

# Epidemiology of COVID-19 in Missouri

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1.31.2022

# COVID-19 Daily Situation Report January 31, 2022

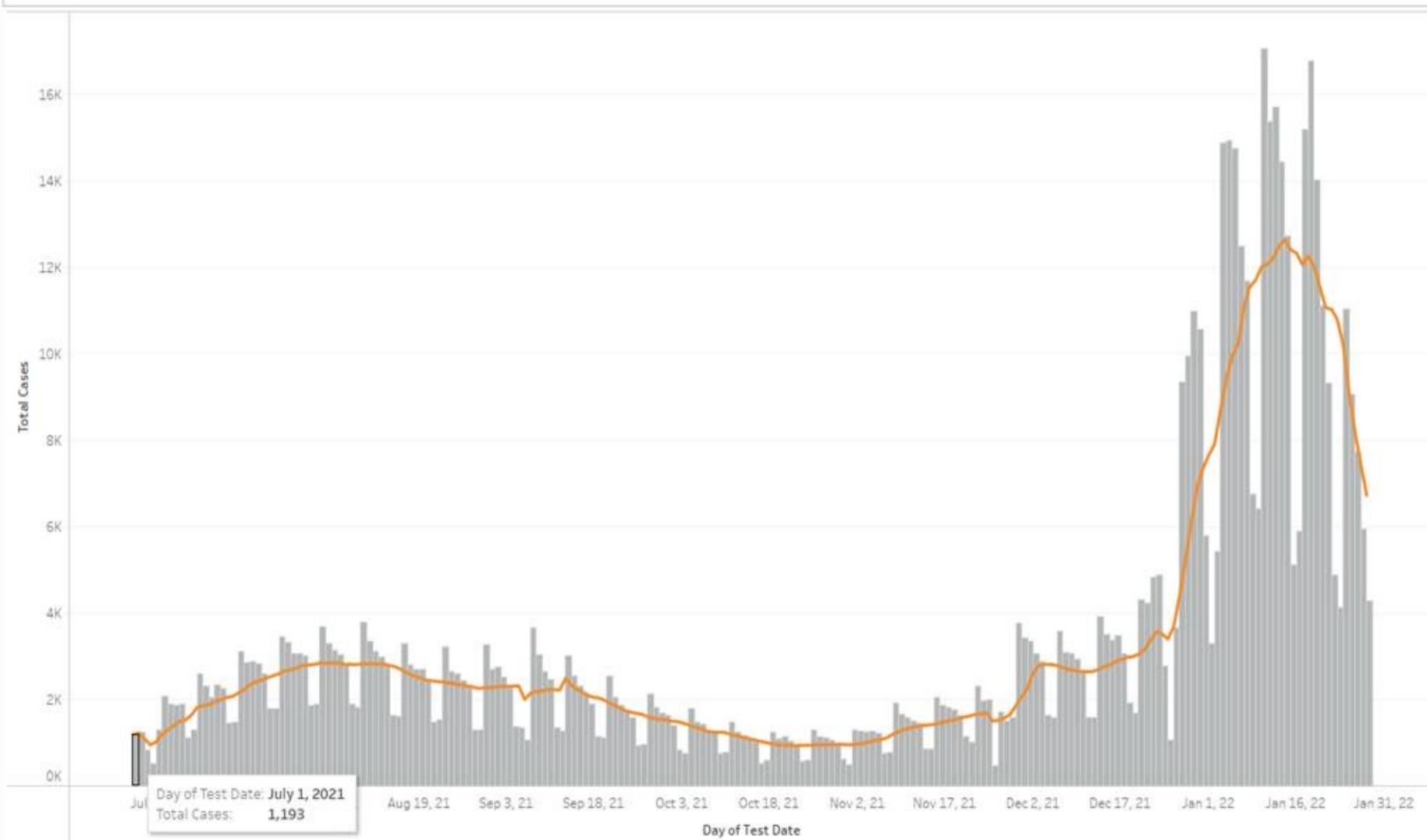
**Avg. Total Daily Cases**  
**109.8**  
Rolling 7 Day Average Per 100,000

**Avg. PCR+ Cases**  
**5,361**  
Rolling 7 Day Average

**New Cases Added**  
**2,387**  
PCR & Ant.+ Since Last Report

**Avg. Antigen+ Cases**  
**1,367**  
Rolling 7 Day Average

MO COVID-19 Total Cases by Test Date; July 1, 2021 to January 28, 2022  
Total Cases = 1,329,935



**Deaths (17,124)**

**76**  
Median Age

**2**  
Newly Added

**Testing (1/25)**

**19,932**  
Total Tests

**25.5%**  
Percent Positive

**Ant. – 7 Days**

**80,976**  
Total Tests  
1/19 – 1/25

**16.4%**  
Percent Positive

**PCR – 7 Days**

**148,482**  
Total Tests  
1/19 – 1/25

**30.1%**  
Percent Positive

**Ant. – 30 Days**

**470,868**  
Total Tests

**18.0%**  
Percent Positive

**PCR – 30 Days**

**792,109**  
Total Tests

**32.7%**  
Percent Positive

## Re Estimates, Missouri, 1.25.2022

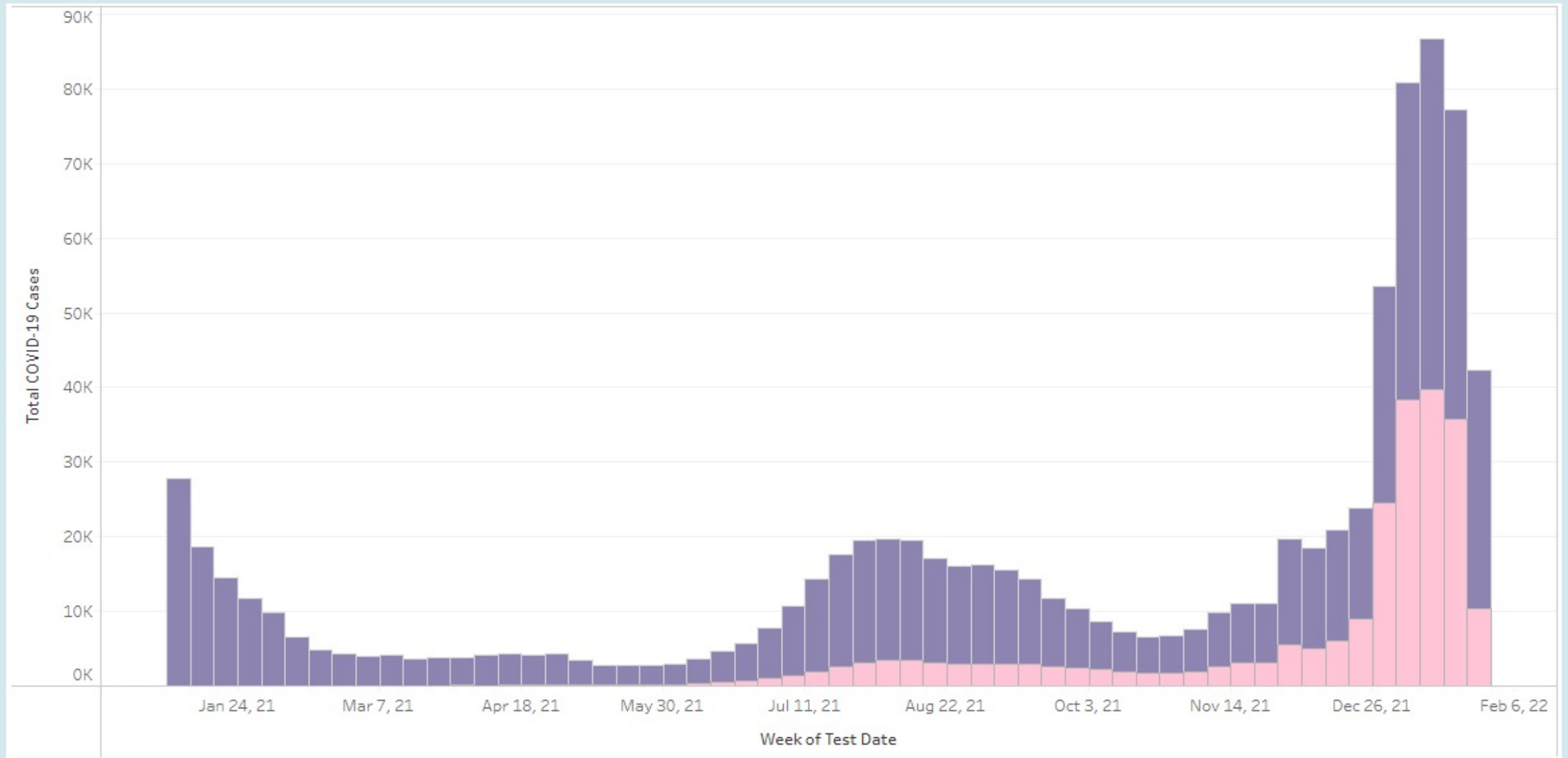


Eastern **0.79**, Southeast **0.93**, Central **0.93**, Southwest **1.01**, Northwest **0.86**

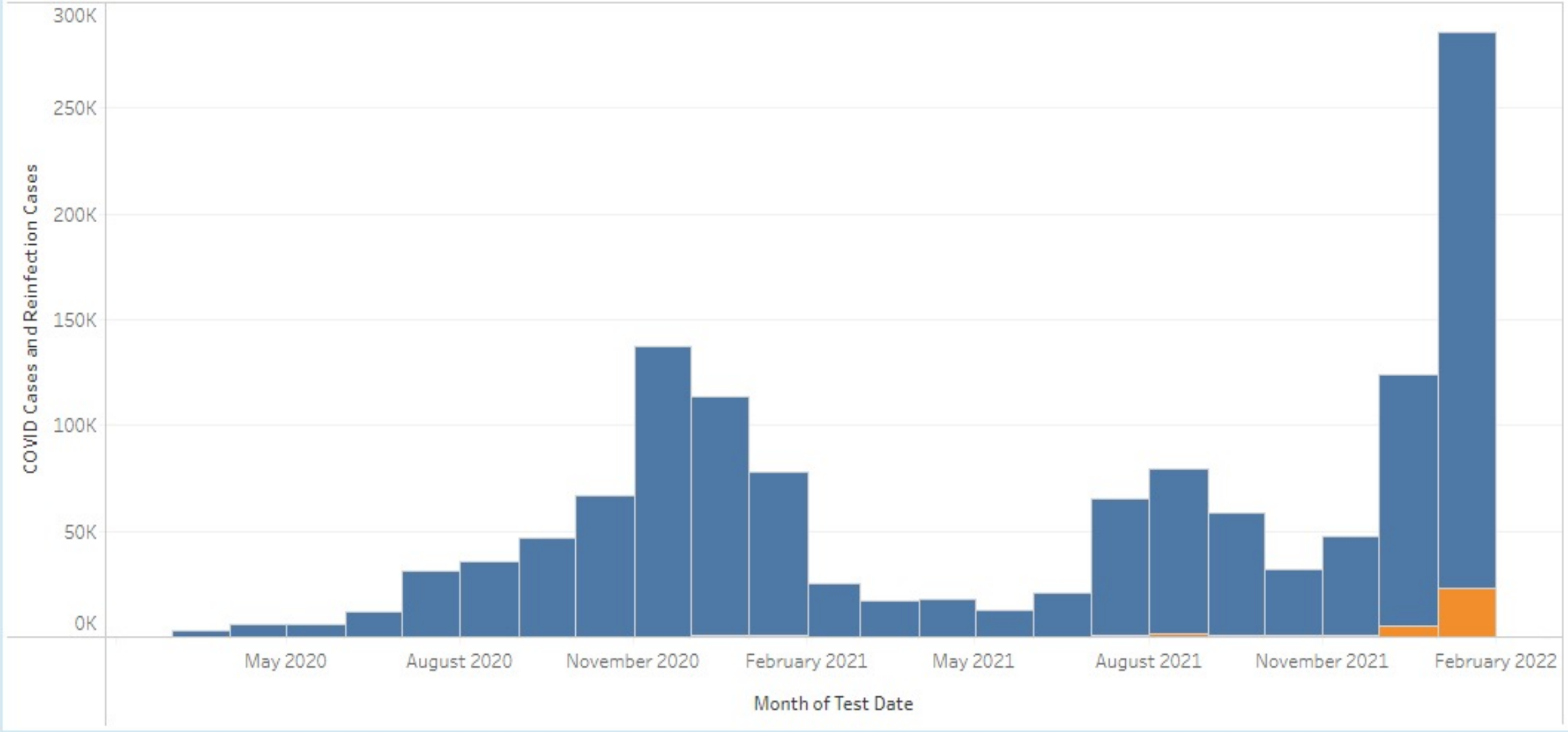
# Omicron Prevalence Jan 25, 2022

	<i>MSPHL Sequencing</i>	<i>Commercial Lab Sequencing</i>	<i>CDC Nowcast for Region 7</i>
<b>State</b>			
12/12-18/2021	6.3% (3-10%)	12% (9-16%)	7.40%
12/19-25/2021	28% (21-36%)	41% (35-47%)	36%
12/26-1/1/2022	64% (58-69%)	69% (62-76%)	64%
1/2-1/8/2022	83% (77-88%)	93% (90-96%)	90.50%
1/9-1/15/2022	95% (92-98%)	insufficient data	97.80%
1/6-1/22/22	insufficient data		
<b>St Louis Metro</b>			
12/12-18/2021	16% (7-29%)		
12/19-25/2021	41% (25-58%)	46% (37-54%)	
12/26-1/1/2022	81% (74-87%)	87% (79-93%)	
1/2-1/8/2022	91% (82-96%)	95% (91-97%)	
1/9-1/15/2022	98% (90-100%)	insufficient data	
<b>KC Metro</b>			
12/12-18/2021	10% (5-20%)		
12/19-25/2021	42% (31-54%)	41% (31-52%)	
12/26-1/1/2022	60% (41-73%)	55% (43-66%)	
1/2-1/8/2022	insufficient data	88% (78-94%)	
1/9-1/15/2022	insufficient data	insufficient data	
<b>Central</b>			
12/19-25/2021	insufficient data		
12/26-1/1/2022	41% (30-54%)	insufficient data	
1/2-1/8/2022	80% (68-88%)	insufficient data	
1/9-1/15/2022	97% (92-100%)	insufficient data	

# Missouri COVID-19 Breakthrough Infections (1.31.2022)

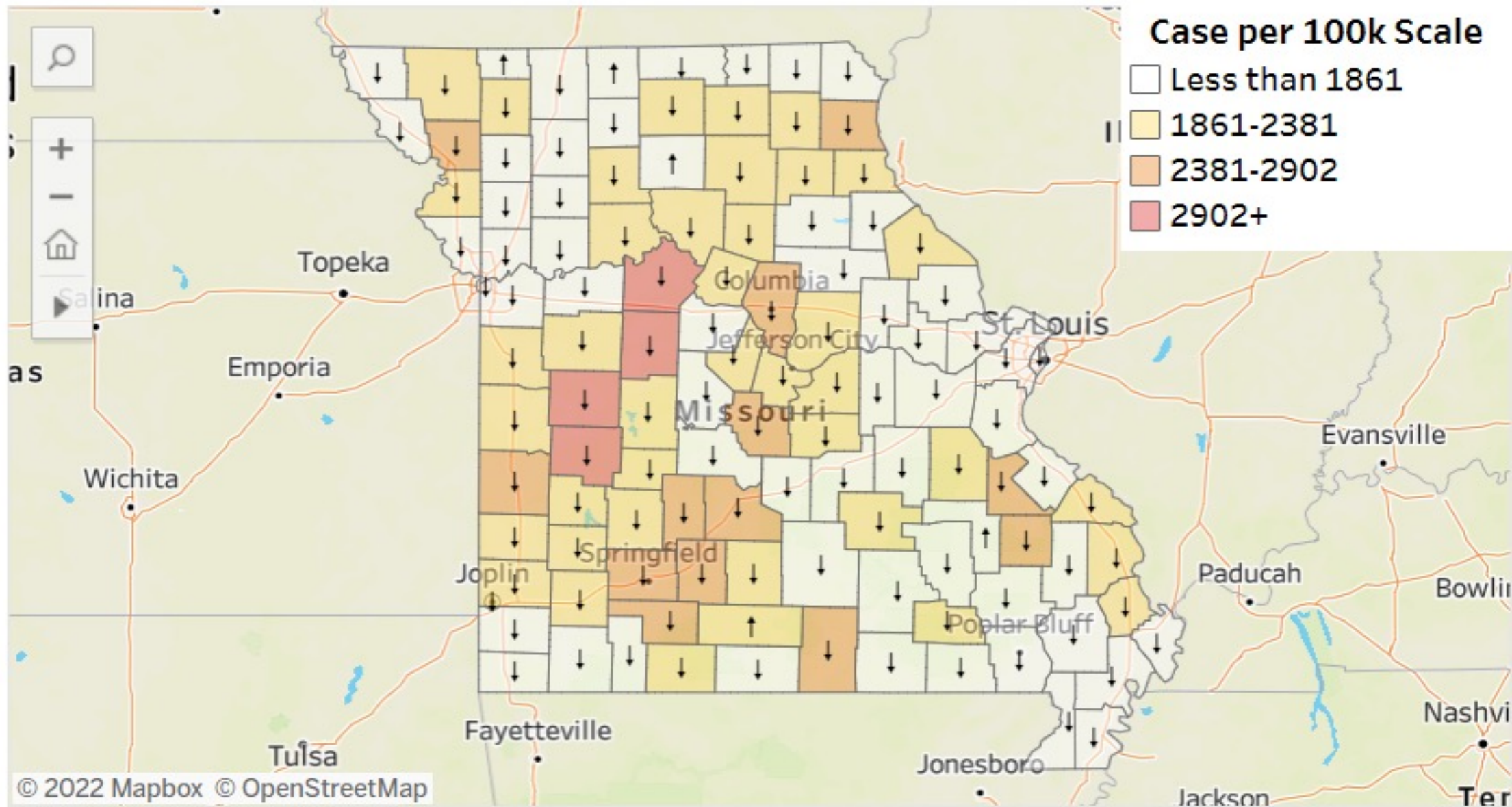


# Missouri COVID-19 Reinfections (1.31.2022)





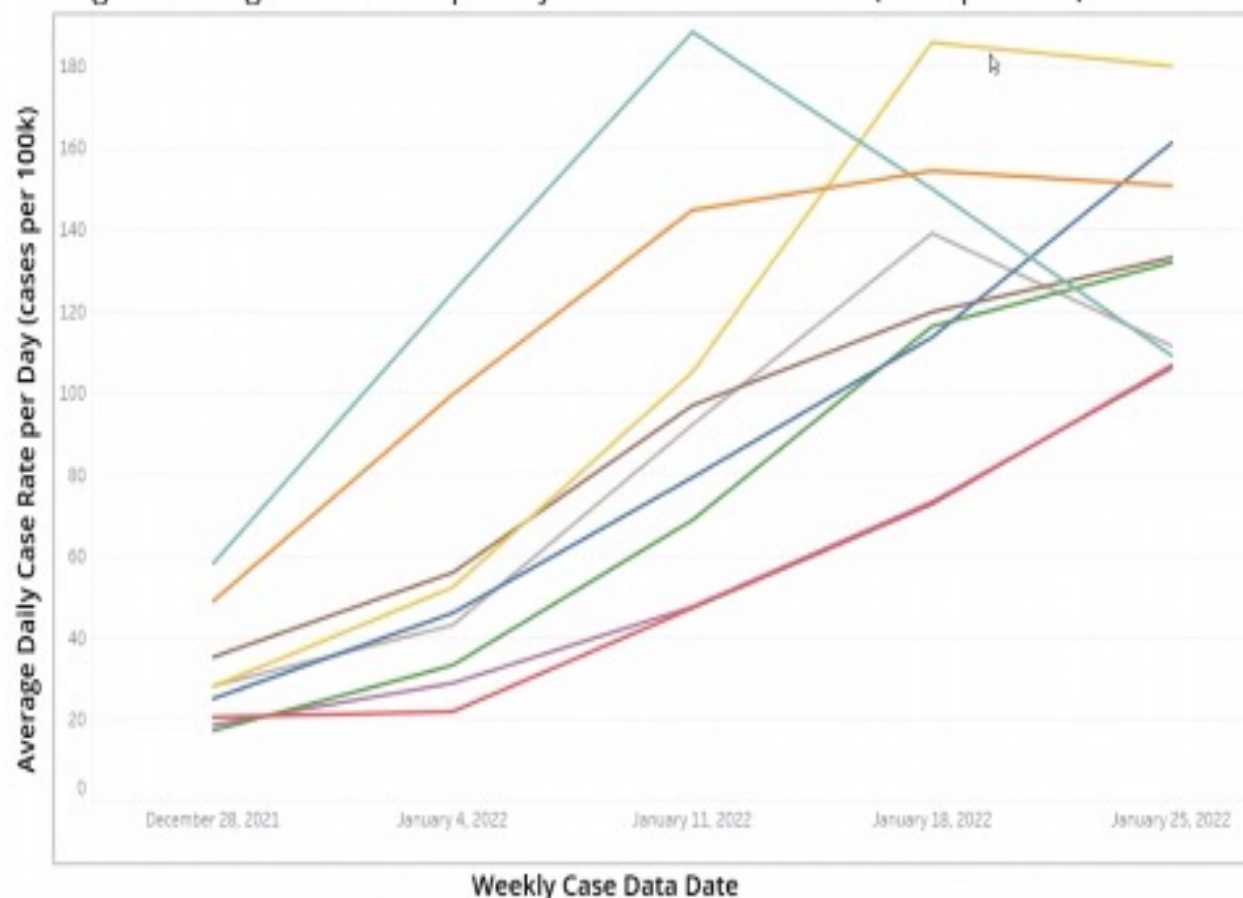
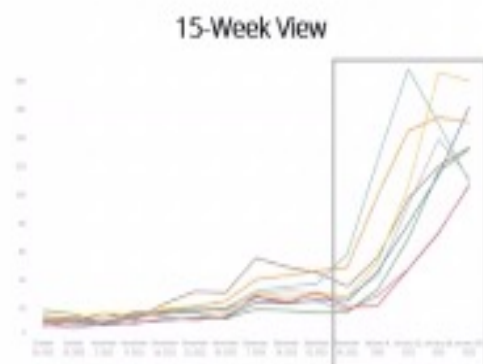
# Total New Case Rate Per 100,000 Past 14 Days (1.31.2022)



# Regional Change in COVID-19 Case Rates | Last 5 Weeks

The visualization and table below display the evolution of weekly case rate changes by region over the past 5 weeks

Regional Change in Case Rate per Day Over the Last ~5 Weeks (cases per 100k)



	Avg Daily Case Rate Change (per 100k)	7 Day Case Change (#)
A	150.7	14,568
B	106.7	1,342
C	109.1	17,293
D	161.2	10,116
E	131.9	3,032
F	180.0	6,291
G	106.0	1,022
H	133.1	2,183
I	111.5	1,413
State	134.0	57,260

Cases decreased 5% week over week, the first decrease in close to three months

Week over Week trends differed dramatically across the state: three regions saw 20%+ jumps in cases (B, D G) while two regions saw 20%+ decreases in cases (C, I)



# COVID-19 in Boone County, Missouri, (1.31.22)

## The Status of COVID-19 in BOONE - Confirmatory Metrics

Based on White House Coronavirus Task Force thresholds. Based off confirmatory metrics only.

### Severity: Past 7 Days

*How large is the problem now?*

New Cases	<b>1,686</b> (934 per 100k)	<b>#5</b> (#8)
New Deaths	<b>1</b> (0.6 per 100k)	
7-Day Positivity Rate	<b>30.9%</b> (CDC method)	<b>#57</b>

### Trajectory: Past 7 vs. Prior 7

*In what direction is the problem moving?*

% Change in Cases	<b>-43.0%</b>	<b>#95</b>
% Change in Deaths	<b>0.0%</b>	
%p Change in Positivity Rate	<b>-7.5%p</b>	<b>#74</b>

### Response

*What is being done now?*

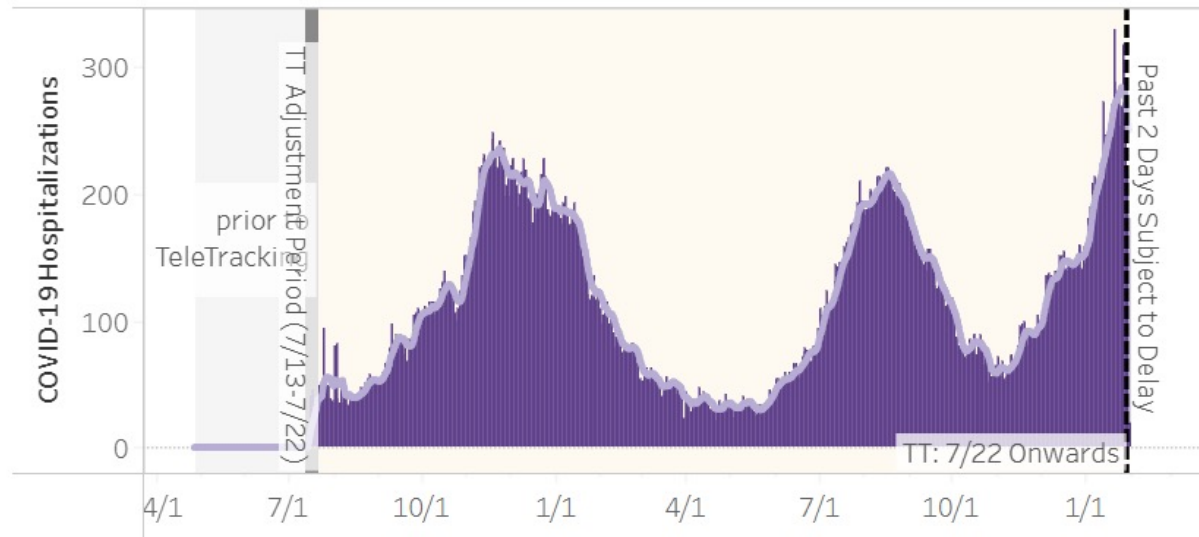
New Tests (Past 7 Days)	<b>5,854</b> 3,244 per 100k	<b>#7</b> (#8)
% Change in Tests (Past 7 vs. Prior 7)	<b>-27.1%</b>	
Testing Turnaround (Past 7 Days)	<b>1.2 days</b>	

# COVID-19 Hospitalizations, Central Region, Missouri (1.31.22)

## COVID-19 Hospitalizations

### COVID-19 Total Patients in the Hospital by Day

Central Region(s) Selected

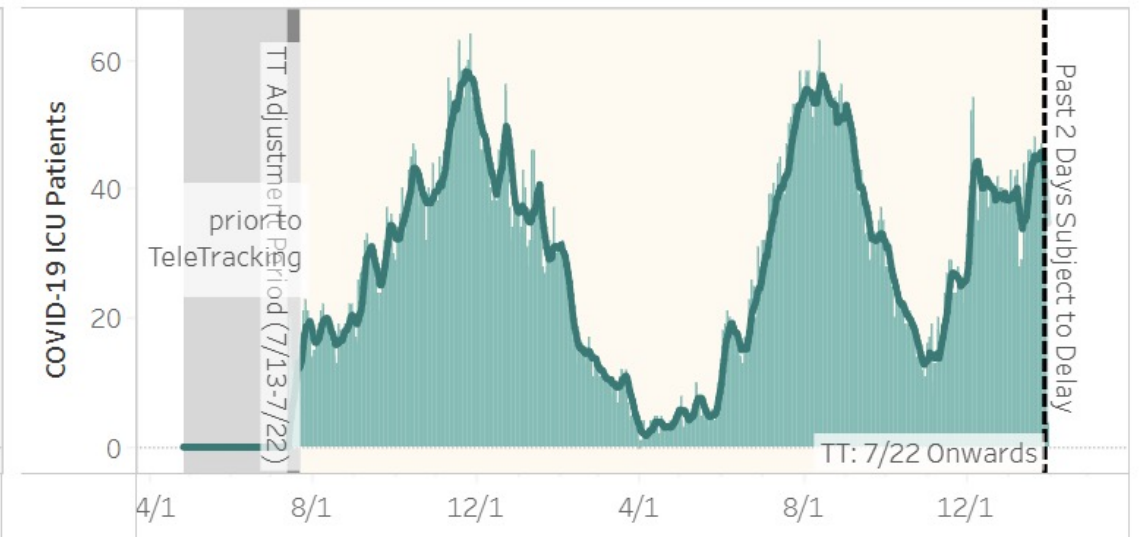


Legend: COVID-19 Hospitalizations by Day

- Total COVID-19 Hospitalizations
- 7-Day Average

### COVID-19 Patients in ICU by Day

Central Region(s) Selected



Legend: COVID-19 ICU Hospitalizations by Day

- COVID-19 Patients in ICU
- 7-Day Average



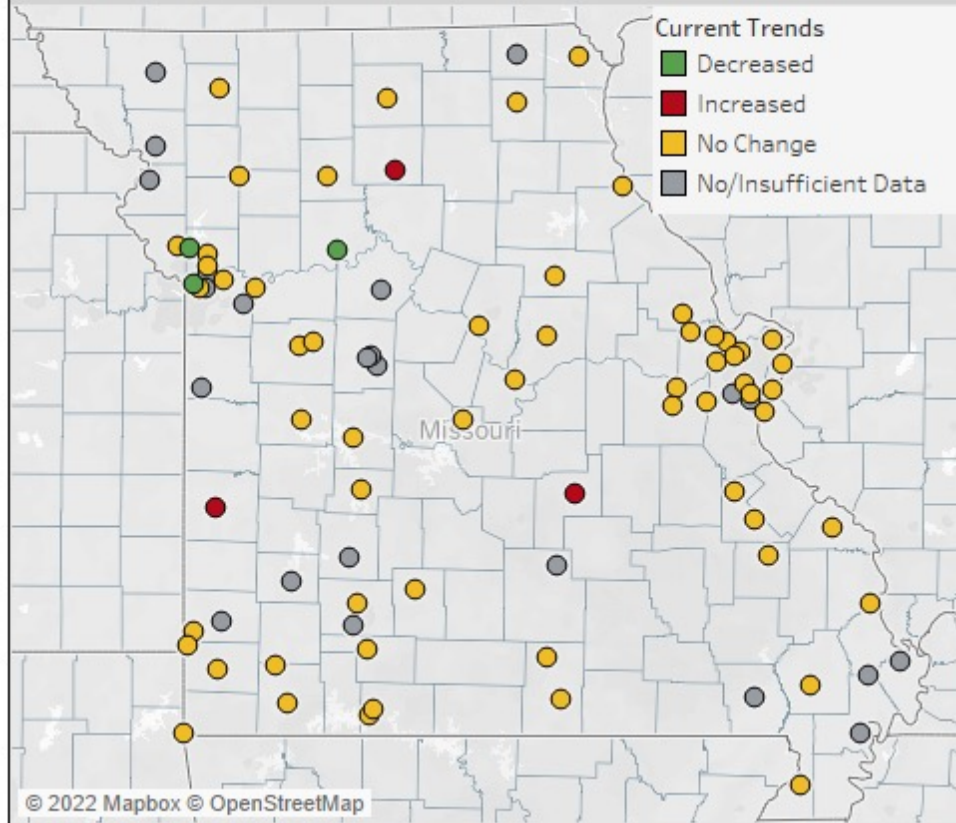


# COVID-19 Wastewater Trends

## State of Missouri

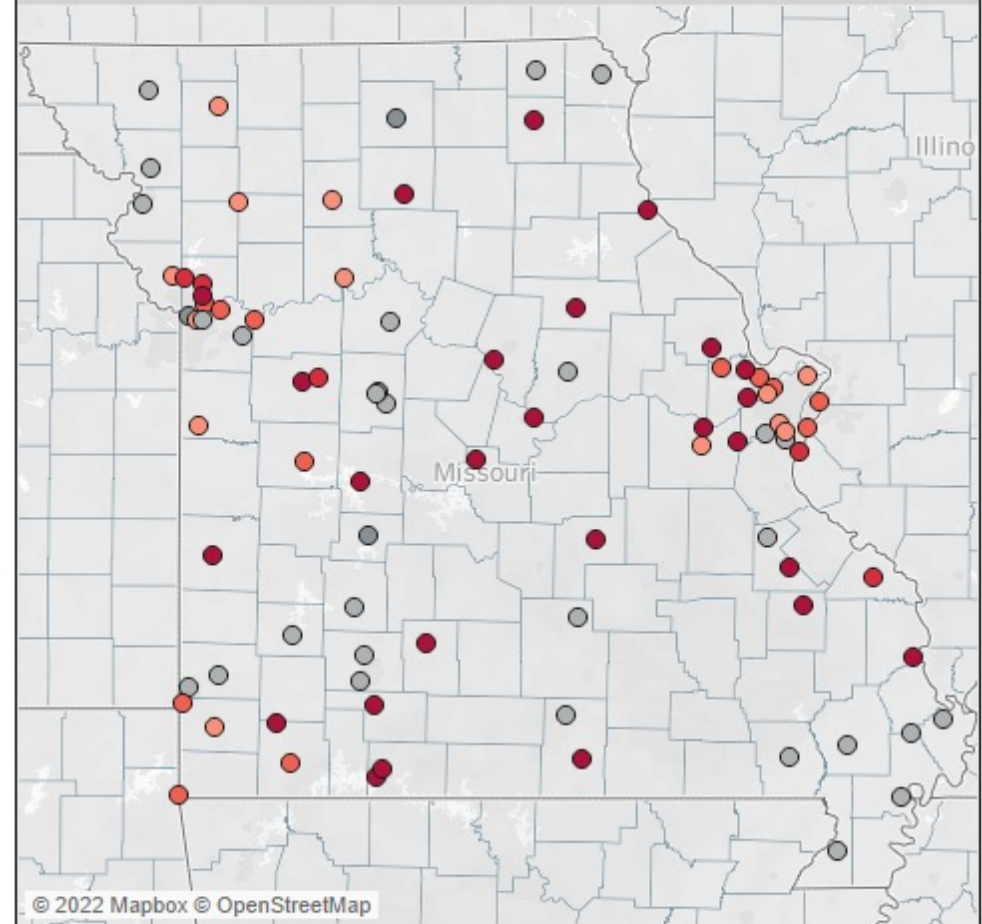
NOTE on dates: This dashboard was last updated on 1/28/2021 and includes data through 1/24/2022.

### Current COVID-19 Wasterwater Trends



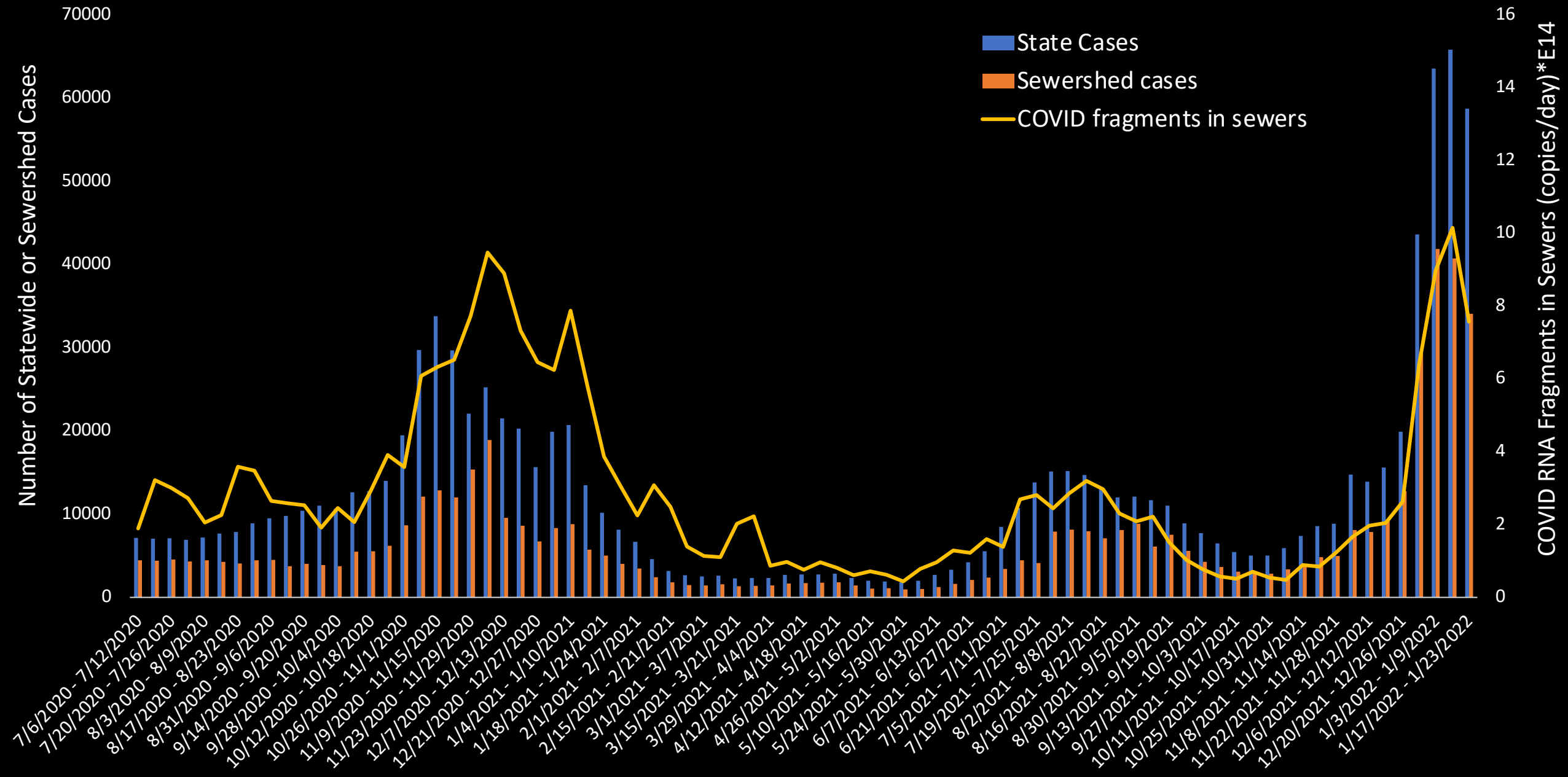
Data represents the change in viral gene copies per day in samples collected on 1/24/2022 from the previous week. "Increased" indicates that viral gene copies either increased by >40% from last week or by >25% over each of the previous two weeks. "Decreased" indicates that viral gene copies have decreased by >25% over each of the previous three weeks or >30% in 2 of the previous 3 weeks. "No Change" indicates that viral gene copies did not meet the criteria for the "Increased" or "Decreased" designations. "No/Insufficient Data" indicates that either no sample was collected or the measured value fell below accurate reporting limits.

### Elevated COVID-19 Viral Load in Wastewater



Red circles indicate sewersheds where viral load is significantly higher than previous measures at that location, with darker reds indicating the highest viral load per person. Gray circles indicate sewershed areas where viral load is not significantly higher than previous measures at that location. The data is based on samples collected on 1/24/2022.

# MO State vs Sewershed COVID Cases and Fragments in Sewers through January 23, 2022



# Overall and cause-specific hospitalisation and death after COVID-19 hospitalisation in England: A cohort study using linked primary care, secondary care, and death registration data in the OpenSAFELY platform

*PLOS Medicine*

<https://doi.org/10.1371/journal.pmed.1003871> January 25, 2022

- Overall risk of hospitalization/death higher in COVID-19 group than general population ([aHR] **2.22**,  $p < 0.001$ )
- All-cause mortality highest in COVID-19 group (aHR **4.82** vs general population [ $p < 0.001$ ] and **1.74** vs influenza controls [ $p < 0.001$ ])
- Risks for cause-specific outcomes higher in COVID-19 survivors than in general population
- COVID-19 patients more likely than influenza patients to be readmitted/die due to initial infection or other lower respiratory tract infection (aHR **1.37**,  $p < 0.001$ ) and to experience mental health/cognitive-related admission/death (aHR **1.37**,  $p = 0.039$ ); in particular, COVID-19 survivors with preexisting dementia had higher risk of dementia hospitalization/death (aHR **2.47**,  $p = 0.002$ )
- Risks might be minimized by increasing monitoring of patients months after hospital discharge, and greater awareness among patients and clinicians of potential problems

# Structural basis of SARS-CoV-2 omicron immune evasion and receptor engagement

(25 January 2022, Science)

- Used cryoelectron microscopic and X-ray crystallographic studies to unveil the 3D organization of the omicron spike protein
- This approach allowed to achieve a resolution of about 3 angstroms. At this resolution, it was possible to discern shape of individual amino acid building blocks that make up the spike protein
- Researchers also determined how the structural changes in spike protein affected the ability of antibodies effective against previous variants to bind to Omicron
- Mutations changed how the protein interacts with antibodies so that the ability of almost all monoclonal antibodies against it is reduced, while, at the same time the ability of the spike receptor-binding domain to bind ACE2 is enhanced
- Overall effect has been to make it possible for the receptor binding domain to evade antibodies targeting it and to bind to ACE2 even more tightly

**Table 1. Efficacy of Monoclonal Antibodies and Antiviral Drugs against SARS-CoV-2 Variants in Vitro.\***

Monoclonal Antibody or Antiviral Drug	SARS-CoV-2 Variant					
	SARS-CoV-2/UT-NC002- 1T/Human/2020/ Tokyo (A)	SARS-CoV-2/UT-HP127- 1Nf/Human/2021/Tokyo (Alpha/B.1.1.7)	hCoV-19/USA/ MD-HP01542/2021 (Beta/B.1.351)	hCoV-19/Japan/ TY7-503/2021 (Gamma/P.1)	hCoV-19/USA/ WI-UW-5250/2021 (Delta/B.1.617.2)	hCoV-19/Japan/ NC928-2N/2021 (Omicron/B.1.1.529)
Neutralization activity of mono- clonal antibody — ng/ml†						
LY-CoV016, etesevimab	18.19±9.10	150.38±83.51	>50,000	>50,000	15.37±9.78	>50,000
LY-CoV555, bamlanivimab	4.69±1.43	2.65±1.30	9554.88±926.53	1601.65±896.02	641.73±324.79	>50,000
REGN10987, imdevimab	3.05±0.93	1.87±1.60	2.17±1.30	1.04±0.68	3.95±1.78	>50,000
REGN10933, casirivimab	2.79±1.87	2.74±1.84	757.13±287.91	187.69±128.88	2.89±1.78	14,110.70±1782.13
COV2-2196, tixagevimab	1.92±0.28	1.34±0.67	18.98±1.42	6.56±1.56	4.05±2.60	1299.94±406.58
COV2-2130, cilgavimab	7.70±2.20	3.60±1.62	10.03±3.05	4.00±2.70	12.76±2.93	443.87±167.96
S309, sotrovimab precursor	27.33±3.24	44.91±22.76	100.98±22.27	28.38±1.86	111.43±58.22	373.47±159.49
LY-CoV016 plus LY-CoV555	12.60±1.91	15.26±3.98	>10,000	2545.04±625.72	10.28±3.33	>10,000
REGN10987 plus REGN10933	3.53±0.66	1.55±0.78	5.18±1.45	2.11±0.48	1.91±0.79	>10,000
COV2-2196 plus COV2-2130	3.42±0.92	1.94±0.34	10.30±1.17	1.79±0.87	5.50±2.75	255.86±45.31
Viral susceptibility to drug — μM‡						
GS-441524§	1.04±0.32	0.83±0.19	0.63±0.20	0.91±0.33	1.12±0.20	1.28±0.42
EIDD-1931¶	0.51±0.14	0.95±0.17	0.60±0.21	0.41±0.13	0.83±0.41	0.43±0.08
PF-00835231	18.45±7.35	10.56±5.85	14.20±4.34	9.40±3.28	14.81±5.24	12.71±3.00

# COVID-19 Free Therapeutics in Missouri

- **Monoclonal Antibodies**

- ~~Regeneron~~

- ~~Eli Lilly combo~~

- Sotrovimab

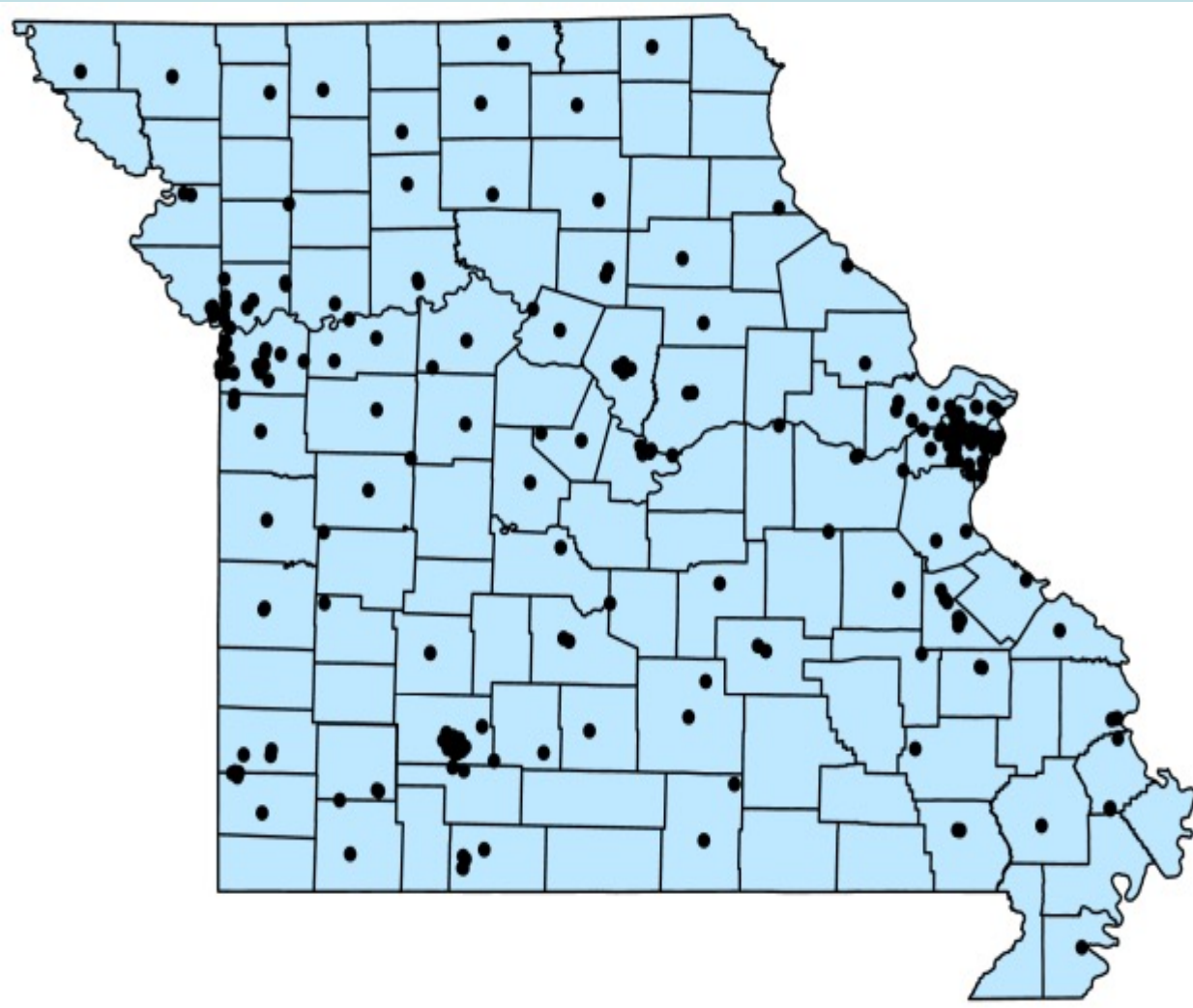
- Evusheld for PREP only

- **Antivirals**

- Molnupiravir

- Paxlovid

MAB infusion Sites (319)



Oral Antivirals Sites (104)

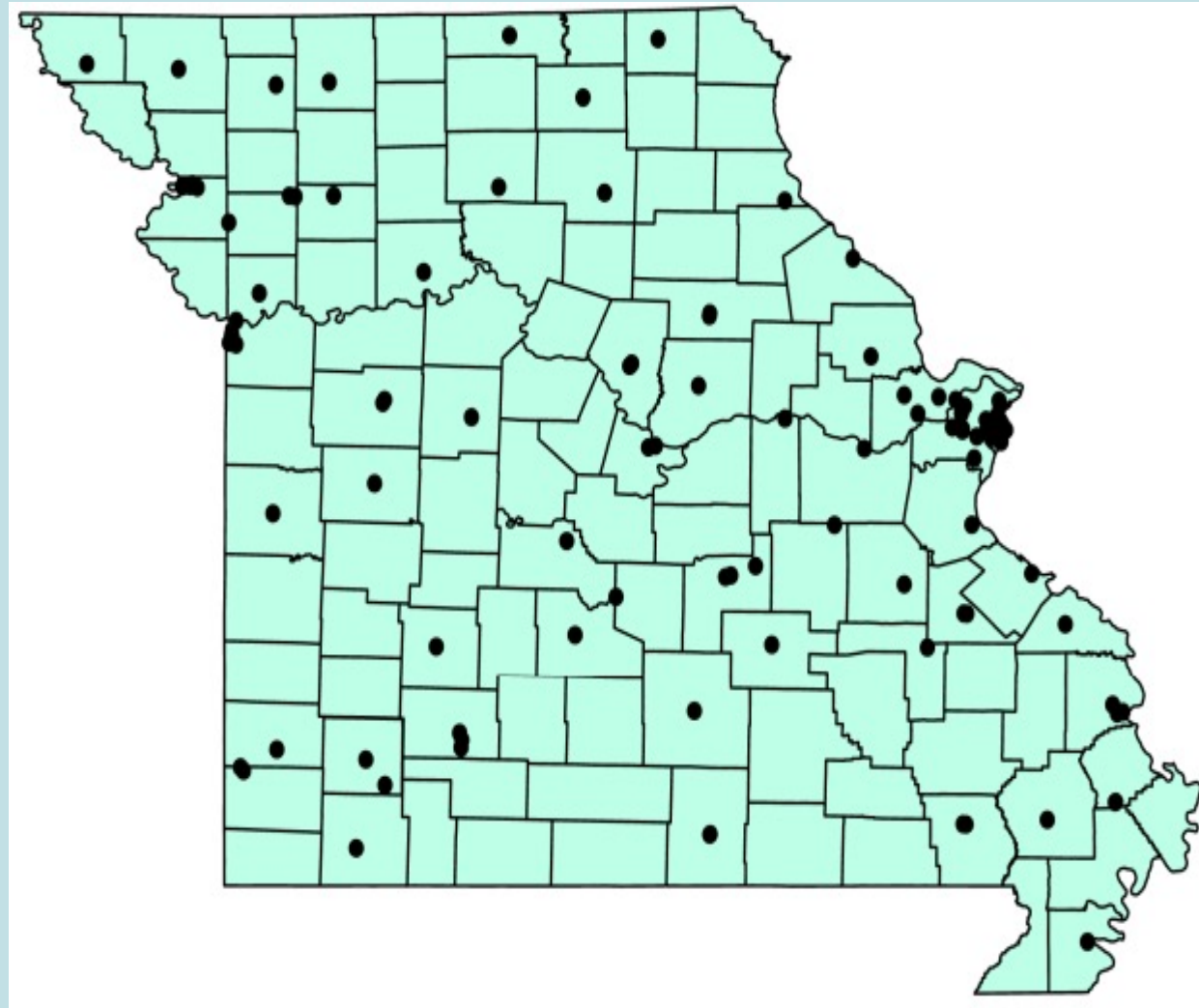
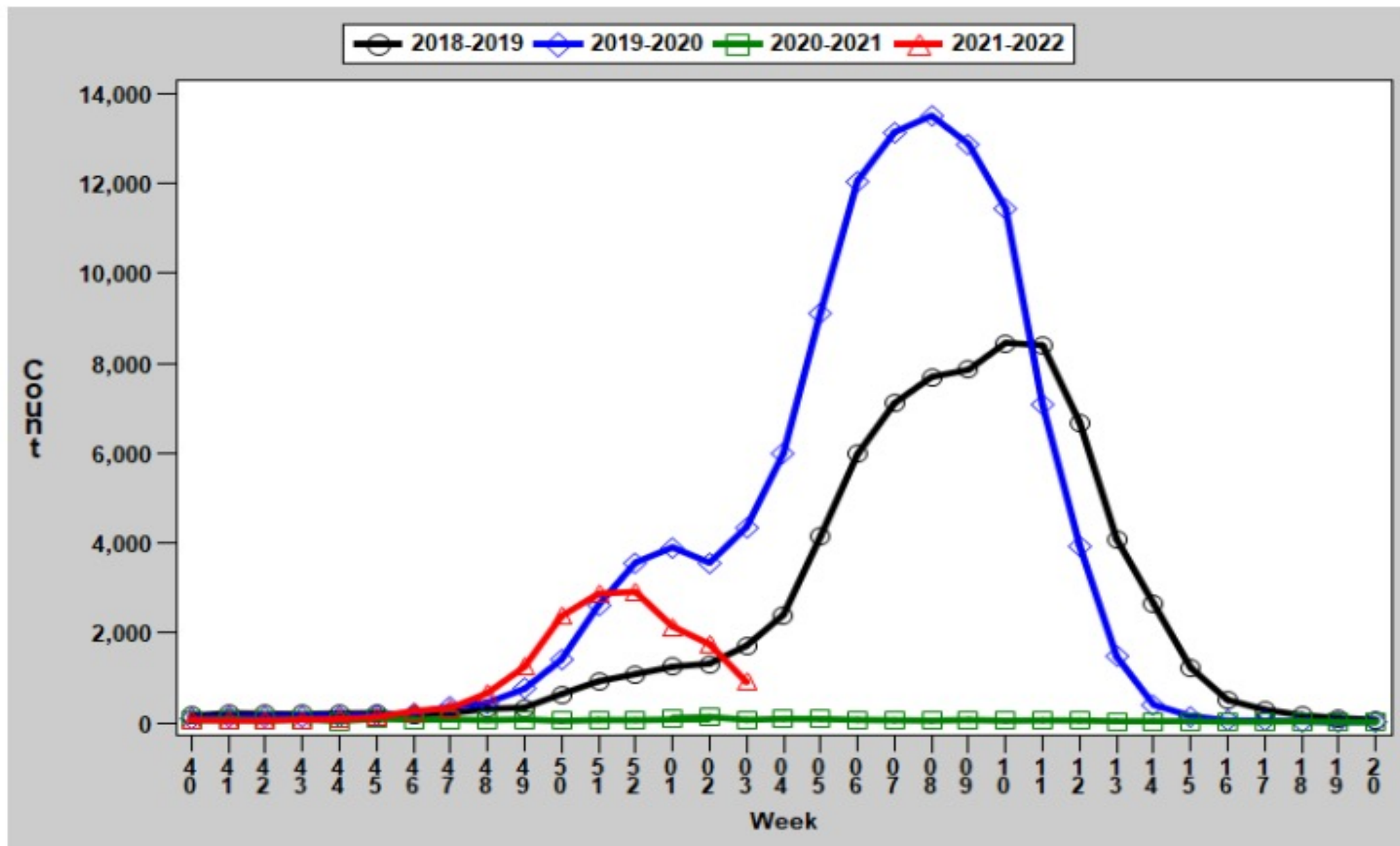
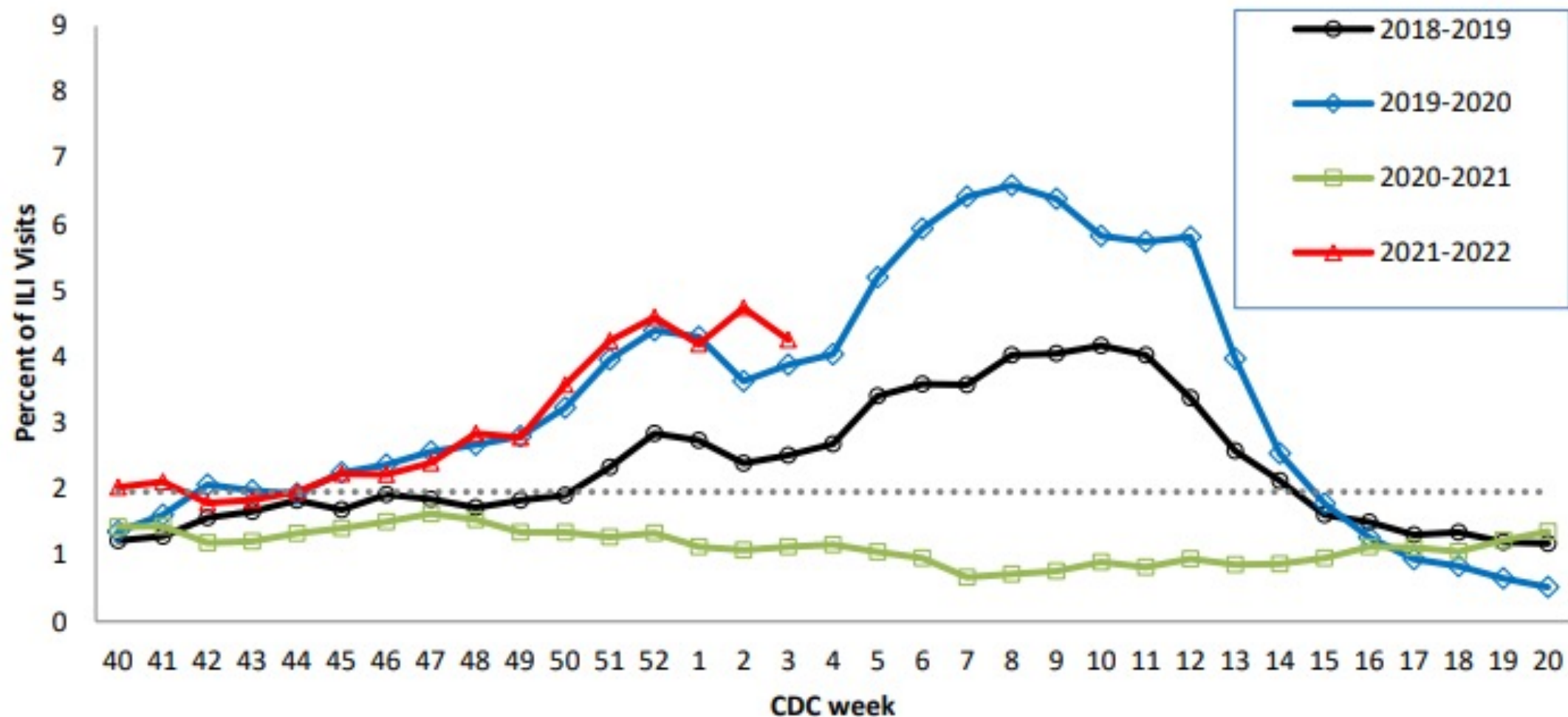


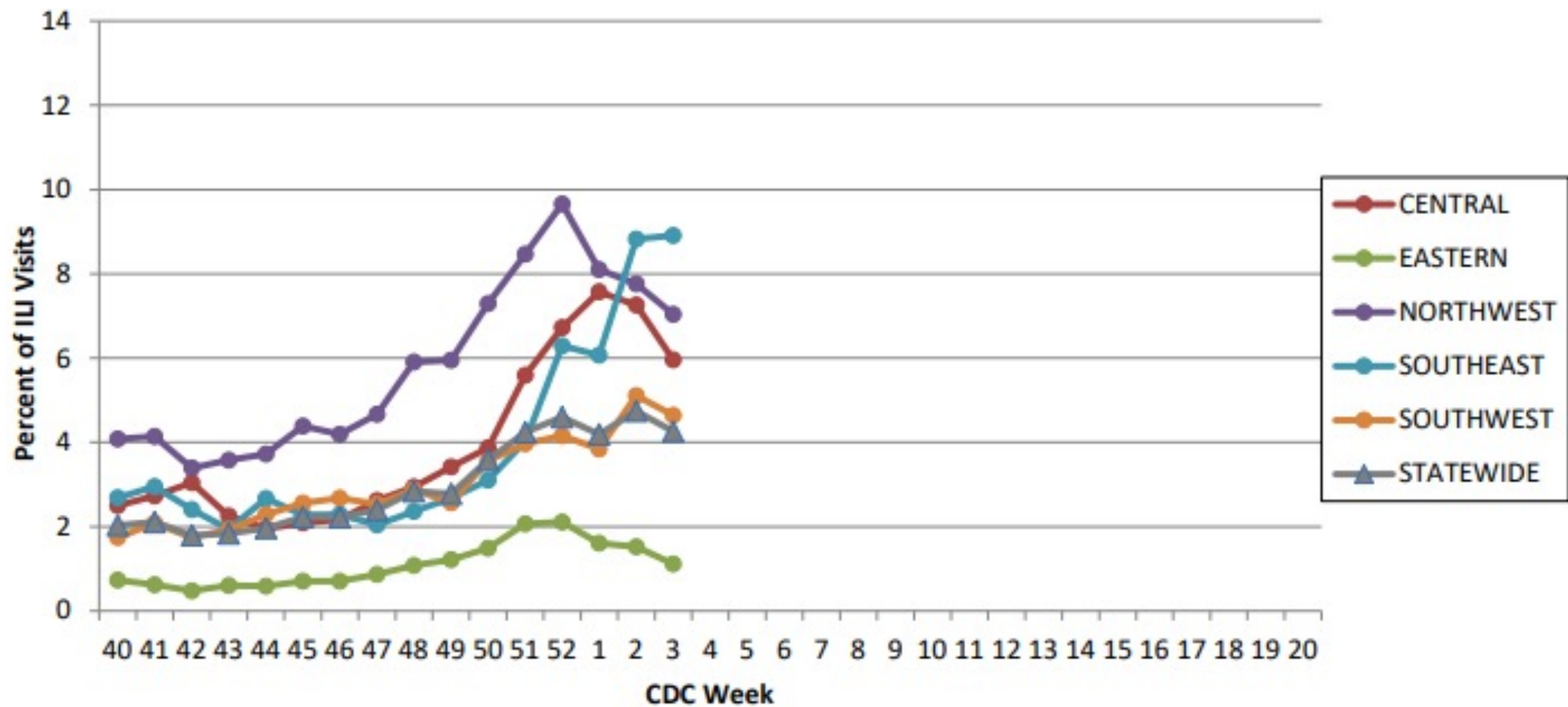
Figure 4. Number of Laboratory-positive<sup>†</sup> Influenza Cases by CDC Week, Missouri, 2018-2022\*



**Figure 6. Percentage of Emergency Department (ED) Visits for Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, 2018-2022 Influenza Seasons<sup>4‡</sup>**



**Figure 8. Percentage of Emergency Department (ED) Visits for Influenza-like Illness (ILI) in ESSENCE Participating Hospitals, by Region and Statewide, 2021-2022 Influenza Season\***



**Figure 9. Weekly Rate of Patients Hospitalized with Influenza and/or Pneumonia Syndromes in Missouri Hospitals, 2018-2022 Influenza Seasons**

