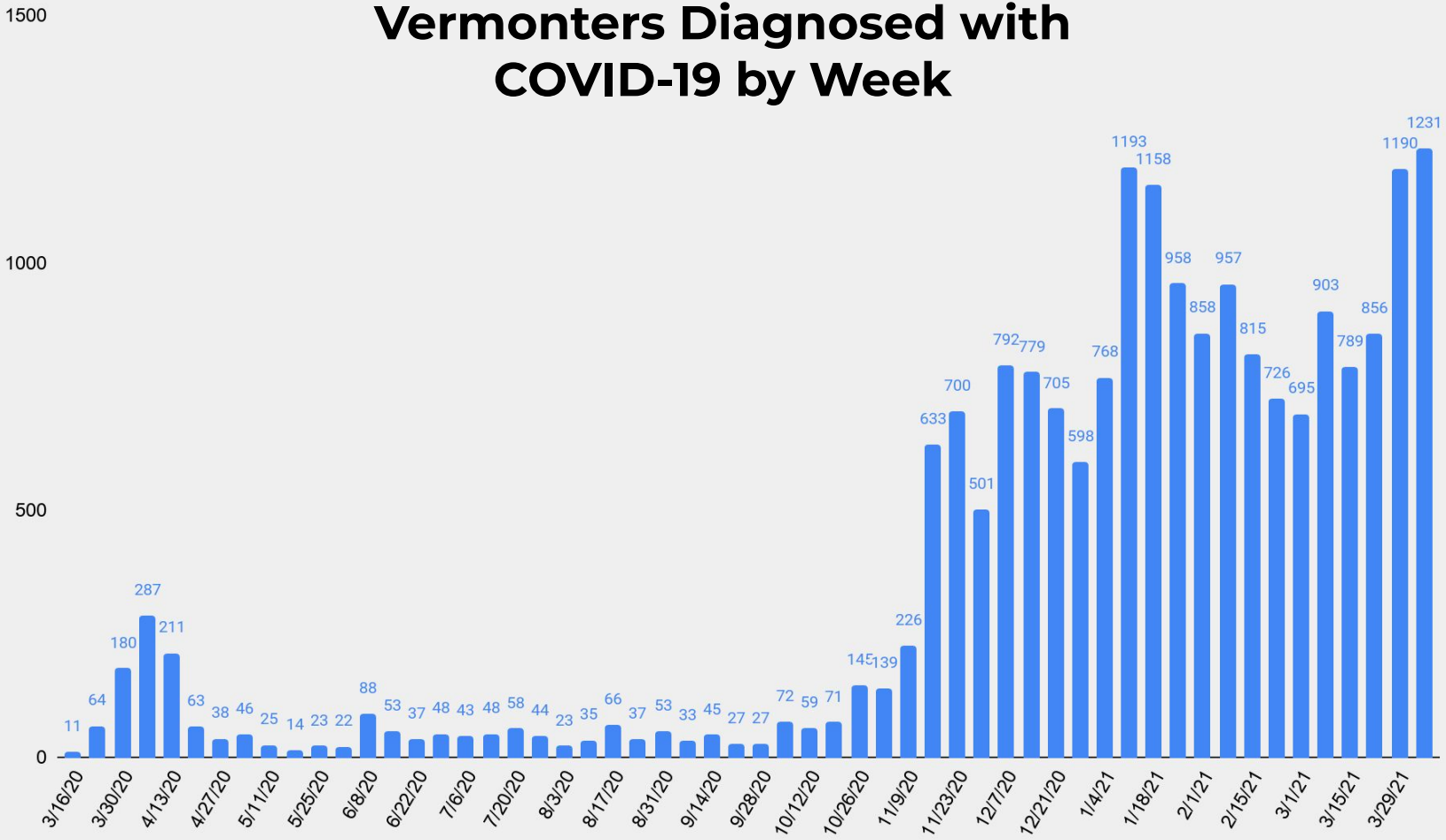
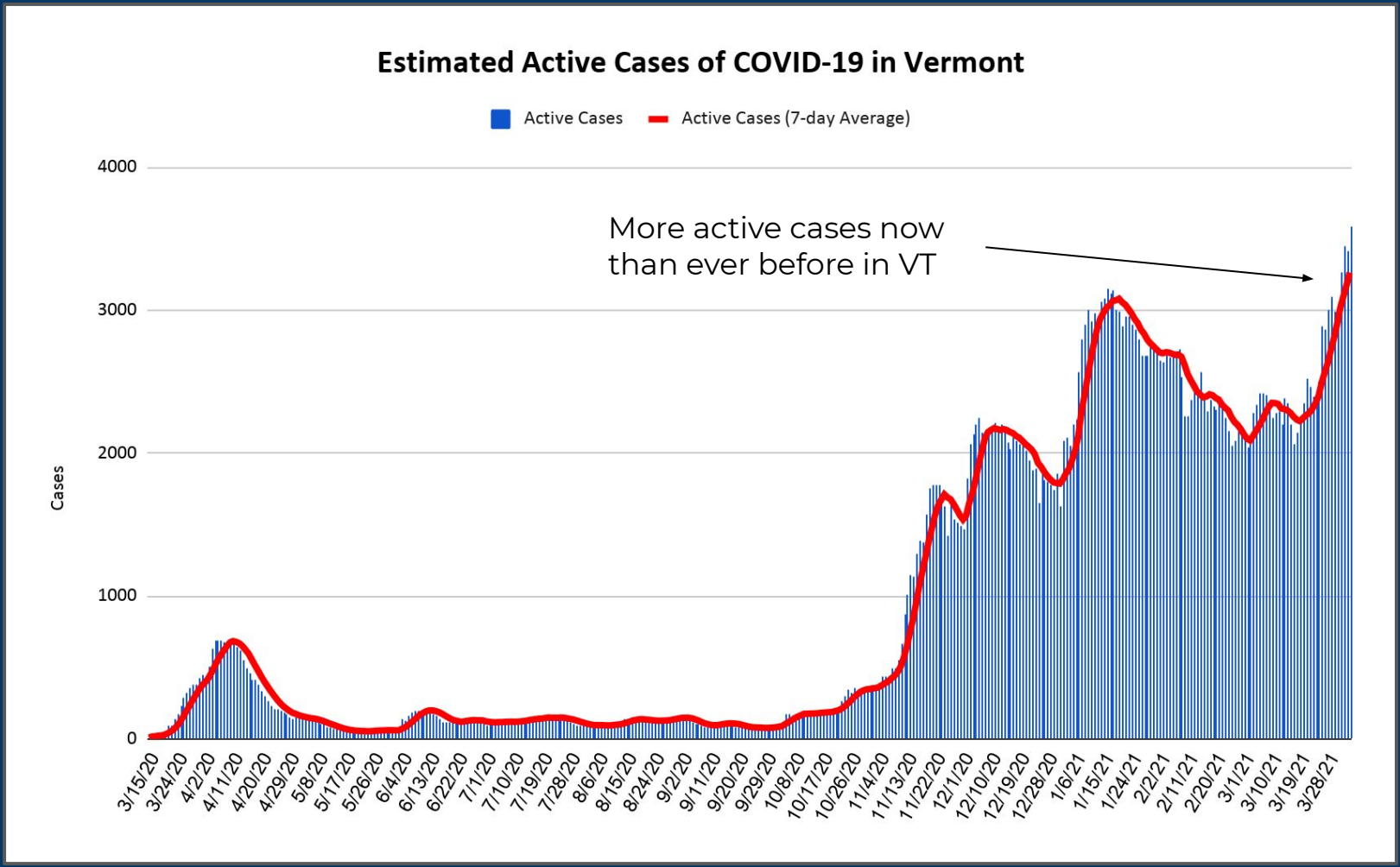
COVID-19 Modeling
April 6, 2021

Presentation available at:
dfr.vermont.gov

Vermonters Diagnosed with COVID-19 by Week



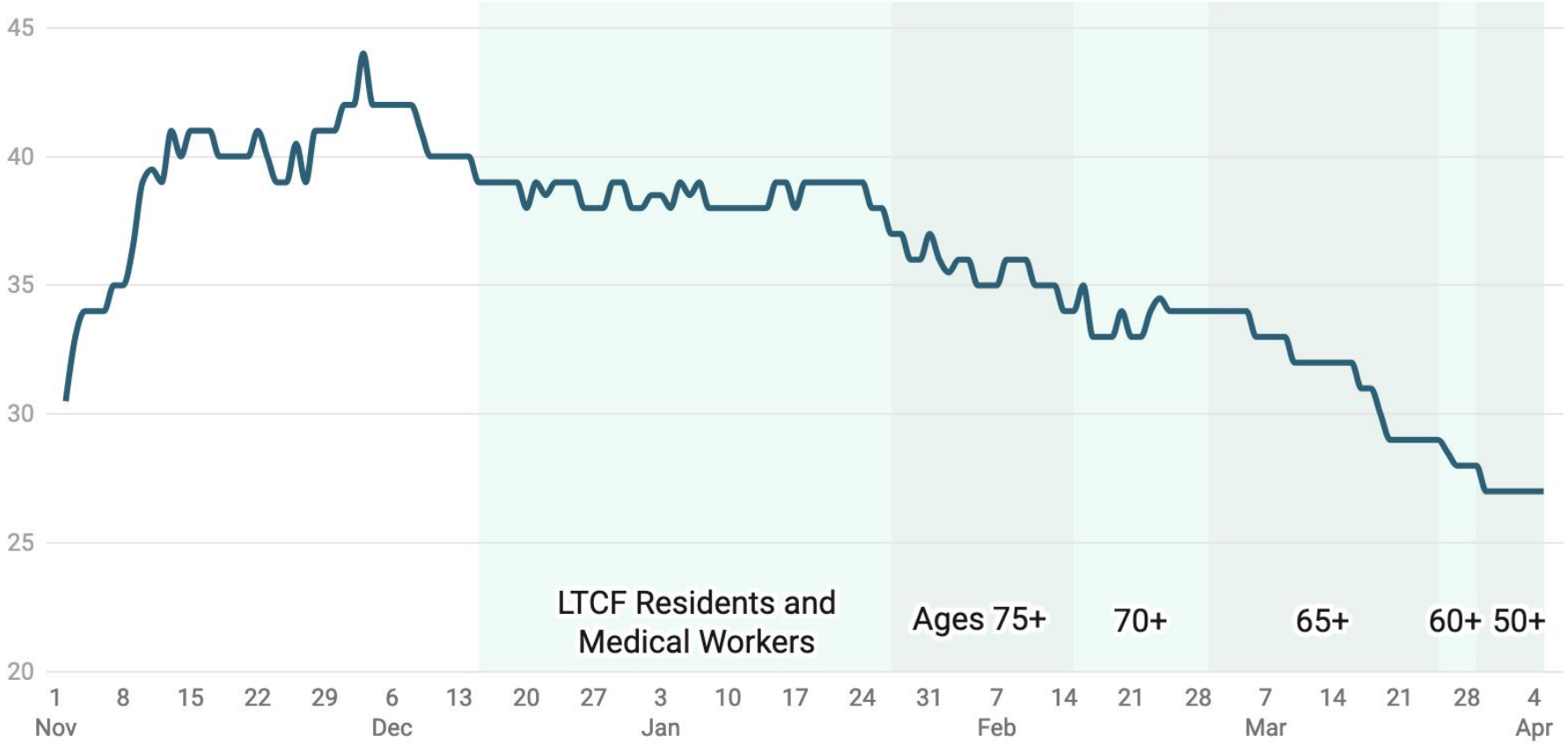
Source: Vermont Department of Health (week calculated as Tuesday to Monday)



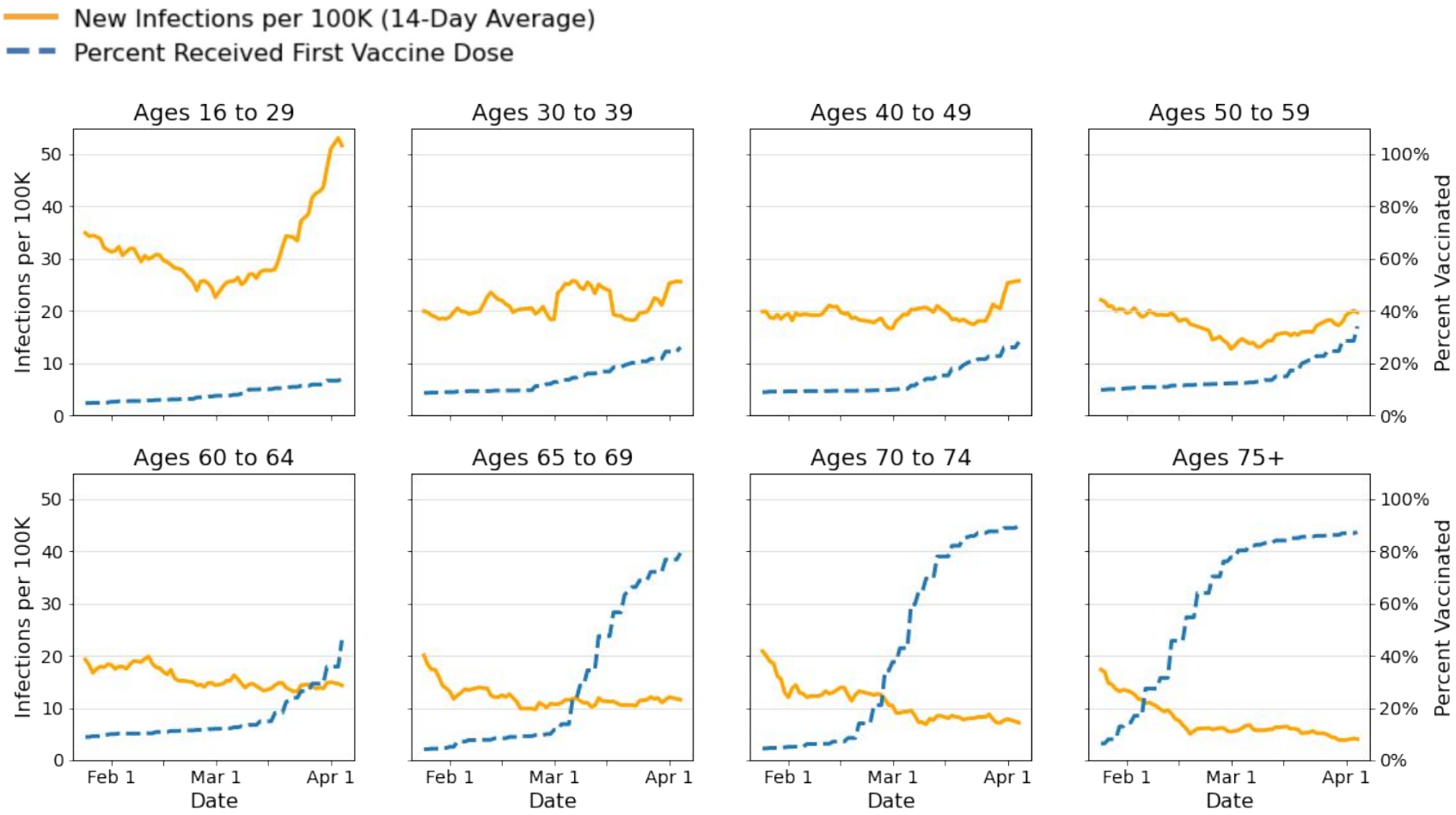
Source: Johns Hopkins University Data & Oliver Wyman Model—April 5, 2021

Age of Infected Vermonters Decreasing

Median age of COVID positive individuals in VT over the last 14 days. Green bars represent expanded vaccine eligibility.

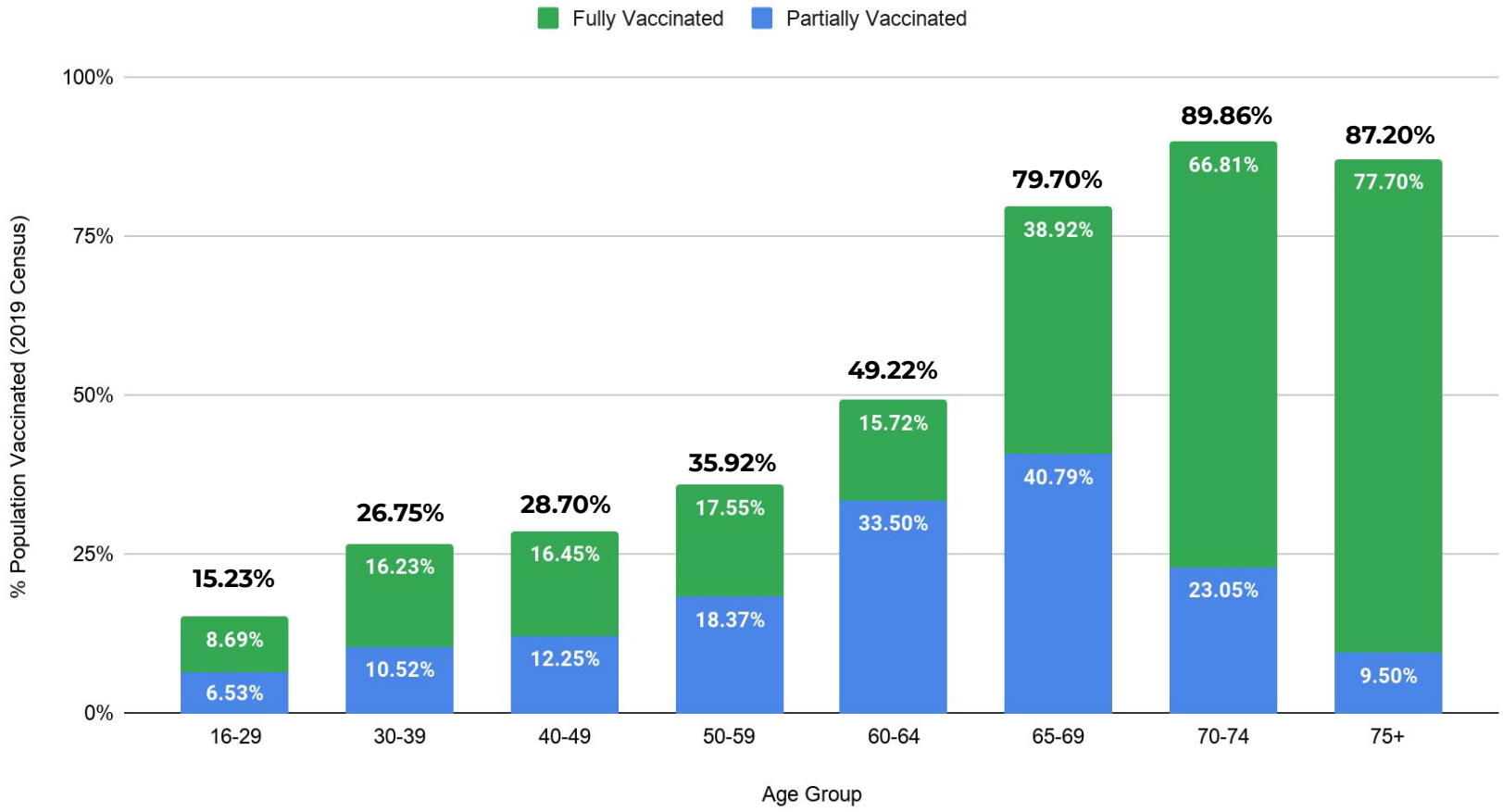


Vermont Case Rate & Vaccination by Age Band



Vermont Vaccination Progress

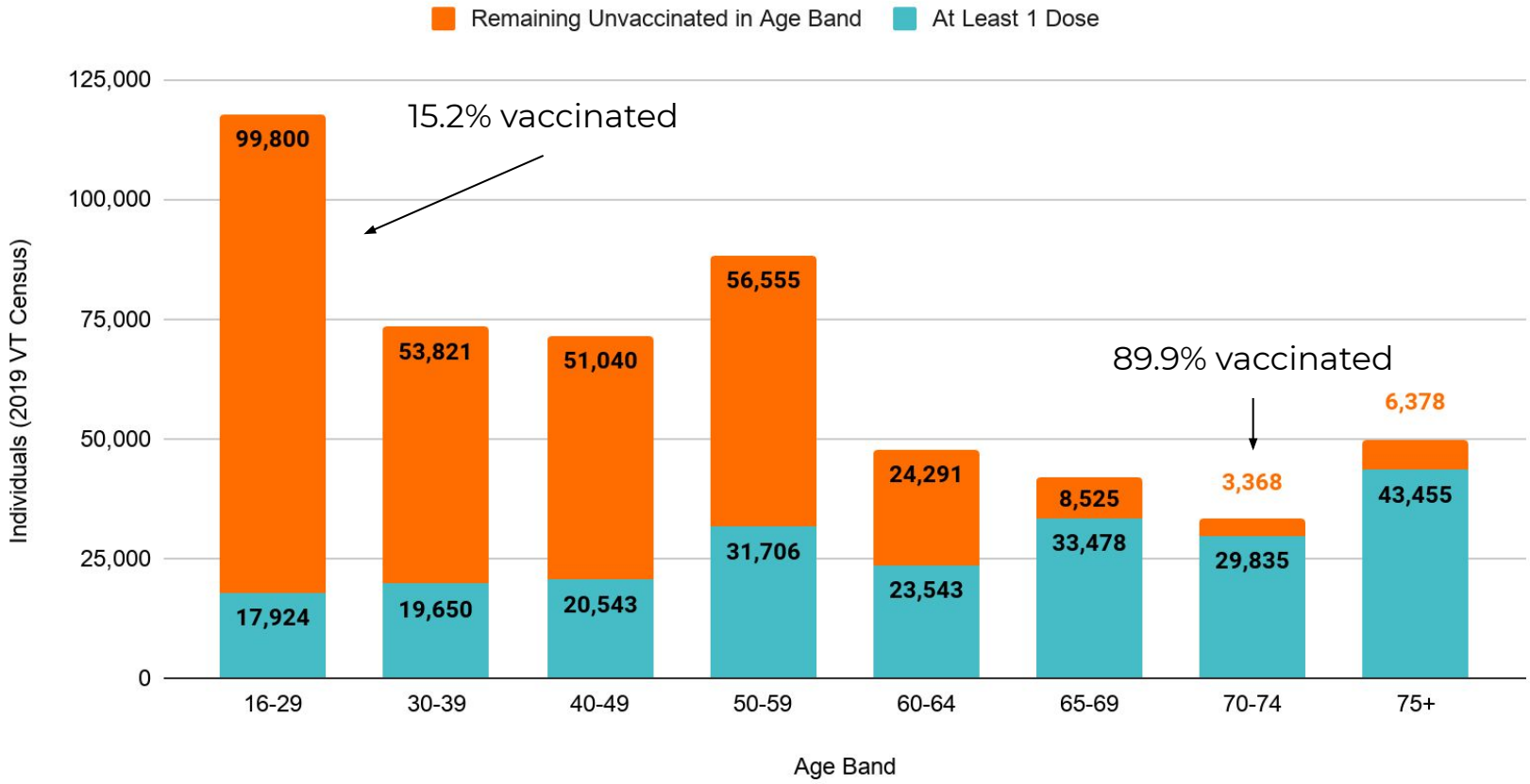
By Age Band



Source: Vermont Dept. of Health—April 6, 2021

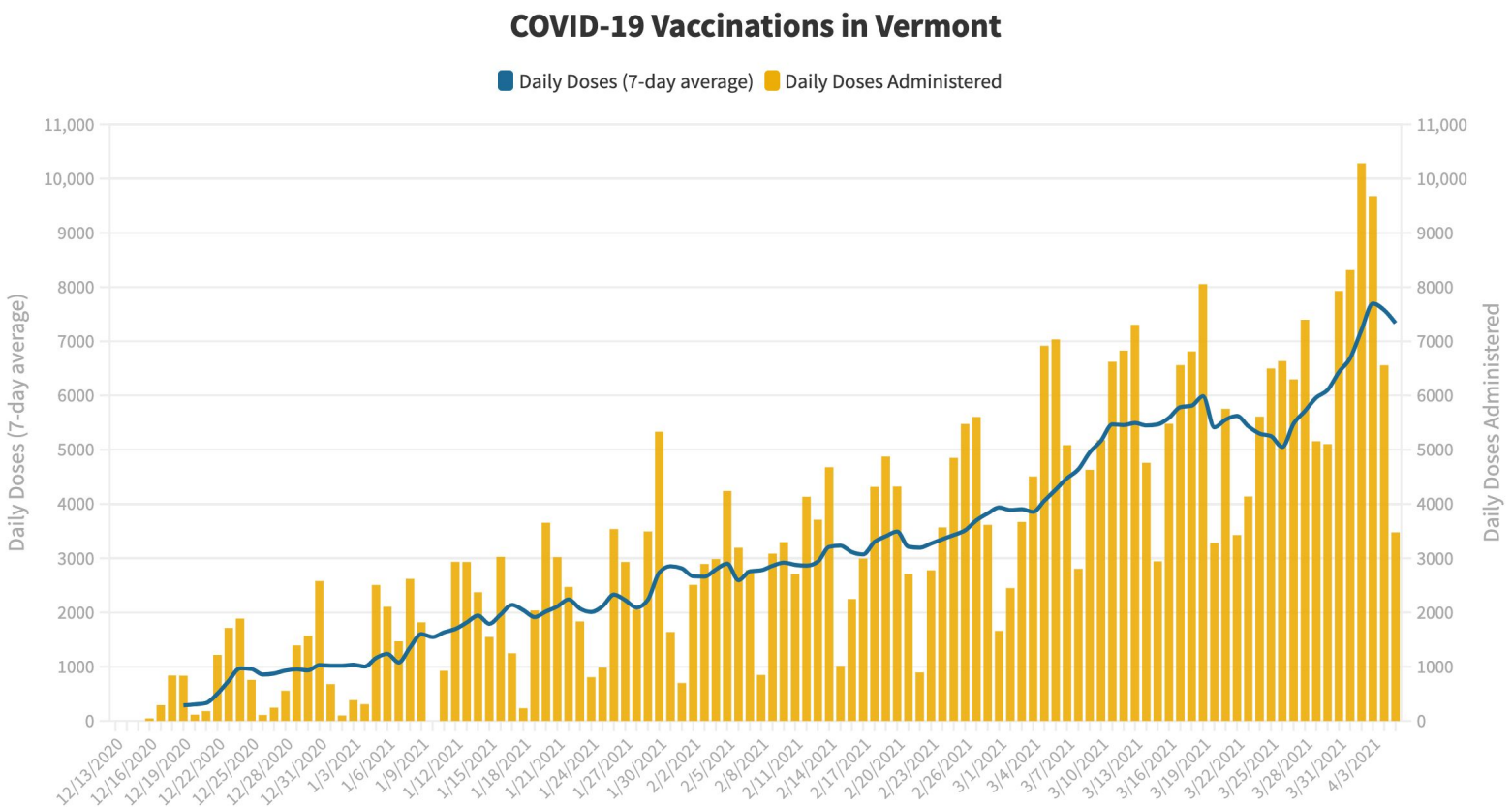
Vaccinated & Unvaccinated Vermonters

By Age Band



Source: Vermont Dept. of Health—April 6, 2021

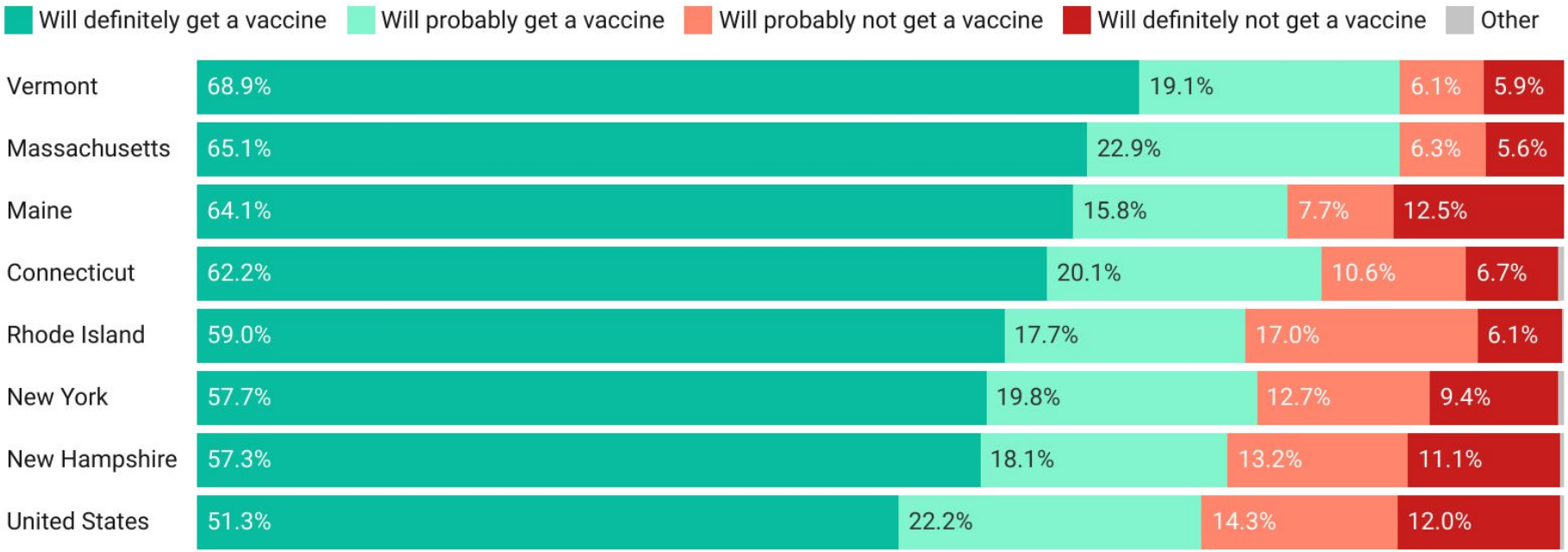
New Daily Doses Administered



Source: Vermont Department of Health — April 6, 2021

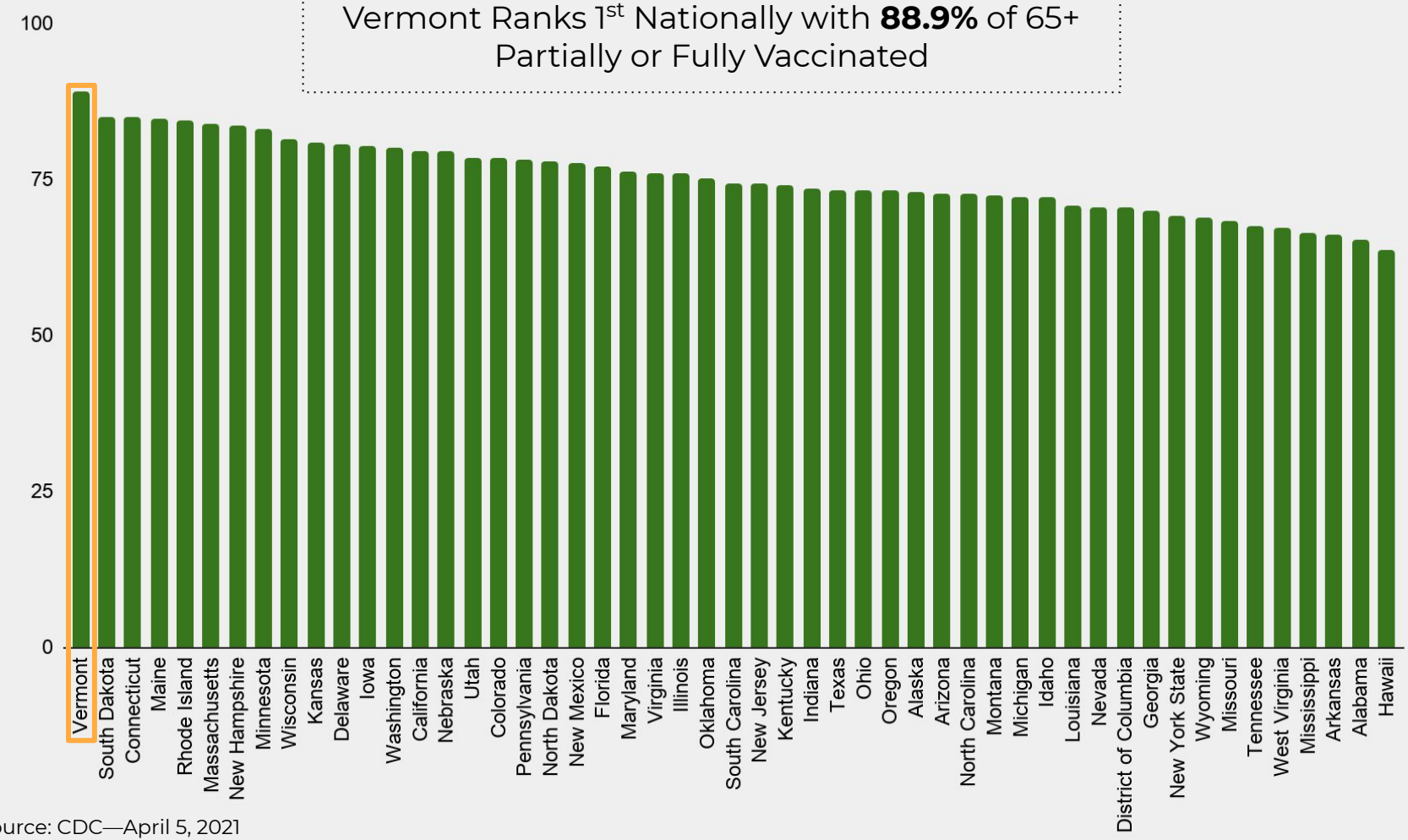
Willingness to Receive A Covid-19 Vaccine

This analysis excludes those who have already received a vaccine.



Source: U.S. Census Bureau — Household Pulse Survey, March 3-15, 2021

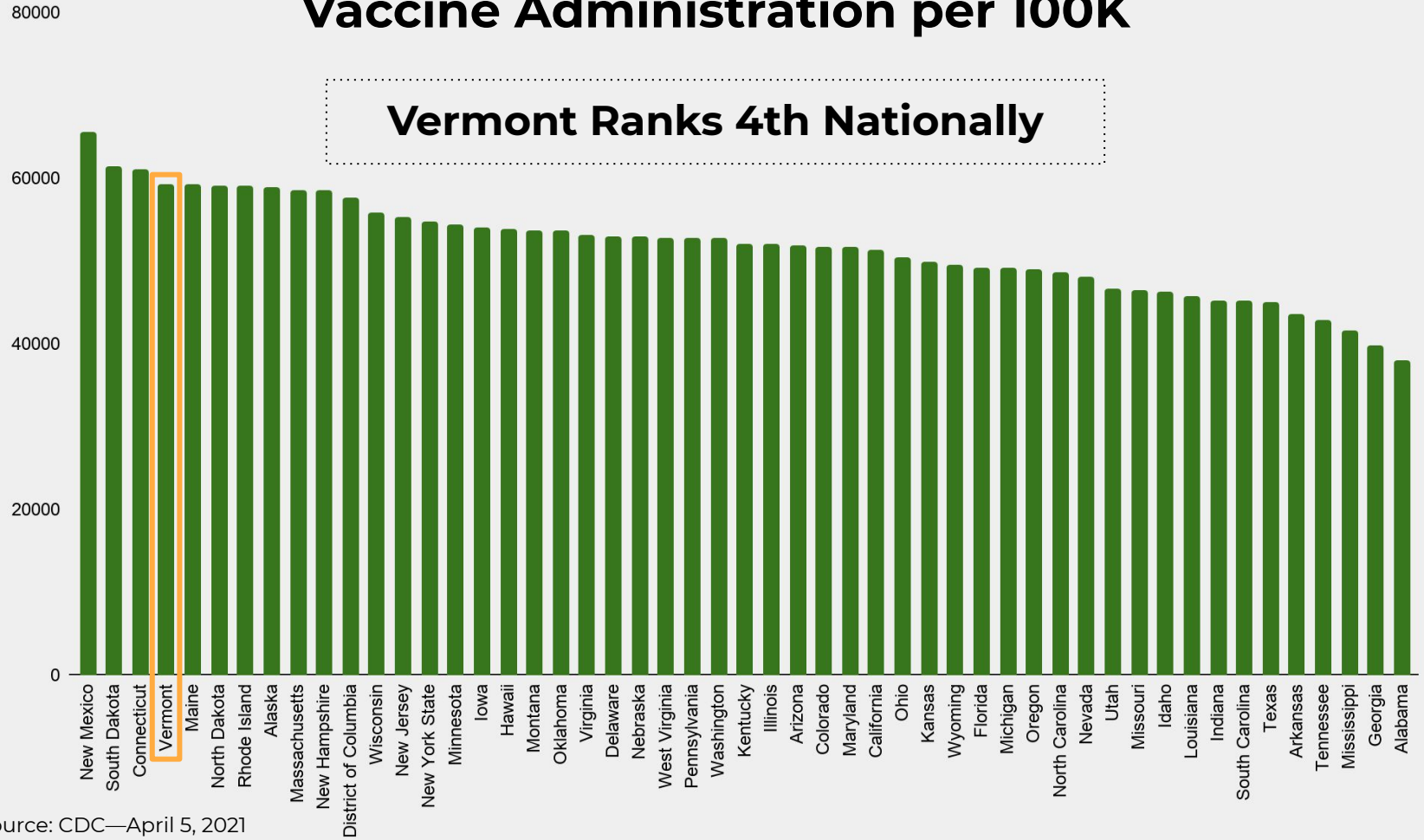
Vermont Ranks 1st Nationally with **88.9%** of 65+ Partially or Fully Vaccinated



Source: CDC—April 5, 2021

Vaccine Administration per 100K

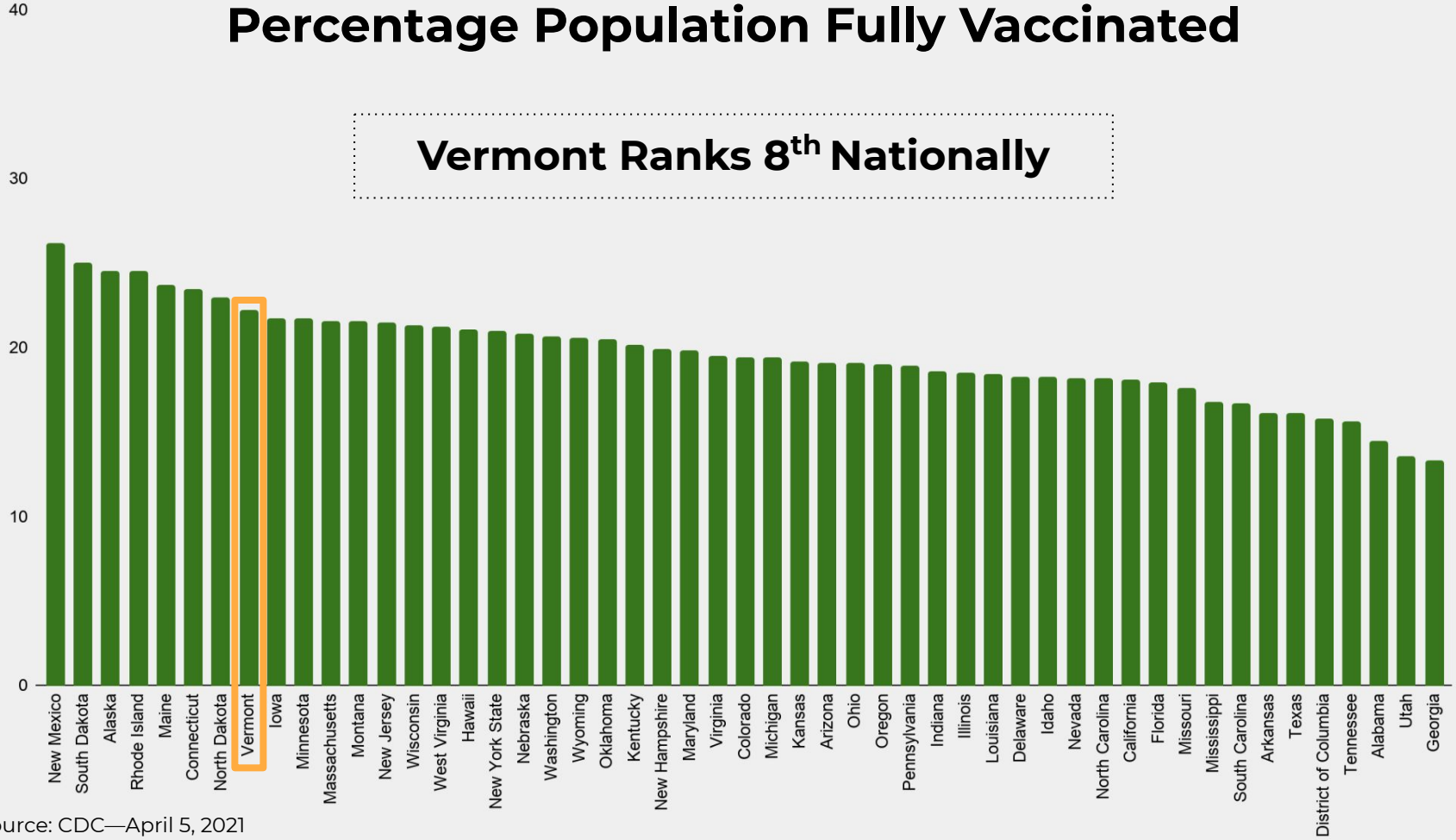
Vermont Ranks 4th Nationally



Source: CDC—April 5, 2021

Percentage Population Fully Vaccinated

Vermont Ranks 8th Nationally



Source: CDC—April 5, 2021

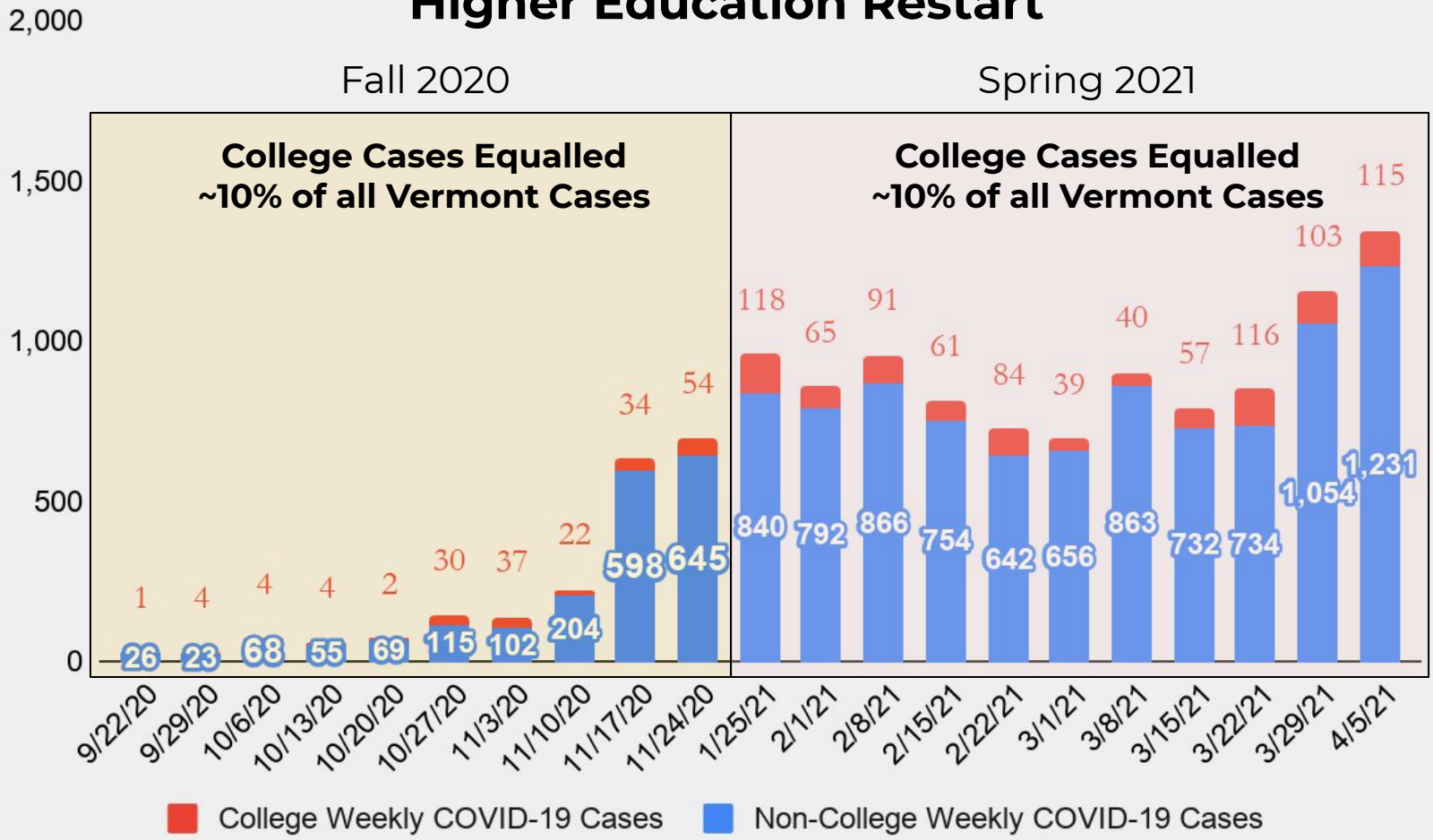
Active Outbreaks in Long Term Care Facilities

January 4, 2021: Avg LTCF Outbreak ~38 Cases
April 5, 2021: Avg LTCF Outbreak ~6 Cases

Facility Name	Total COVID-19 Cases
Vermont Veterans Home (2), *Bennington*	10
River's Edge Community Care Home, *Bennington*	6
St. Johnsbury Health & Rehab, *St. Johnsbury*	Not Shown
Maple Lane Nursing Home, *Barton*	Not Shown

Source: Vermont Department of Health—April 5, 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.*

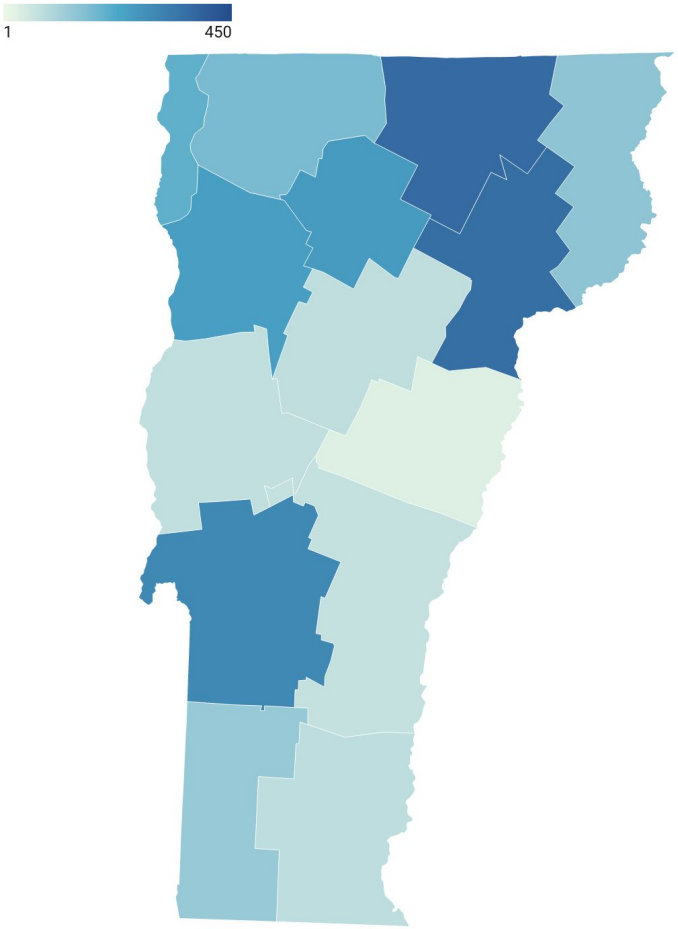
Higher Education Restart



Source: Vermont Higher Education Institution Reporting—April 5, 2021

Vermont Weekly Cases by County (per 100,000)

Results Reported March 23 to 29

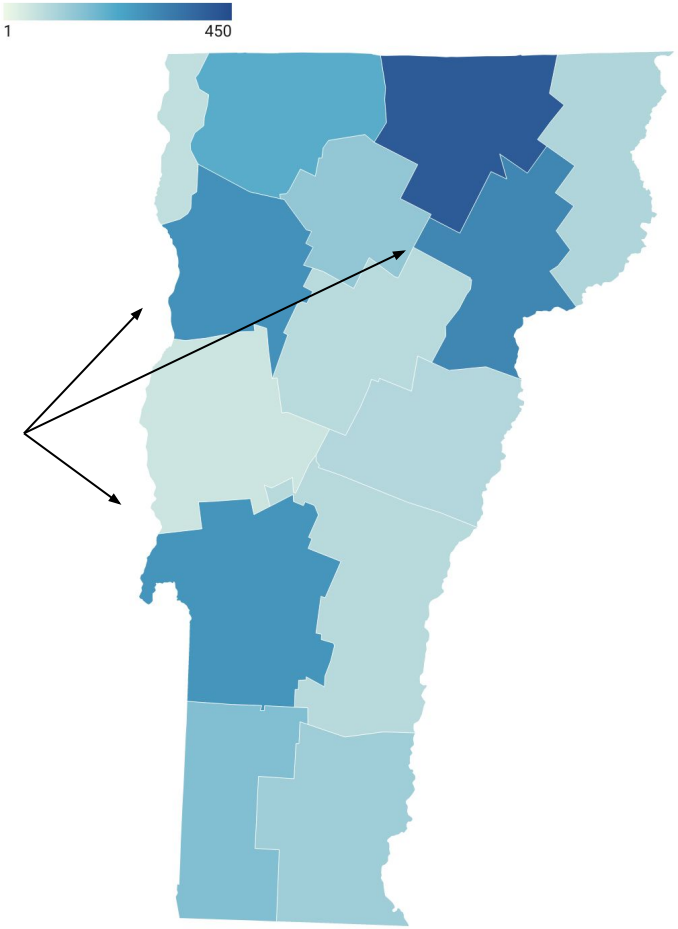


Map: Vermont DFR COVID Modeling Team • Source: Vermont Dept. of Health • Created with Datawrapper

Continued viral spread

Vermont Weekly Cases by County (per 100,000)

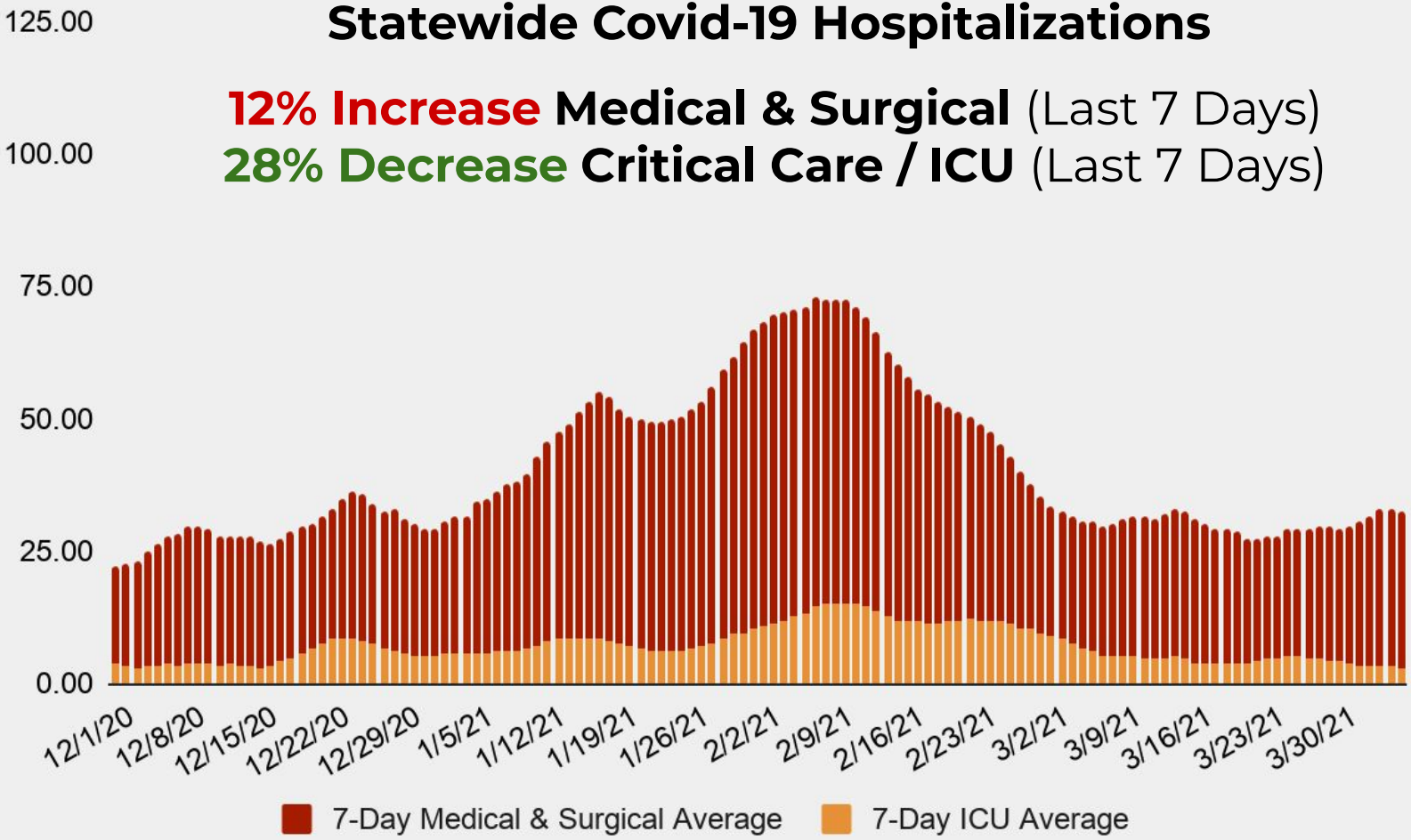
Results Reported March 30 to April 5



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

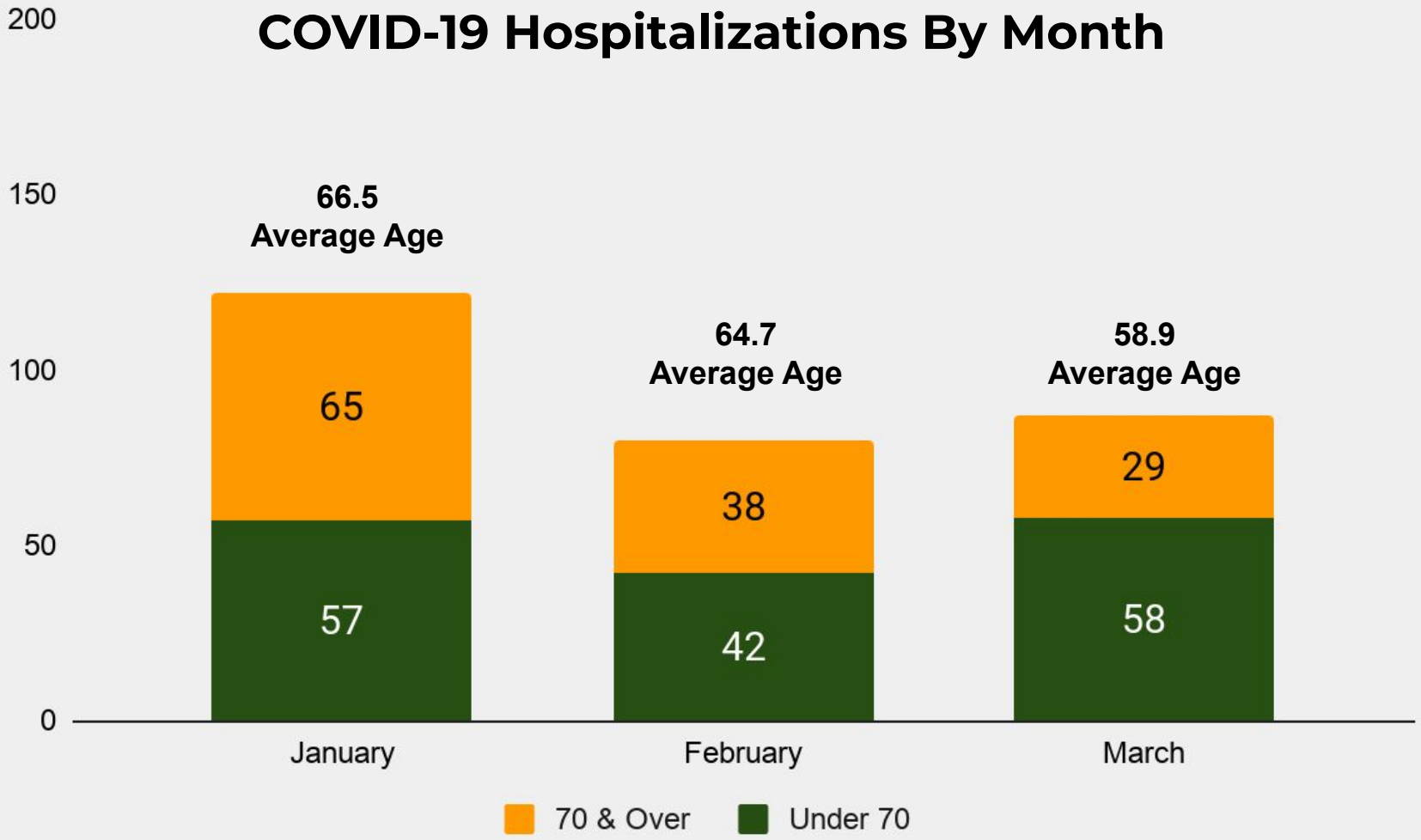
Statewide Covid-19 Hospitalizations

12% Increase Medical & Surgical (Last 7 Days)
28% Decrease Critical Care / ICU (Last 7 Days)

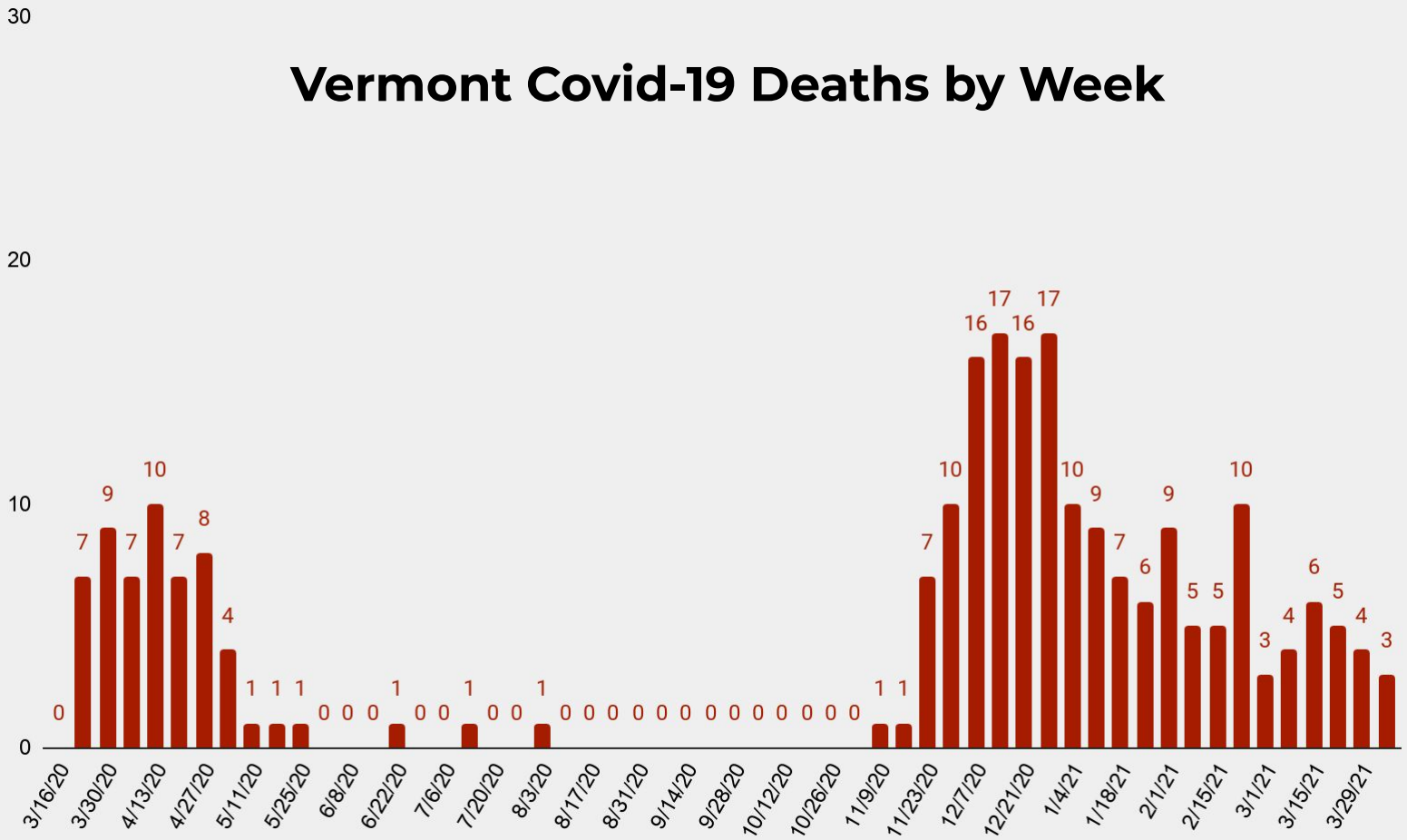


Source: Vermont Department of Health—April 5, 2021

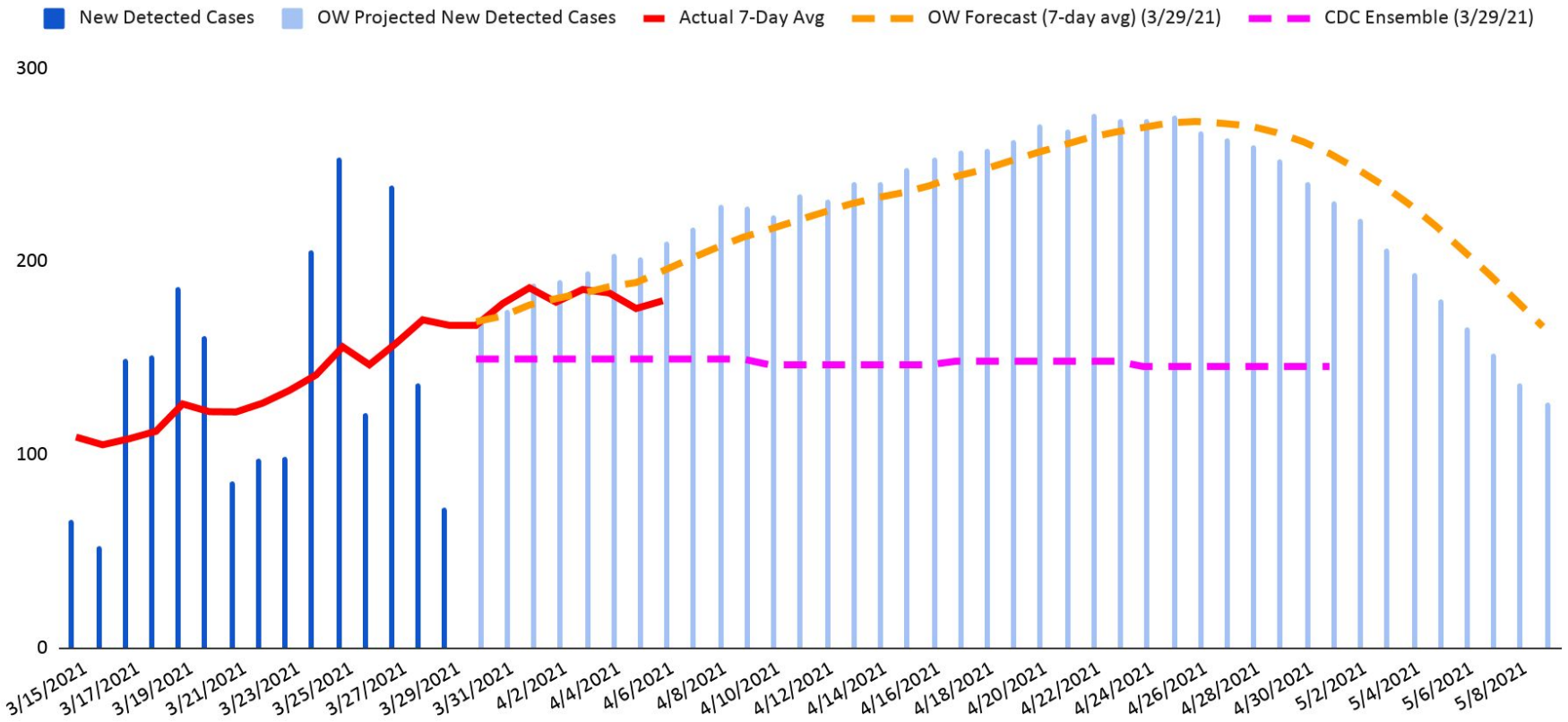
COVID-19 Hospitalizations By Month



Vermont Covid-19 Deaths by Week



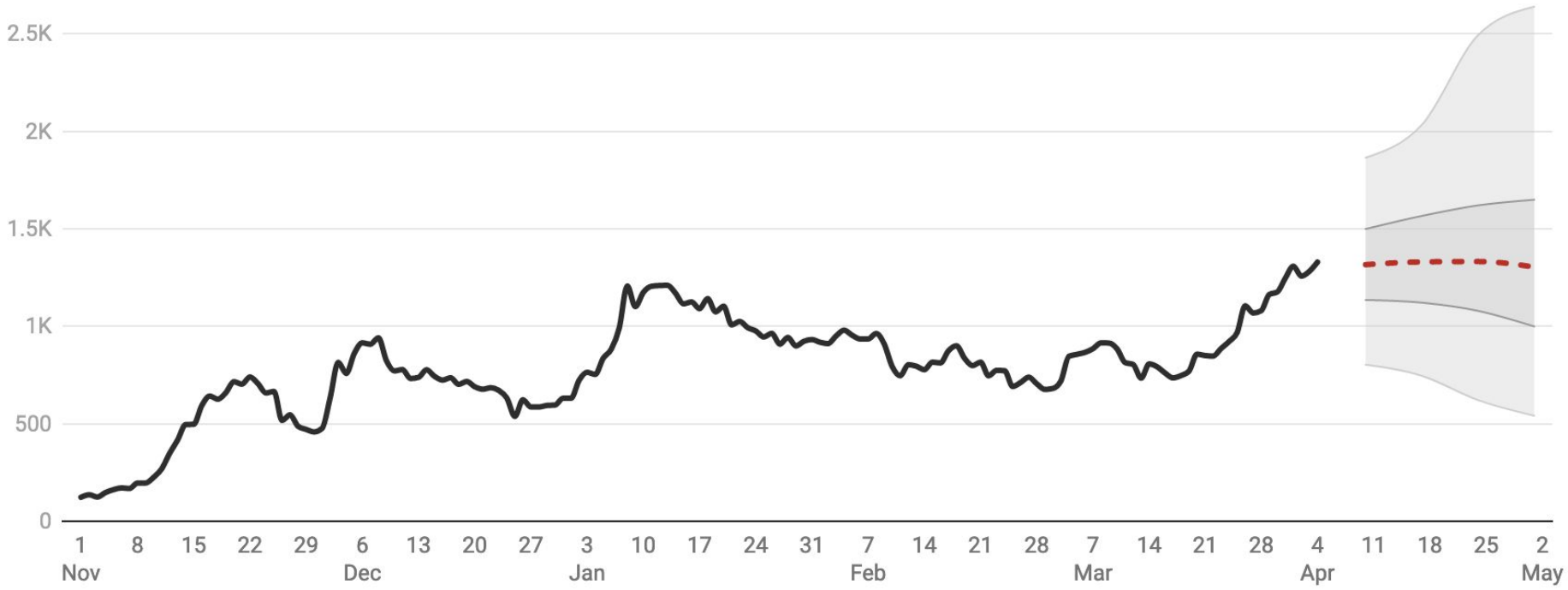
Vermont Forecast



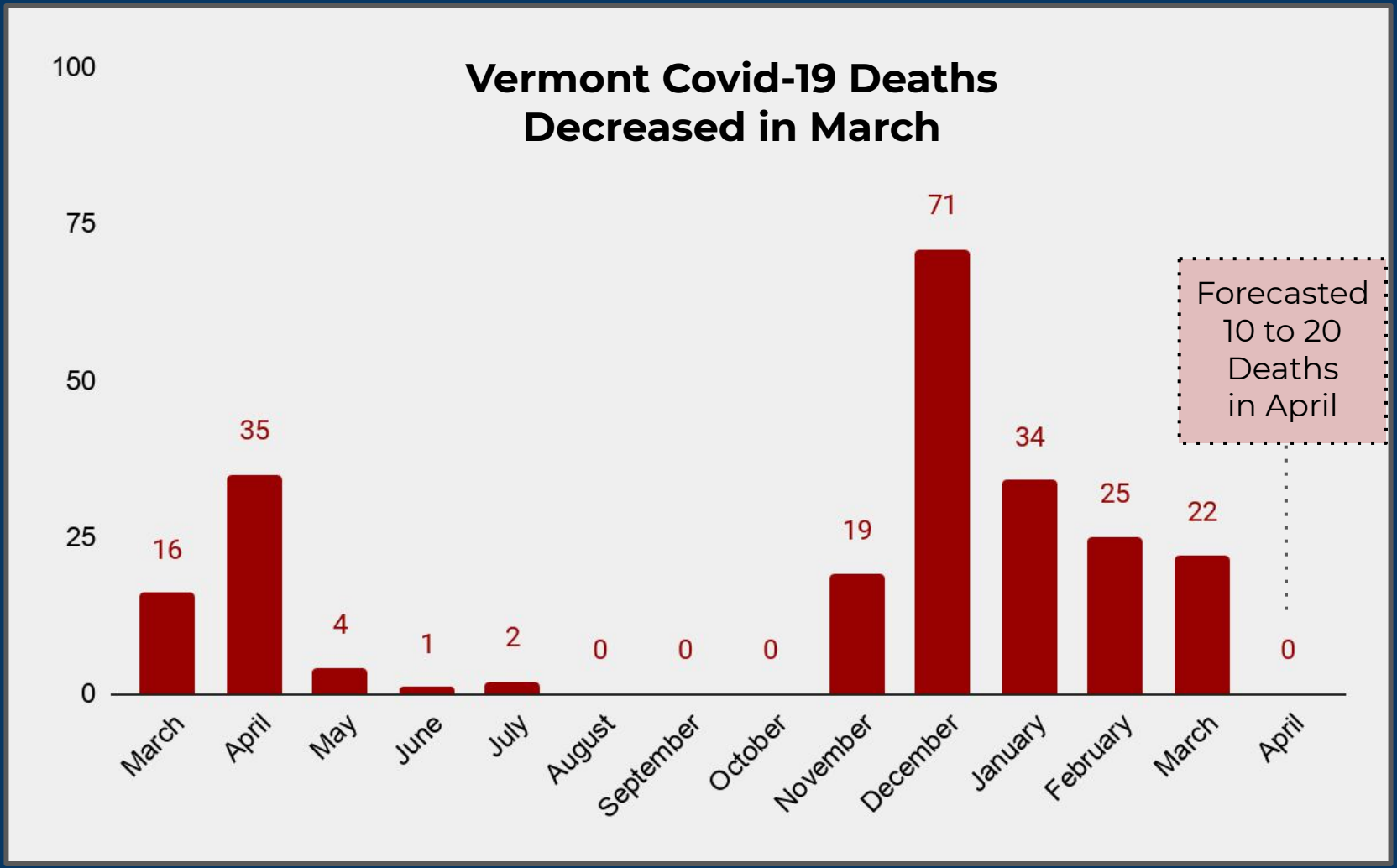
Source: Johns Hopkins University Data & Oliver Wyman Forecast Model—April 5, 2021; Note: assumes current vaccine supply

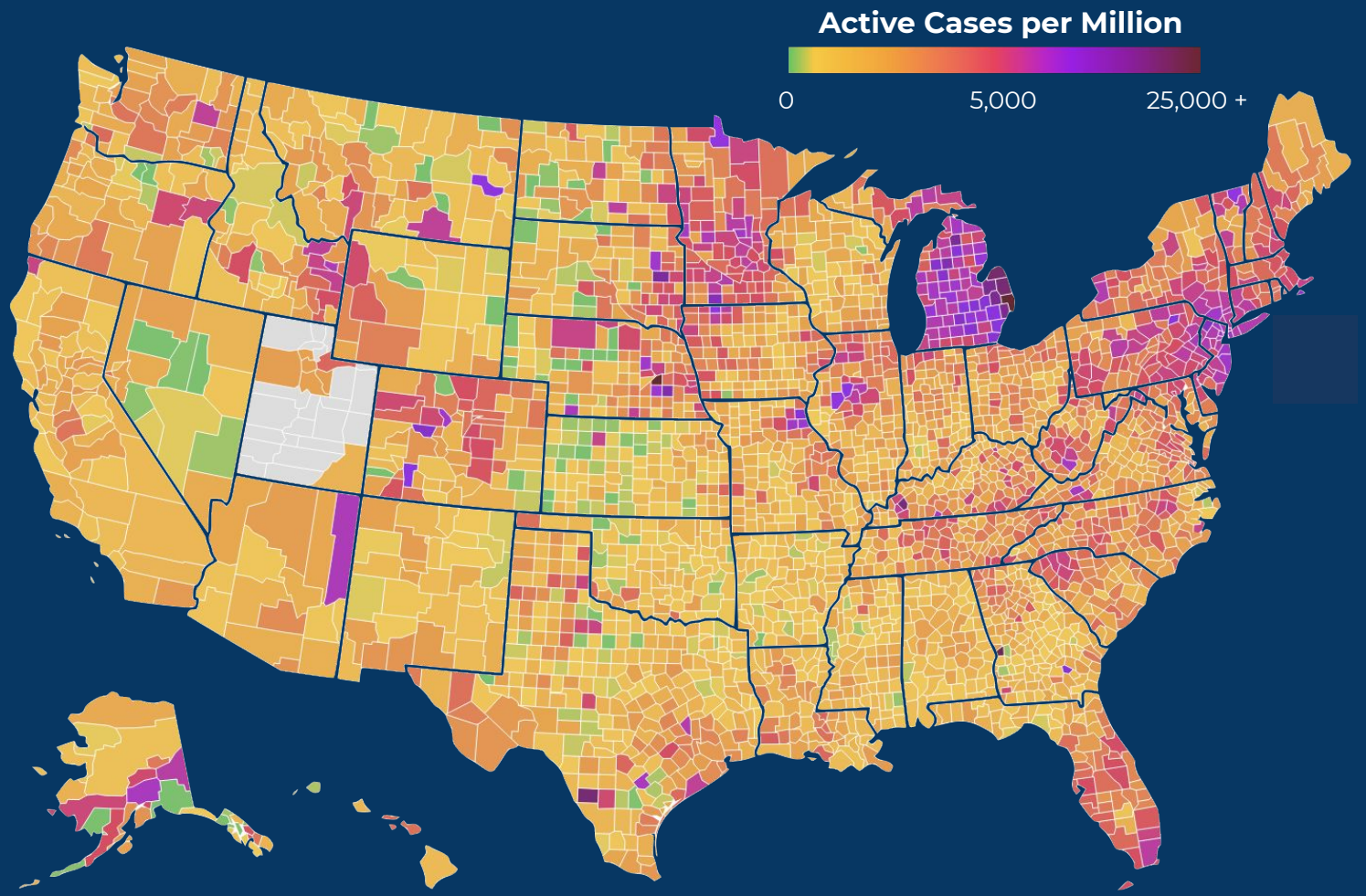
Vermont Weekly COVID-19 Infections Forecast

Calculated as the 7-day sum of new infections. 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: CDC Ensemble Model via COVID Model Hub


Vermont Covid-19 Deaths
Decreased in March
100
75
50
25
0
16
35
4
1
2
0
0
0
19
71
34
25
22
0
March
April
May
June
July
August
September
October
November
December
January
February
March
April
Forecasted
10 to 20
Deaths
in April

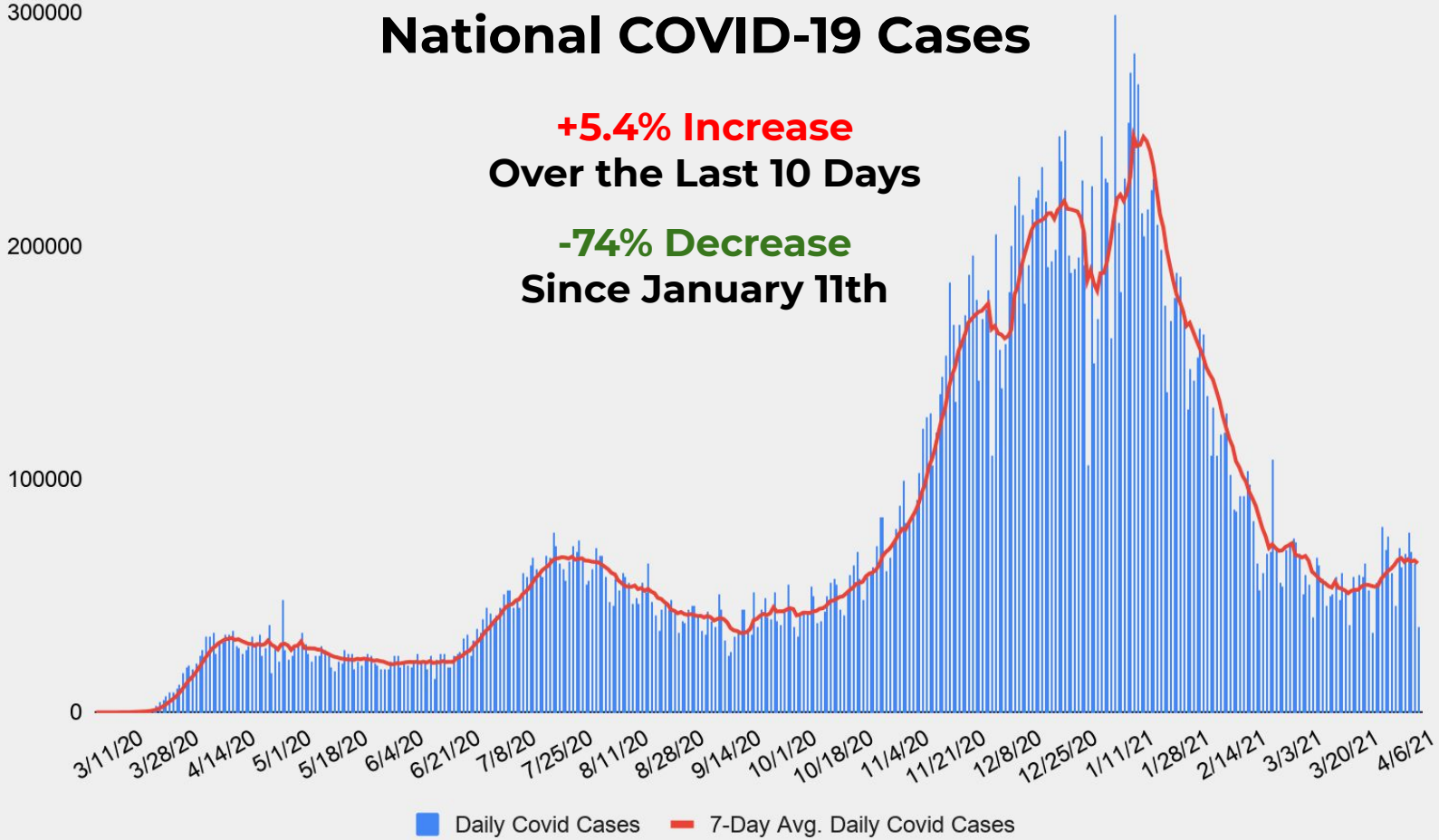


Souce: Johns Hopkins University; DFR Active Case Algotherm

National COVID-19 Cases

+5.4% Increase
Over the Last 10 Days

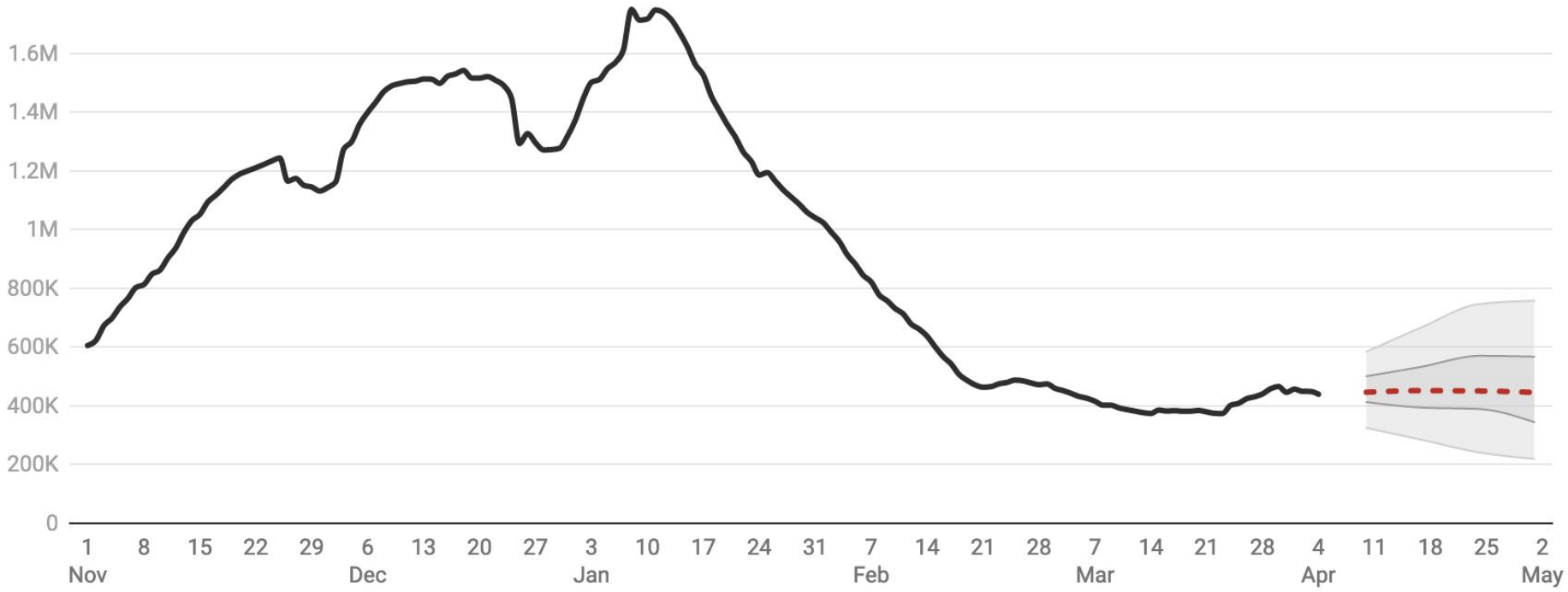
-74% Decrease
Since January 11th



Source: Covid Tracking Project; NYT & CDC—April 5, 2021

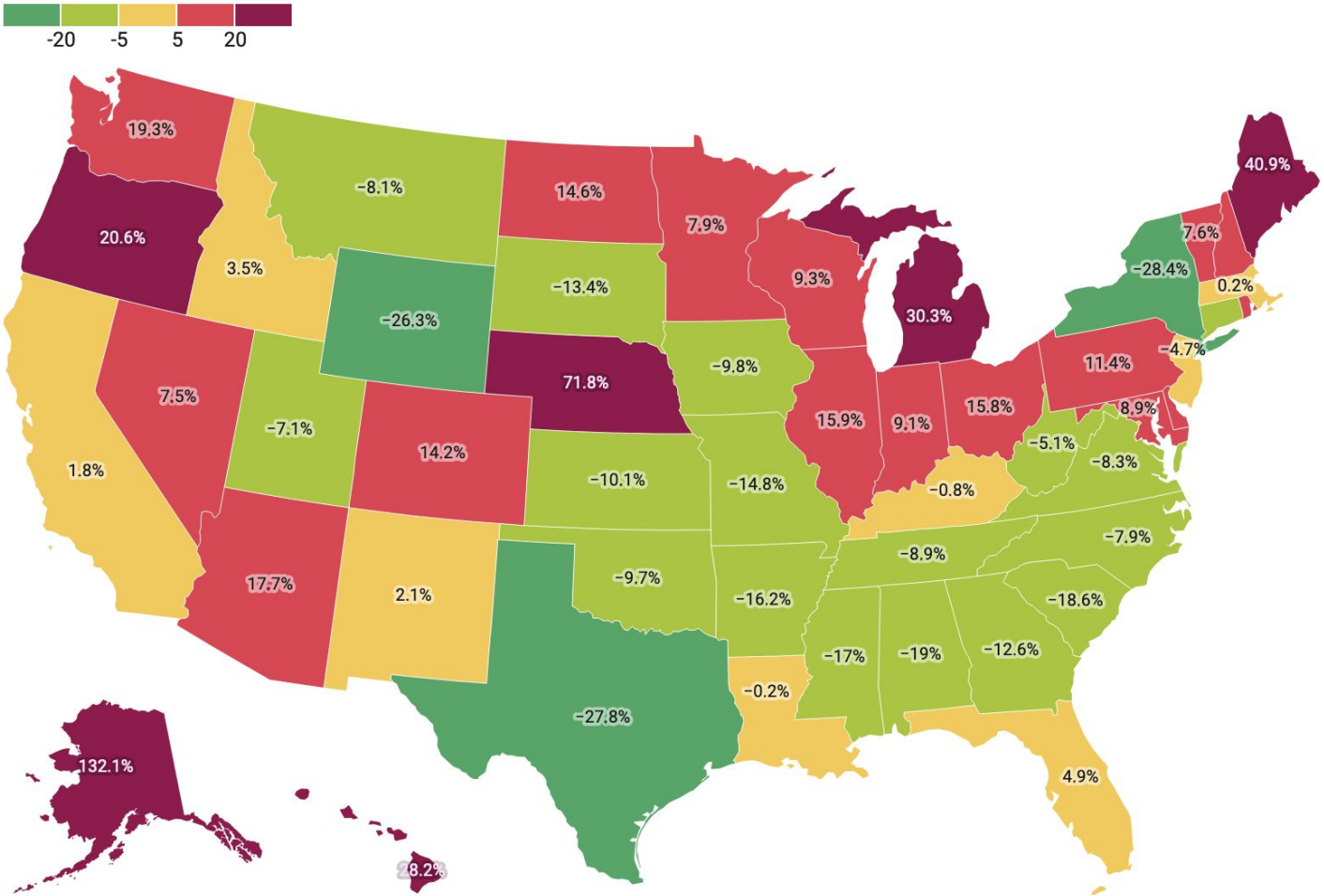
US Weekly COVID-19 Infections Forecast

Calculated as the 7-day sum of new infections. 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: CDC Ensemble Model via COVID Model Hub

Percent Change in Weekly COVID-19 Infections

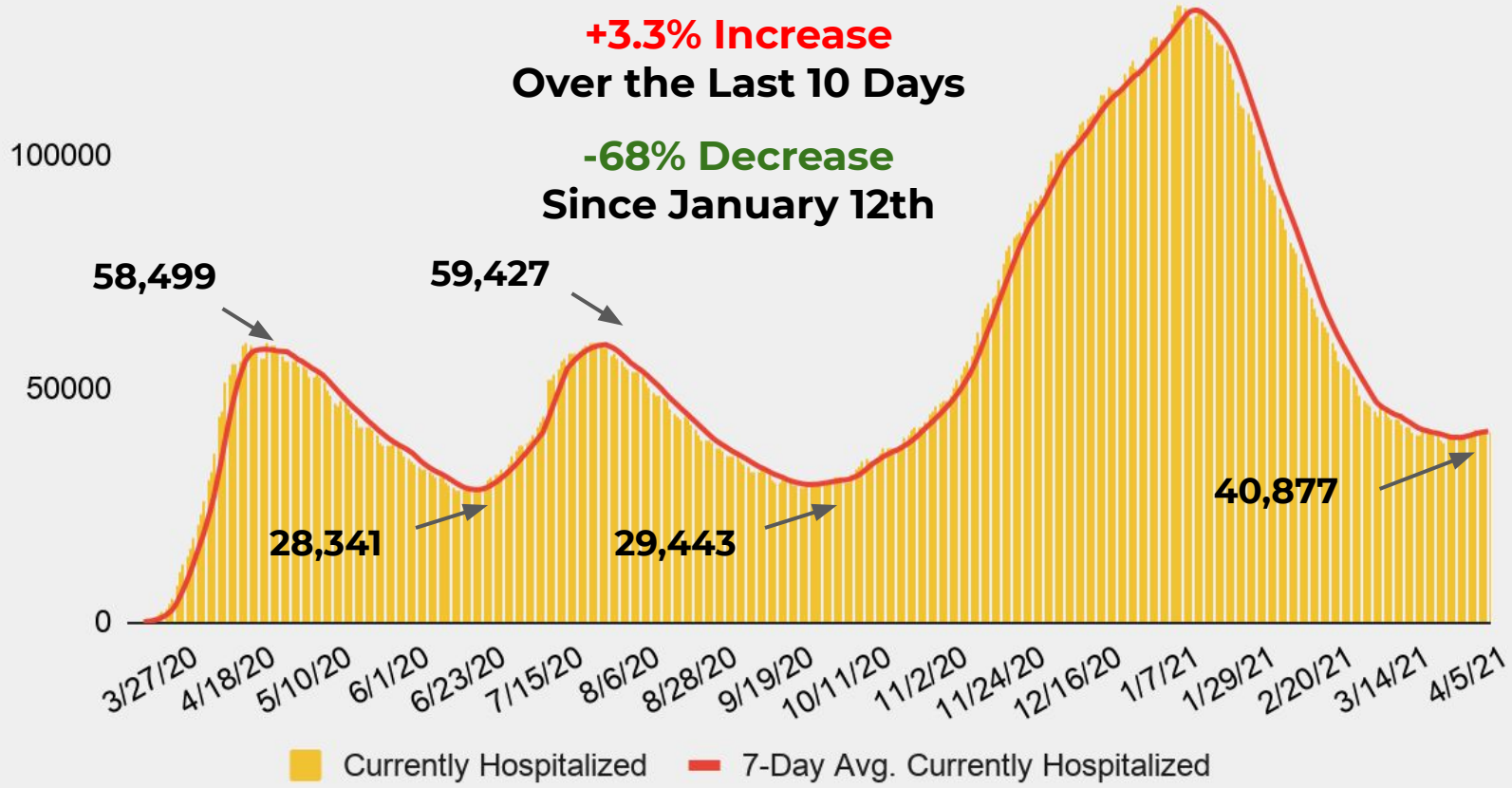


Source: JHU—April 6, 2021

National COVID-19 Hospitalizations Flat

+3.3% Increase
Over the Last 10 Days

-68% Decrease
Since January 12th

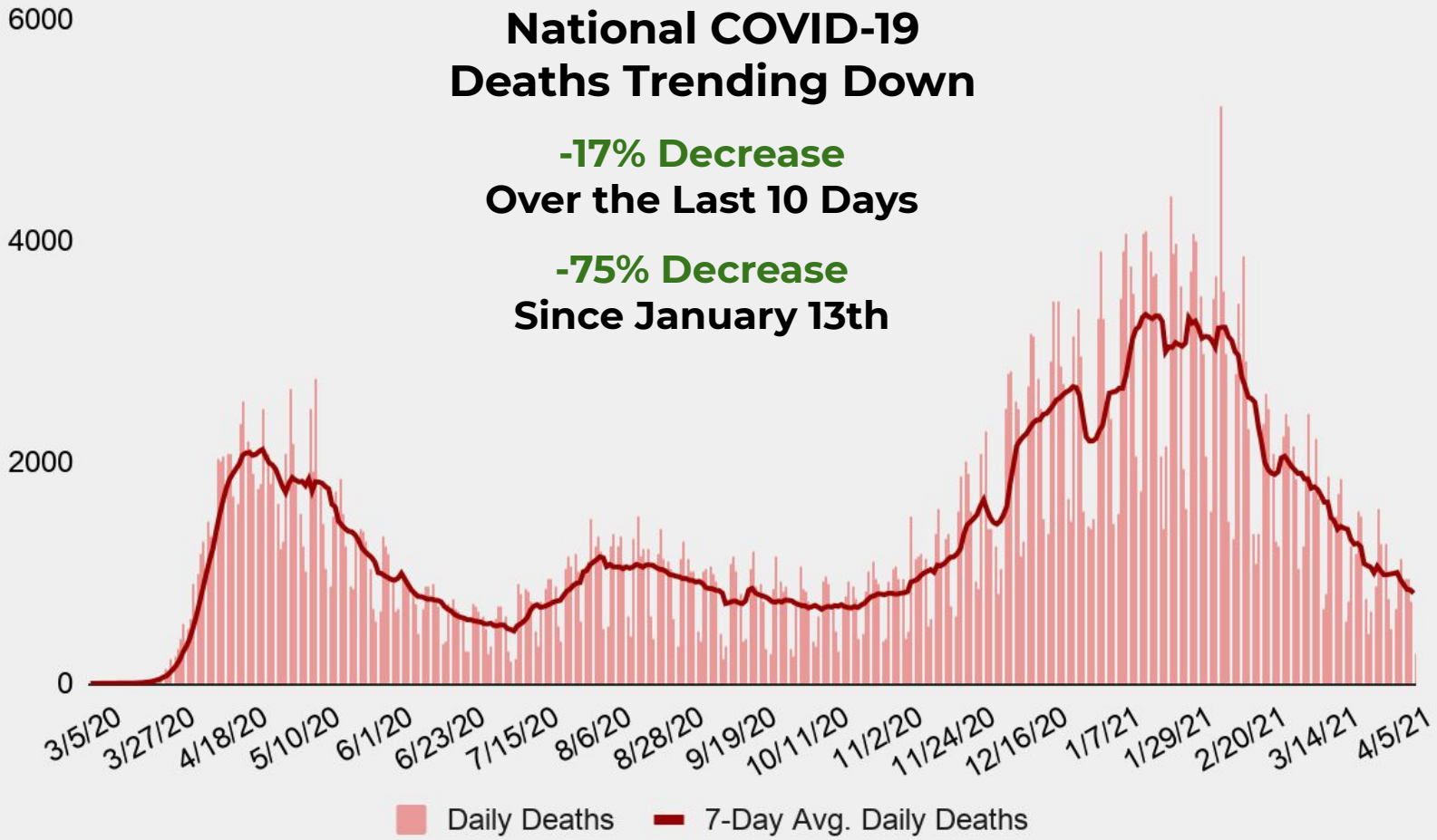


Source: Covid Tracking Project; NYT & CDC—April 5, 2021

National COVID-19 Deaths Trending Down

-17% Decrease
Over the Last 10 Days

-75% Decrease
Since January 13th

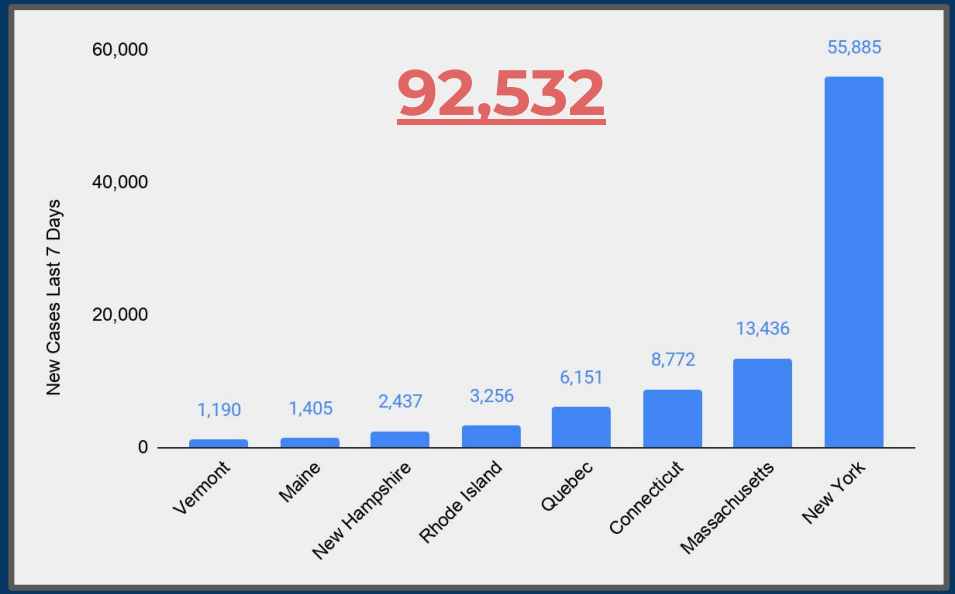


Source: Covid Tracking Project; NYT & CDC—April 5, 2021

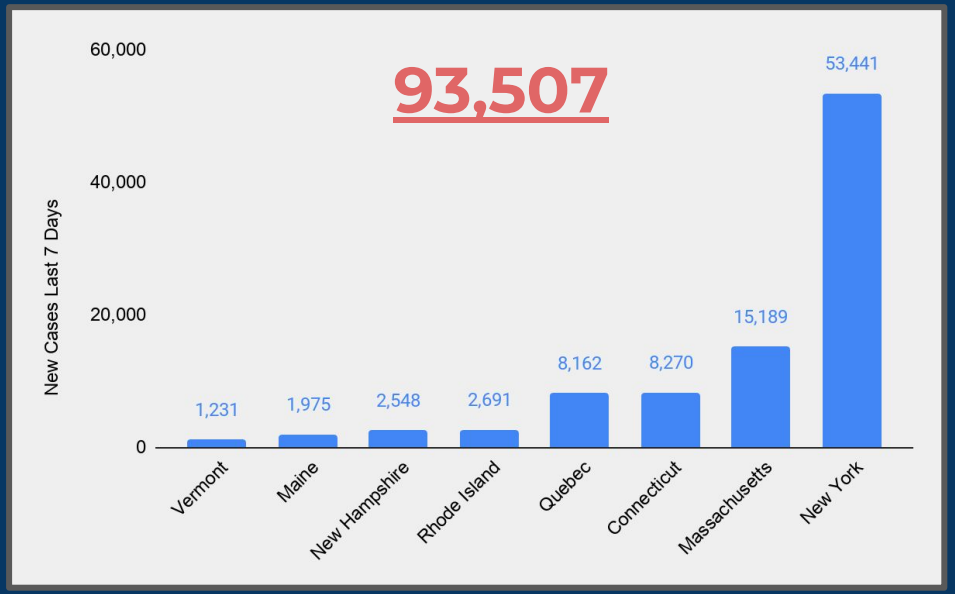
Regional Cases

+1.05% Increase in New Cases

New Cases March 23rd to March 29th

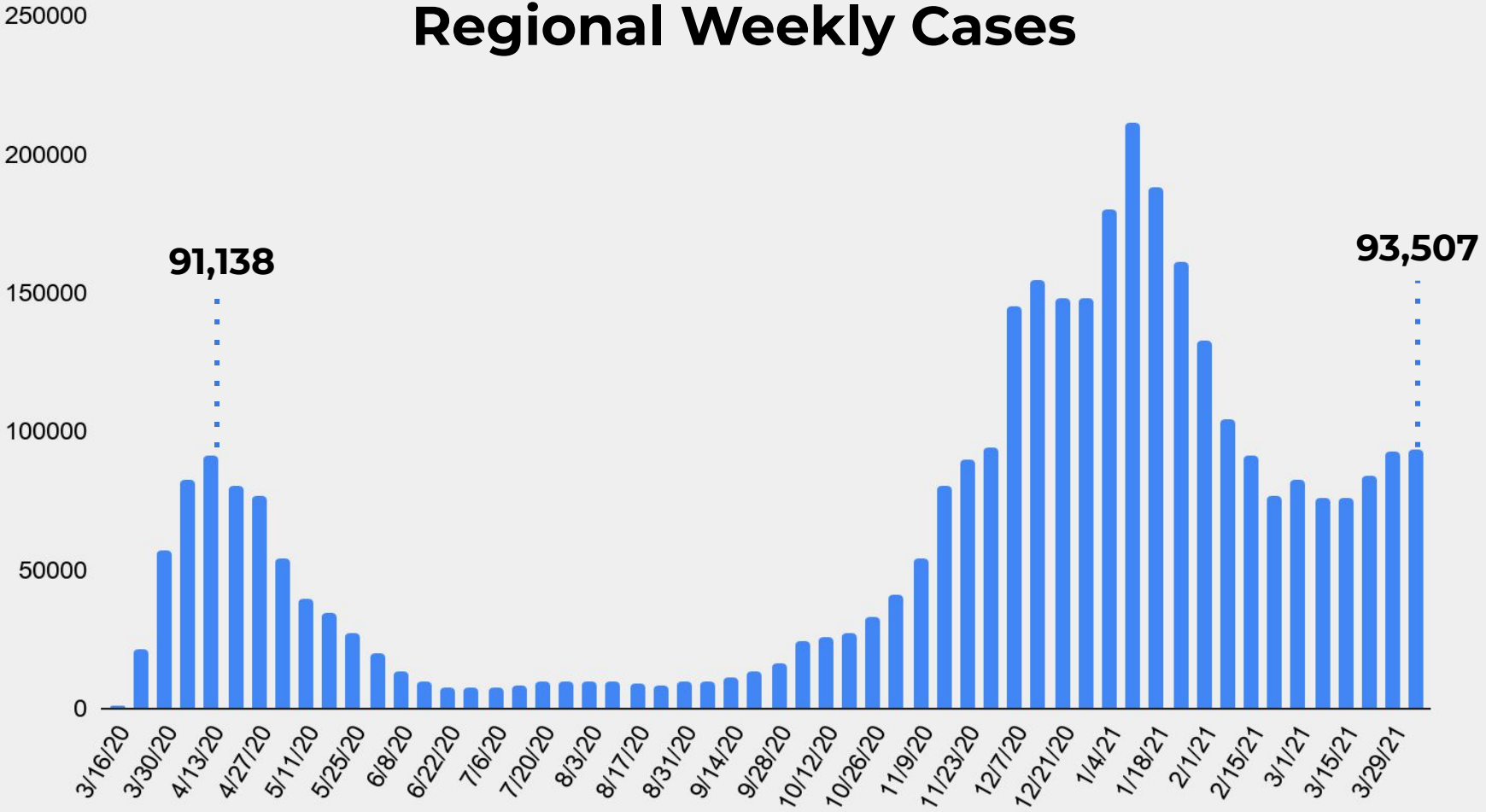


New Cases March 30th to April 5th



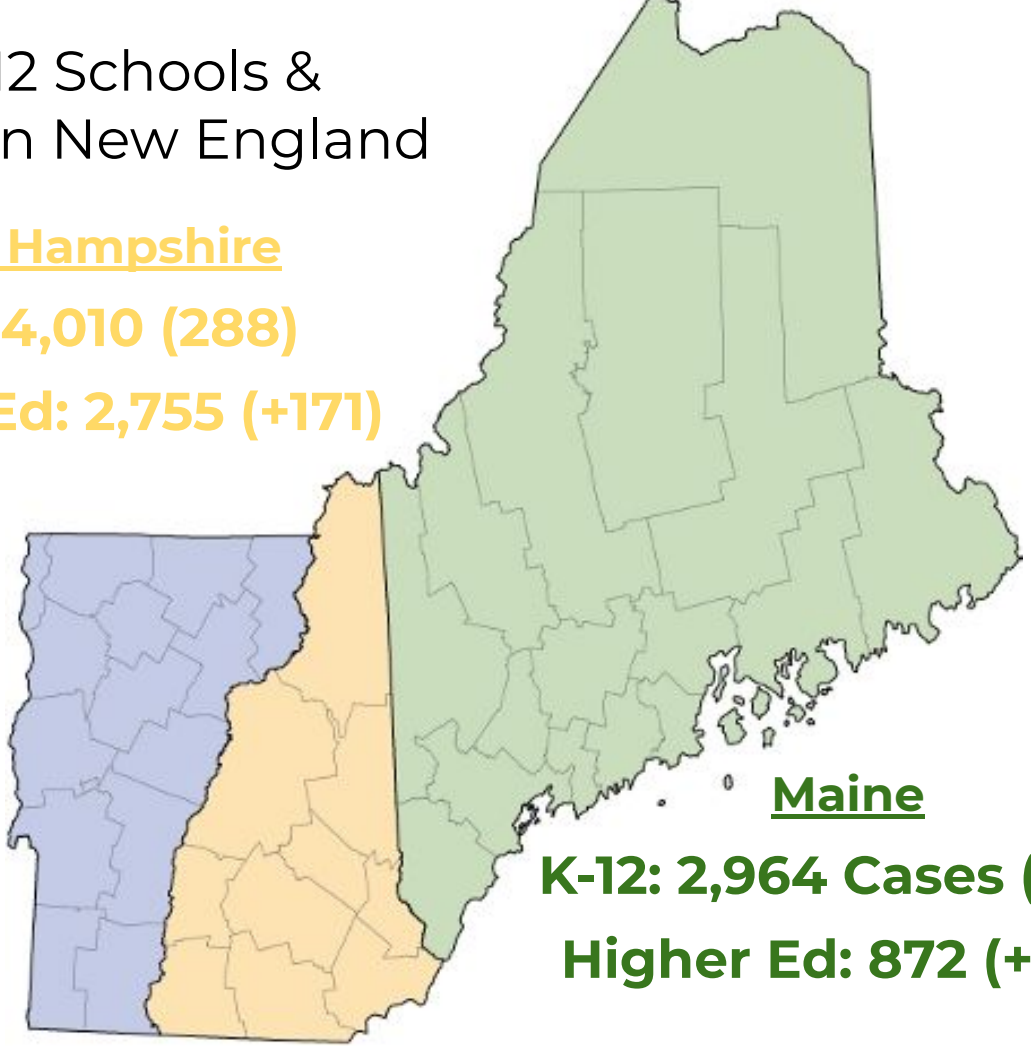
Sources: State Health Departments & CTV National News (Quebec)

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: 4,010 (288)

Higher Ed: 2,755 (+171)

Vermont

K-12: 1,074 Cases (+115)

Higher Ed: 776 (+103)

Maine

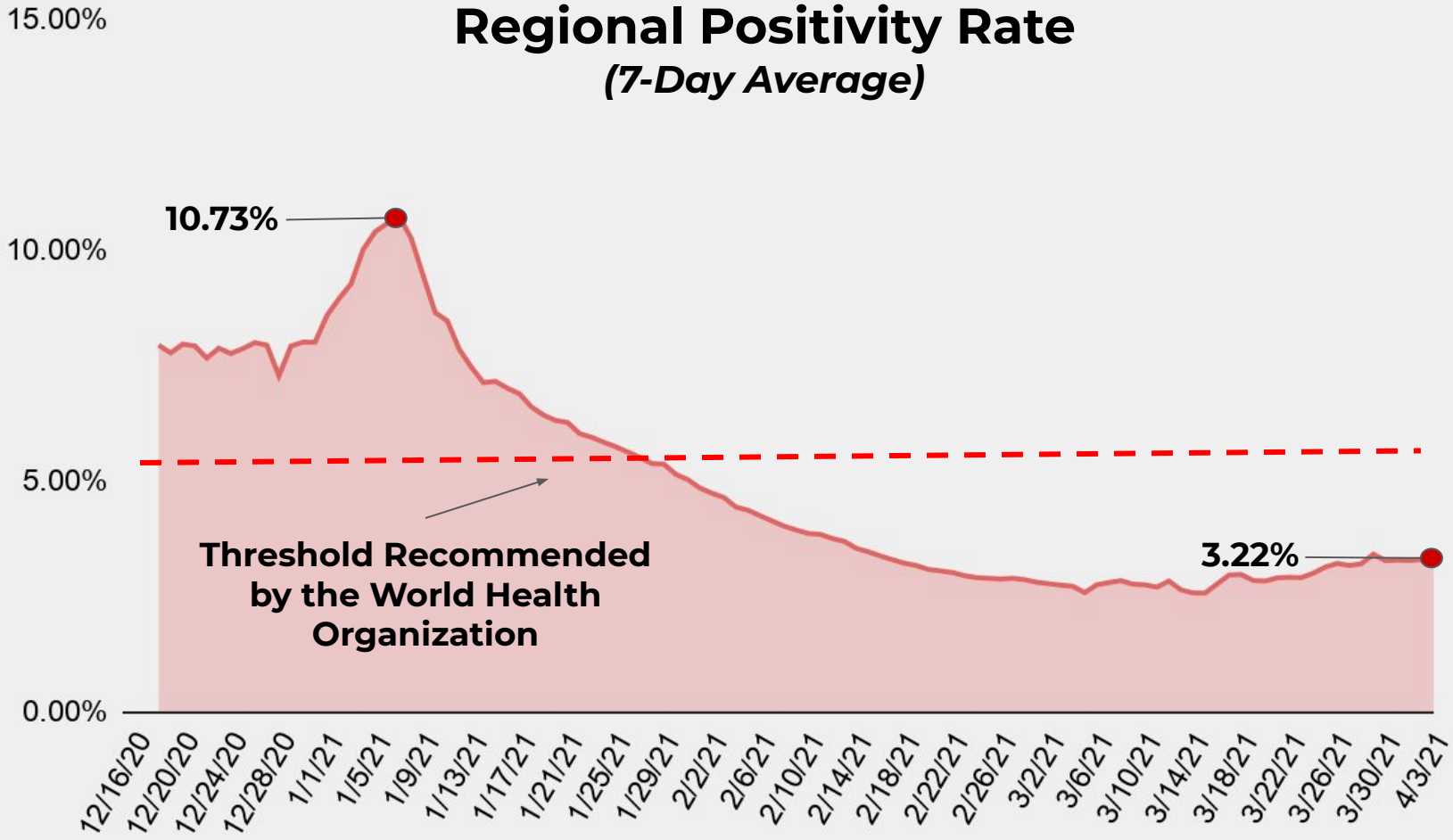
K-12: 2,964 Cases (+66)

Higher Ed: 872 (+125)

Source: ME, NH & VT K-12 Dashboards. *NH did not update K-12 data 4.5.21 - K-12 cases from the full school year; Higher Ed. cases from the Spring Semester.

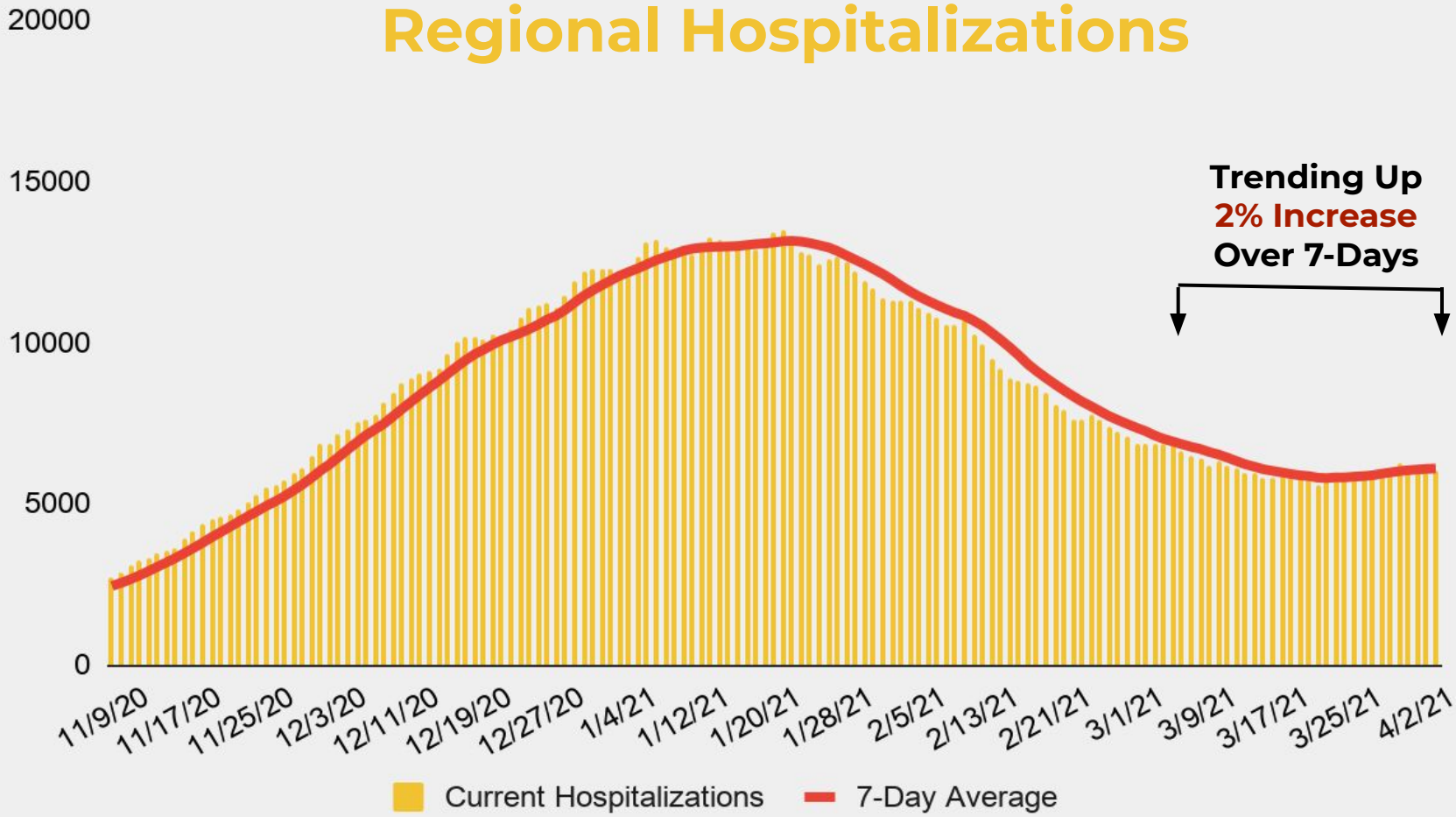
Regional Positivity Rate

(7-Day Average)



Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—April 5, 2021

Regional Hospitalizations



Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—April 5, 2021

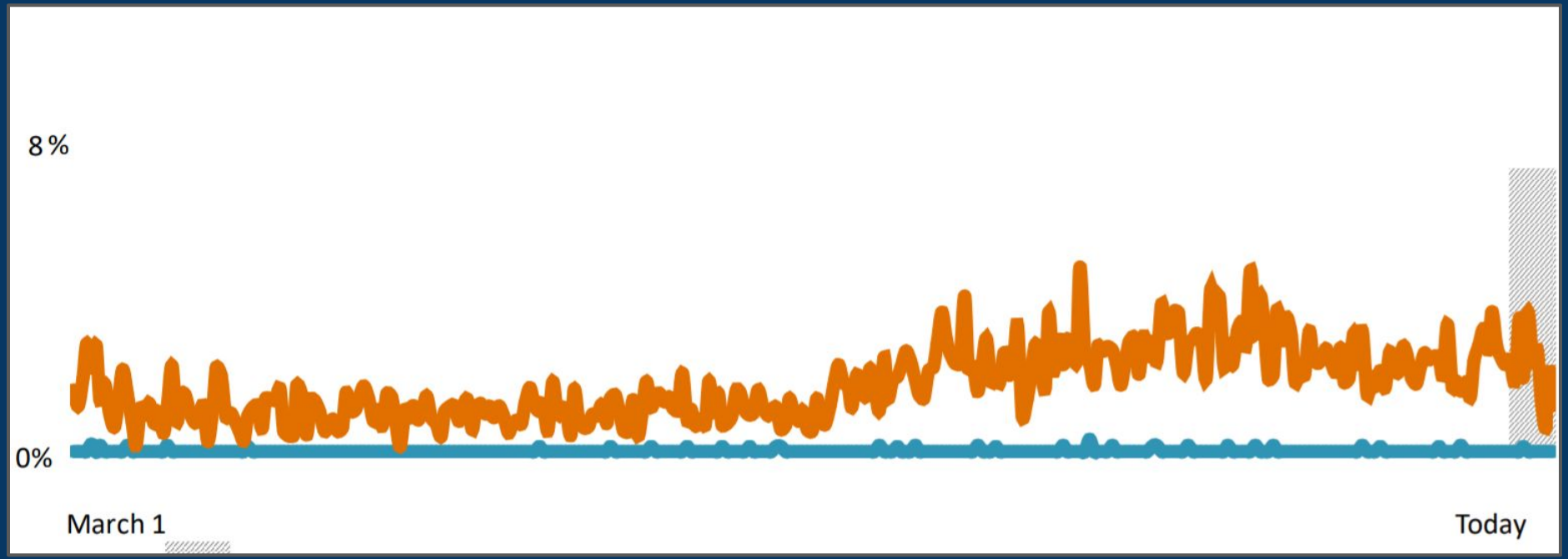
RESTART VERMONT

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

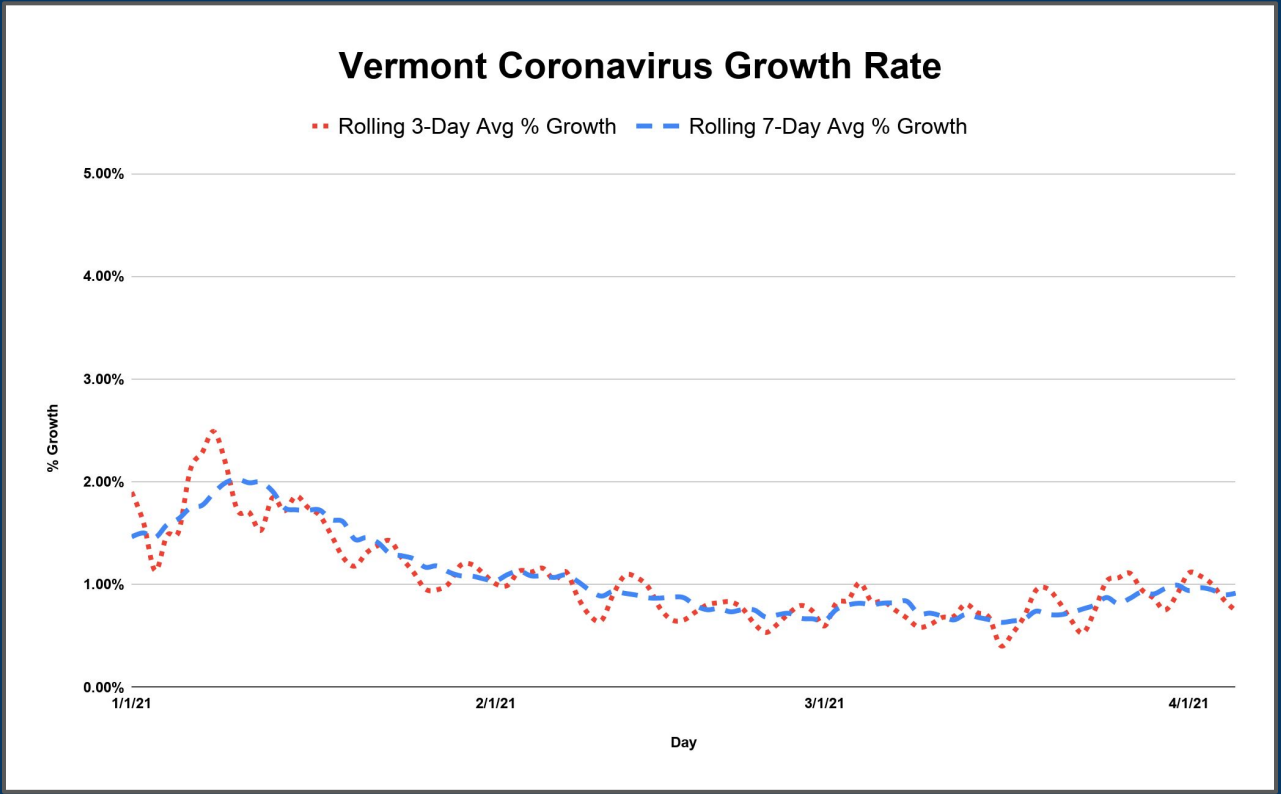
- **Summary:** Percentage of visits with COVID-19 like illness and Influenza diagnosis
- **Warning Flag:** Percentage of visits exceeding 4% for multiple consecutive days



Source: Vermont Department of Health—April 6, 2021

Data Point 2: Viral Growth and Reproductive Rates

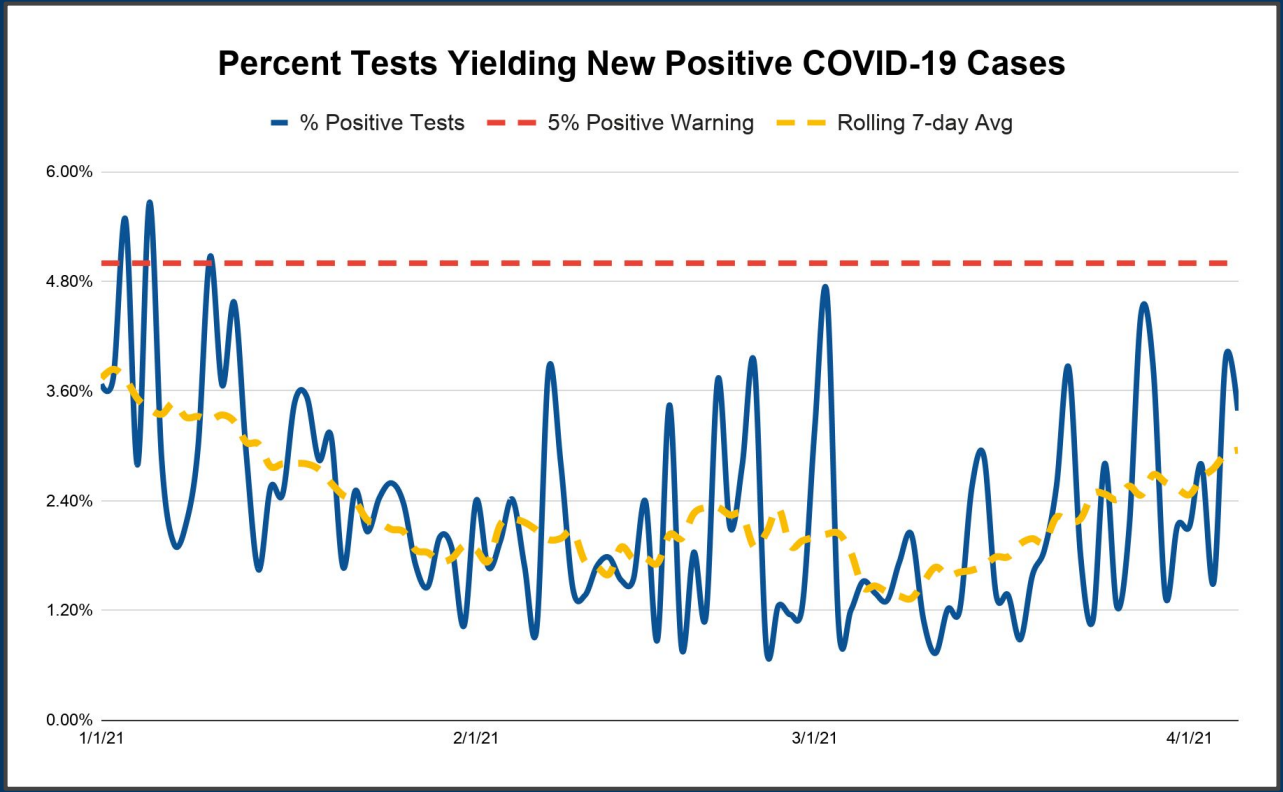
- **Summary:** Case growth measured by daily, 3-day, 7-day, and effective reproductive rate (R_t)
- **Warning Flags:** Sustained viral growth that would lead to <30% open ICU beds



Source: Vermont Department of Health—April 6, 2021

Data Point 3: Percentage of New Positive Tests

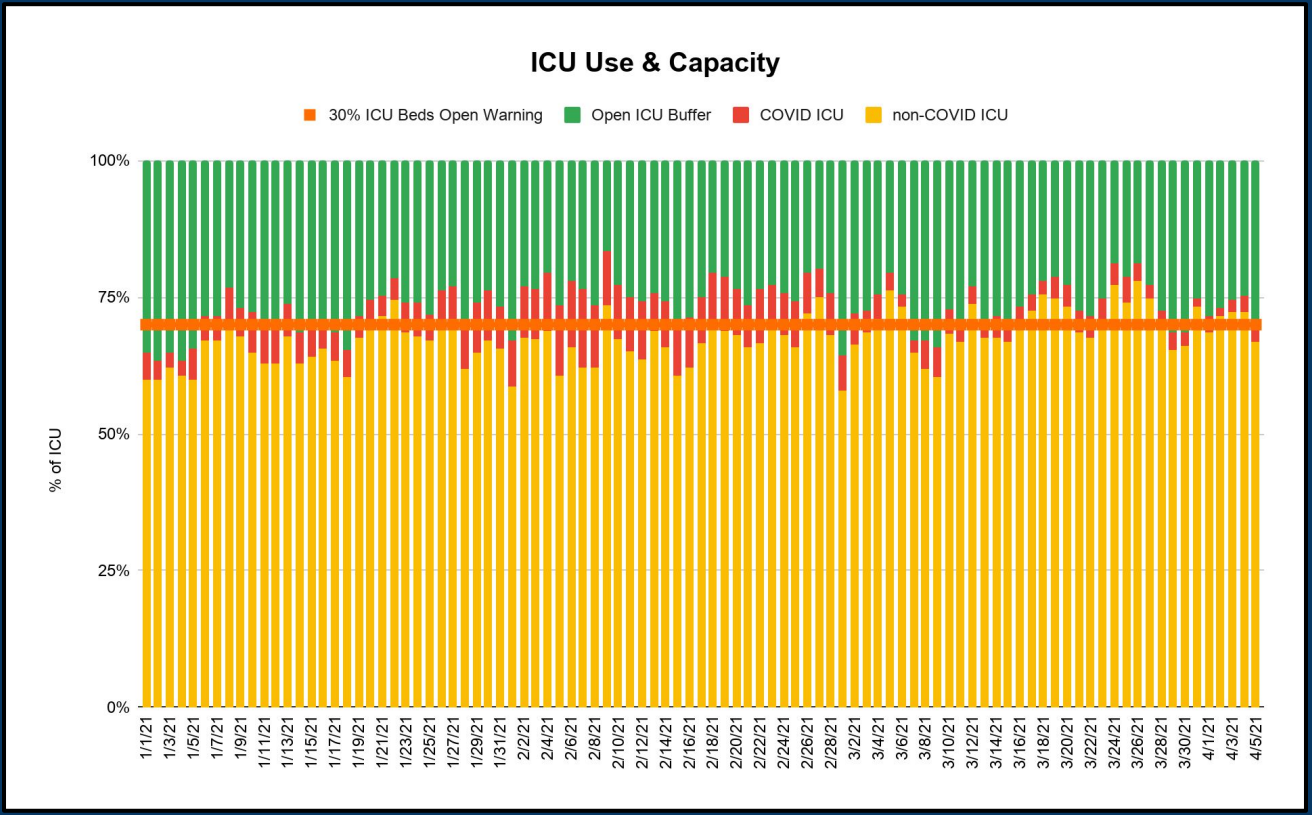
- **Summary:** Percent of tests resulting in a new positive case
- **Warning Flags:** New positives represent >5% of daily results



Source: Vermont Department of Health—April 6, 2021

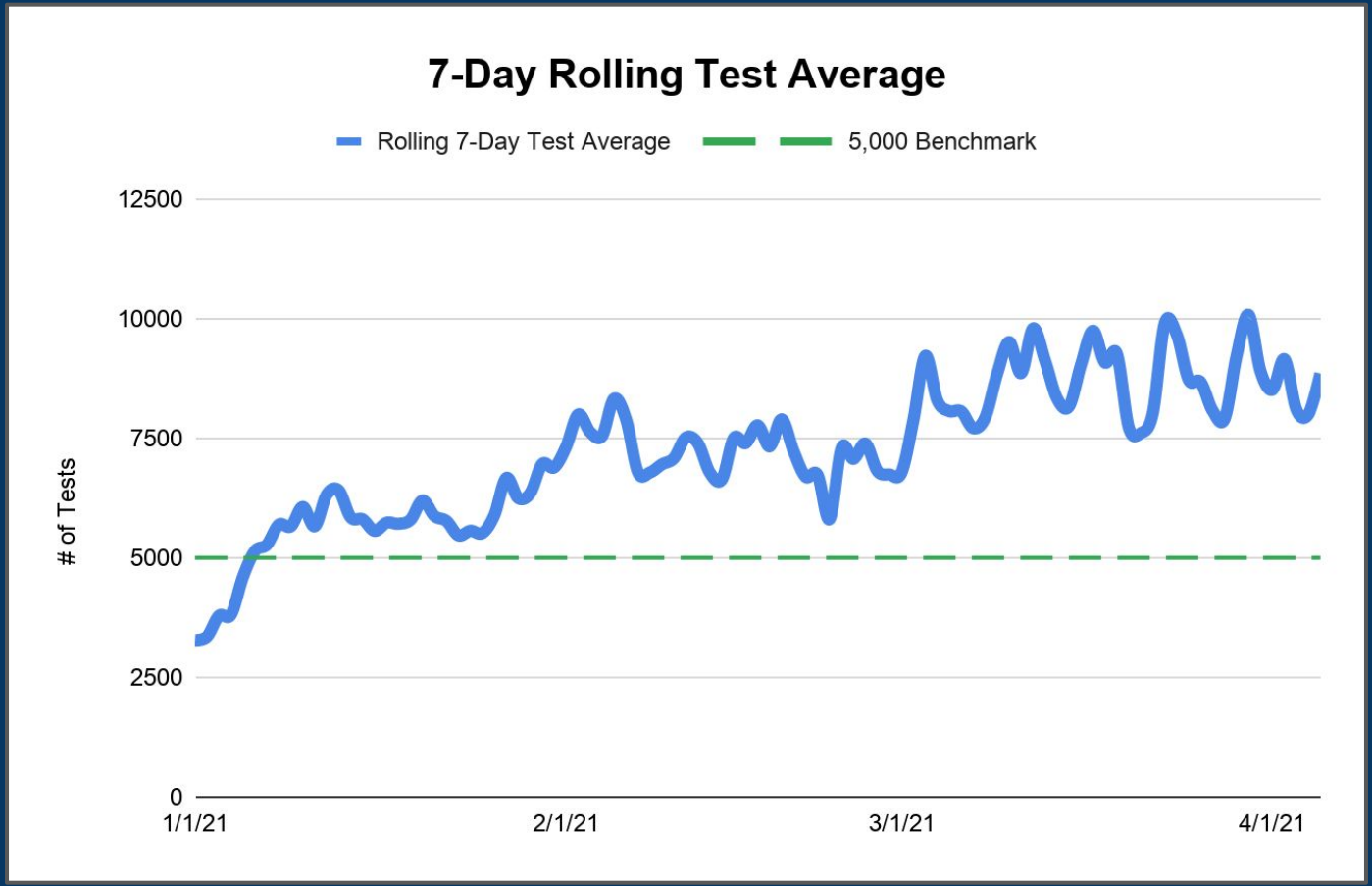
Data Point 4: Hospital & Critical Care Beds

- **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—April 6, 2021

Vermont Testing



Source: Vermont Department of Health—April 6, 2021; results reported to VDH daily