

COVID-19 Modeling

September 28, 2021

Presentation available at:
dfr.vermont.gov

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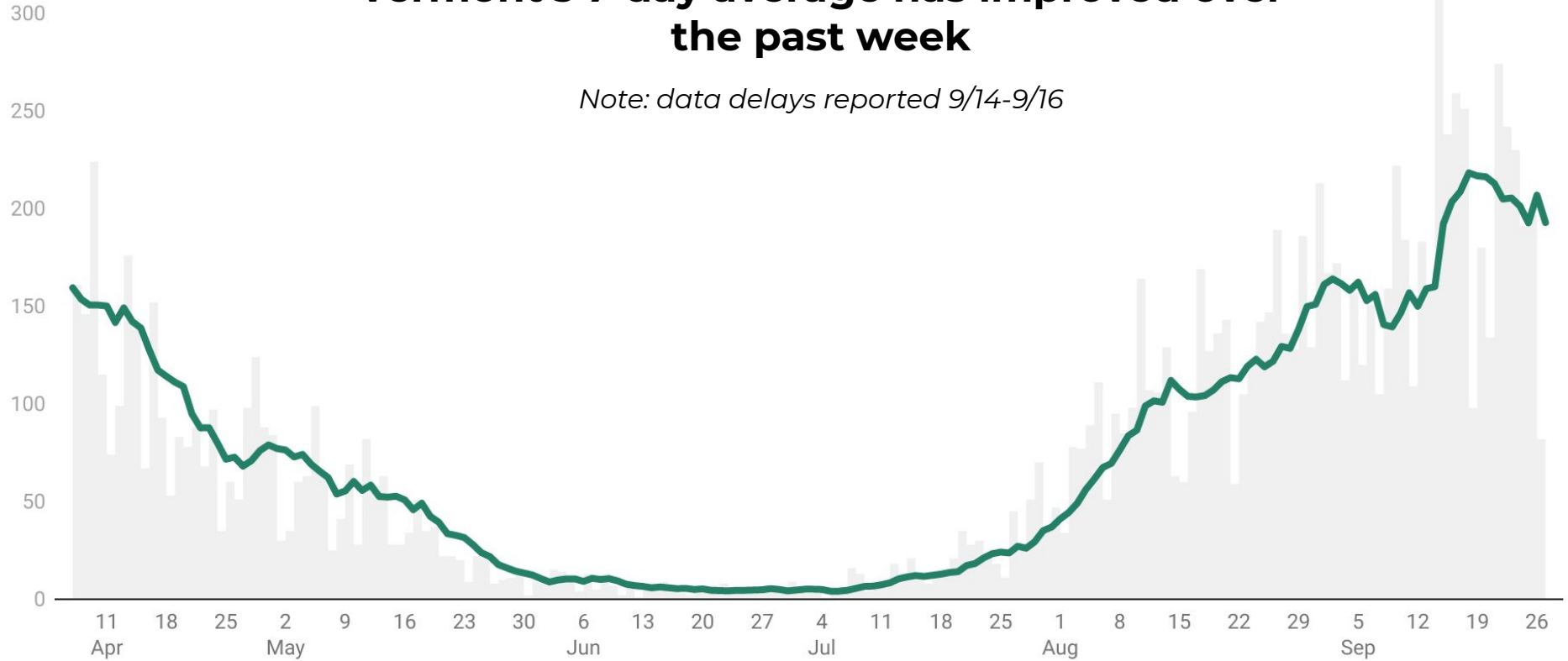
Vermont Case Data

Vermont 7-Day Covid-19 Case Average

7-Day Average

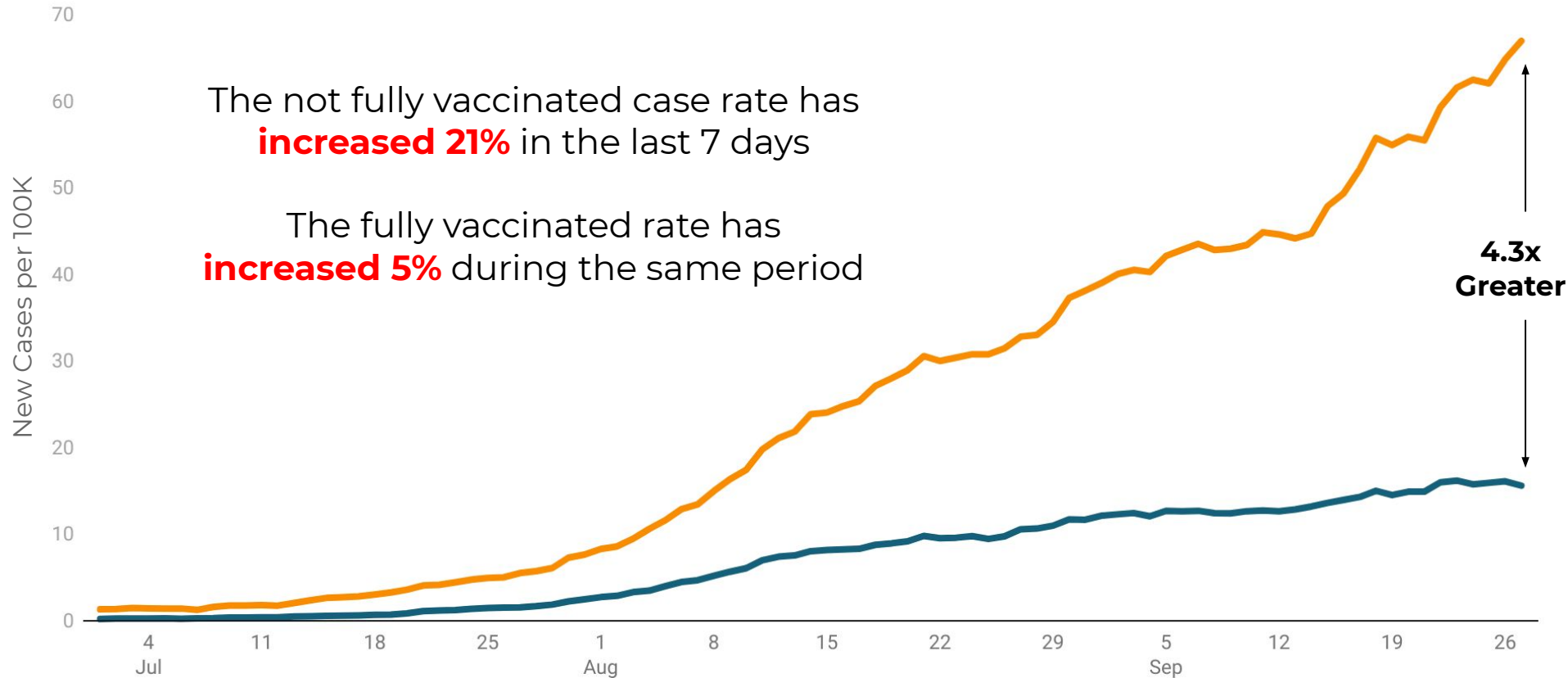
Vermont's 7-day average has improved over the past week

Note: data delays reported 9/14-9/16



Vermont COVID-19 New Case Rates Per 100K (14-Day Average)

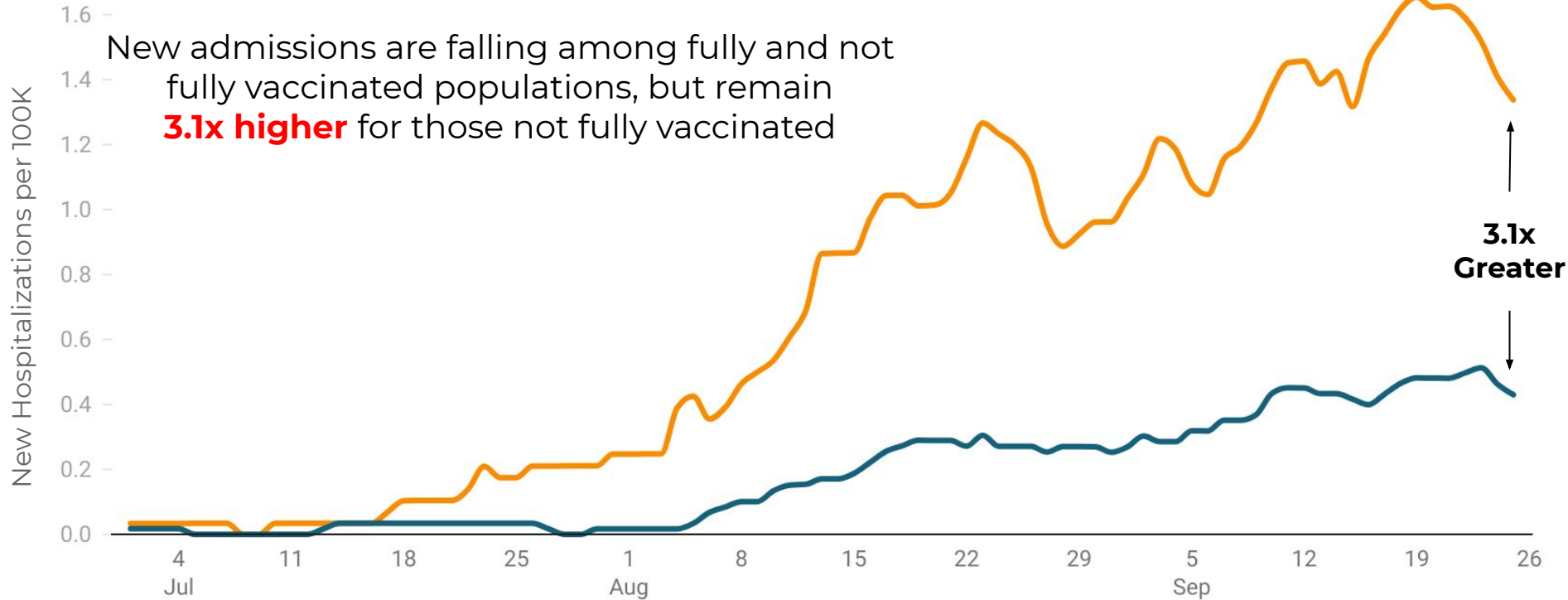
Not Fully Vaccinated Case Rate Fully Vaccinated Case Rate



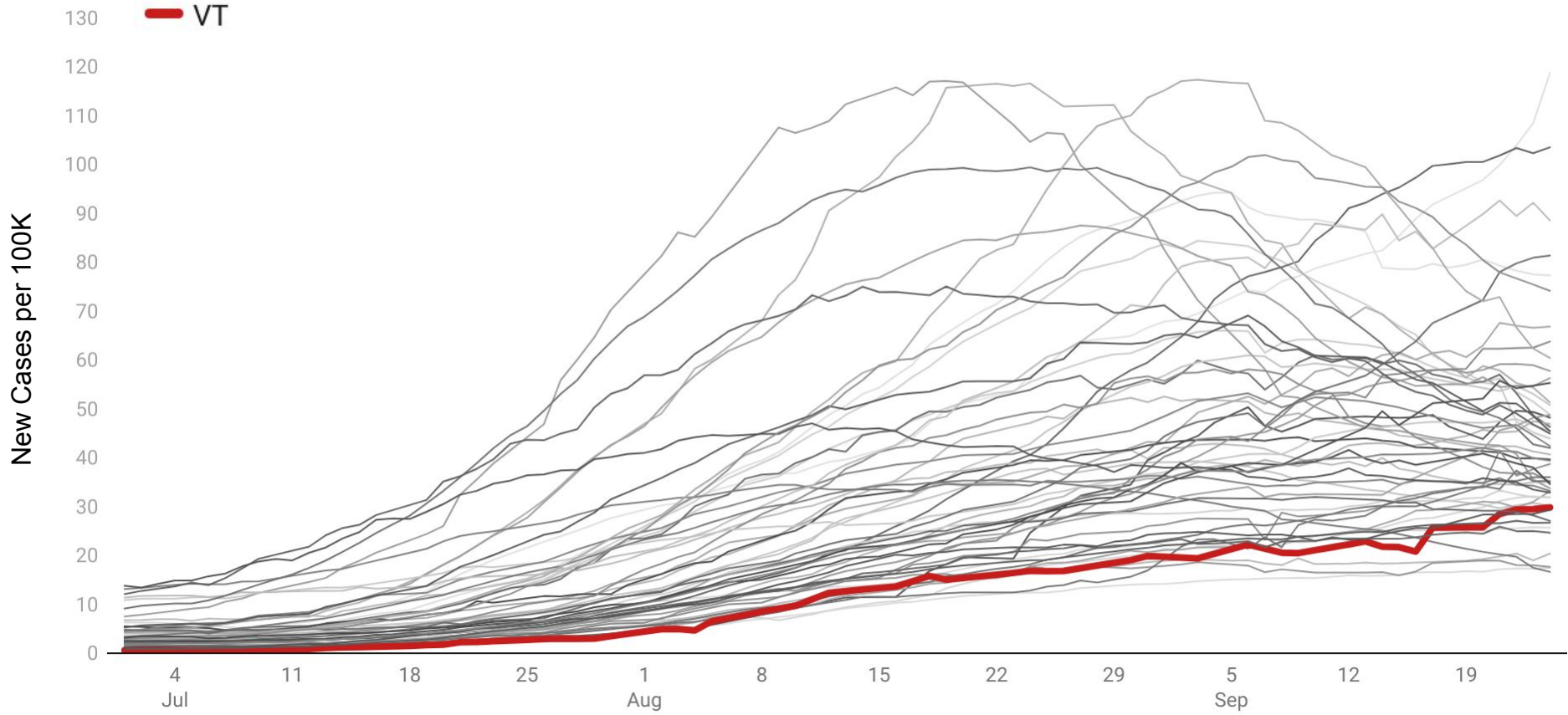
Vermont COVID-19 Hospitalizations

New Daily Hospital Admissions Per 100K (14-Day Average)

Not Fully Vaccinated Fully Vaccinated

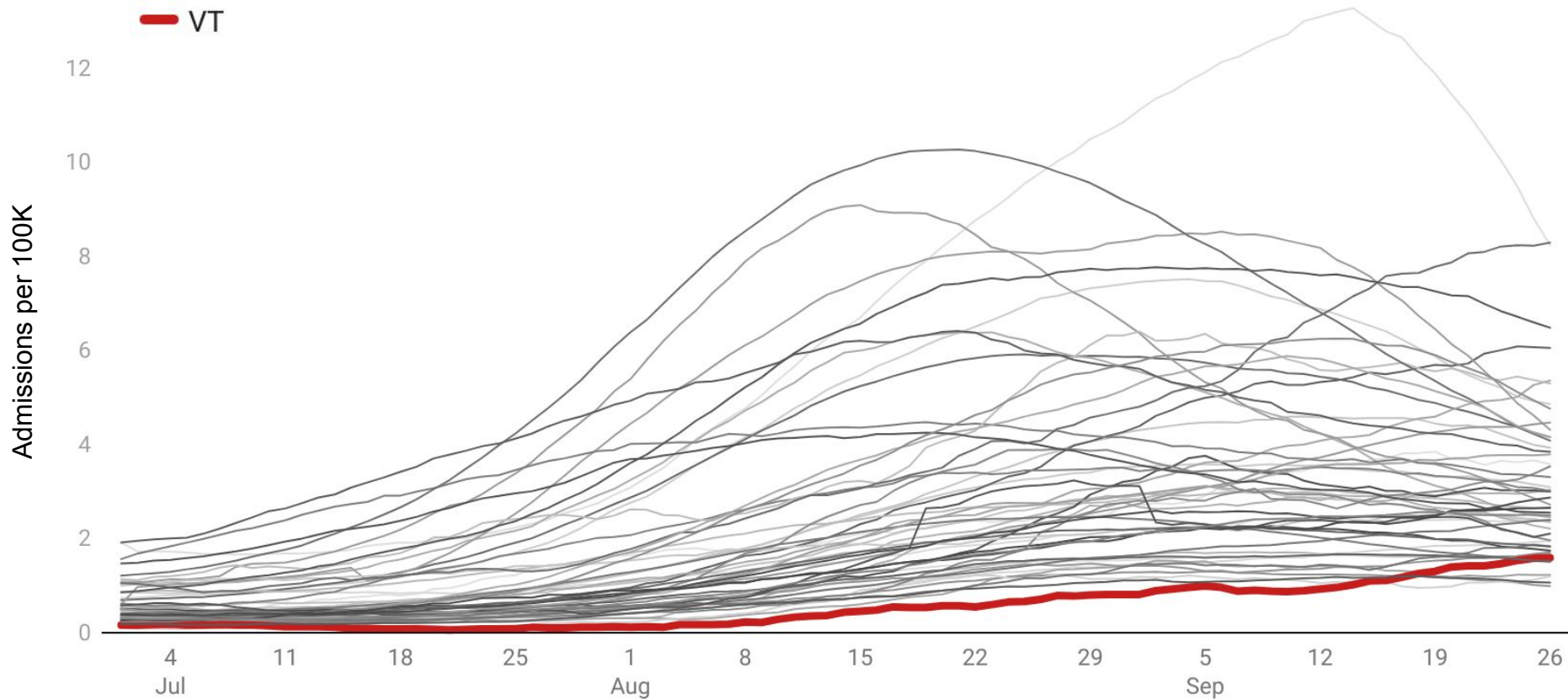


Delta Wave: Cases Per 100k By State (14-Day Avg.)

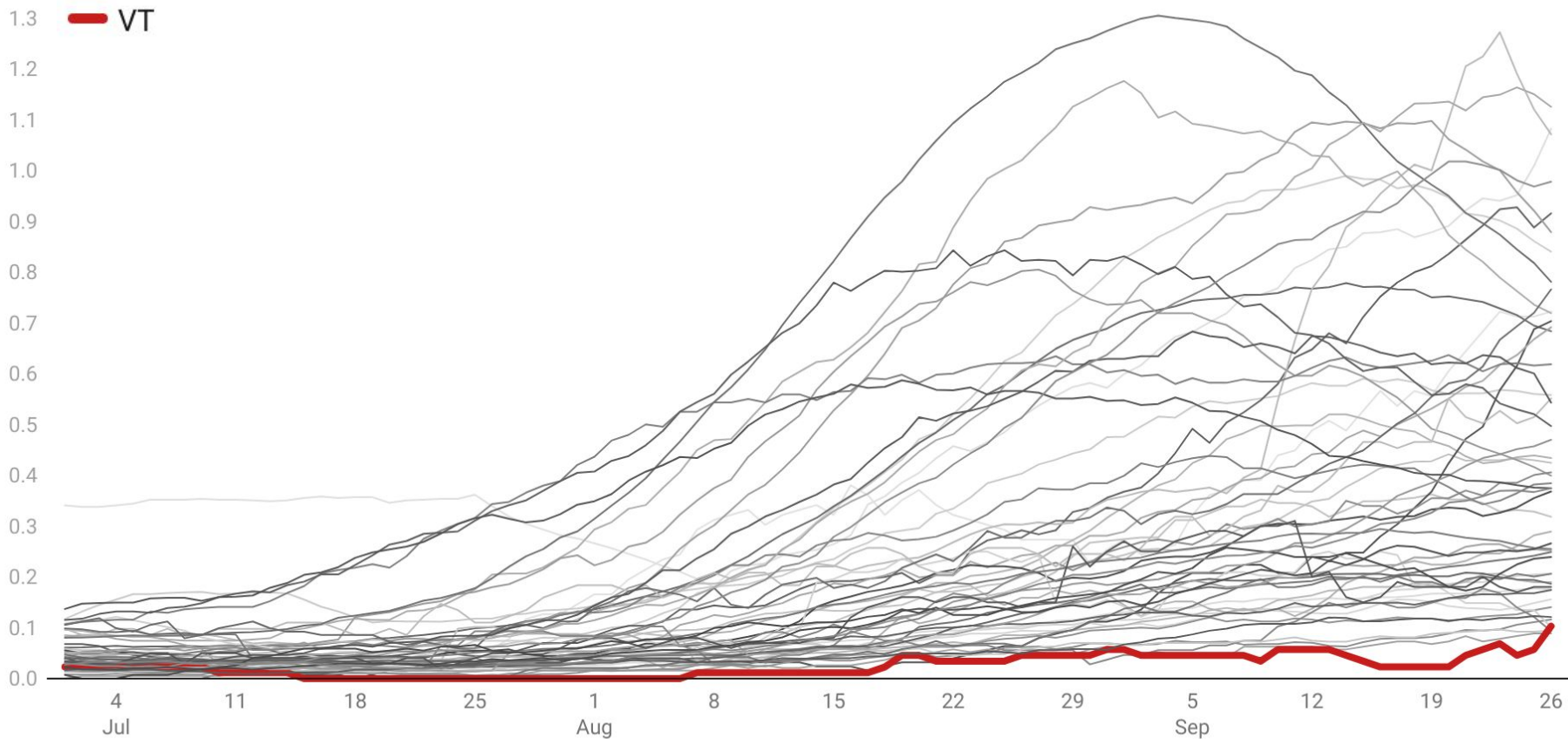


Source: CDC—September 27, 2021

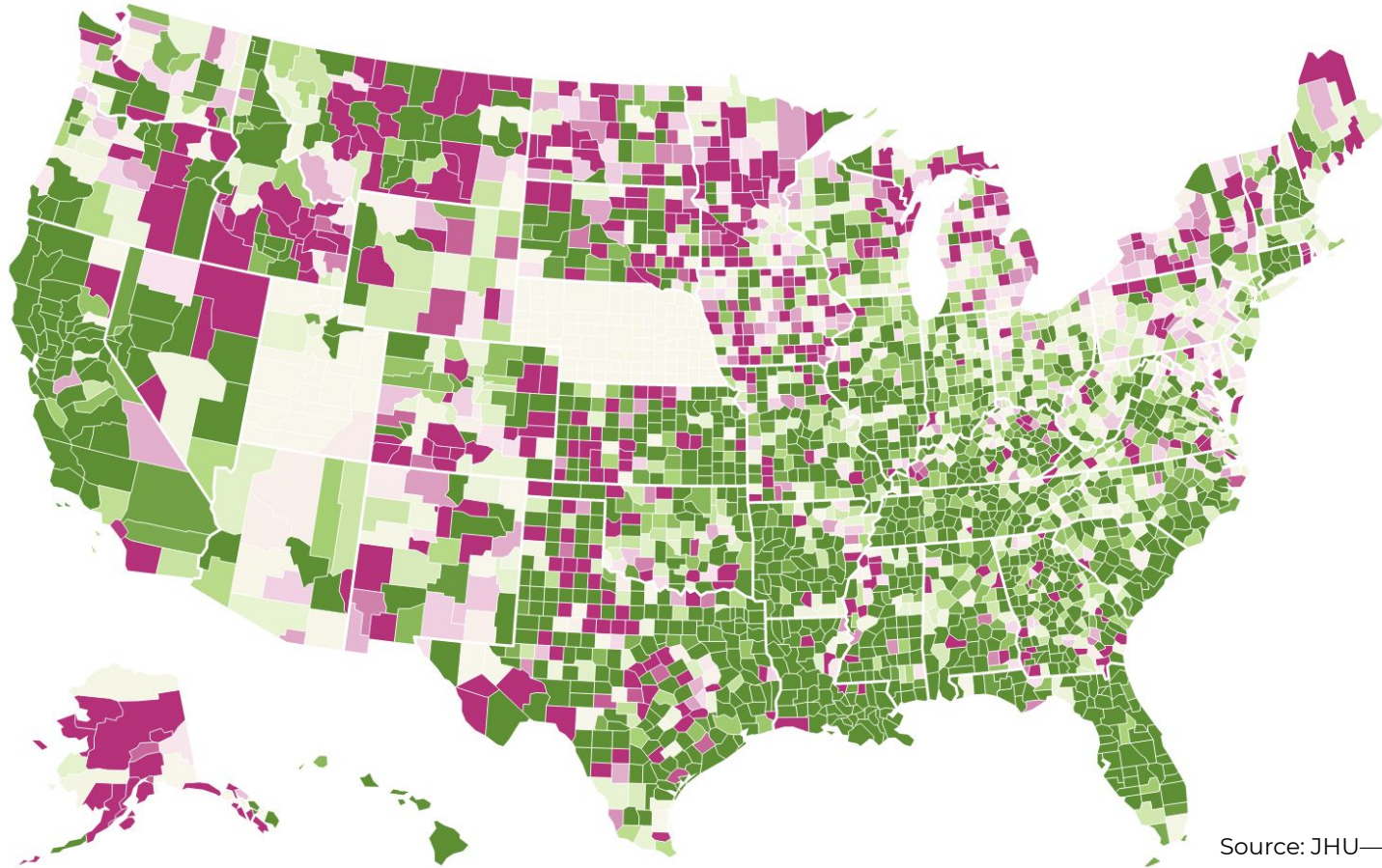
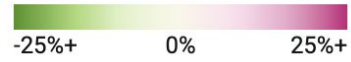
Delta Wave: Daily Hospitalizations per 100K By State (14-Day Avg.)



Delta Wave: Daily Covid-19 Deaths Per 100K By State (14-Day Avg.)

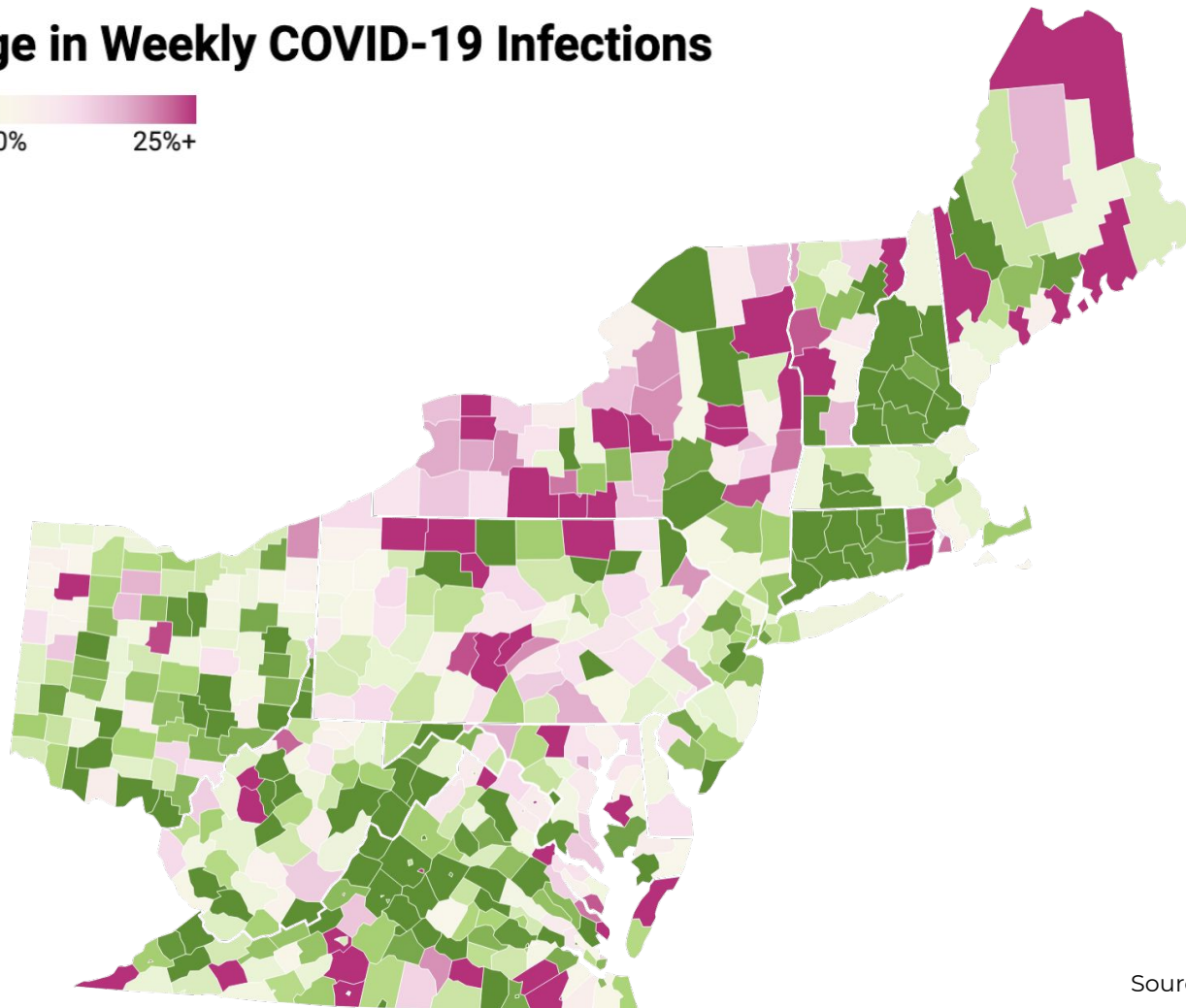
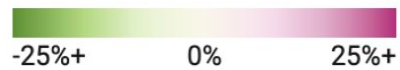


% Change in Weekly COVID-19 Infections



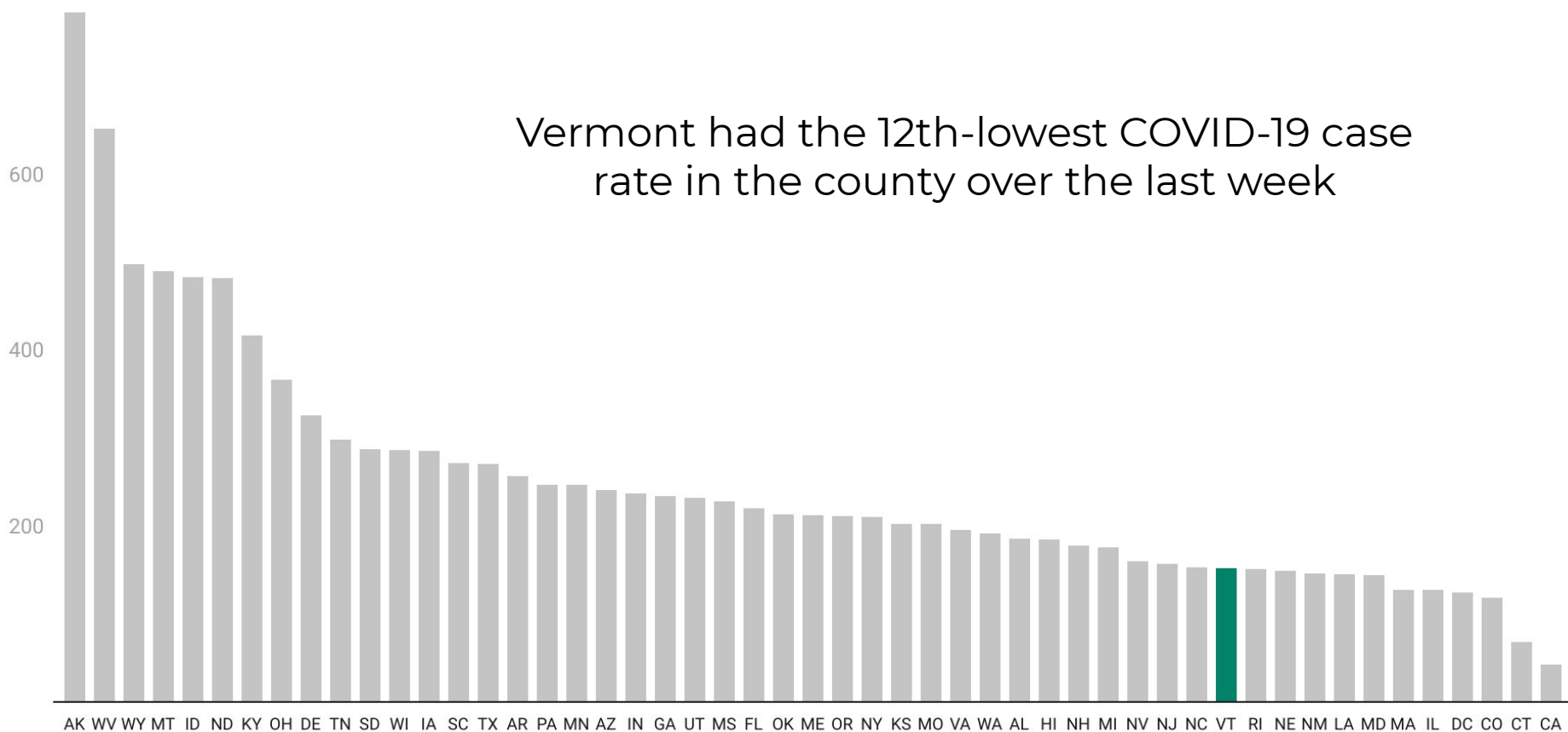
Source: JHU—September 27, 2021

% Change in Weekly COVID-19 Infections



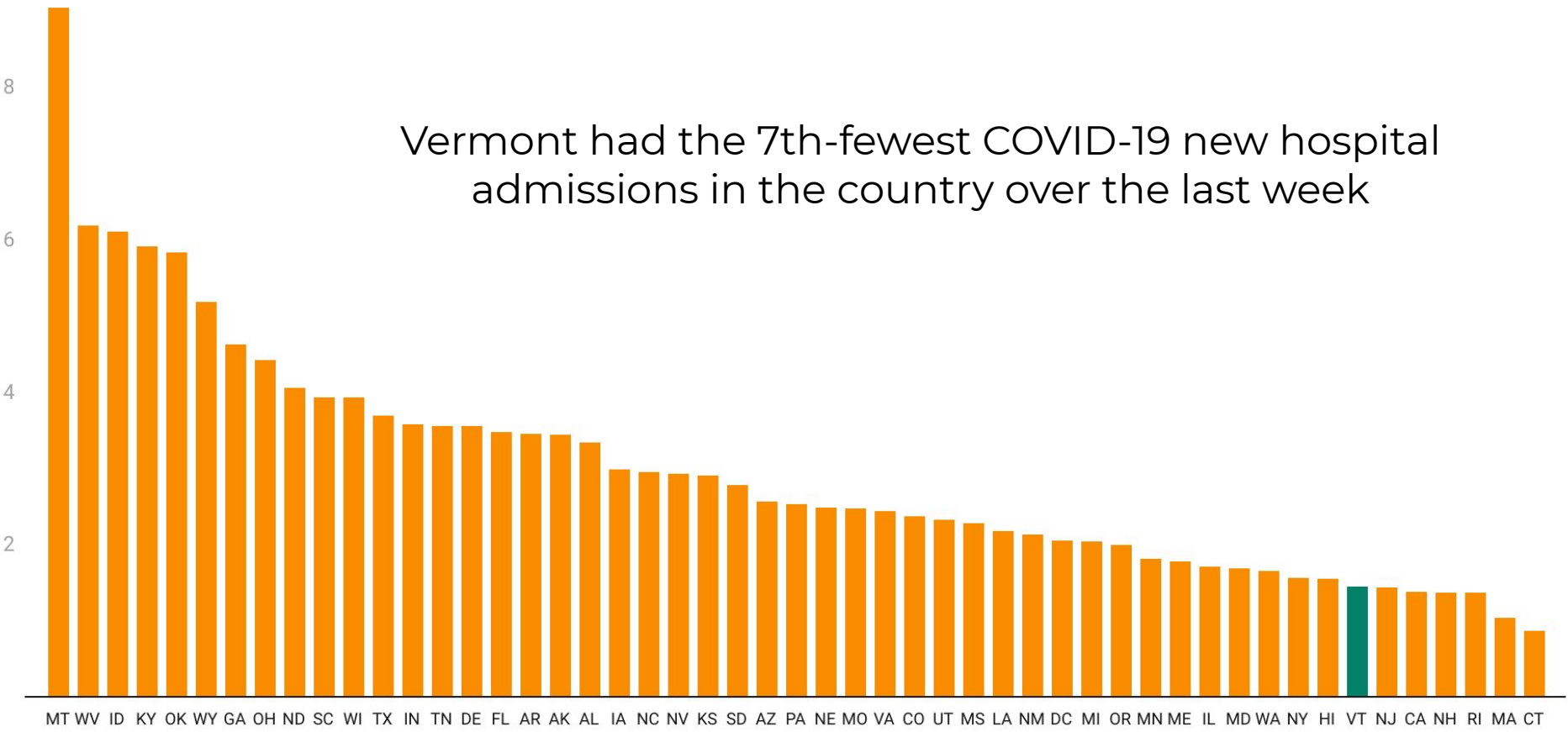
Source: JHU—September 27, 2021

COVID-19 Cases Per 100K Last 7 Days



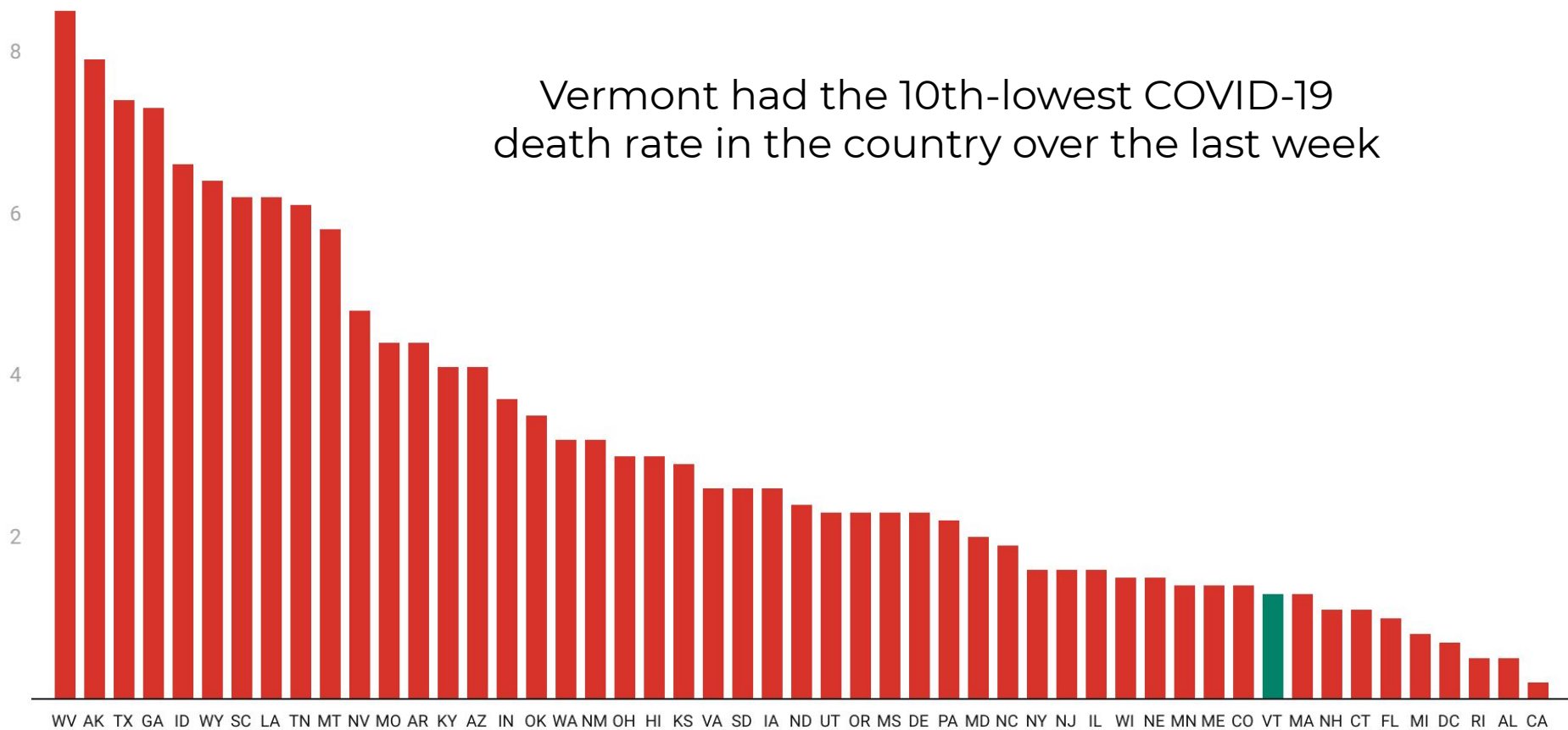
COVID-19 New Hospital Admissions Per 100K Last 7 Days

Vermont had the 7th-fewest COVID-19 new hospital admissions in the country over the last week

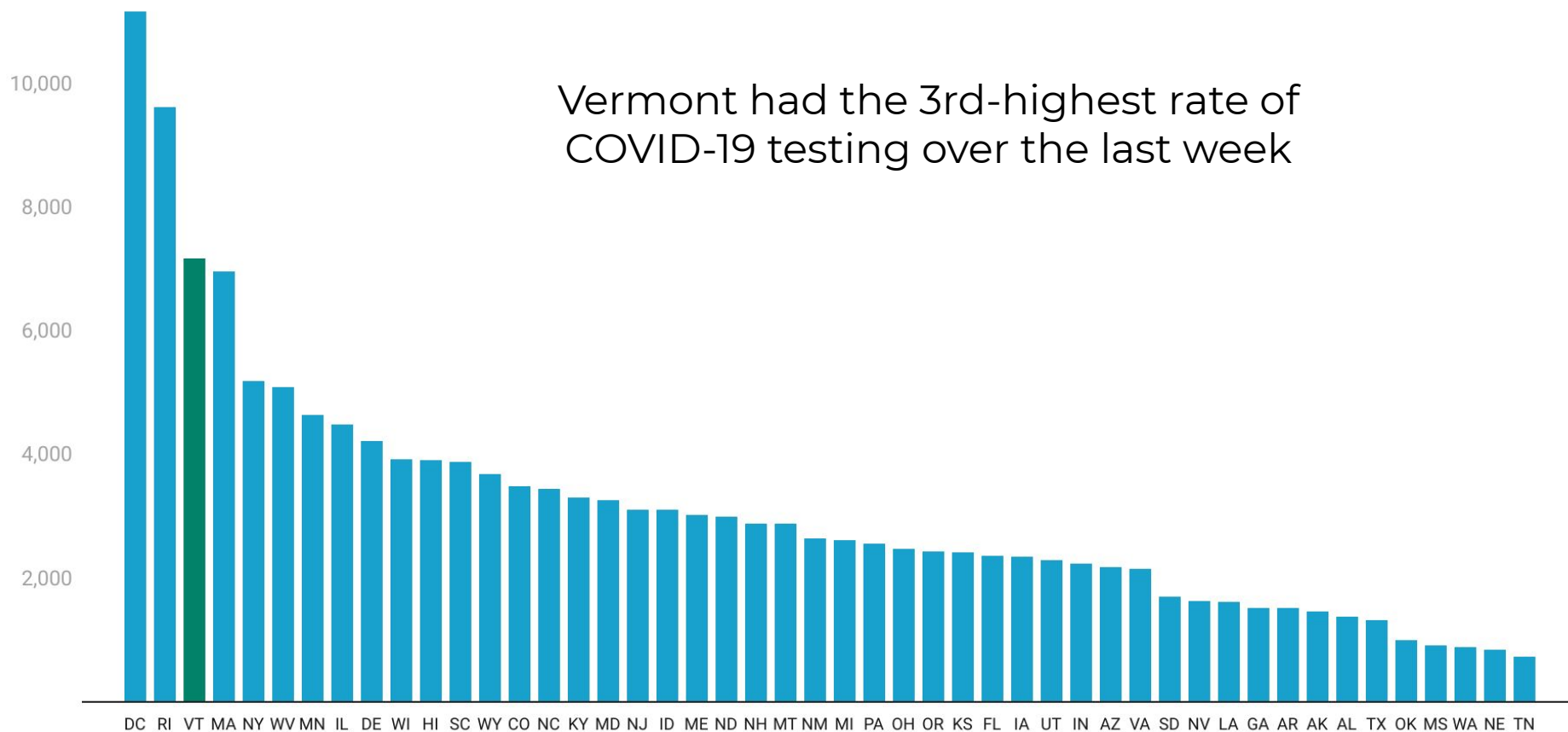


Source: CDC—September 27, 2021; Created with Datawrapper

COVID-19 Deaths Per 100K Last 7 Days



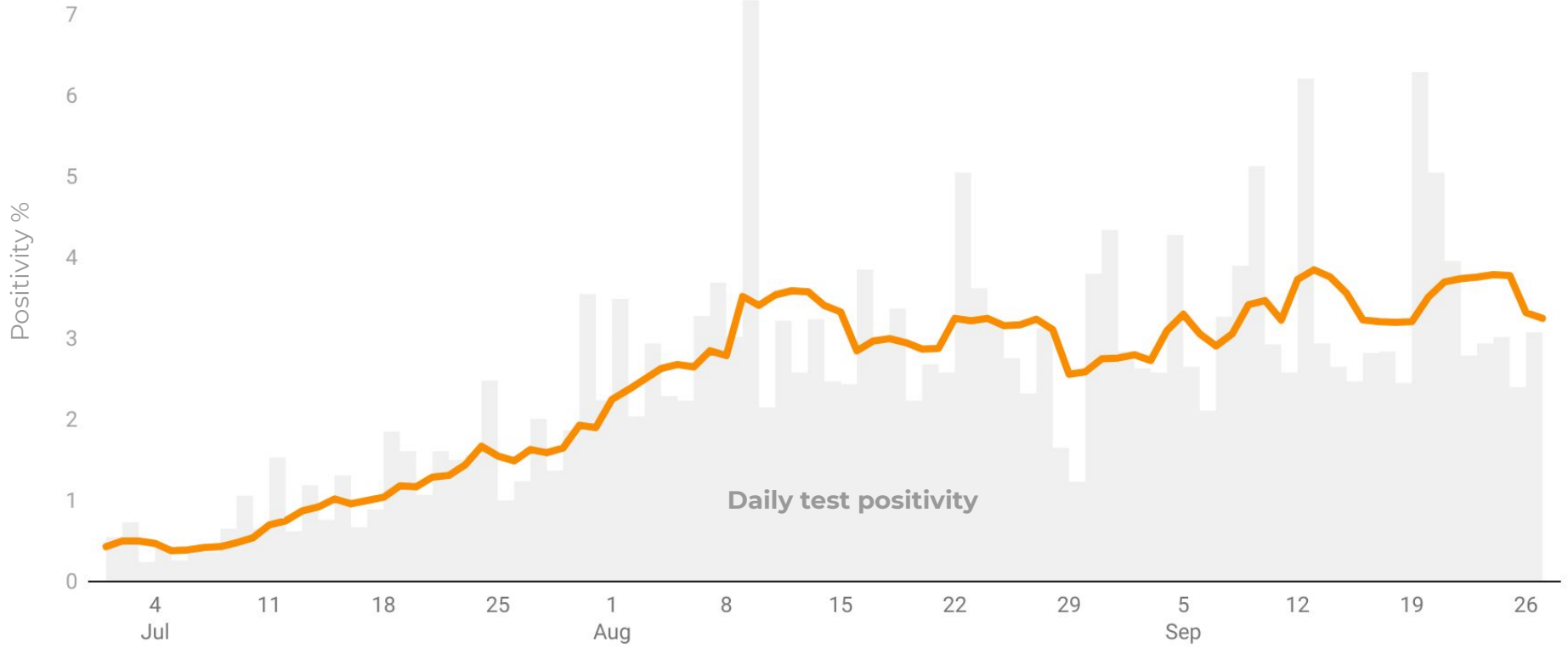
COVID-19 Testing Per 100K Last 7 Days



Source: CDC—September 27, 2021; Created with Datawrapper (Note: California, Connecticut and Missouri did not report testing to the CDC)

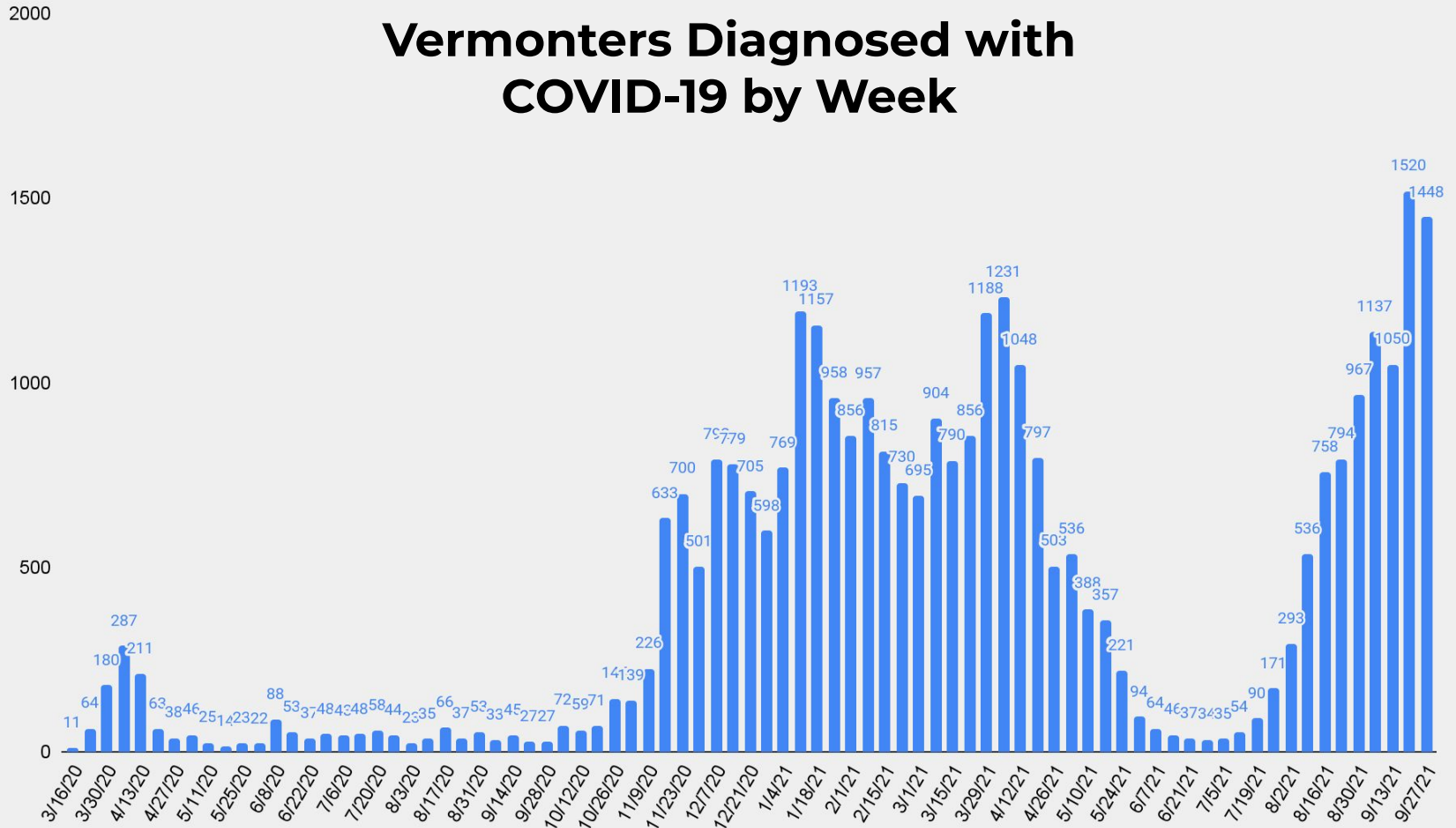
Vermont Test Positivity: Delta Wave

Rolling 7-Day Average



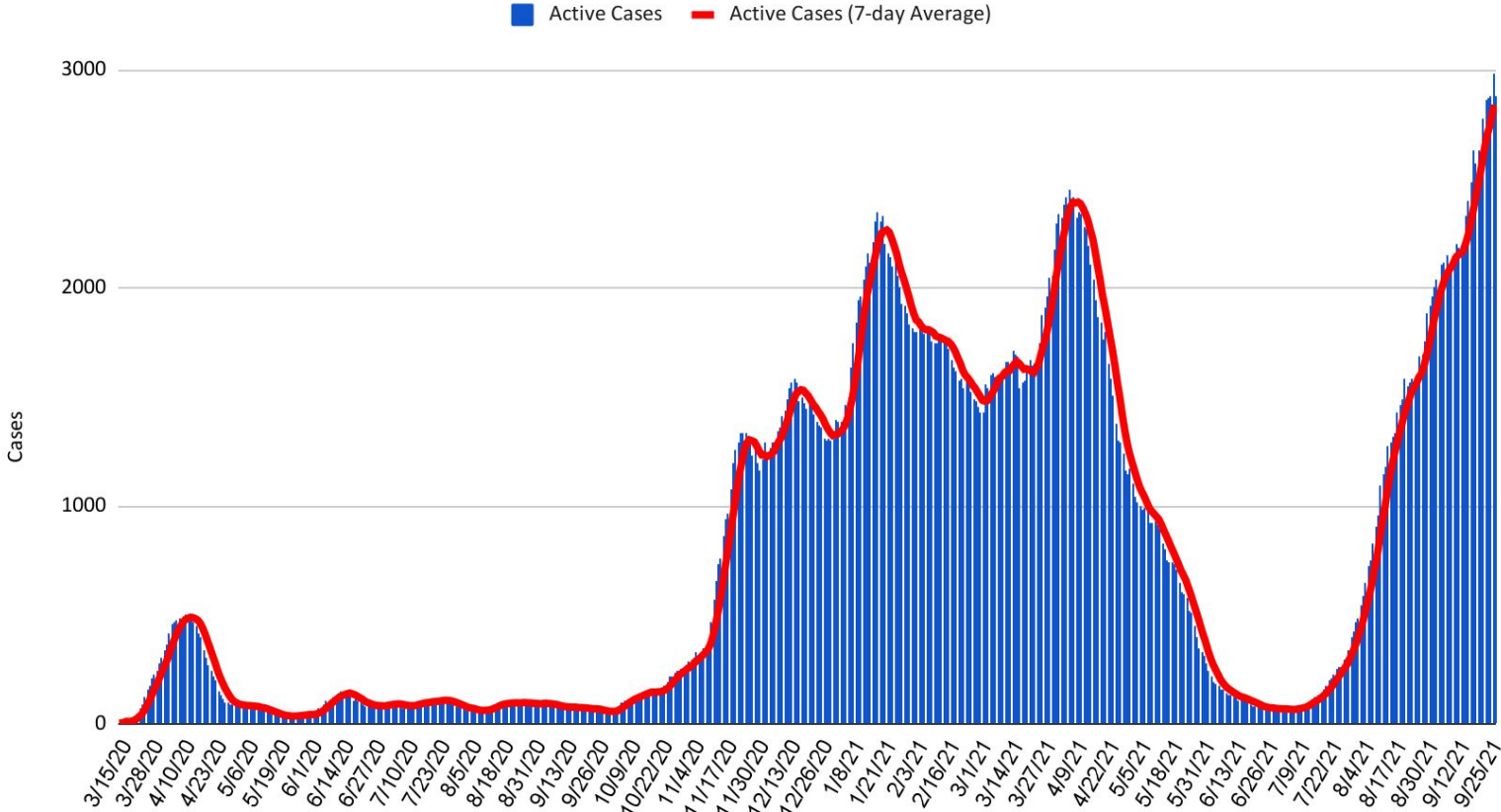
Daily test positivity

Vermonters Diagnosed with COVID-19 by Week



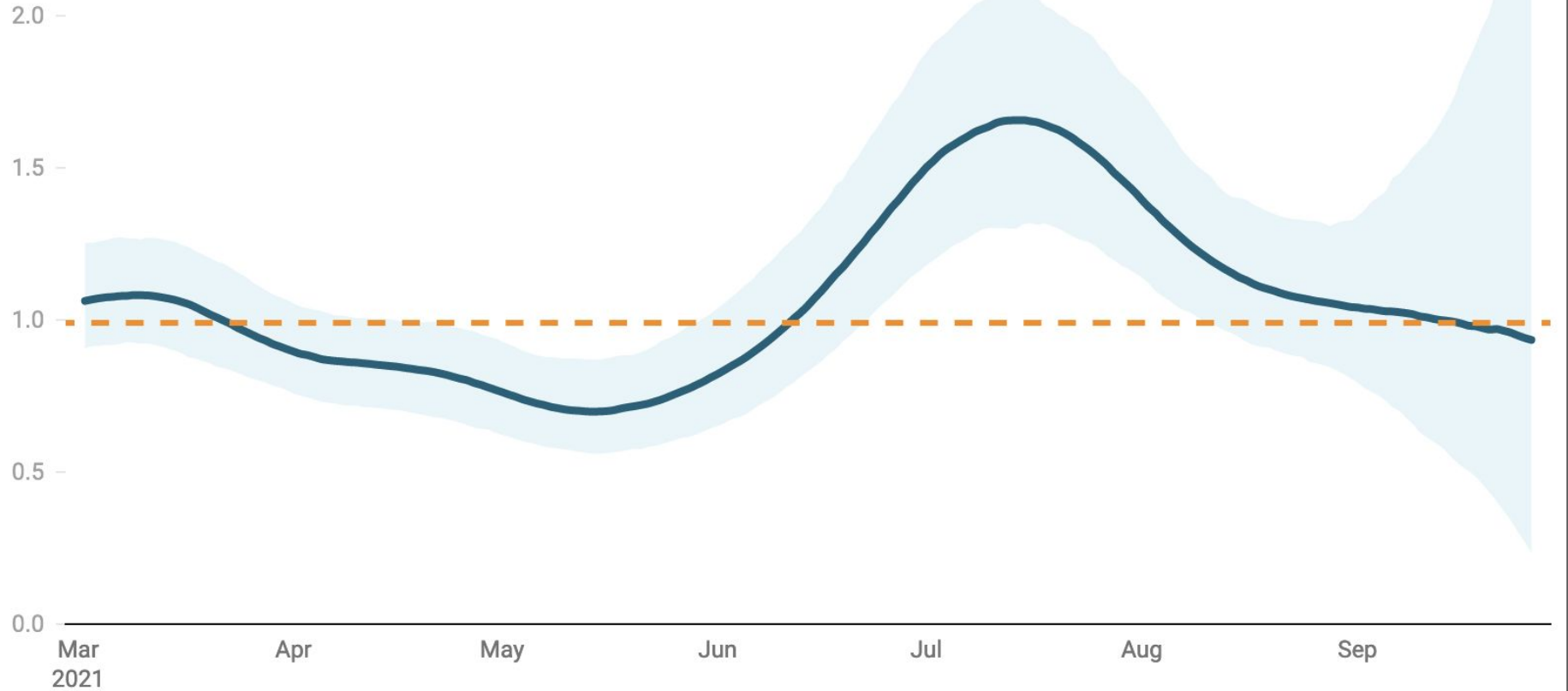
Source: Vermont Department of Health (week calculated as Tuesday to Monday)

Estimated Active Cases of COVID-19 in Vermont



Source: Vermont Dept. of Health—September 28, 2021

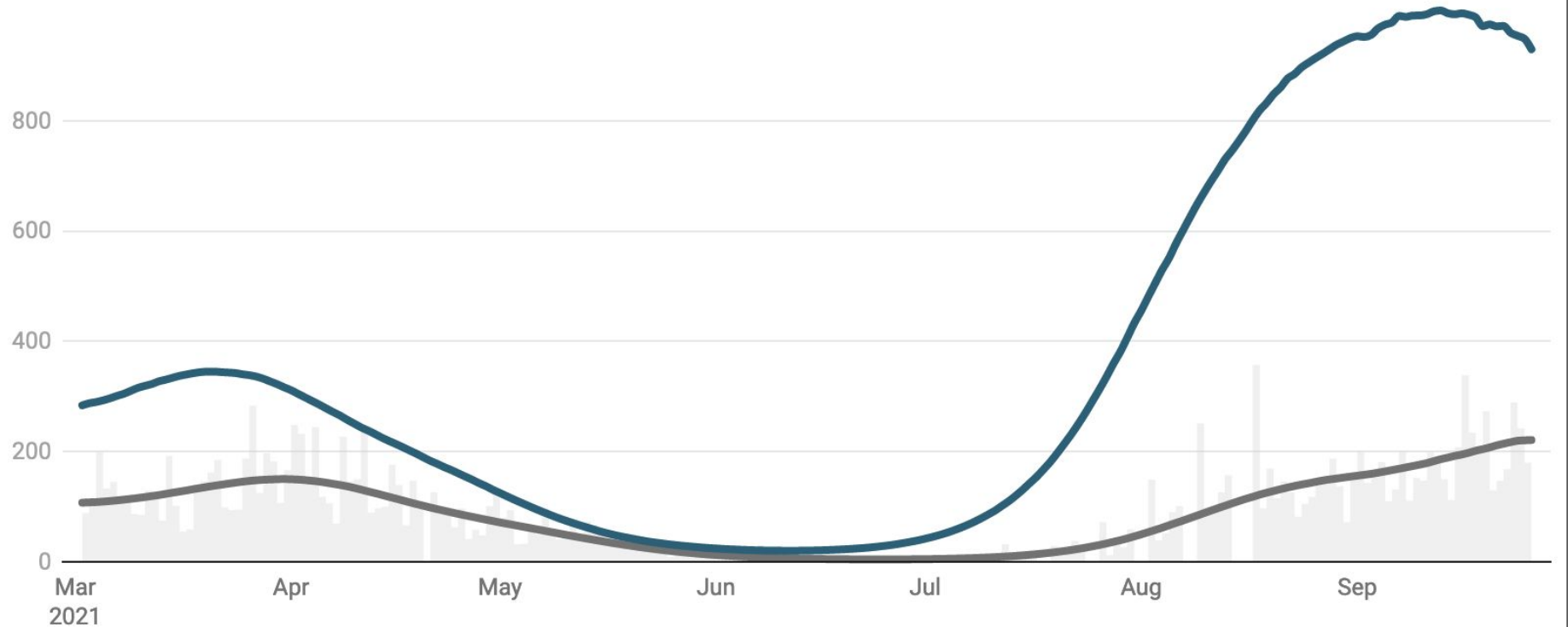
COVID-19 R_t in Vermont



Estimated vs Detected COVID-19 Cases in Vermont

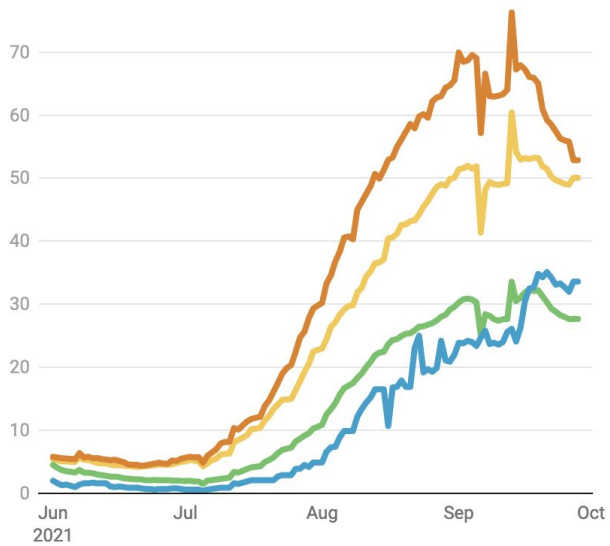
This figure shows both the number of detected cases (gray) and an estimate of the true number of infections.

— Detected Cases — Estimated True Cases

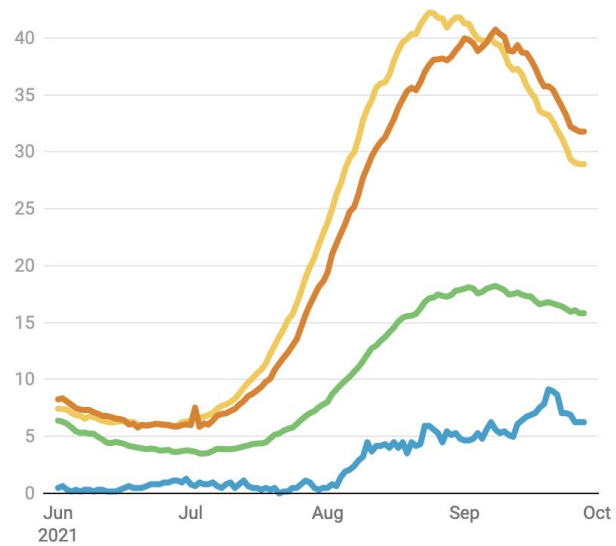


Infections, Hospitalizations, & Deaths by Percentage of State Population Vaccinated

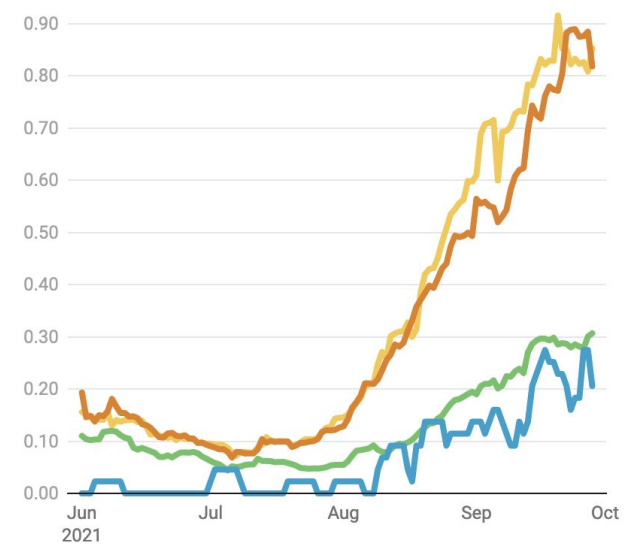
■ Bottom Third Vaccinated States
 ■ Middle Third Vaccinated States
 ■ Top Third Vaccinated States
 ■ Vermont



Infections per 100K

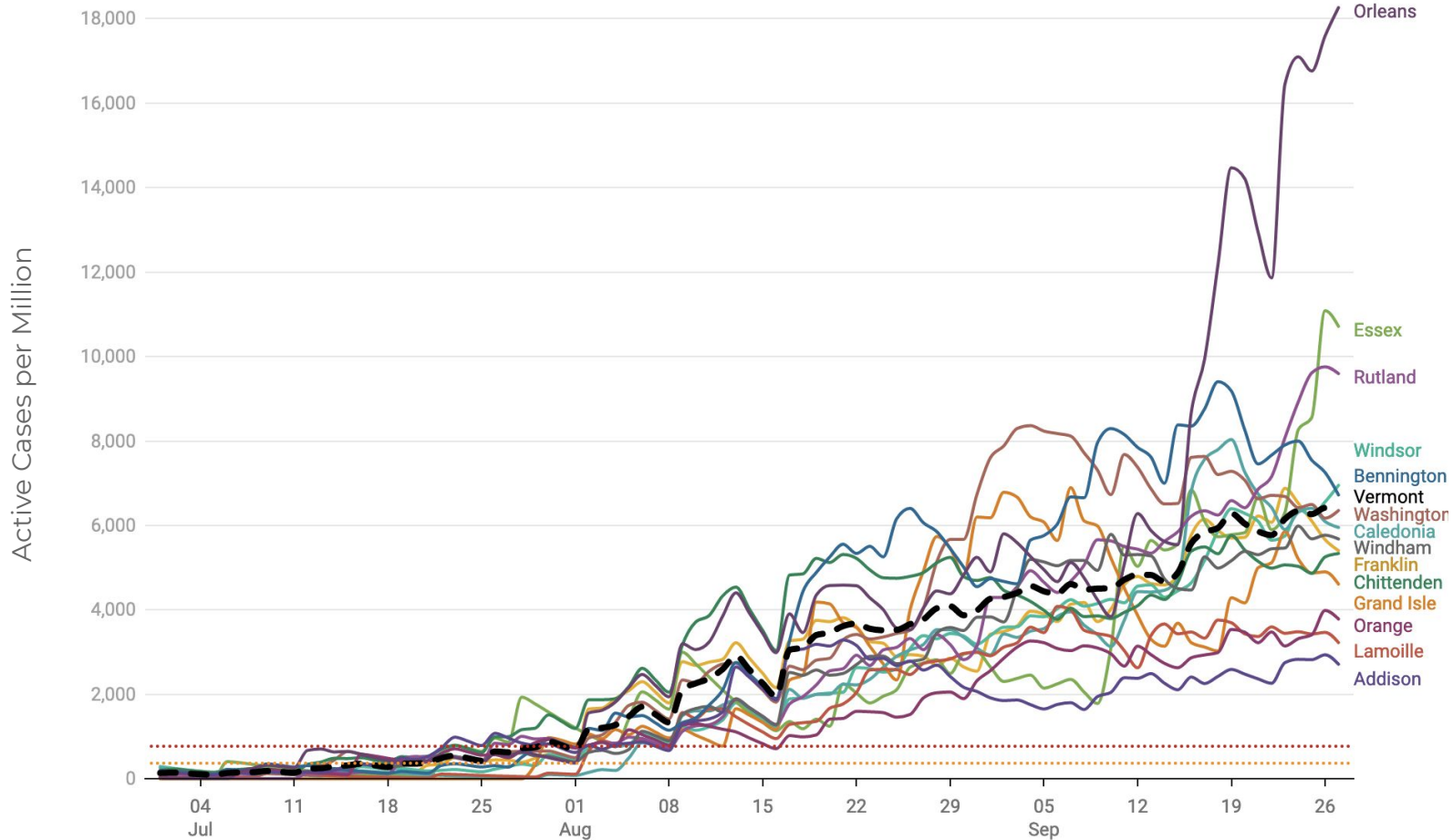


Hospitalizations per 100K



Deaths per 100K

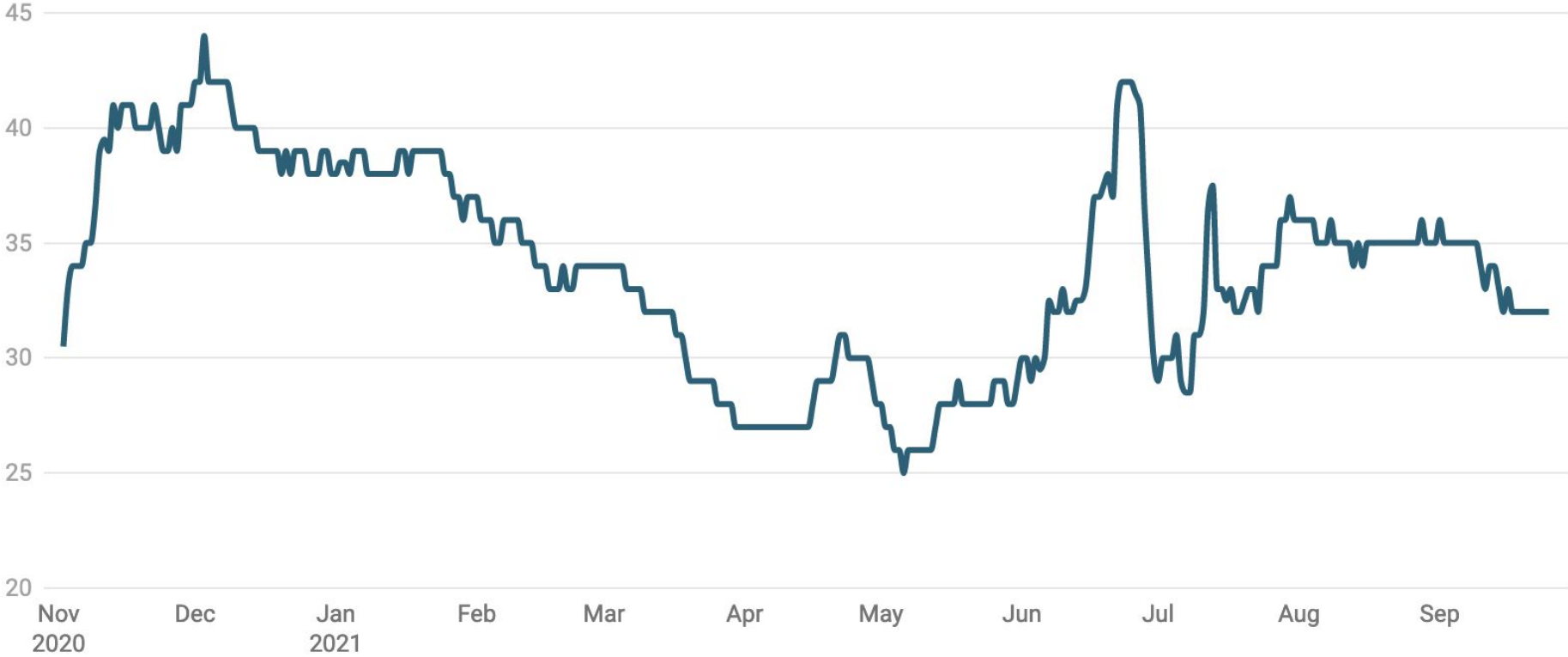
Active Cases in Vermont Counties



Source: Vermont Dept. of Health—September 28, 2021; DFR Active Case Algorithm (per million)

Age of Infected Vermonters

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

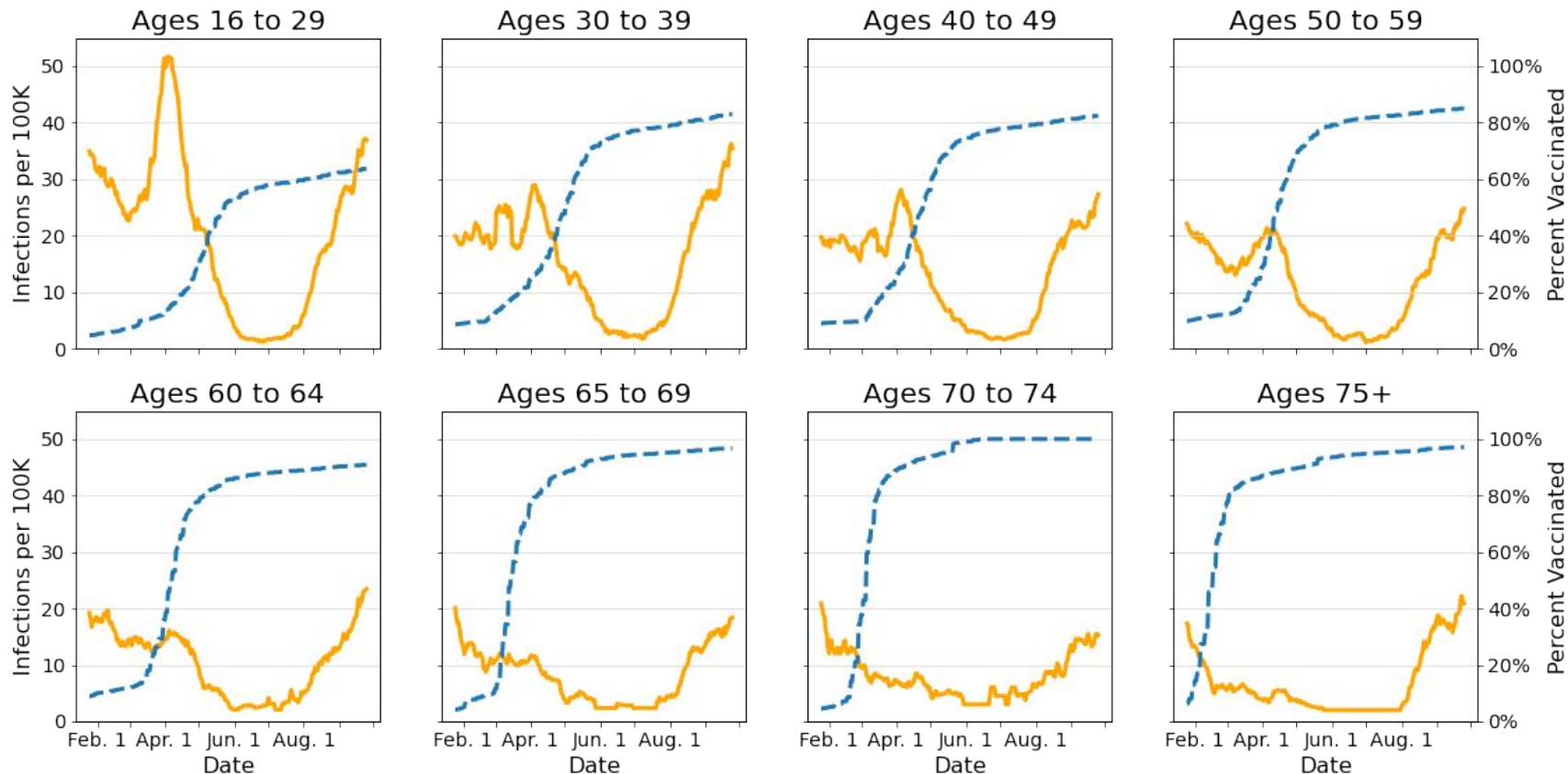


Source: VDH—September 28, 2021

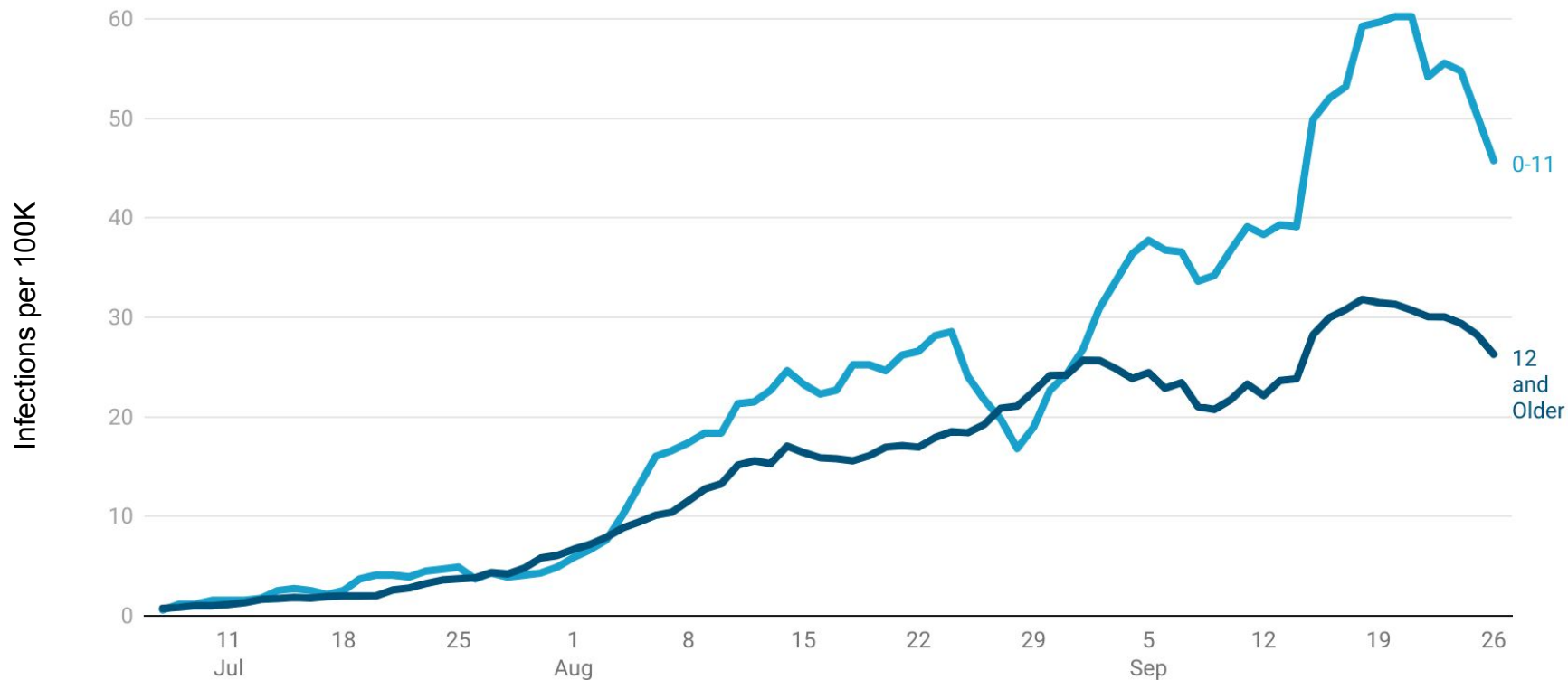
Vermont Case Rate & Vaccination by Age Band

— New Infections per 100K (14-Day Average)

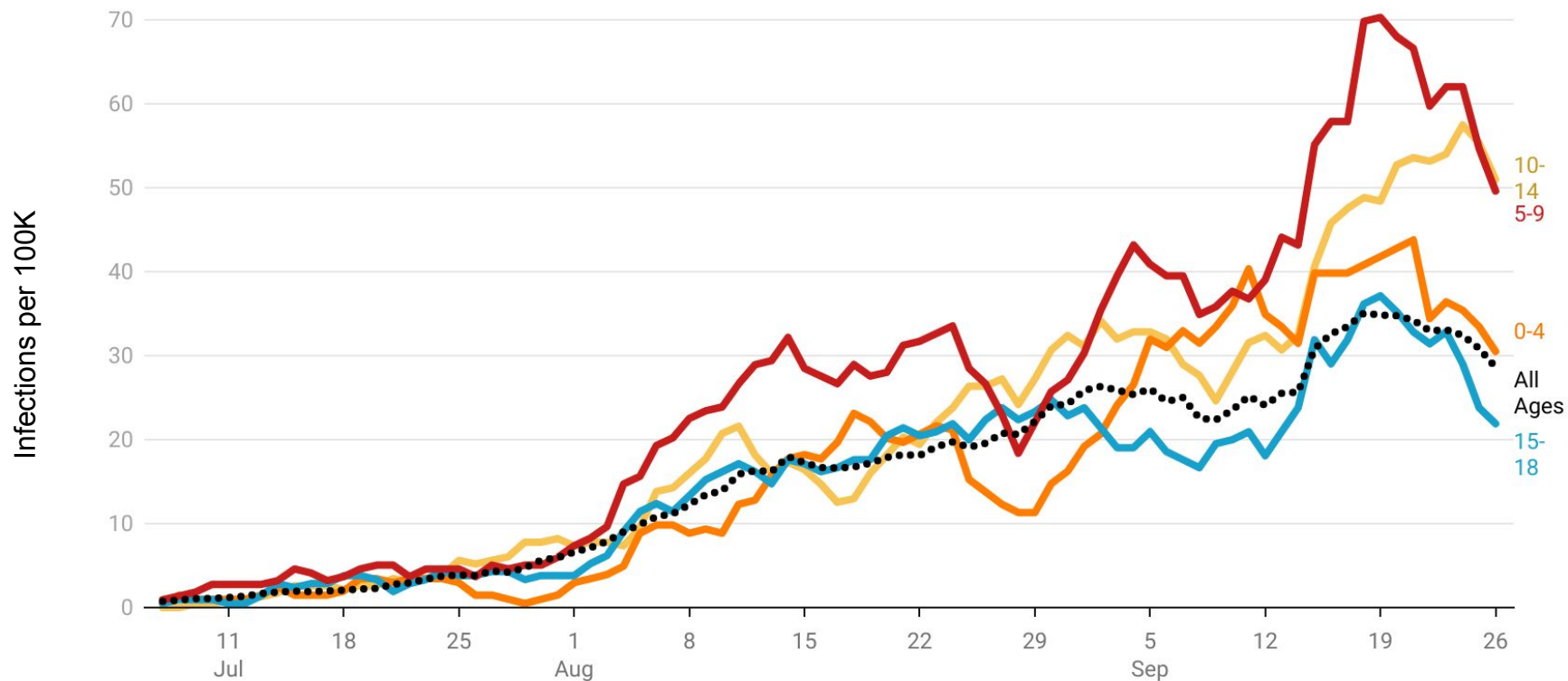
— Percent Received First Vaccine Dose



Vermont Case Rate By Age (7-Day Average)

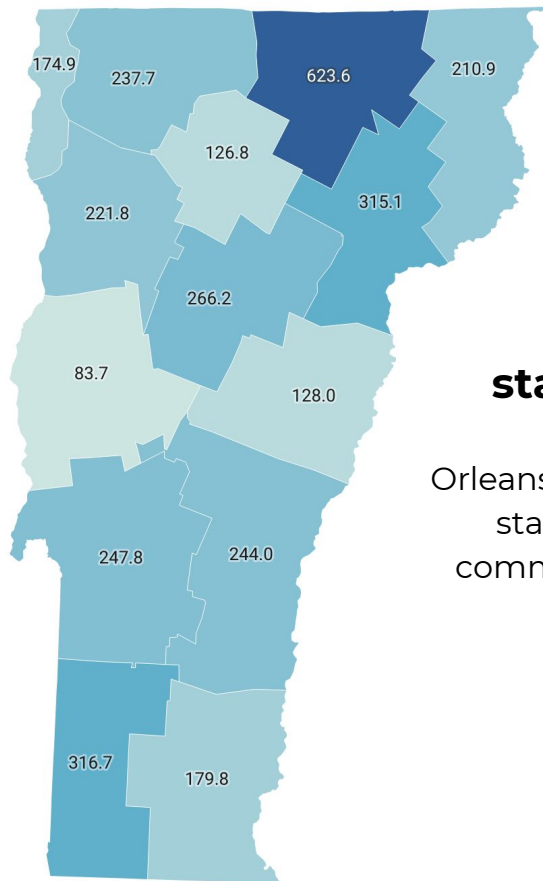


Vermont Covid-19 Case Rates by Age (7-Day Average)



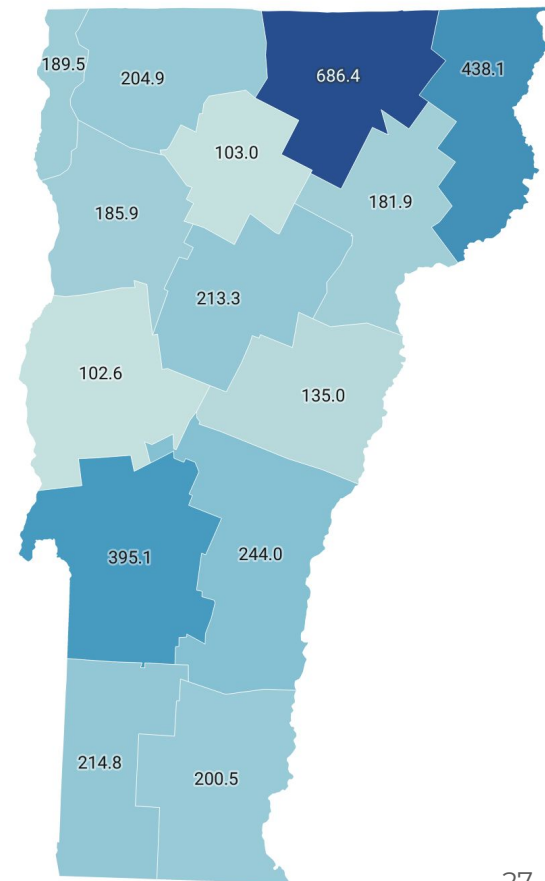
Vermont Weekly Cases by County (per 100,000)

Results Reported September 14 to 20



Vermont Weekly Cases by County (per 100,000)

Results Reported September 21 to 27

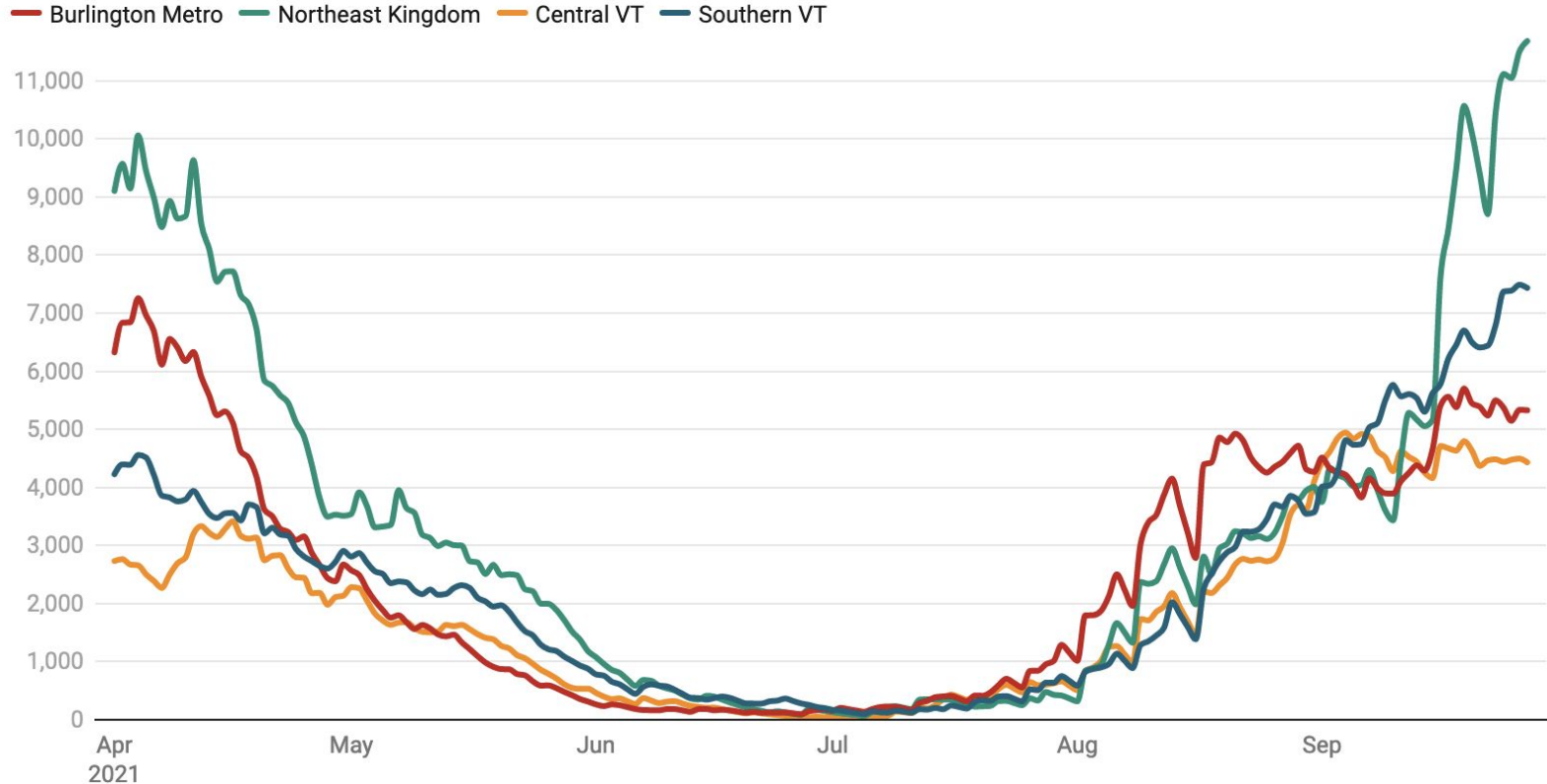


Covid-19 case rates
stayed mostly flat this week

Orleans continues to report highest case rates statewide, with more than 96% tied to community spread; Essex and Rutland also recorded elevated rates

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).



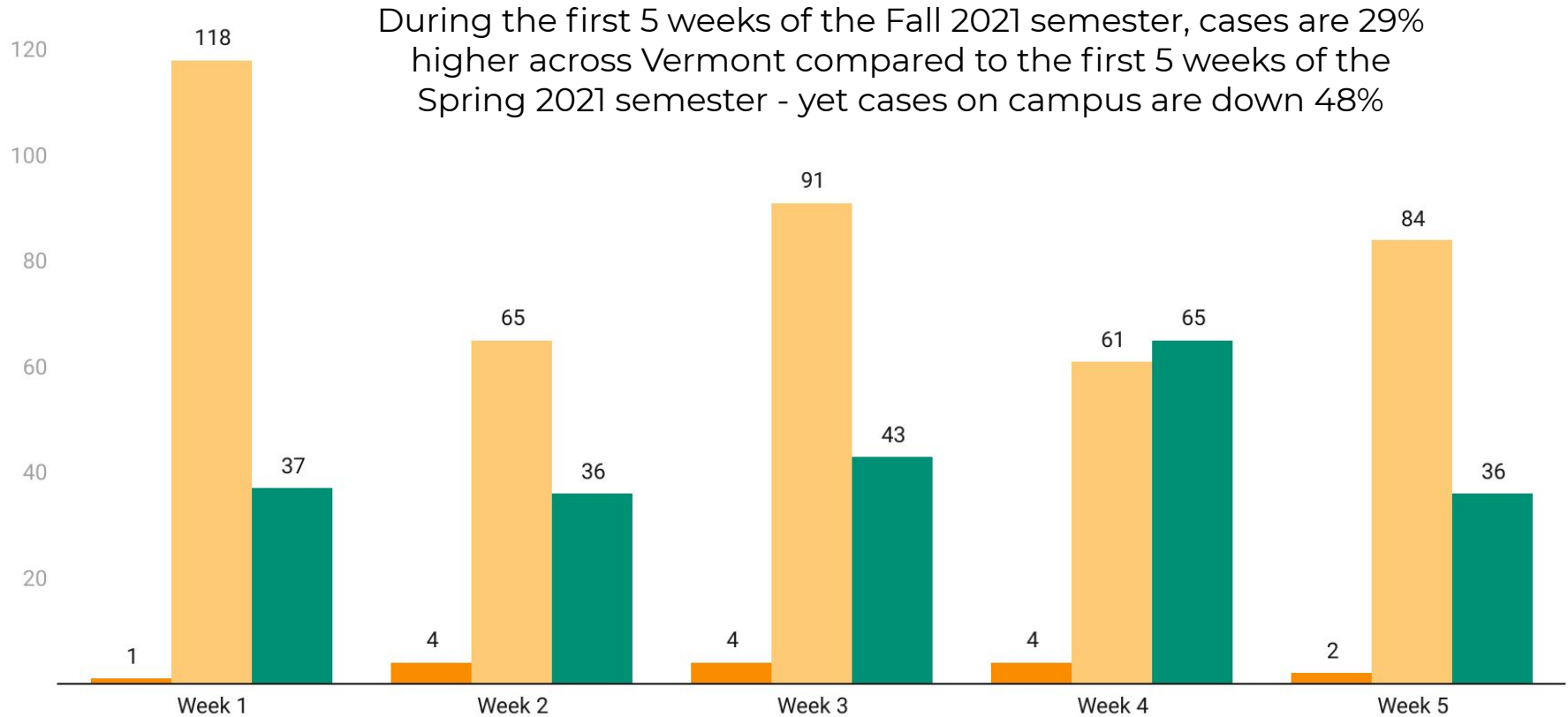
Fall 2021 Higher Education Restart

Higher Education Institutions Reporting	Enrollment	Students Fully Vaccinated	Students Not Fully Vaccinated (No Exemption Granted)	Students with Unknown Vaccine Status	Students Granted Vaccine Mandate Exemption
16 of 16	28,560	27,141	277	455	687
		95.0%	1.0%	1.6%	2.4%

Week 1: **37 positive cases** out of 12,623 tests
 Week 2: **36 positive cases** out of 7,434 tests
 Week 3: **43 positive cases** out of 3,053 tests
 Week 4: **65 positive cases** out of 6,497 tests
 Week 5: **36 positive cases** out of 4,878 tests

Vermont Higher Education Cases By Semester

Fall 2020 Spring 2021 Fall 2021



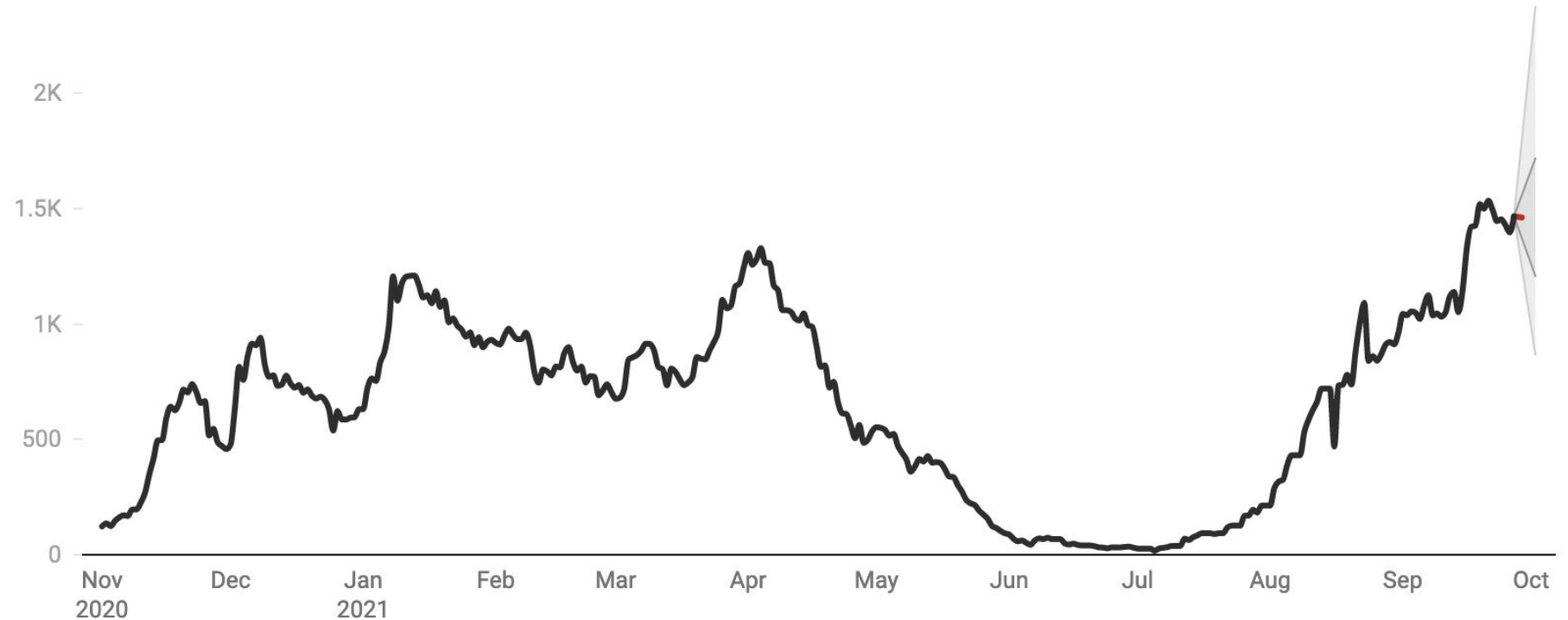
Active Outbreaks in Long Term Care Facilities

Facility Name	Total COVID-19 Cases
Green Mountain Nursing and Rehab, <i>Colchester</i>	37
Vernon Green Nursing Home, <i>Vernon</i>	30
Centers for Living and Rehab, <i>Bennington</i>	22
Mansfield Place, <i>Essex</i>	20
Vermont Veterans Home, <i>Bennington</i>	18
Equinox Terrace, <i>Manchester</i>	17
Vernon Hall Assisted Living, <i>Vernon</i>	13
St. Joseph Kervick Residence, <i>Rutland</i>	7
Long Term Care Facility A	7
Long Term Care Facility B	6
Gill Odd Fellows Home, <i>Ludlow</i>	Not Shown
Total	177

Source: Vermont Department of Health—September 27, 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

VT Weekly COVID-19 Infections Forecast

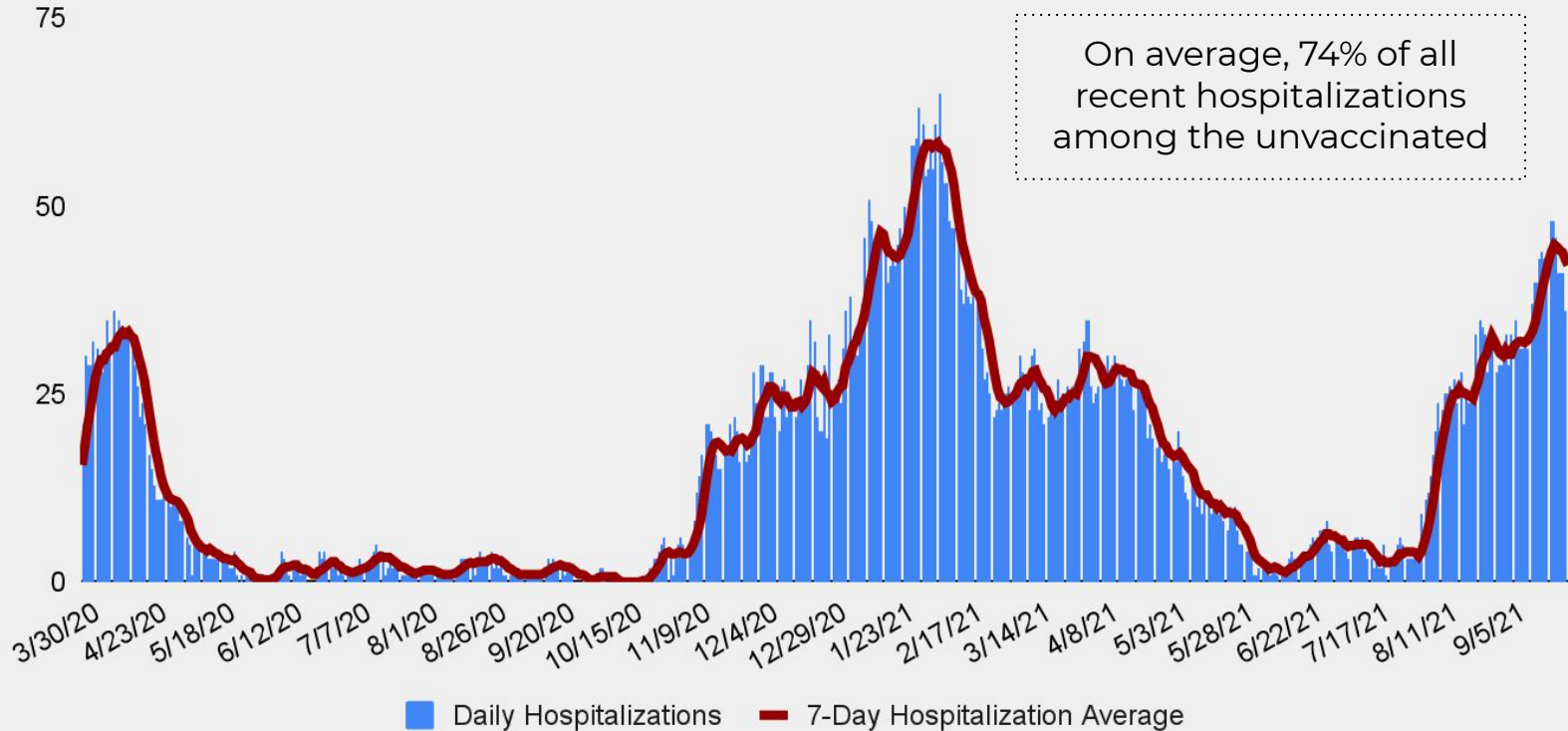
Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.



Vermont Hospitalization Data

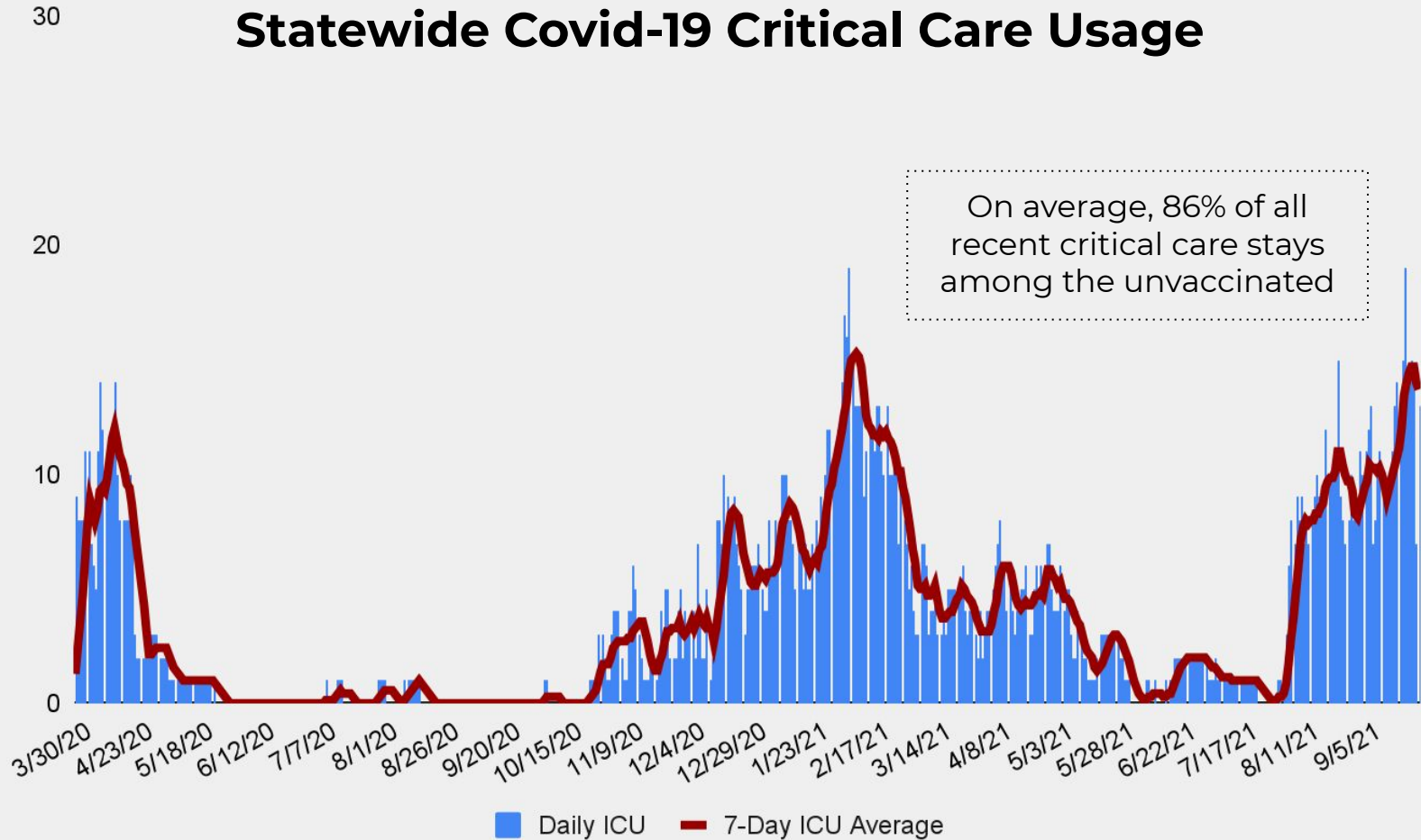
Statewide Covid-19 Hospitalizations

Hospitalization rate decreasing, and Vermont continues to have fewest hospitalizations per capita nationally



Source: Vermont Department of Health—September 28, 2021

Statewide Covid-19 Critical Care Usage



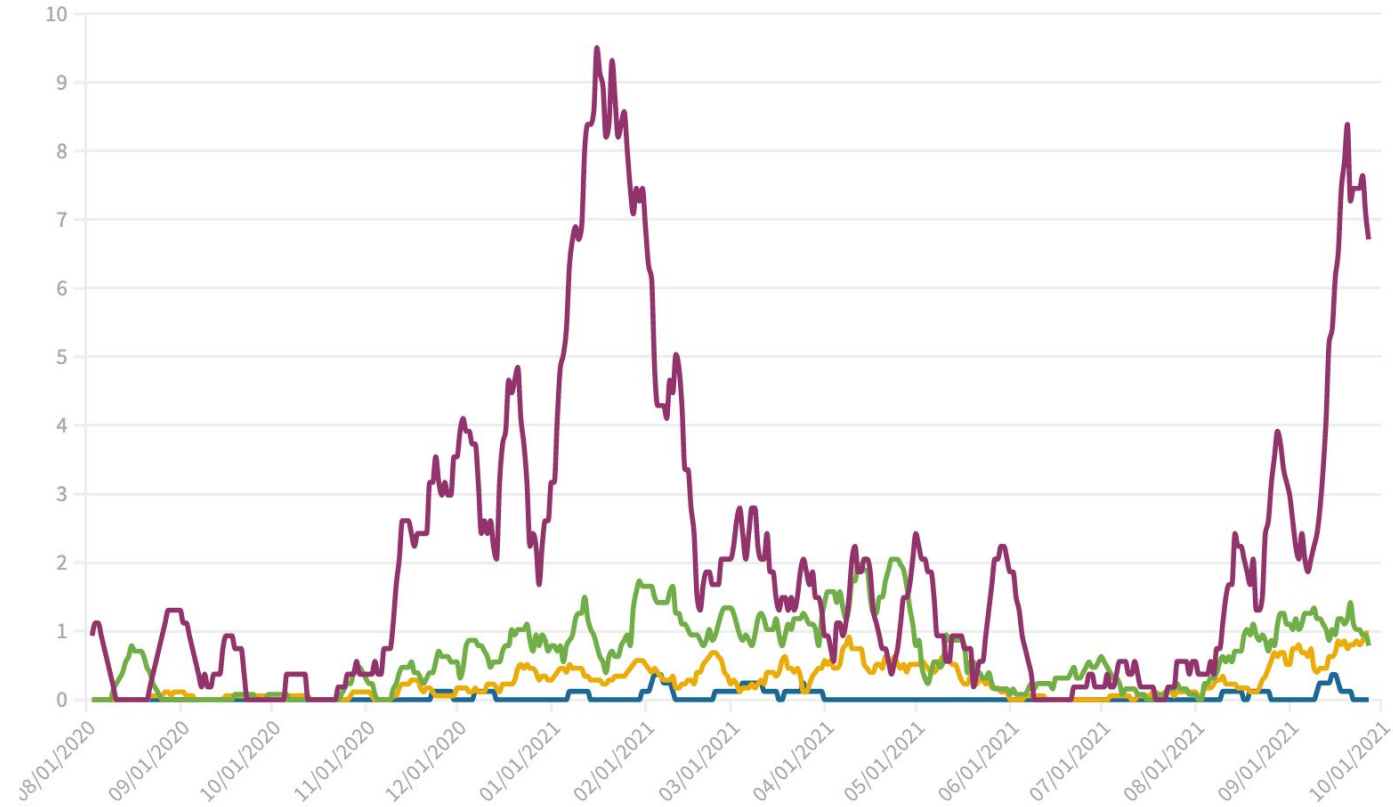
Source: Vermont Department of Health—September 28, 2021

New Hospitalizations per 100,000 Residents, by Age

0-17 years 18-49 years 50-69 years 70+ years

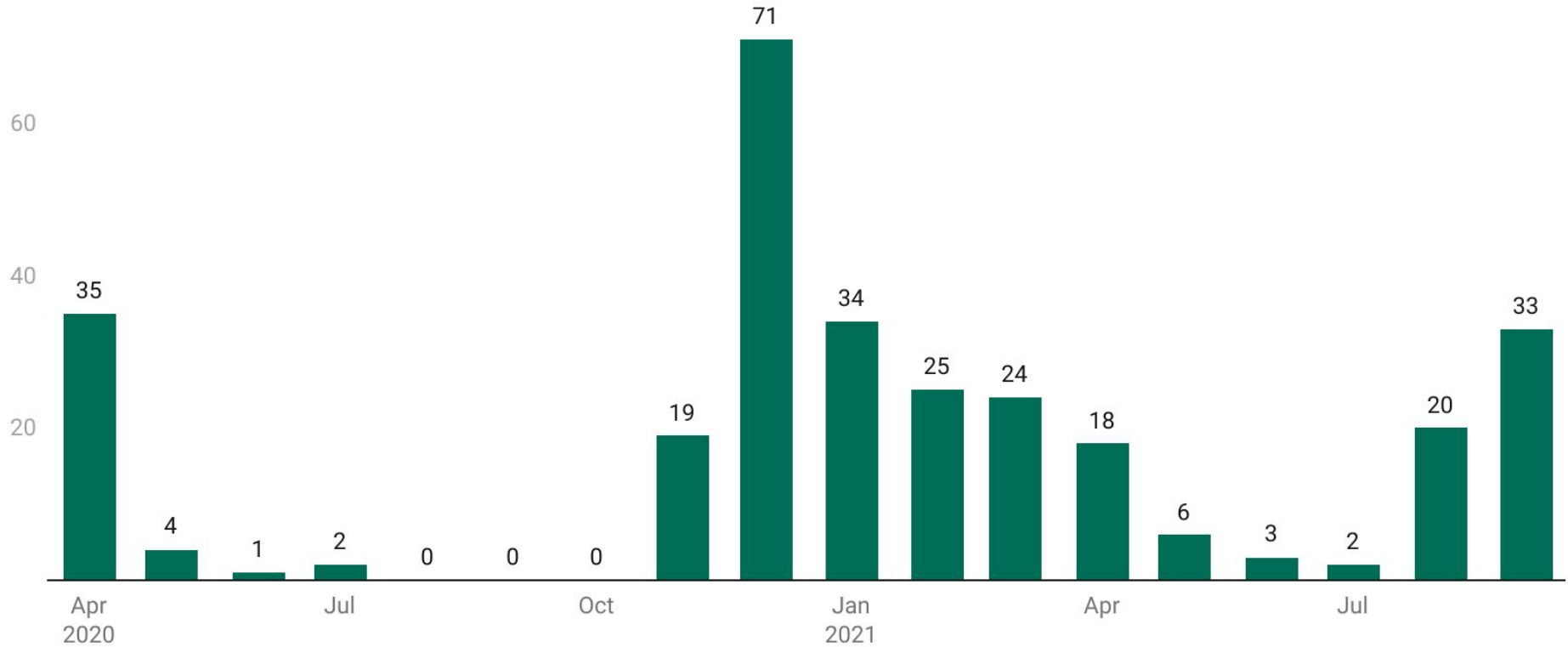
New Hospitalizations per 100K

Vermont



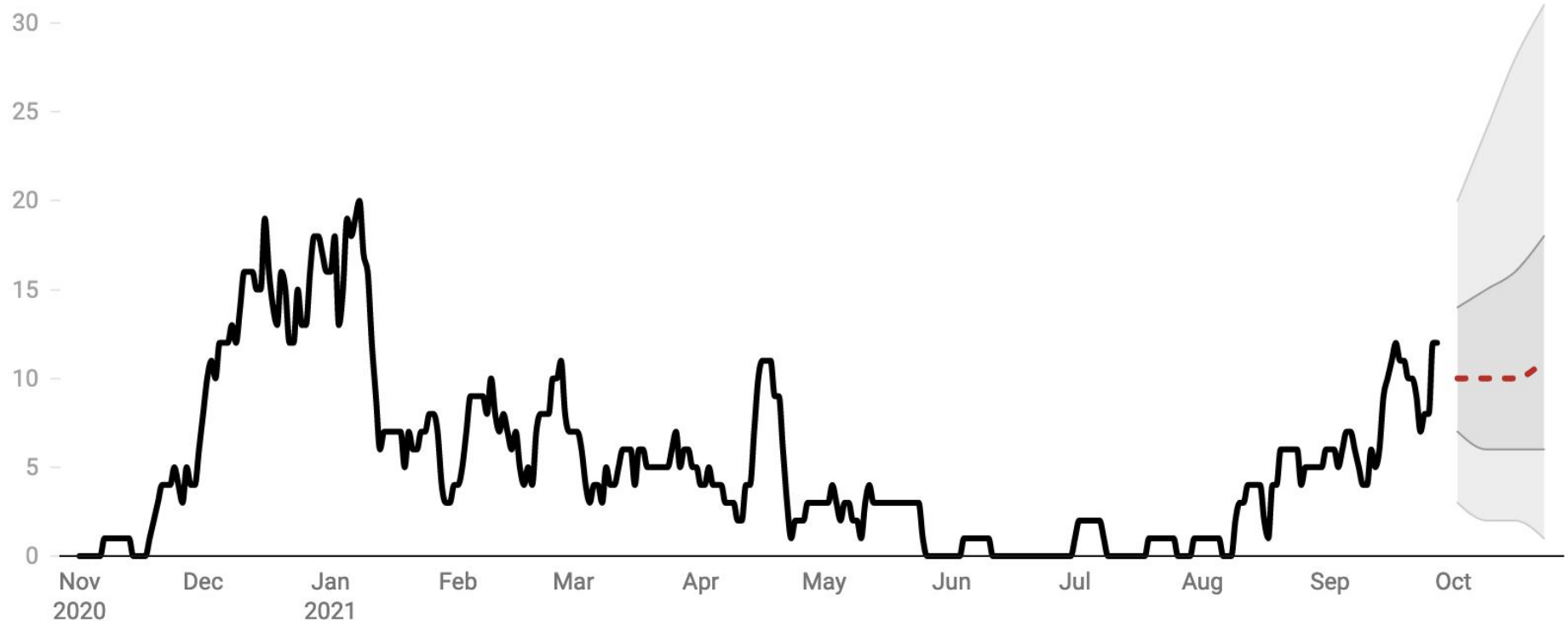
Vermont Fatality Data

Monthly Covid-19 Deaths In Vermont

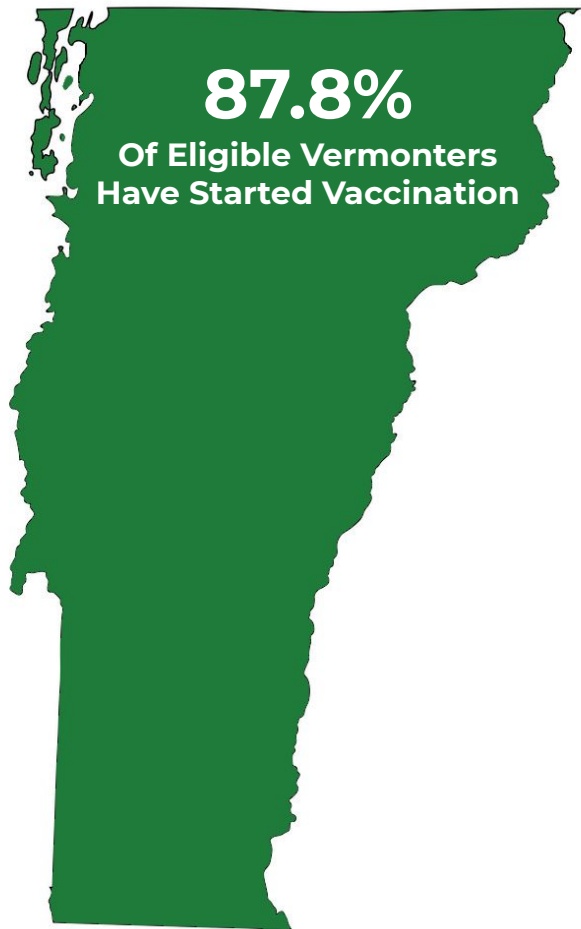


US Weekly COVID-19 Deaths Forecast

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.



Vermont Vaccination Data



Vermont Vaccination

+2,239

Since Last Week

483,688

Vermonters with
at Least 1 Dose

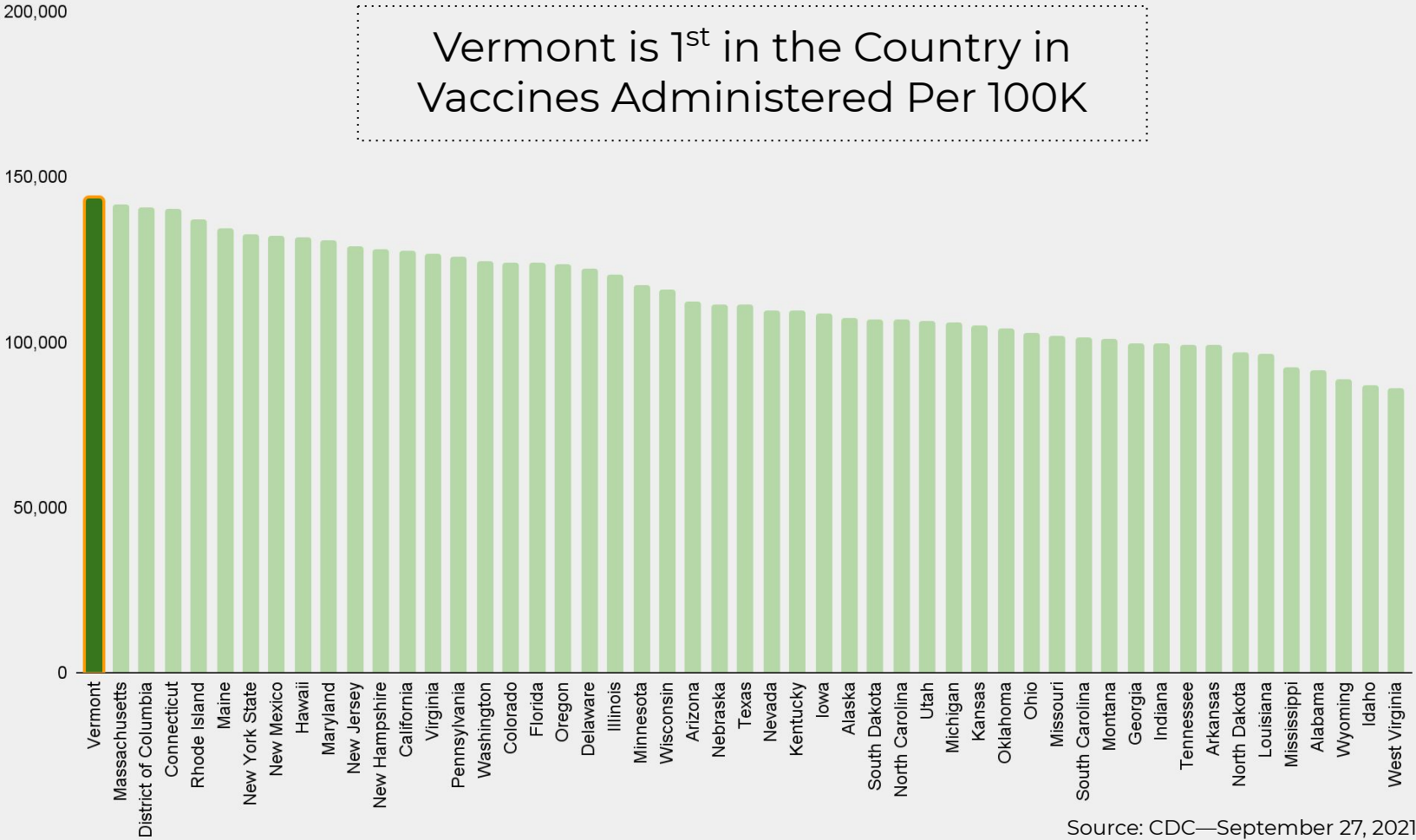
67,262

Eligible Vermonters
still to be vaccinated

Vermont CDC Vaccine Scorecard

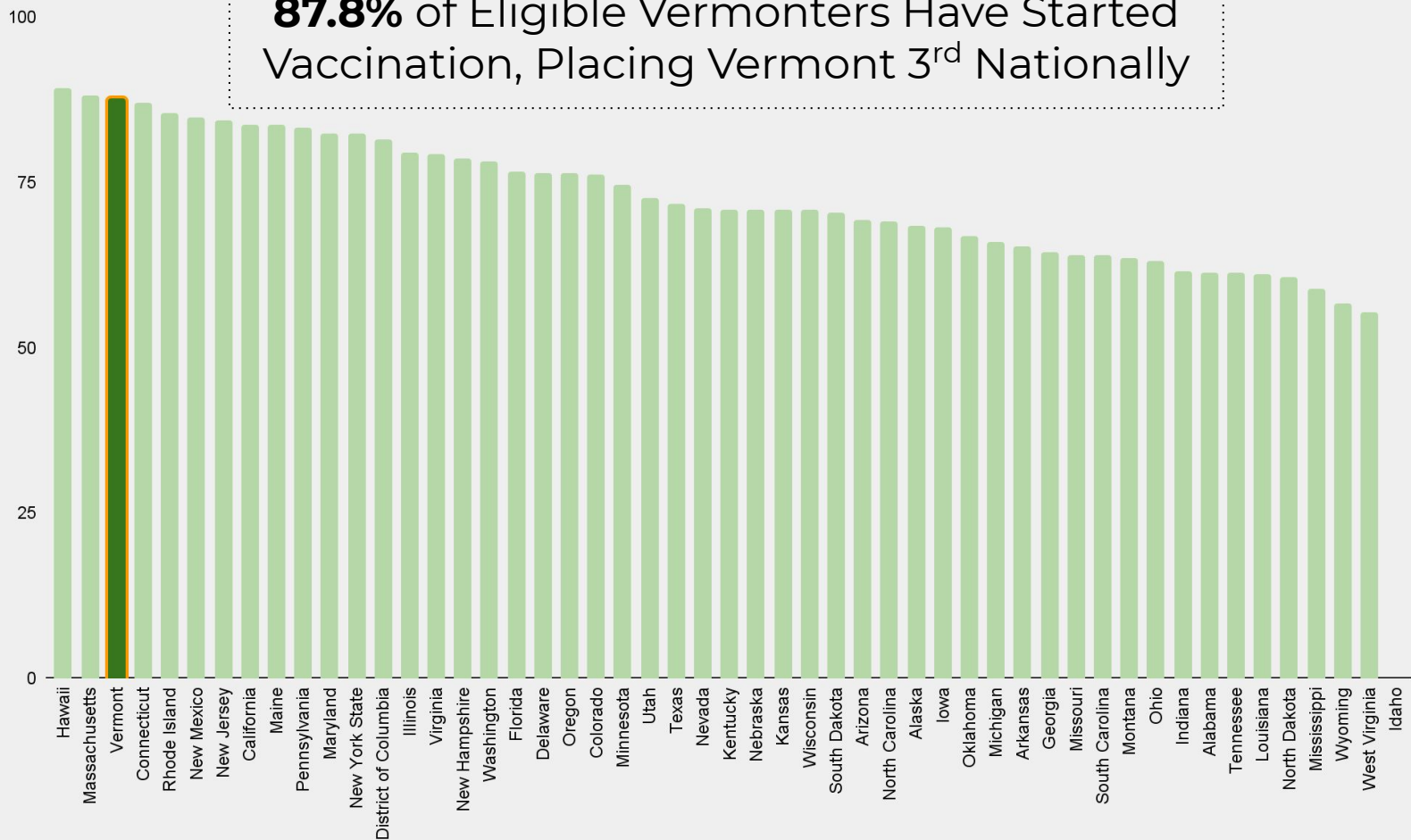
Metric	Figure	State Ranking
Doses Administered per 100K	143,395	1
% At Least 1 Dose (Eligible Population)	87.8%	3
% Fully Vaccinated (Eligible Population)	78.5%	2
% At Least 1 Dose (Full Population)	77.6%	1
% Fully Vaccinated (Full Population)	69.3%	1
% Fully Vaccinated (65 & Over)	95.3%	1

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



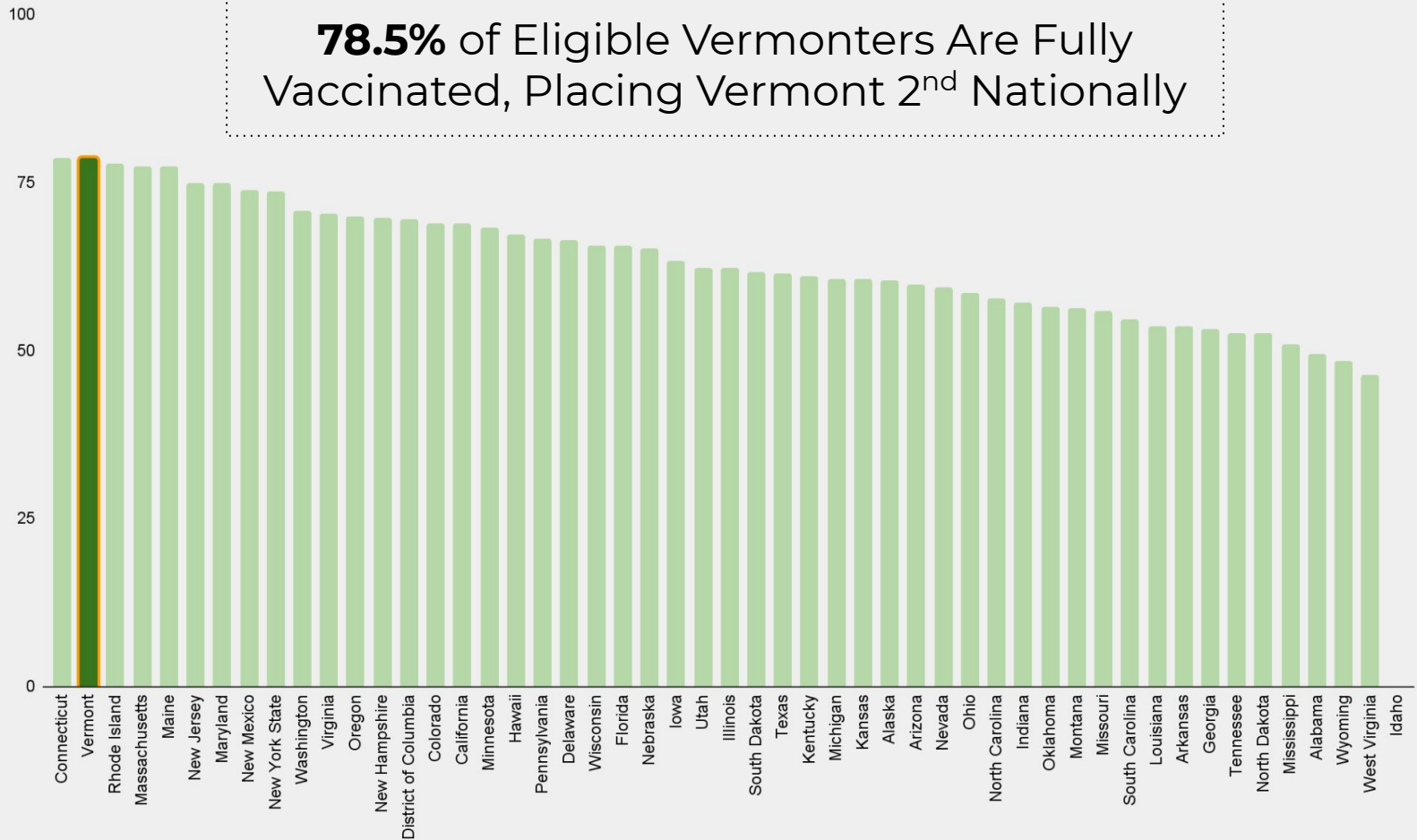
Source: CDC—September 27, 2021

87.8% of Eligible Vermonters Have Started Vaccination, Placing Vermont 3rd Nationally



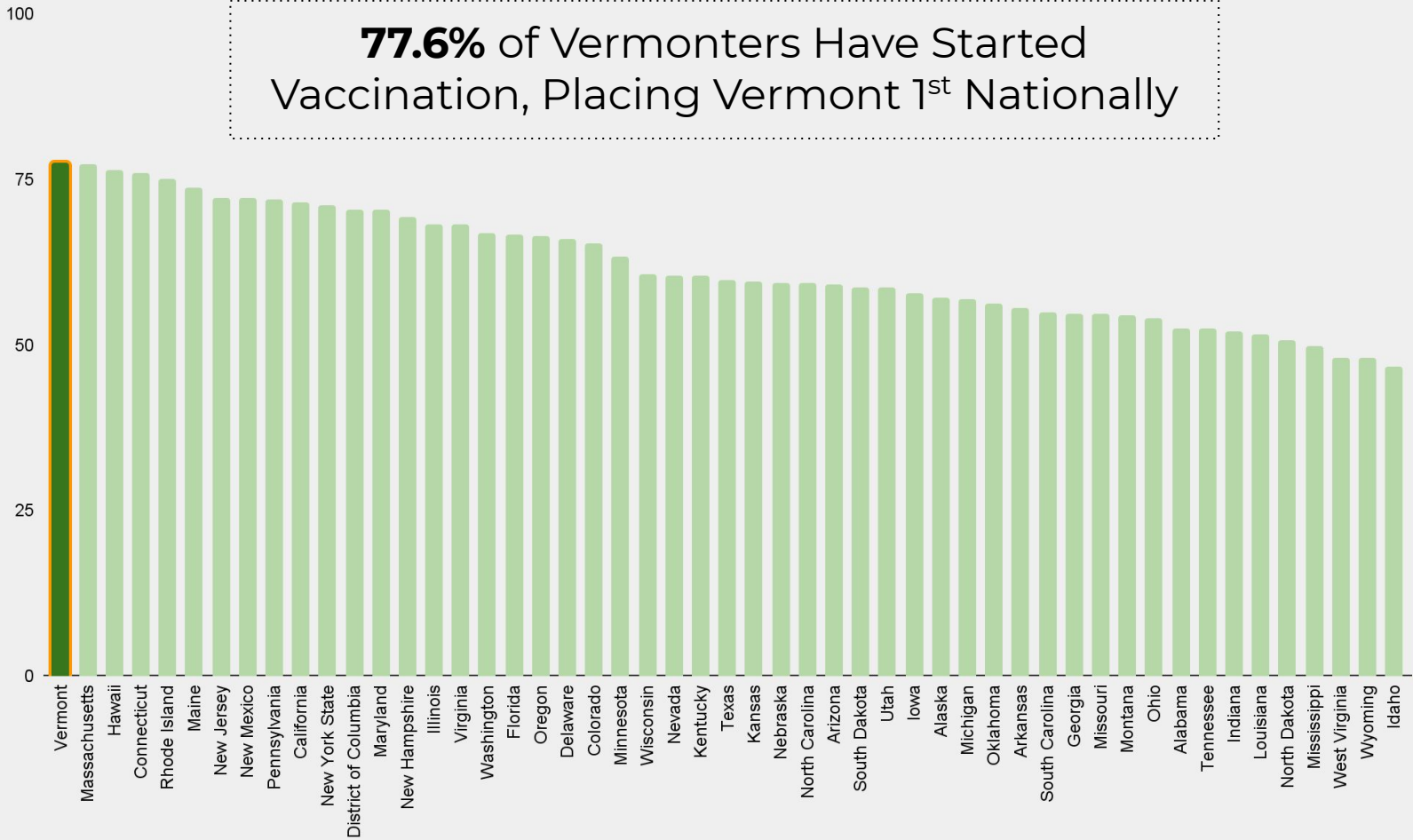
Source: CDC—September 27, 2021

78.5% of Eligible Vermonters Are Fully Vaccinated, Placing Vermont 2nd Nationally



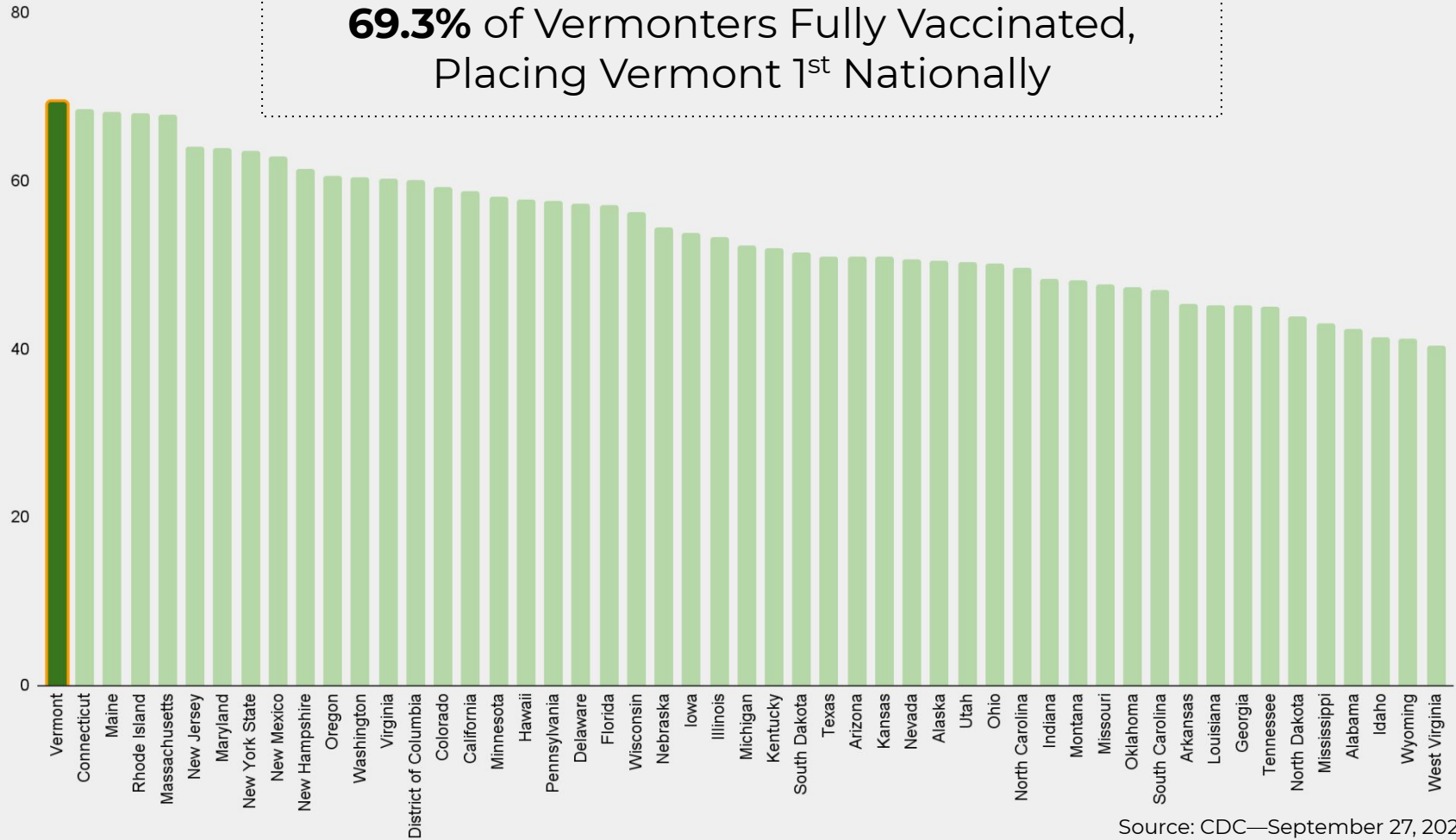
Source: CDC—September 27, 2021

77.6% of Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



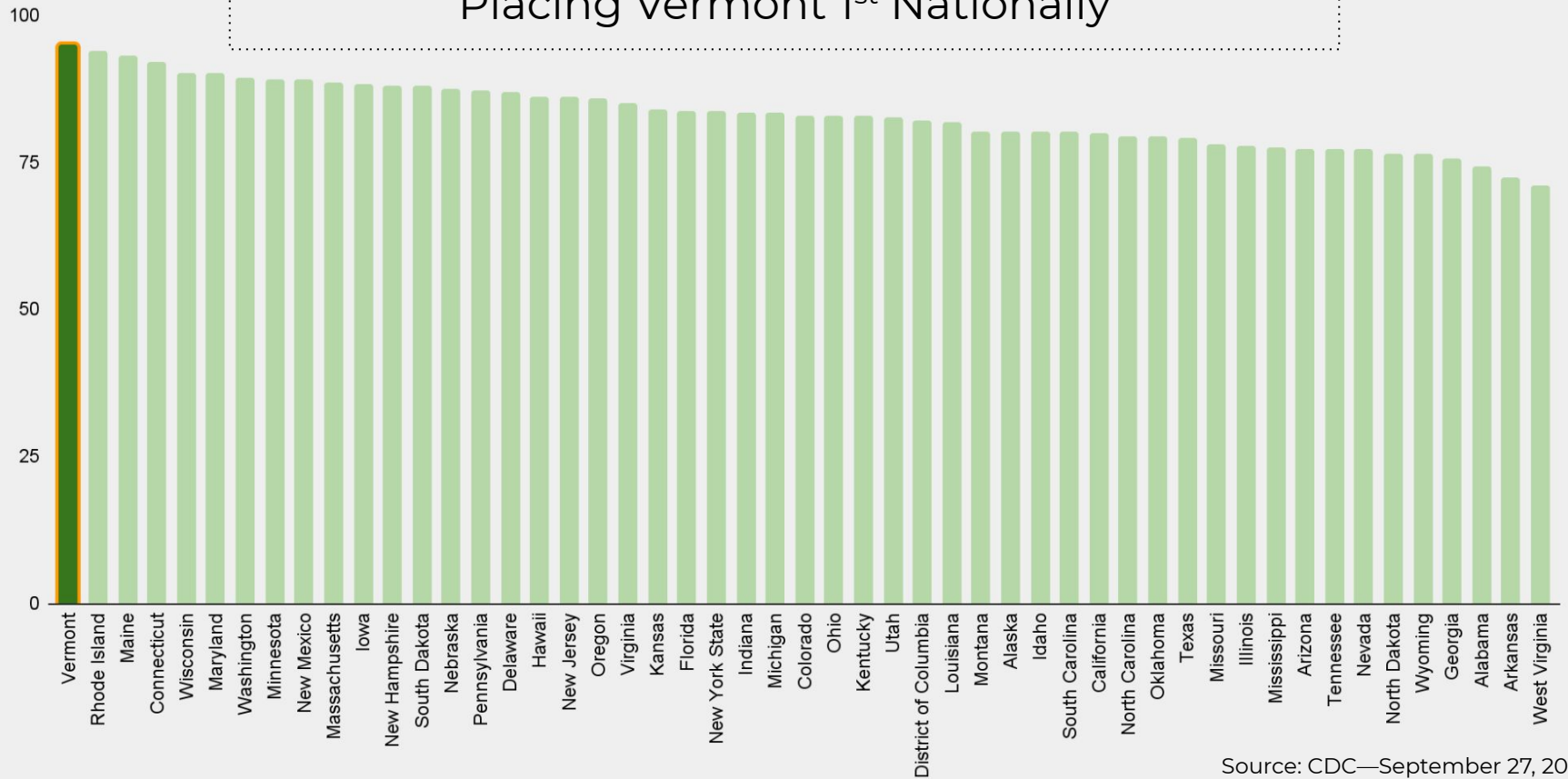
Source: CDC—September 27, 2021

69.3% of Vermonters Fully Vaccinated,
Placing Vermont 1st Nationally



Source: CDC—September 27, 2021

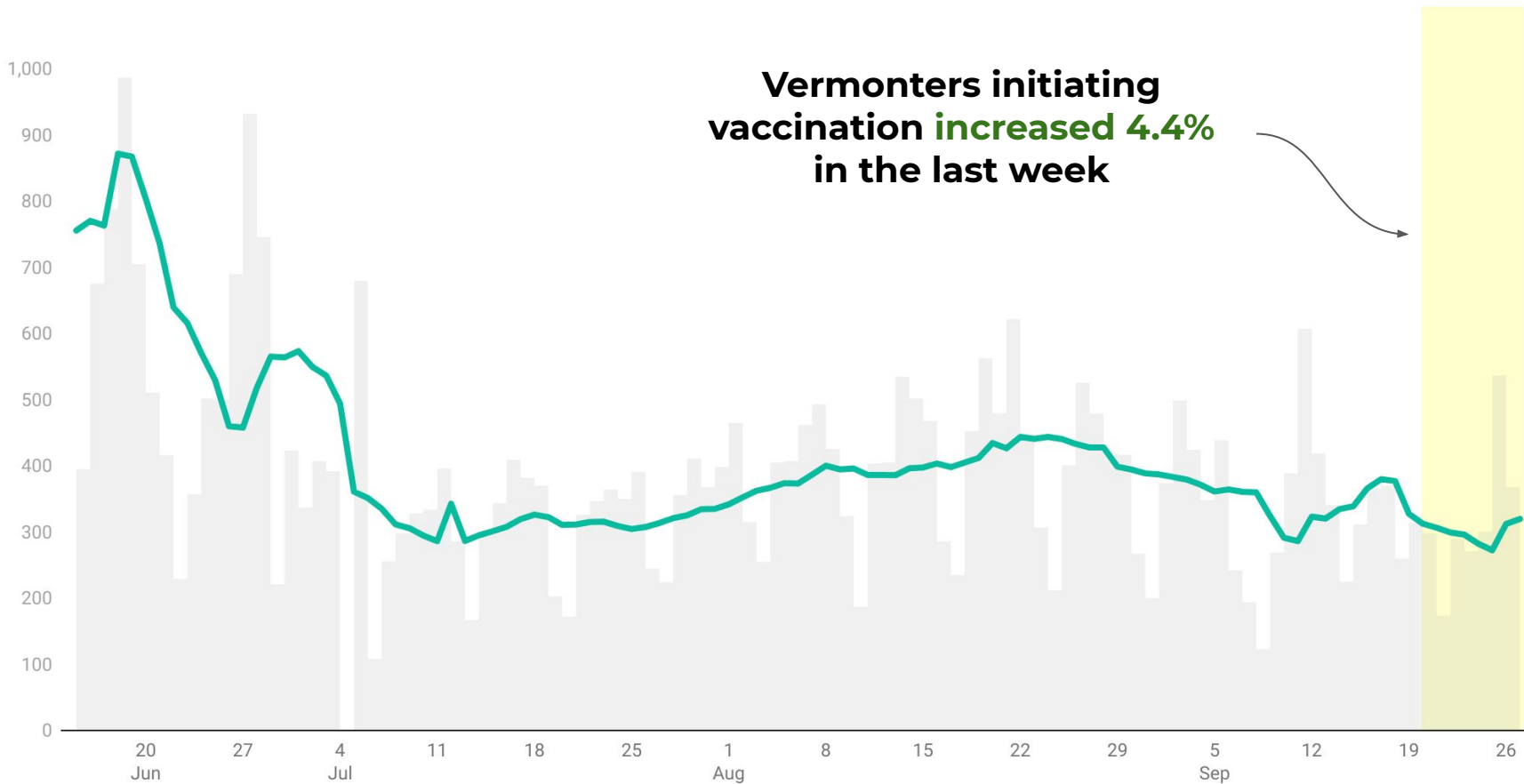
95.3% of 65 & Over Vermonters Fully Vaccinated,
Placing Vermont 1st Nationally



Source: CDC—September 27, 2021

Vermonters Initiating Vaccination By Day

— New Daily Vaccinations (7-Day Average)

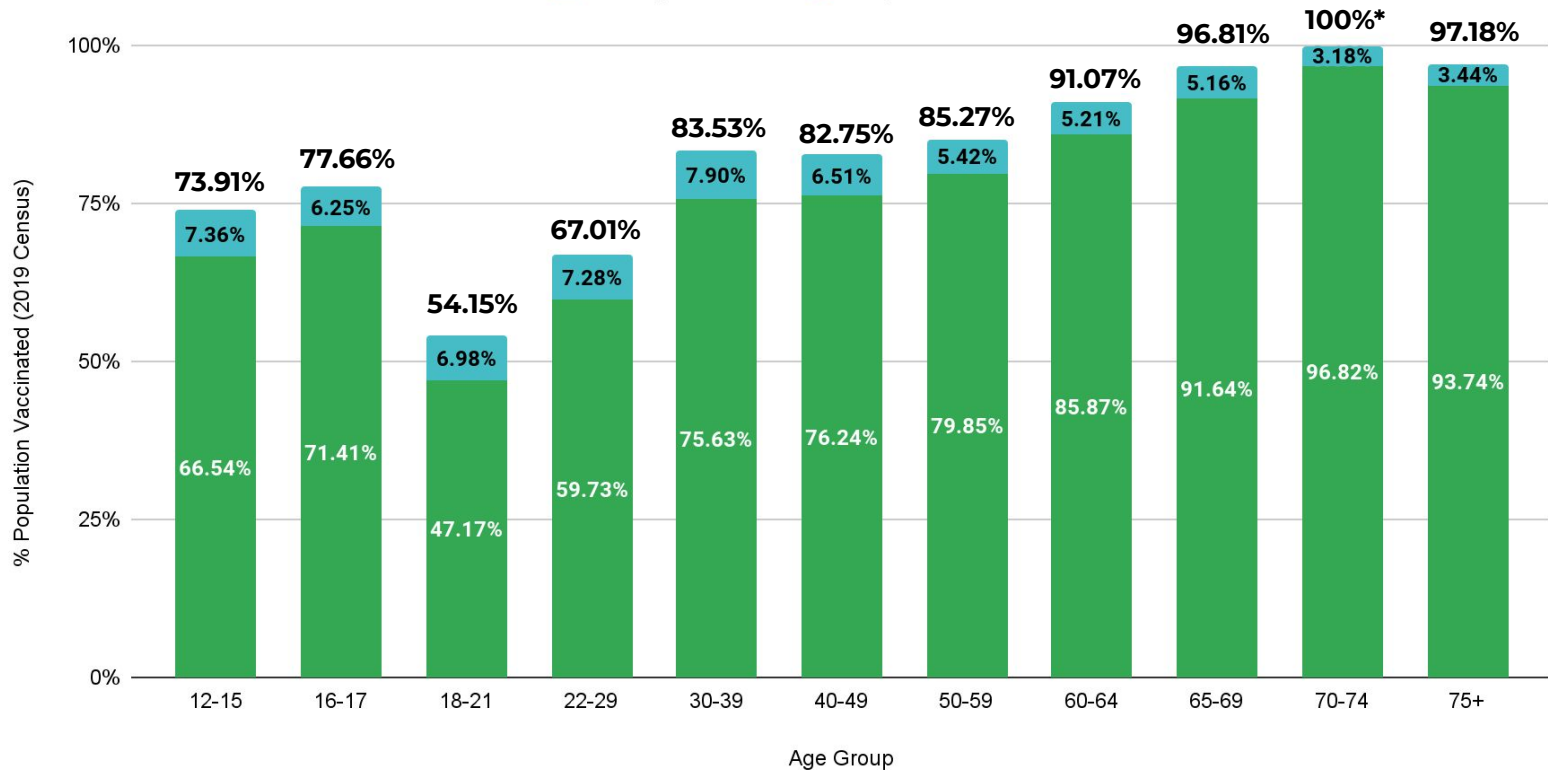


Vermonters initiating vaccination **increased 4.4%** in the last week

Vermont Vaccination Progress

By Age Band

Partially Vaccinated Fully Vaccinated



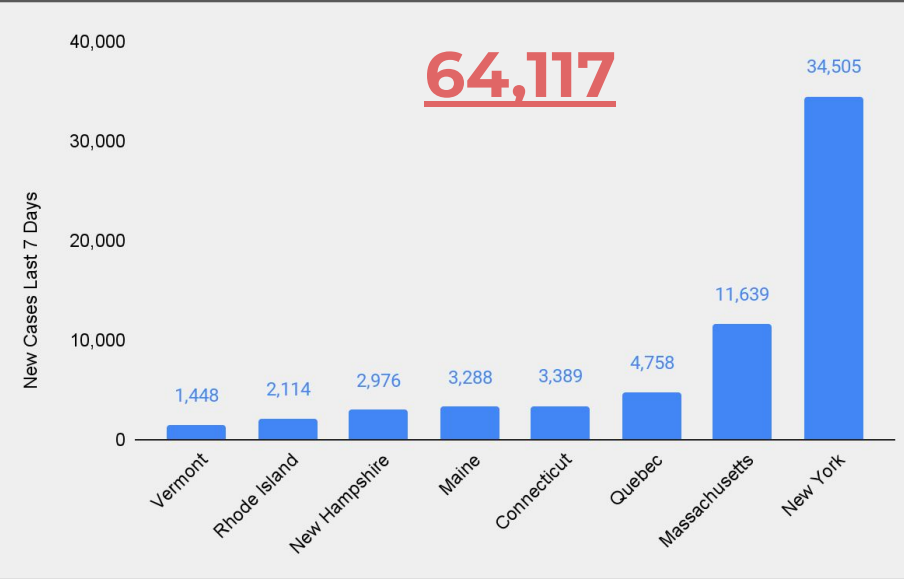
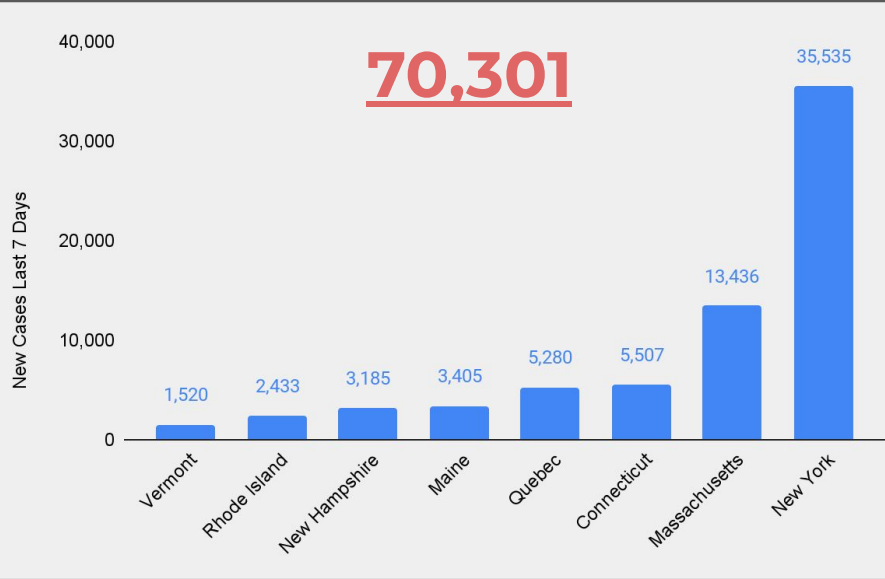
Regional Data

Regional Cases

8.8% Decrease in New Cases

New Cases September 14th to September 20th

New Cases September 21st to September 27th



Weekly Regional Cases

250000

200000

150000

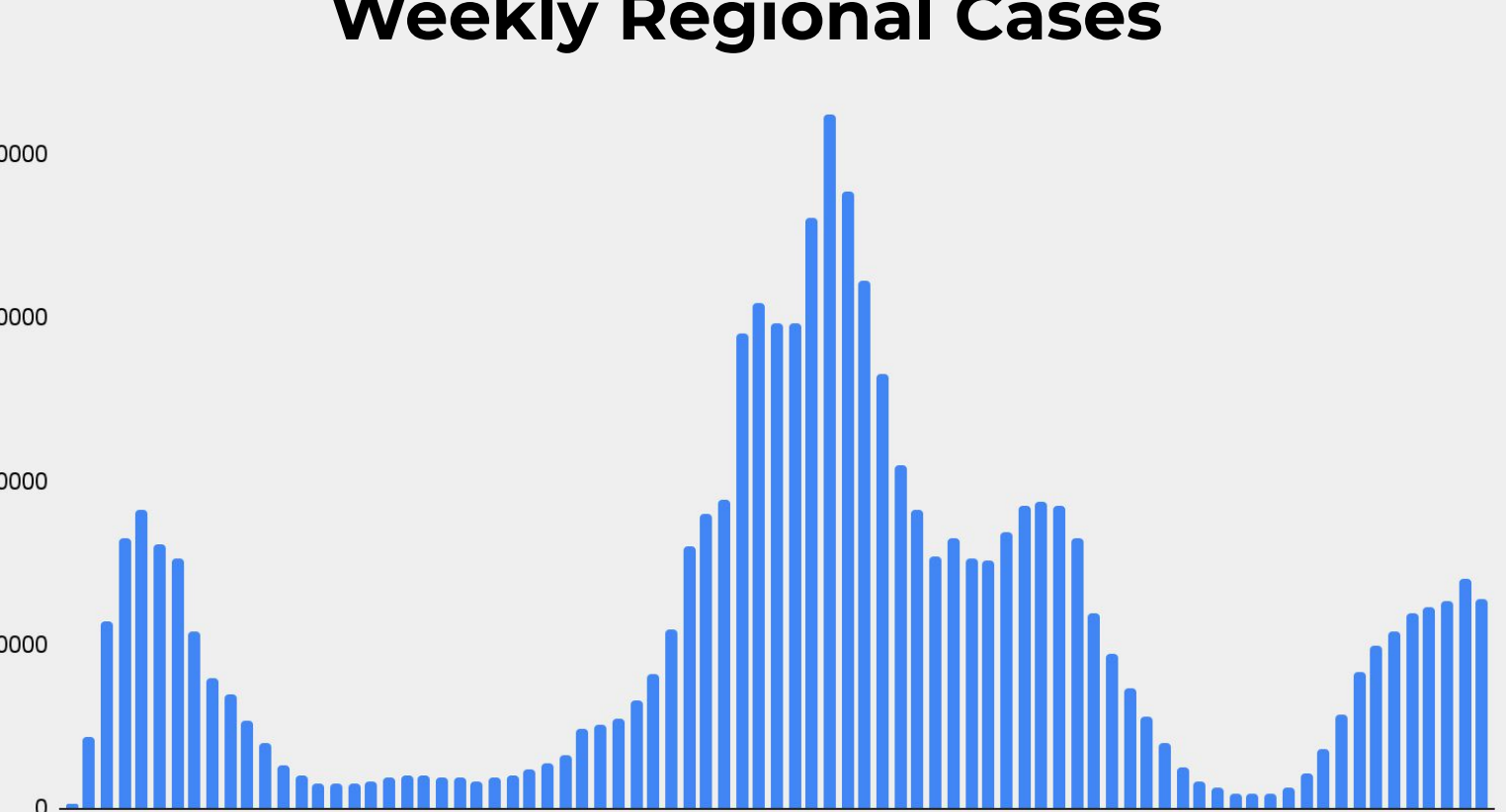
100000

50000

0

3/16/20 4/13/20 5/11/20 6/8/20 7/6/20 8/3/20 8/31/20 9/28/20 10/26/20 11/23/20 12/21/20 1/18/21 2/15/21 3/15/21 4/12/21 5/10/21 6/7/21 7/5/21 8/2/21 8/30/21 9/27/21

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

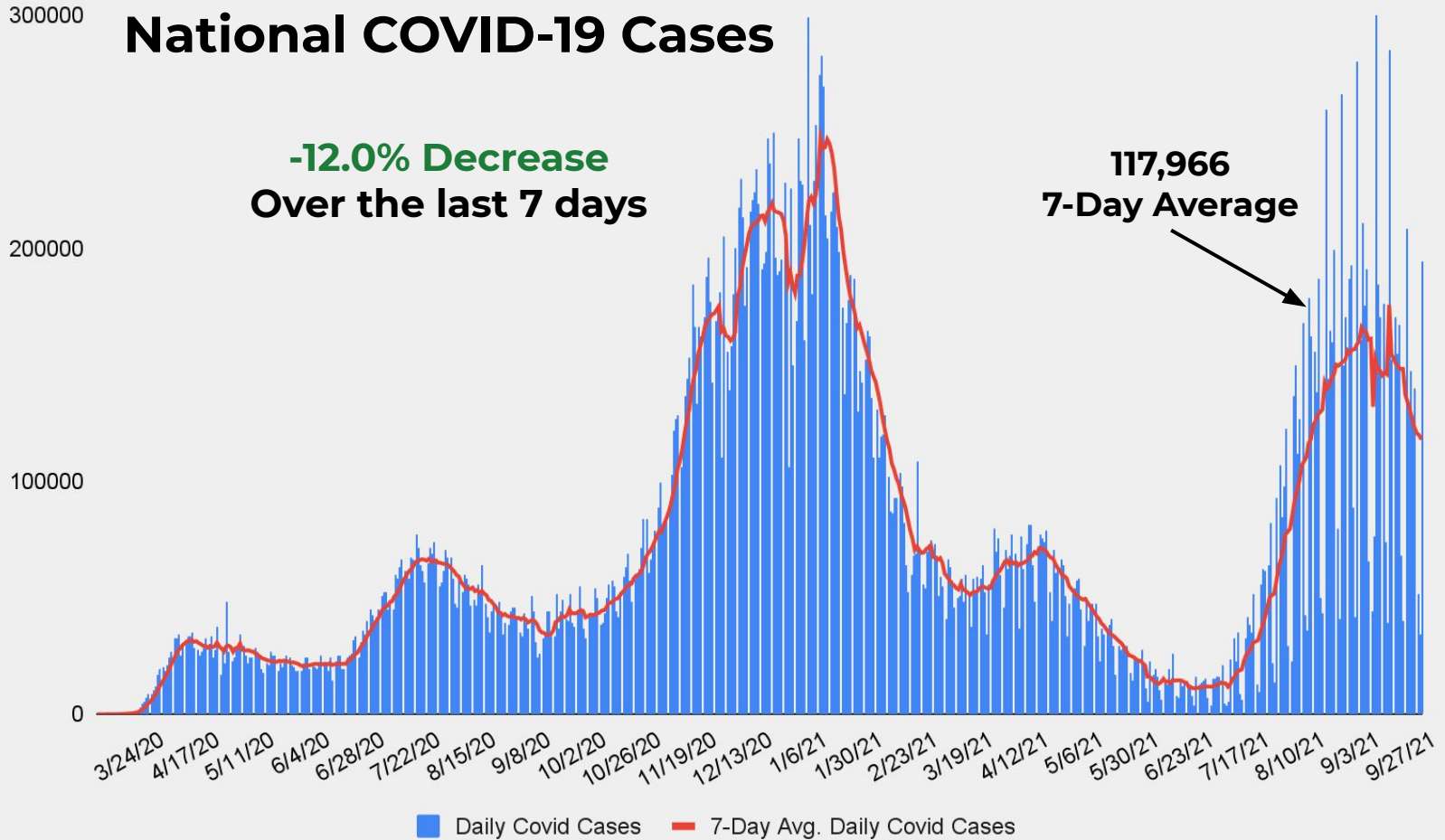


National Data

National COVID-19 Cases

**-12.0% Decrease
Over the last 7 days**

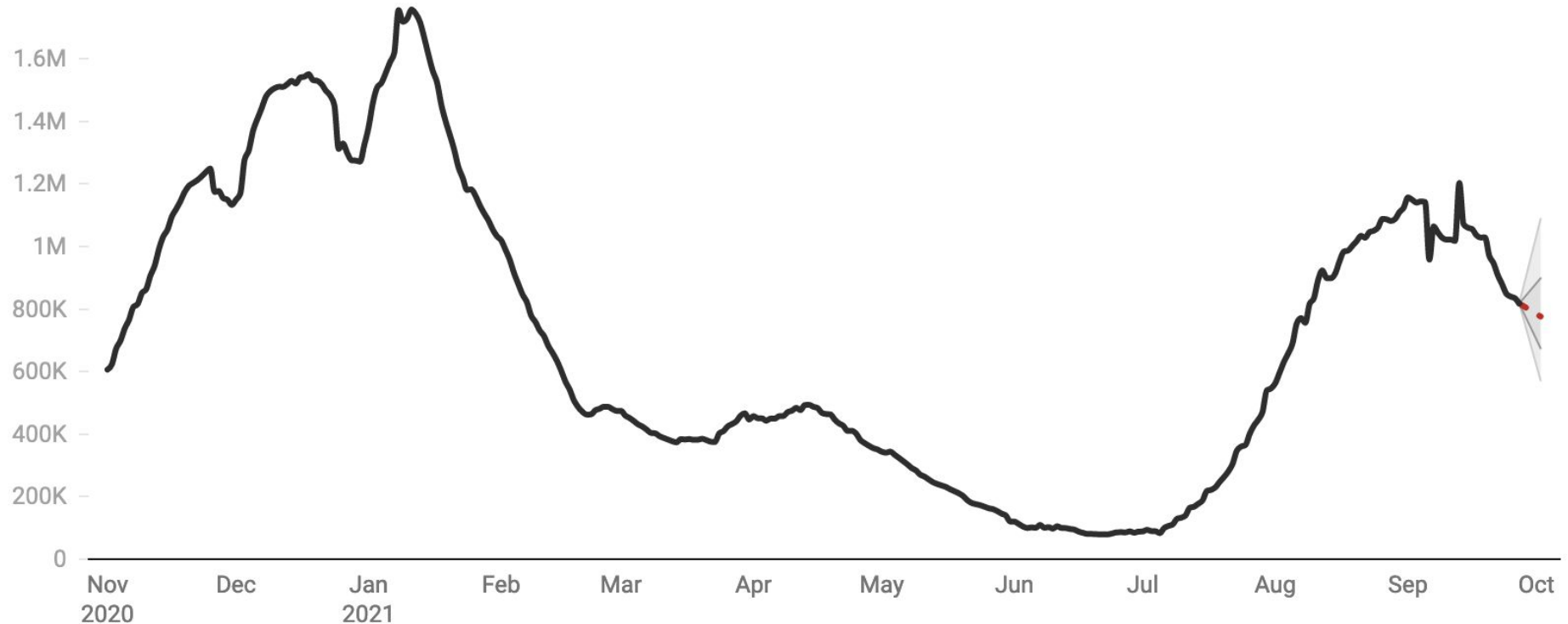
**117,966
7-Day Average**



Source: Covid Tracking Project; NYT & CDC—September 28, 2021

US Weekly COVID-19 Infections Forecast

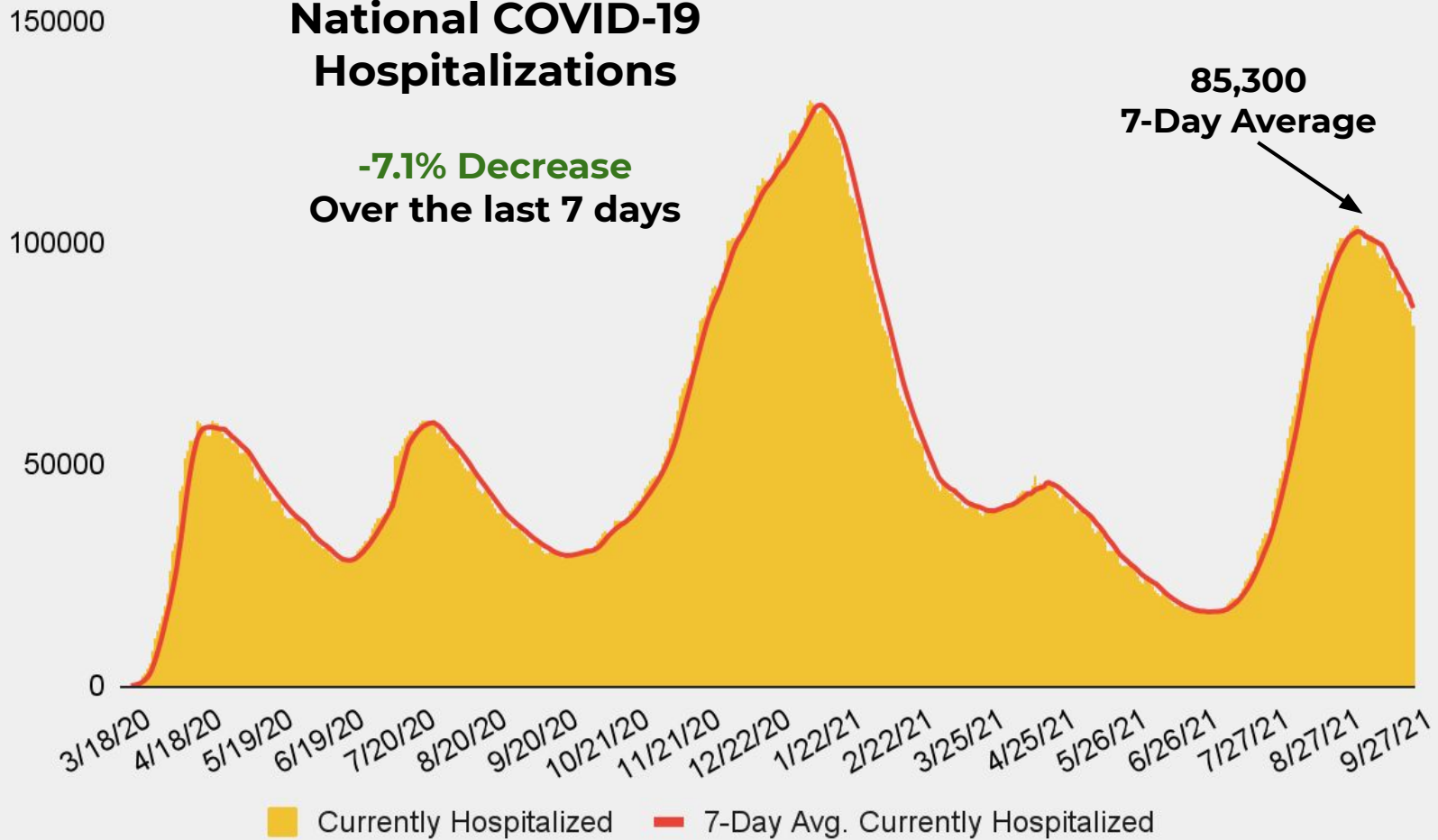
Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.



National COVID-19 Hospitalizations

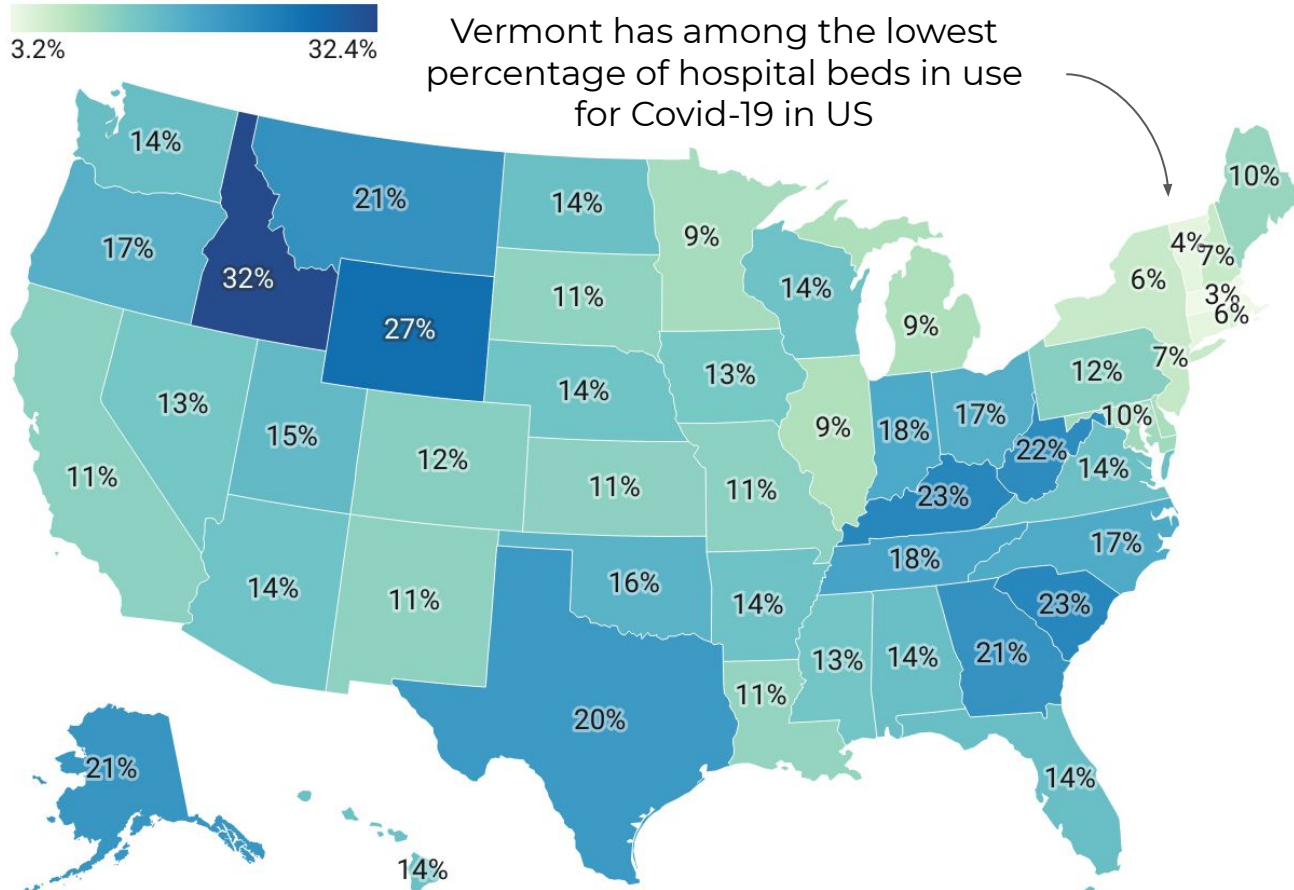
-7.1% Decrease
Over the last 7 days

85,300
7-Day Average



Source: Covid Tracking Project; NYT & CDC—September 28, 2021

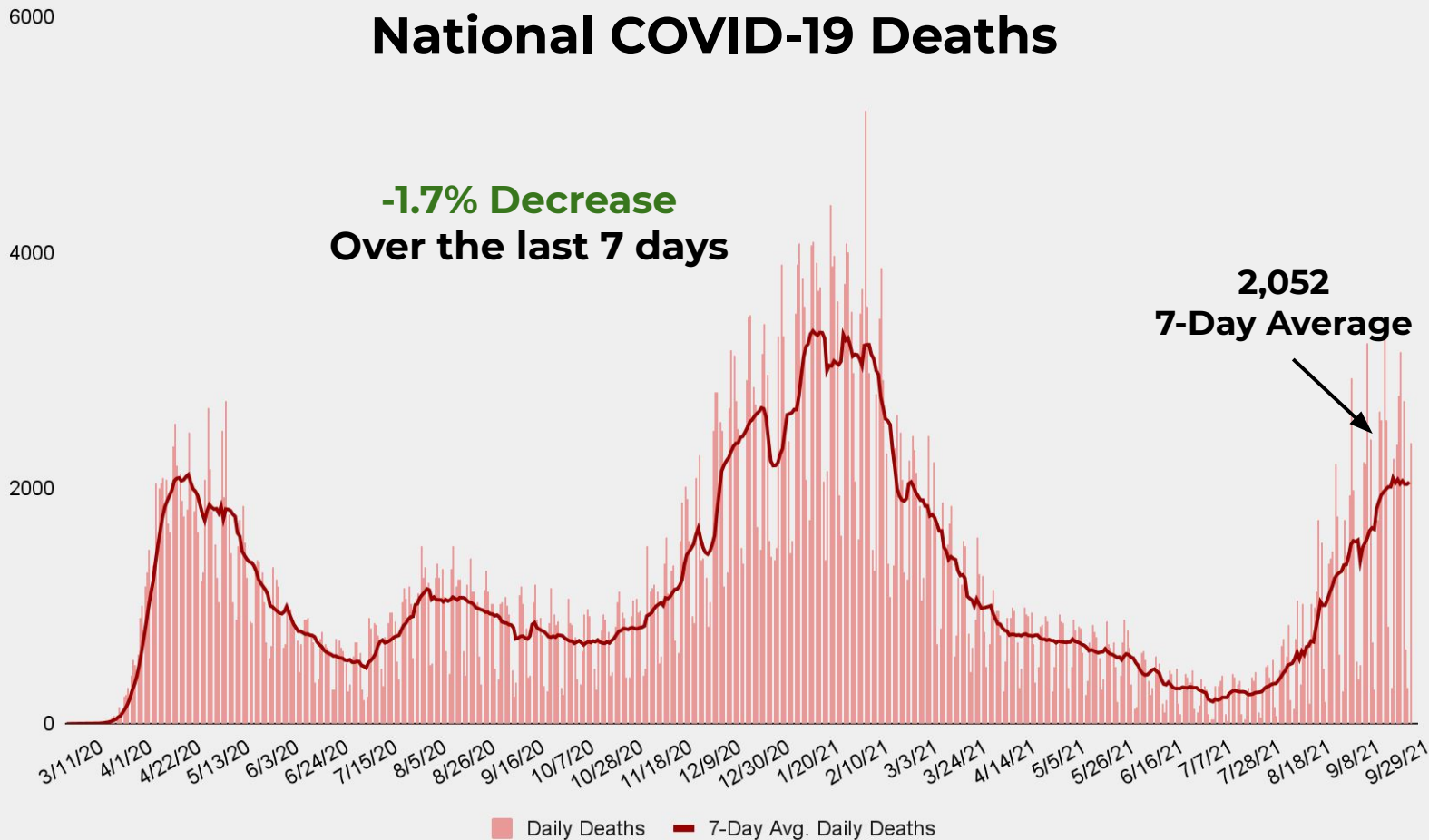
Percent of All Hospital Beds Used for COVID-19



National COVID-19 Deaths

-1.7% Decrease
Over the last 7 days

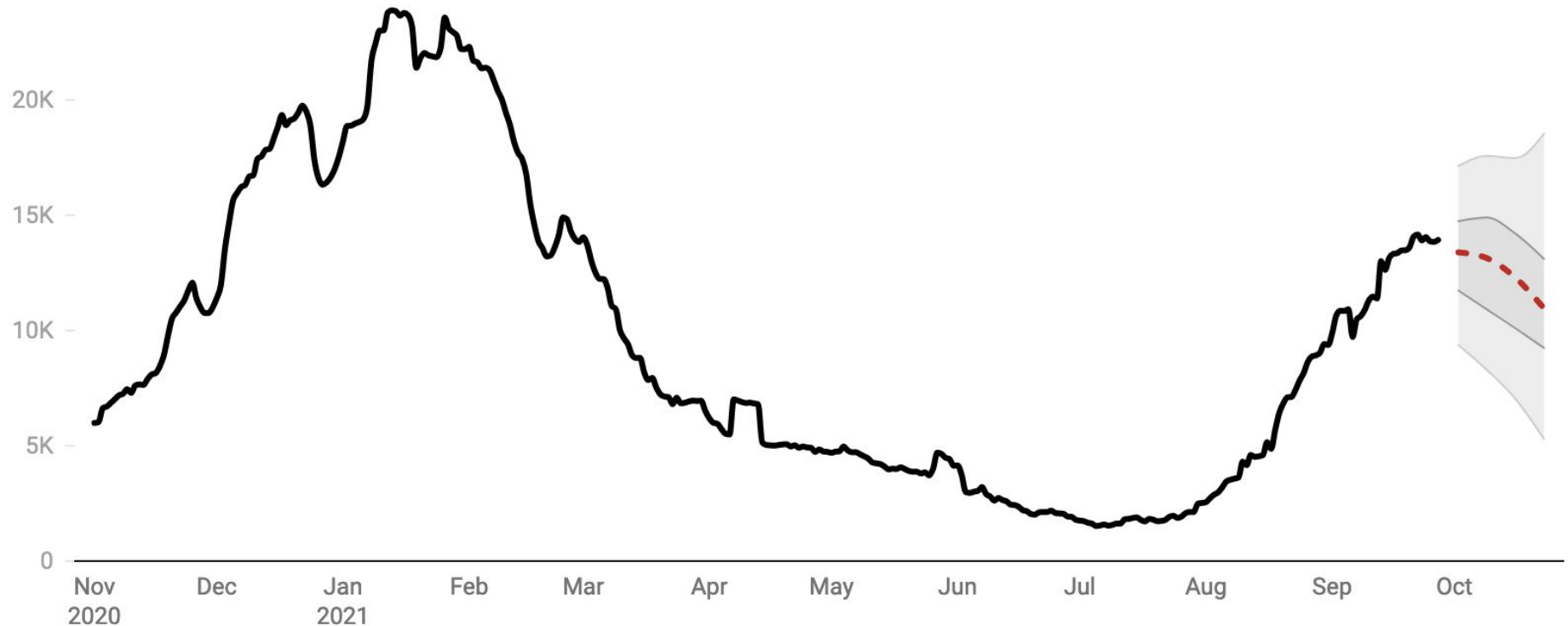
2,052
7-Day Average



Source: Covid Tracking Project; NYT & CDC—September 28, 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

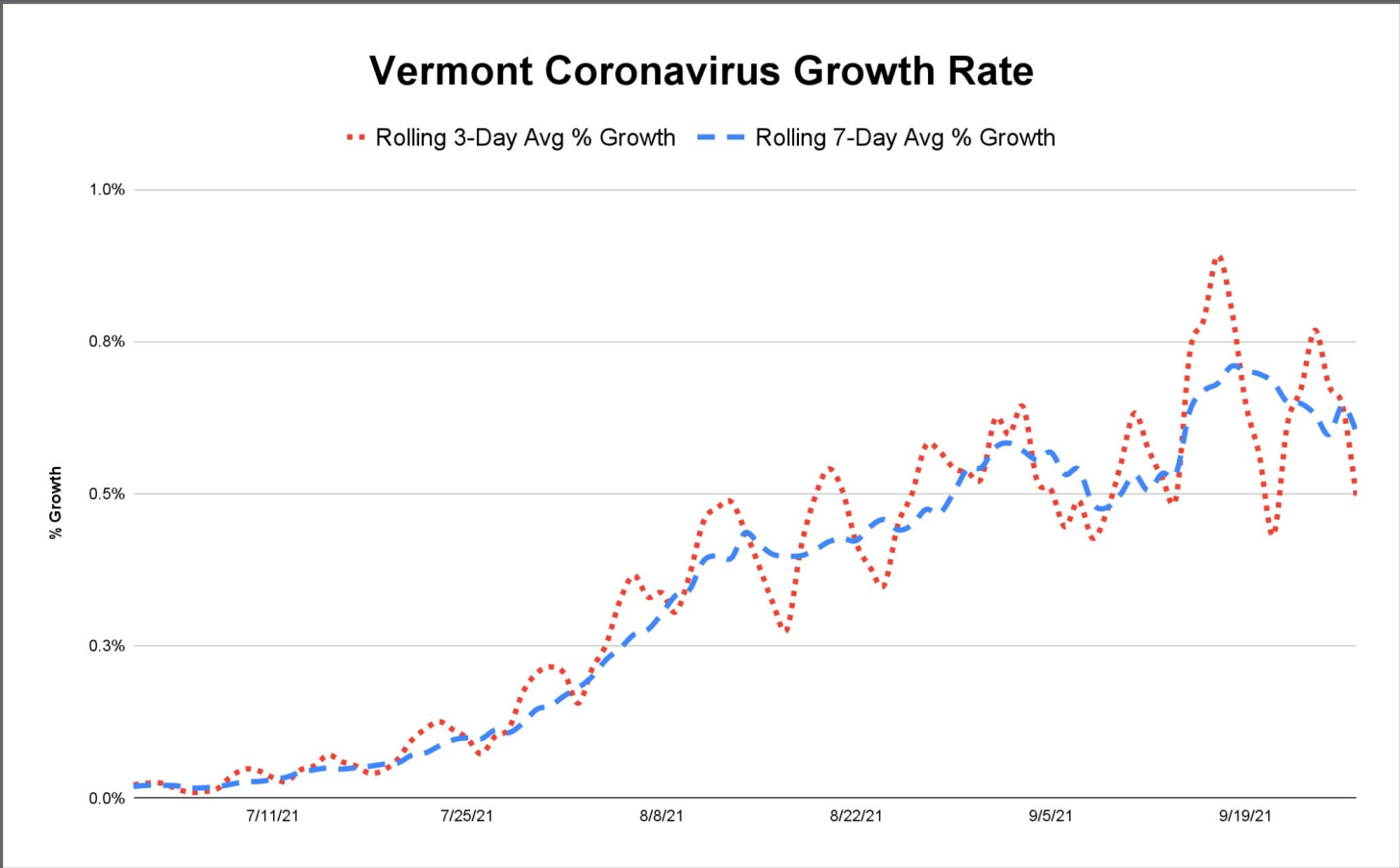
1. Syndromic Surveillance (*retired*)
2. Viral Growth & Reproductive Rates
3. Percentage of New Positive Tests
4. Hospital & Critical Care Bed Capacity

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

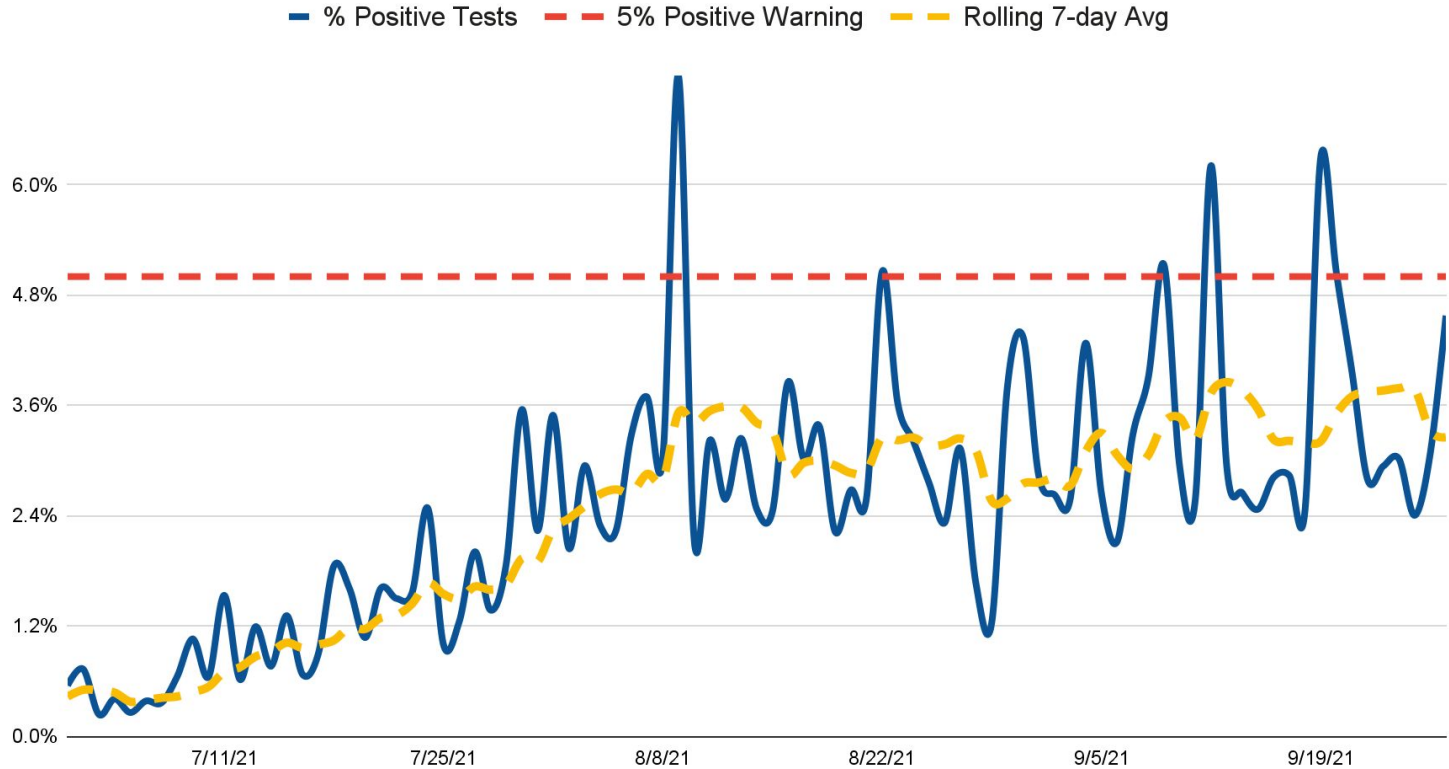
Vermont Department of Health no longer updating syndromic surveillance on a weekly basis.

Viral Growth & Reproductive Rates

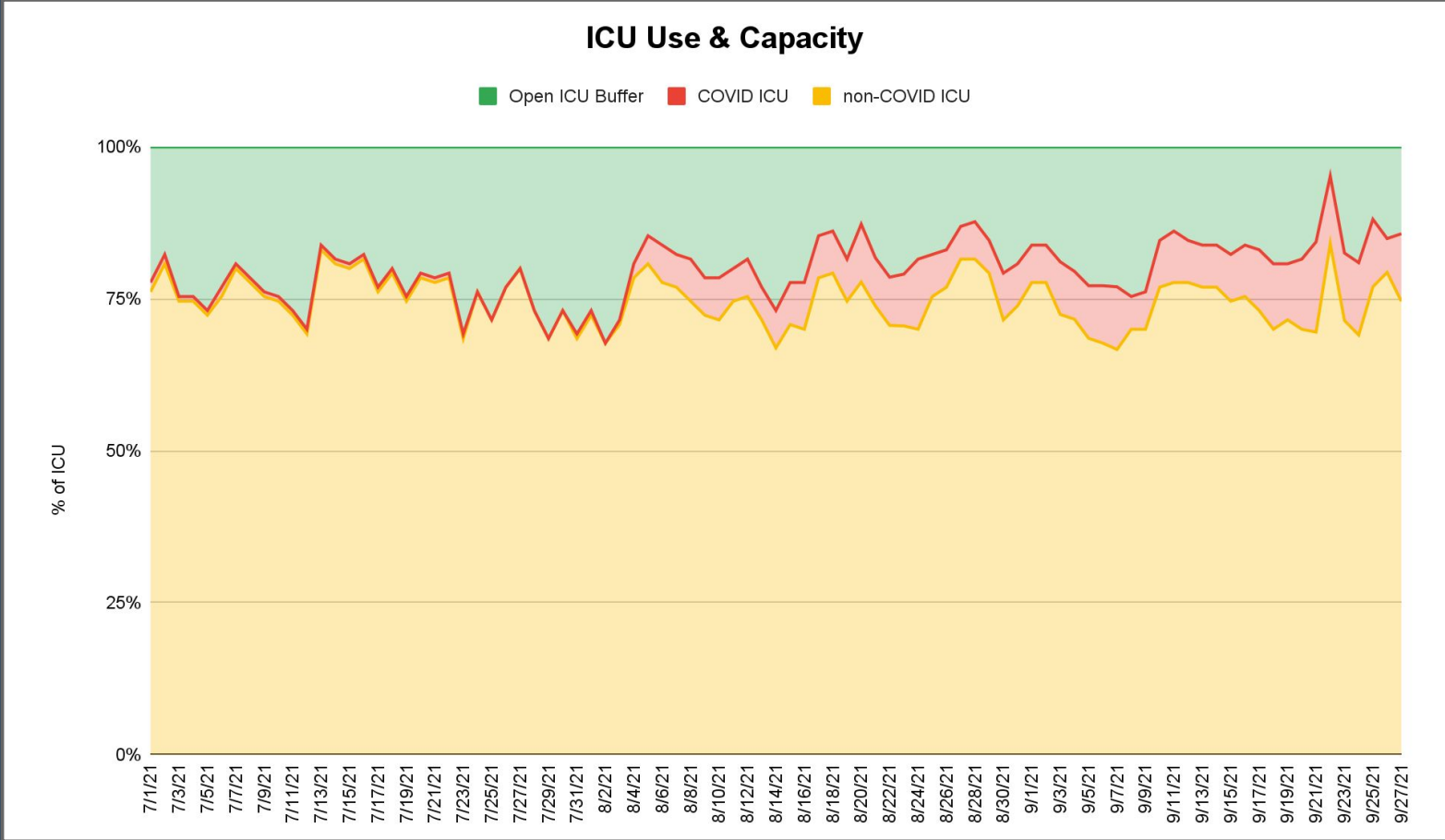


Percentage of New Positive Tests

Percent Tests Yielding New Positive COVID-19 Cases

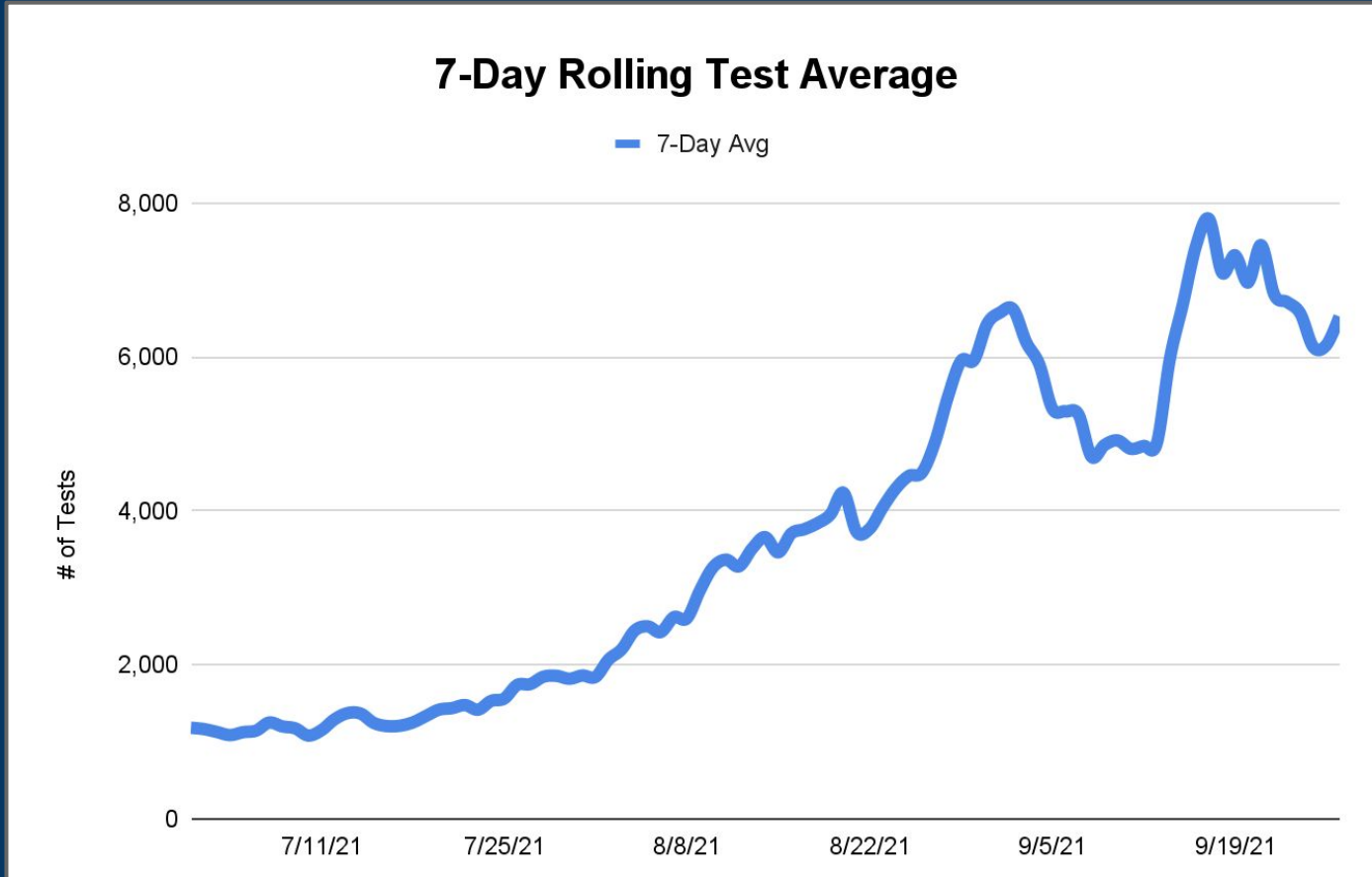


Hospital & Critical Care Beds



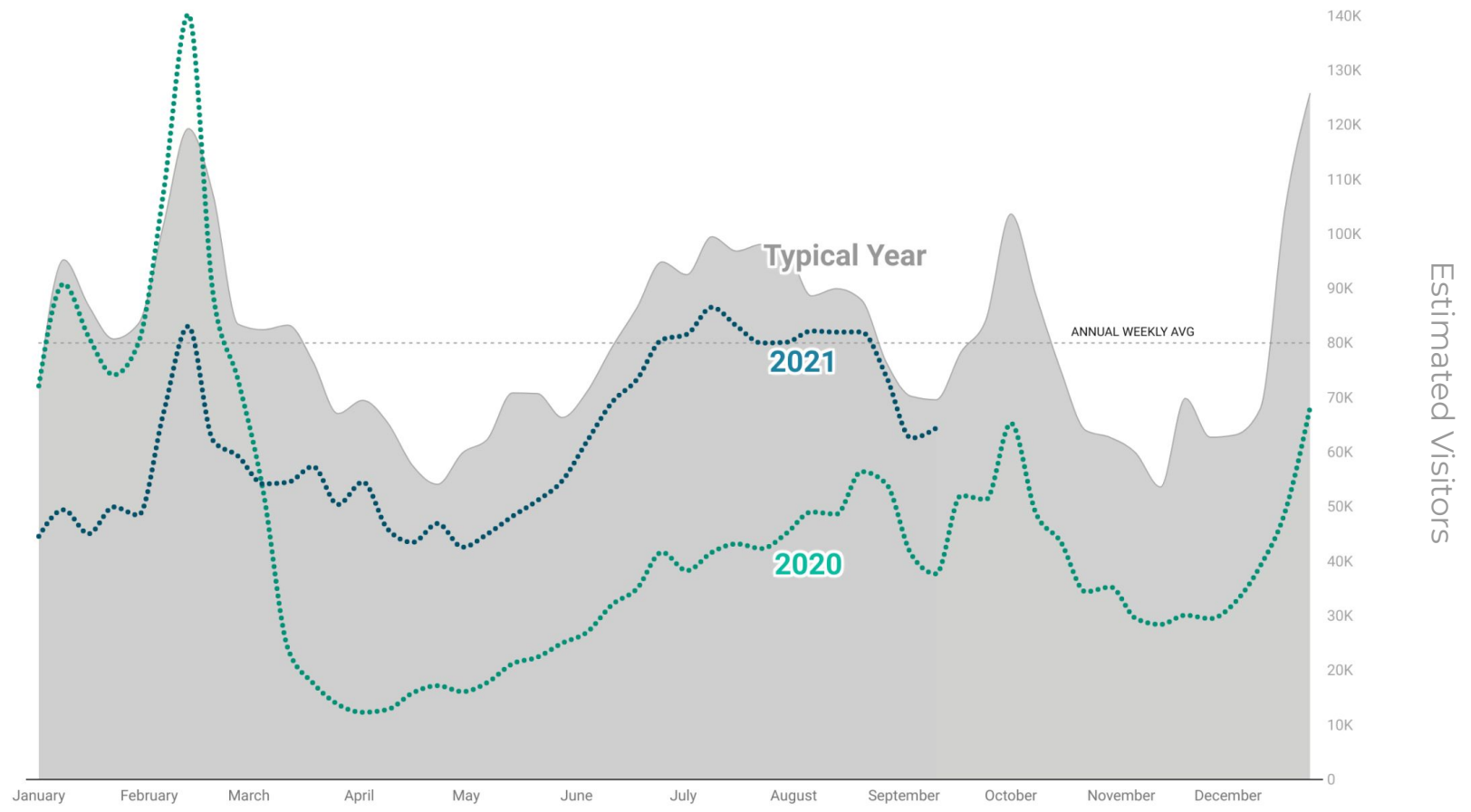
Source: Vermont Department of Health

Vermont Testing



VT Hotel Visitors in 2020 & 2021 Compared to a Typical Year

Through week ending September 18th, 2021.



'Typical Year' calculated using 2018 & 2019 average.