COVID-19 Modeling
June 15, 2021

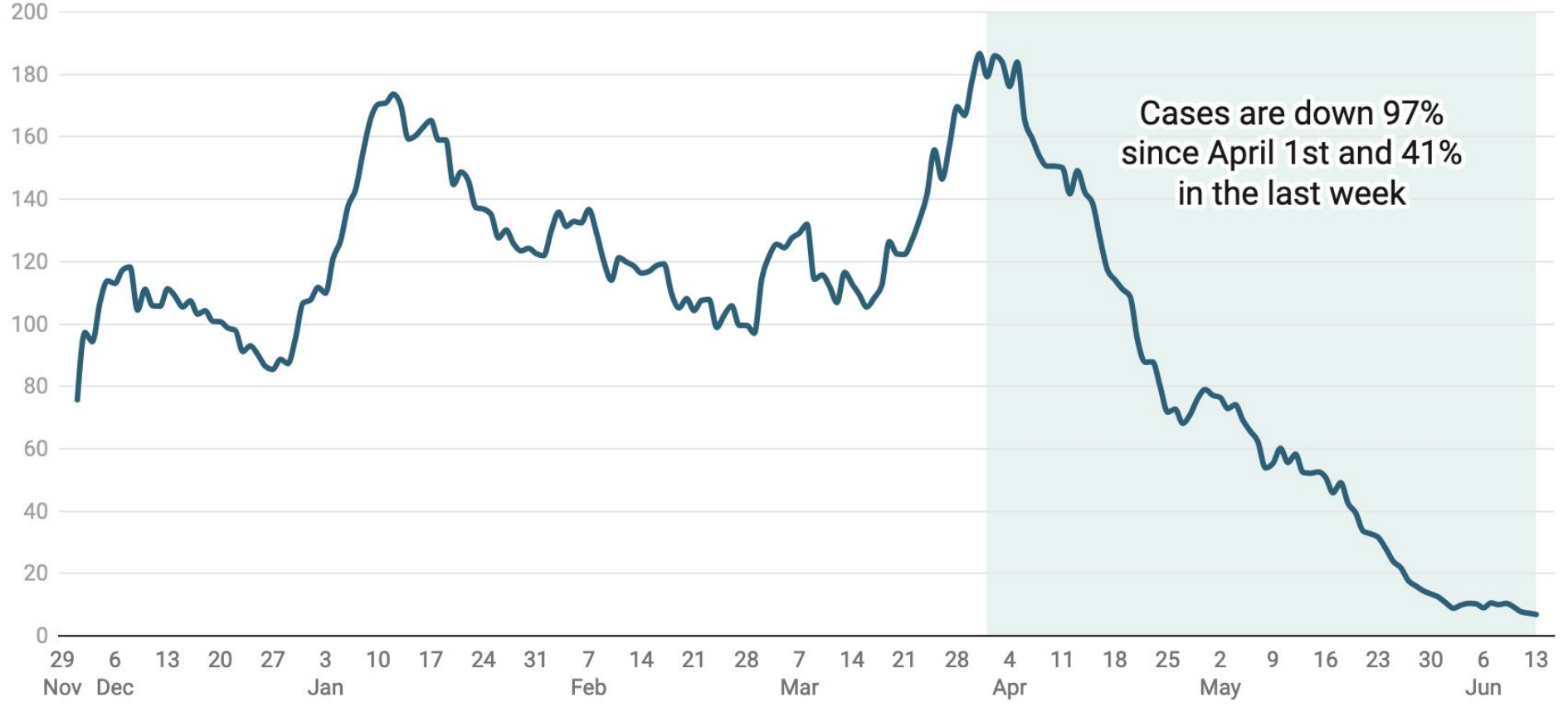
Presentation available at:
dfr.vermont.gov

Table of Contents

Vermont Case Data	Pg. 4
Vermont Hospitalization Data	Pg. 18
Vermont Fatality Data	Pg. 21
Vermont Vaccination Data	Pg. 26
Canadian & Quebec Data	Pg. 38
Tracking Reopening	Pg. 41
Regional Data	Pg. 50
National Data	Pg. 57
Restart Vermont	Pg. 63

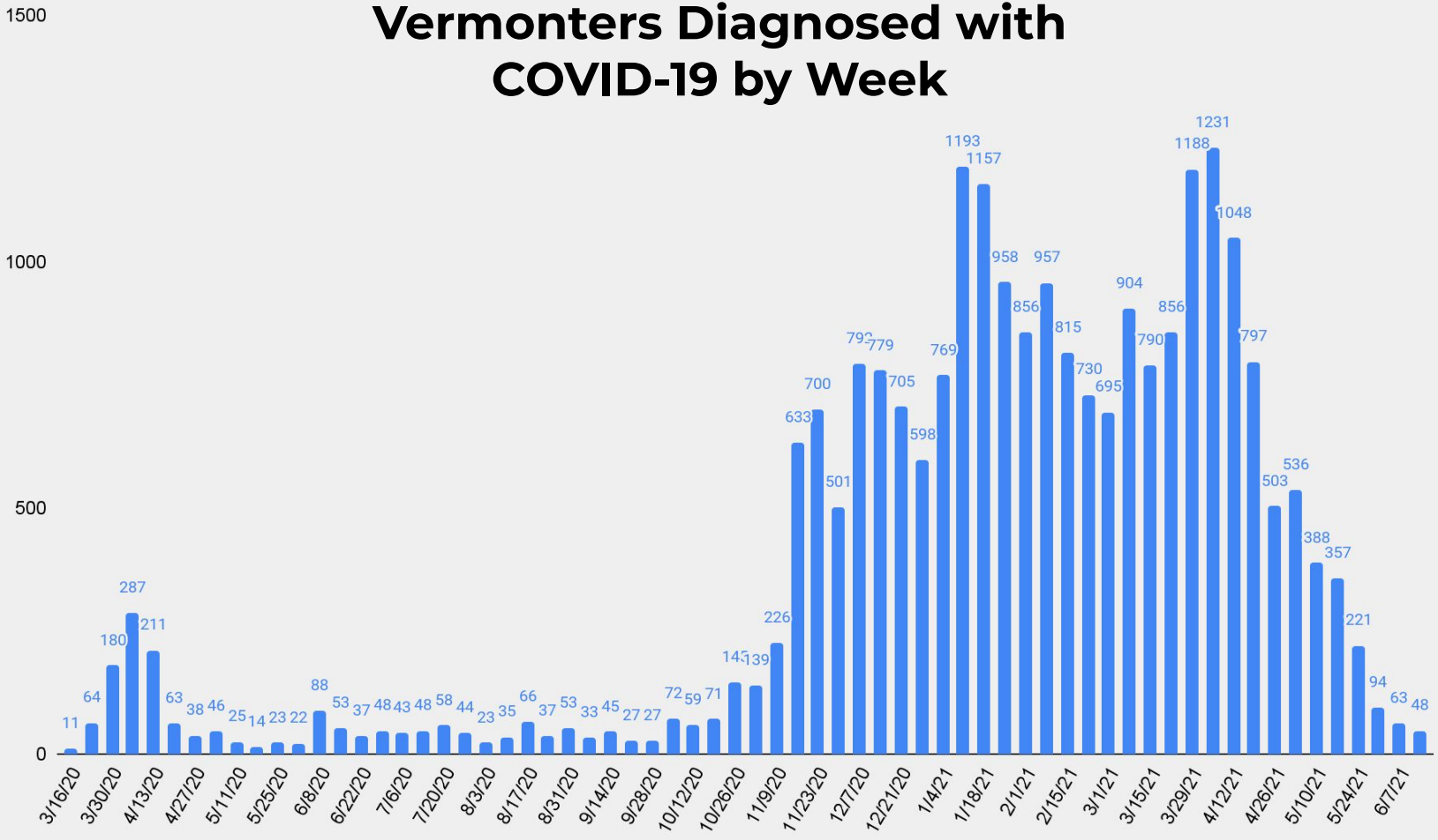
Vermont Case Data

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

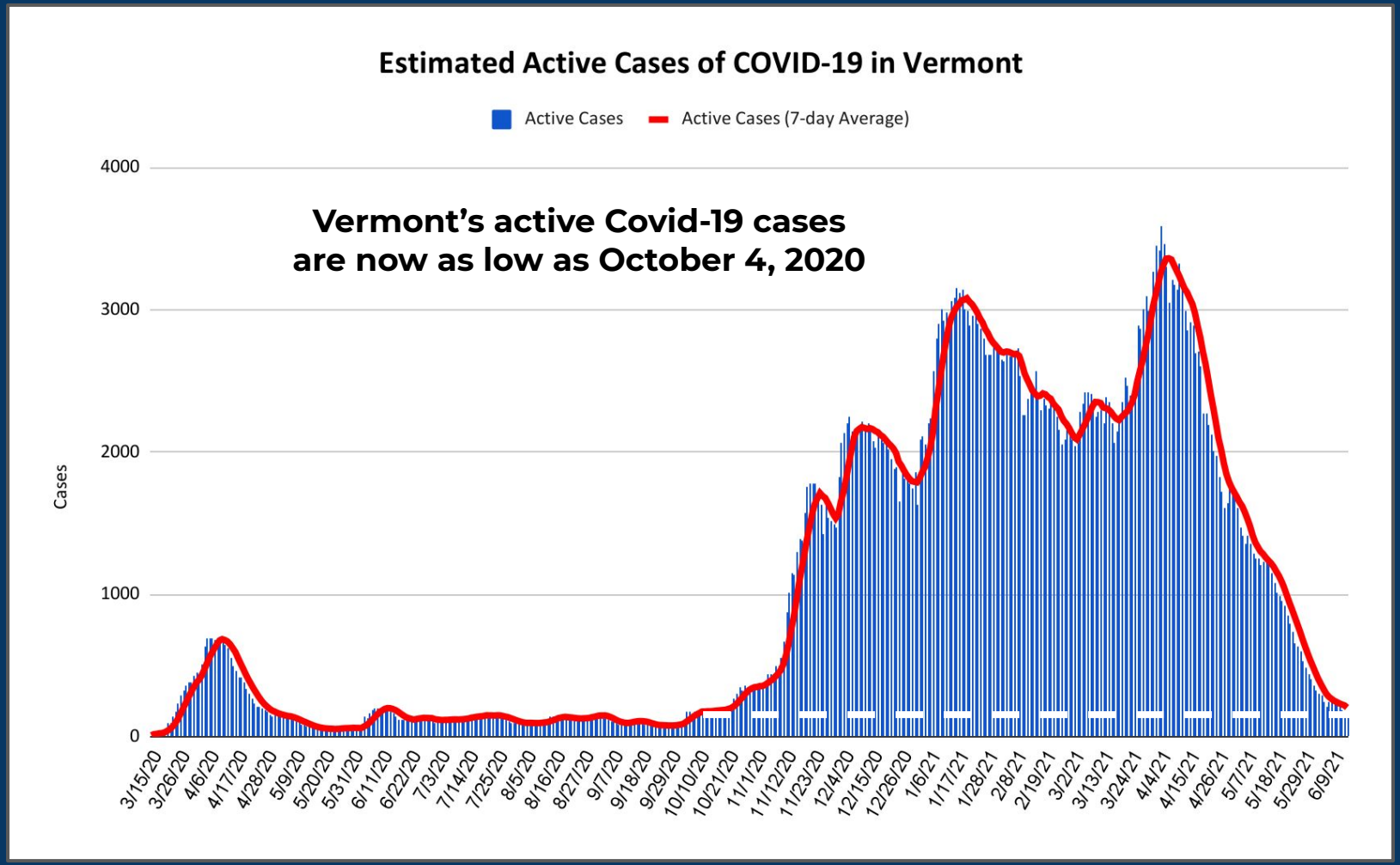


Source: Vermont Department of Health—June 14, 2021

Vermonters Diagnosed with COVID-19 by Week



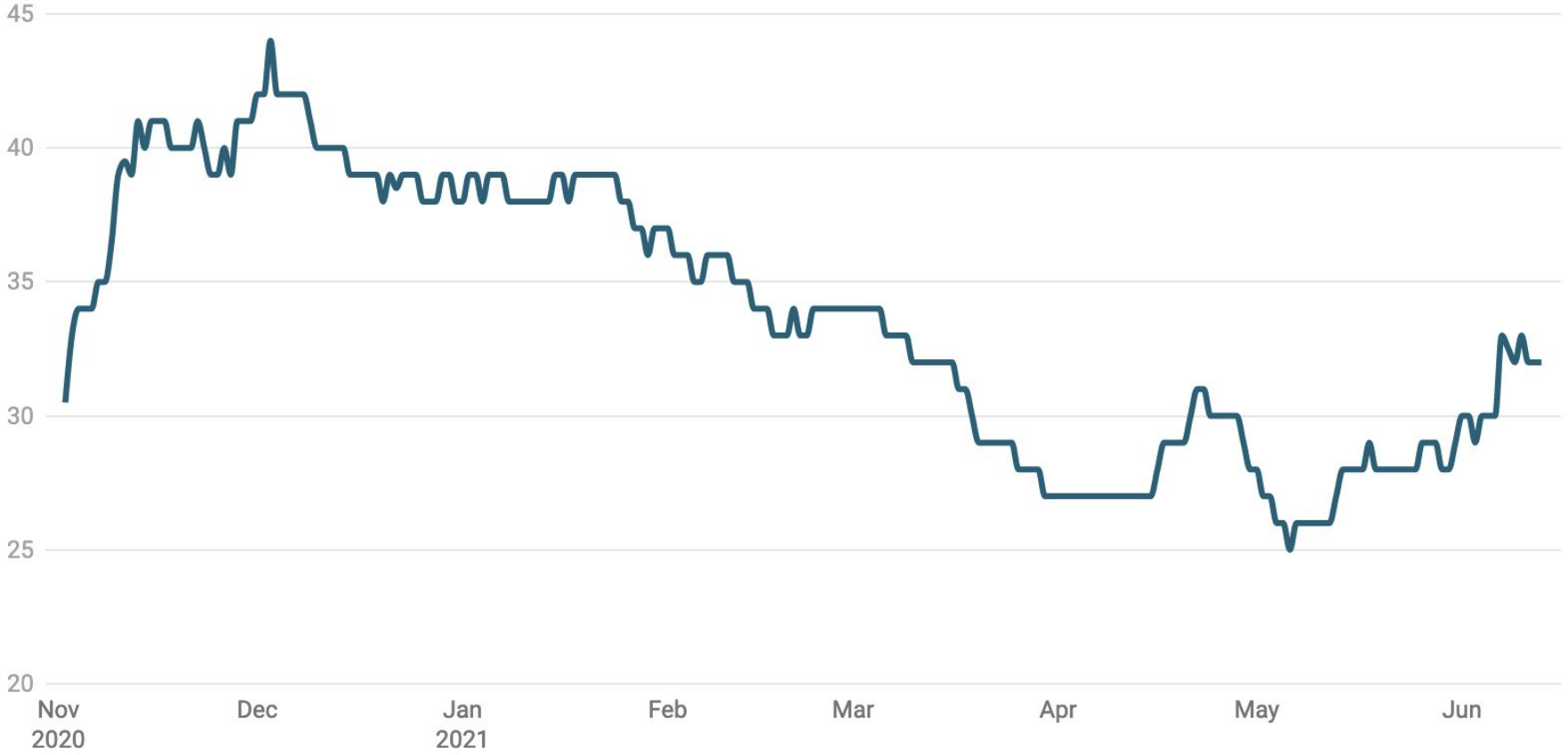
Source: Vermont Department of Health (week calculated as Tuesday to Monday)



Source: Johns Hopkins University Data & Oliver Wyman Model—June 14, 2021

Age of Infected Vermonters

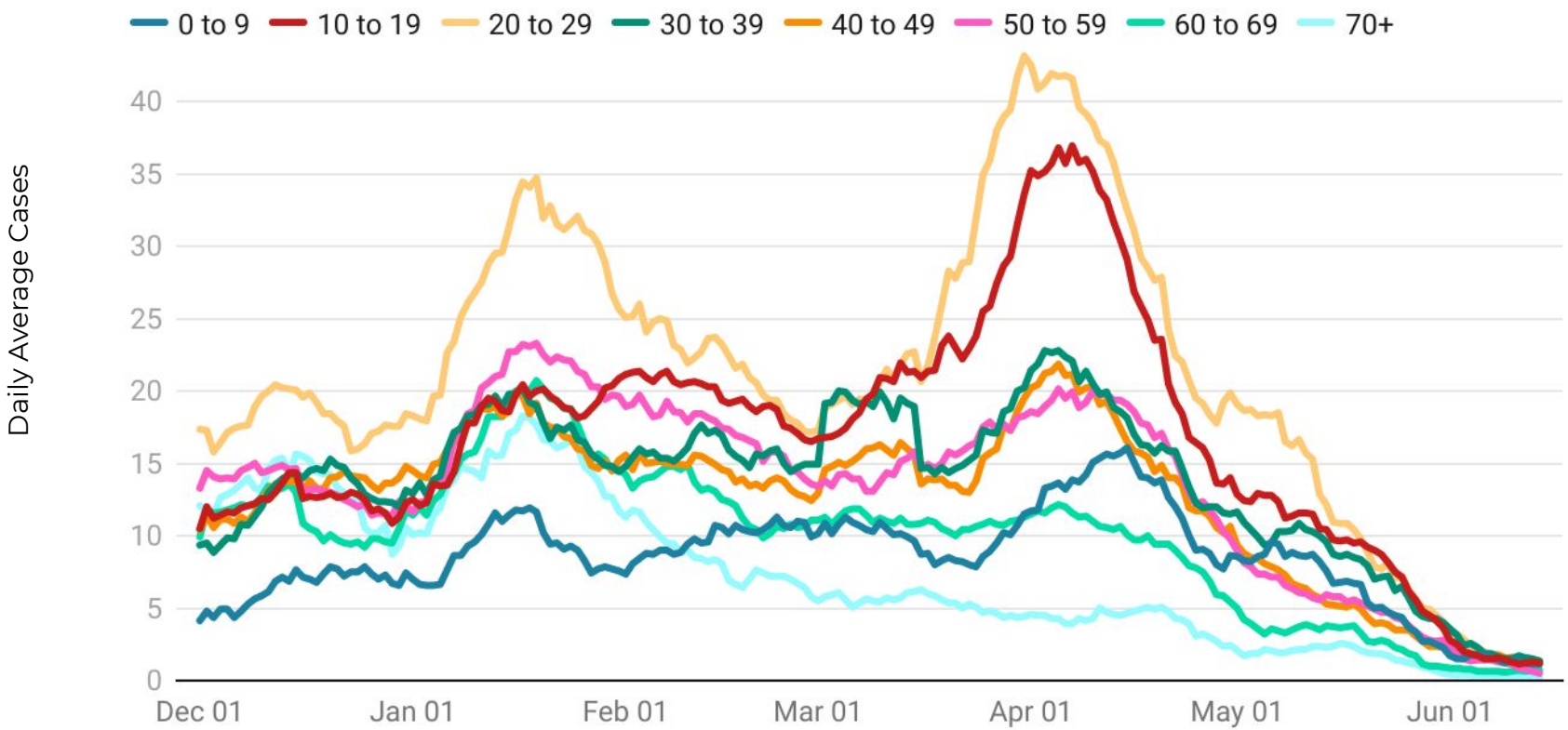
Median age of COVID positive individuals in VT over the last 14 days.



Source: VDH—June 14, 2021

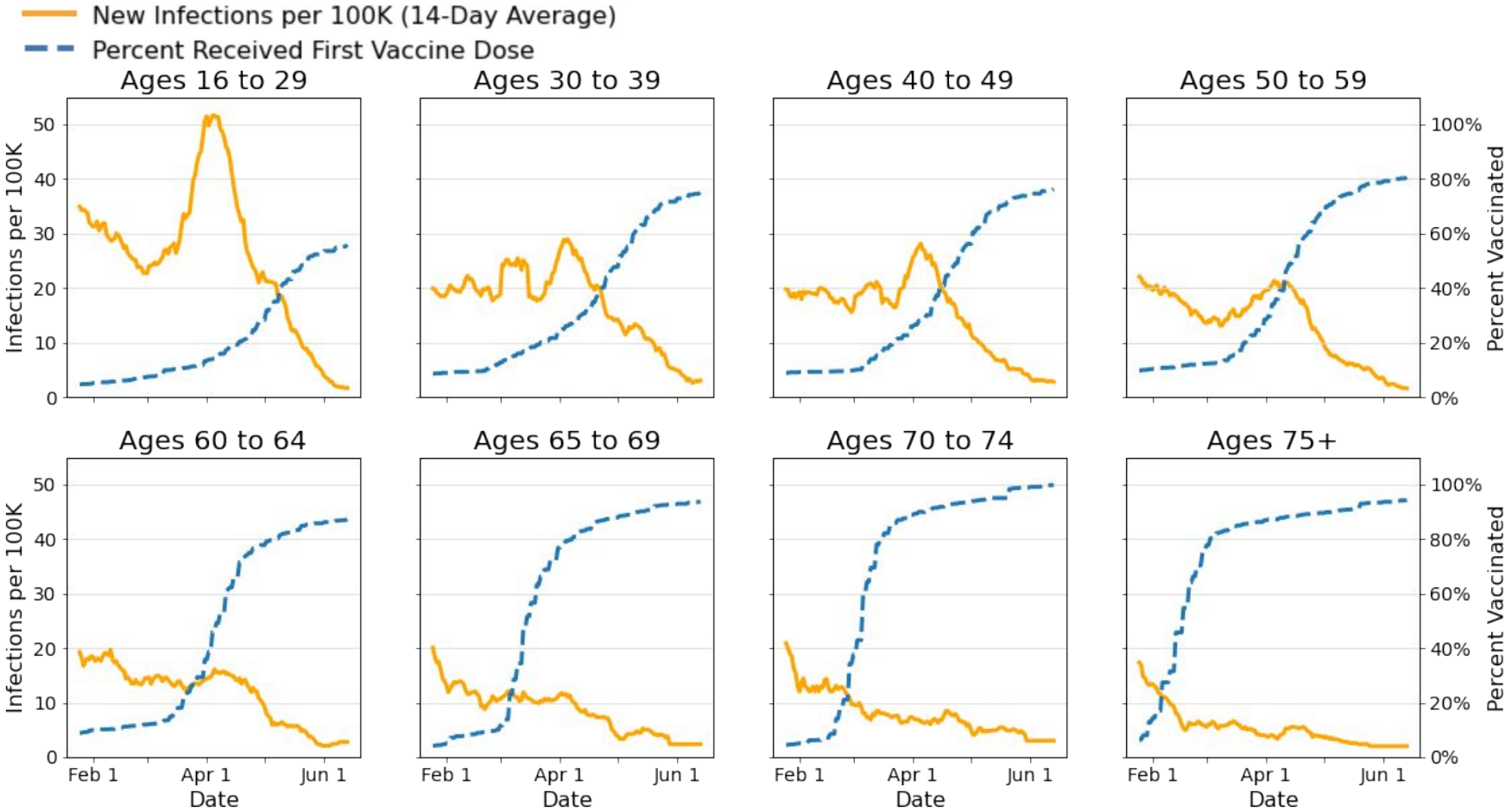
Vermont Cases by Age Band

14-day averages



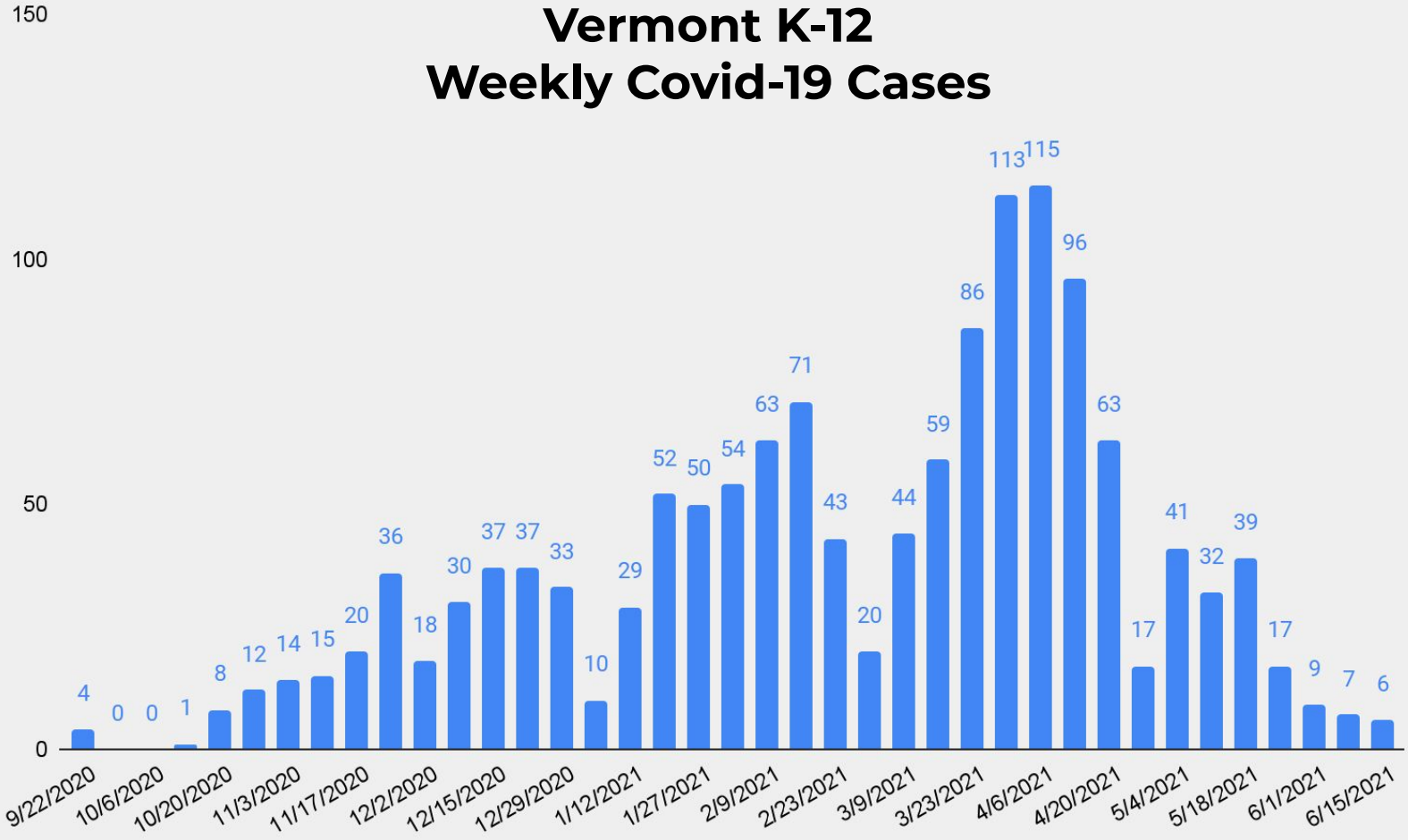
Source: VDH—June 14, 2021

Vermont Case Rate & Vaccination by Age Band



Source: VDH—June 14, 2021

Vermont K-12
Weekly Covid-19 Cases

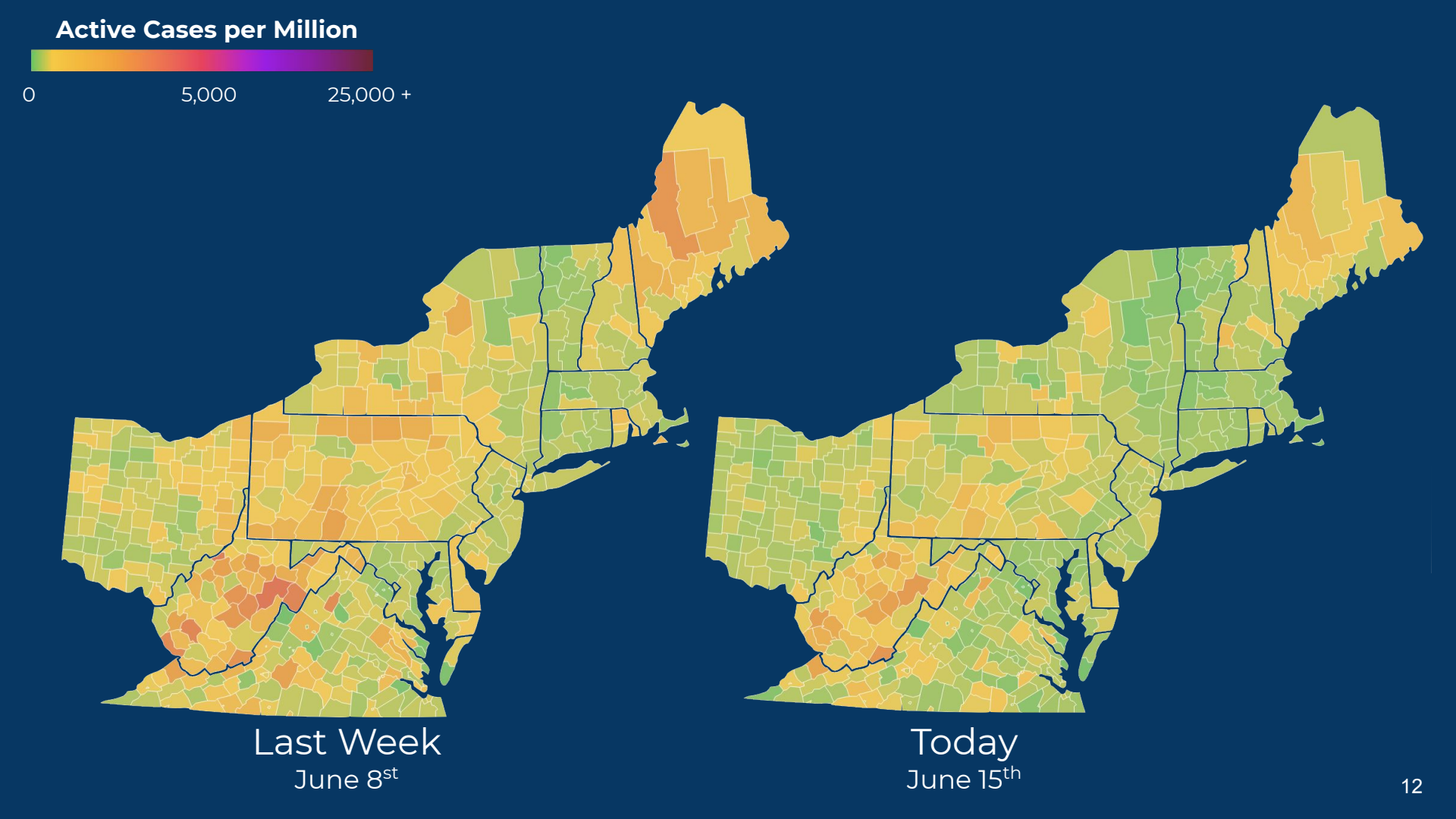


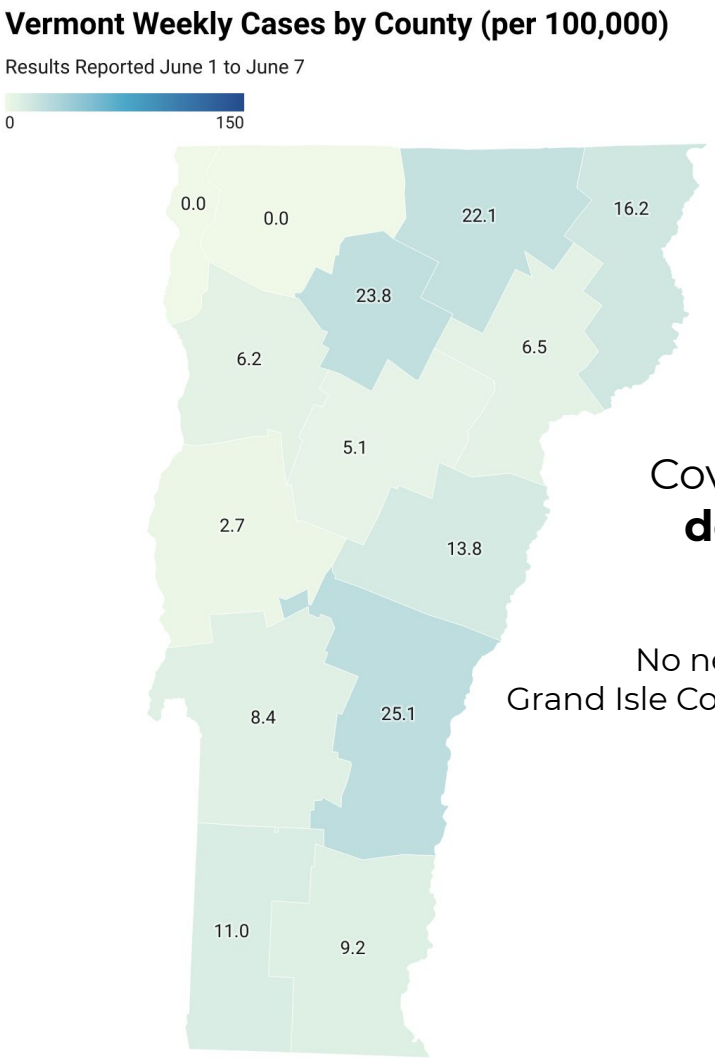
Source: Vermont Department of Health—June 15, 2021

Active Outbreaks in Long Term Care Facilities*

Facility Name	Total COVID-19 Cases
None	None

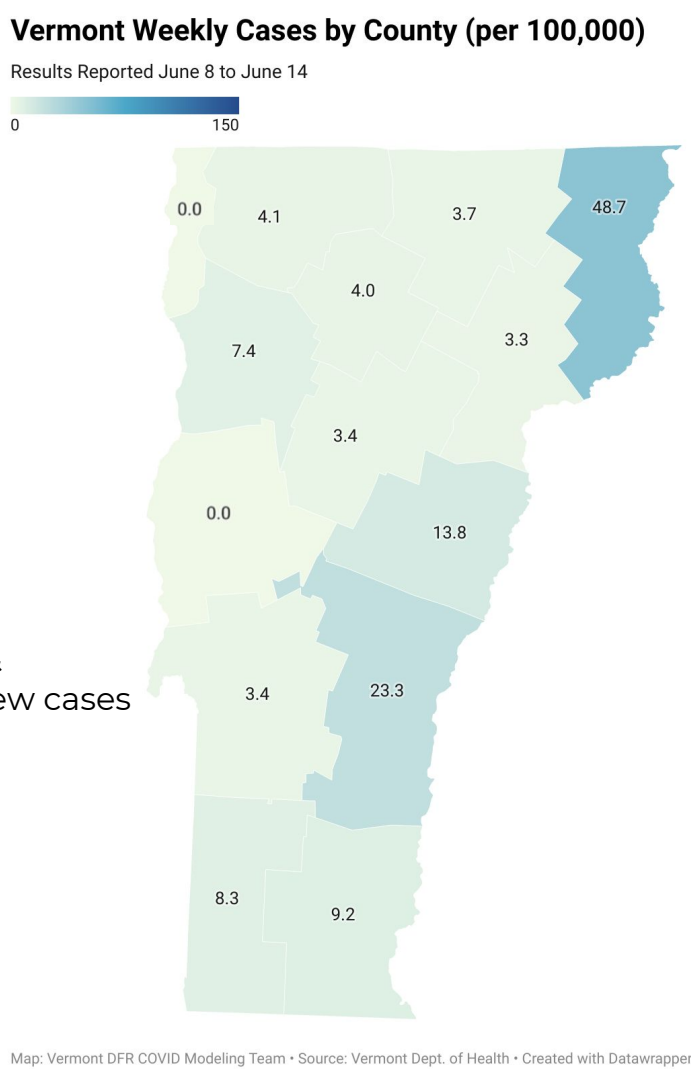
Source: Vermont Department of Health—*Last updated June 14, 2021 (reporting Monday through previous Sunday); *'Active' defined as less than 28 days since most recent case's specimen collection date or illness start date (whichever is later); privacy suppressions include facility w/ <25 staff and residents and/or >75% of facility infected or fewer than 5 active cases.*


Active Cases per Million
0
5,000
25,000 +
Last Week
June 8st
Today
June 15th



Covid-19 case rates
declined again
last week

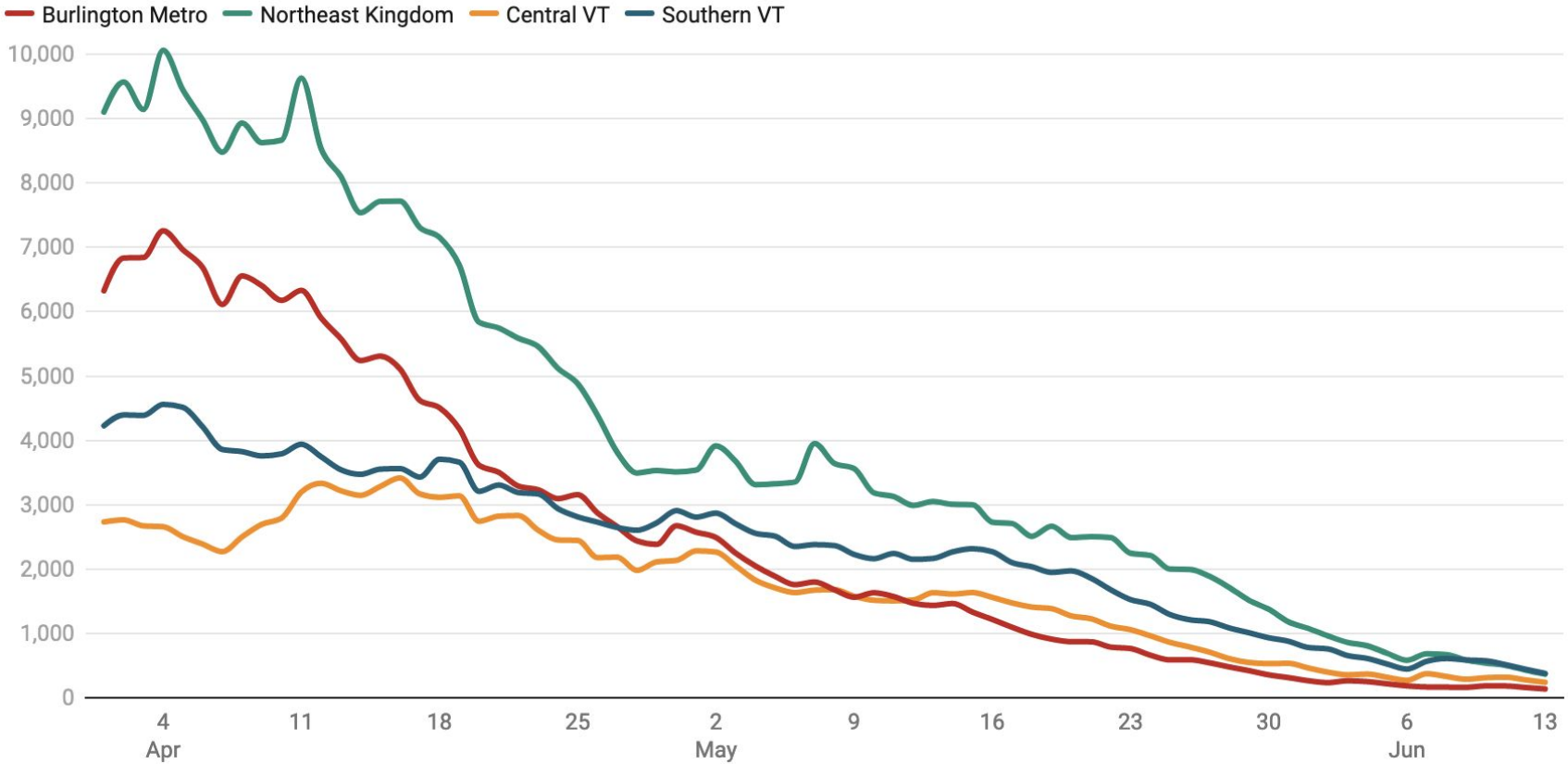
No new cases in Addison &
Grand Isle Counties; Essex saw 3 new cases



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

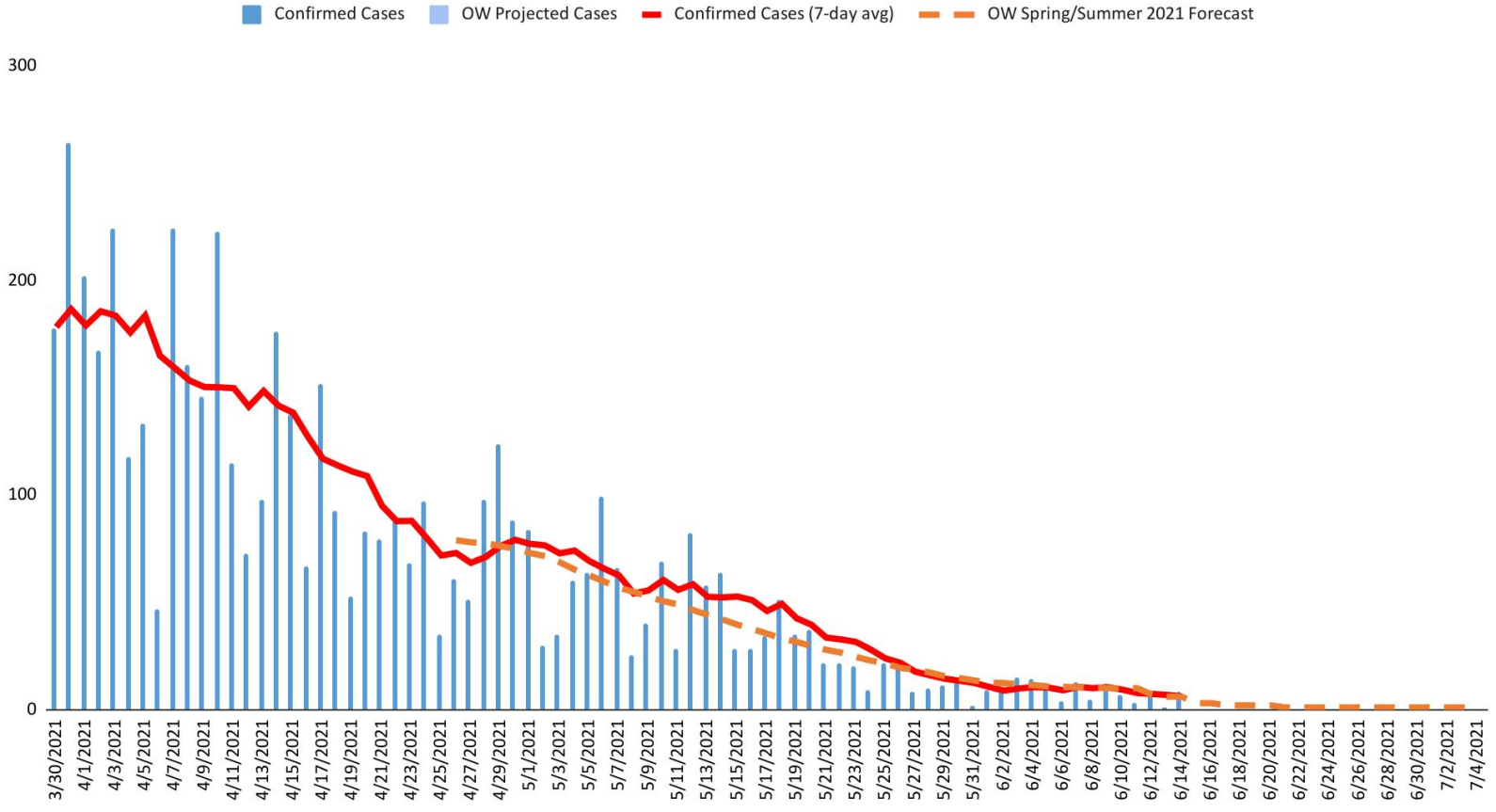
Active COVID Cases per Million in Vermont Regions

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 14, 2021

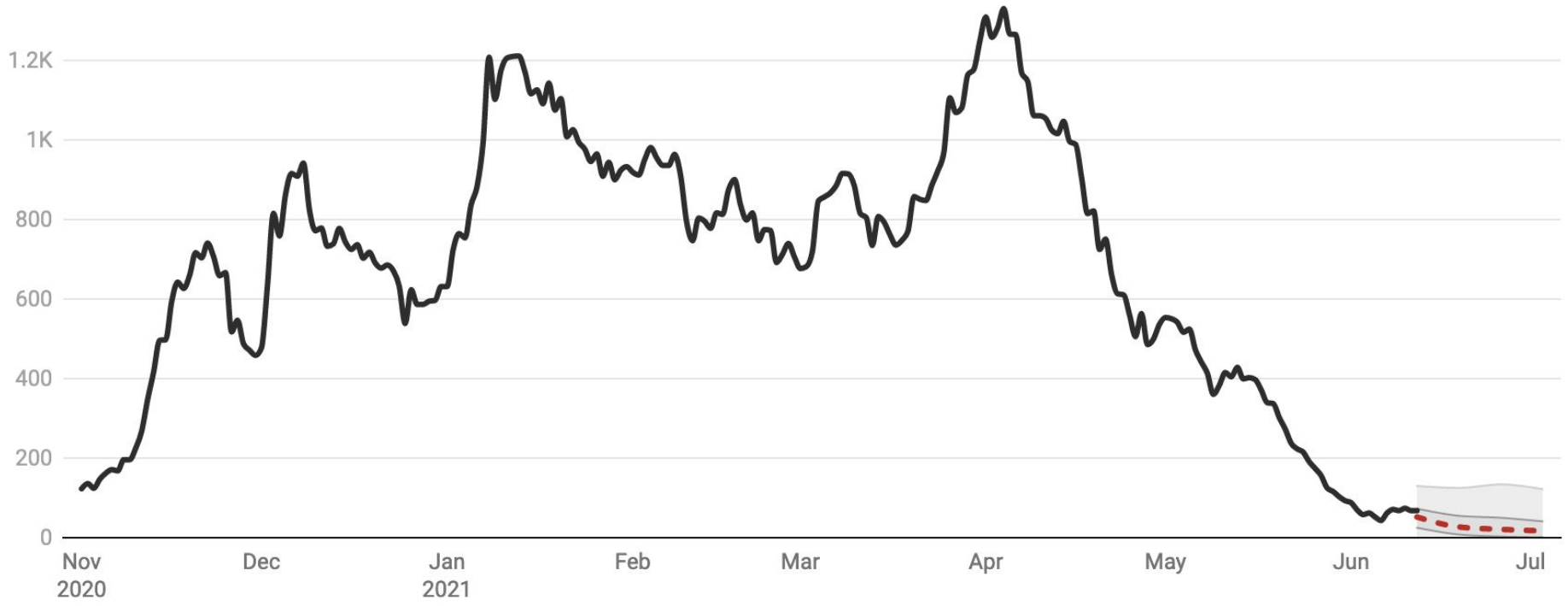
Vermont Forecast



Source: Johns Hopkins University Data, VDH, & Oliver Wyman Forecast Model—Actual through June 15, 2021

Vermont Weekly COVID-19 Infections Forecast

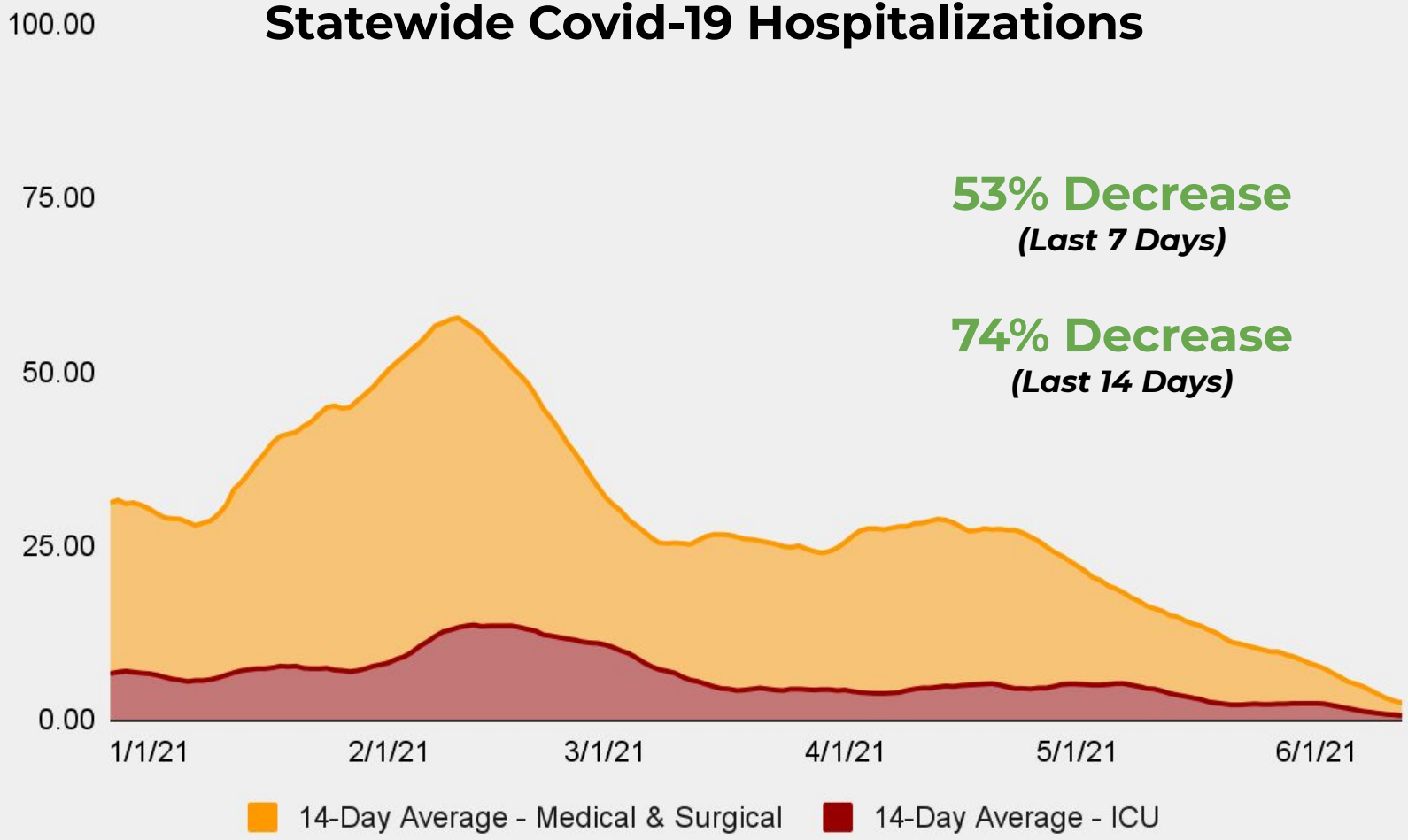
Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.



Source: Centers for Disease Control and Prevention—June 14, 2021

Vermont Hospitalization Data

Statewide Covid-19 Hospitalizations

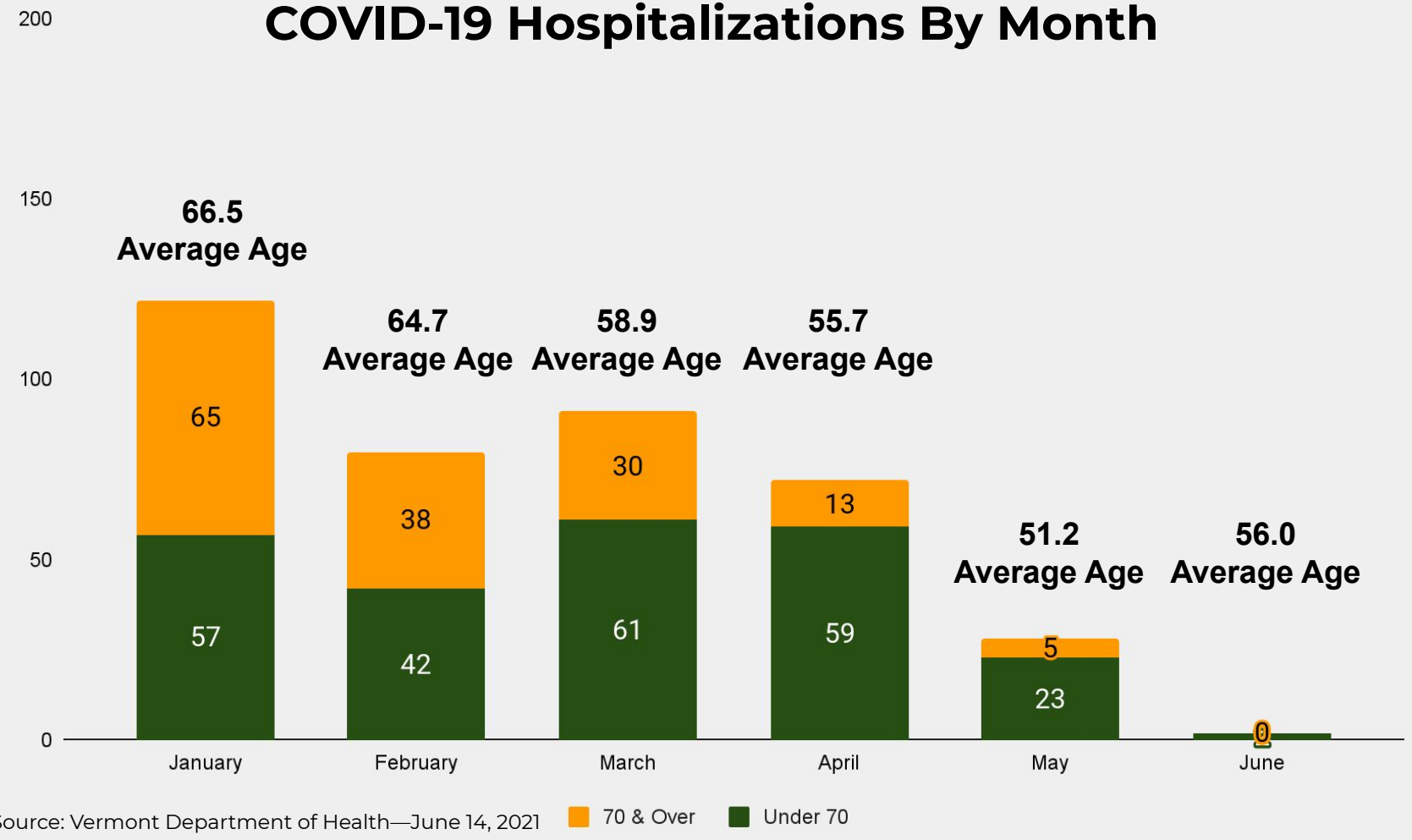


53% Decrease
(Last 7 Days)

74% Decrease
(Last 14 Days)

Source: Vermont Department of Health—June 14, 2021

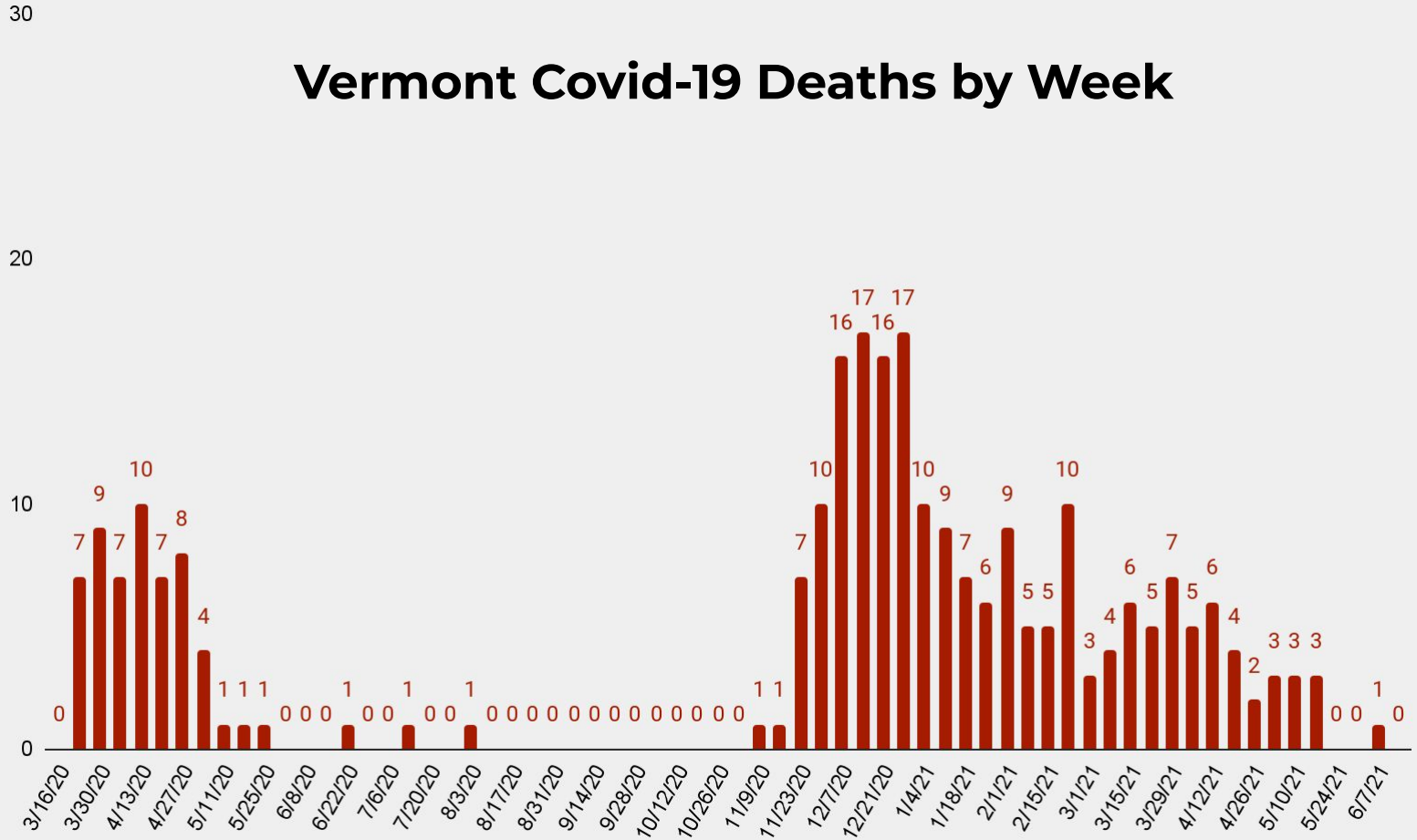
COVID-19 Hospitalizations By Month



Source: Vermont Department of Health—June 14, 2021

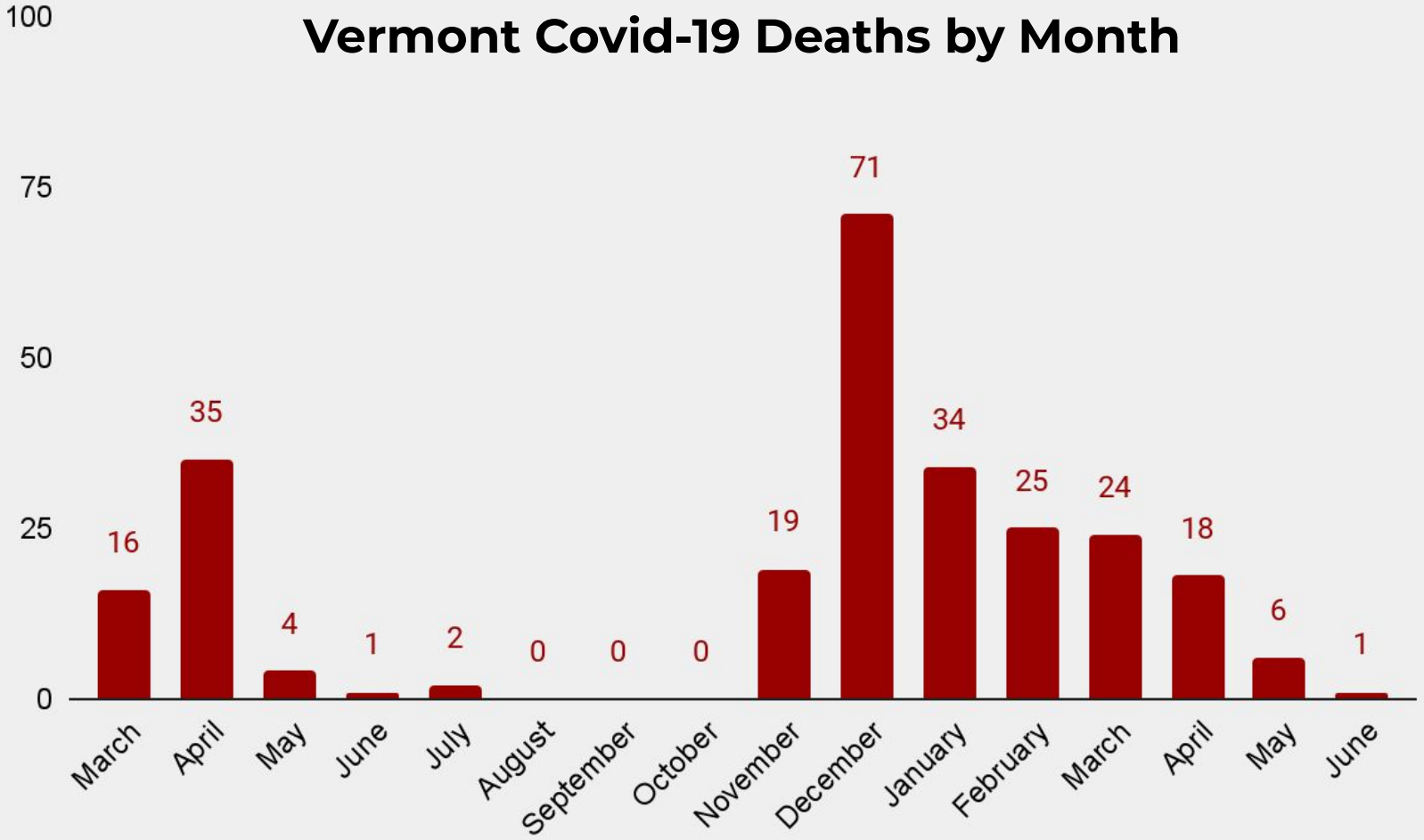
Vermont Fatality Data

Vermont Covid-19 Deaths by Week

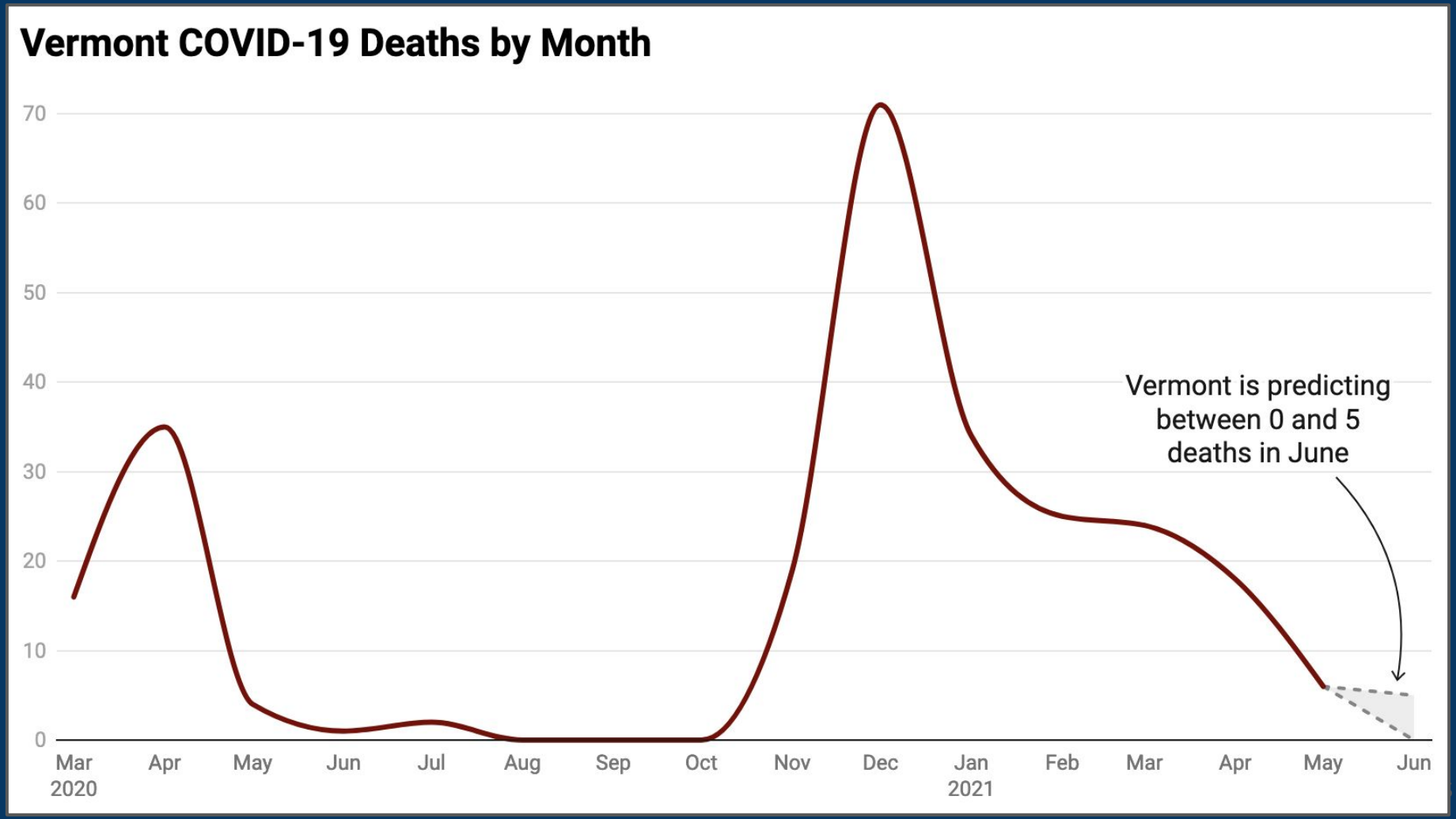


Source: Vermont Department of Health—June 15, 2021

Vermont Covid-19 Deaths by Month

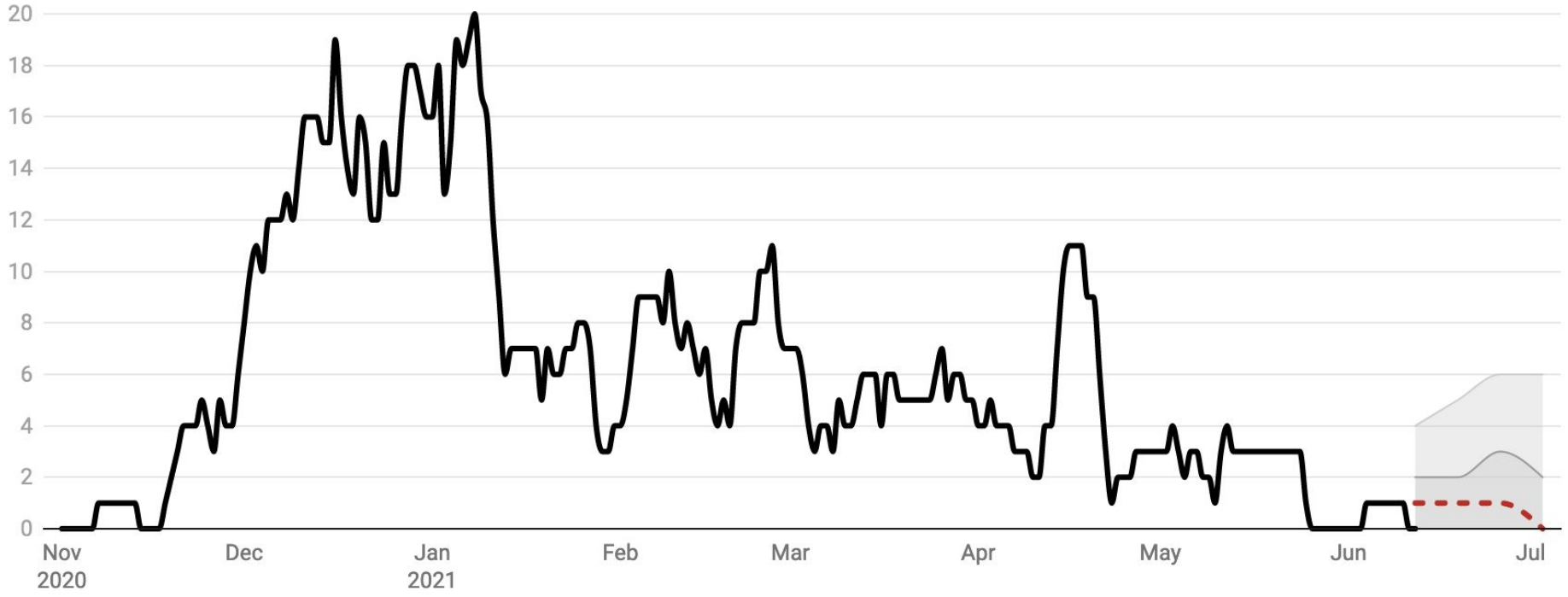


Source: Vermont Department of Health—June 15, 2021


Vermont COVID-19 Deaths by Month
70
60
50
40
30
20
10
0
Mar 2020
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Jan 2021
Feb
Mar
Apr
May
Jun
Vermont is predicting between 0 and 5 deaths in June

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.



Source: Centers for Disease Control and Prevention—June 14, 2021

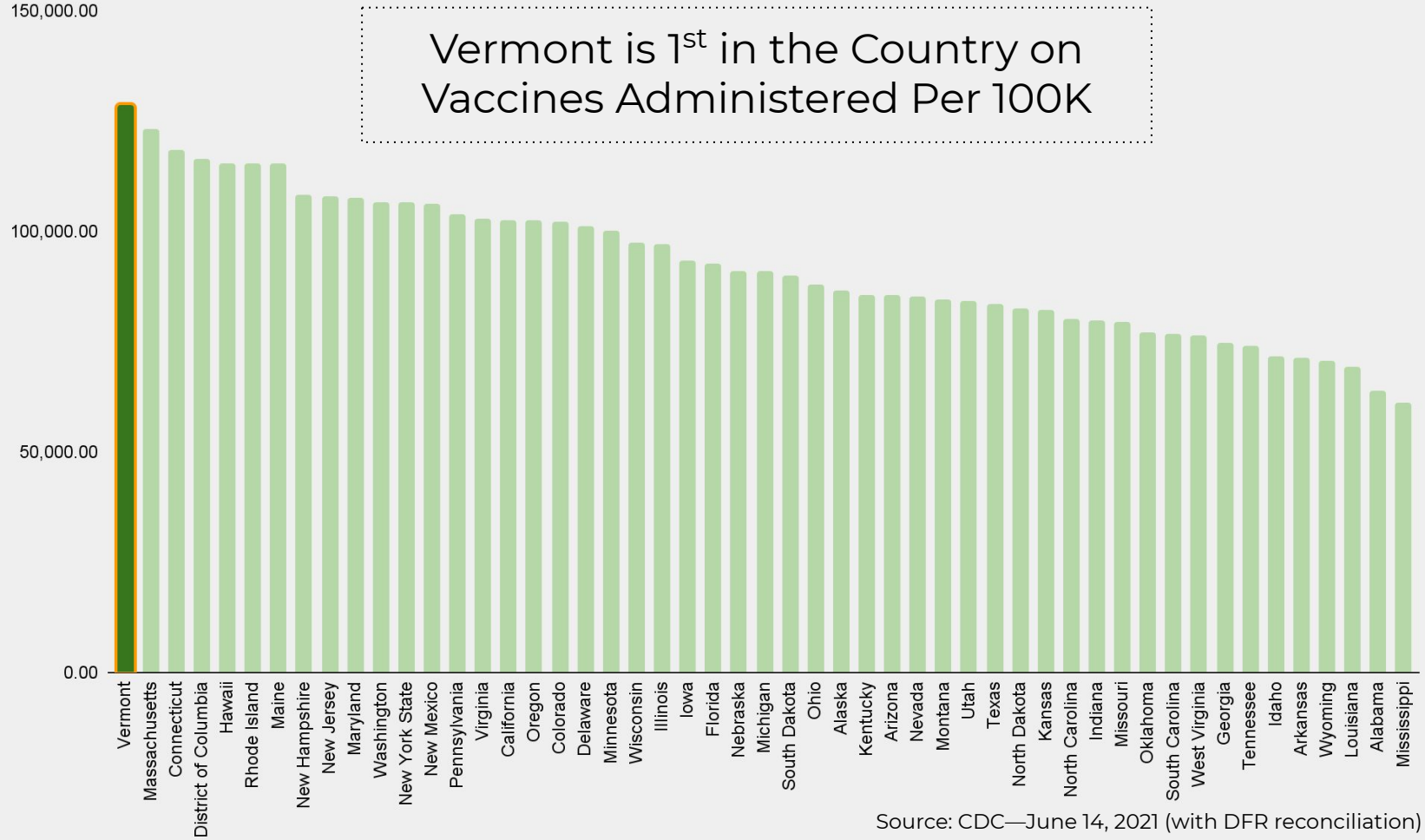
Vermont Vaccination Data

Vermont CDC Vaccine Scorecard

Metric	Figure	State Ranking
Doses Administered per 100K	**128,651**	**1**
% At Least 1 Dose (Eligible)	**80.3%**	**1**
% At Least 1 Dose (Full Population)	**70.9%**	**1**
% Fully Vaccinated	**60.5%**	**1**
Doses Administered 65+ per 100K	**195,641**	**1**

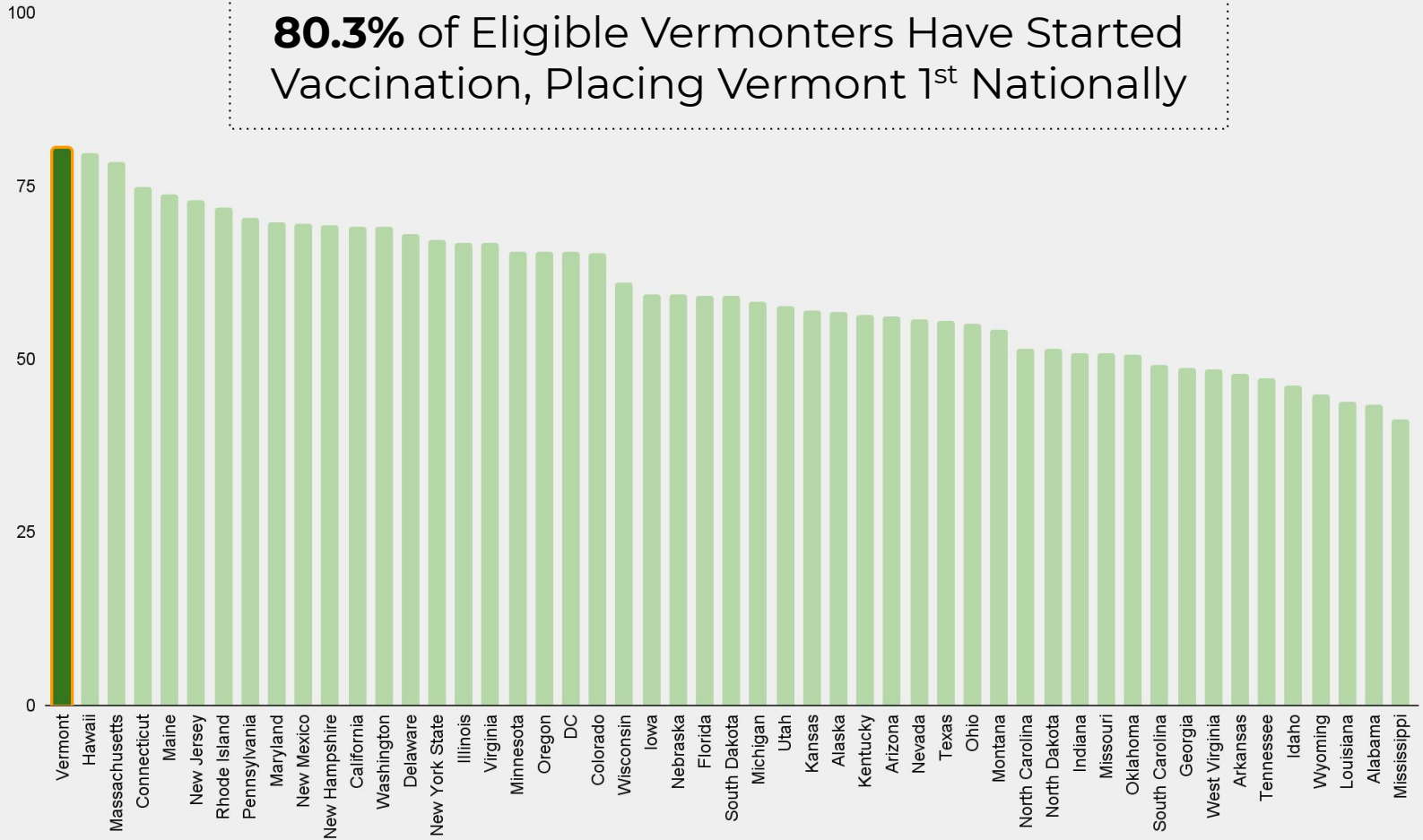
Source: CDC—June 14, 2021 (with VDH reconciliation)

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



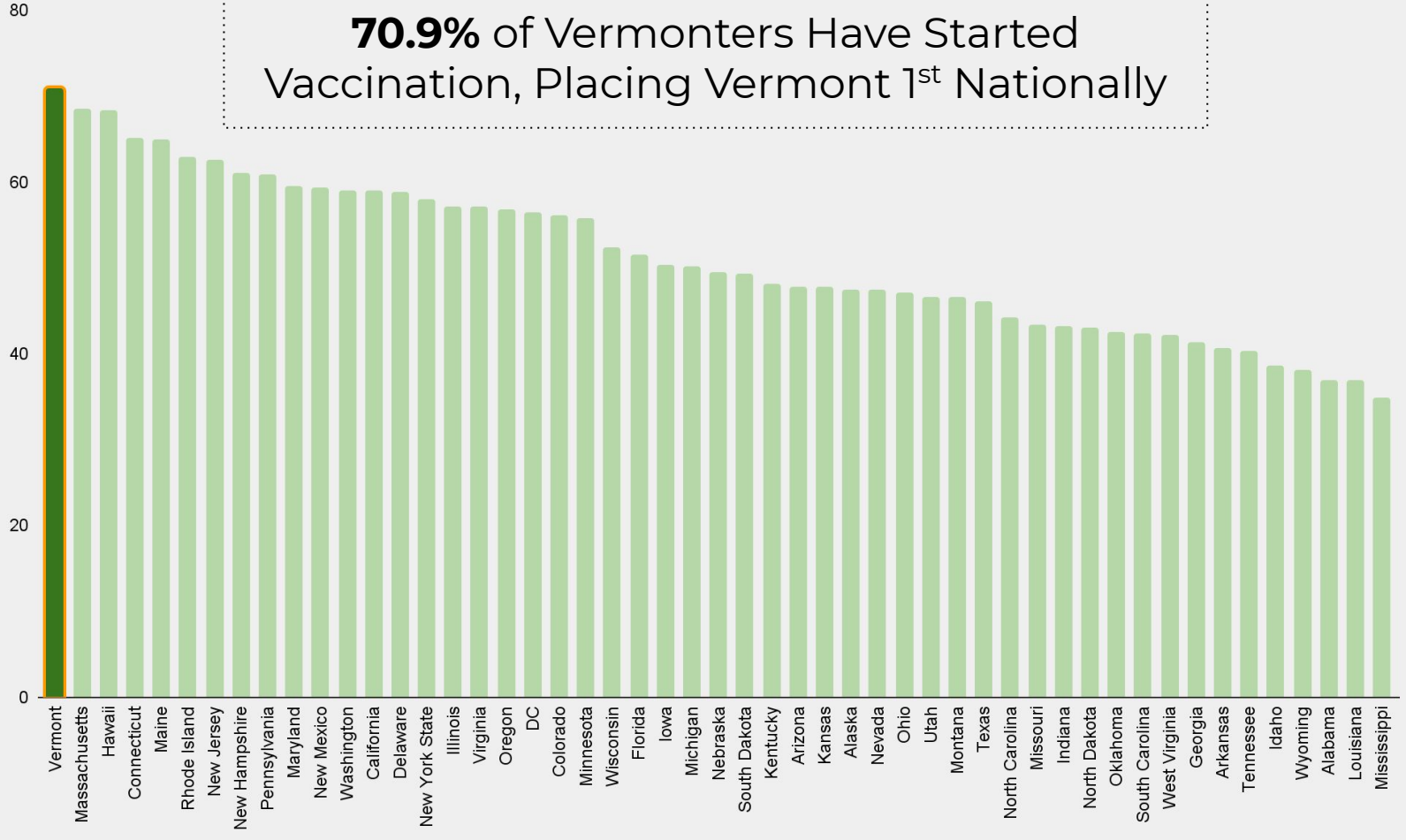
Source: CDC—June 14, 2021 (with DFR reconciliation)

80.3% of Eligible Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



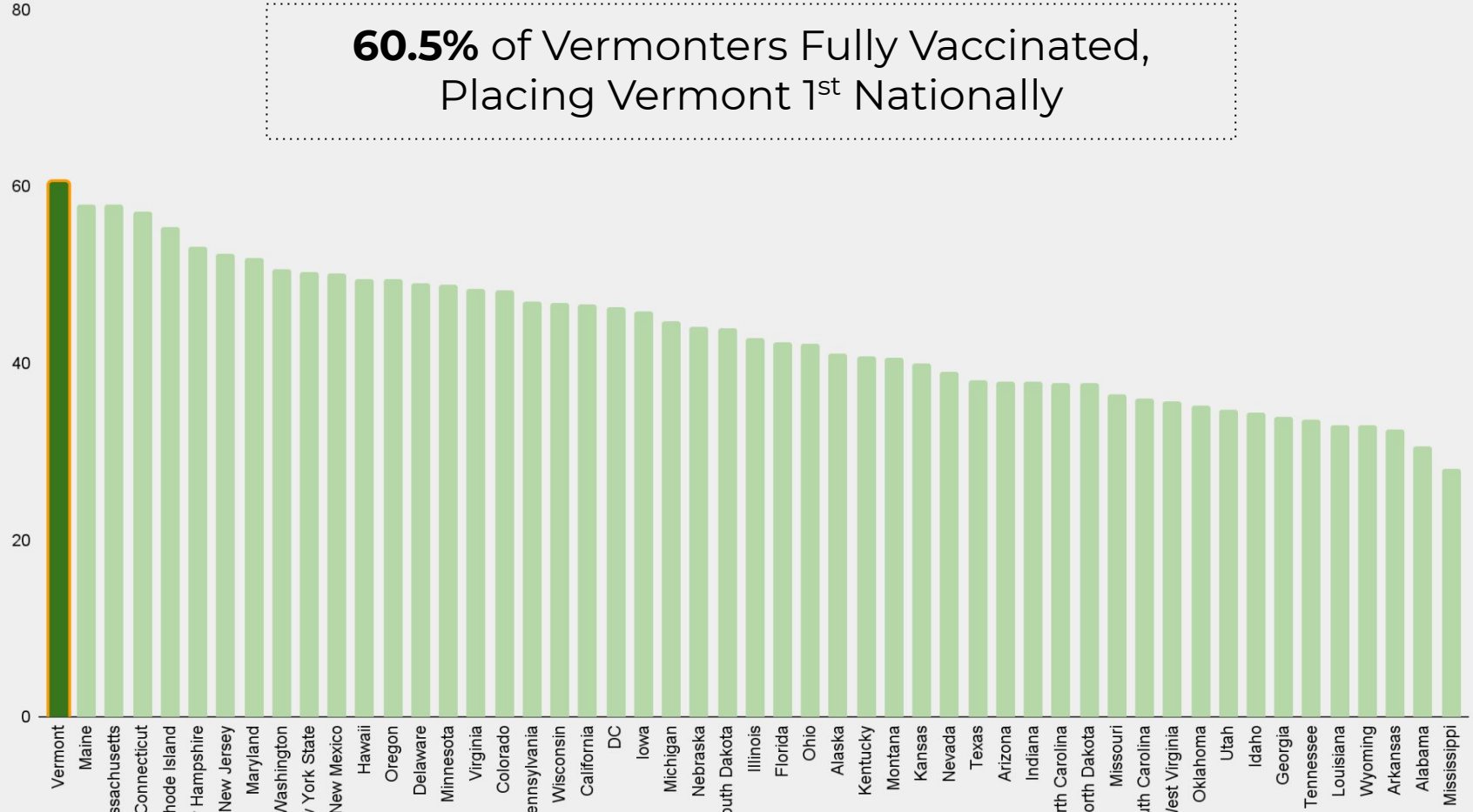
Source: CDC—June 14, 2021 (with DFR reconciliation)

70.9% of Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



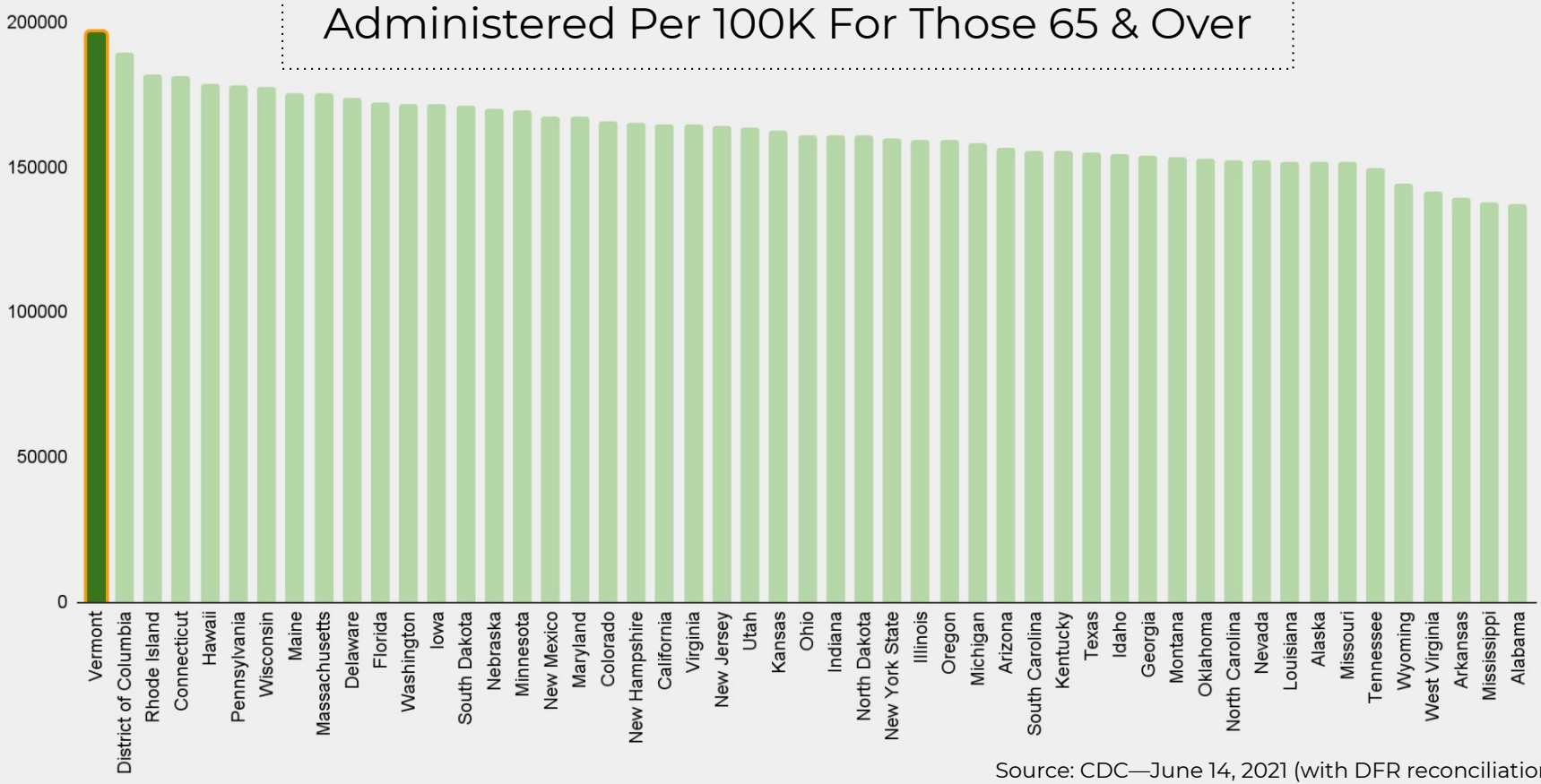
Source: CDC—June 14, 2021 (with DFR reconciliation)

60.5% of Vermonters Fully Vaccinated, Placing Vermont 1st Nationally



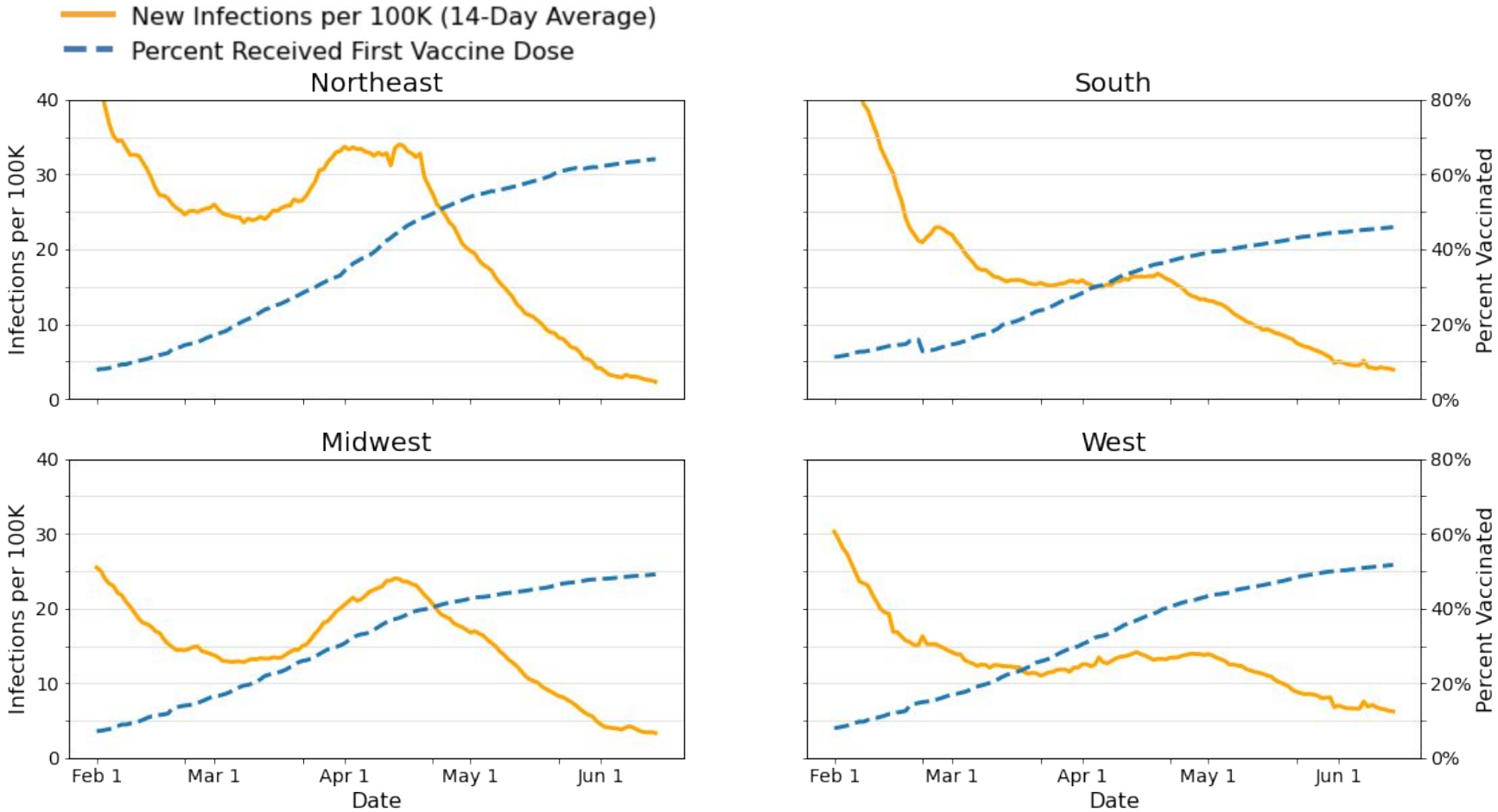
Source: CDC—June 14, 2021 (with DFR reconciliation)

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

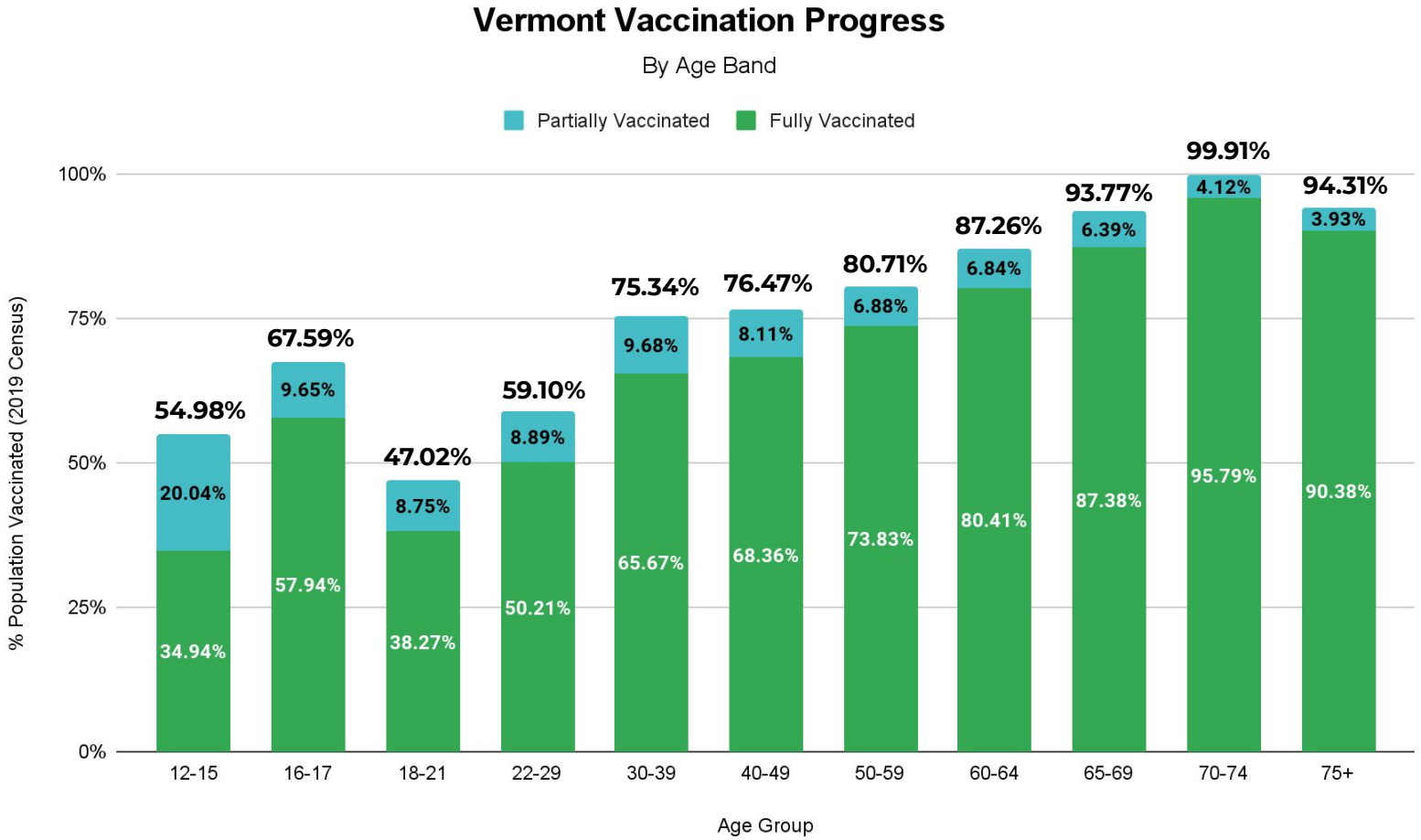


Source: CDC—June 14, 2021 (with DFR reconciliation)

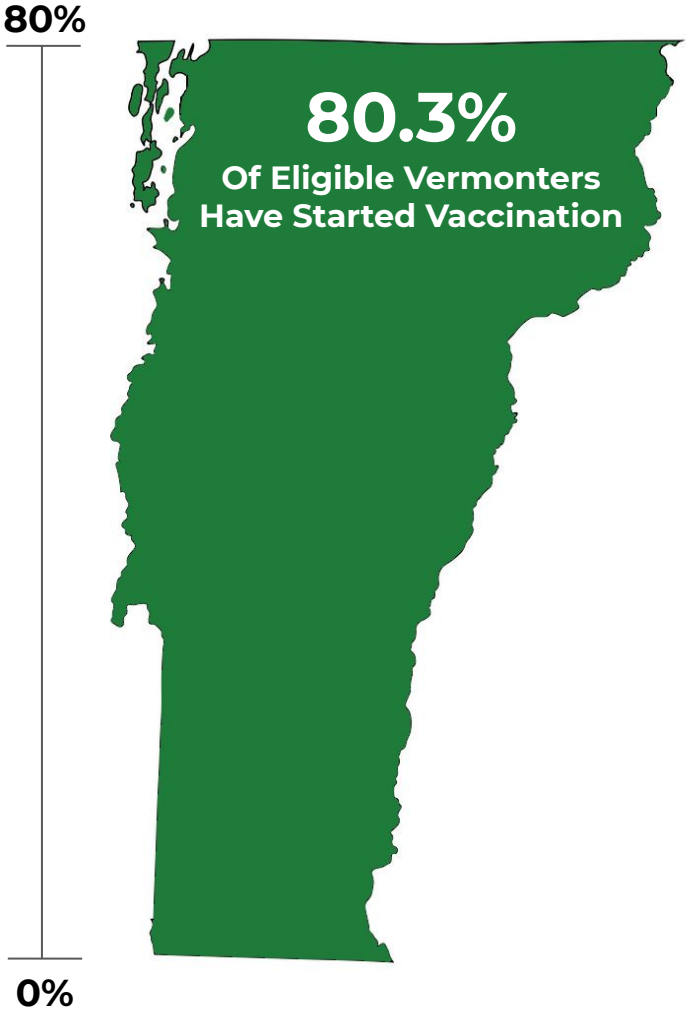
US Census Region Case Rate & Vaccination by Age Band



Source: Covid Act Now—June 15, 2021



Source: Vermont Dept. of Health—June 15, 2021



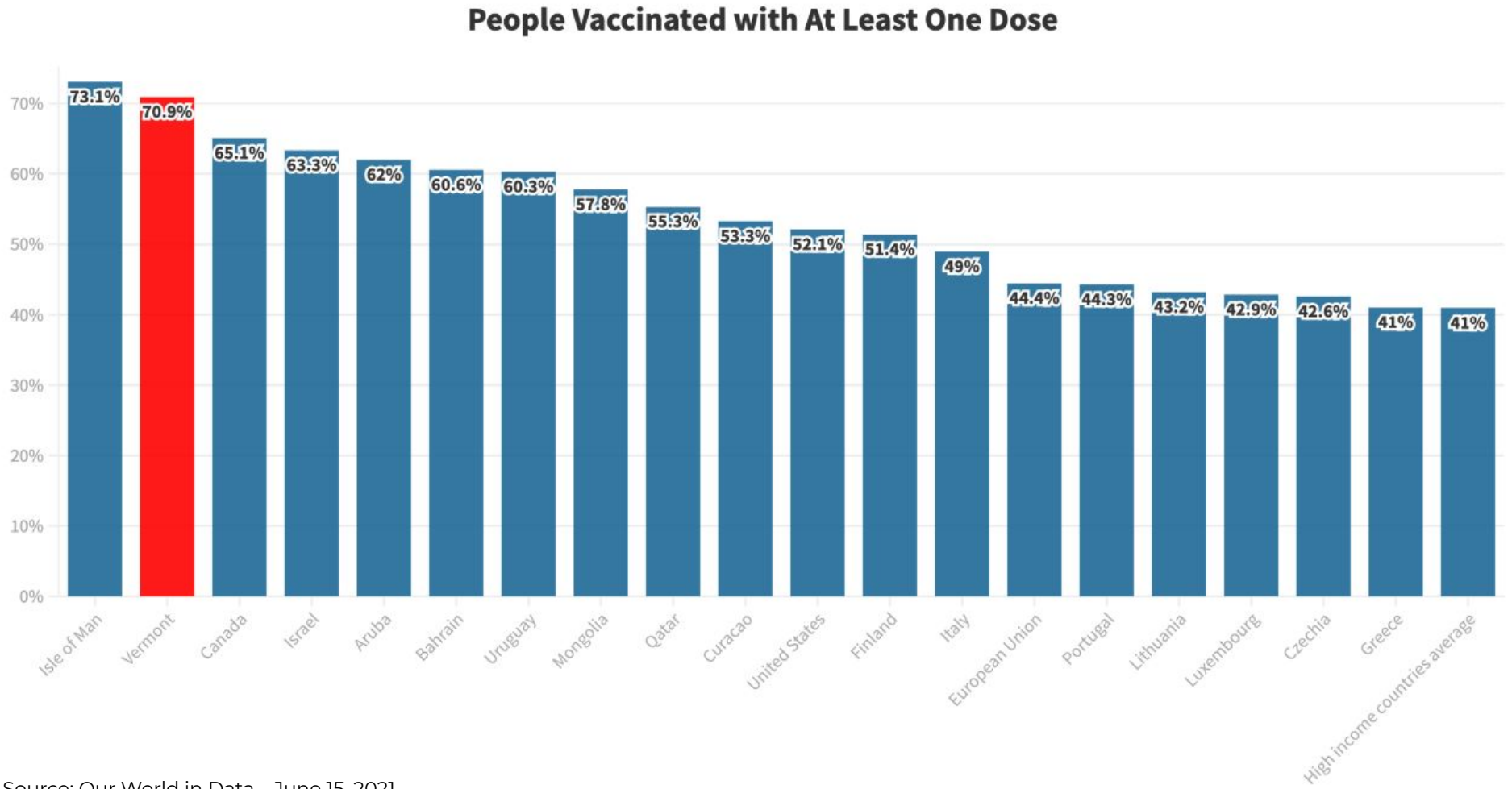
Congratulations, Vermont!

The First State to Vaccinate 80% of its Eligible Population

+983
Increase Today

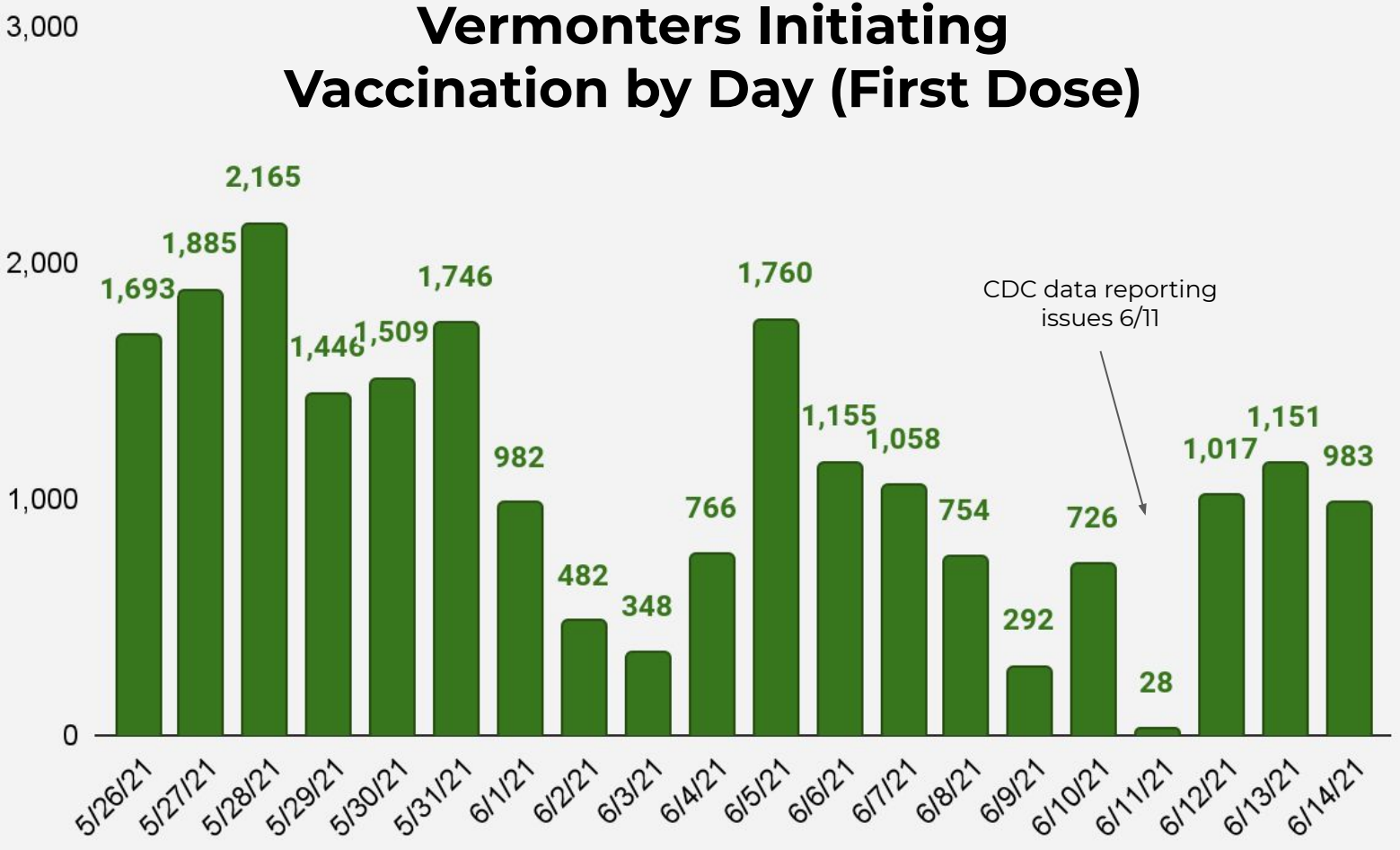
442,572
Vermonters with at Least 1 Dose

Source: CDC—June 14, 2021 (with DFR reconciliation)



Source: Our World in Data—June 15, 2021

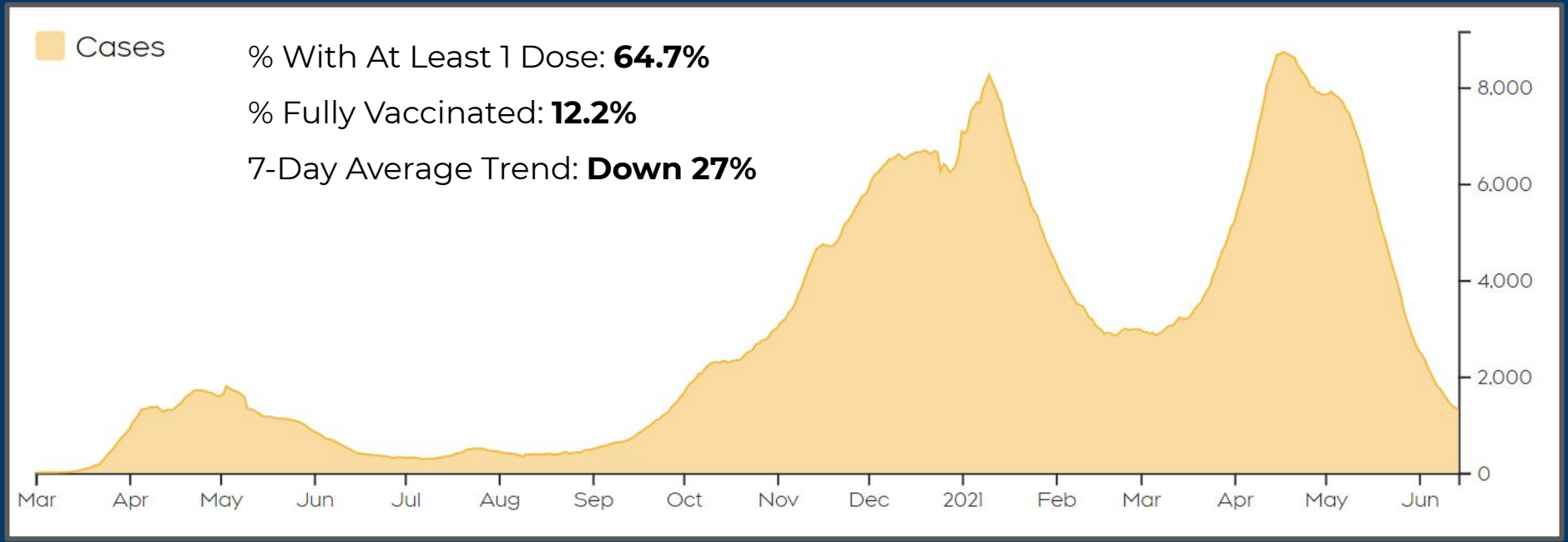
Vermonters Initiating Vaccination by Day (First Dose)



Source: CDC—June 14, 2021

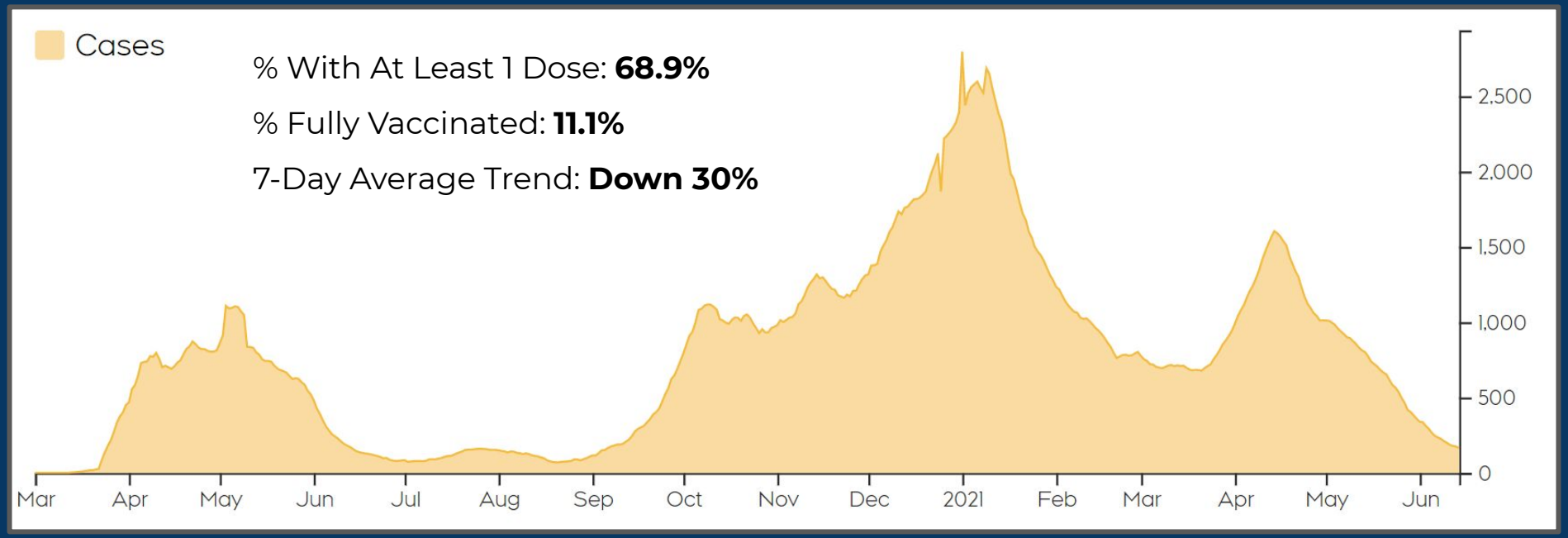
Canadian & Quebec Vaccination Progress

Canada: New Covid-19 Cases (7-Day Average)



Source: CTV National News—June 14, 2021

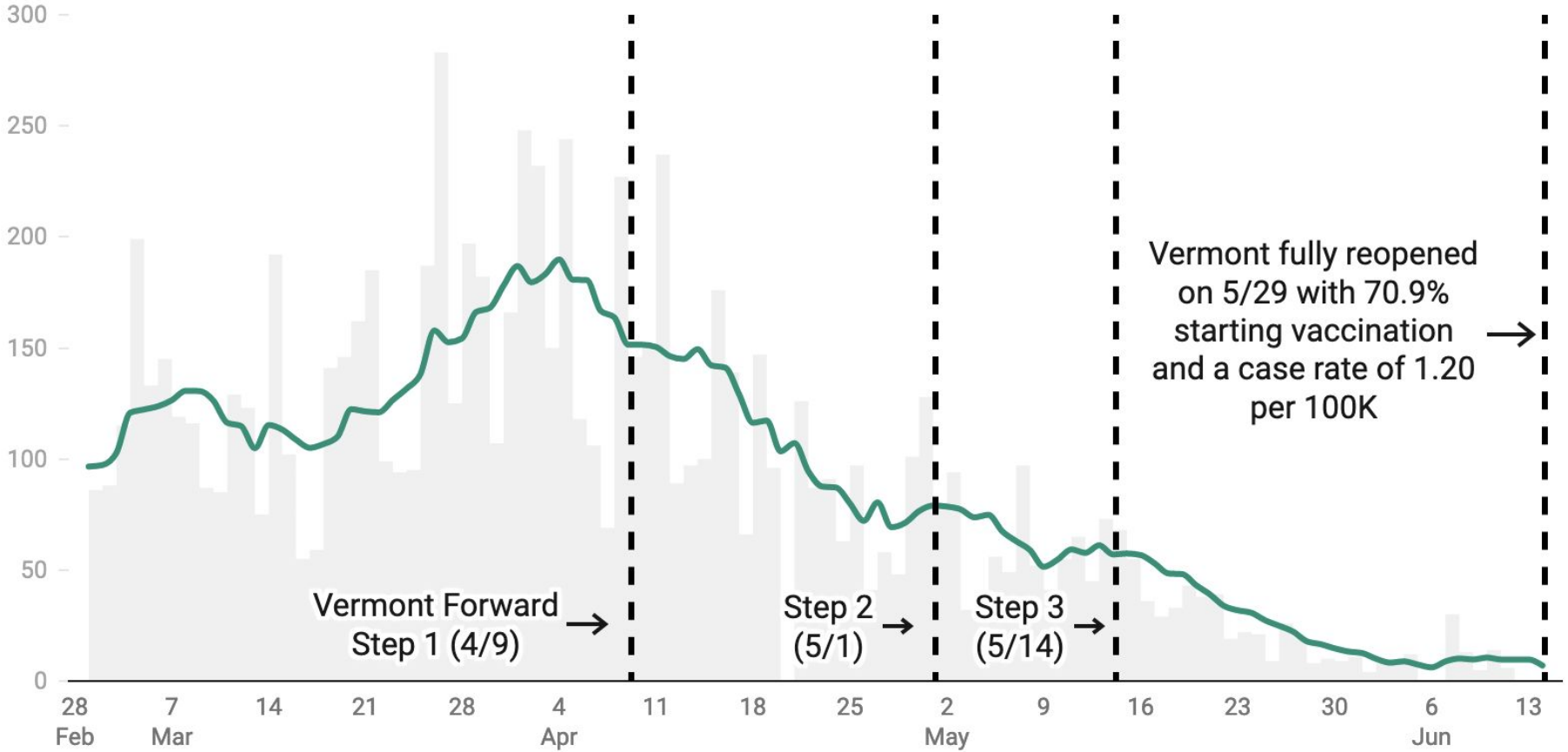
Quebec: New Covid-19 Cases (7-Day Average)



Source: CTV National News—June 14, 2021

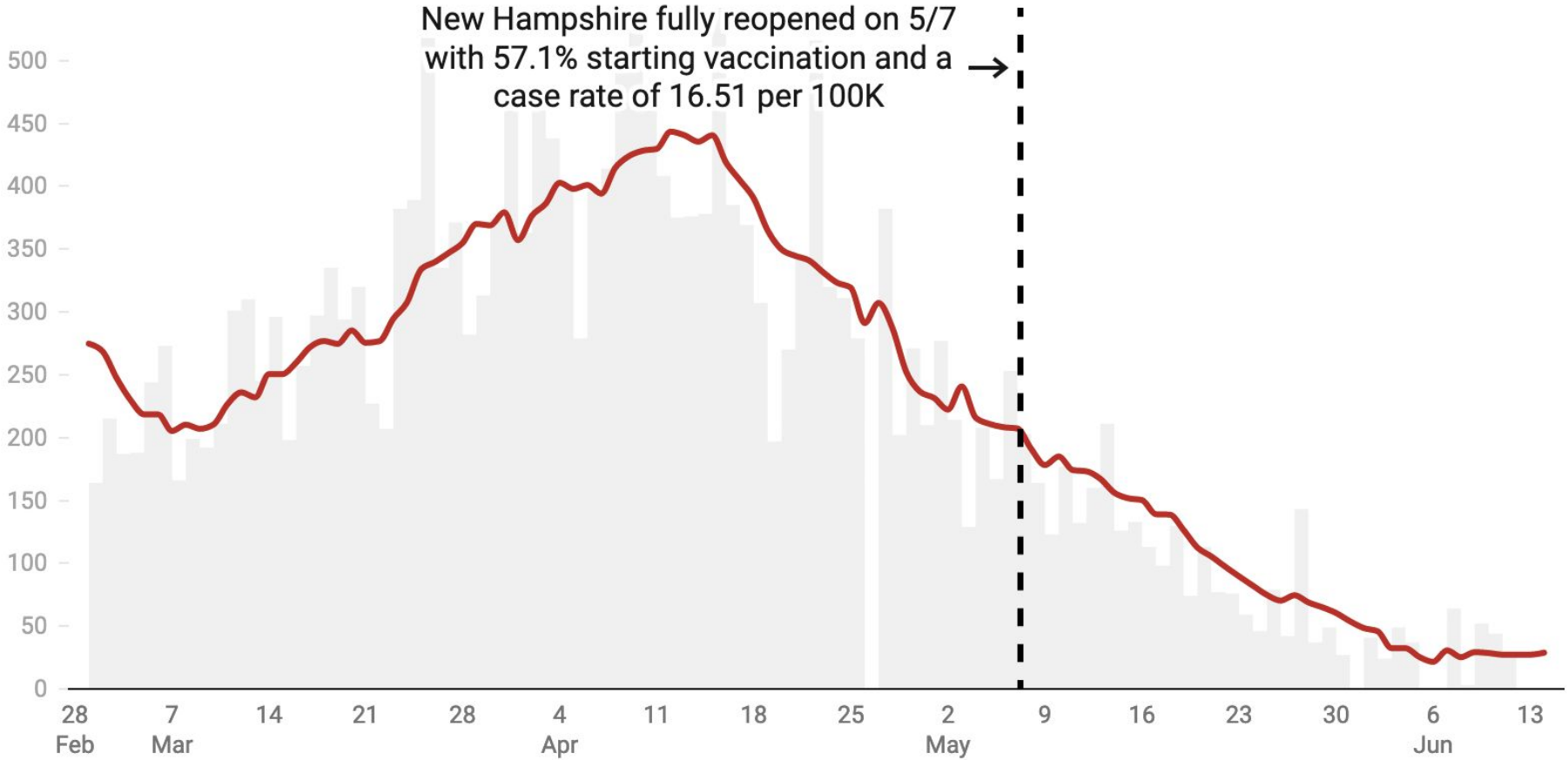
Tracking Vermont & New England Reopening

Daily COVID-19 Infection in Vermont (7-Day Average)



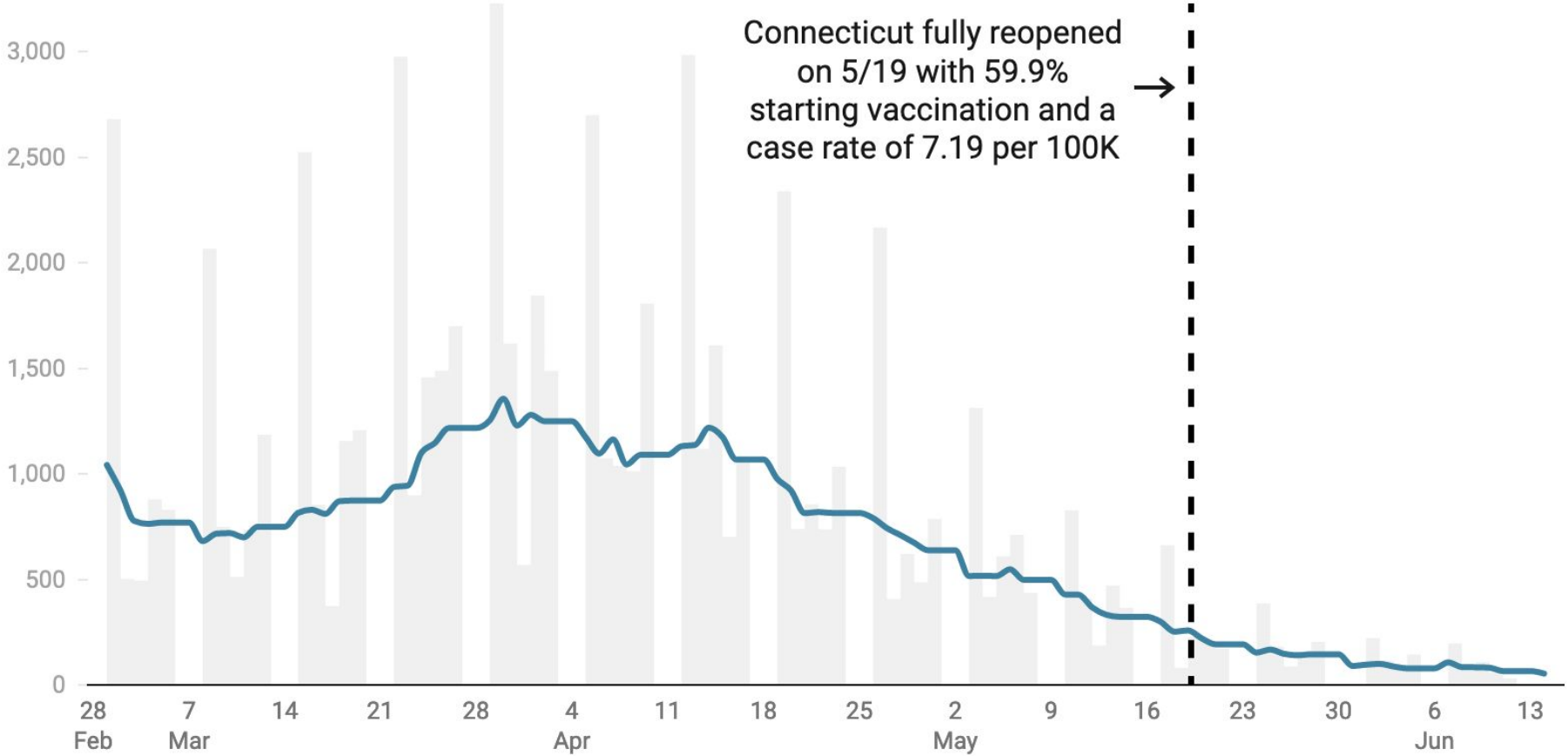
Source: VDH and Vermont Forward

Daily COVID-19 Infection in New Hampshire (7-Day Average)



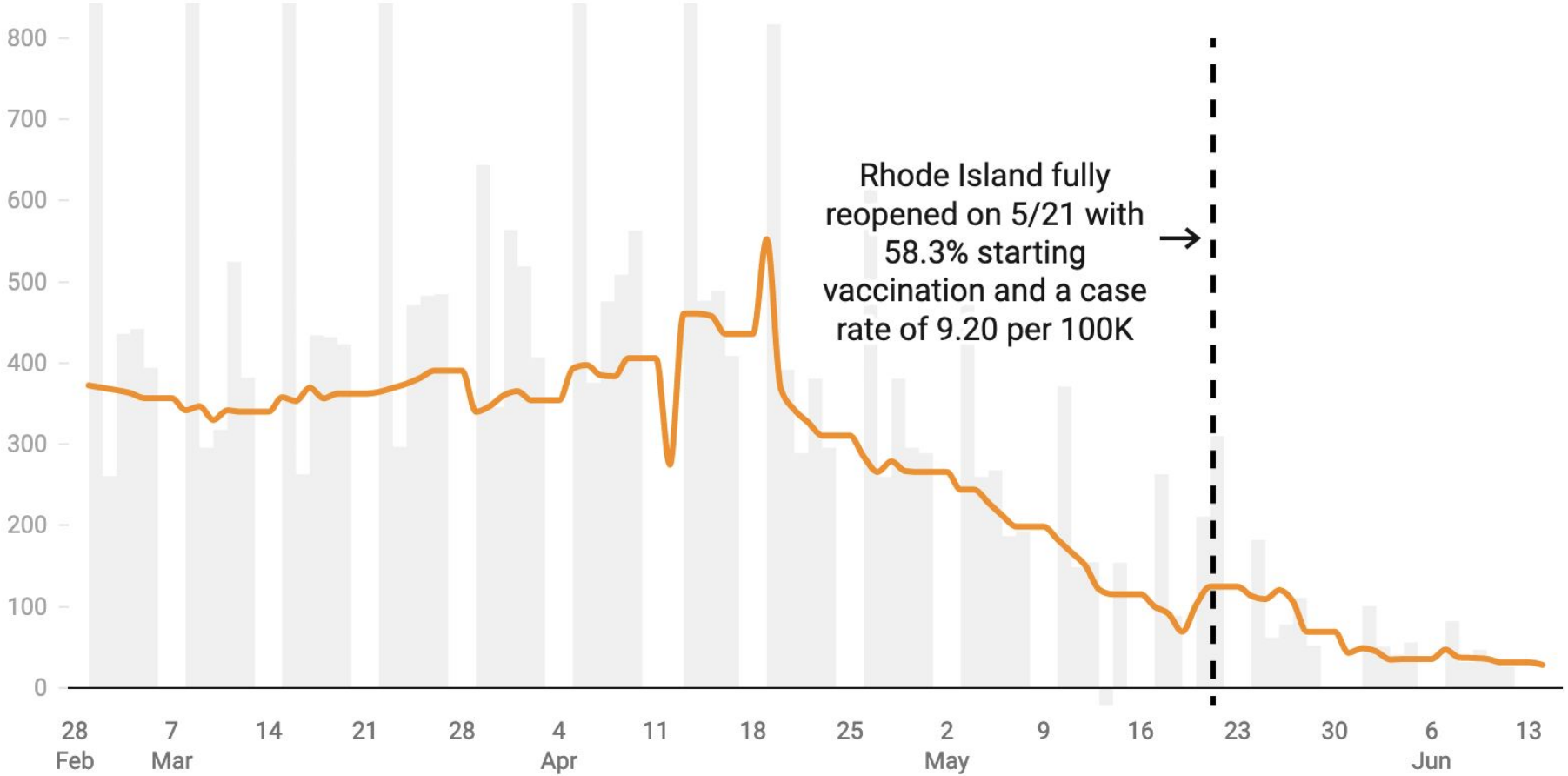
Source: New Hampshire Health Department

Daily COVID-19 Infection in Connecticut (7-Day Average)



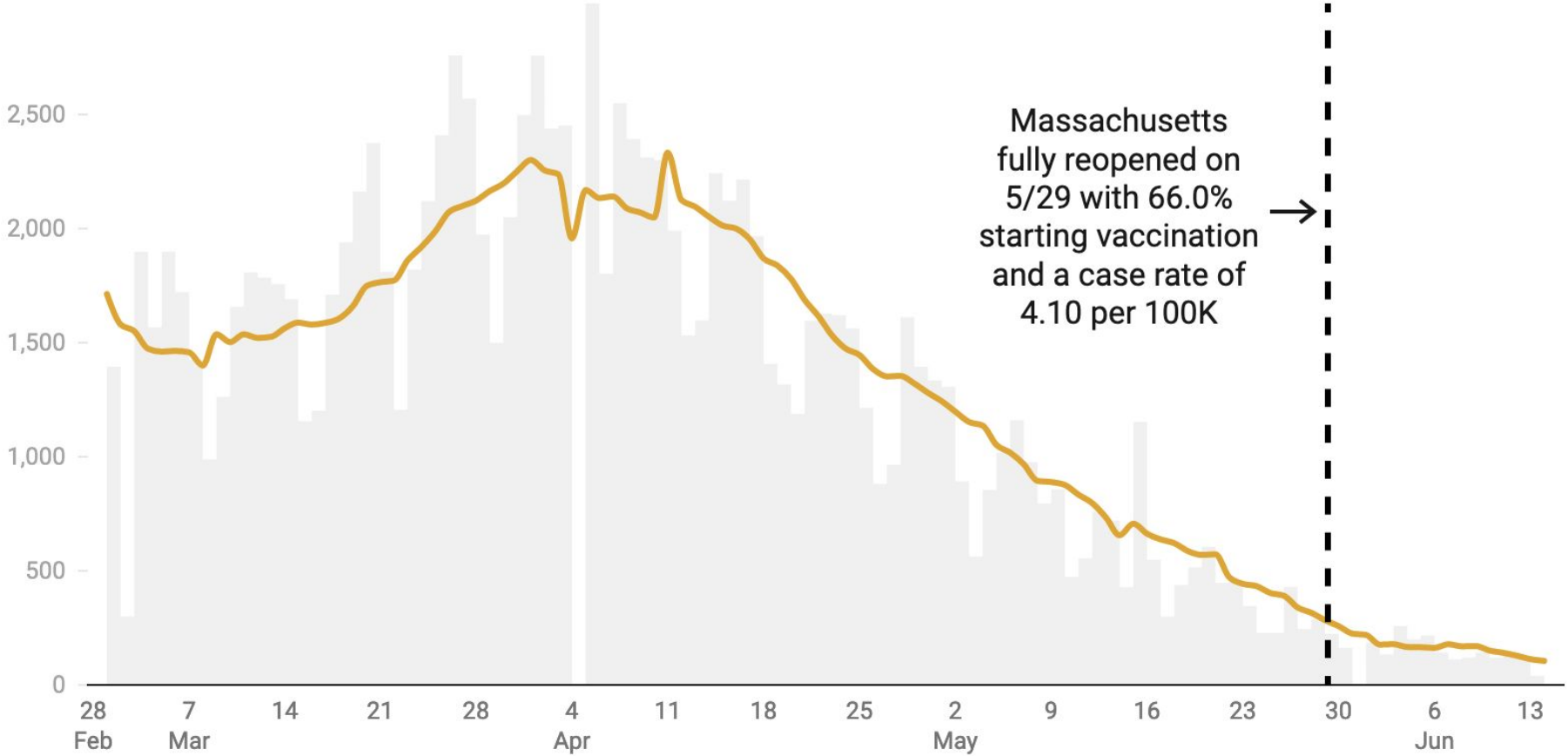
Source: Connecticut Health Department

Daily COVID-19 Infection in Rhode Island (7-Day Average)



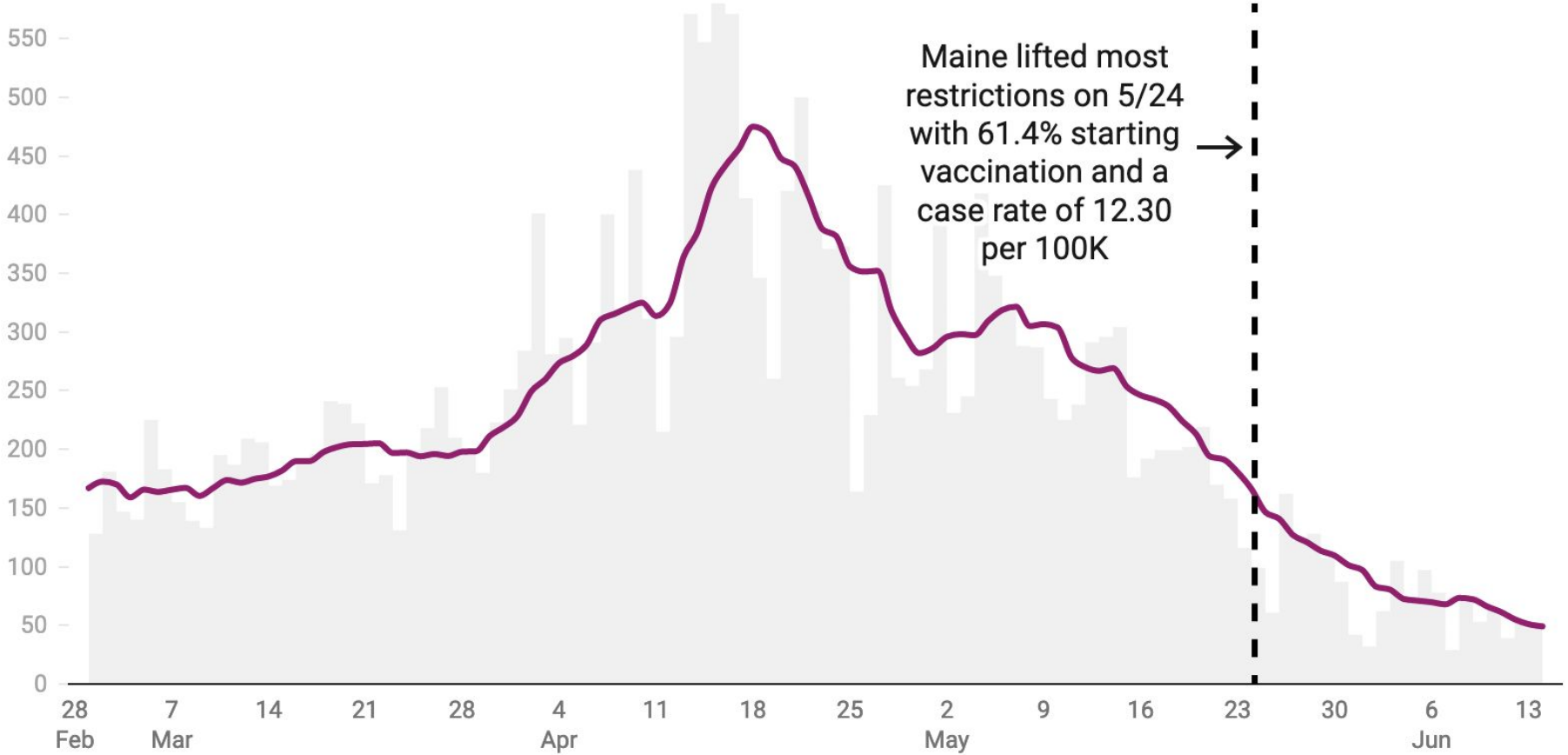
Source: Rhode Island Health Department

Daily COVID-19 Infection in Massachusetts (7-Day Average)



Source: Massachusetts Department of Health

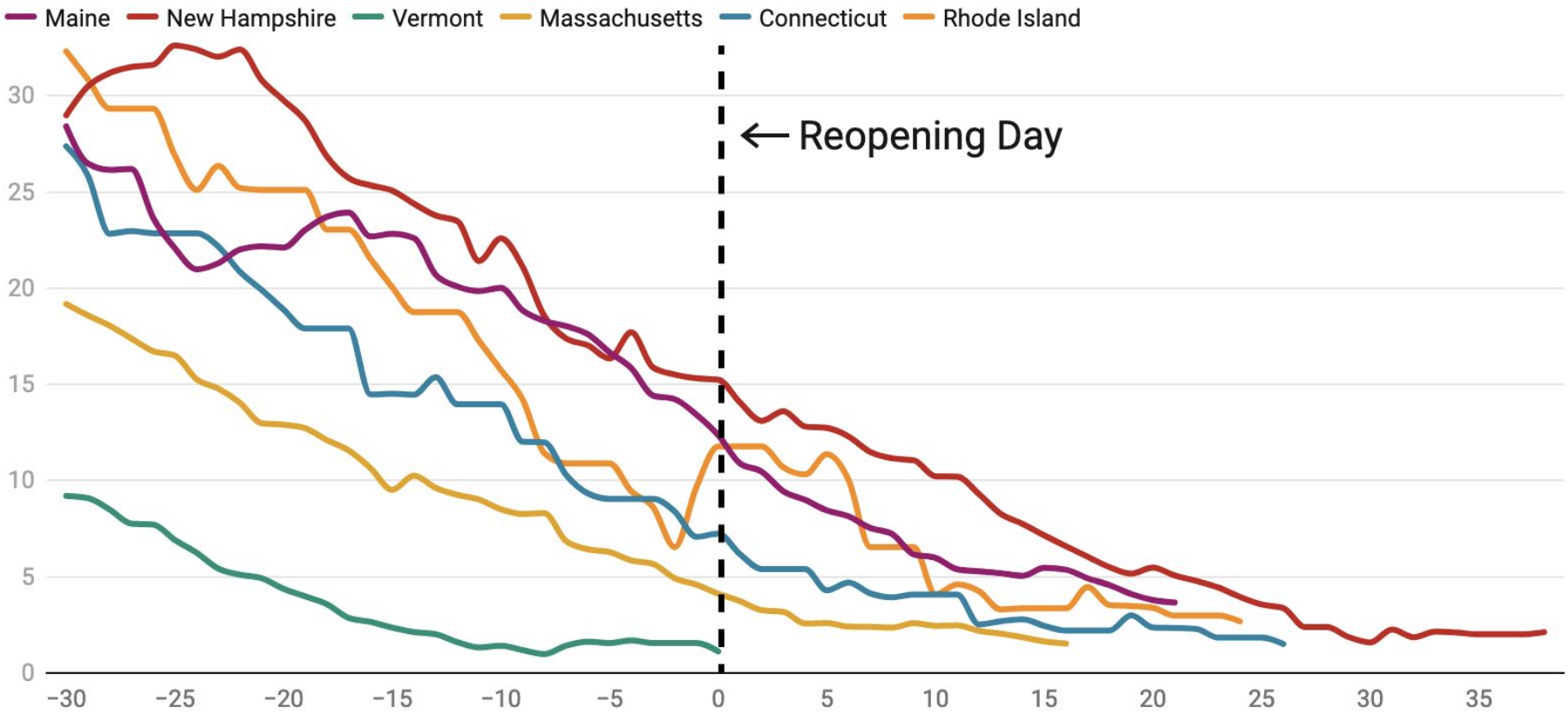
Daily COVID-19 Infection in Maine (7-Day Average)



Source: Maine Centers for Disease Control and Prevention

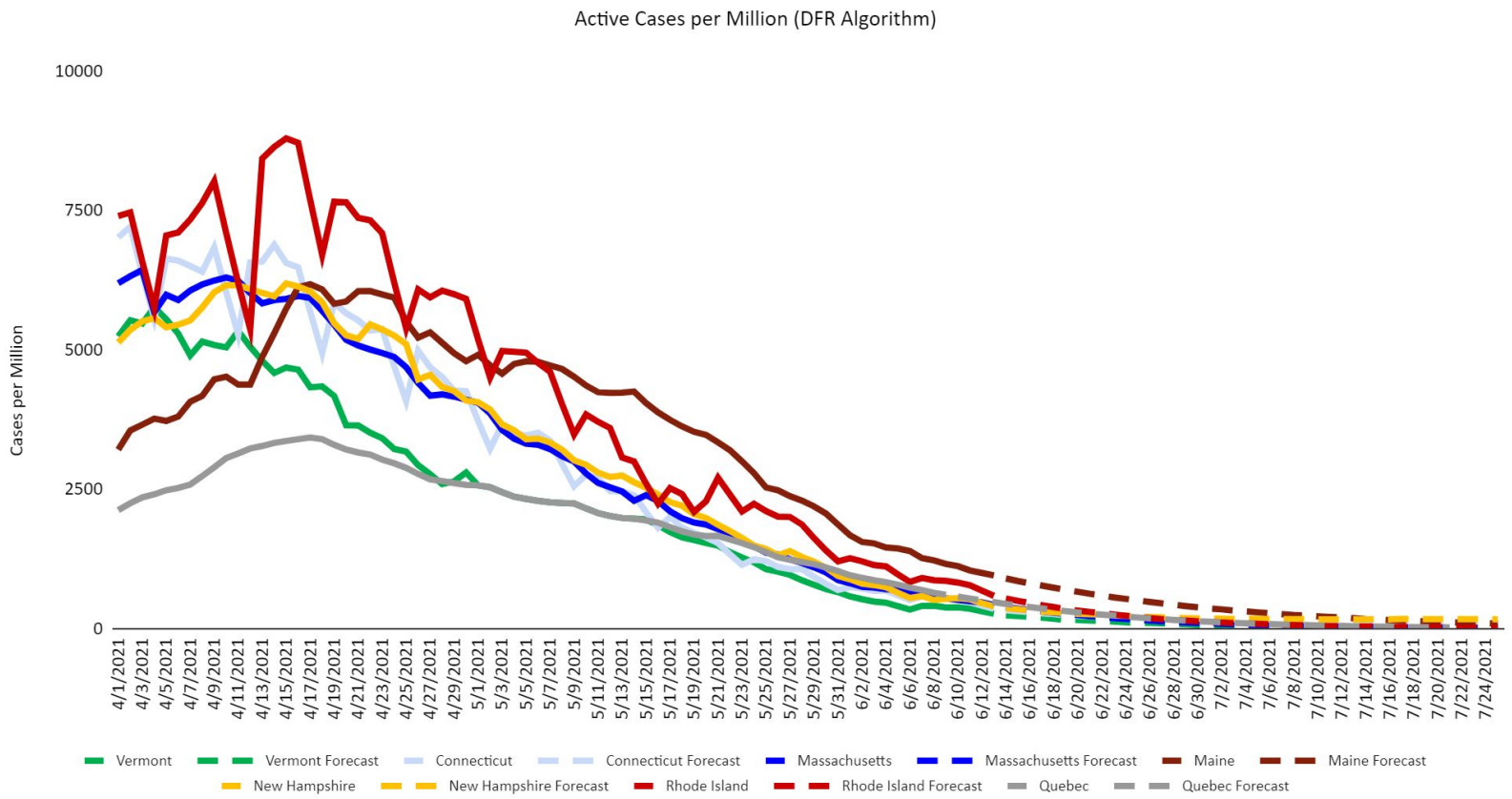
Reopening Has Not Increased Case Counts

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



Source: State Health Departments

Regional Active Per Capita Case Forecast



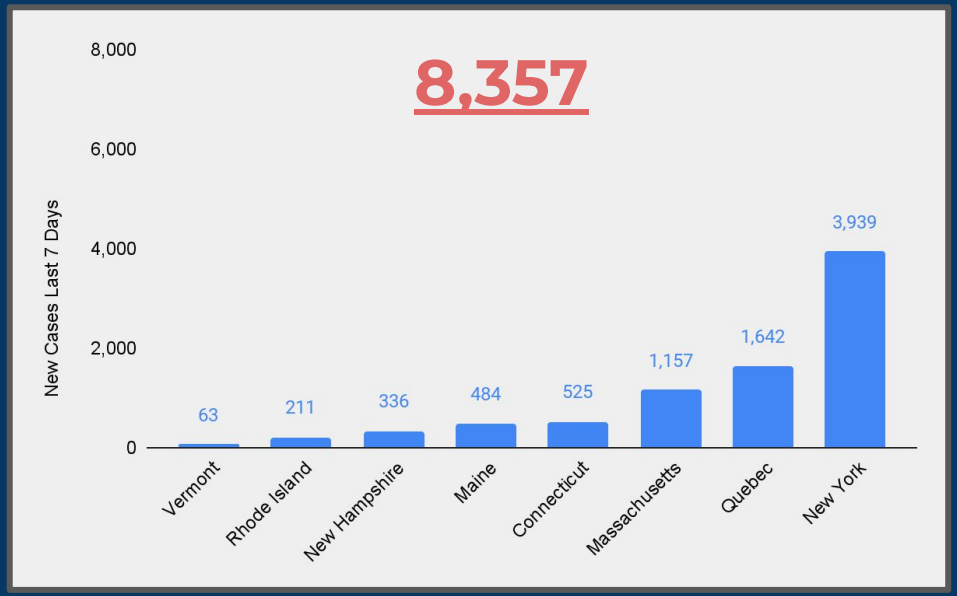
Source: Johns Hopkins University Data, VDH, & Oliver Wyman Forecast Model—Actual through June 13, 2021

Regional Data

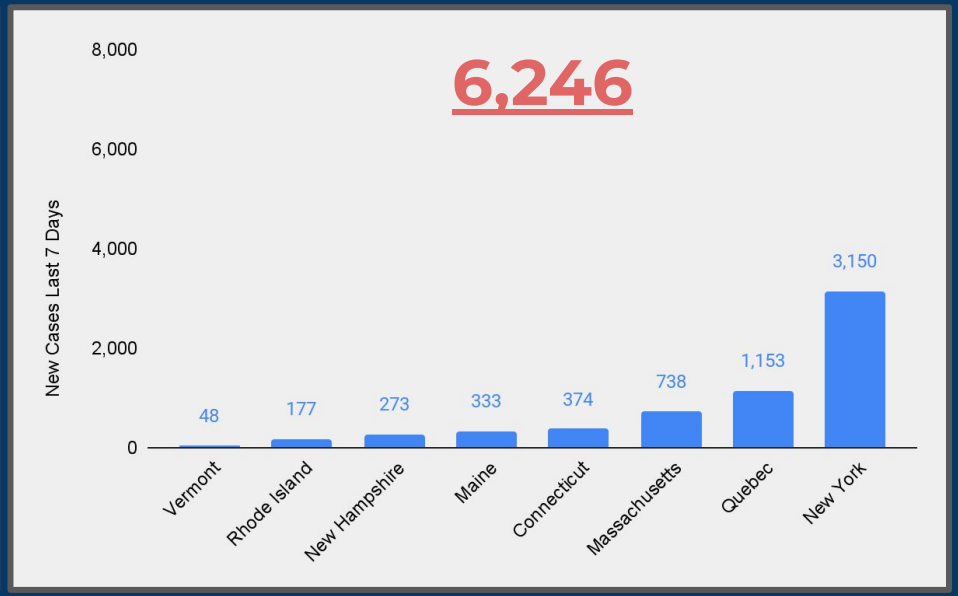
Regional Cases

25.26% Decrease in New Cases

New Cases June 1st to June 7th

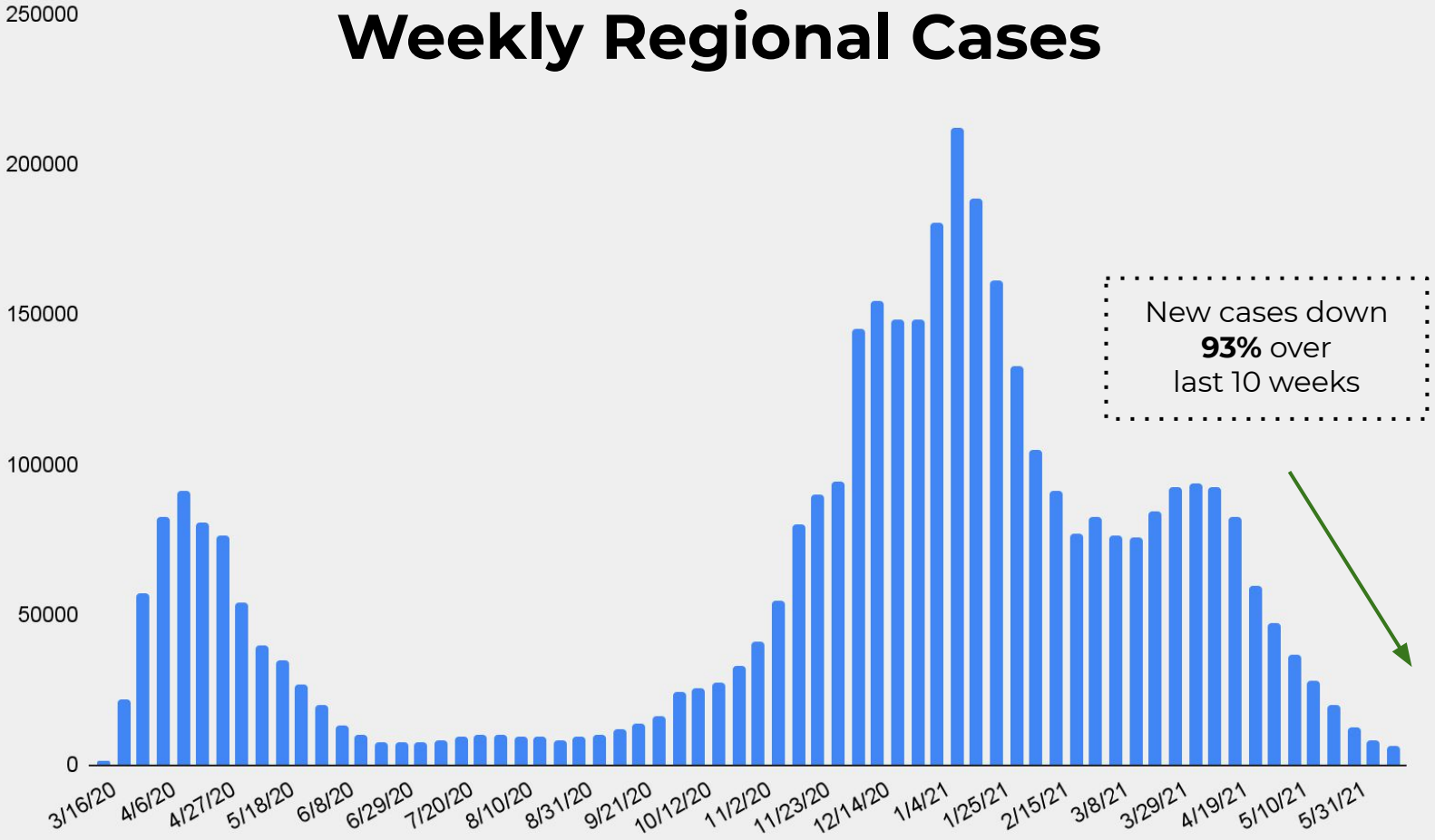


New Cases June 8th to June 14th



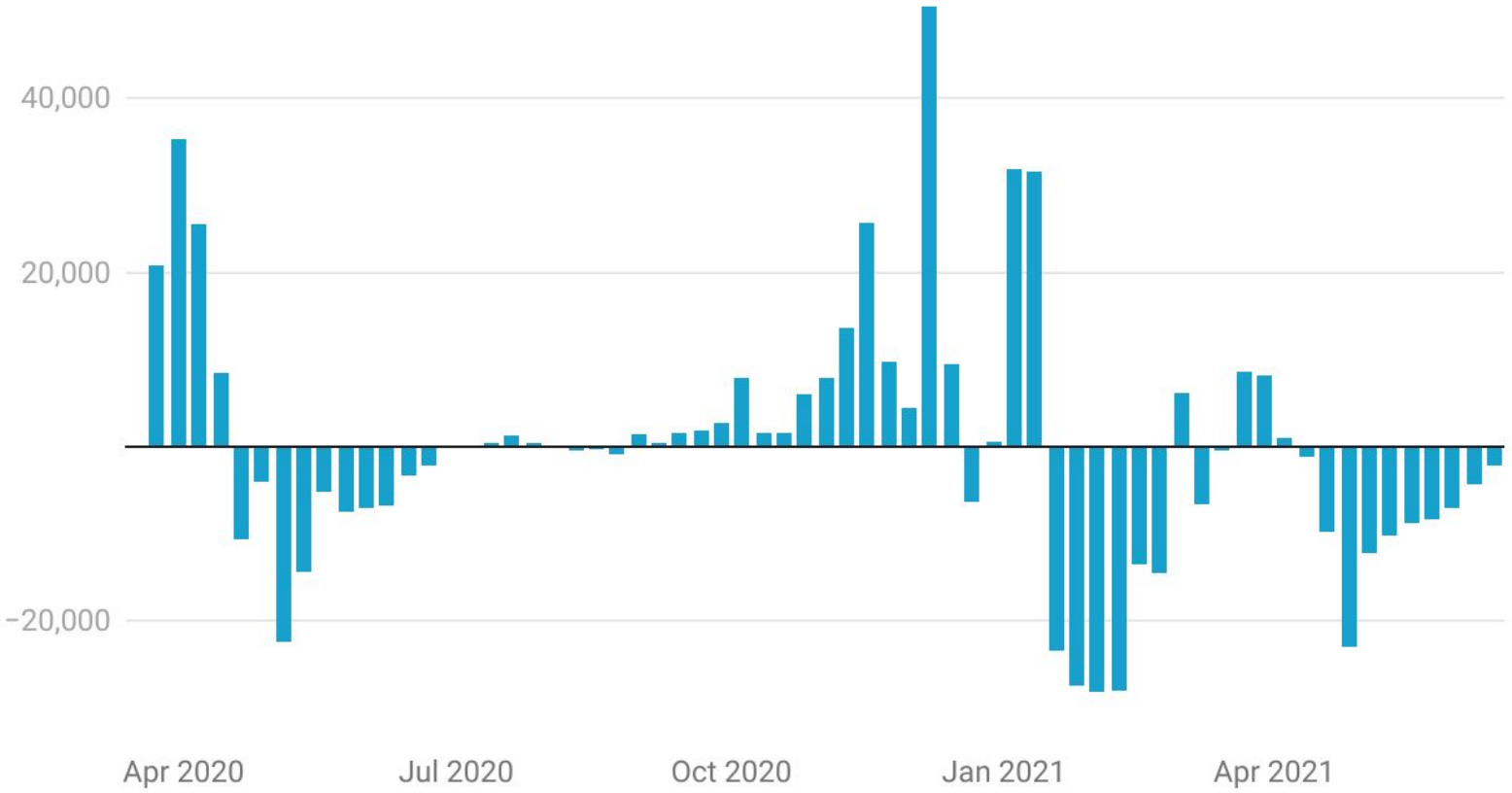
Sources: State Health Departments & CTV National News (Quebec)

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



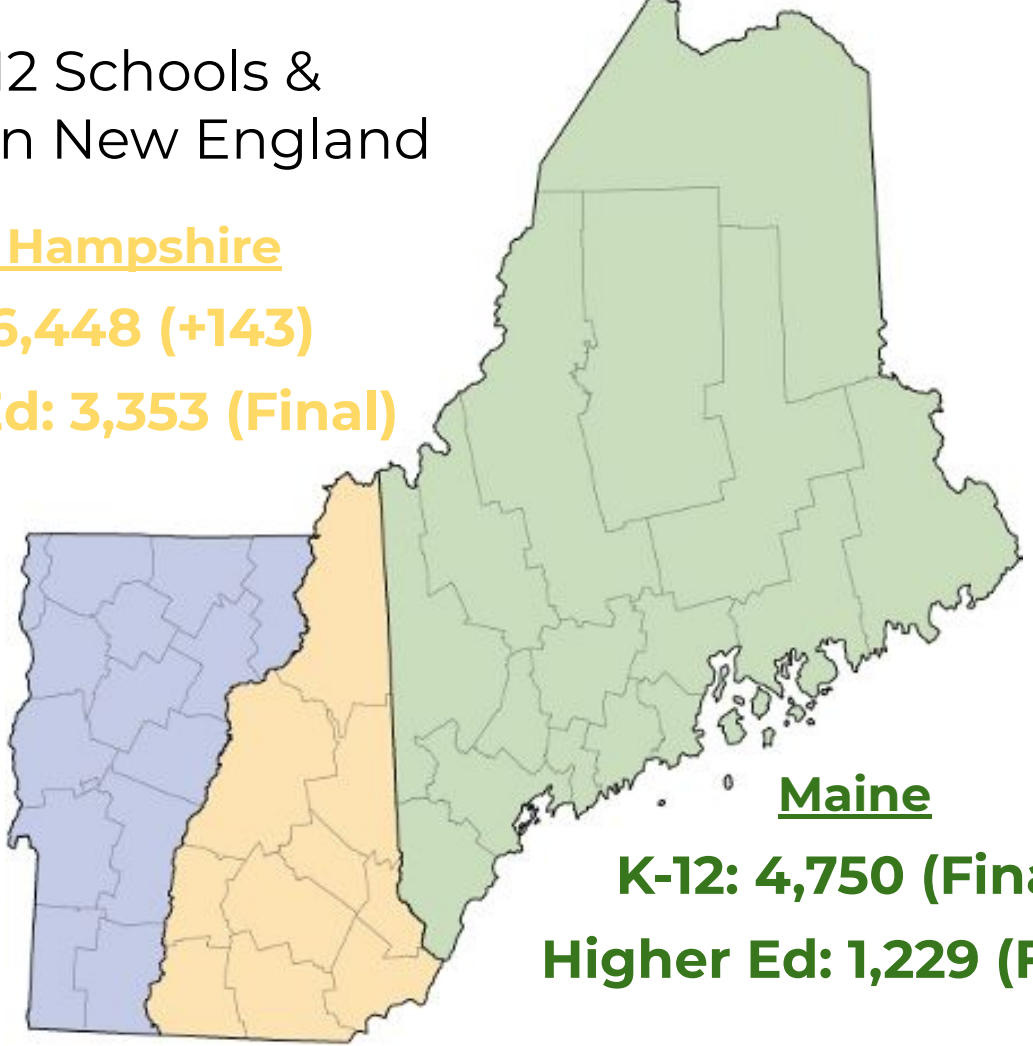
Sources: State Health Departments & CTV National News (Quebec) (includes: CT, ME, MA, NH, NY, QC, RI & VT)

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

New Hampshire

K-12: 6,448 (+143)

Higher Ed: 3,353 (Final)



Vermont

K-12: 1,401 (+6)

Higher Ed: 1,167 (Final)

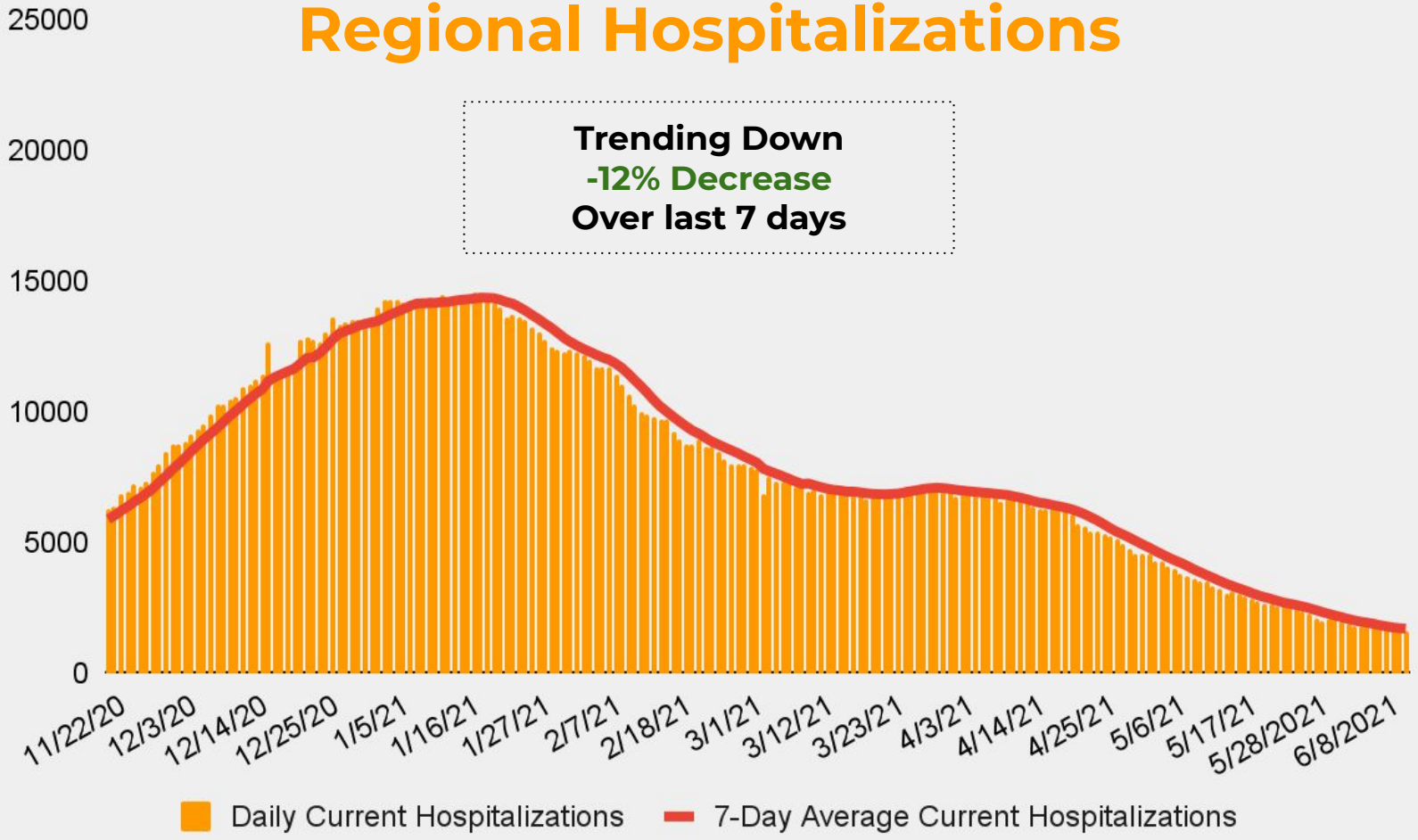
Maine

K-12: 4,750 (Final)

Higher Ed: 1,229 (Final)

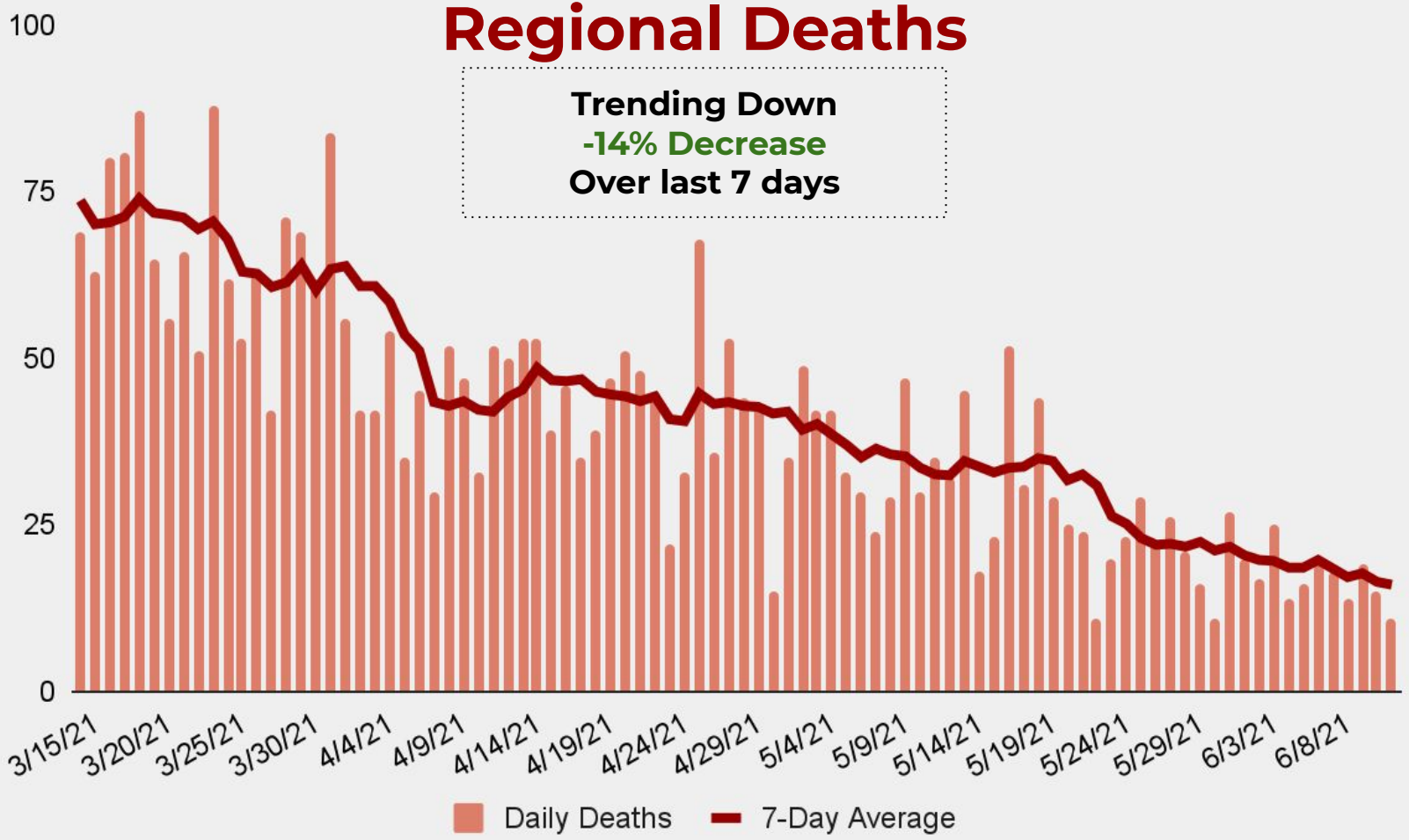
Source: ME, NH & VT K-12 Dashboards; K-12 cases from the full school year; Higher Ed. cases from the Spring Semester

Regional Hospitalizations



Source: Covid Act Now (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—June 14, 2021

Regional Deaths



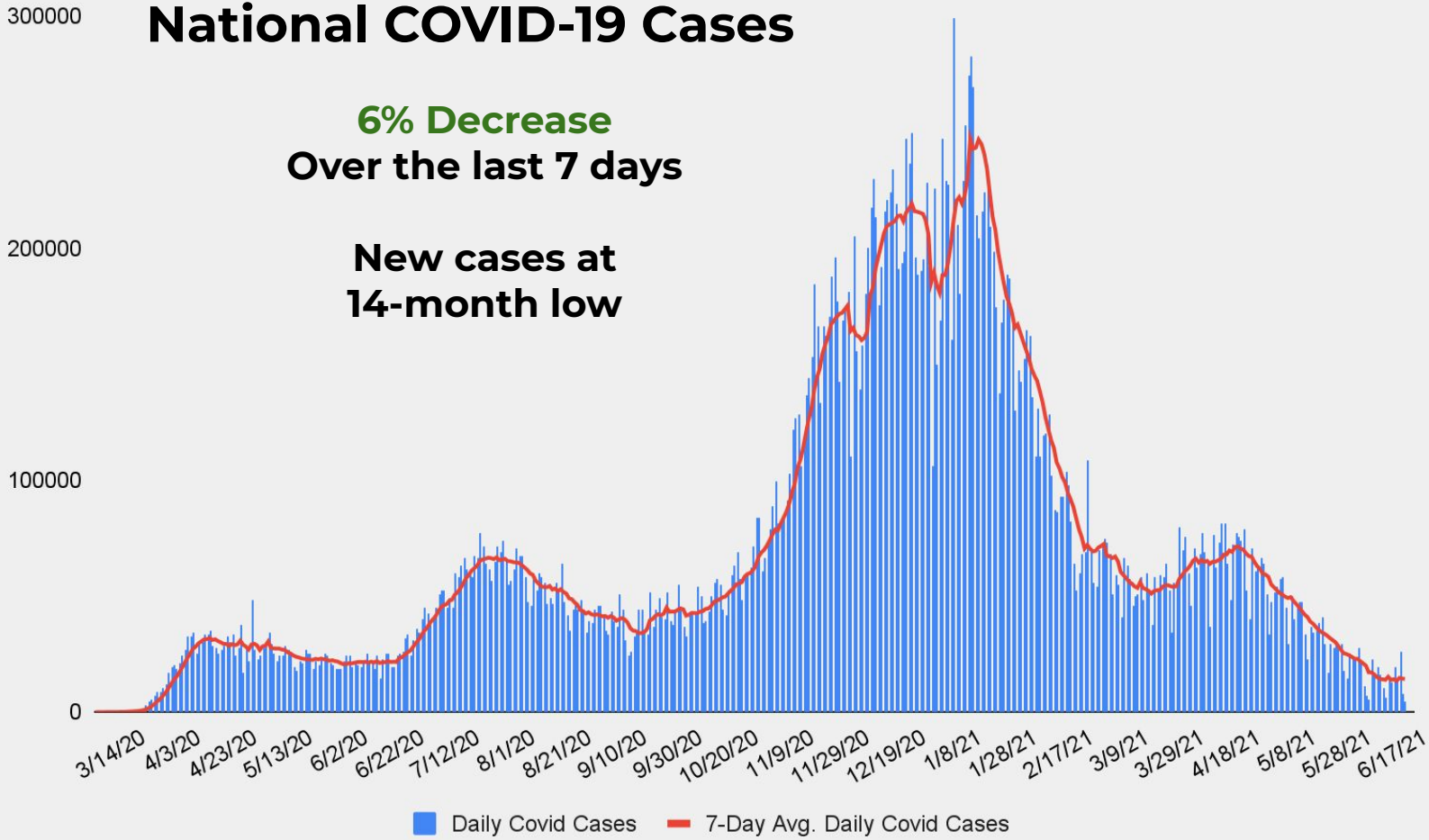
Source: CDC (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—June 14, 2021

National Data

National COVID-19 Cases

6% Decrease
Over the last 7 days

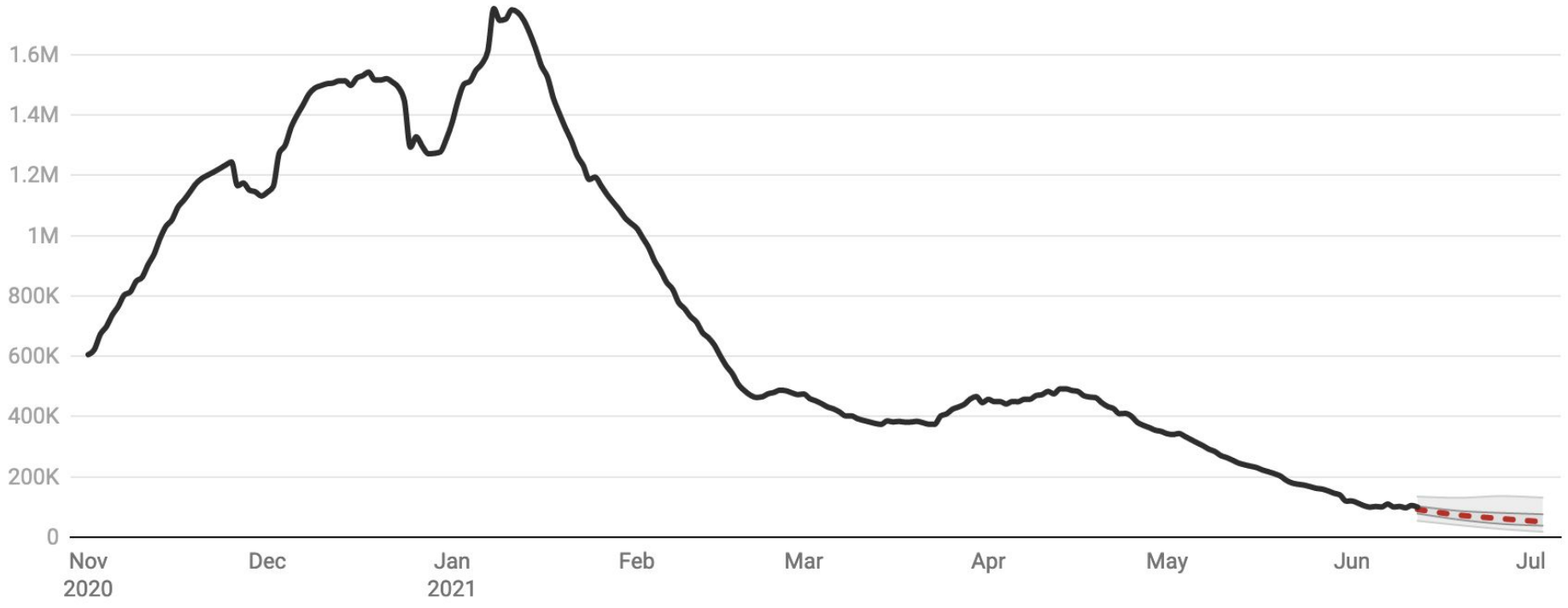
New cases at 14-month low



Source: Covid Tracking Project; NYT & CDC—June 14, 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.

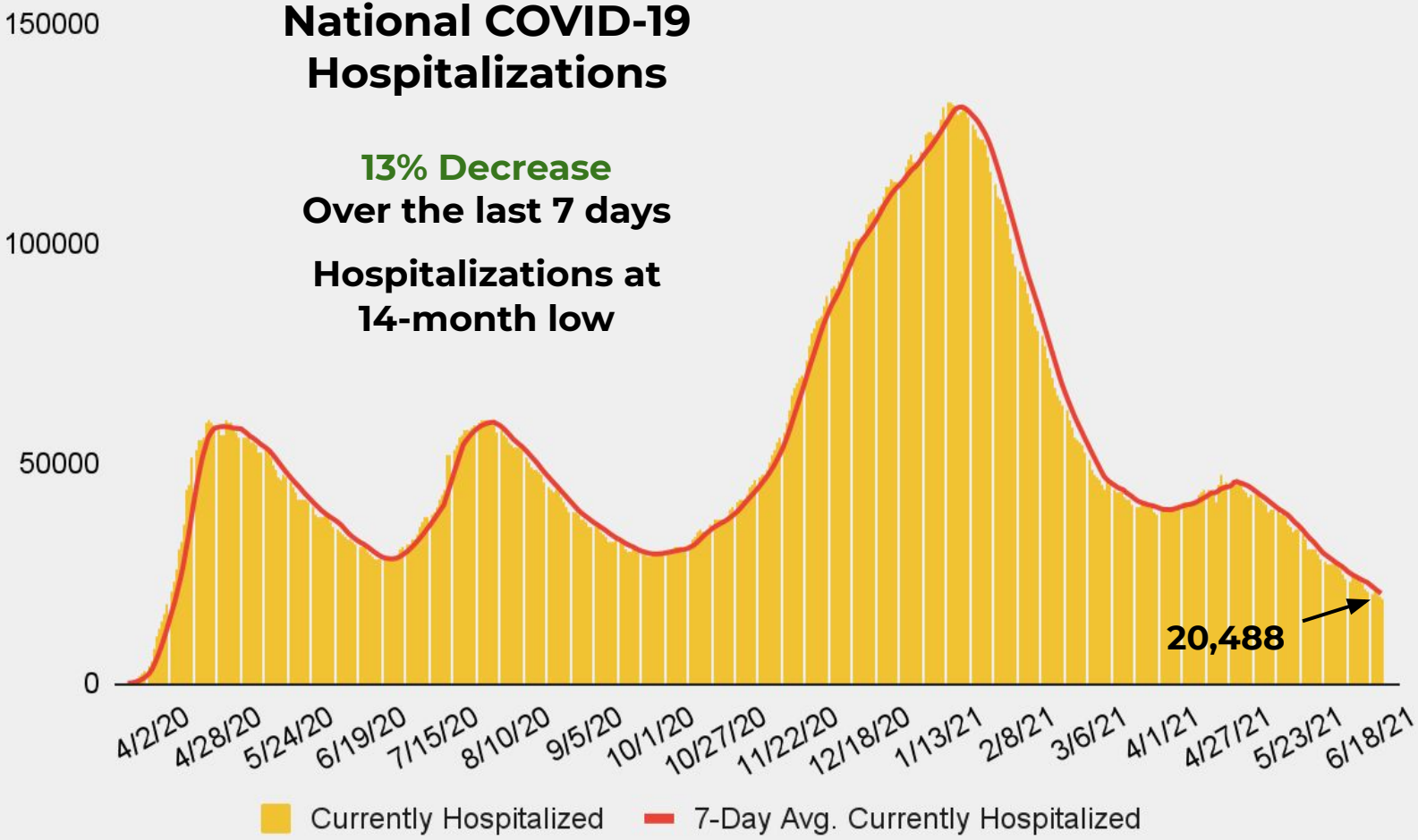


Source: Centers for Disease Control and Prevention—June 14, 2021

National COVID-19 Hospitalizations

13% Decrease
Over the last 7 days

Hospitalizations at 14-month low

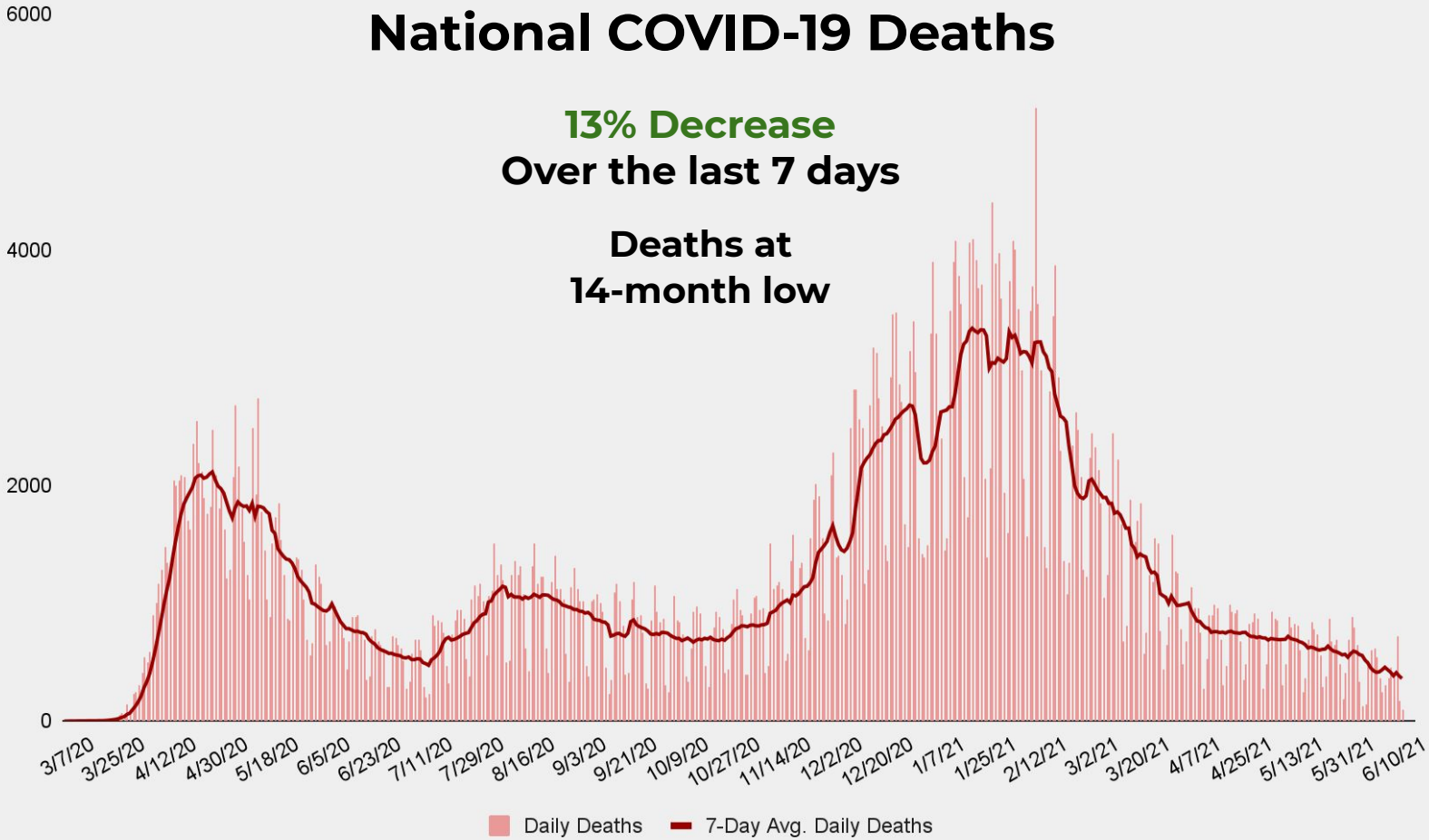


Source: Covid Tracking Project; NYT & CDC—June 14, 2021

National COVID-19 Deaths

13% Decrease
Over the last 7 days

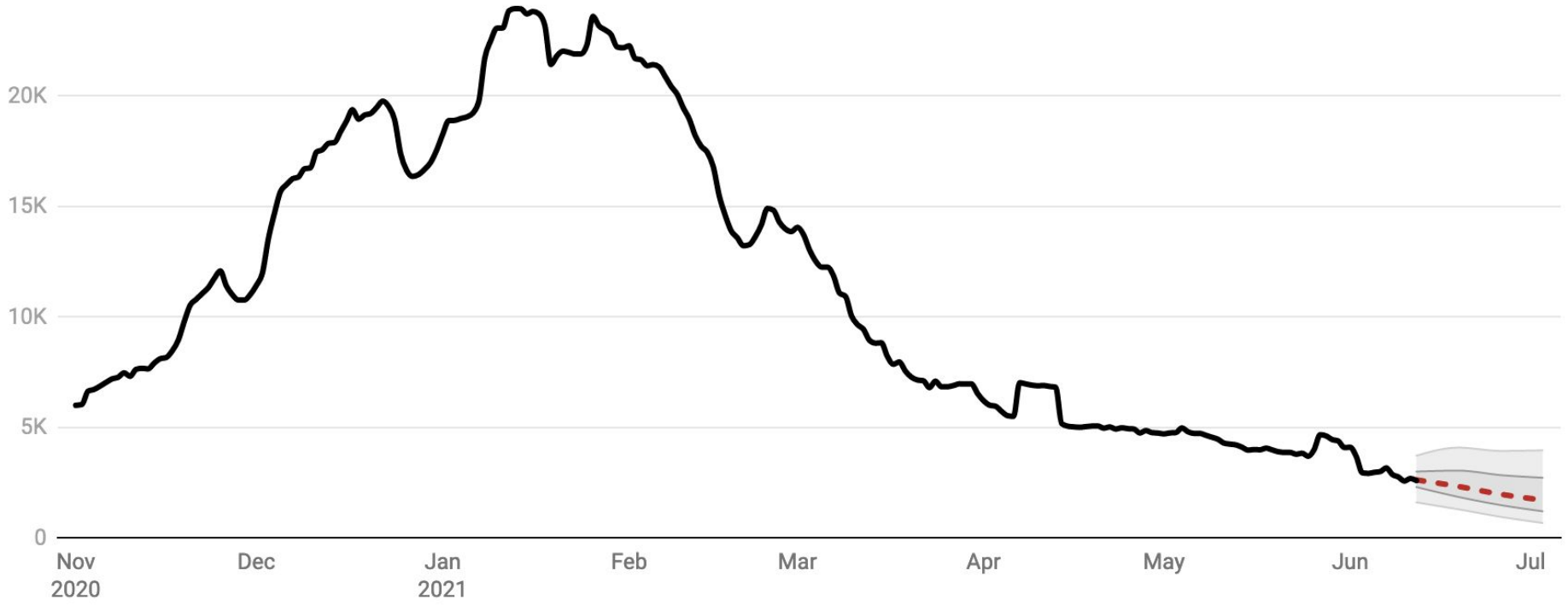
Deaths at
14-month low



Source: Covid Tracking Project; NYT & CDC—June 14, 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 14, 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

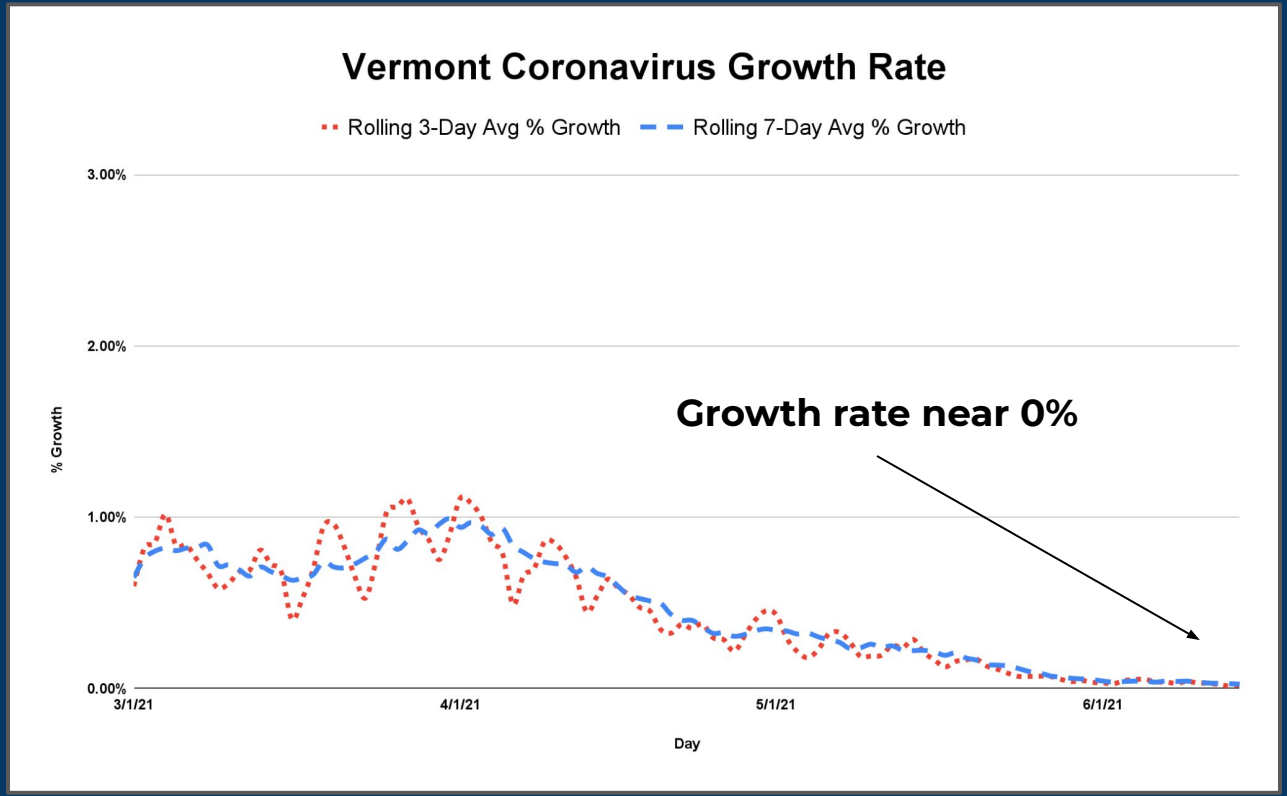
Data Point 1: Syndromic Surveillance

- **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

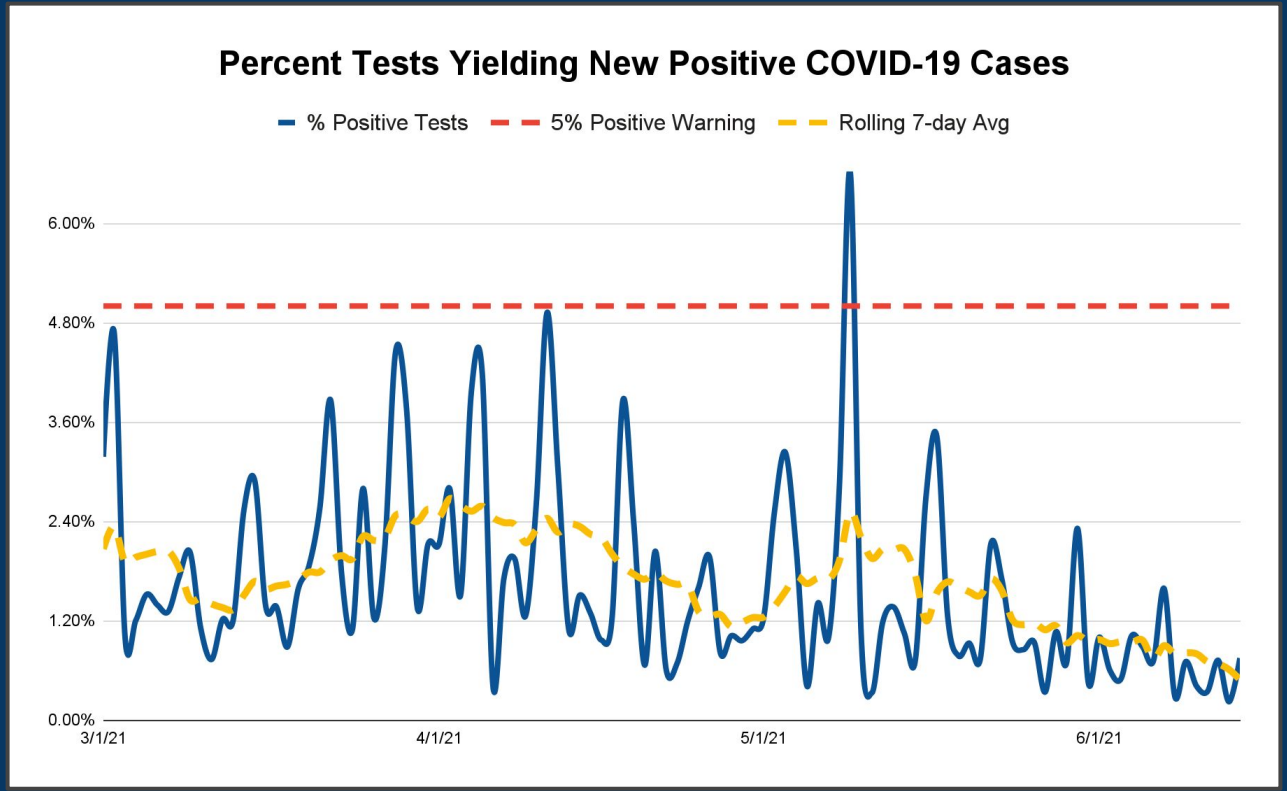
- **Summary:** Case growth measured by daily, 3-day, 7-day, and effective reproductive rate (R_t)
- **Warning Flags:** Sustained viral growth that would lead to <30% open ICU beds



Source: Vermont Department of Health—June 15, 2021

Data Point 3: Percentage of New Positive Tests

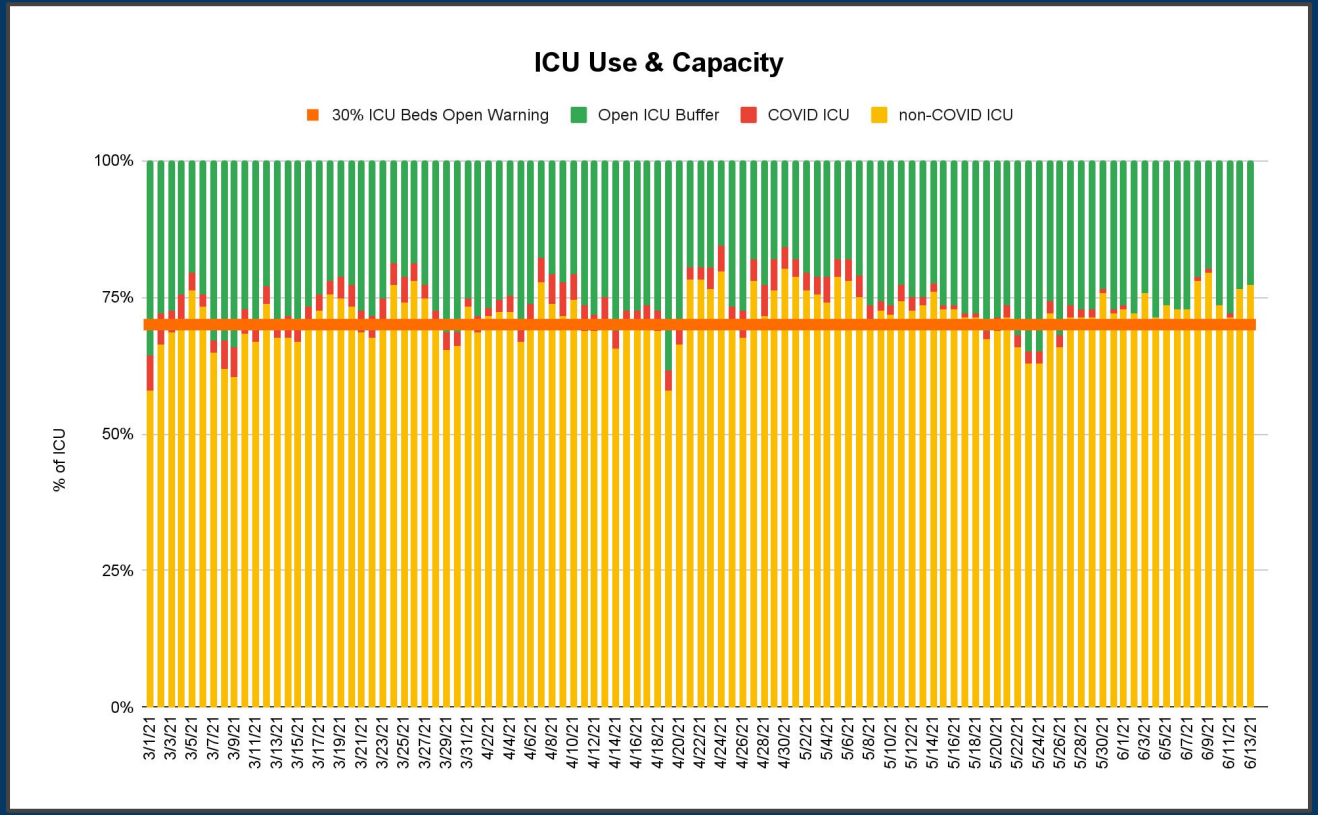
- **Summary:** Percent of tests resulting in a new positive case
- **Warning Flags:** New positives represent >5% of daily results



Source: Vermont Department of Health—June 15, 2021

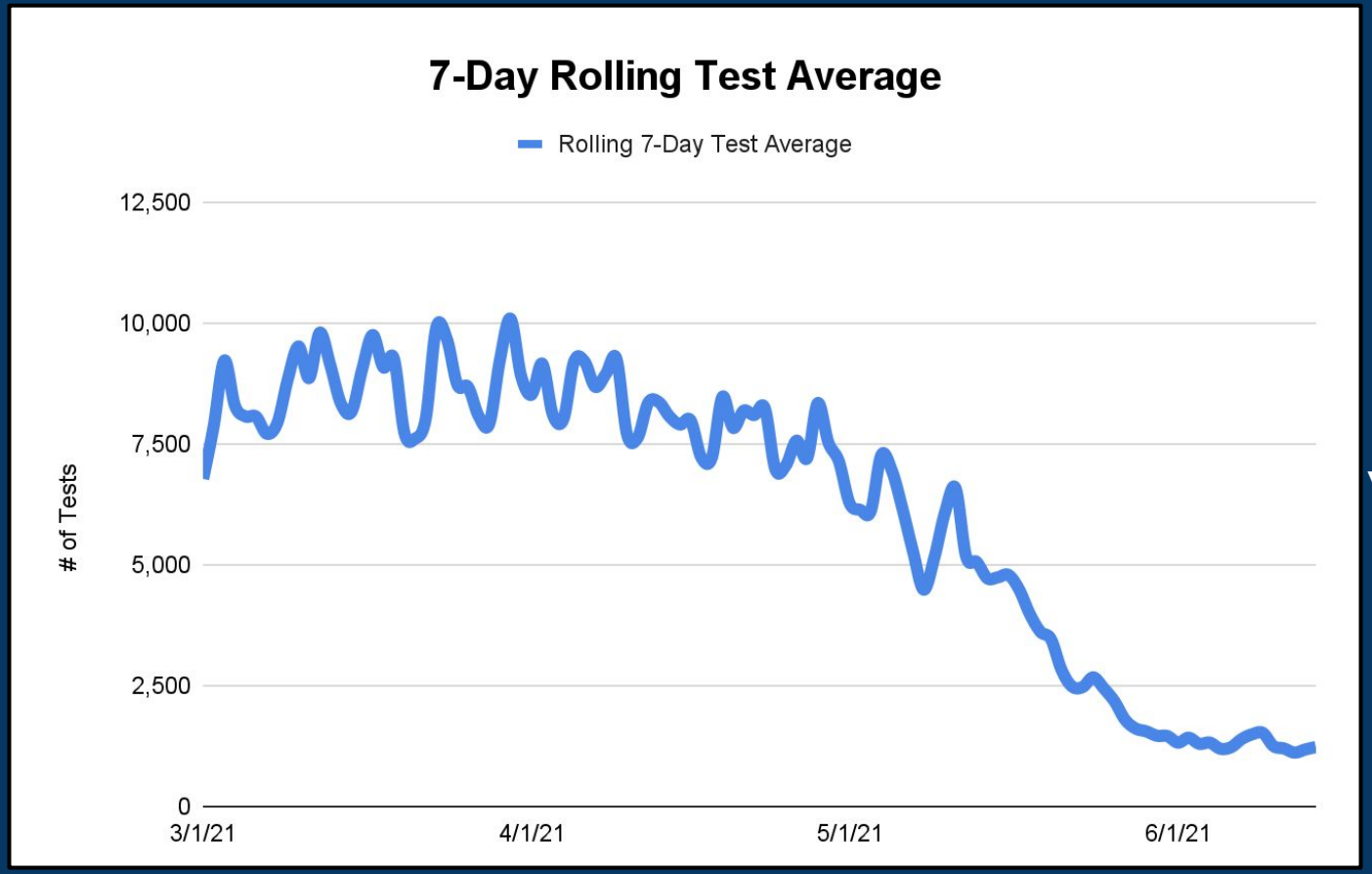
Data Point 4: Hospital & Critical Care Beds

- **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 15, 2021

Vermont Testing



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

Source: Vermont Department of Health—June 15, 2021; results reported to VDH daily