COVID-19 Modeling
May 4, 2021

Presentation available at:
dfr.vermont.gov

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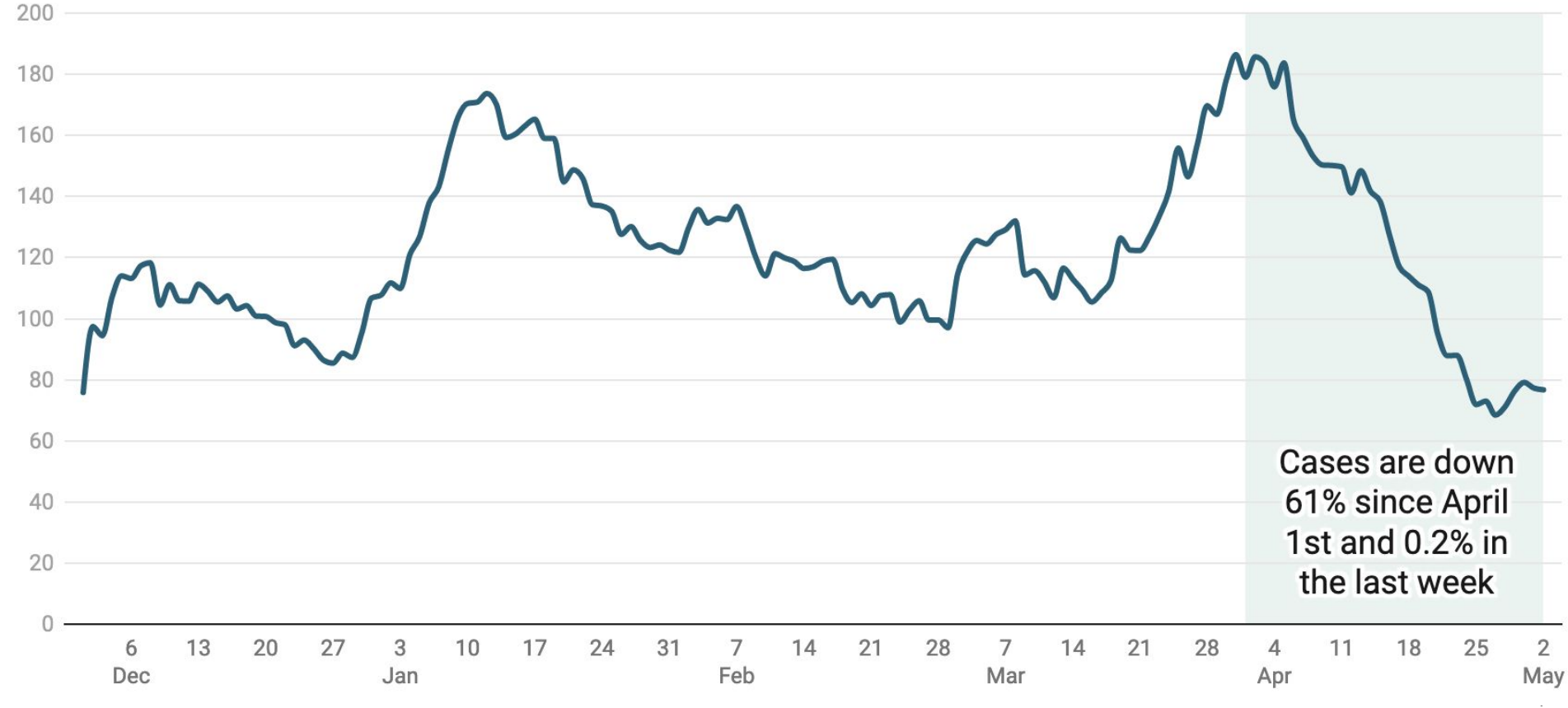
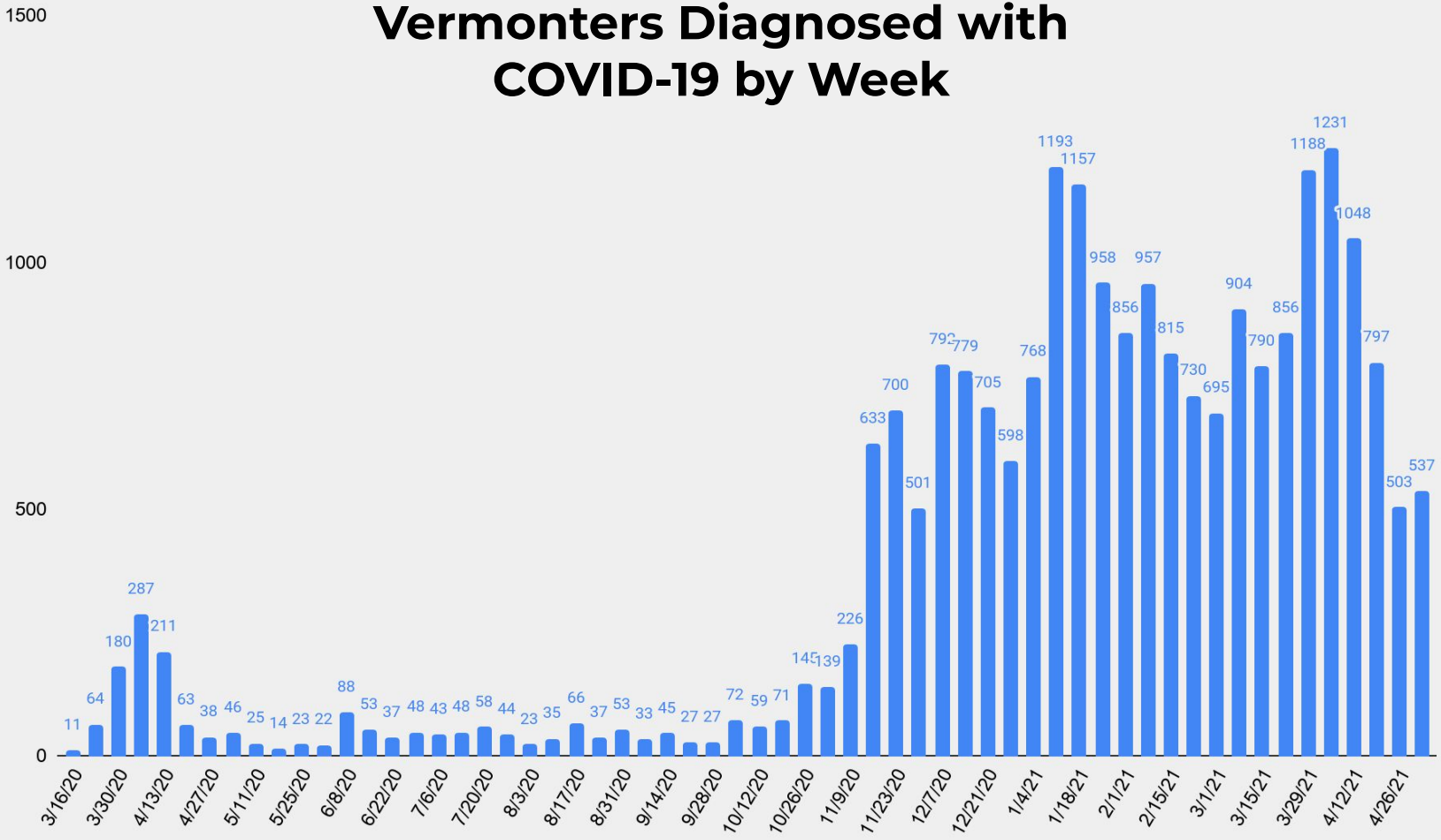
Vermont Case Data

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

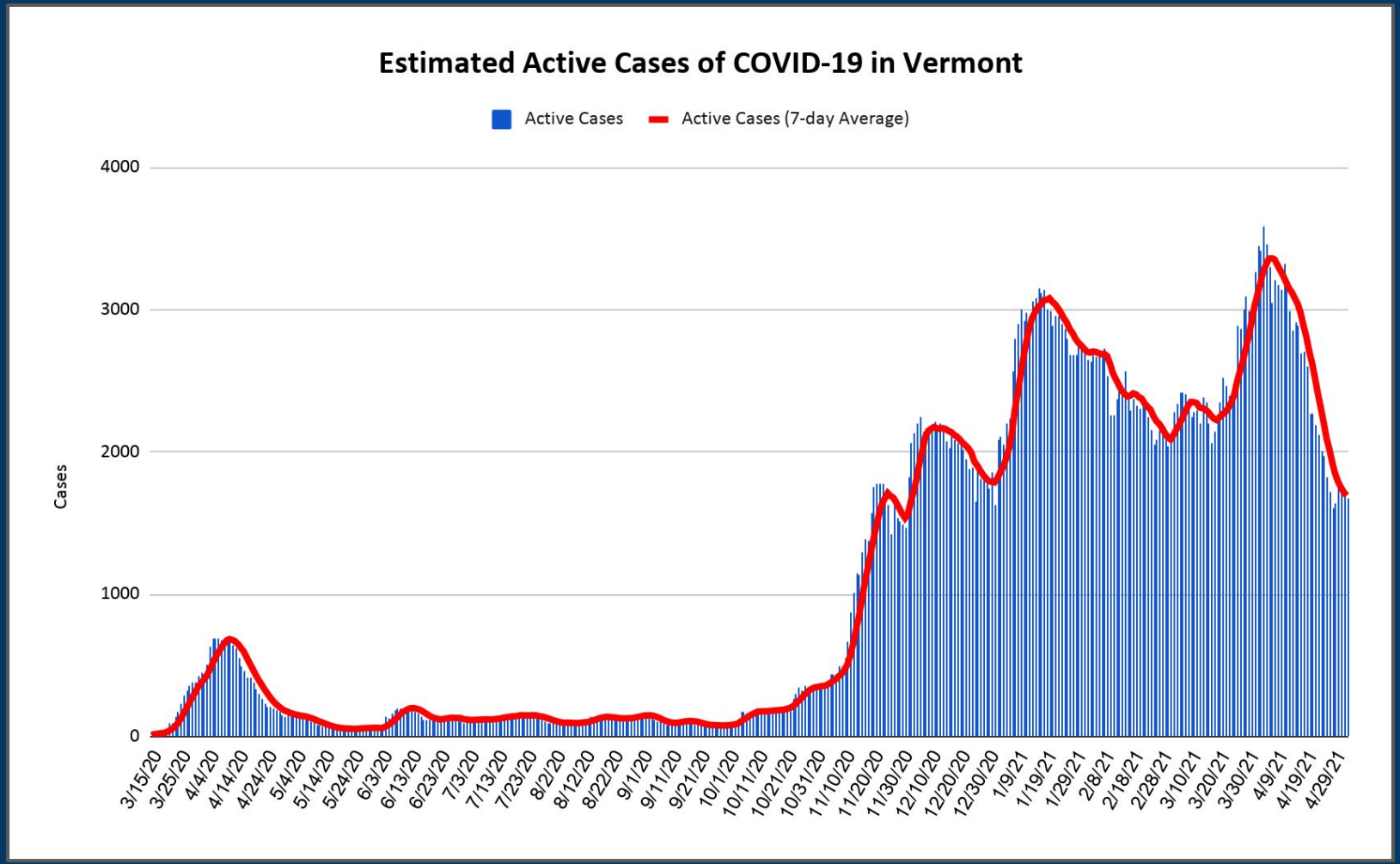


Source: Vermont Department of Health—May 3, 2021

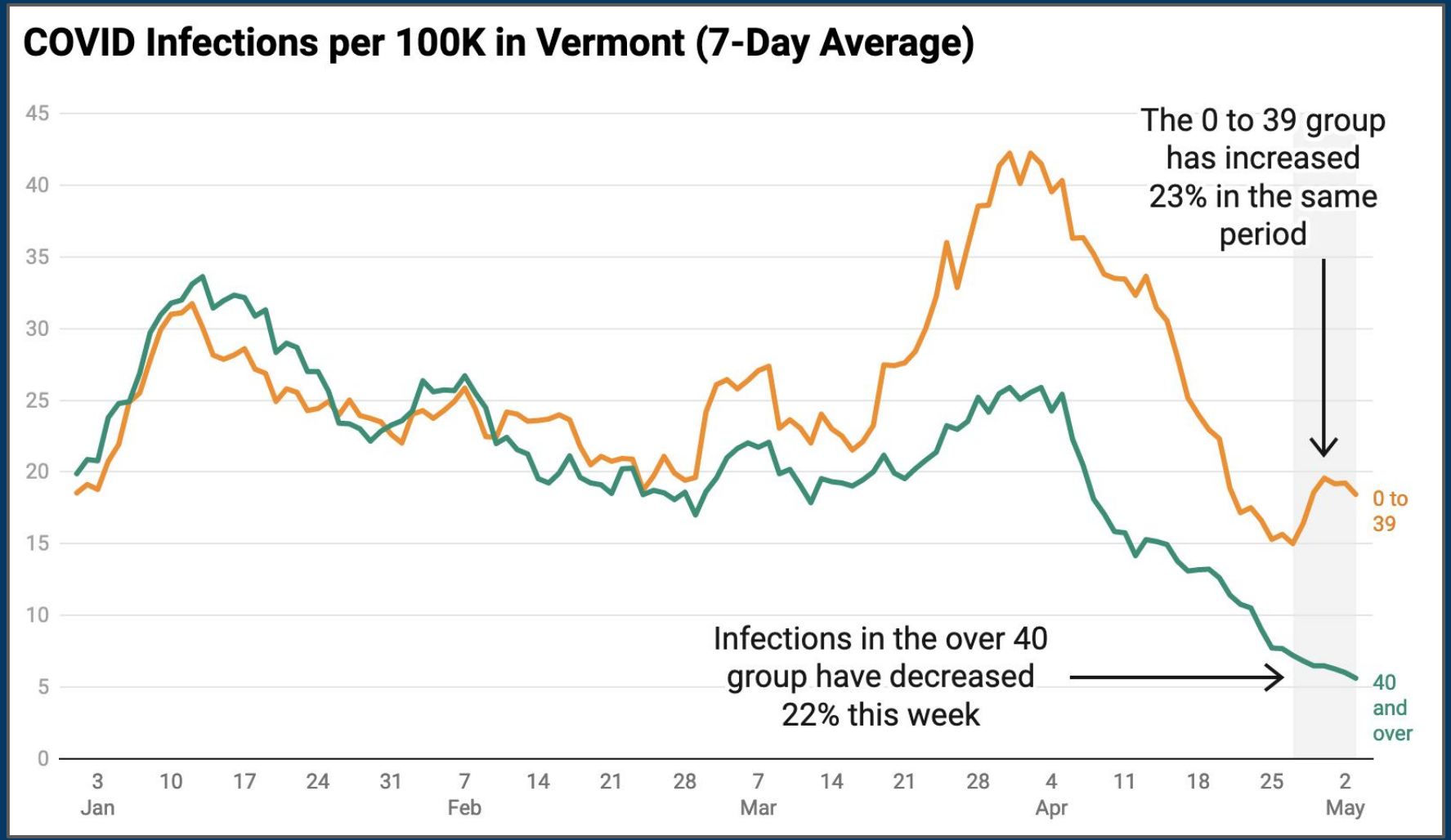
Vermonters Diagnosed with COVID-19 by Week

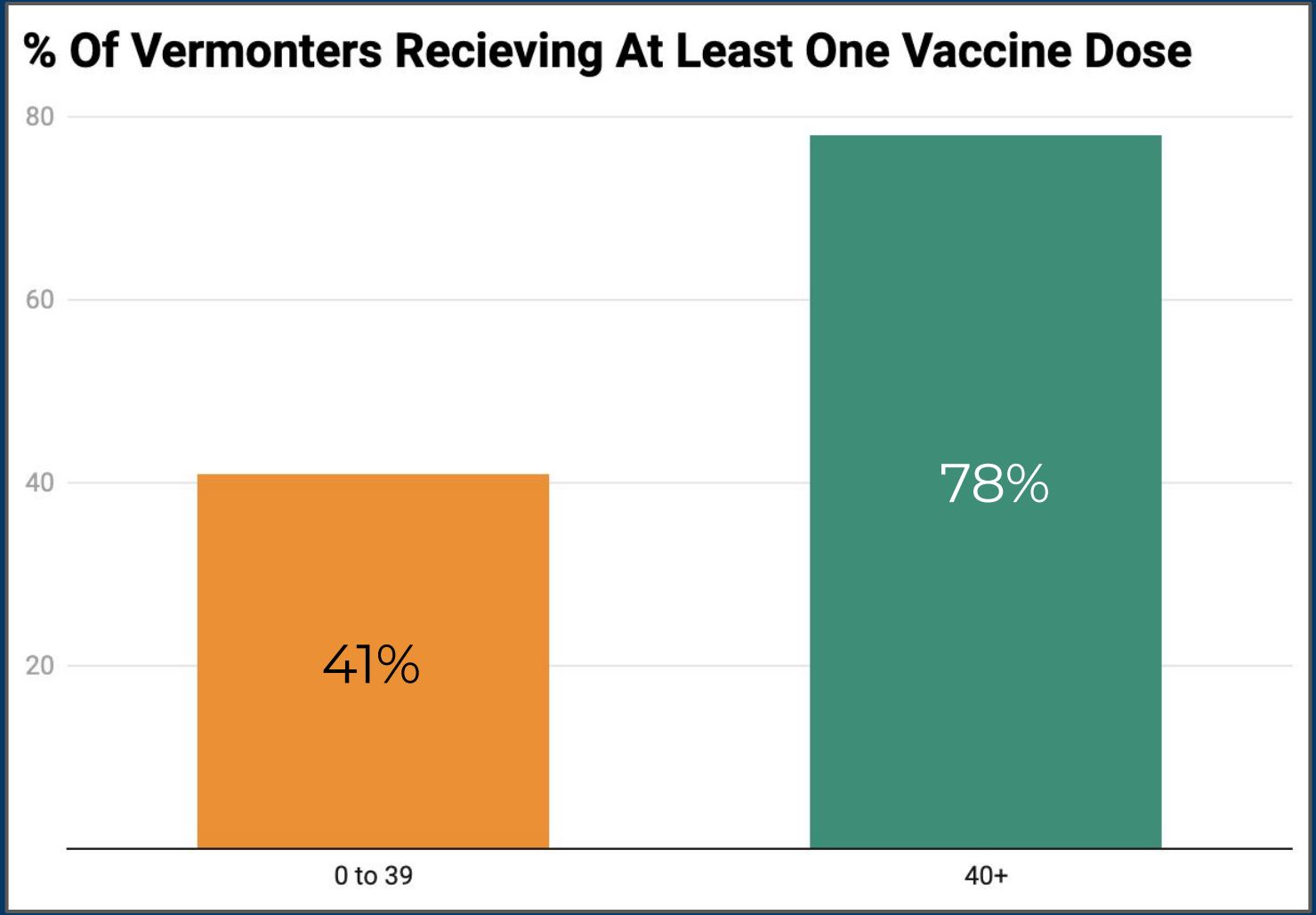


Source: Vermont Department of Health (week calculated as Tuesday to Monday)



Source: Johns Hopkins University Data & Oliver Wyman Model—May 3, 2021

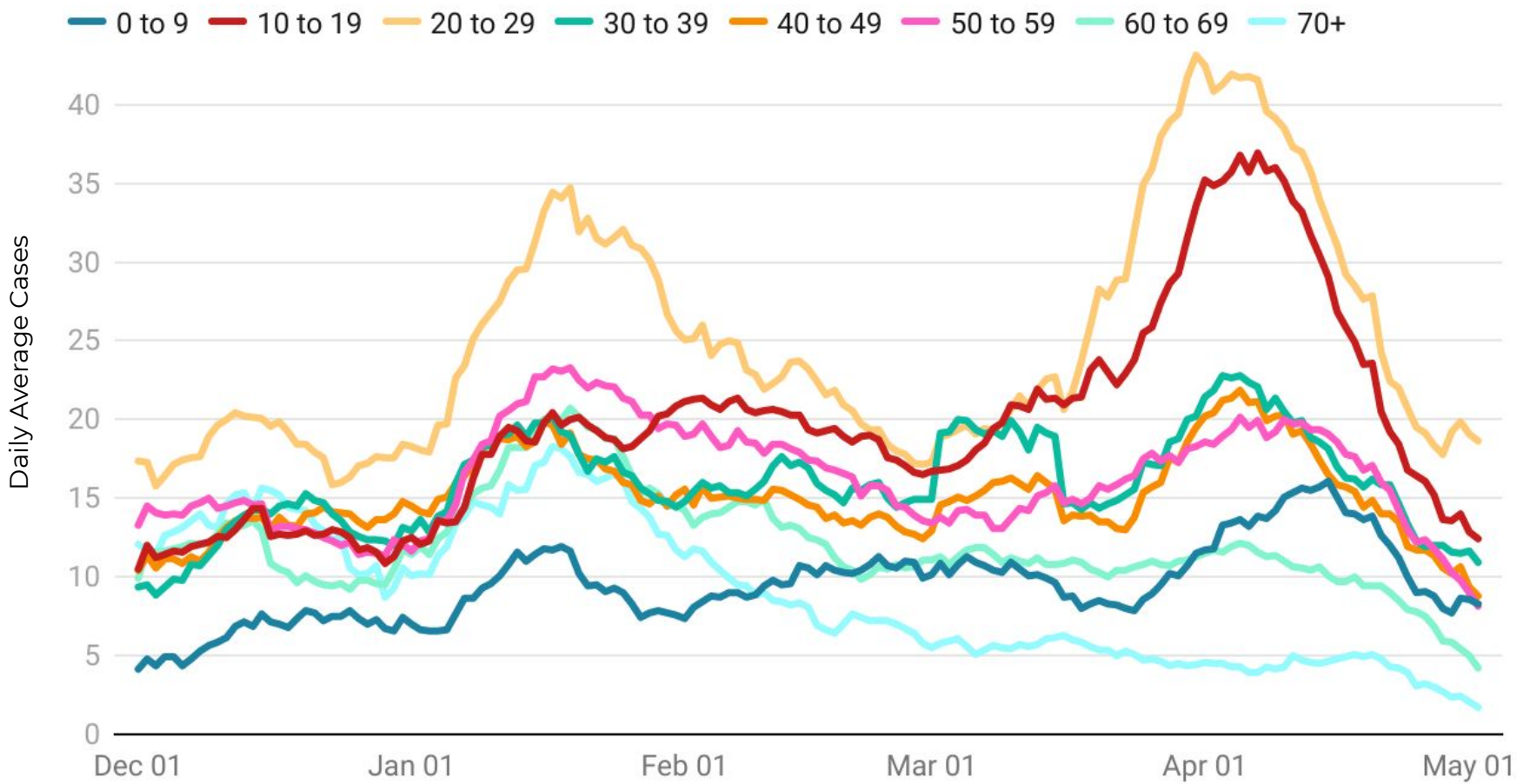

COVID Infections per 100K in Vermont (7-Day Average)
45
40
35
30
25
20
15
10
5
0
The 0 to 39 group has increased 23% in the same period
Infections in the over 40 group have decreased 22% this week
0 to 39
40 and over
3 Jan
10
17
24
31
7 Feb
14
21
28
7 Mar
14
21
28
4 Apr
11
18
25
2 May


% Of Vermonters Recieving At Least One Vaccine Dose
80
60
40
20
41%
78%
0 to 39
40+

Age of Infected Vermonters

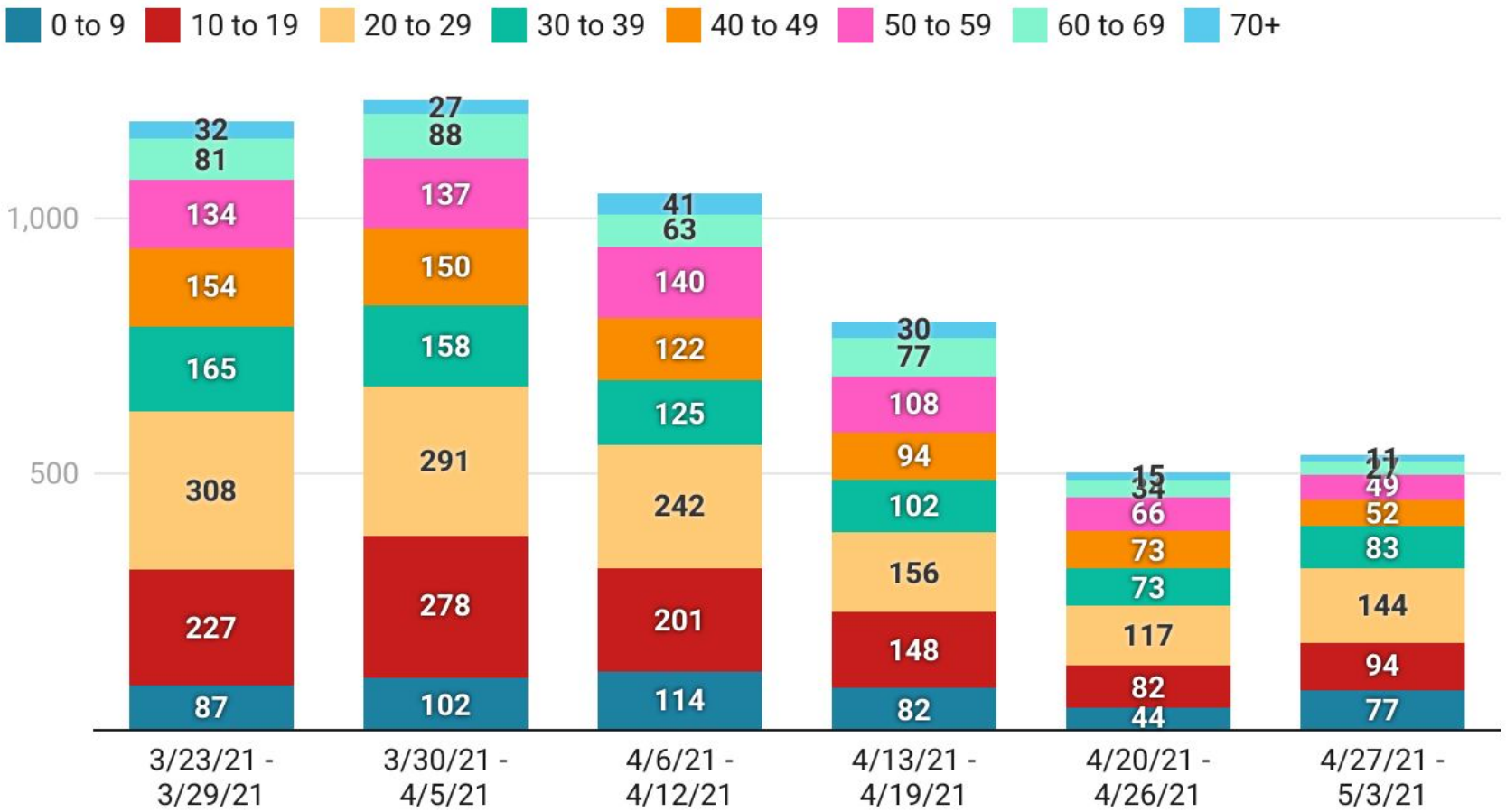
Median age of COVID positive individuals in VT over the last 14 days.

Vermont Cases by Age, 14-Day Averages



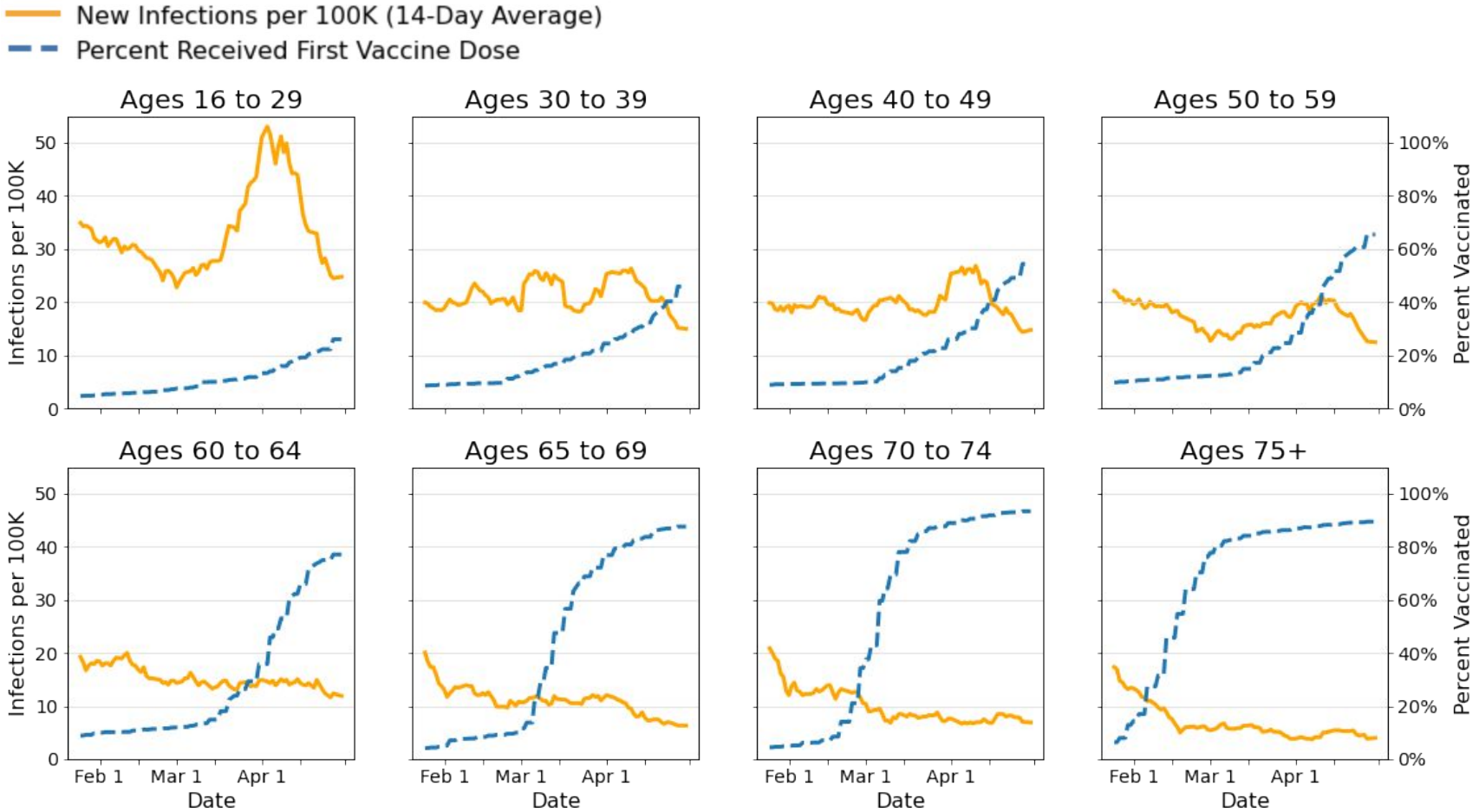
Source: VDH—May 2, 2021

Vermont Cases by Age



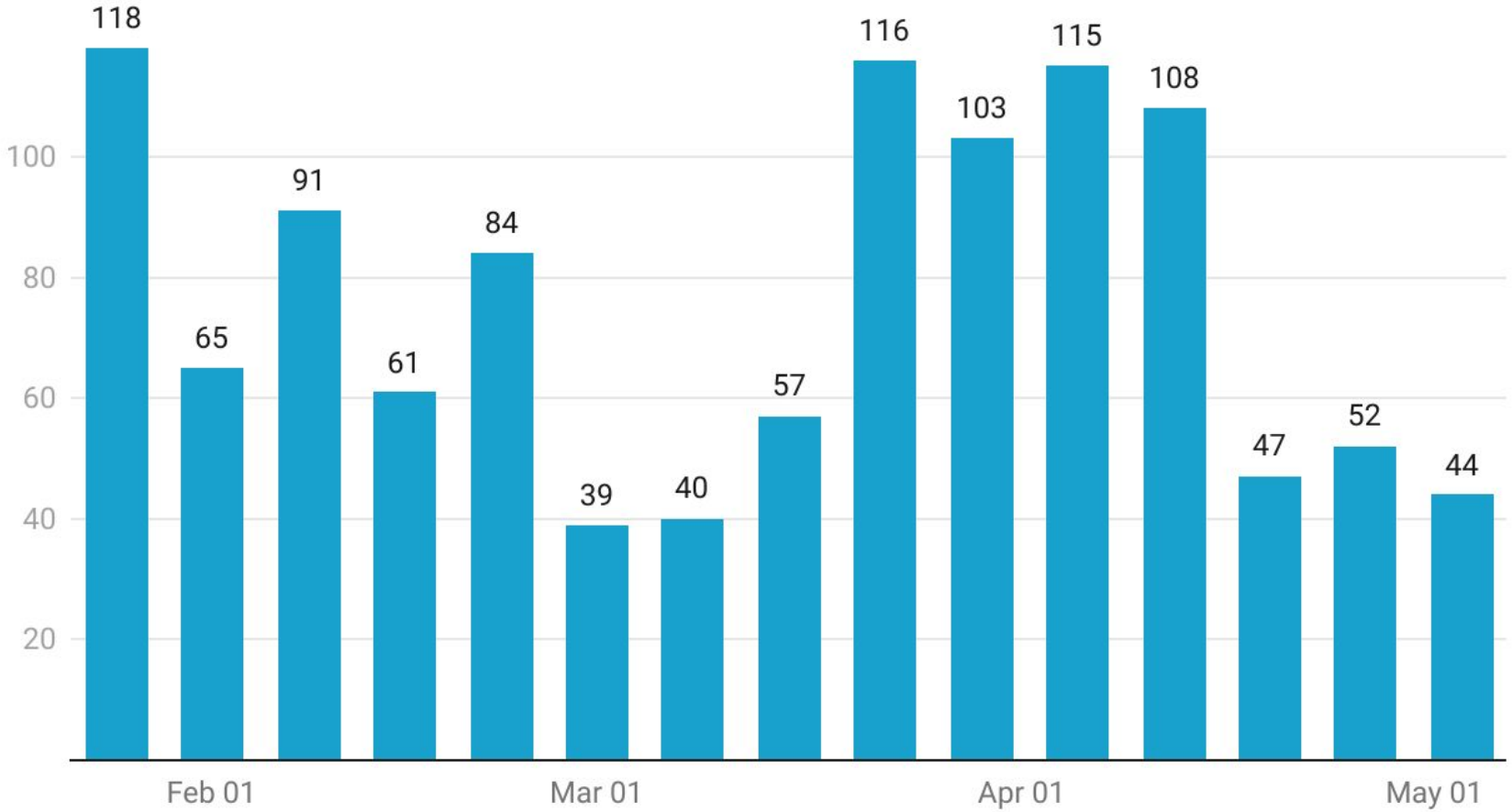
Source: VDH—May 4, 2021

Vermont Case Rate & Vaccination by Age Band



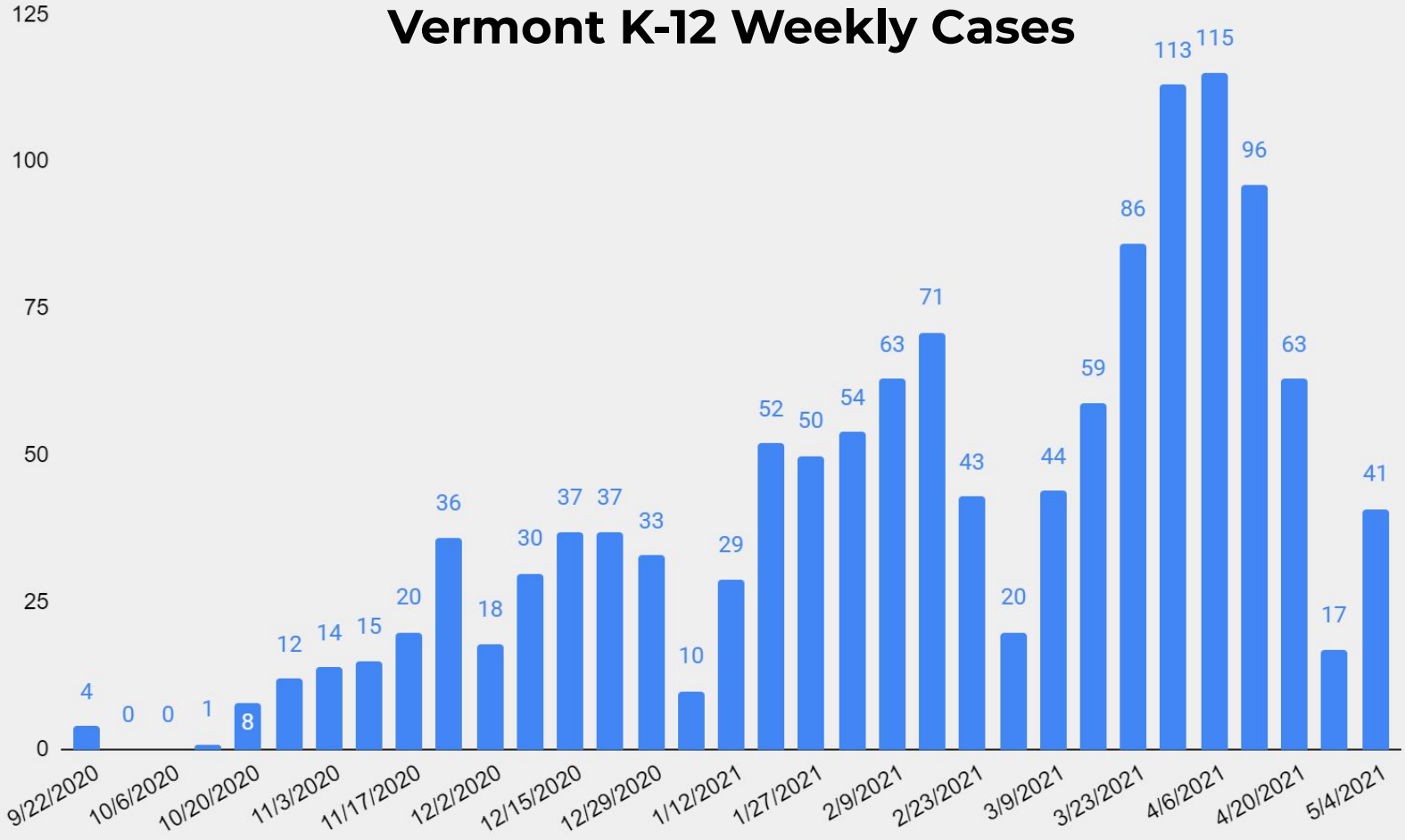
Source: VDH—May 4, 2021

Weekly Higher Education Cases in Vermont



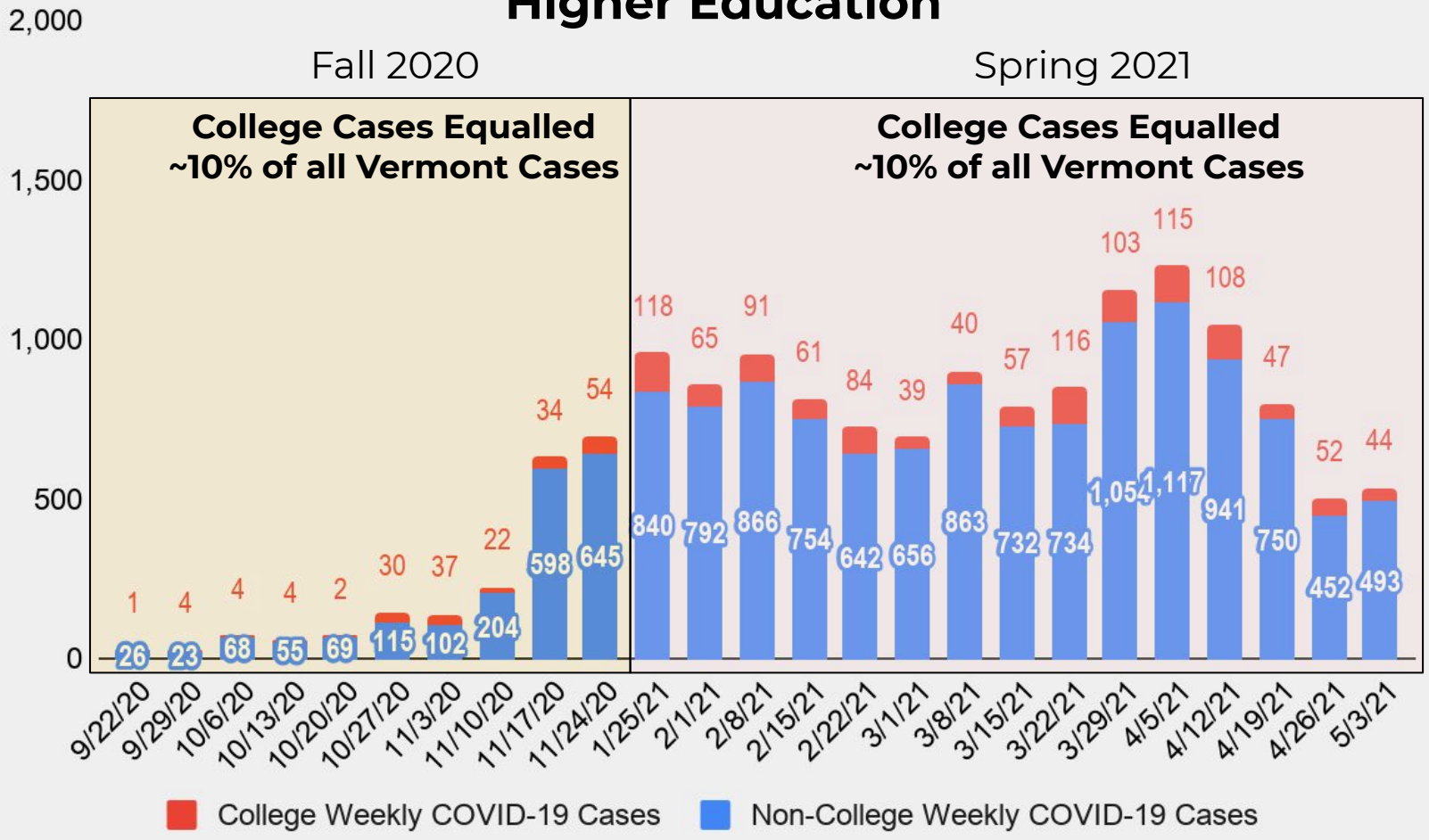
Source: Vermont Higher Education Institution Reporting—May 3, 2021

Vermont K-12 Weekly Cases



Source: Vermont Department of Health—May 3, 2021

Higher Education

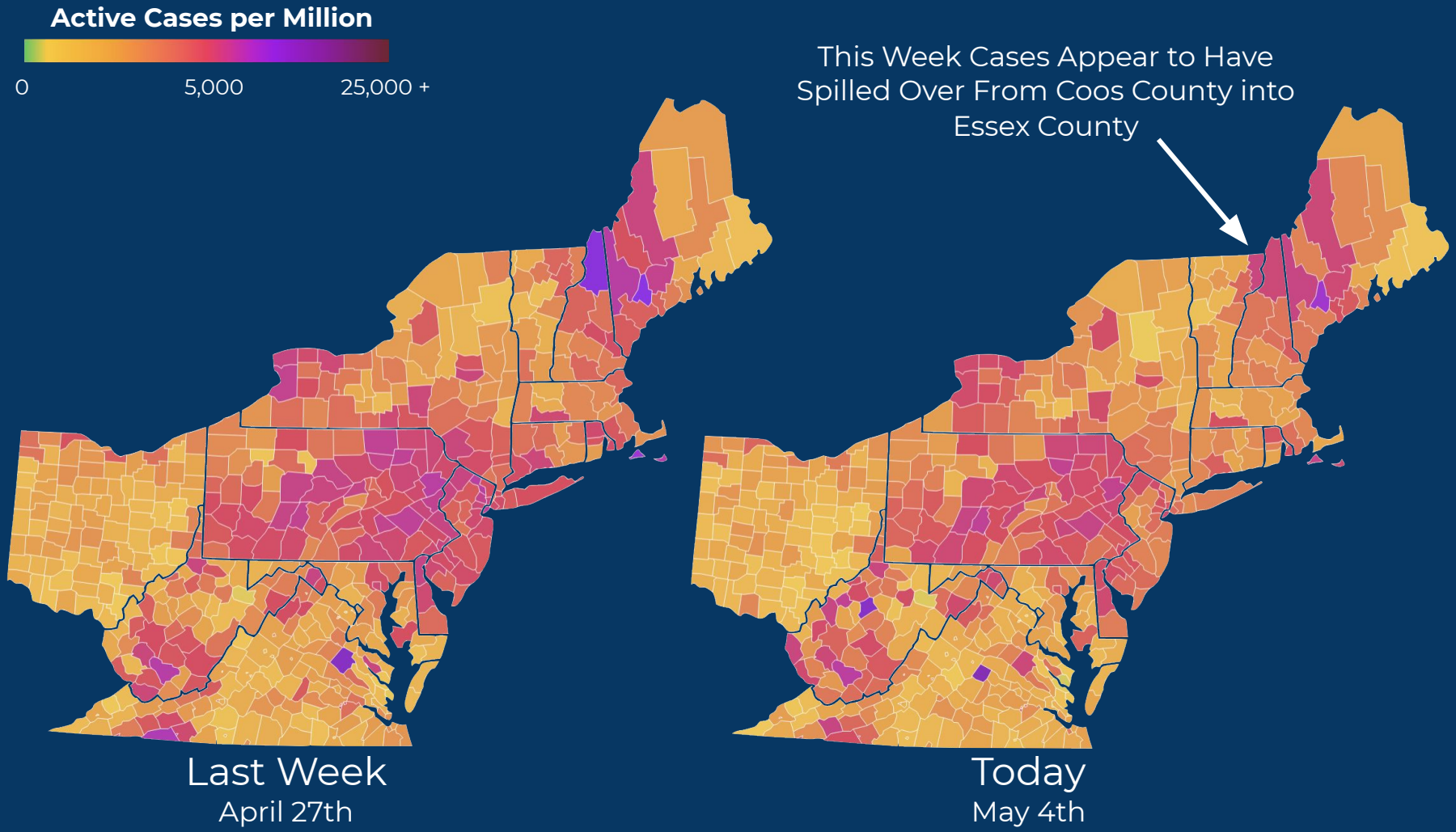


Source: Vermont Higher Education Institution Reporting—May 3, 2021

Active Outbreaks in Long Term Care Facilities*

Facility Name	Total COVID-19 Cases
Our House Residential Care Homes, *Rutland*	6

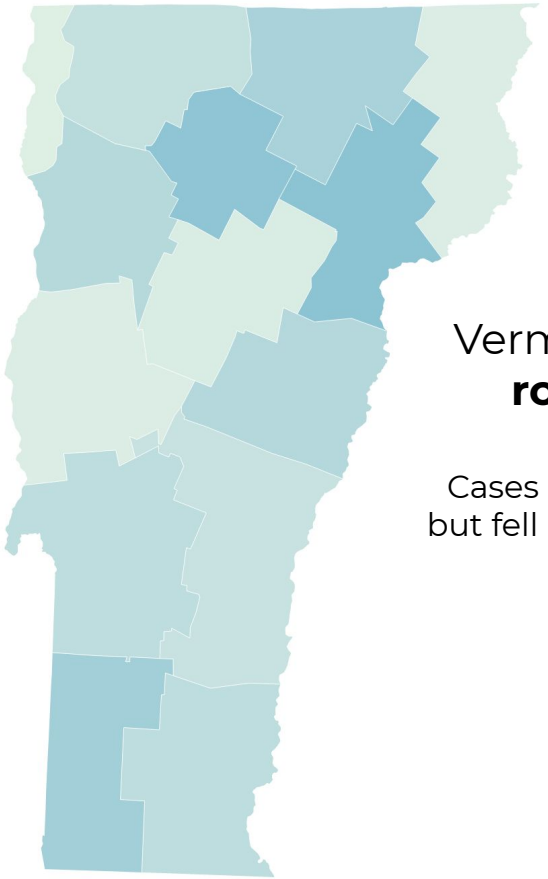
Source: Vermont Department of Health—*Last updated May 3, 2021 (reporting Monday through previous Sunday); *'Active' defined as less than 28 days since most recent case's specimen collection date or illness start date (whichever is later); privacy suppressions include facility w/ <25 staff and residents and/or >75% of facility infected or fewer than 5 active cases.*


Active Cases per Million
0
5,000
25,000 +
This Week Cases Appear to Have Spilled Over From Coos County into Essex County
Last Week
April 27th
Today
May 4th

Vermont Weekly Cases by County (per 100,000)

Results Reported April 20 to April 26

1 450



Map: Vermont DFR COVID Modeling Team • Source: Vermont Dept. of Health • Created with Datawrapper

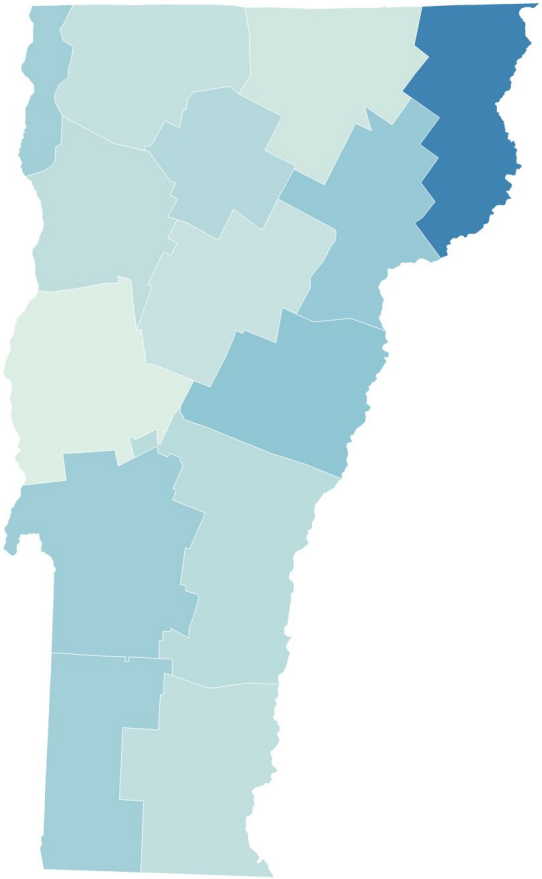
Vermont Covid-19 case rates
rose slightly last week

Cases increased most in Essex County,
but fell in Chittenden & Orleans Counties

Vermont Weekly Cases by County (per 100,000)

Results Reported April 27 to May 3

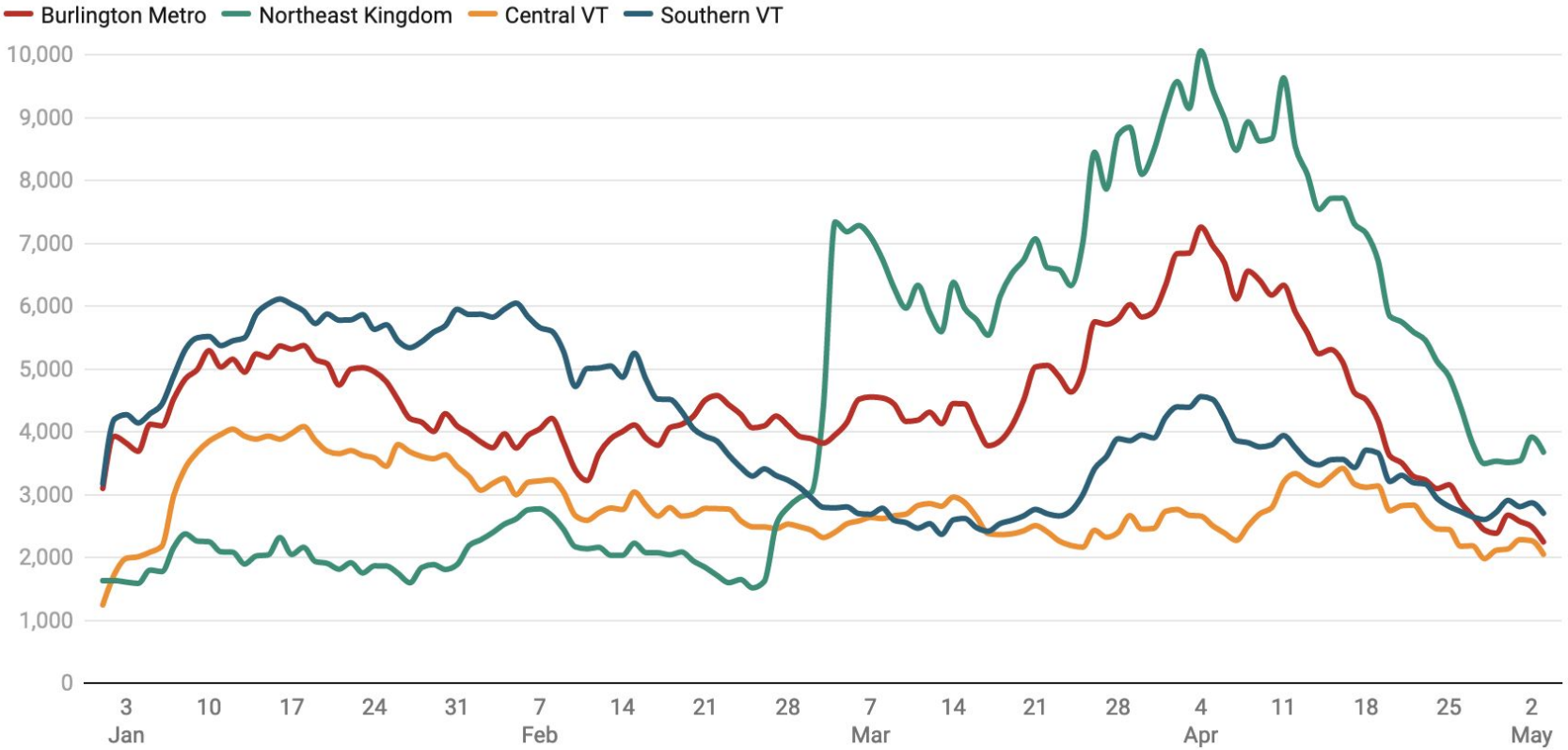
1 450



Map: Vermont DFR COVID Modeling Team • Source: Vermont Dept. of Health • Created with Datawrapper

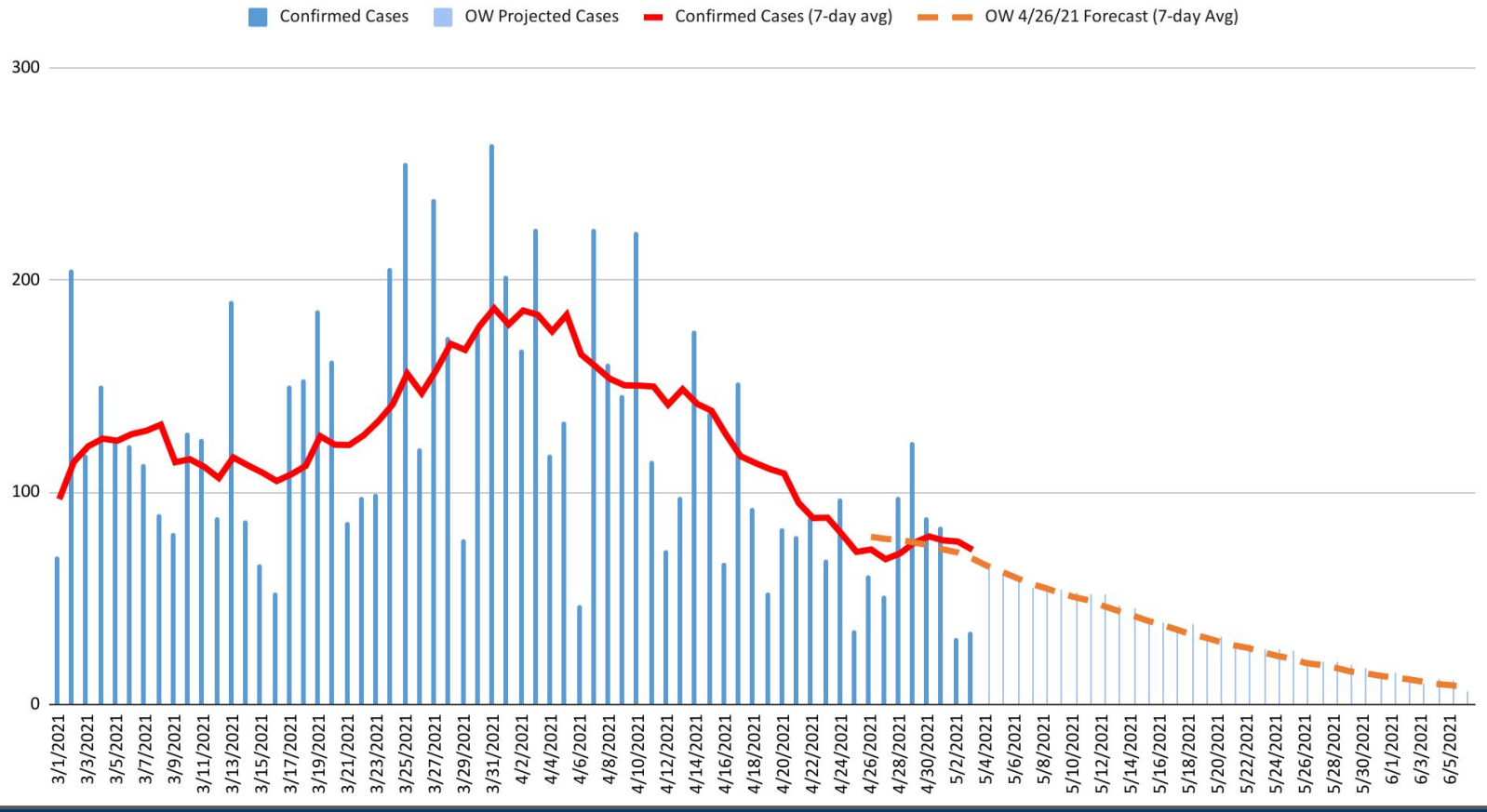
Active COVID Cases per Million in Vermont Regions

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).



Souce: VDH & DFR Active Case Algotherm

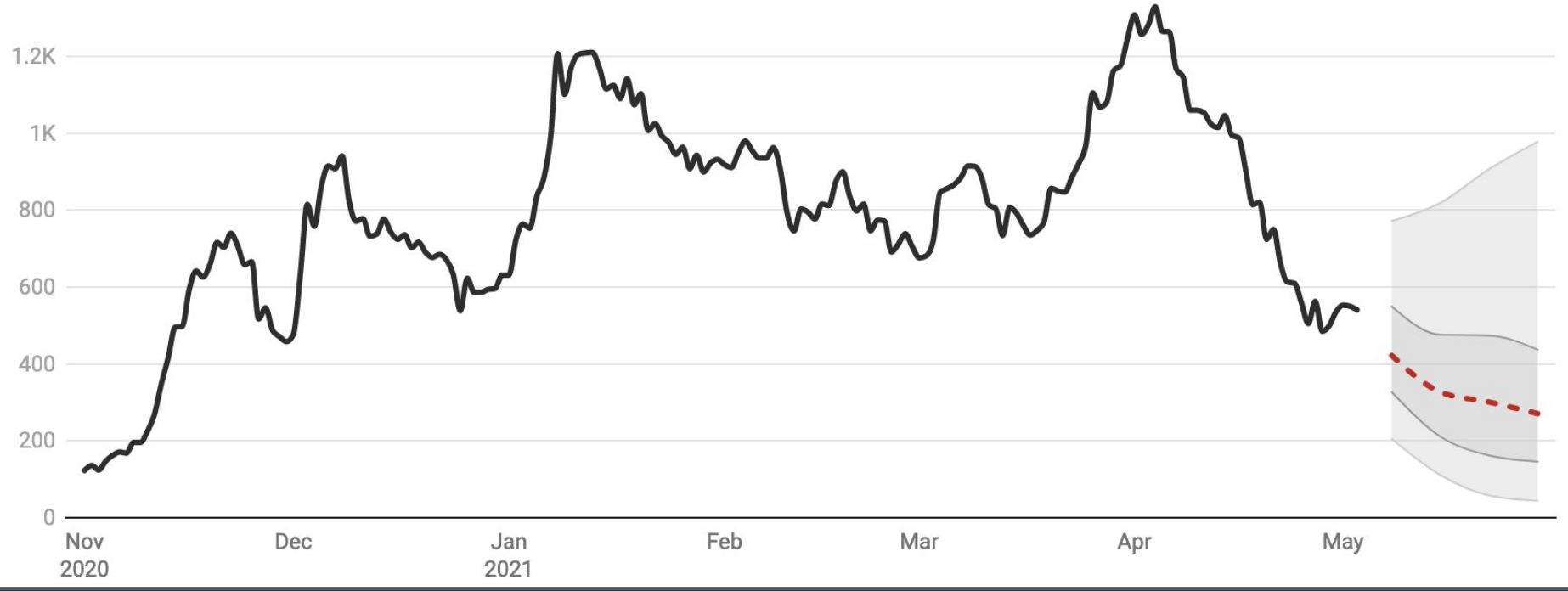
Vermont Forecast



Source: Johns Hopkins University Data, CDC Ensemble, & Oliver Wyman Forecast Model—May 3, 2021; Note: assumes current vaccine supply

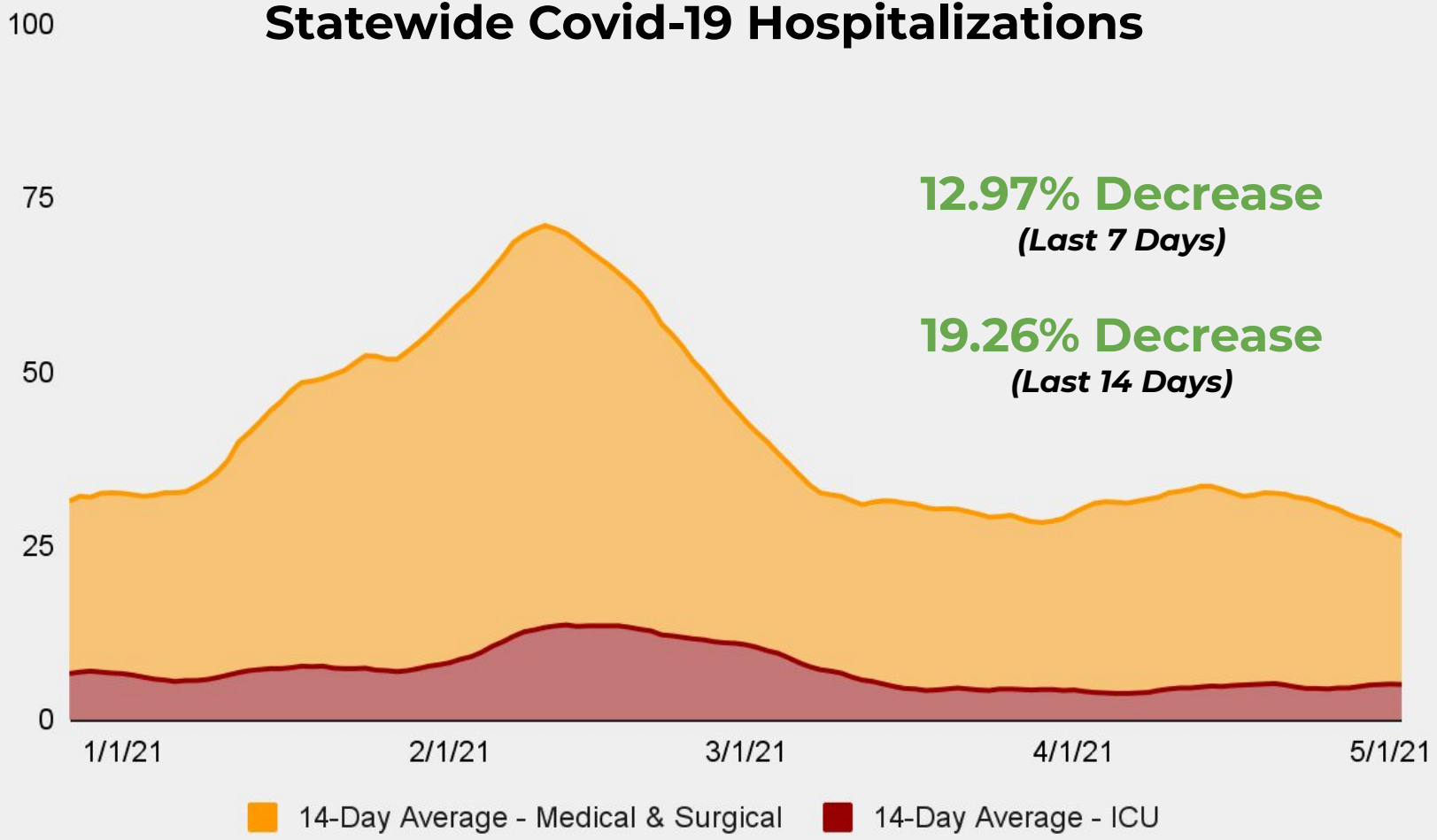
Vermont Weekly COVID-19 Infections Forecast

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

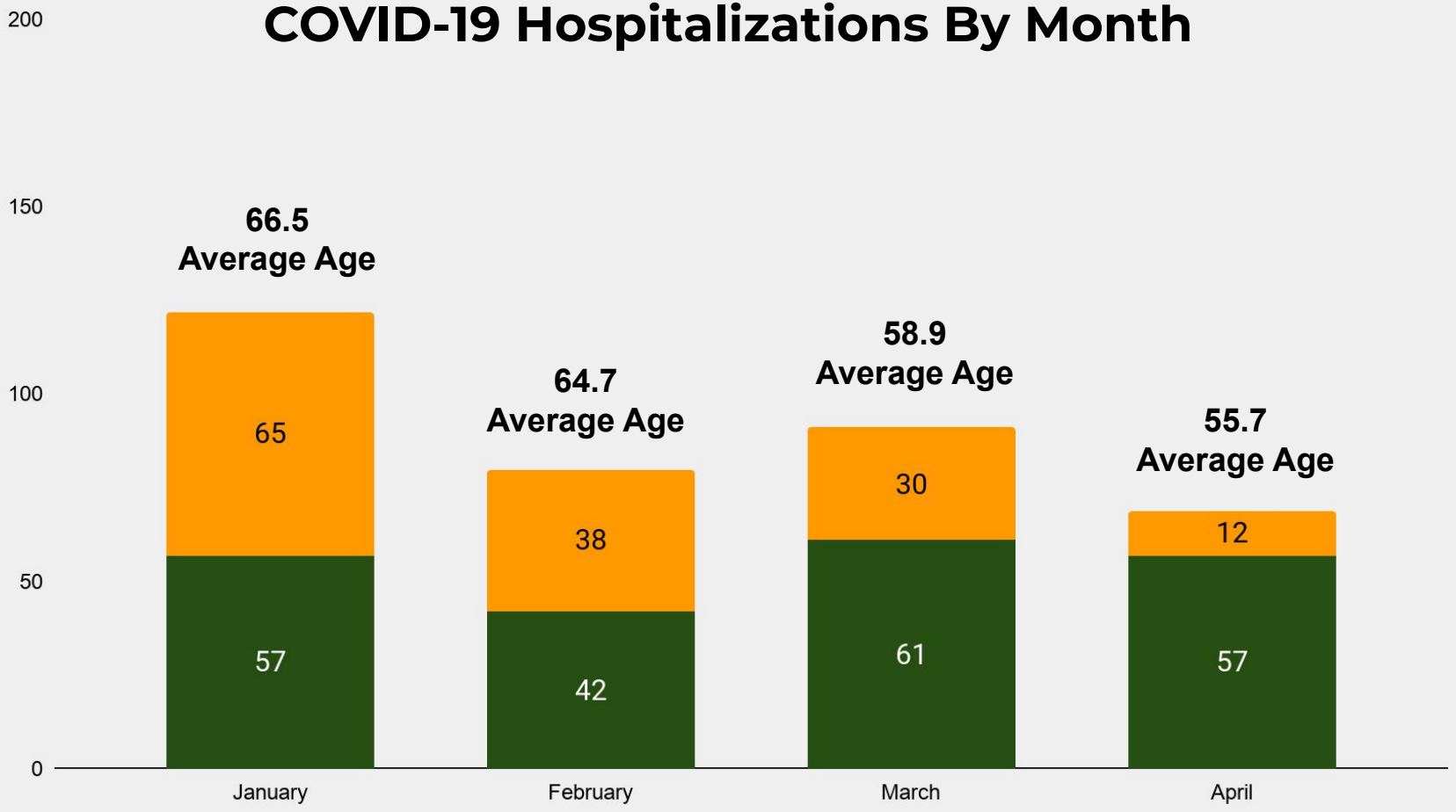


12.97% Decrease
(Last 7 Days)

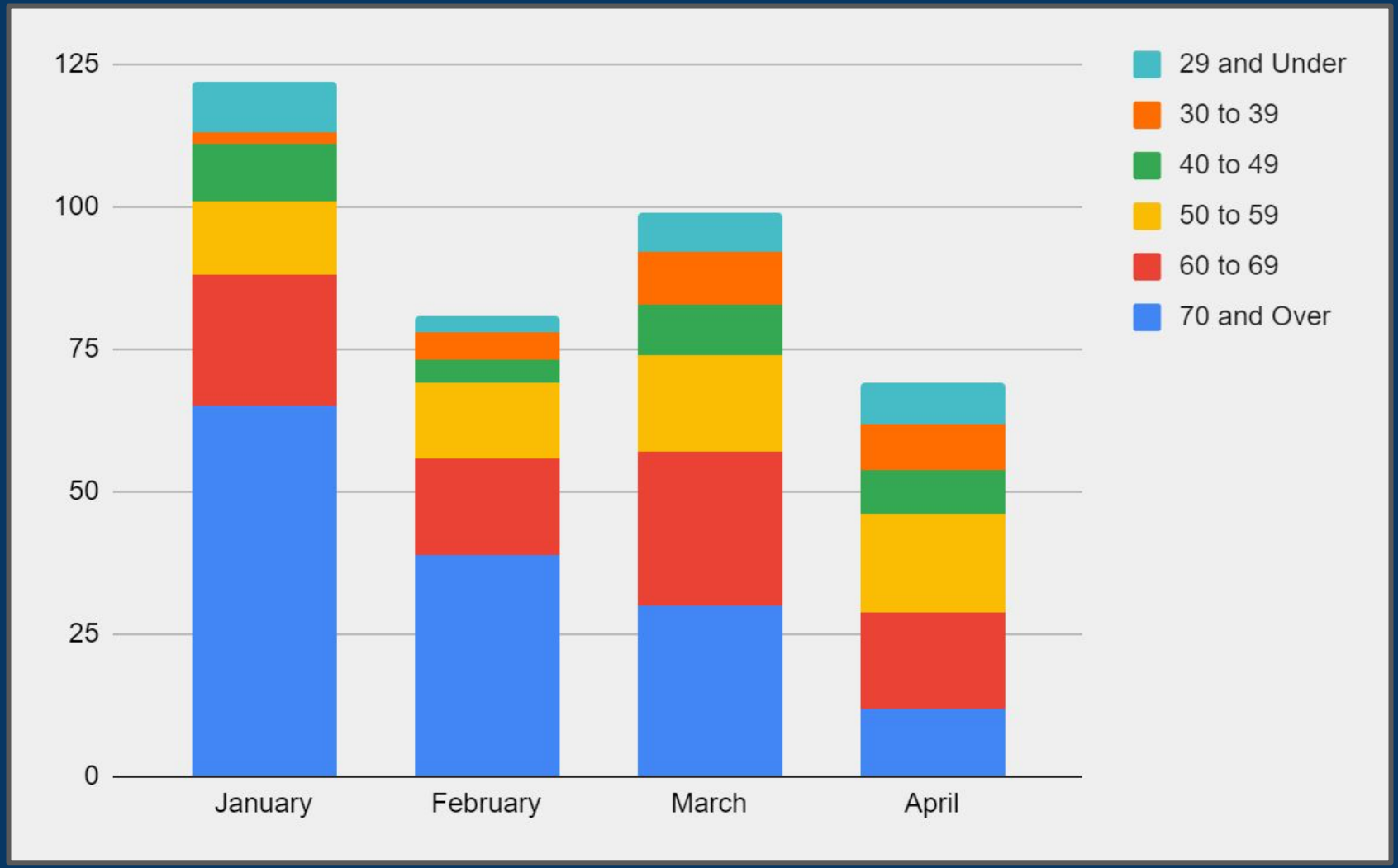
19.26% Decrease
(Last 14 Days)

Source: Vermont Department of Health—May 3, 2021

COVID-19 Hospitalizations By Month

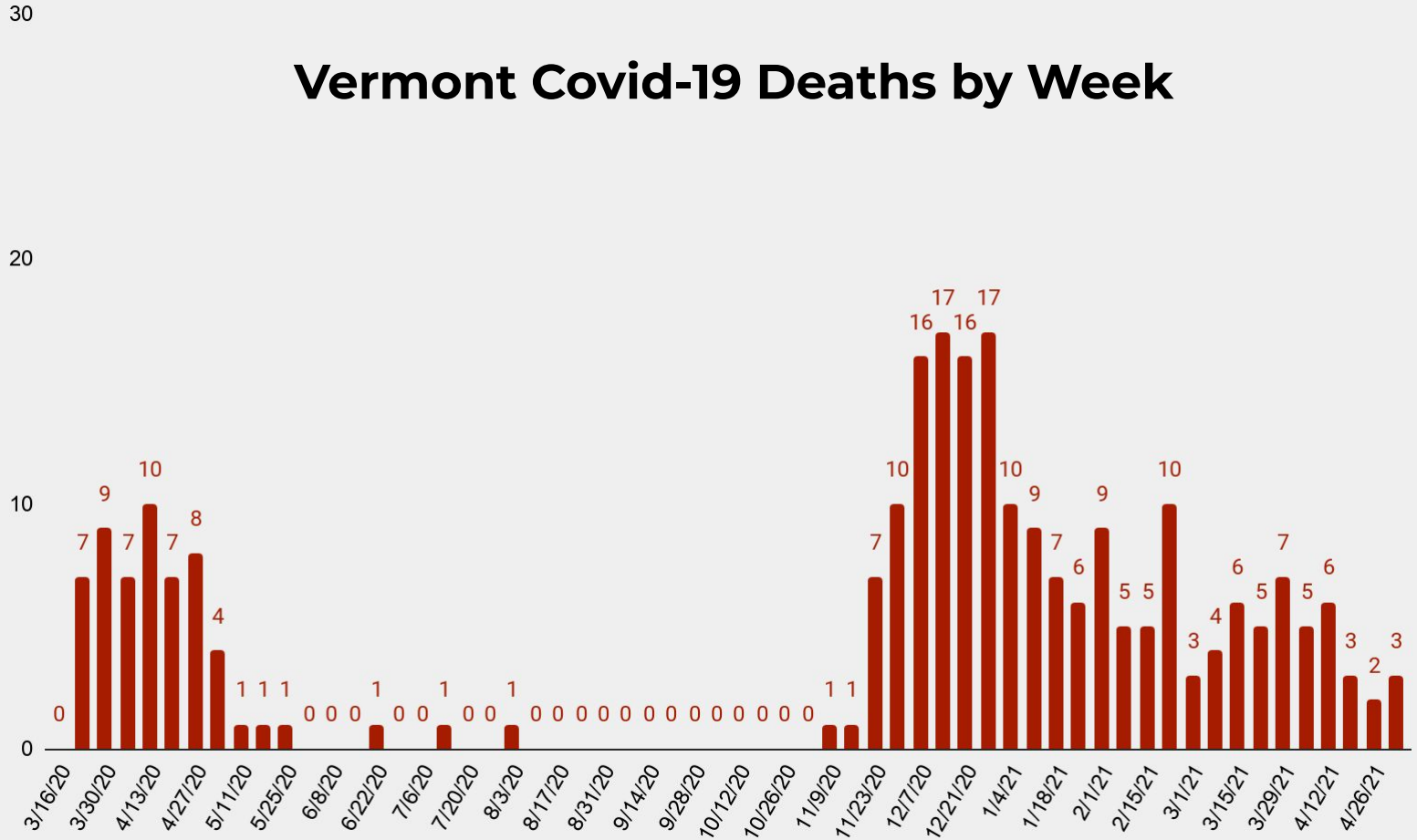


Source: Vermont Department of Health—May 3, 2021


125
100
75
50
25
0
January
February
March
April
29 and Under
30 to 39
40 to 49
50 to 59
60 to 69
70 and Over

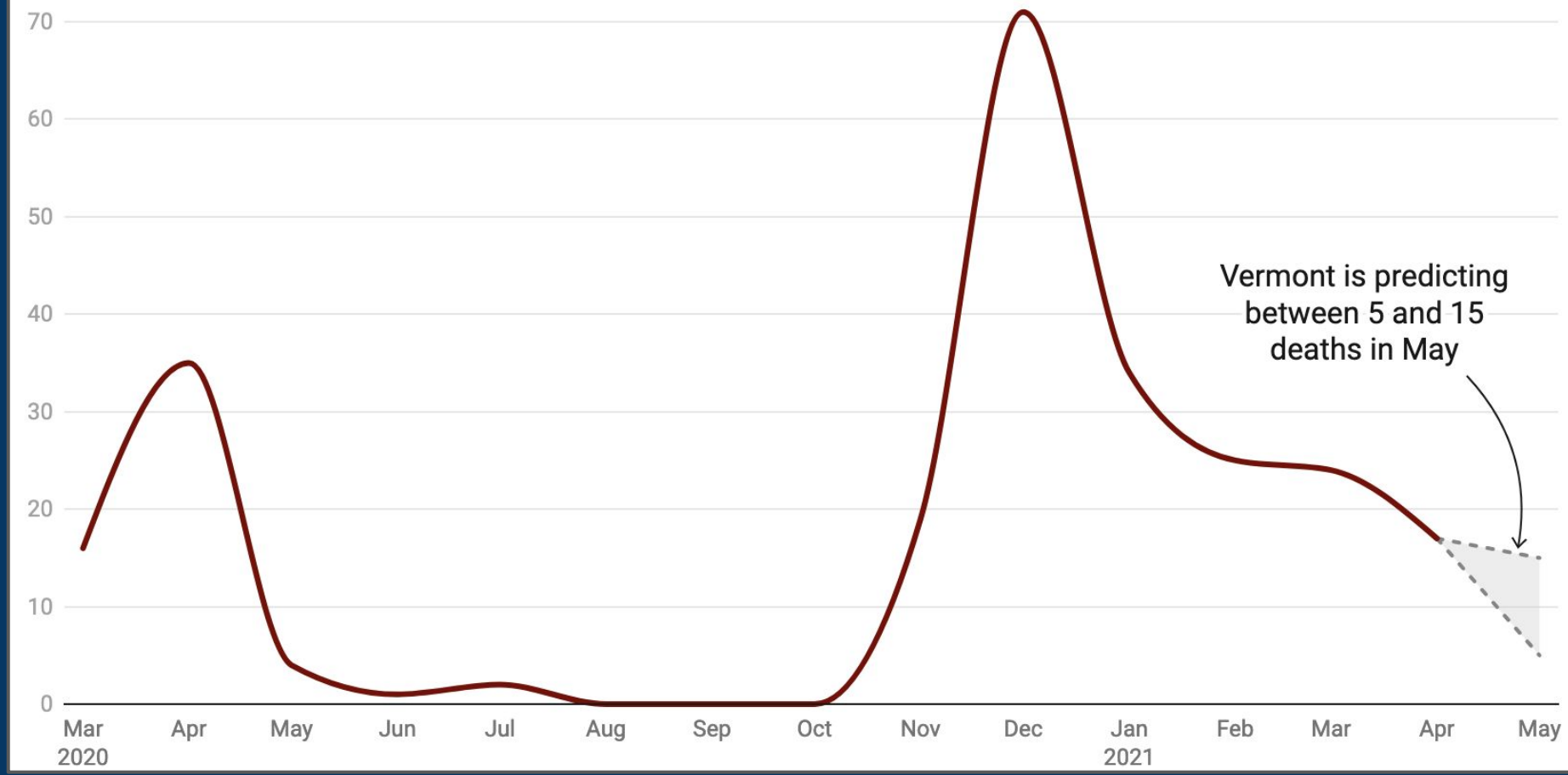
Vermont Fatality Data

Vermont Covid-19 Deaths by Week



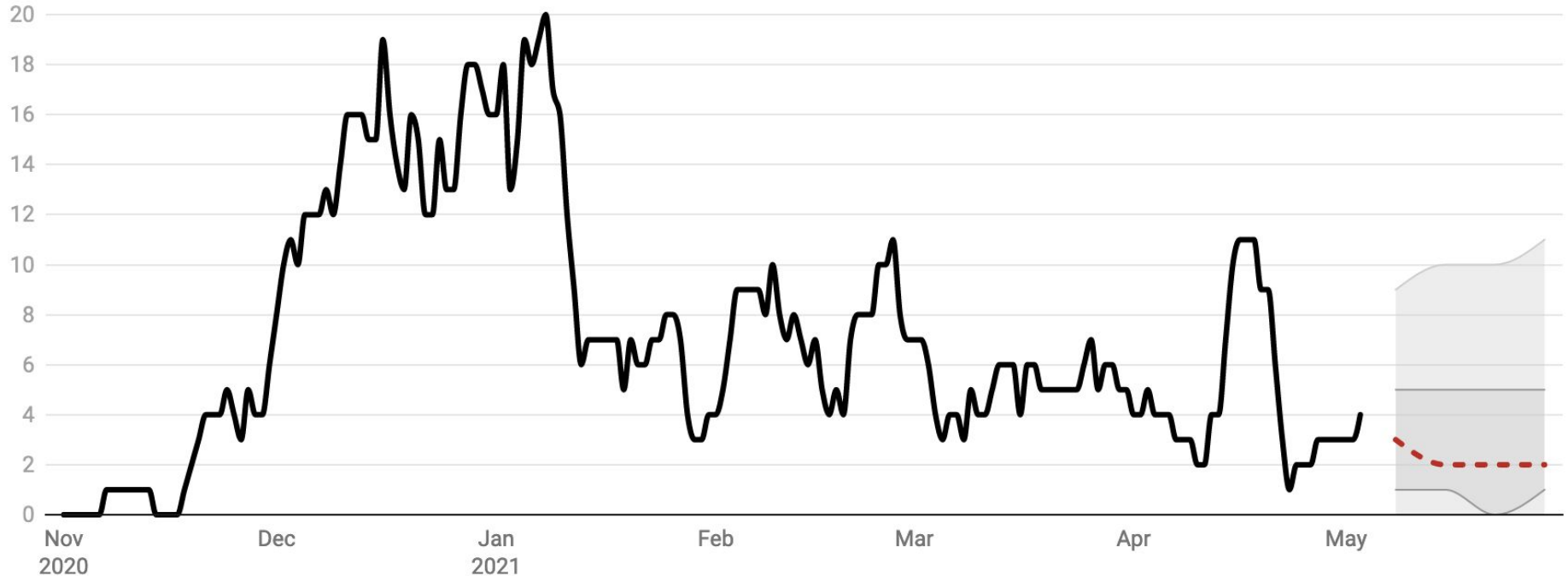
Source: Vermont Department of Health—May 3, 2021

Vermont COVID-19 Deaths by Month



Vermont 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.



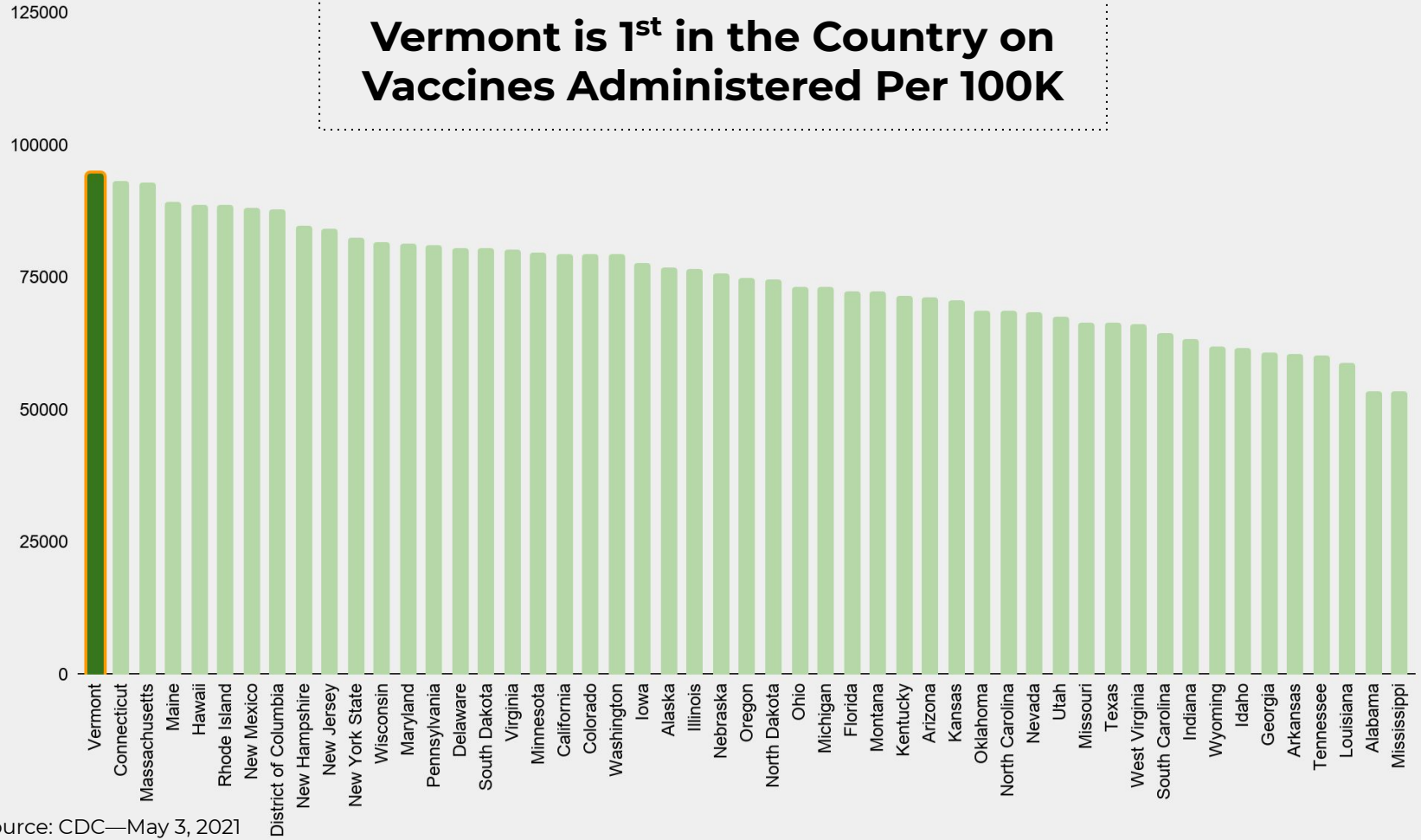
Vermont Vaccination Data

Vermont CDC Vaccine Scorecard

Metric	Figure	State Ranking
Doses Administered per 100K	94,499	1
% At Least 1 Dose	57.4%	3
% Fully Vaccinated	39.9%	3
% 65+ One Dose	95.5%	2
% 65+ Fully Vaccinated	85.2%	1

Source: CDC—May 3, 2021; CDC data using 2019 census estimates as of May 3, 2021

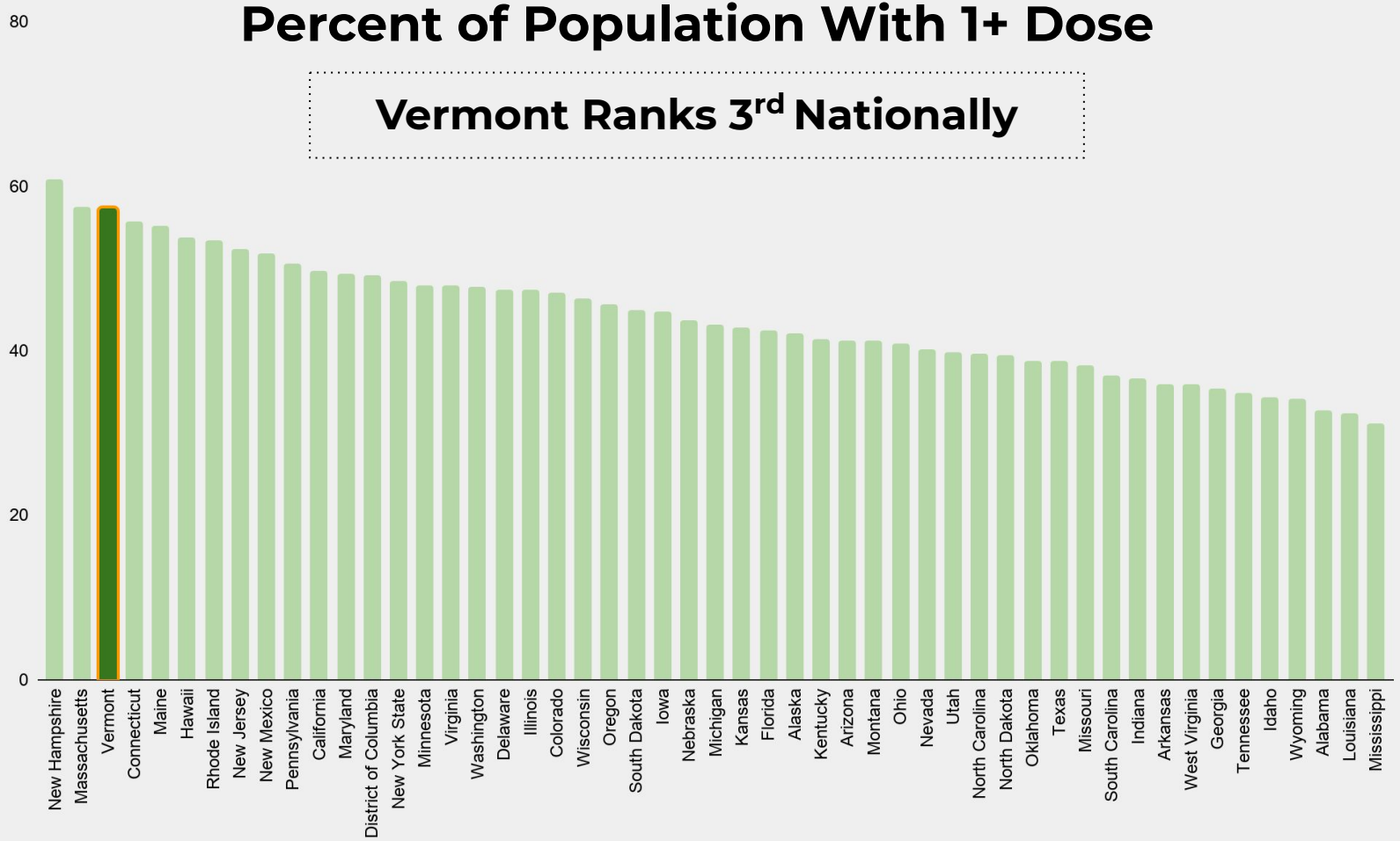
Vermont is 1st in the Country on Vaccines Administered Per 100K



Source: CDC—May 3, 2021

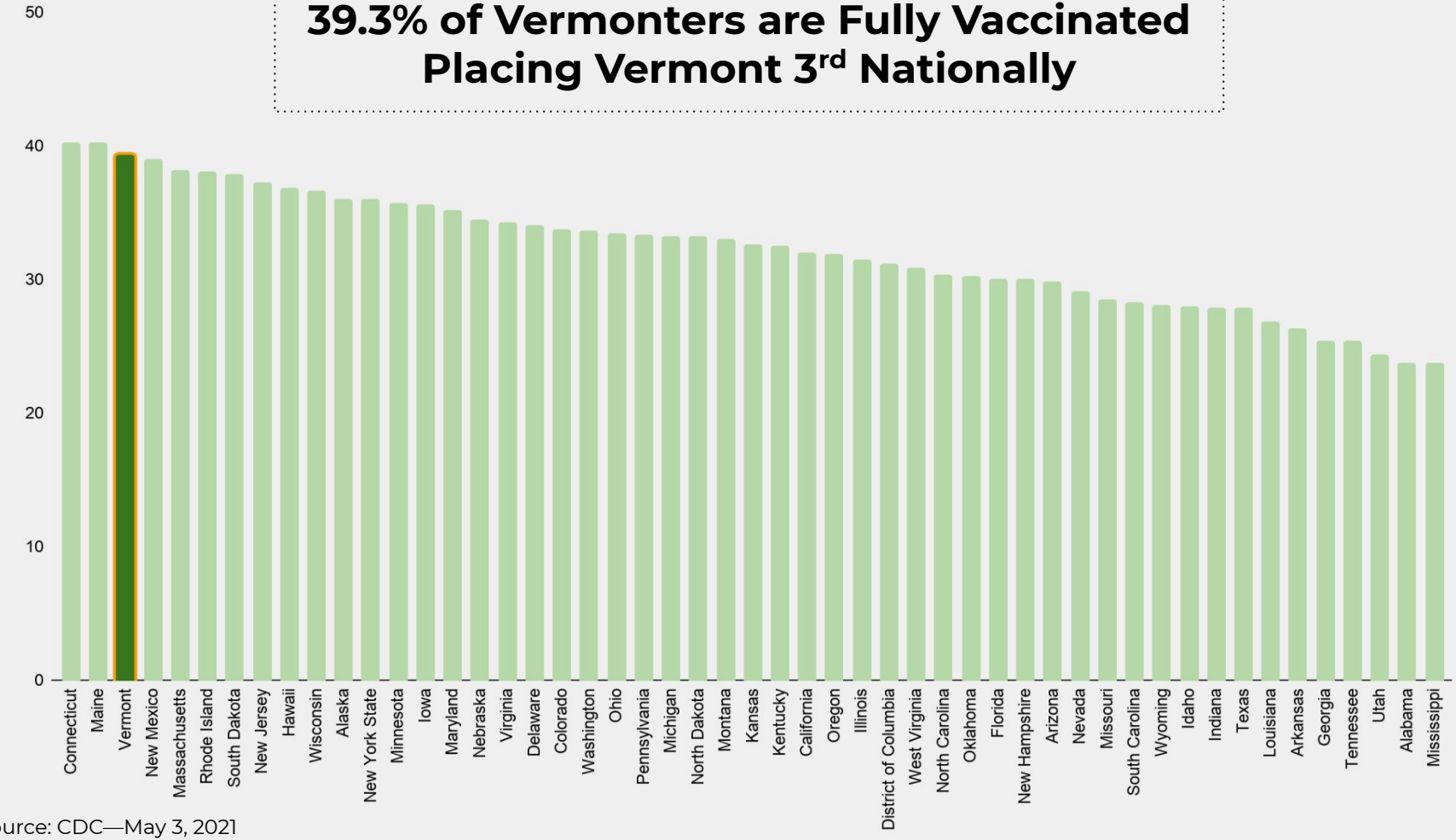
Percent of Population With 1+ Dose

Vermont Ranks 3rd Nationally

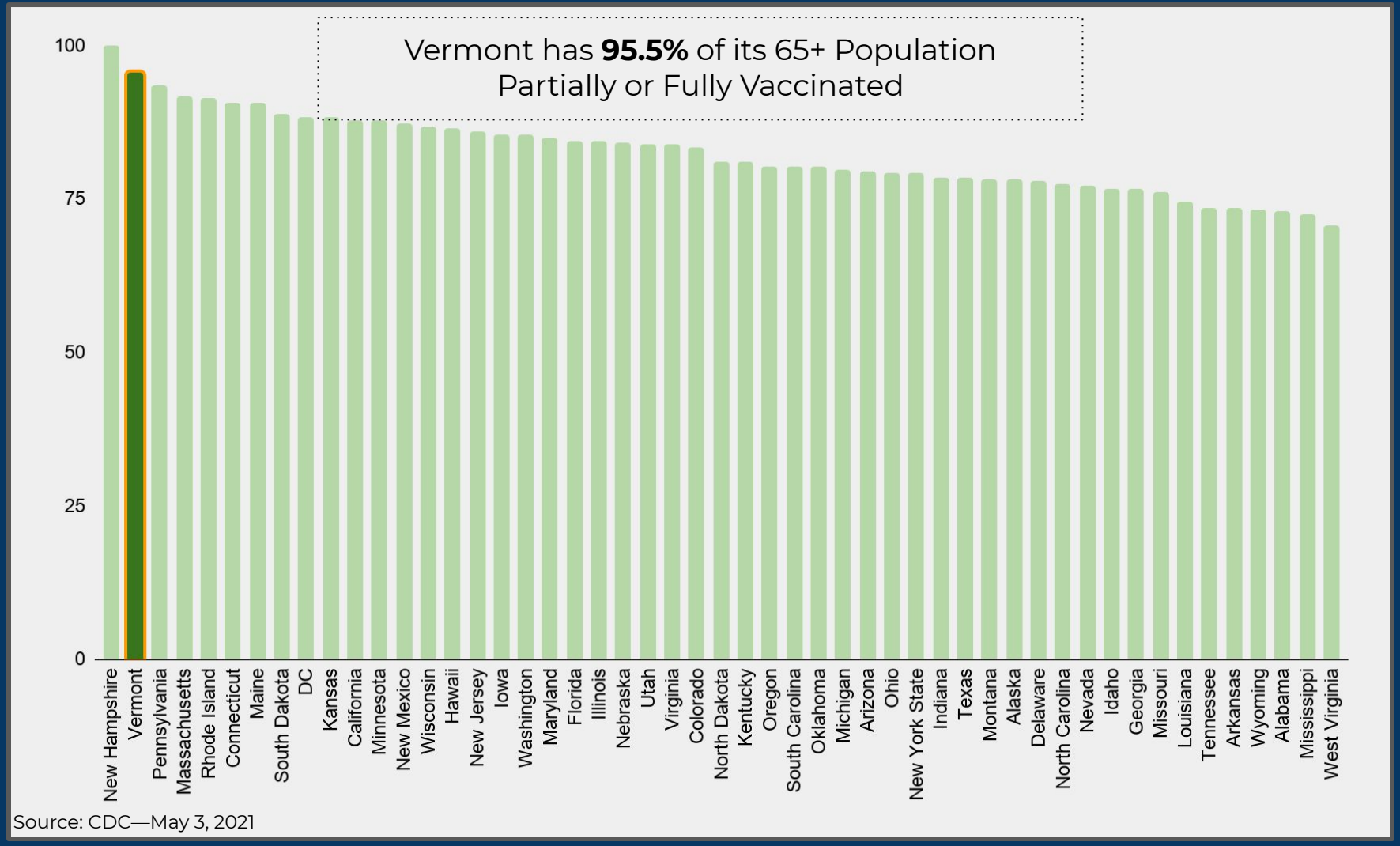


Source: CDC—May 3, 2021

39.3% of Vermonters are Fully Vaccinated Placing Vermont 3rd Nationally

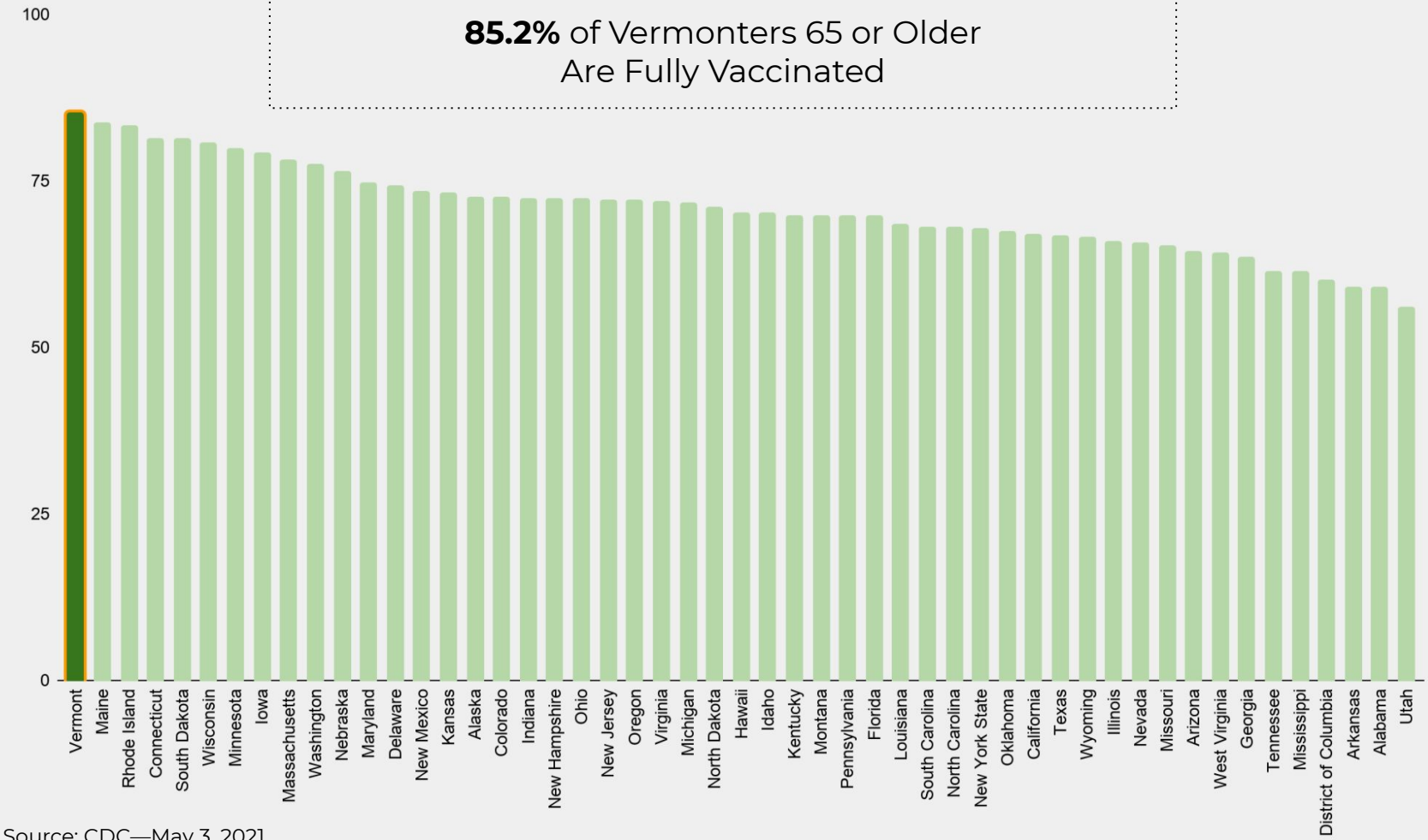


Source: CDC—May 3, 2021

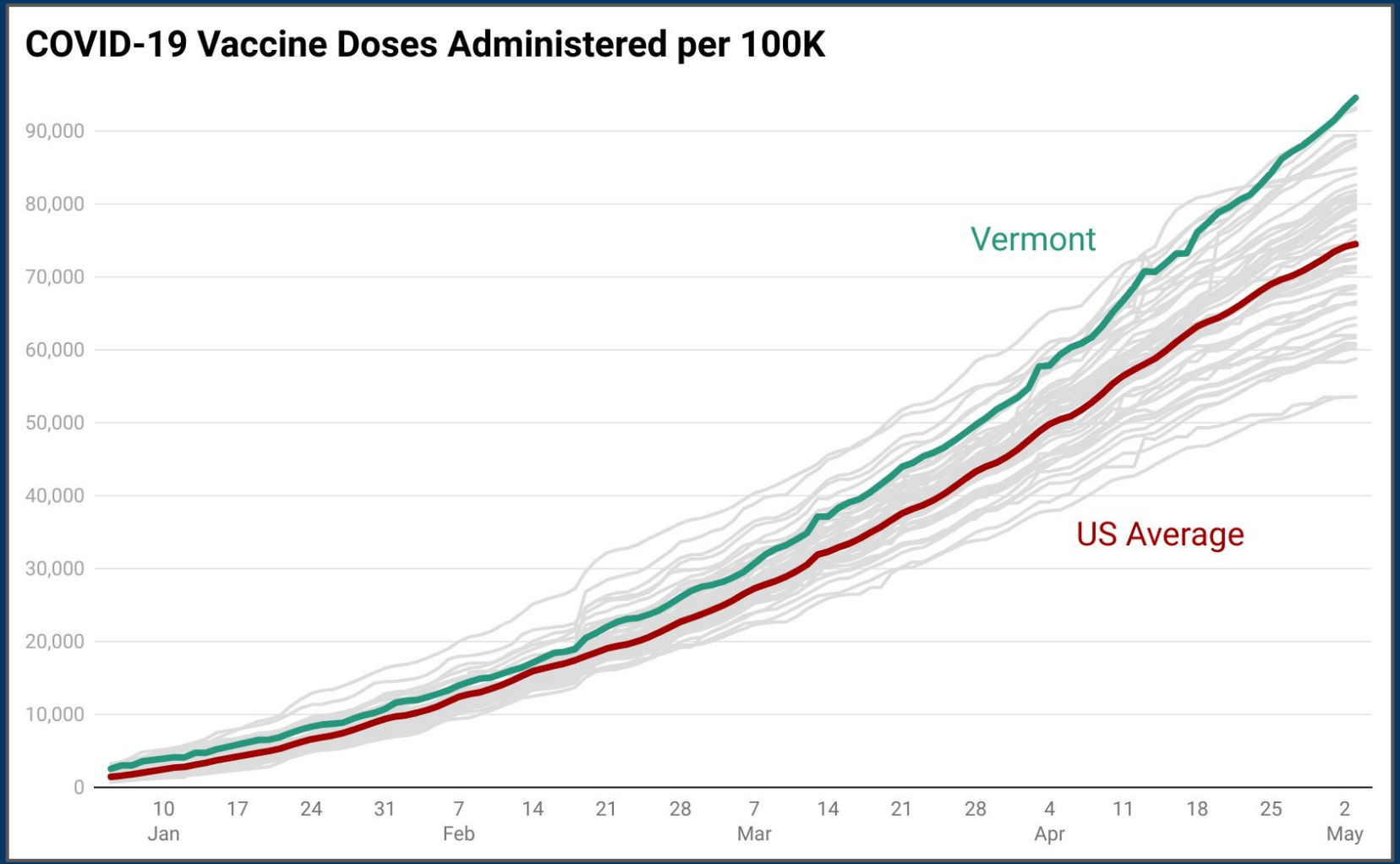


Source: CDC—May 3, 2021

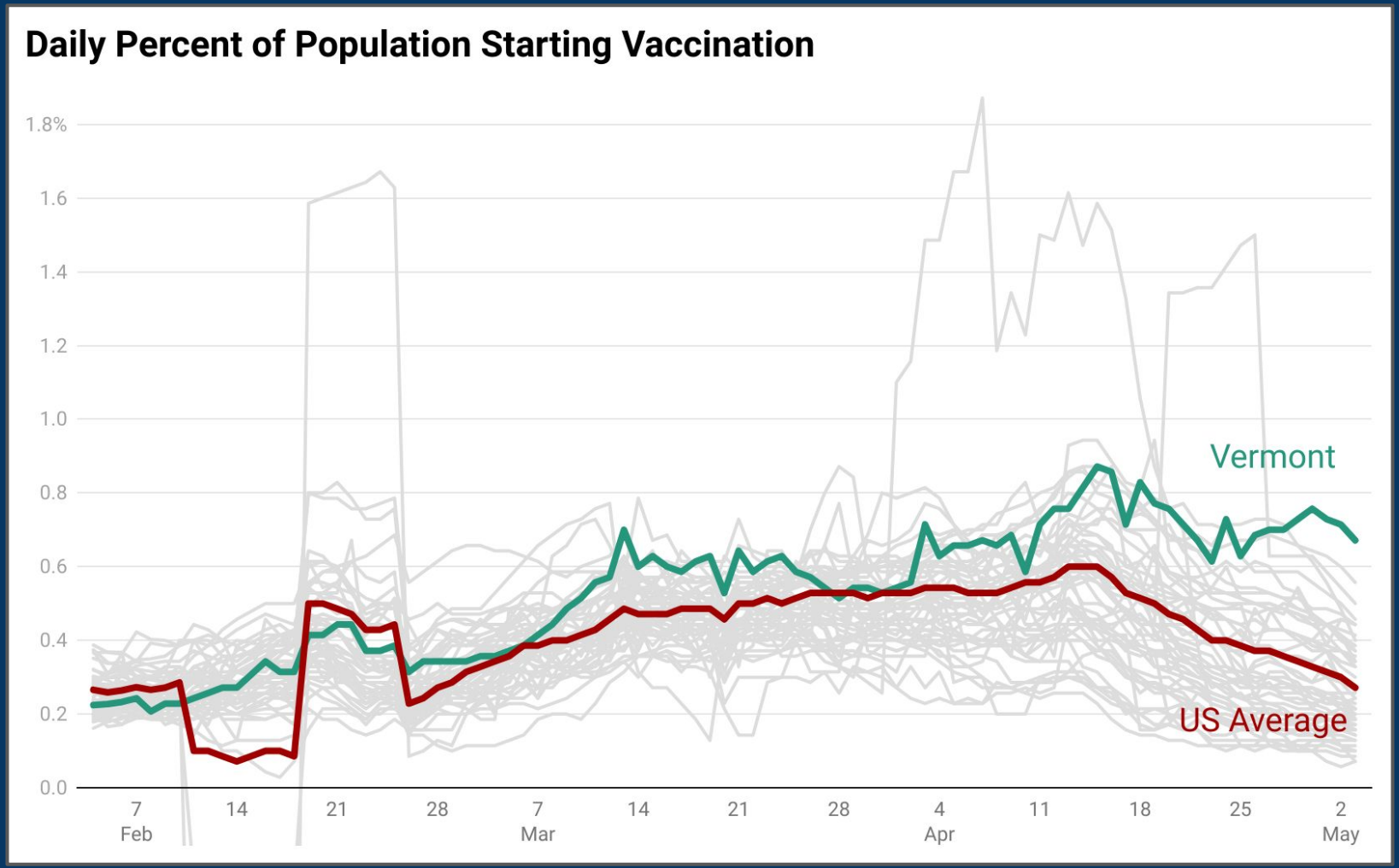
85.2% of Vermonters 65 or Older
Are Fully Vaccinated



Source: CDC—May 3, 2021

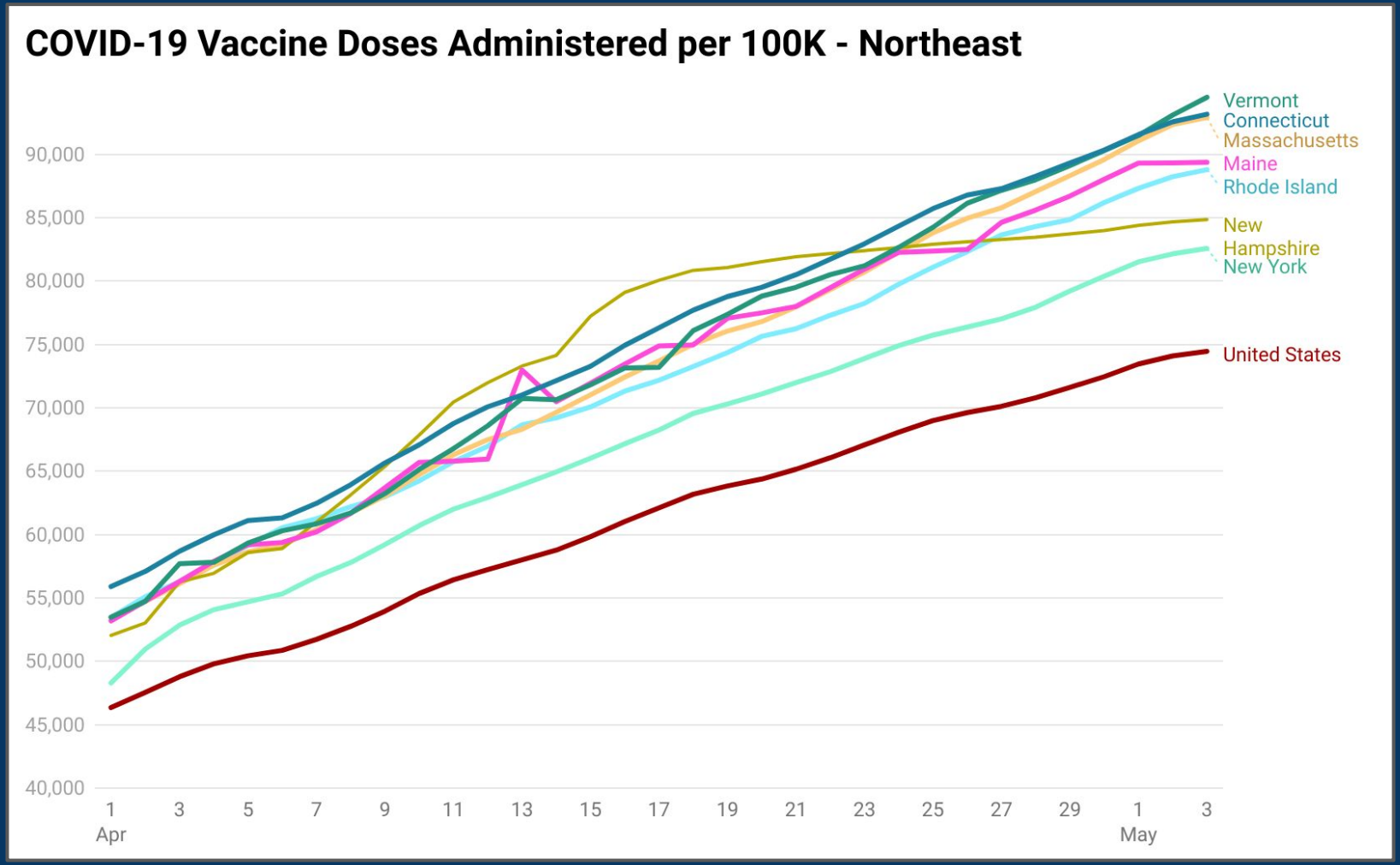


Source: CDC—May 3, 2021



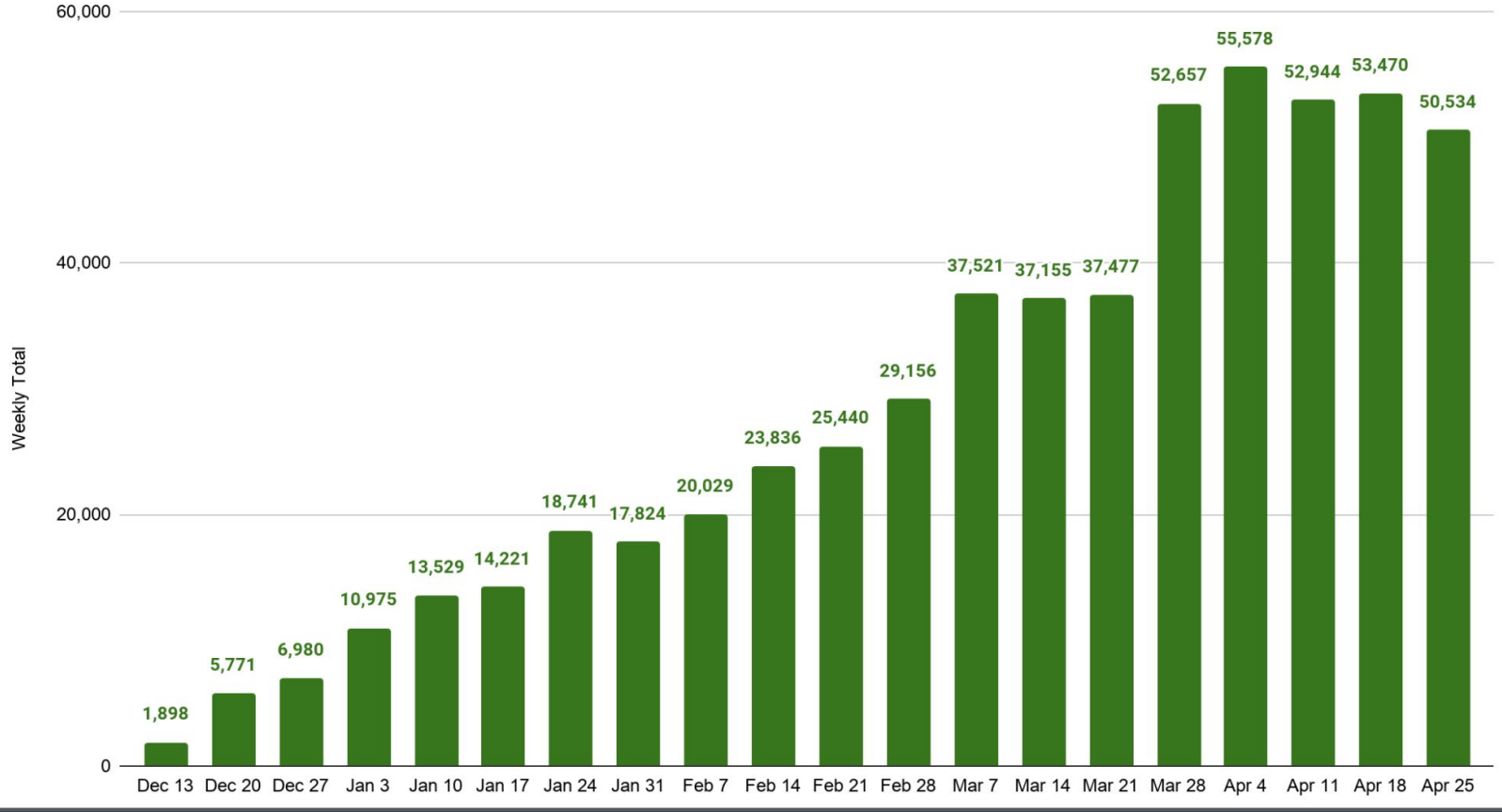
Source: CDC—May 3, 2021

COVID-19 Vaccine Doses Administered per 100K - Northeast

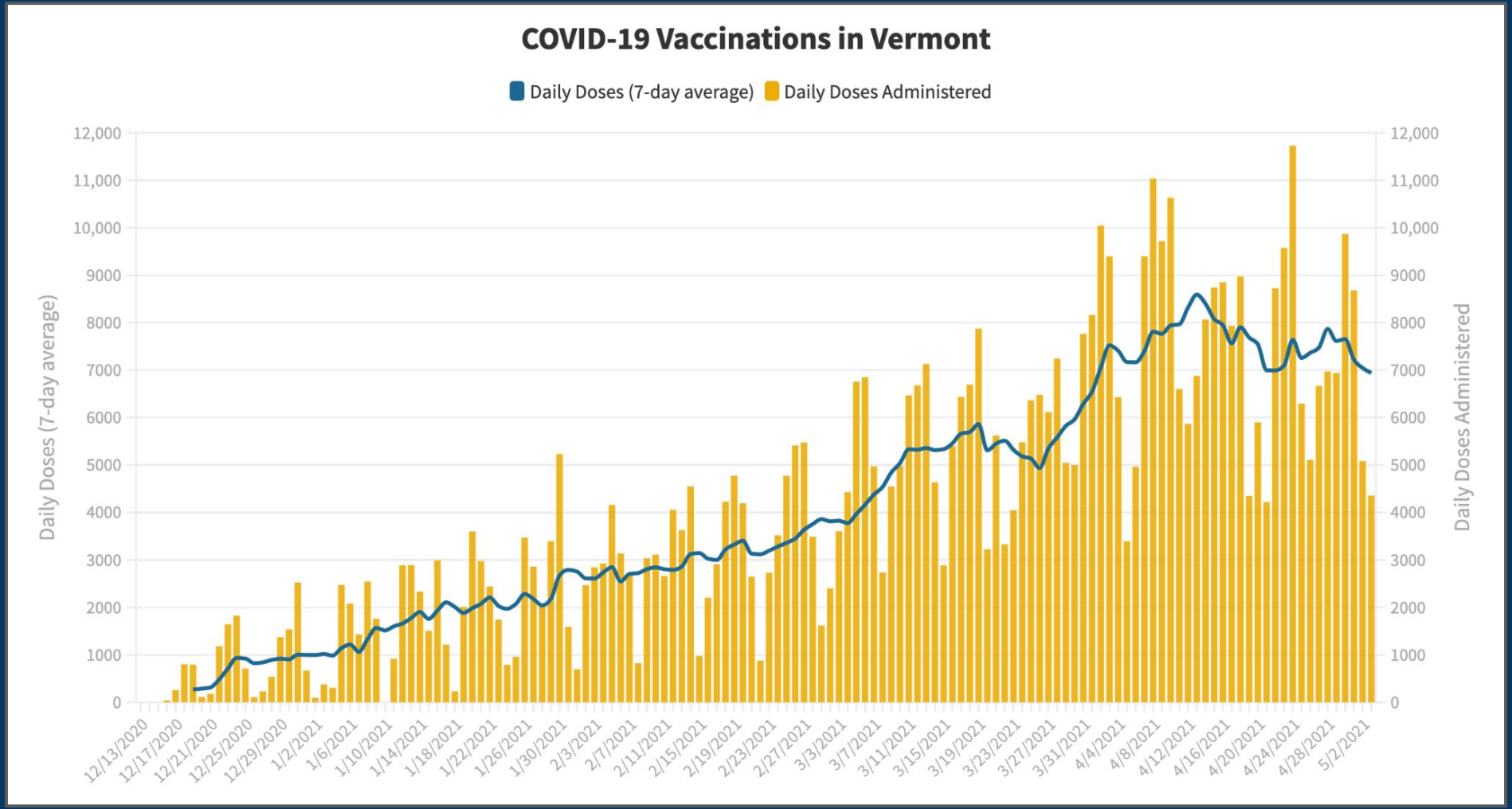


Source: CDC—May 3, 2021

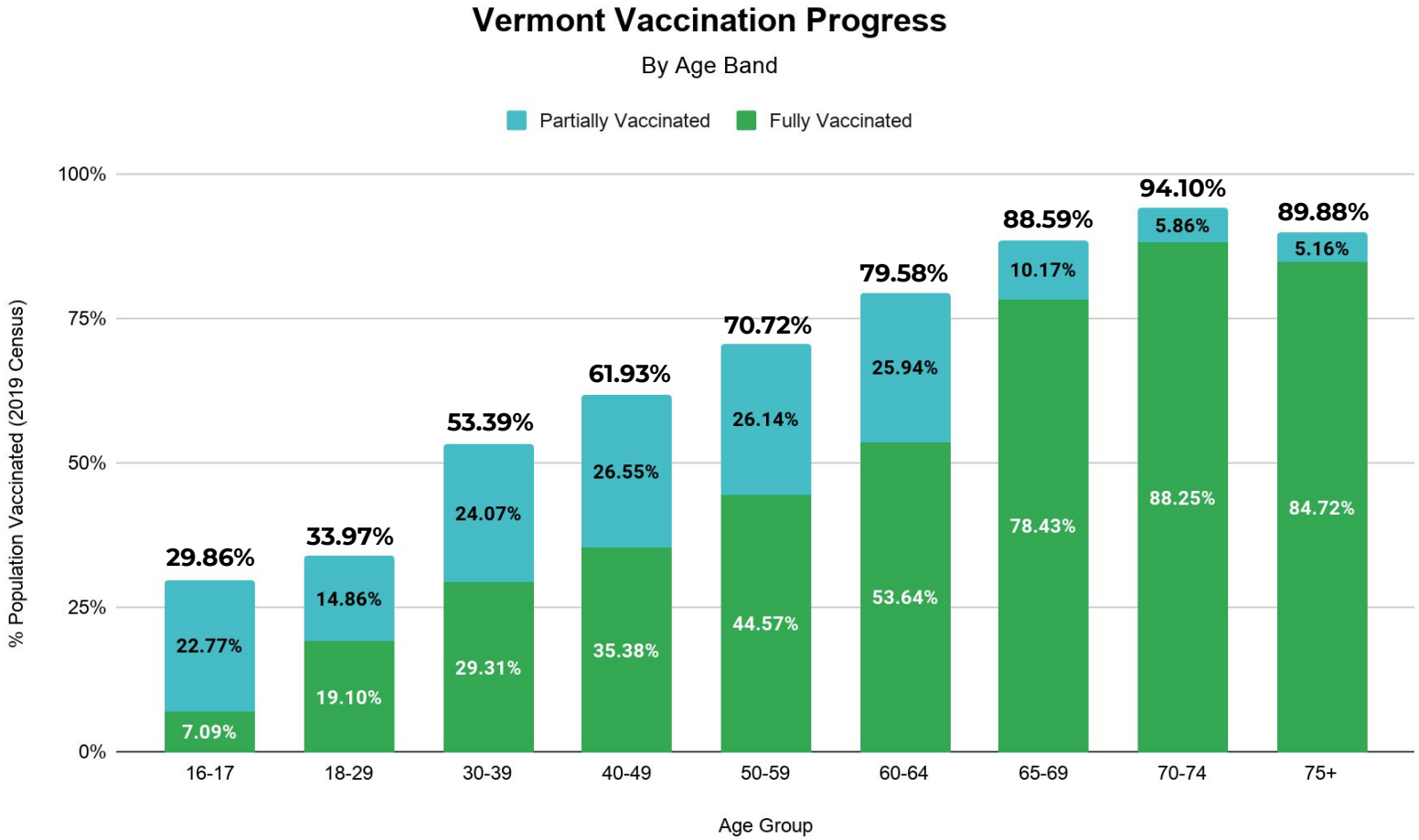
Vermont Weekly Vaccine Administrations



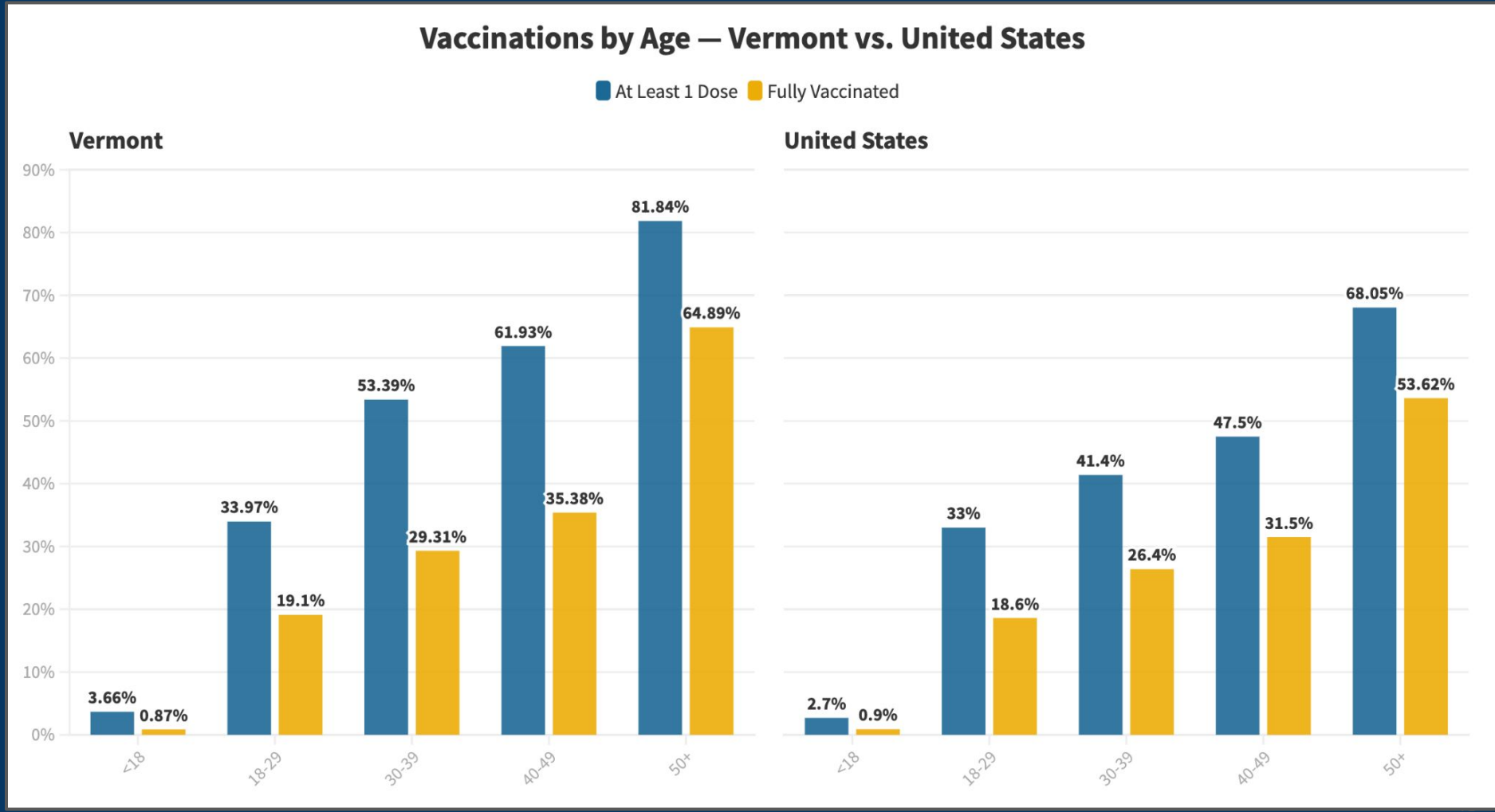
Source: Vermont Department of Health—May 3, 2021; week calculated beginning given Sunday through Saturday



Source: Vermont Department of Health—May 3, 2021

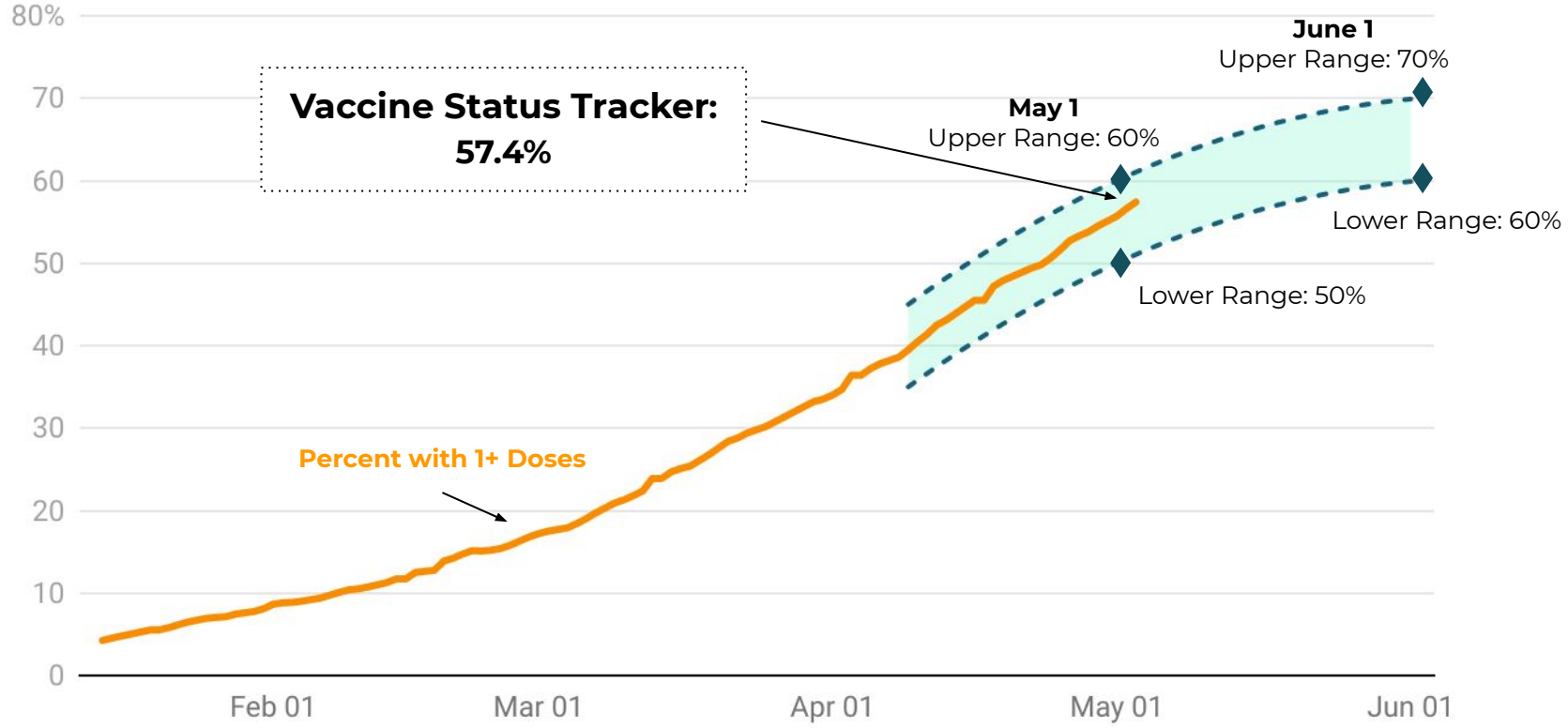


Source: Vermont Dept. of Health—May 4, 2021; excludes those vaccinated through federal entities; uses 2019 Census data



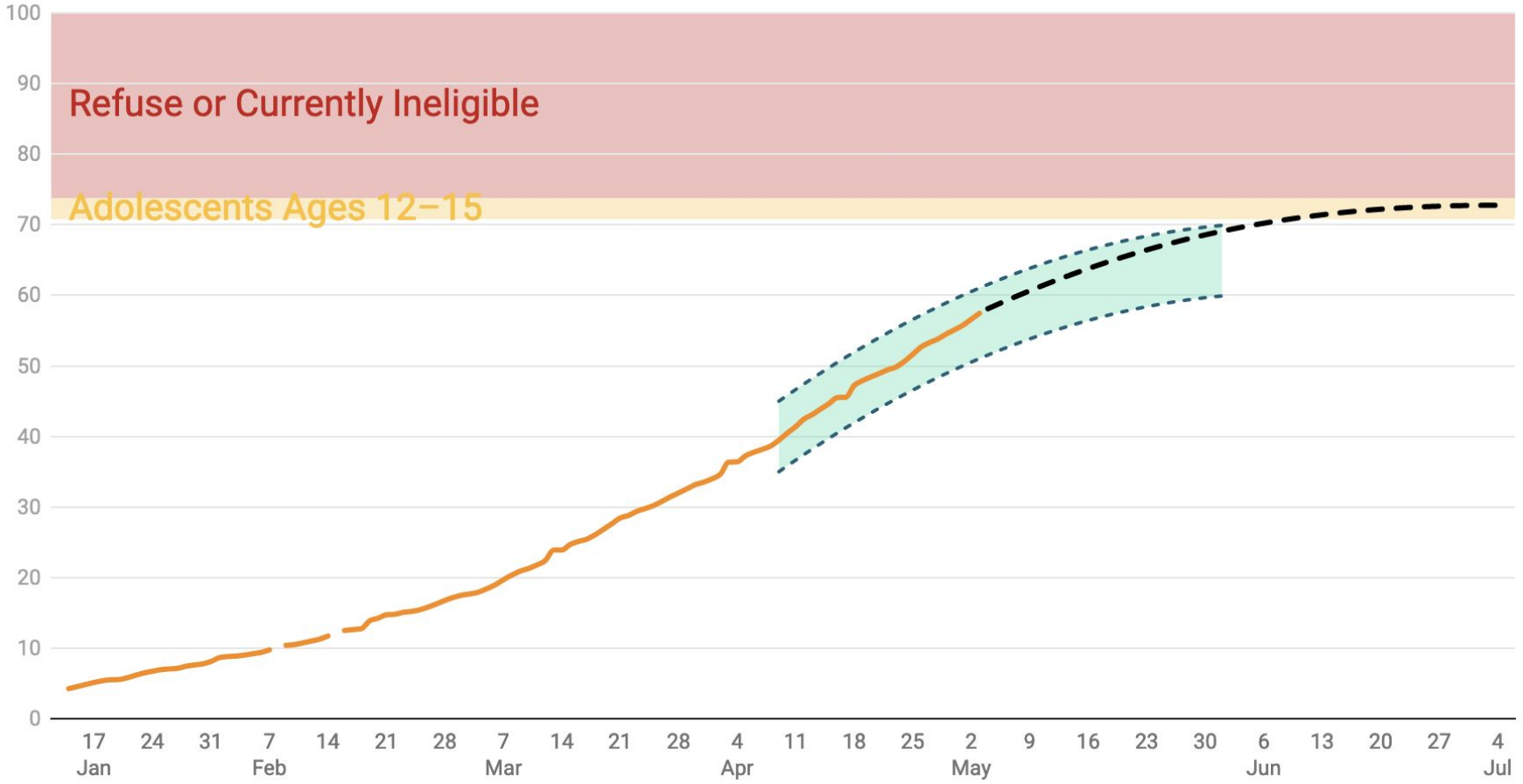
Source: Vermont Department of Health and CDC—May 3, 2021

Vermont Forward
Progress to Goal



Source: CDC—May 3, 2021; ranges represent 1+ dose for all Vermonters; VT at 55.7% using 2020 census with population of 643,503

% Of Vermonters With 1+ COVID Vaccine Doses

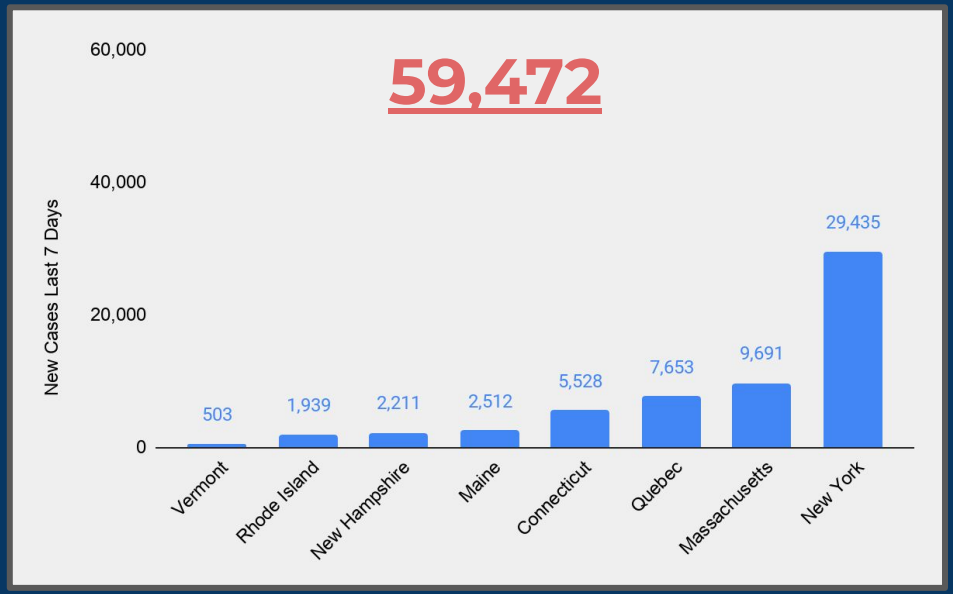


Regional Data

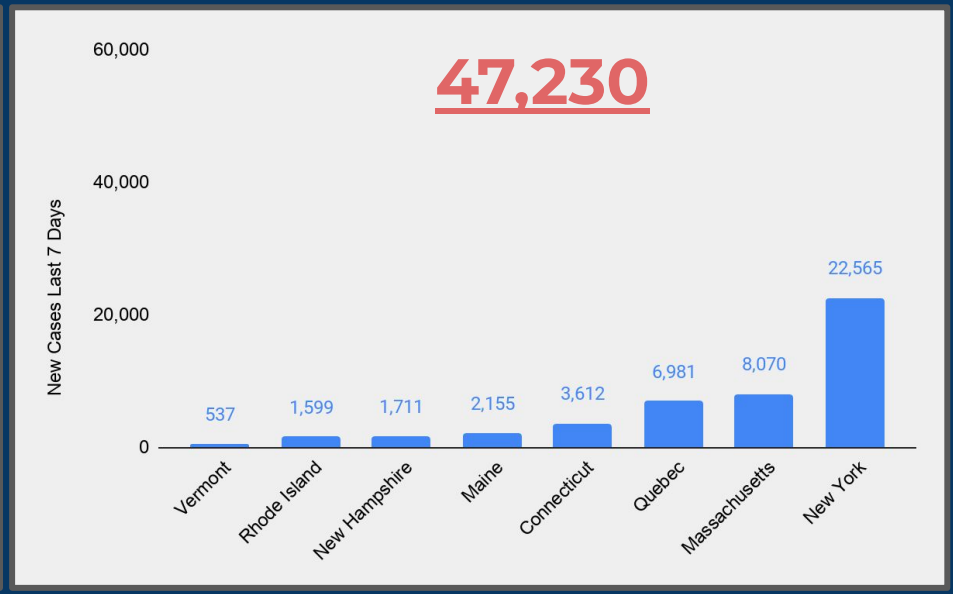
Regional Cases

20.58% Decrease in New Cases

New Cases April 20th to April 26th

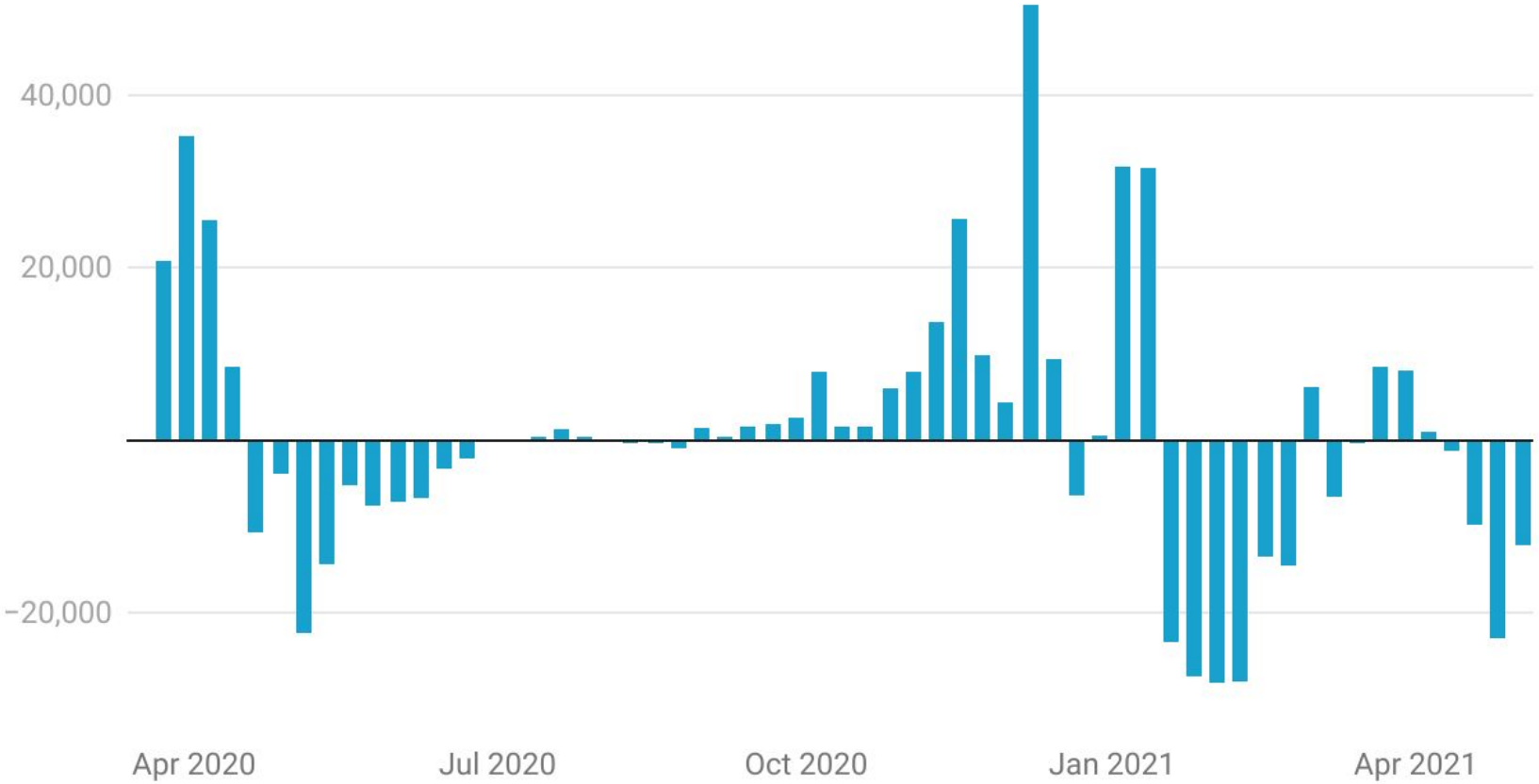


New Cases April 27th to May 3rd



Sources: State Health Departments & CTV National News (Quebec)

Change in Regional Weekly Cases



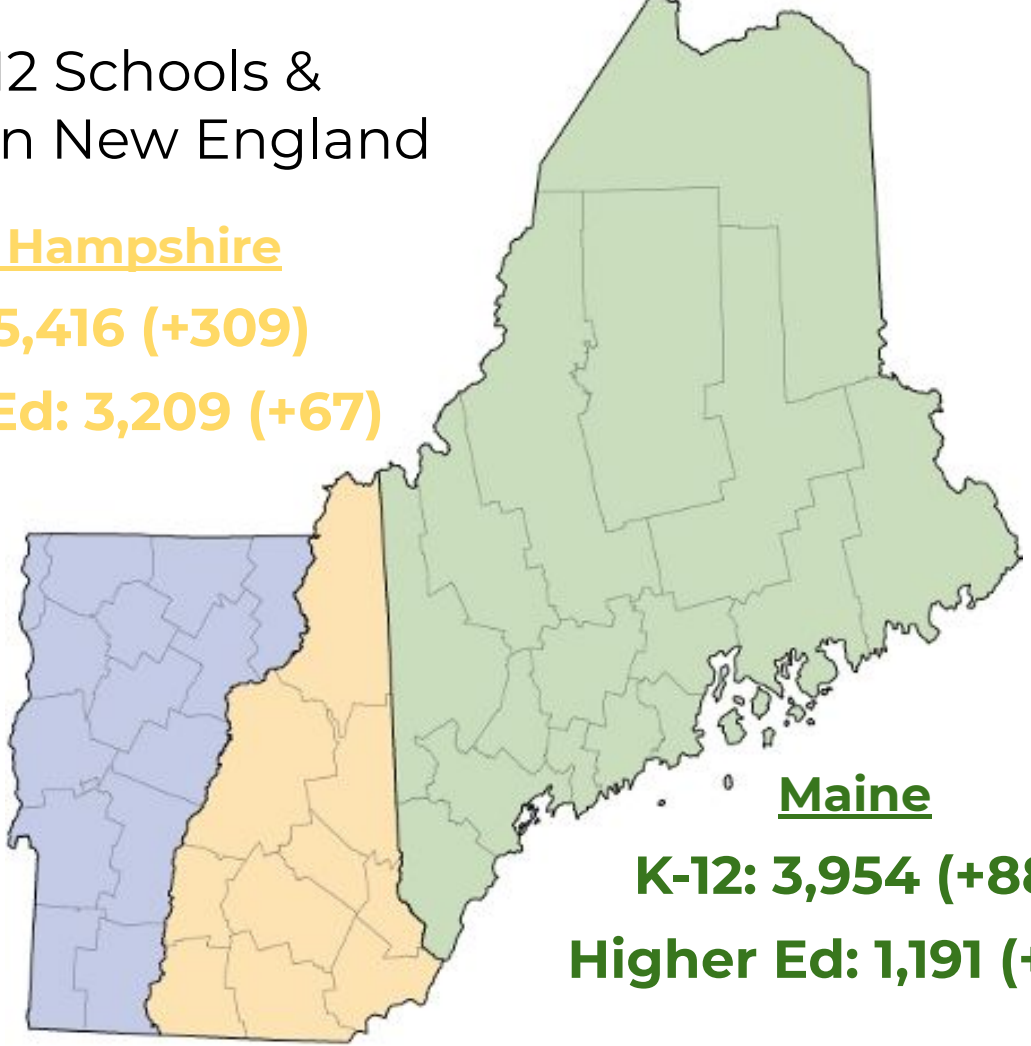
Sources: State Health Departments & CTV National News (Quebec) (includes: CT, ME, MA, NH, NY, QC, RI & VT)

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

New Hampshire

K-12: 5,416 (+309)

Higher Ed: 3,209 (+67)



Vermont

K-12: 1,291 (+41)

Higher Ed: 1,140 (+44)

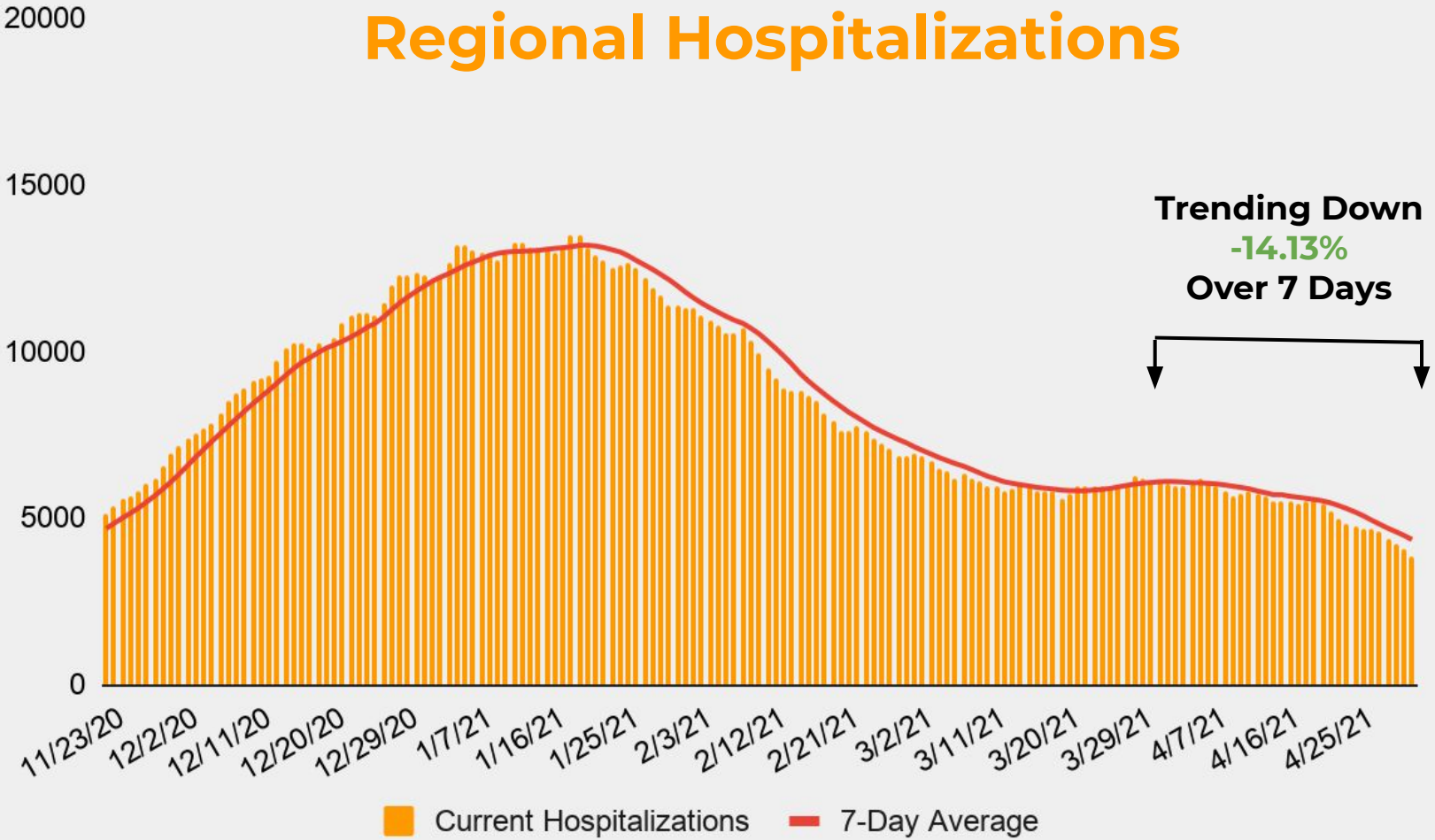
Maine

K-12: 3,954 (+88)

Higher Ed: 1,191 (+40)

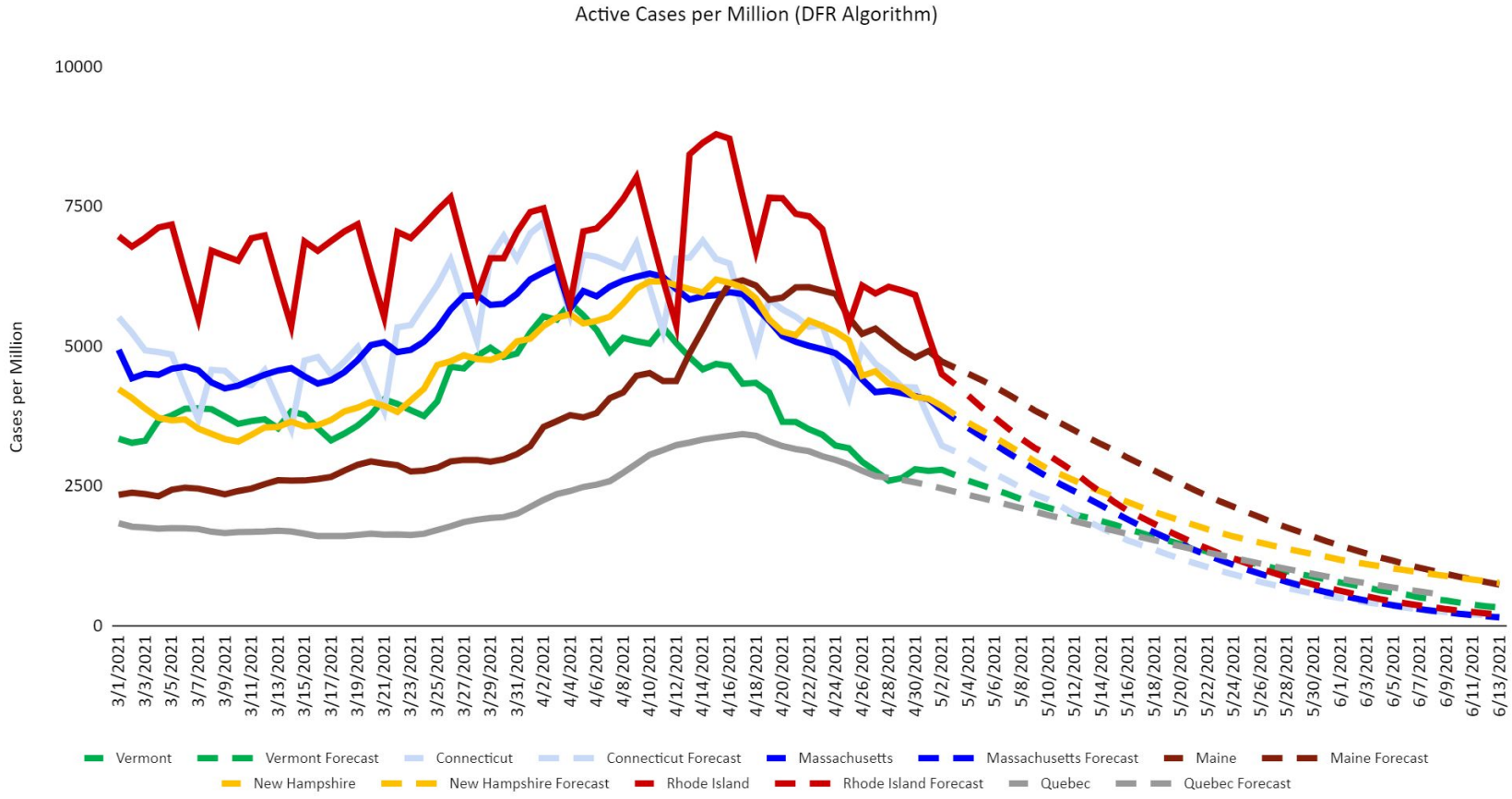
Source: ME, NH & VT K-12 Dashboards; K-12 cases from the full school year; Higher Ed. cases from the Spring Semester.

Regional Hospitalizations



Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—May 3, 2021

Regional Active Per Capita Case Forecast

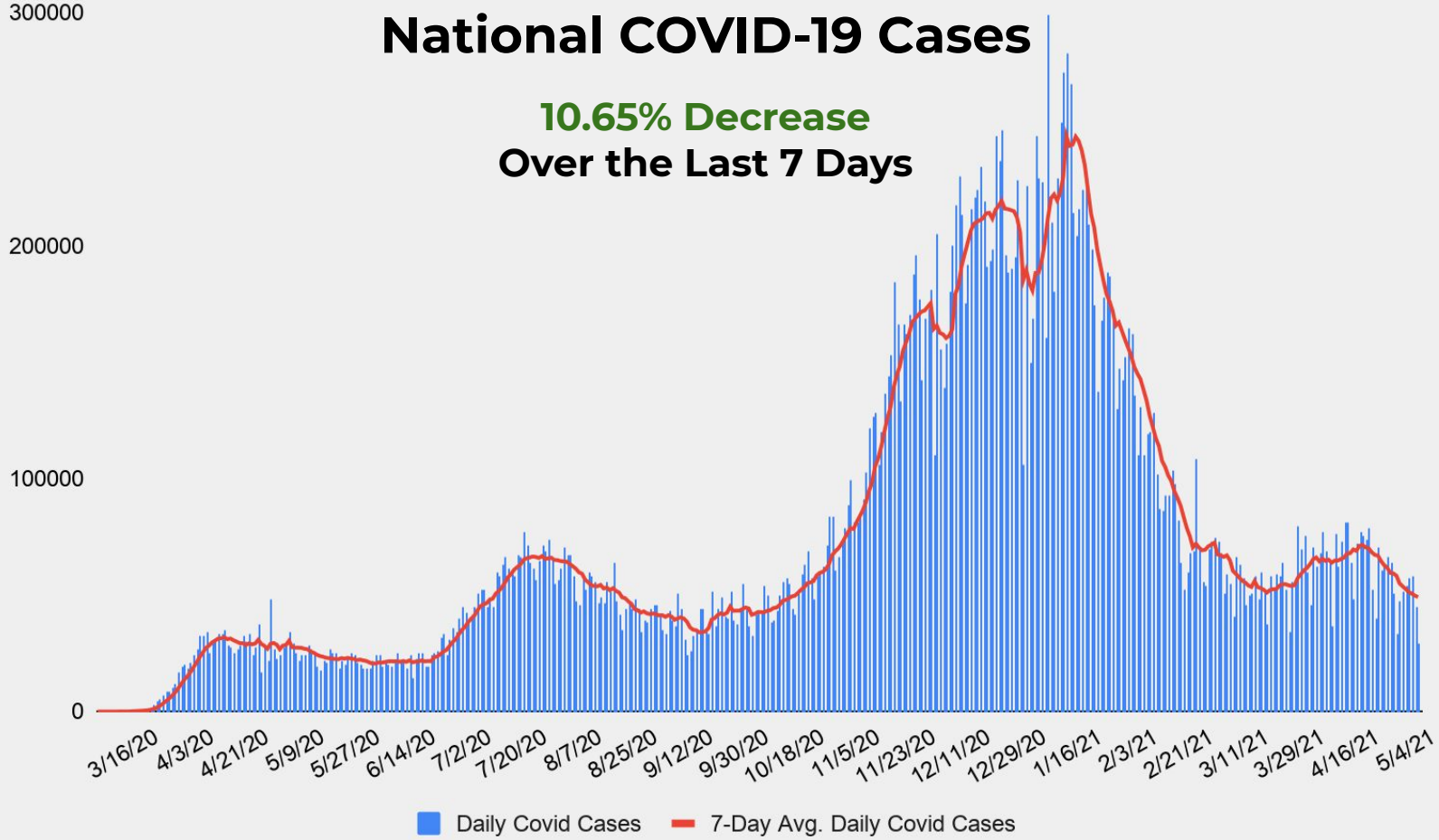


Source: Johns Hopkins University Data, CDC Ensemble, & Oliver Wyman Forecast Model—May 3, 2021; Note: assumes current vaccine supply

National Data

National COVID-19 Cases

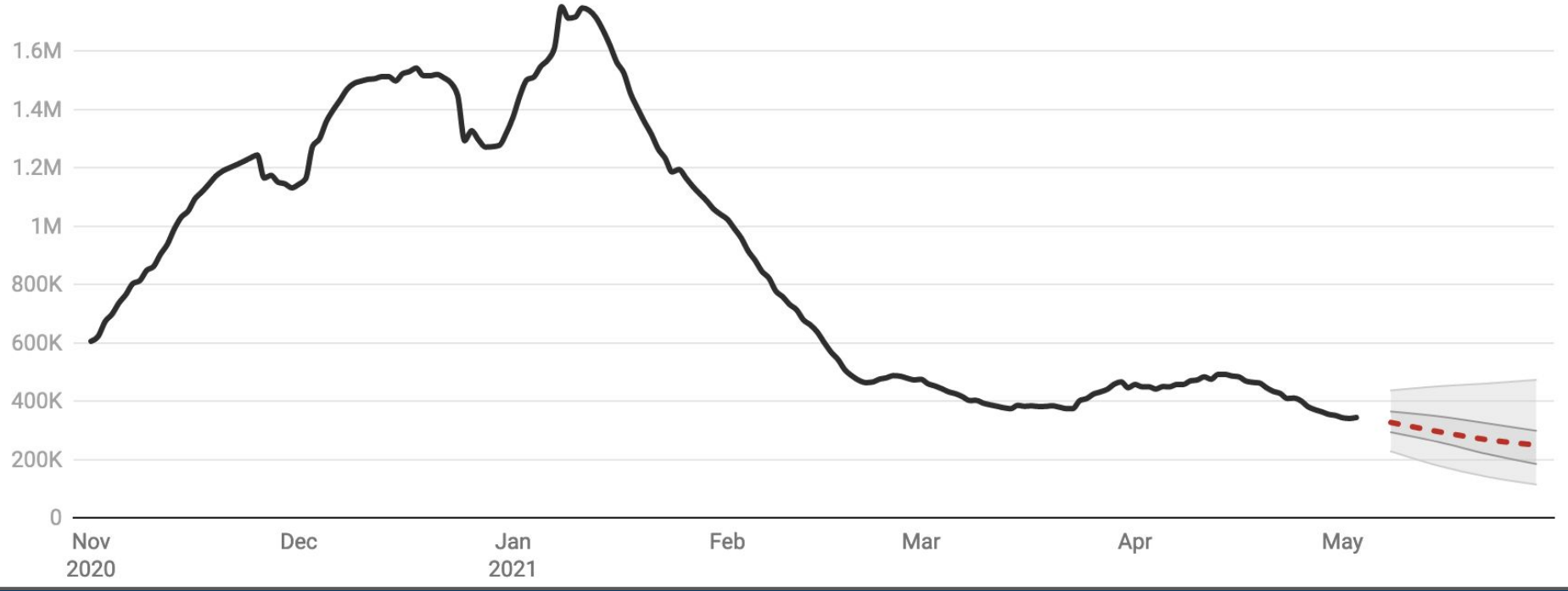
10.65% Decrease
Over the Last 7 Days



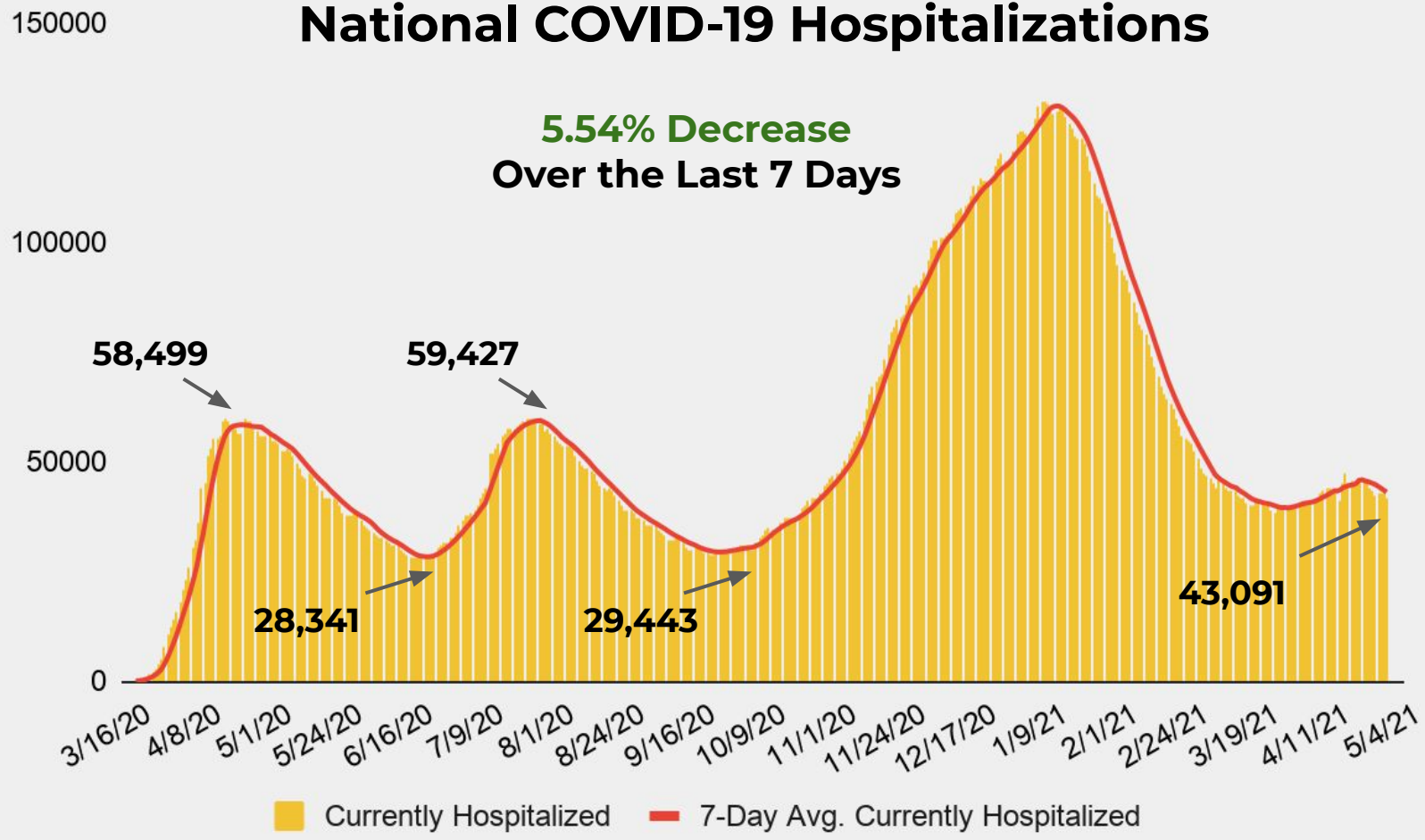
Source: Covid Tracking Project; NYT & CDC—May 3, 2021

US 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.



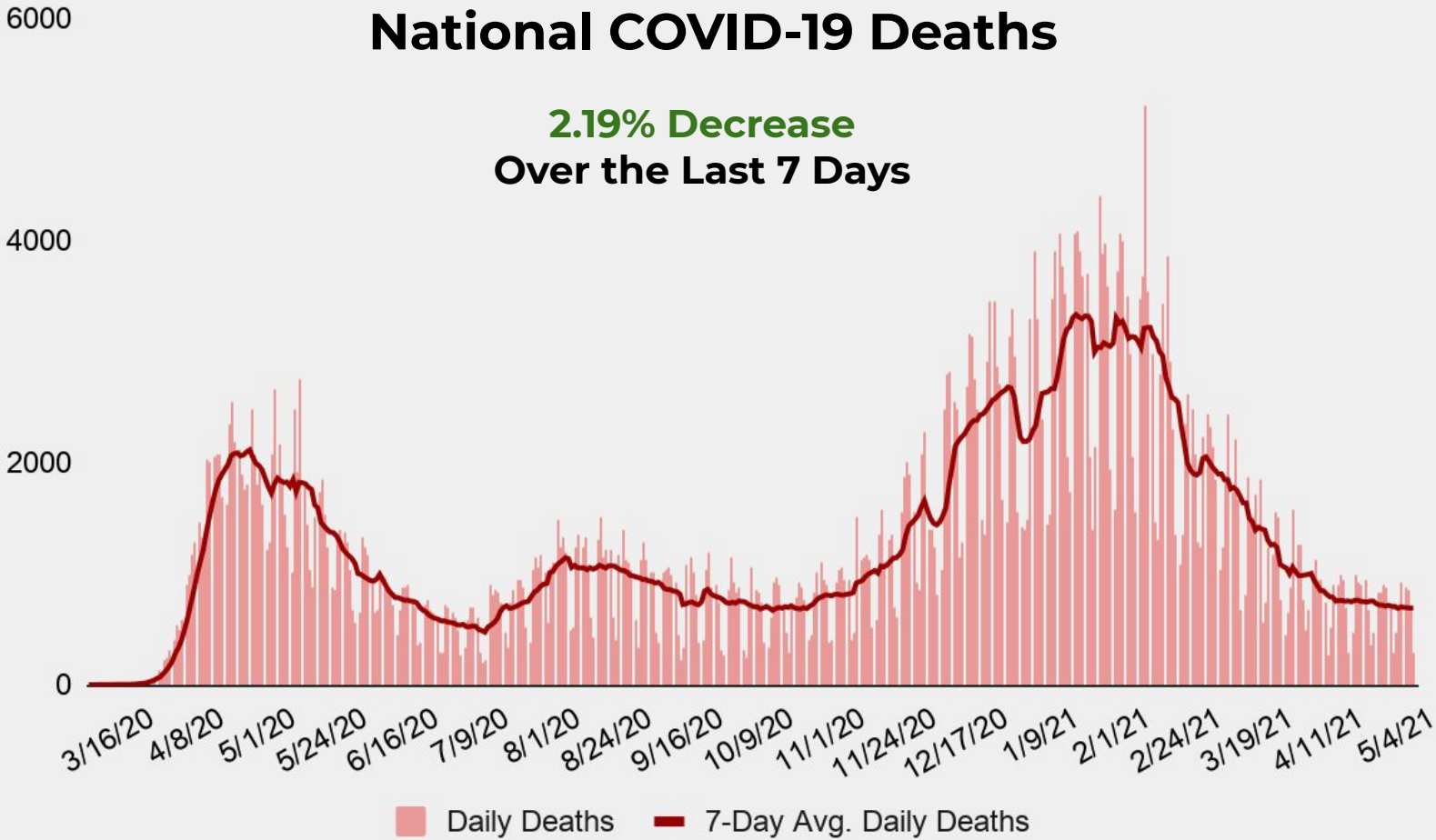
National COVID-19 Hospitalizations



Source: Covid Tracking Project; NYT & CDC—May 3, 2021

National COVID-19 Deaths

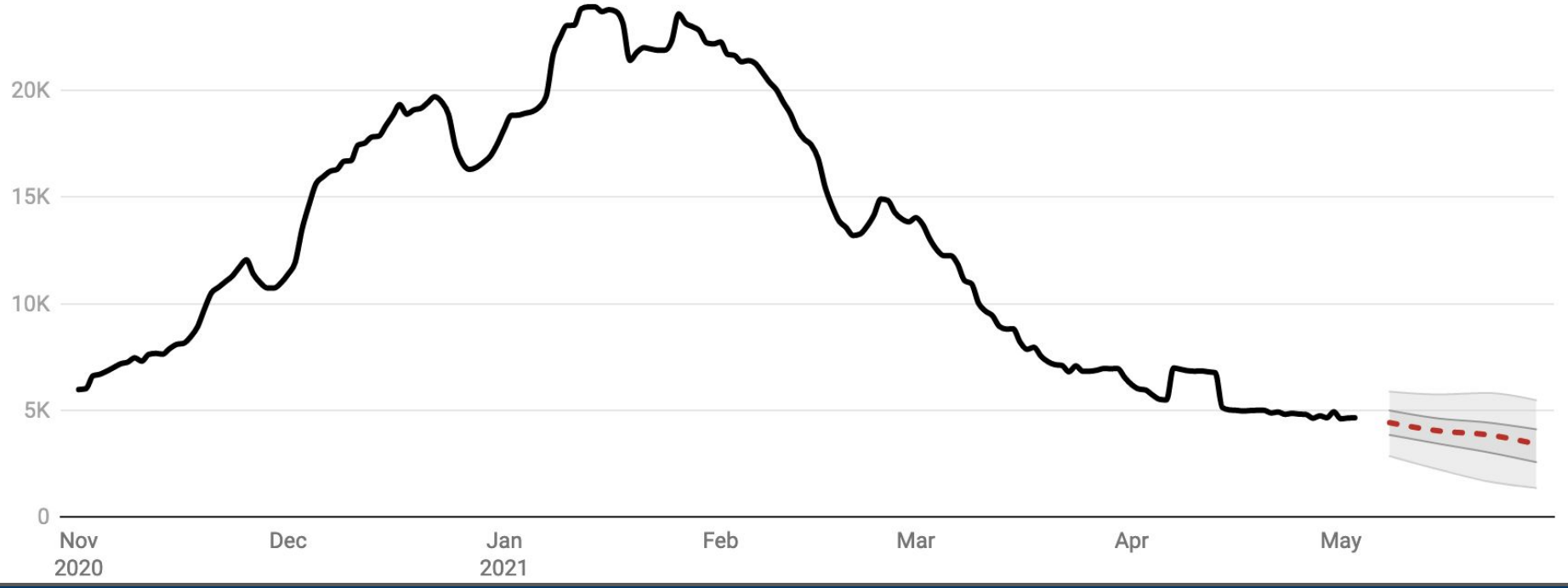
2.19% Decrease
Over the Last 7 Days



Source: Covid Tracking Project; NYT & CDC—May 3, 2021

US 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.



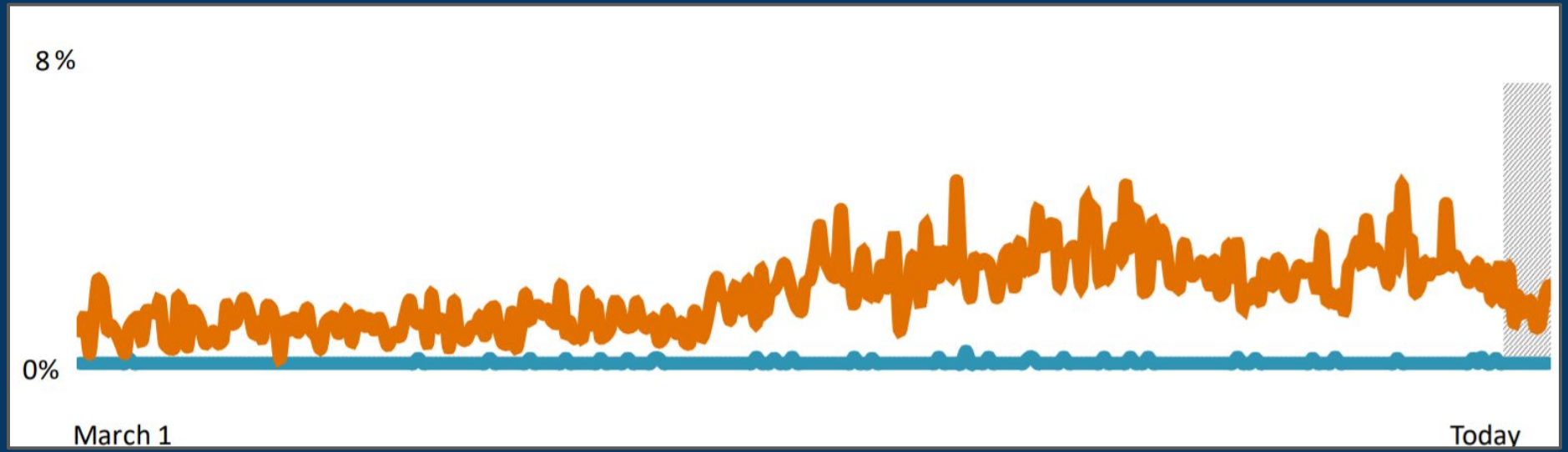
RESTART VERMONT

Reopening Metrics

1. Syndromic Surveillance
2. Viral Growth & Reproductive Rates
3. Percentage of New Positive Tests
4. Hospital & Critical Care Bed Capacity

Data Point 1: Syndromic Surveillance

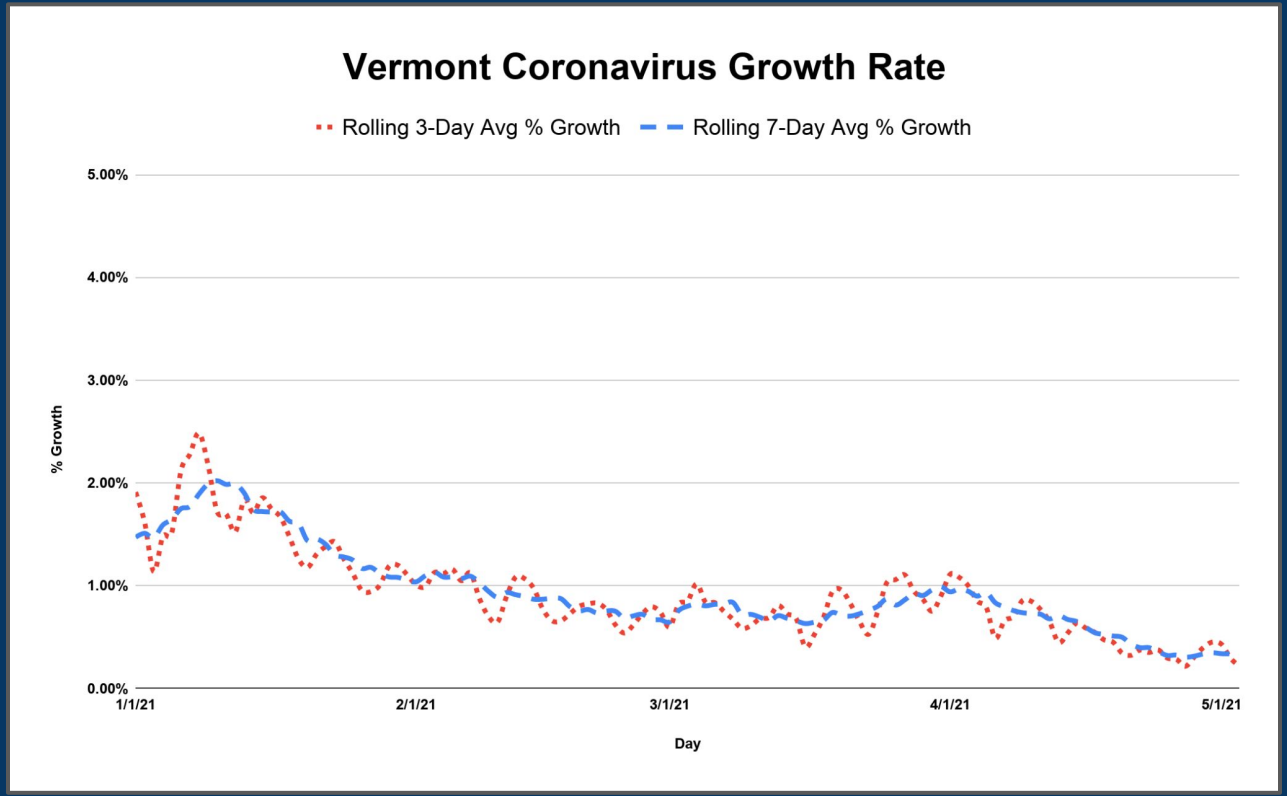
- **Summary:** Percentage of visits with COVID-19 like illness and Influenza diagnosis
- **Warning Flag:** Percentage of visits exceeding 4% for multiple consecutive days



Source: Vermont Department of Health—May 4, 2021

Data Point 2: Viral Growth and Reproductive Rates

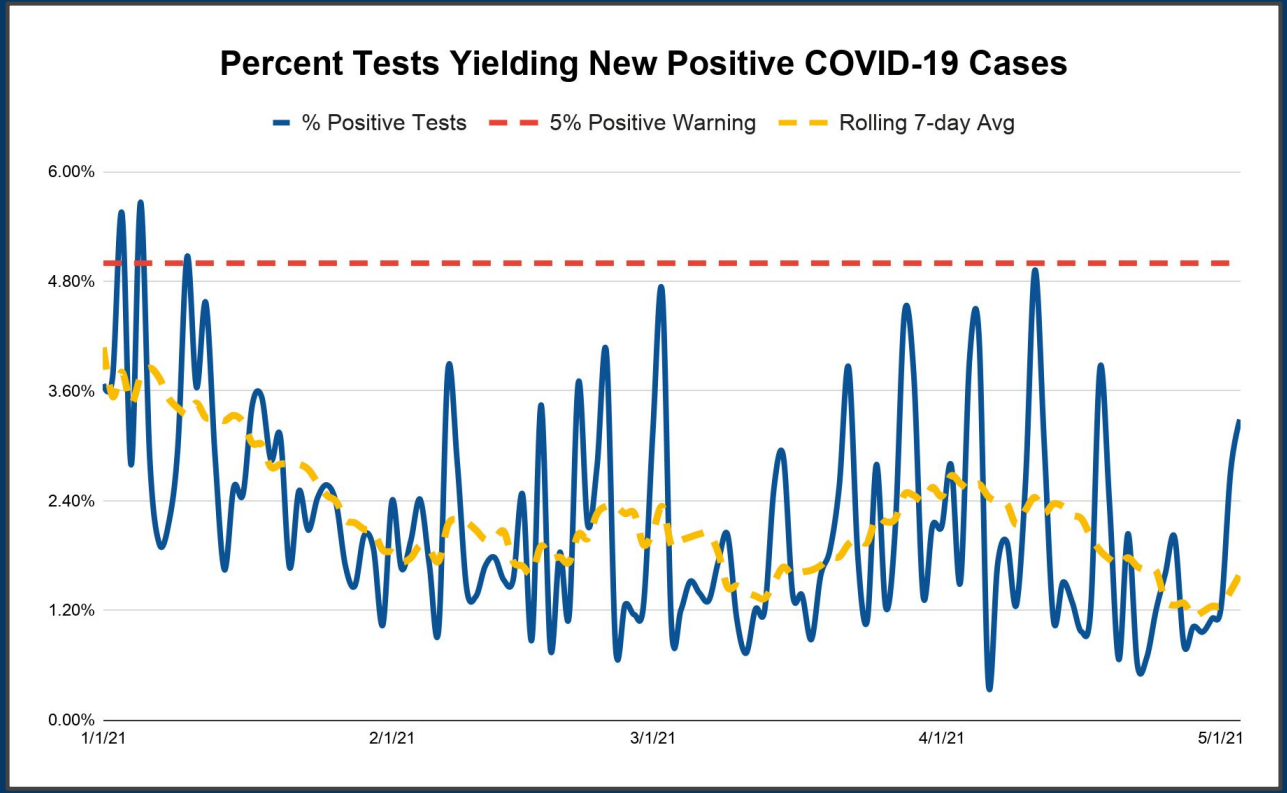
- **Summary:** Case growth measured by daily, 3-day, 7-day, and effective reproductive rate (R_t)
- **Warning Flags:** Sustained viral growth that would lead to <30% open ICU beds



Source: Vermont Department of Health—May 4, 2021

Data Point 3: Percentage of New Positive Tests

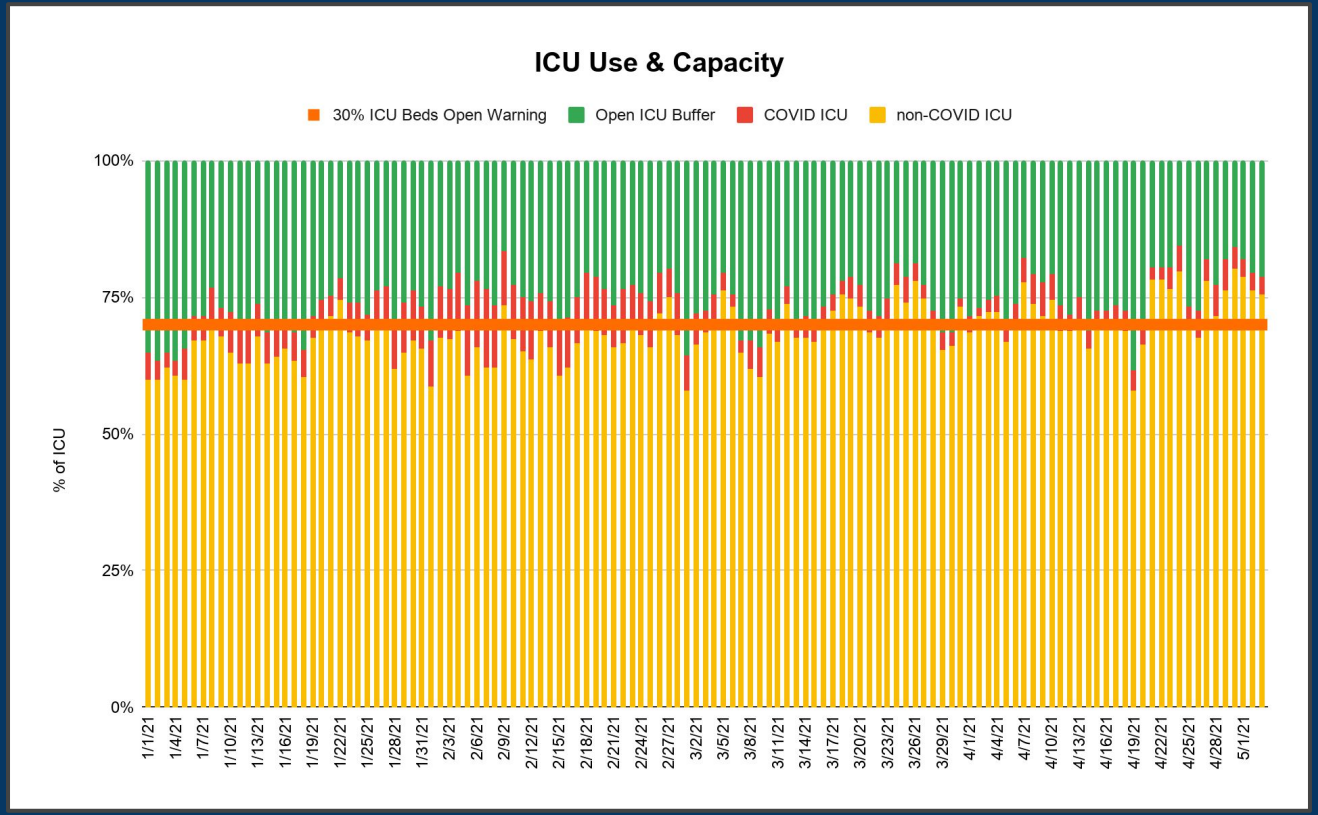
- **Summary:** Percent of tests resulting in a new positive case
- **Warning Flags:** New positives represent >5% of daily results



Source: Vermont Department of Health—May 4, 2021

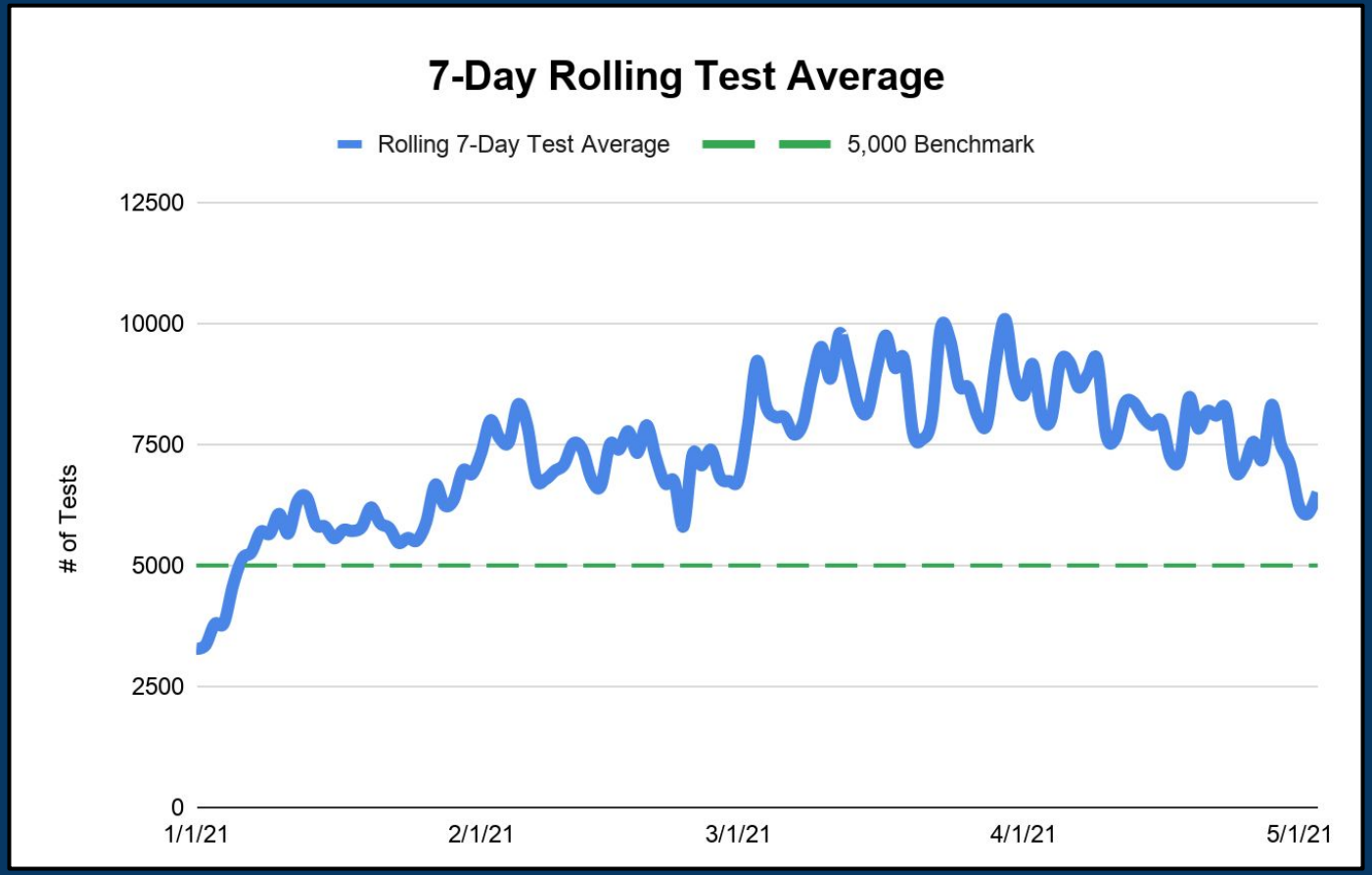
Data Point 4: Hospital & Critical Care Beds

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



Source: Vermont Department of Health—May 4, 2021

Vermont Testing



Source: Vermont Department of Health—May 4, 2021; results reported to VDH daily