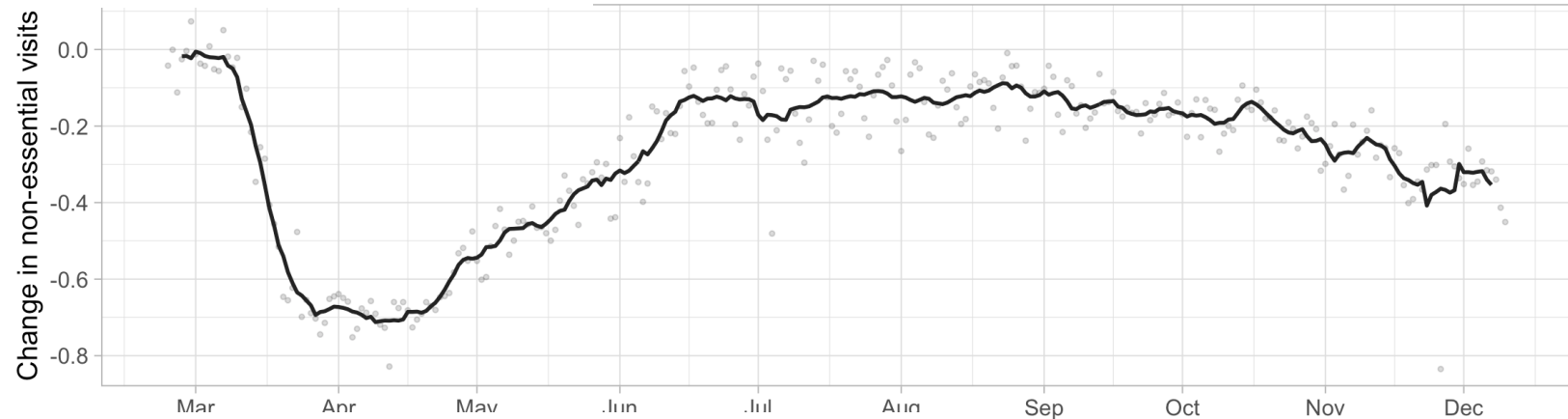
# Unacast mobility patterns show declines for MI

Particularly pronounced decline in encounter density, but consistent across all three metrics

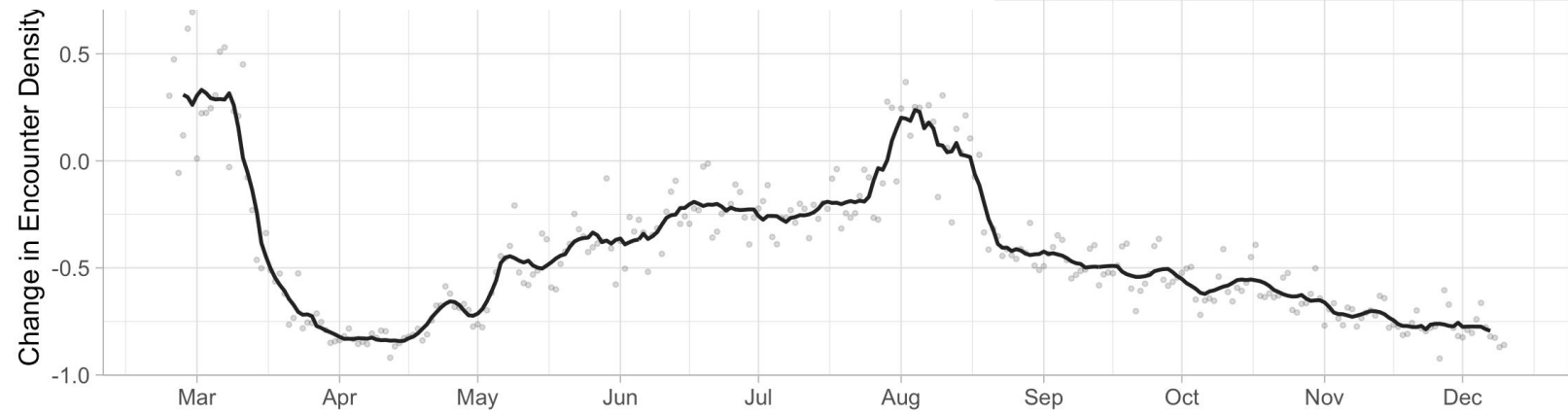
## Change in average mobility



## Change in non-essential visits



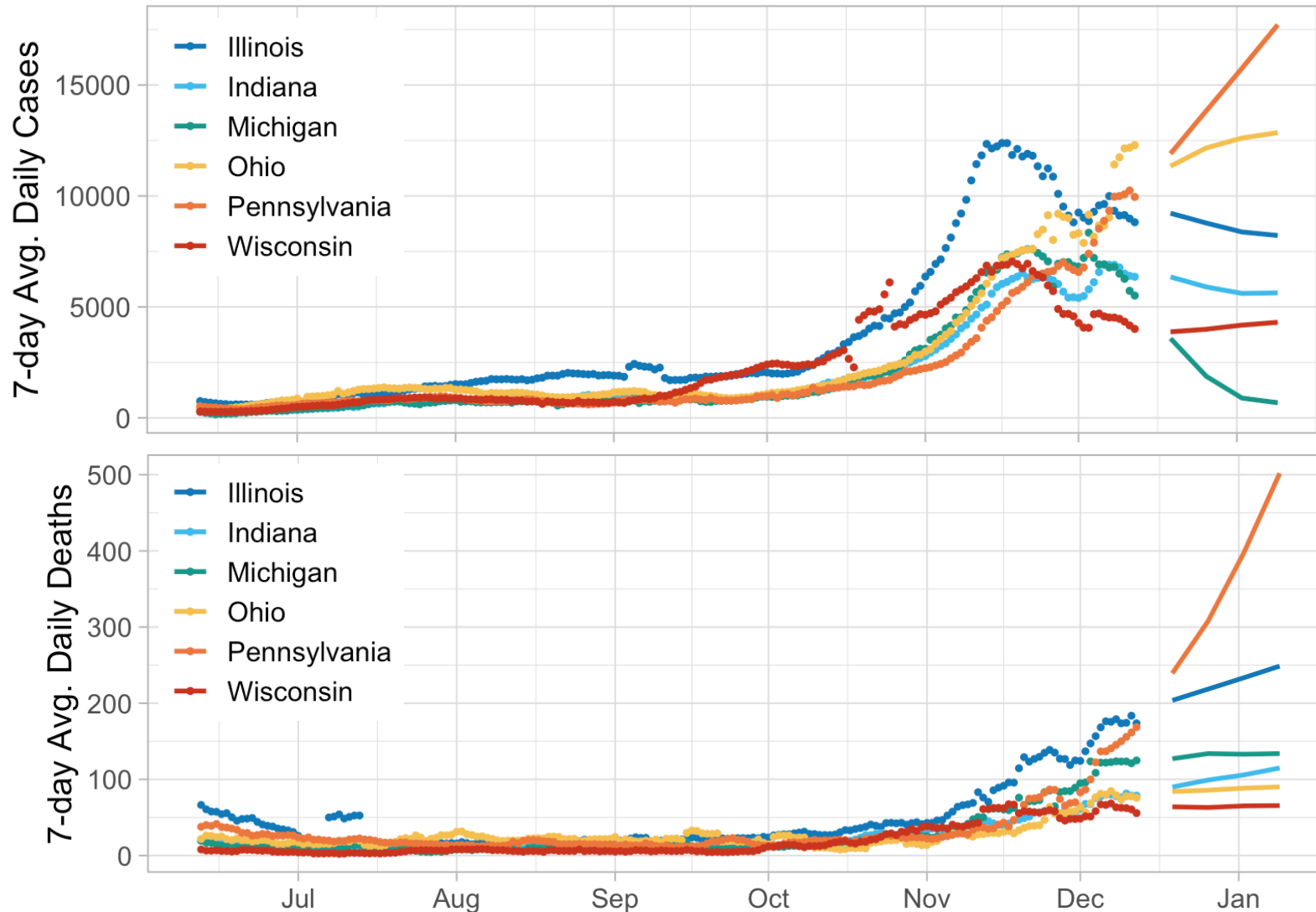
## Difference in encounter density



unacast social distancing  
scoreboard

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

# Model projections if current trends continue



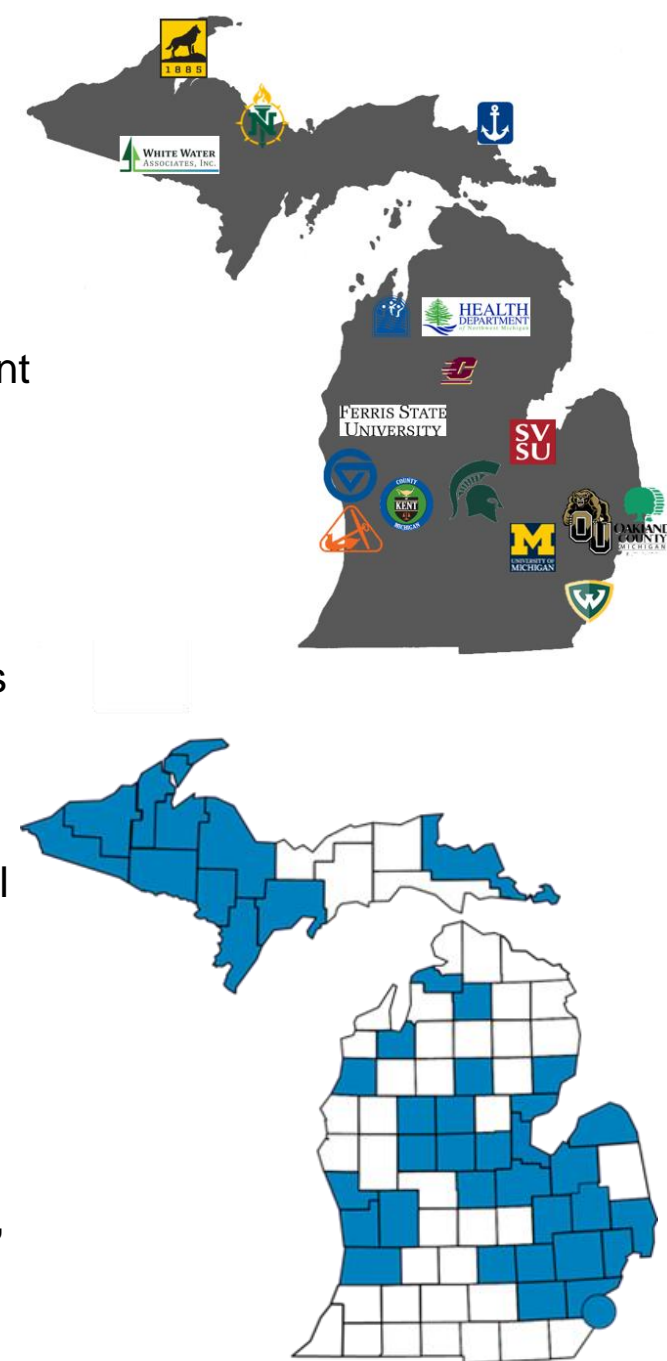
- If current stay at home and mobility behavior continues:
- Projected case declines for MI, mixed trends for neighboring states
- Deaths in MI projected to plateau (may decline if projected case declines continue)
- Circles indicate data for 7-day average daily cases, line is the ridge regression model projection
- Ridge regression model 'learns' patterns based on previous case, death, and mobility data

# Waste Water Surveillance System

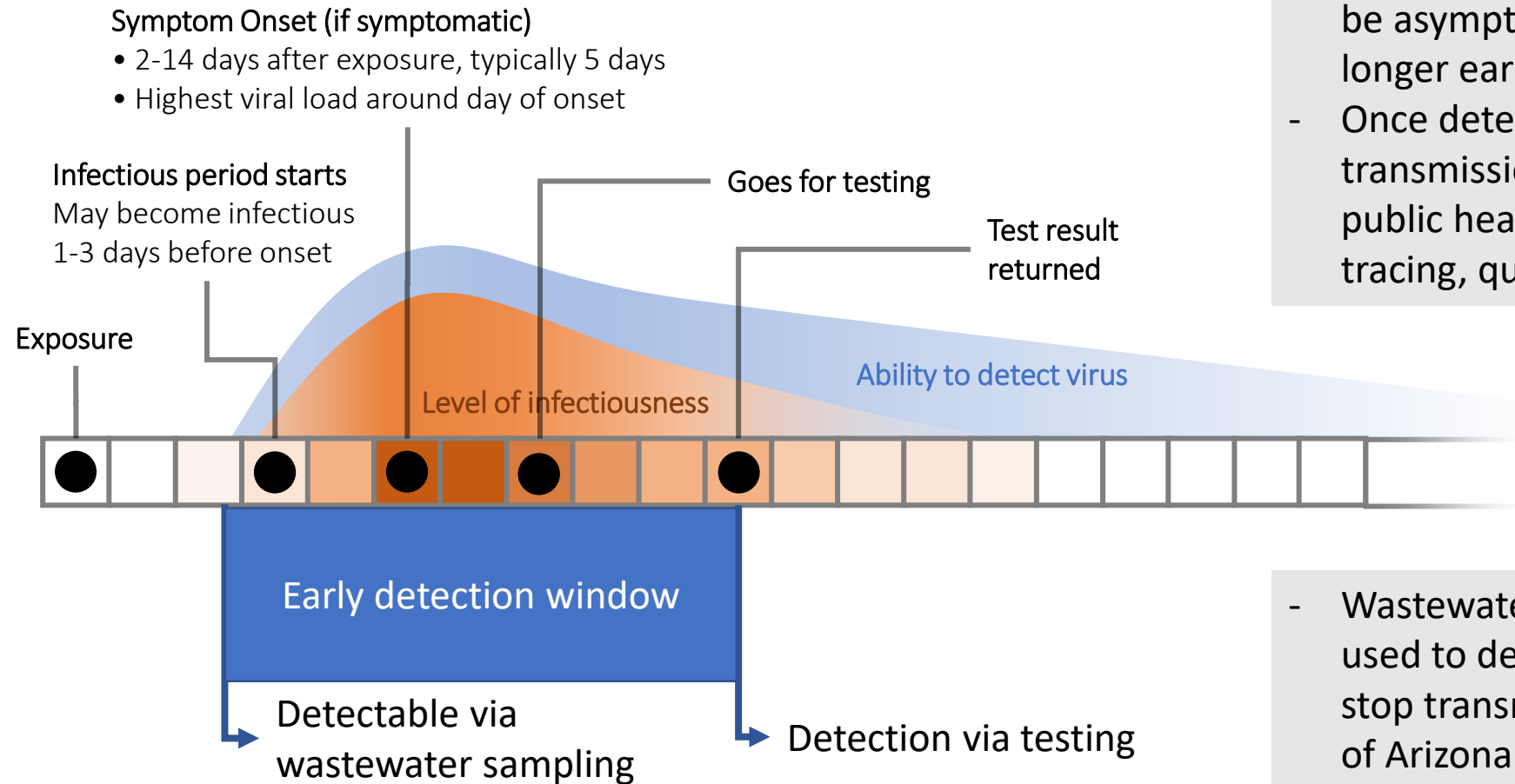
- Statewide system description
- Using waste water sampling to detect clusters of COVID-19, examples from:
  - University of Michigan
  - Wayne State University
- Using waste water surveillance in communities

# COVID-19 Waste Water Surveillance

- SARS-CoV-2 shed in human feces can be detected in samples from sewers and treatment plants
  - Detect virus from infected but asymptomatic people, before they know they are ill
  - Detect virus in system up to 7 days before clinical cases reported
  - Increase in virus over time can predict when clinical cases may be increasing
  - Detect possible outbreaks in communities and at congregate living facilities, such as college dorms and long-term care facilities, before clinical cases are identified
- Public health agencies can be alerted and use this data, along with corresponding clinical case data, to inform public health decisions to prevent further spread within a community
- Coordinated network of wastewater monitoring systems across MI
  - 20 local projects funded from October-December 2020
  - 29 local health department and tribal nations, 19 labs, and 125 university, municipal, and other partners across MI
  - Over 270 testing sites throughout 41 counties and the City of Detroit



# Wastewater sampling can detect clusters early



- Up to 45% of campus cases may be asymptomatic [1], leading to a longer early detection window
- Once detected, stop further transmission through expanded public health efforts: testing, tracing, quarantine, and isolation

- Wastewater sampling has been used to detect, intervene and stop transmission—e.g. University of Arizona [2]



# Environmental surveillance of wastewater for SARS-CoV-2 on campus and off campus

- Wastewater-based epidemiology can provide an early warning system to target interventions before extensive spread
- Adjustable spatial scale from building to community
- Daily sampling needed to gain early warning advantage

**Chuanwu Xi**  
**Richard Neitzel**  
**Timothy Dvorch**  
**Alfred Franzblau**  
**Peter Song**  
**Marisa Eisenberg**

**Krista Wigginton**  
**Kevin Bakker**  
**Joe Eisenberg**

**Nancy Love**  
**Emily Martin**



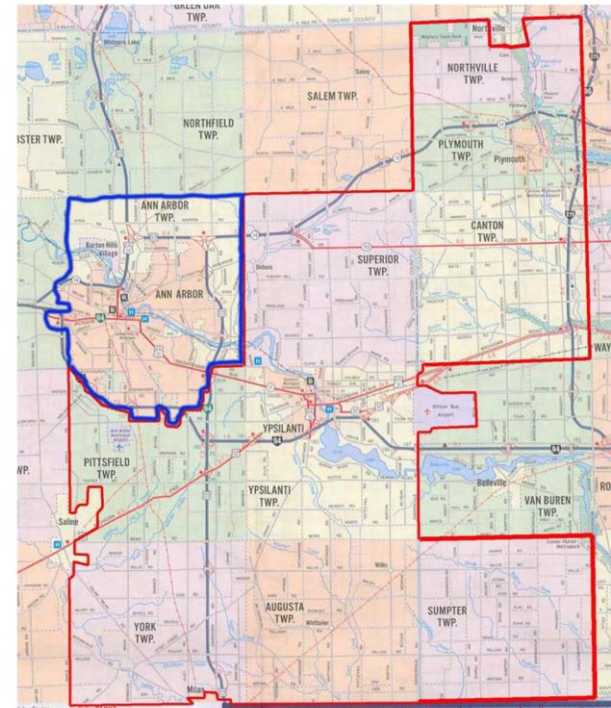
Team members collect sewage samples before campus move-in begins (Aug 2020) ([UM News](#))



# Environmental surveillance: from building to community scale

- Building-level (Xi Team/UM EH&S)
  - Six residence halls, including quarantine and isolation housing as a positive control
  - Michigan League, School of Public Health, campus gym
- Community level
  - Ann Arbor (Wigginton/Bakker Team)
  - Ypsilanti broader area (Wigginton/Bakker Team)
  - Hamburg Township (Xi Team)

Sample type	N samples	N positive samples	% positive samples	Locations of positive samples
Sewage	220	39	17.7%	Northwood III, Stockwell, Mosher Jordan, Couzens, Baits II, Michigan League, CCRB,





# Dorm-level Wastewater monitoring for SARS CoV-2 material: a process-based approach to inform early-warning and control (Wayne State U., Detroit MI)

PI and CO-Pis: Shuster, Bill; Ram, Jeffrey; Miller, Carol. Senior Investigators: Fitzgerald, B, Fernandez-Valdivia, R; Gable, L; Kato, I; Levy, P; McElmurry, S; Pellett, P; Zhang, Y. Detroit Water and Sewer, Detroit Health Department



Site ID	Site Description	Collection Date					
		11/12/2020			11/19/2020		
		N1	N2	PMMoV*	N1	N2	PMMoV*
DB	DMC - Beaubien St	++++	++	++++	ND	ND	+++
HH	Harper Hospital - Alexandrine Street	+	ND	++++	ND	ND	+++
UC	University Towers - Canfield	+++	ND	++++	ND	ND	++++
UL	University Towers - Loading Dock	++++	ND	++++	ND	ND	ND
AC	Atchison Courtyard	ND	ND	++++	ND	ND	++
TG	Towers Residence Alley	ND	ND	ND	ND	ND	ND
AS	South Courtyard by Manoogian Hall				ND	ND	ND
WG	Anthony Wayne South	ND	ND	++++	ND	ND	ND
WH	Anthony Wayne Health Center	++++	ND	++++	+++	+	++++
NTC	No template control	ND	ND	ND	ND	ND	ND

Relative intensity of signal: ND, none detectable; +, near threshold of detection; ++, 2-10 x threshold; +++, 10 - 100 x threshold; +++++, 100 - 1,000 x threshold; threshold is estimated at 10- 100 copies per 100 mL but will be re-calibrated

Blank means sample was not assayed.

\*PMMoV is consistently found in human feces and is a measure of relative amount of feces in the sample



Building	Census Number	11/12/20		11/19/20	
		Quarantine	Isolation	Quarantine	Isolation
Atchison	198	0	1	0	0
Towers Residential Suites	393	1	0	0	0
Anthony Wayne Drive Apartments	374	1	1	3	4
University Towers	556	1	0	0	0
Ghafari - closed					
Thompson - closed					

Decrease

# Surveillance at Community Wastewater Treatment Plants

