

# **COVID-19 Modeling**

## **June 1, 2021**

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

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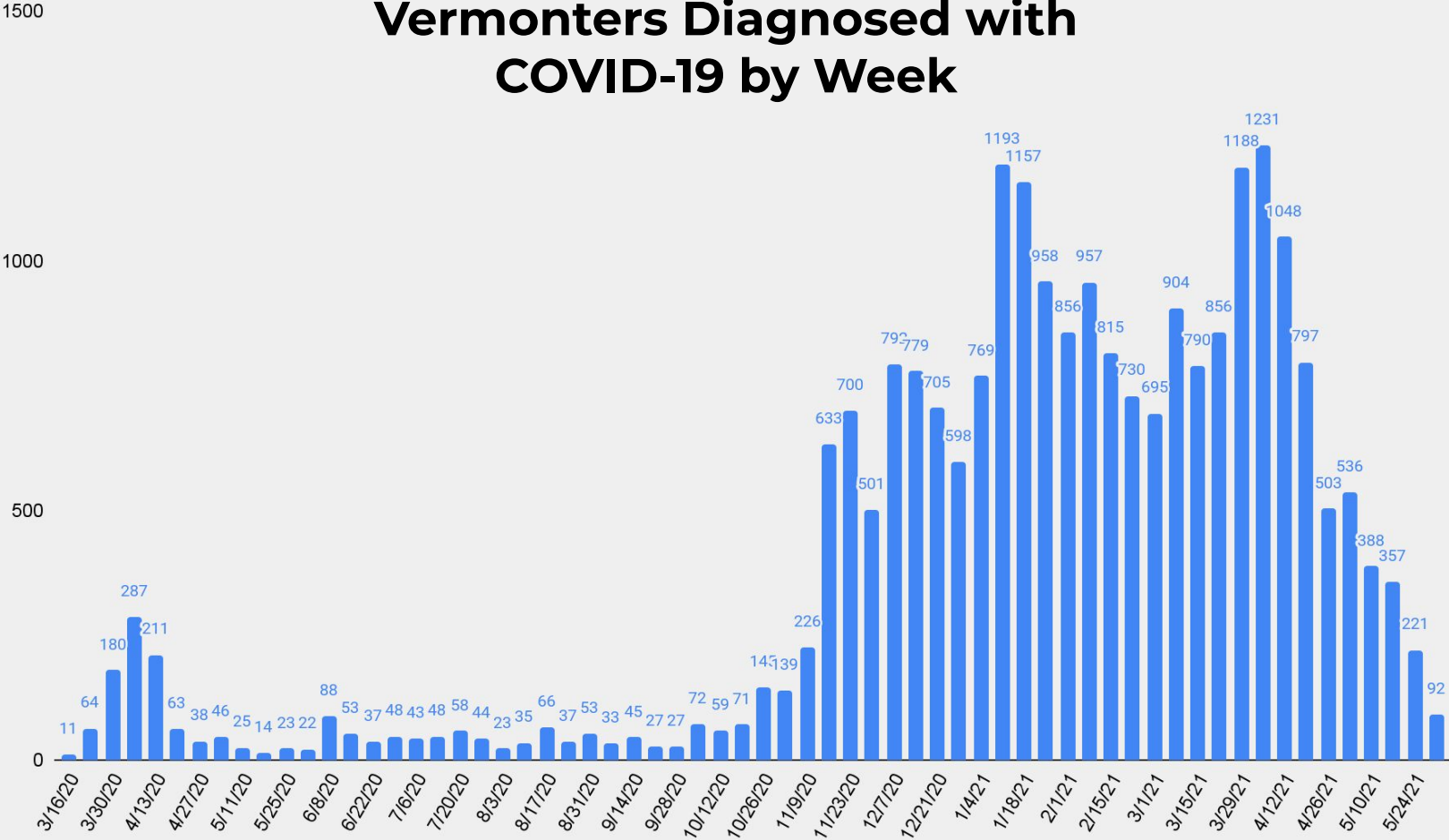
# Vermont Case Data

# COVID Infections per 100K in Vermont (7-Day Average)



Source: Vermont Department of Health—June 1, 2021

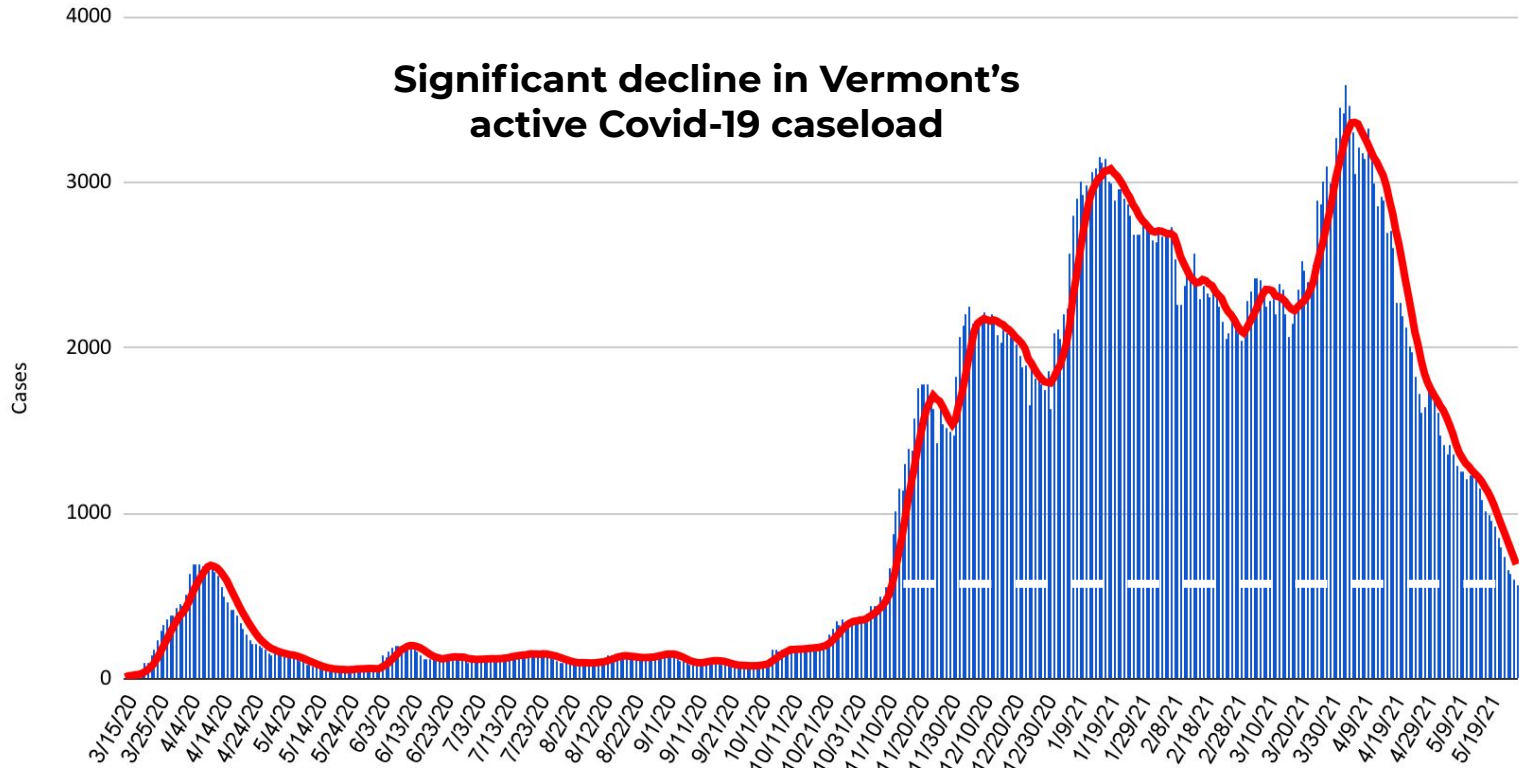
# Vermonters Diagnosed with COVID-19 by Week



Source: Vermont Department of Health (week calculated as Tuesday to Monday)

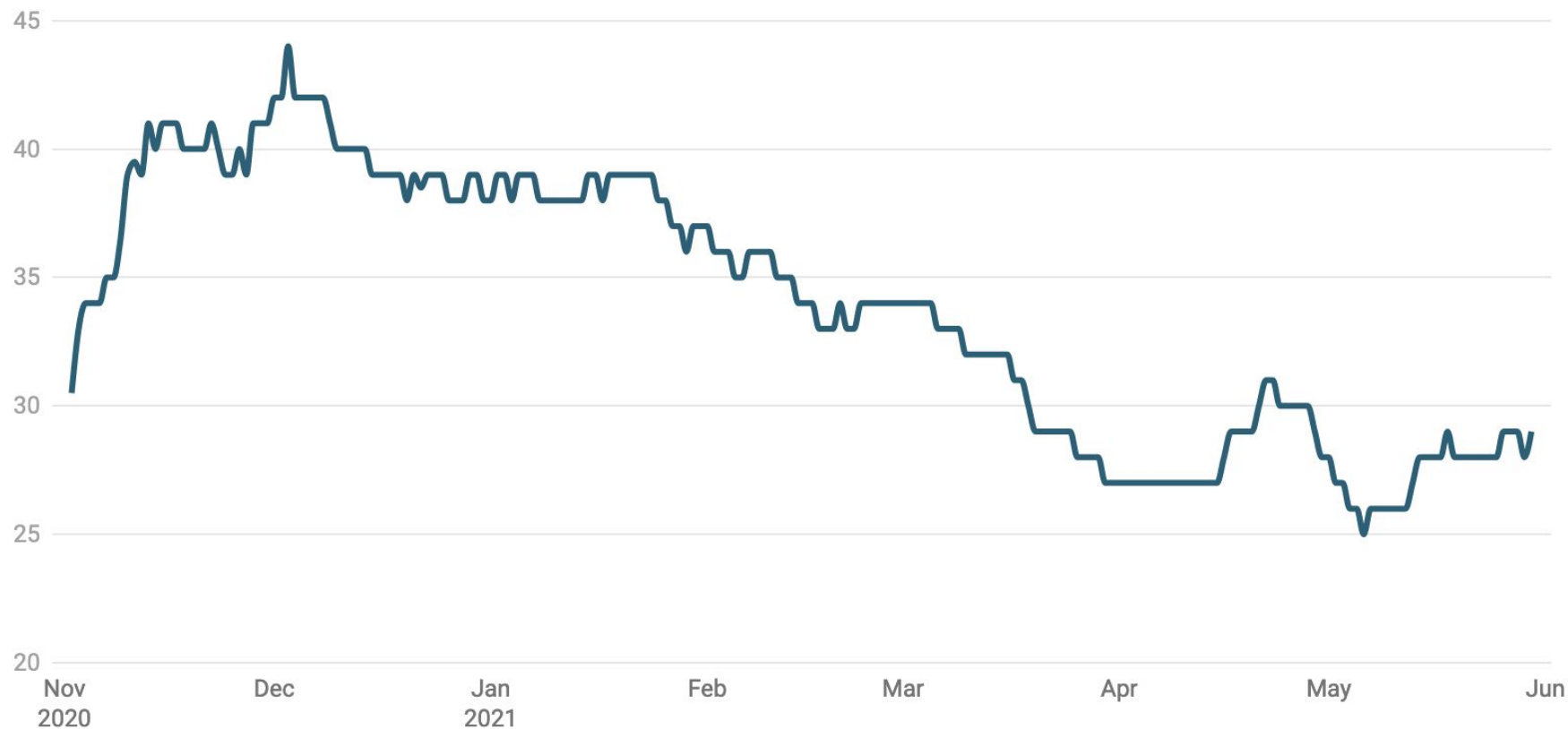
## Estimated Active Cases of COVID-19 in Vermont

Active Cases Active Cases (7-day Average)



# Age of Infected Vermonters

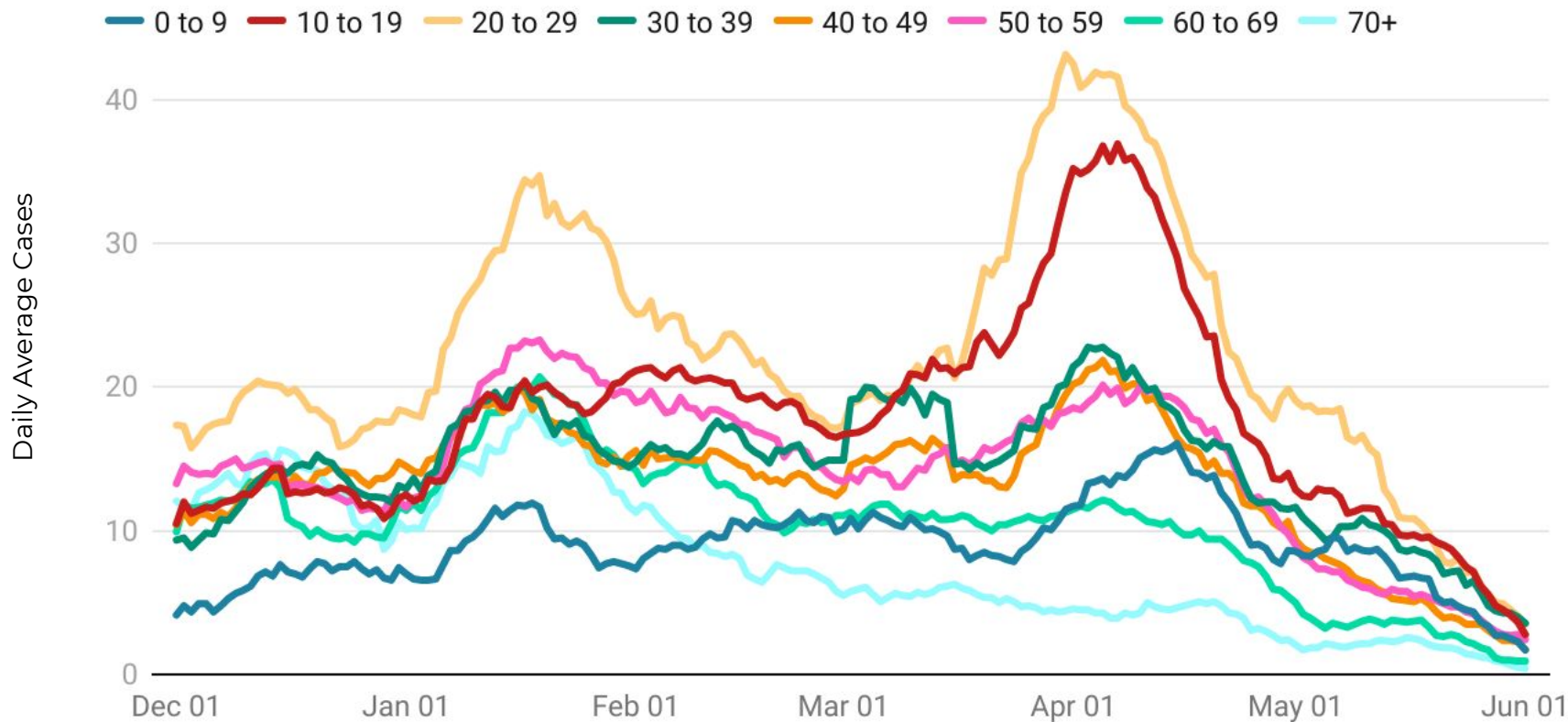
Median age of COVID positive individuals in VT over the last 14 days.



Source: VDH—May 31, 2021

# Vermont Cases by Age Band

14-day averages

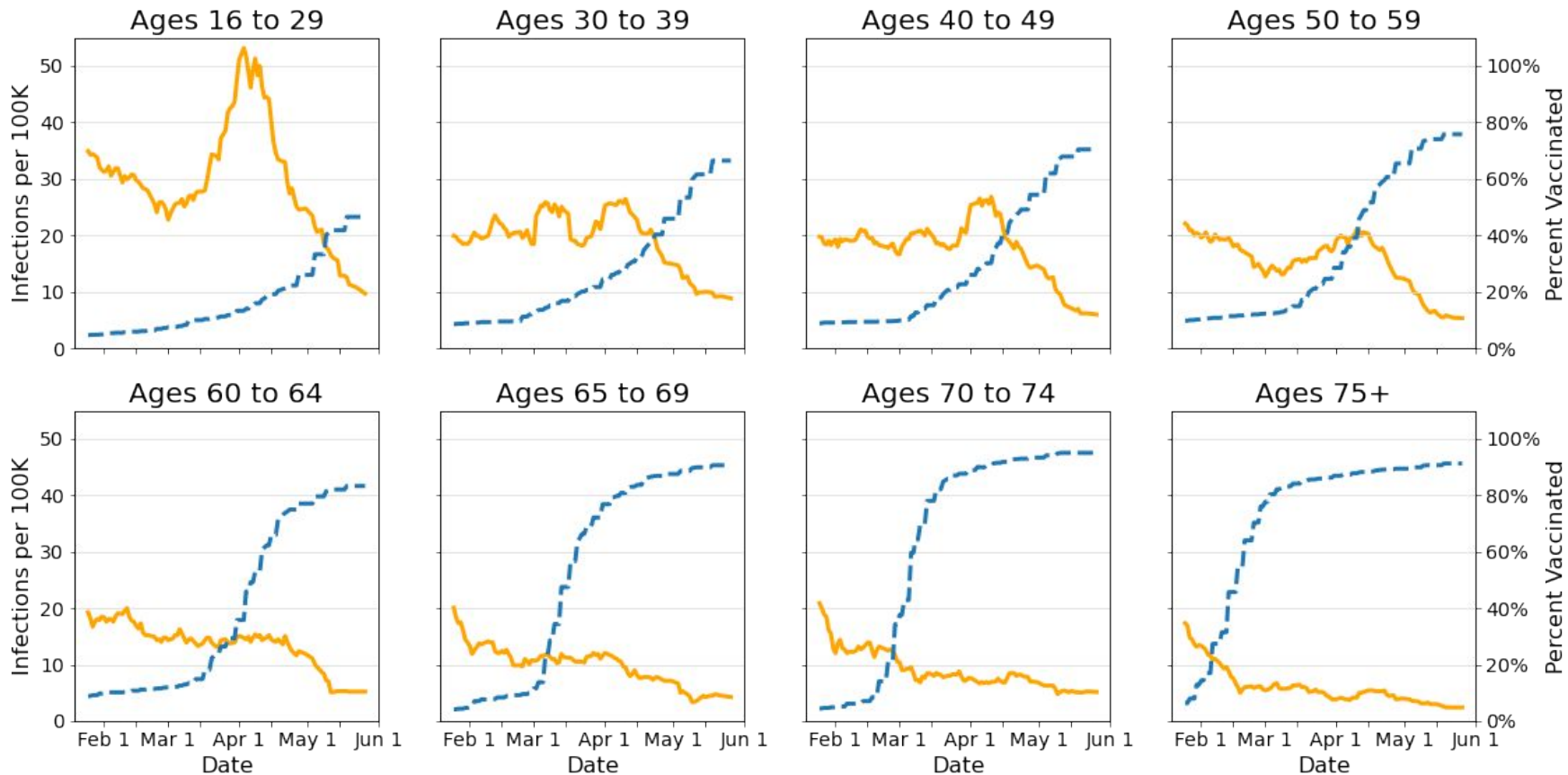




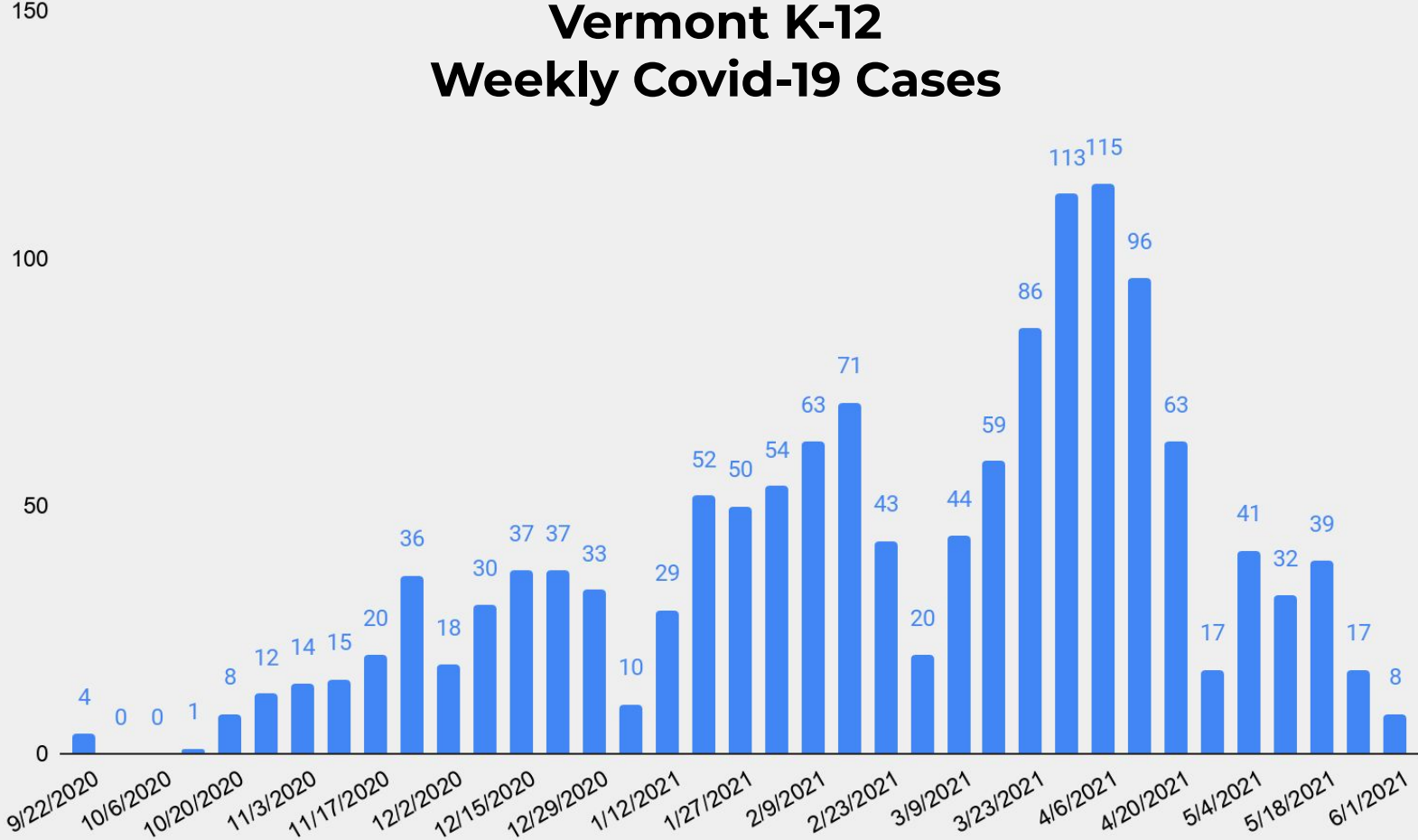
# Vermont Case Rate & Vaccination by Age Band

— New Infections per 100K (14-Day Average)

- - - Percent Received First Vaccine Dose



# Vermont K-12 Weekly Covid-19 Cases



Source: Vermont Department of Health—June 1, 2021

# Active Outbreaks in Long Term Care Facilities\*

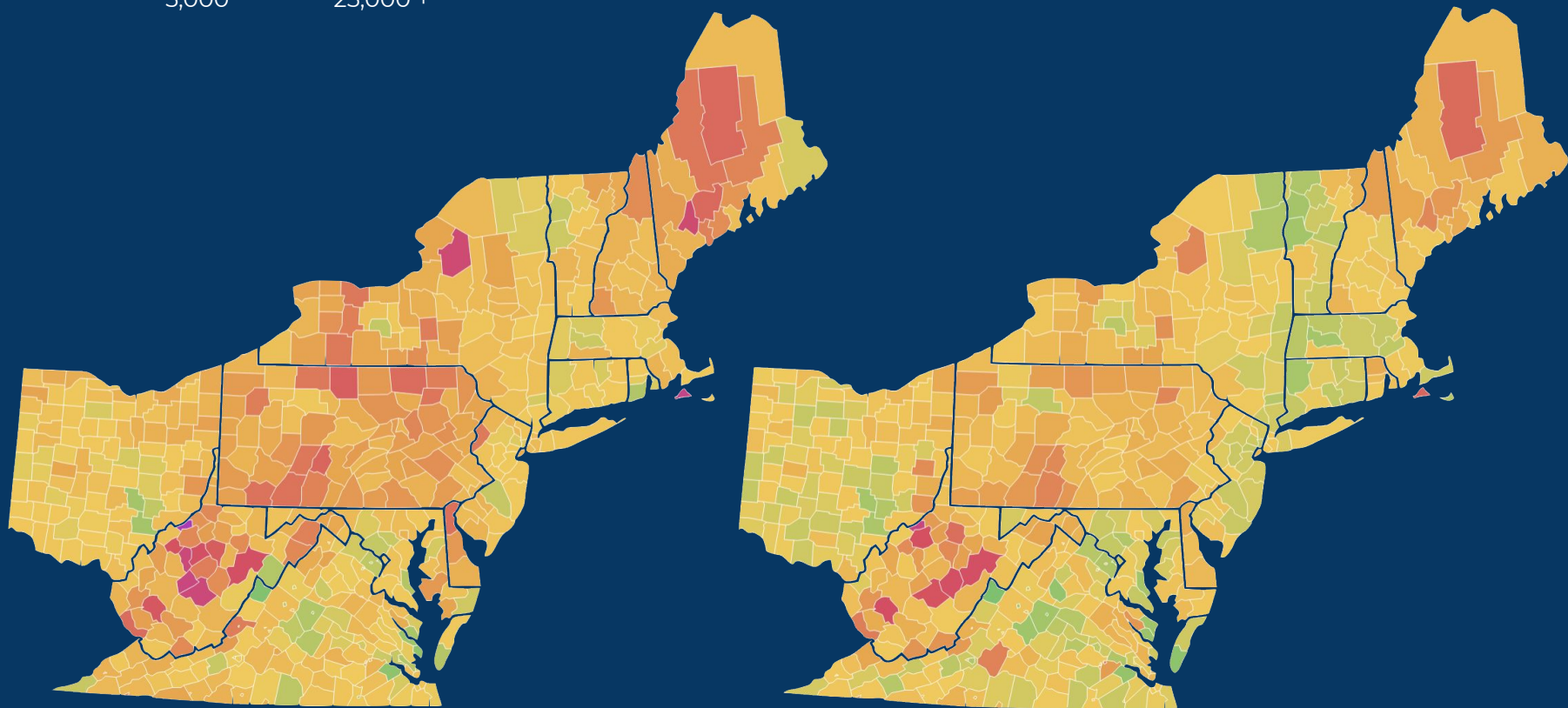
Facility Name	Total COVID-19 Cases
None	None

Source: Vermont Department of Health—\*Last updated May 31, 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 or fewer than 5 active cases.

# Active Cases per Million



0                      5,000                      25,000 +

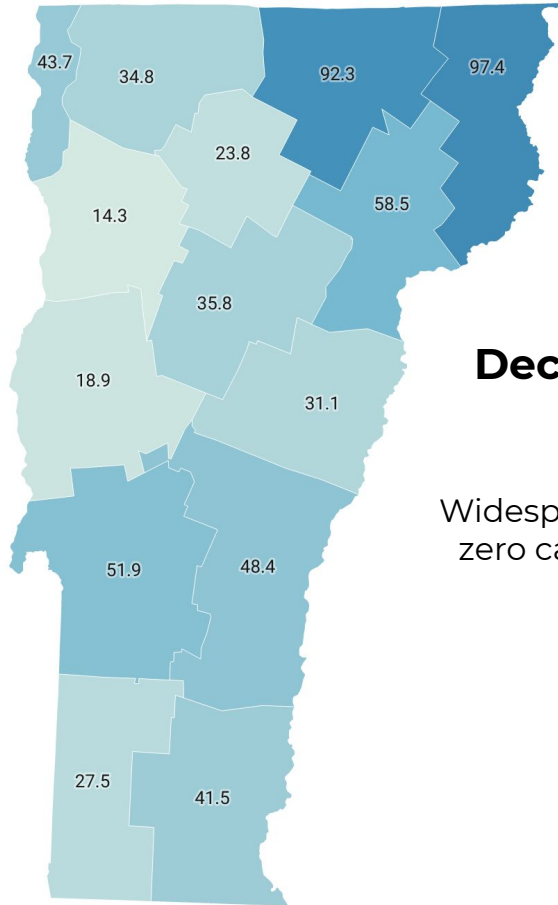


Last Week  
May 25<sup>th</sup>

Today  
June 1<sup>st</sup>

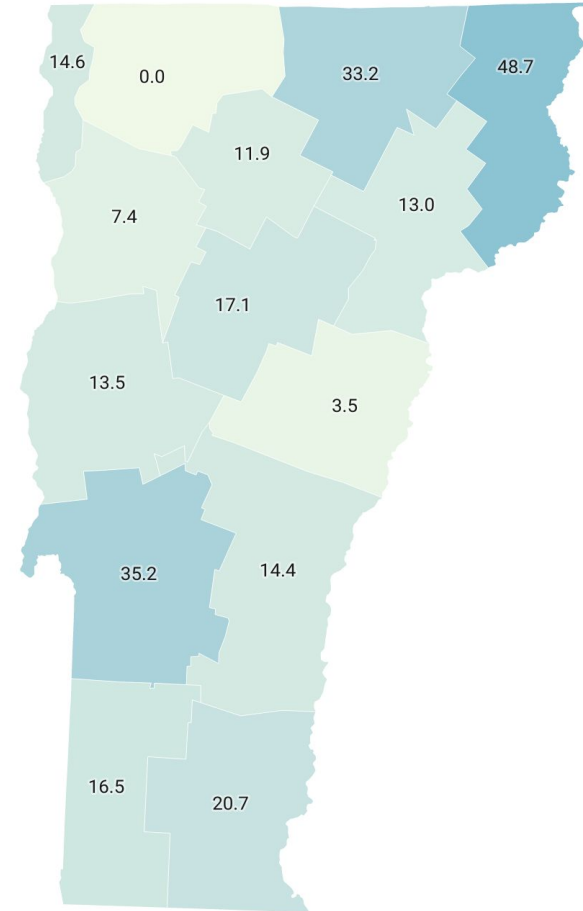
## Vermont Weekly Cases by County (per 100,000)

Results Reported May 17 to May 24



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

Results Reported May 25 to May 31

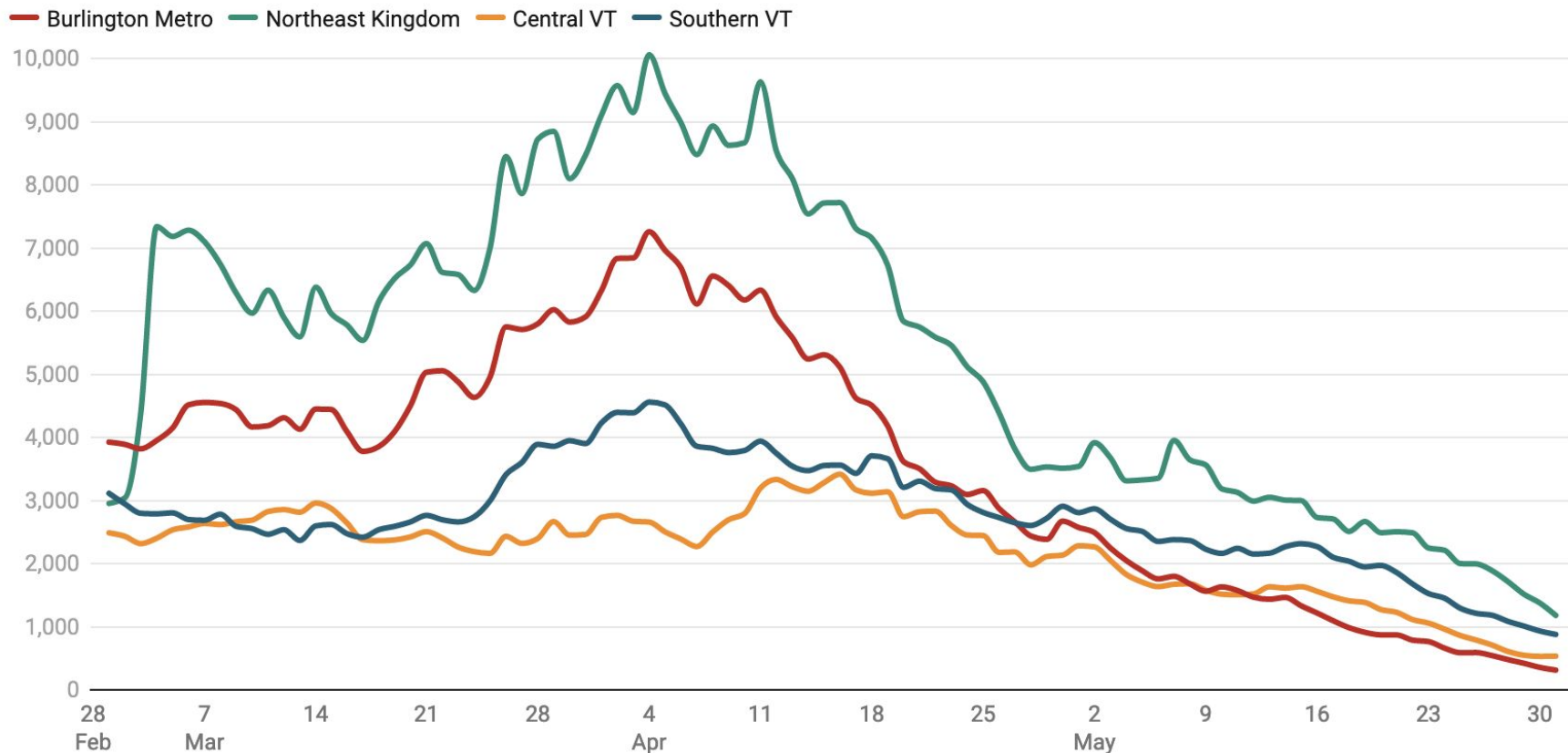


Covid-19 Case Rates  
**Declined In All 14 Counties**  
Last Week

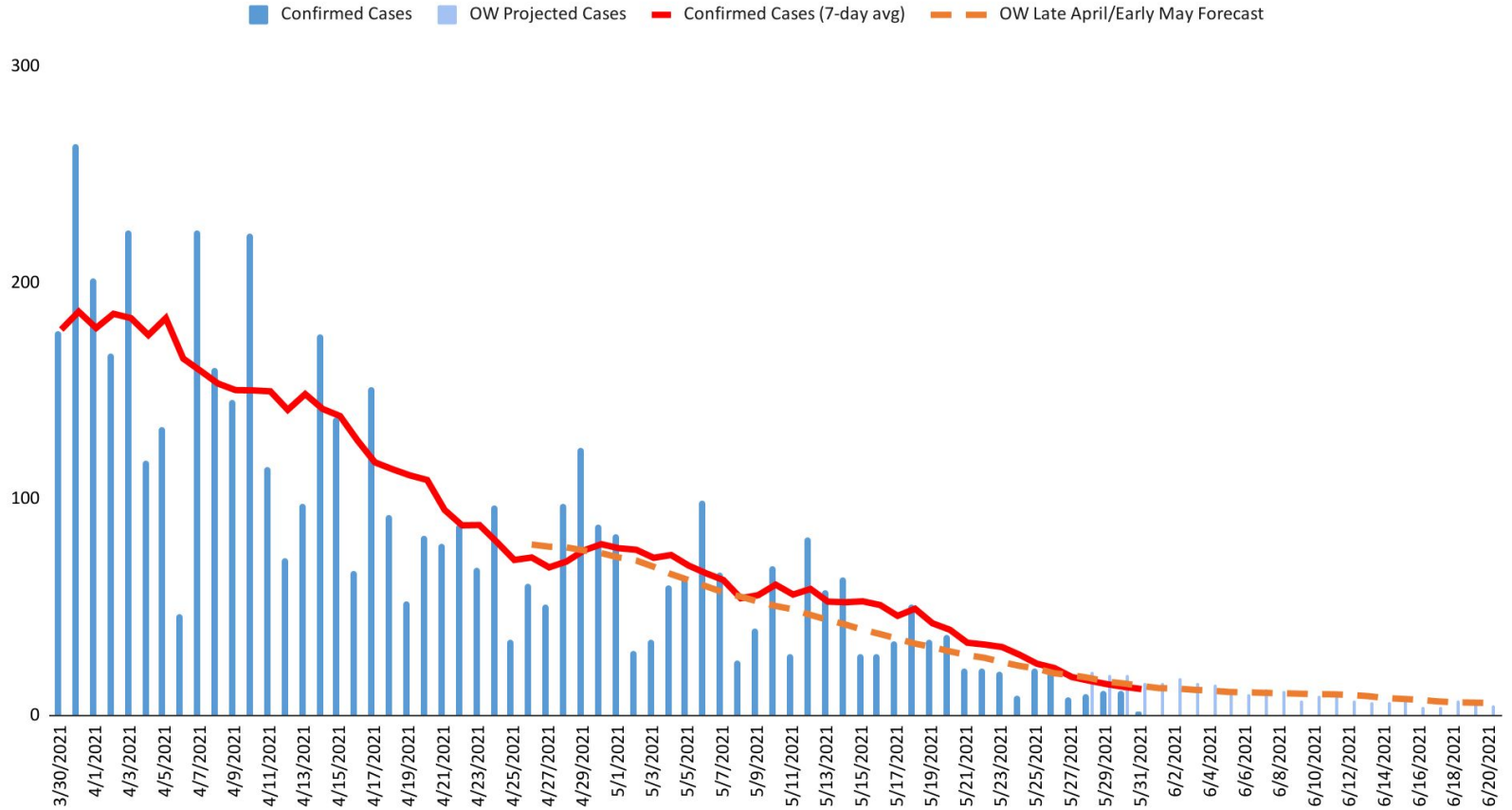
Widespread falling cases across the state;  
zero cases last week in Franklin County

# Active COVID Cases per Million in Vermont Regions

For the purpose of this analysis, Vermont has been split into four regions: **Burlington Metro** (Chittenden, Franklin, Grand Isle), **Northeast Kingdom** (Caledonia, Orleans, Essex), **Central** (Lamoille, Washington, Addison, Orange), and **Southern** (Rutland, Windsor, Bennington, Windham).



# Vermont Forecast



Source: Johns Hopkins University Data, VDH, & Oliver Wyman April 26, 2021 Forecast Model—Actual Through June 1, 2021

# VT Weekly COVID-19 Infections Forecast

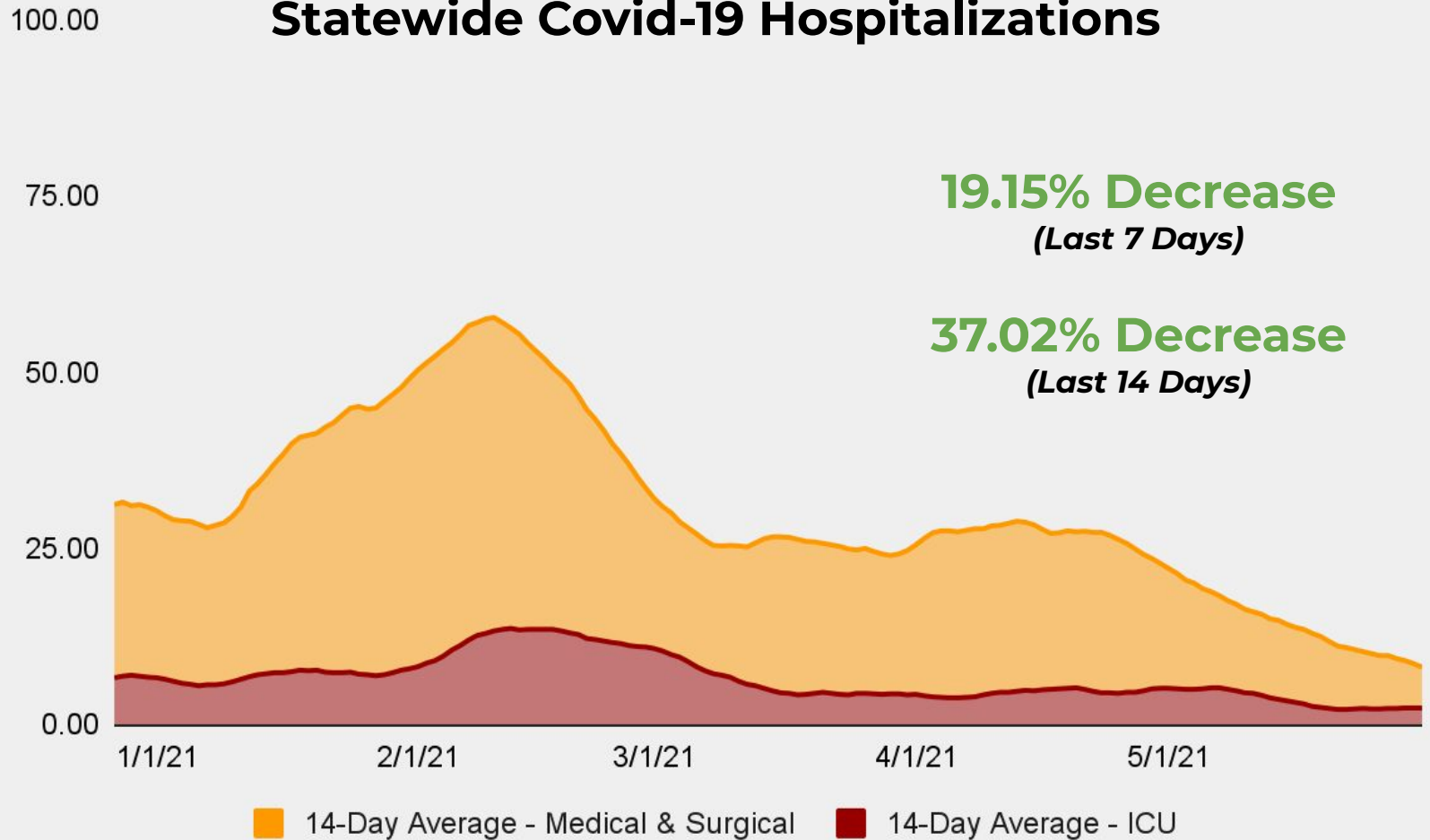
Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.





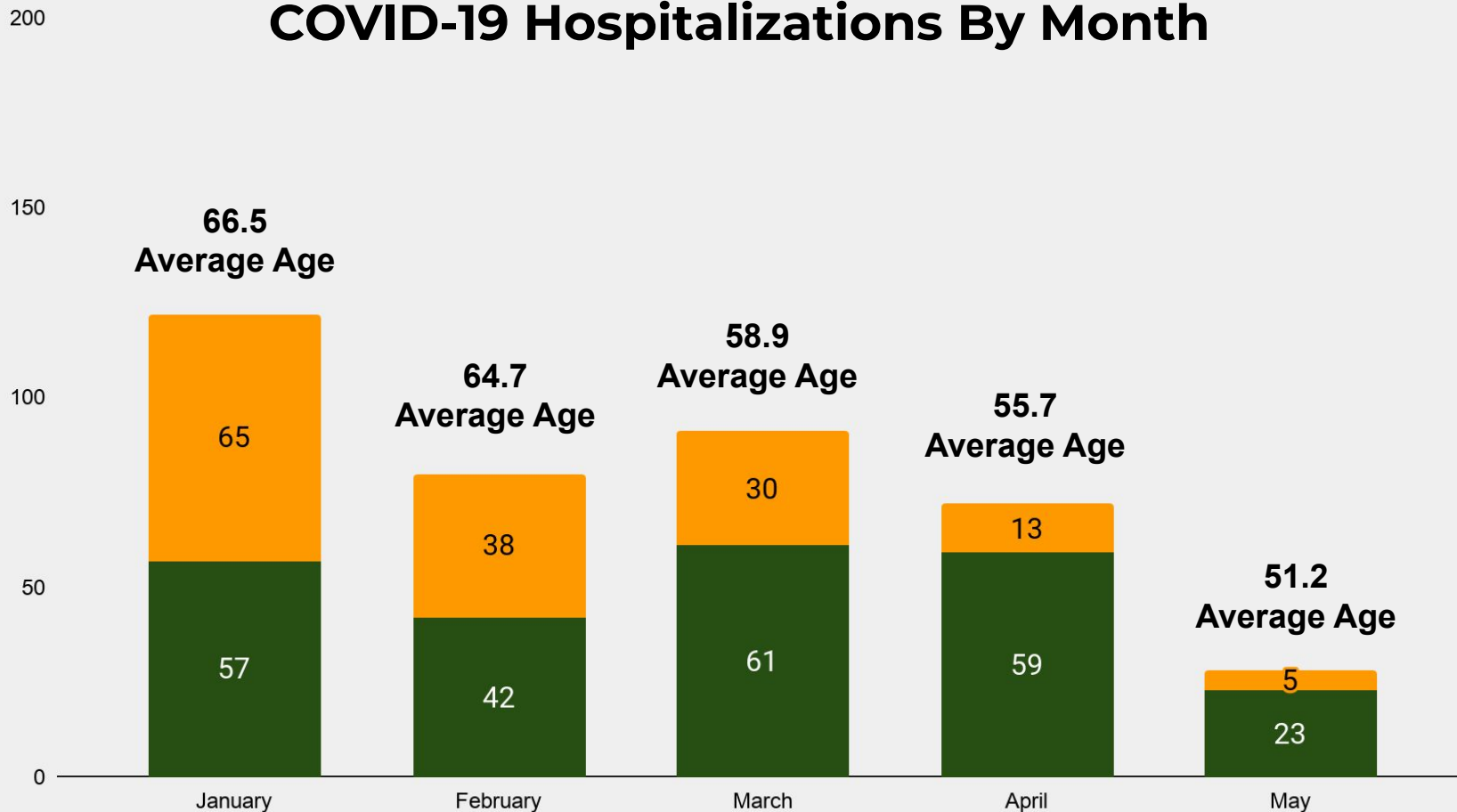
# Vermont Hospitalization Data

# Statewide Covid-19 Hospitalizations



Source: Vermont Department of Health—May 31, 2021

# COVID-19 Hospitalizations By Month



Source: Vermont Department of Health—May 31, 2021

70 & Over Under 70

# Vermont Fatality Data

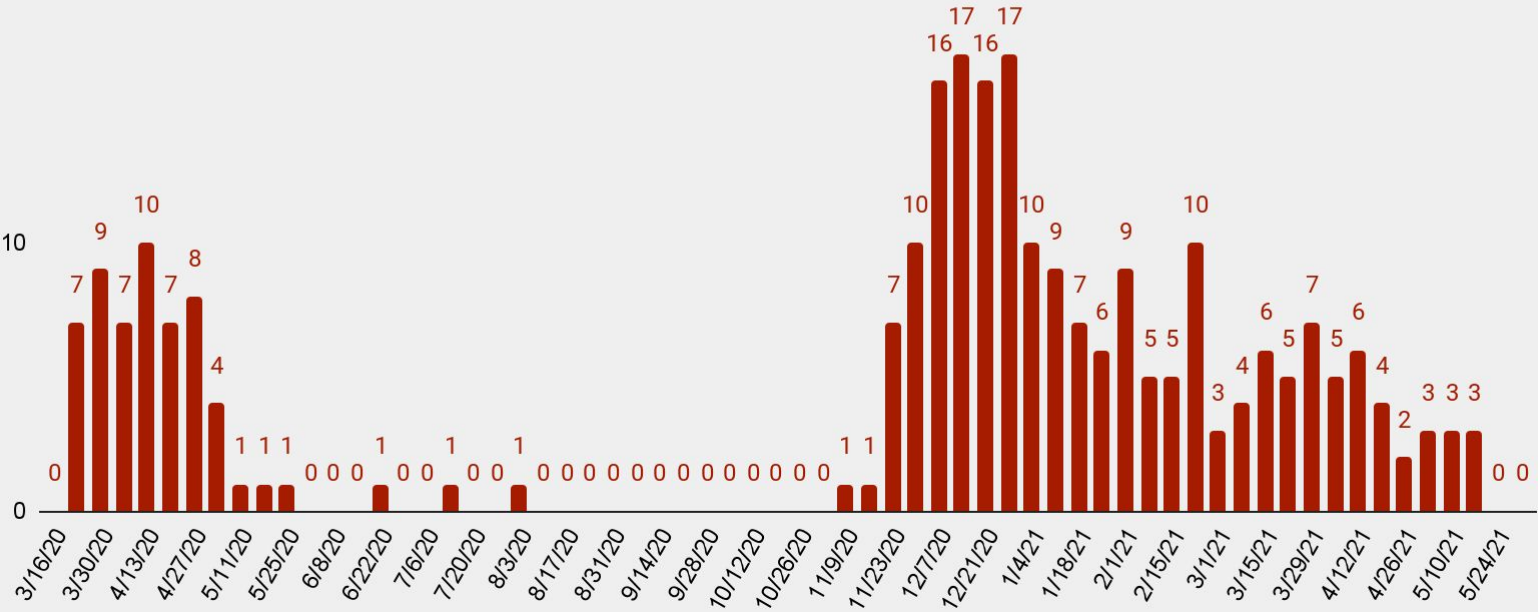
# Vermont Covid-19 Deaths by Week

30

20

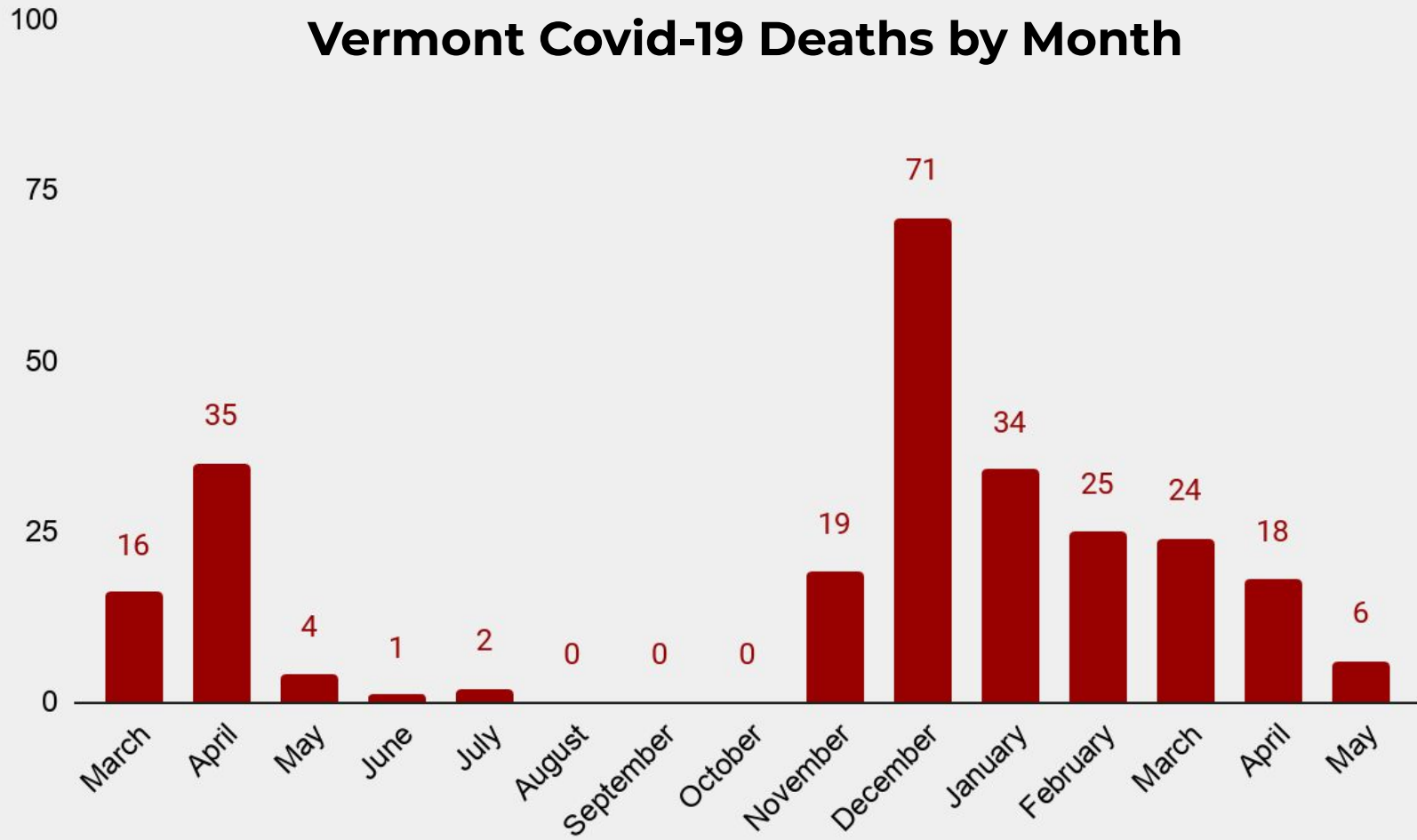
10

0



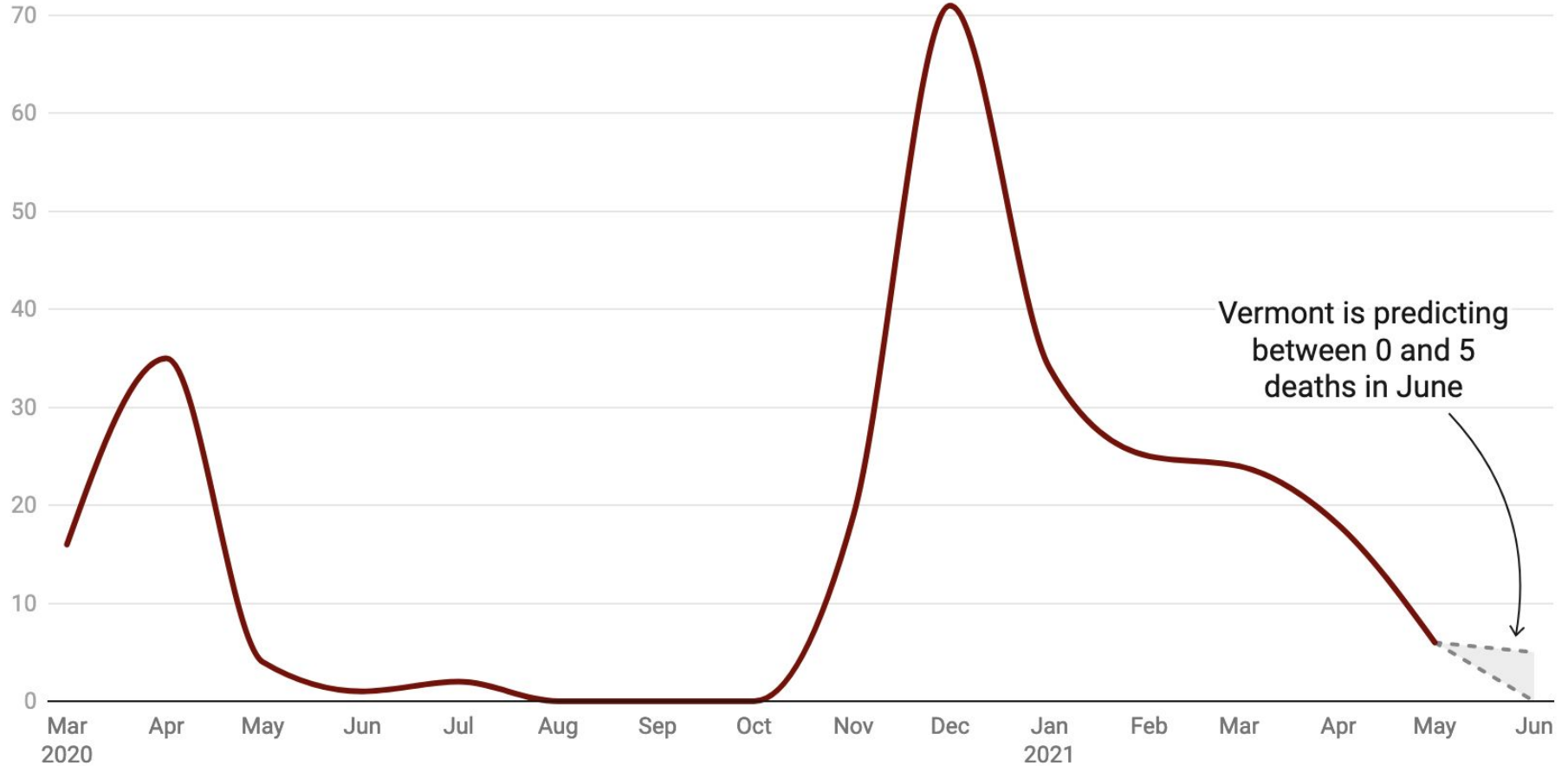
Source: Vermont Department of Health—June 1, 2021

# Vermont Covid-19 Deaths by Month



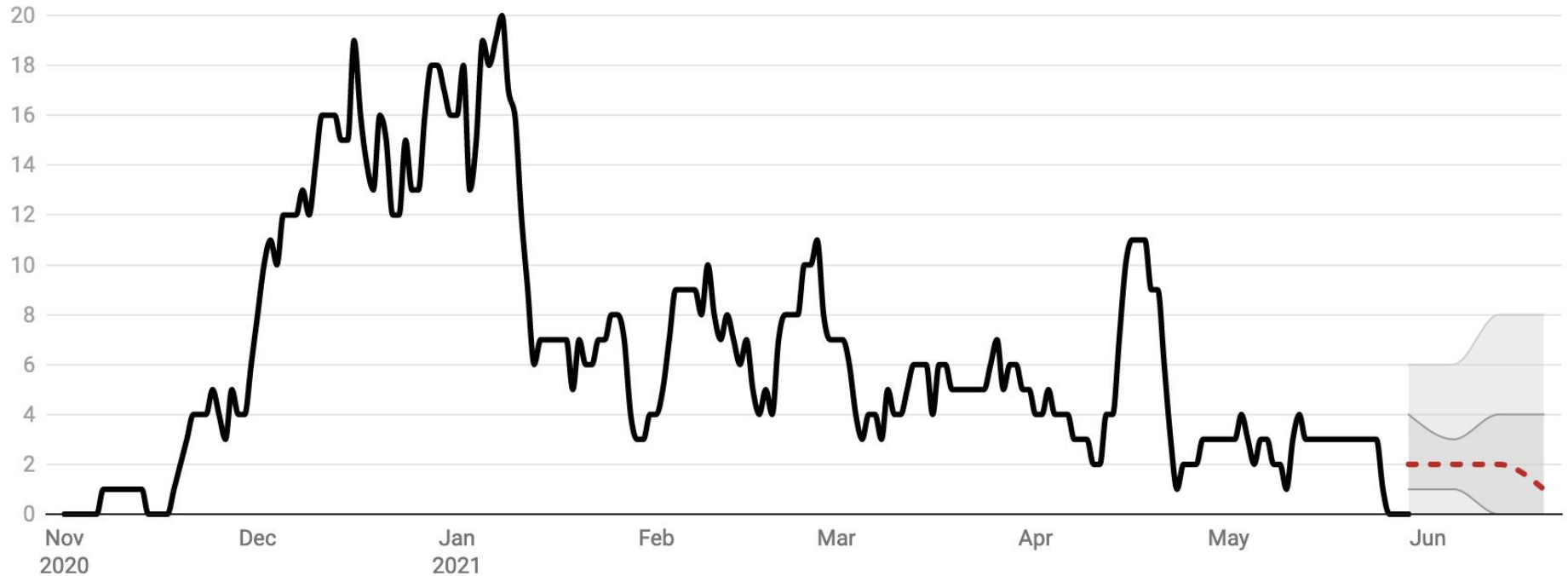
Source: Vermont Department of Health—June 1, 2021

# Vermont COVID-19 Deaths by Month



# VT Weekly COVID-19 Deaths Forecast

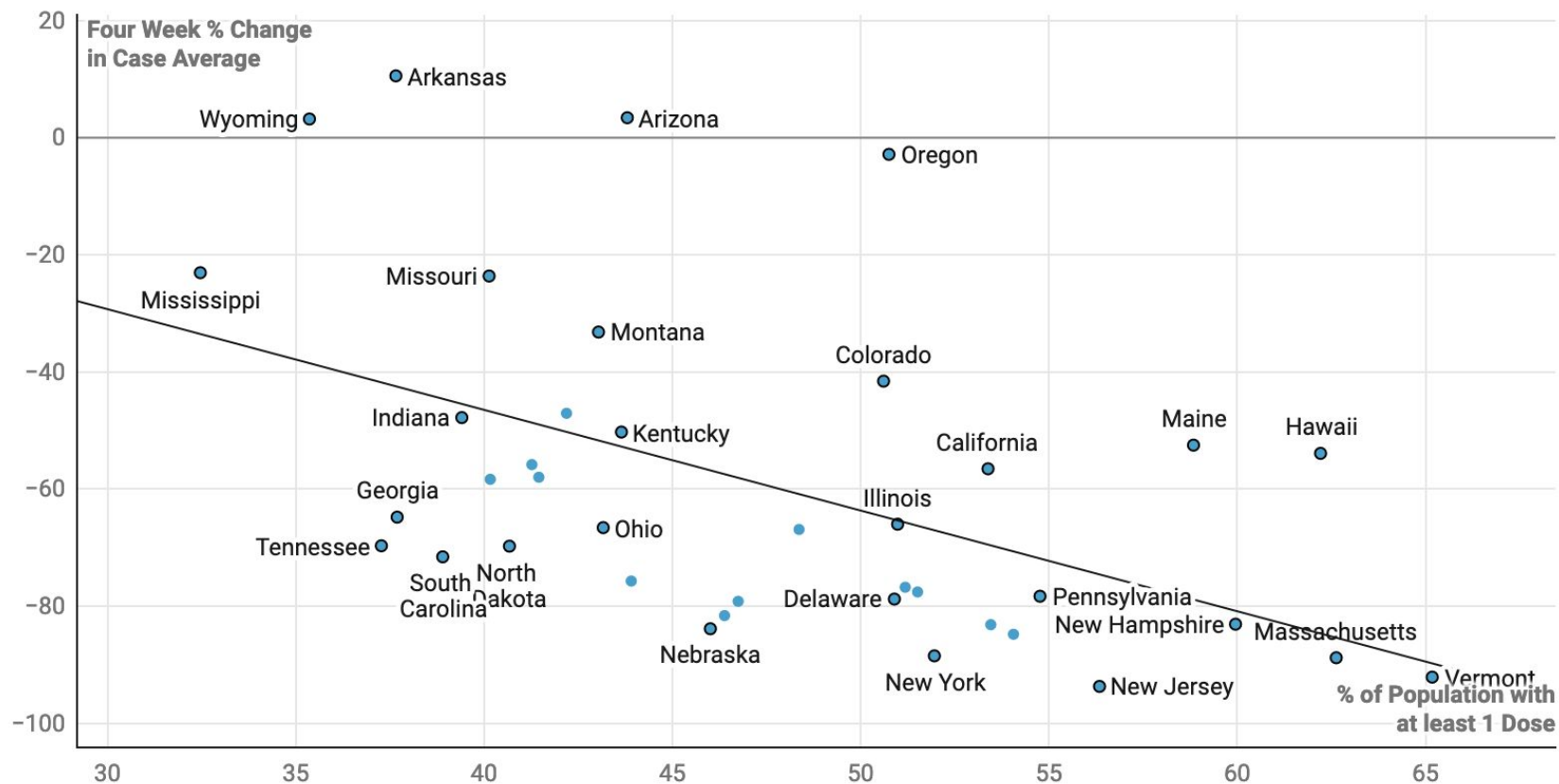
Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.





# Vermont Vaccination Data

# % Initiated Vaccinations and Change in Case Rate Since April 1st

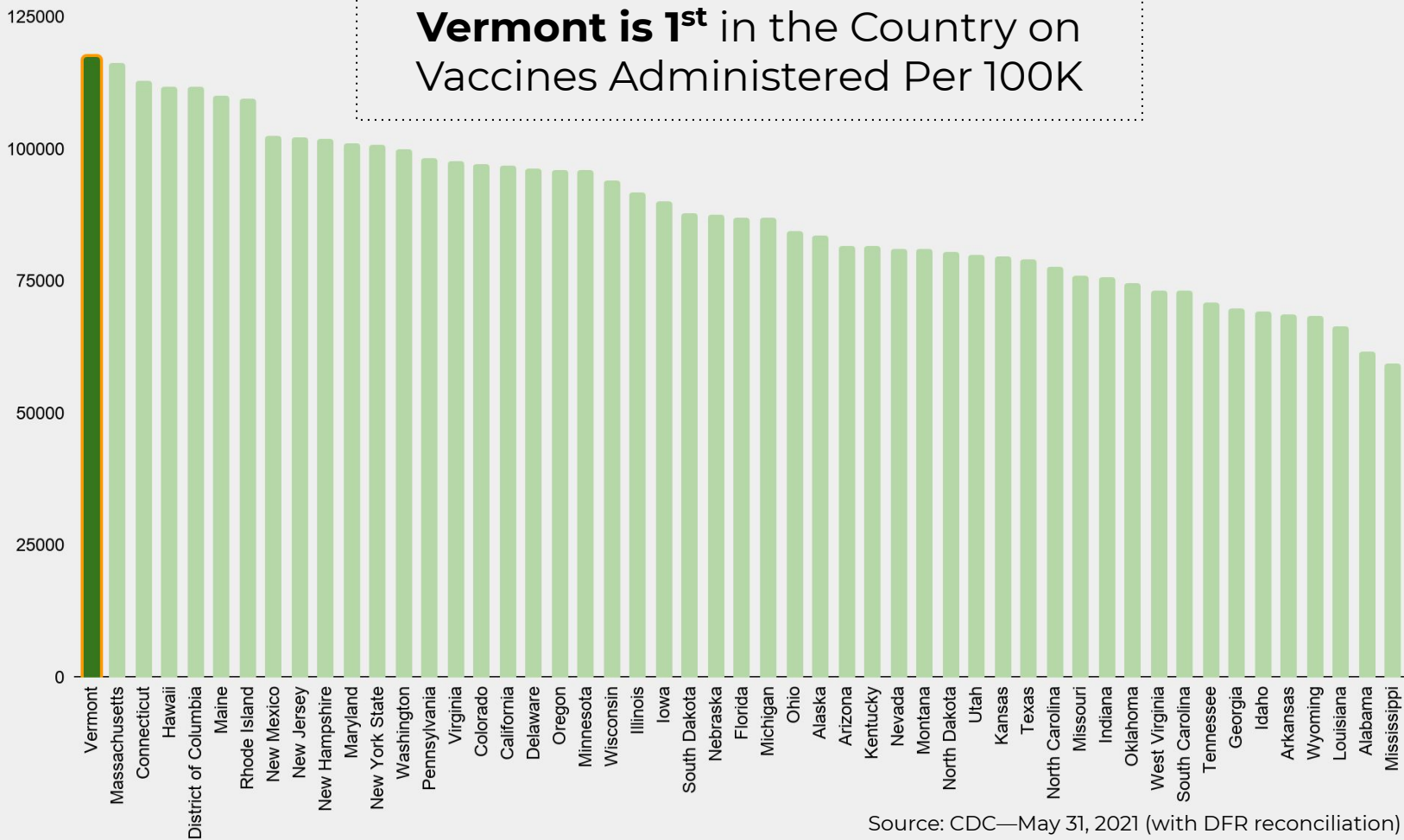


Case rate changes calculated as the difference between 7-day averages. Linear regression shows a correlation of -0.50.

# Vermont CDC Vaccine Scorecard

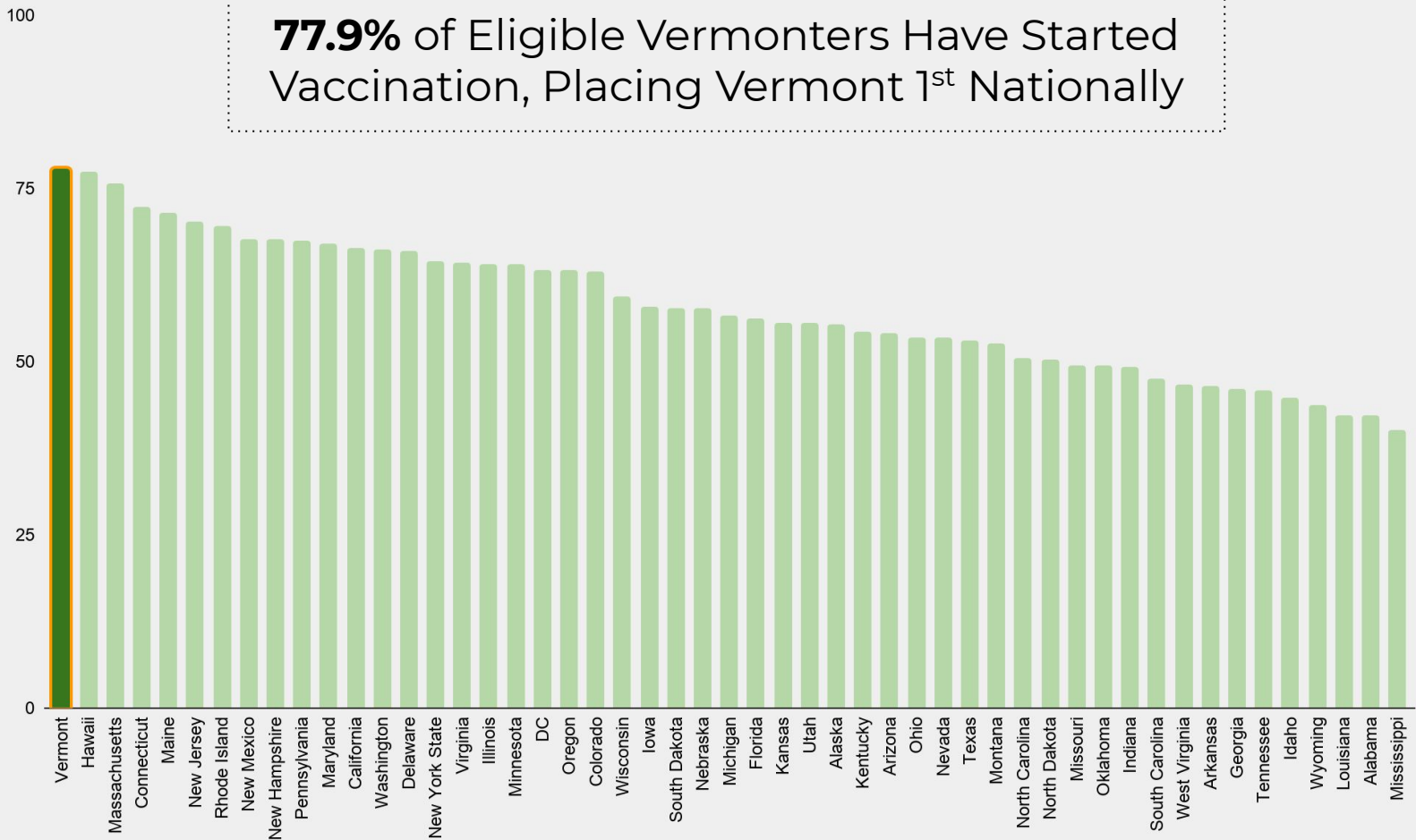
Metric	Figure	State Ranking
<b>Doses Administered per 100K</b>	<b>117,454</b>	<b>1</b>
<b>% At Least 1 Dose (Eligible)</b>	<b>77.9%</b>	<b>1</b>
<b>% At Least 1 Dose (Full Population)</b>	<b>68.8%</b>	<b>1</b>
<b>% Fully Vaccinated</b>	<b>54.0%</b>	<b>2</b>
<b>% 65+ One Dose</b>	<b>98.2%</b>	<b>3</b>
<b>% 65+ Fully Vaccinated</b>	<b>89.4%</b>	<b>1</b>

**Vermont is 1<sup>st</sup> in the Country on Vaccines Administered Per 100K**



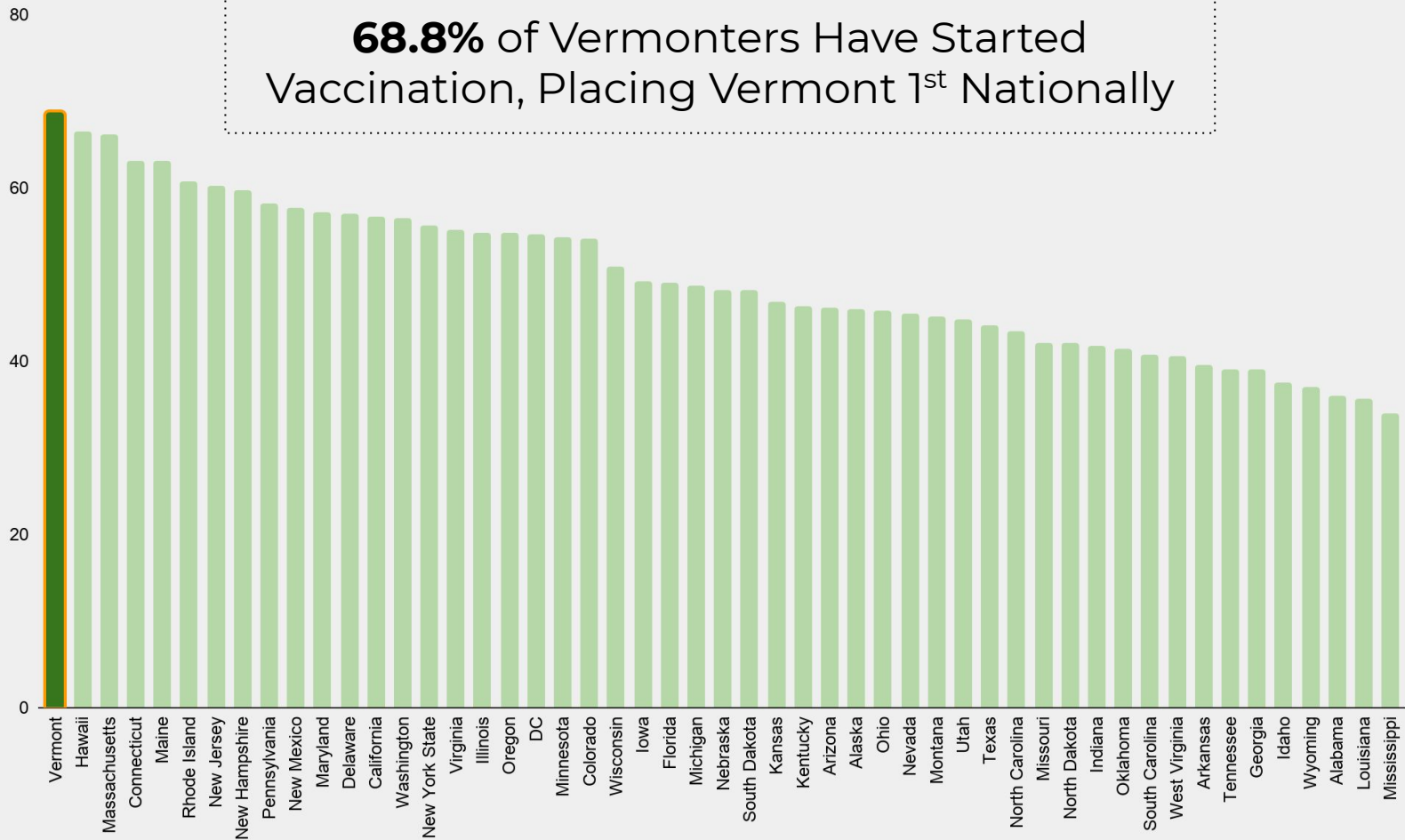
Source: CDC—May 31, 2021 (with DFR reconciliation)

**77.9%** of Eligible Vermonters Have Started Vaccination, Placing Vermont 1<sup>st</sup> Nationally



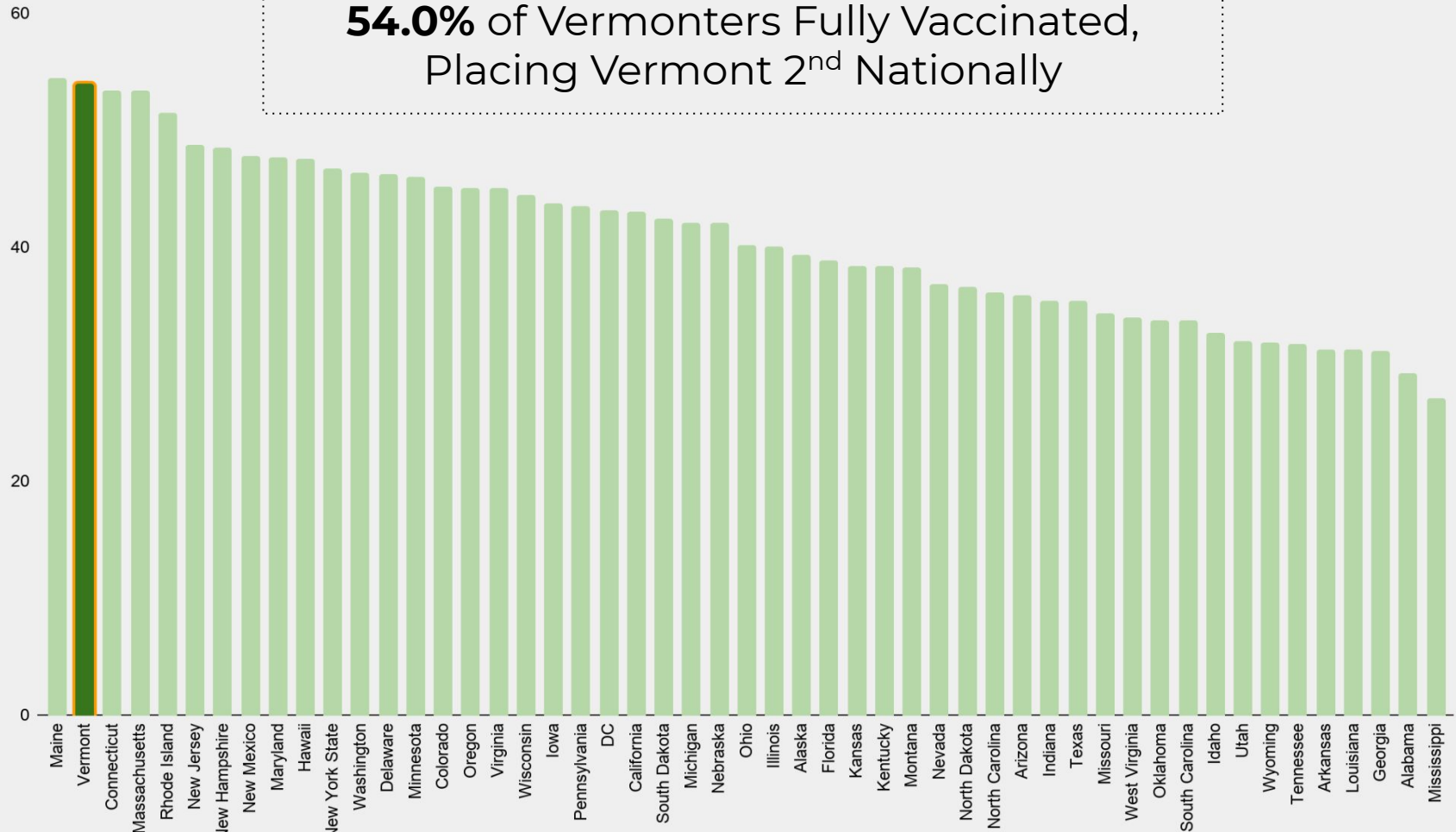
Source: CDC—May 31, 2021 (with DFR reconciliation)

**68.8%** of Vermonters Have Started Vaccination, Placing Vermont 1<sup>st</sup> Nationally



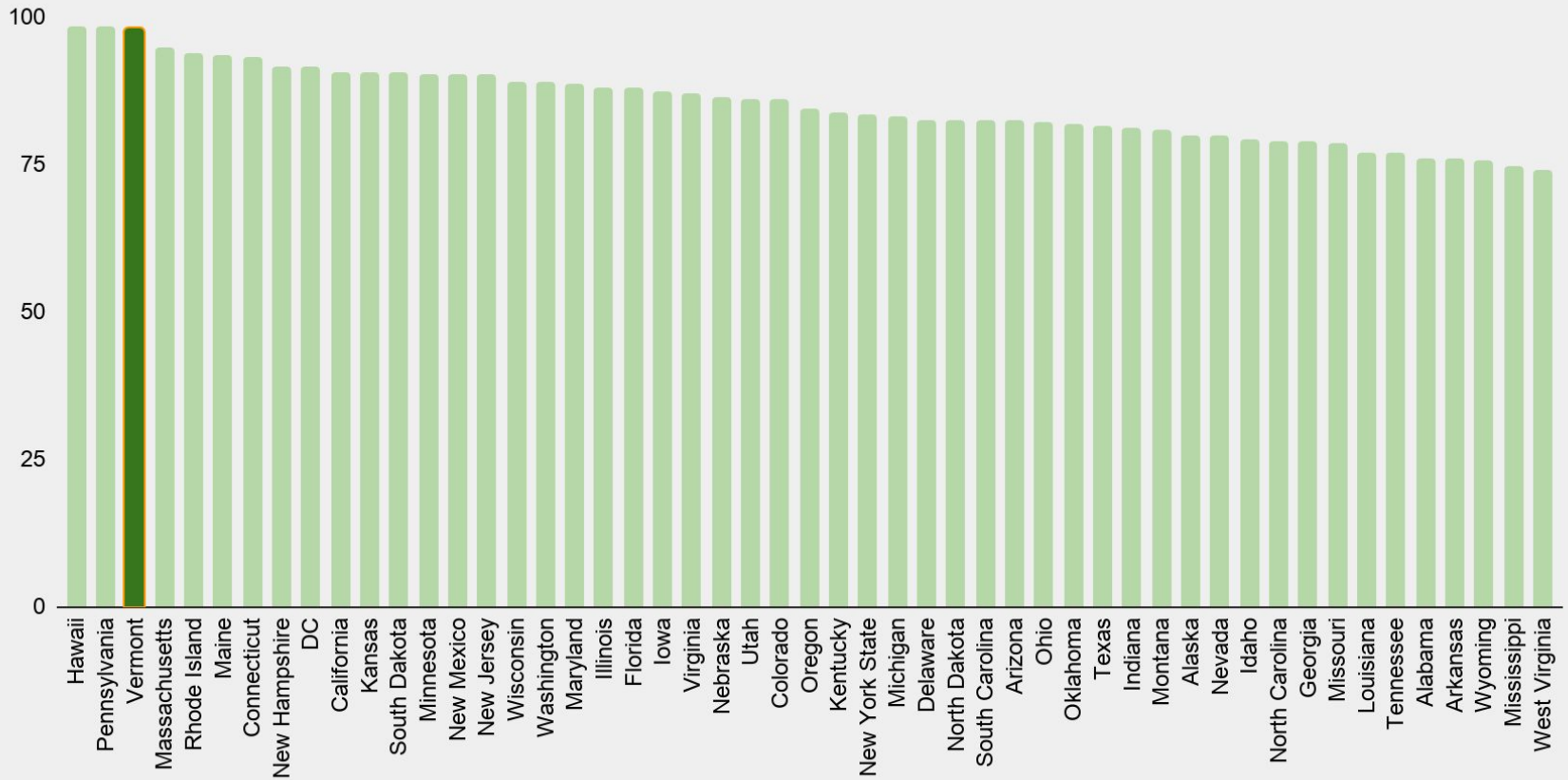
Source: CDC—May 31, 2021 (with DFR reconciliation)

**54.0%** of Vermonters Fully Vaccinated,  
Placing Vermont 2<sup>nd</sup> Nationally



Source: CDC—May 31, 2021 (with DFR reconciliation)

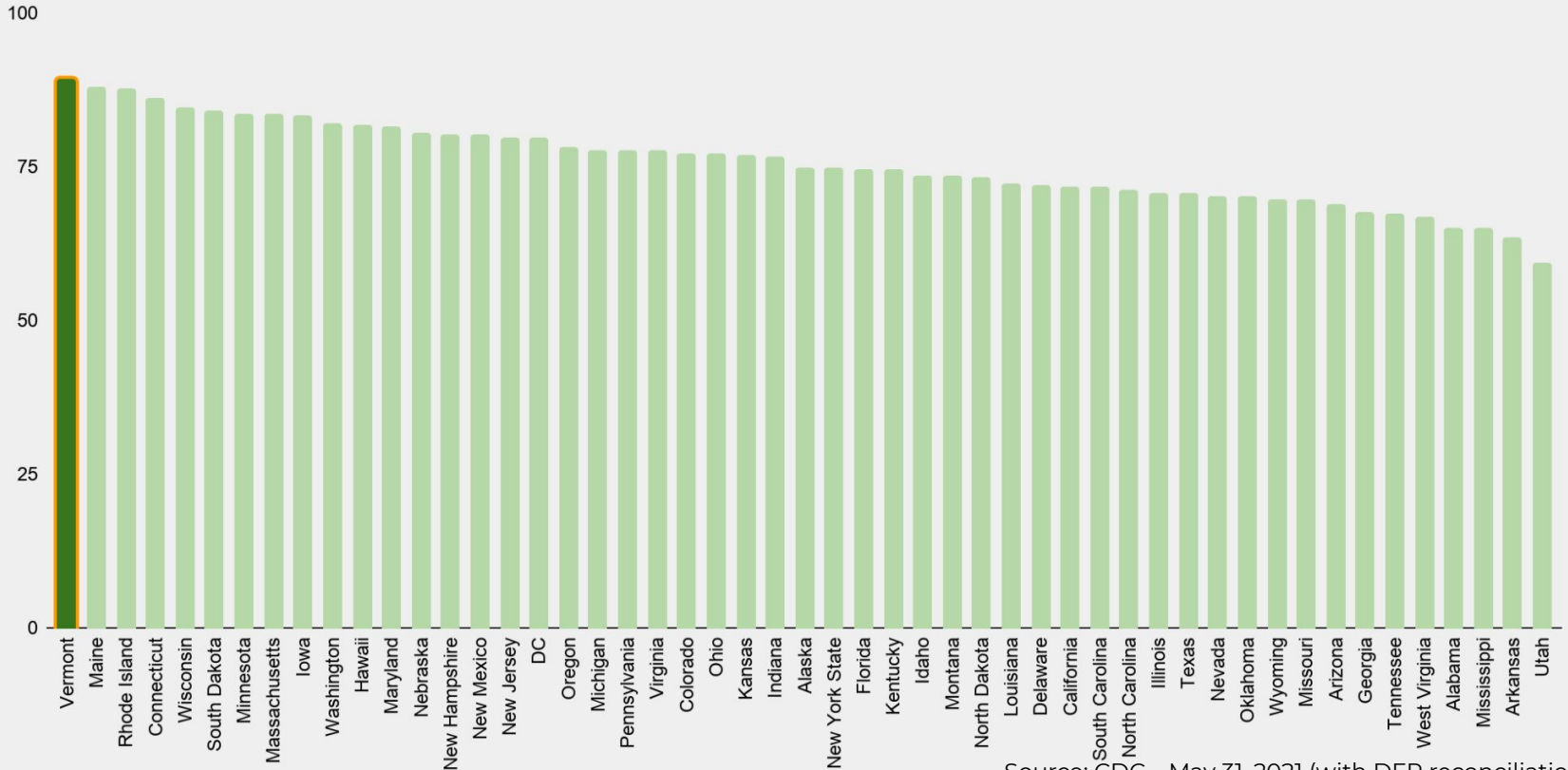
**98.2%** of Vermonters 65+  
Partially or Fully Vaccinated



Source: CDC—May 31, 2021 (with DFR reconciliation)



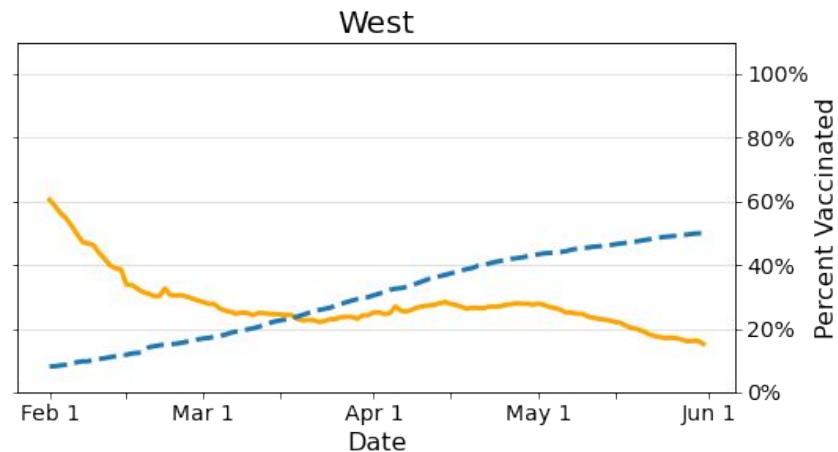
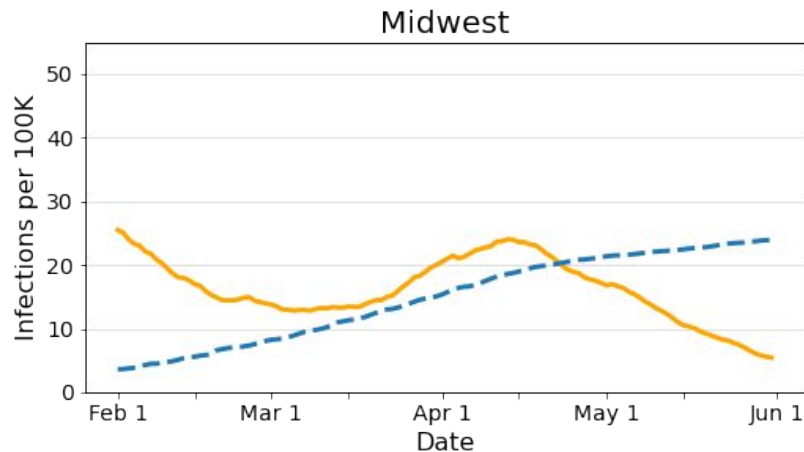
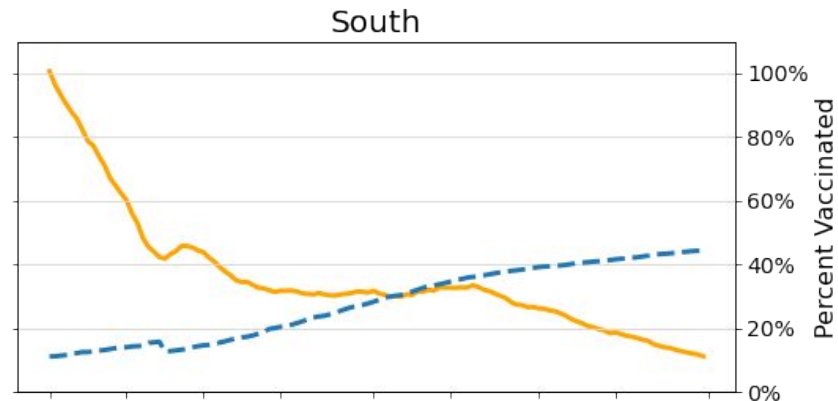
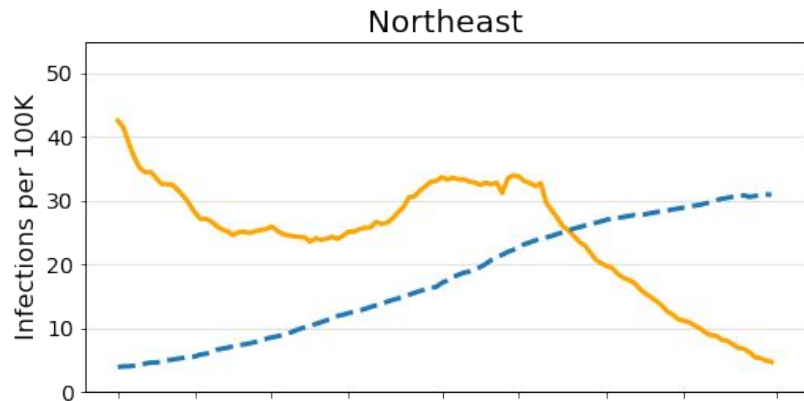
**89.4%** of Vermonters 65+ Fully Vaccinated



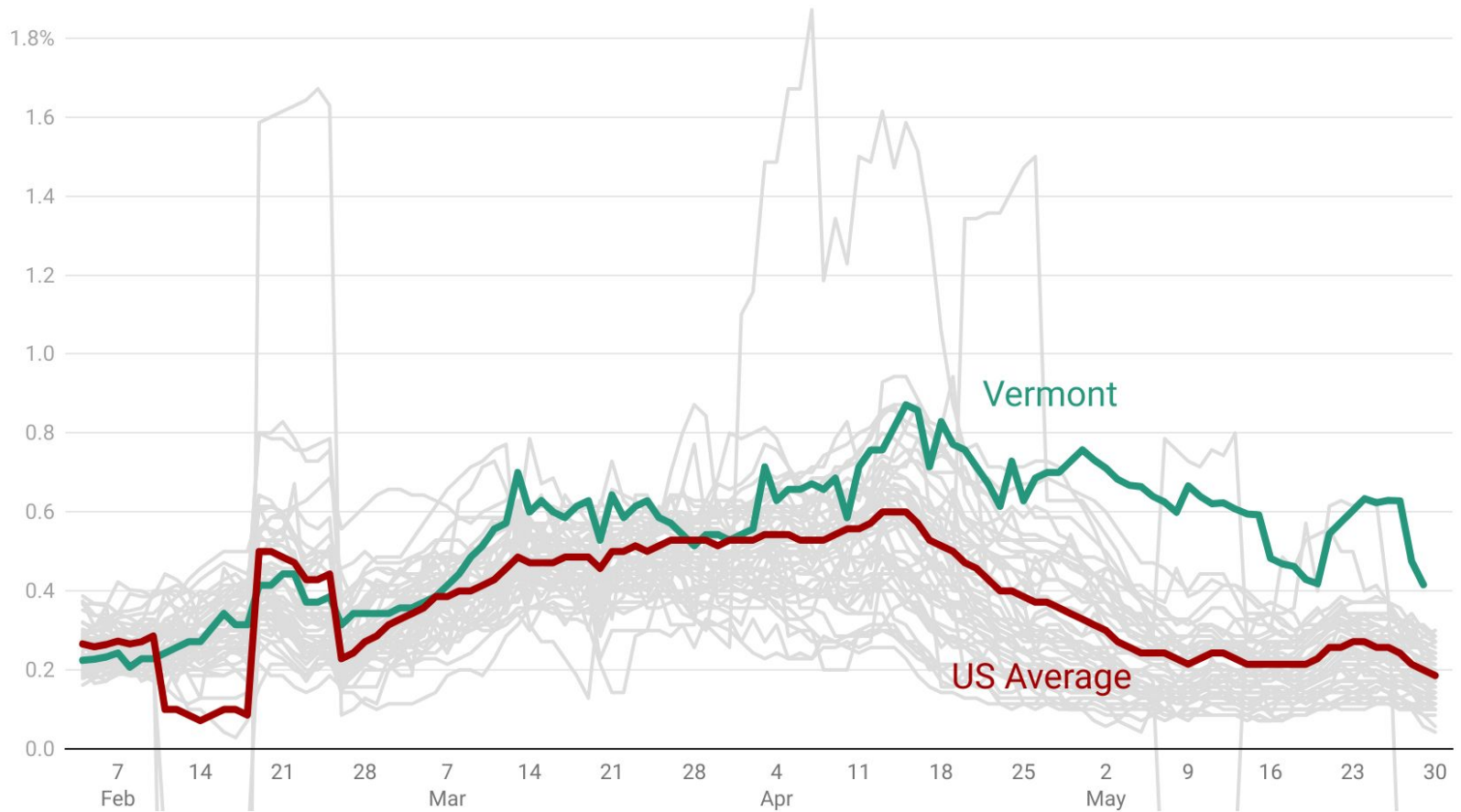
Source: CDC—May 31, 2021 (with DFR reconciliation)

# US Census Region Case Rate & Vaccination by Age Band

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



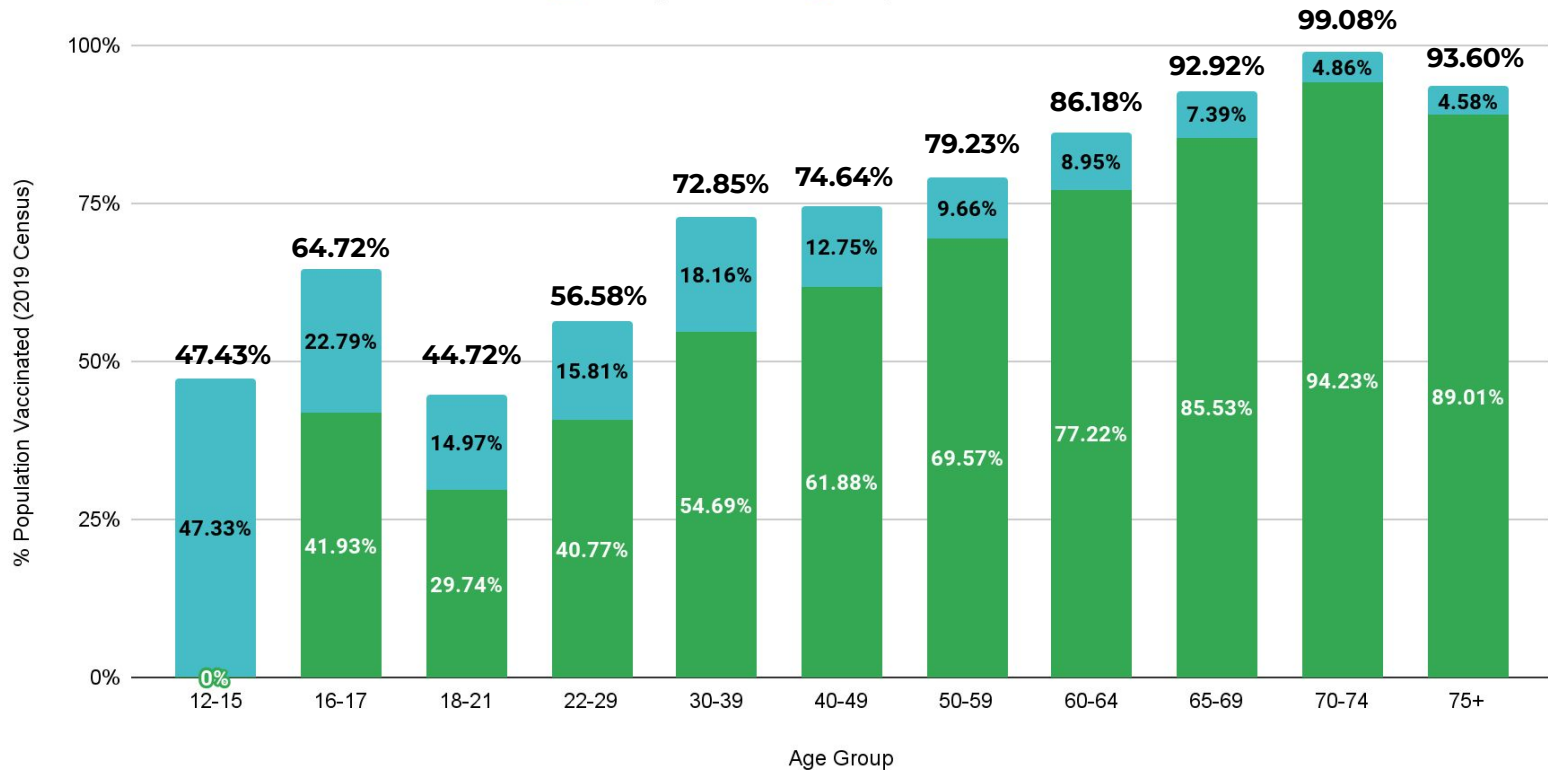
# Daily Percentage of Population Starting Vaccination



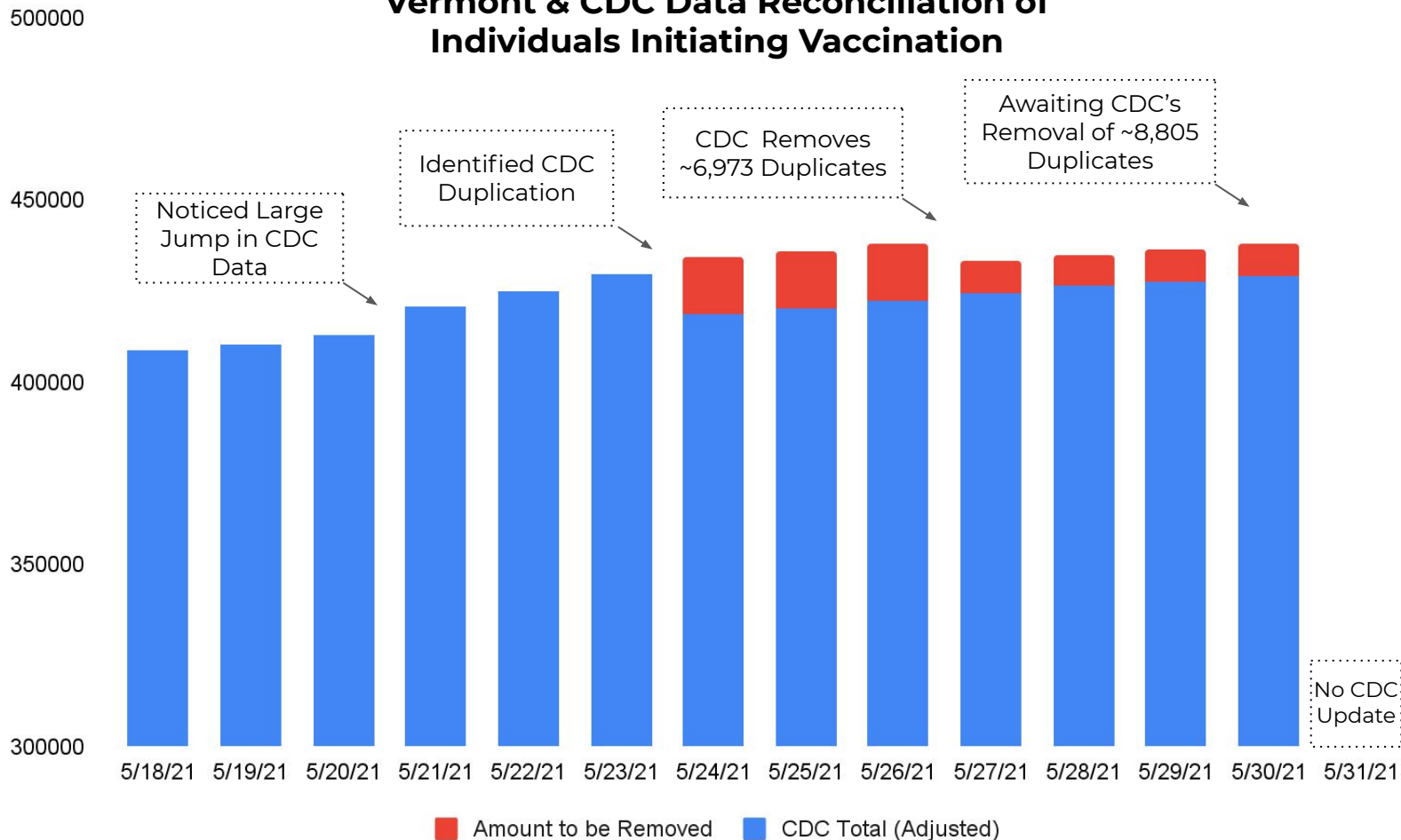
# Vermont Vaccination Progress

By Age Band

Partially Vaccinated Fully Vaccinated



# Vermont & CDC Data Reconciliation of Individuals Initiating Vaccination



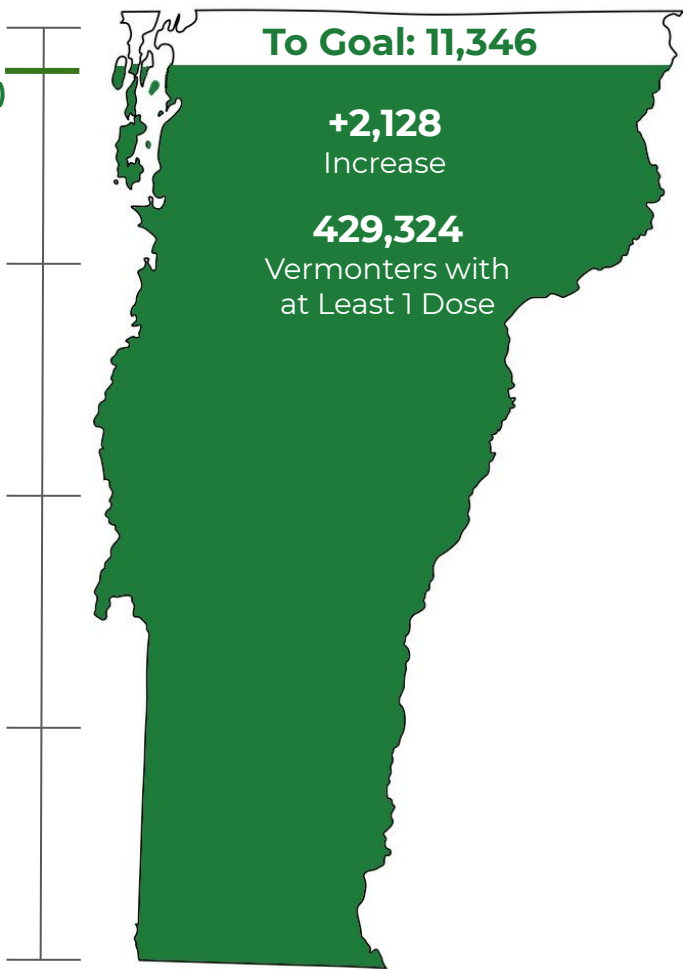
80%  
77.9%  
(as of 5/30)

60%

40%

20%

0%



Percent of eligible Vermonters  
who have started vaccination

# Vermont Forward

Goal: Vaccinate 80%  
of Eligible Vermonters

Pace to Fully Reopen

If ~**1,000** Vermonters get vaccinated  
a day we will reopen **June 11**

If ~**1,500** Vermonters get vaccinated  
a day we will reopen **June 7**

If ~**2,000** Vermonters get vaccinated  
a day we will reopen **June 5**

Source: CDC—May 30, 2021 (with DFR reconciliation)

# Vermont Mobility Data

# Vermont Mobility Data



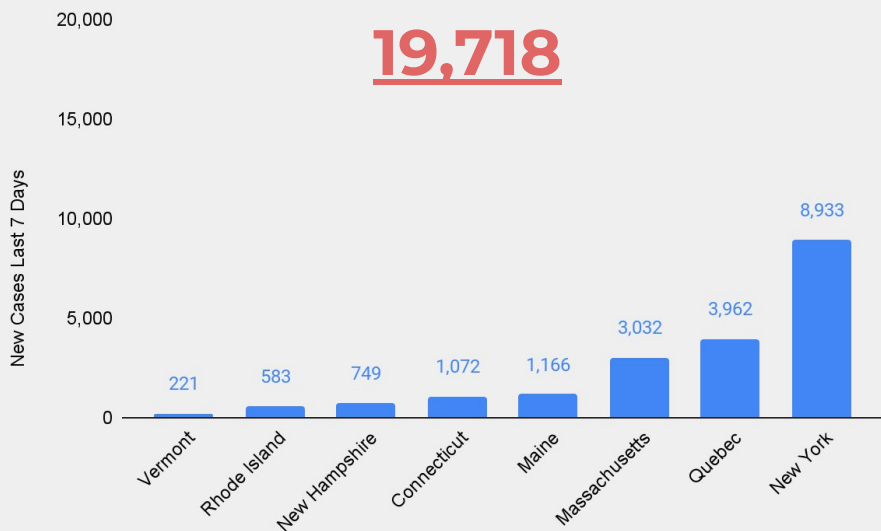


# Regional Data

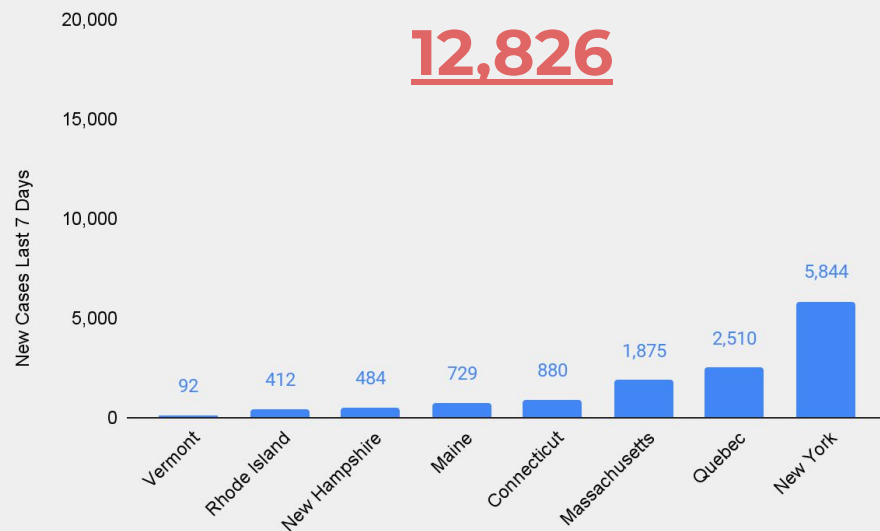
# Regional Cases

34.95% Decrease in New Cases

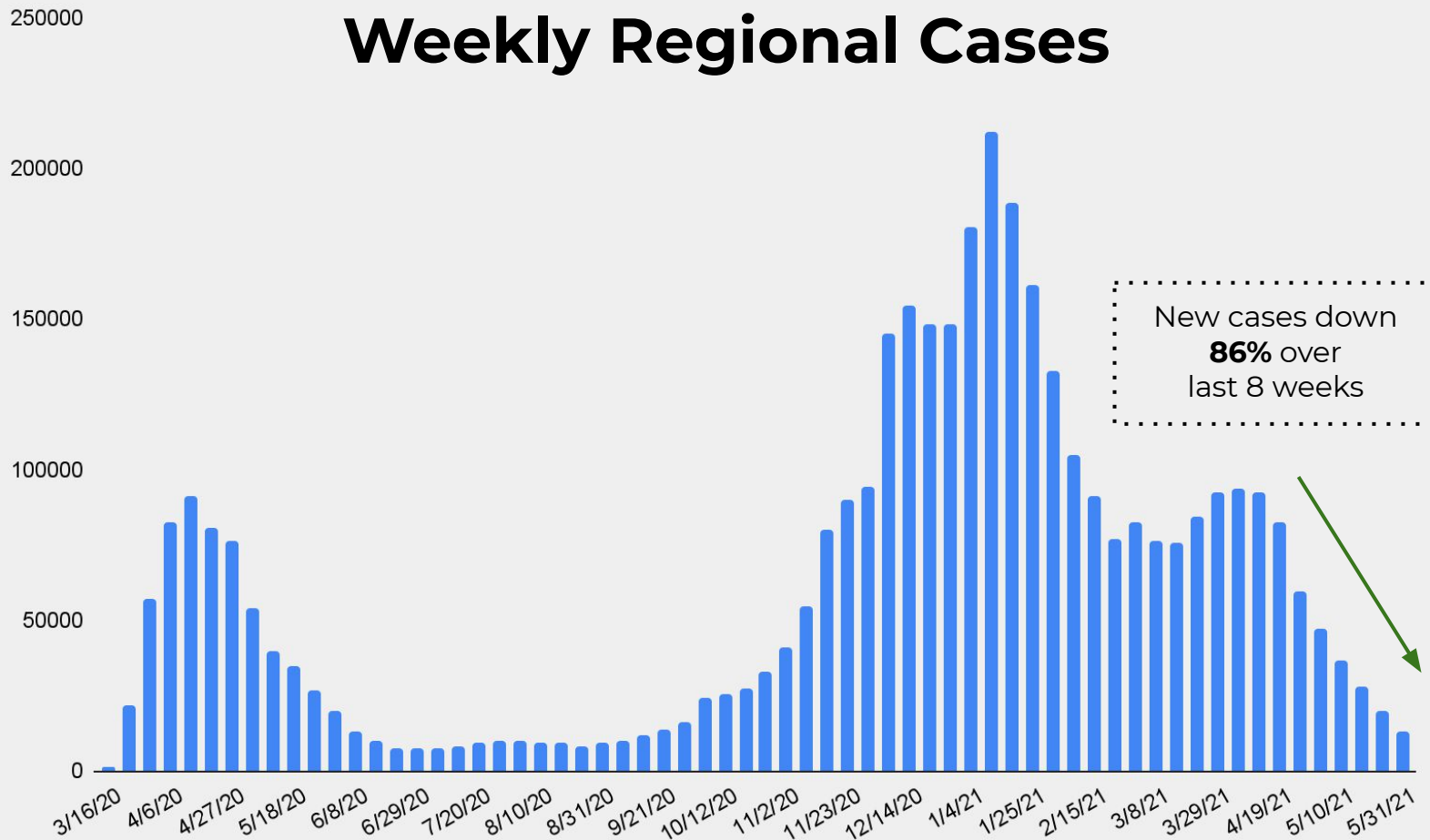
New Cases May 18th to May 24th



New Cases May 25th to May 31st

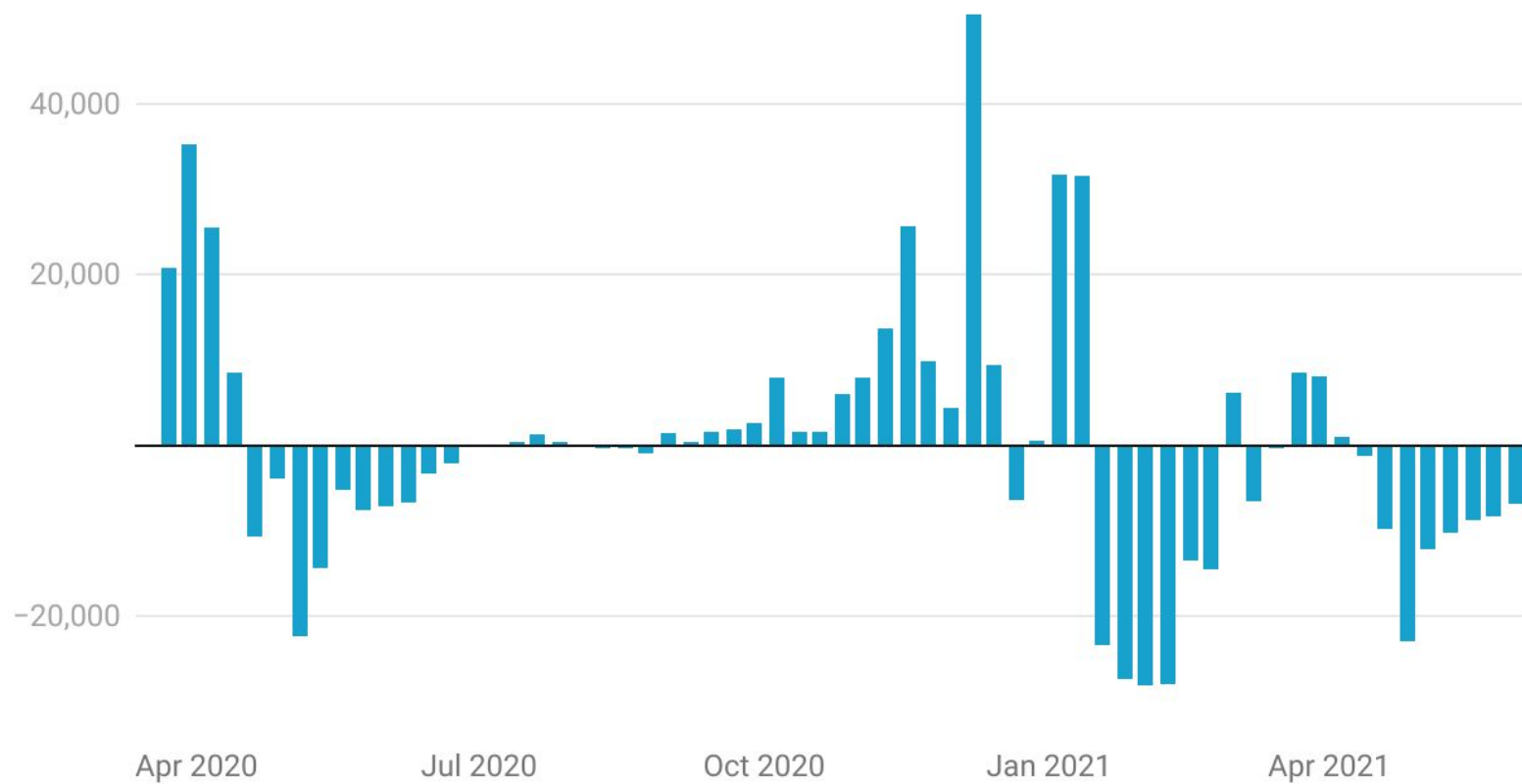


# Weekly Regional Cases



Sources: State Health Departments & CTV National News (Quebec) (includes: CT, ME, MA, NH, NY, QC, RI & VT)

# Change in Regional Weekly Cases



# Covid-19 Cases in K-12 Schools & Colleges Across Northern New England

## New Hampshire

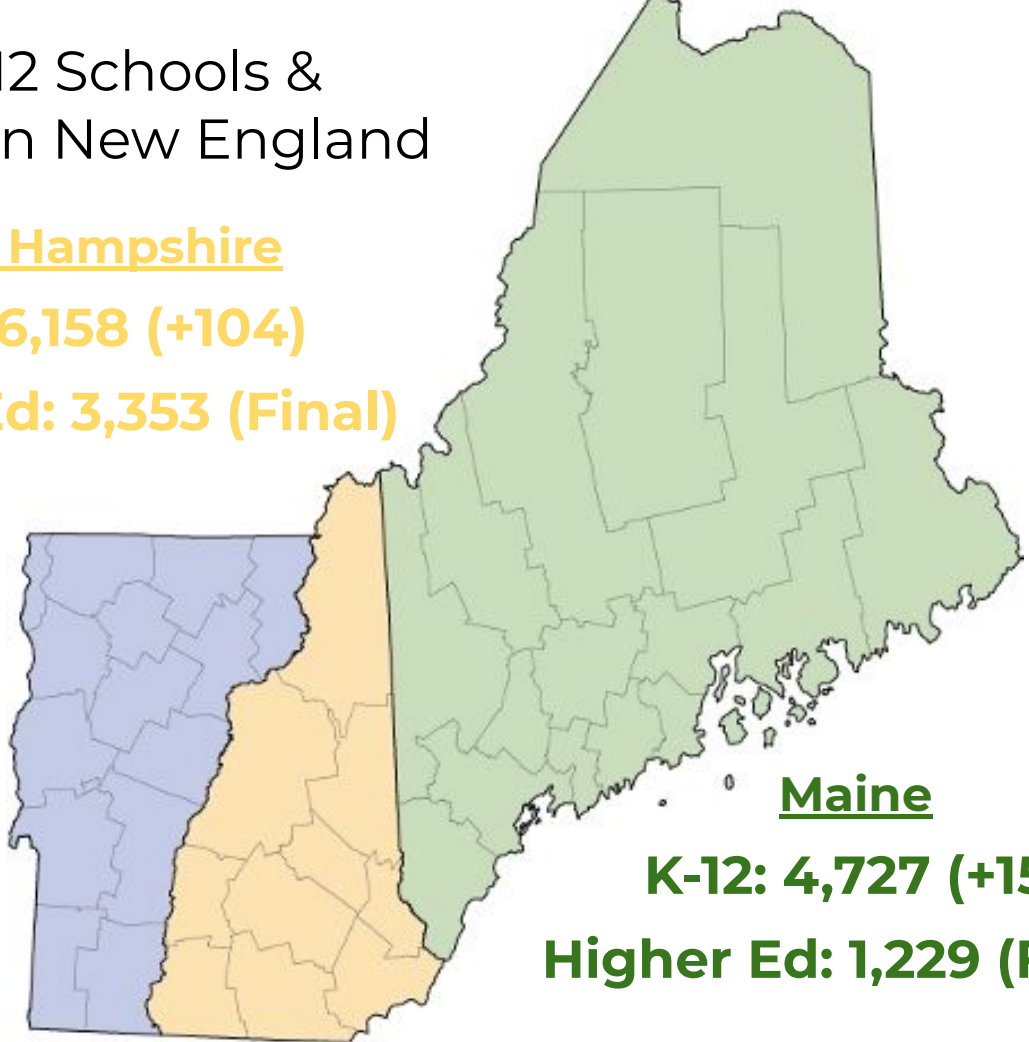
**K-12: 6,158 (+104)**

**Higher Ed: 3,353 (Final)**

## Vermont

**K-12: 1,388 (+9)**

**Higher Ed: 1,167 (Final)**

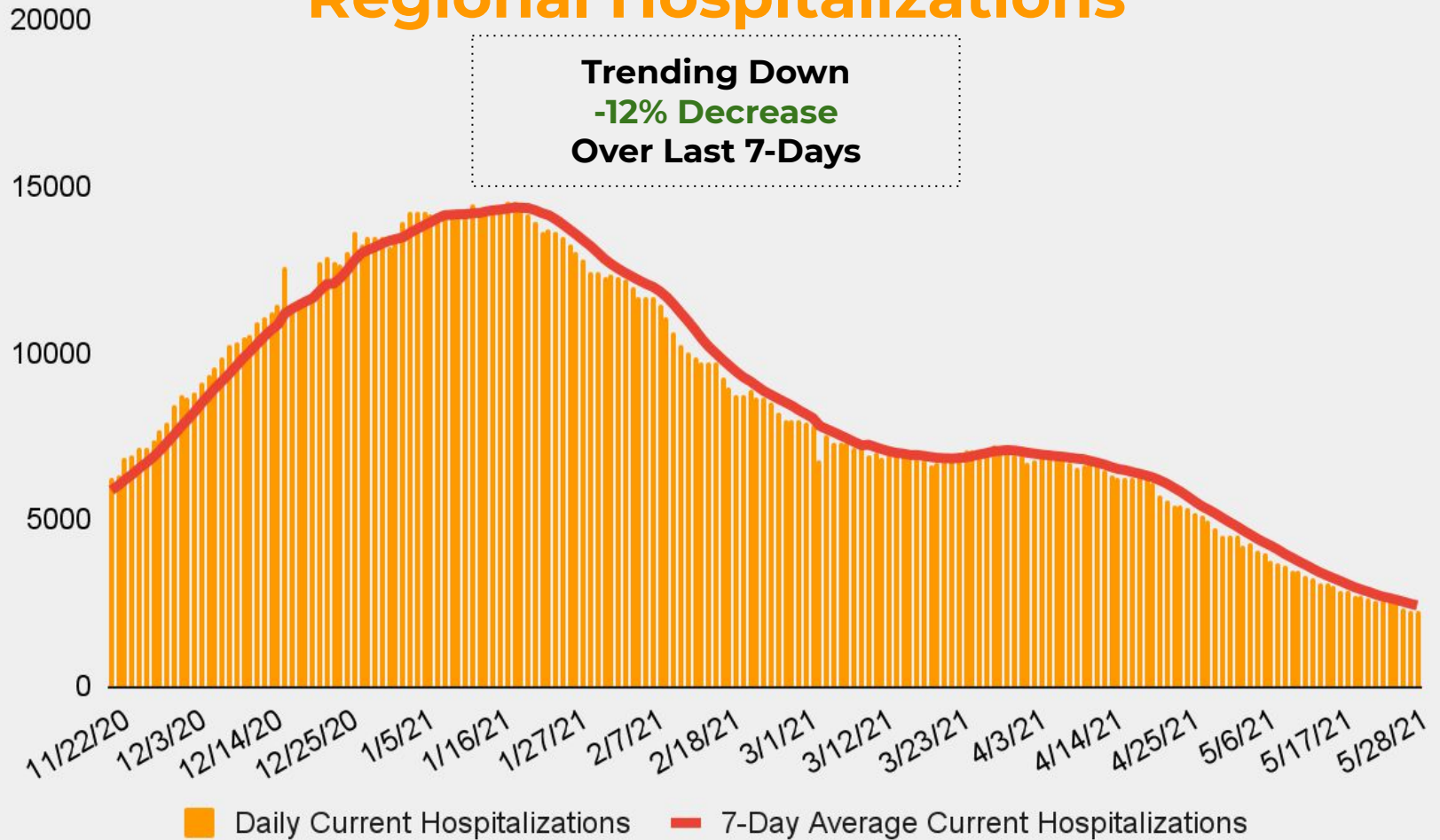


## Maine

**K-12: 4,727 (+15)**

**Higher Ed: 1,229 (Final)**

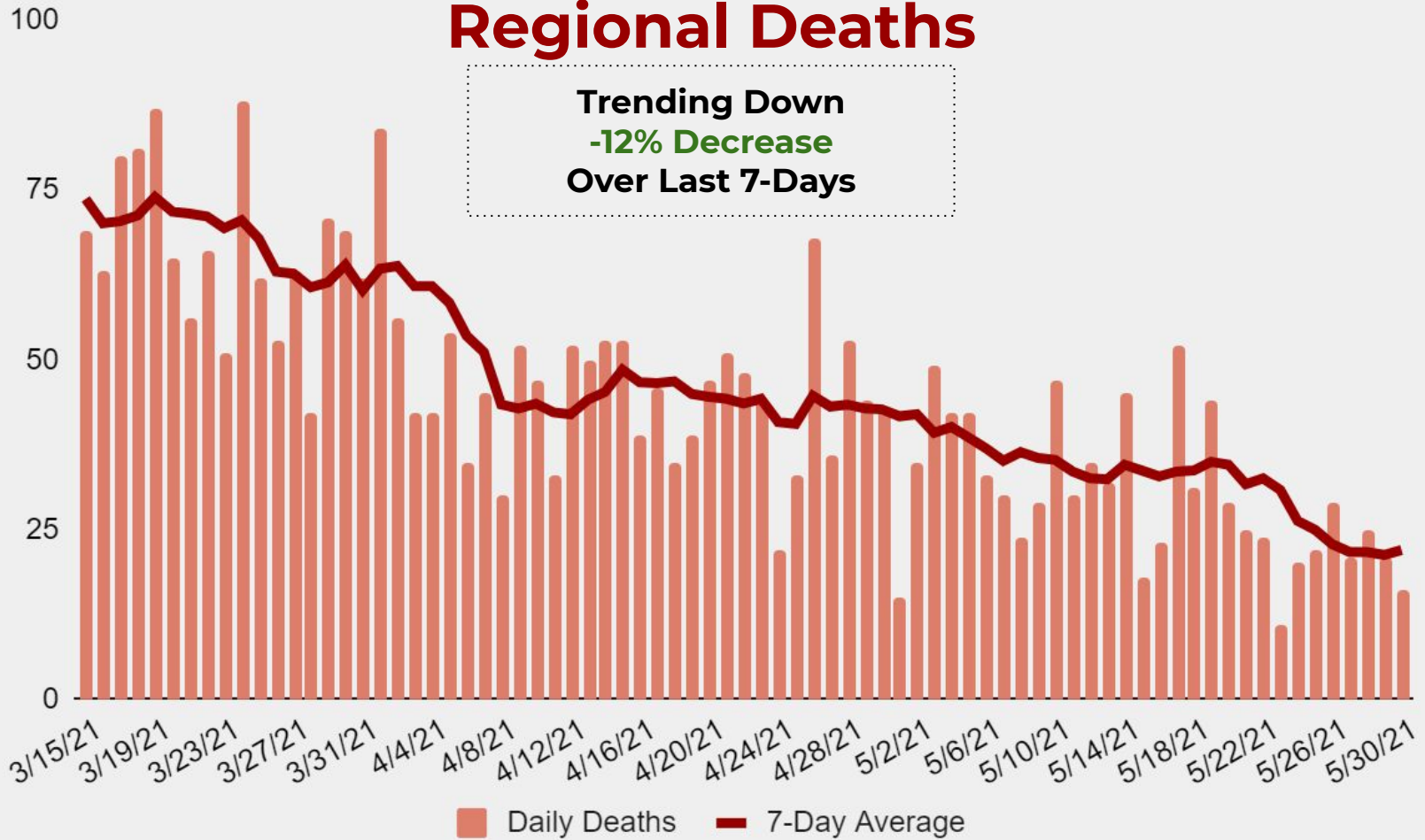
# Regional Hospitalizations



Source: Covid Act Now (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—May 31, 2021

# Regional Deaths

Trending Down  
-12% Decrease  
Over Last 7-Days



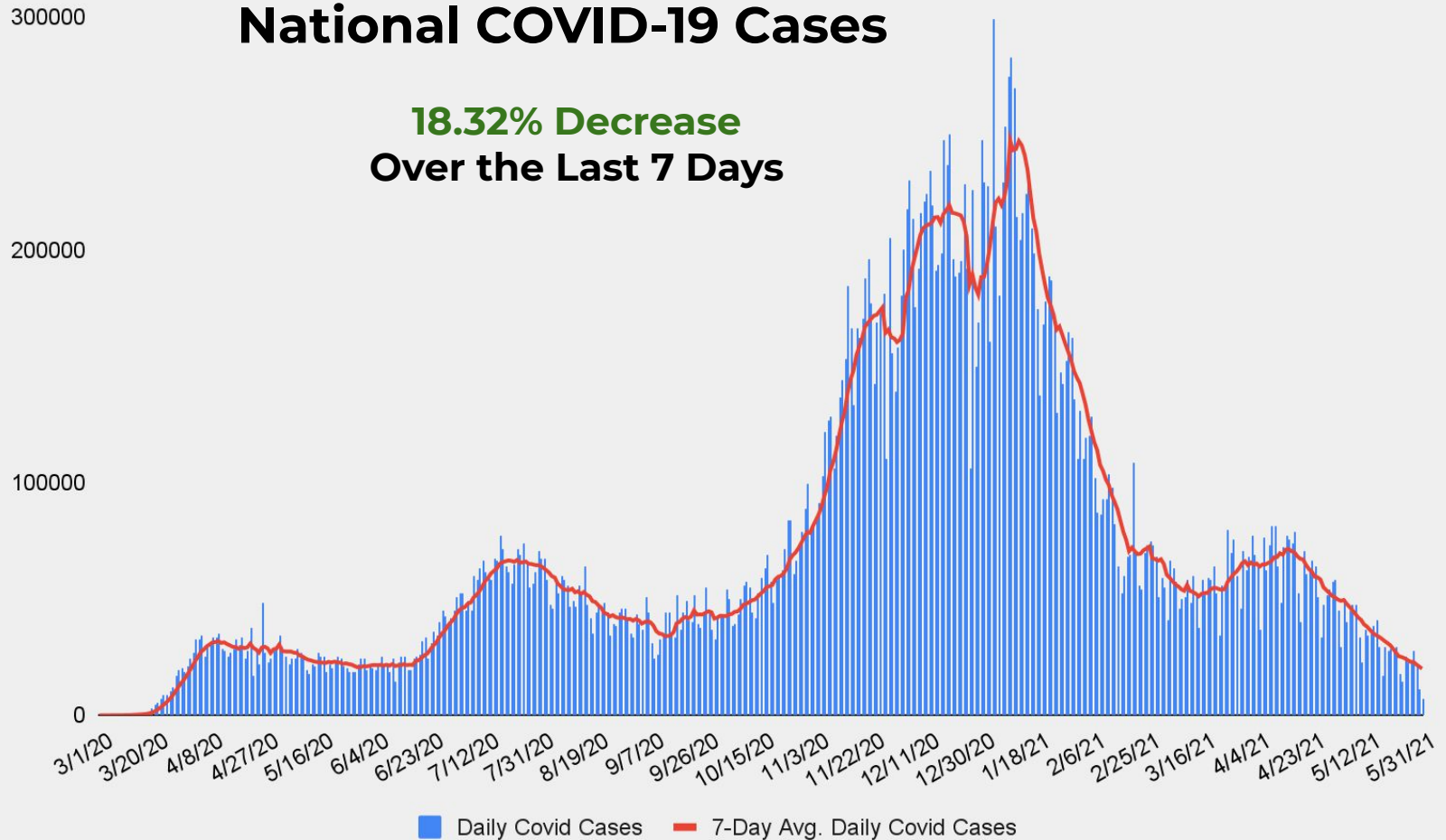
Source: CDC (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—May 31, 2021

# National Data



# National COVID-19 Cases

**18.32% Decrease**  
**Over the Last 7 Days**



Source: Covid Tracking Project; NYT & CDC—May 31, 2021

# National COVID-19 Hospitalizations

150000

**10.16% Decrease  
Over the Last 7-Days**

100000

**58,499**

**59,427**

50000

**28,341**

**29,443**

**26,966**

0

4/1/20 4/26/20 5/21/20 6/15/20 7/10/20 8/4/20 8/29/20 9/23/20 10/18/20 11/12/20 12/7/20 1/1/21 1/26/21 2/20/21 3/17/21 4/11/21 5/6/21 5/31/21



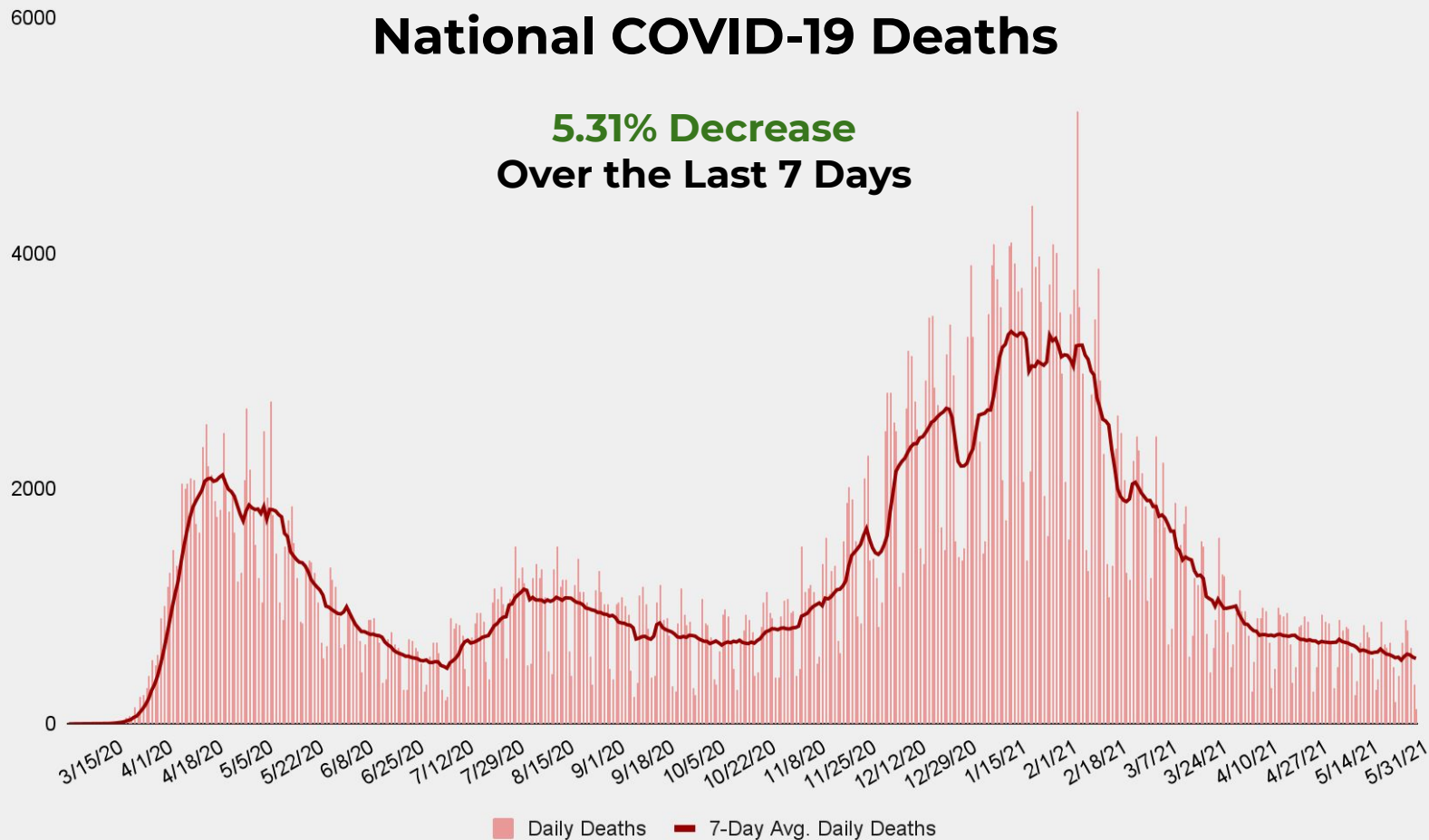
Currently Hospitalized



7-Day Avg. Currently Hospitalized

# National COVID-19 Deaths

**5.31% Decrease  
Over the Last 7 Days**



Source: Covid Tracking Project; NYT & CDC—May 31, 2021

# 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

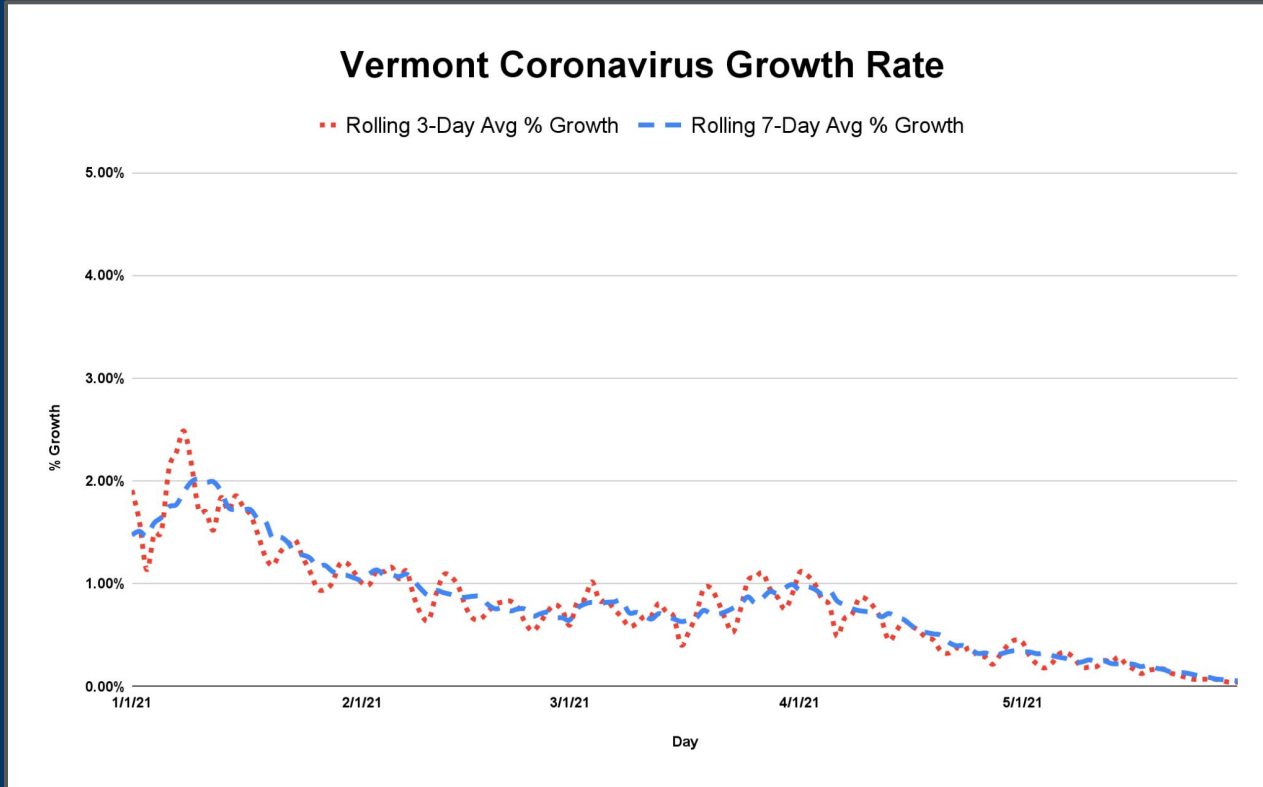
## Data Point 1: Syndromic Surveillance

- **Summary:** Percentage of visits with COVID-19 like illness and Influenza diagnosis
- **Warning Flag:** Percentage of visits exceeding 4% for multiple consecutive days

*Vermont Department of Health no longer updating syndromic surveillance on a weekly basis.*

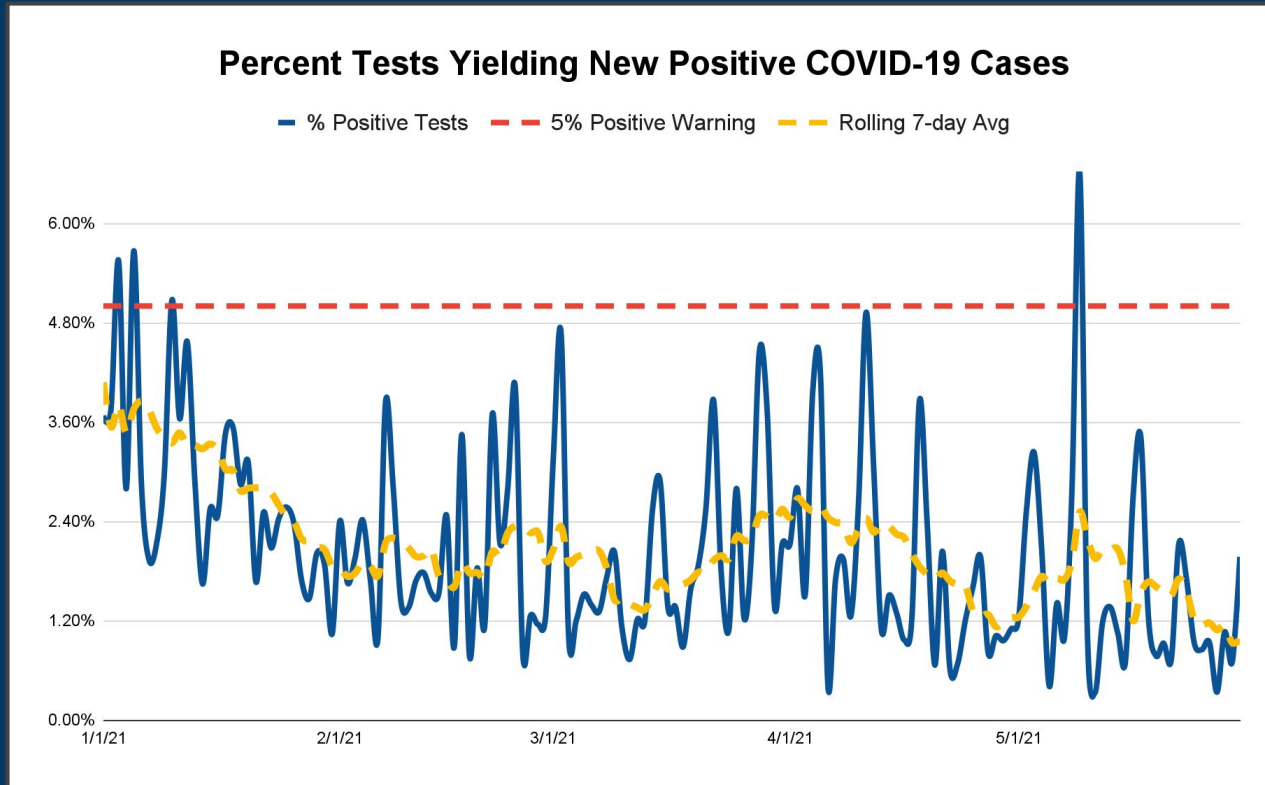
## Data Point 2: Viral Growth and Reproductive Rates

- **Summary:** Case growth measured by daily, 3-day, 7-day, and effective reproductive rate ( $R_t$ )
- **Warning Flags:** Sustained viral growth that would lead to <30% open ICU beds



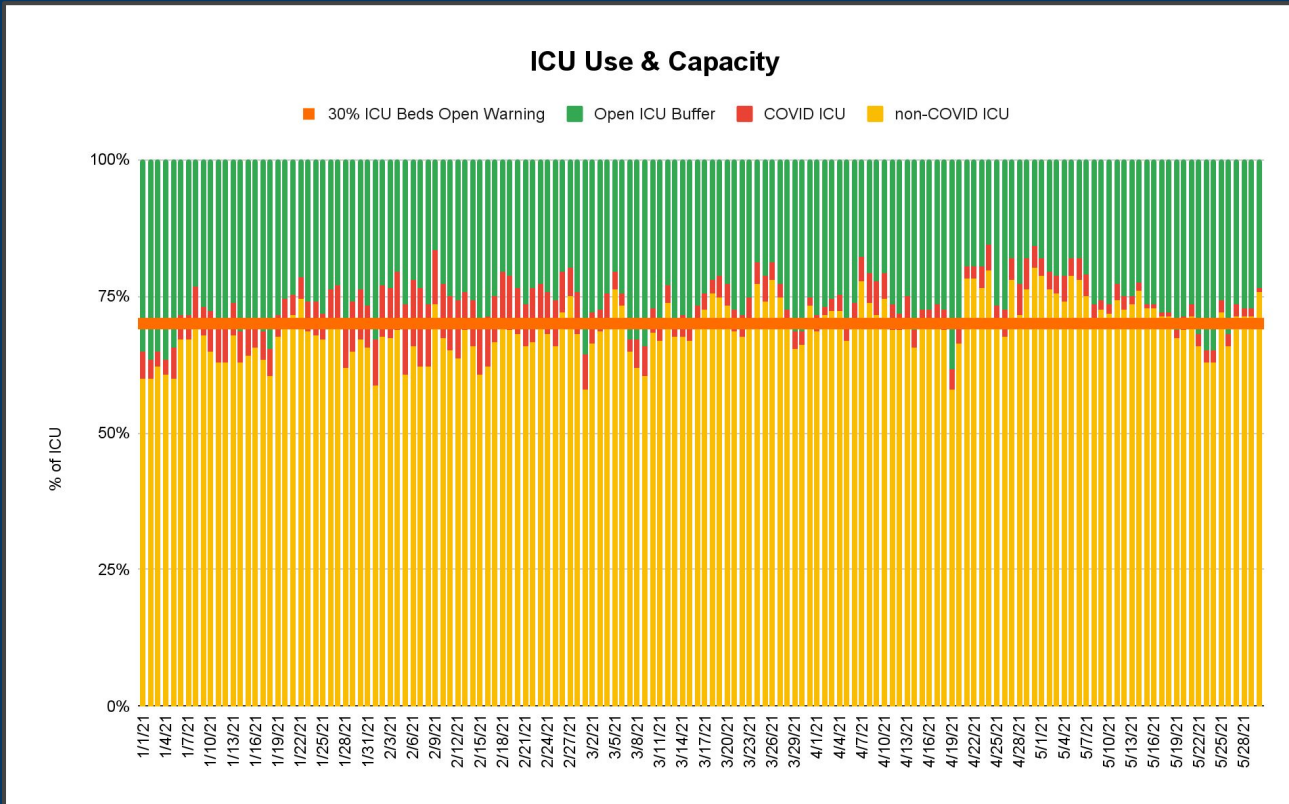
# Data Point 3: Percentage of New Positive Tests

- **Summary:** Percent of tests resulting in a new positive case
- **Warning Flags:** New positives represent >5% of daily results



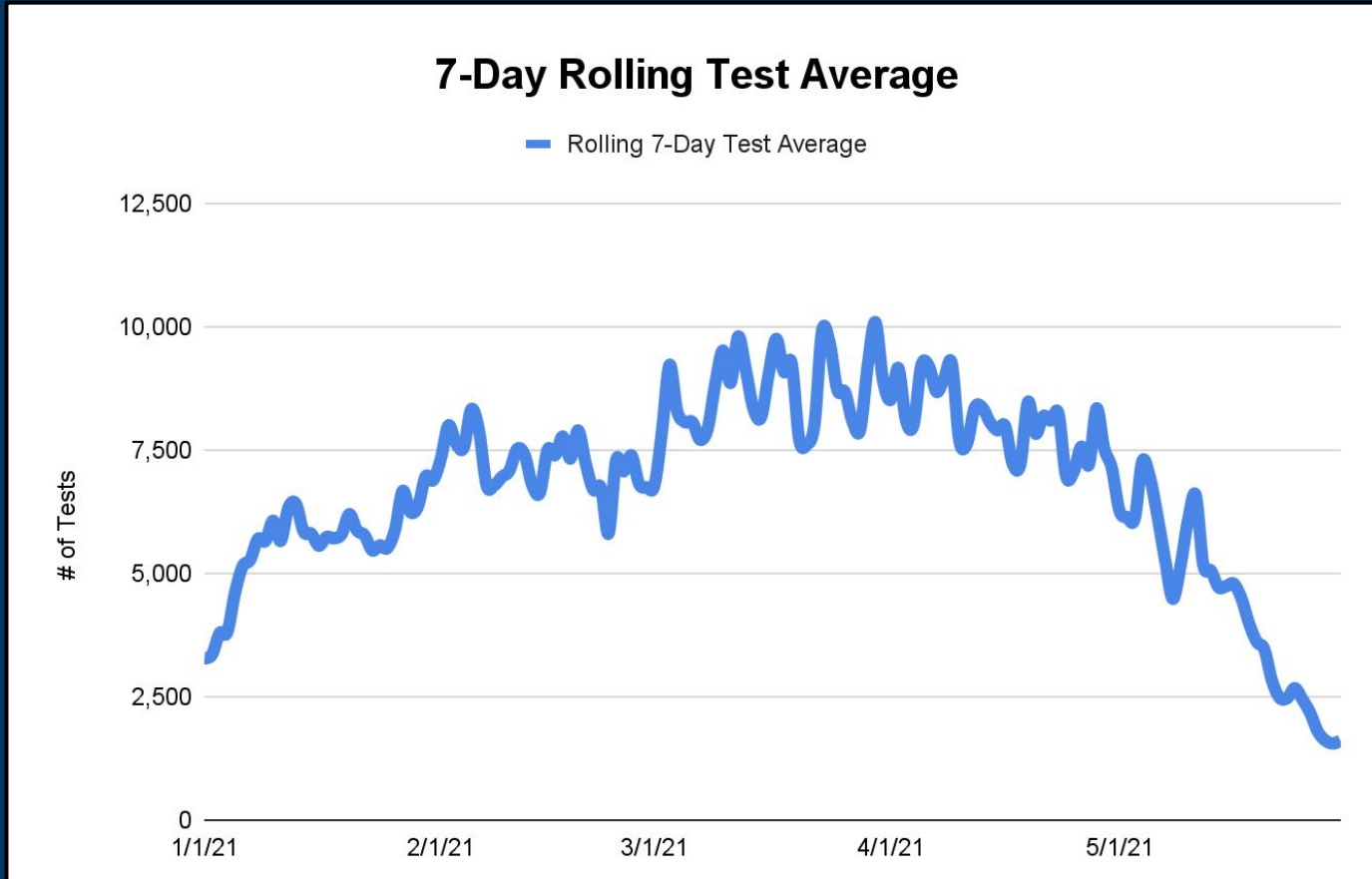
# Data Point 4: Hospital & Critical Care Beds

- **Summary:** Number of occupied and unoccupied medical surgical and ICU beds
- **Warning Flags:** Reduction in ICU open beds to less than 30%





# Vermont Testing



**Note: lower testing as more Vermonters fully vaccinated & campuses close**