

# COVID-19 Modeling

## December 28, 2021

Presentation available at:  
[dfr.vermont.gov](https://dfr.vermont.gov)

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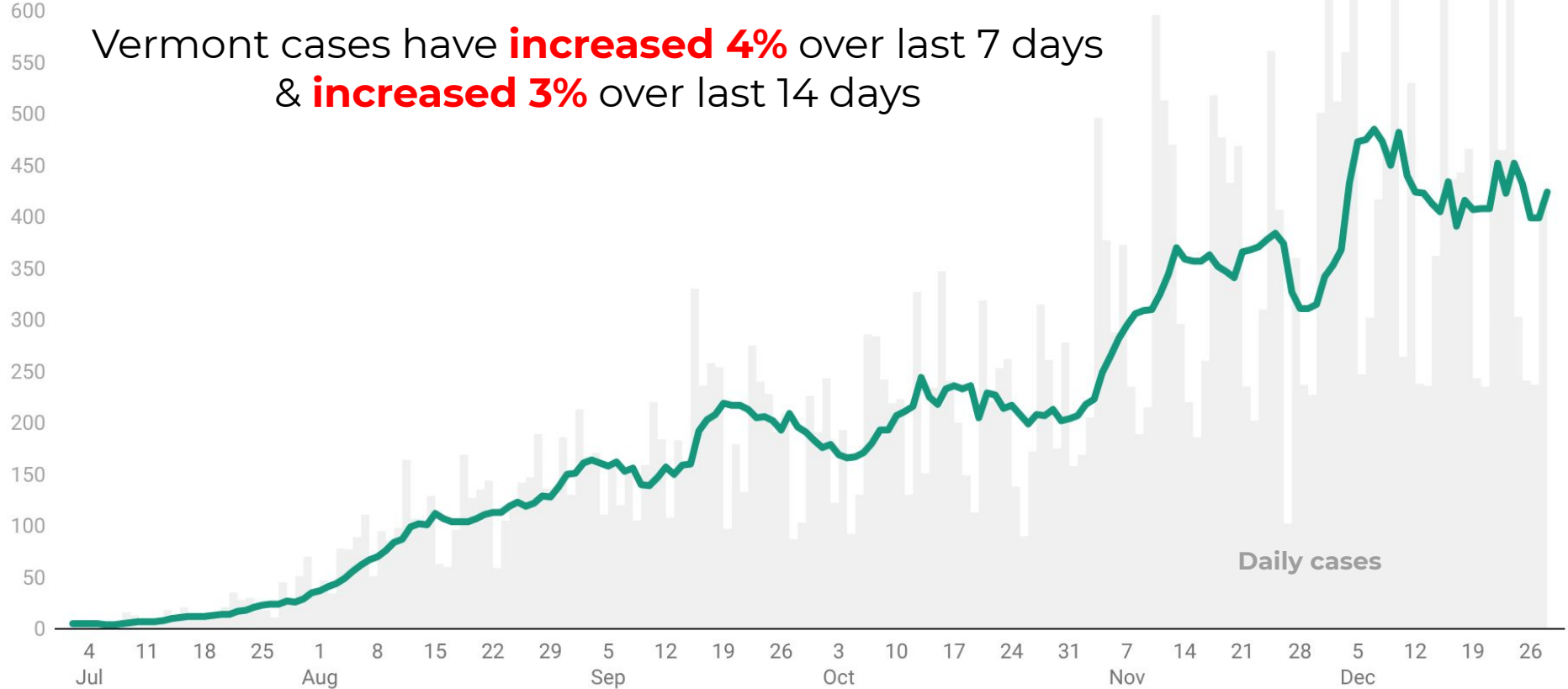
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# Vermont Case Data

# Vermont New COVID-19 Cases

7-Day Average

Vermont cases have **increased 4%** over last 7 days  
& **increased 3%** over last 14 days



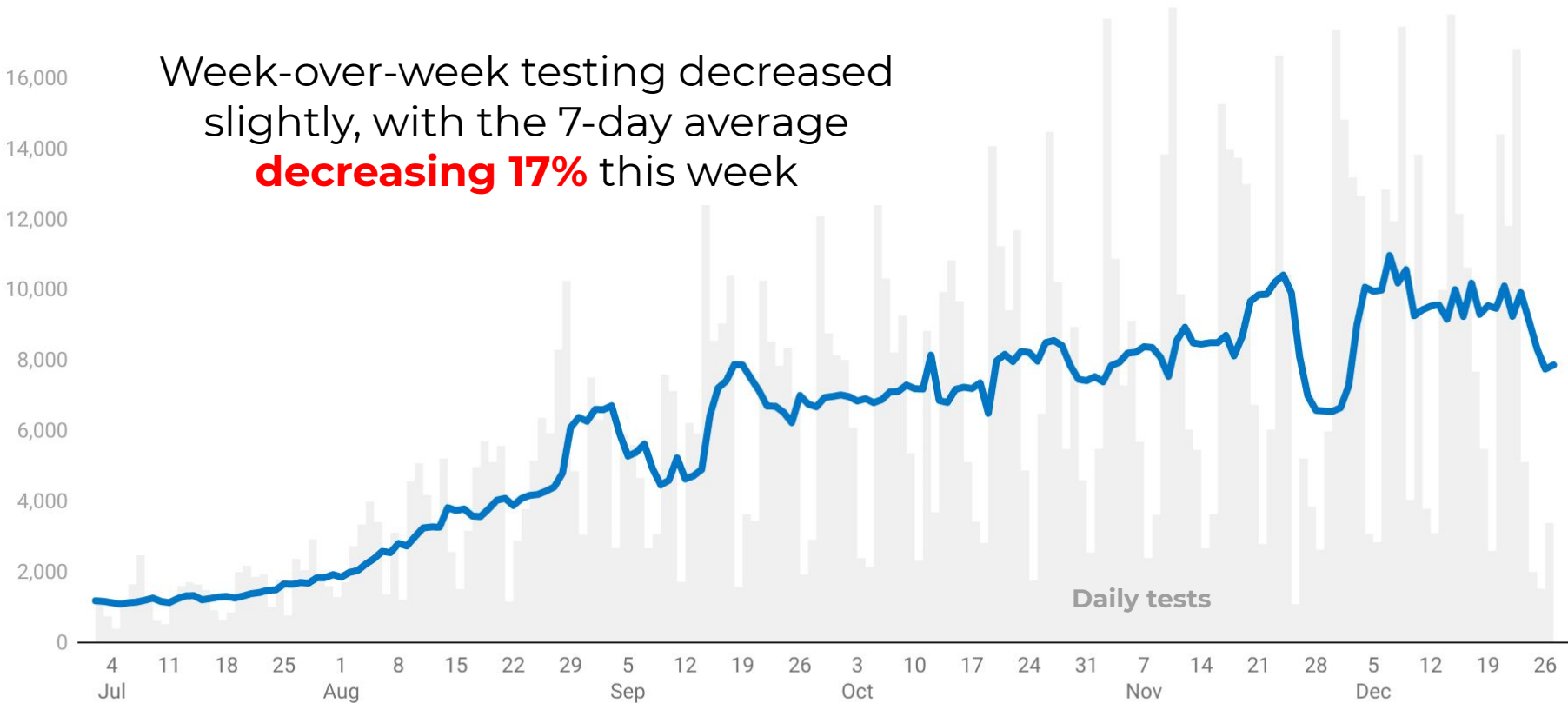
Daily cases

# Vermont COVID-19 PCR Testing

— 7-Day Average

Week-over-week testing decreased slightly, with the 7-day average **decreasing 17%** this week

Number of Tests

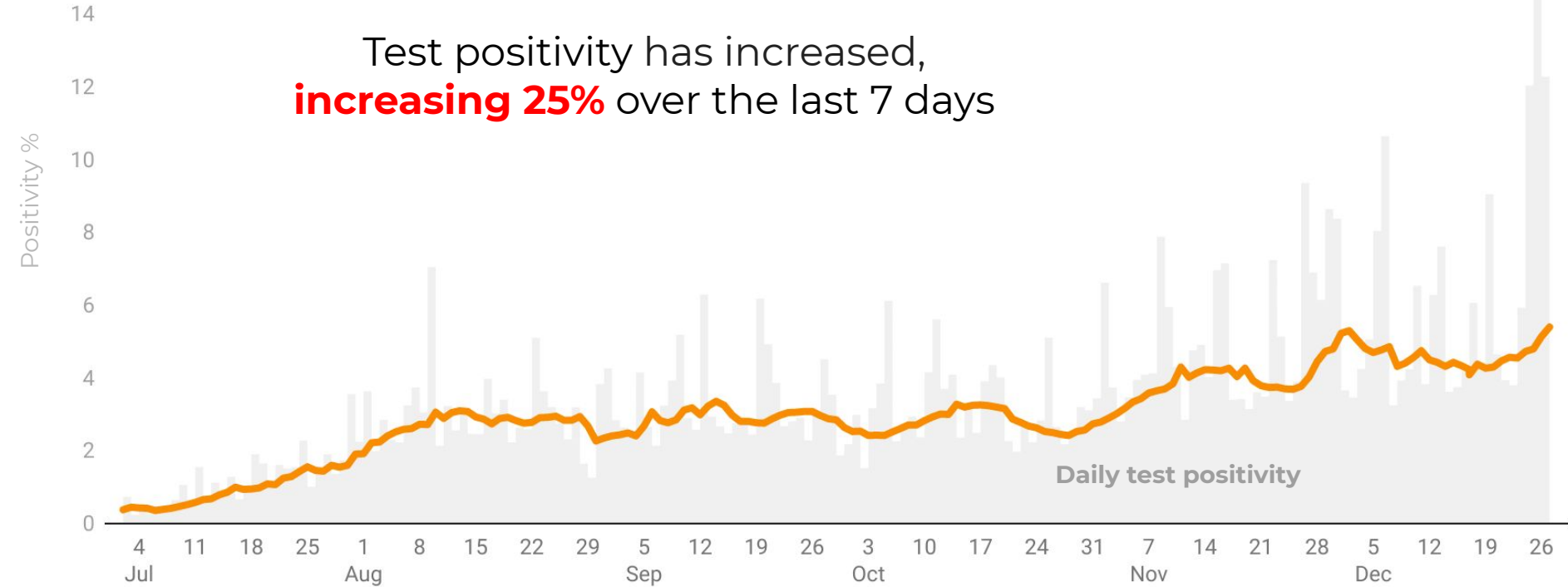


Daily tests

# Vermont Test Positivity: Delta Wave

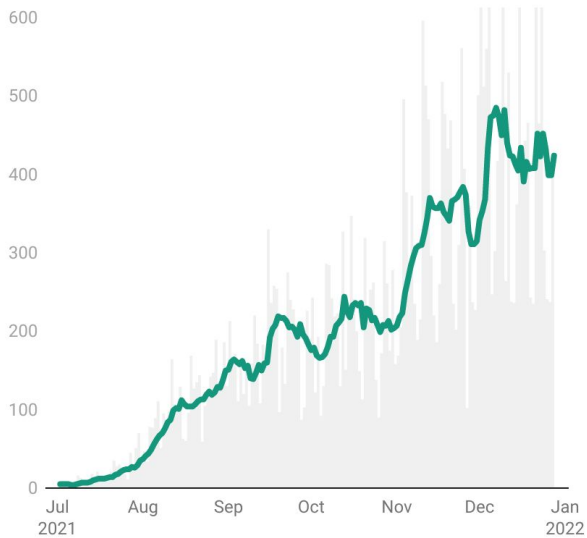
7-Day Positivity Rate

Test positivity has increased,  
**increasing 25%** over the last 7 days



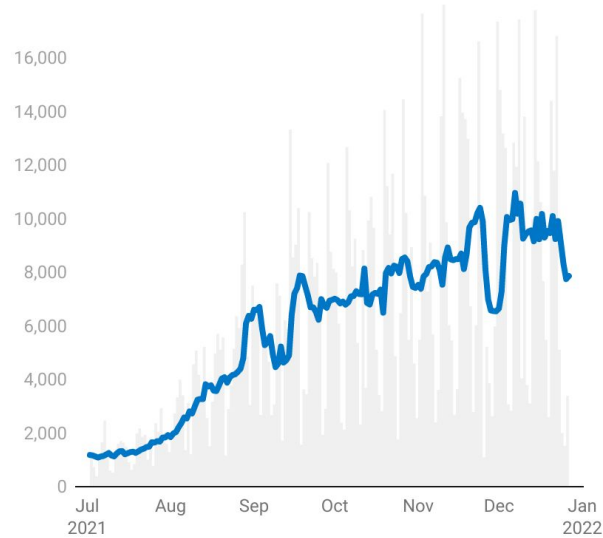
# Vermont Case Growth Metrics

**4% Increase**  
**Over last 7 days**



**Infections**

**18% Decrease**  
**Over last 7 days**



**Testing**

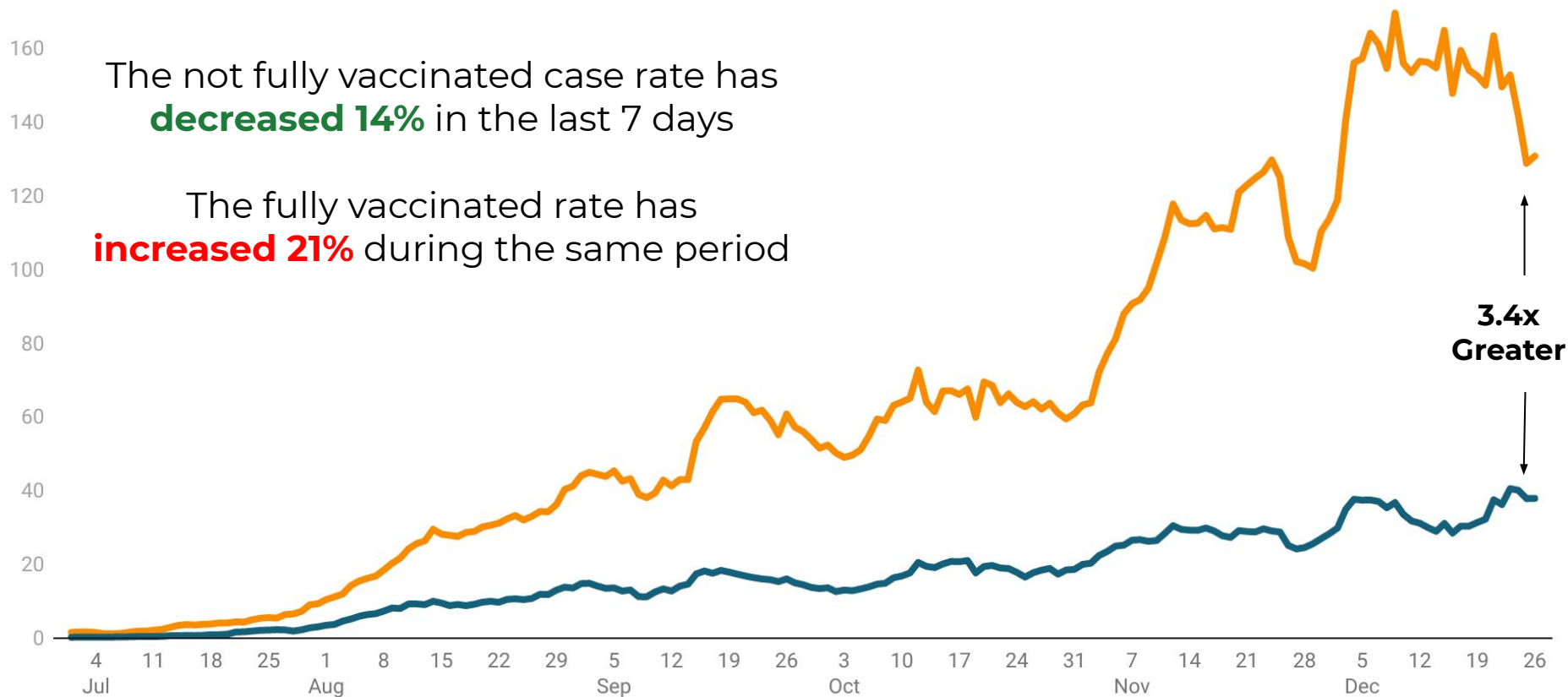
**25% Increase**  
**Over last 7 days**



**Positivity Rate**

# Vermont COVID-19 New Case Rates Per 100K (7-Day Average)

— Not Fully Vaccinated Case Rate — Fully Vaccinated Case Rate





# COVID-19 Hospitalizations By Vaccination Status Per 100K

Measured Among Vermont's 18 & Over Population Over the Last 6 Weeks

250

198 Hospitalizations  
per 100K

Those 18+ & **not fully vaccinated** were **23x more** likely to be hospitalized from COVID-19 over the last 6 weeks compared to those **fully vaccinated & boosted**

COVID-19 Hospitalizations per 100K

200

150

100

50

32 Hospitalizations  
per 100K

8 Hospitalizations  
per 100K

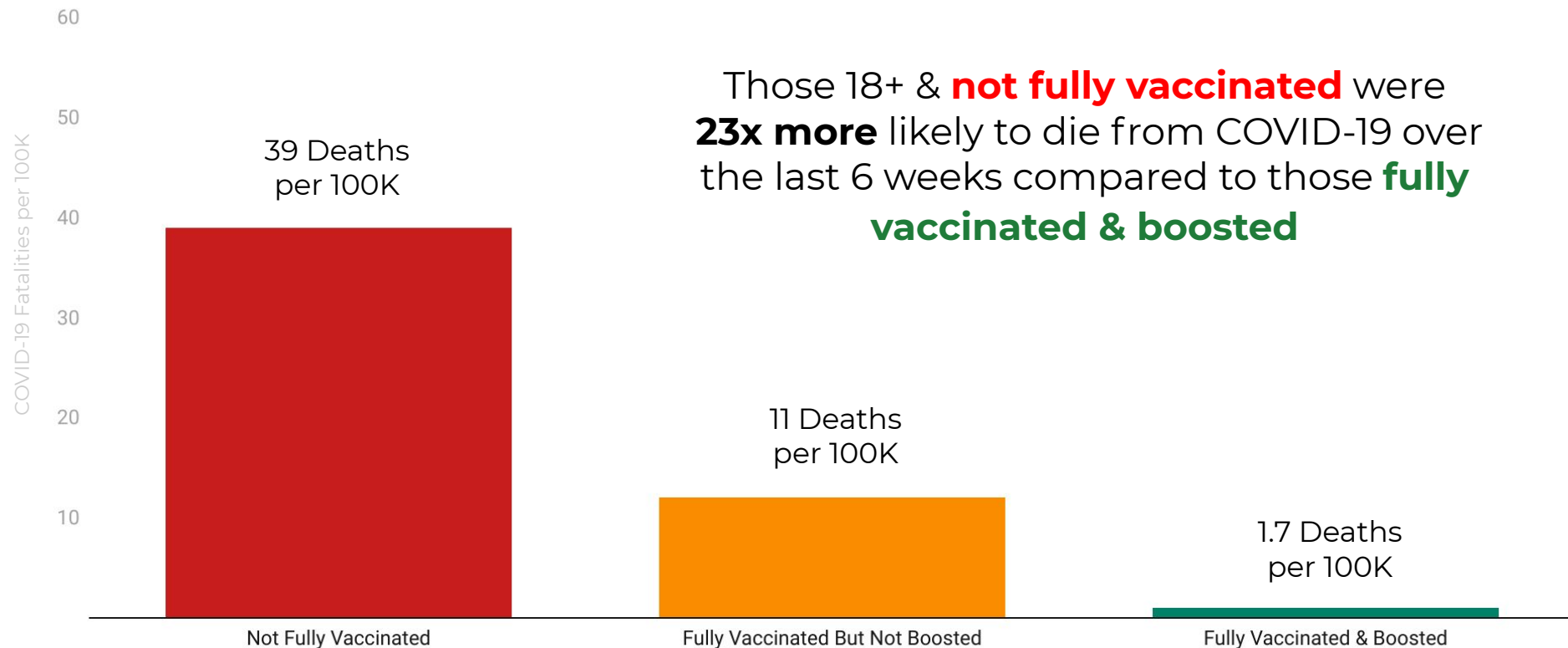
Not Fully Vaccinated

Fully Vaccinated But Not Boosted

Fully Vaccinated & Boosted

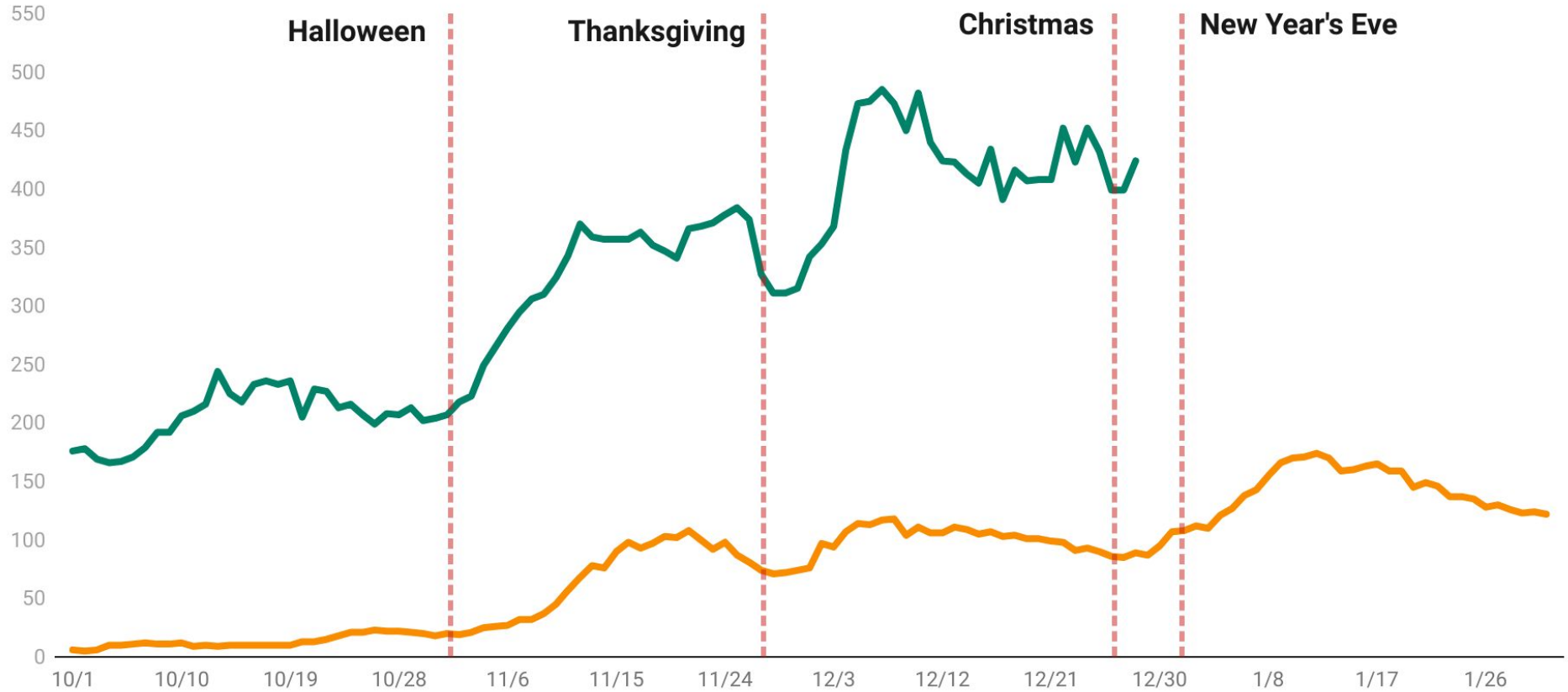
# COVID-19 Deaths By Vaccination Status Per 100K

Measured Among Vermont's 18 & Over Population Over the Last 6 Weeks



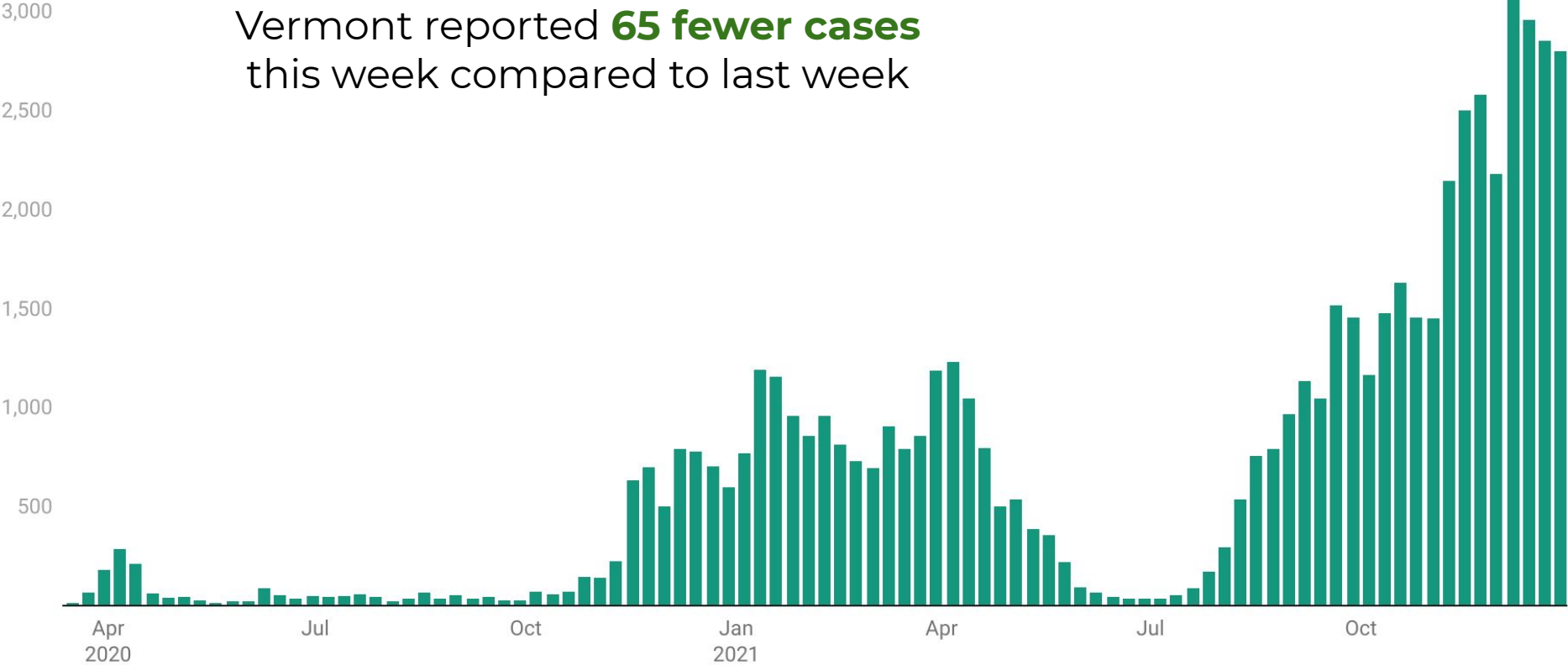
# Vermont COVID-19 Cases Fall 2020 vs. Fall 2021

Fall 2021 Fall 2020



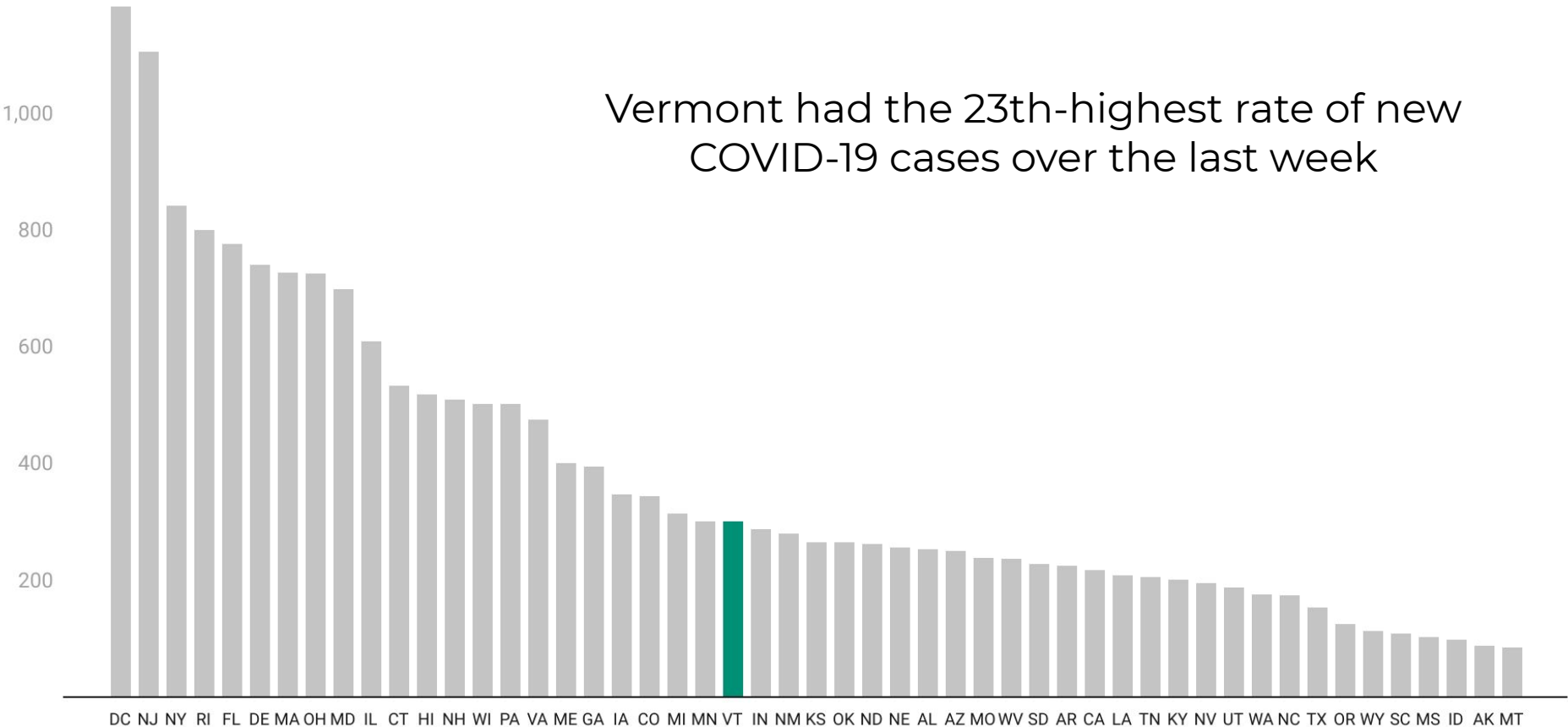
# Vermont New Weekly COVID-19 Cases

Vermont reported **65 fewer cases** this week compared to last week



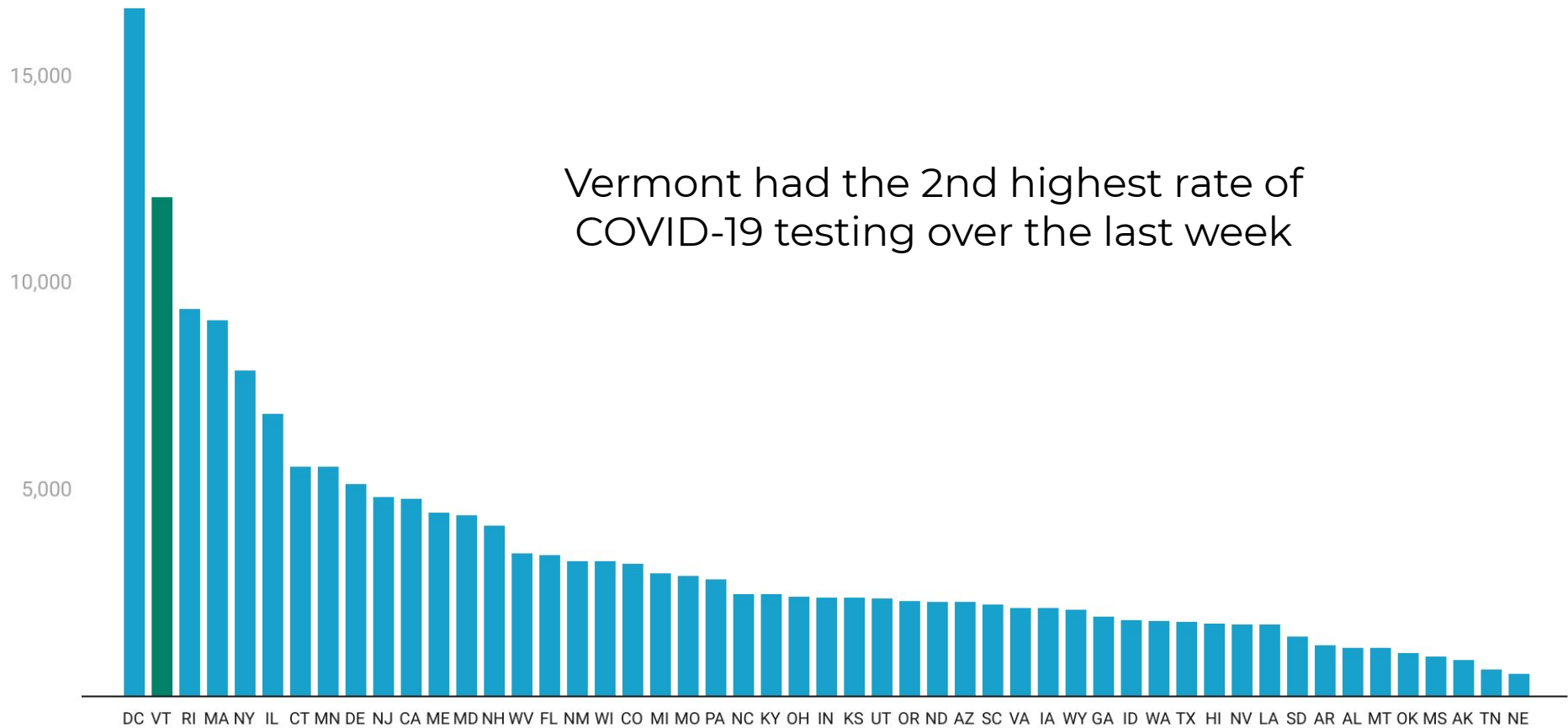
Source: VDH—December 27, 2021; created with Datawrapper

# National COVID-19 Case Rates Per 100K Last 7 Days



Source: CDC—December 27, 2021; Created with Datawrapper

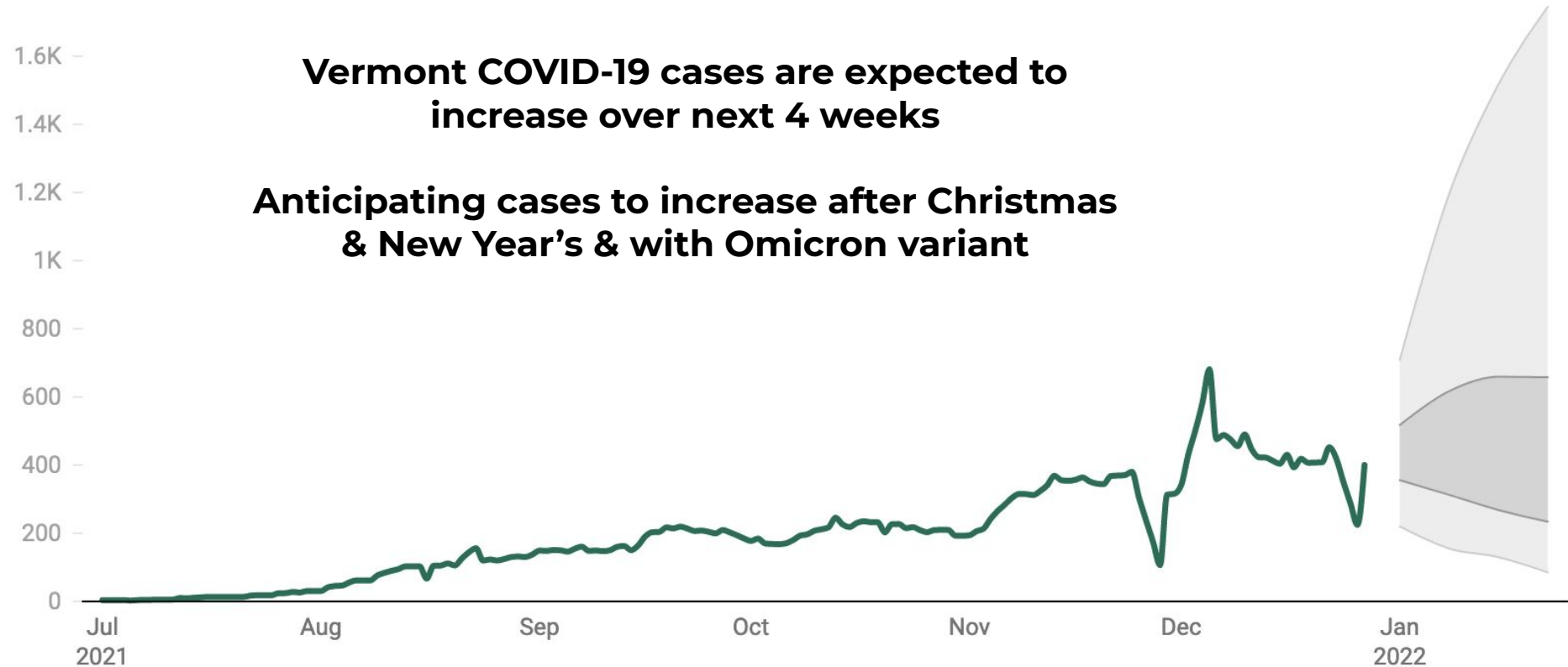
# COVID-19 Testing Per 100K Last 7 Days



Source: CDC—December 27, 2021; Created with Datawrapper

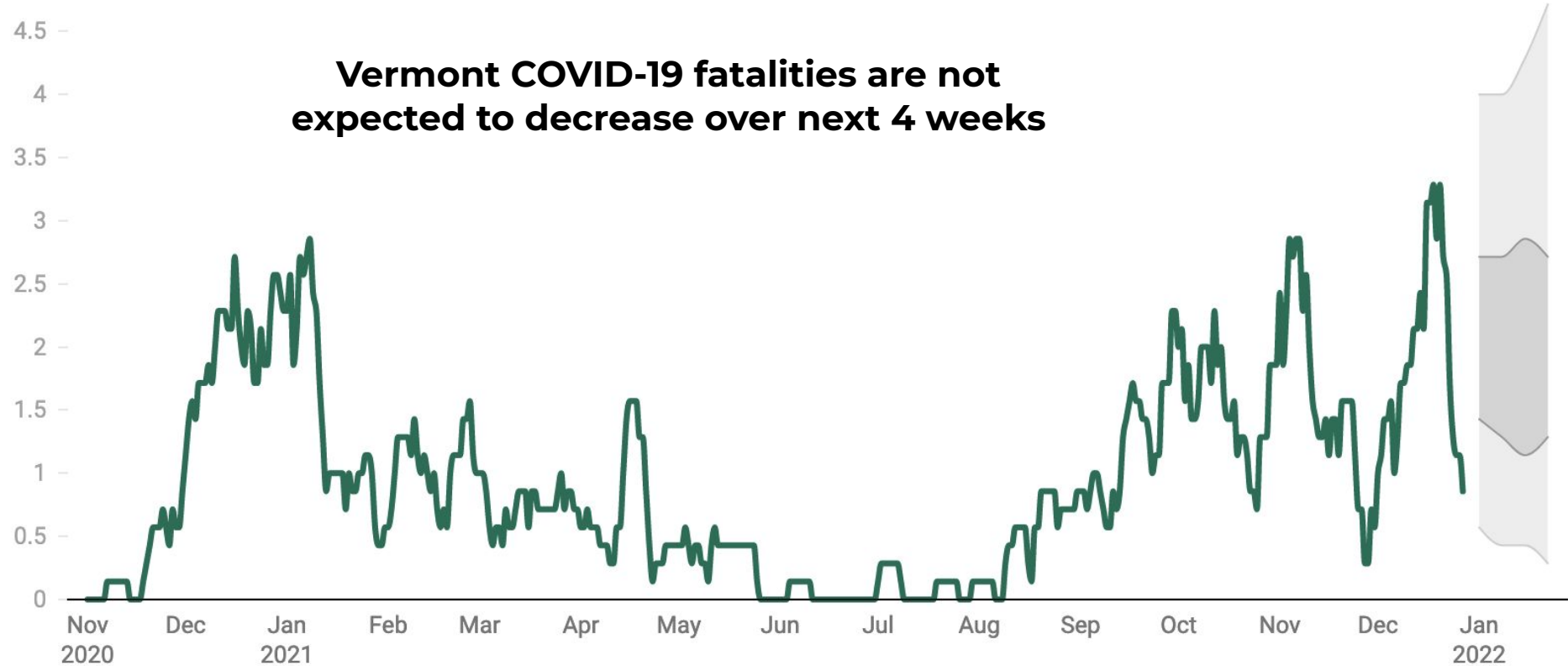
# VT COVID-19 Infection Confidence Intervals

Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.



# VT COVID-19 Death Confidence Intervals

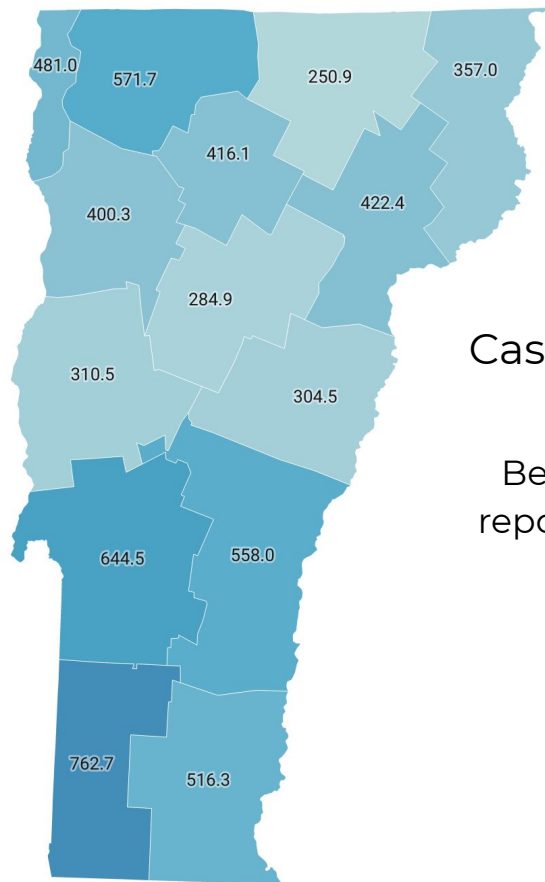
Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.





## Vermont Weekly Cases by County (per 100,000)

Results Reported December 14 to 20

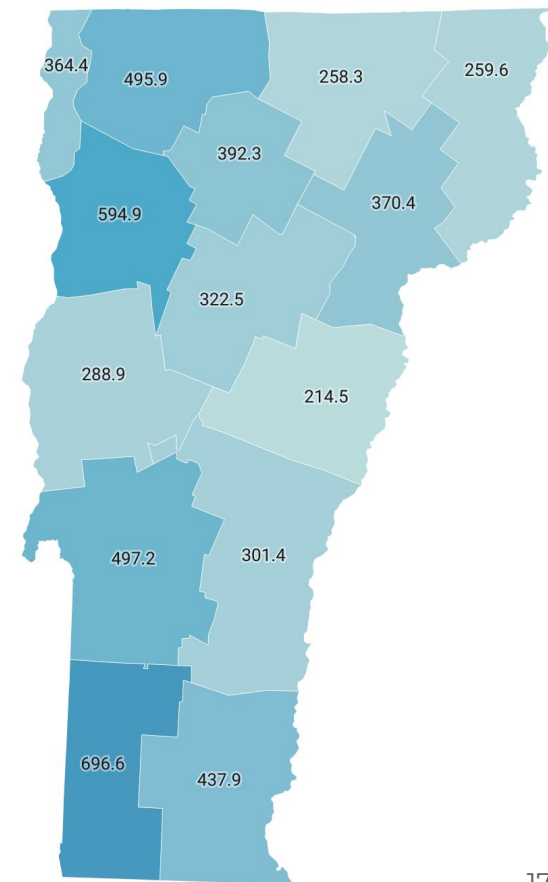


Case rates **decreased in 11 of 14** counties this week

Bennington & Chittenden Counties reporting highest levels of spread, but testing lower due to holiday

## Vermont Weekly Cases by County (per 100,000)

Results Reported December 21 to 27



# Active Outbreaks in Long Term Care Facilities

Facility Name	Total COVID-19 Cases
Queen City Health & Rehabilitation	23
The Manor, <i>Morrisville</i>	9
Springfield Rivers Nursing & Rehabilitation	6
Thompson House, <i>Brattleboro</i>	Not Shown
<b>Total</b>	<b>38</b>

Source: Vermont Department of Health—December 28, 2021 (reporting Monday through previous Sunday); 'Active' defined as less than 28 days since most recent case's specimen collection date or illness start date (whichever is later); \*privacy suppressions include facility w/ <25 staff and residents and/or >75% of facility infected

# Vermont Hospitalization Data

# Statewide Covid-19 Hospitalizations

100

**3% Decrease** in the 7-Day hospitalization average over the past week

**72%** of hospitalizations among the unvaccinated over the last 7 days

75

50

25

0

3/30/20 4/27/20 5/26/20 6/24/20 7/23/20 8/21/20 9/19/20 10/18/20 11/16/20 12/15/20 1/13/21 2/11/21 3/12/21 4/10/21 5/9/21 6/7/21 7/6/21 8/4/21 9/2/21 10/1/21 10/30/21 11/28/21 12/27/21

■ Daily Hospitalizations ■ 7-Day Hospitalization Average

Source: Vermont Department of Health—December 28, 2021

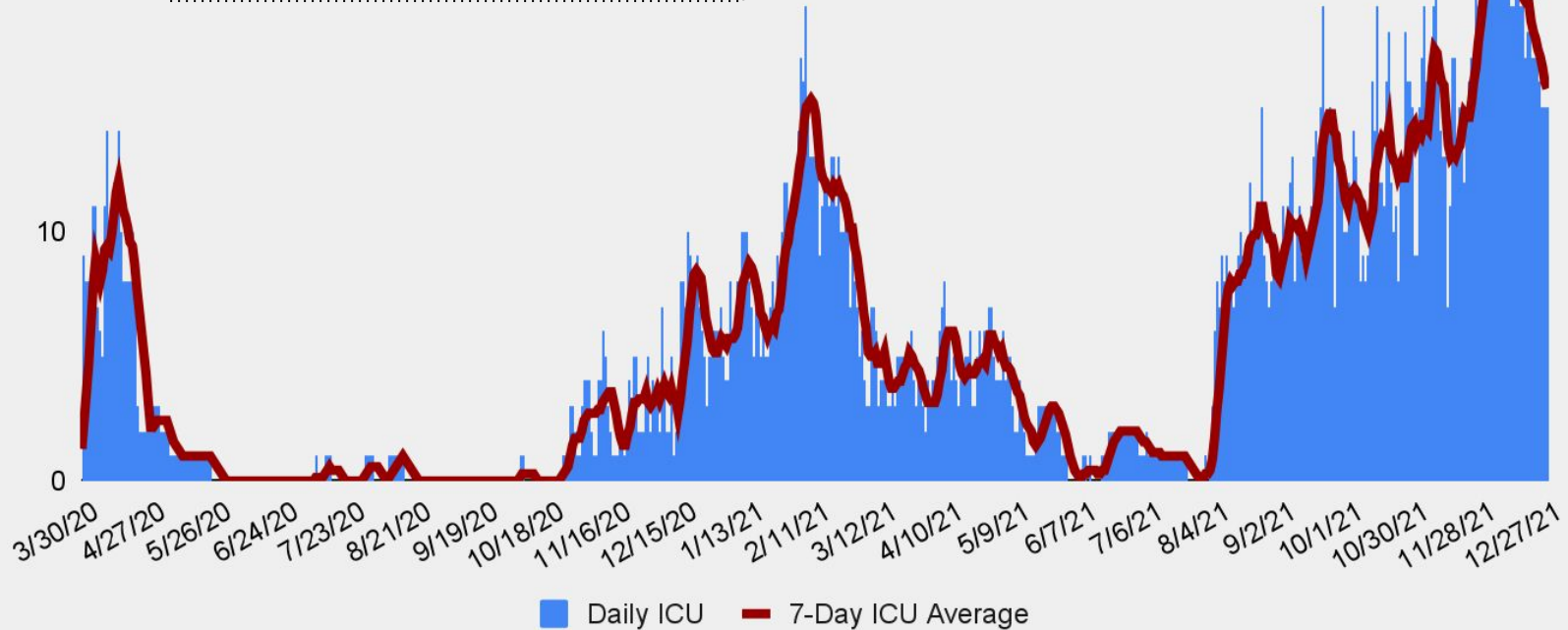
# Statewide Covid-19 Critical Care Usage

30

**15% Decrease** in the 7-Day ICU average over the past week

**85%** of critical care stays among the unvaccinated over the last 7 days

20

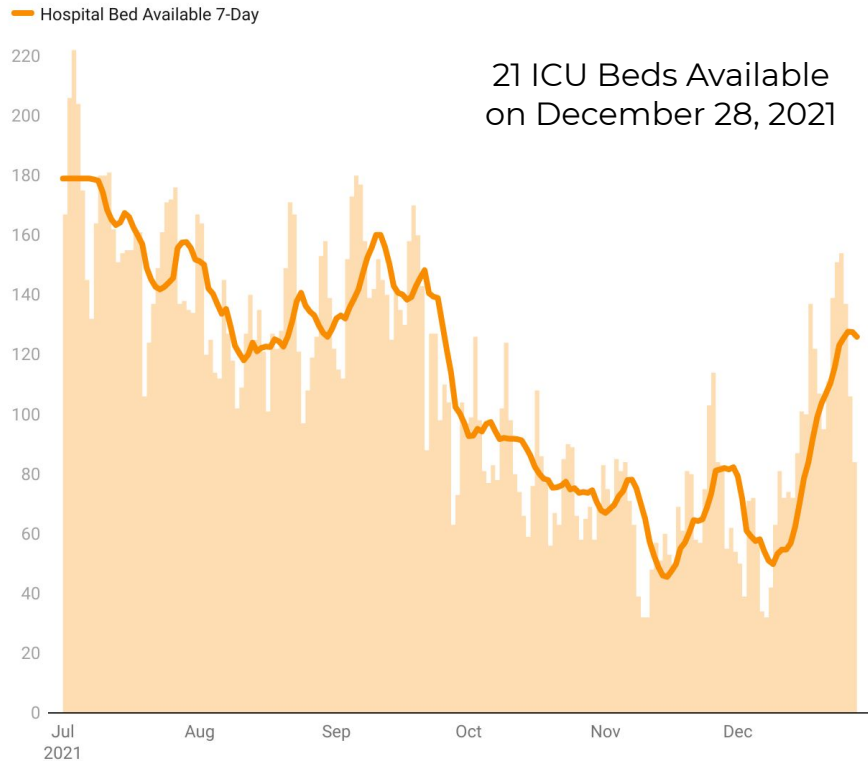


Source: Vermont Department of Health—December 28, 2021

# Vermont Hospital Metrics

## (7-Day Averages)

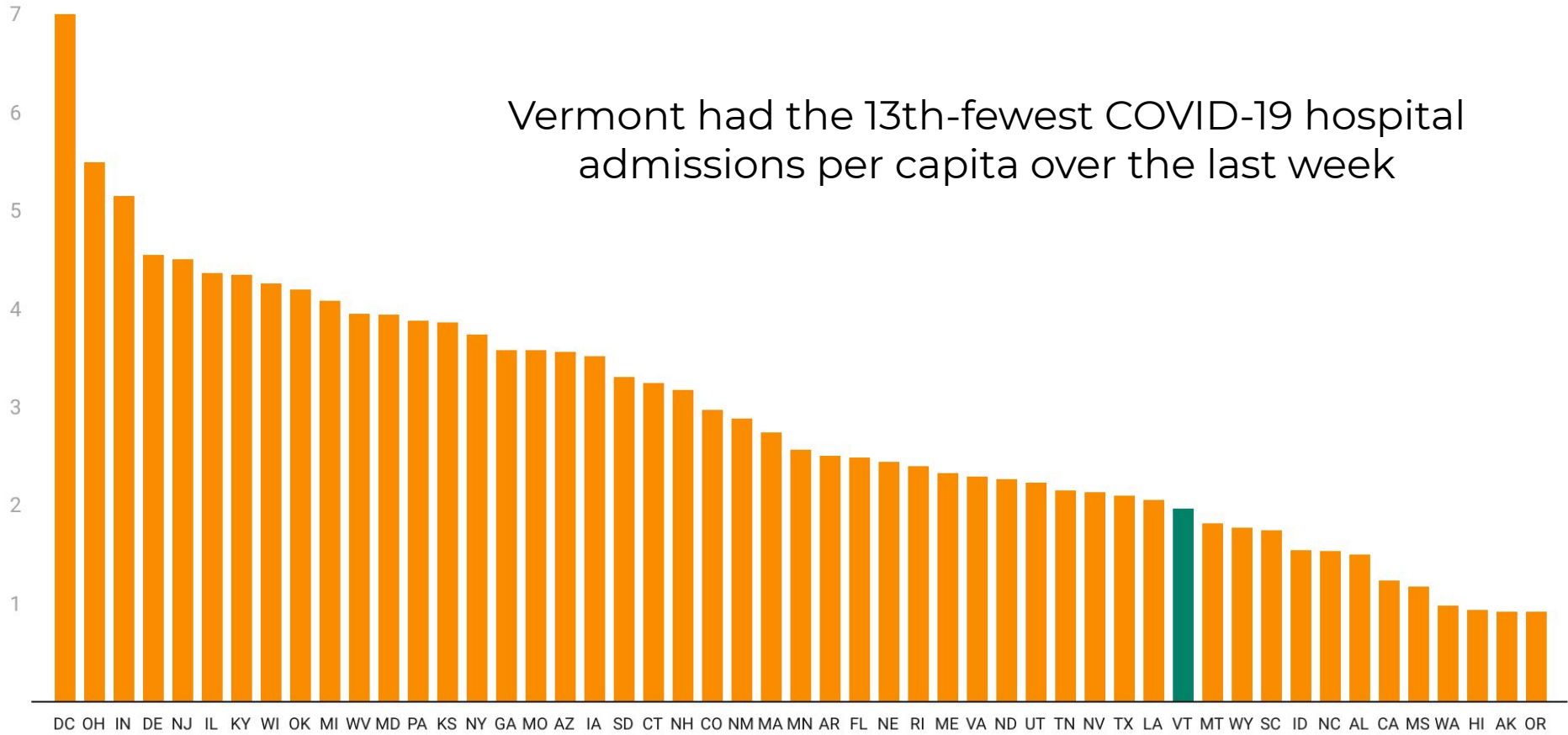
### Vermont Hospital Beds Available Since July 1, 2021



### Vermont ICU Beds Available Since July 1, 2021



# COVID-19 Hospital Admissions Last 7 Days Per 100K

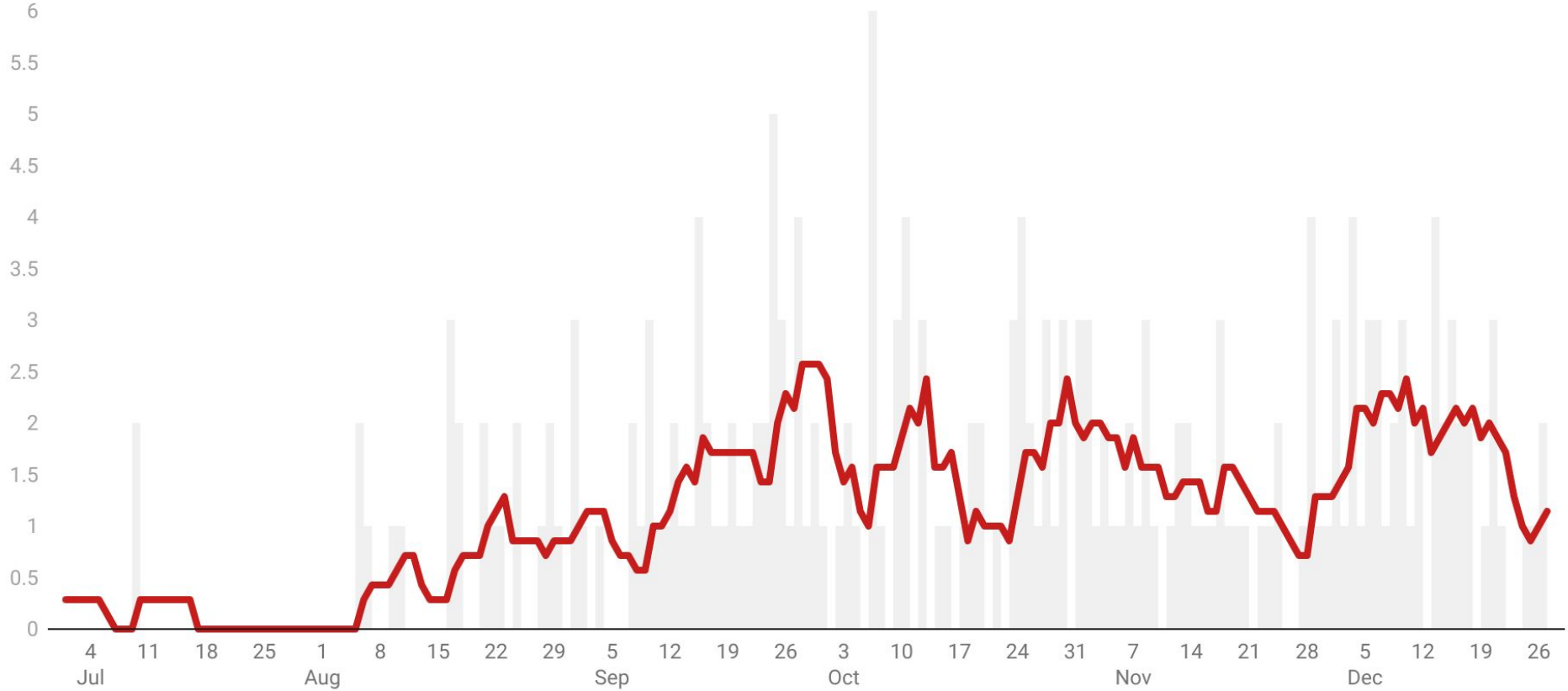


# Vermont Fatality Data



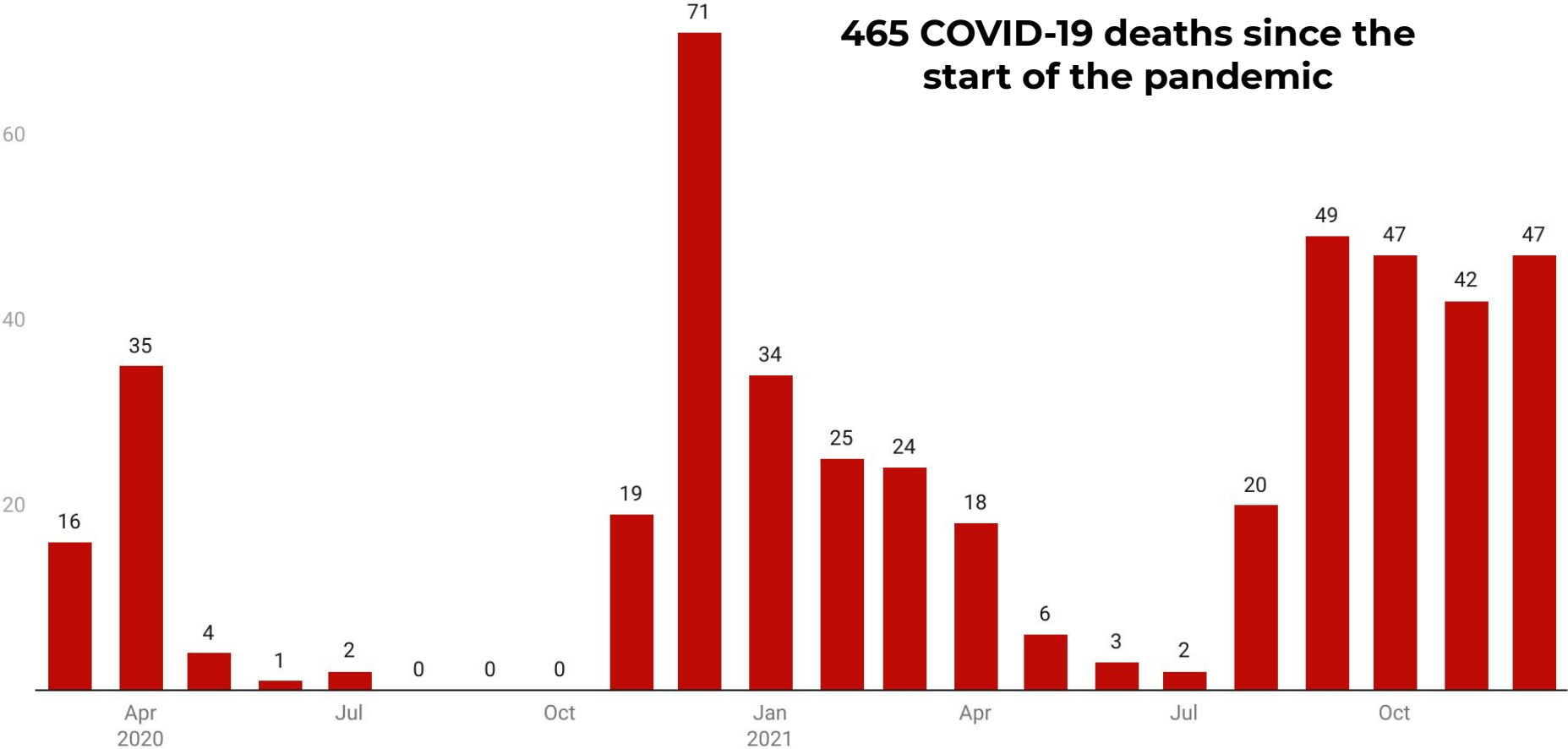
# Vermont COVID-19 Fatalities

7-Day Average



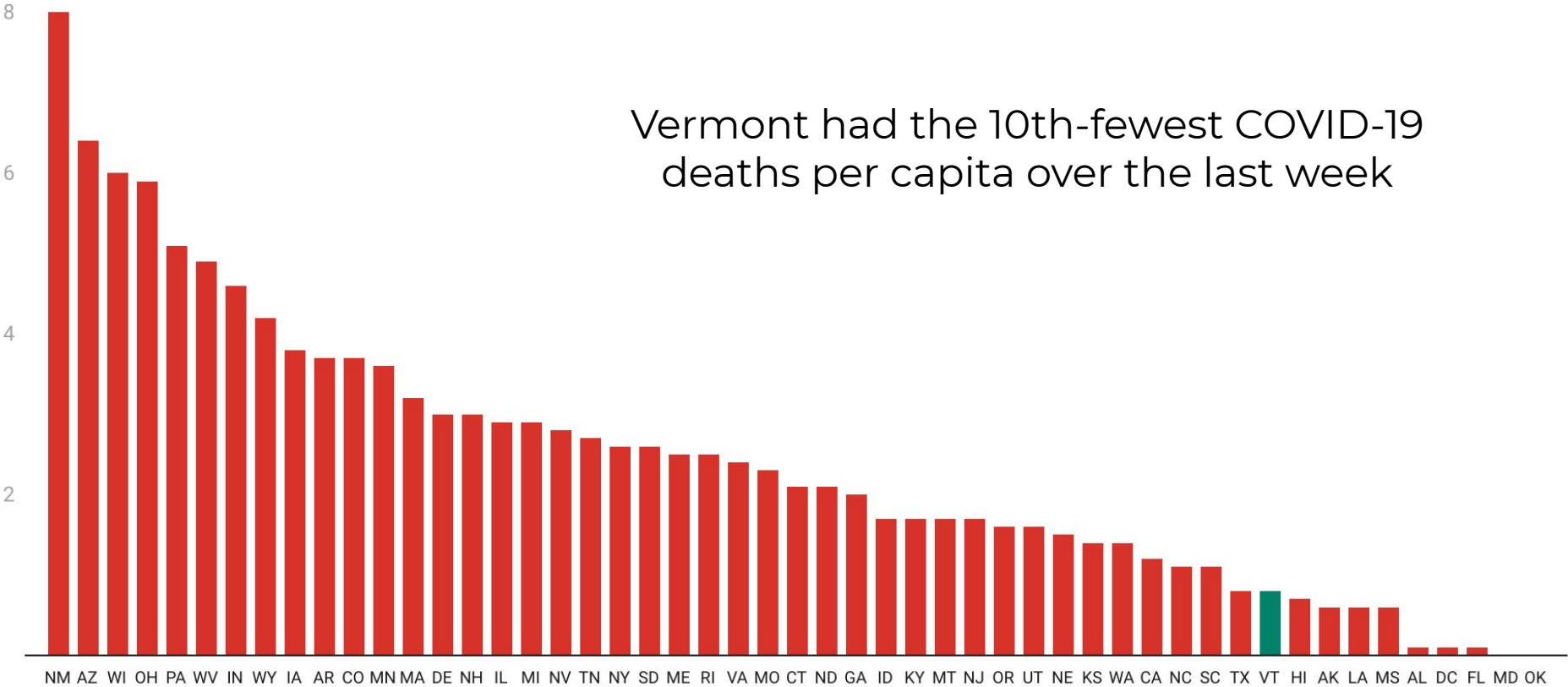
# Monthly Covid-19 Deaths In Vermont

**465 COVID-19 deaths since the start of the pandemic**



Source: Vermont Department of Health—December 28, 2021; deaths attributed to month in which death occurred rather than reported

# COVID-19 Deaths Per 100K Last 7 Days



Vermont had the 10th-fewest COVID-19 deaths per capita over the last week

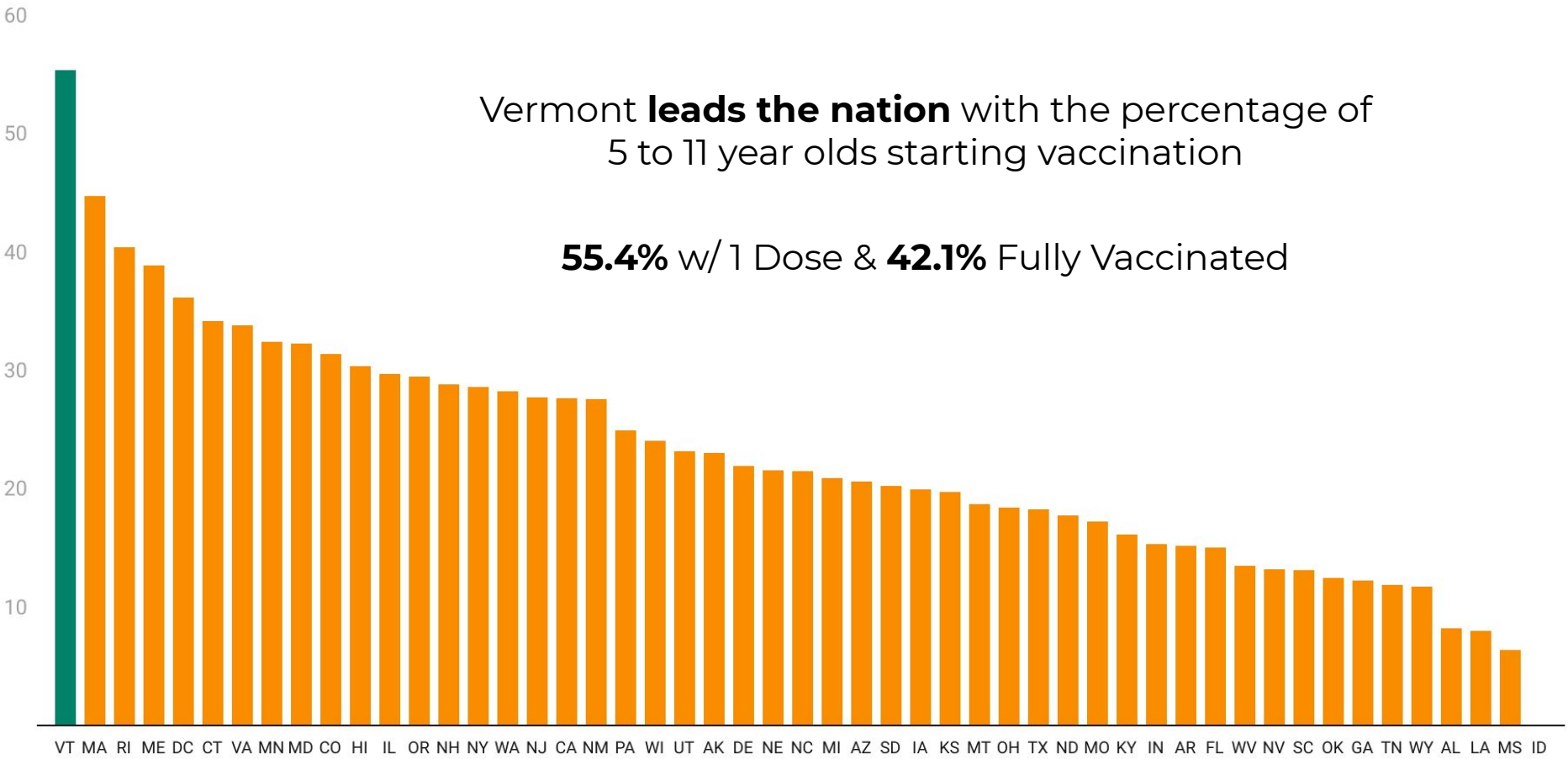
Source: CDC—December 27, 2021; Created with Datawrapper

# Vermont Vaccination Data

# Vermont CDC Vaccine Scorecard

Metric	Figure	State Ranking
<b>Doses Administered per 100K</b>	<b>199,590</b>	<b>1</b>
<b>% At Least 1 Dose (5+ Population)</b>	<b>90%+</b>	<b>2 (tied)</b>
<b>% Fully Vaccinated (5+ Population)</b>	<b>81.1%</b>	<b>1</b>
<b>% At Least 1 Dose (Full Population)</b>	<b>89.1%</b>	<b>2</b>
<b>% Fully Vaccinated (Full Population)</b>	<b>77.3%</b>	<b>1</b>
<b>% Fully Vaccinated (65 &amp; Over)</b>	<b>95%+</b>	<b>1 (tied)</b>

# Percent of 5 to 11 Population Starting Vaccination

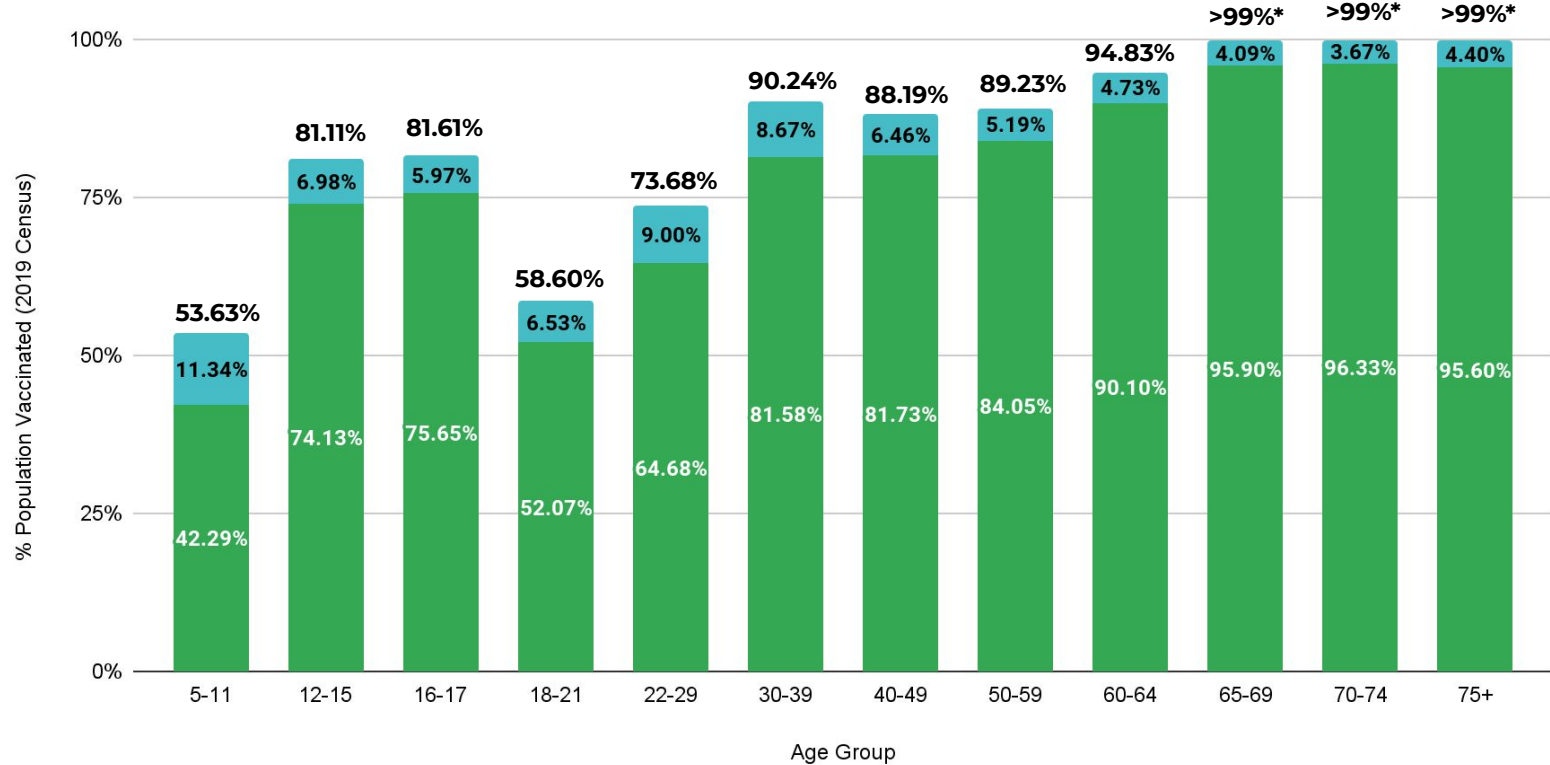


Source: CDC—December 27, 2021; created with Datawrapper

# Vermont Vaccination Progress

By Age Band

Partially Vaccinated Fully Vaccinated



Source: Vermont Dept. of Health—December 27, 2021; \*based on 2019 census estimates; state data may differ from CDC reporting

# Vermont CDC Booster Scorecard

Metric	Figure	State Ranking
% of Fully Vaccinated w/ booster dose	48.3%	1
% of Fully vaccinated 18+ w/ booster doses	53.3%	1
% of Fully vaccinated 50+ w/ booster doses	64.7%	1
% of Fully vaccinated 65+ w/ booster doses	73.9%	2



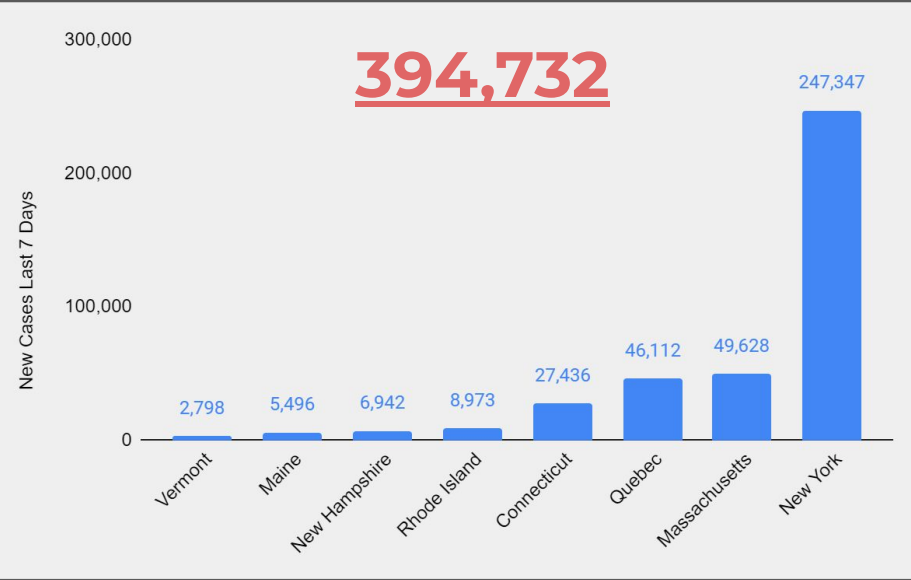
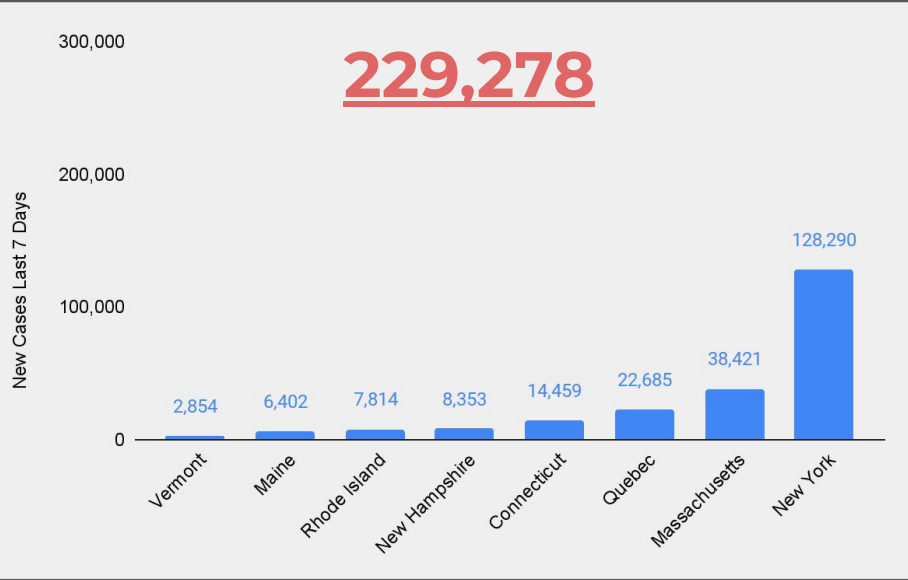
# Regional Data

# Northeast Regional Cases

**72.2% Increase in New Cases**

New Cases December 14th to December 20th

New Cases December 21st to December 27th



# Weekly Northeast Regional Cases

Most weekly COVID-19 cases reported in Northeast Region ever

400000

300000

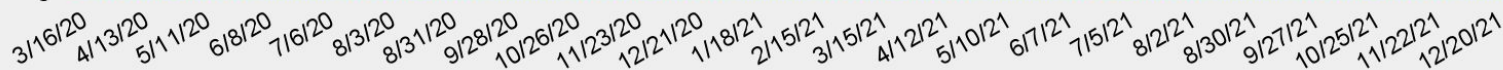
200000

100000

0

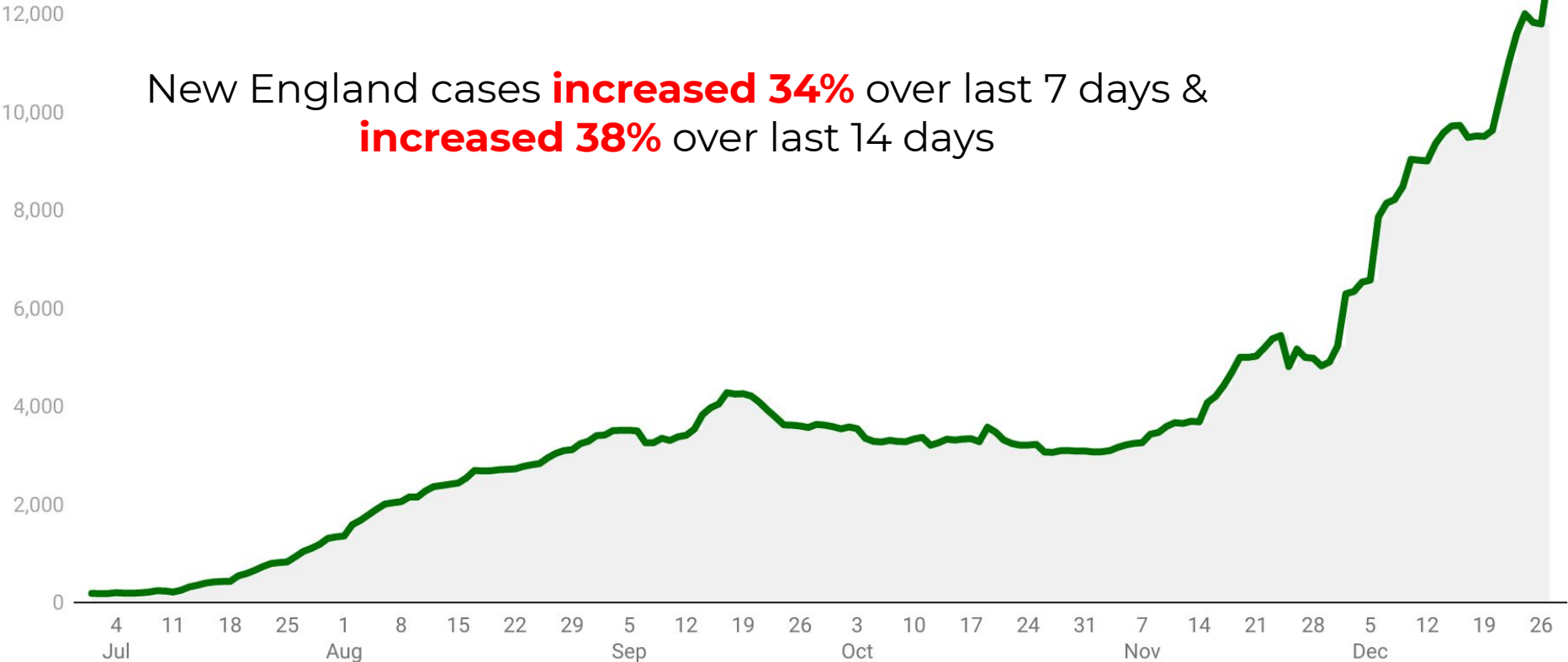
3/16/20 4/13/20 5/11/20 6/8/20 7/6/20 8/3/20 8/31/20 9/28/20 10/26/20 11/23/20 12/21/20 1/18/21 2/15/21 3/15/21 4/12/21 5/10/21 6/7/21 7/5/21 8/2/21 8/30/21 9/27/21 10/25/21 11/22/21 12/20/21

Sources: State Health Depts.—December 20, 2021 (includes: CT, ME, MA, NH, NY, QC, RI & VT)



# New England COVID-19 Cases

— New England 7-Day Case Average



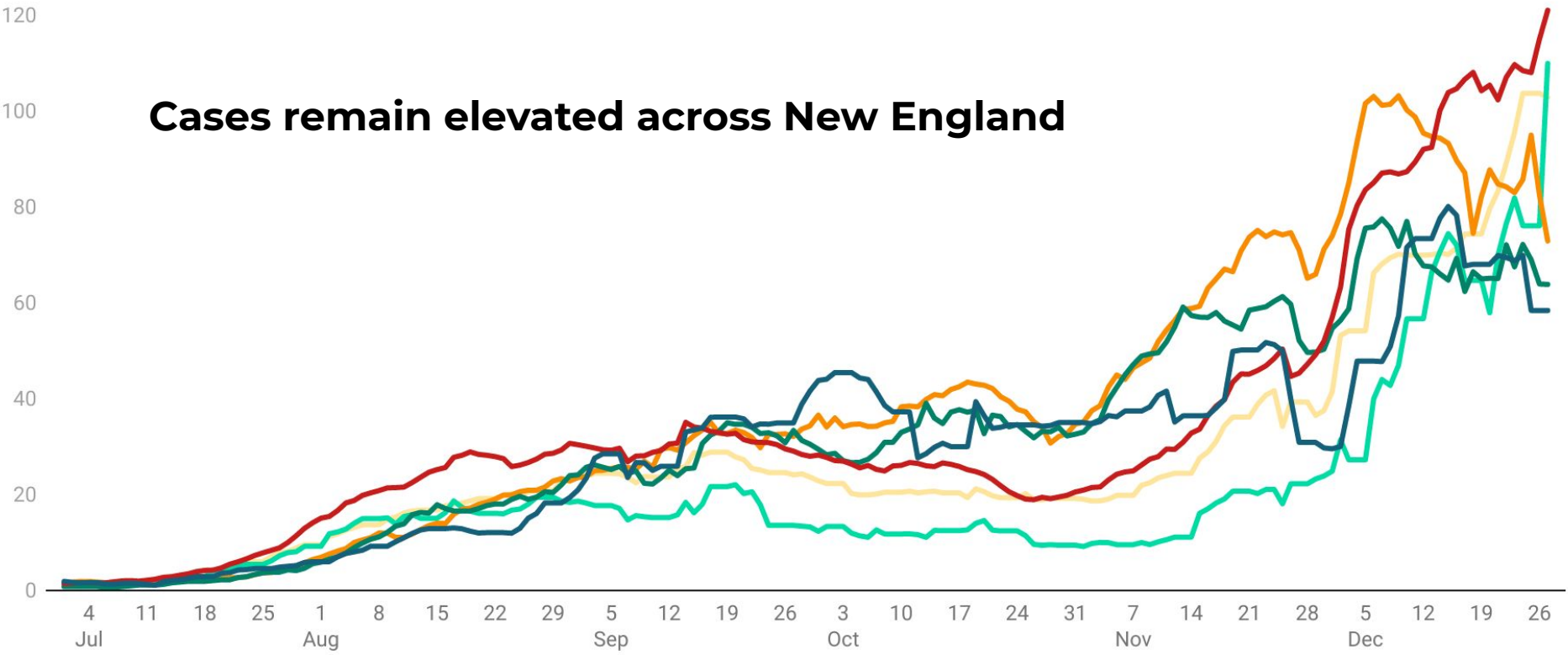
Sources: State Health Depts.—December 27, 2021 (includes: CT, ME, MA, NH, RI & VT)

# New England COVID-19 Case Trends

7-Day Average Cases Per 100K

Massachusetts Connecticut Rhode Island Maine New Hampshire Vermont

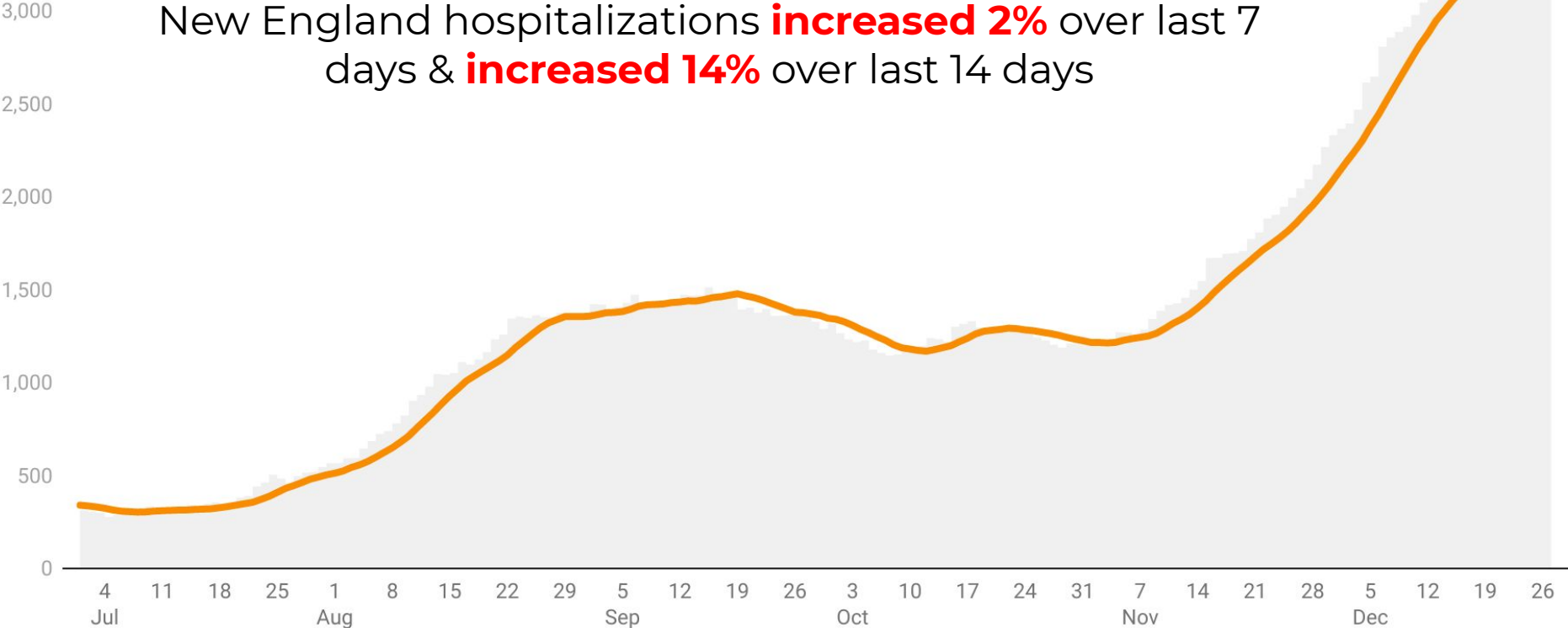
**Cases remain elevated across New England**



Sources: State Health Depts.—December 27, 2021 (includes: CT, ME, MA, NH, RI & VT)

# New England COVID-19 Hospitalizations

7-Day Average



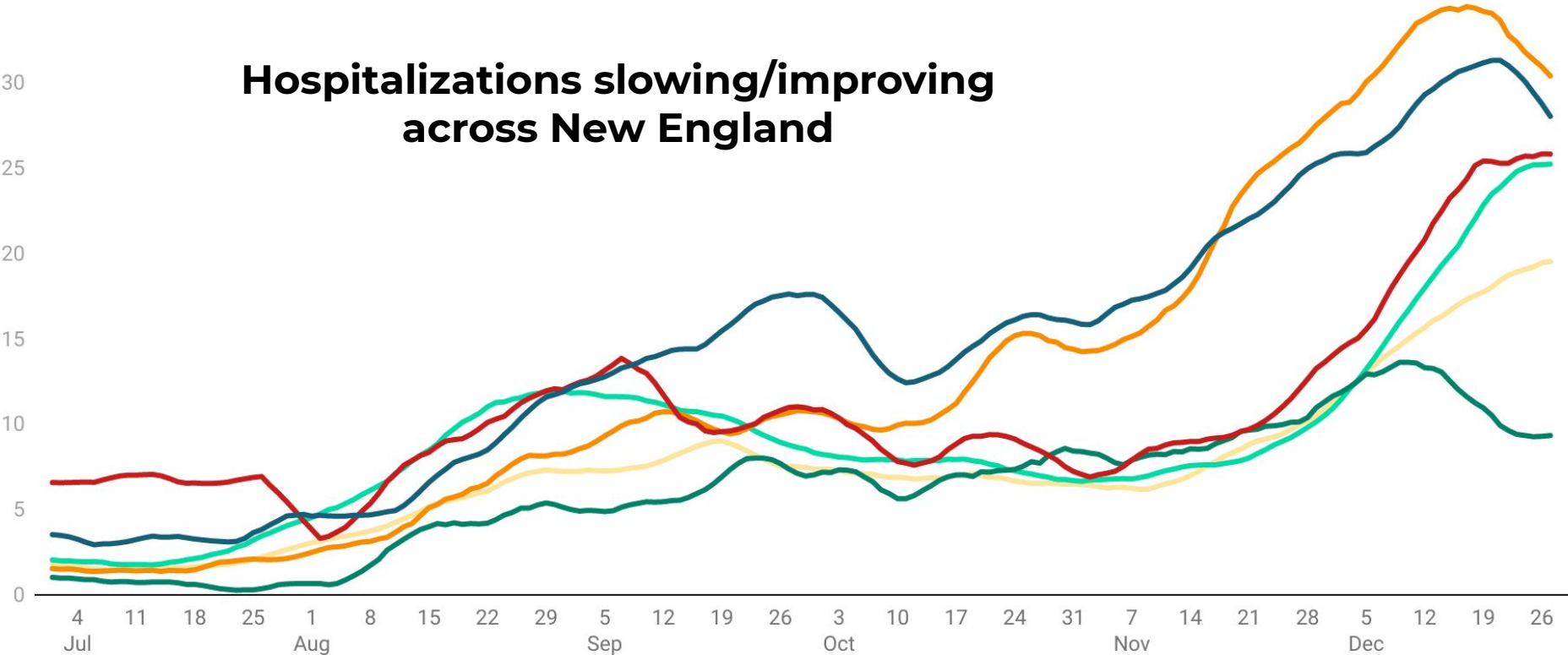
Sources: HHS—December 27, 2021 (includes: CT, ME, MA, NH, RI & VT)

# New England COVID-19 Hospitalizations Trends

7-Day Average Hospitalizations Per 100K

Massachusetts Connecticut Rhode Island Maine New Hampshire Vermont

**Hospitalizations slowing/improving  
across New England**



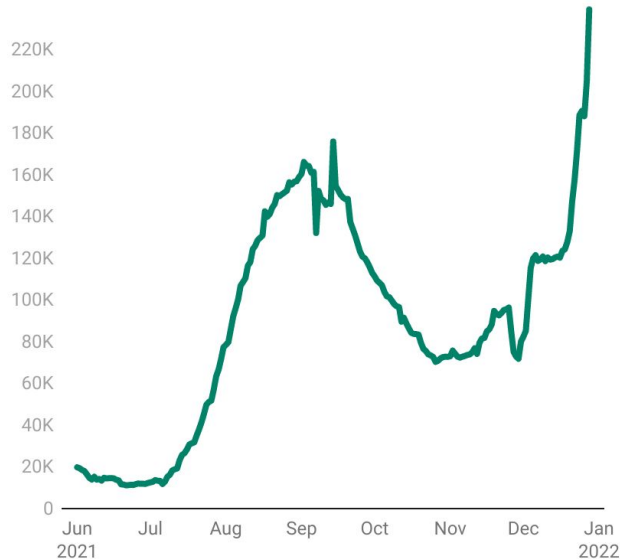
Sources: HHS—December 27, 2021 (includes: CT, ME, MA, NH, RI & VT)

# National Data



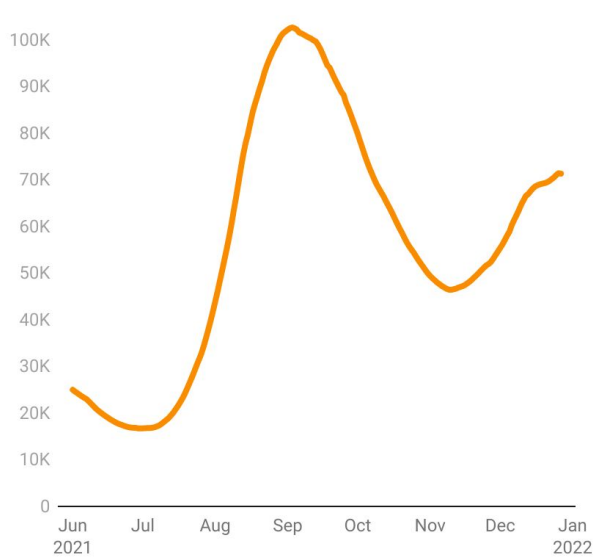
# U.S. Infections, Hospitalizations, & Deaths

**63% Increase**  
Over last 7 days



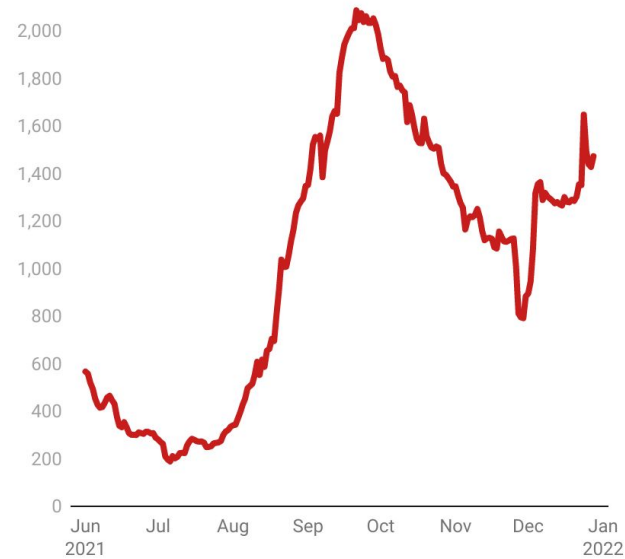
**Infections**  
*(7-Day Average)*

**3% Increase**  
Over last 7 days



**Hospitalizations**  
*(7-Day Average)*

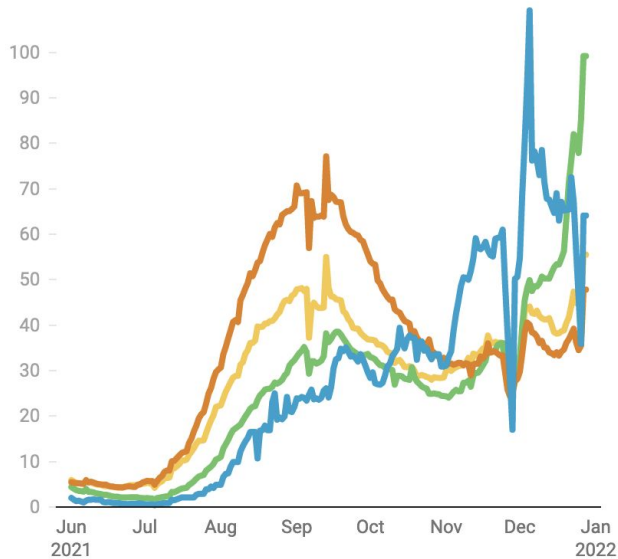
**13% Increase**  
Over last 7 days



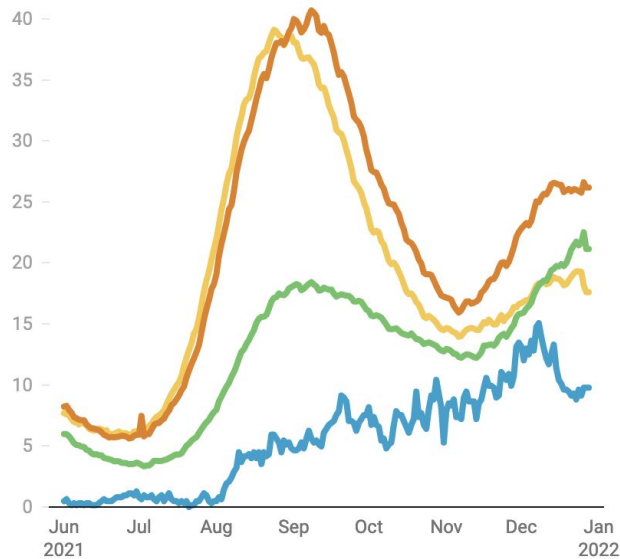
**Deaths**  
*(7-Day Average)*

# Infections, Hospitalizations, & Deaths by Percentage of State Population Vaccinated

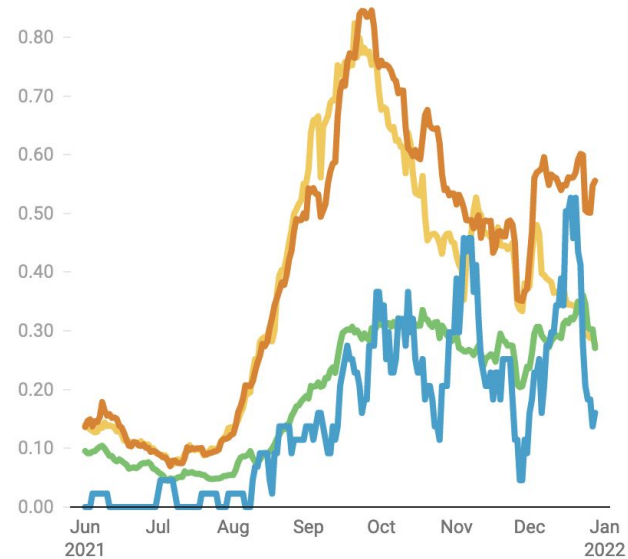
■ Bottom Third Vaccinated States   
 ■ Middle Third Vaccinated States   
 ■ Top Third Vaccinated States   
 ■ Vermont



Infections per 100K



Hospitalizations per 100K  
(Current)

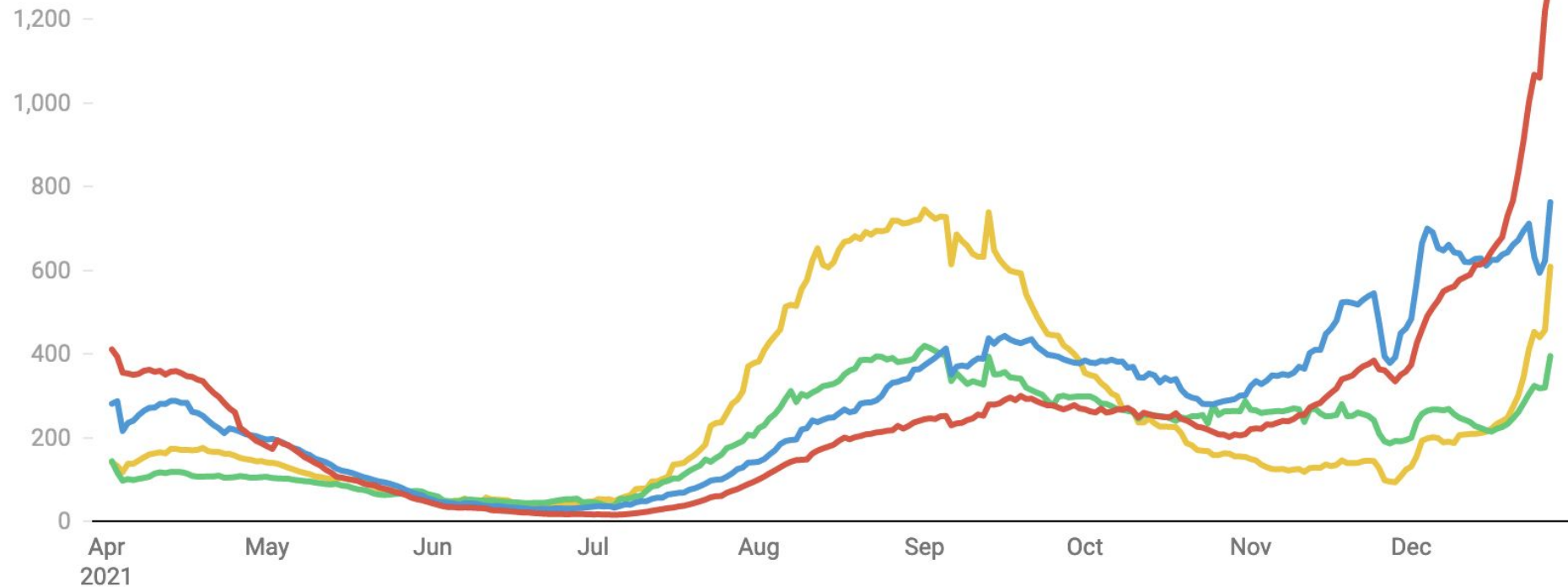


Deaths per 100K

# Daily COVID-19 Cases per Million in US Regions

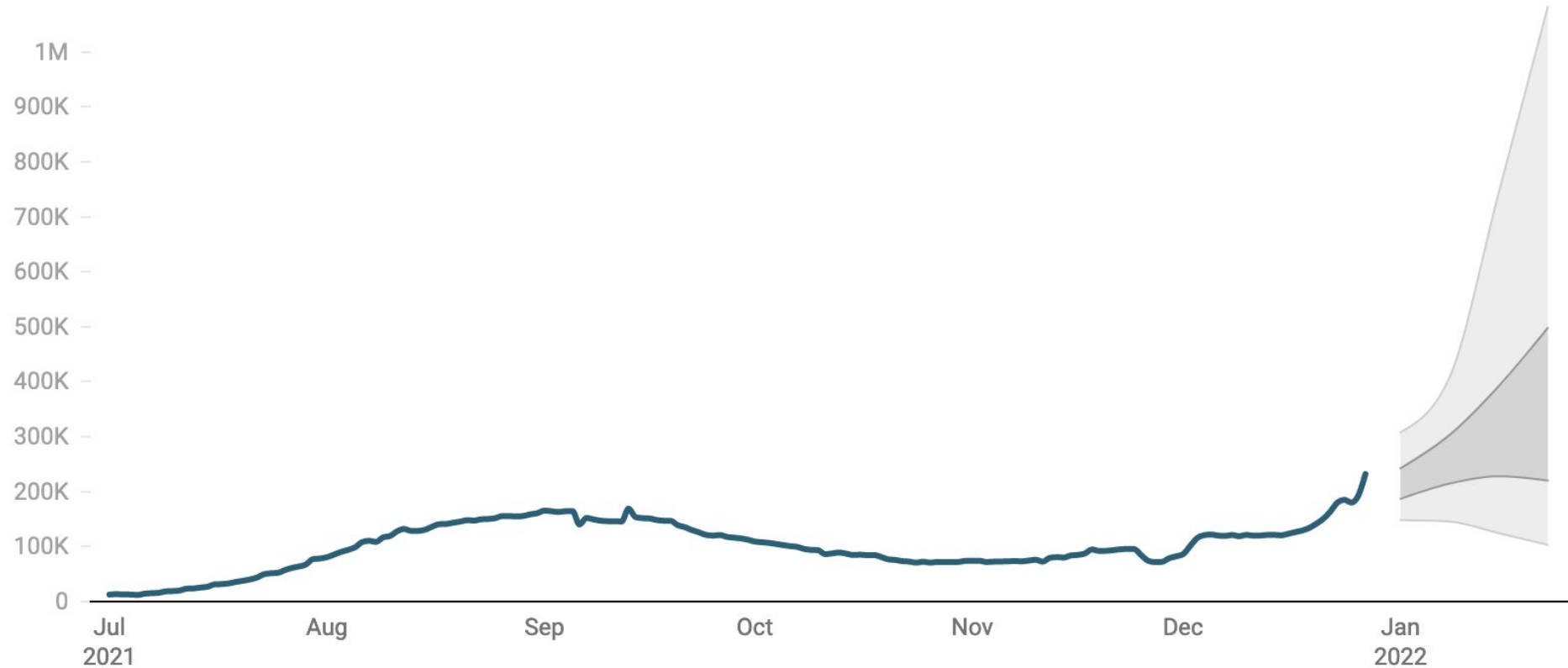
Calculated as a 7-day moving average. Definitions of North, Midwest, South, and West taken from the U.S. Census bureau.

— Northeast — Midwest — South — West



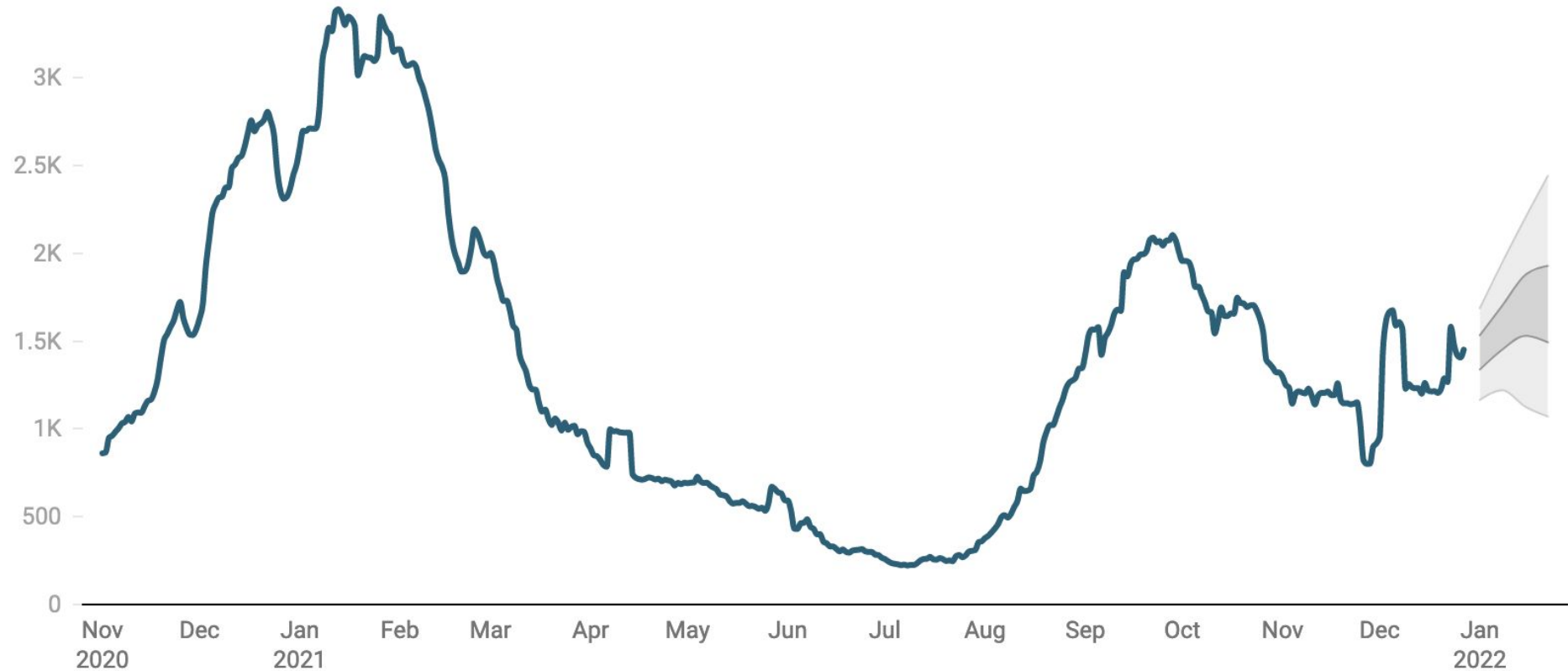
# US COVID-19 Infection Confidence Intervals

Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.



# US COVID-19 Death Confidence Intervals

Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.

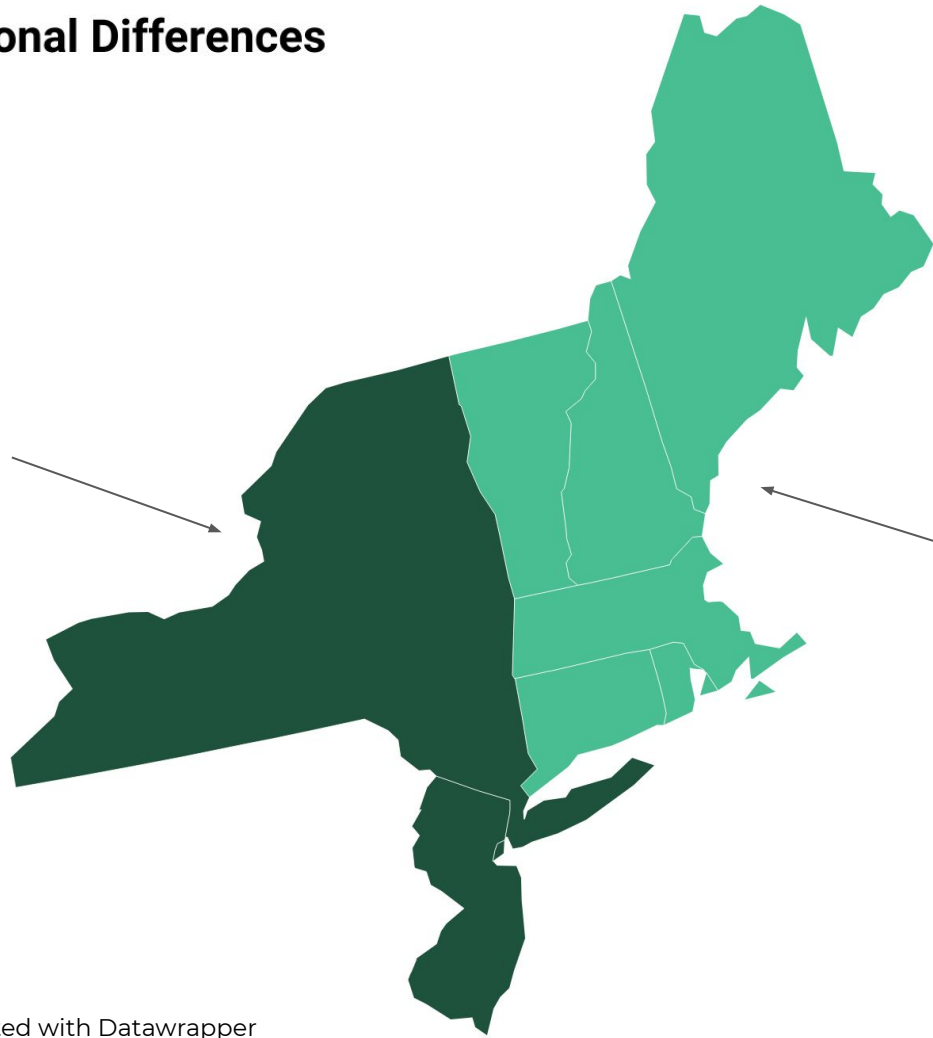


# COVID-19 Variant Data

# Omicron Spread: Regional Differences



**HHS Region 2**  
Omicron 88%  
of cases



**HHS Region 1**  
Omicron 45%  
of cases

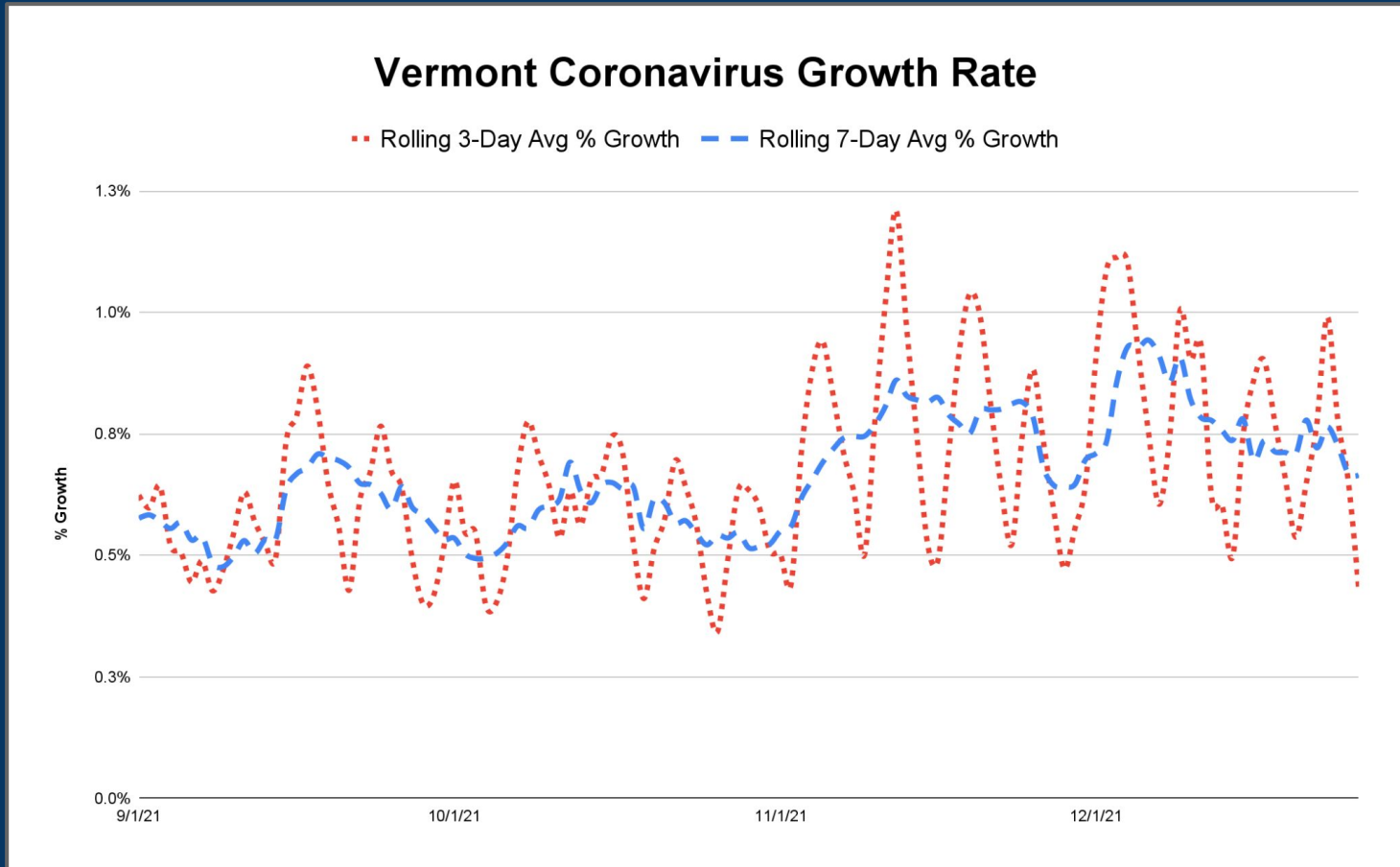
# RESTART VERMONT

## Reopening Metrics

1. Syndromic Surveillance (*retired*)
2. Viral Growth & Reproductive Rates
3. Percentage of New Positive Tests
4. Hospital & Critical Care Bed Capacity
5. Testing Volume

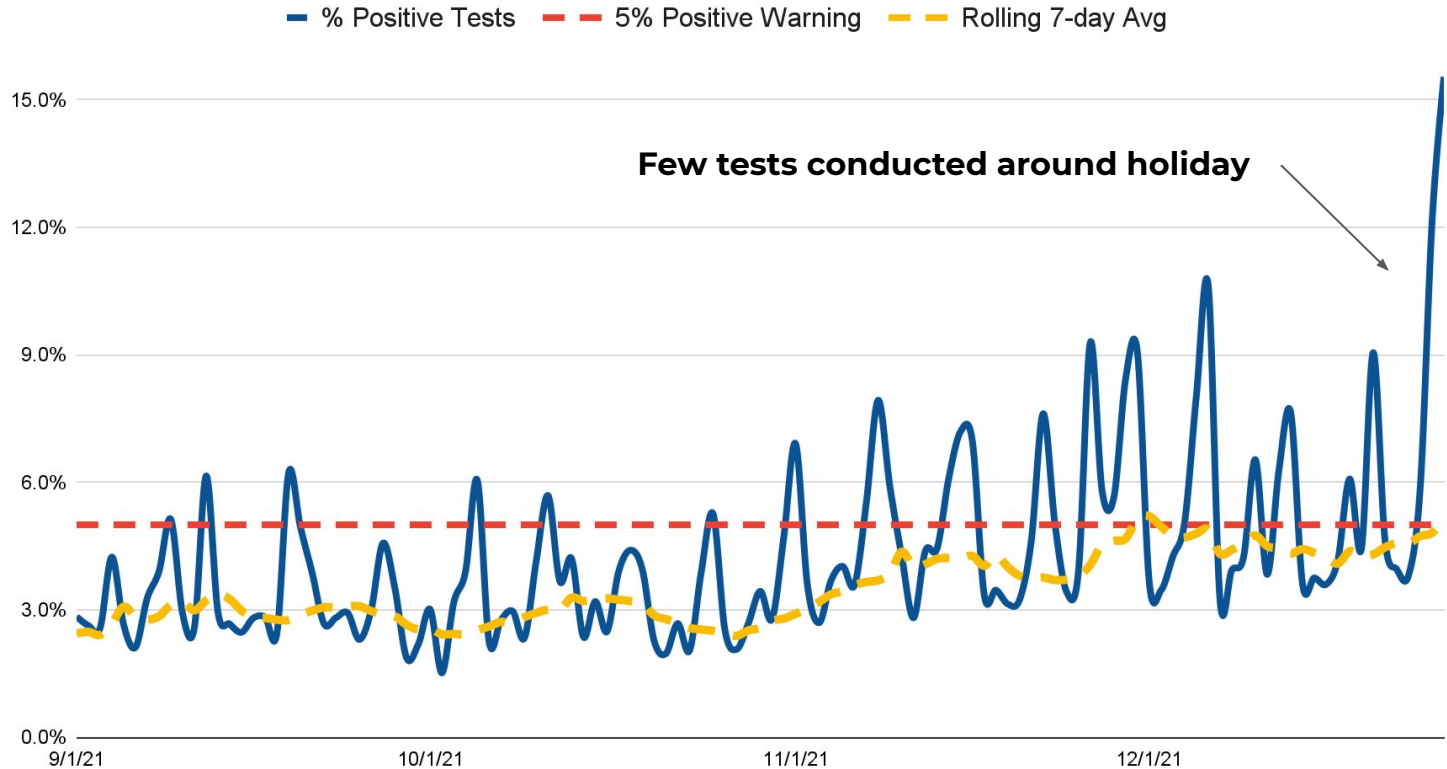


# Viral Growth & Reproductive Rates

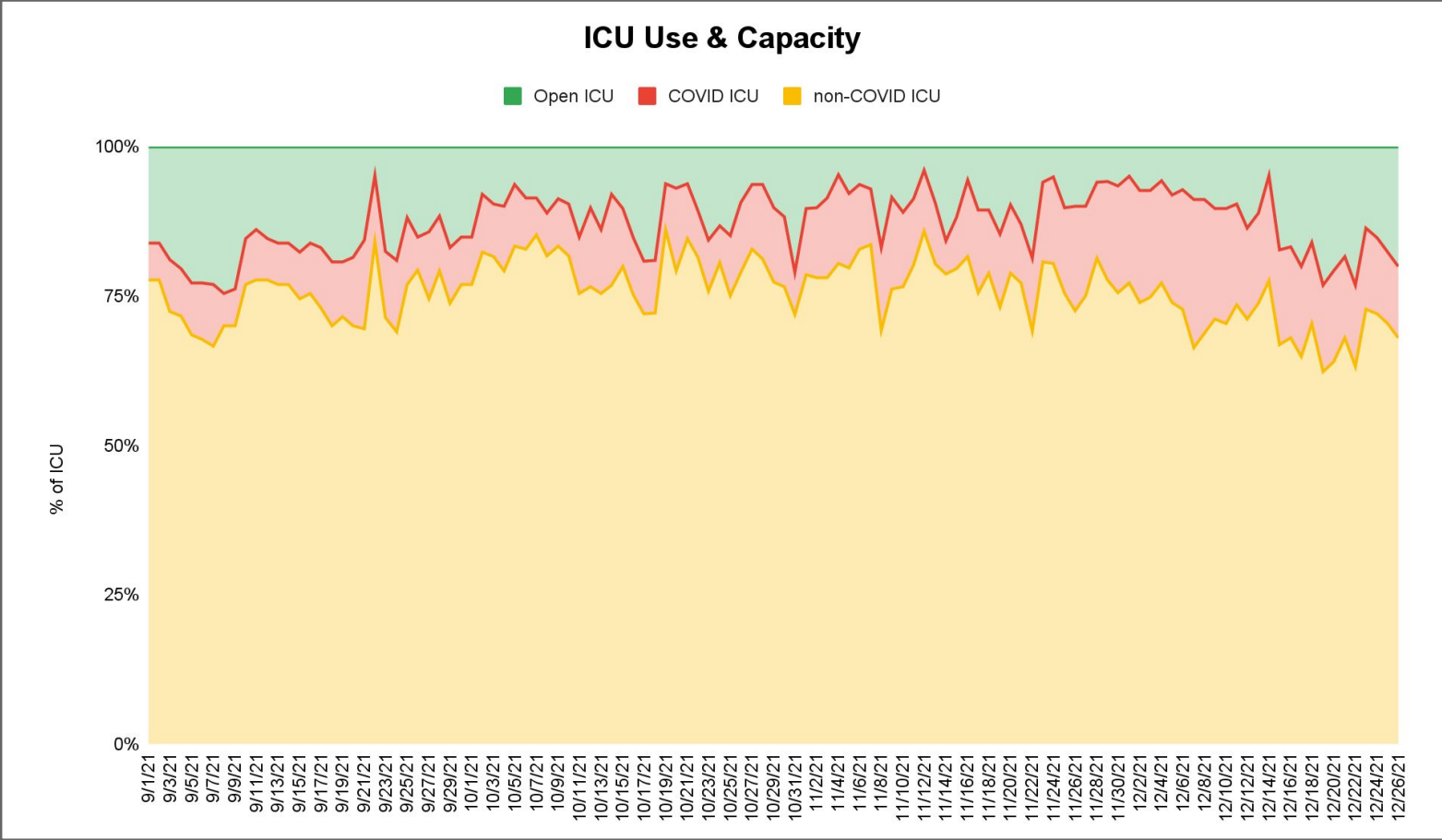


# Test Positivity

## Percent Tests Yielding New Positive COVID-19 Cases



# Hospital & Critical Care Beds



Source: Vermont Department of Health

# Vermont Testing

