COVID-19 Modeling
June 22, 2021

Presentation available at:
dfr.vermont.gov

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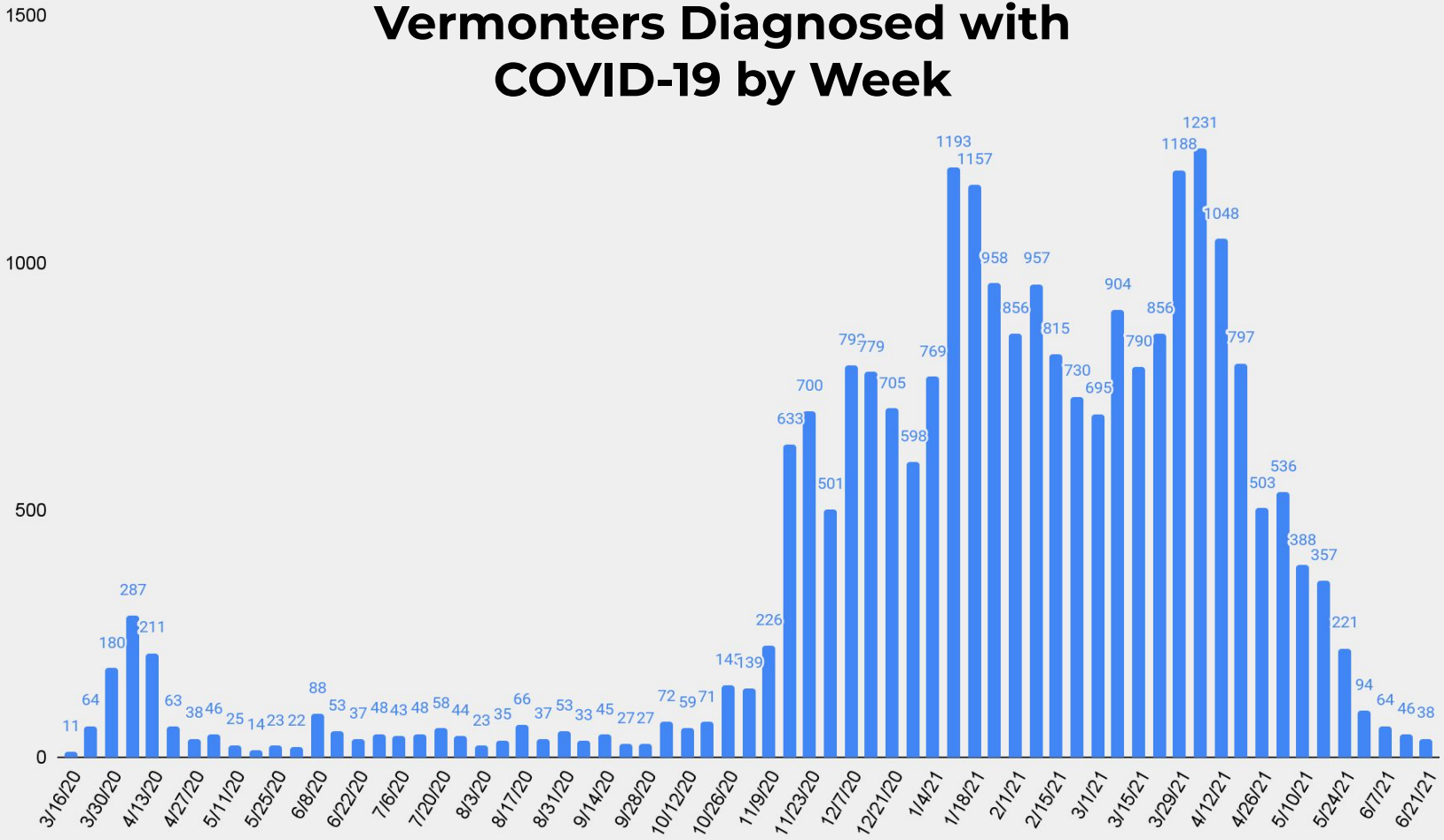
Vermont Case Data

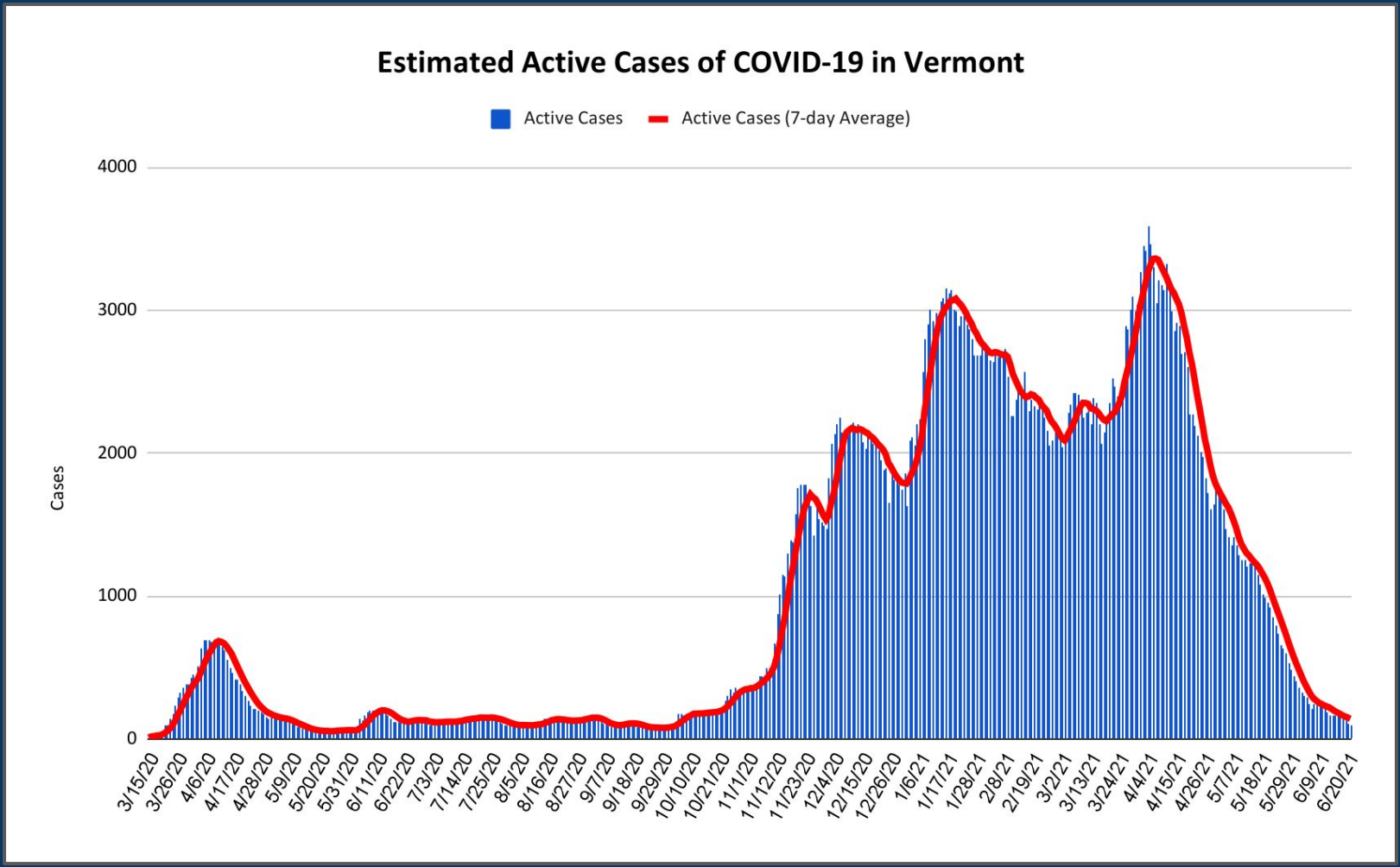
COVID Infections per 100K in Vermont (7-Day Average)

Source: Vermont Department of Health—June 21, 2021

Vermonters Diagnosed with COVID-19 by Week



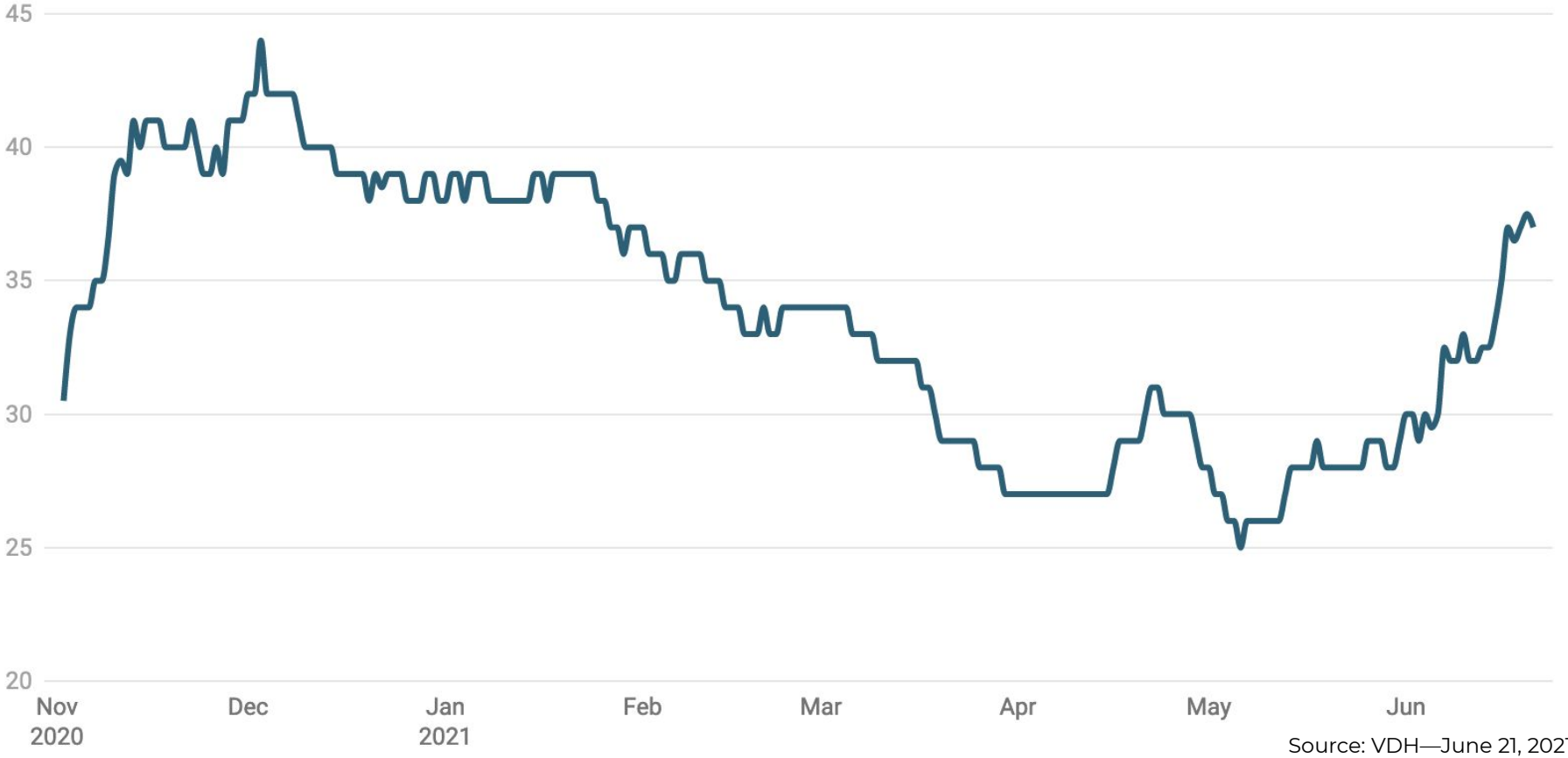
Source: Vermont Department of Health (week calculated as Tuesday to Monday)



Source: Johns Hopkins University Data & Oliver Wyman Model—June 21, 2021

Age of Infected Vermonters

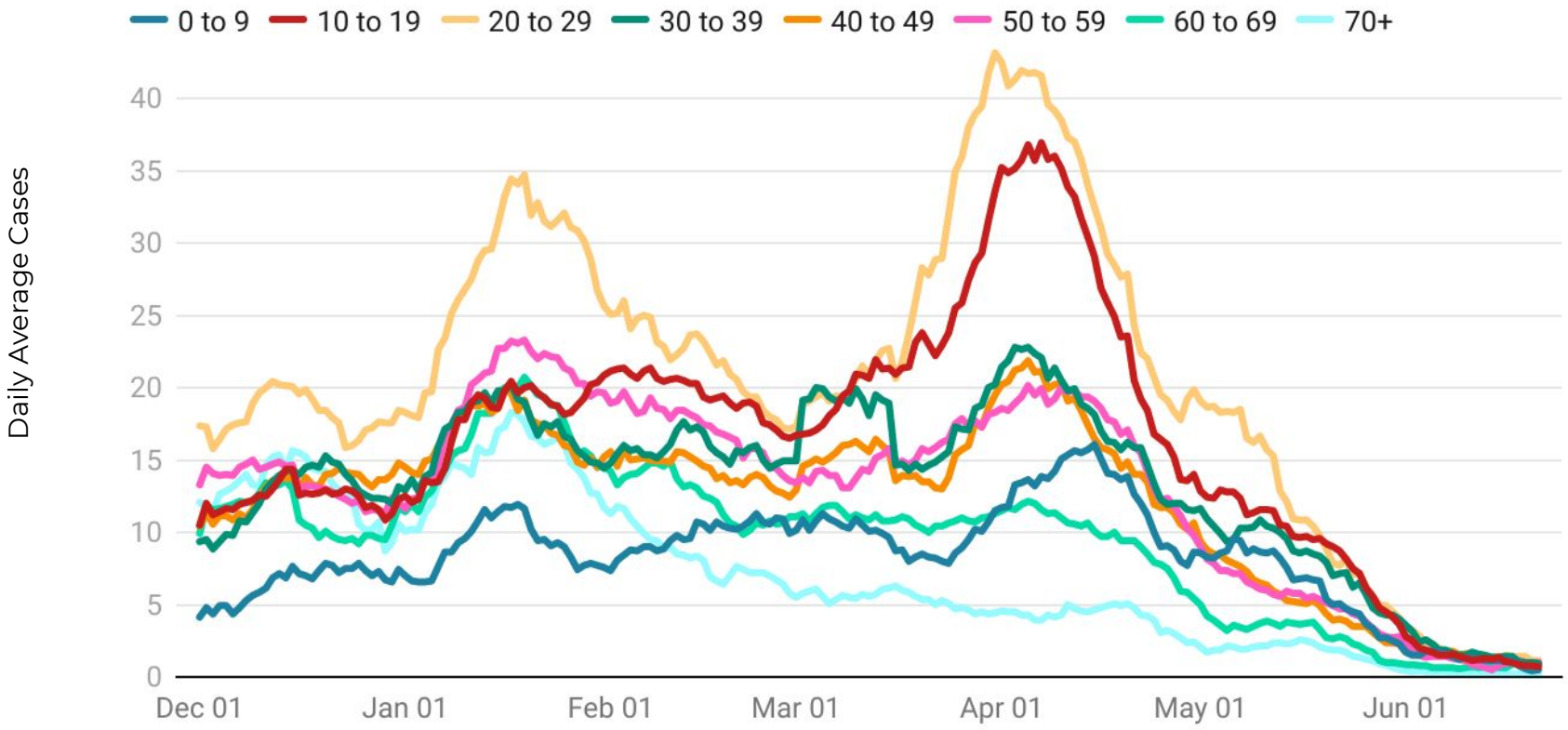
Median age of COVID positive individuals in VT over the last 14 days.



Source: VDH—June 21, 2021

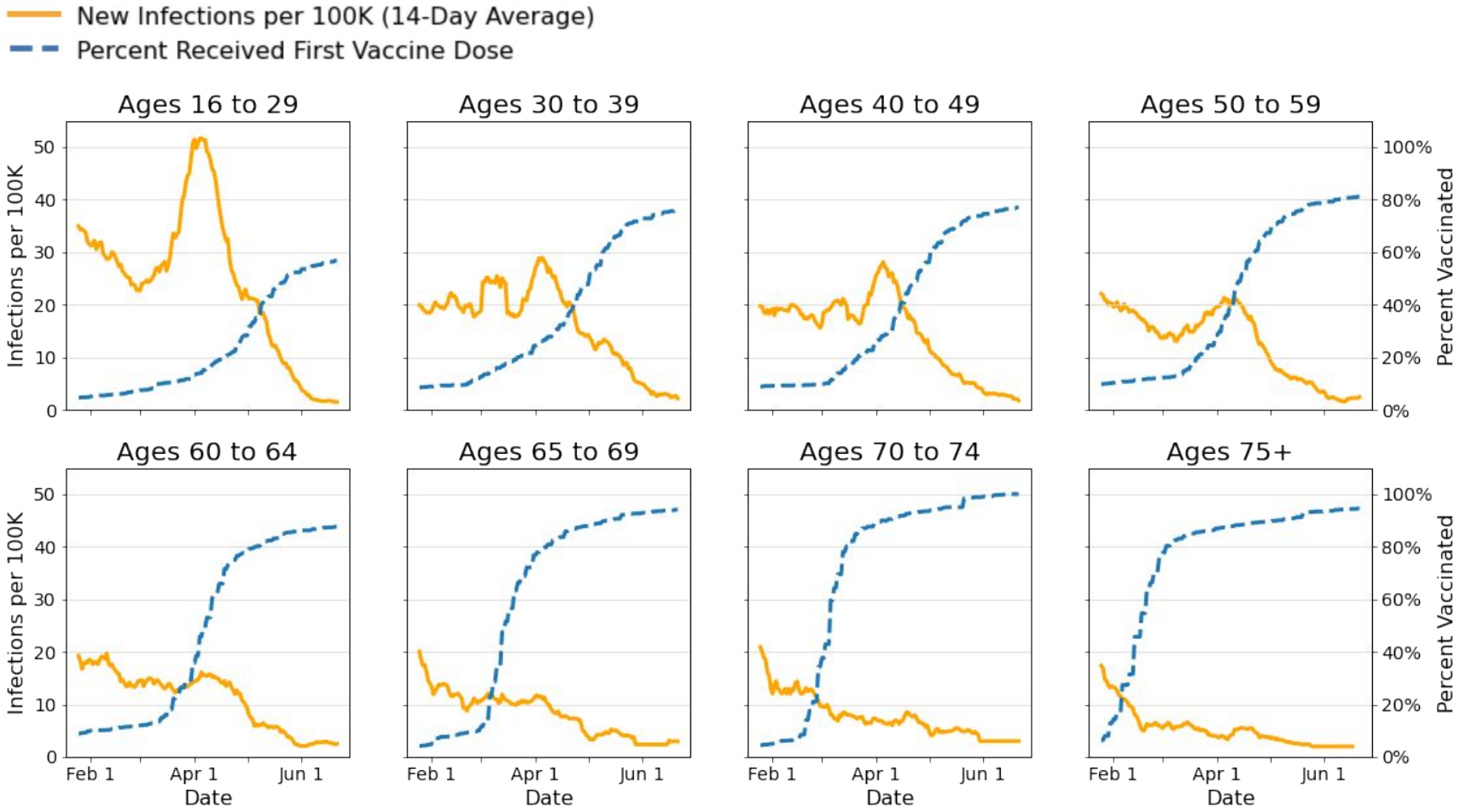
Vermont Cases by Age Band

14-day averages



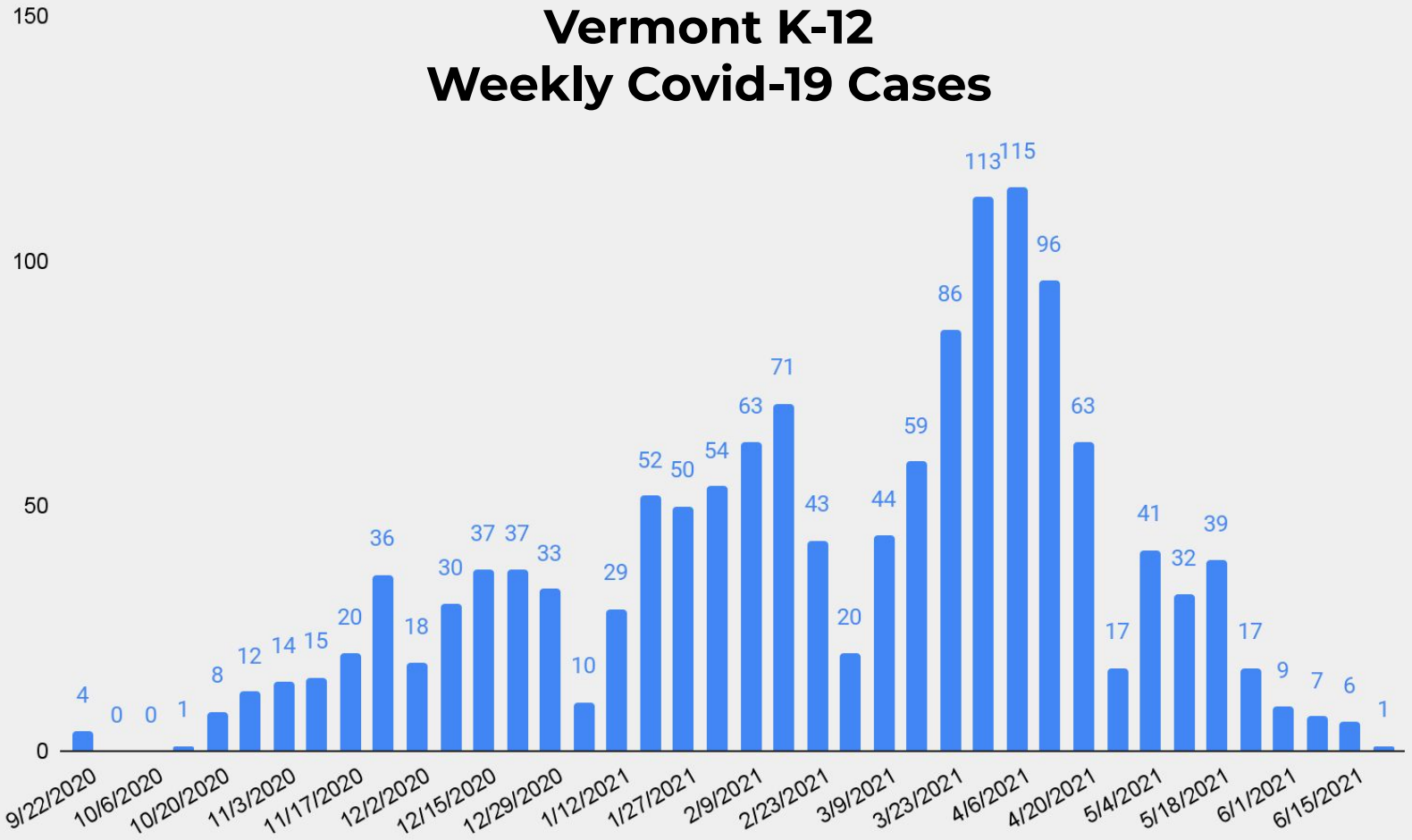
Source: VDH—June 21, 2021

Vermont Case Rate & Vaccination by Age Band



Source: VDH—June 21, 2021

Vermont K-12
Weekly Covid-19 Cases

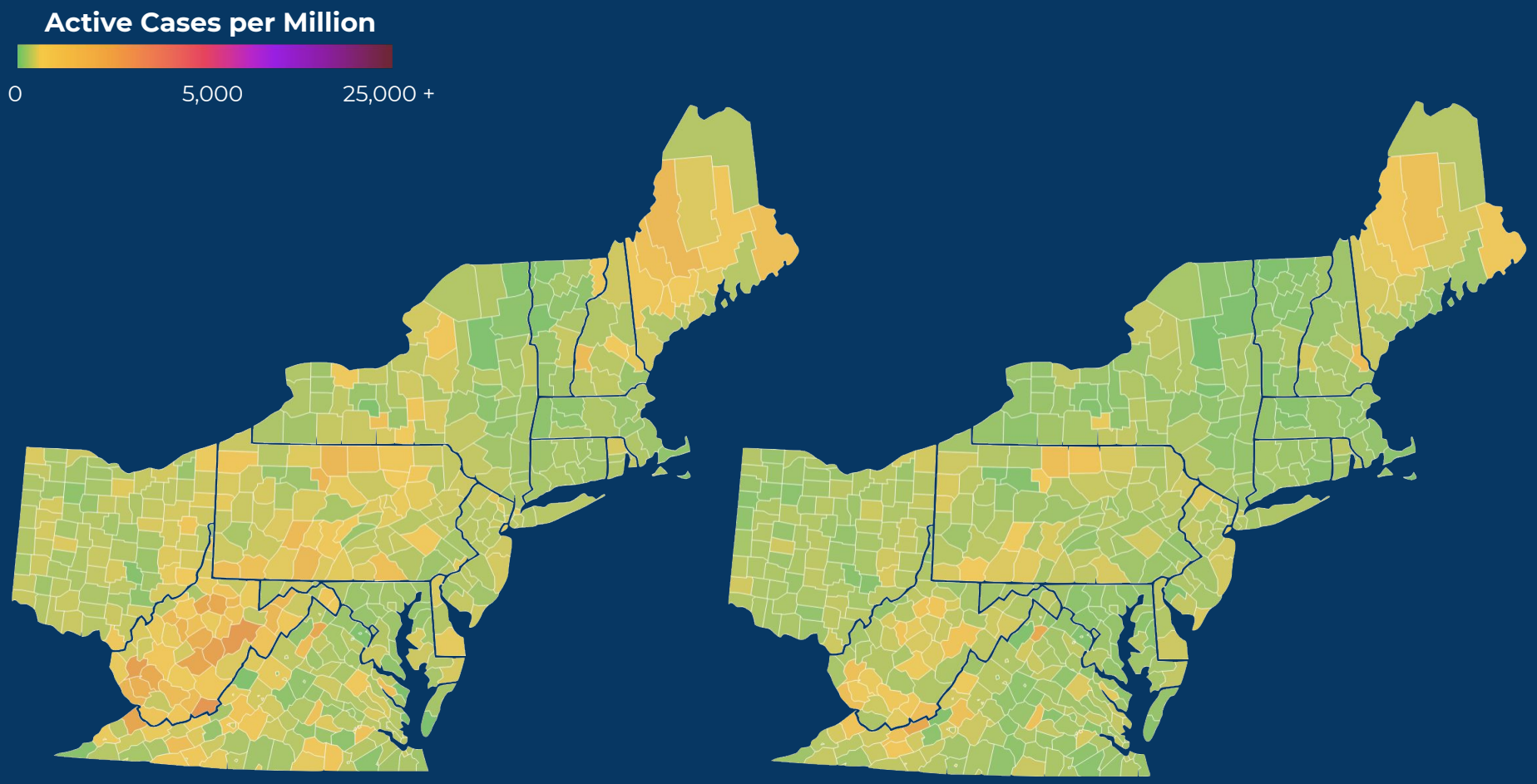


Source: Vermont Department of Health—June 21, 2021

Active Outbreaks in Long Term Care Facilities*

Facility Name	Total COVID-19 Cases
None	None

Source: Vermont Department of Health—*Last updated June 21, 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.*

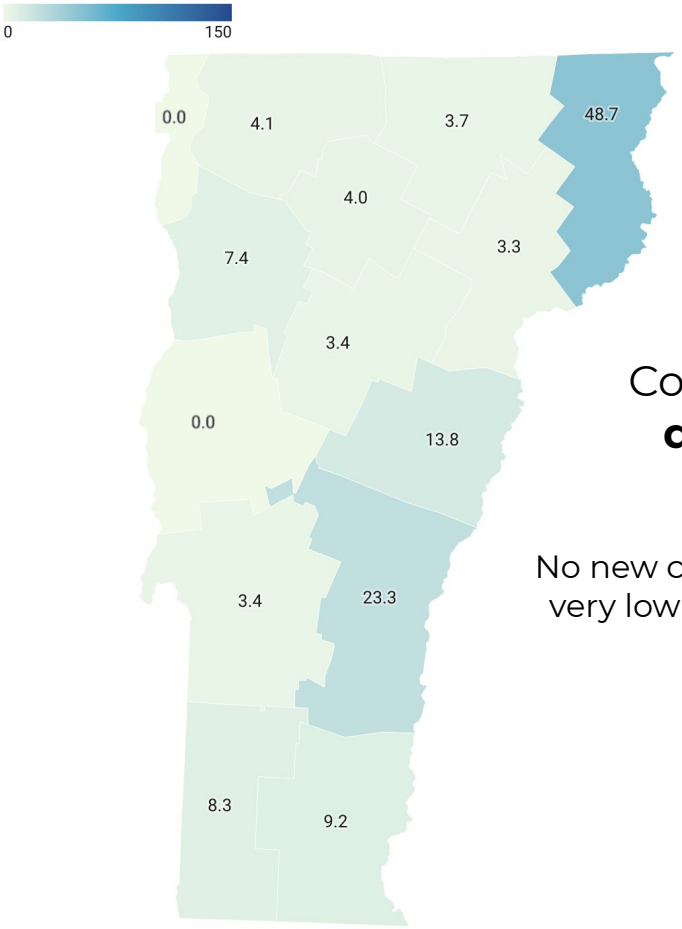


Last Week
June 15th

Today
June 22nd

Vermont Weekly Cases by County (per 100,000)

Results Reported June 8 to June 14



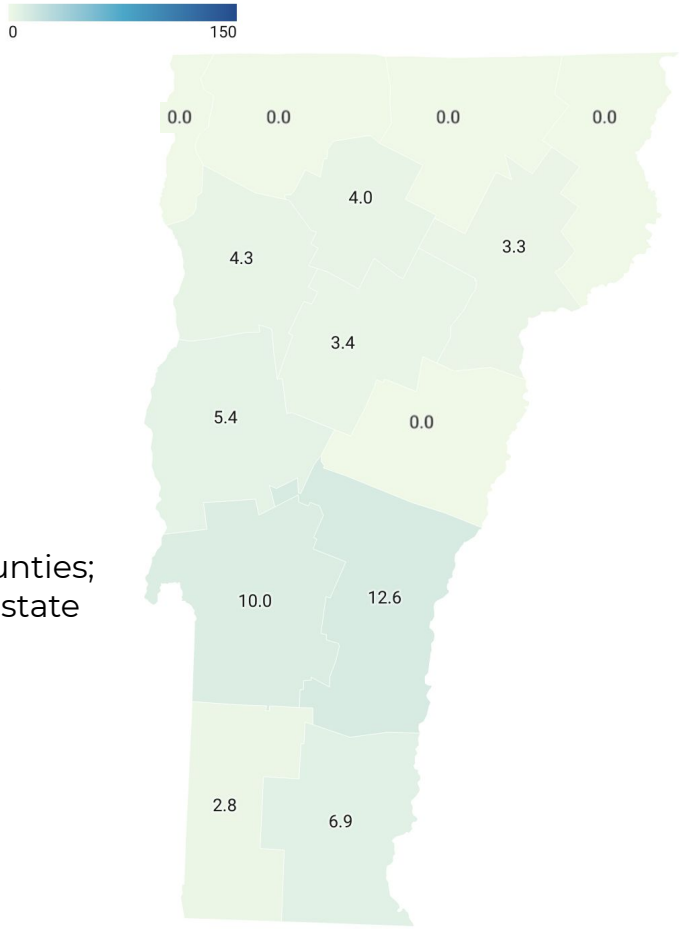
Map: Vermont DFR COVID Modeling Team • Source: Vermont Dept. of Health • Created with Datawrapper

Covid-19 case rates
declined again
last week

No new cases in 5 Vermont counties;
very low case rates across the state

Vermont Weekly Cases by County (per 100,000)

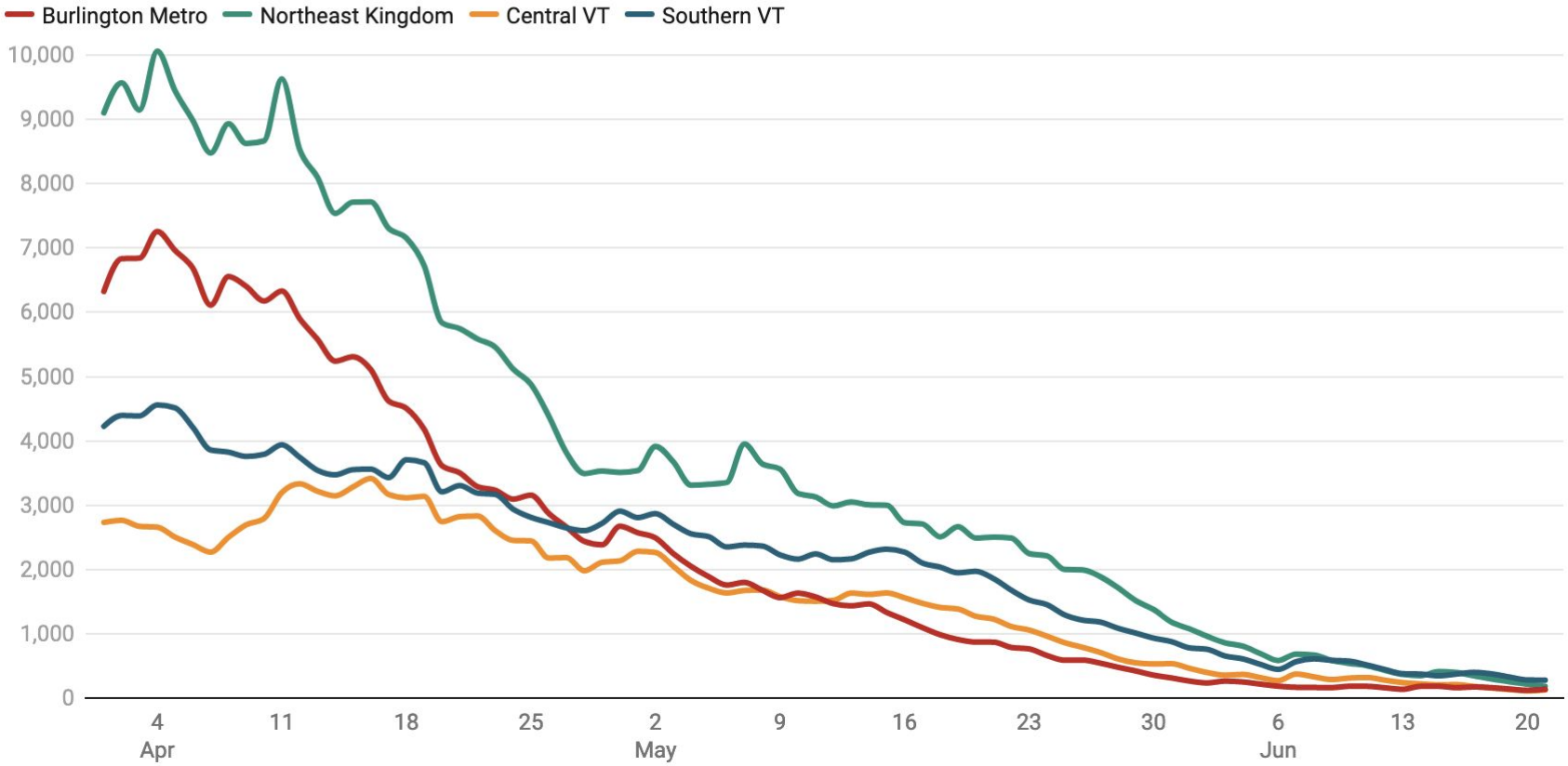
Results Reported June 15 to June 21



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

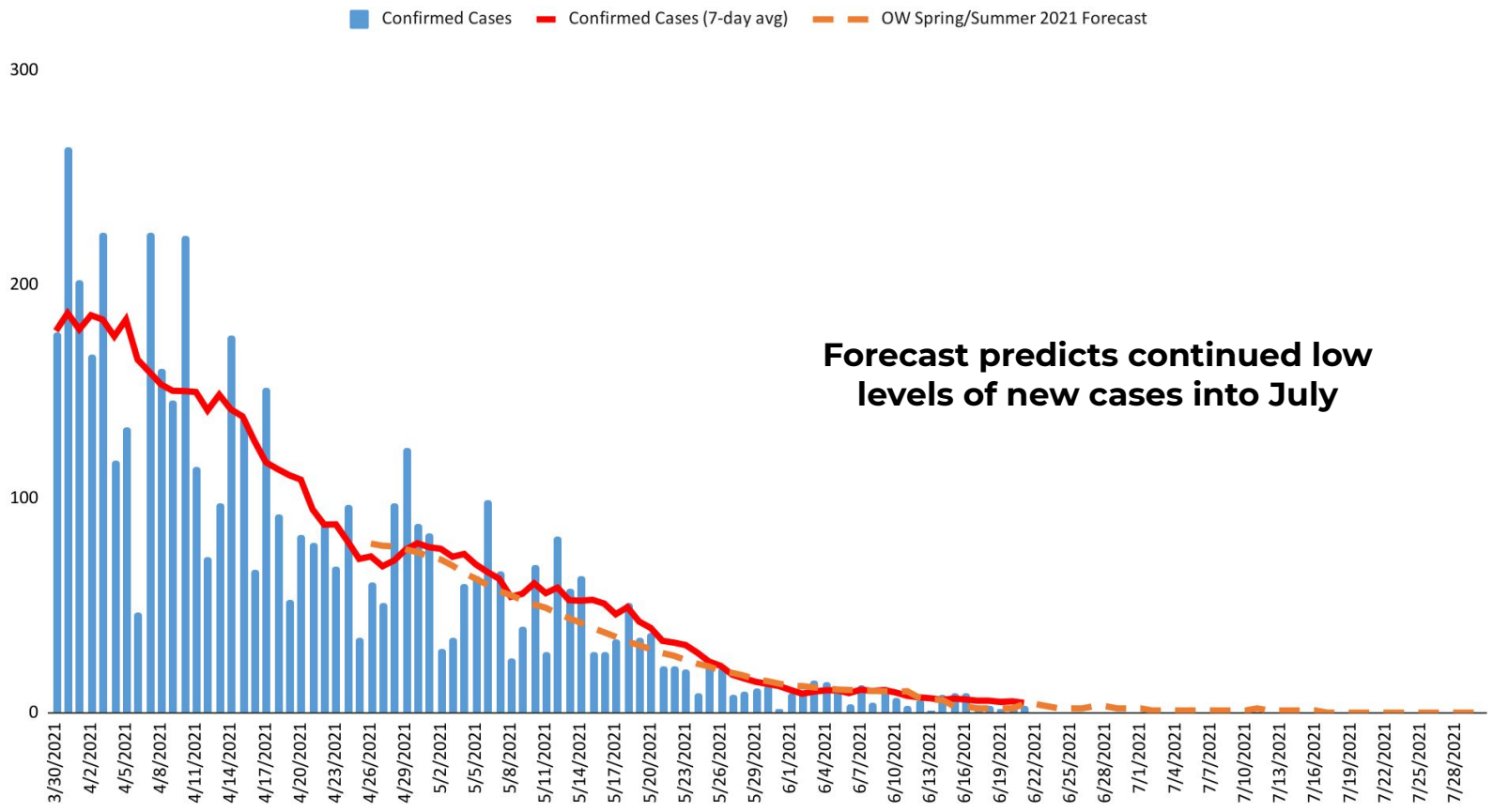
Active COVID Cases per Million in Vermont Regions

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 Algorithm —June 21, 2021

Vermont Forecast



Forecast predicts continued low levels of new cases into July

Source: Johns Hopkins University Data, VDH, & Oliver Wyman Forecast Model—Actual through June 21, 2021

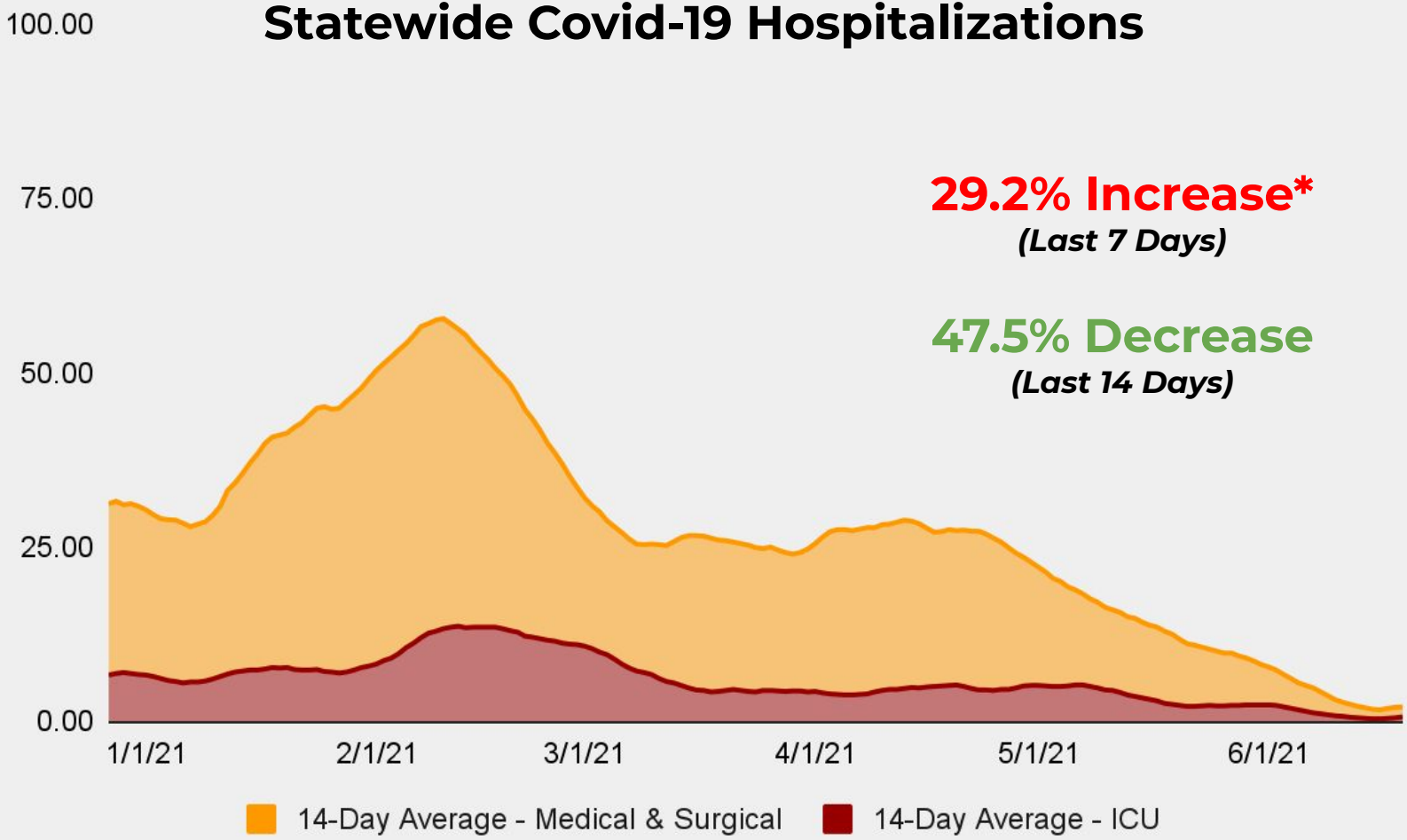
VT Weekly COVID-19 Infections Forecast

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.

Source: Centers for Disease Control and Prevention—June 21, 2021

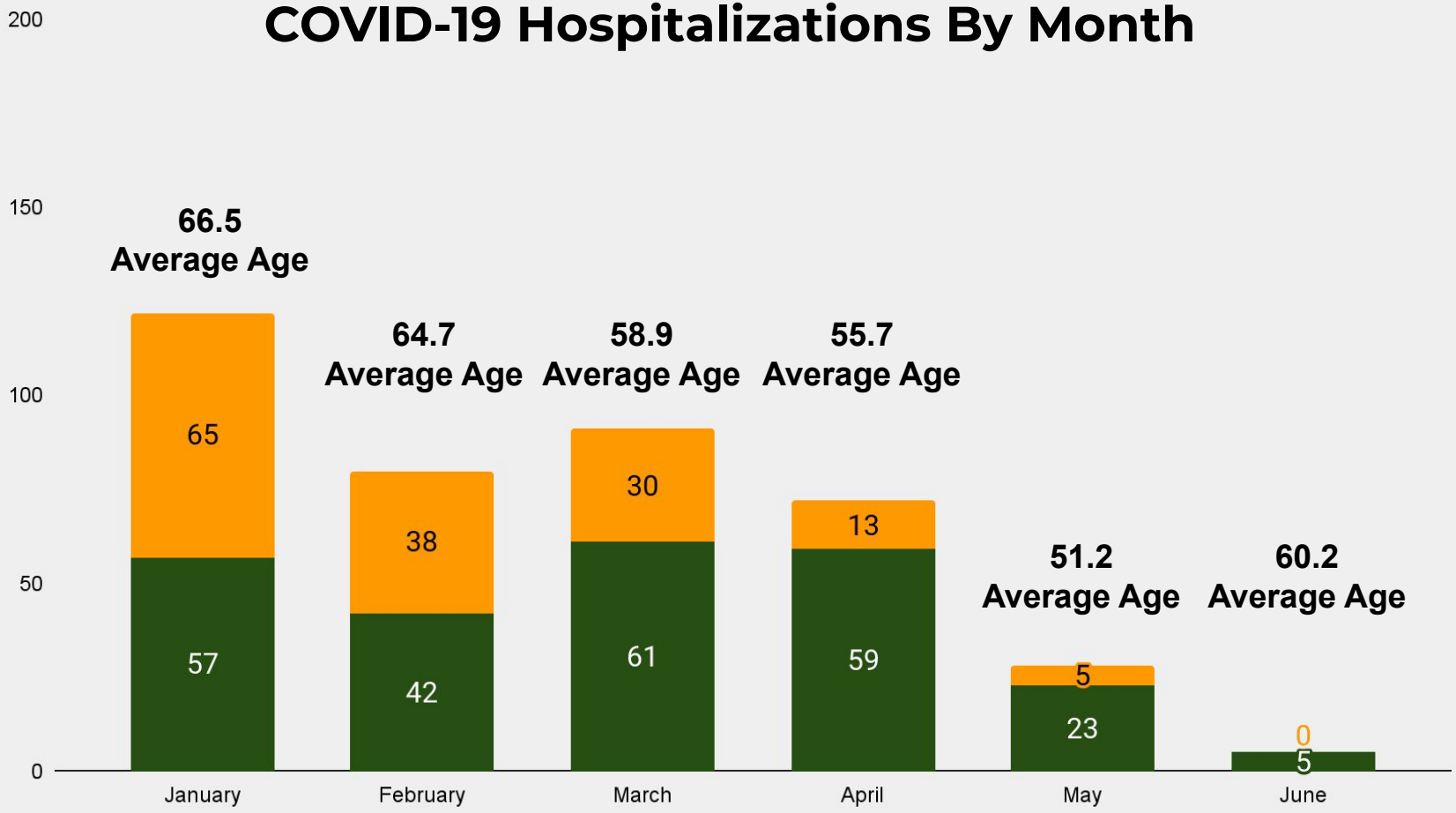
Vermont Hospitalization Data

Statewide Covid-19 Hospitalizations



Source: Vermont Department of Health—June 21, 2021; *Percentages volatile given small sample size - average moved from 1.71 to 2.21

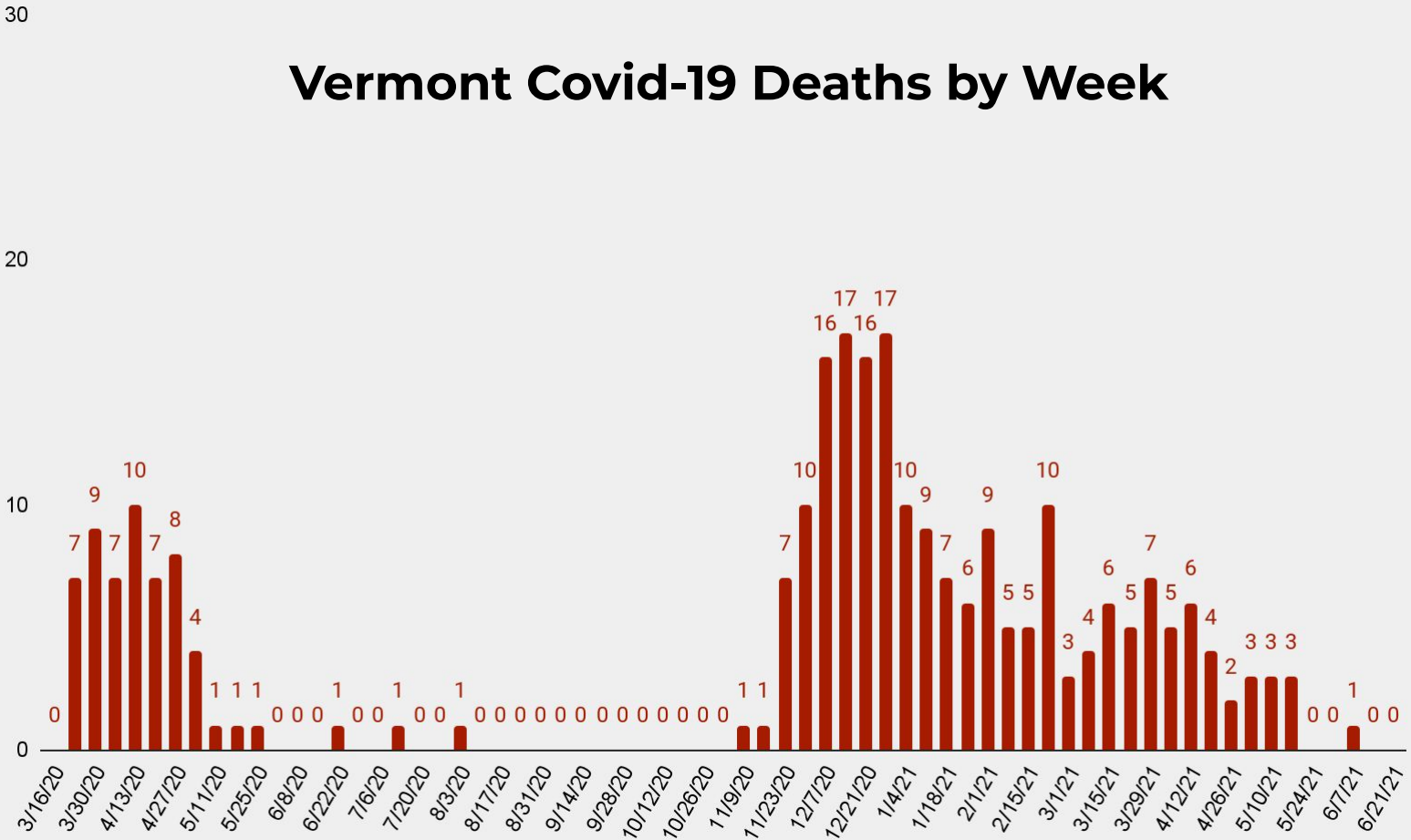
COVID-19 Hospitalizations By Month



Source: Vermont Department of Health—June 21, 2021

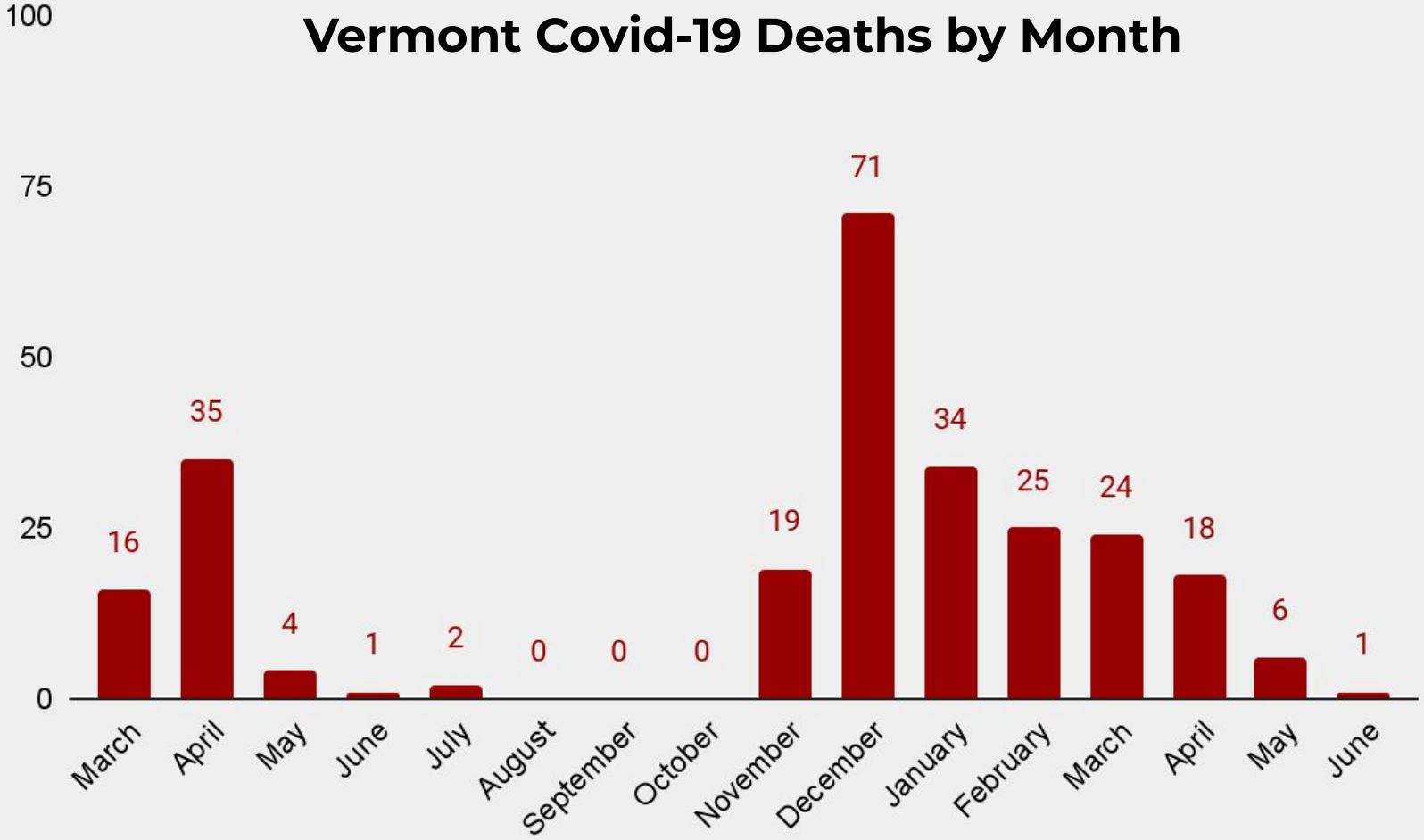
Vermont Fatality Data

Vermont Covid-19 Deaths by Week



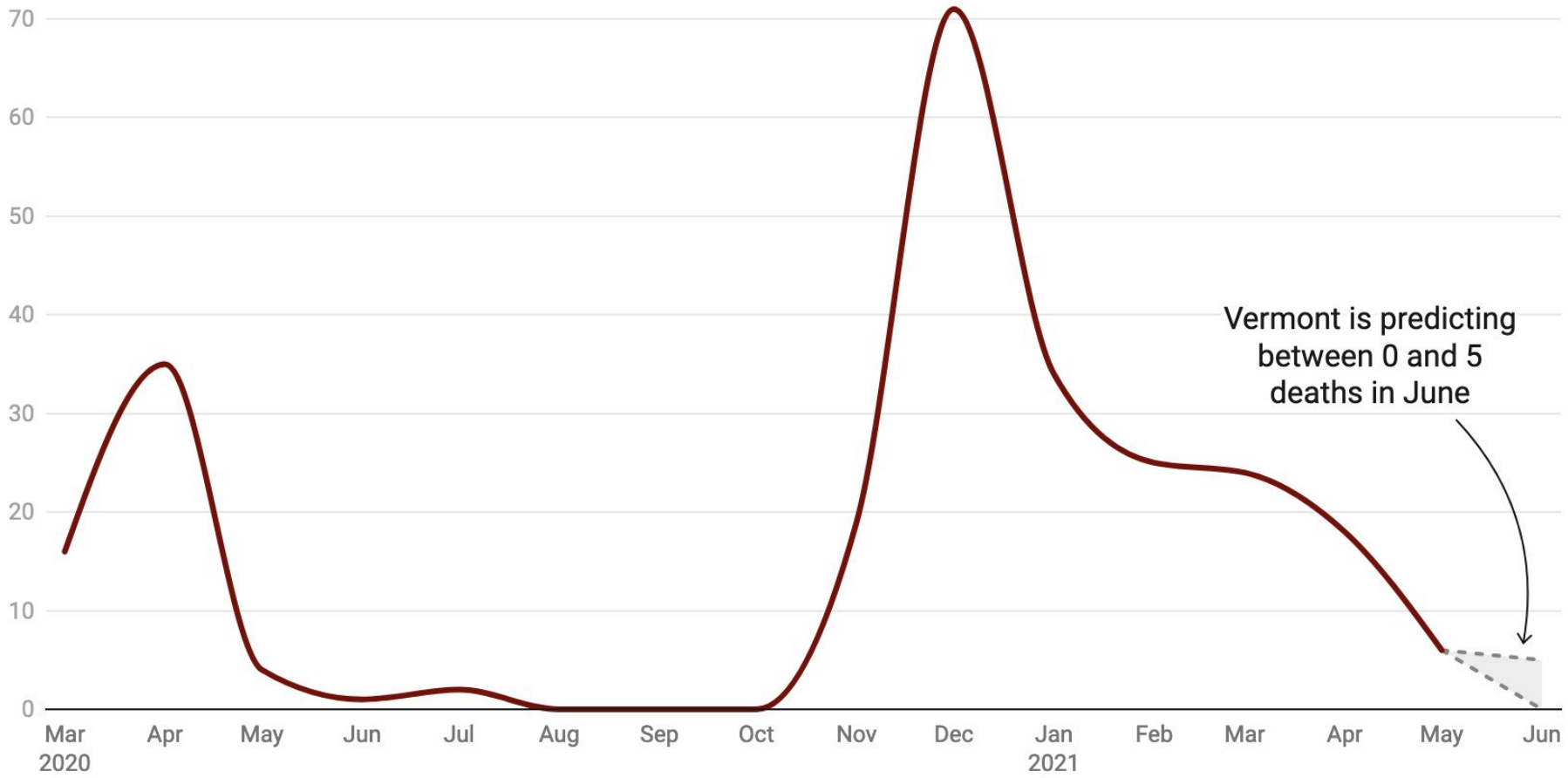
Source: Vermont Department of Health—June 21, 2021

Vermont Covid-19 Deaths by Month



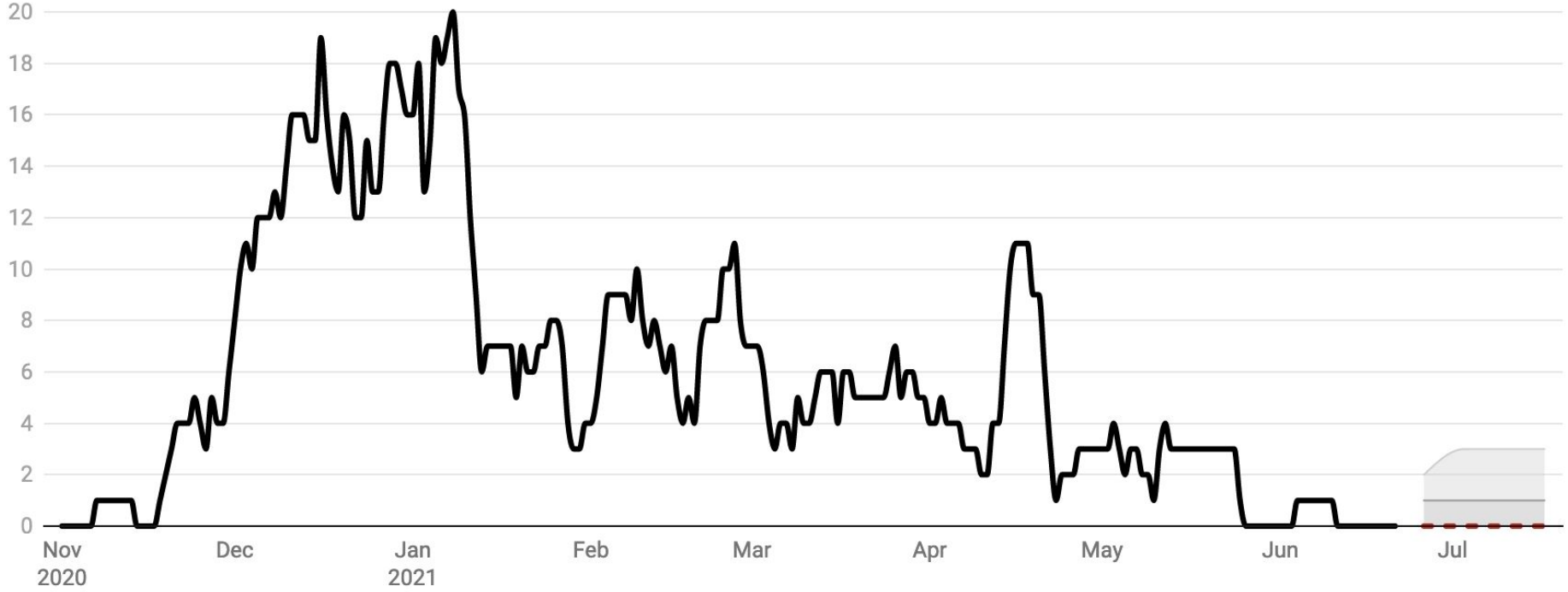
Source: Vermont Department of Health—June 21, 2021

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.



Source: Centers for Disease Control and Prevention—June 21, 2021

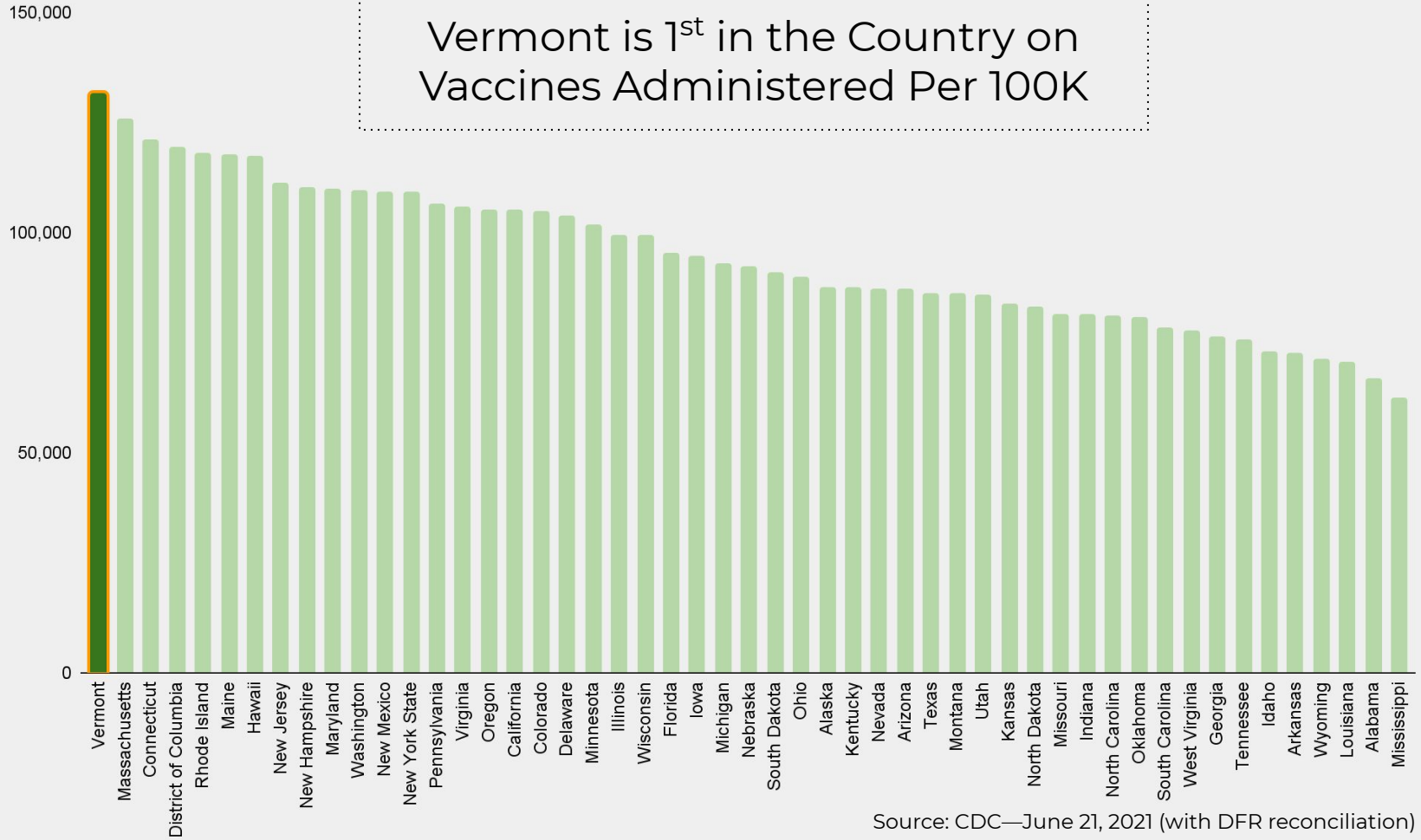
Vermont Vaccination Data

Vermont CDC Vaccine Scorecard

Metric	Figure	State Ranking
Doses Administered per 100K	131,785	1
% At Least 1 Dose (Eligible)	81.3%	1
% Fully Vaccinated (Eligible Population)	71.3%	1
% At Least 1 Dose (Full Population)	71.8%	1
% Fully Vaccinated (Full Population)	62.9%	1
Doses Administered 65+ per 100K	197,652	1

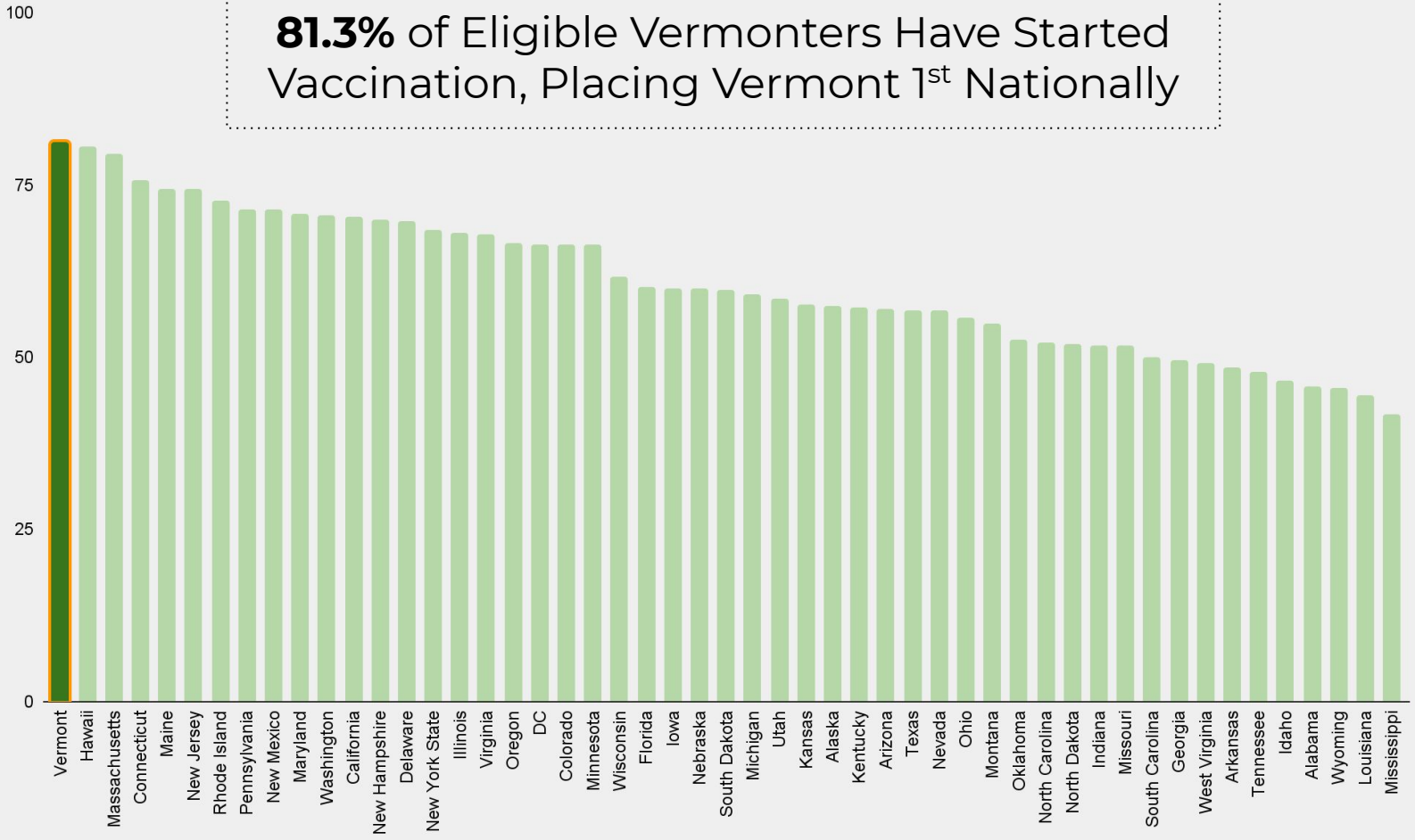
Source: CDC—June 21, 2021 (with VDH reconciliation)

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



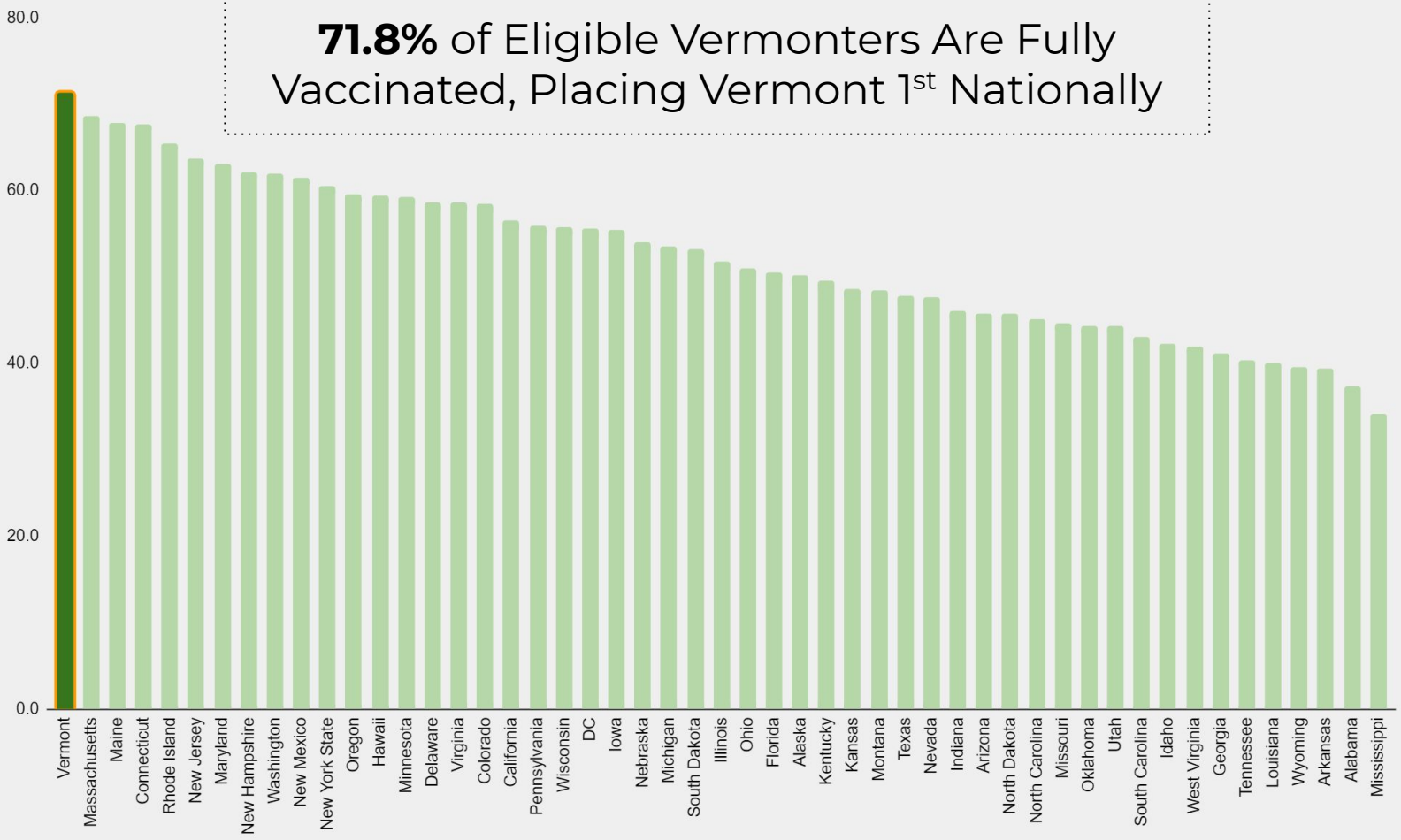
Source: CDC—June 21, 2021 (with DFR reconciliation)

81.3% of Eligible Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



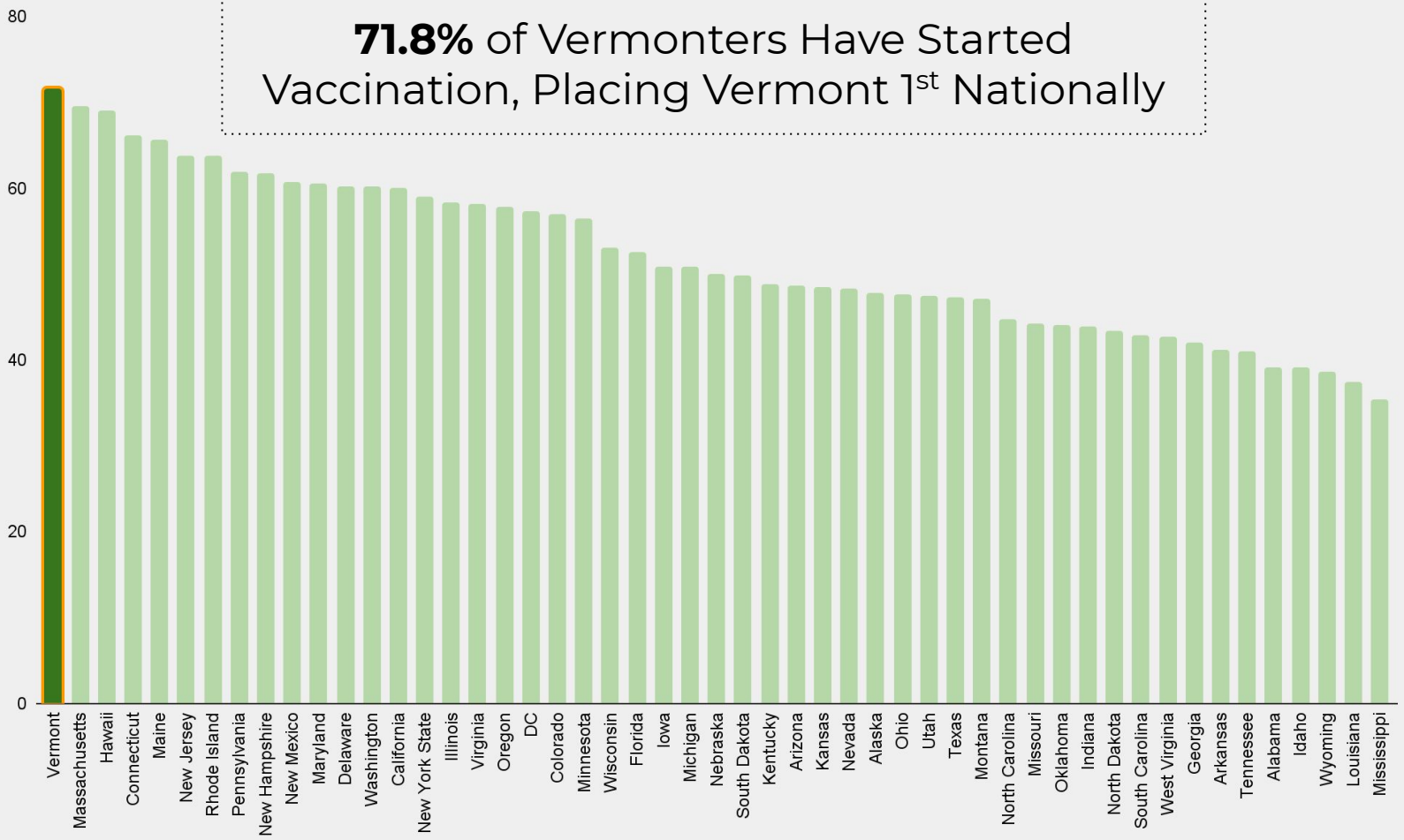
Source: CDC—June 21, 2021 (with DFR reconciliation)

71.8% of Eligible Vermonters Are Fully Vaccinated, Placing Vermont 1st Nationally



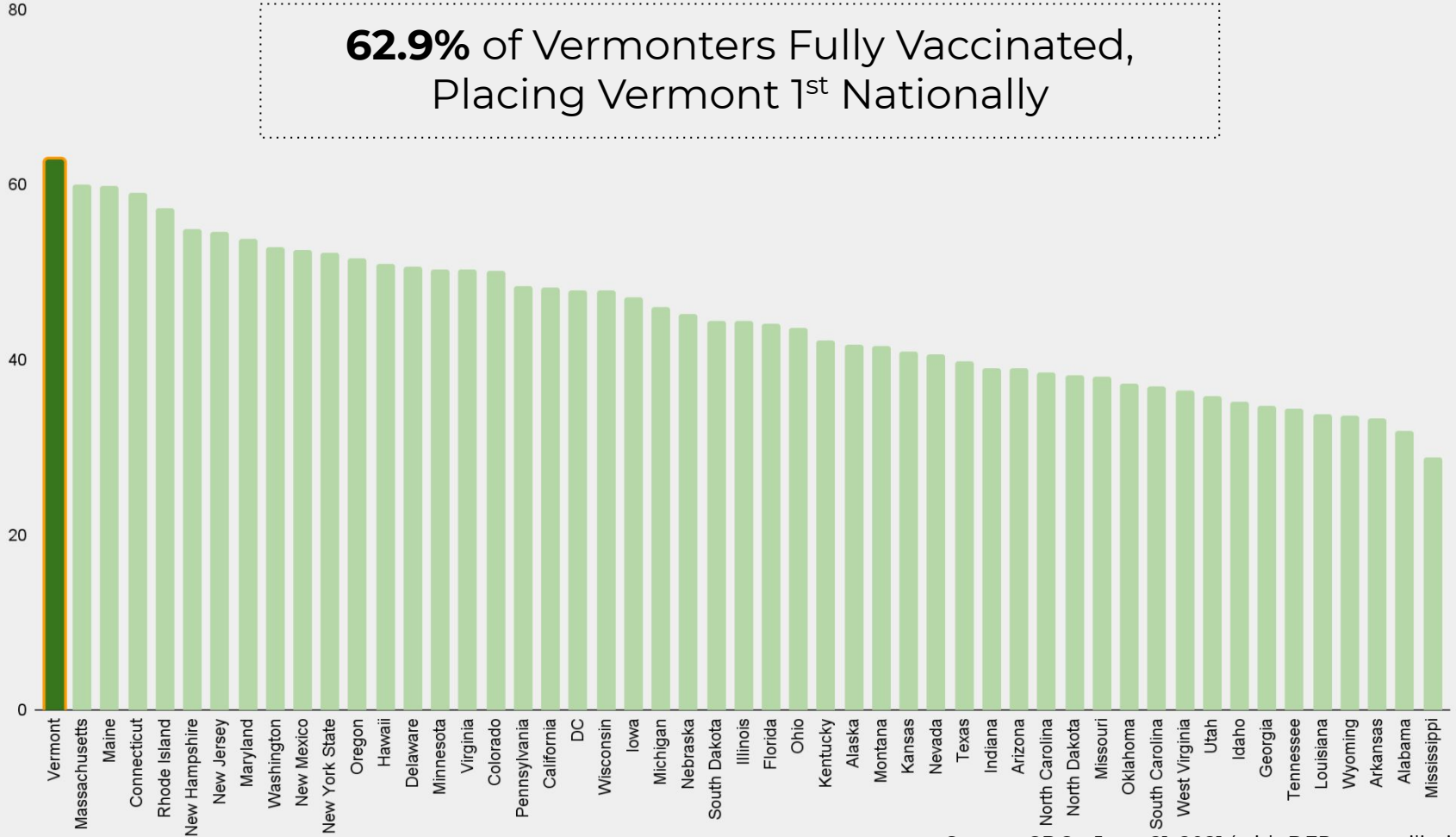
Source: CDC—June 21, 2021 (with DFR reconciliation)

71.8% of Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



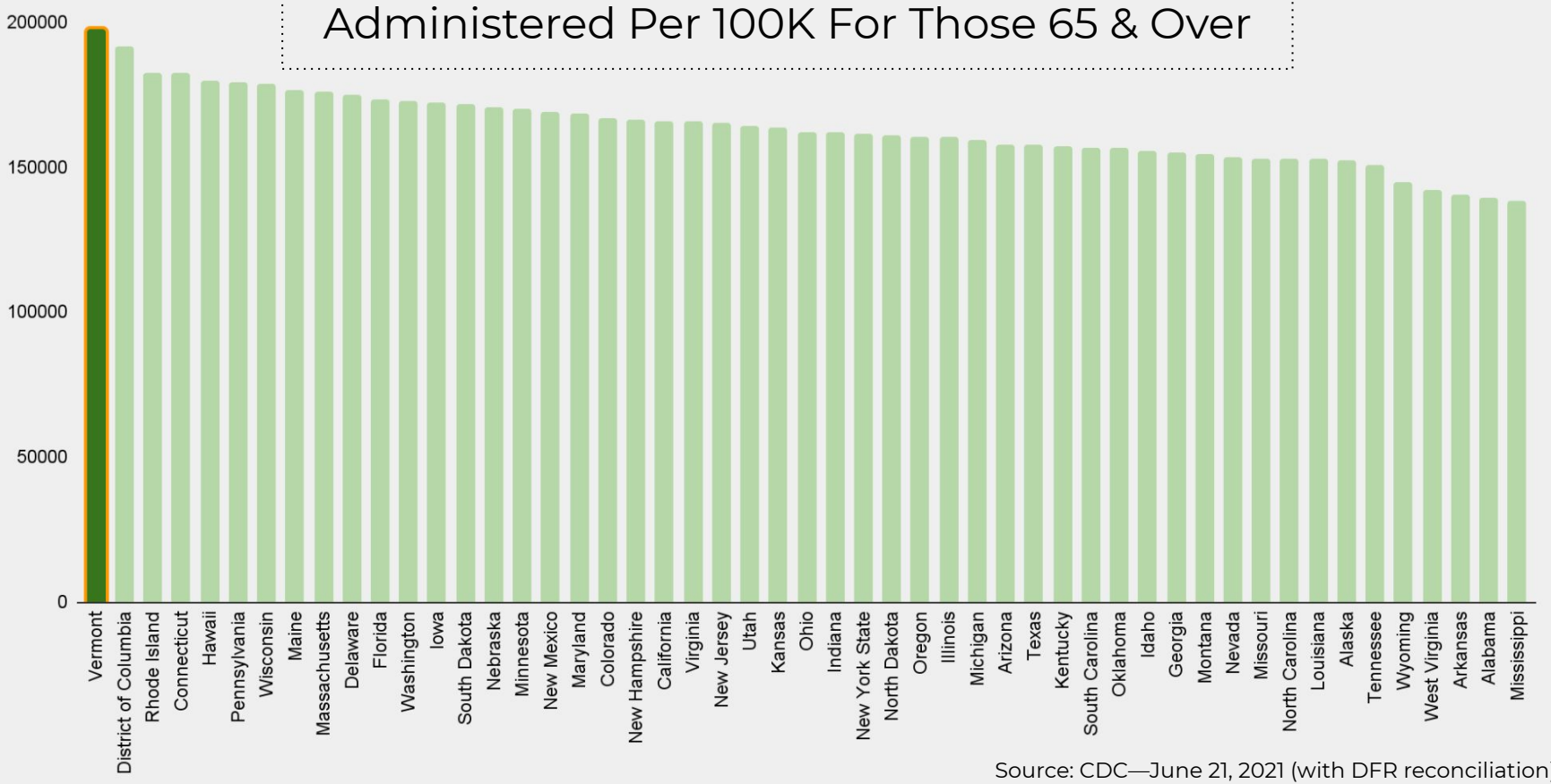
Source: CDC—June 21, 2021 (with DFR reconciliation)

62.9% of Vermonters Fully Vaccinated, Placing Vermont 1st Nationally



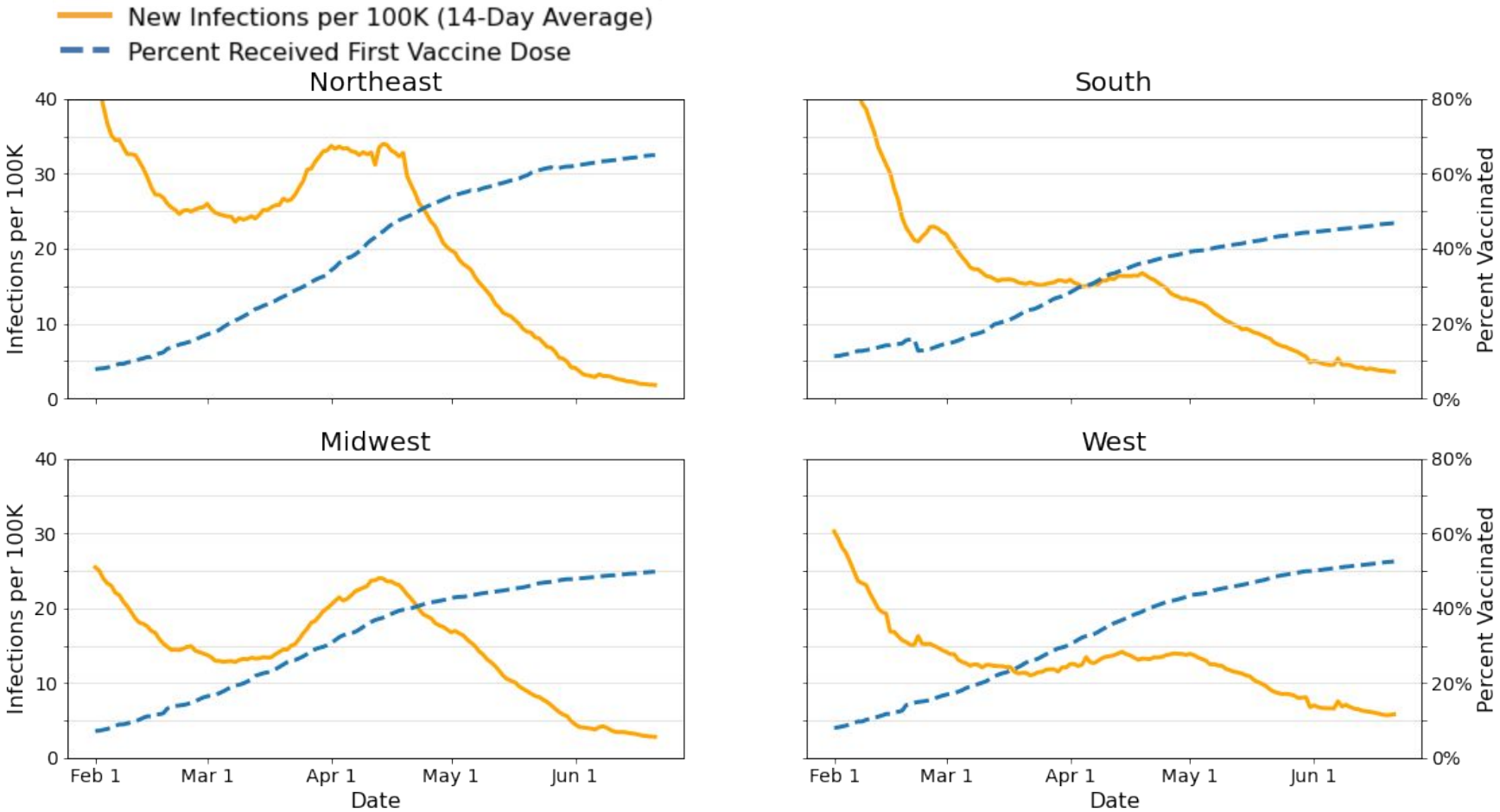
Source: CDC—June 21, 2021 (with DFR reconciliation)

Vermont is 1st in the Country on Vaccines Administered Per 100K For Those 65 & Over

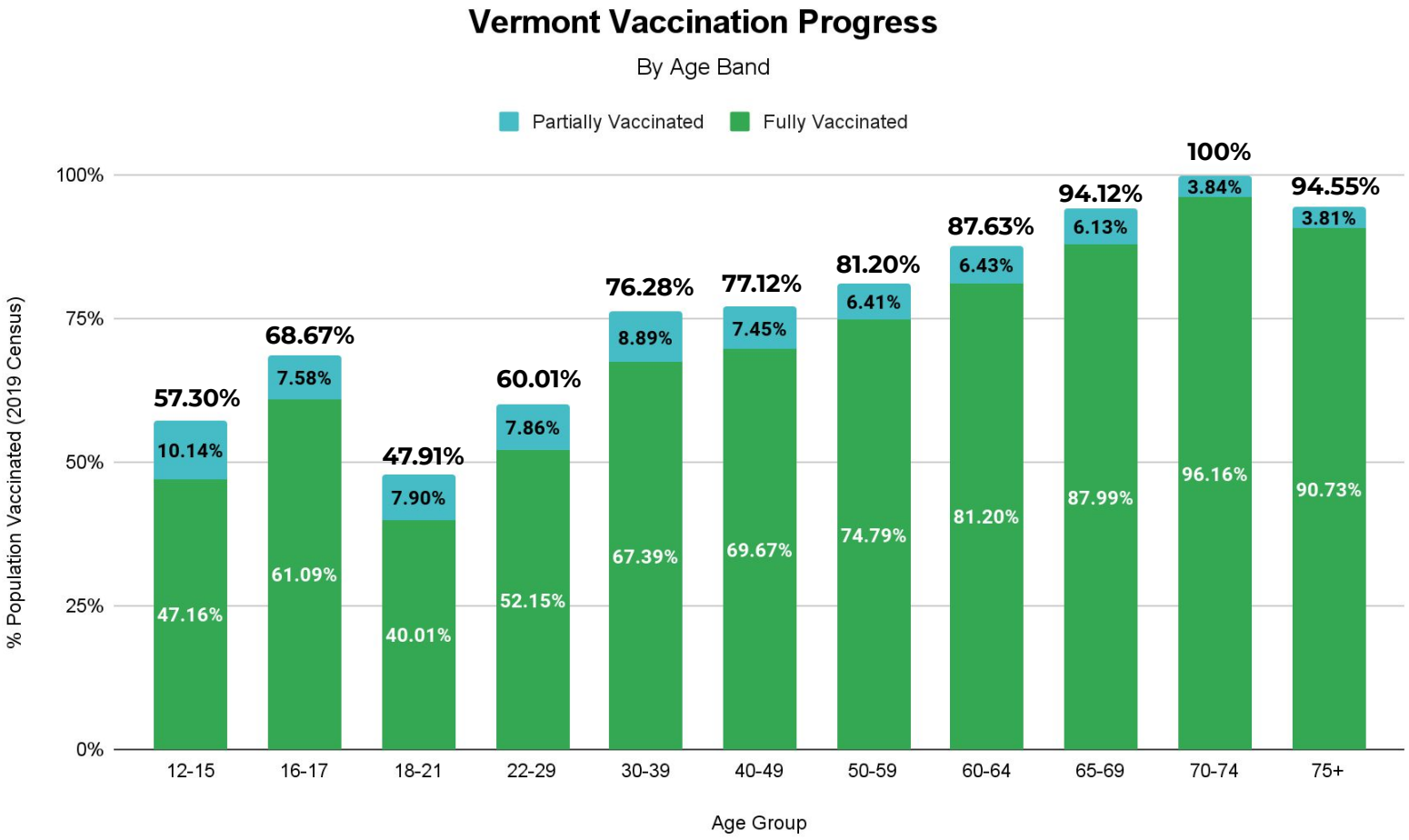


Source: CDC—June 21, 2021 (with DFR reconciliation)

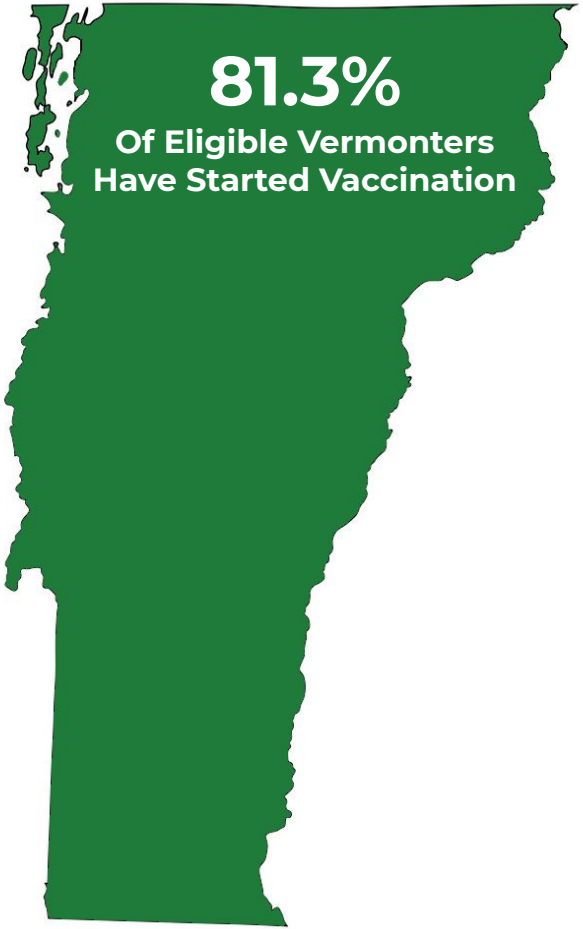
US Census Region Case Rate & Vaccination by Age Band



Source: Covid Act Now—June 22, 2021



Source: Vermont Dept. of Health—June 22, 2021



Congratulations, Vermont!

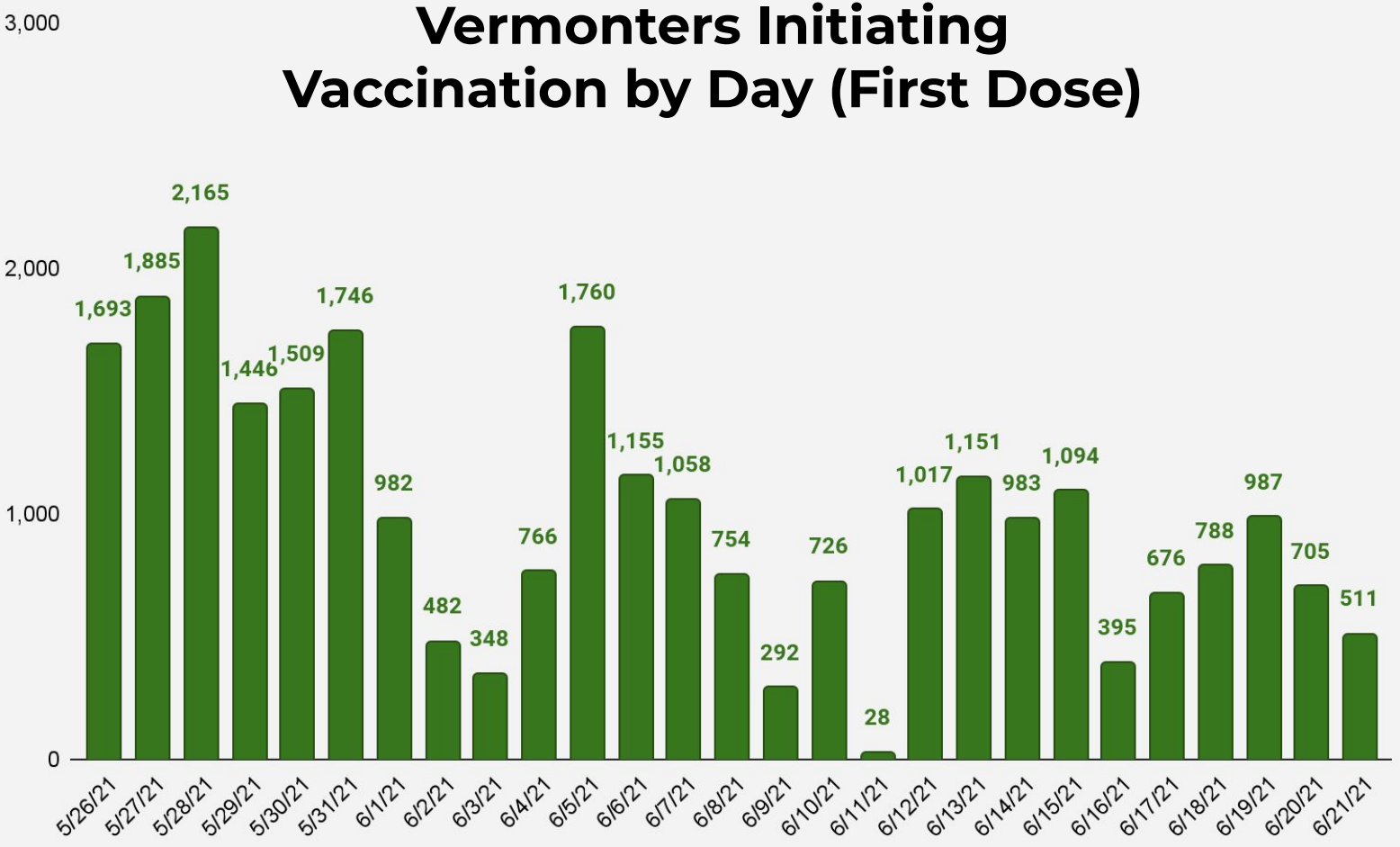
The First State to Vaccinate 80% of its Eligible Population

+5,156
Since Last Week

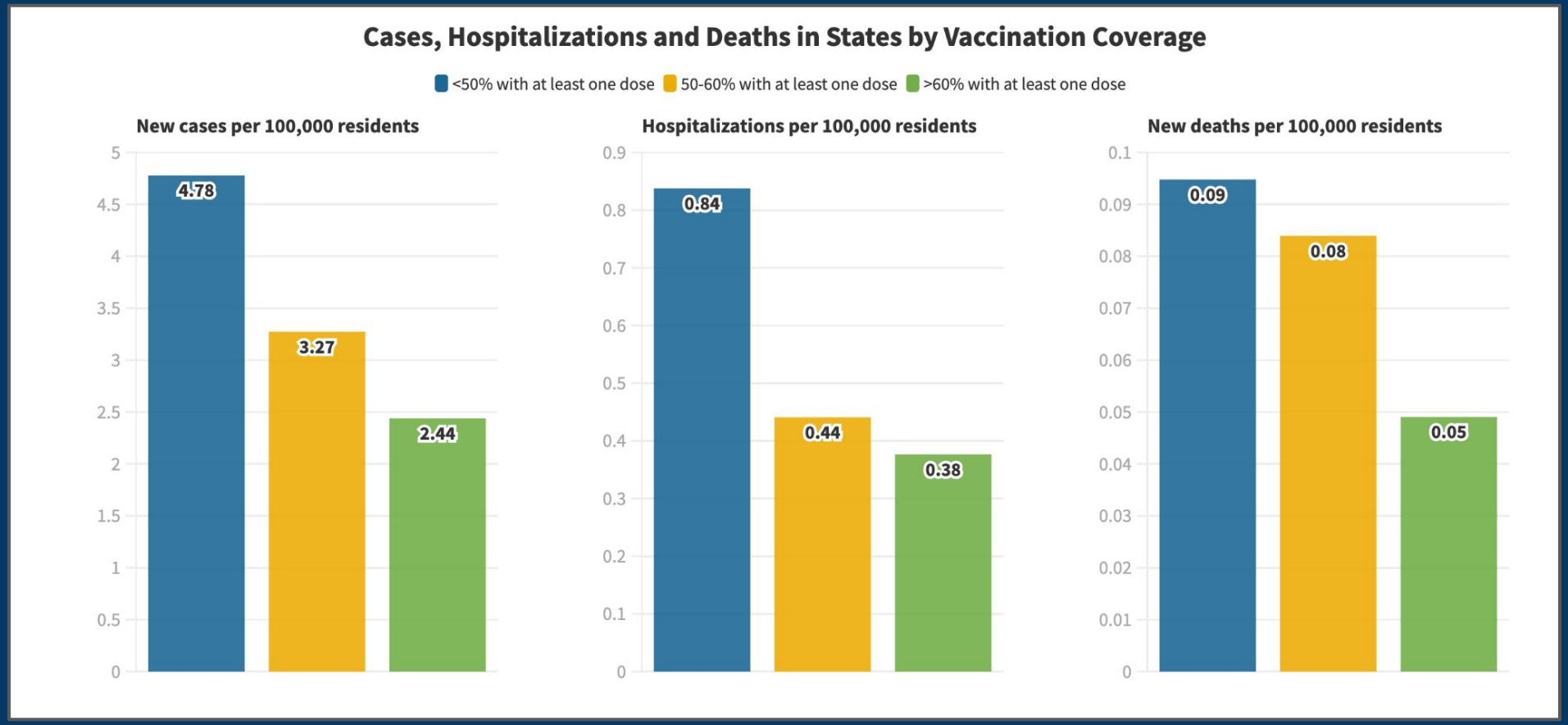
447,728
Vermonters with at Least 1 Dose

Source: CDC—June 21, 2021 (with DFR reconciliation)

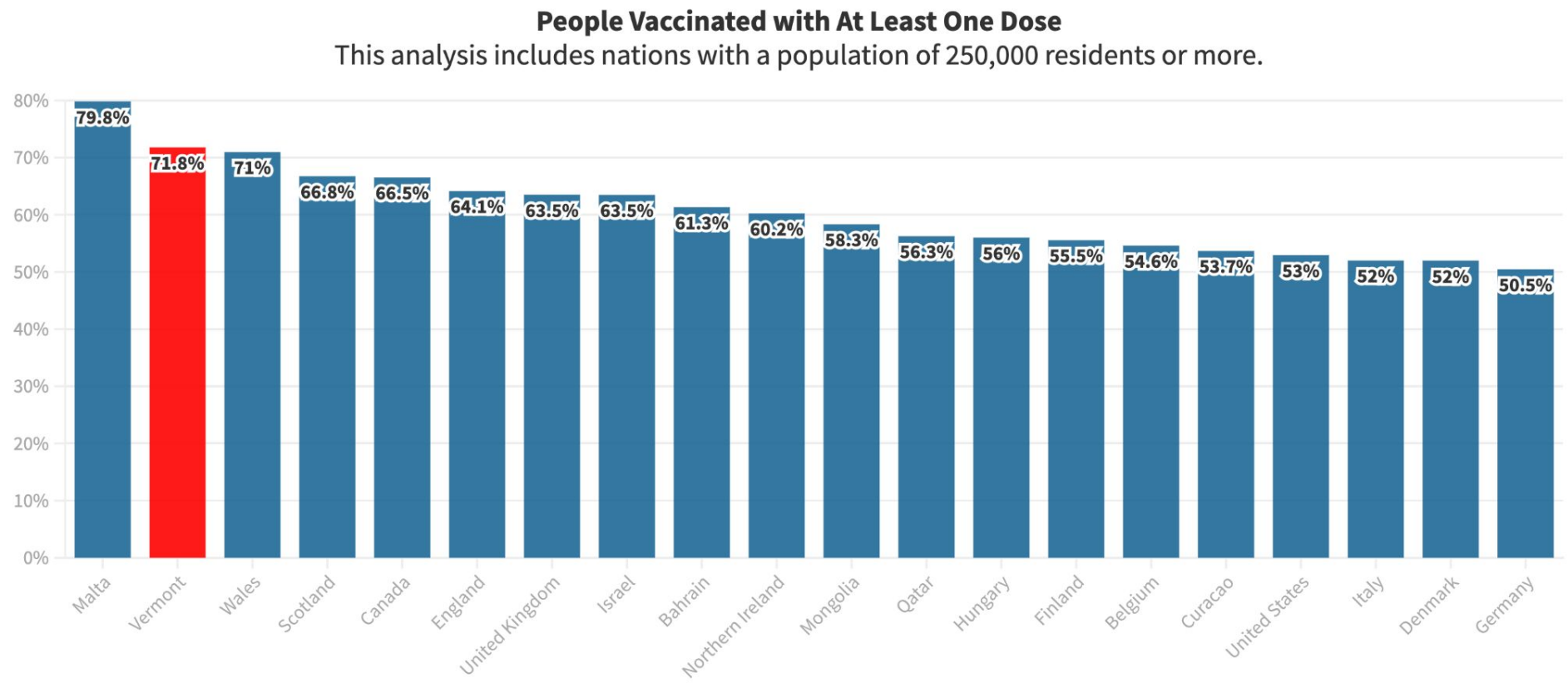
Vermonters Initiating Vaccination by Day (First Dose)



Source: CDC—June 21, 2021



Source: CDC, HHS—June 21, 2021



Source: Our World in Data—June 21, 2021

Canadian Covid-19 Trends

Canadian COVID Trends

% With At Least 1 Dose: **66.7%**

% Fully Vaccinated: **19.6%**

7-Day Case Rate: **Down 28.6%**

7-Day Hospital Rate: **Down 22.1%**

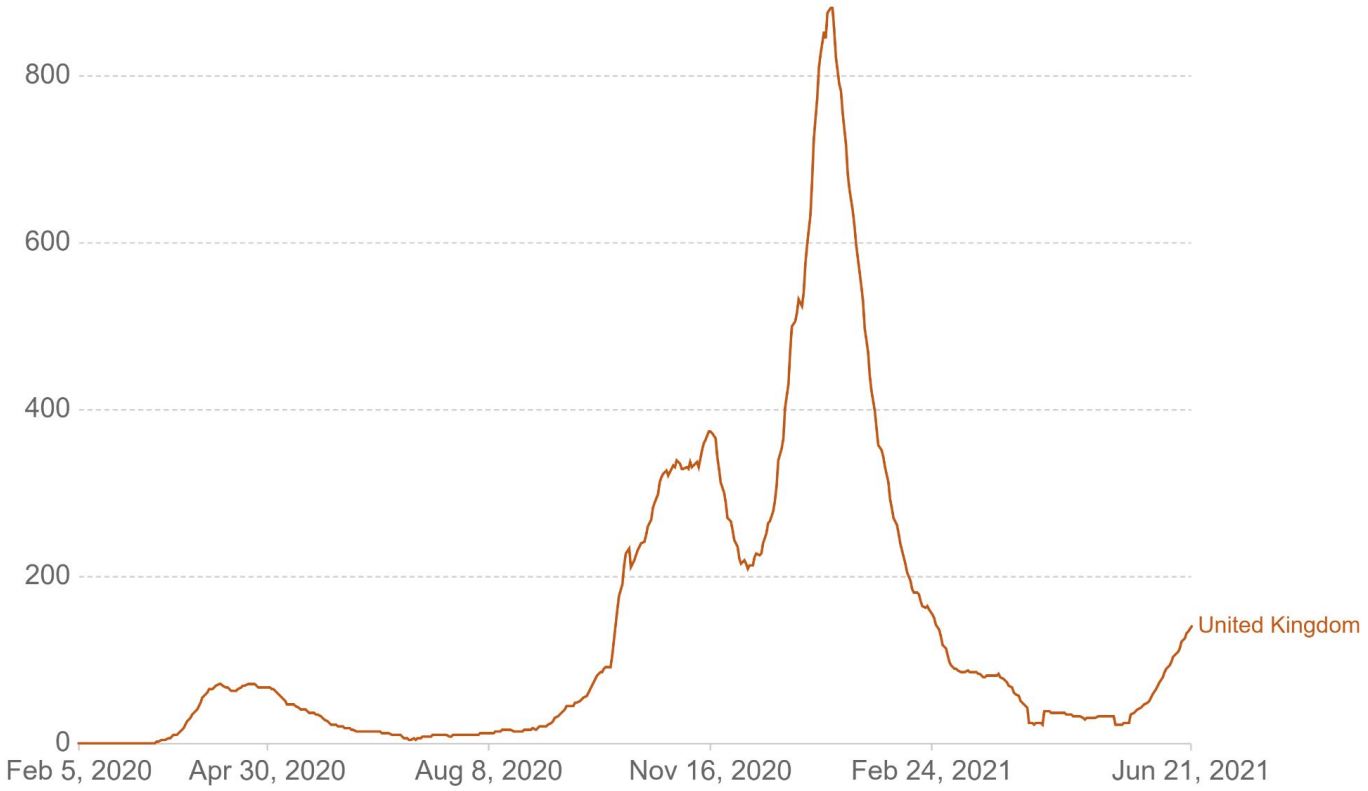
7-Day Fatality Rate: **Down 19.7%**

Source: CTV National News—June 21, 2021

United Kingdom & the Delta Variant

Daily new confirmed COVID-19 cases per million people

Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

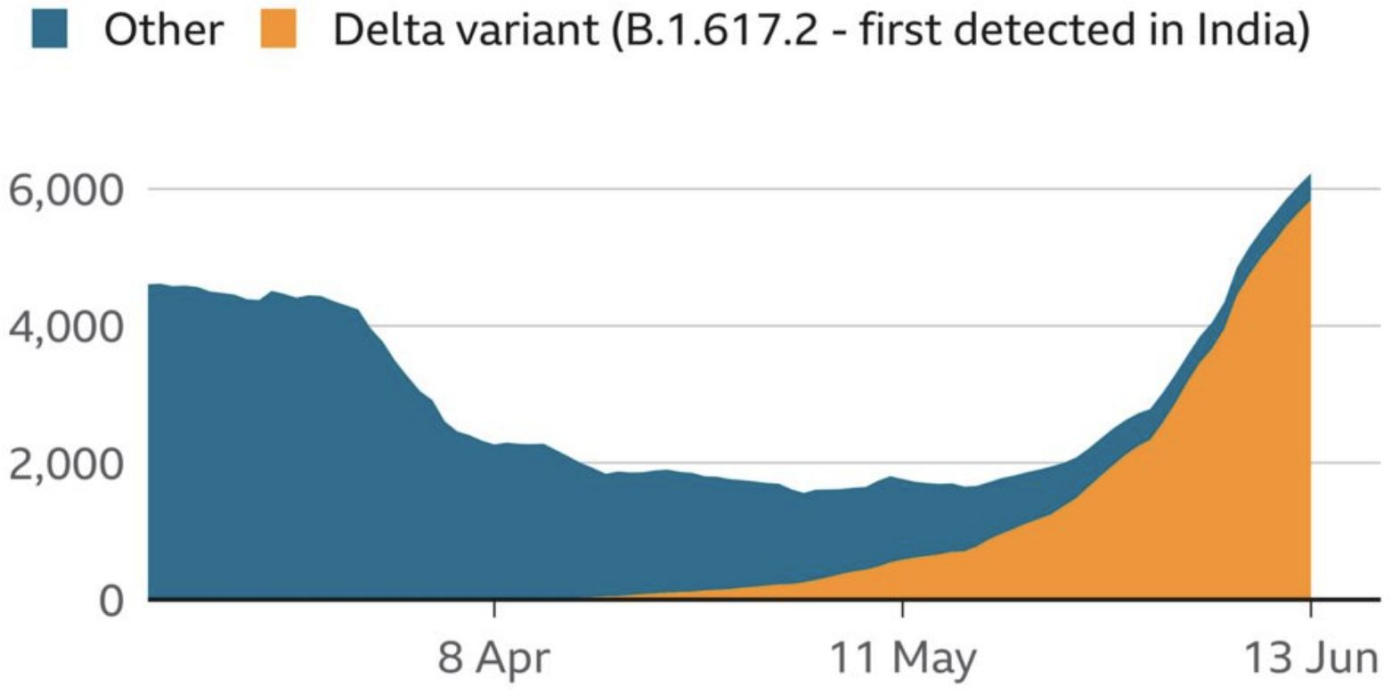


Source: Johns Hopkins University CSSE COVID-19 Data

CC BY

Delta variant now dominant in England

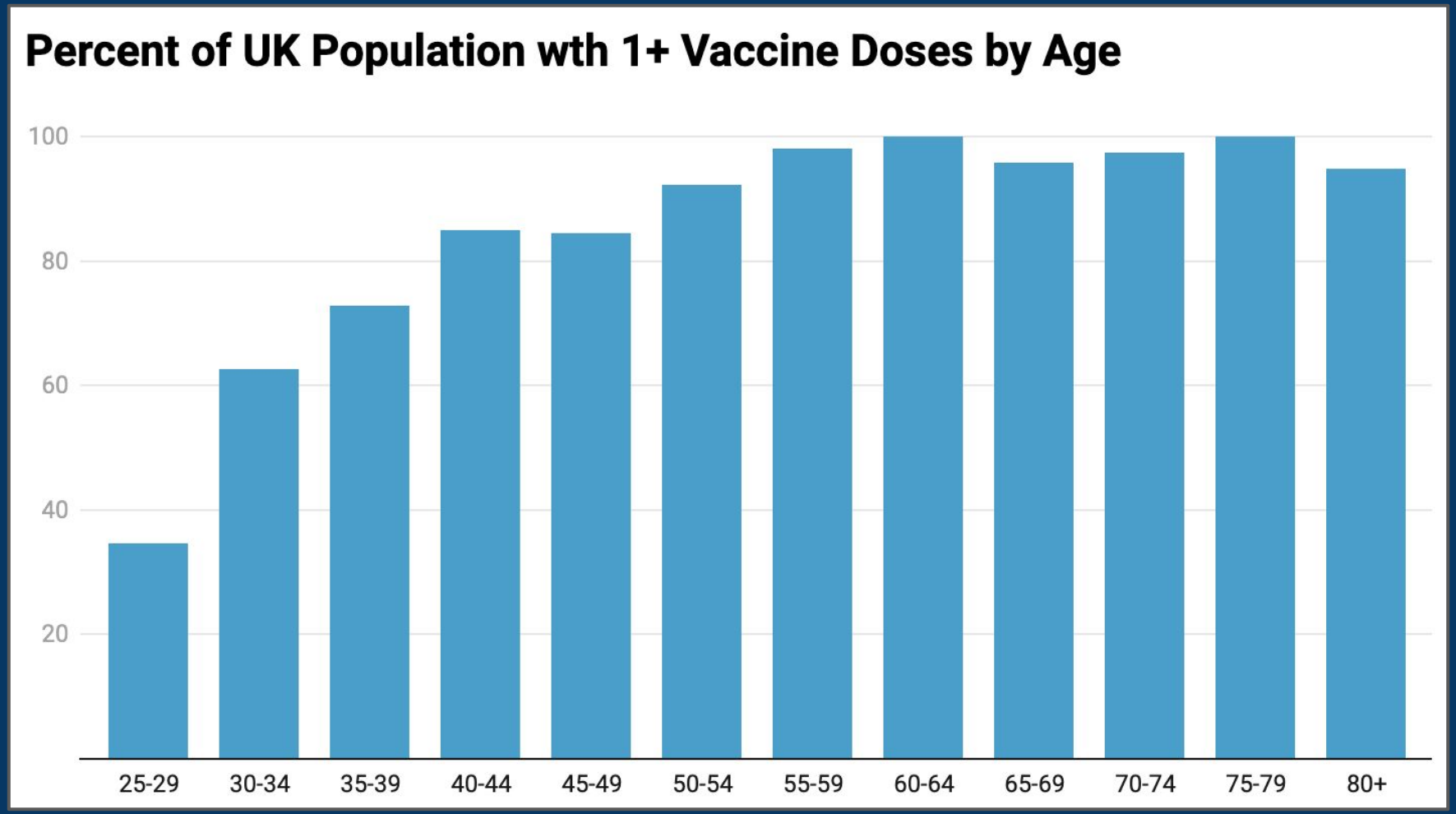
Rolling 7 day average of daily cases in England



Variant cases estimated using proportion found in sequences analysed by COG UK

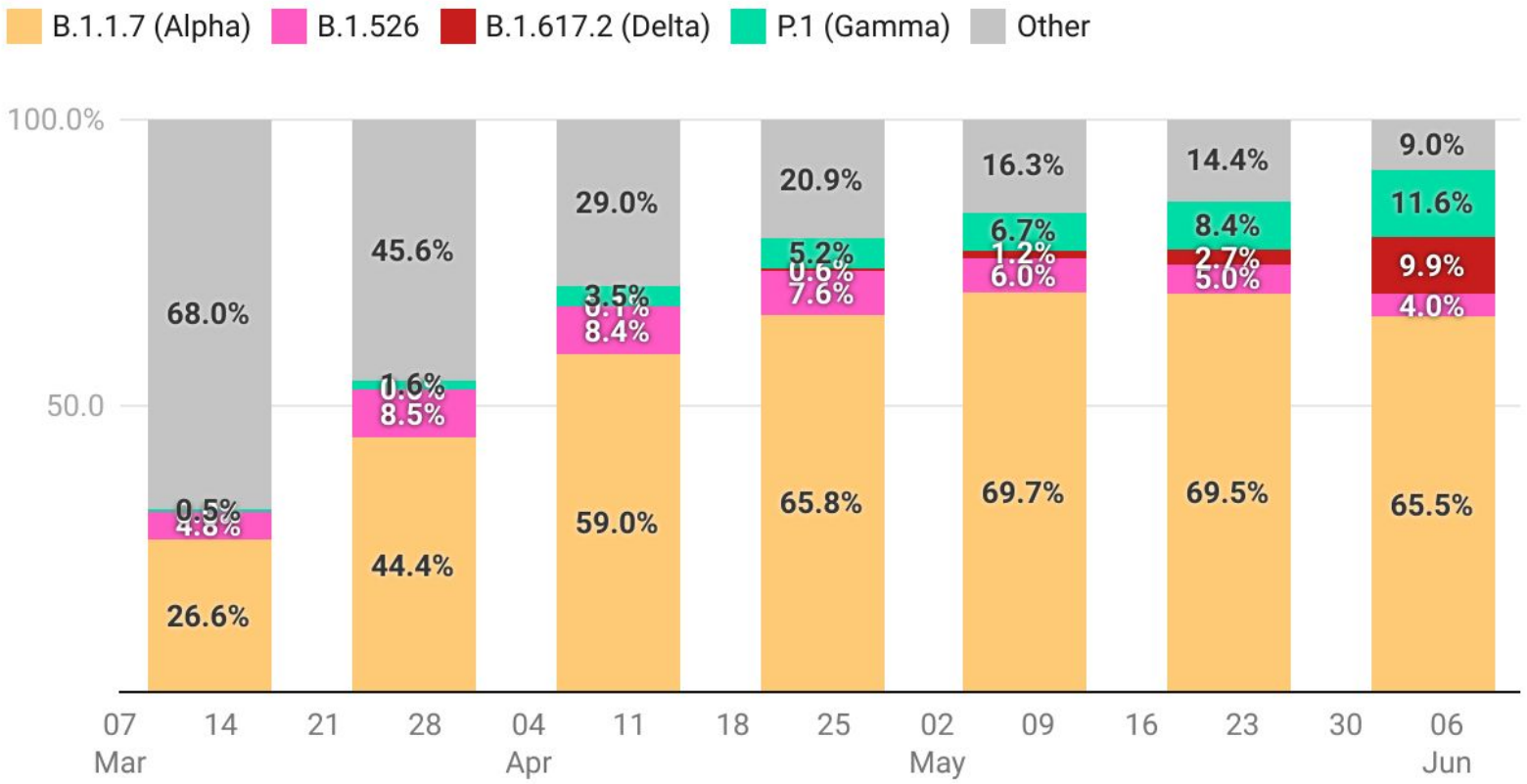
Source: BBC analysis of COG-UK and gov.uk data

BBC



Source: NHS—June 21, 2021

Most Common Variants in the United States, by Percentage of Sequenced Cases

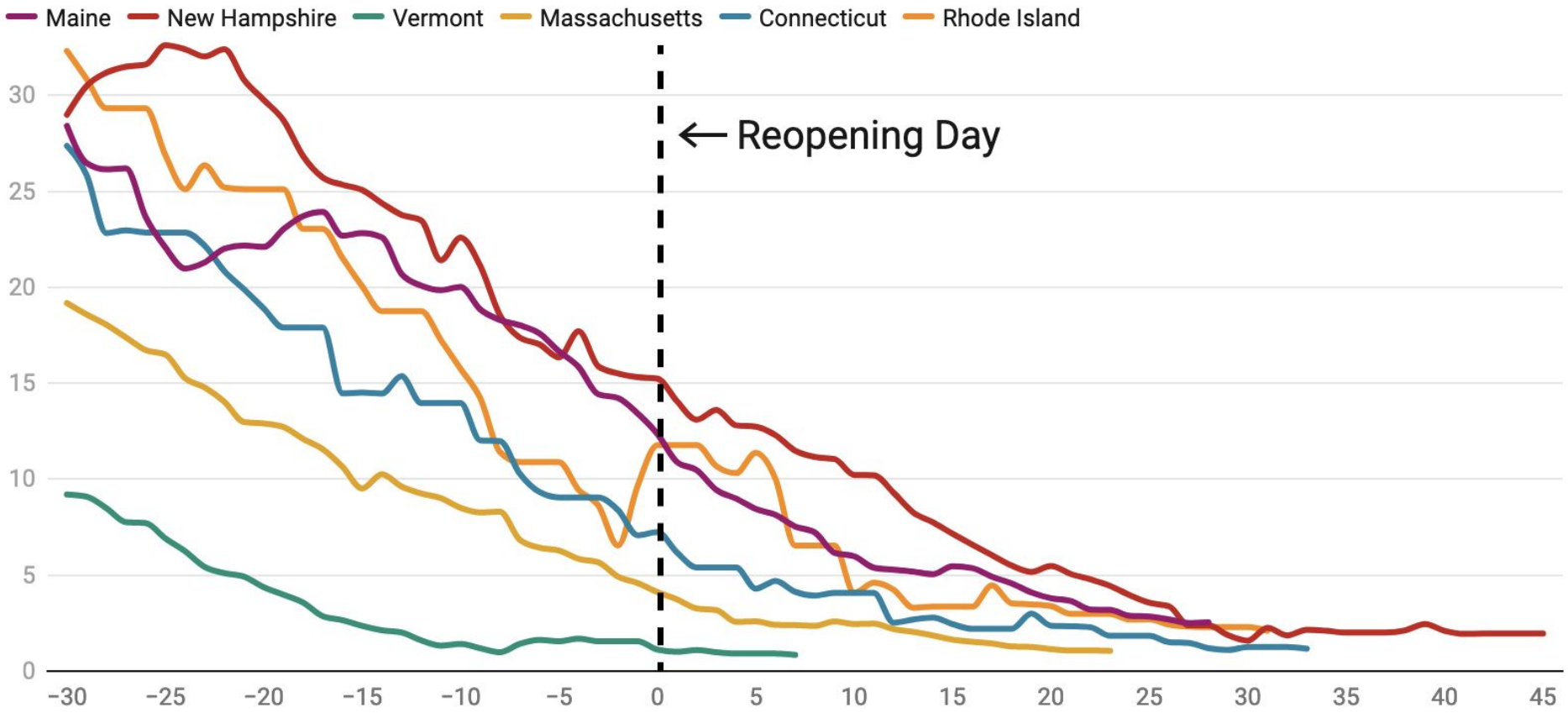


Source: CDC—June 22, 2021

Tracking Vermont & New England Reopening

Full Reopening Has Not Increased New England Case Counts

Daily COVID Infections per 100K (7-Day Average) as a Function of Days After Reopening



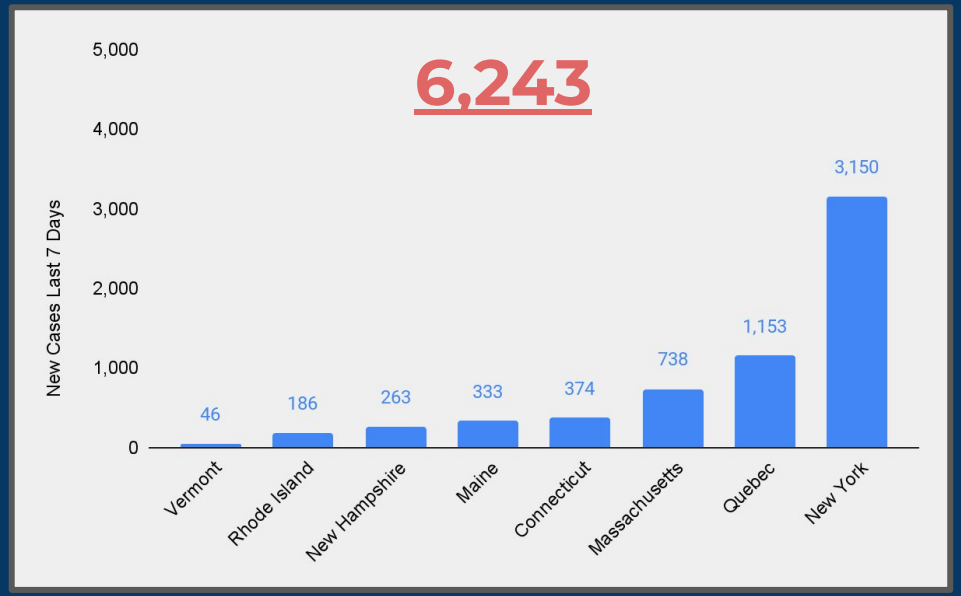
Source: State Health Departments—June 21, 2021

Regional Data

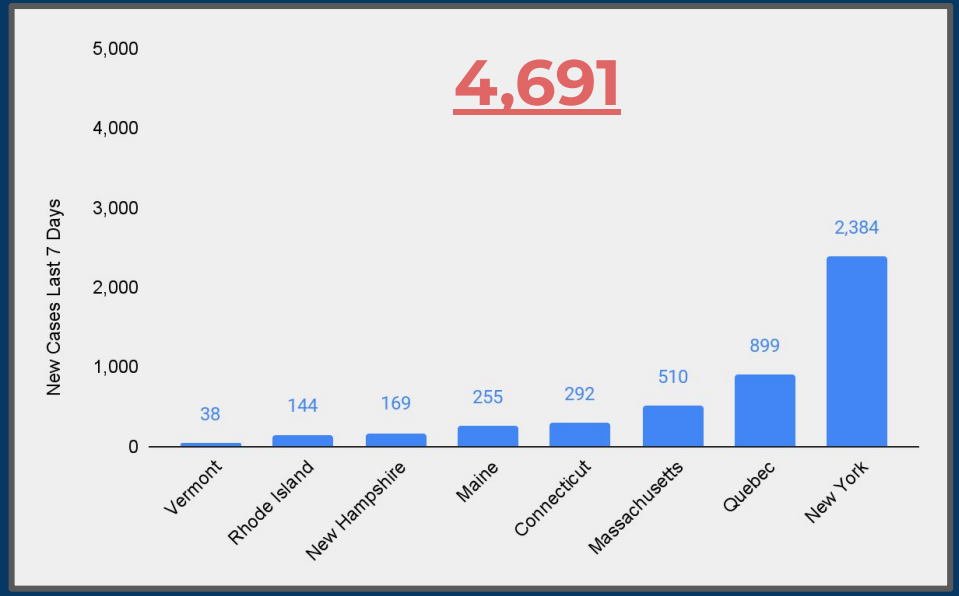
Regional Cases

24.9% Decrease in New Cases

New Cases June 8th to June 14th

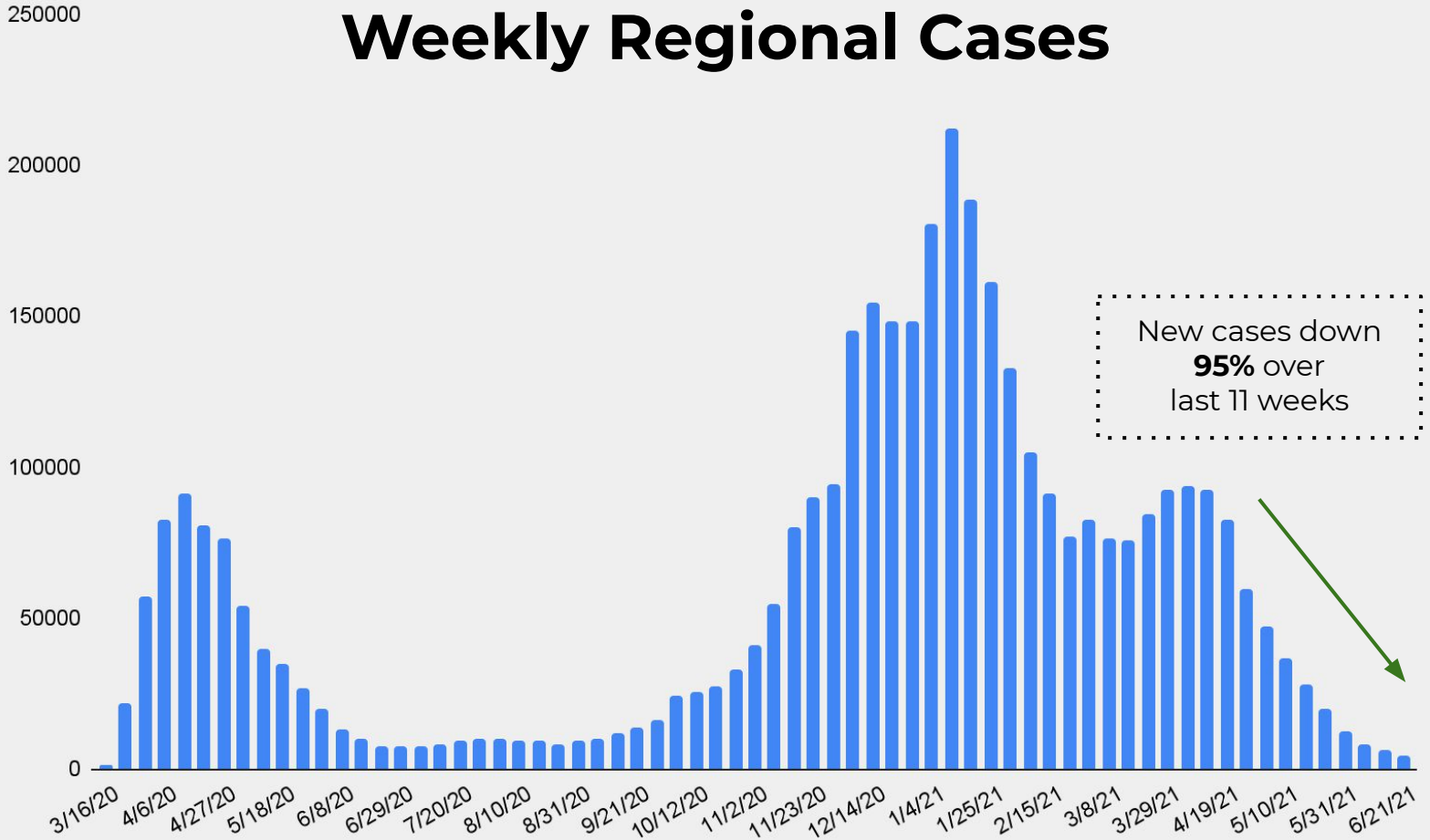


New Cases June 15th to June 21st



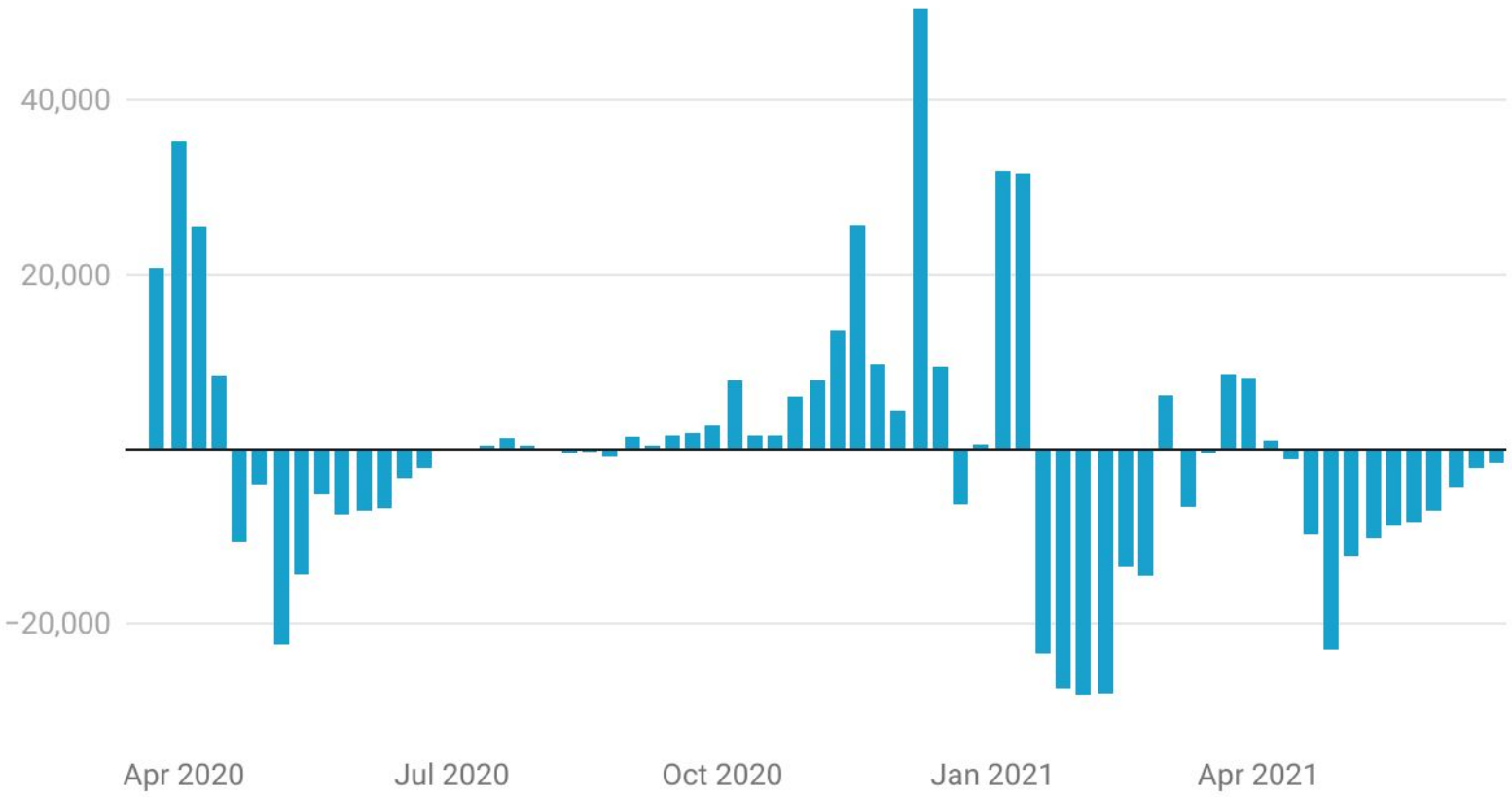
Sources: State Health Departments & CTV National News (Quebec)

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



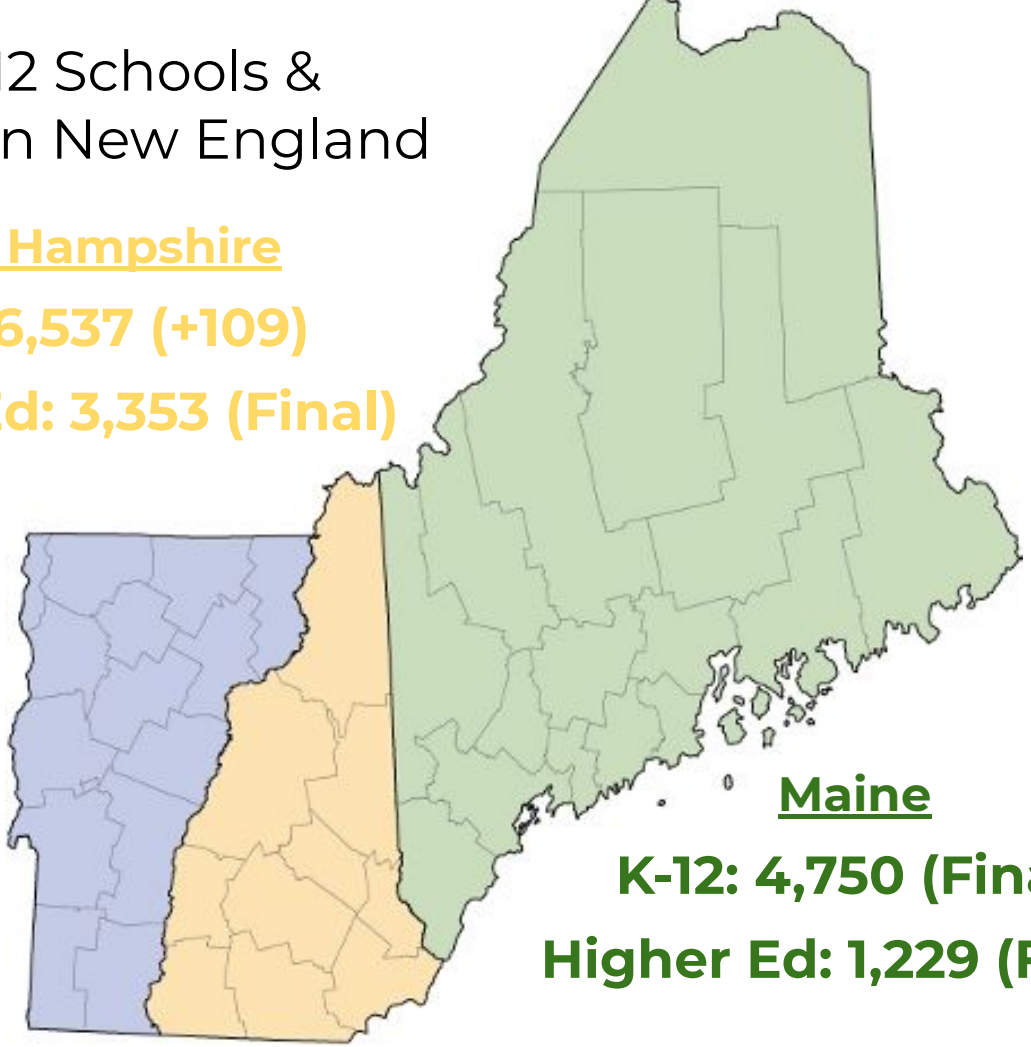
Sources: State Health Departments & CTV National News (Quebec) (includes: CT, ME, MA, NH, NY, QC, RI & VT)

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

New Hampshire

K-12: 6,537 (+109)

Higher Ed: 3,353 (Final)



Vermont

K-12: 1,402 (+1)

Higher Ed: 1,167 (Final)

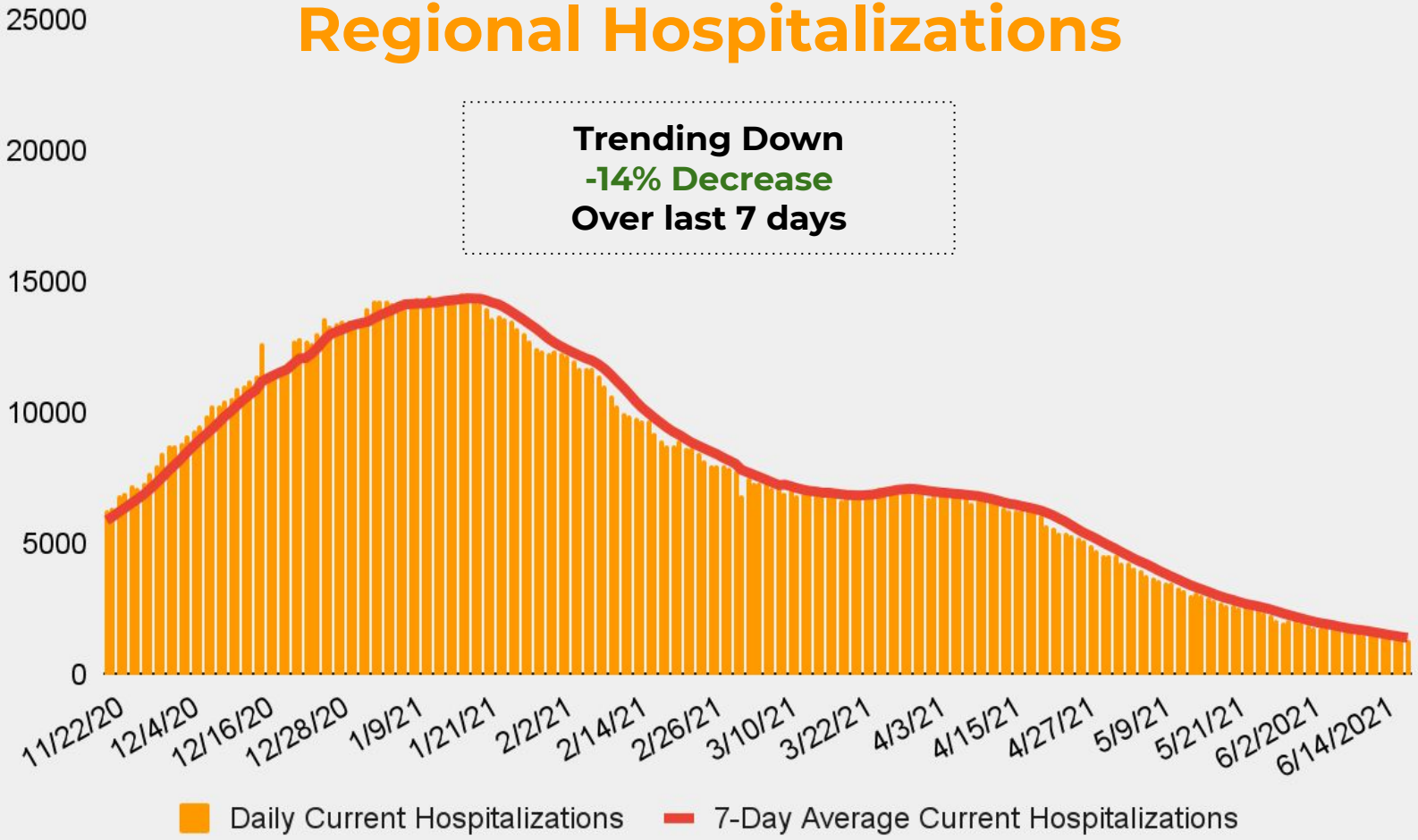
Maine

K-12: 4,750 (Final)

Higher Ed: 1,229 (Final)

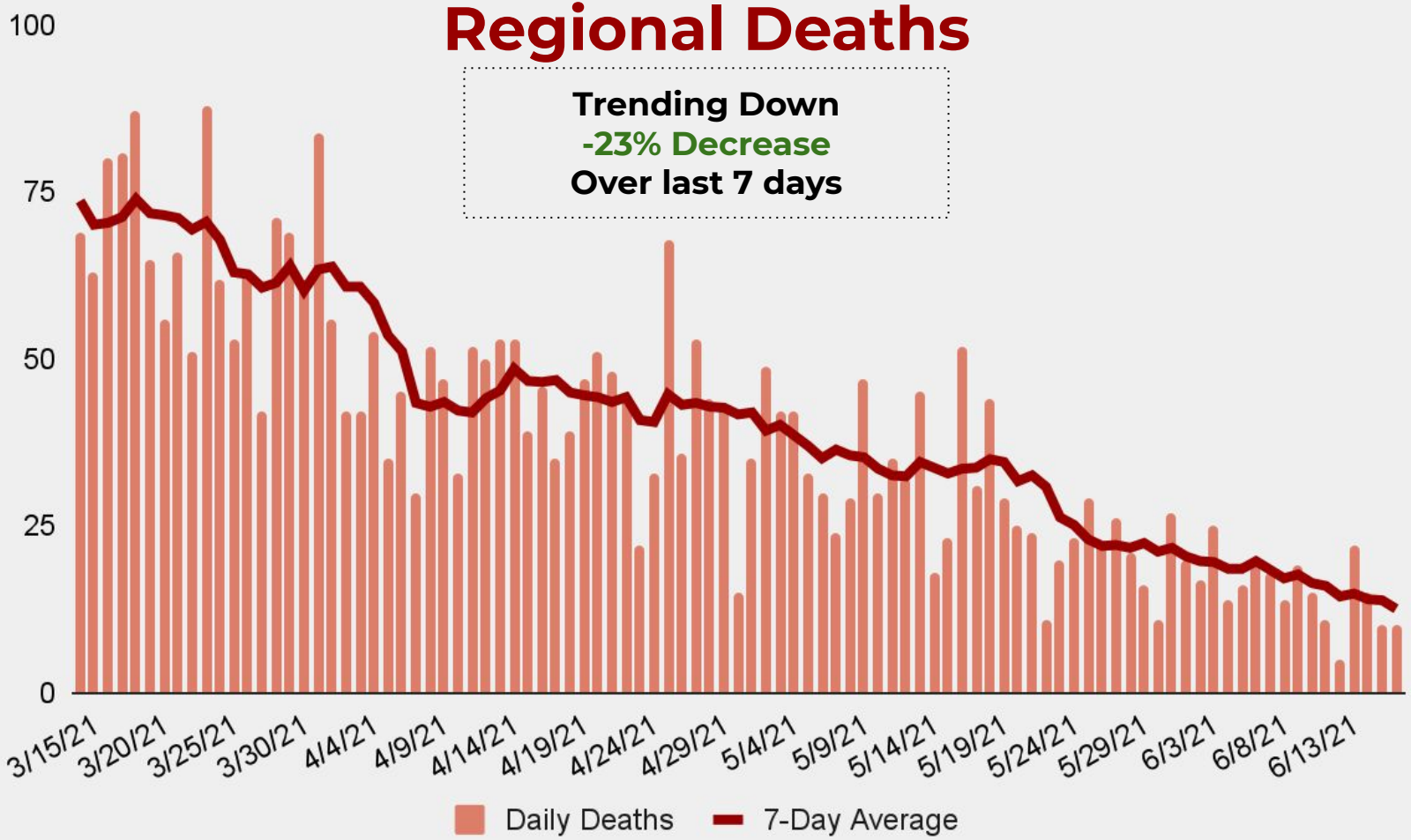
Source: ME, NH & VT K-12 Dashboards; K-12 cases from the full school year; Higher Ed. cases from the Spring Semester

Regional Hospitalizations



Source: Covid Act Now (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—June 21, 2021

Regional Deaths



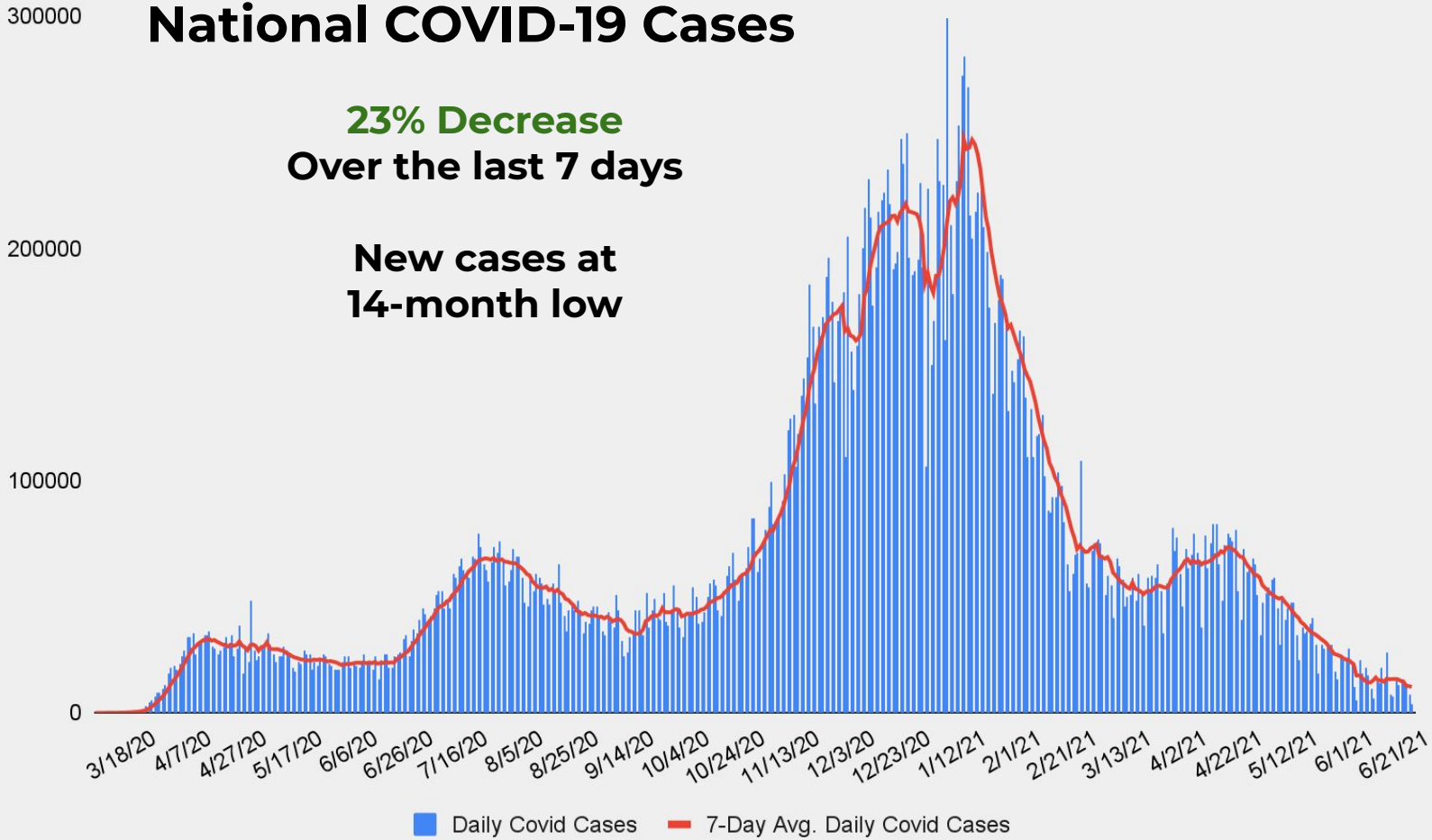
Source: CDC (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—June 21, 2021

National Data

National COVID-19 Cases

23% Decrease
Over the last 7 days

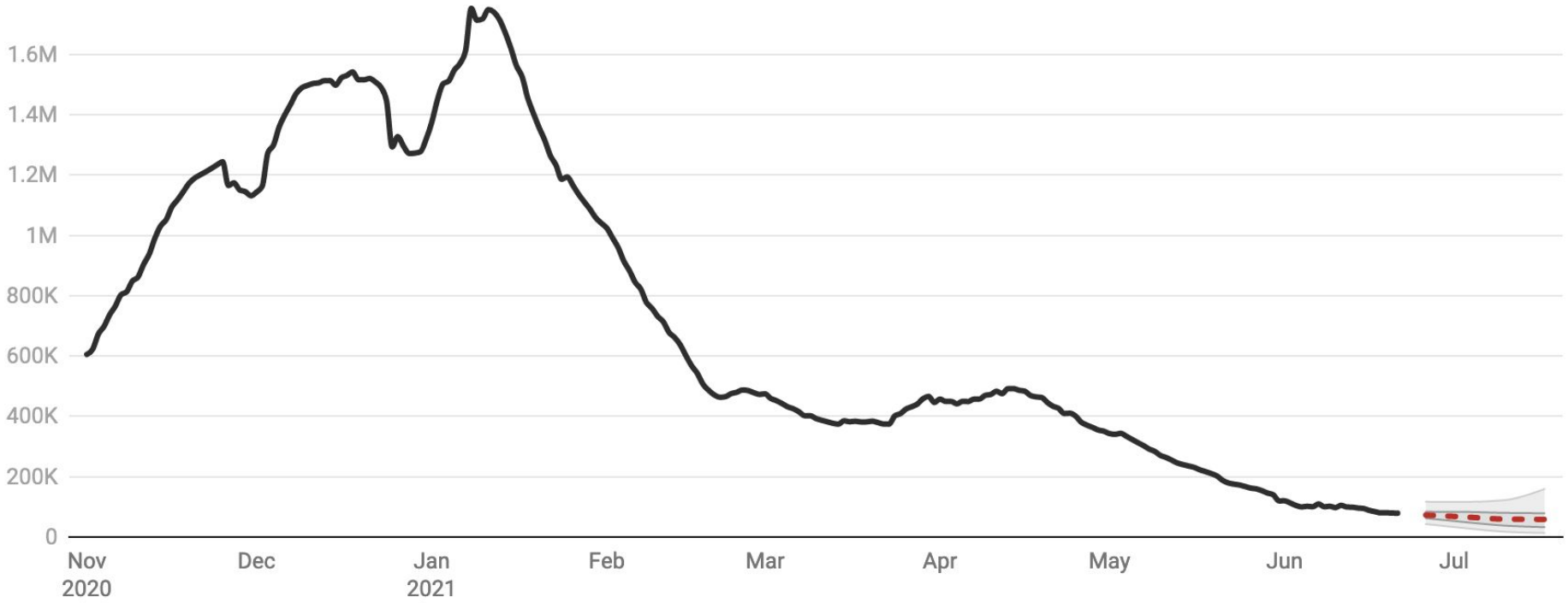
New cases at
14-month low



Source: Covid Tracking Project; NYT & CDC—June 21, 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.

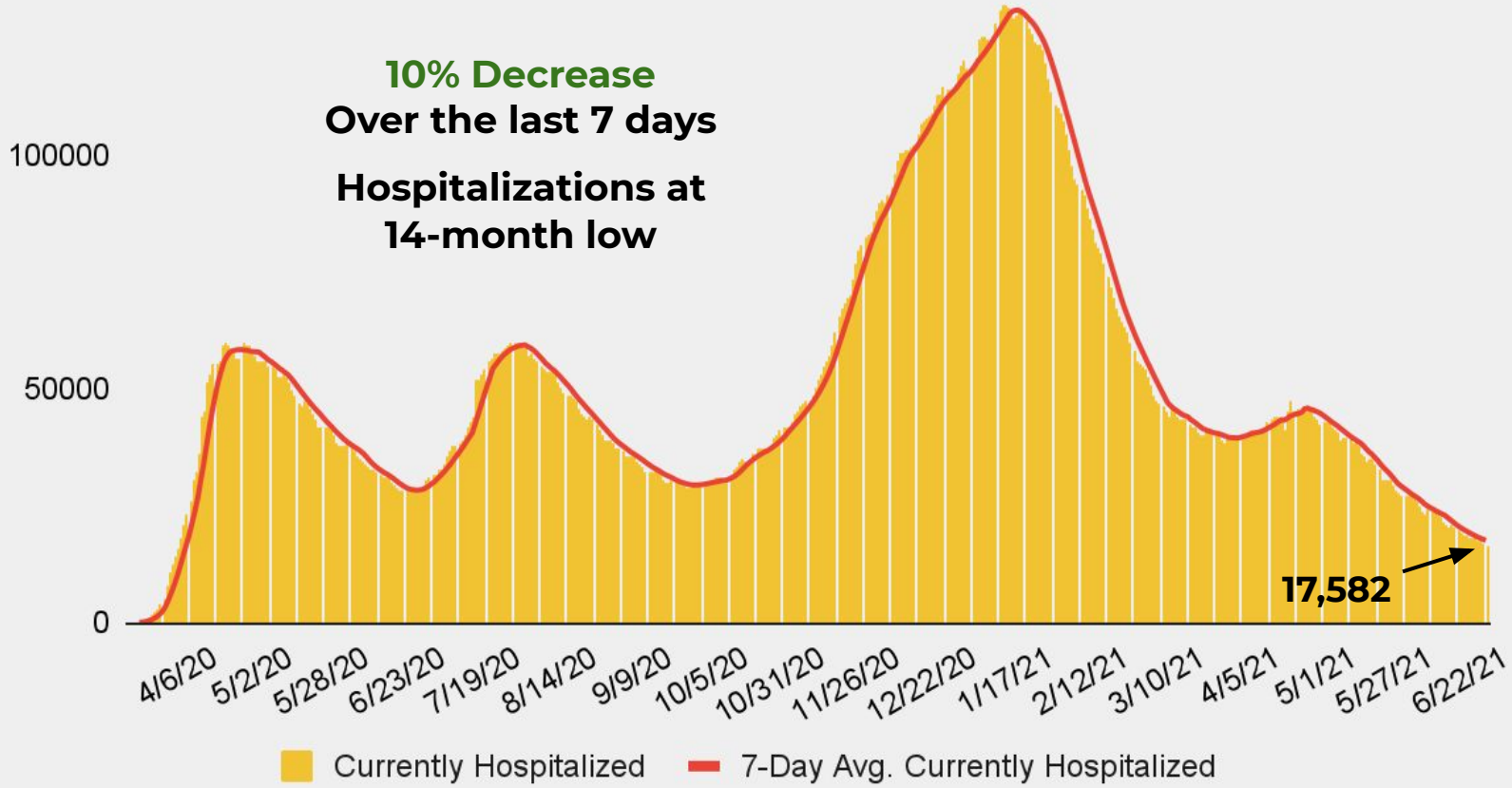


Source: Centers for Disease Control and Prevention—June 21, 2021

National COVID-19 Hospitalizations

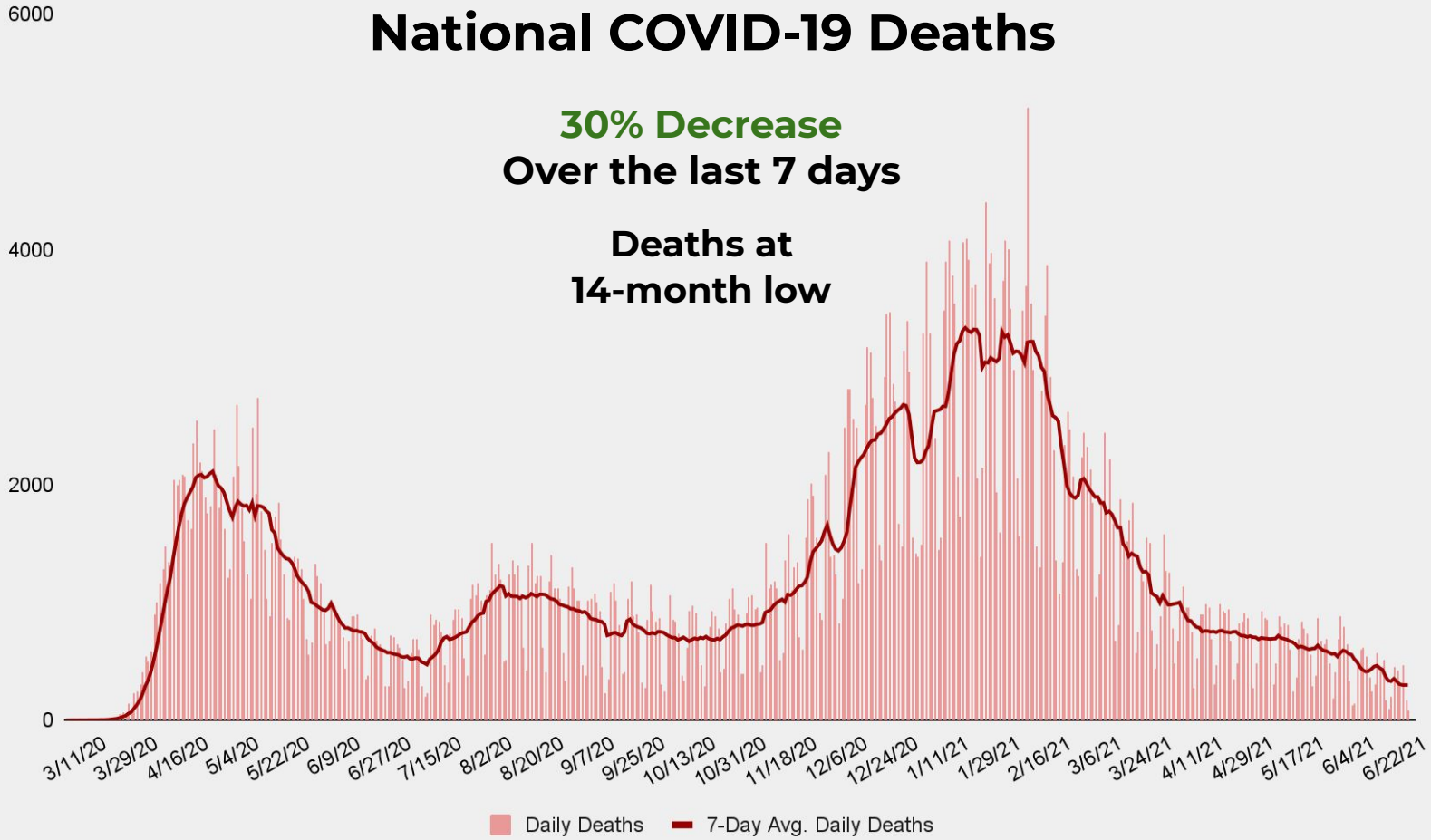
10% Decrease
Over the last 7 days

Hospitalizations at 14-month low



Source: Covid Tracking Project; NYT & CDC—June 21, 2021

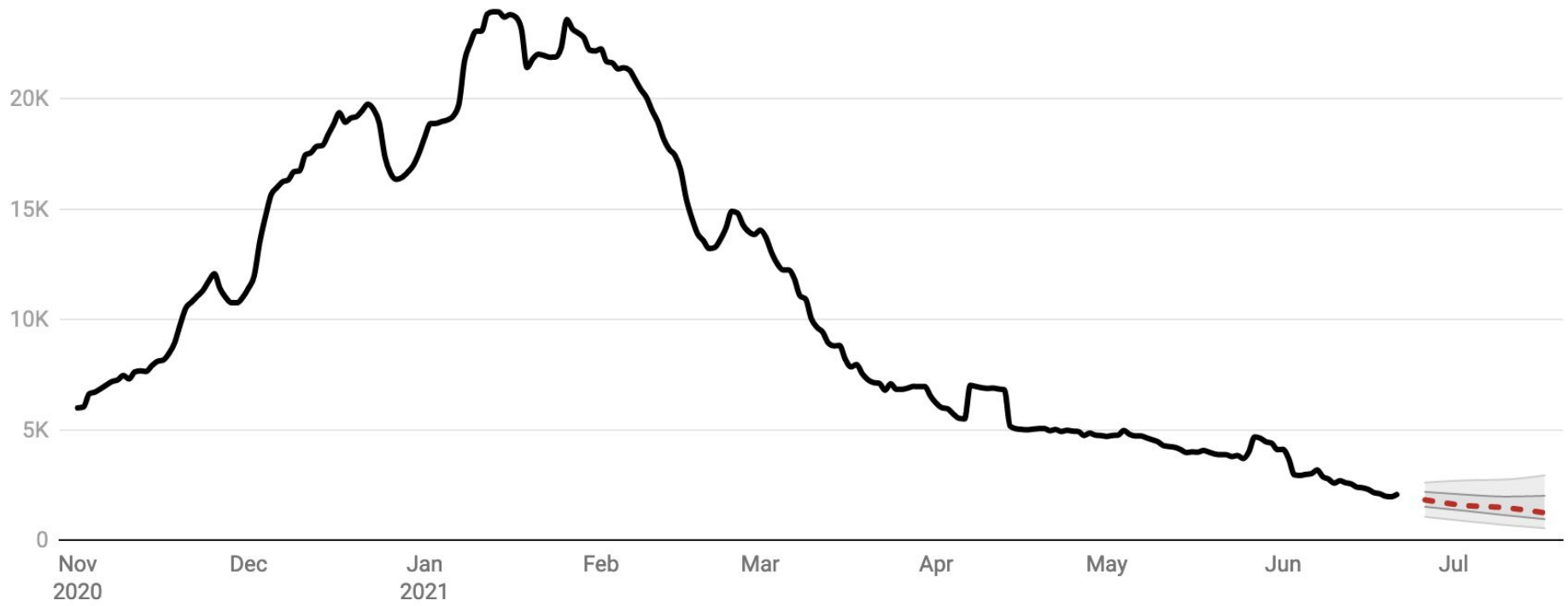
National COVID-19 Deaths



Source: Covid Tracking Project; NYT & CDC—June 21, 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.



Source: Centers for Disease Control and Prevention—June 21, 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

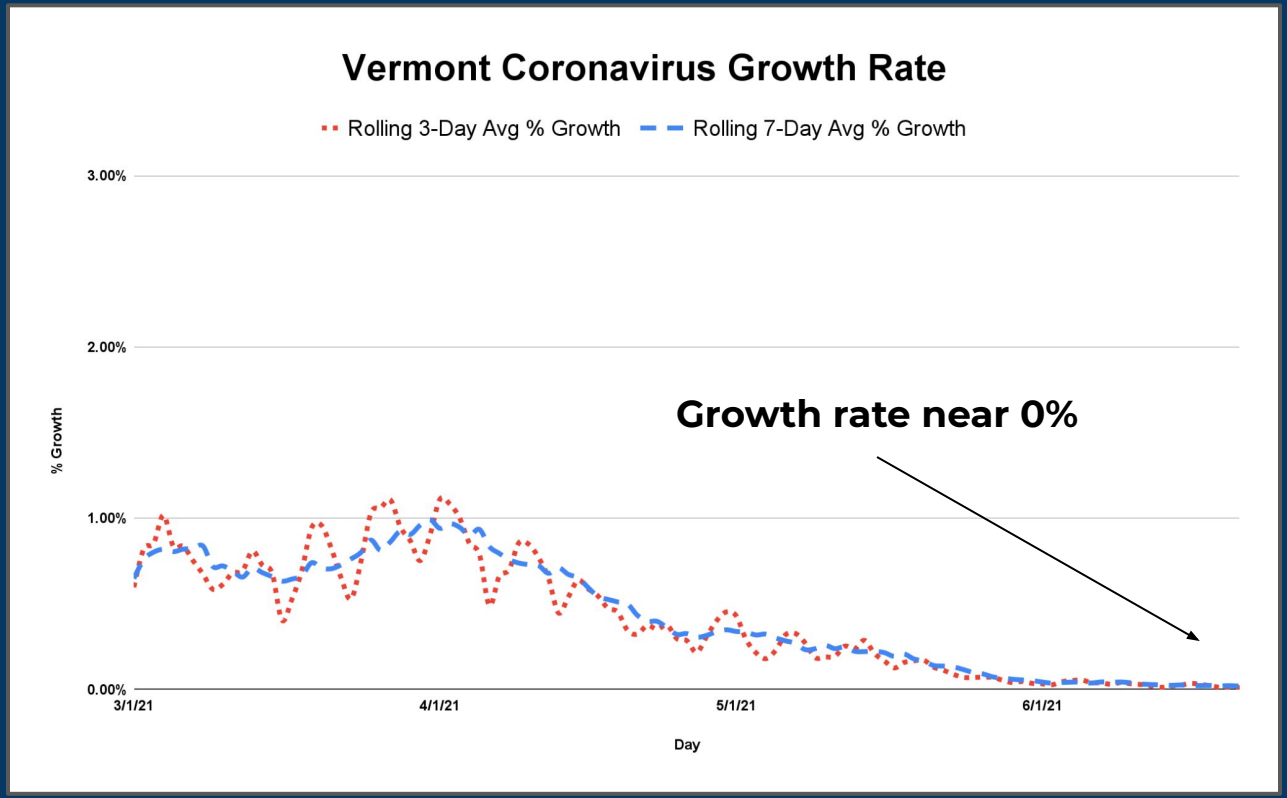
Data Point 1: Syndromic Surveillance

- **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

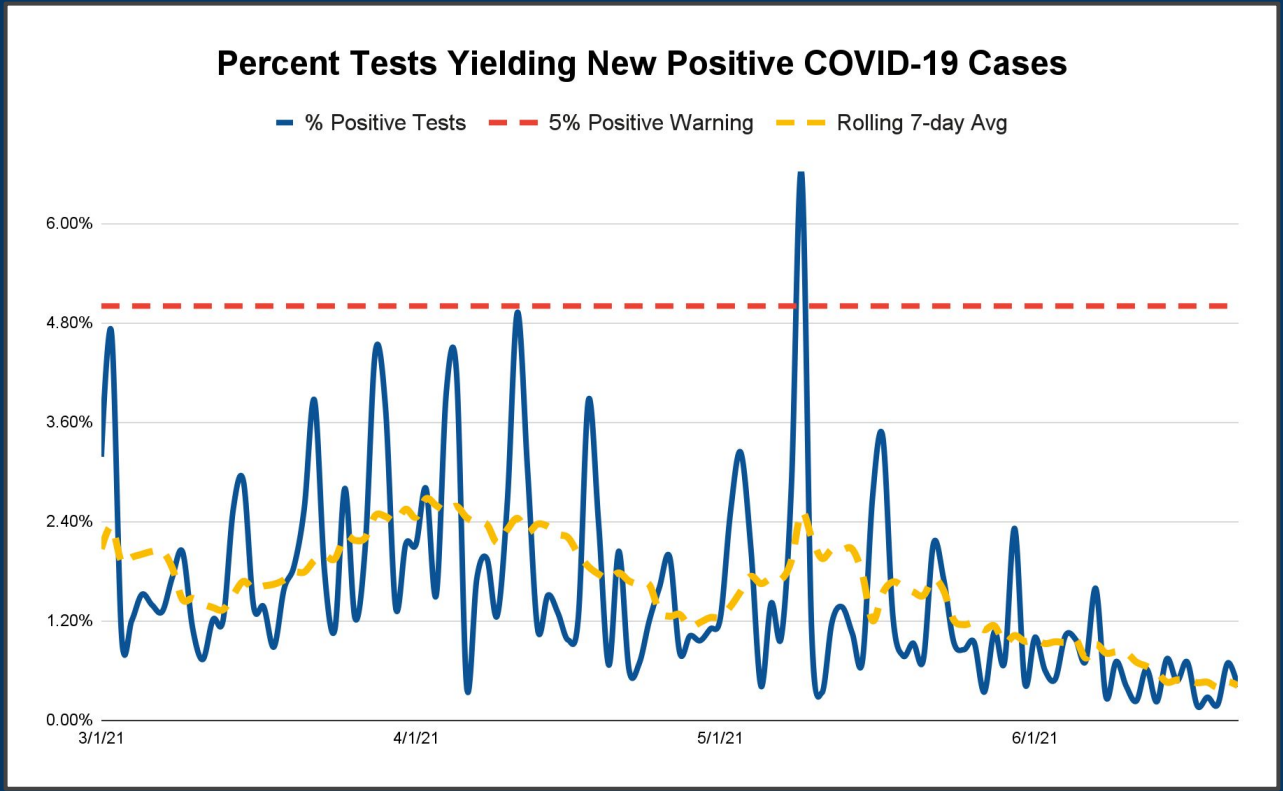
- **Summary:** Case growth measured by daily, 3-day, 7-day, and effective reproductive rate (R_t)
- **Warning Flags:** Sustained viral growth that would lead to <30% open ICU beds



Source: Vermont Department of Health—June 22, 2021

Data Point 3: Percentage of New Positive Tests

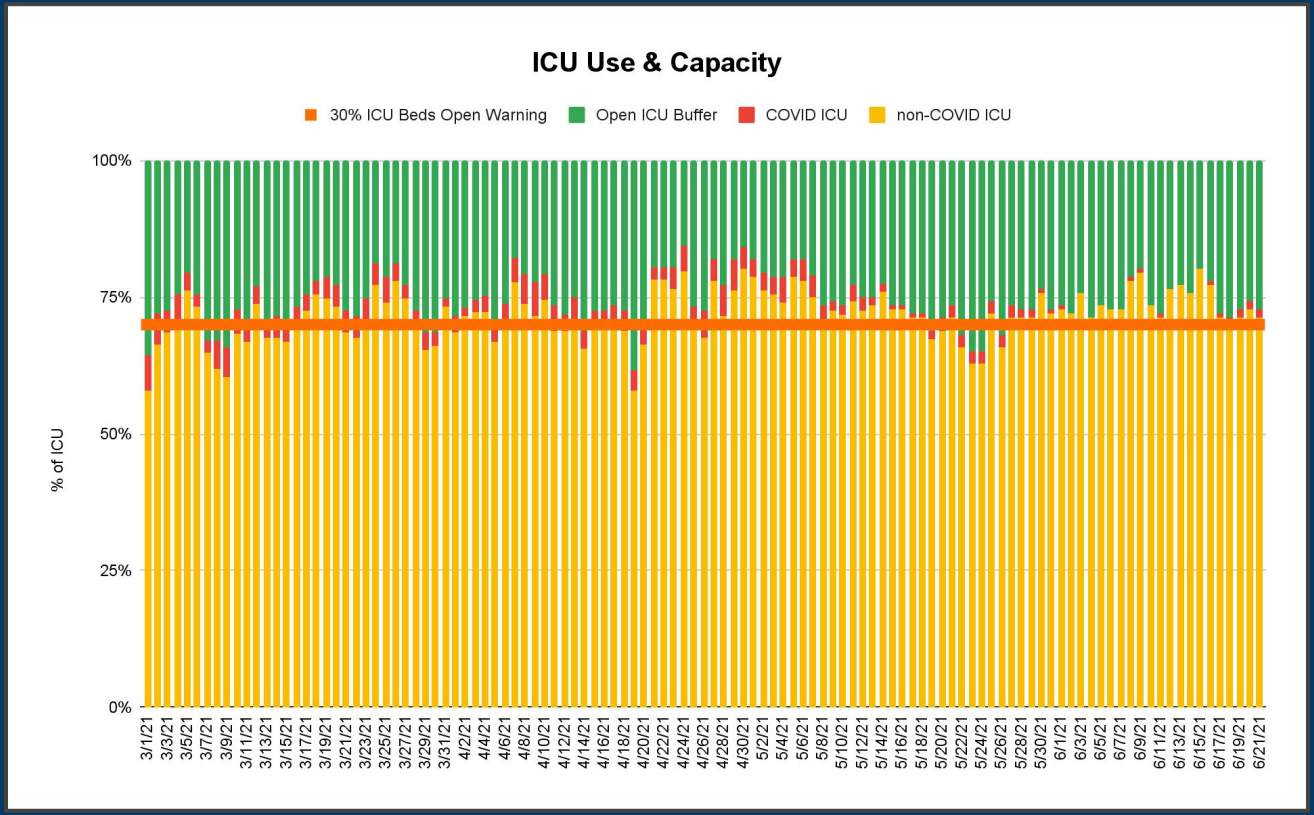
- **Summary:** Percent of tests resulting in a new positive case
- **Warning Flags:** New positives represent >5% of daily results



Source: Vermont Department of Health—June 22, 2021

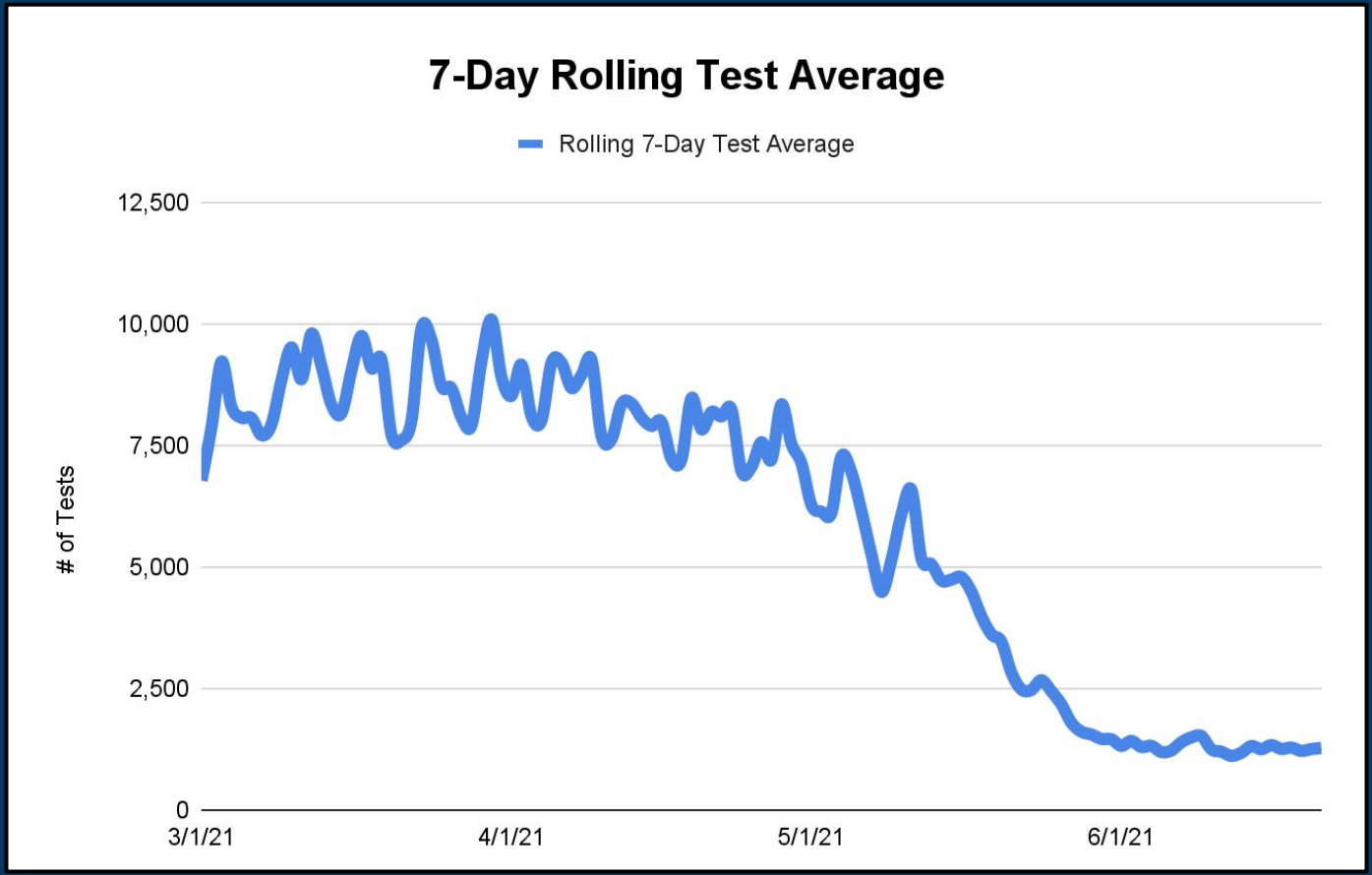
Data Point 4: Hospital & Critical Care Beds

- **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—June 22, 2021

Vermont Testing



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

Source: Vermont Department of Health—June 22, 2021; results reported to VDH daily