

# **COVID-19 Modeling**

## **January 4, 2022**

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

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# Overview

CDC now estimates **Omicron is the dominate variant** in New England (slide 55), which is helping fuel an **82% increase** in cases over the last 7 days (44)

Vermont is seeing the impacts of Omicron and a post-holiday surge (11) with **cases increasing 128%** over the last 7 days (5), with **rates rising in every Vermont county**; 11 counties broke case rate records (25)

Vermont experienced a **rise in breakthrough infections** this week consistent with Omicron's vaccine-evasion qualities (8); however, the not fully vaccinated remain at **significantly increased risk** of the most severe outcomes at 22x more likely to be hospitalized (9) and 23x more likely to die (10)

The most significant Omicron case surges are now predominantly in metro areas (13), indicating more **rural counties can expect to see greater impacts** from Omicron in the coming weeks

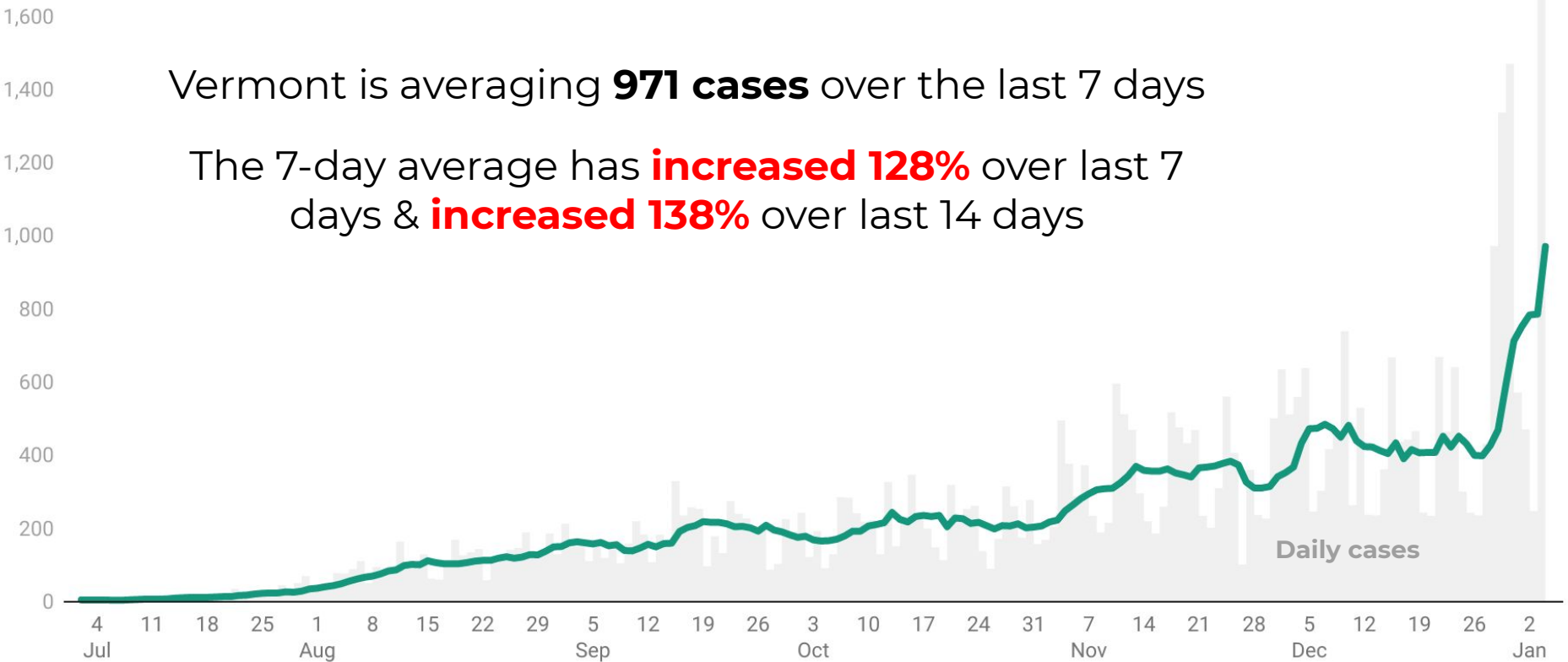
Vermont experienced a **rise in hospitalizations** this week (slides 28 & 29) as **cases increased 144%** among the 50 to 64 year olds and **156%** among 65+ year olds (16)—the age groups most likely to require hospitalization (17)

Ensemble CDC forecast **expects cases to rise sharply** in the U.S. (52) and Vermont (23) over the next few weeks

# Vermont Case Data

# Vermont New COVID-19 Cases

7-Day Average

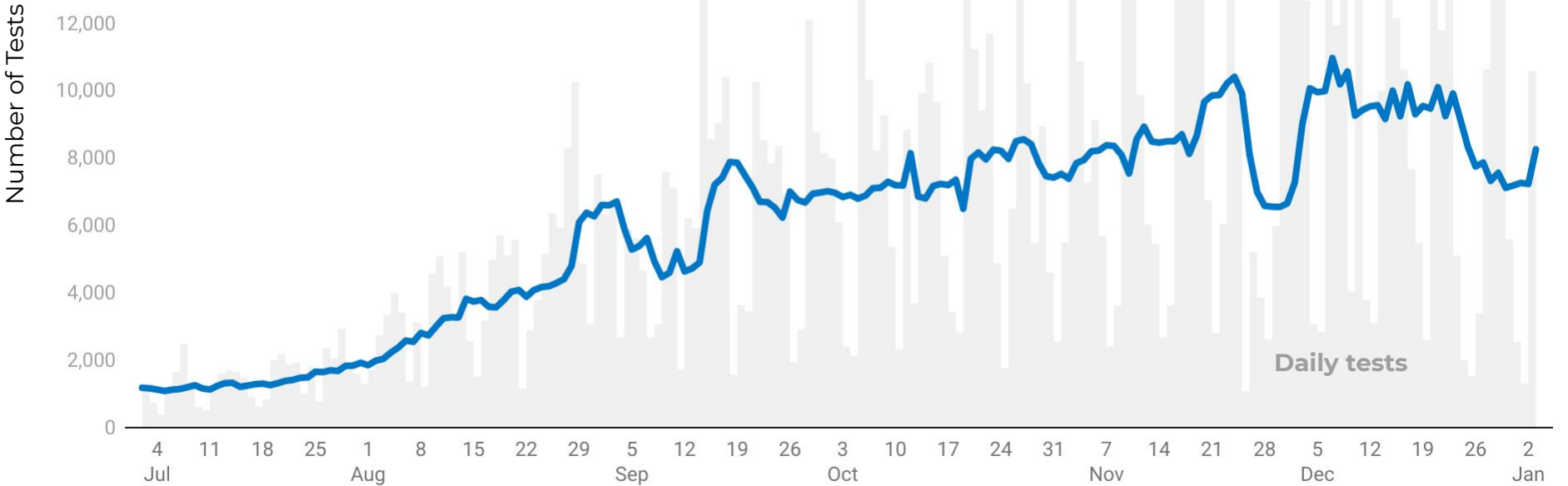


Source: VDH—January 4, 2022; created with Datawrapper

# Vermont COVID-19 PCR Testing

7-Day Average

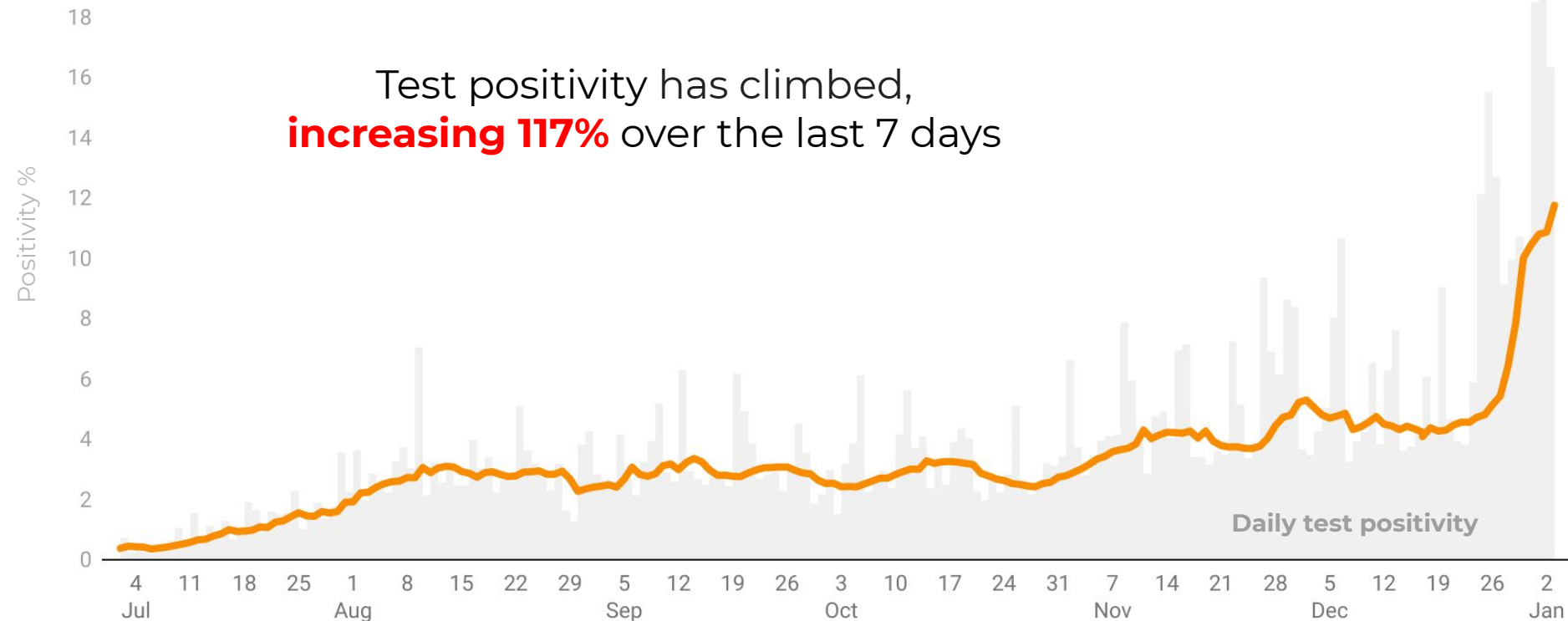
Week-over-week testing increased,  
with the 7-day average **increasing 5%**



Source: VDH—January 4, 2022; created with Datawrapperr

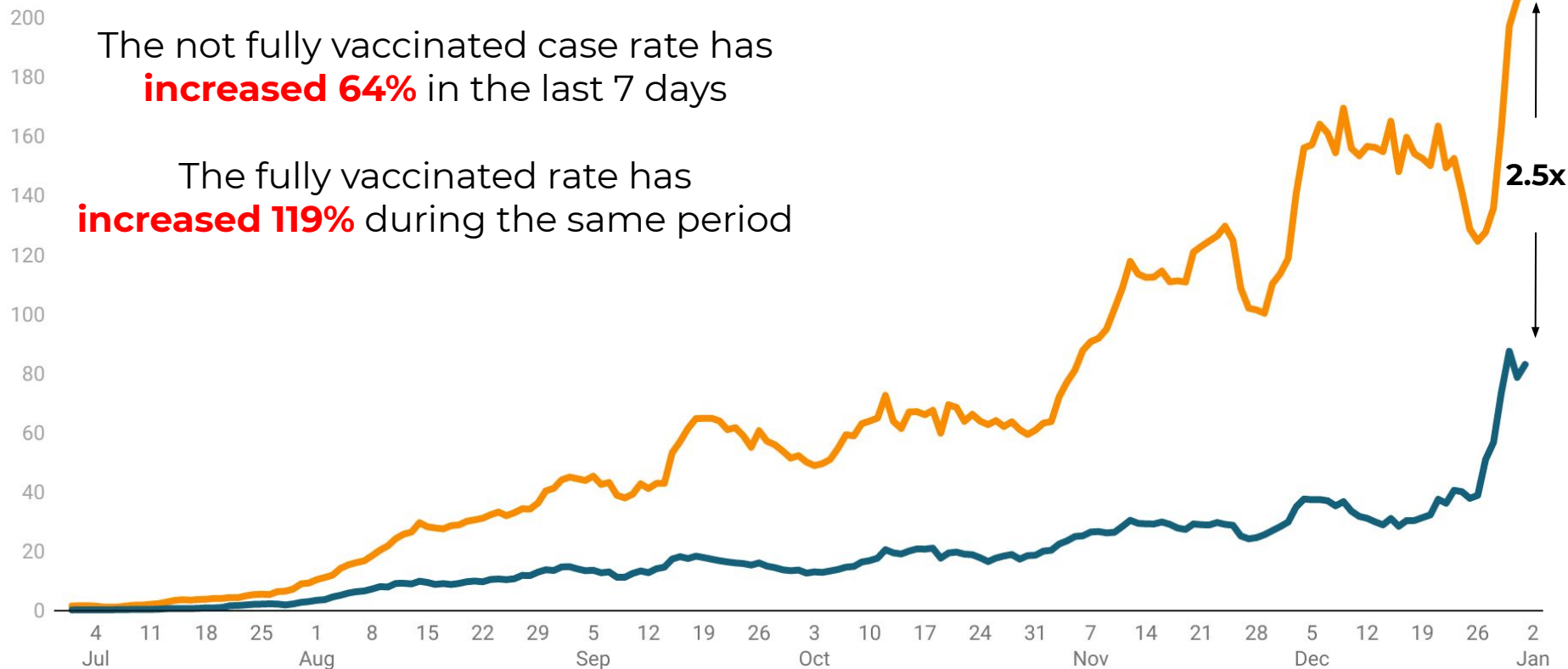
## Vermont Test Positivity: Delta Wave

7-Day Positivity Rate



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

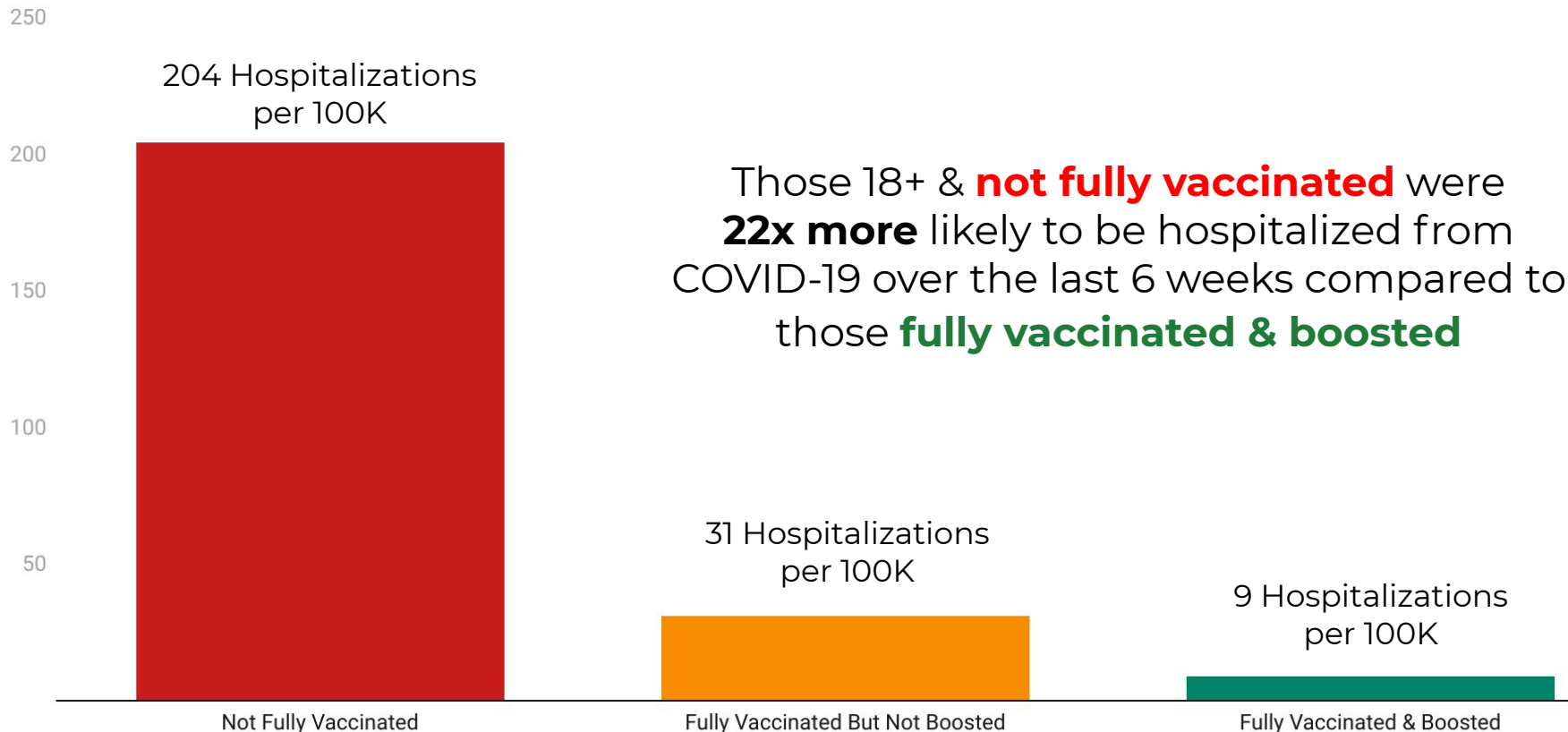
Not Fully Vaccinated Case Rate Fully Vaccinated Case Rate





# COVID-19 Hospitalizations By Vaccination Status Per 100K

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



# COVID-19 Deaths By Vaccination Status Per 100K

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

70

60

50

40

30

20

10

COVID-19 Fatalities per 100K

45 Deaths  
per 100K

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

11 Deaths  
per 100K

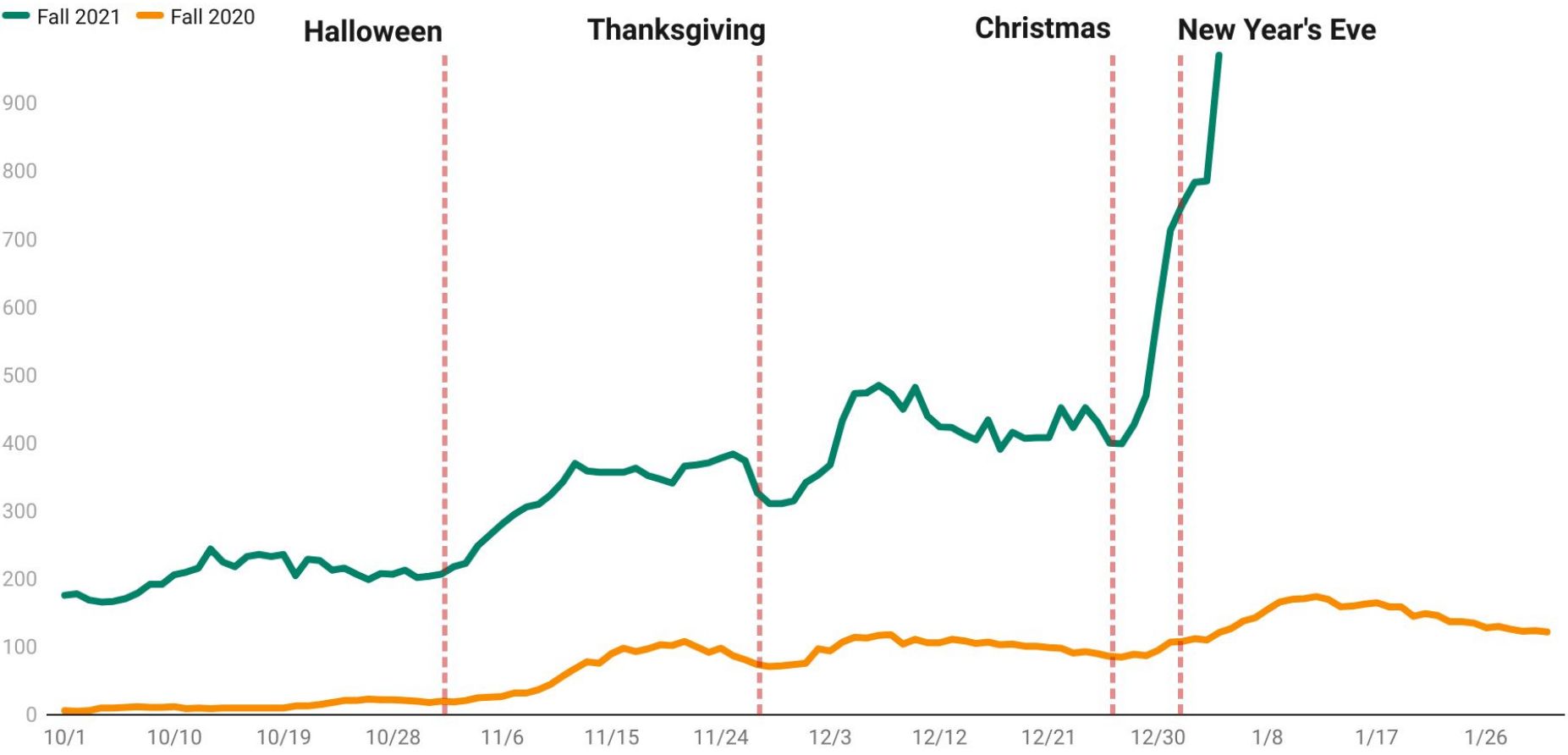
2 Deaths  
per 100K

Not Fully Vaccinated

Fully Vaccinated But Not Boosted

Fully Vaccinated & Boosted

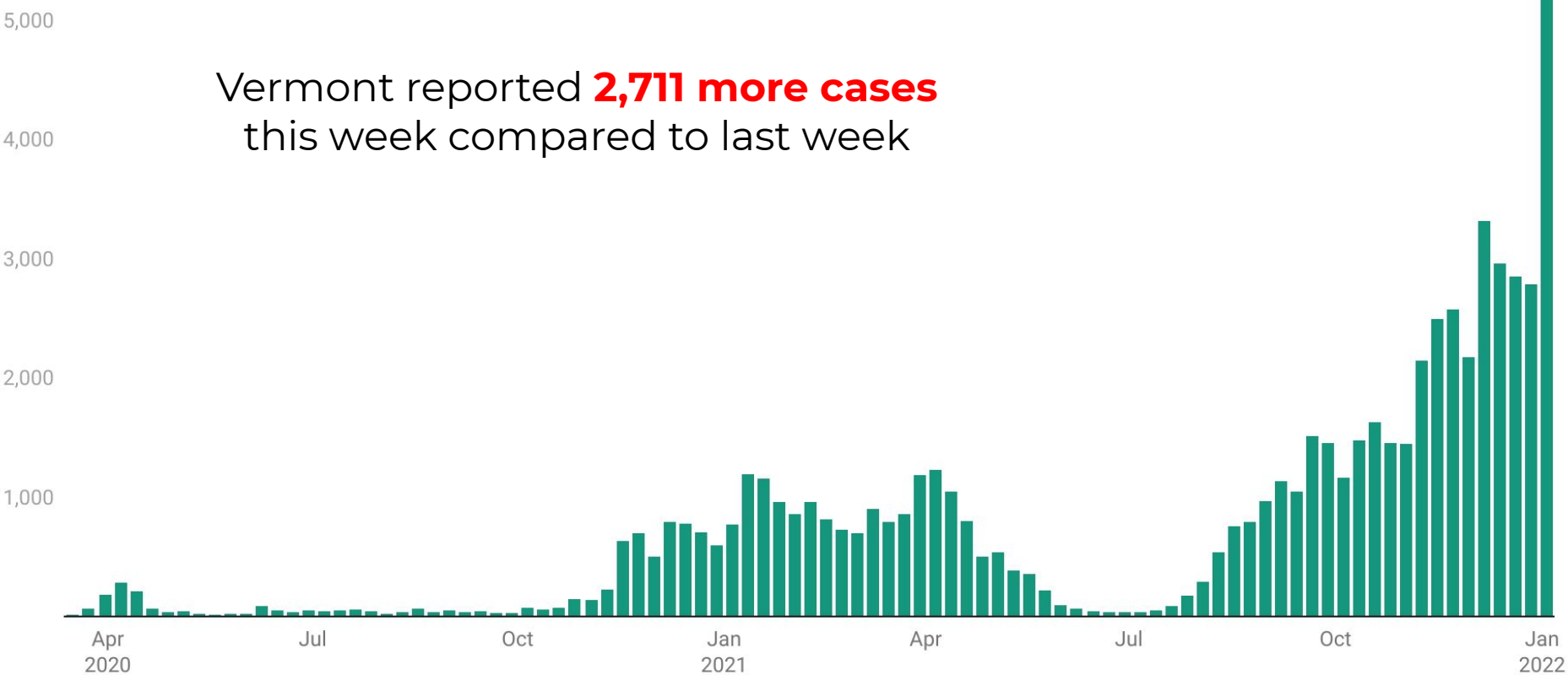
# Vermont COVID-19 Cases Fall 2020 vs. Fall 2021



Source: VDH—January 4, 2022; created with Datawrapper

# Vermont New Weekly COVID-19 Cases

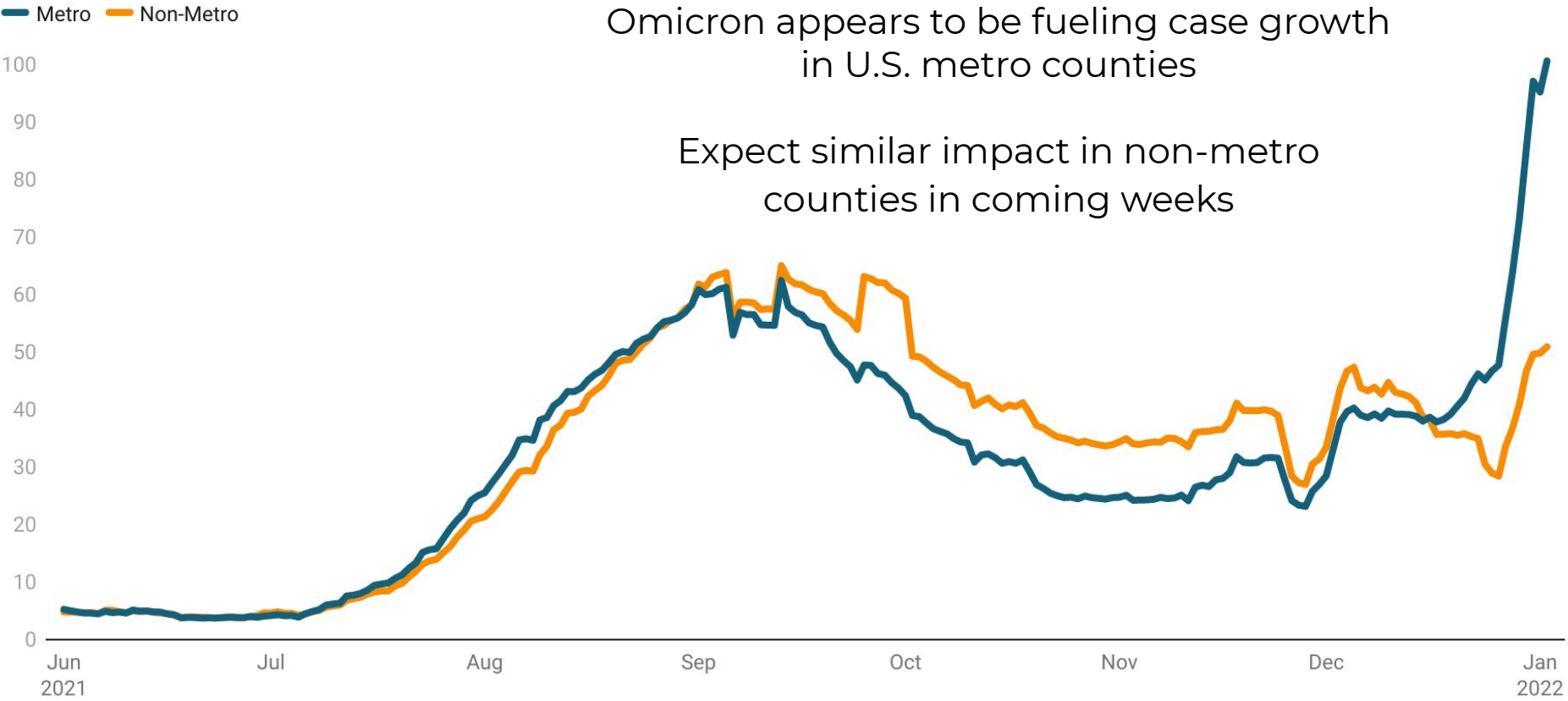
Vermont reported **2,711 more cases**  
this week compared to last week



Source: VDH—January 4, 2022; created with Datawrapper

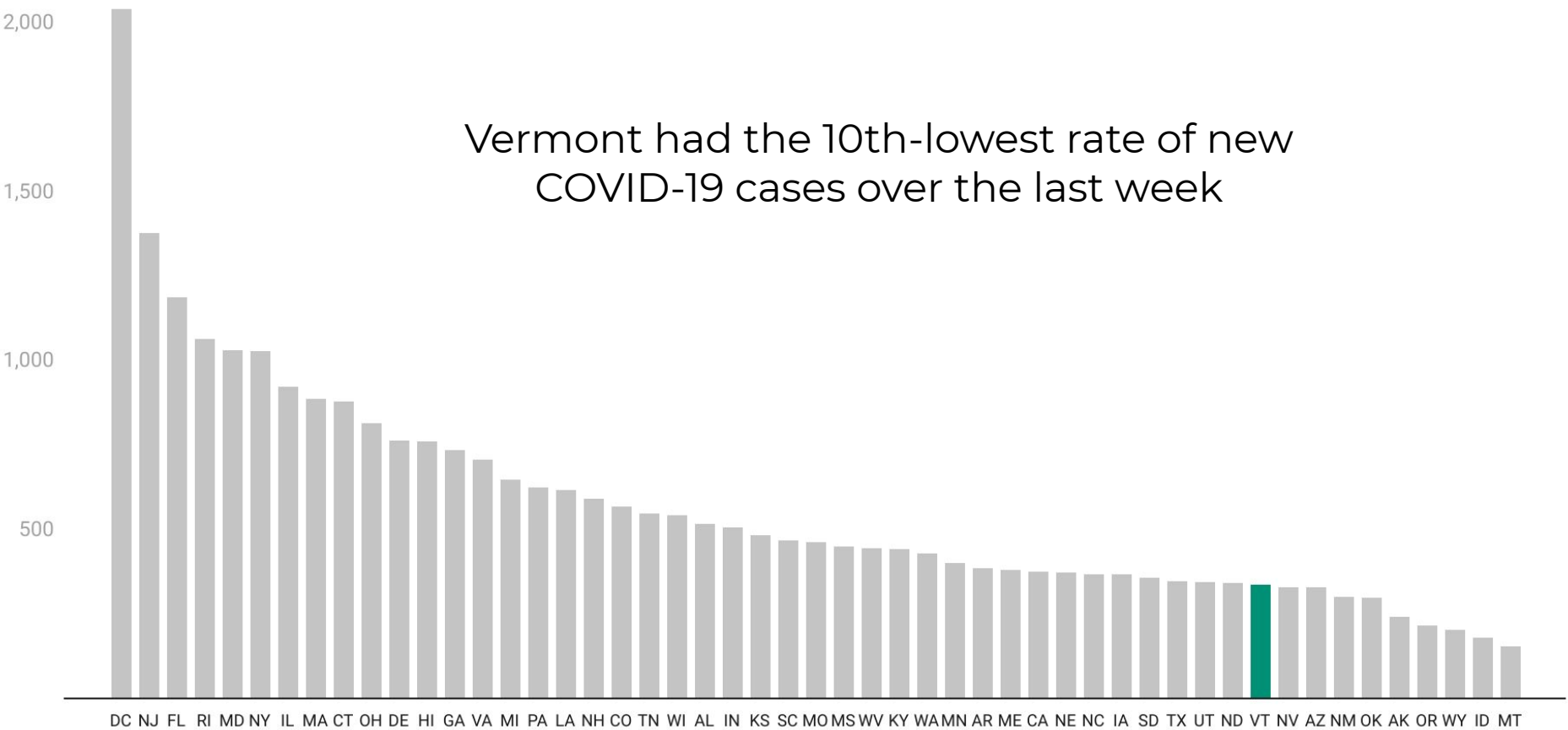
# COVID-19 Cases in U.S. Metro vs. Non-Metro Counties

Values are 7-day rolling averages per 100K



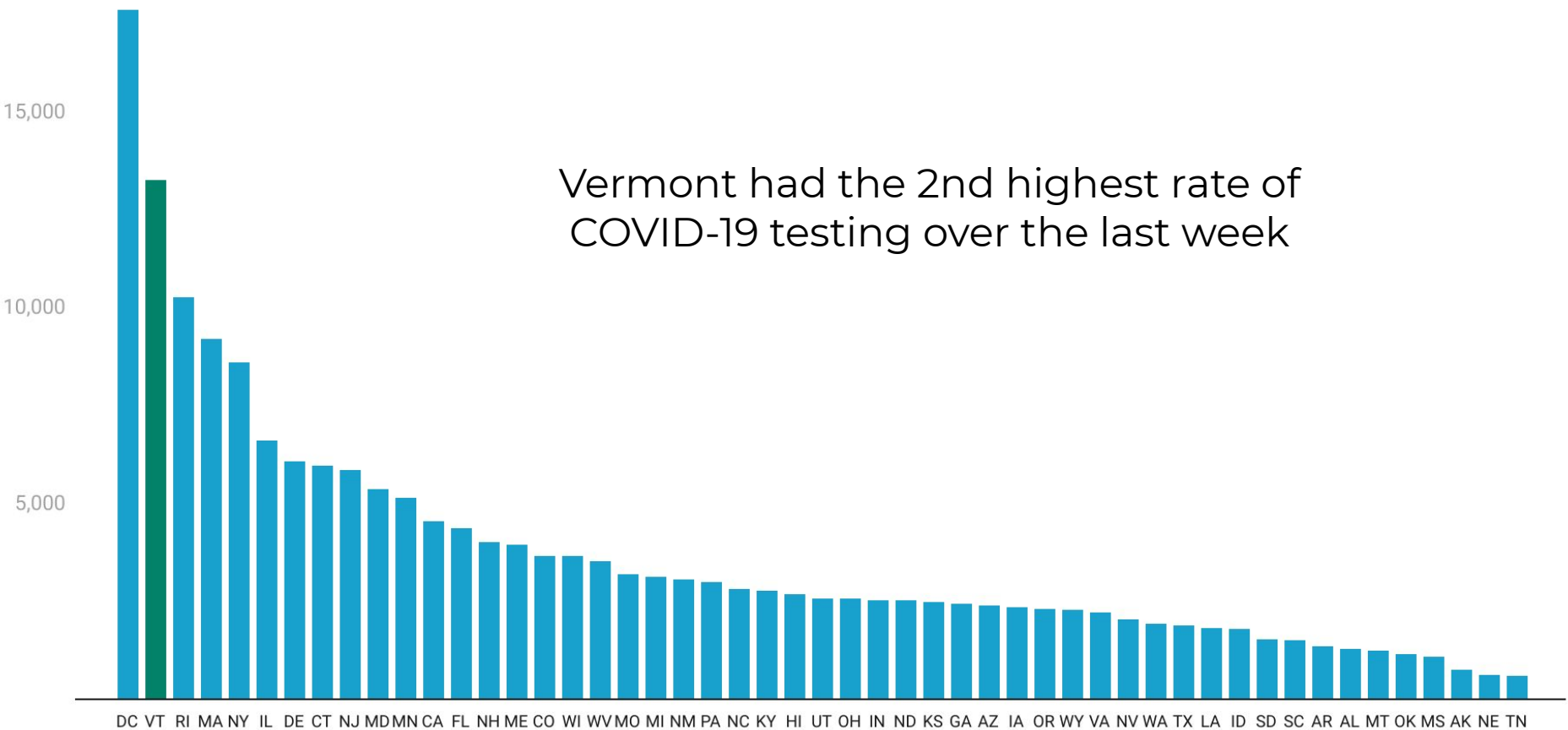
Source: Johns Hopkins University—January 2, 2022

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



Source: CDC—January 3, 2022; Created with Datawrapper

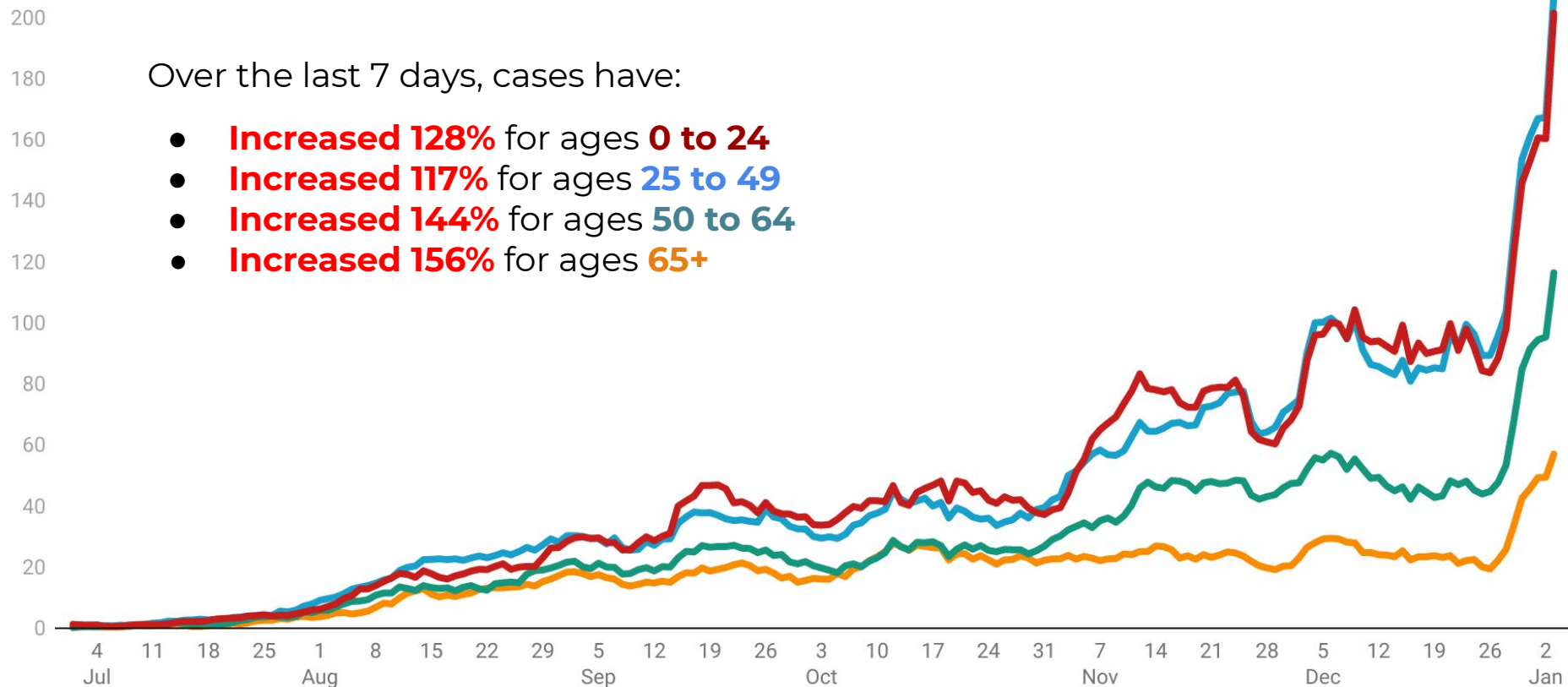
# COVID-19 Testing Per 100K Last 7 Days



Source: CDC—January 3, 2022; Created with Datawrapper

# Vermont Case Rates Per 100K By Age (7-Day Average)

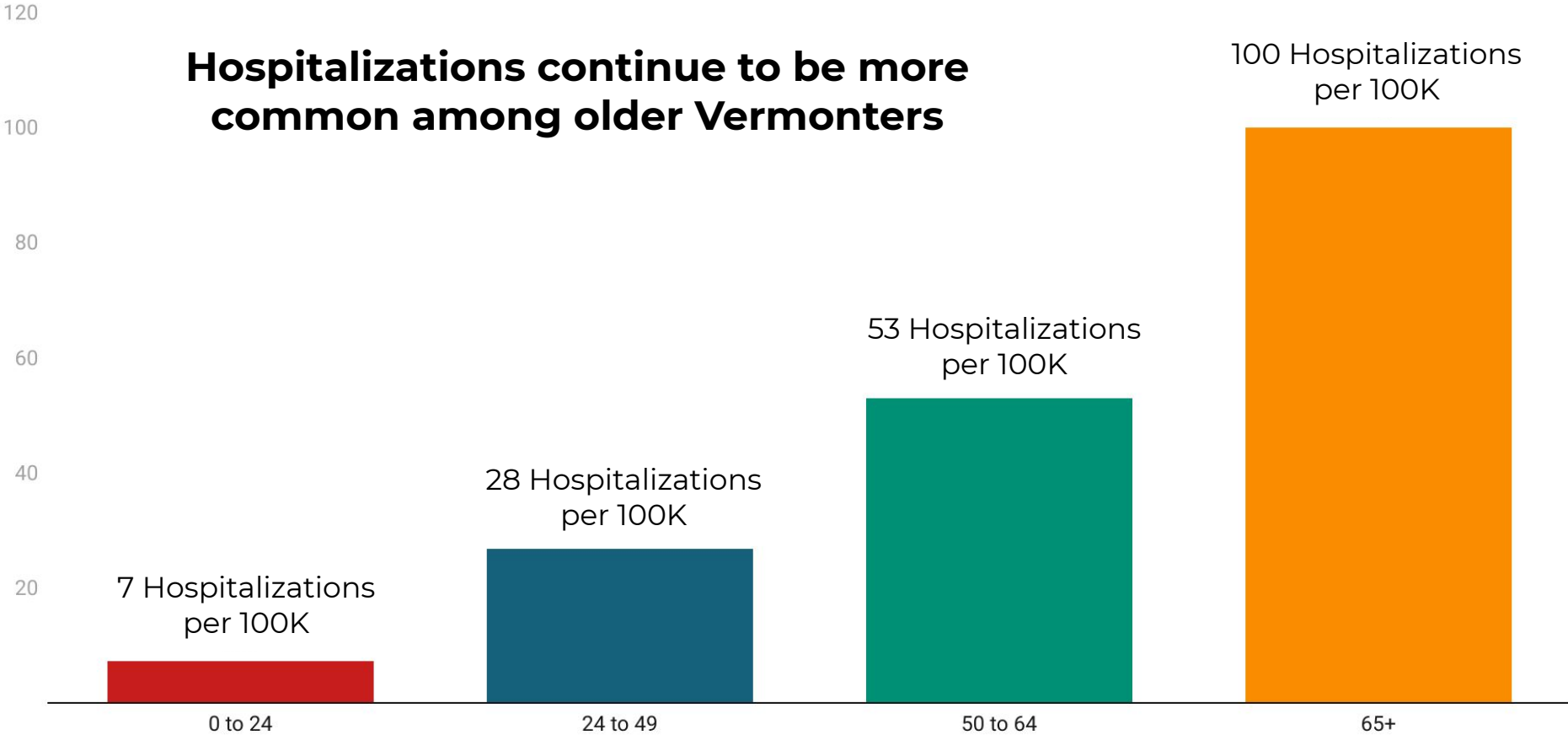
— 0 to 24 — 24 to 49 — 50 to 64 — 65+



Source: VDH—January 4, 2022; created with Datawrapper



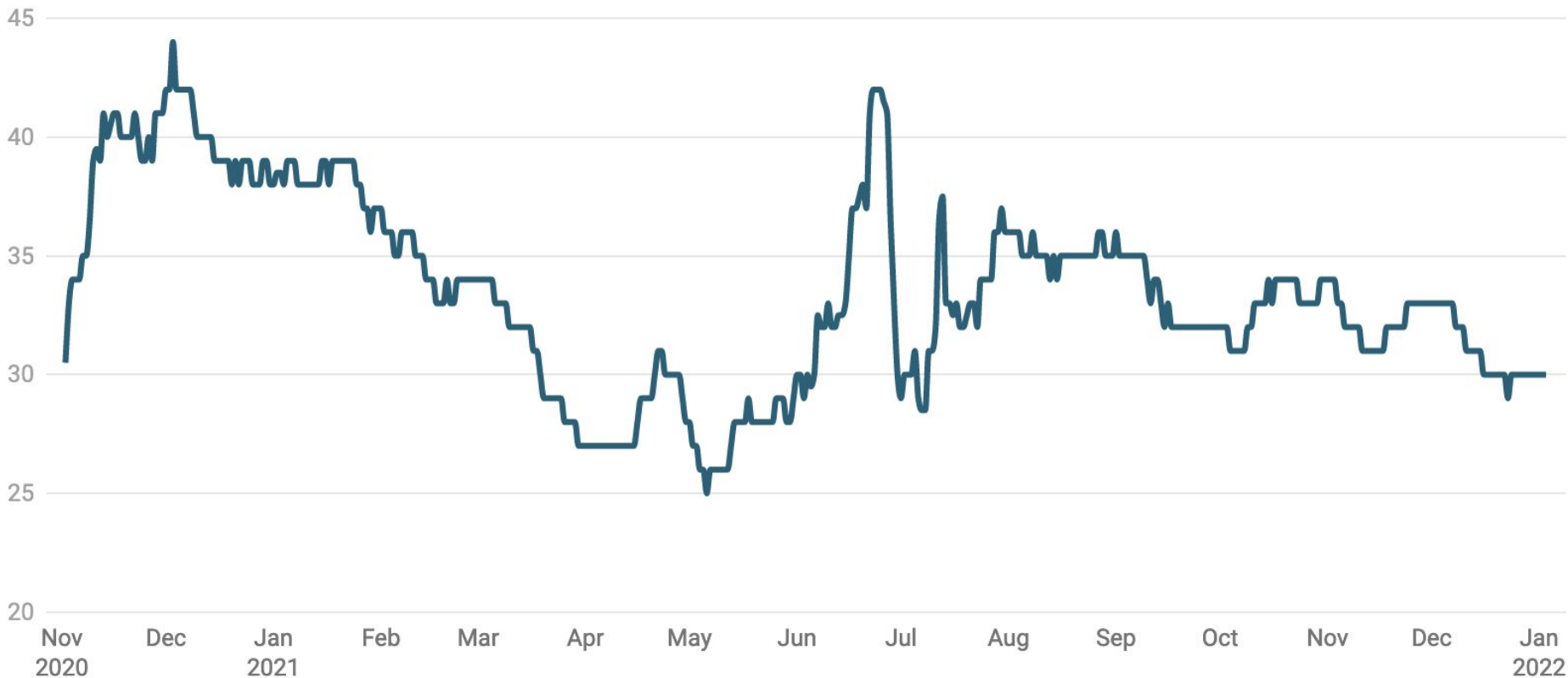
# COVID-19 Hospitalization Rate Per 100K By Age Over The Last 6 Weeks



Source: VDH—January 4, 2022; created with Datawrapper

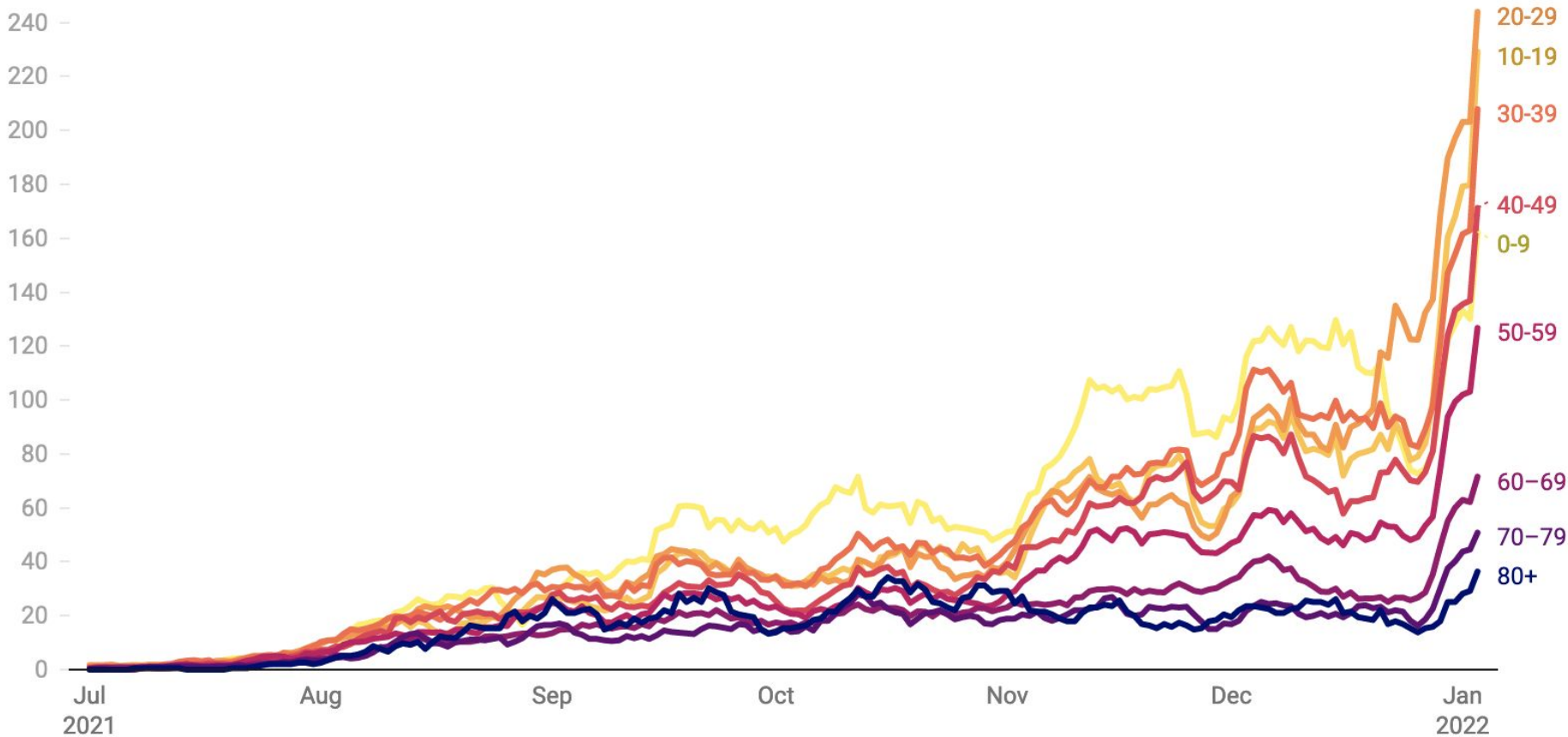
# Age of Infected Vermonters

Median age of COVID positive individuals in VT over the last 14 days.



Source: VDH—January 4, 2022; created with Datawrapper

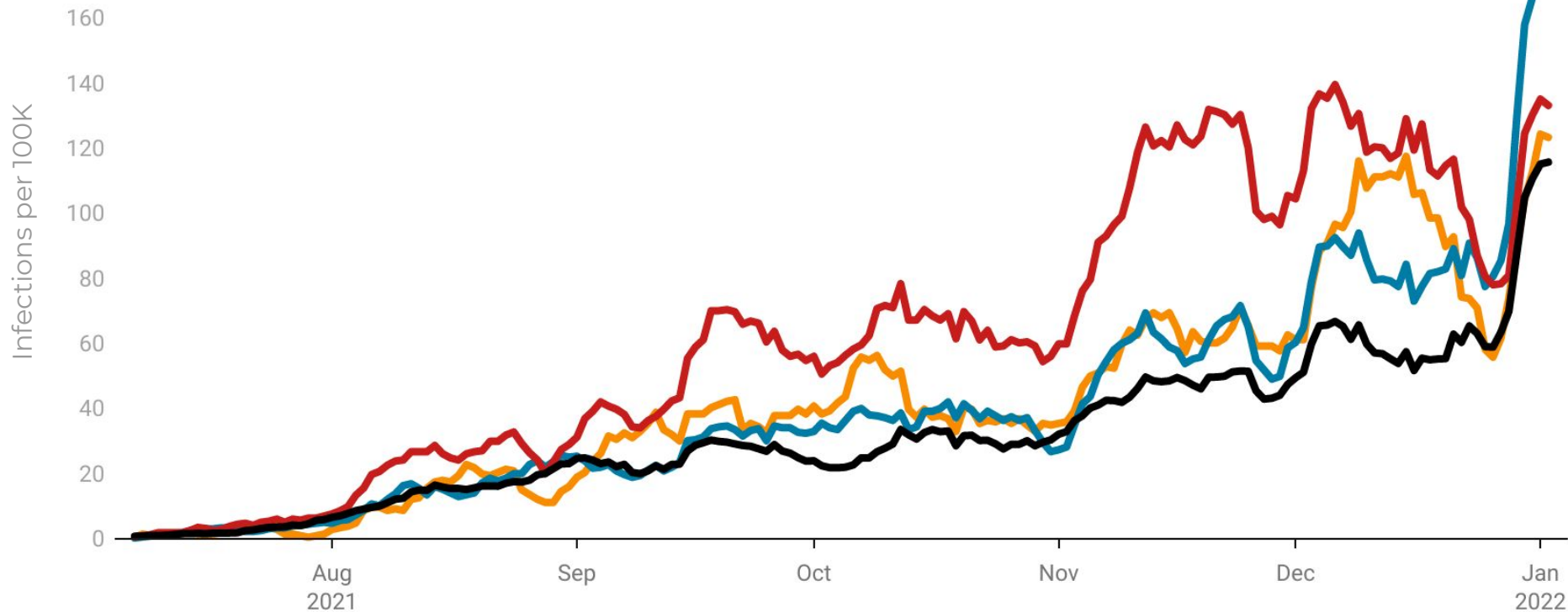
# VT COVID-19 Infections per 100K by Age Group



Source: VDH—January 4, 2022; created with Datawrapper

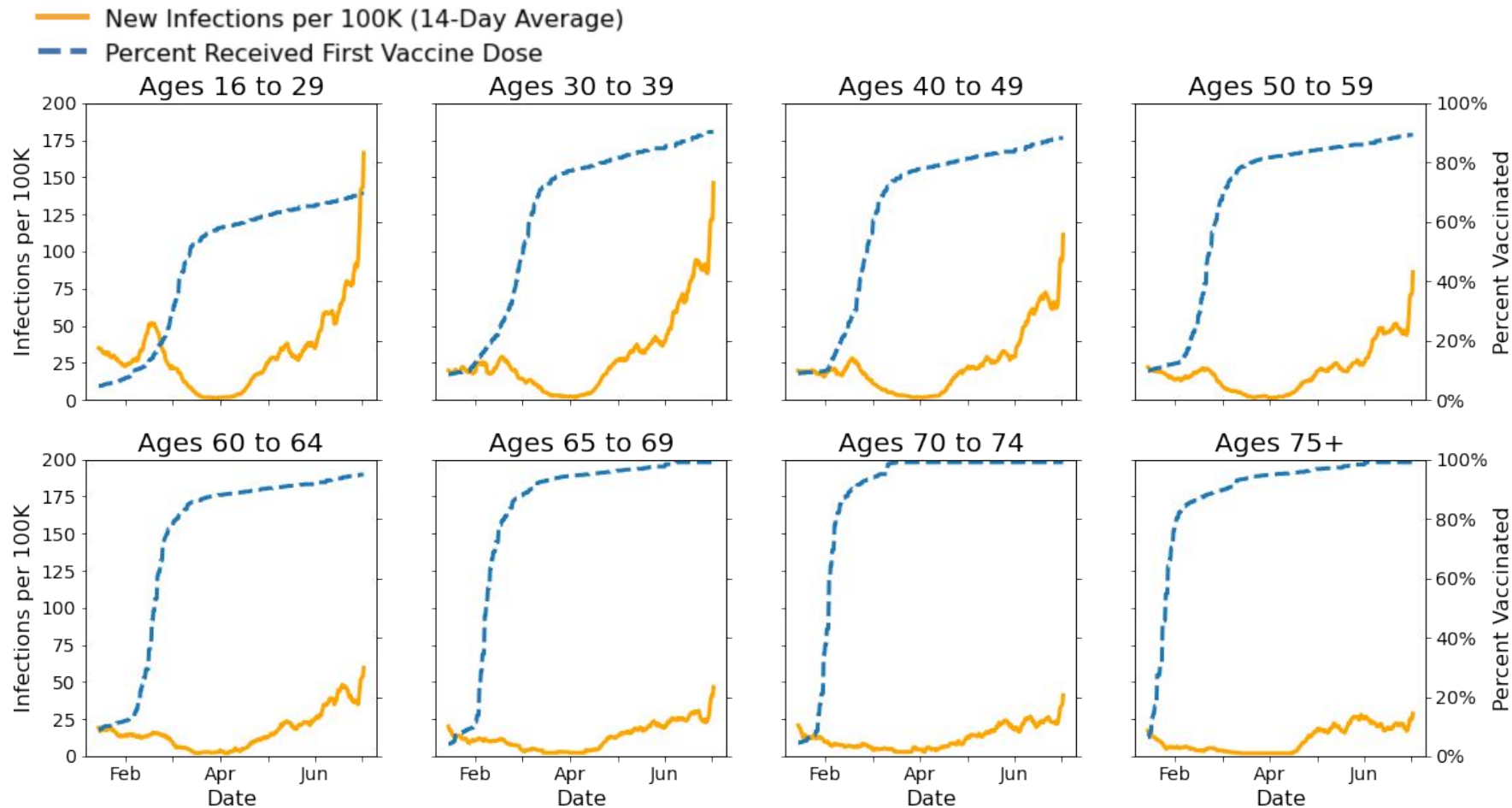
## Vermont Covid-19 Case Rates by Age (7-Day Average)

0-4 5-11 12-18 19+



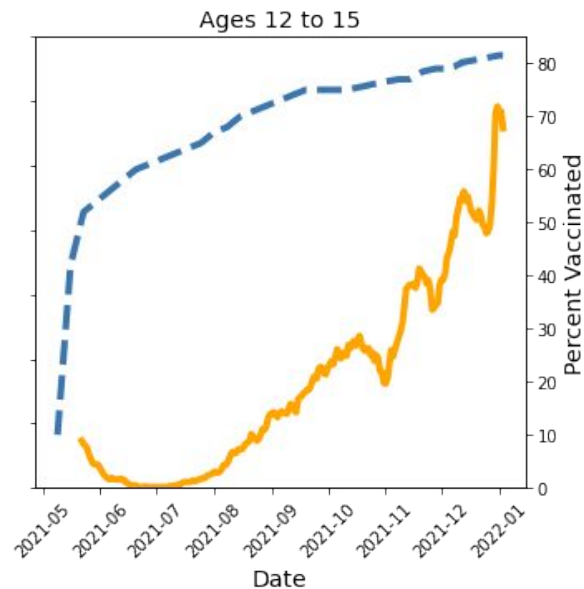
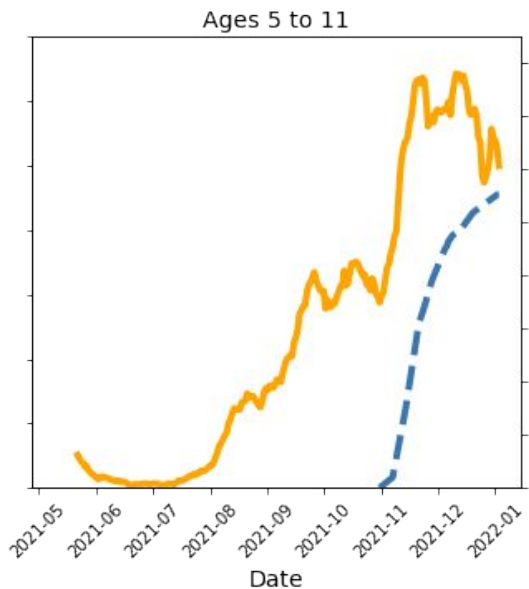
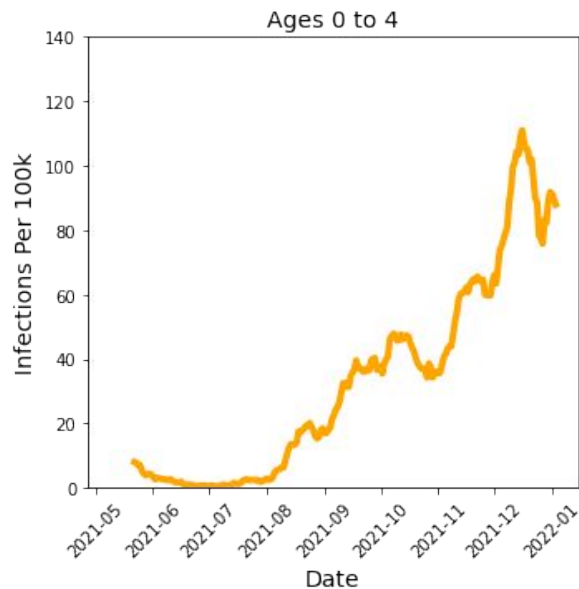
Source: VDH—January 4, 2022; created with Datawrapper

# Vermont Case Rate & Vaccination by Age Band



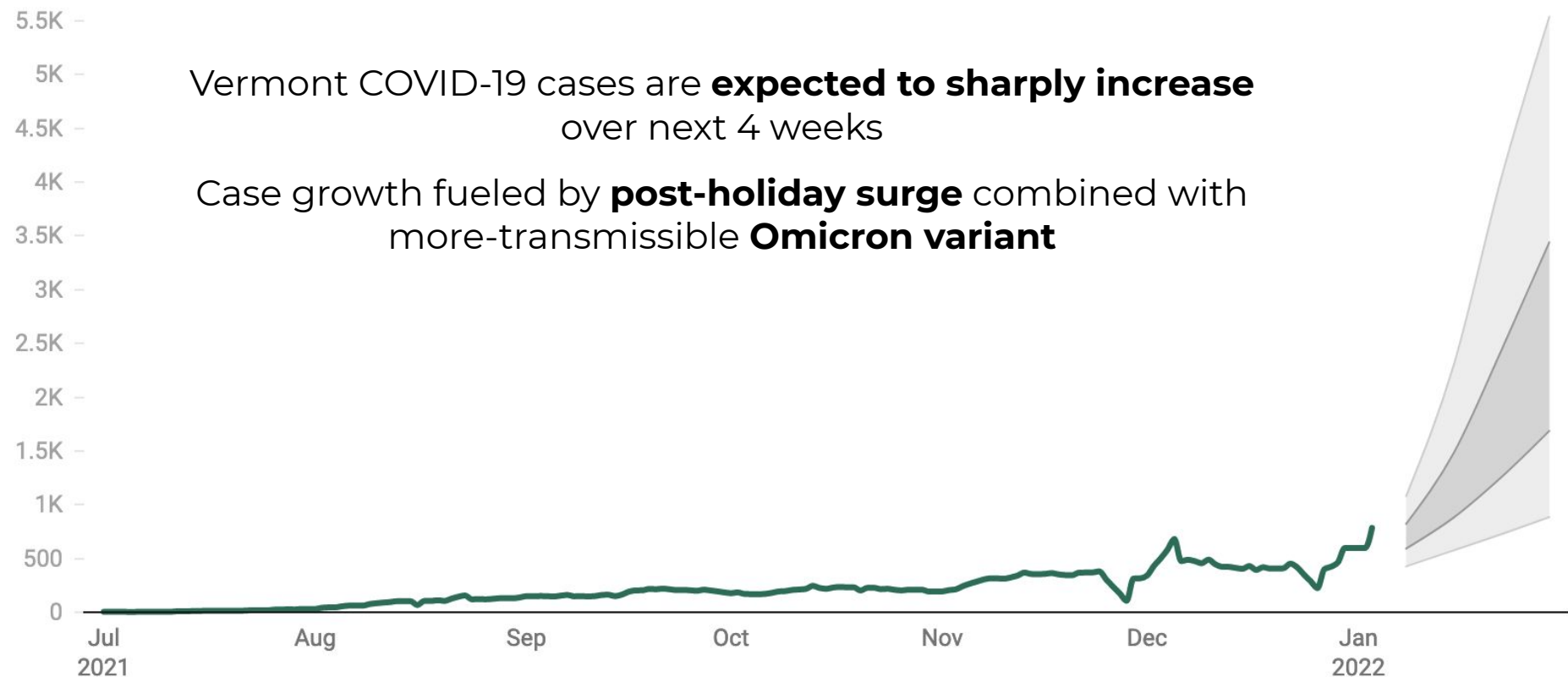
# Vermont Case Rate & Vaccination by Age Band

- New Infections per 100K (14-Day Average)
- - Percent Received First Vaccine Dose



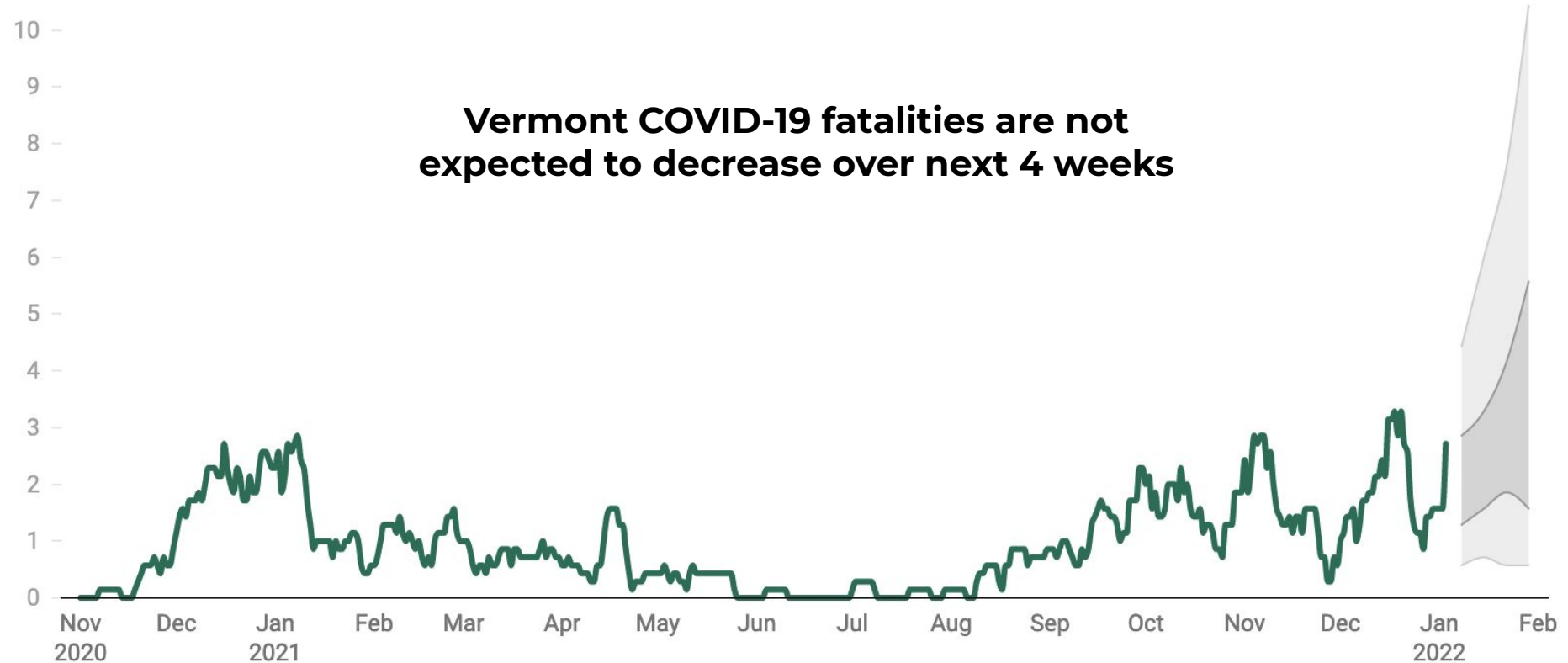
# VT COVID-19 Infection Confidence Intervals

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



# VT COVID-19 Death Confidence Intervals

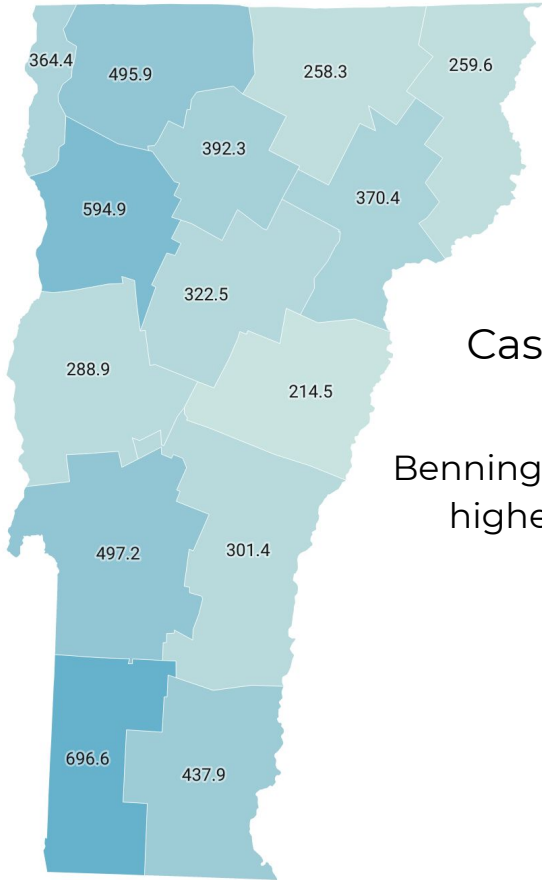
Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.





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

Results Reported December 21 to 27

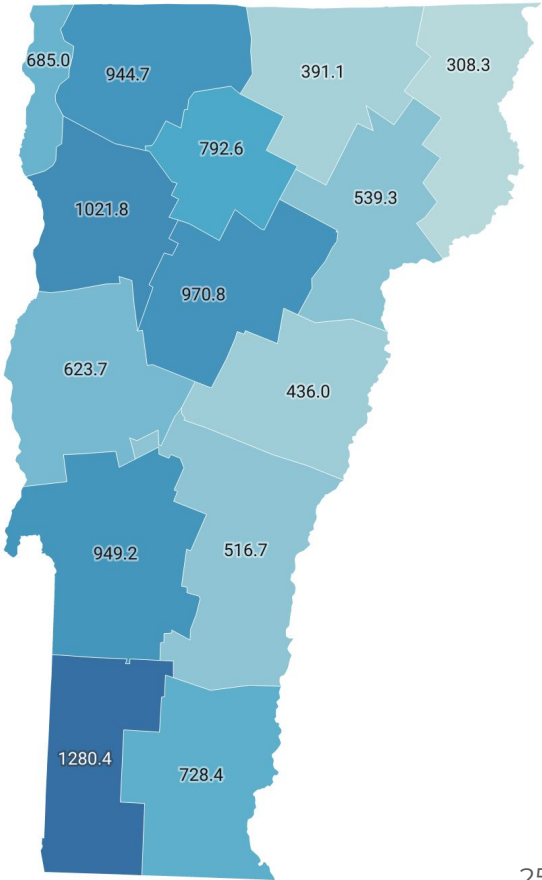


Case rates **increased in every county this week**

Bennington & Chittenden Counties reporting highest levels of spread, & case records broken in 11 counties

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

Results Reported December 28 to January 3



## Active Outbreaks in Long Term Care Facilities

Facility Name	Total COVID-19 Cases
The Manor, <i>Morrisville</i>	11
Springfield Rivers Nursing & Rehabilitation	9
Thompson House, <i>Brattleboro</i>	Not Shown
<b>Total</b>	<b>20</b>

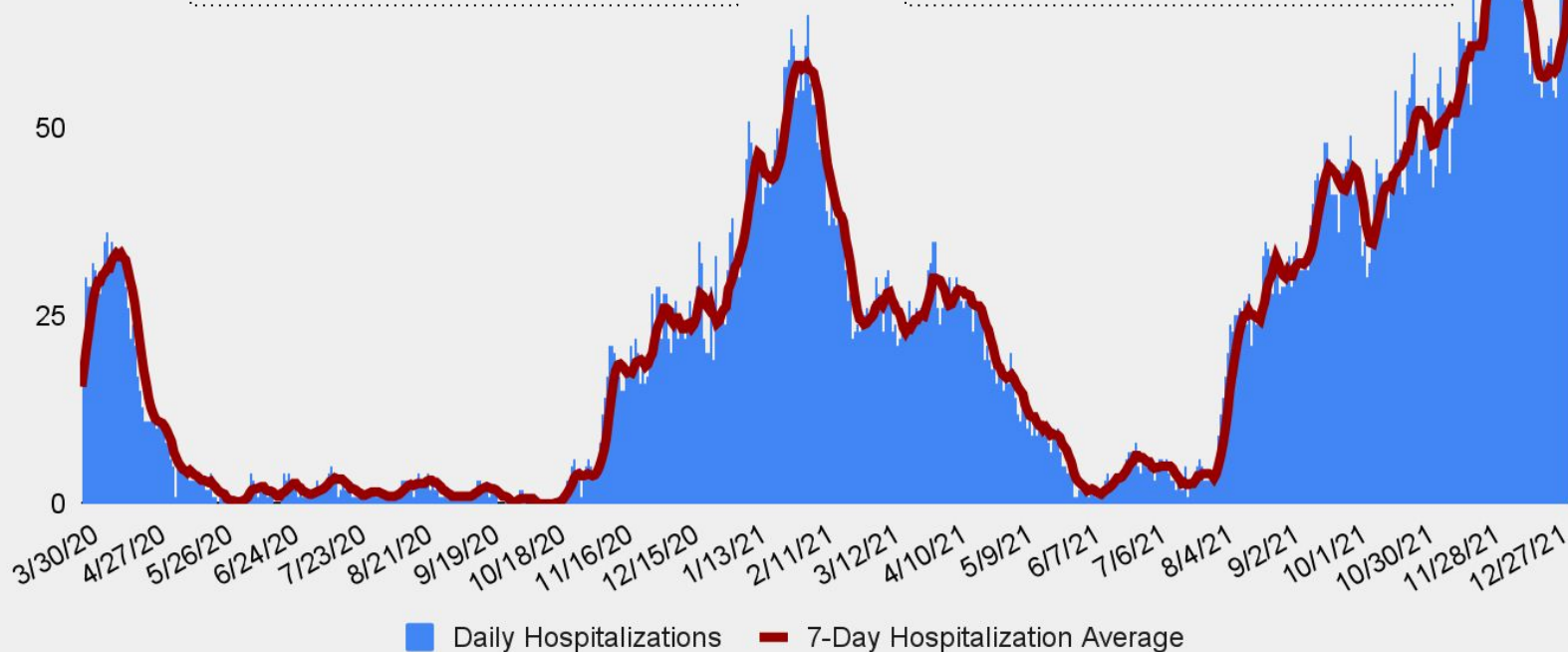
# Vermont Hospitalization Data

# Statewide Covid-19 Hospitalizations

100

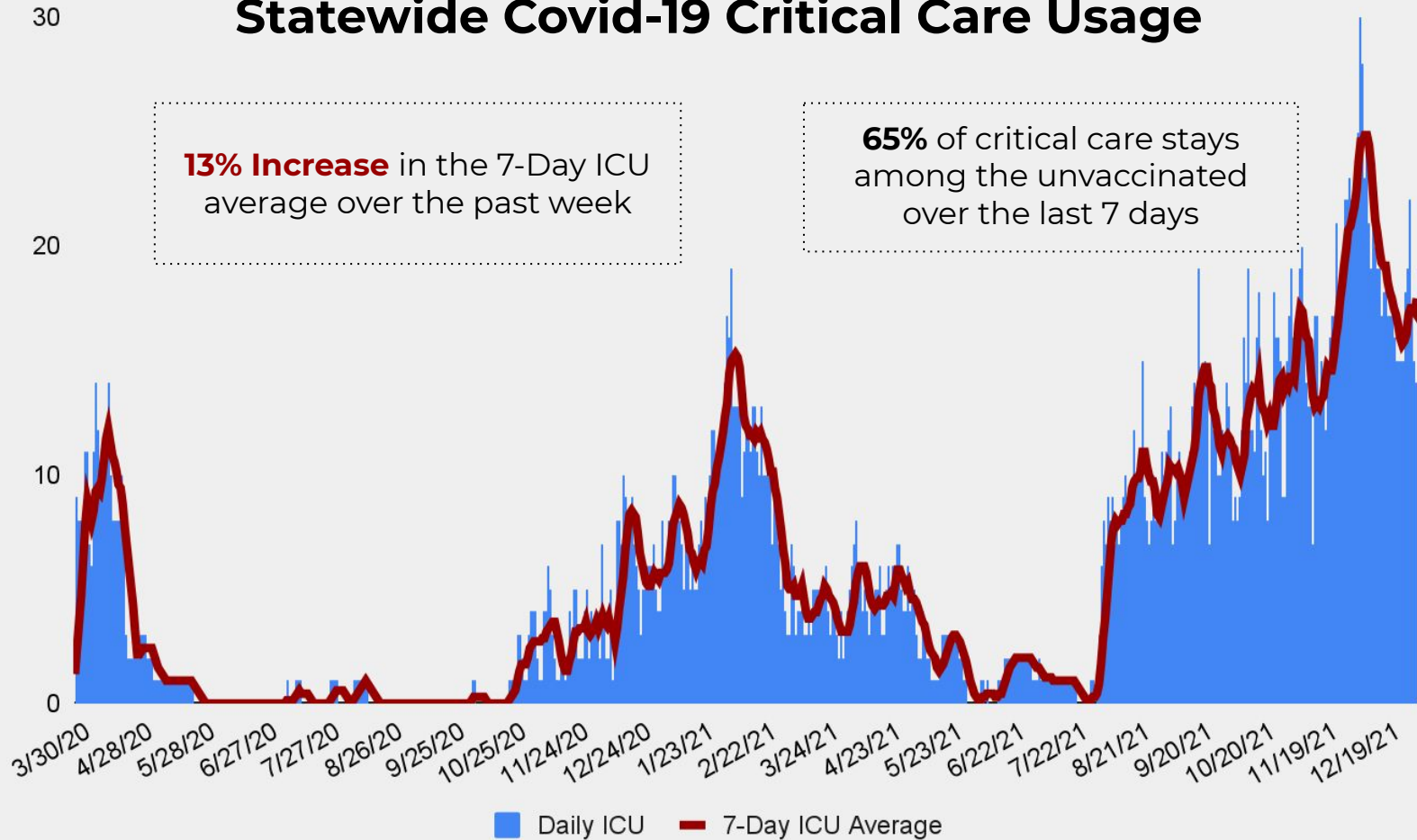
**17% Increase** in the 7-Day hospitalization average over the past week

**62%** of hospitalizations among the unvaccinated over the last 7 days



Source: VDH—January 4, 2022

# Statewide Covid-19 Critical Care Usage

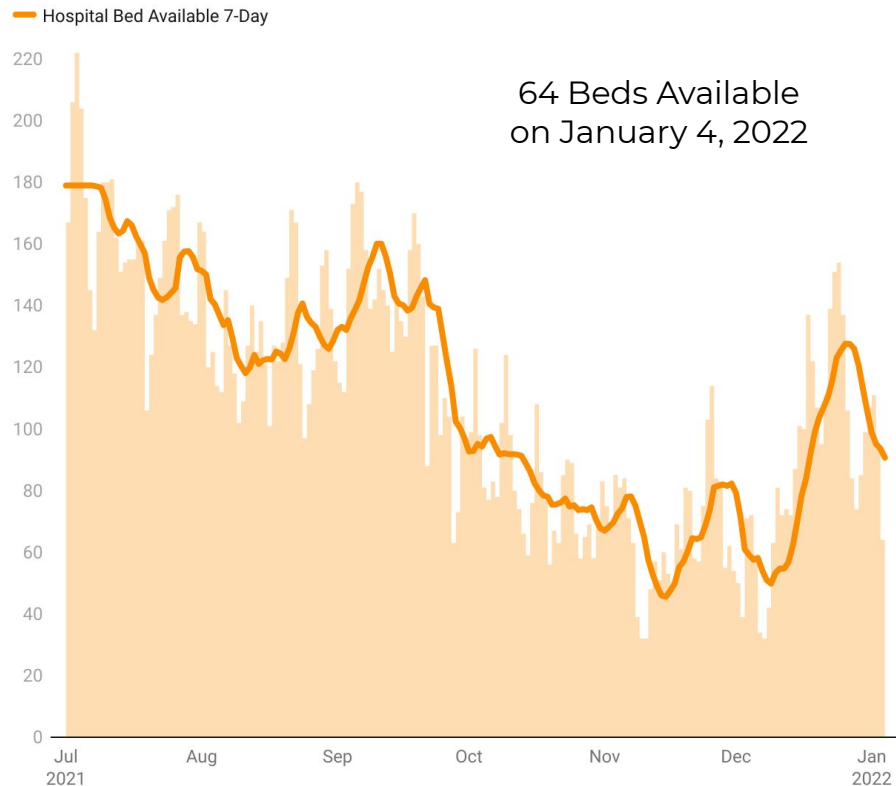


Source: VDH—January 4, 2022

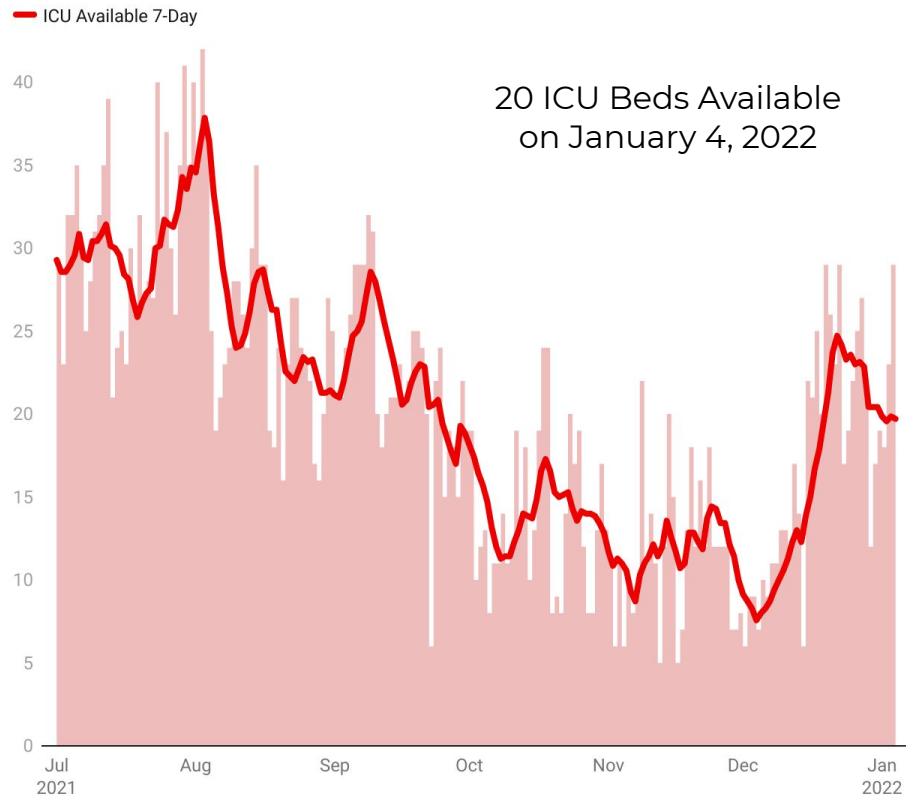
# Vermont Hospital Metrics

## (7-Day Averages)

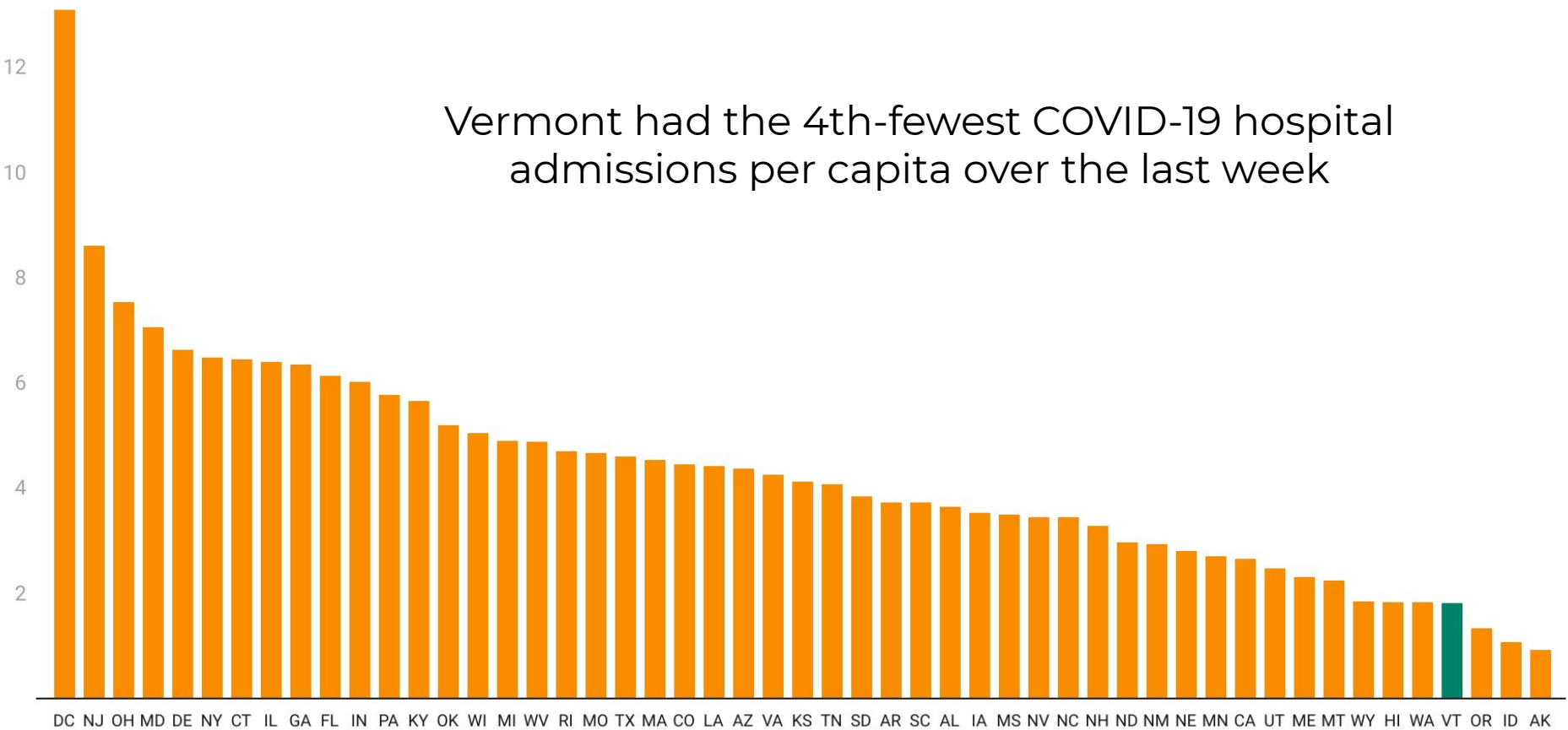
### Vermont Hospital Beds Available Since July 1, 2021



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



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



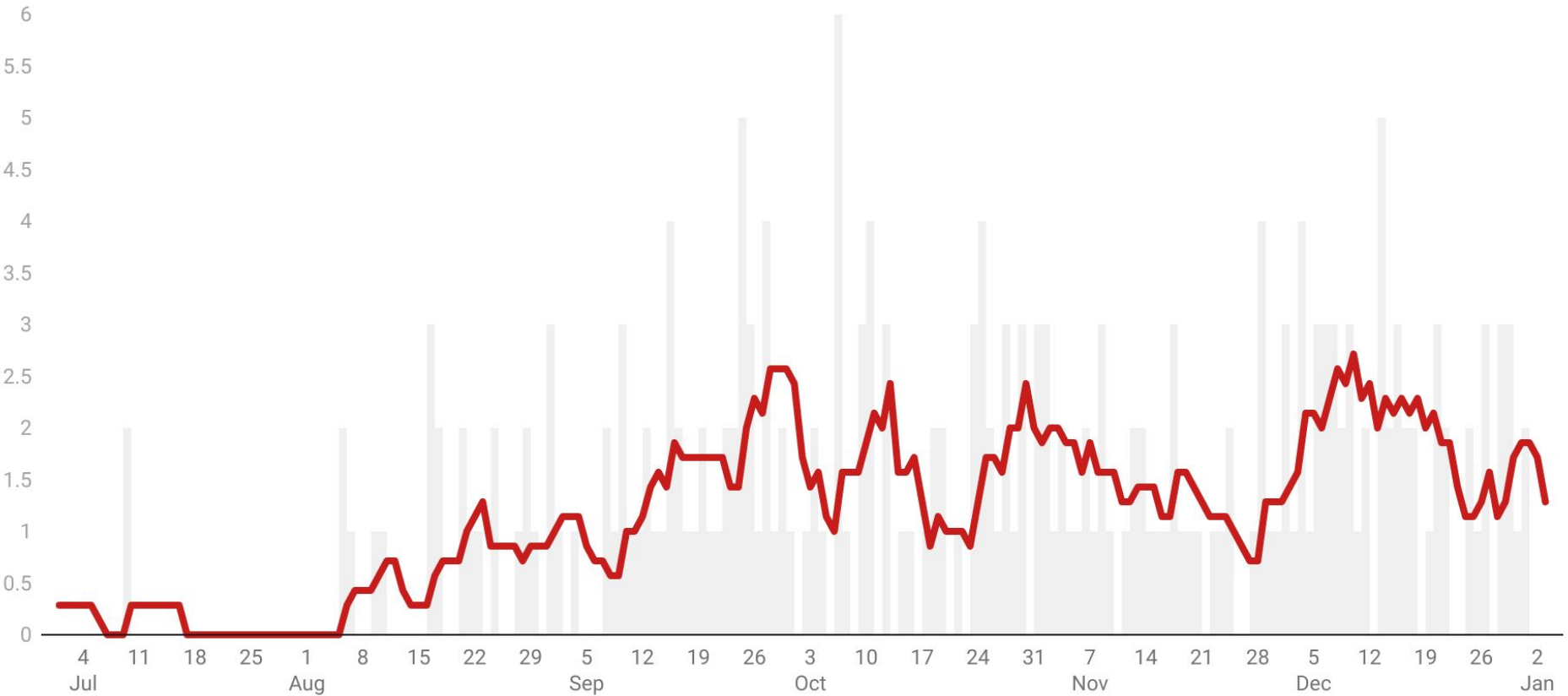
Source: CDC—January 3, 2022; Created with Datawrapper

# Vermont Fatality Data



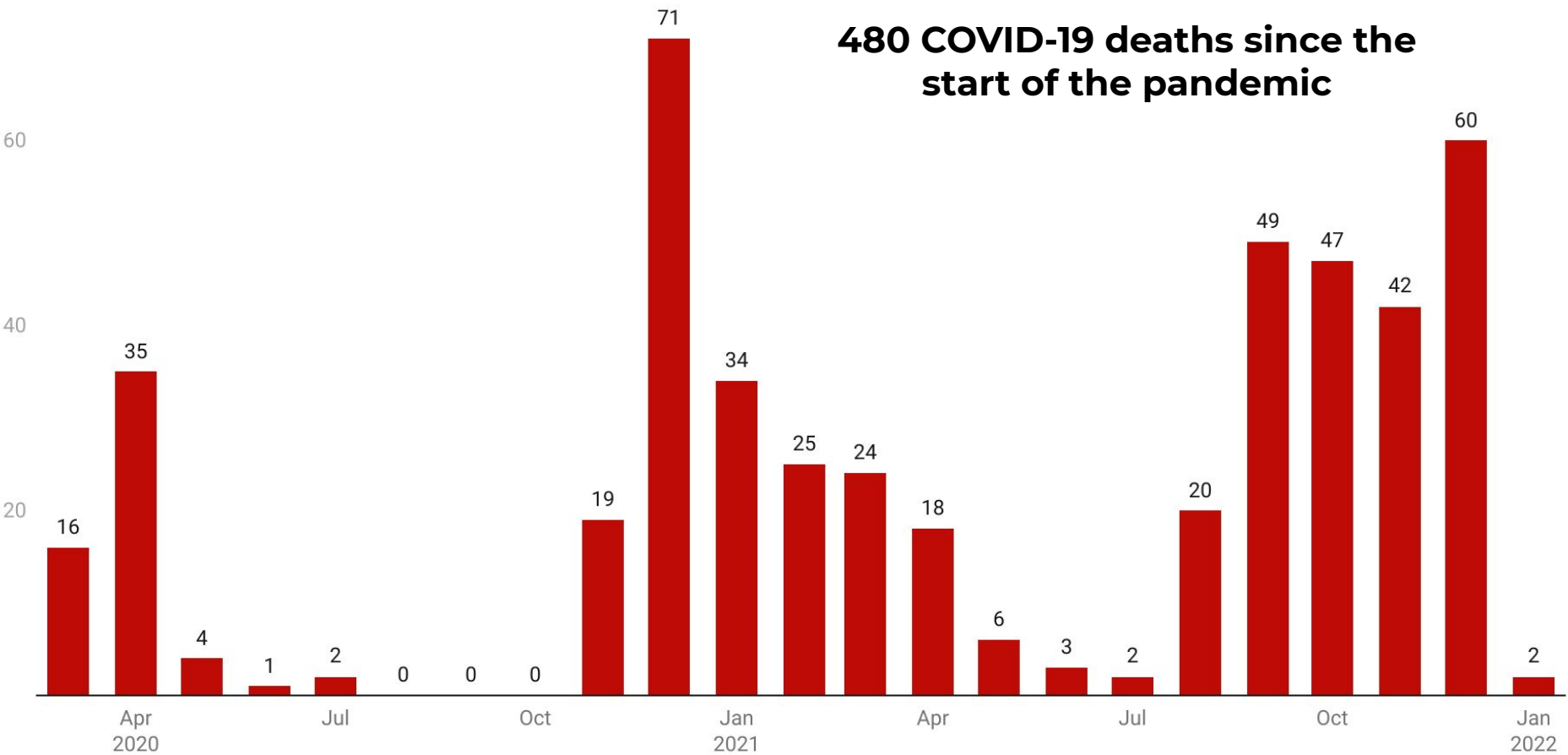
# Vermont COVID-19 Fatalities

7-Day Average



Source: VDH—January 4, 2022

# Monthly Covid-19 Deaths In Vermont



Source: VDH—January 4, 2022; deaths attributed to month in which death occurred rather than reported

# COVID-19 Deaths Per 100K Last 7 Days

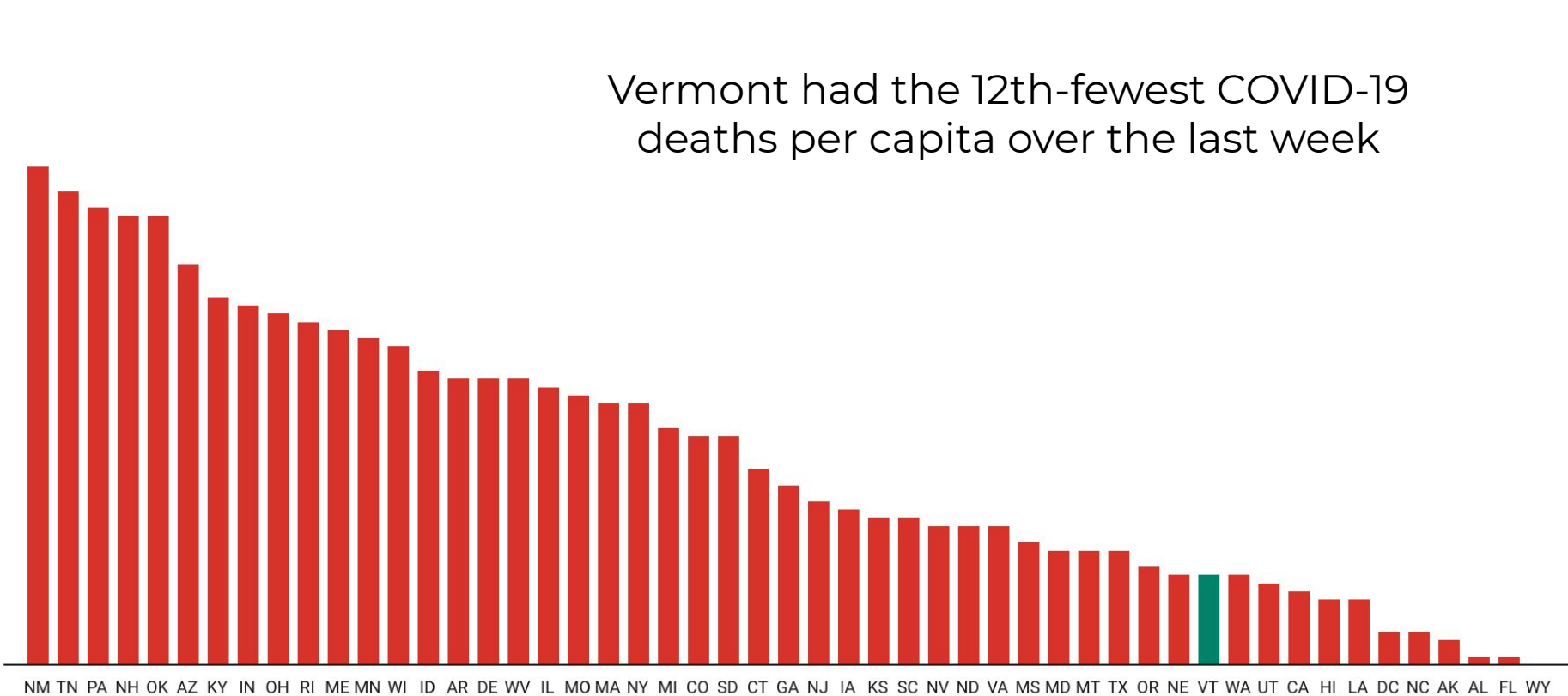
8

Vermont had the 12th-fewest COVID-19 deaths per capita over the last week

6

4

2



Source: CDC—January 3, 2022; Created with Datawrapper

# Vermont Vaccination Data

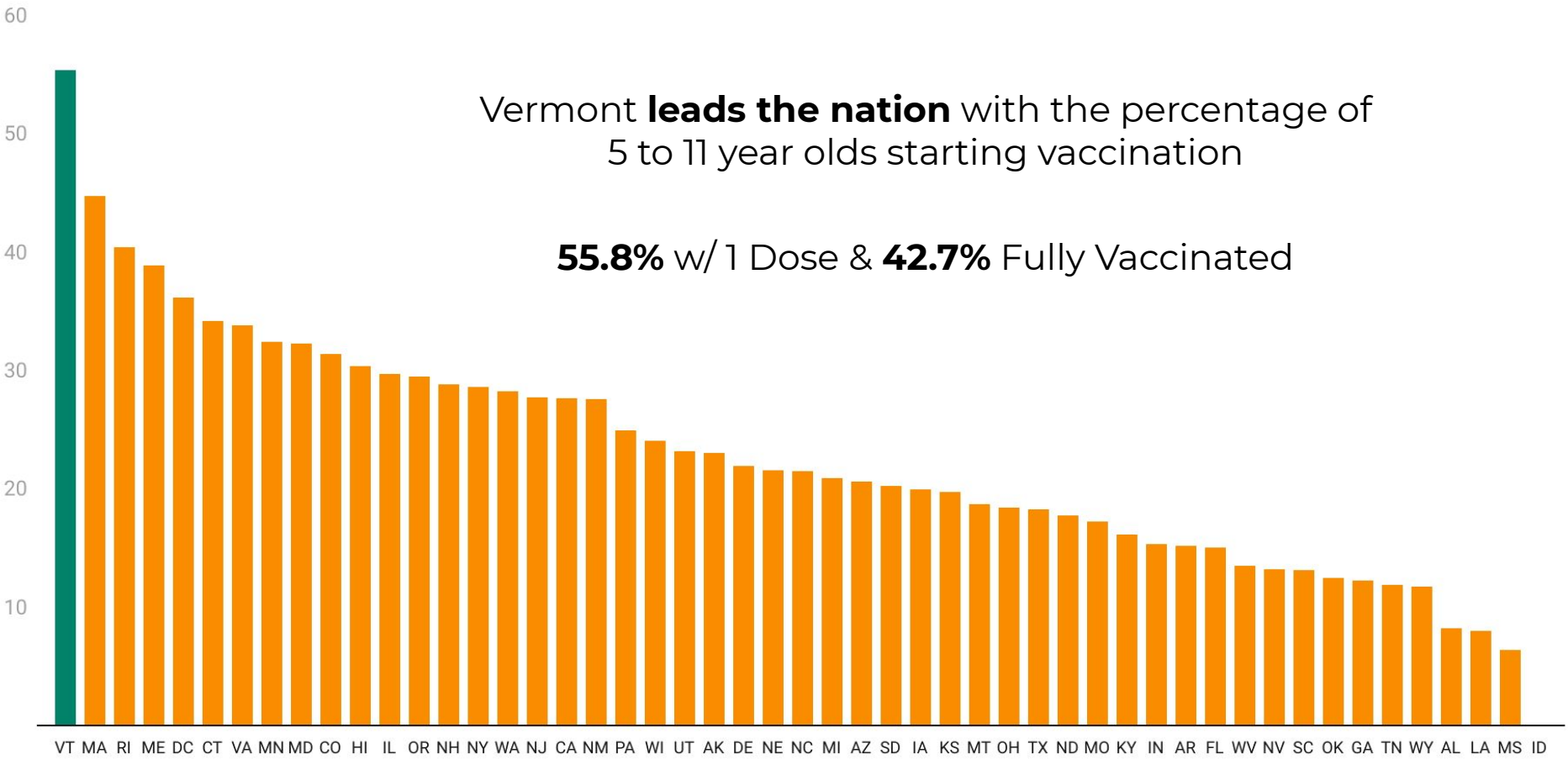
# Vermont CDC Vaccine Scorecard

Metric	Figure	State Ranking
<b>Doses Administered per 100K</b>	<b>200,243</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>81.2%</b>	<b>1</b>
<b>% At Least 1 Dose (Full Population)</b>	<b>89.3%</b>	<b>2</b>
<b>% Fully Vaccinated (Full Population)</b>	<b>77.4%</b>	<b>1</b>
<b>% Fully Vaccinated (65 &amp; Over)</b>	<b>95%+</b>	<b>1 (tied)</b>

Source: CDC—December 30, 2021 (most recent CDC update - will be updated again on January 4, 2022)

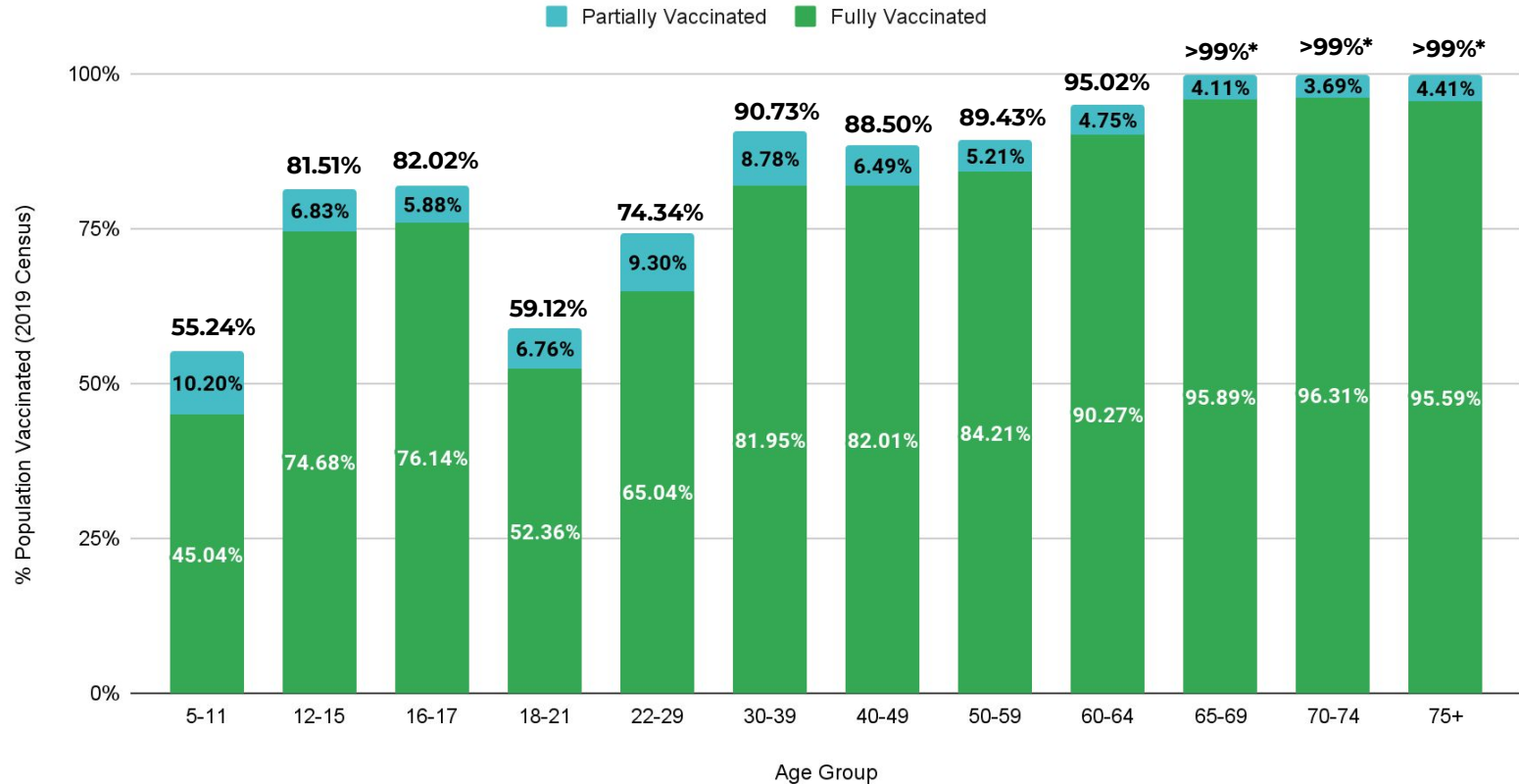
New Hampshire & West Virginia excluded due to unreliable data

# Percent of 5 to 11 Population Starting Vaccination



# Vermont Vaccination Progress

By Age Band



## Vermont CDC Booster Scorecard

Metric	Figure	State Ranking
% of Fully Vaccinated w/ booster dose	48.8%	1
% of Fully vaccinated 18+ w/ booster doses	53.8%	1
% of Fully vaccinated 50+ w/ booster doses	65.1%	1
% of Fully vaccinated 65+ w/ booster doses	74.2%	2

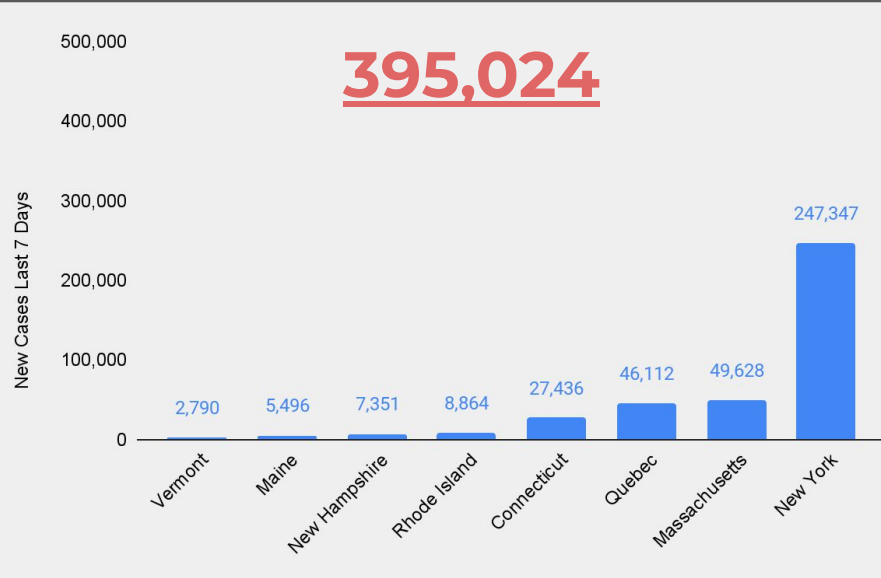


# Regional Data

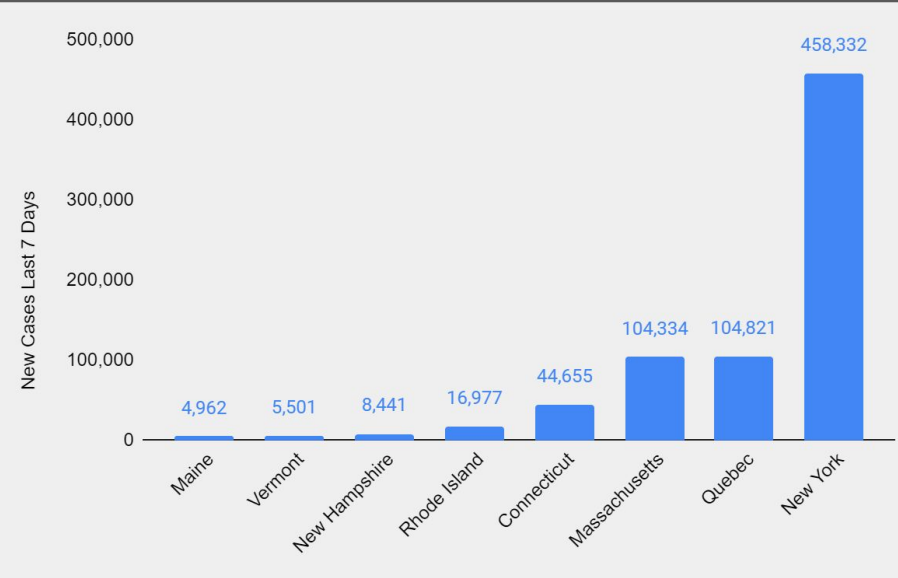
# Northeast Regional Cases

**89.4% Increase in New Cases**

New Cases December 21st to December 27th



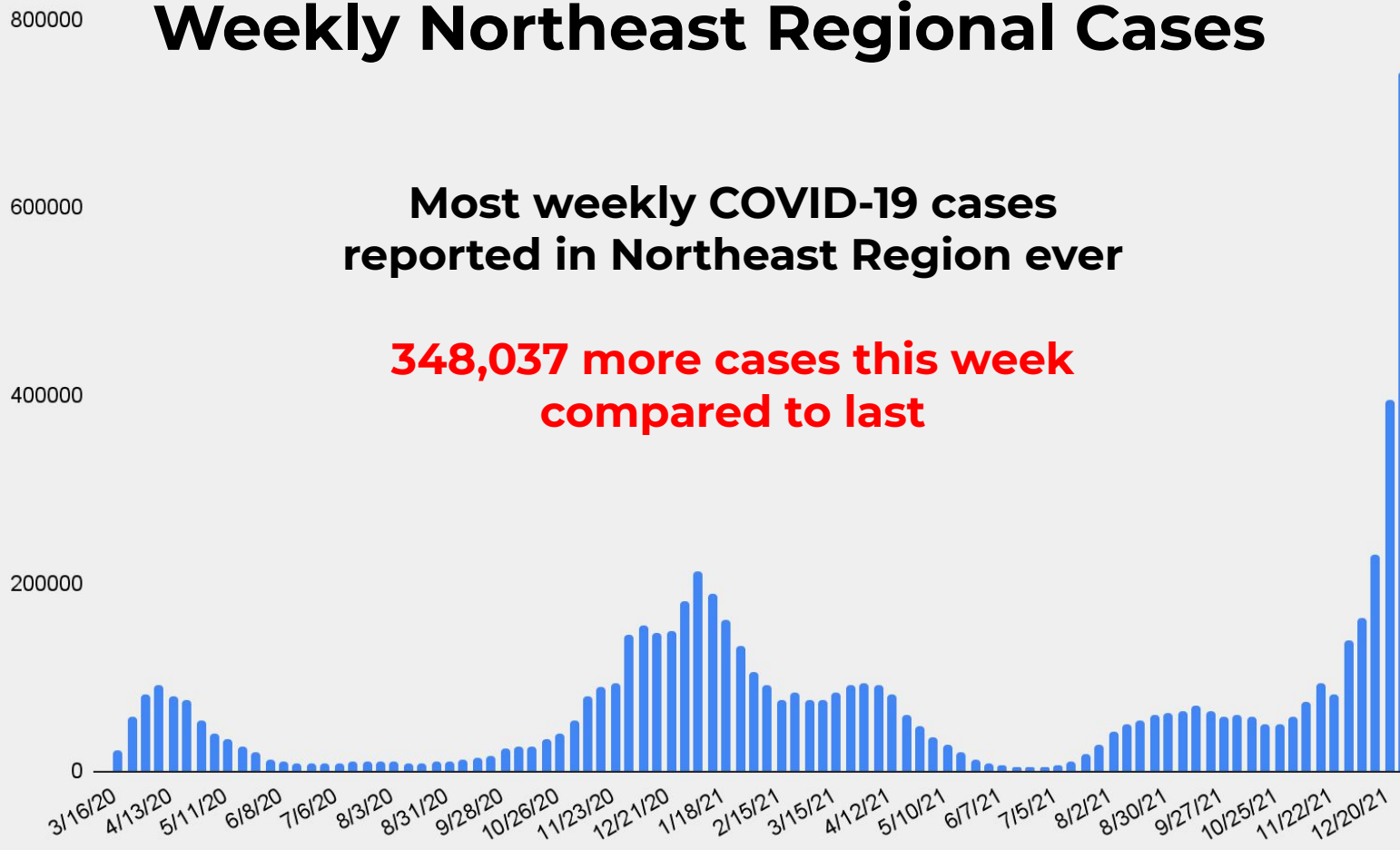
New Cases December 28st to January 3rd



# Weekly Northeast Regional Cases

**Most weekly COVID-19 cases  
reported in Northeast Region ever**

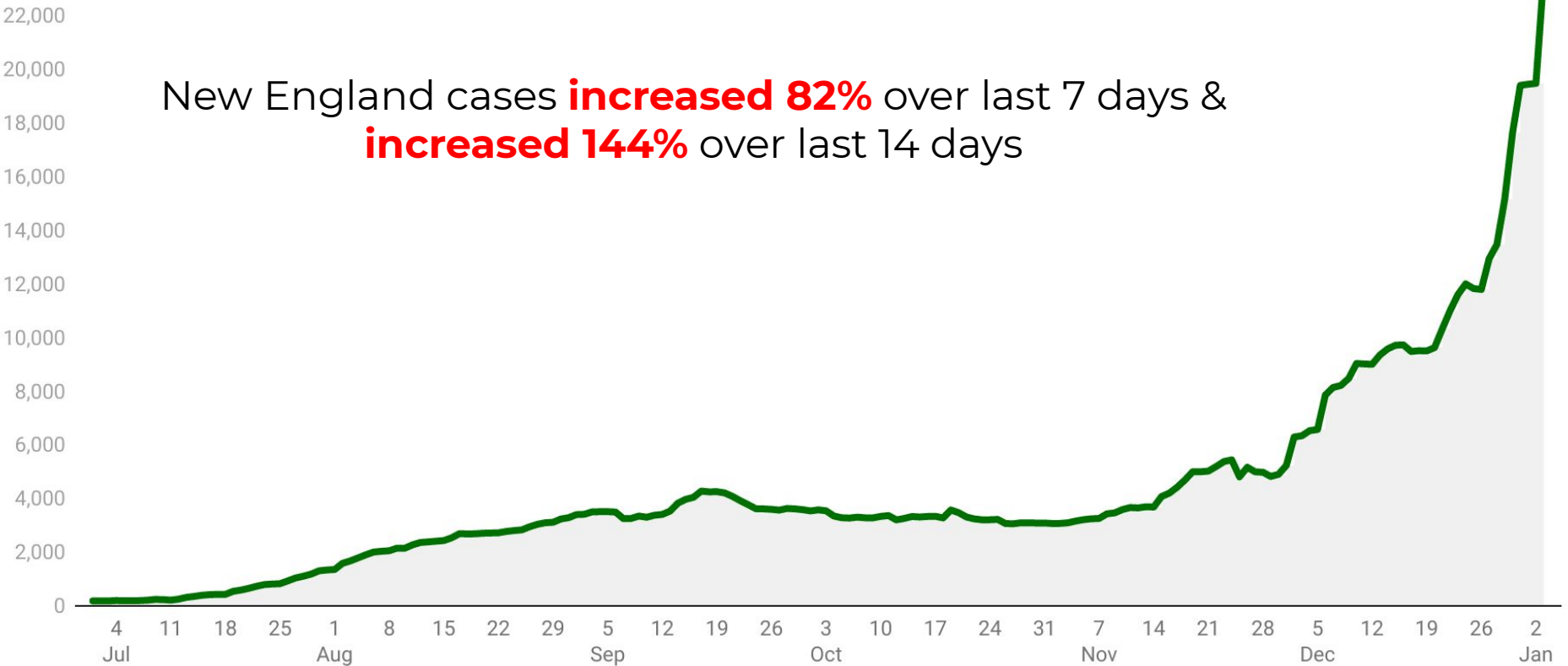
**348,037 more cases this week  
compared to last**



Sources: State Health Depts.—January 4, 2022 (includes: CT, ME, MA, NH, NY, QC, RI & VT)

# New England COVID-19 Cases

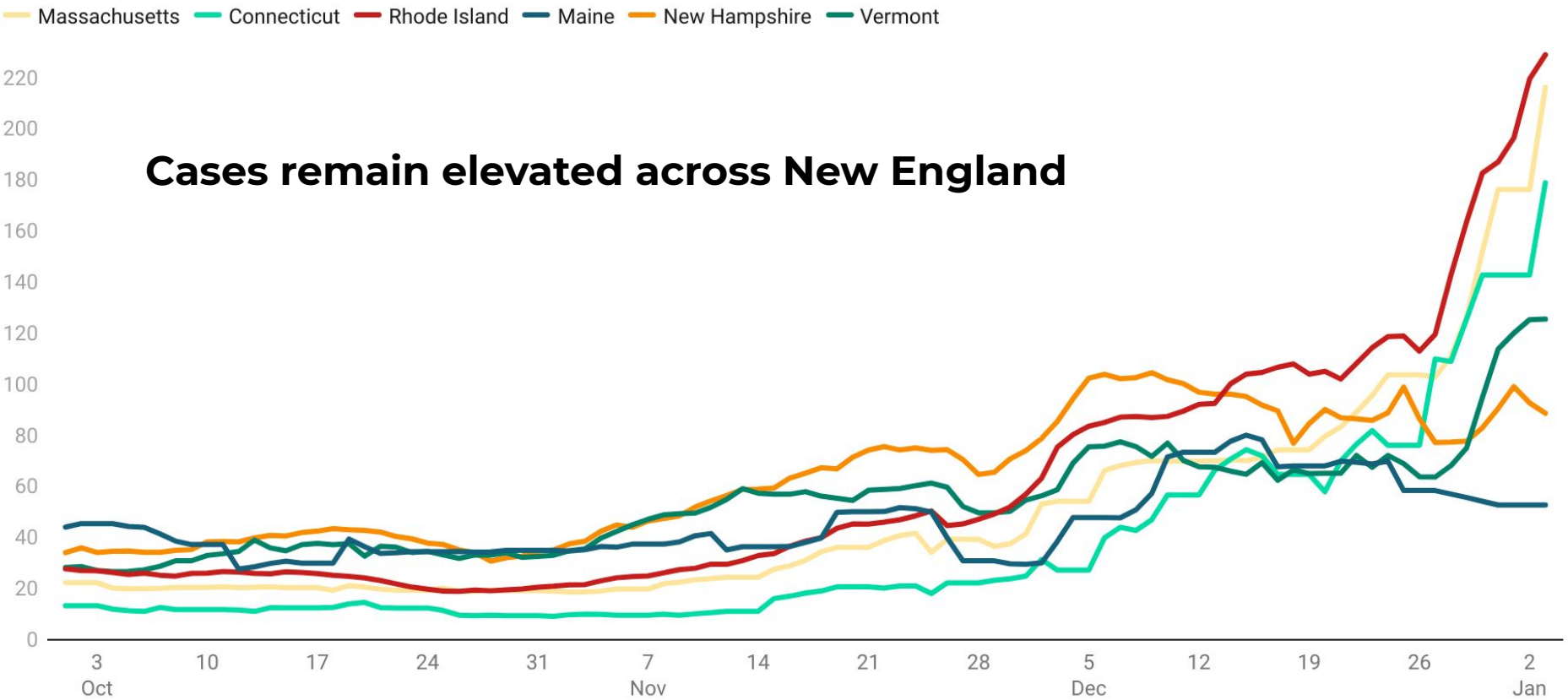
New England 7-Day Case Average



Sources: State Health Depts.—January 4, 2022 (includes: CT, ME, MA, NH, RI & VT)

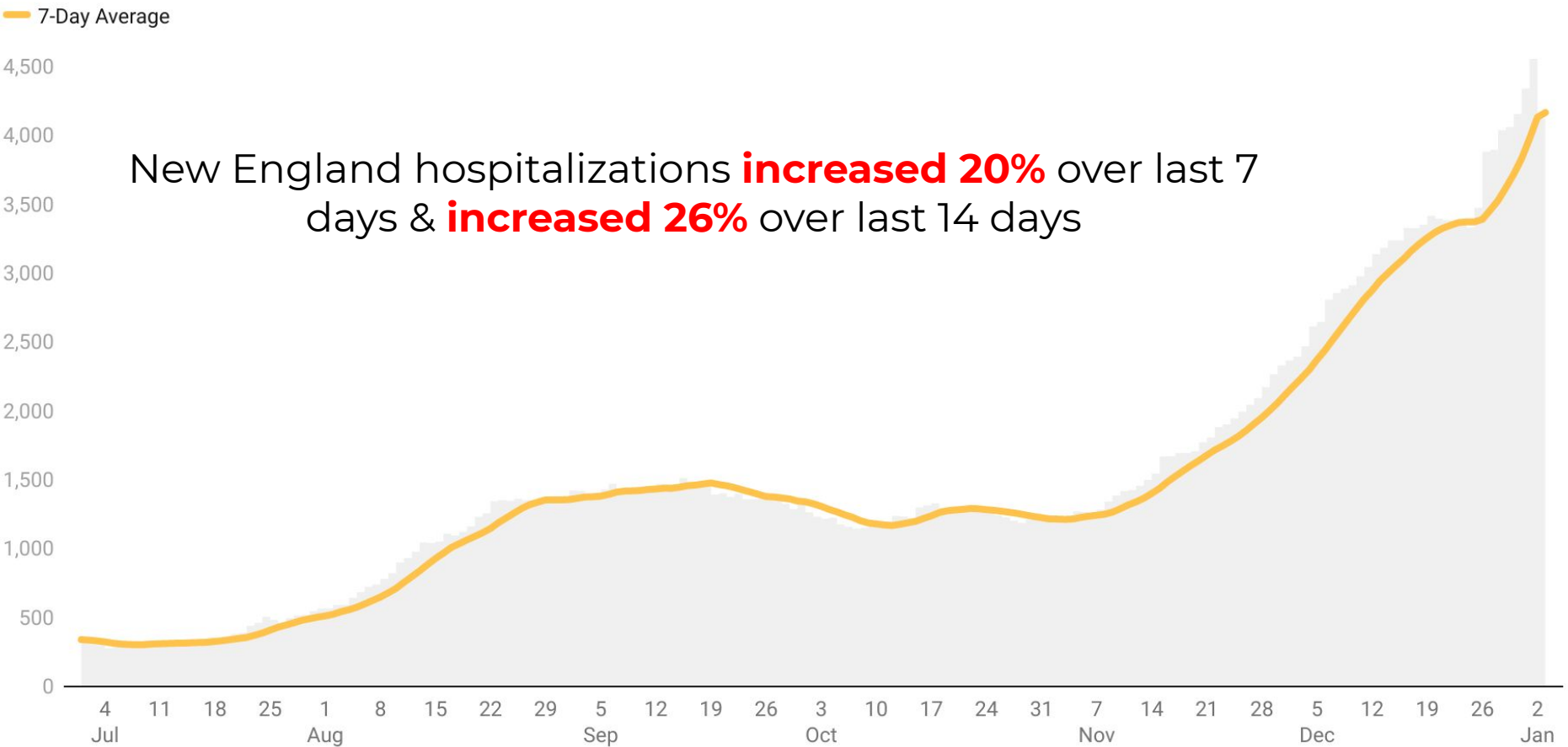
# New England COVID-19 Case Trends

7-Day Average Cases Per 100K



Sources: State Health Depts.—January 4, 2022 (includes: CT, ME, MA, NH, RI & VT)

# New England COVID-19 Hospitalizations

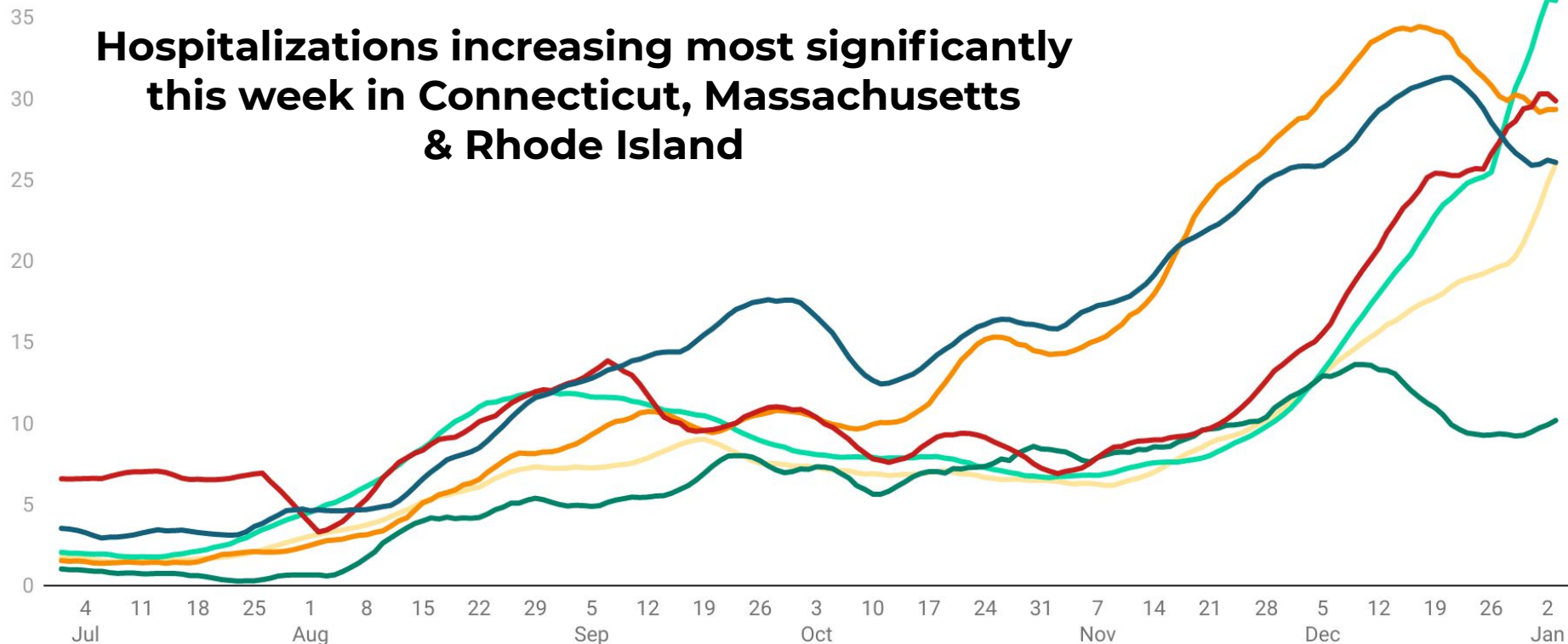


Sources: HHS—January 4, 2022 (includes: CT, ME, MA, NH, RI & VT)

# New England COVID-19 Hospitalizations Trends

7-Day Average Hospitalizations Per 100K

Massachusetts Connecticut Rhode Island Maine New Hampshire Vermont

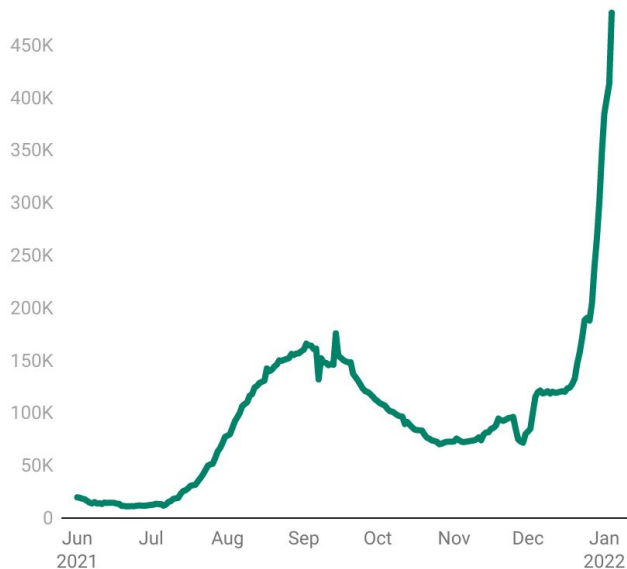


# National Data



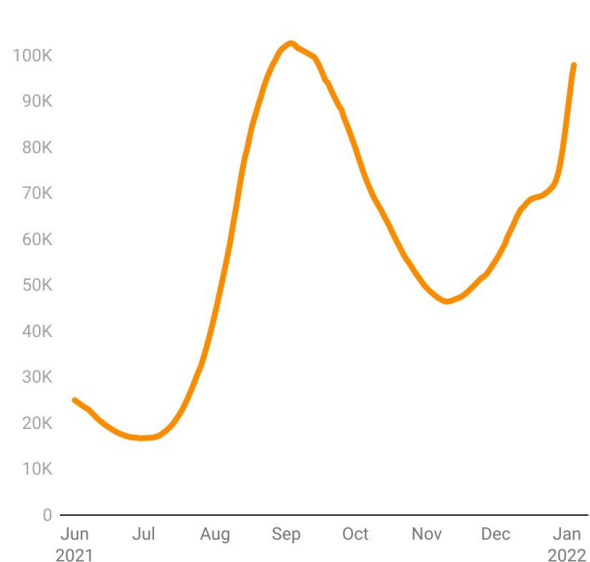
# U.S. Infections, Hospitalizations, & Deaths

**101% Increase**  
**Over last 7 days**



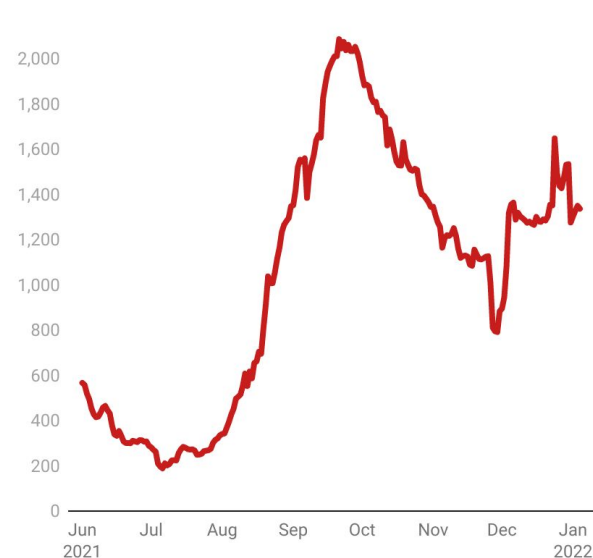
**Infections**  
**(7-Day Average)**

**28% Increase**  
**Over last 7 days**



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

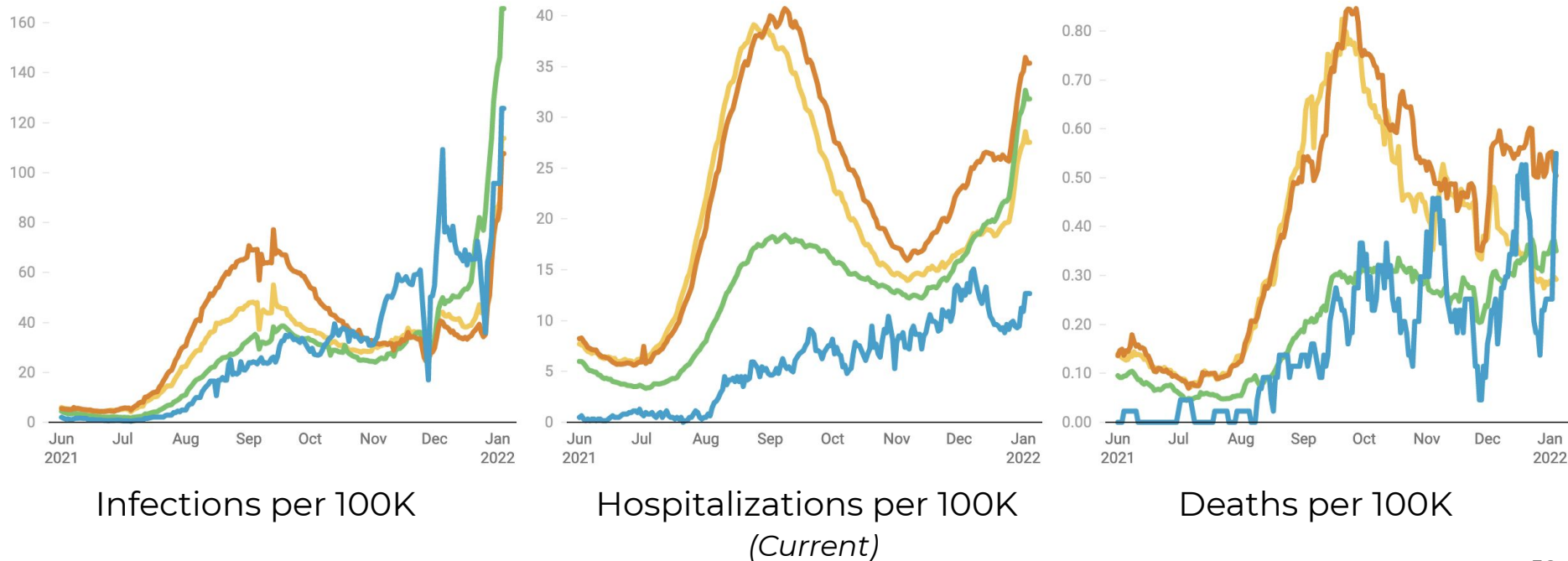
**9% Decrease**  
**Over last 7 days**



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

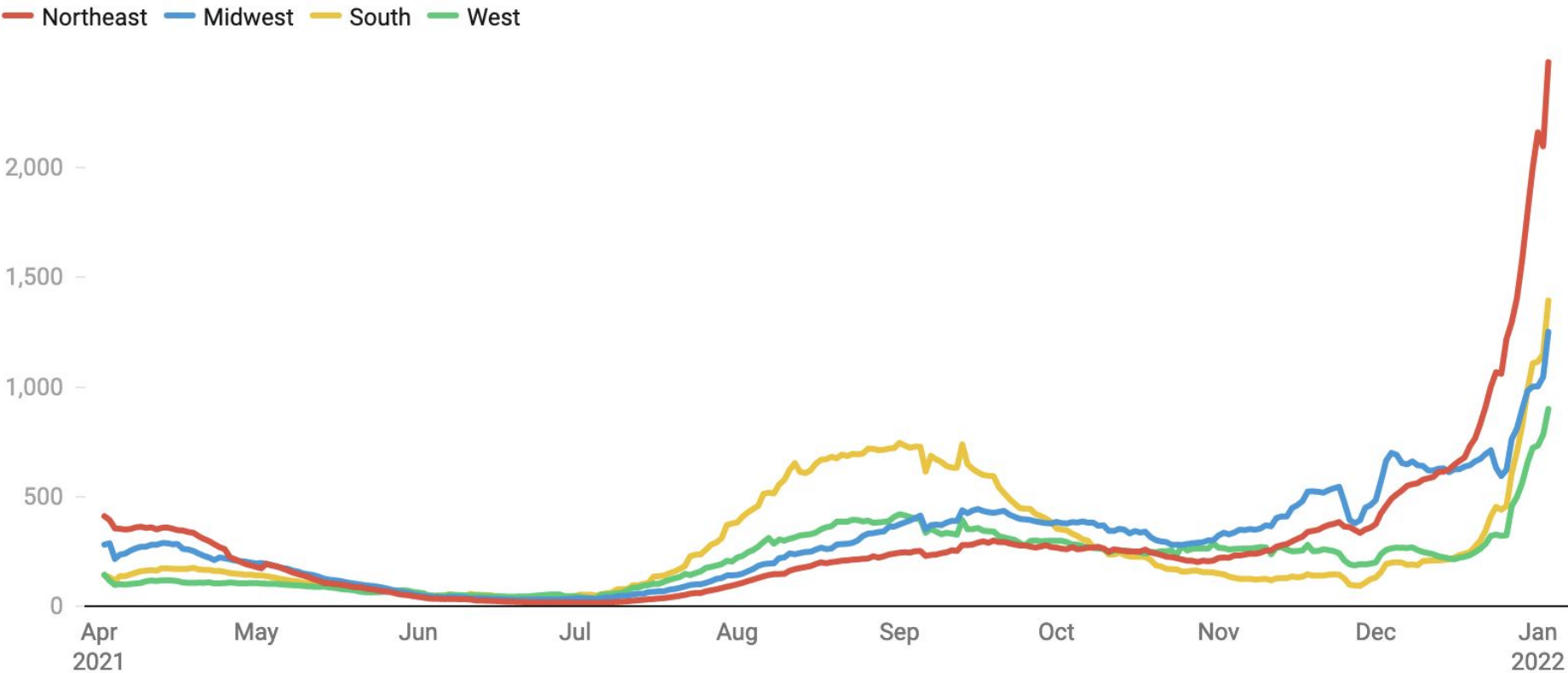
# Infections, Hospitalizations, & Deaths by Percentage of State Population Vaccinated

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



# Daily COVID-19 Cases per Million in US Regions

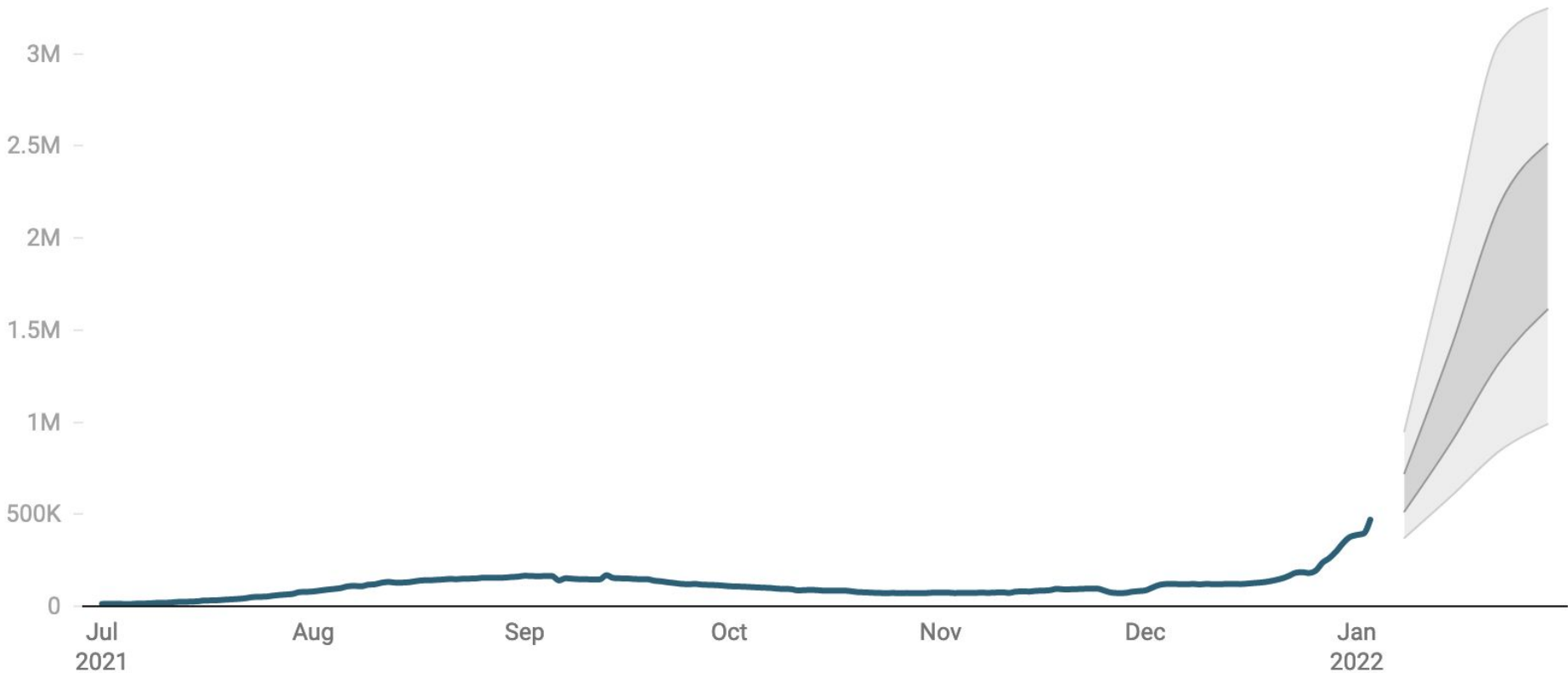
Calculated as a 7-day moving average. Definitions of North, Midwest, South, and West taken from the U.S. Census bureau.



Source: JHU—January 4, 2022; 7-day averages; created with Datawrapper

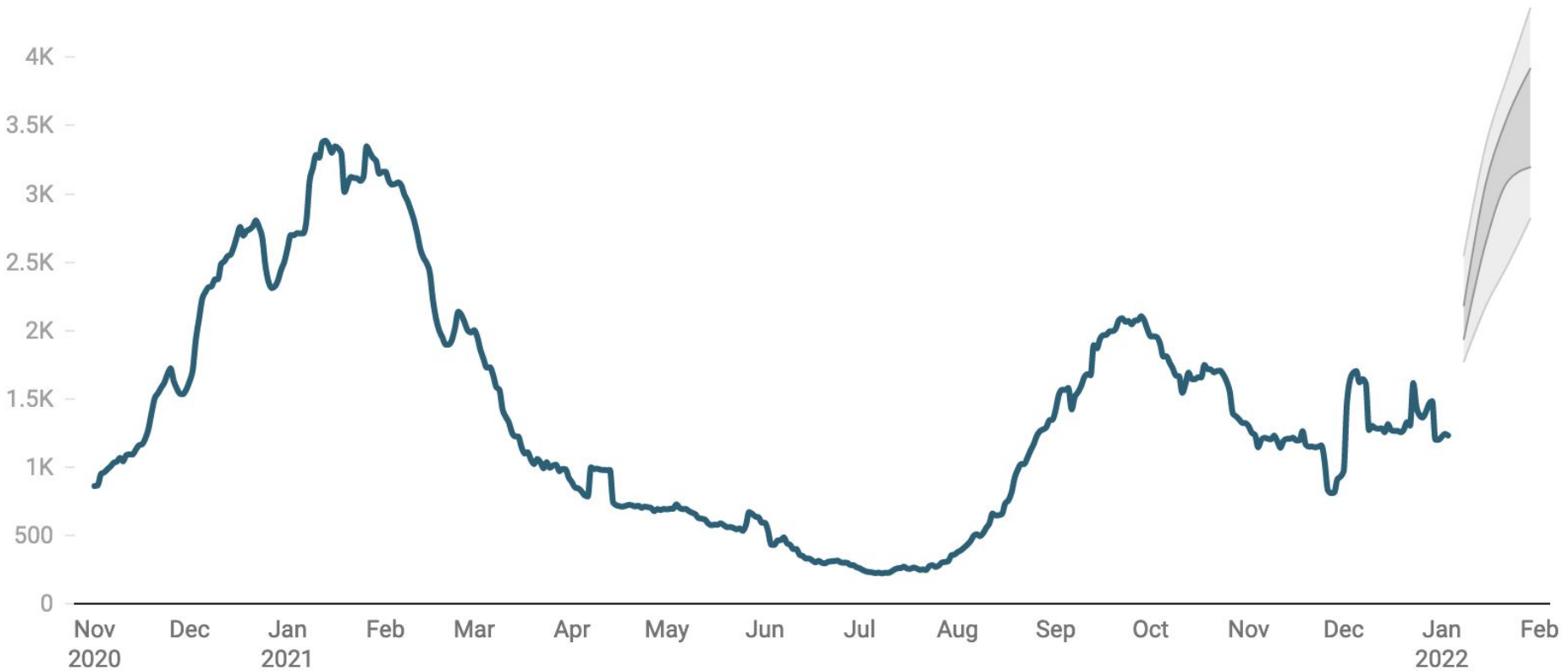
# US COVID-19 Infection Confidence Intervals

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.



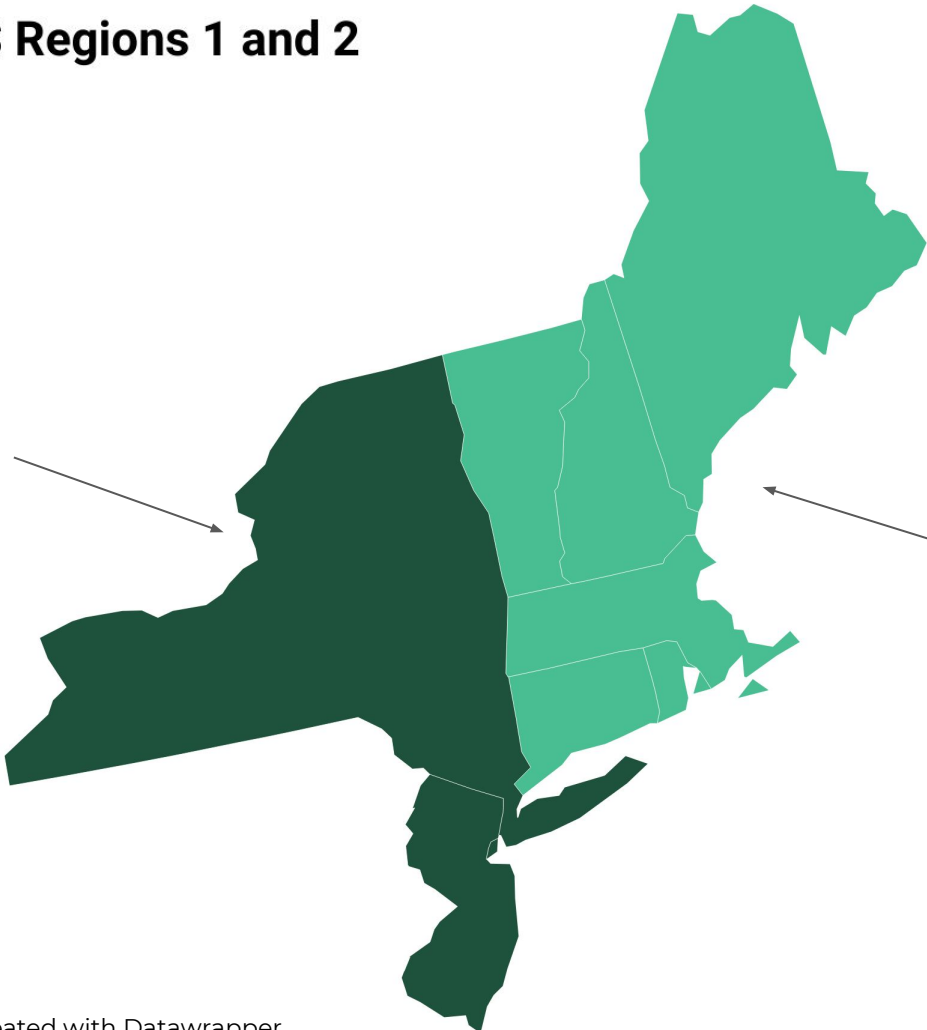
Source: CDC—January 4, 2022; created with Datawrapper

# COVID-19 Variant Data

# Omicron Spread HHS Regions 1 and 2



**HHS Region 2**  
Omicron 98%  
of cases



**HHS Region 1**  
Omicron 82.4%  
of cases

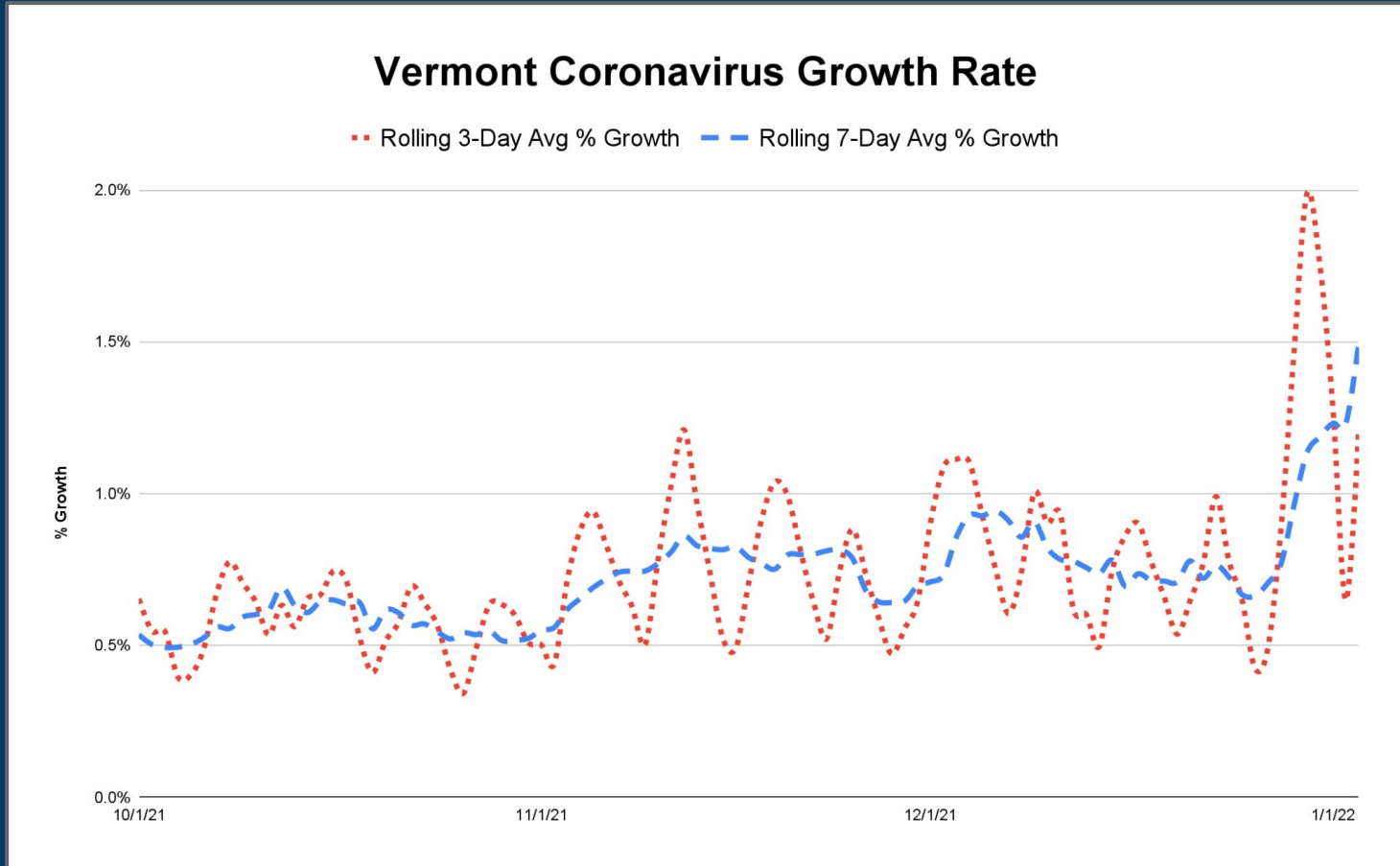
# RESTART VERMONT

## 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

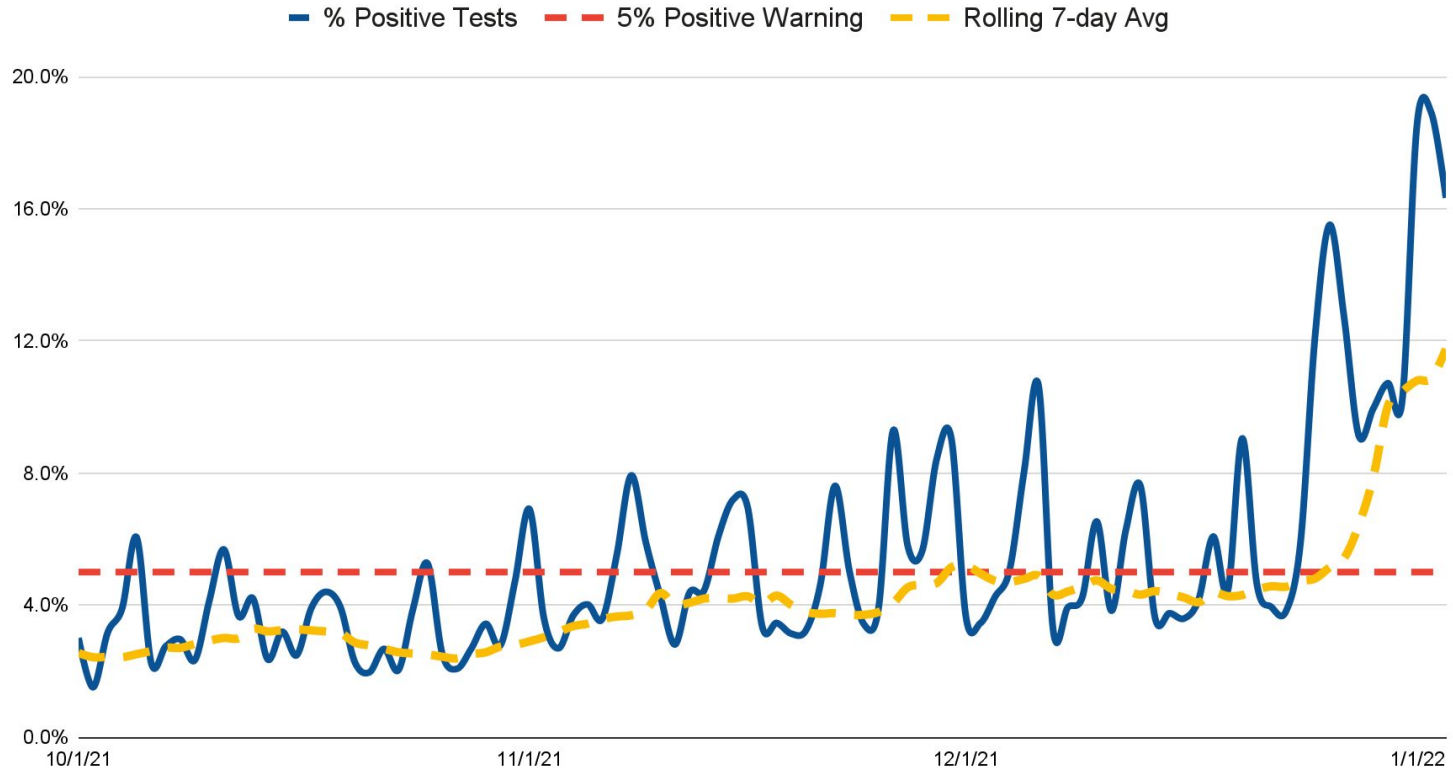


# Viral Growth & Reproductive Rates

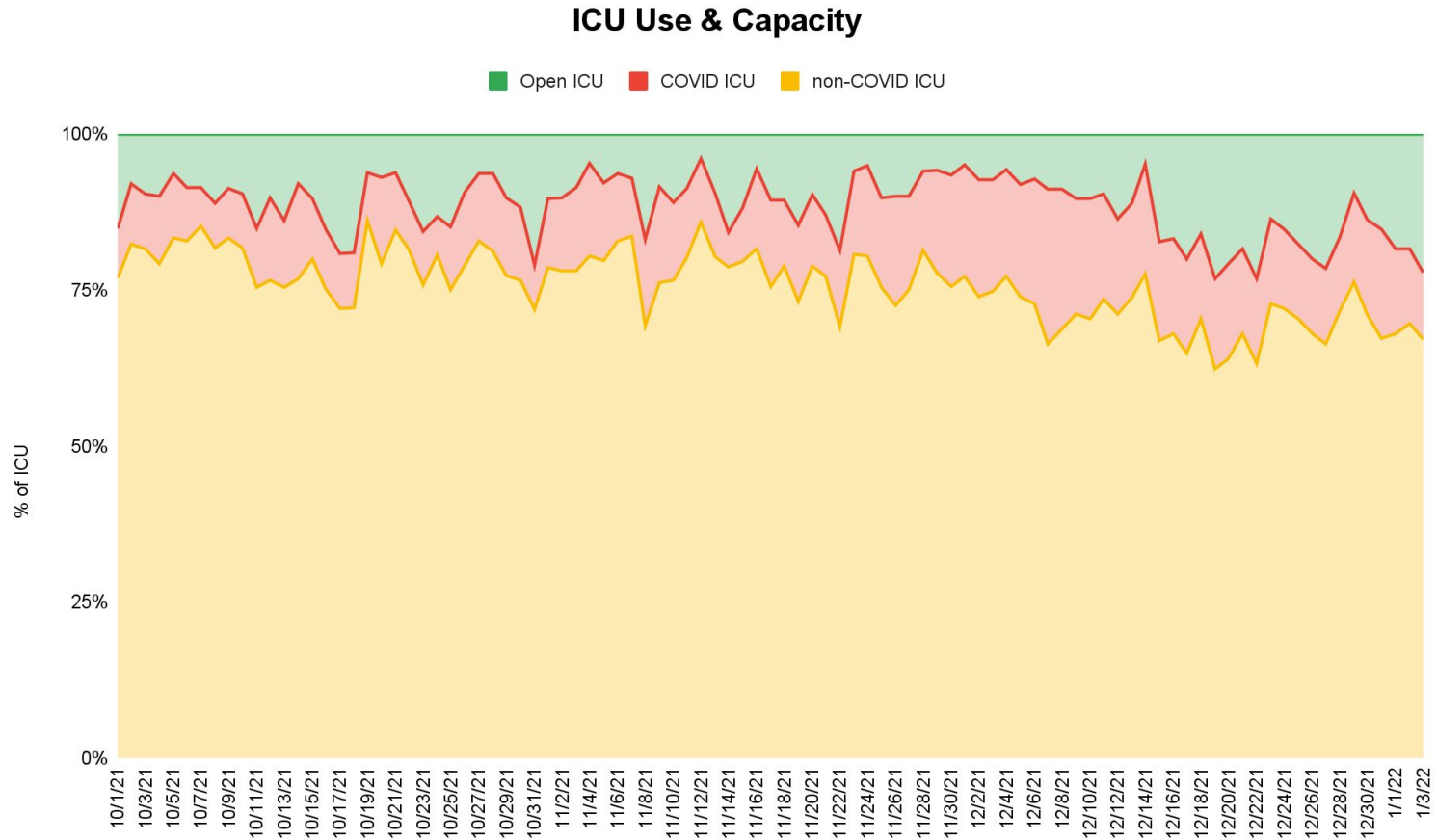


# Test Positivity

## Percent Tests Yielding New Positive COVID-19 Cases



# Hospital & Critical Care Beds



# Vermont Testing

