COVID-19 Modeling
May 25, 2021

Presentation available at:
dfr.vermont.gov

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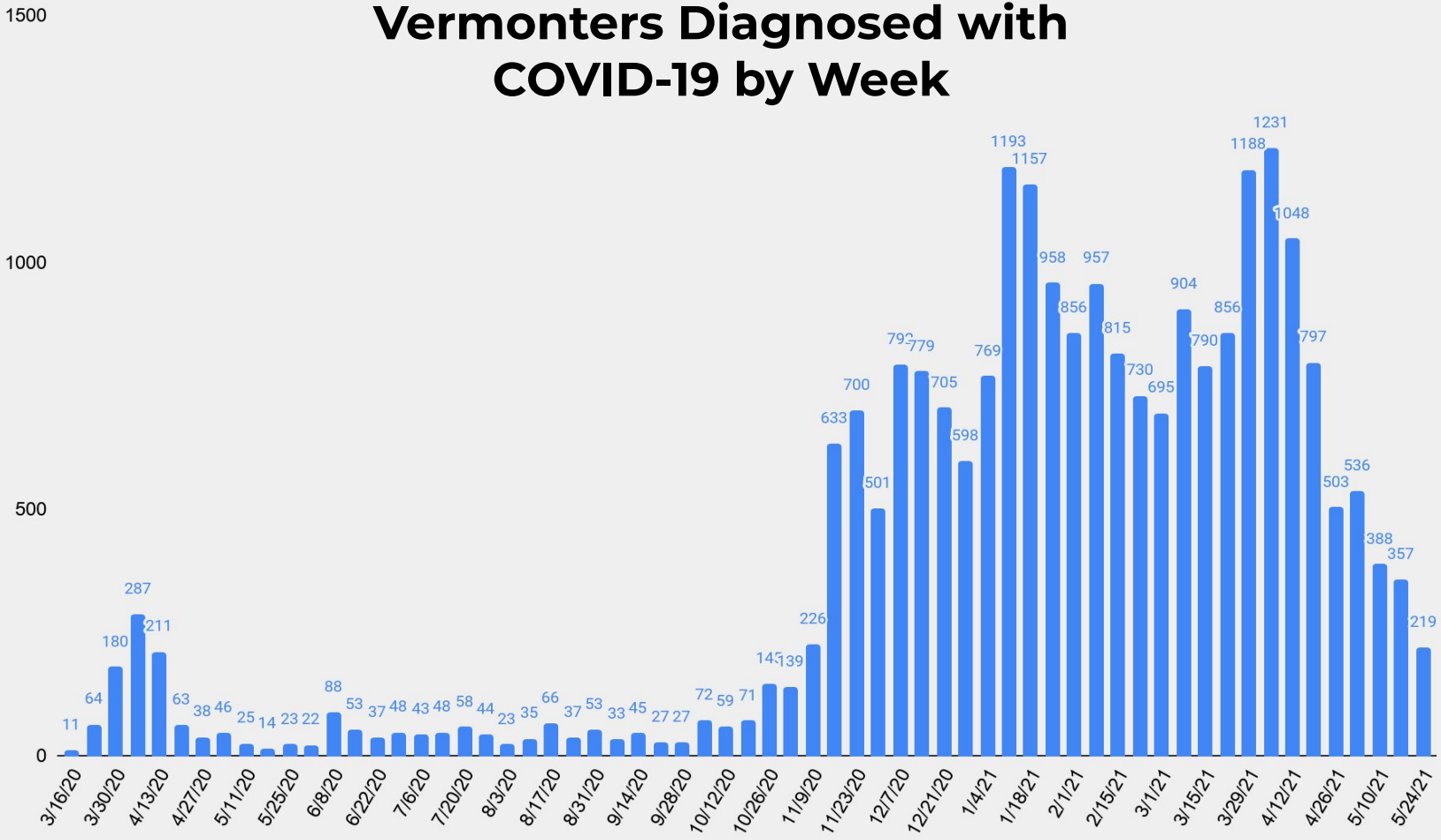
Vermont Case Data

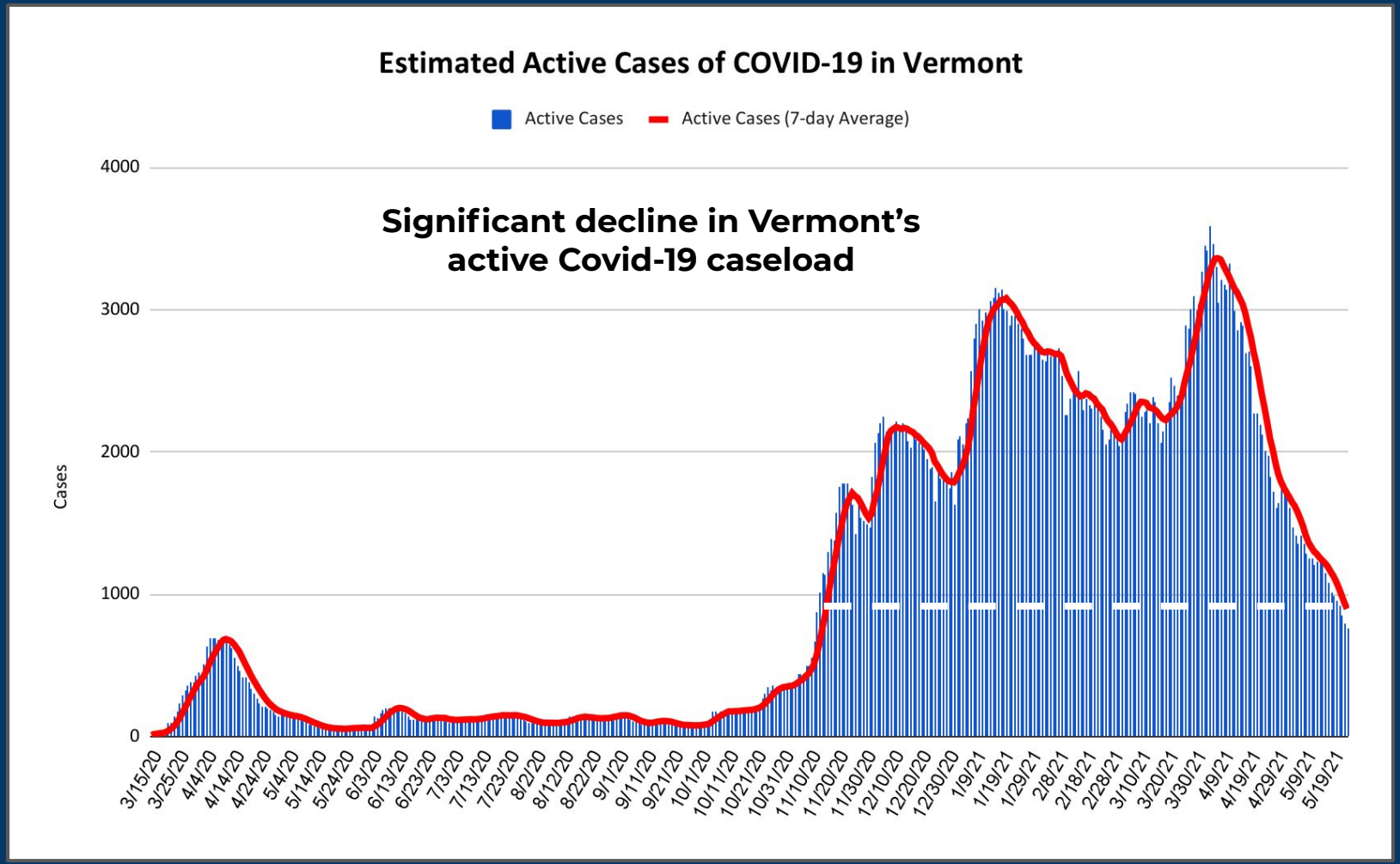
COVID Infections per 100K in Vermont (7-Day Average)

Source: Vermont Department of Health—May 25, 2021

Vermonters Diagnosed with COVID-19 by Week



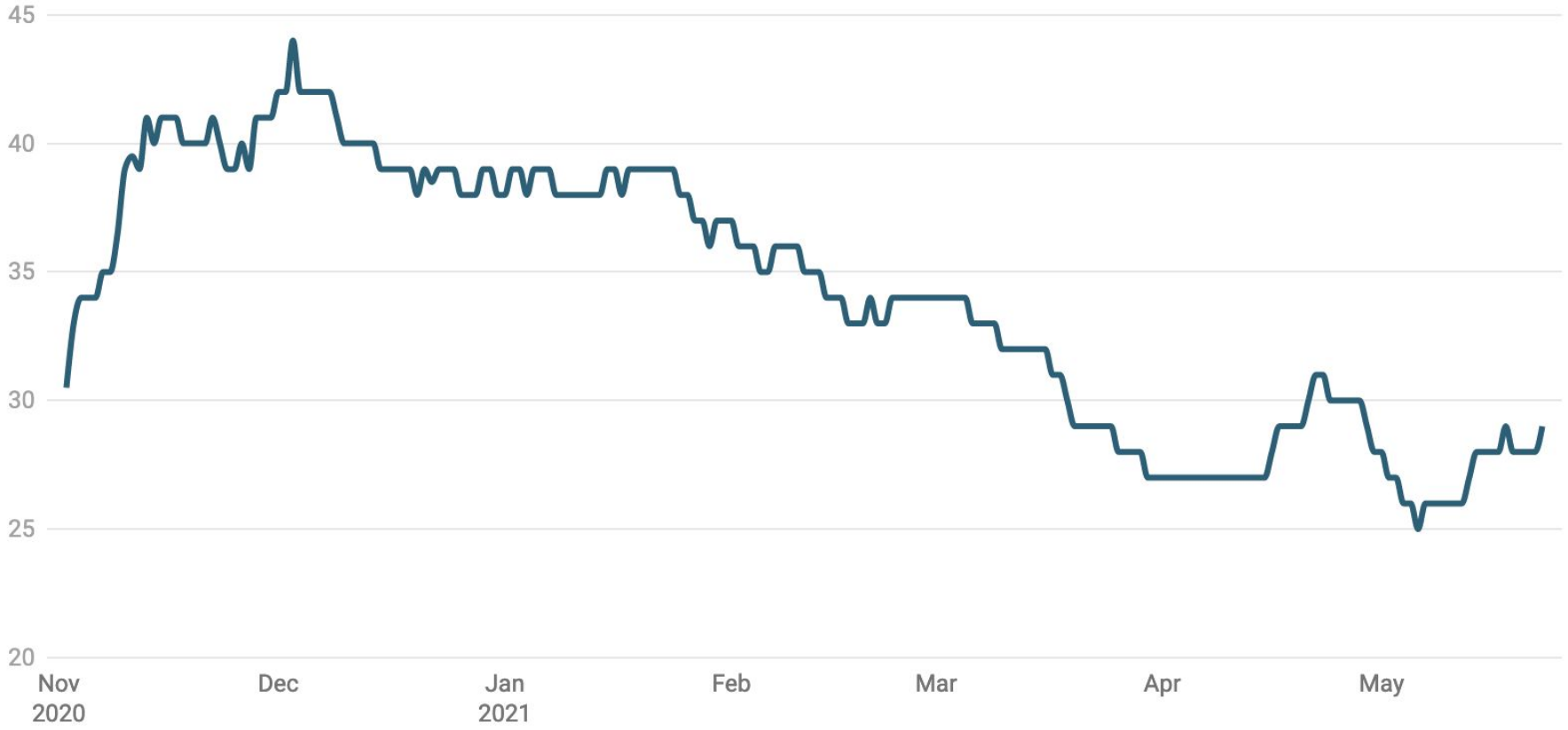
Source: Vermont Department of Health (week calculated as Tuesday to Monday)



Source: Johns Hopkins University Data & Oliver Wyman Model—May 24, 2021

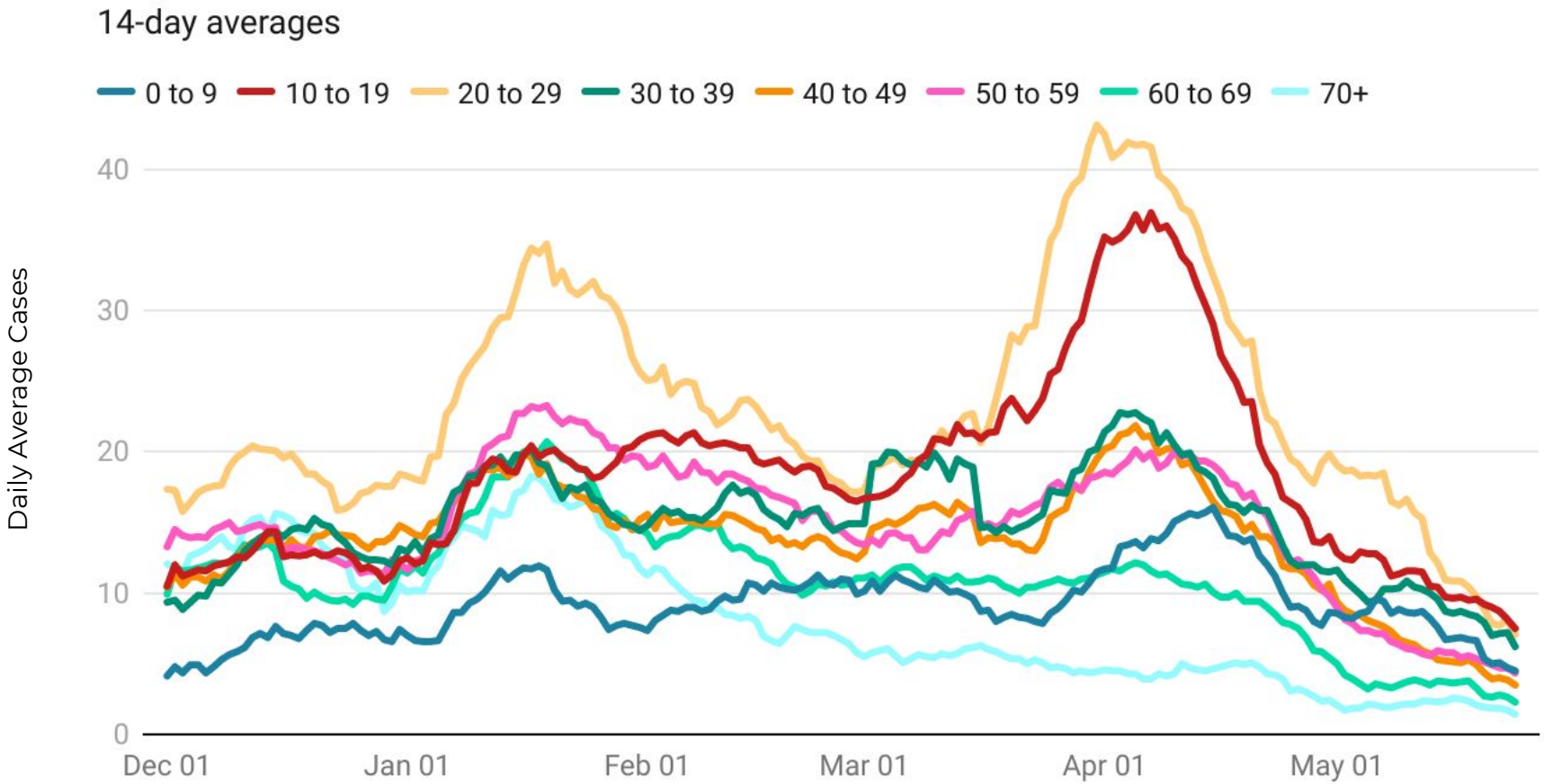
Age of Infected Vermonters

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



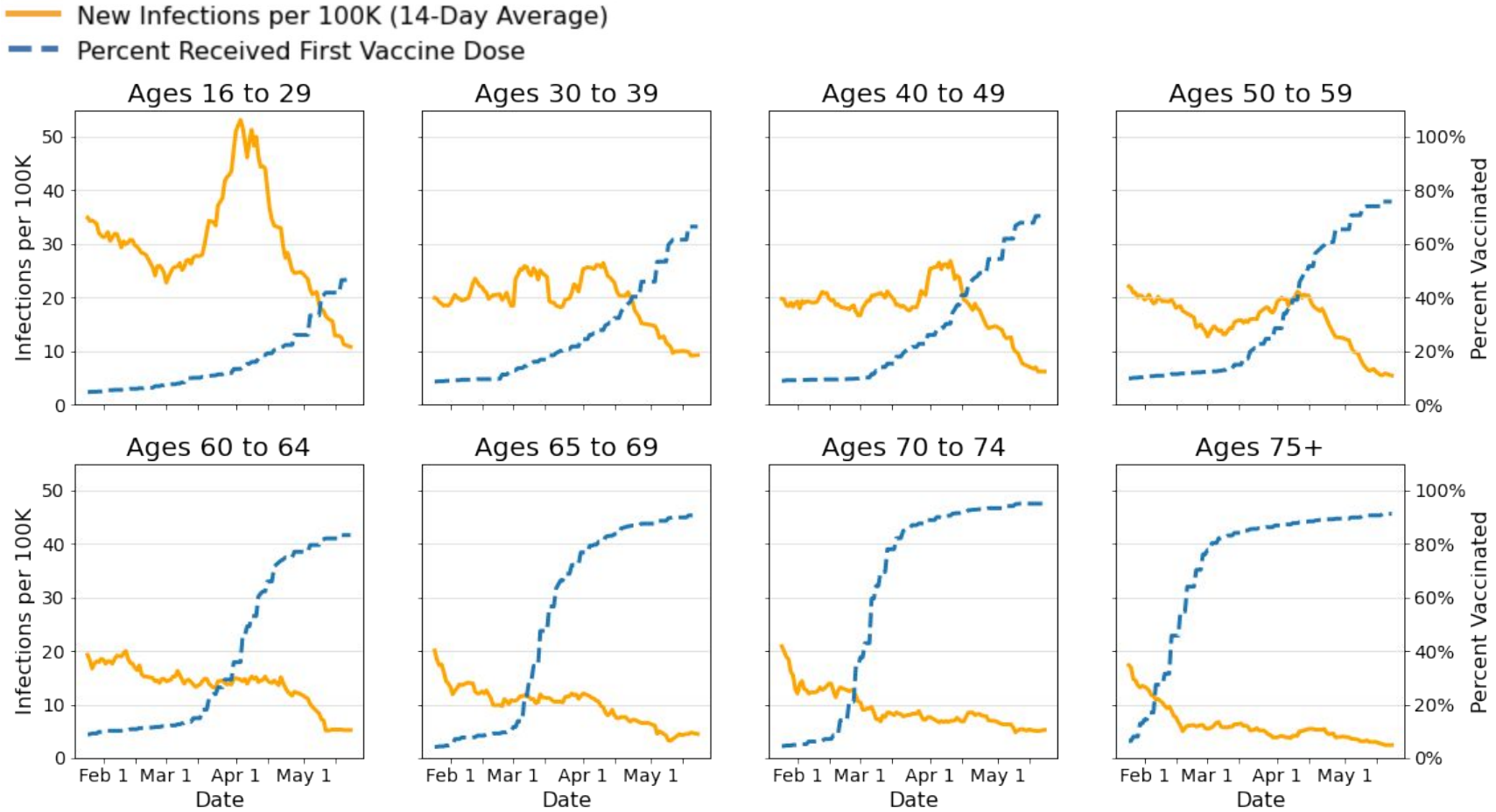
Source: VDH—May 25, 2021

Vermont Cases by Age Band



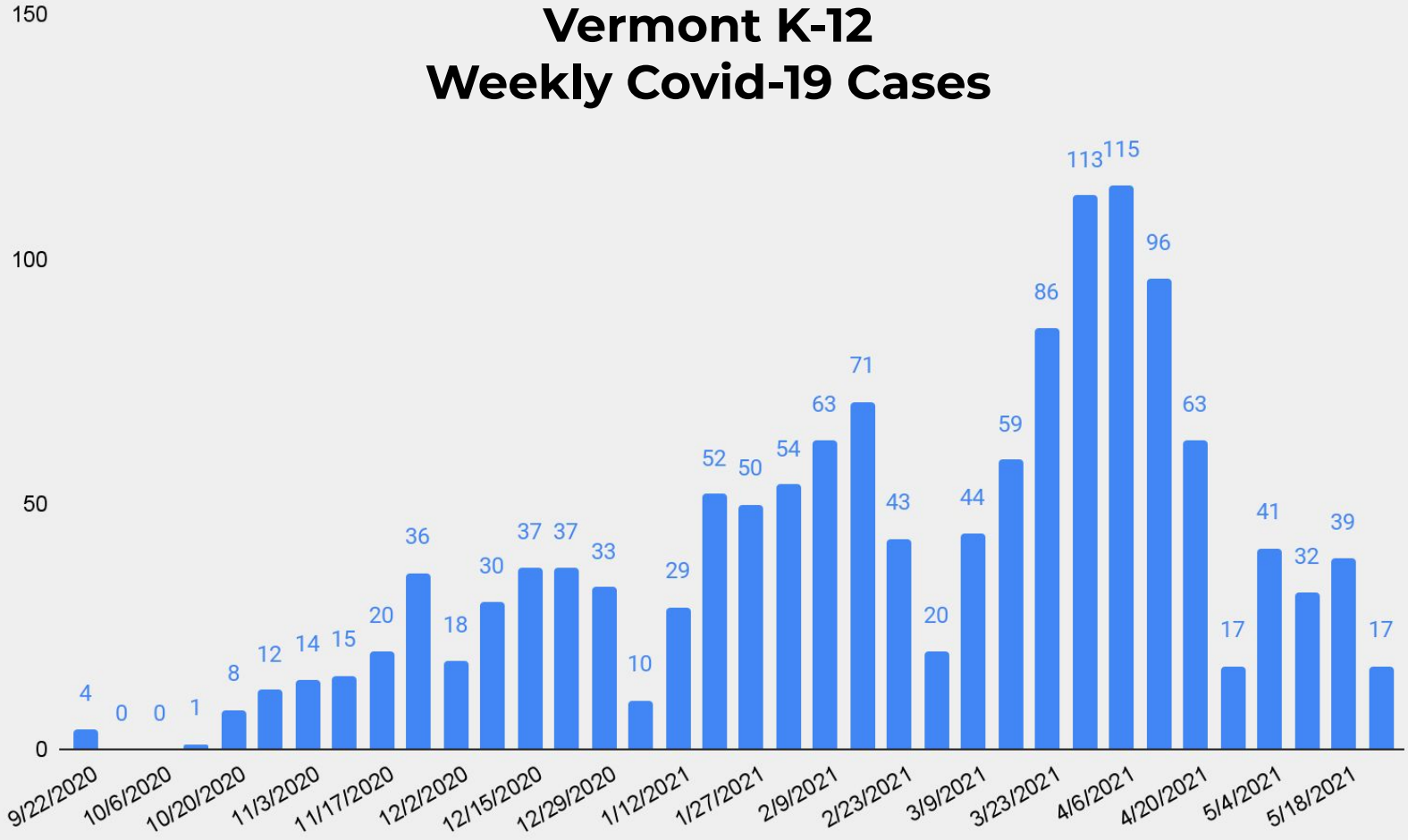
Source: VDH—May 24, 2021

Vermont Case Rate & Vaccination by Age Band



Source: VDH—May 24, 2021

Vermont K-12
Weekly Covid-19 Cases

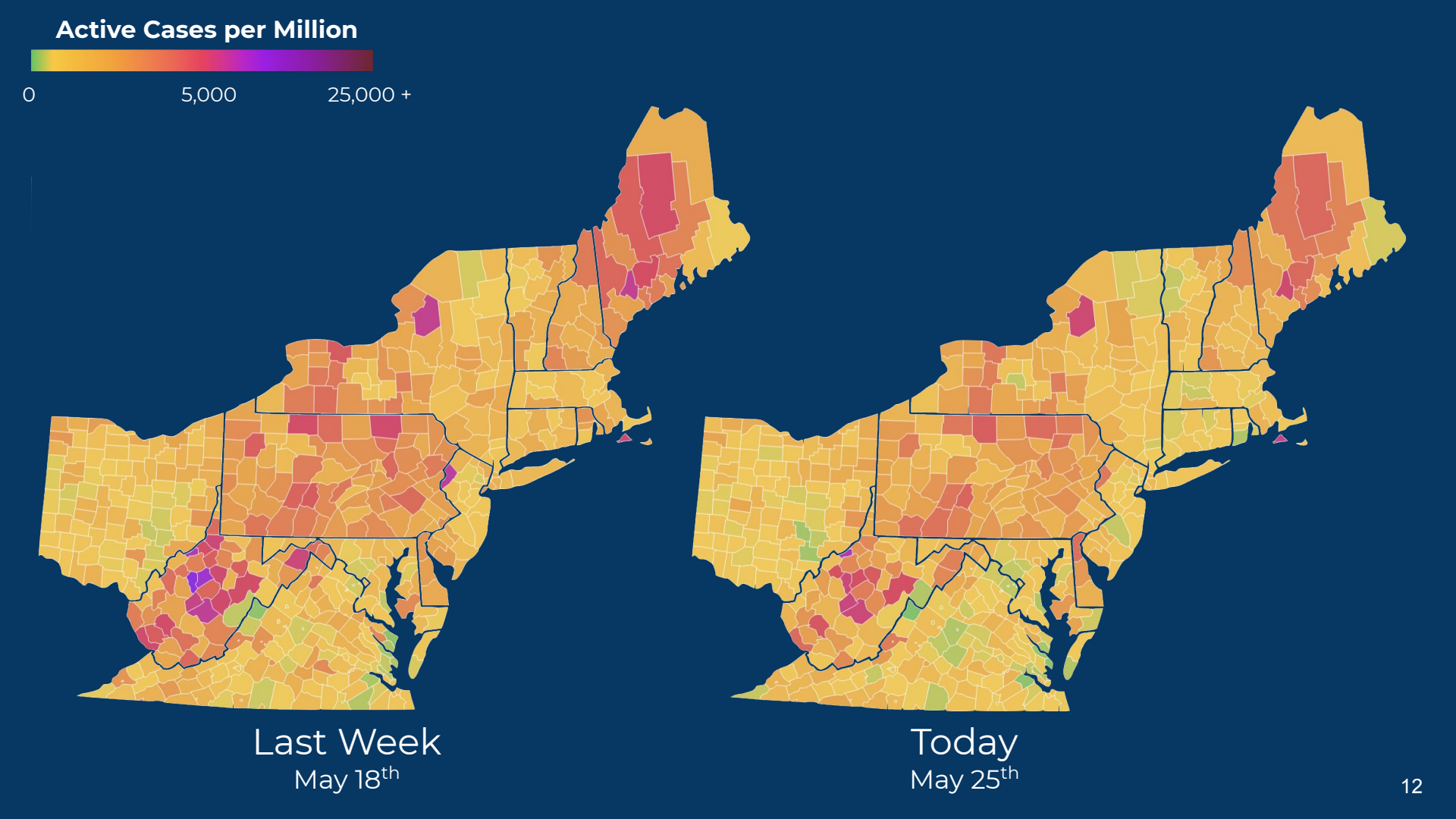


Source: Vermont Department of Health—May 24, 2021

Active Outbreaks in Long Term Care Facilities*

Facility Name	Total COVID-19 Cases
None	None

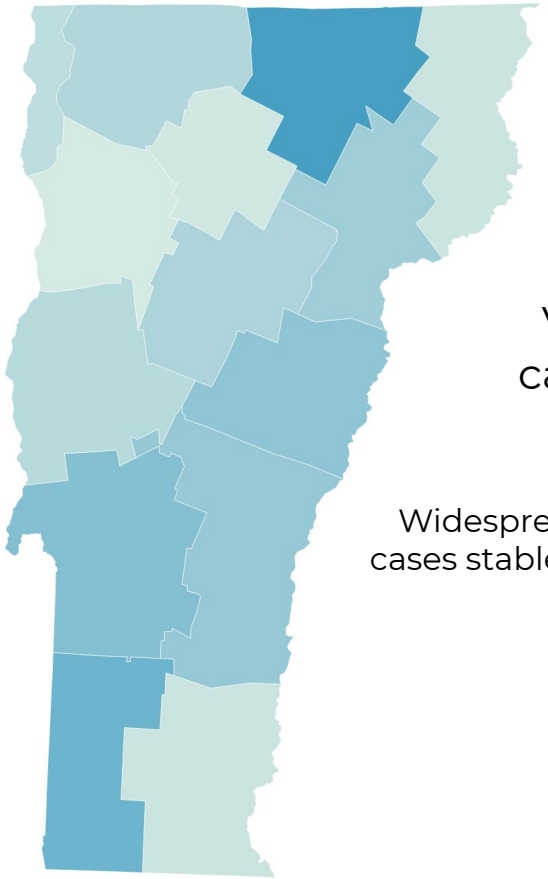
Source: Vermont Department of Health—*Last updated May 24, 2021 (reporting Monday through previous Sunday); *'Active' defined as less than 28 days since most recent case's specimen collection date or illness start date (whichever is later); privacy suppressions include facility w/ <25 staff and residents and/or >75% of facility infected or fewer than 5 active cases.*


Active Cases per Million
0
5,000
25,000 +
Last Week
May 18th
Today
May 25th

Vermont Weekly Cases by County (per 100,000)

Results Reported May 11 to May 16

1 250



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

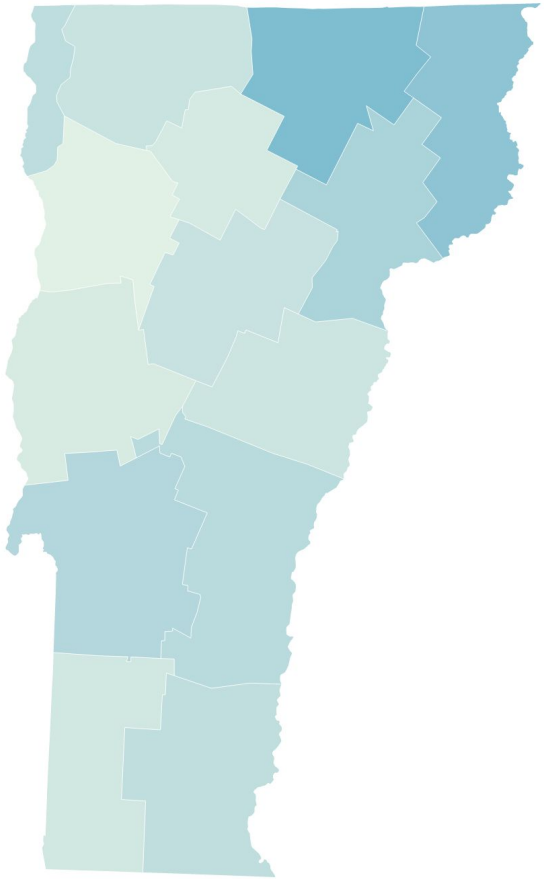
Vermont Covid-19
case rates last week
declined

Widespread falling cases across the state;
cases stable in Essex and Windham Counties

Vermont Weekly Cases by County (per 100,000)

Results Reported May 17 to May 24

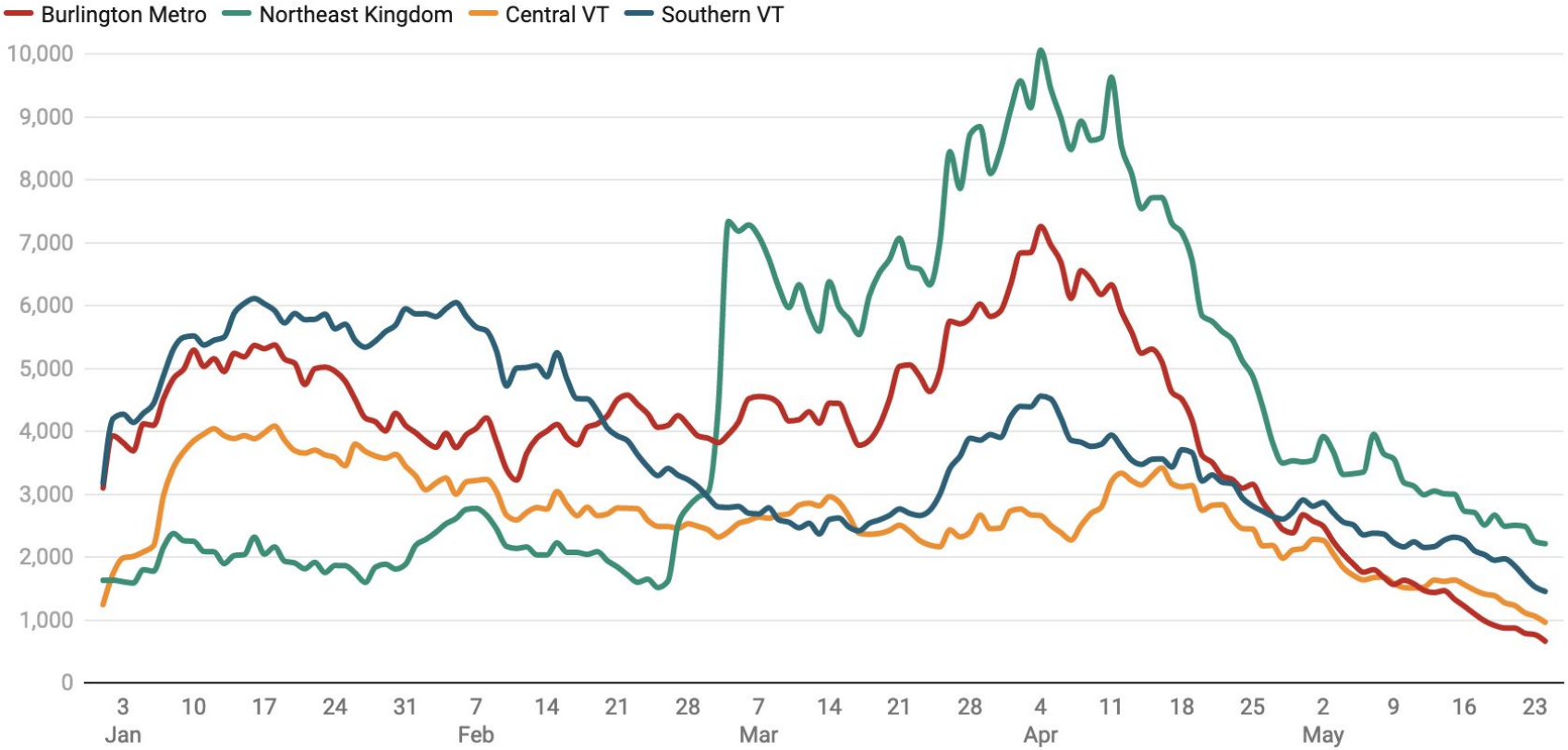
1 250



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

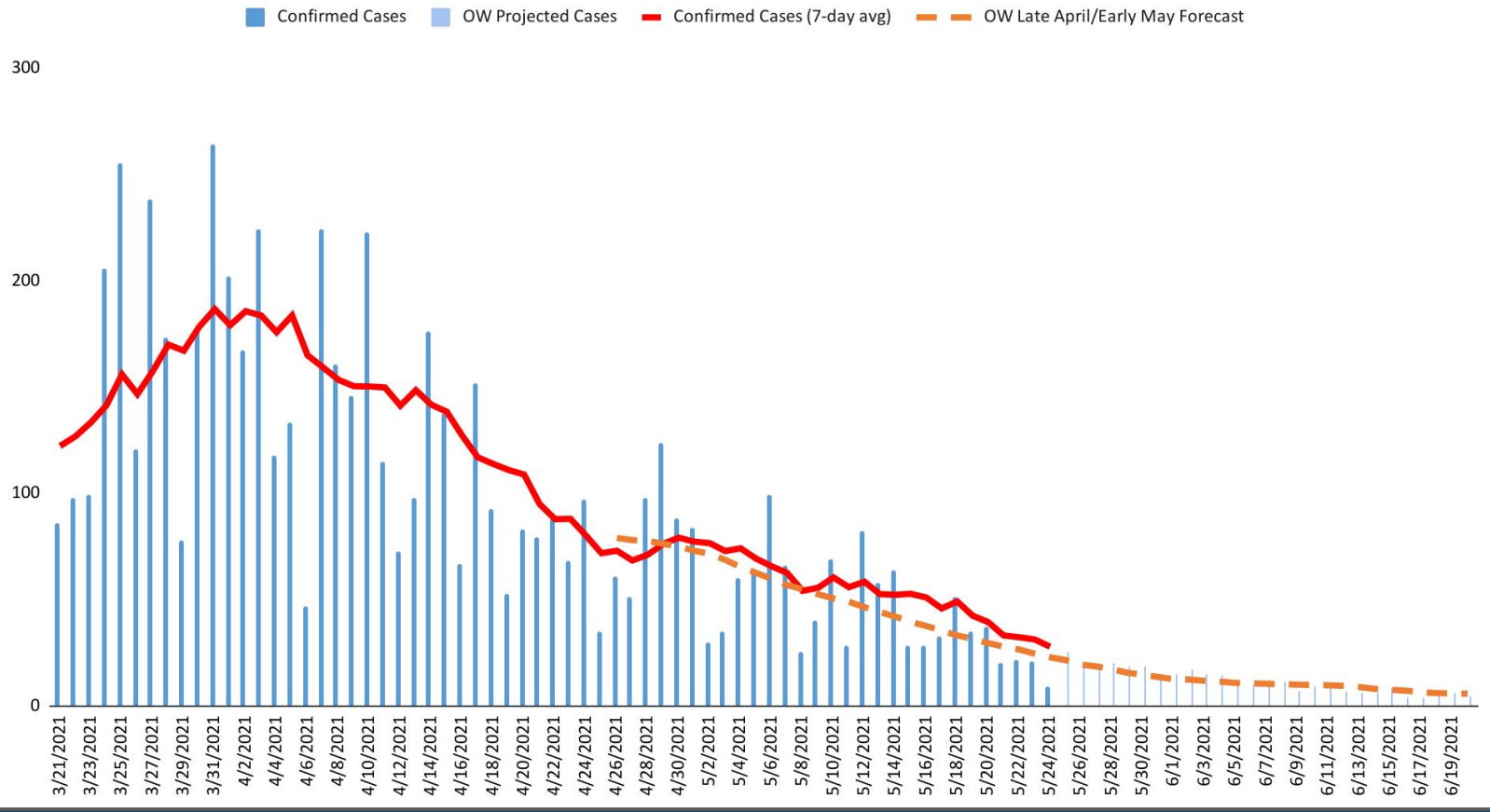
Active COVID Cases per Million in Vermont Regions

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, VDH, & Oliver Wyman Forecast Model—May 25, 2021

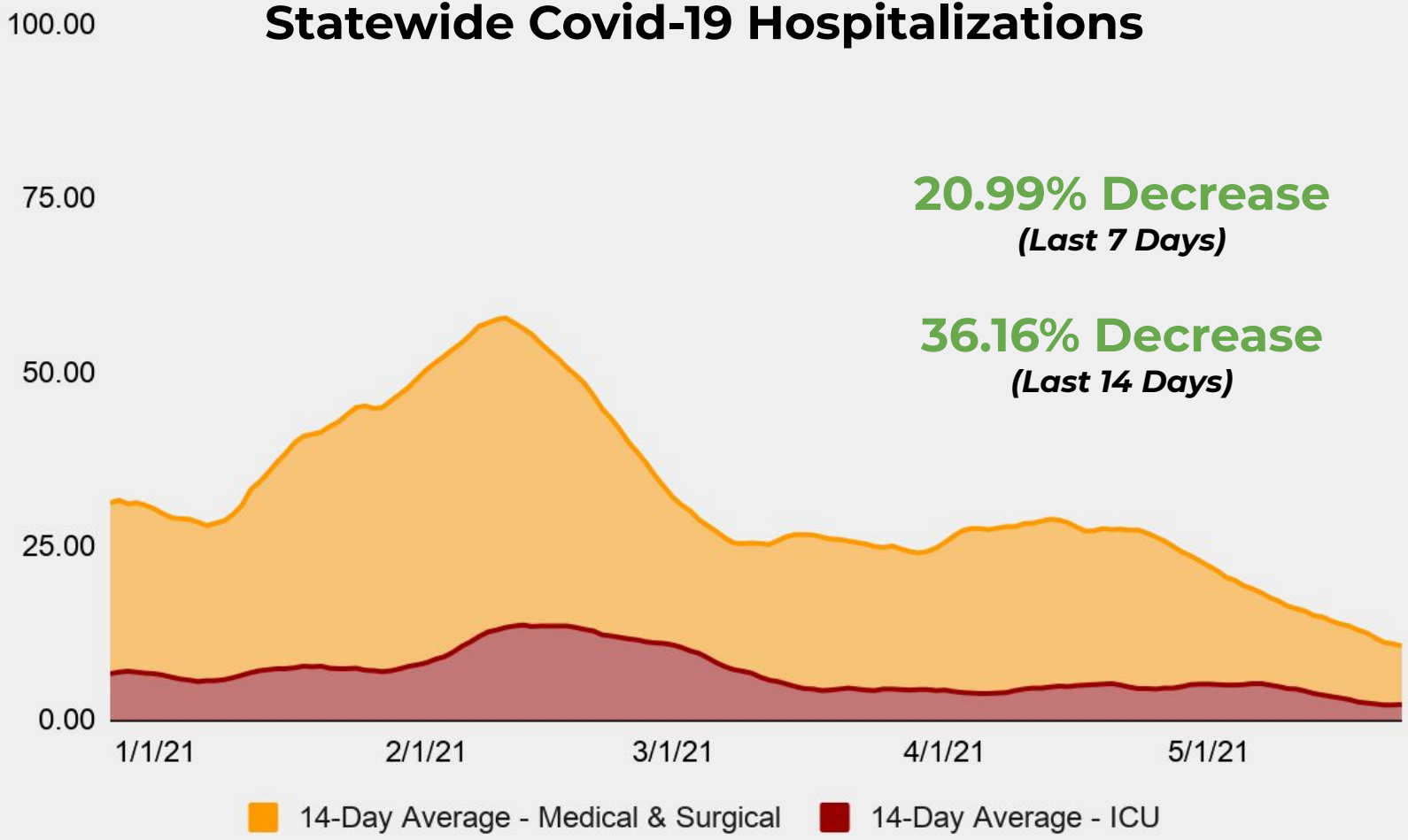
VT Weekly COVID-19 Infections Forecast

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—May 24, 2021

Vermont Hospitalization Data

Statewide Covid-19 Hospitalizations

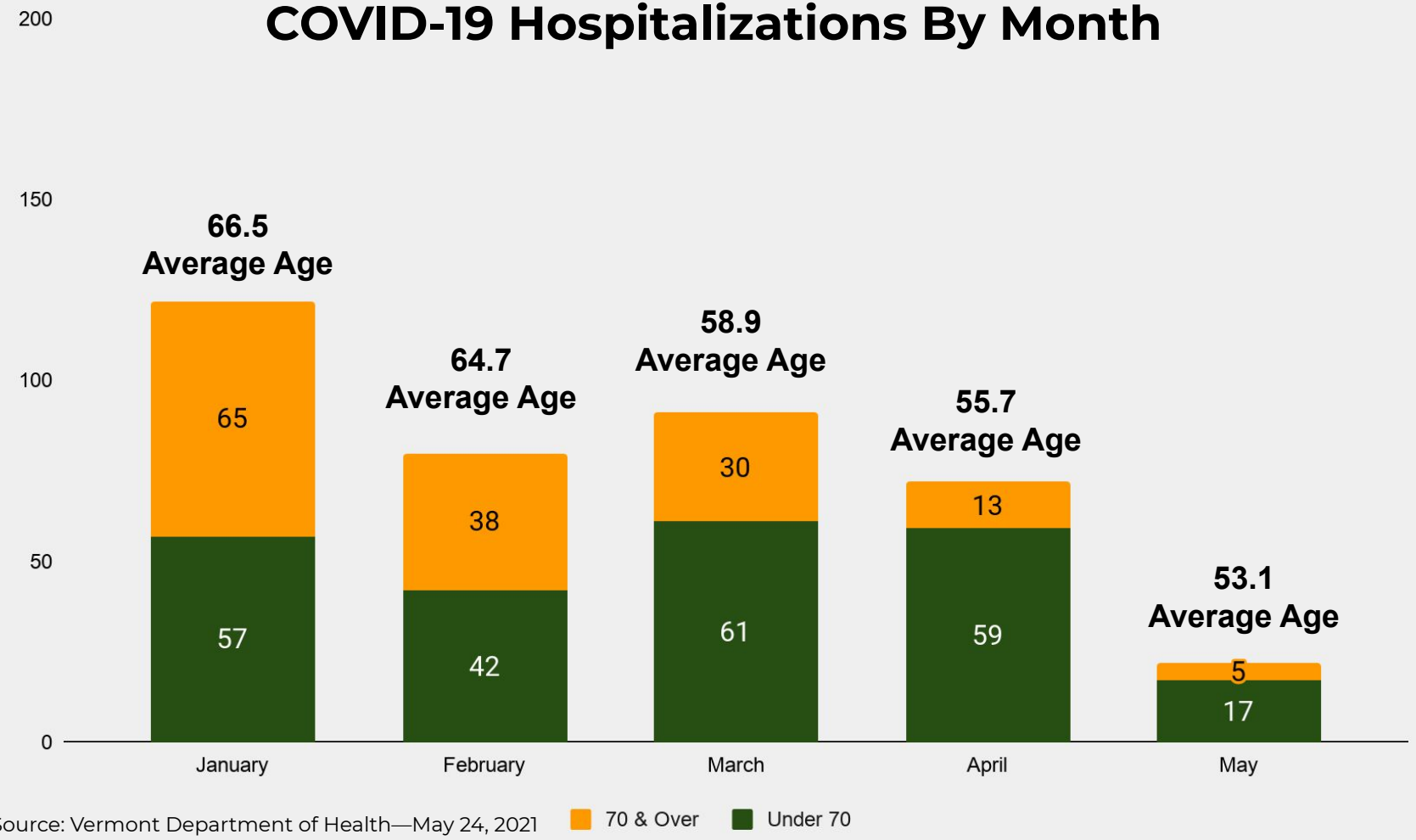


20.99% Decrease
(Last 7 Days)

36.16% Decrease
(Last 14 Days)

Source: Vermont Department of Health—May 25, 2021

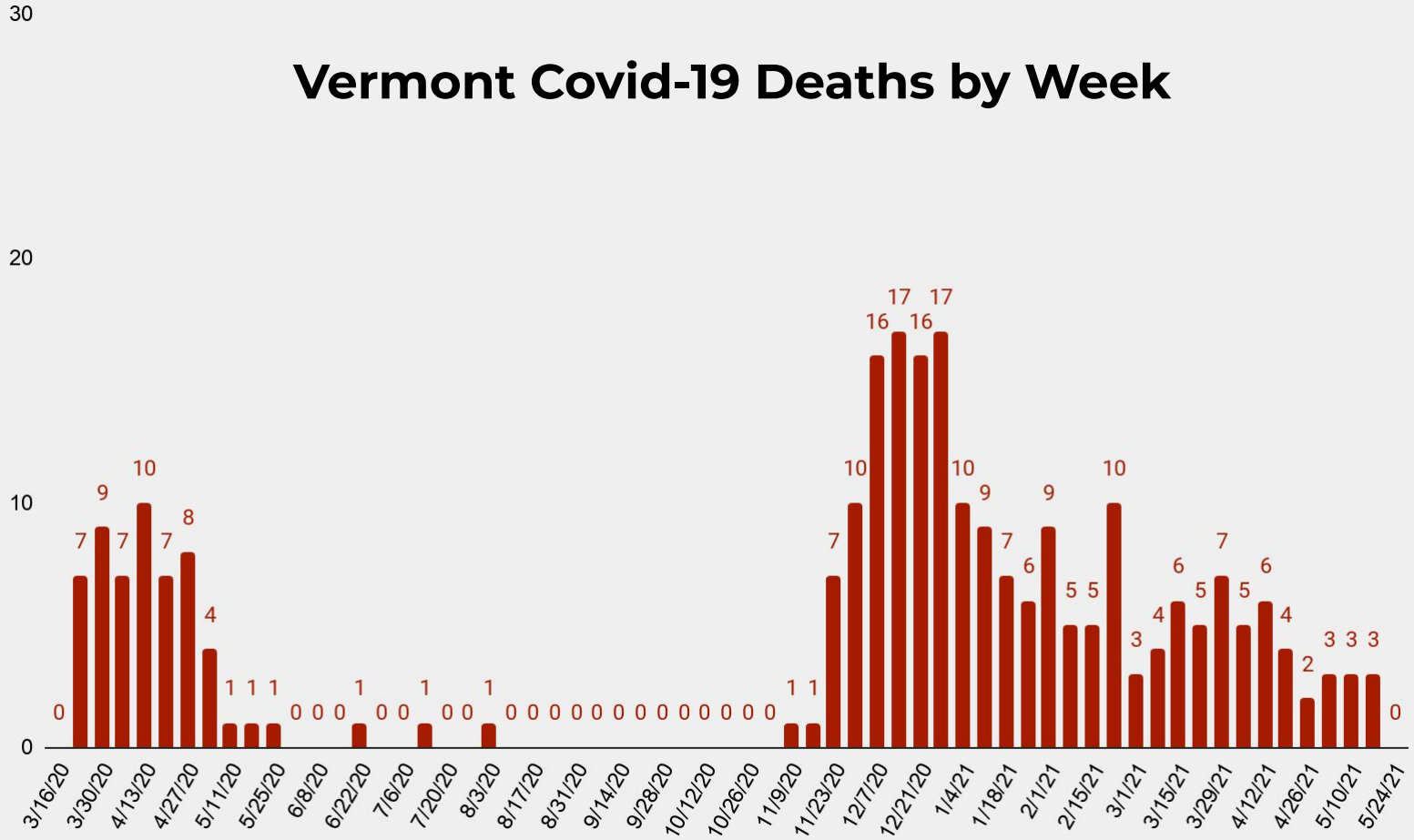
COVID-19 Hospitalizations By Month



Source: Vermont Department of Health—May 24, 2021

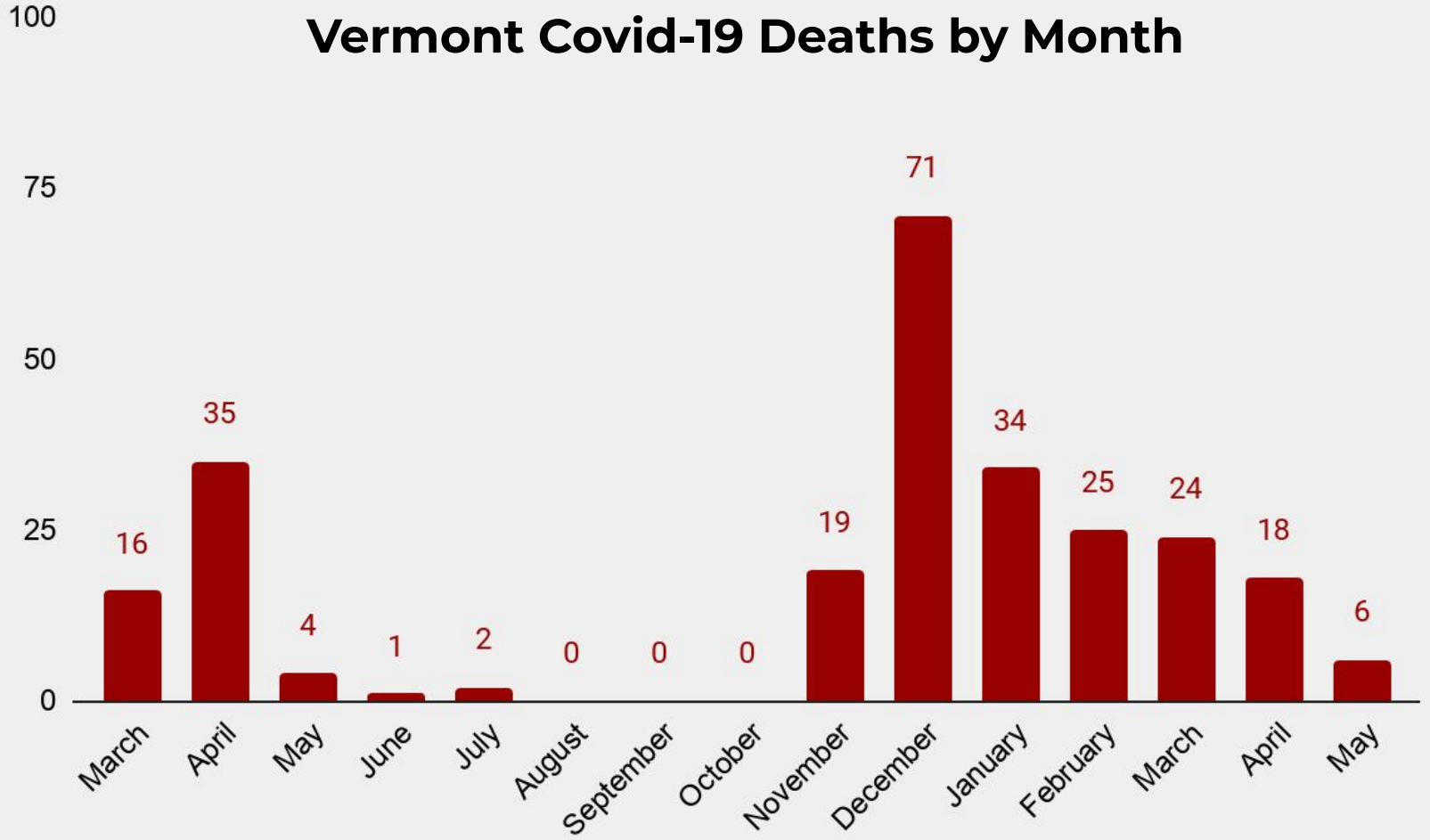
Vermont Fatality Data

Vermont Covid-19 Deaths by Week



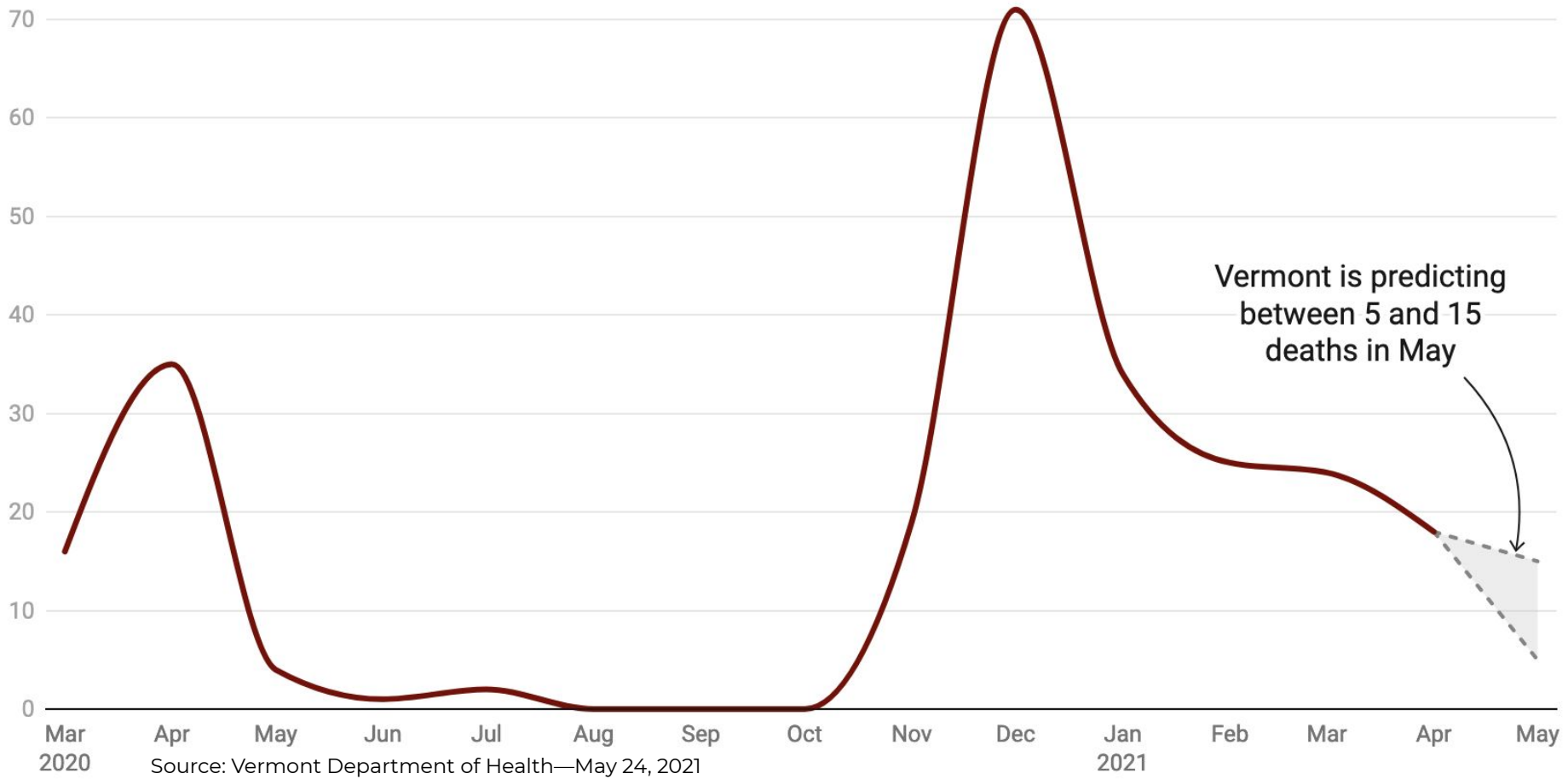
Source: Vermont Department of Health—May 24, 2021

Vermont Covid-19 Deaths by Month



Source: Vermont Department of Health—May 24, 2021

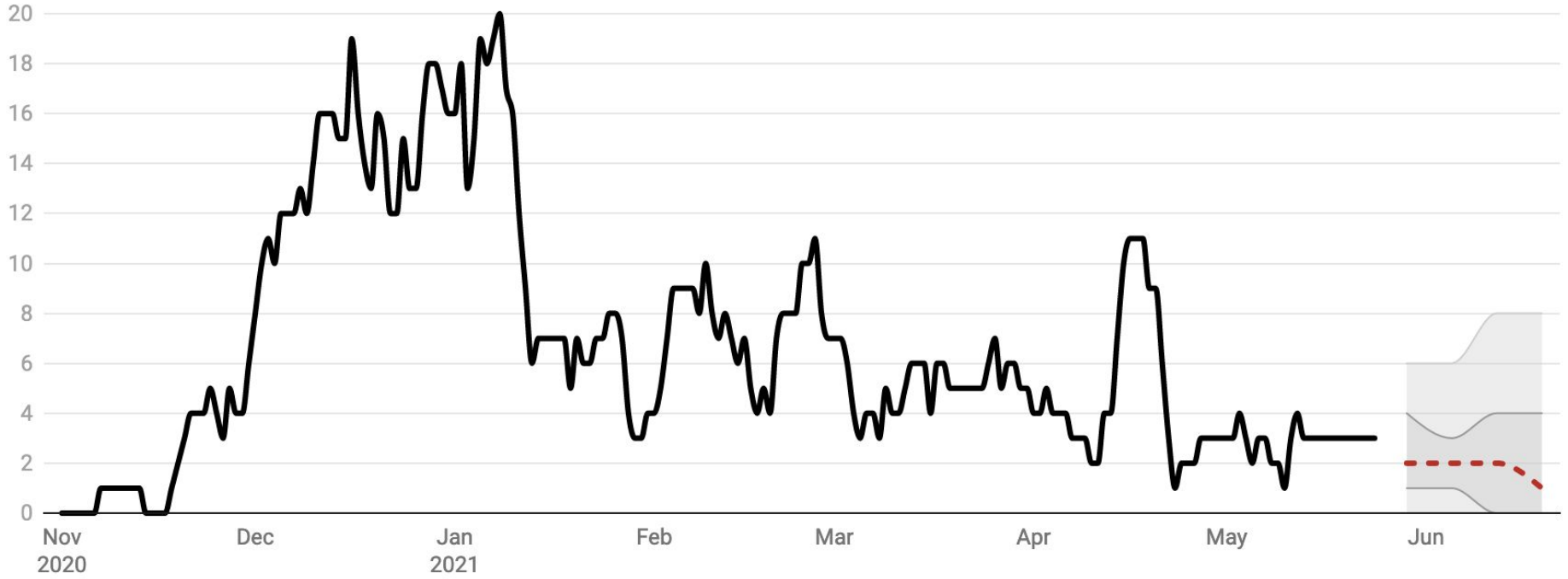
Vermont COVID-19 Deaths by Month



Source: Vermont Department of Health—May 24, 2021

VT Weekly COVID-19 Deaths Forecast

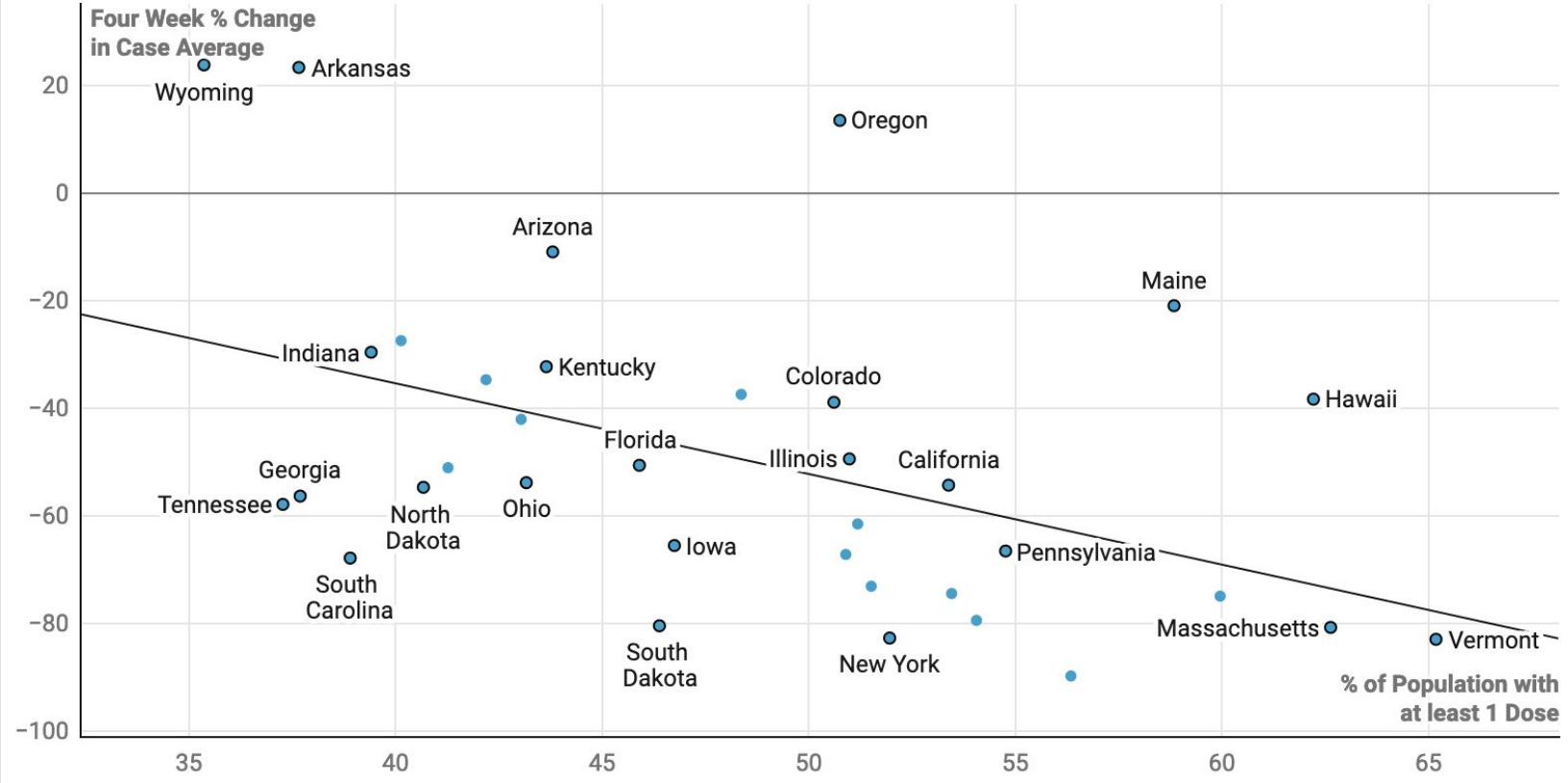
Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.



Source: Centers for Disease Control and Prevention—May 24, 2021

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 -0.48.

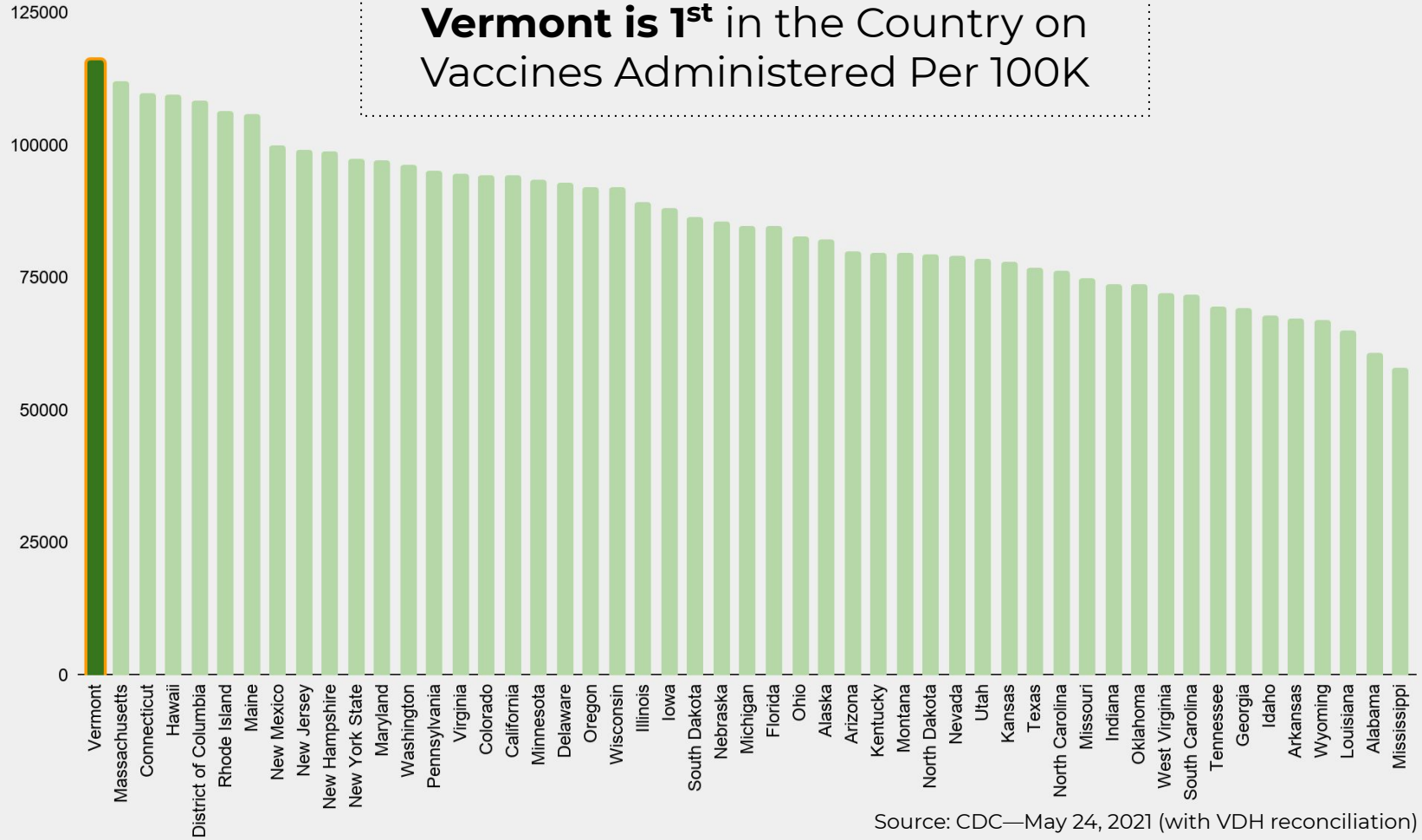
Source: CDC—May 24, 2021

Vermont CDC Vaccine Scorecard

Metric	Figure	State Ranking
Doses Administered per 100K	116,129	1
% At Least 1 Dose (Eligible)	76.9%	1
% At Least 1 Dose (Full Population)	67.9%	1
% Fully Vaccinated	51.0%	3
% 65+ One Dose	98.0%	2
% 65+ Fully Vaccinated	88.8%	1

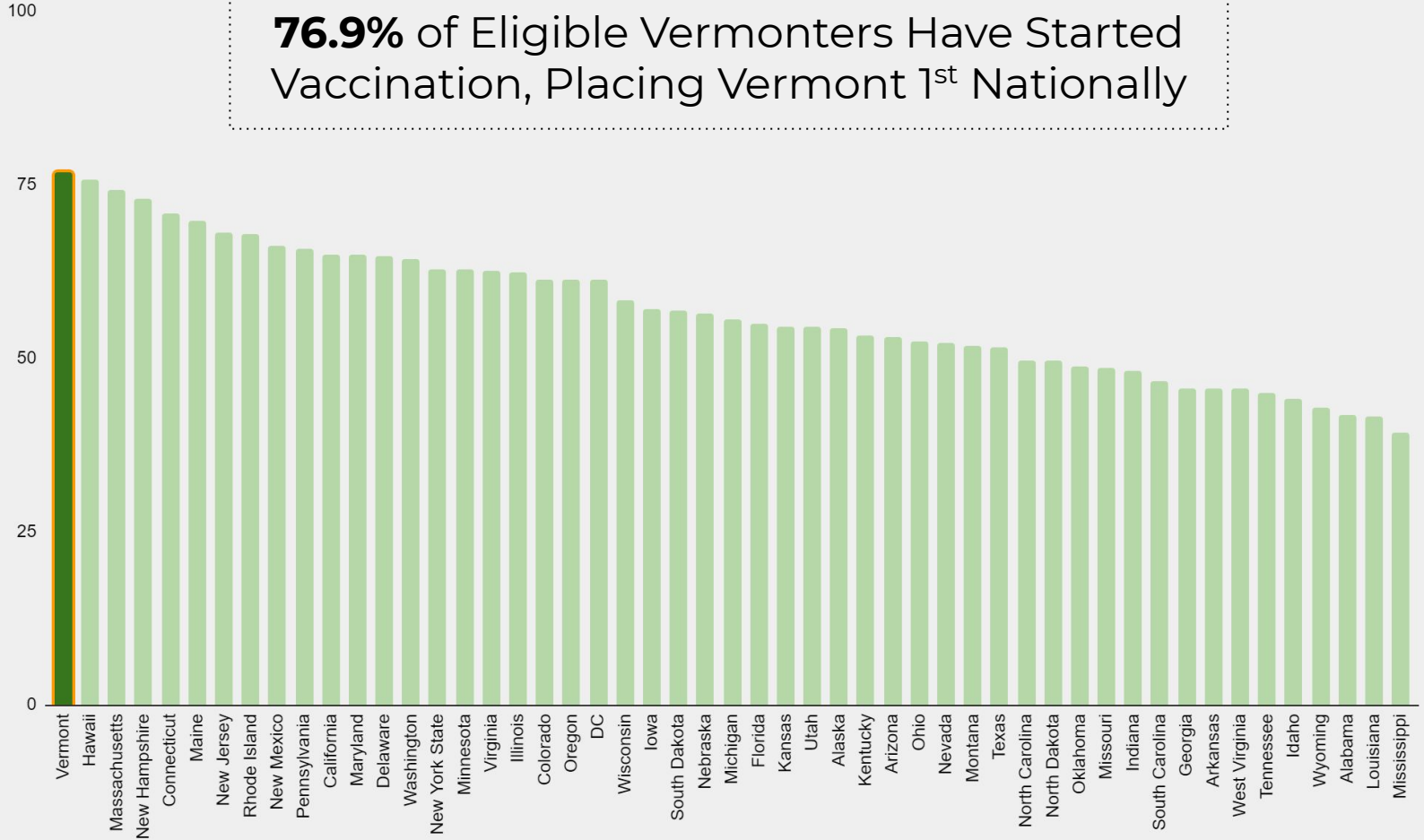
Source: CDC—May 24, 2021 (with VDH reconciliation); CDC data using 2019 census estimates

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



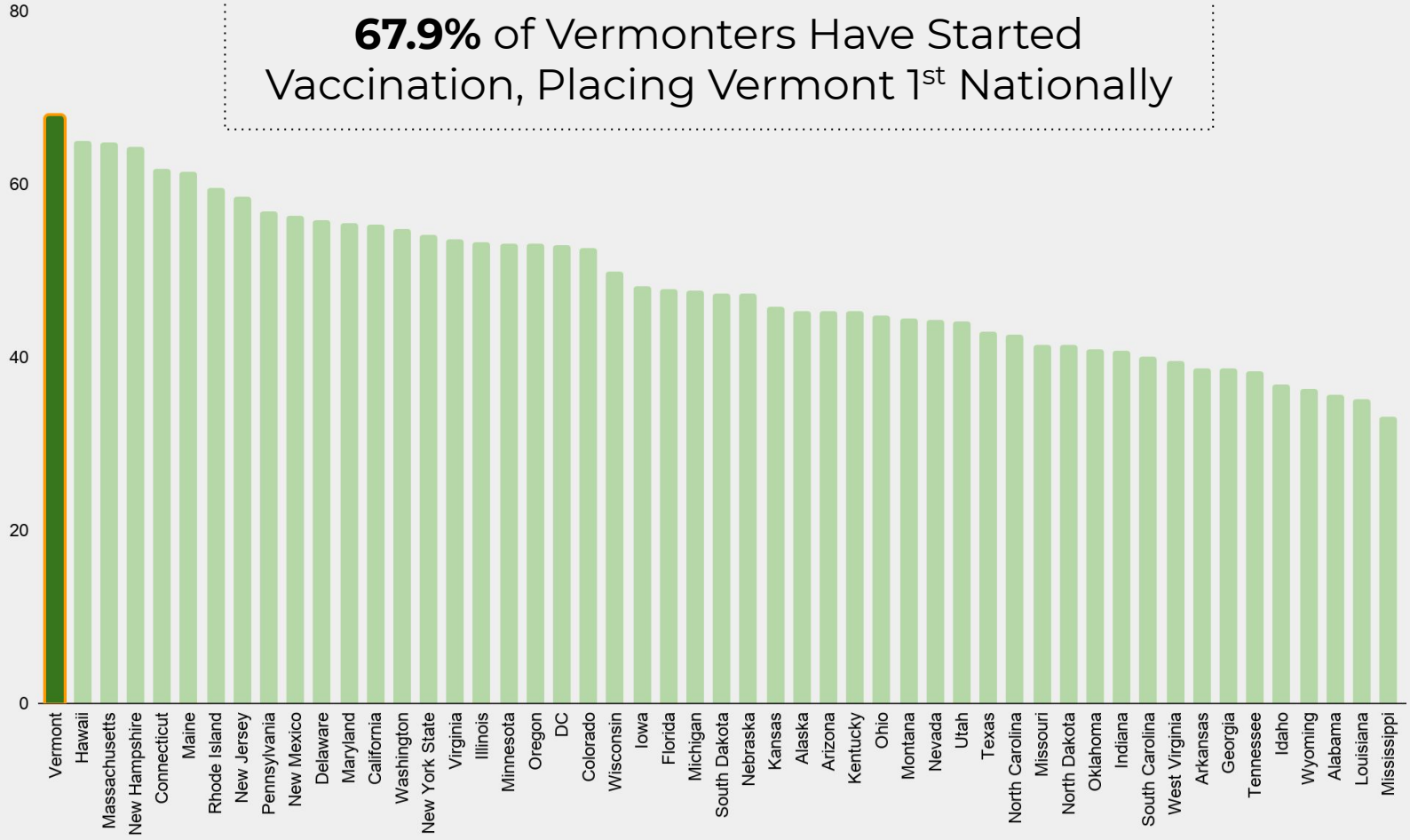
Source: CDC—May 24, 2021 (with VDH reconciliation)

76.9% of Eligible Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



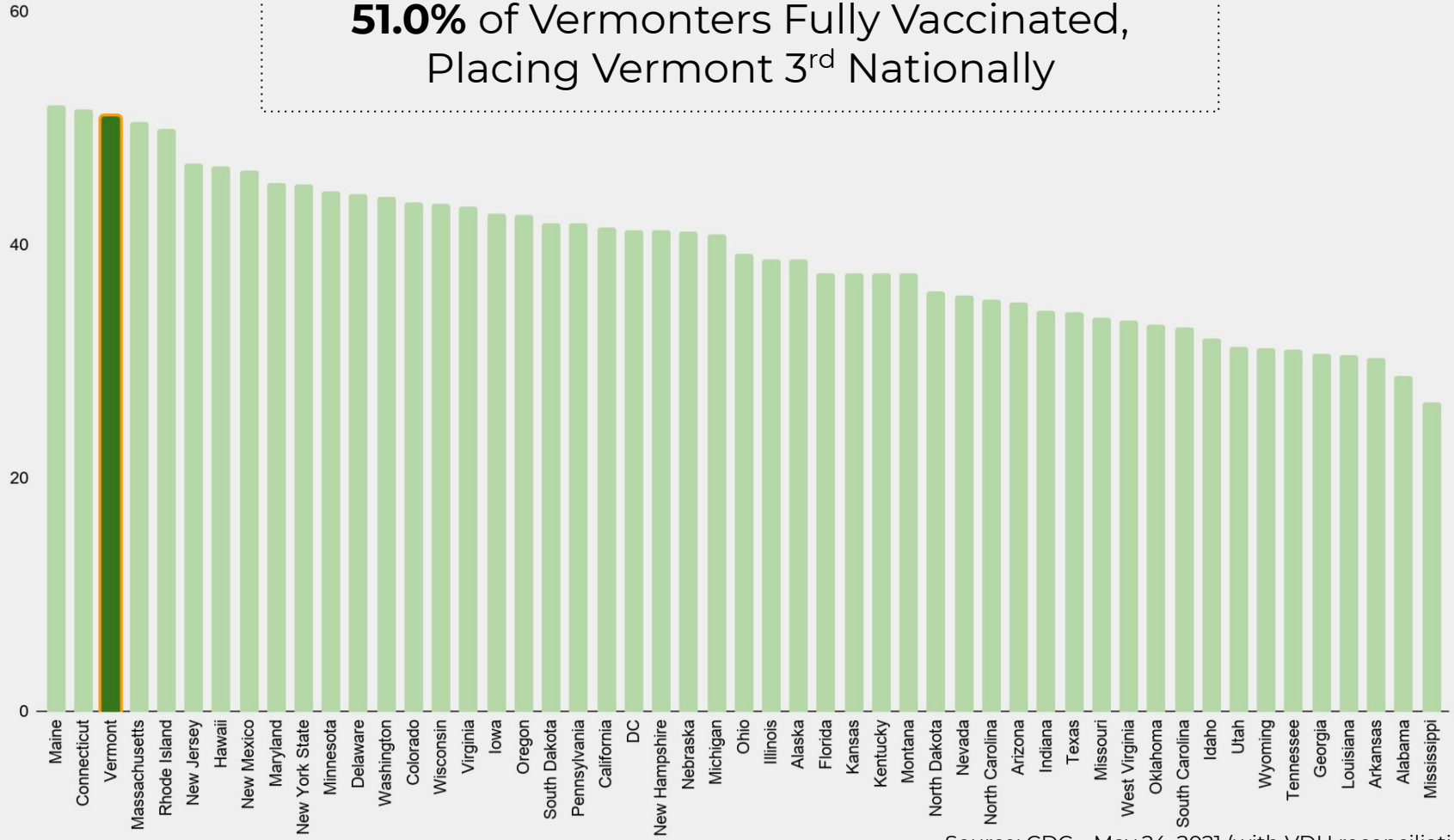
Source: CDC—May 24, 2021 (with VDH reconciliation)

67.9% of Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



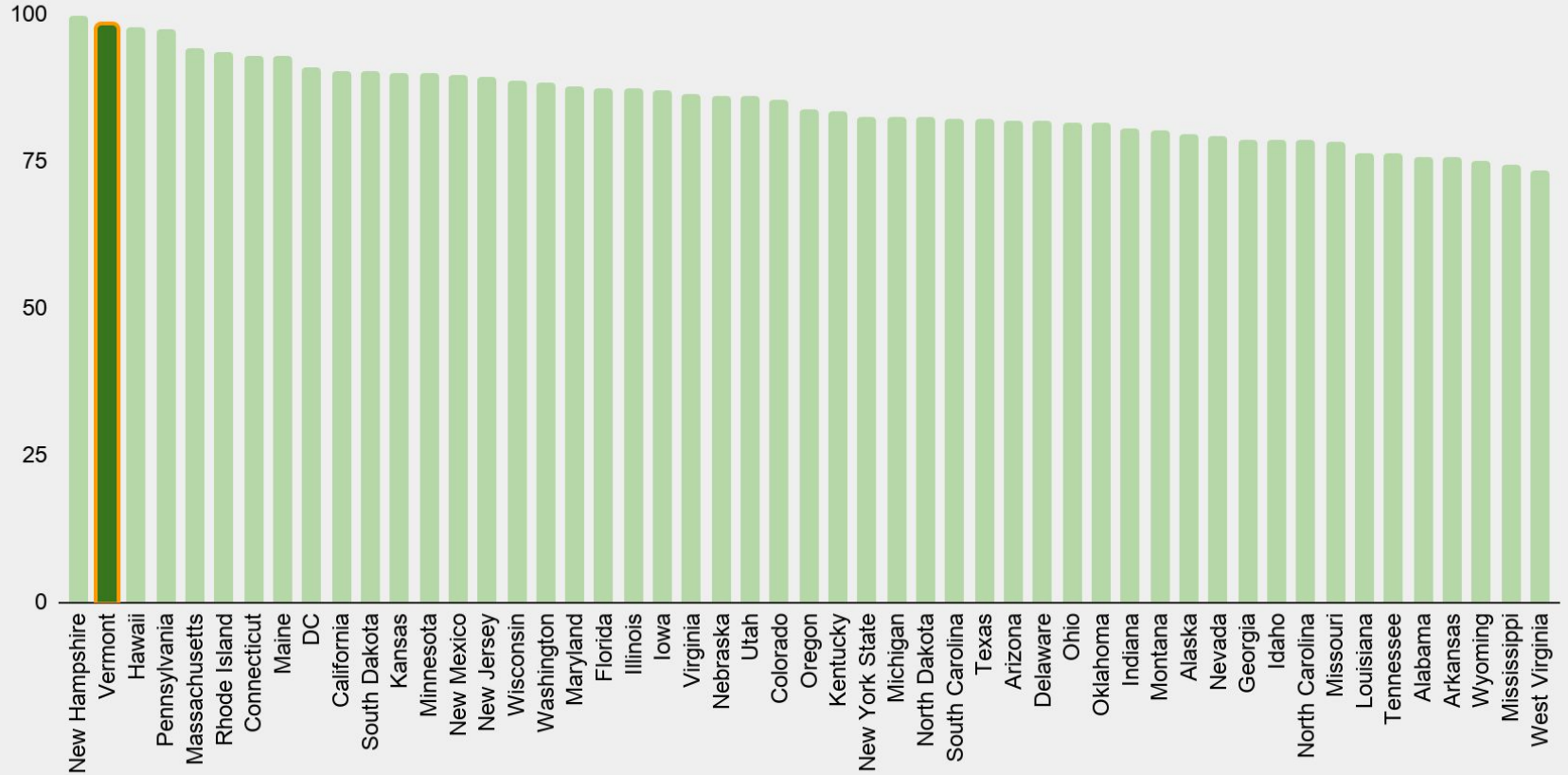
Source: CDC—May 24, 2021 (with VDH reconciliation)

51.0% of Vermonters Fully Vaccinated, Placing Vermont 3rd Nationally



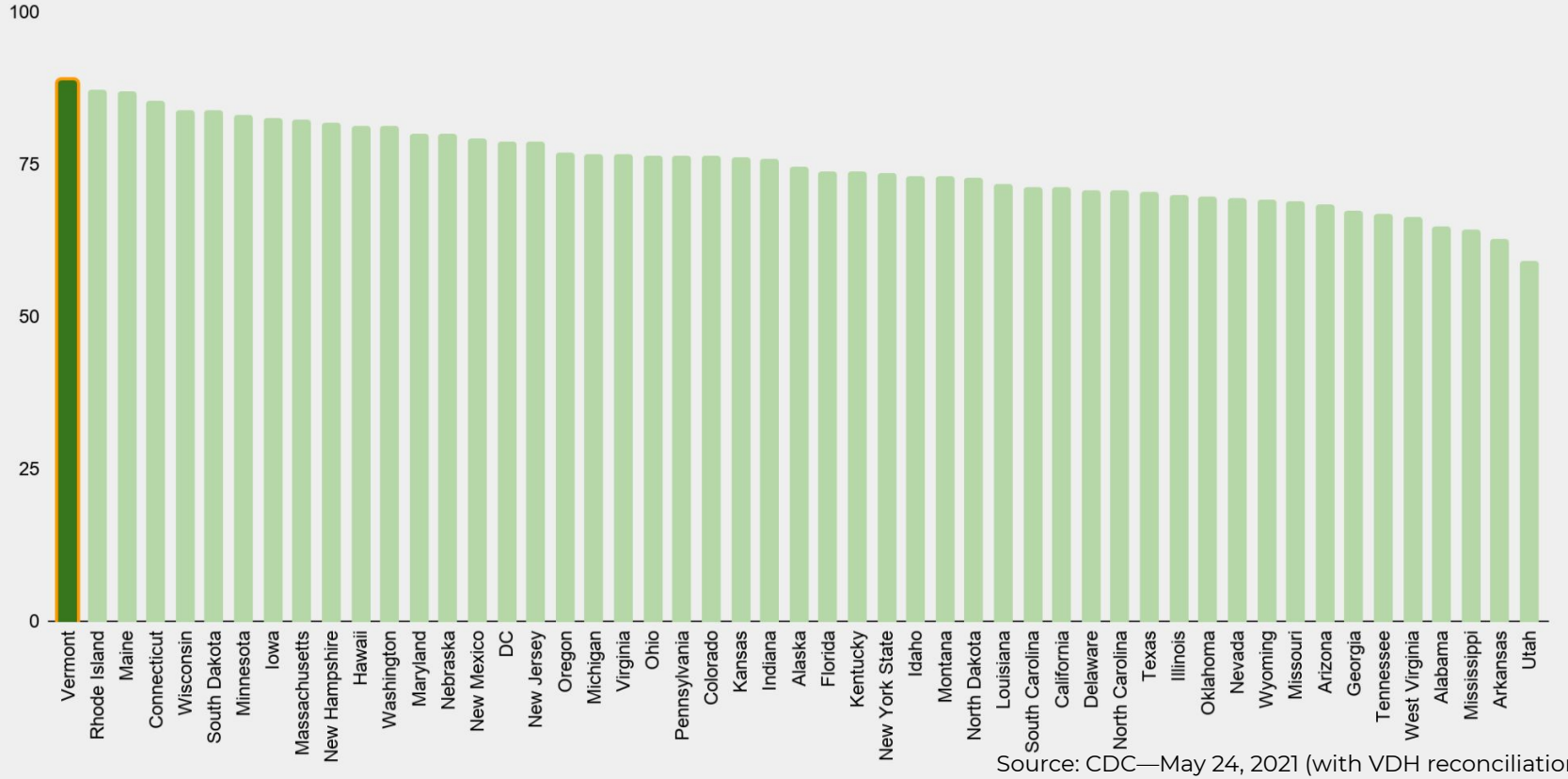
Source: CDC—May 24, 2021 (with VDH reconciliation)

98.0% of Vermonters 65+
Partially or Fully Vaccinated



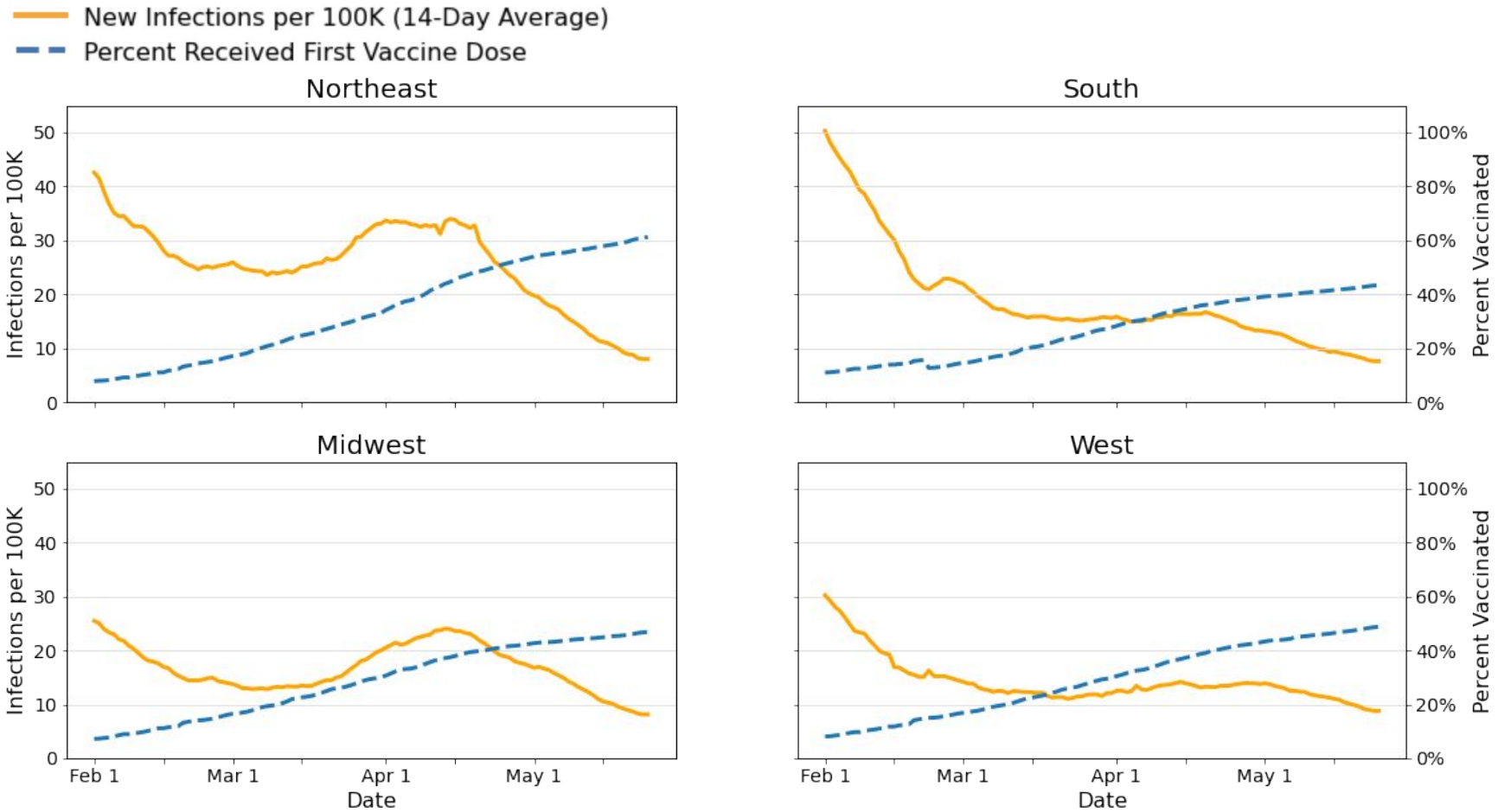
Source: CDC—May 24, 2021 (with VDH reconciliation)

88.8% of Vermonters 65+
Fully Vaccinated

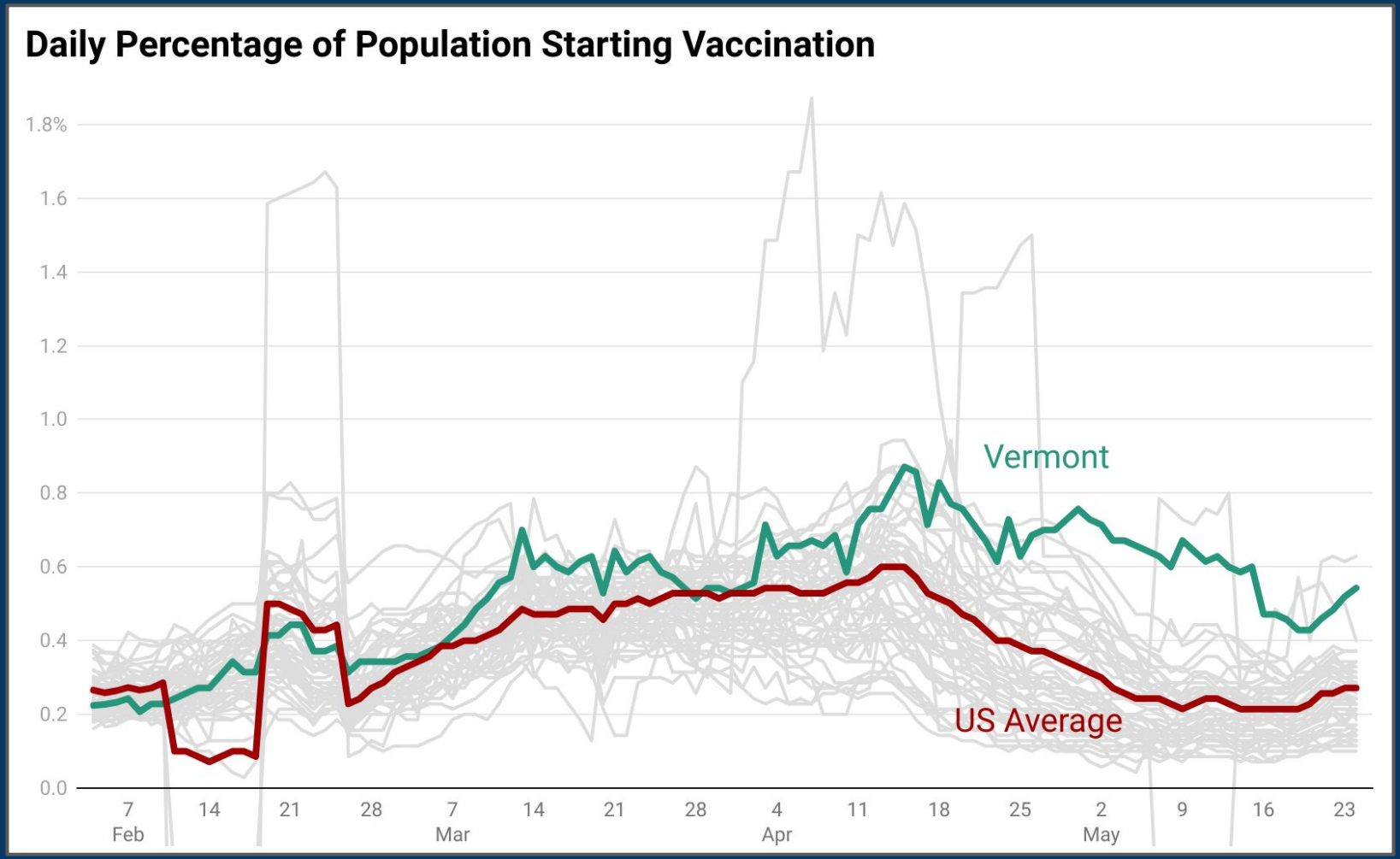


Source: CDC—May 24, 2021 (with VDH reconciliation)

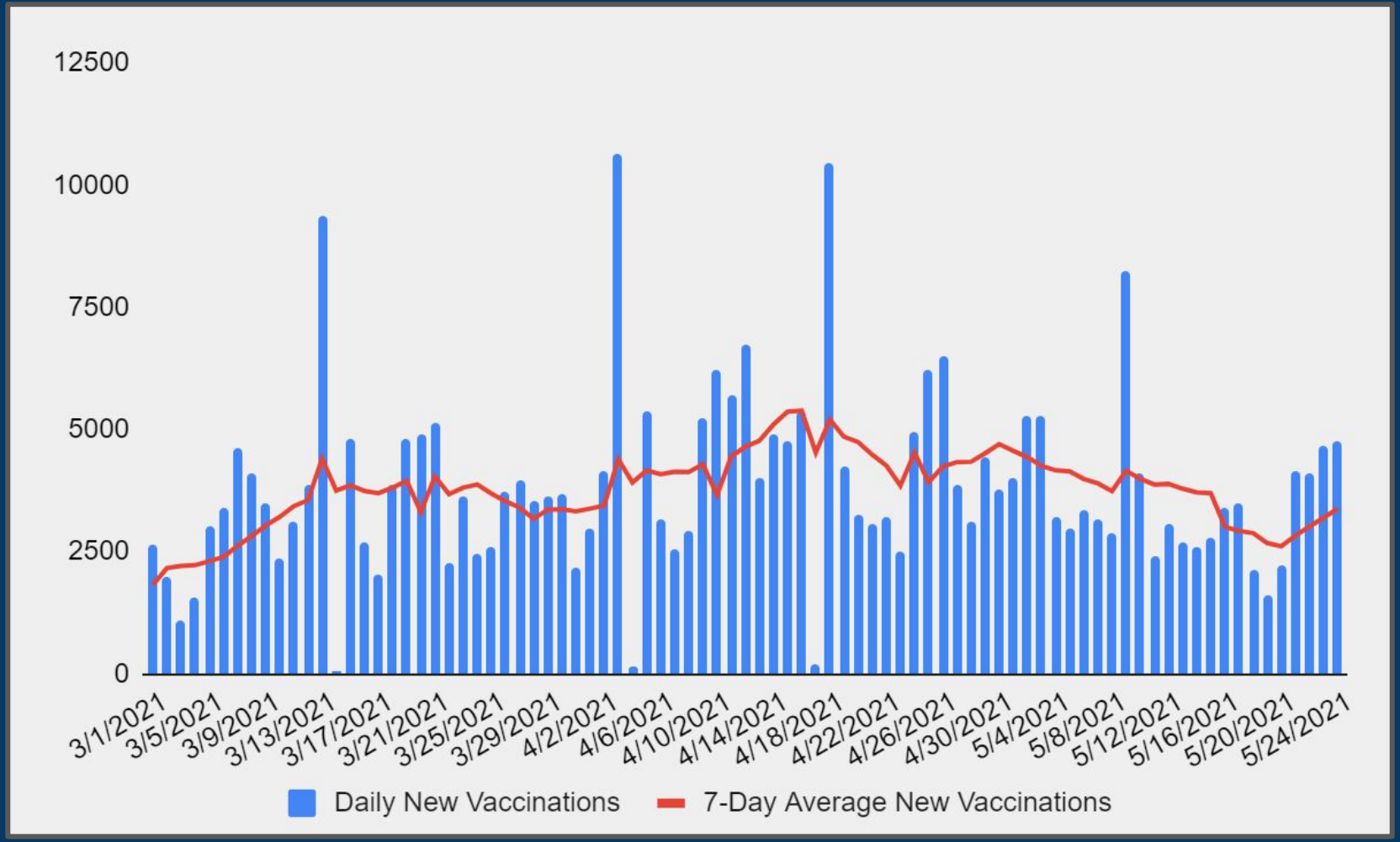
US Census Region Case Rate & Vaccination by Age Band



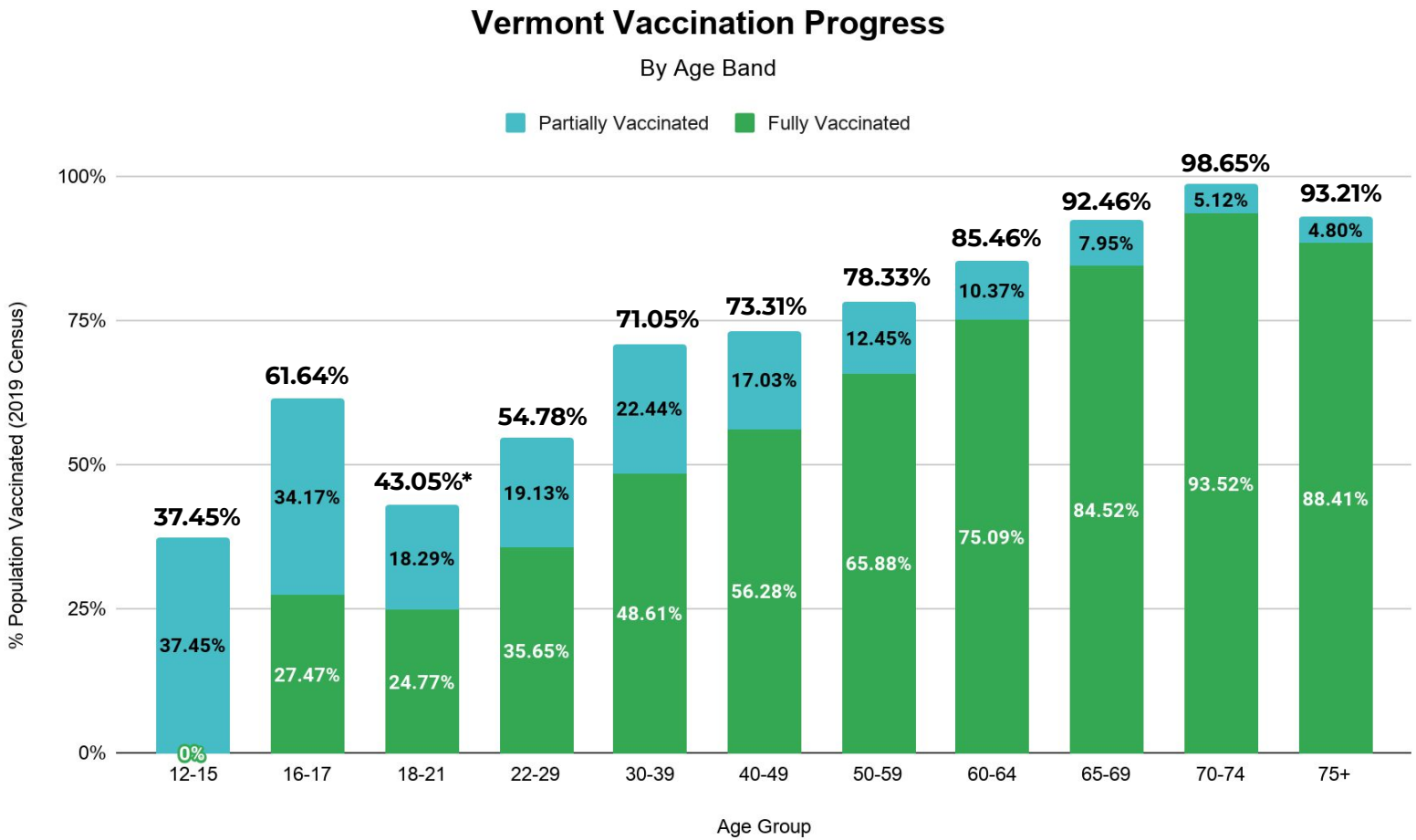
Source: Covid Act Now—May 24, 2021; NH excluded from Northeast quadrant due to reporting issues



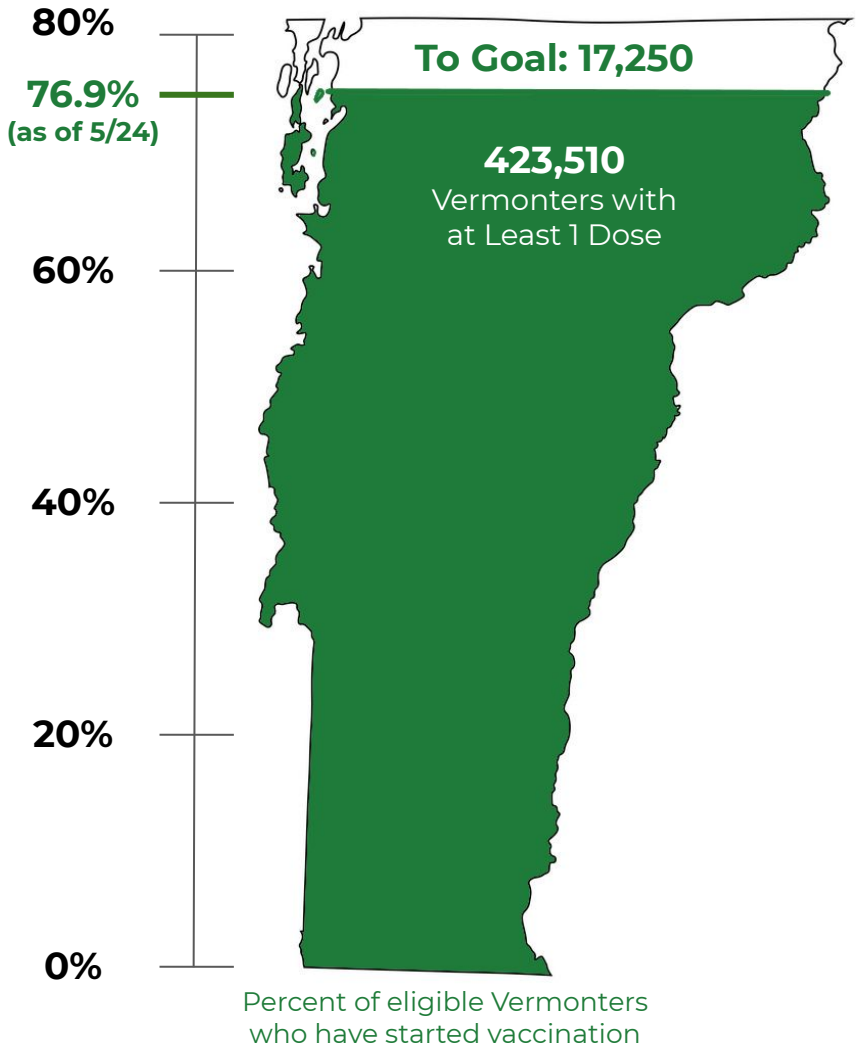
Source: CDC—May 24, 2021 (with VDH reconciliation)



Source: CDC—May 24, 2021 (with VDH reconciliation)



Source: Vermont Dept. of Health—May 25, 2021; *does not reflect some college students vaccinated OOS; excludes those vaccinated through federal entities & will differ from CDC figures; uses 2019 Census data



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 5**

If ~**2,464** Vermonters get vaccinated a day we will reopen **Memorial Day**

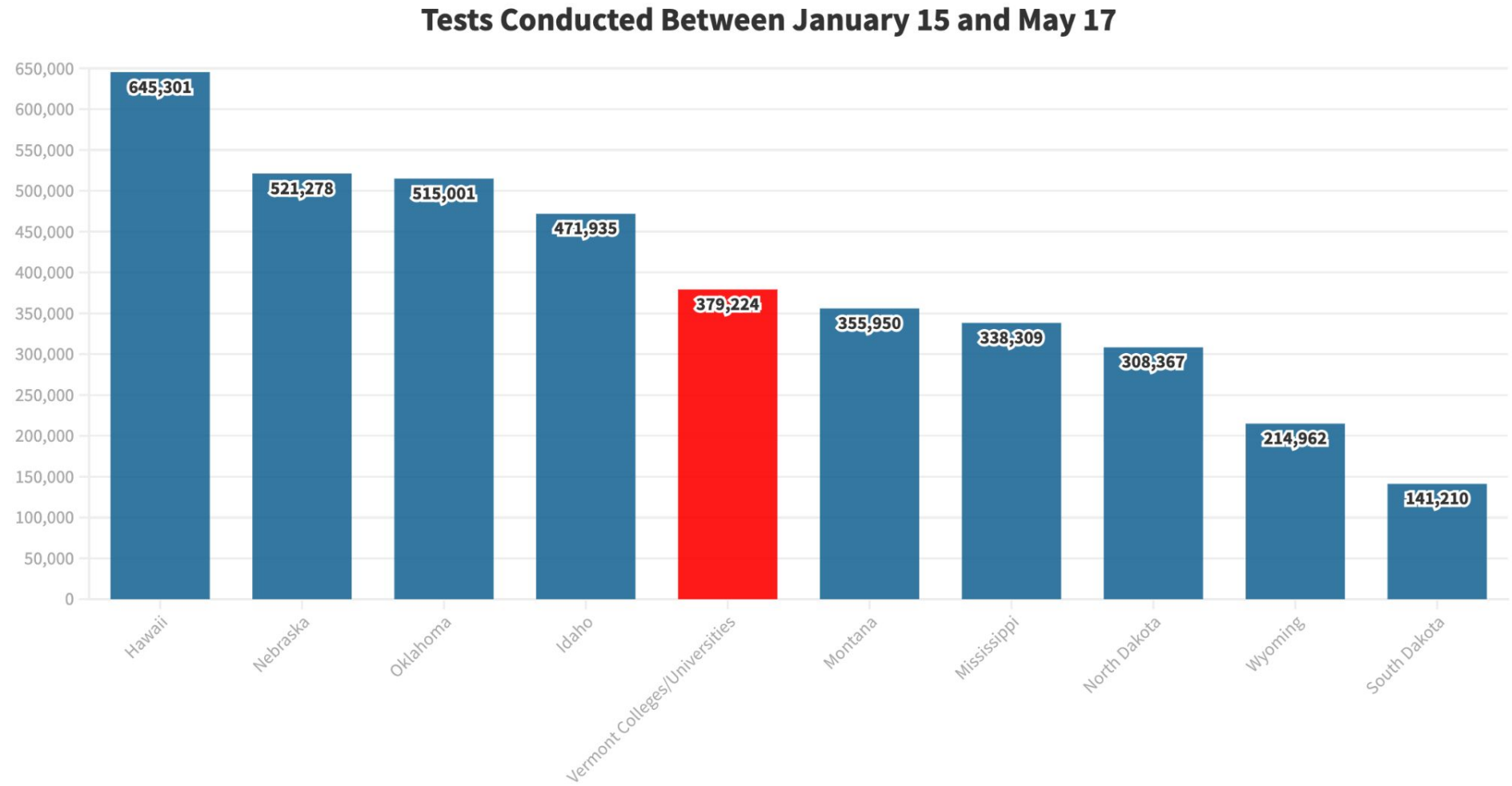
Source: CDC—May 24, 2021 (with VDH reconciliation)

Higher Education Summary

Vermont COVID-19 Higher Education Summary

	# of Tests	# of Positives	Positivity Rate	% of VT Cases
Fall 2020	220,792	238	0.11%	10.1%
Spring 2021	379,224	1,167	0.31%	9.4%

Source: Vermont Higher Education Institution Reporting—Final as of May 17, 2021



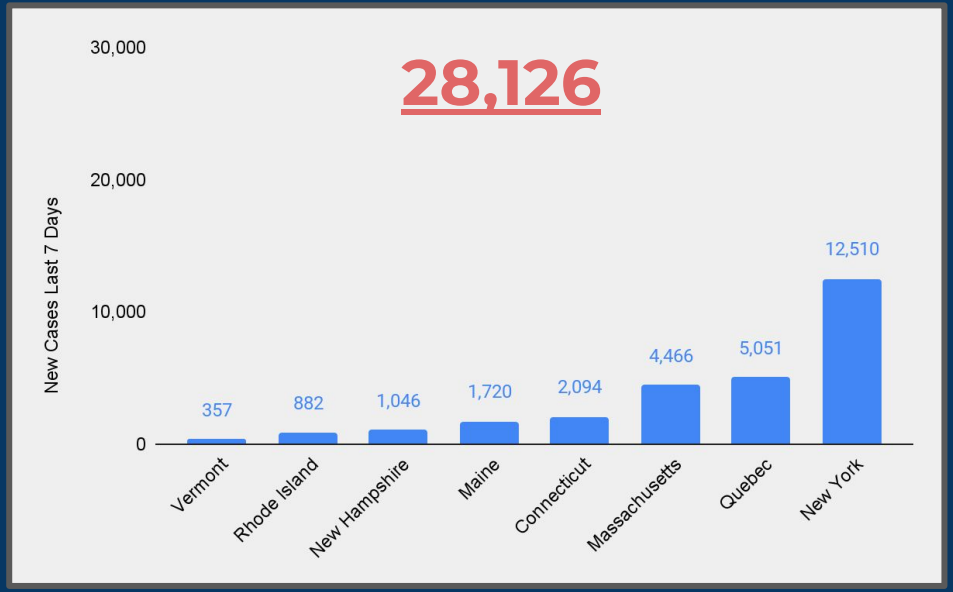
Source: Vermont Higher Education Institution Reporting & HHS Testing Data Set

Regional Data

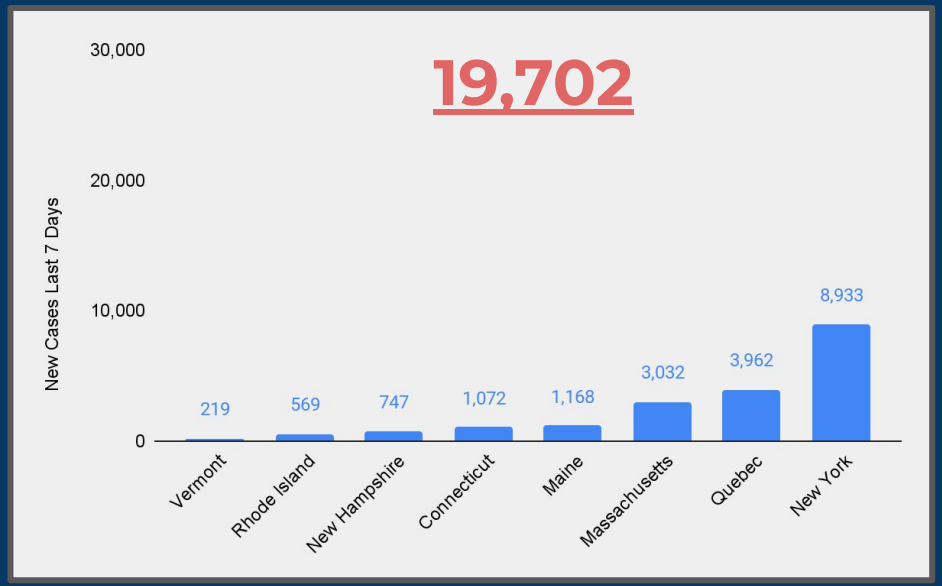
Regional Cases

29.96% Decrease in New Cases

New Cases May 11th to May 17th

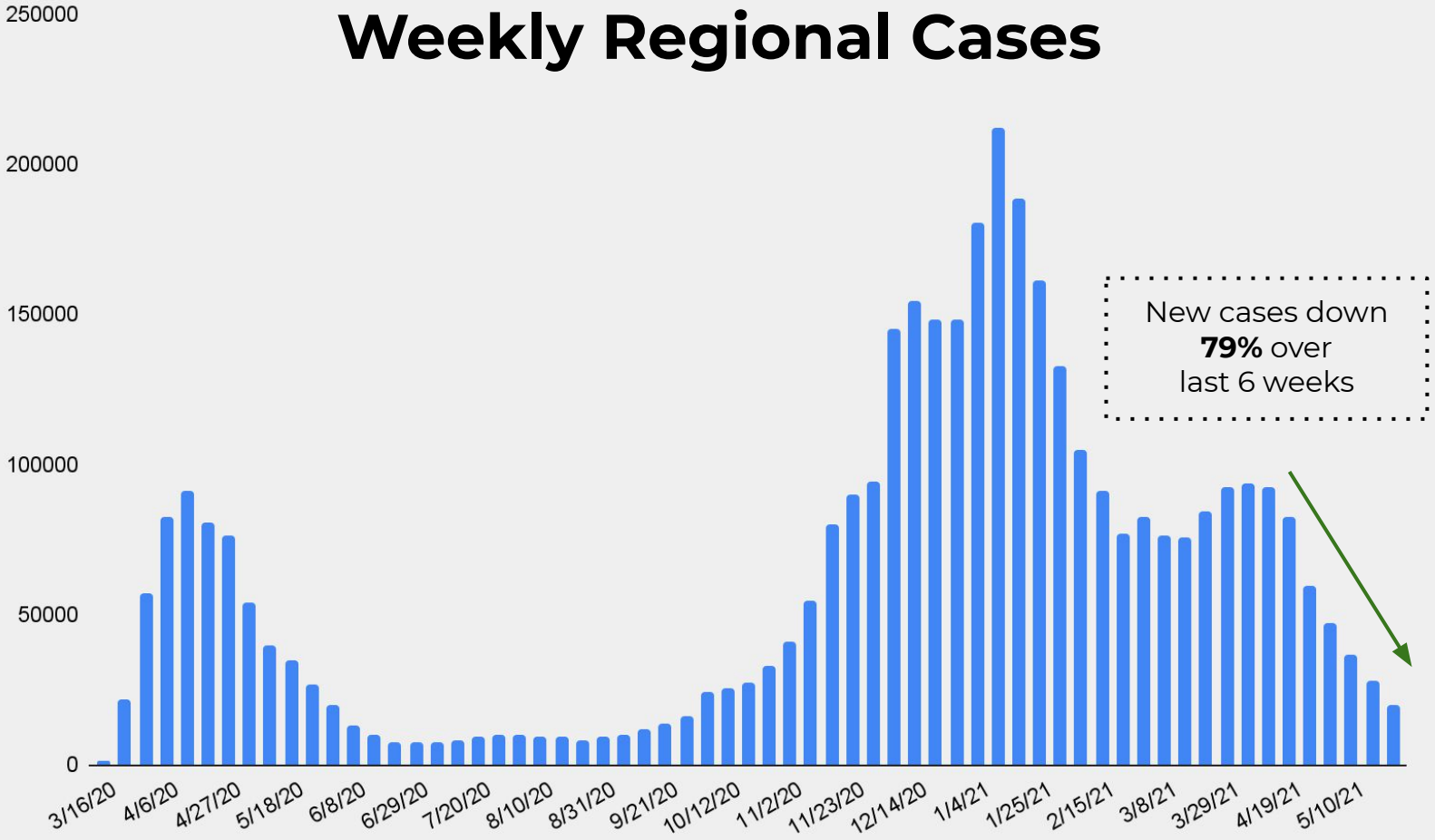


New Cases May 18th to May 24th



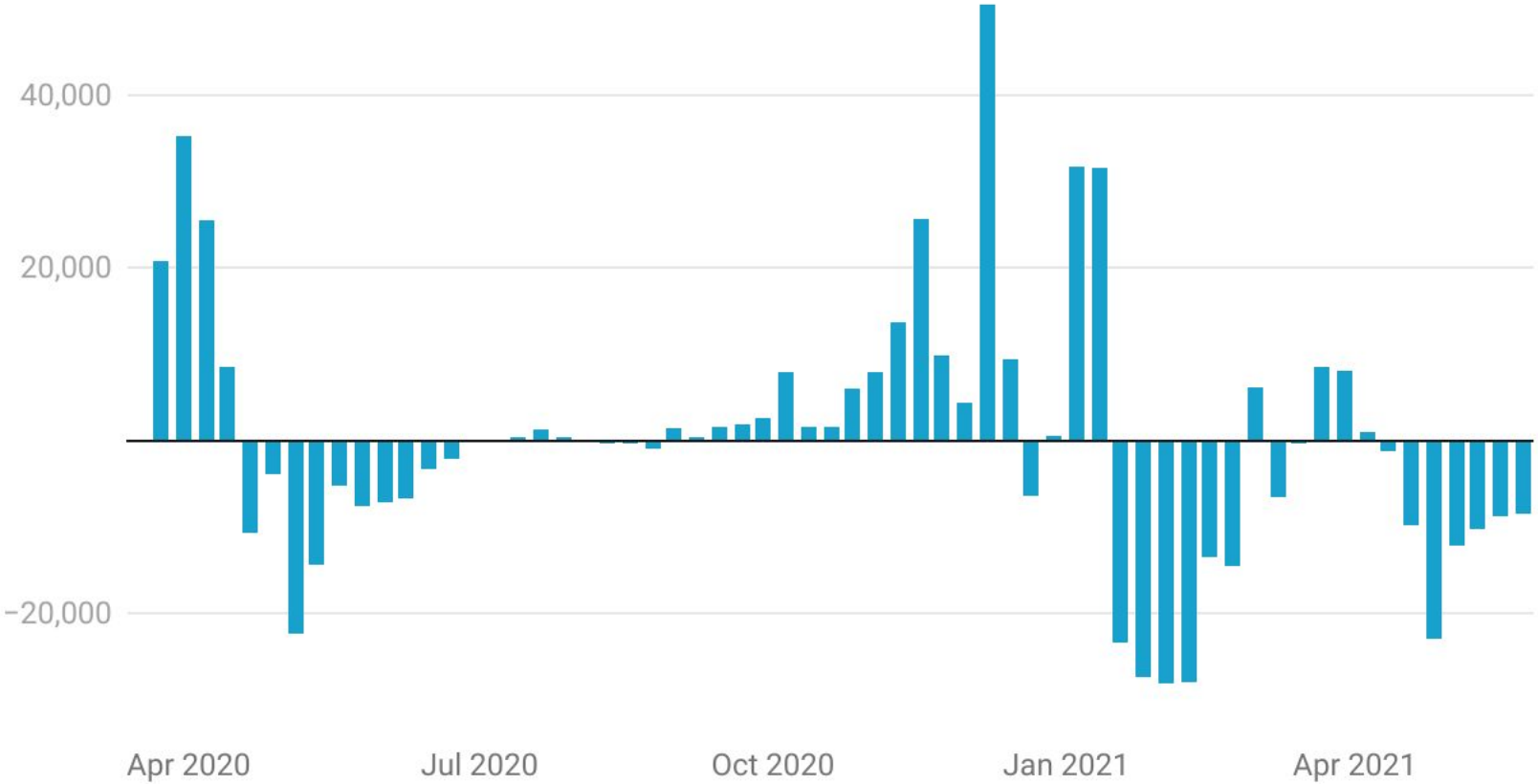
Sources: State Health Departments & CTV National News (Quebec)

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



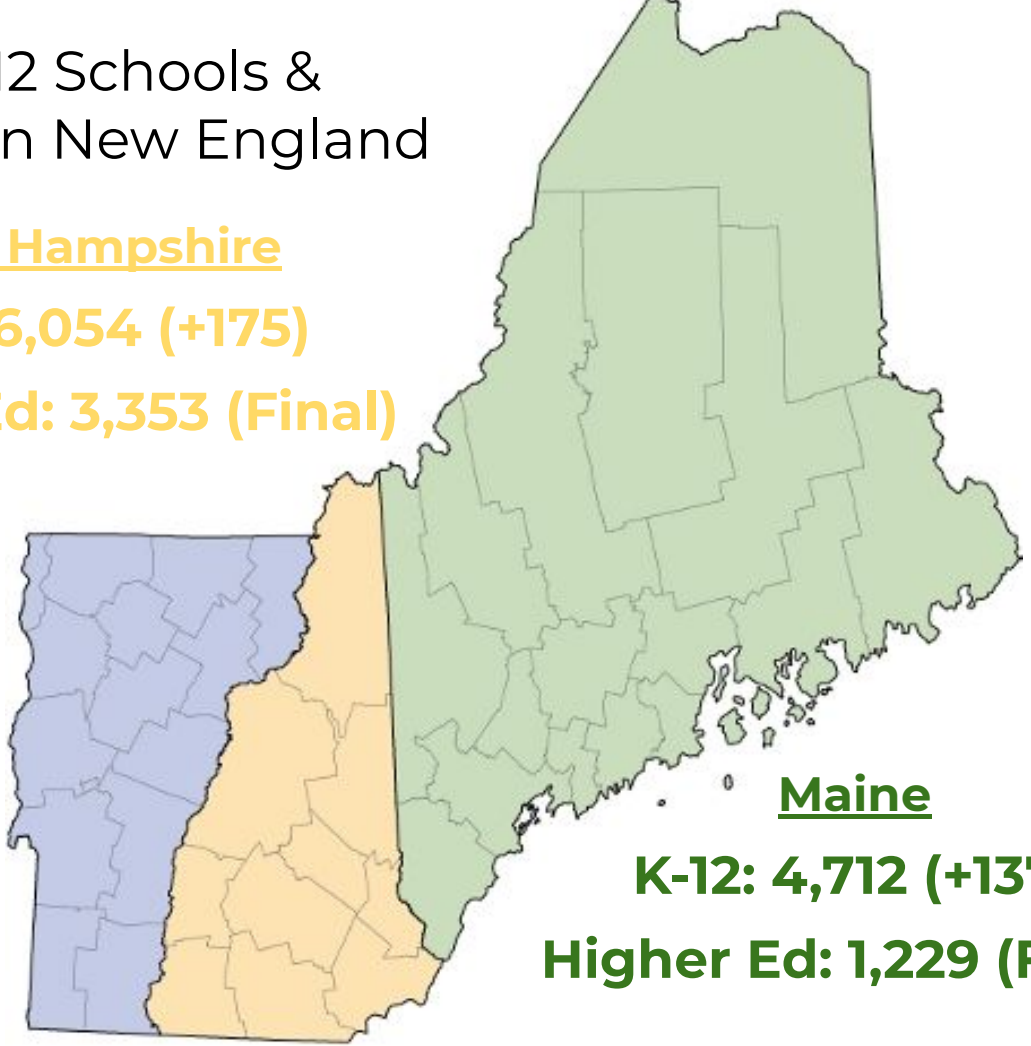
Sources: State Health Departments & CTV National News (Quebec) (includes: CT, ME, MA, NH, NY, QC, RI & VT)

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

New Hampshire

K-12: 6,054 (+175)

Higher Ed: 3,353 (Final)



Vermont

K-12: 1,379 (+17)

Higher Ed: 1,167 (Final)

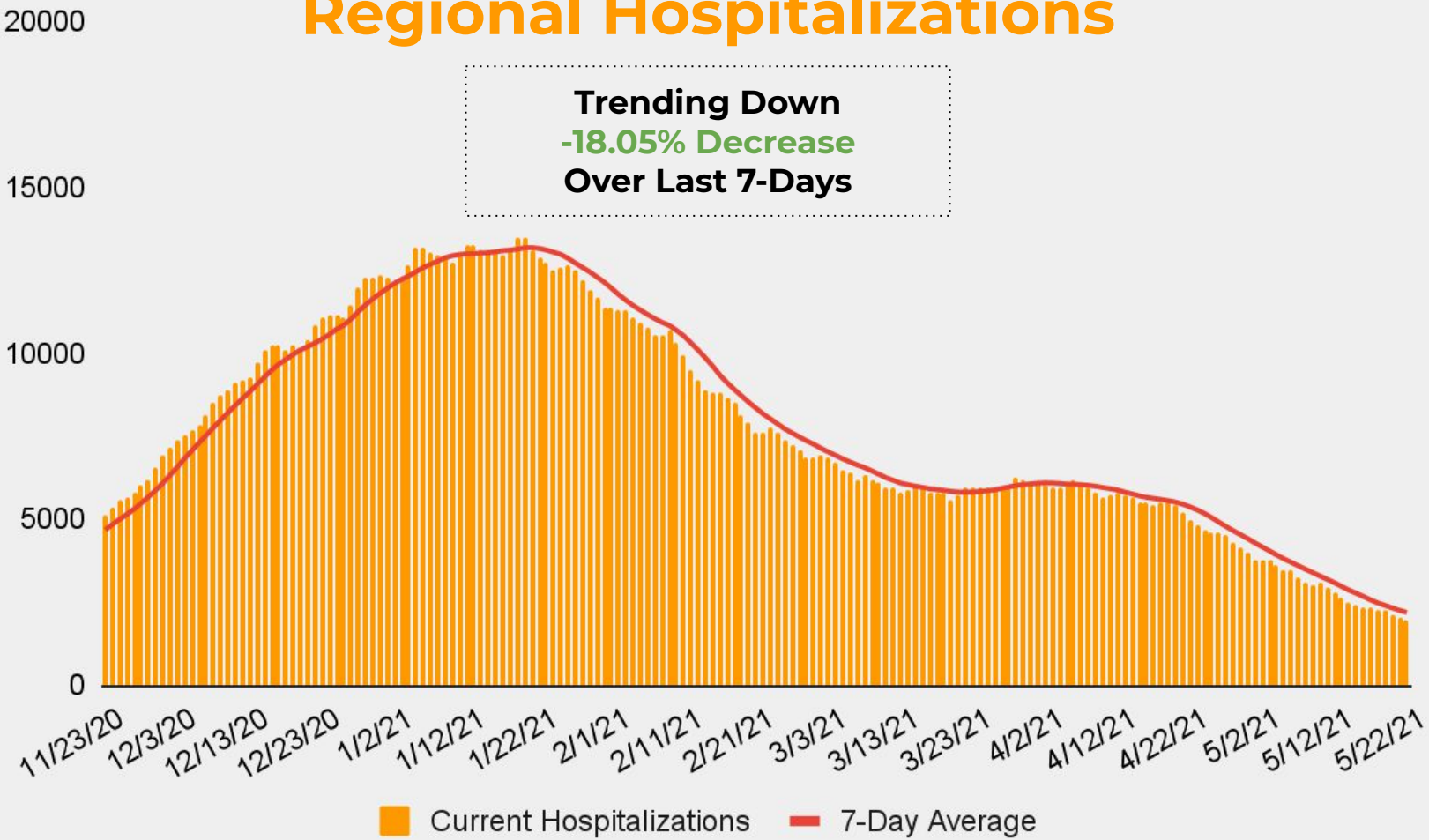
Maine

K-12: 4,712 (+137)

Higher Ed: 1,229 (Final)

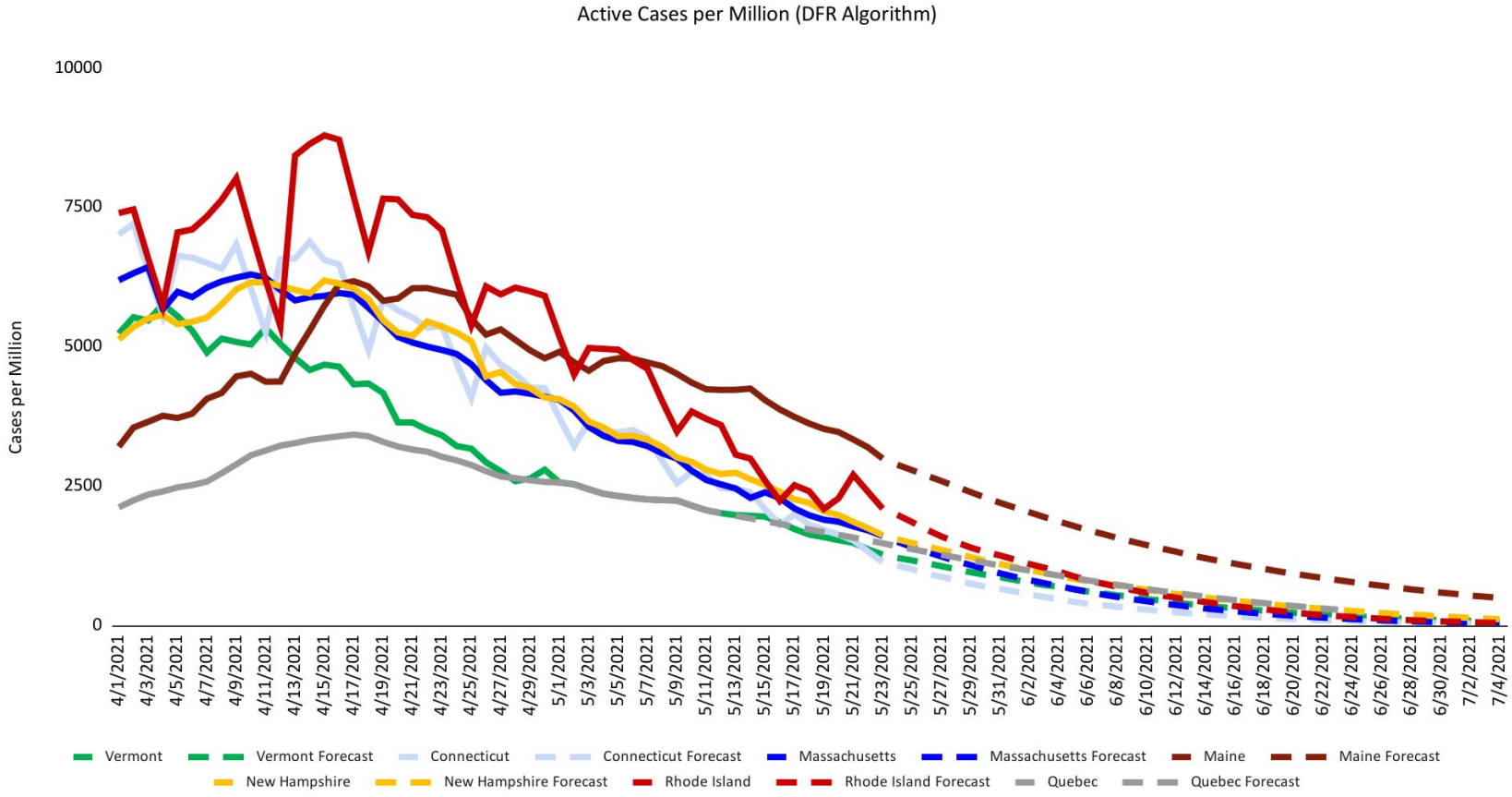
Source: ME, NH & VT K-12 Dashboards; K-12 cases from the full school year; Higher Ed. cases from the Spring Semester

Regional Hospitalizations



Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—May 24, 2021

Regional Active Per Capita Case Forecast

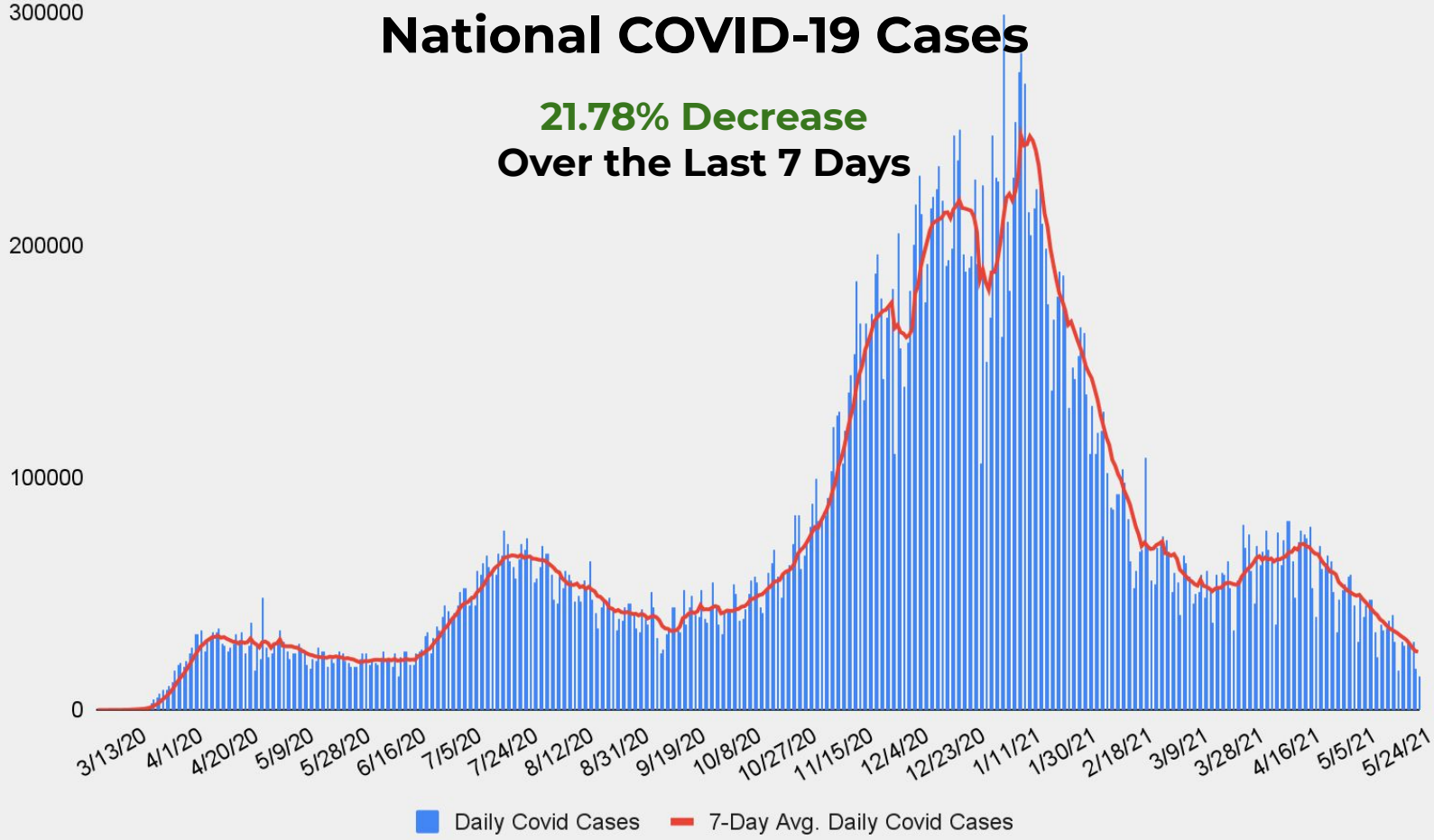


Source: Johns Hopkins University Data, CDC Ensemble, & Oliver Wyman Forecast Model—May 24, 2021

National Data

National COVID-19 Cases

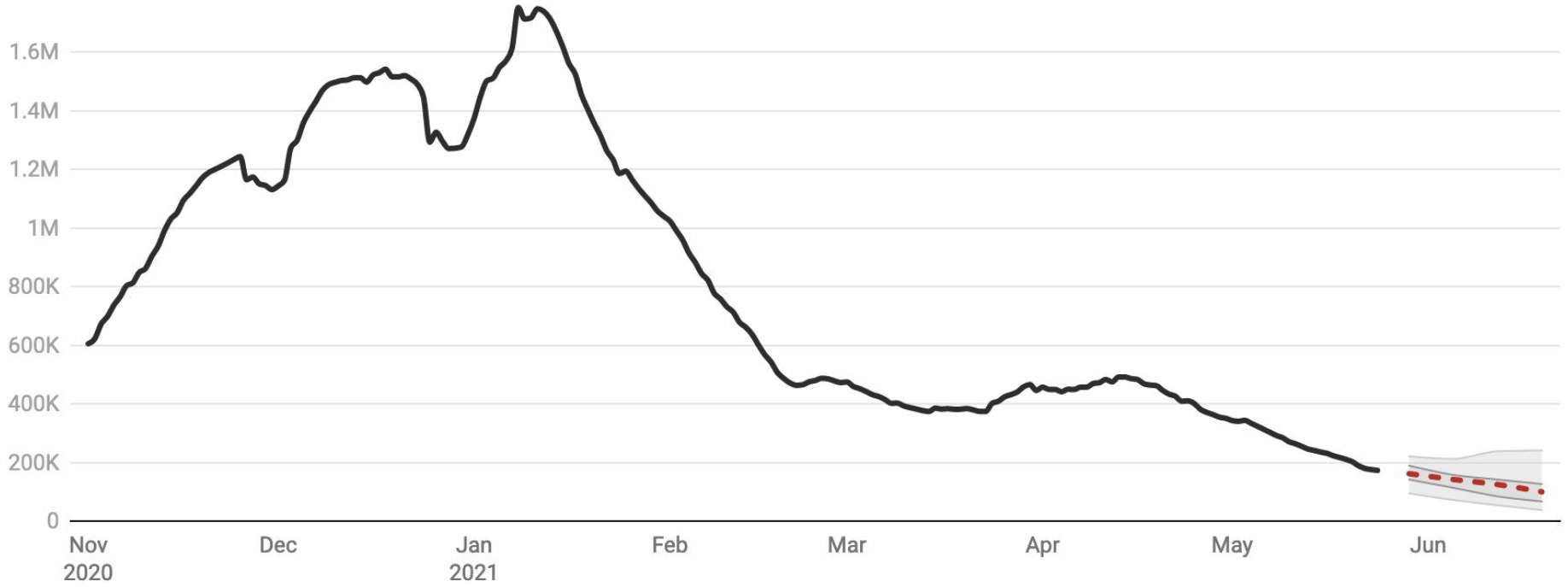
21.78% Decrease
Over the Last 7 Days



Source: Covid Tracking Project; NYT & CDC—May 24, 2021

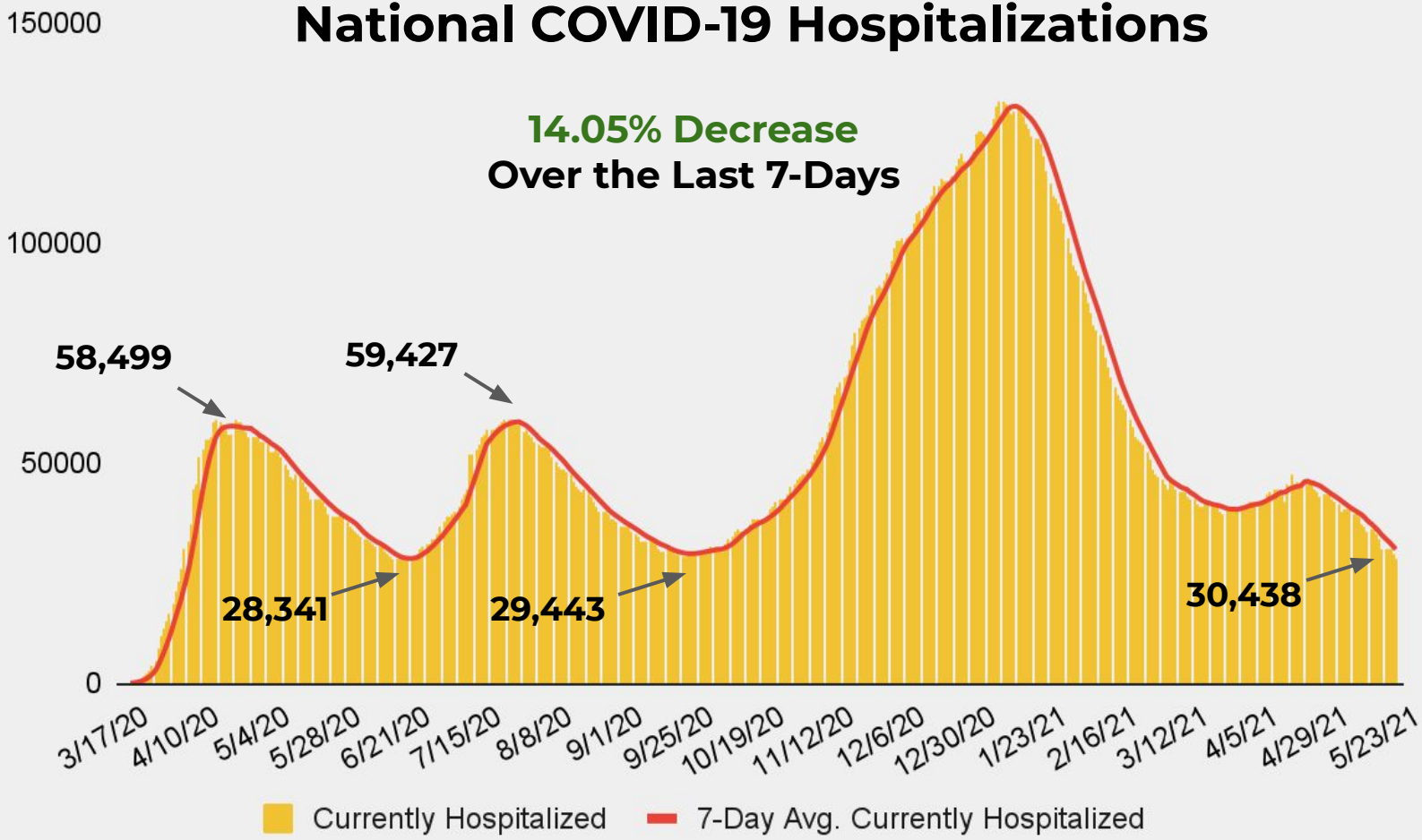
US Weekly COVID-19 Infections Forecast

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—May 24, 2021

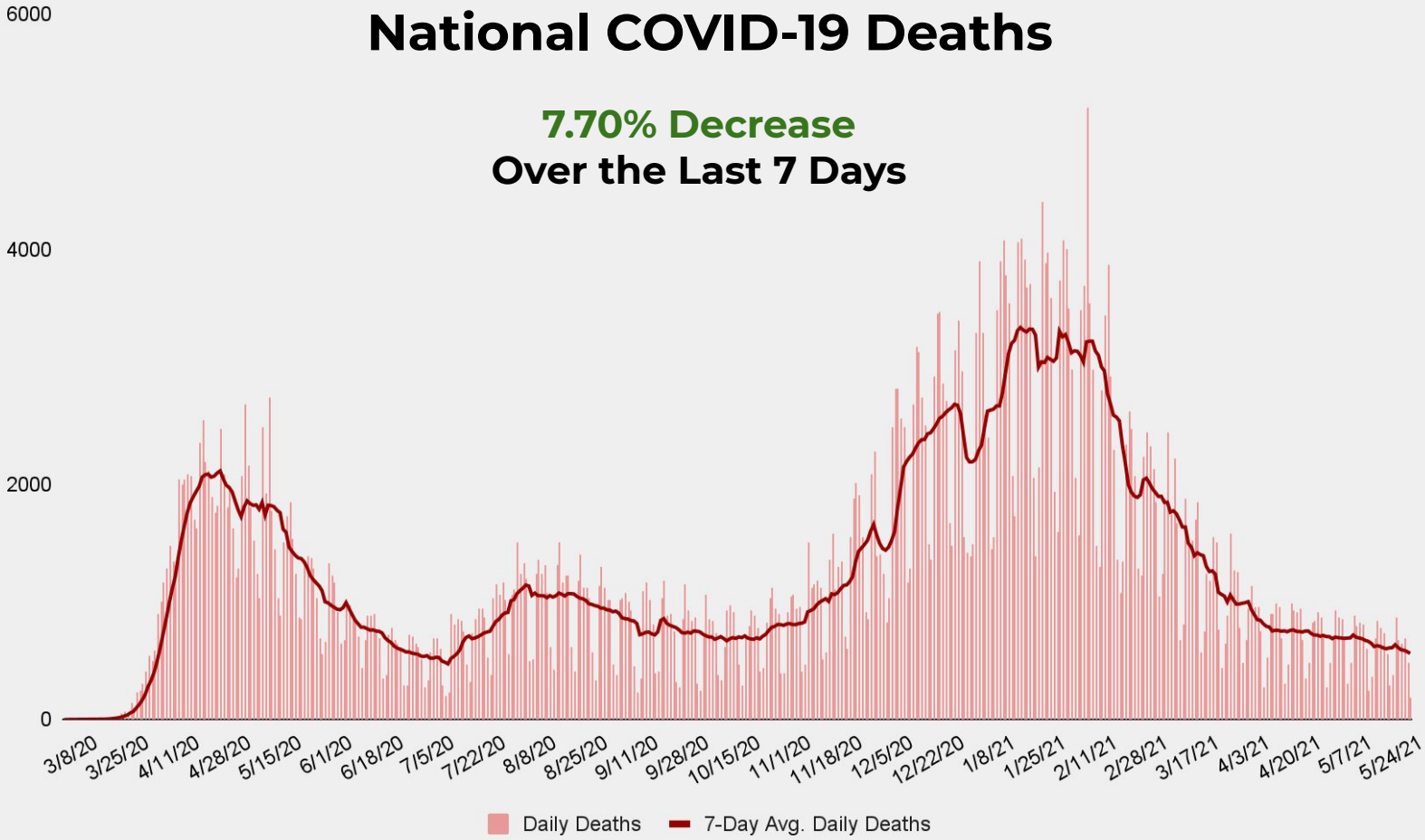
National COVID-19 Hospitalizations



Source: Covid Tracking Project; NYT & CDC—May 24, 2021

National COVID-19 Deaths

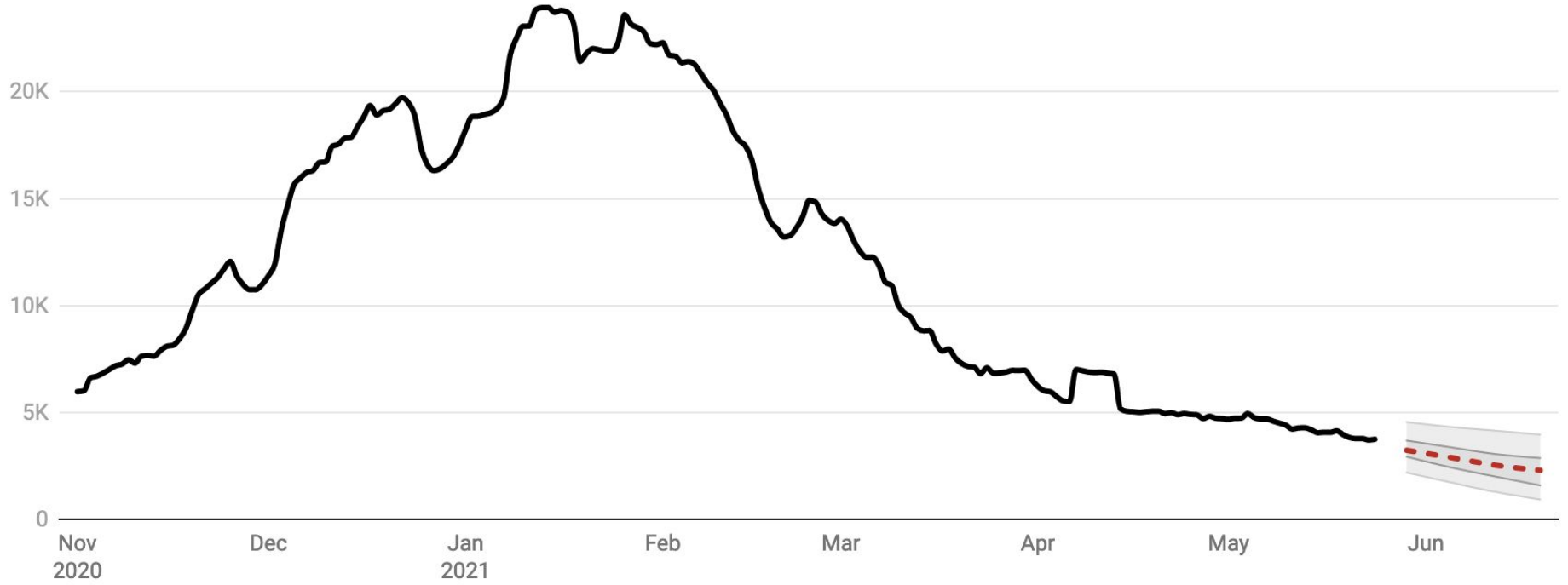
7.70% Decrease
Over the Last 7 Days



Source: Covid Tracking Project; NYT & CDC—May 24, 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—May 24, 2021

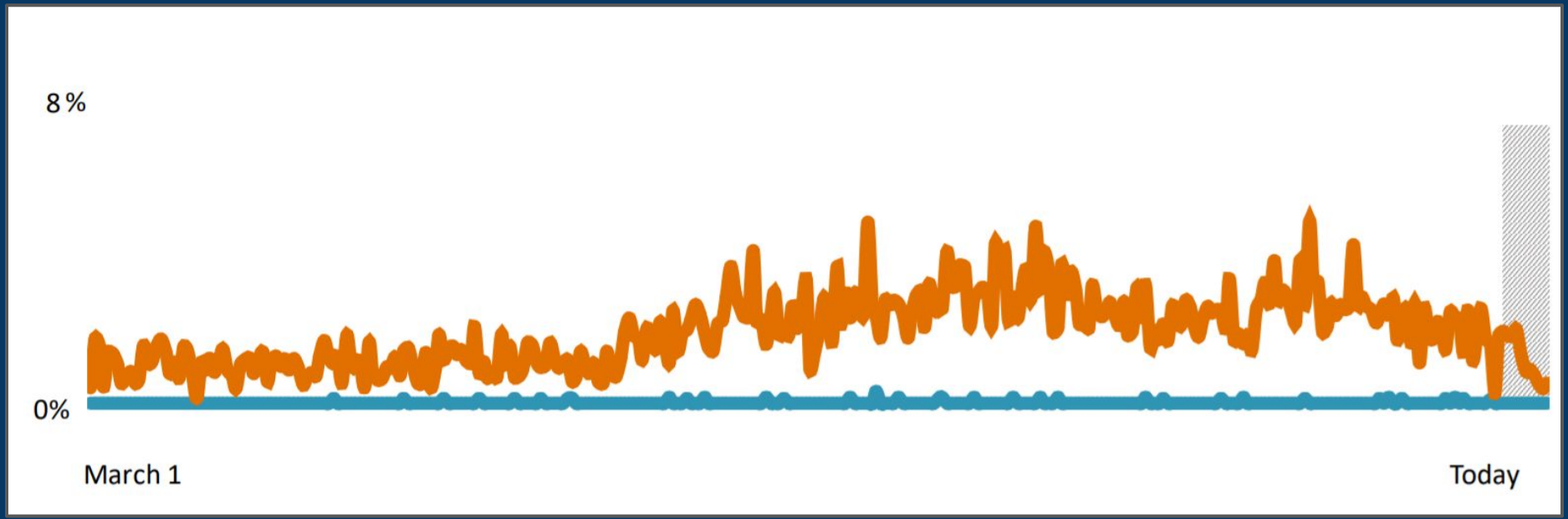
RESTART VERMONT

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

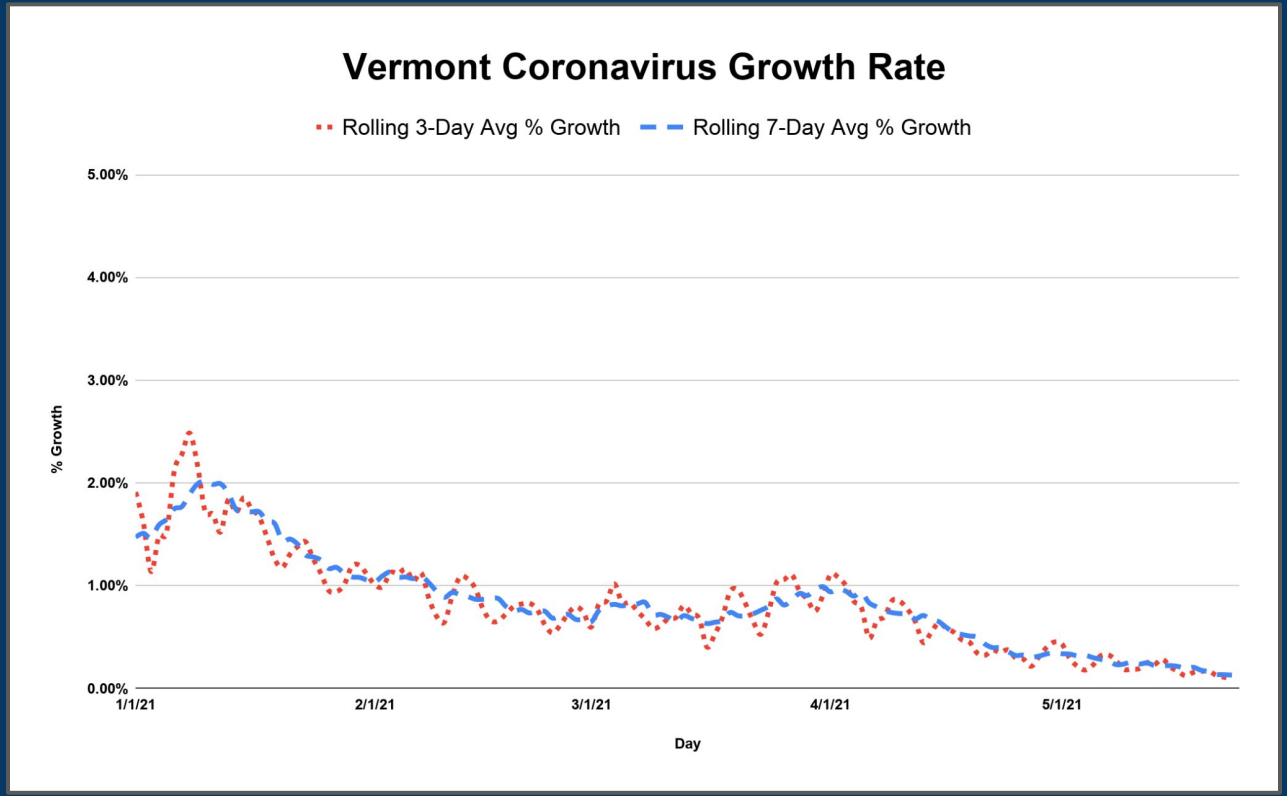
- **Summary:** Percentage of visits with COVID-19 like illness and Influenza diagnosis
- **Warning Flag:** Percentage of visits exceeding 4% for multiple consecutive days



Source: Vermont Department of Health—May 25, 2021

Data Point 2: Viral Growth and Reproductive Rates

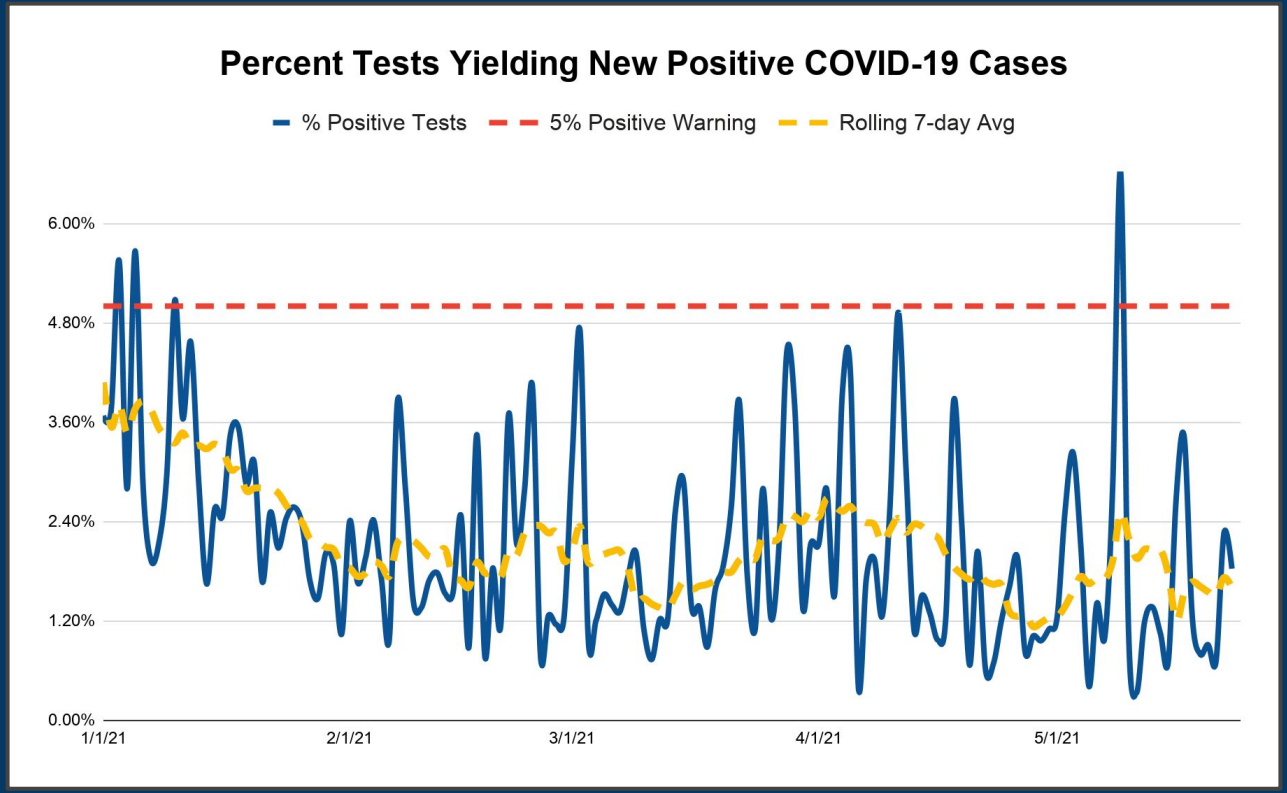
- **Summary:** Case growth measured by daily, 3-day, 7-day, and effective reproductive rate (R_t)
- **Warning Flags:** Sustained viral growth that would lead to <30% open ICU beds



Source: Vermont Department of Health—May 24, 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

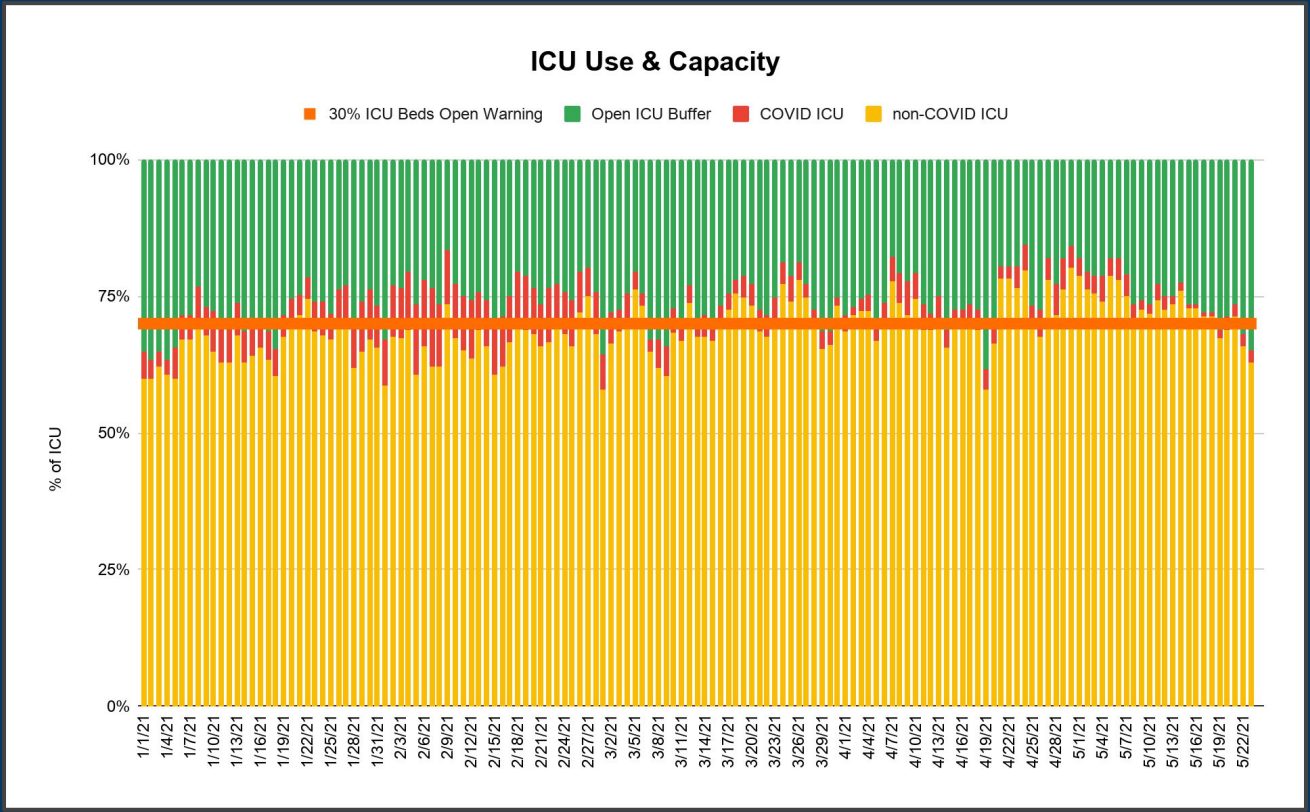


Note: low testing volume causing volatility in daily positivity

Source: Vermont Department of Health—May 24, 2021

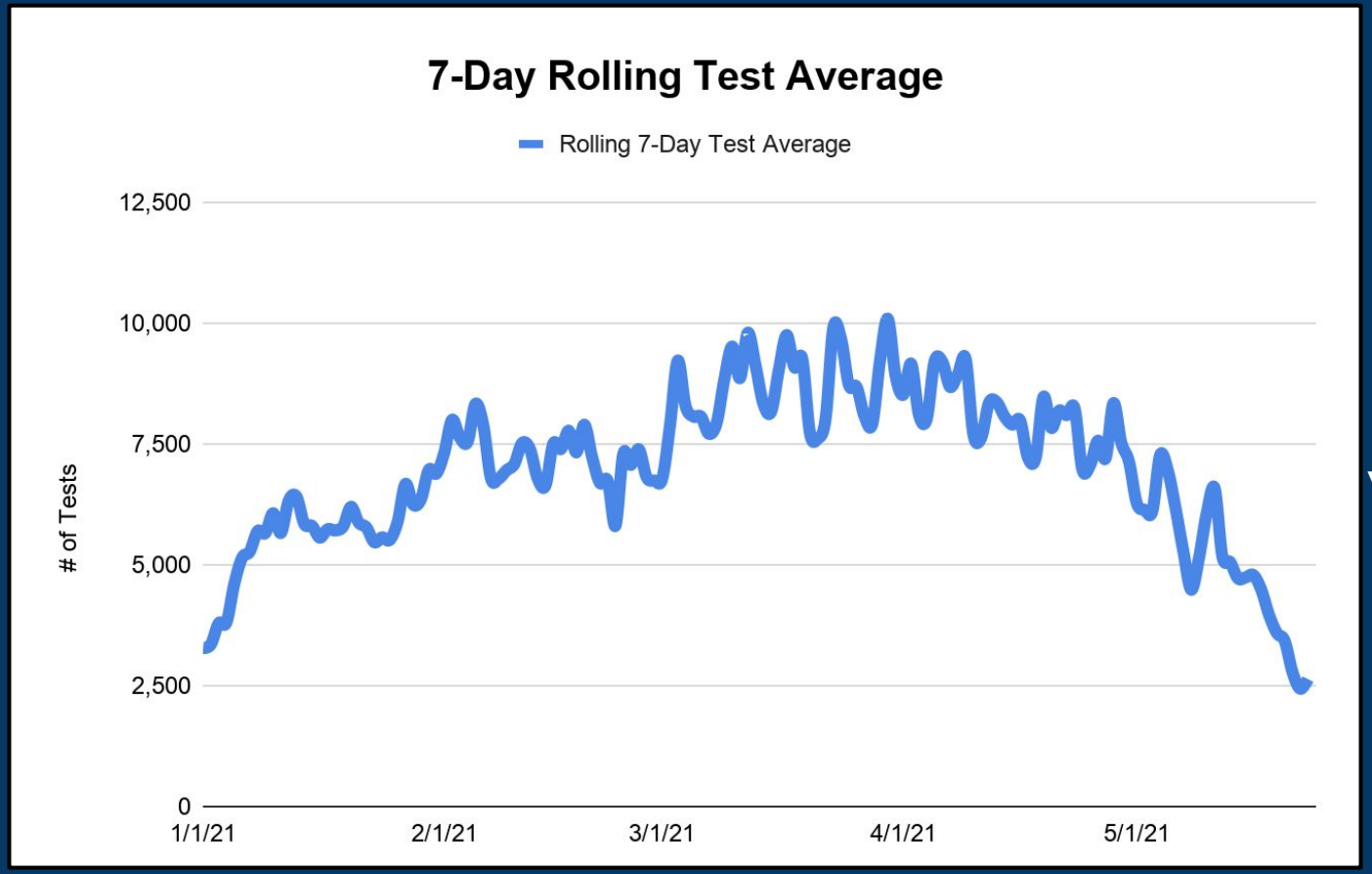
Data Point 4: Hospital & Critical Care Beds

- **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 25, 2021

Vermont Testing



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

Source: Vermont Department of Health—May 24, 2021; results reported to VDH daily