

COVID-19 Modeling

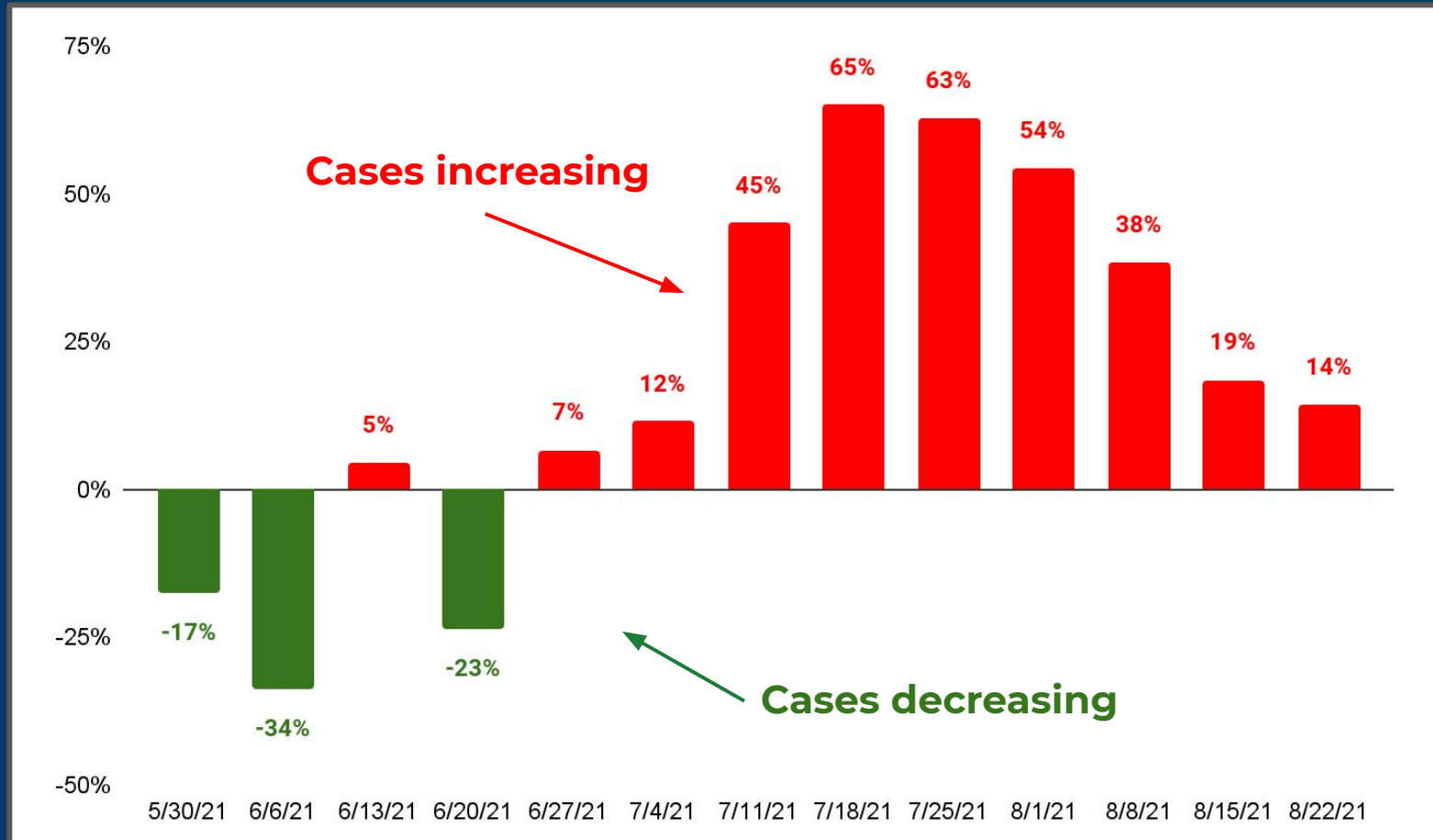
August 24, 2021

Presentation available at:
dfr.vermont.gov

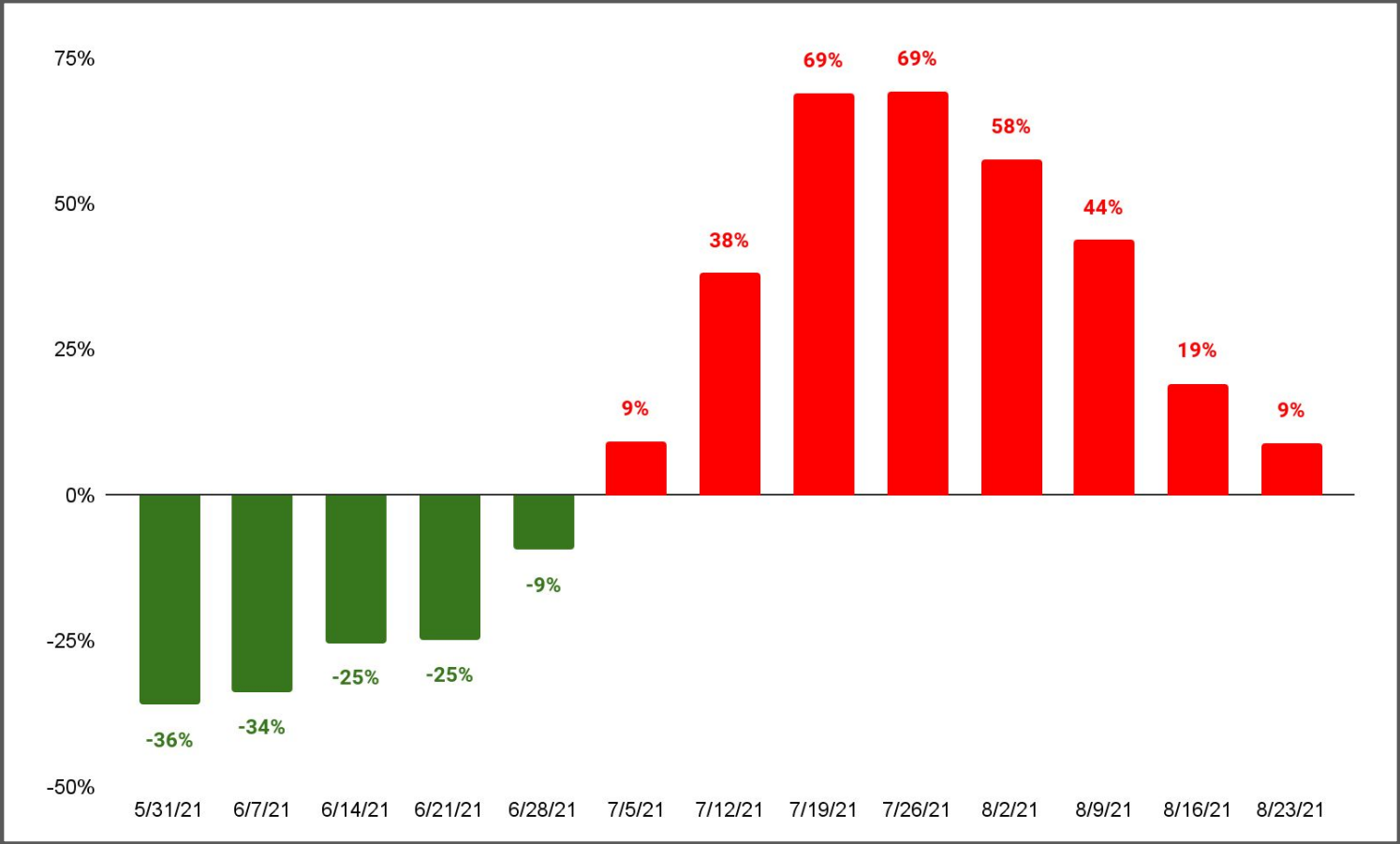
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Change in National Weekly Case Growth

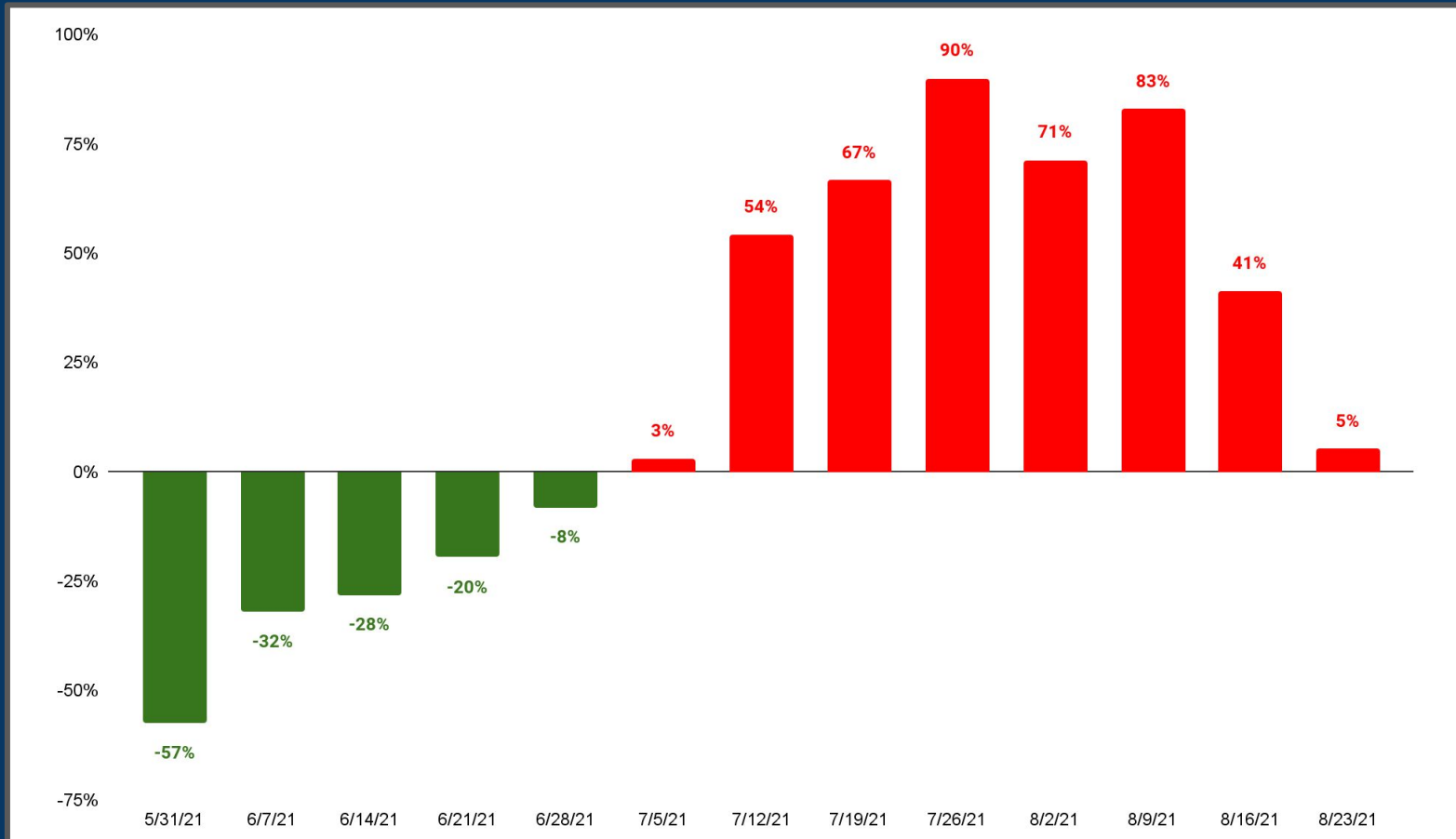


Change in Northeast Regional Weekly Case Growth

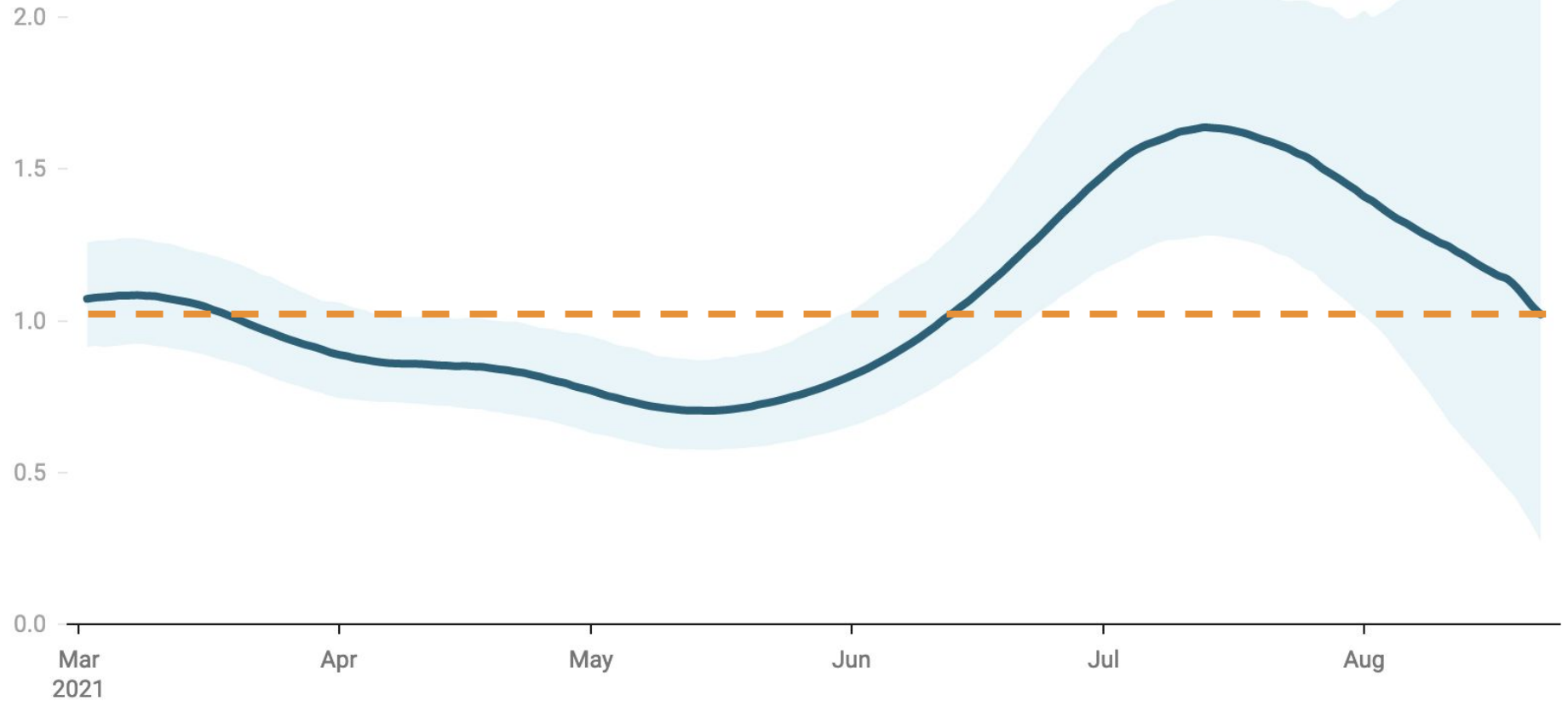


Source: State Health Departments & CTV National News (Quebec)

Change in Vermont Weekly Case Growth

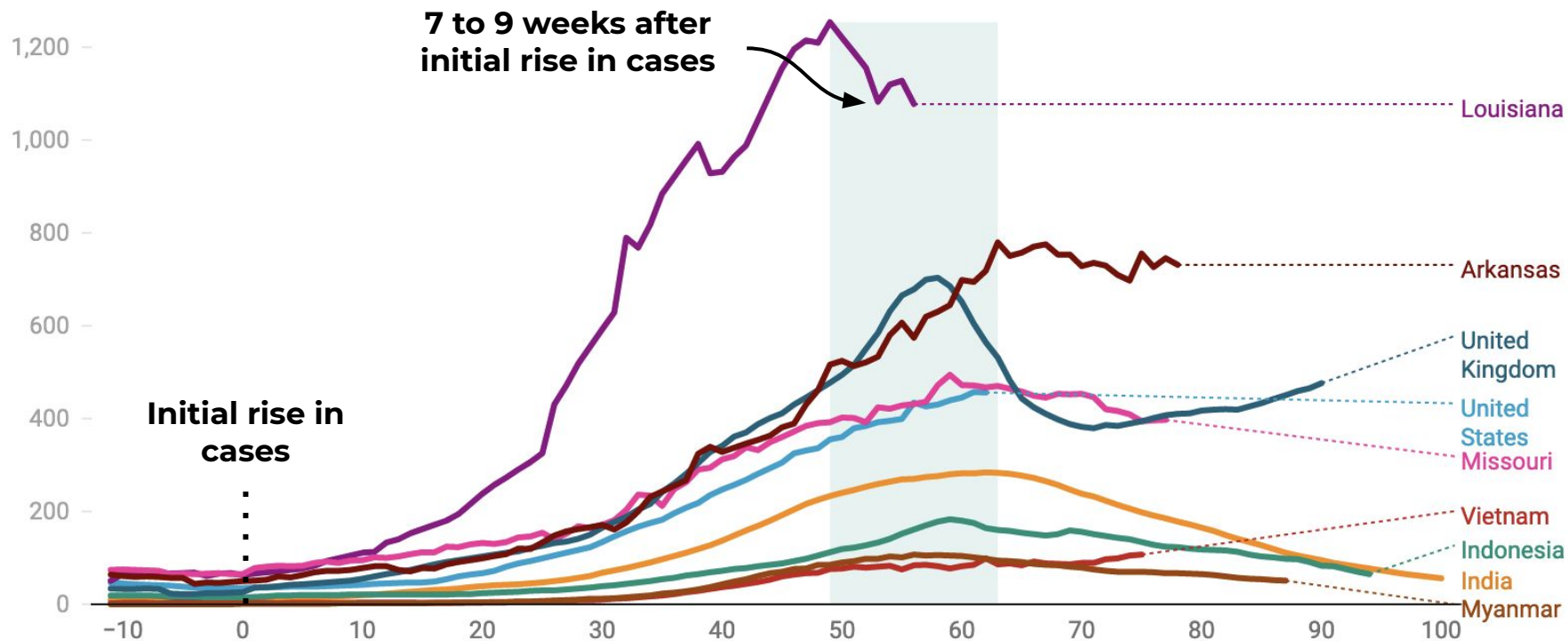


COVID-19 R_t in Vermont



Delta Variant Driven Peaks Across the Globe

Day 0 is set to correspond with the beginning of a jurisdiction's case growth.



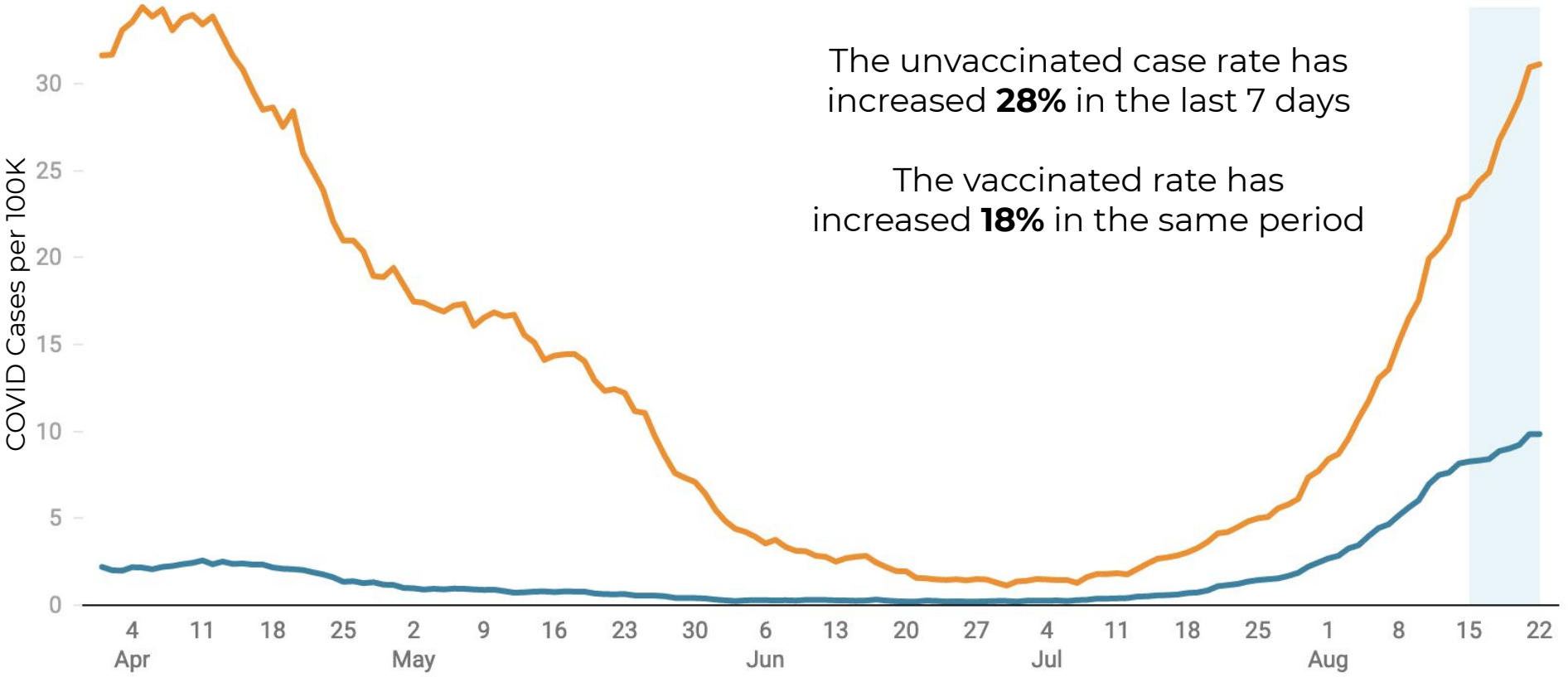
COVID-19 infections per million (7-day averages).

Source: CDC and Our World in Data

Vermont Case Data

Vermont COVID-19 Cases per 100K (14-Day Average)

Among Not Fully Vaccinated Among Fully Vaccinated



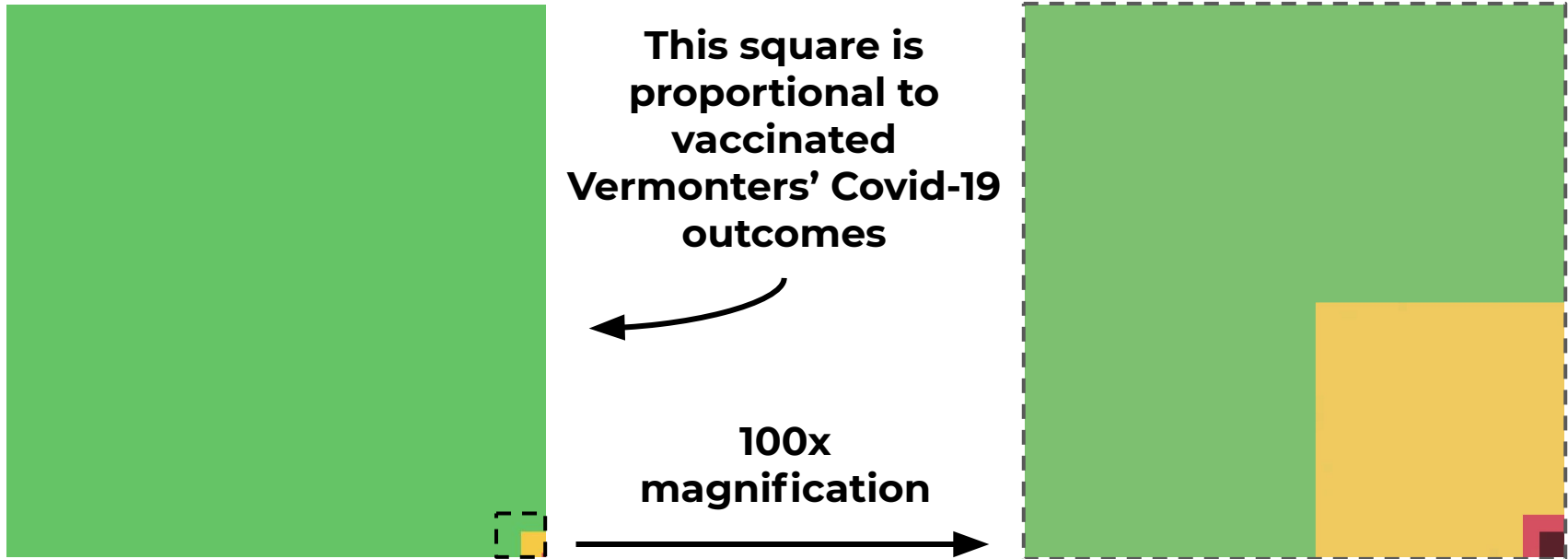
The unvaccinated case rate has increased **28%** in the last 7 days

The vaccinated rate has increased **18%** in the same period

Source: Vermont Department of Health—August 23, 2021; “fully vaccinated” defined as 14 days following final dose

Covid-19 Among Fully Vaccinated People in Vermont

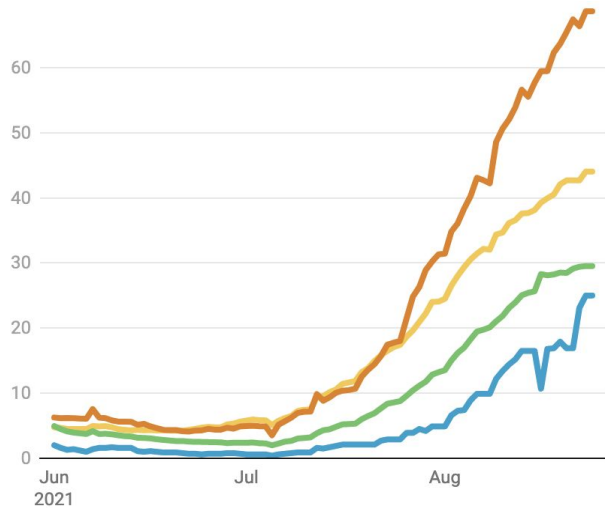
- 420,672 fully vaccinated
- 915 tested positive (0.22%)
- 23 hospitalized for Covid-19 (0.006%)
- 10 died due to Covid-19 (0.002%)



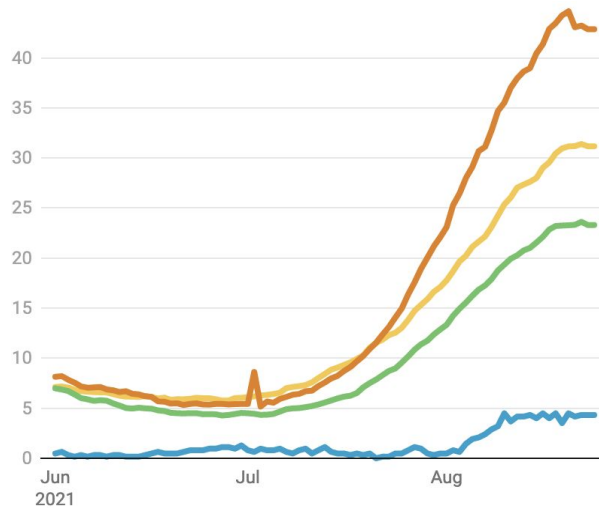
Source: Vermont Department of Health and CDC; infection and hospitalization data from 8/14/21, fatality data 8/23/21; percentages calculated using CDC total fully vaccinated for respective dates (417,827 & 420,672). Data from January 1, 2021 to August 13, 2021; magnification 100x areal/10x linear

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

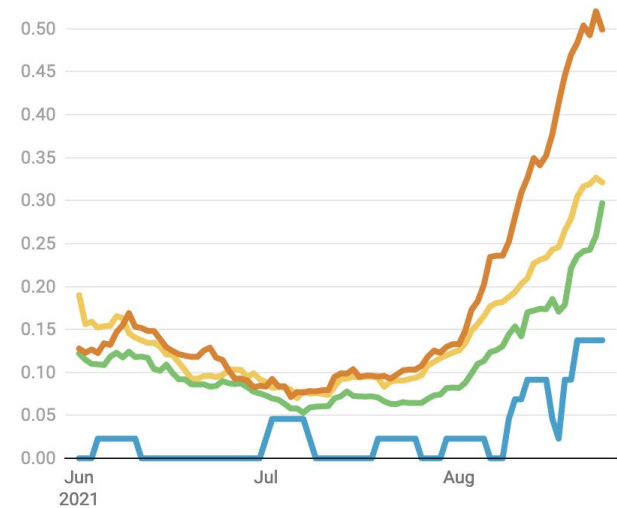
■ <40% Started Vaccination
 ■ 40-60% Started Vaccination
 ■ 60%+ Started Vaccination
 ■ Vermont



Infections per 100K

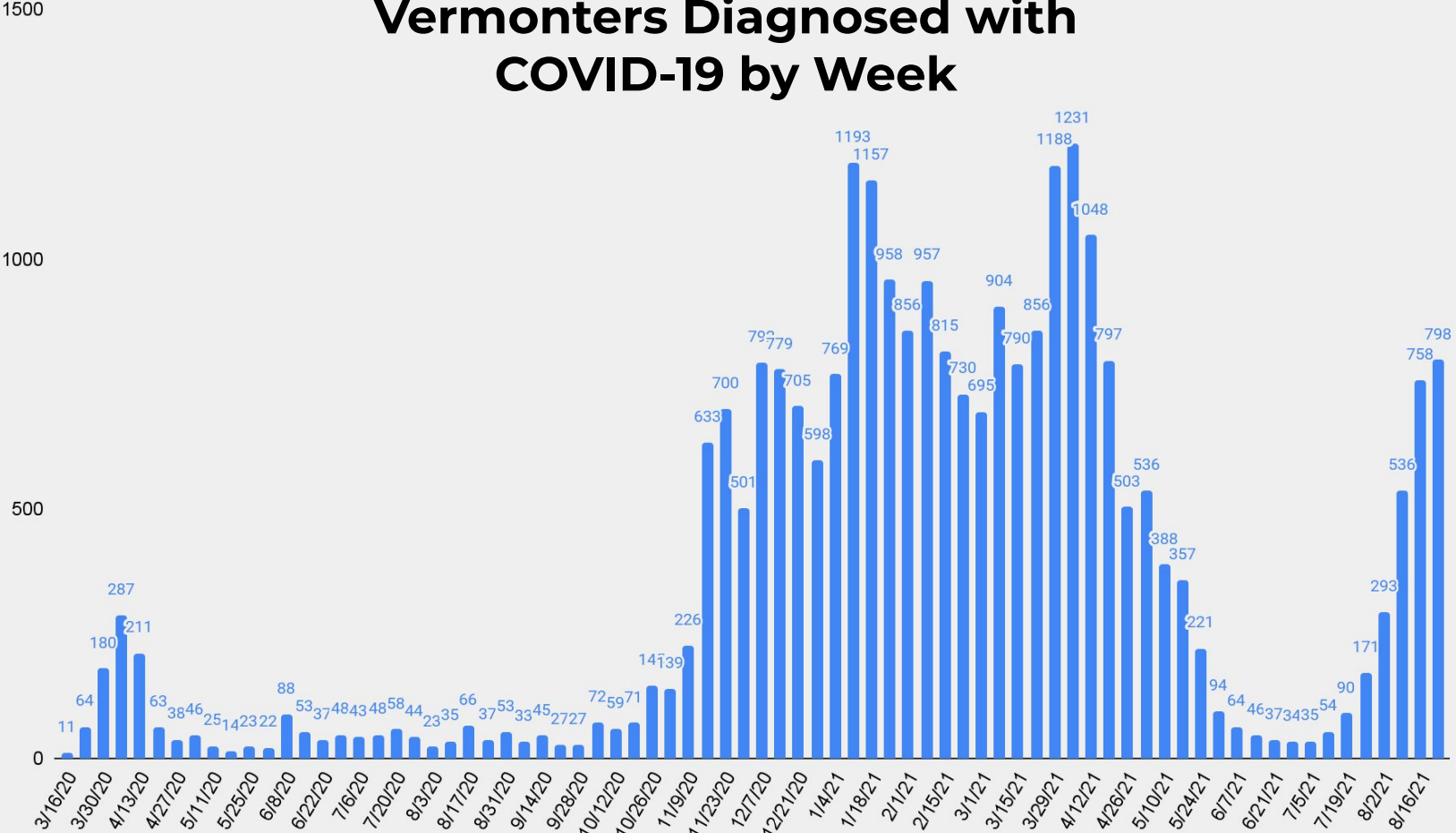


Hospitalizations per 100K



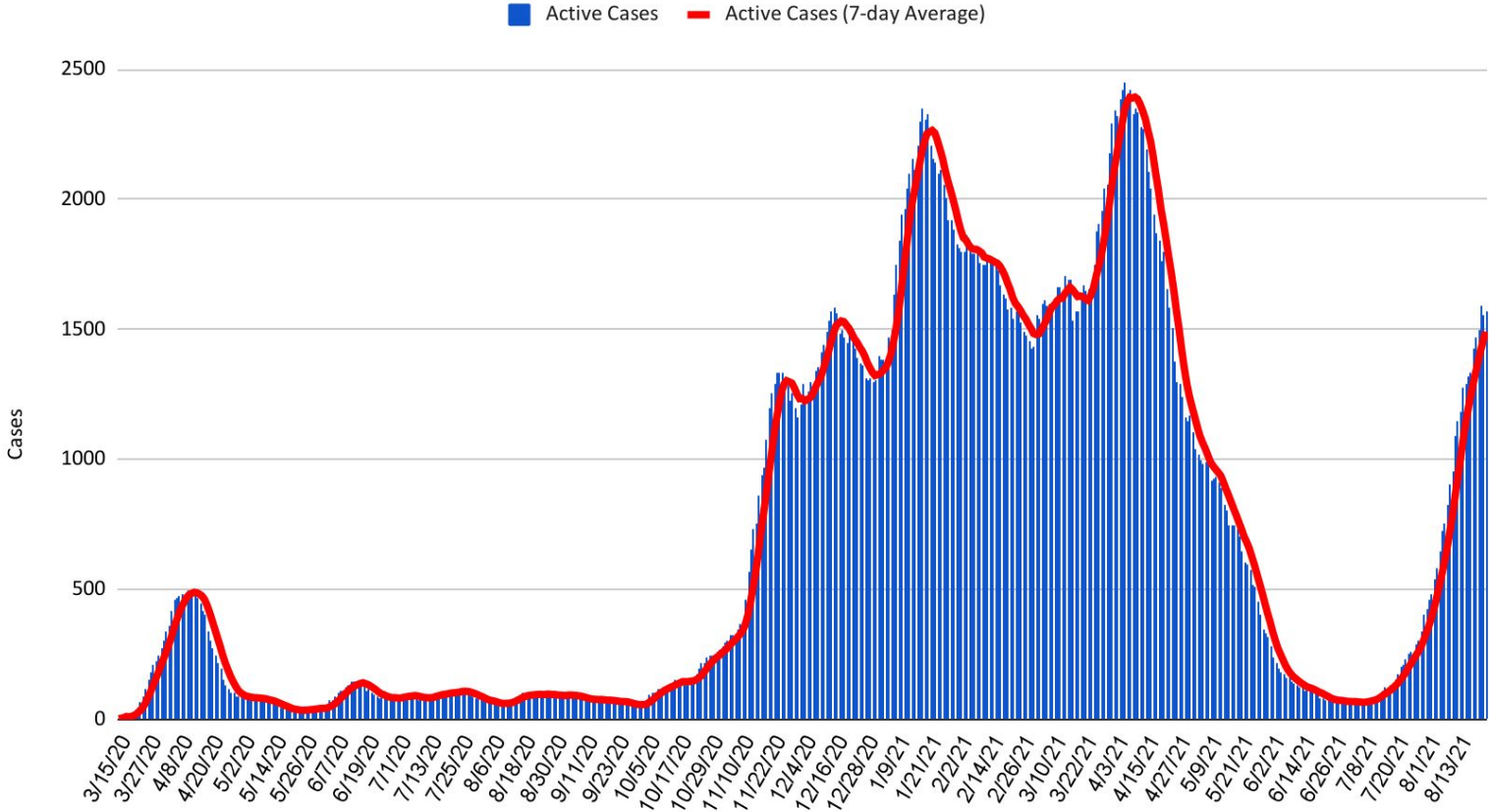
Deaths per 100K

Vermonters Diagnosed with COVID-19 by Week



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

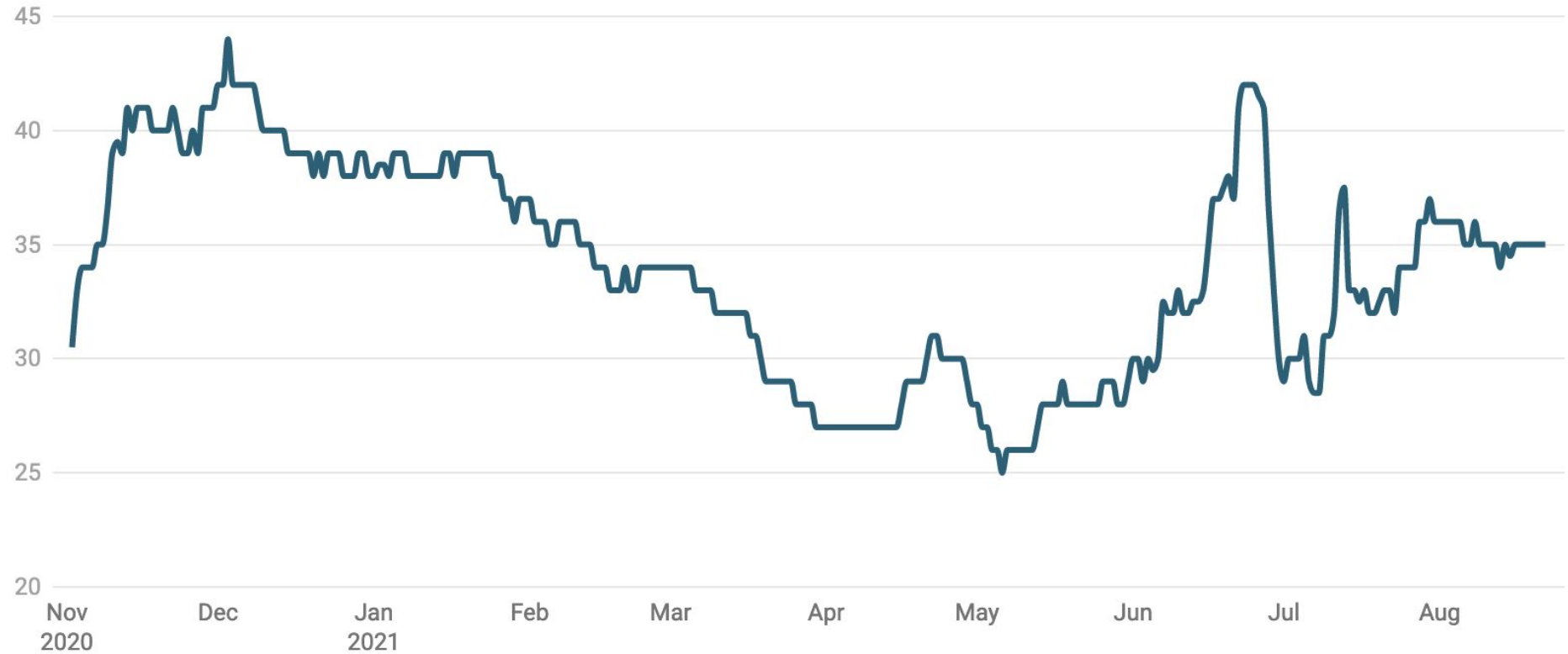
Estimated Active Cases of COVID-19 in Vermont



Source: Vermont Dept. of Health—August 24, 2021

Age of Infected Vermonters

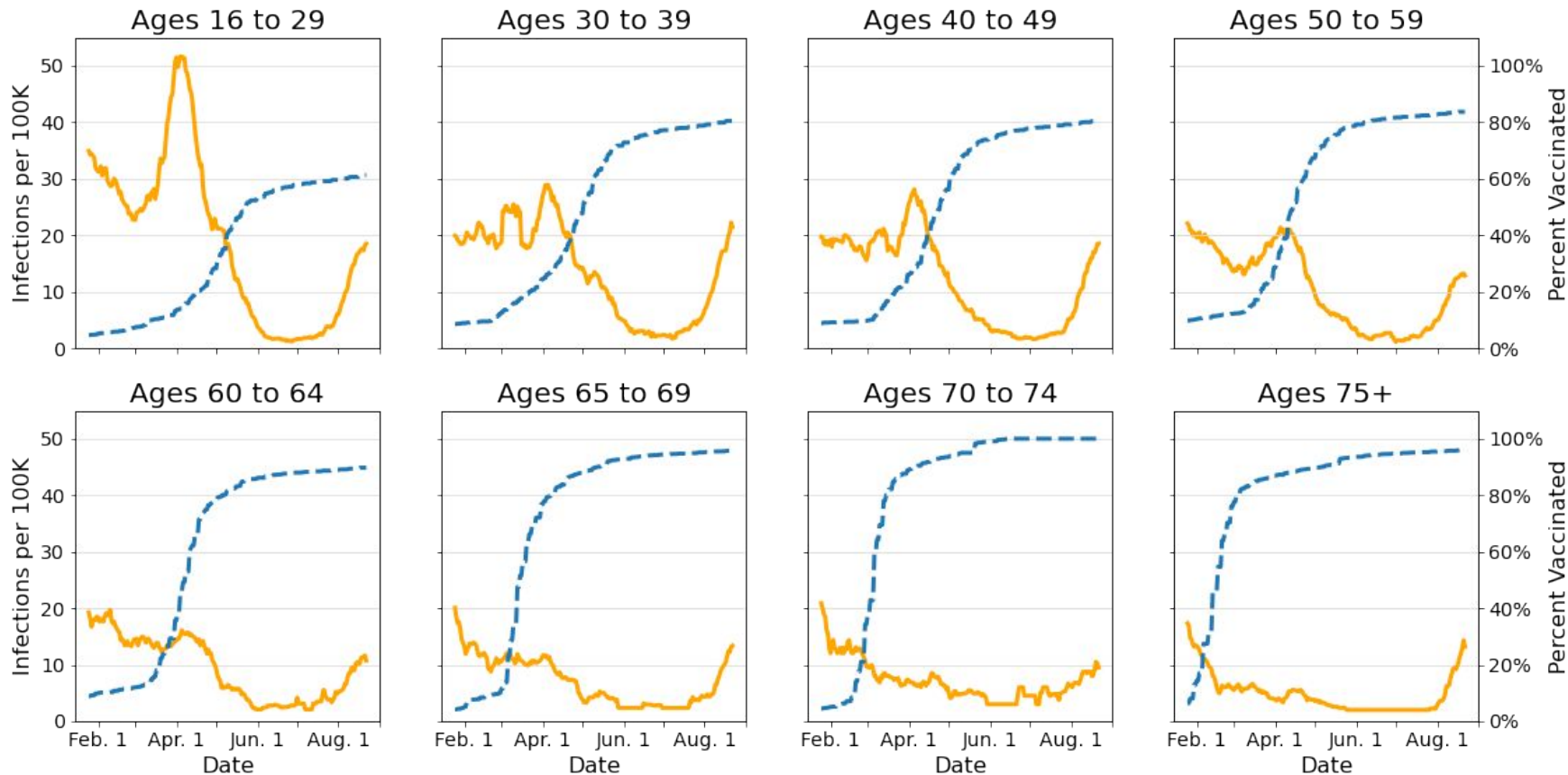
Median age of COVID positive individuals in VT over the last 14 days.



Vermont Case Rate & Vaccination by Age Band

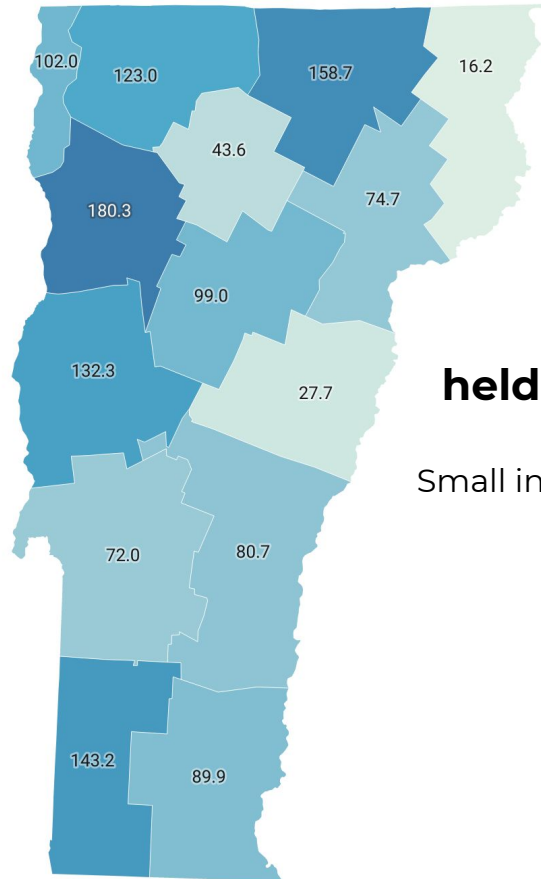
— New Infections per 100K (14-Day Average)

— Percent Received First Vaccine Dose



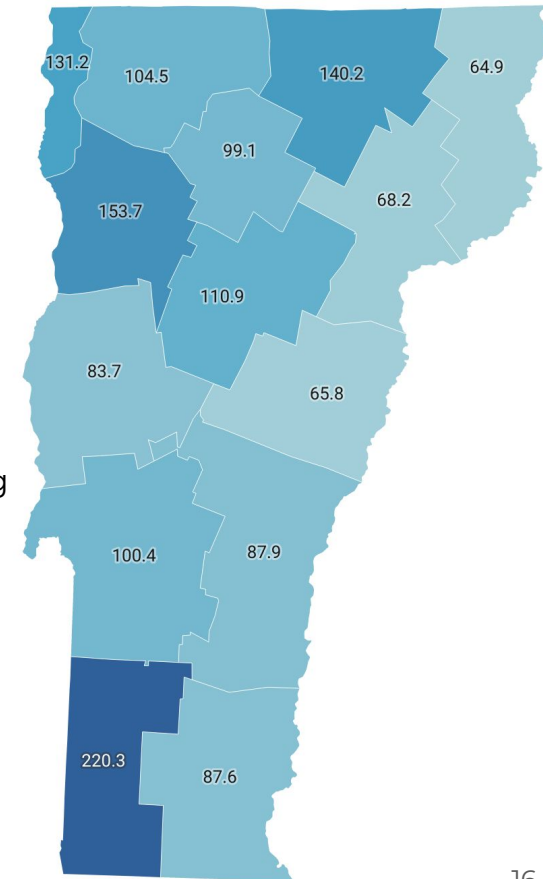
Vermont Weekly Cases by County (per 100,000)

Results Reported August 11 to 17



Vermont Weekly Cases by County (per 100,000)

Results Reported August 18 to 23

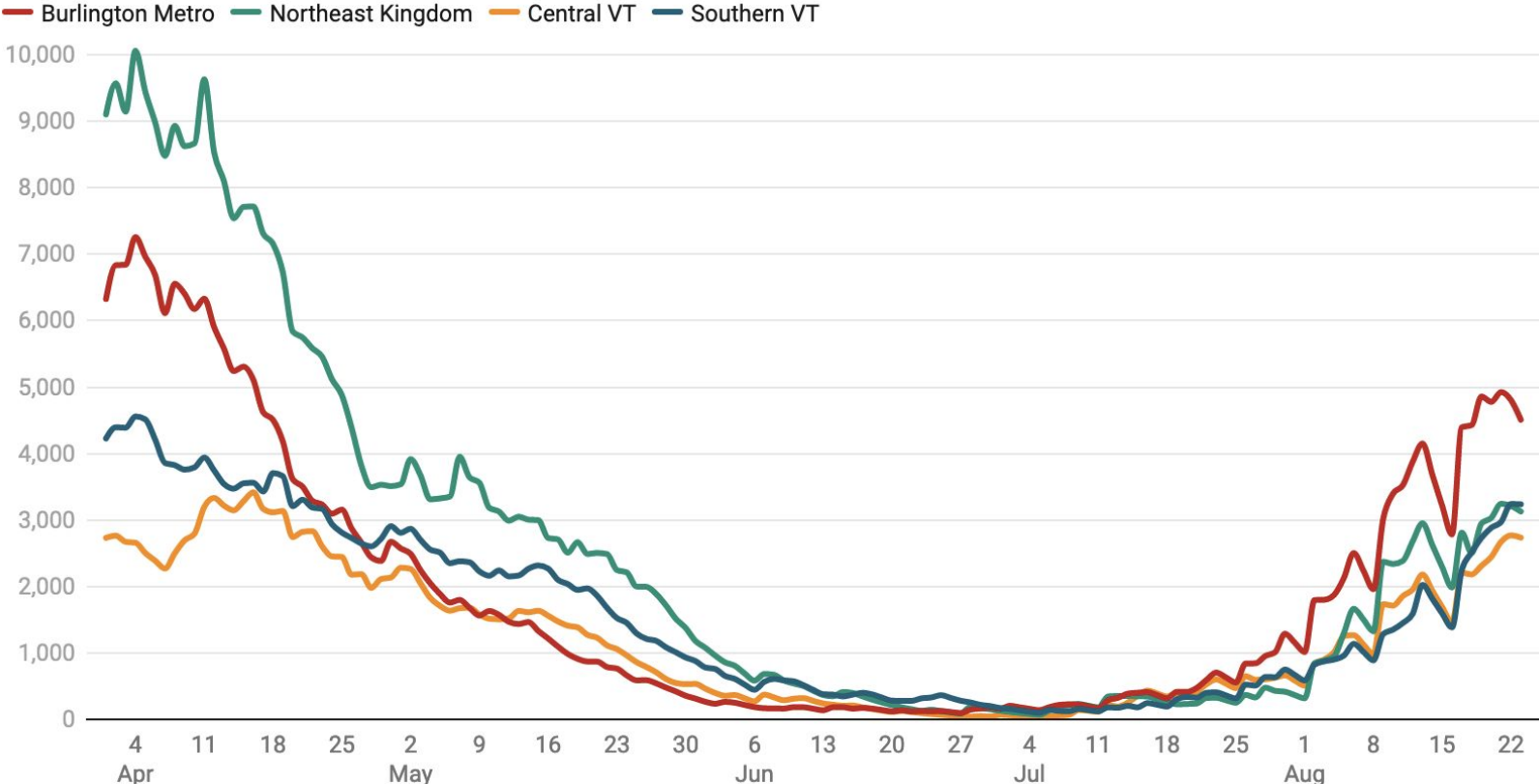


Covid-19 case rates
held mostly steady this past week

Small increase statewide with Bennington seeing
highest case rates in Vermont

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).



Source: VDH & DFR Active Case Algorithm —August 23, 2021

Fall 2021 Higher Education Restart

Higher Education Institutions Reporting	Enrollment	Students Fully Vaccinated	Students Not Fully Vaccinated <small>(No Exemption Granted)</small>	Students with Unknown Vaccine Status	Students Granted Vaccine Mandate Exemption
13 (of 16)	24,552	22,027	1,442	734	349
		89.72%	5.87%	2.99%	1.42%

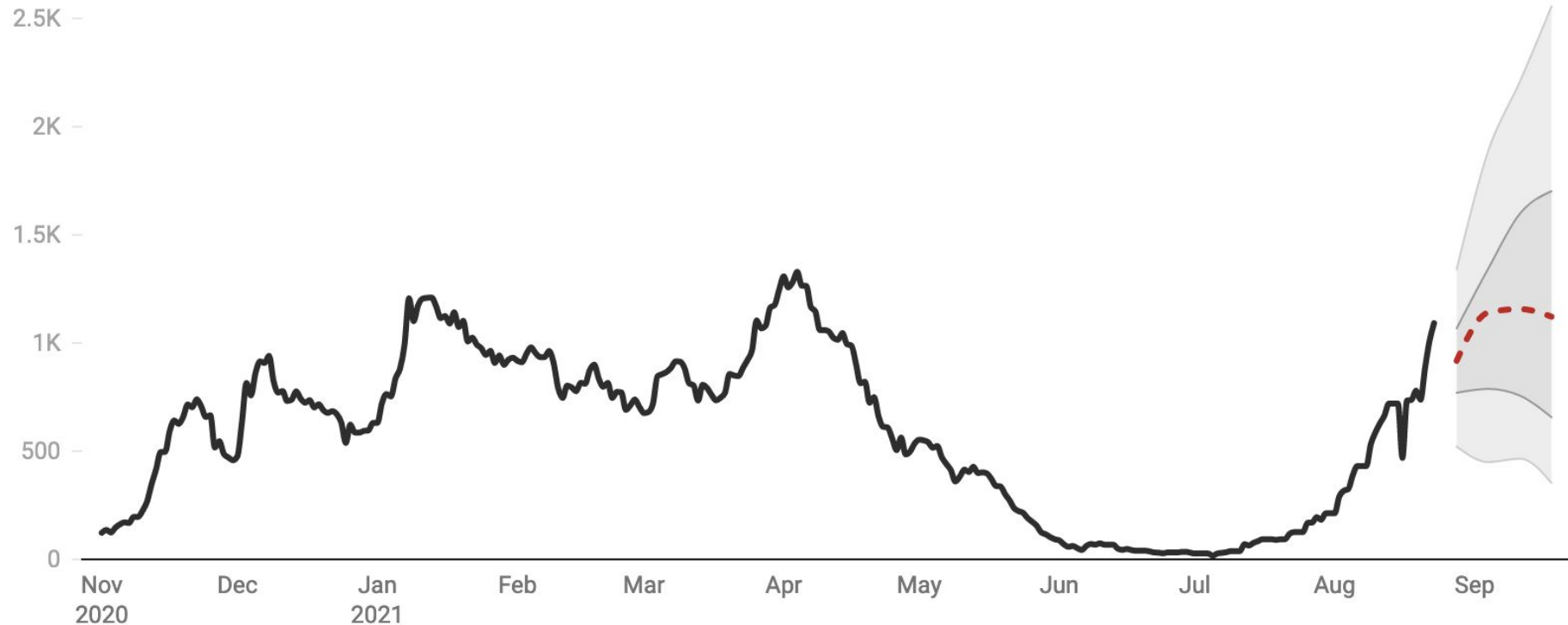
Active Outbreaks in Long Term Care Facilities

Facility Name	Total COVID-19 Cases
Maple Lane Nursing Home, <i>Barton</i>	25
Ethan Allen Residence, <i>Burlington</i>	15
Maple Ridge Assisted Living and Memory Care, <i>Essex Junction</i>	13
Vermont Veterans Home, <i>Bennington</i>	9
Total	62

Source: Vermont Department of Health—August 23, 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 -- count included in total cases

VT Weekly COVID-19 Infections Forecast

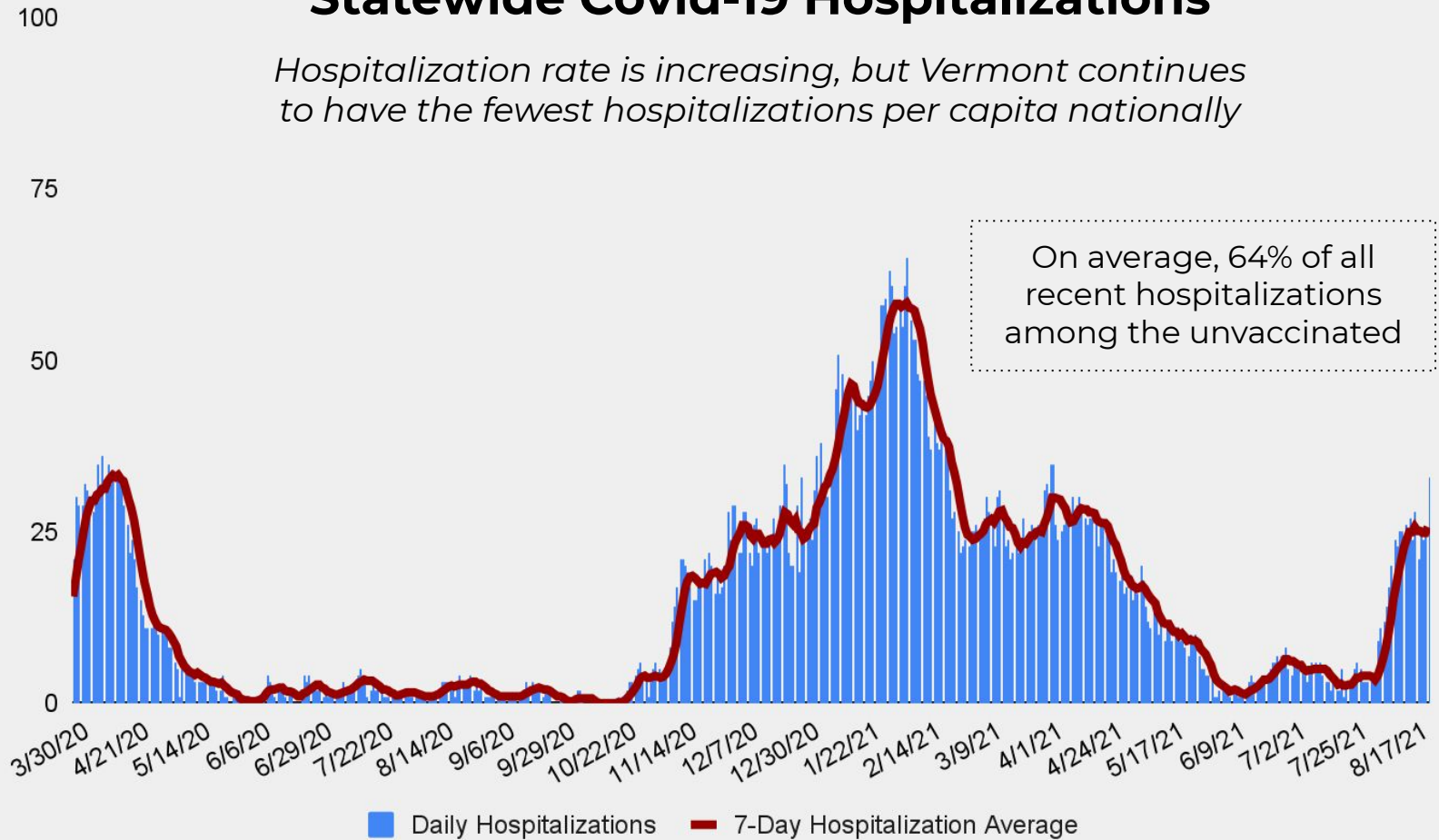
Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.



Vermont Hospitalization Data

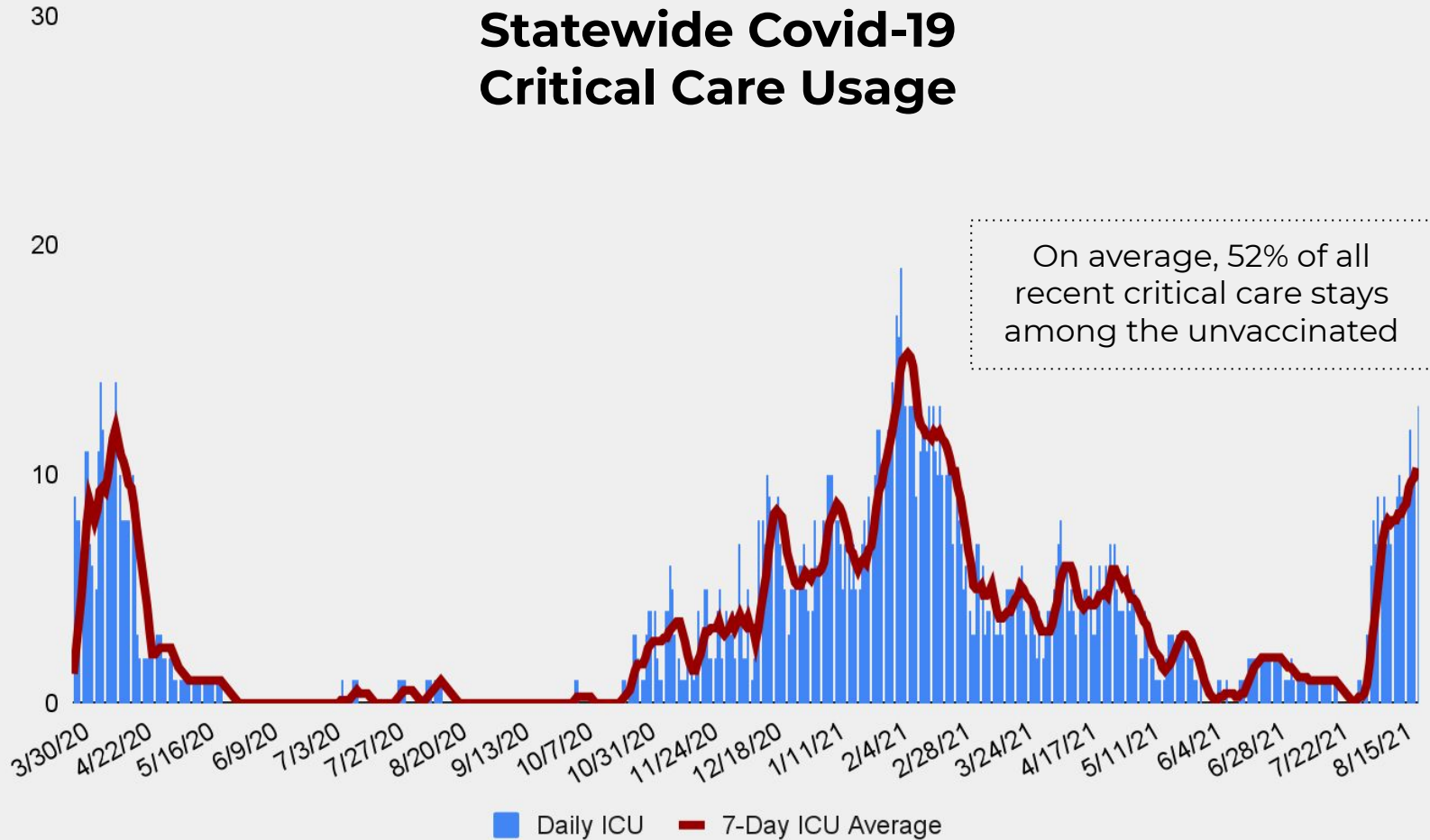
Statewide Covid-19 Hospitalizations

Hospitalization rate is increasing, but Vermont continues to have the fewest hospitalizations per capita nationally



Source: Vermont Department of Health—August 23, 2021

Statewide Covid-19 Critical Care Usage



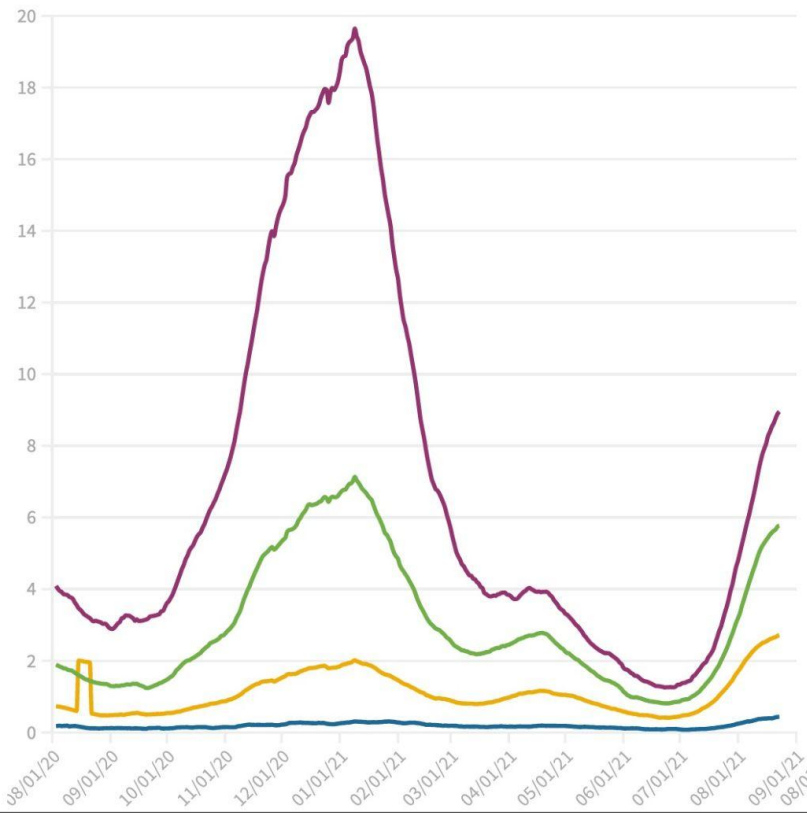
Source: Vermont Department of Health—August 23, 2021

New Hospitalizations per 100,000 Residents, by Age

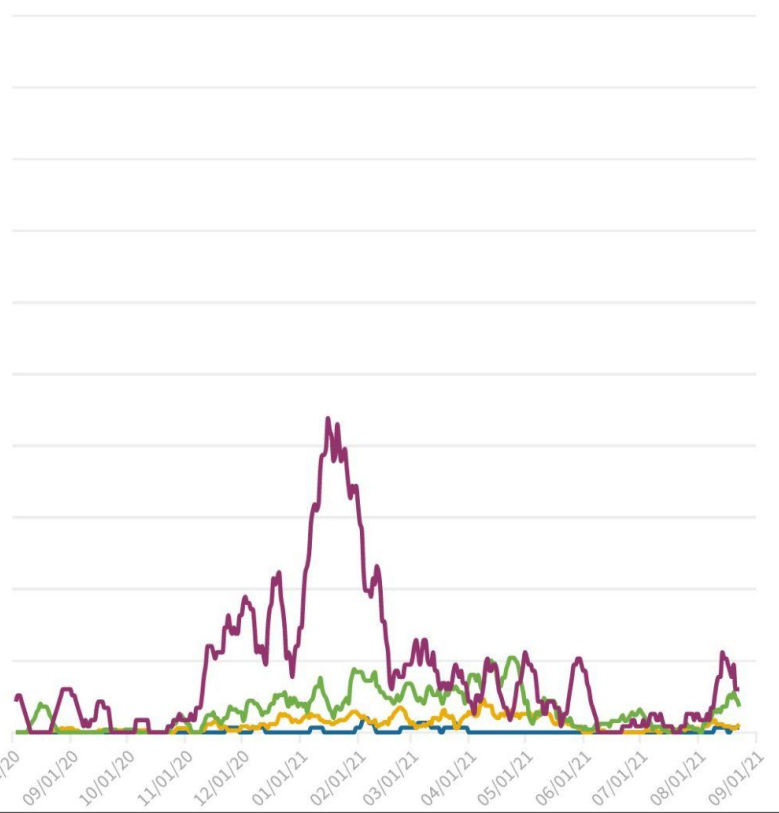
0-17 years 18-49 years 50-69 years 70+ years

New Hospitalizations per 100K

United States



Vermont



Vermont Fatality Data

Vermont Covid-19 Deaths by Week

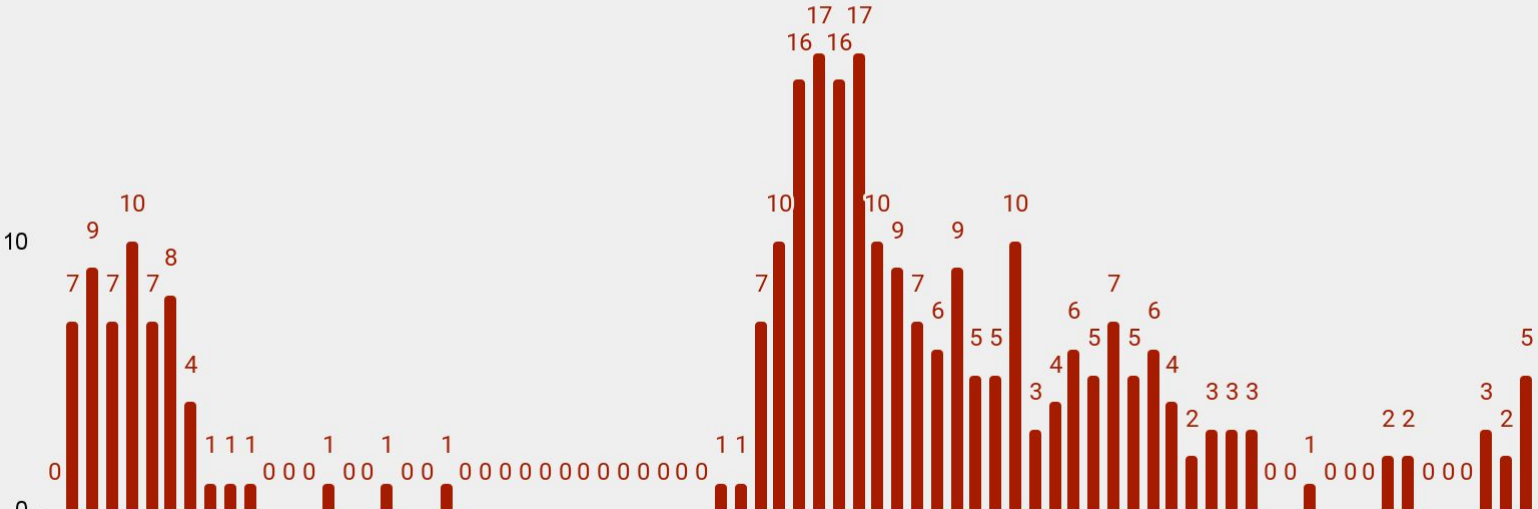
30

20

10

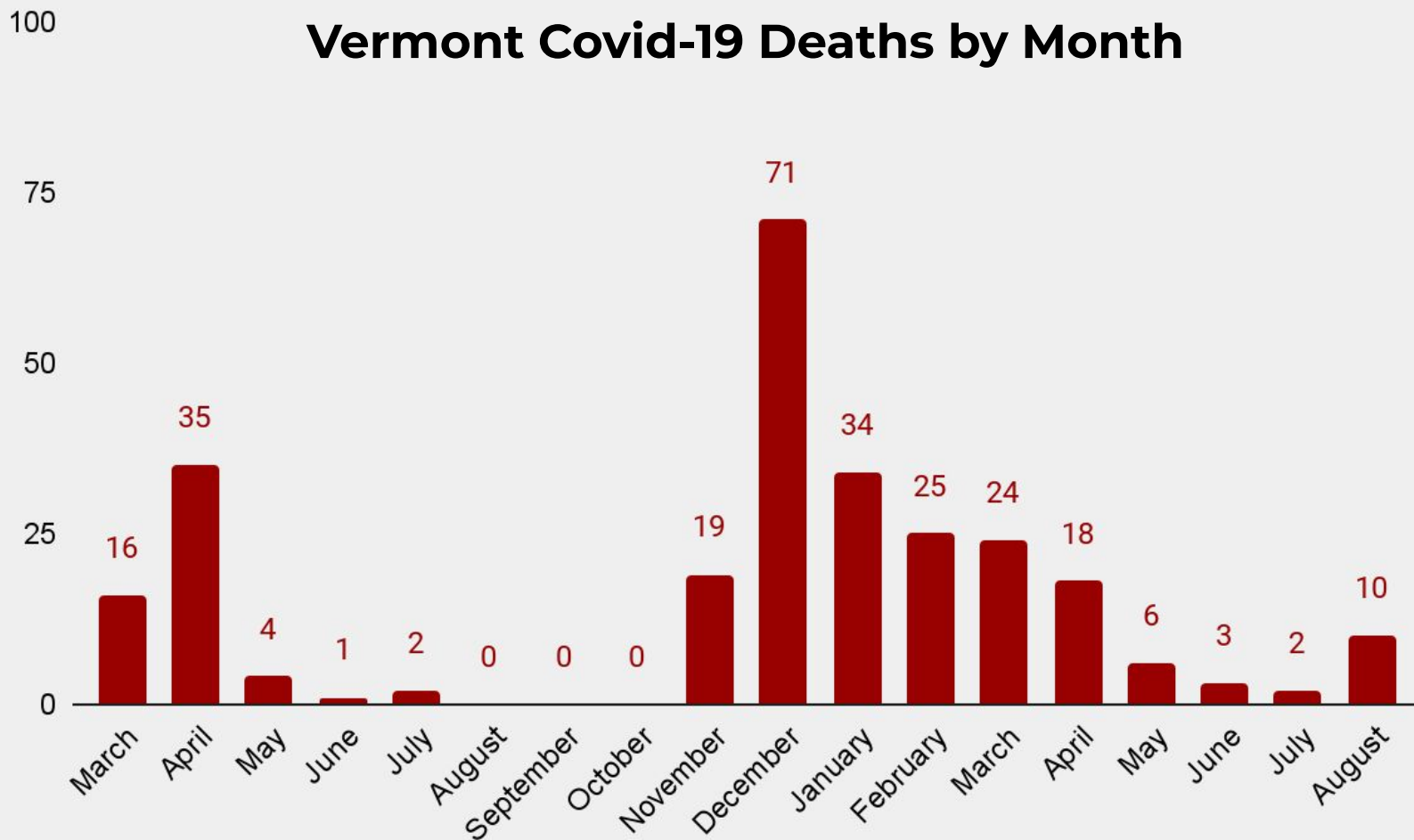
0

3/16/20 3/30/20 4/13/20 4/27/20 5/11/20 5/25/20 6/8/20 6/22/20 7/6/20 7/20/20 8/3/20 8/17/20 8/31/20 9/14/20 9/28/20 10/12/20 10/26/20 1/19/20 1/23/20 12/7/20 12/21/20 1/4/21 1/18/21 2/1/21 2/15/21 3/1/21 3/15/21 3/29/21 4/12/21 4/26/21 5/10/21 5/24/21 6/7/21 6/21/21 7/5/21 7/19/21 8/2/21 8/16/21



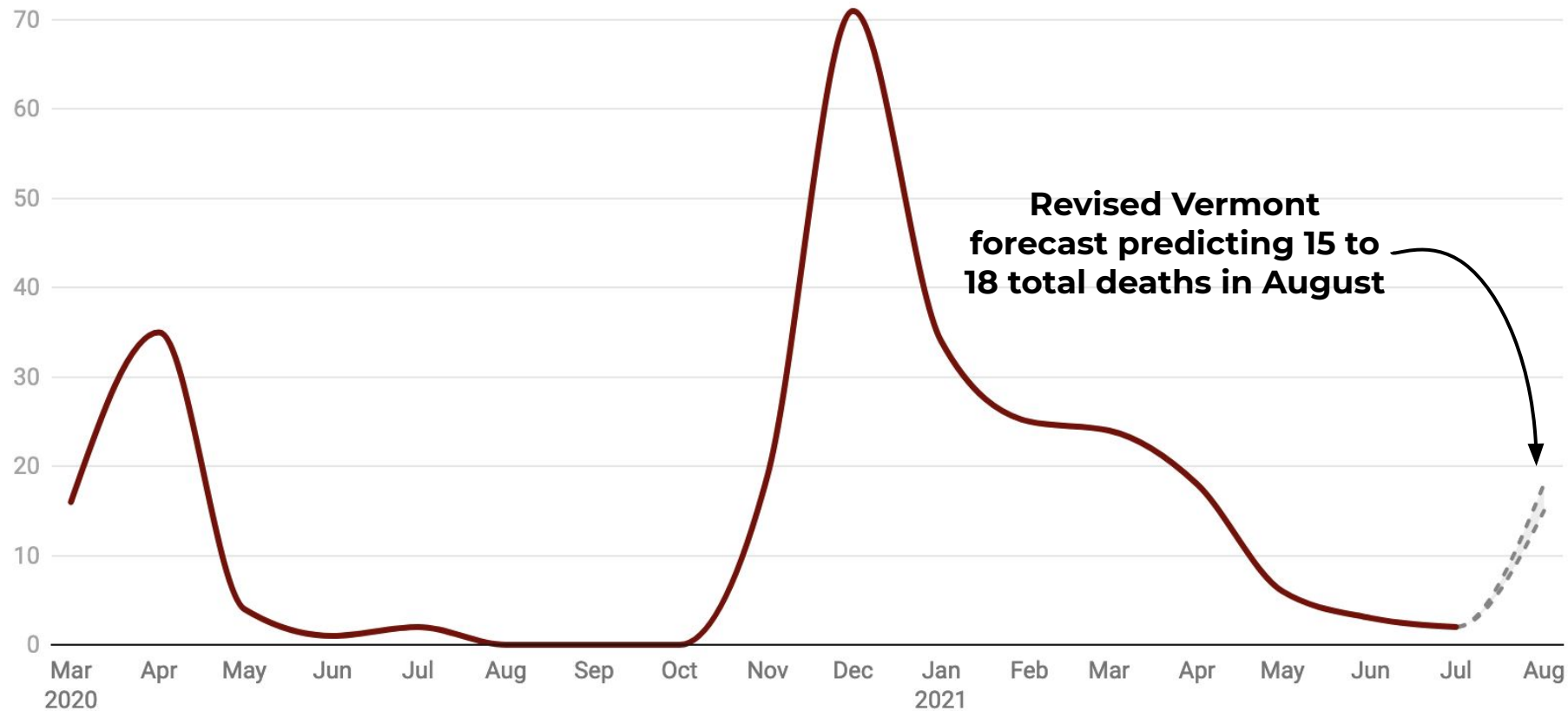
Source: Vermont Department of Health—August 17, 2021 (week ending)

Vermont Covid-19 Deaths by Month



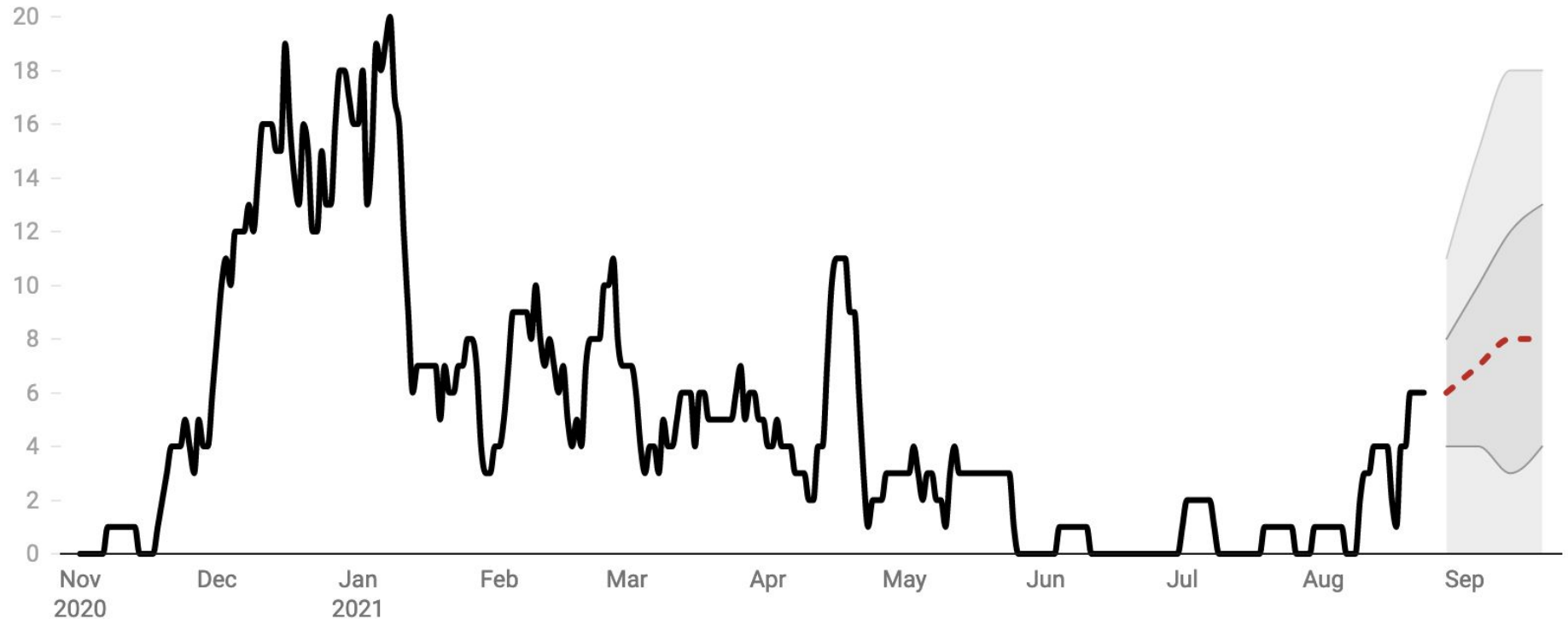
Source: Vermont Department of Health—August 23, 2021; deaths attributed to month in which death occurred rather than reported

Vermont COVID-19 Deaths by Month

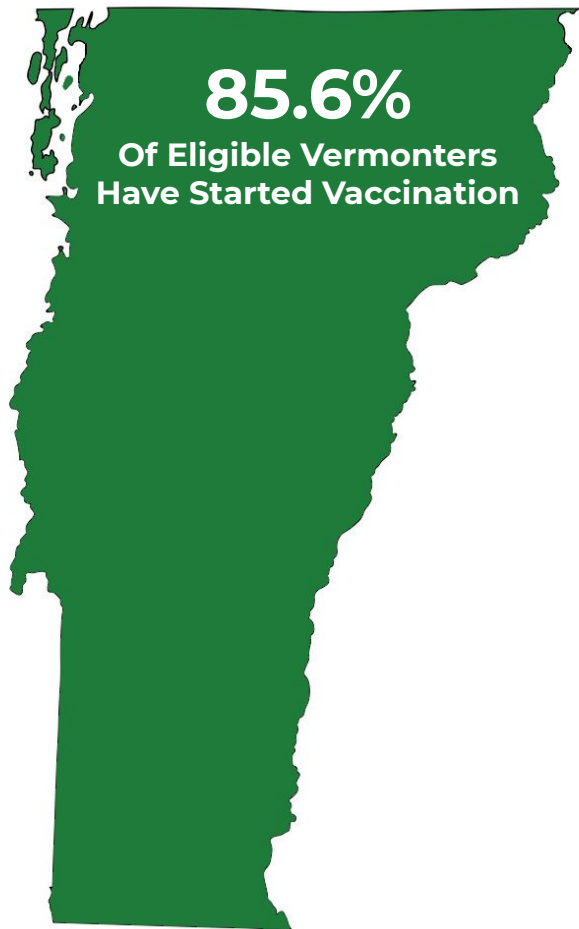


VT Weekly COVID-19 Deaths Forecast

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.



Vermont Vaccination Data



Vermont Vaccination

+3,086

Since Last Week

471,706

Vermonters with
at Least 1 Dose

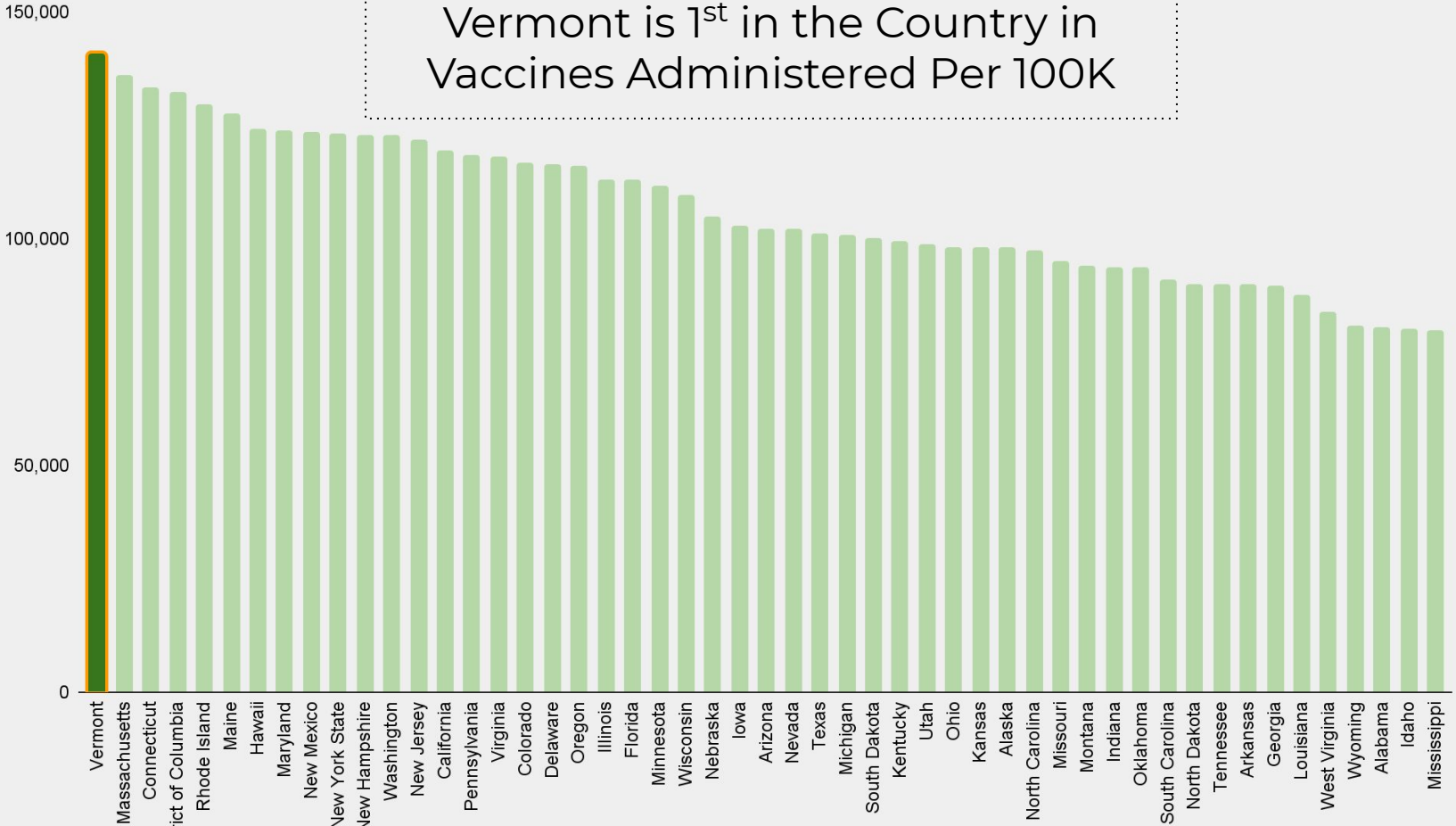
79,244

Eligible Vermonters
still to be vaccinated

Vermont CDC Vaccine Scorecard

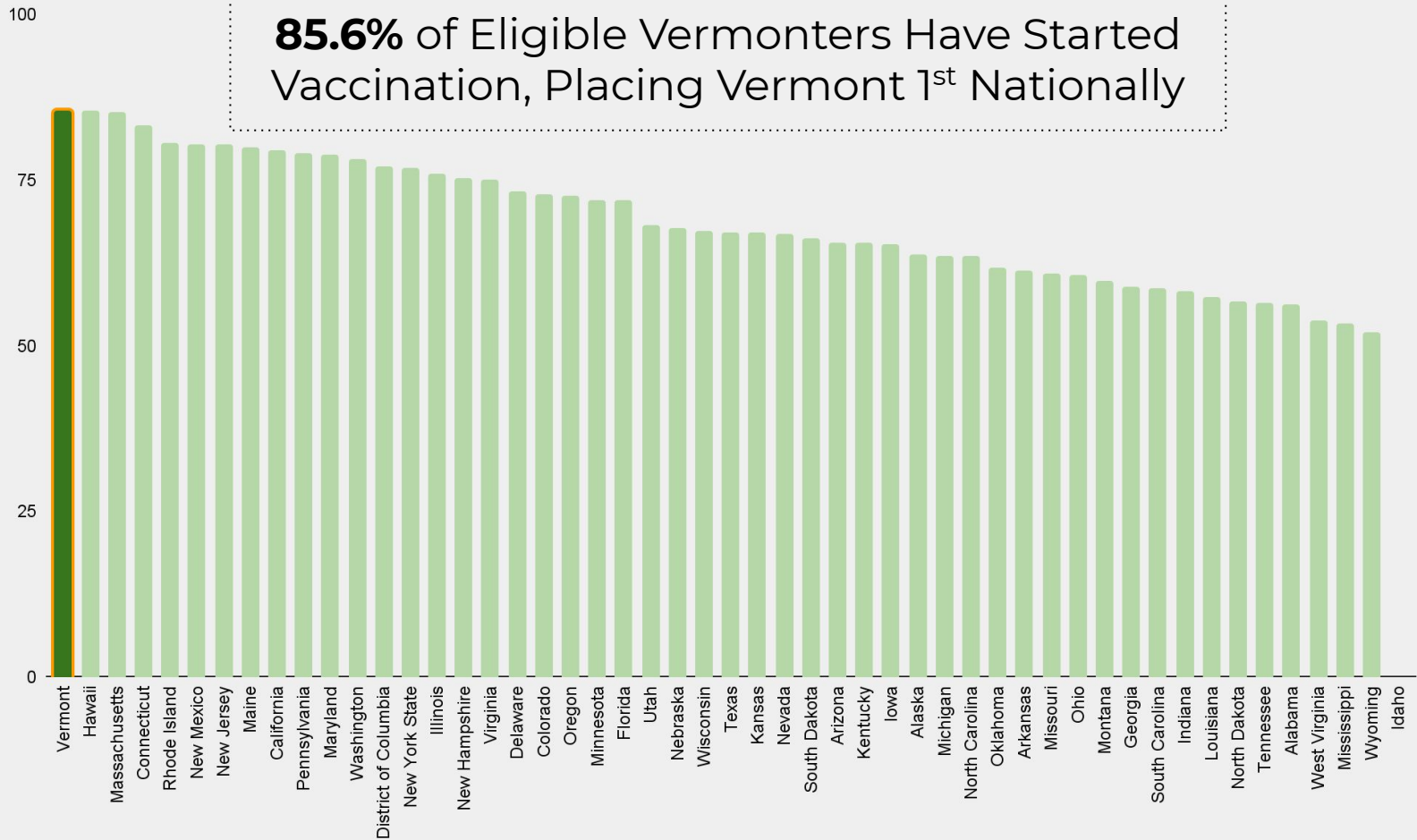
Metric	Figure	State Ranking
Doses Administered per 100K	140,893	1
% At Least 1 Dose (Eligible Population)	85.6%	1
% Fully Vaccinated (Eligible Population)	76.4%	1
% At Least 1 Dose (Full Population)	75.6%	1
% Fully Vaccinated (Full Population)	67.5%	1
% Fully Vaccinated (65 & Over)	94.1%	1

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



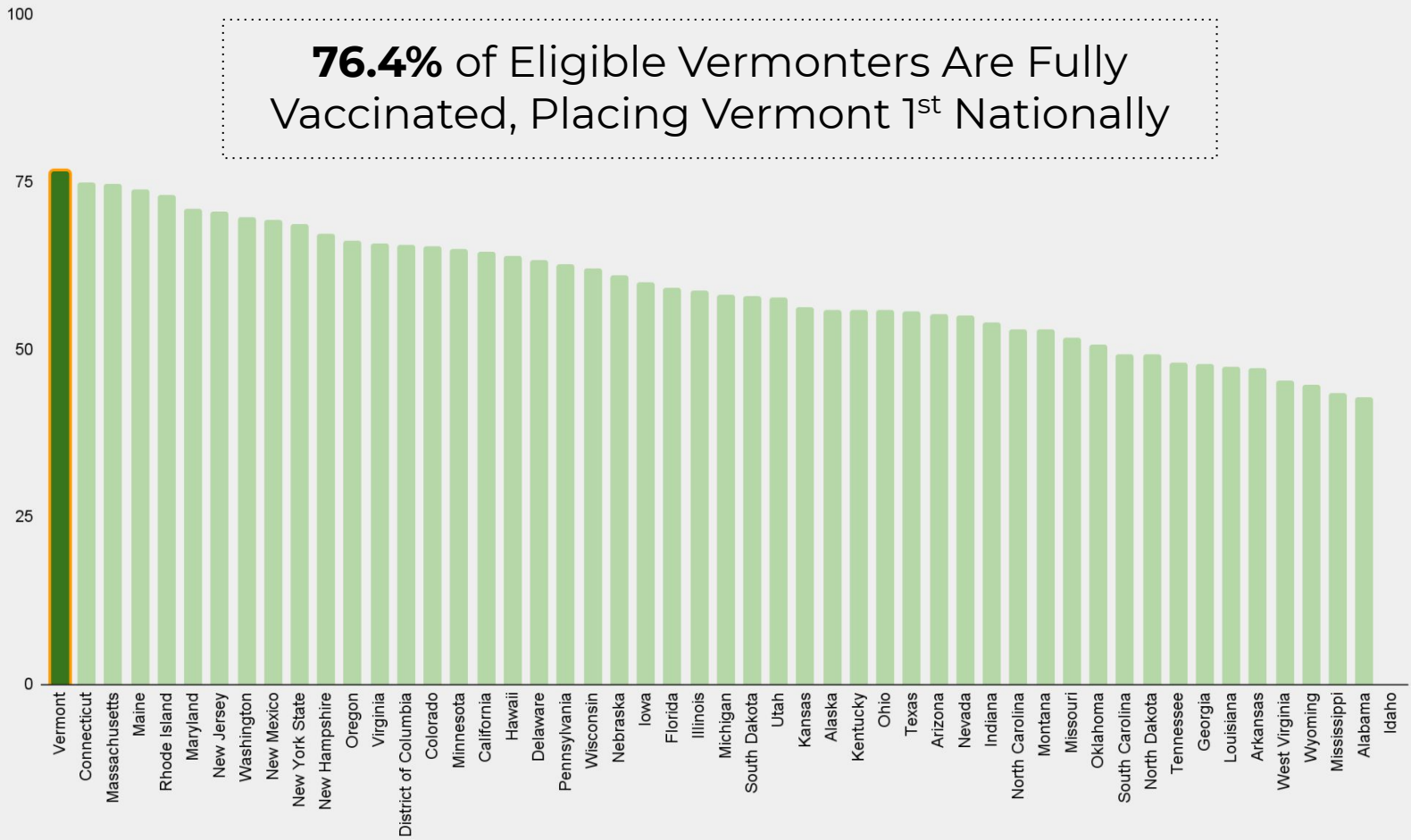
Source: CDC—August 23, 2021

85.6% of Eligible Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



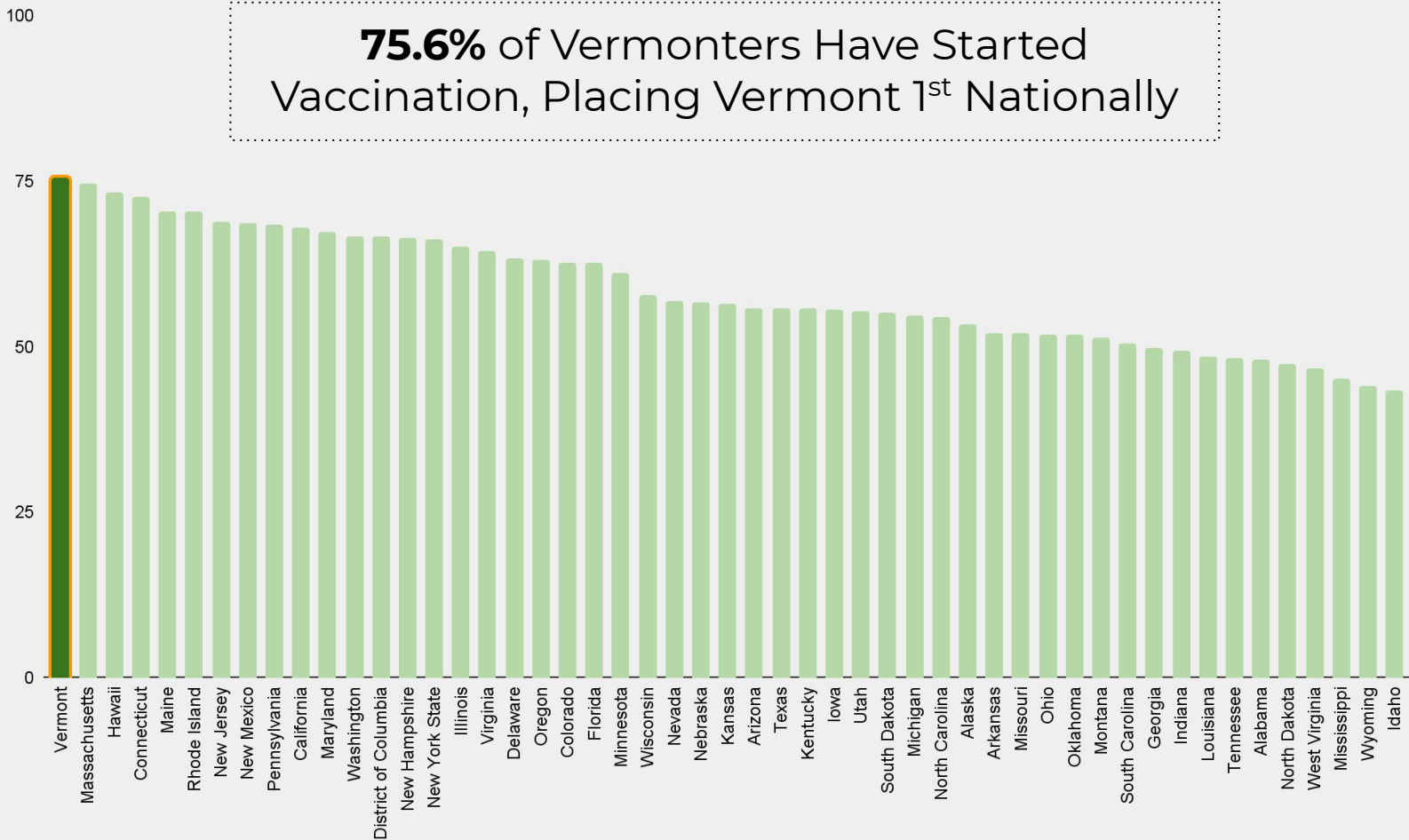
Source: CDC—August 23, 2021

76.4% of Eligible Vermonters Are Fully Vaccinated, Placing Vermont 1st Nationally



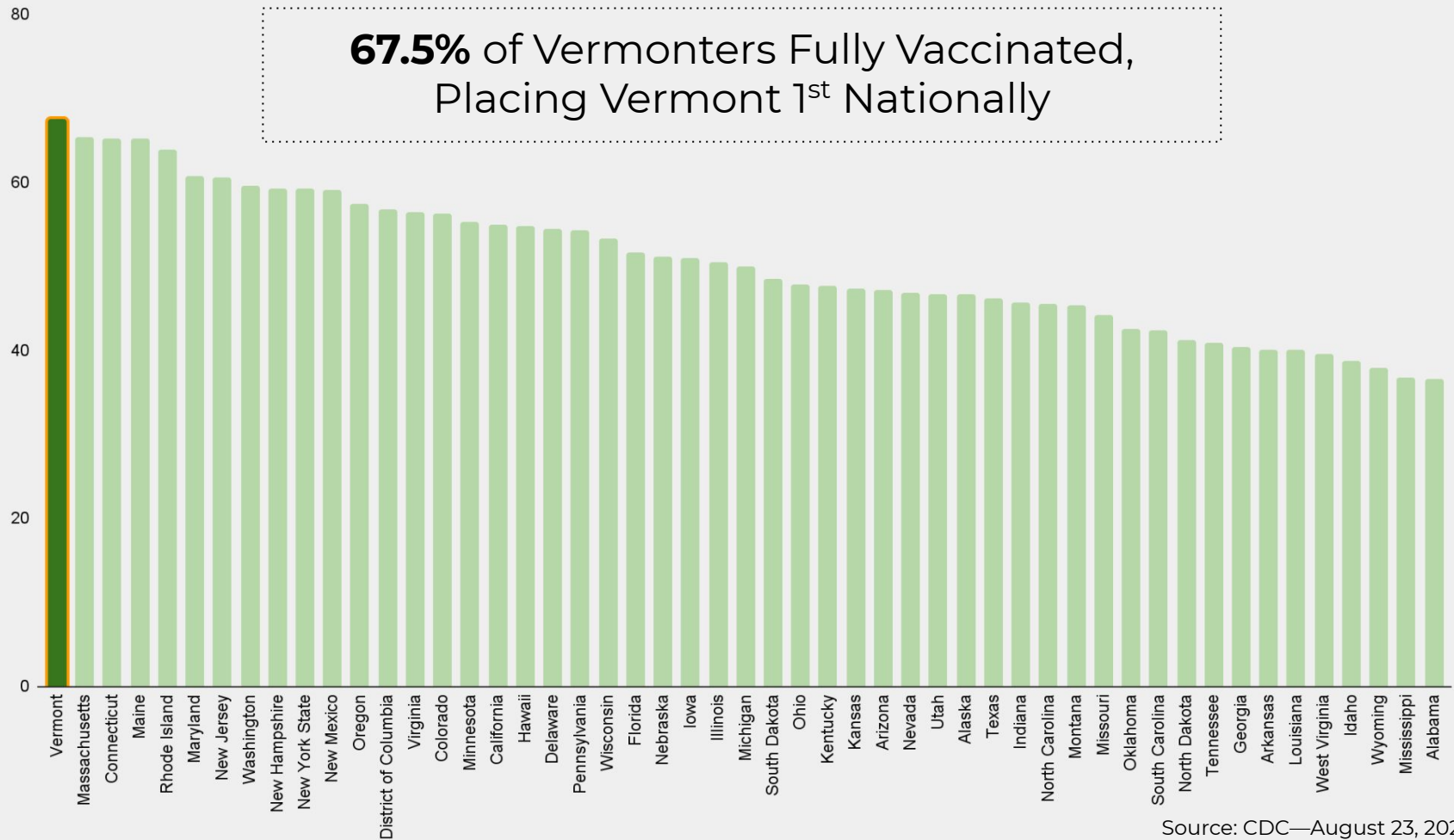
Source: CDC—August 23, 2021

75.6% of Vermonters Have Started Vaccination, Placing Vermont 1st Nationally



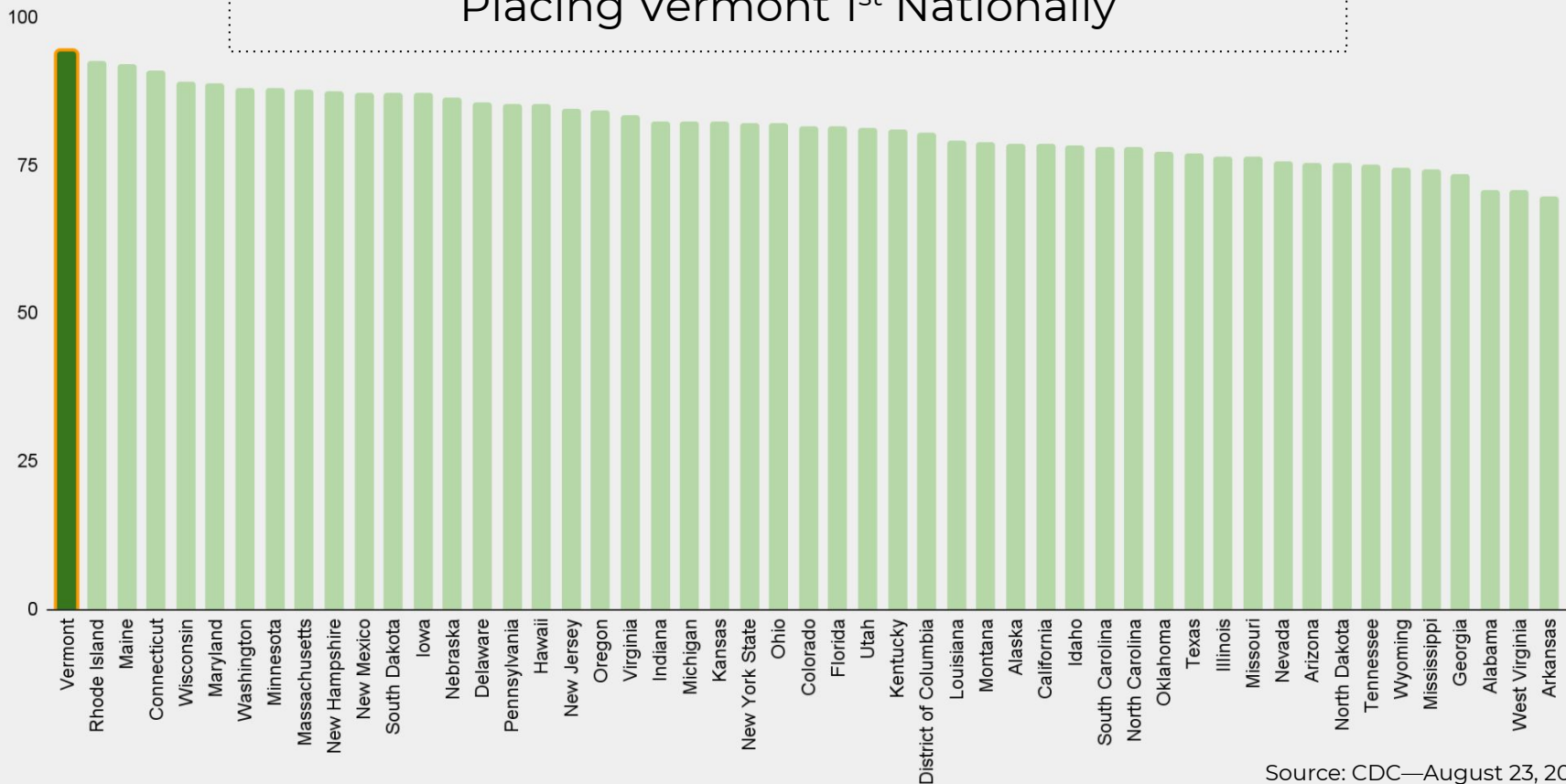
Source: CDC—August 23, 2021

67.5% of Vermonters Fully Vaccinated,
Placing Vermont 1st Nationally



Source: CDC—August 23, 2021

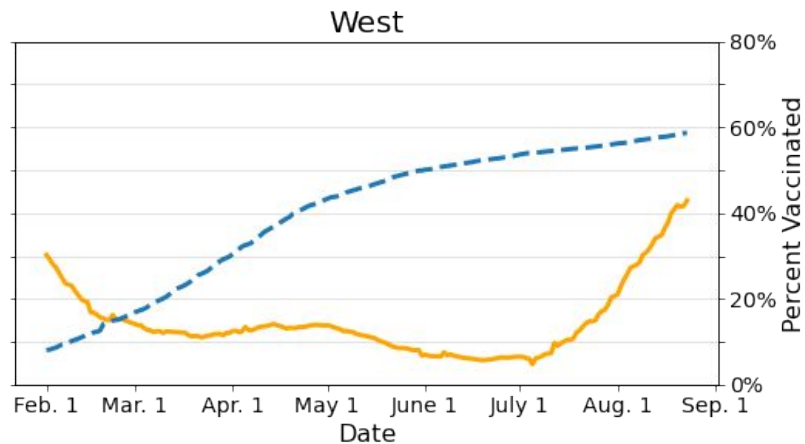
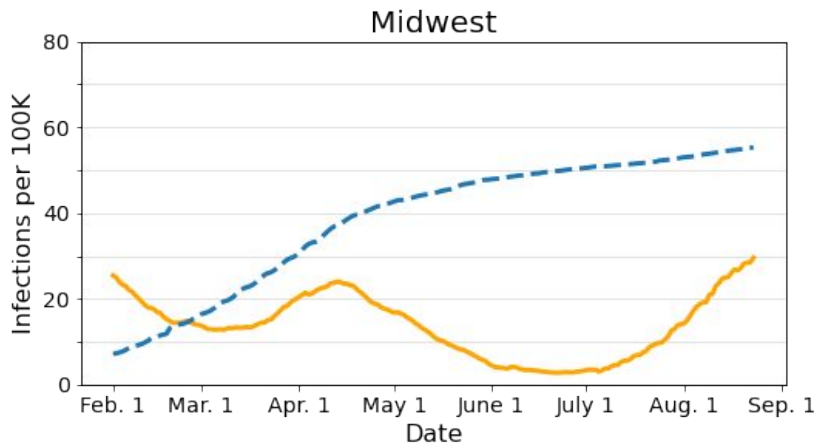
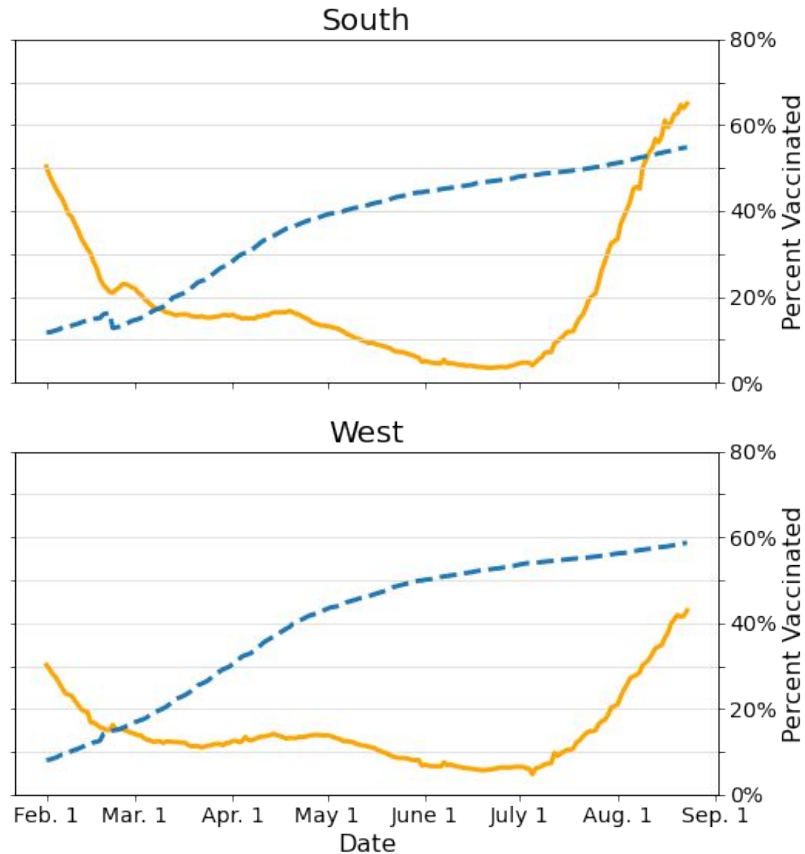
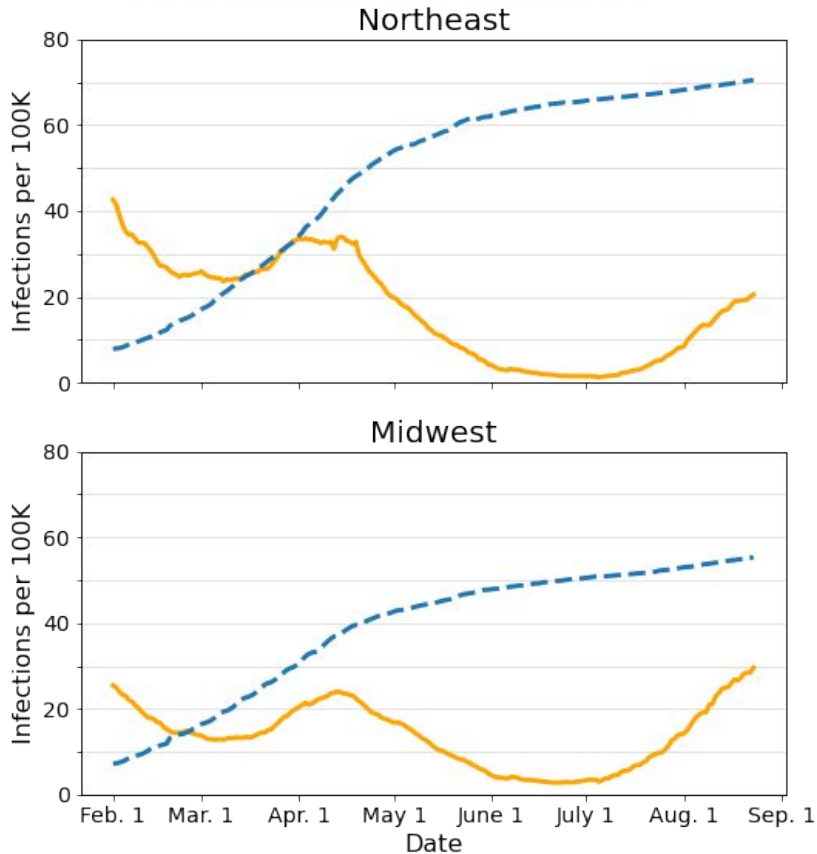
94.1% of 65 & Over Vermonters Fully Vaccinated,
Placing Vermont 1st Nationally



Source: CDC—August 23, 2021

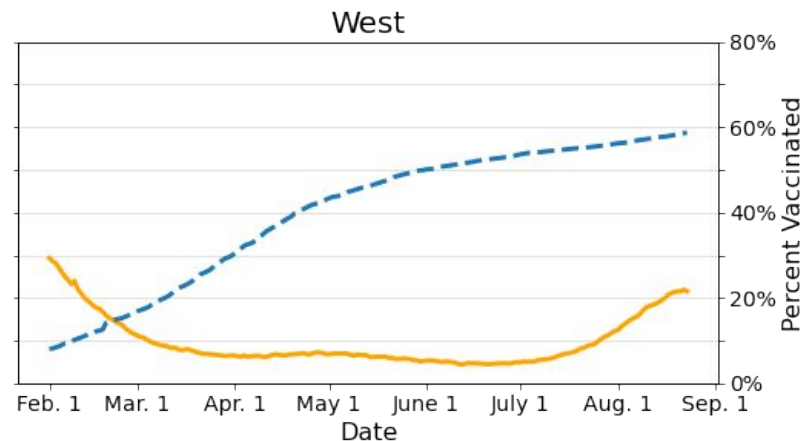
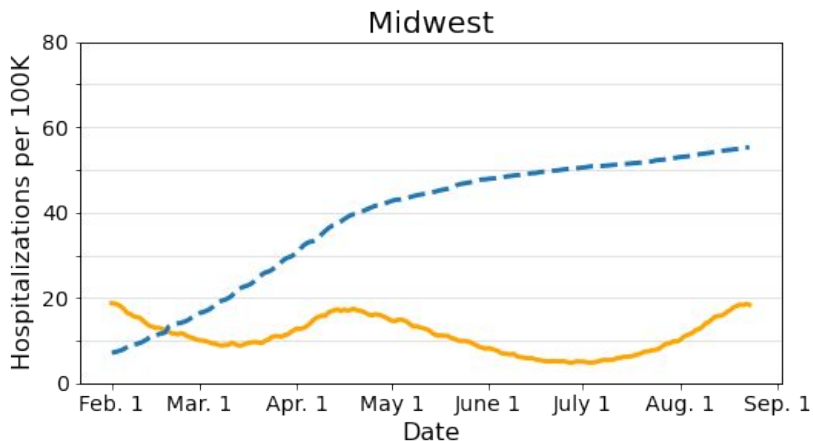
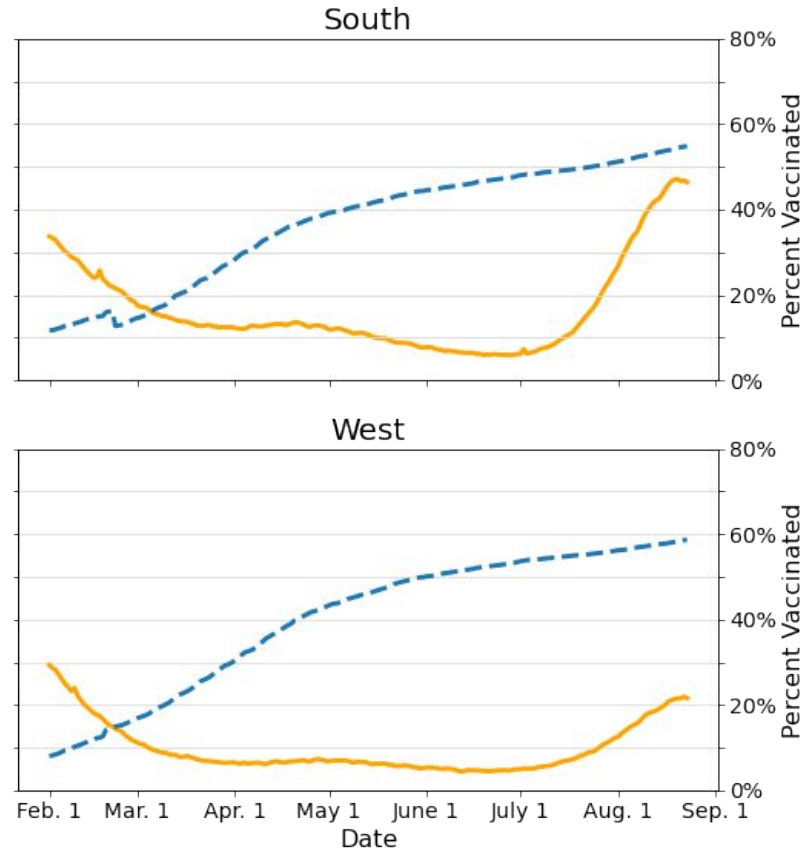
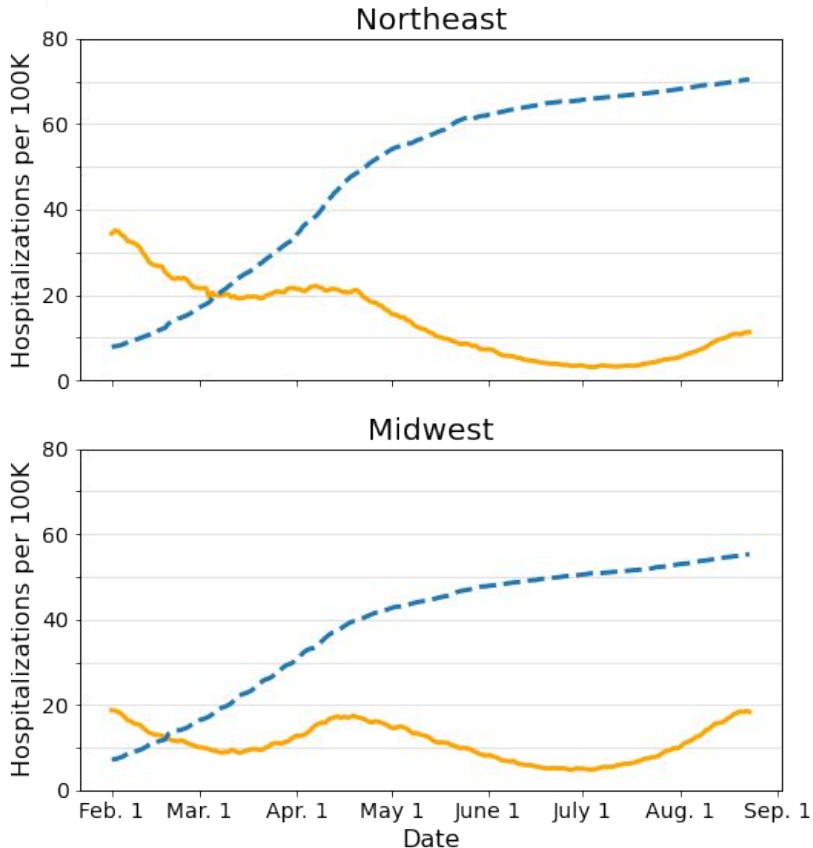
US Census Region Case Rate & Vaccination

- New Infections per 100K (14-Day Average)
- - Percent Received First Vaccine Dose



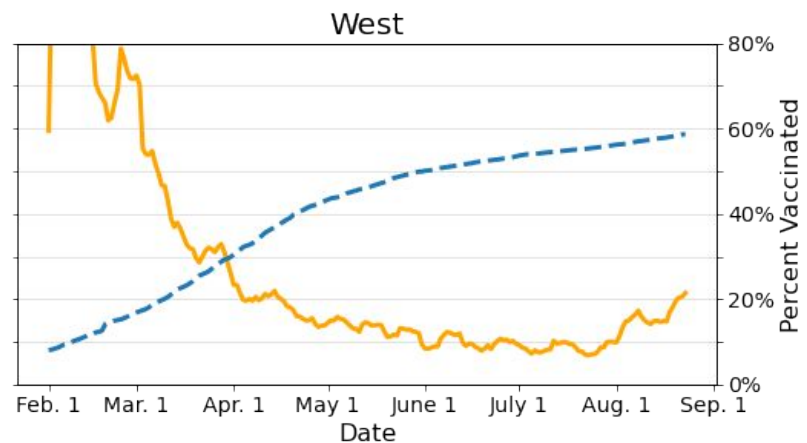
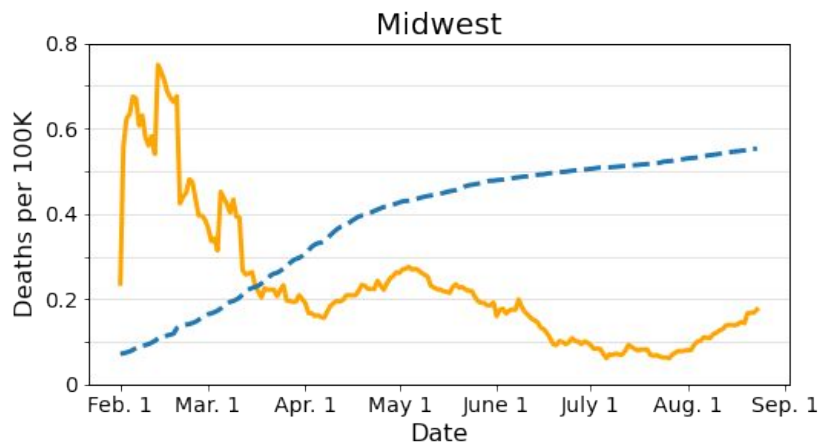
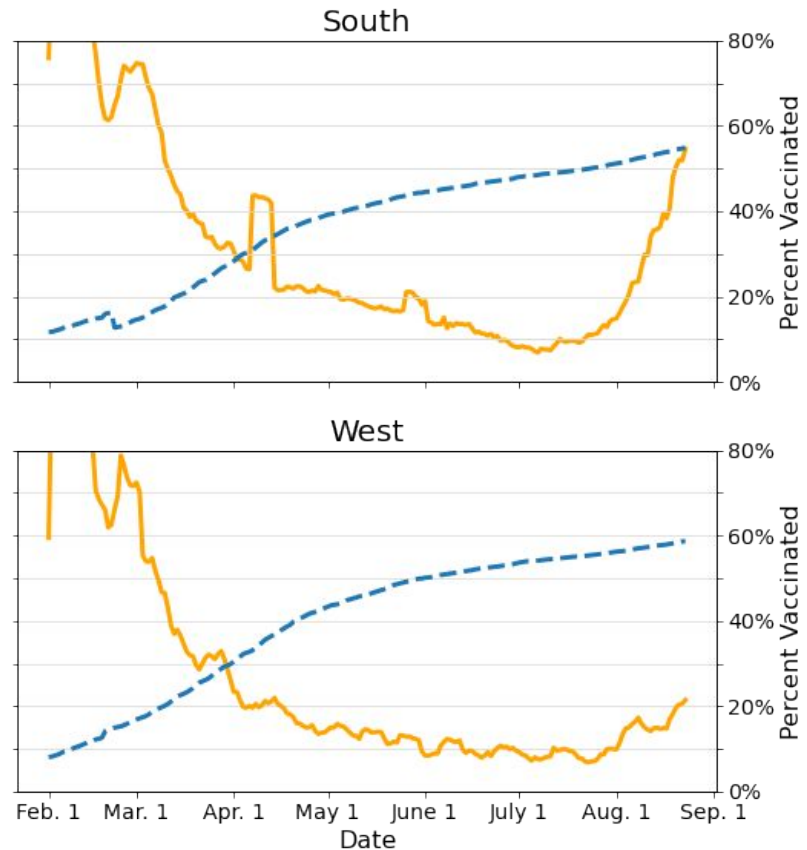
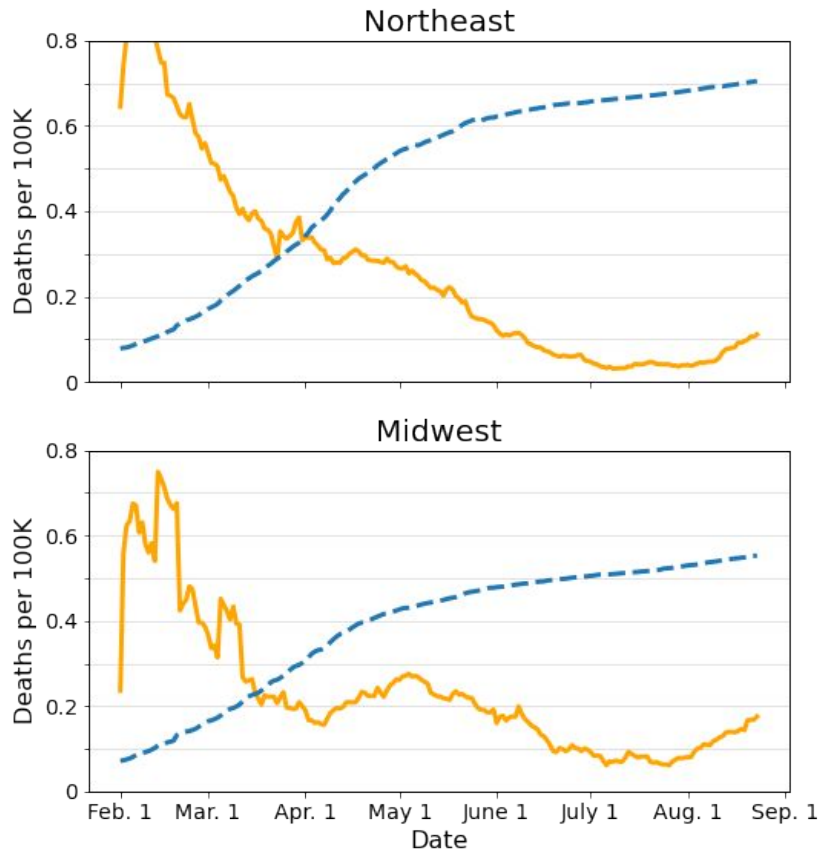
US Census Region Hospitalizations & Vaccination

— Hospitalizations per 100K (14-Day Average)
- - - Percent Received First Vaccine Dose



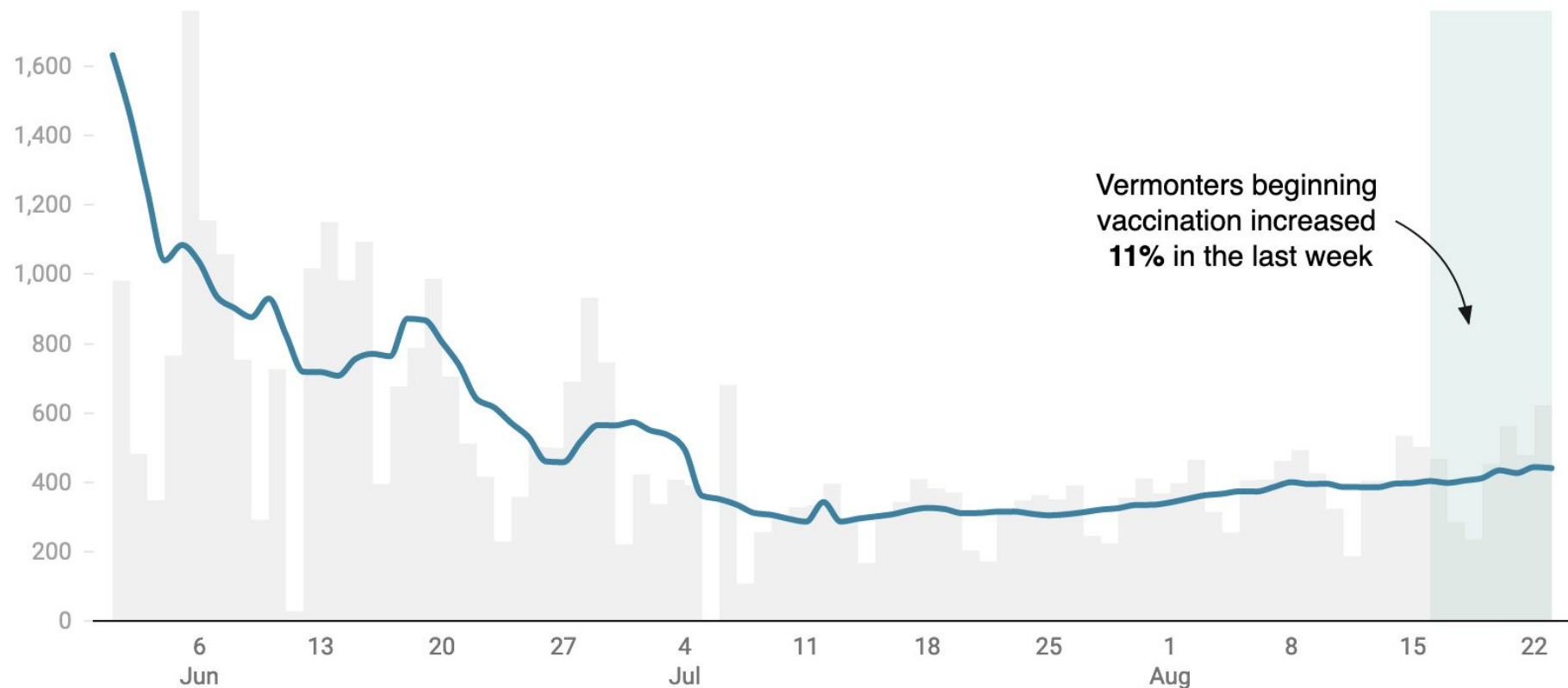
US Census Region Deaths & Vaccination

— Deaths per 100K (14-Day Average)
- - Percent Received First Vaccine Dose



Vermonters Initiating Vaccination by Day

— New Vaccinations (7-Day Average)

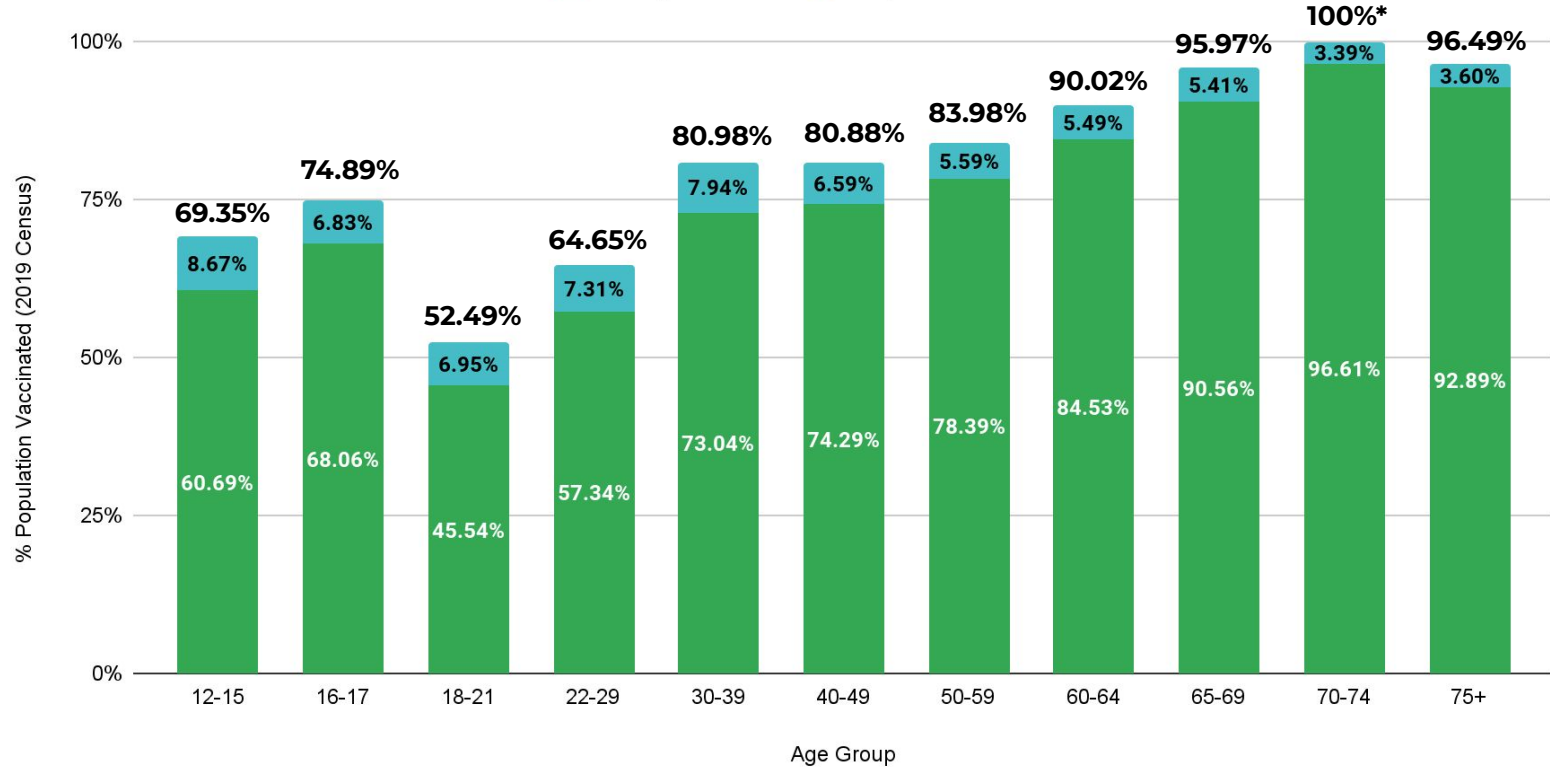


Vermonters beginning vaccination increased **11%** in the last week

Vermont Vaccination Progress

By Age Band

Partially Vaccinated Fully Vaccinated



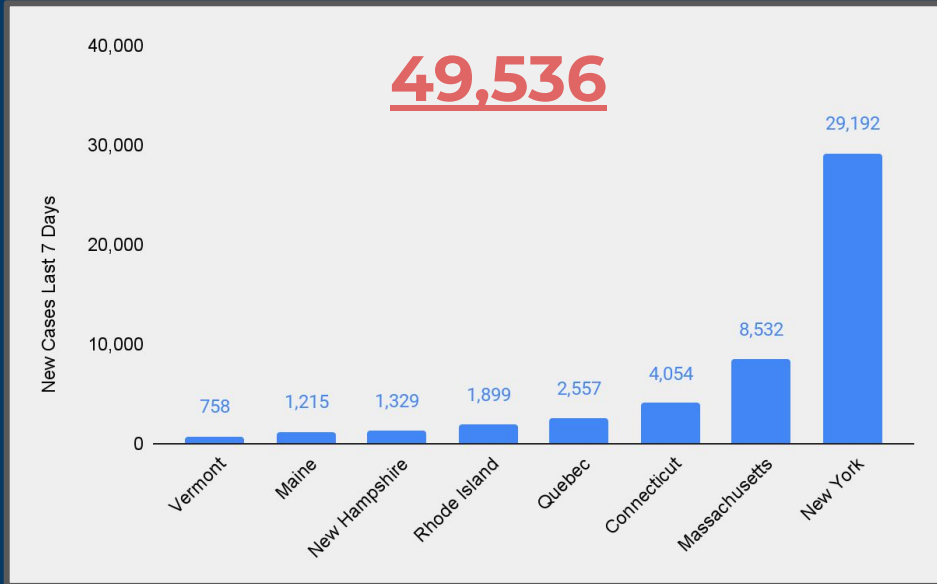
Source: Vermont Dept. of Health—August 24, 2021; *based on 2019 census estimates; state data may differ from CDC reporting

Regional Data

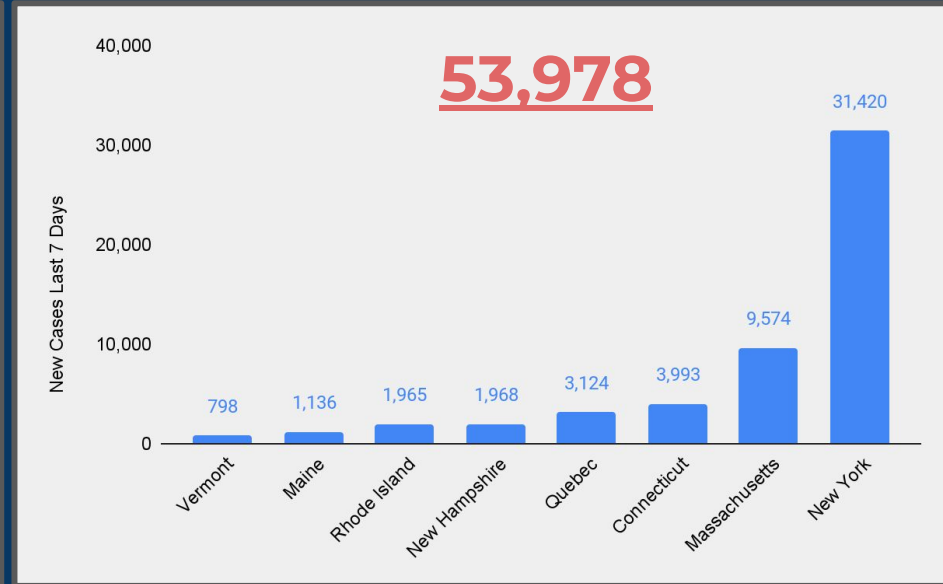
Regional Cases

8.97% Increase in New Cases

New Cases August 10th to August 16th



New Cases August 17th to August 23rd



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

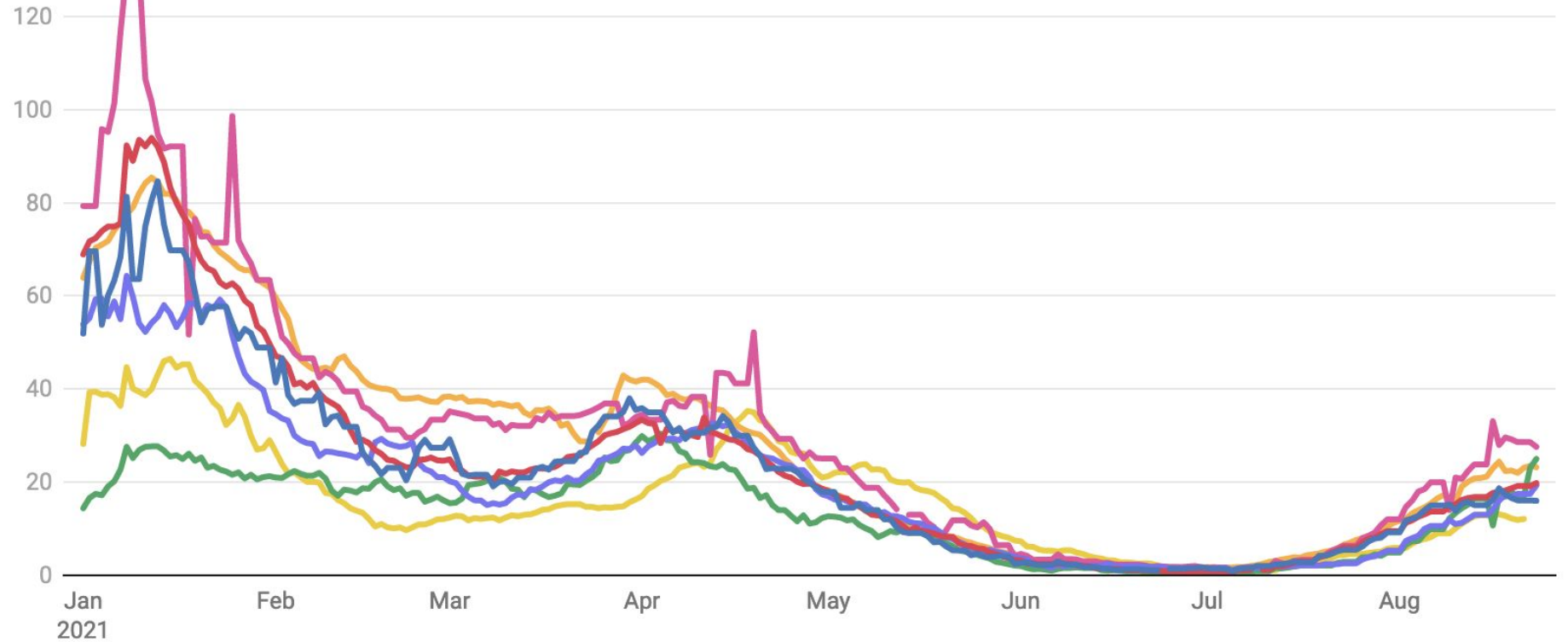
7/5/21

8/2/21

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

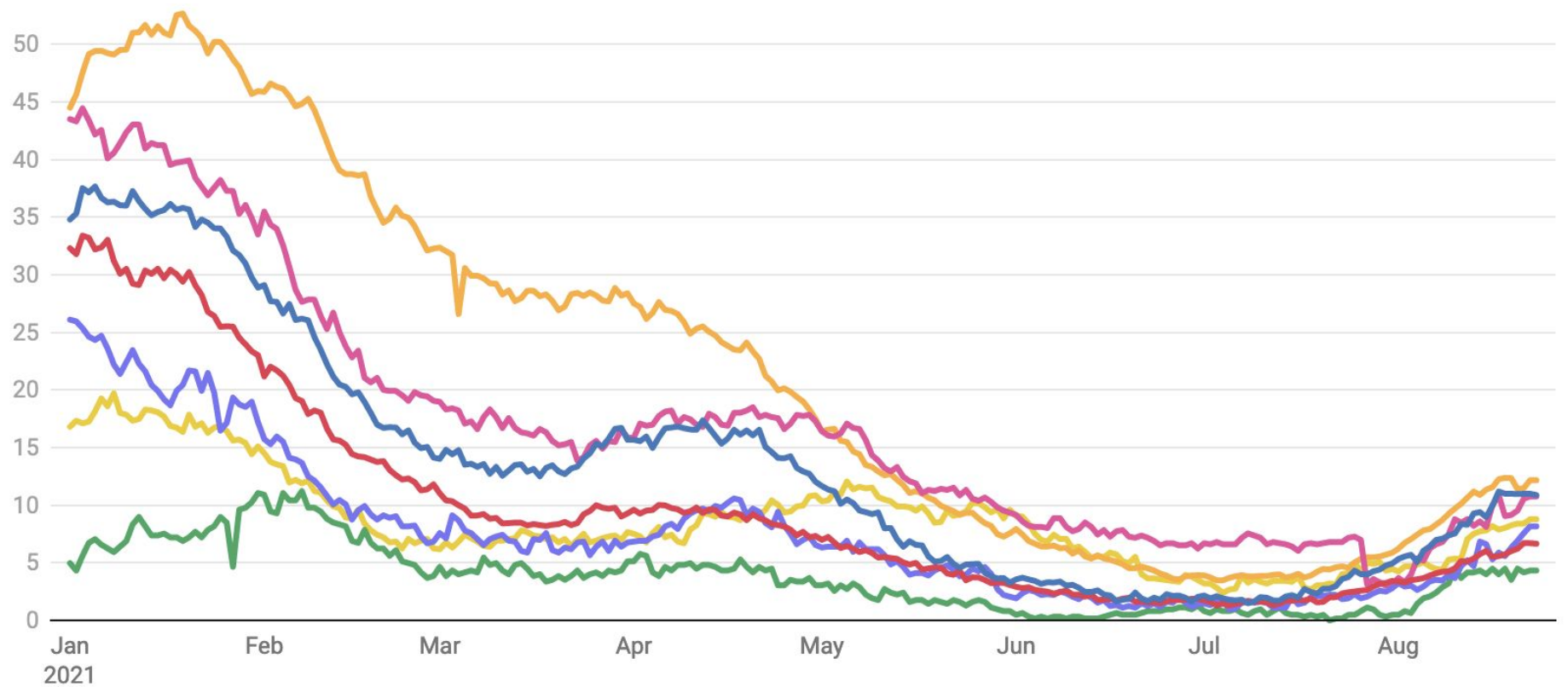
COVID Cases per 100K (7-Day Average)

CT MA ME NH NY RI VT

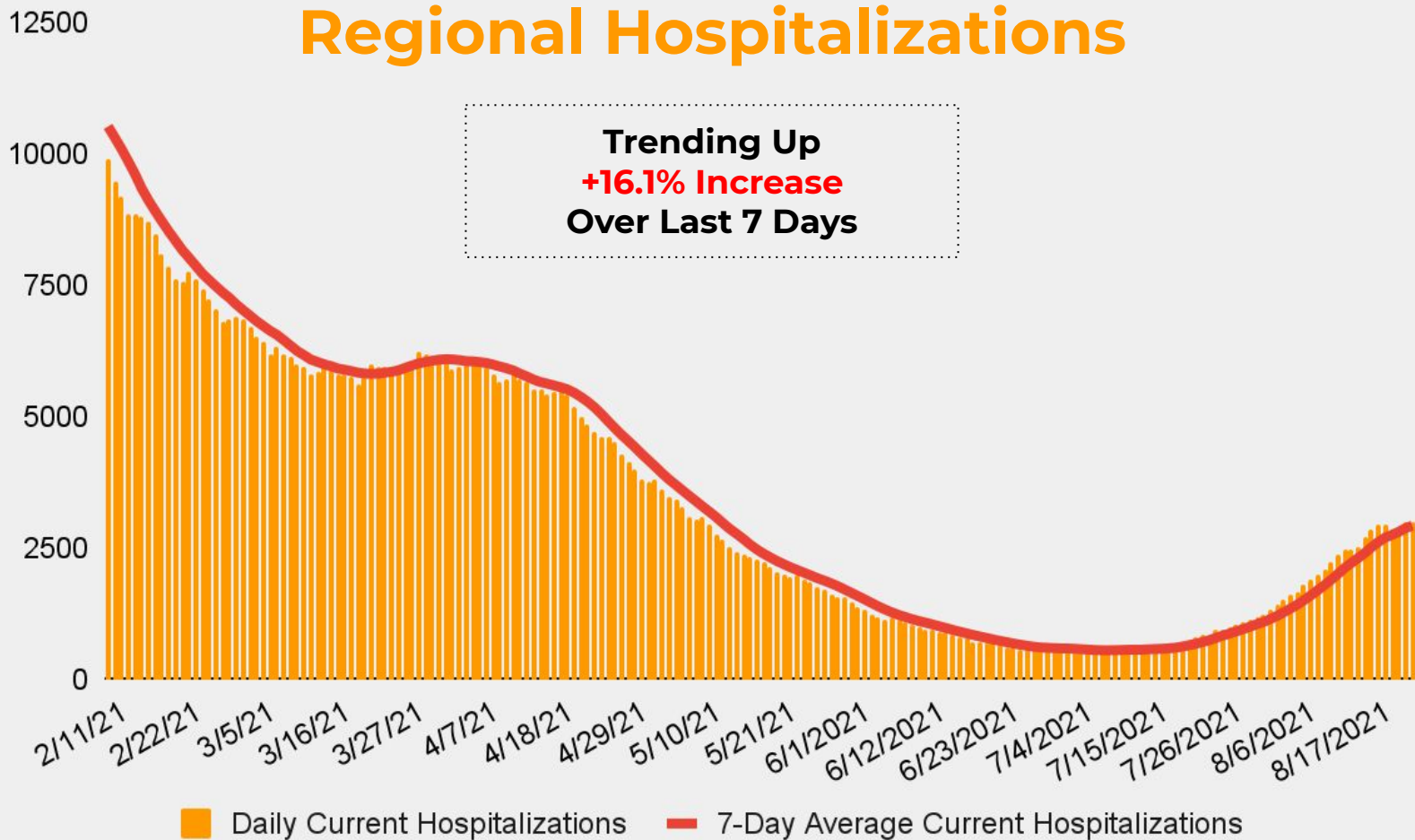


COVID Hospitalizations per 100K (7-Day Average)

CT MA ME NH NY RI VT

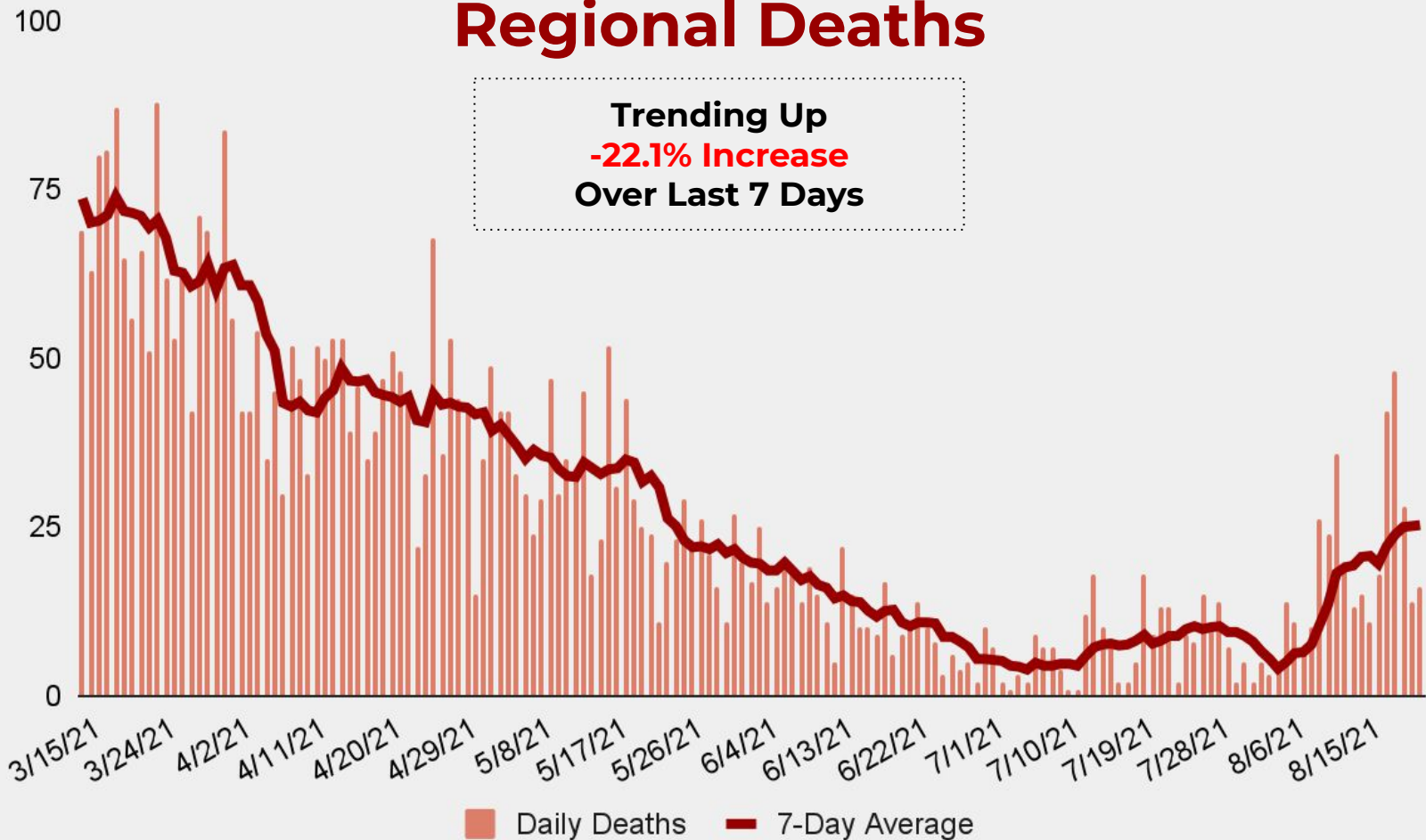


Regional Hospitalizations



Source: Covid Act Now (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—August 23, 2021

Regional Deaths



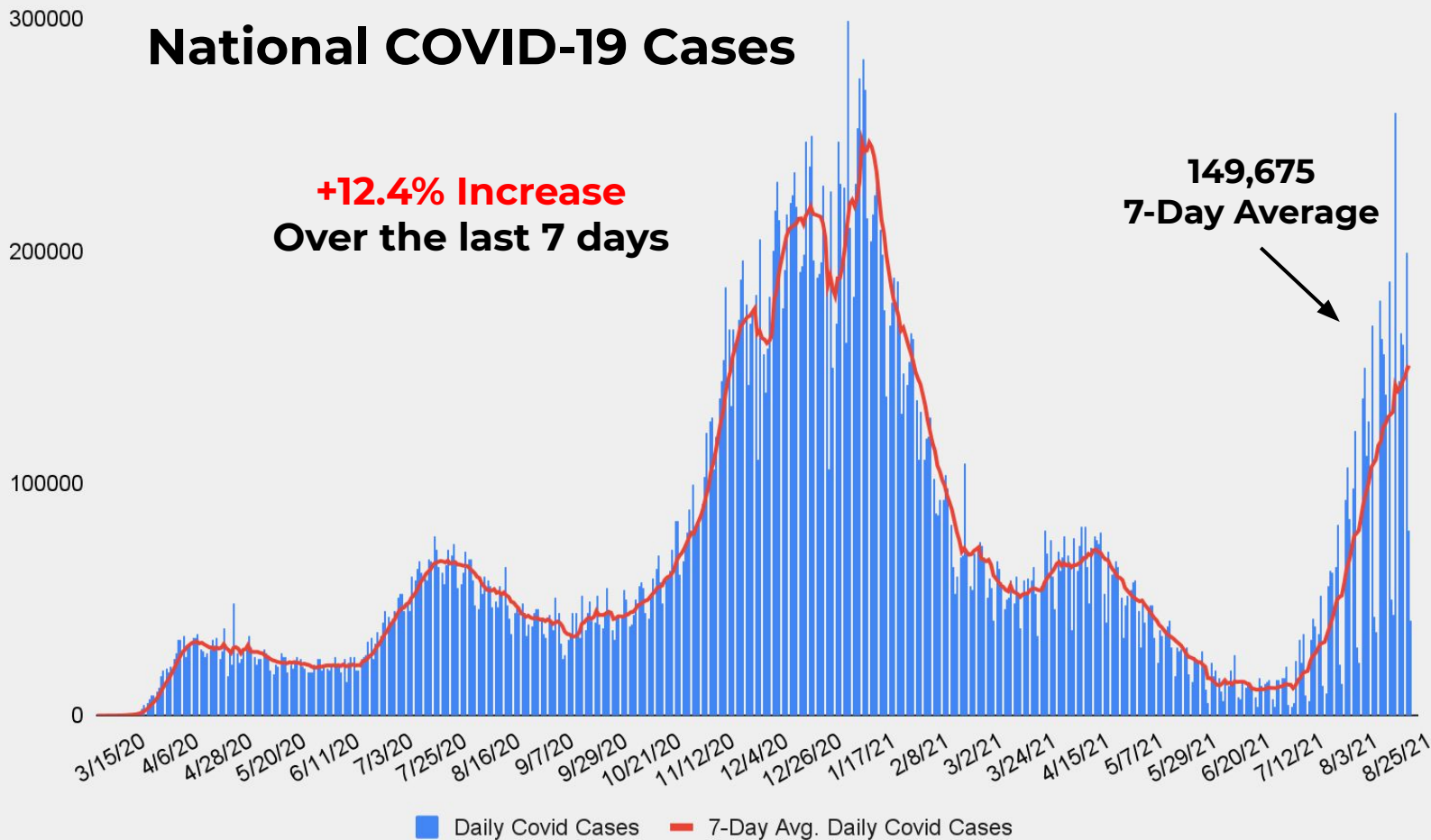
Source: CDC (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—August 22, 2021

National Data

National COVID-19 Cases

**+12.4% Increase
Over the last 7 days**

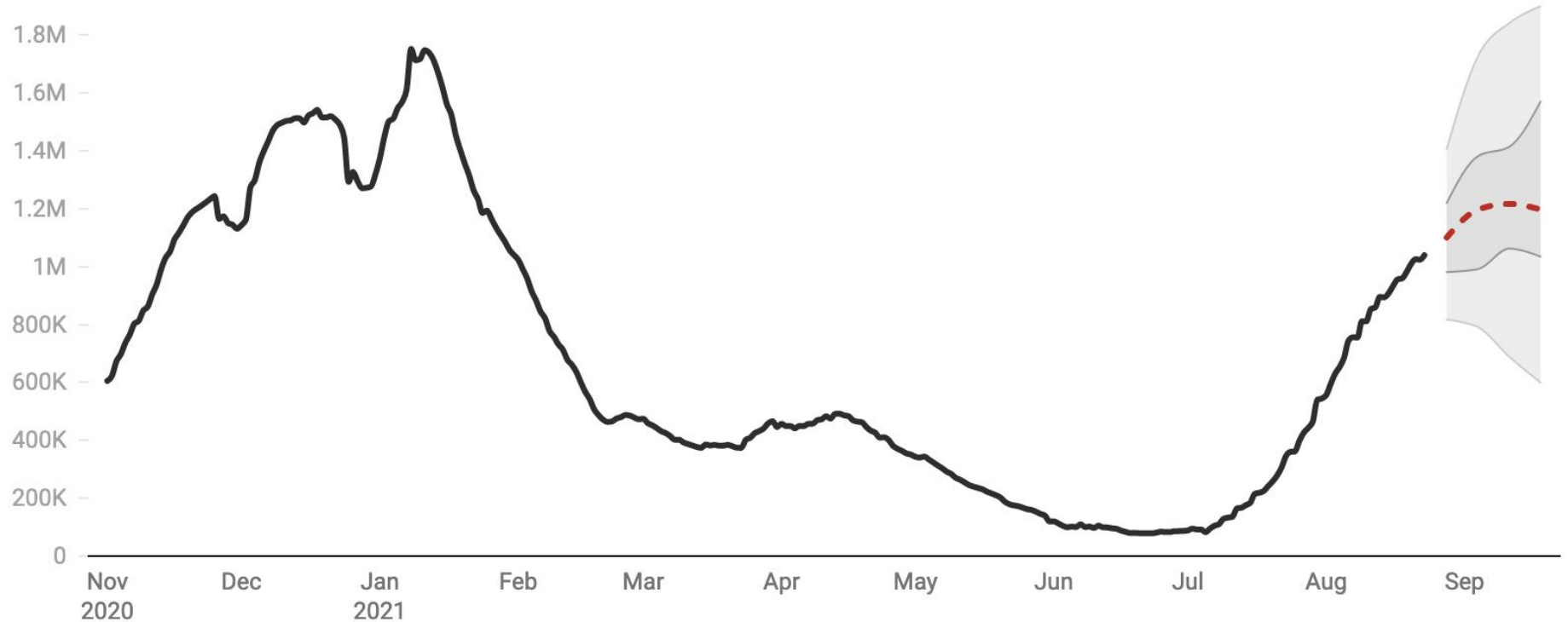
**149,675
7-Day Average**



Source: Covid Tracking Project; NYT & CDC—August 23, 2021

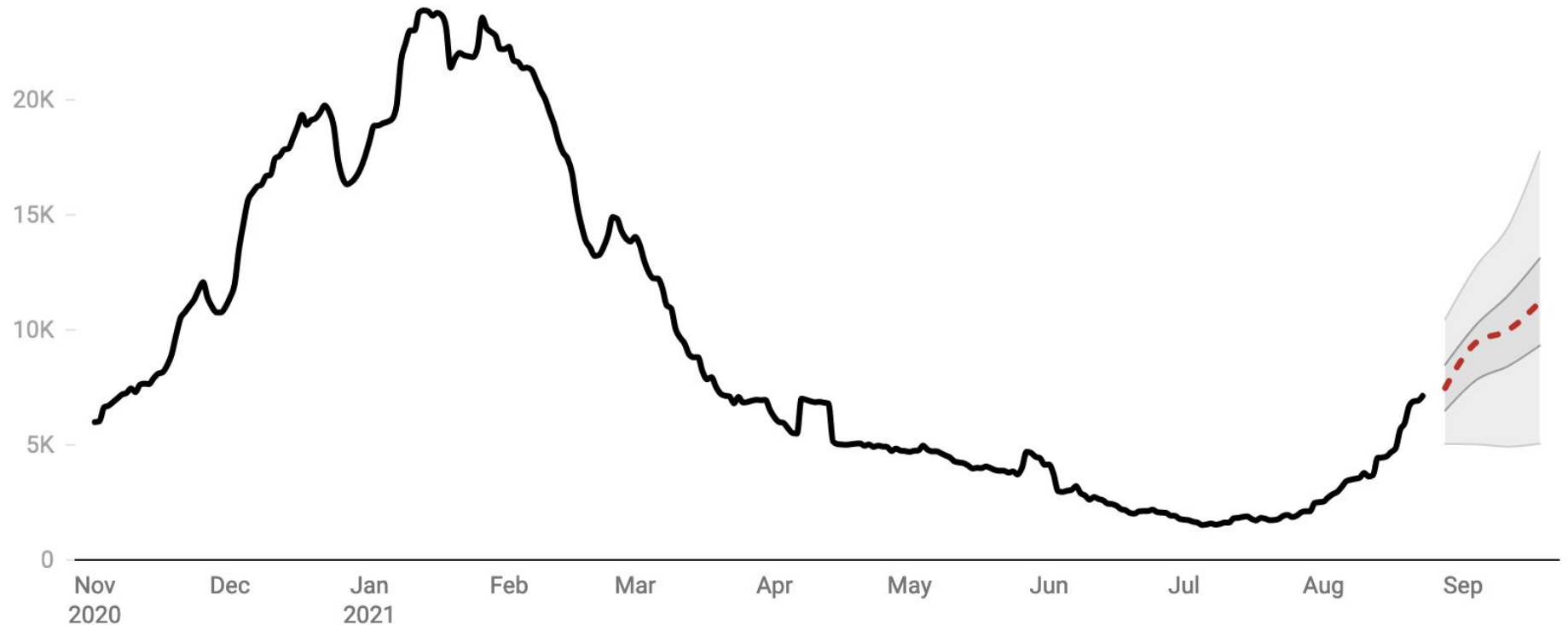
US Weekly COVID-19 Infections Forecast

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.



US Weekly COVID-19 Deaths Forecast

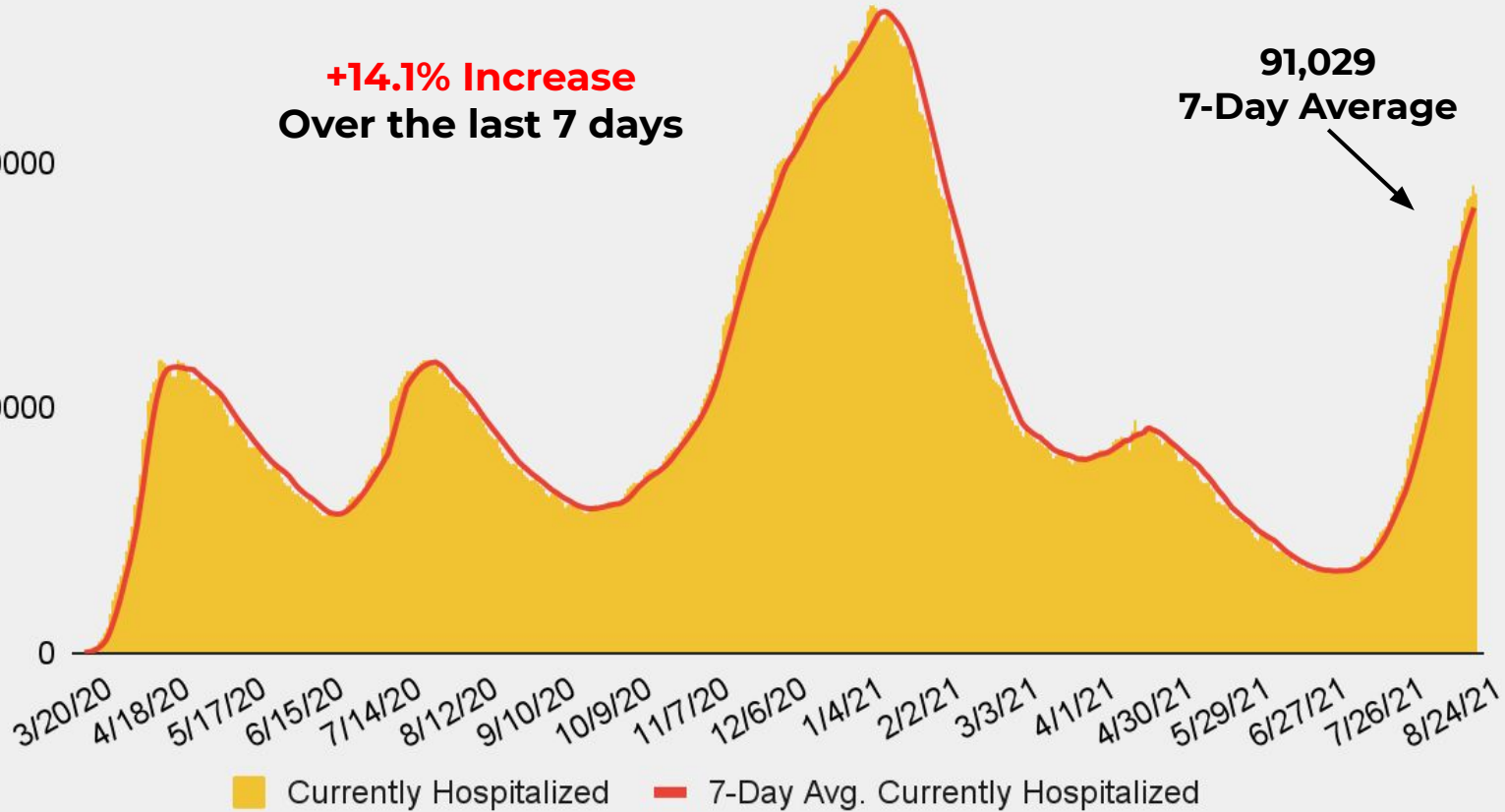
Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.



National COVID-19 Hospitalizations

+14.1% Increase
Over the last 7 days

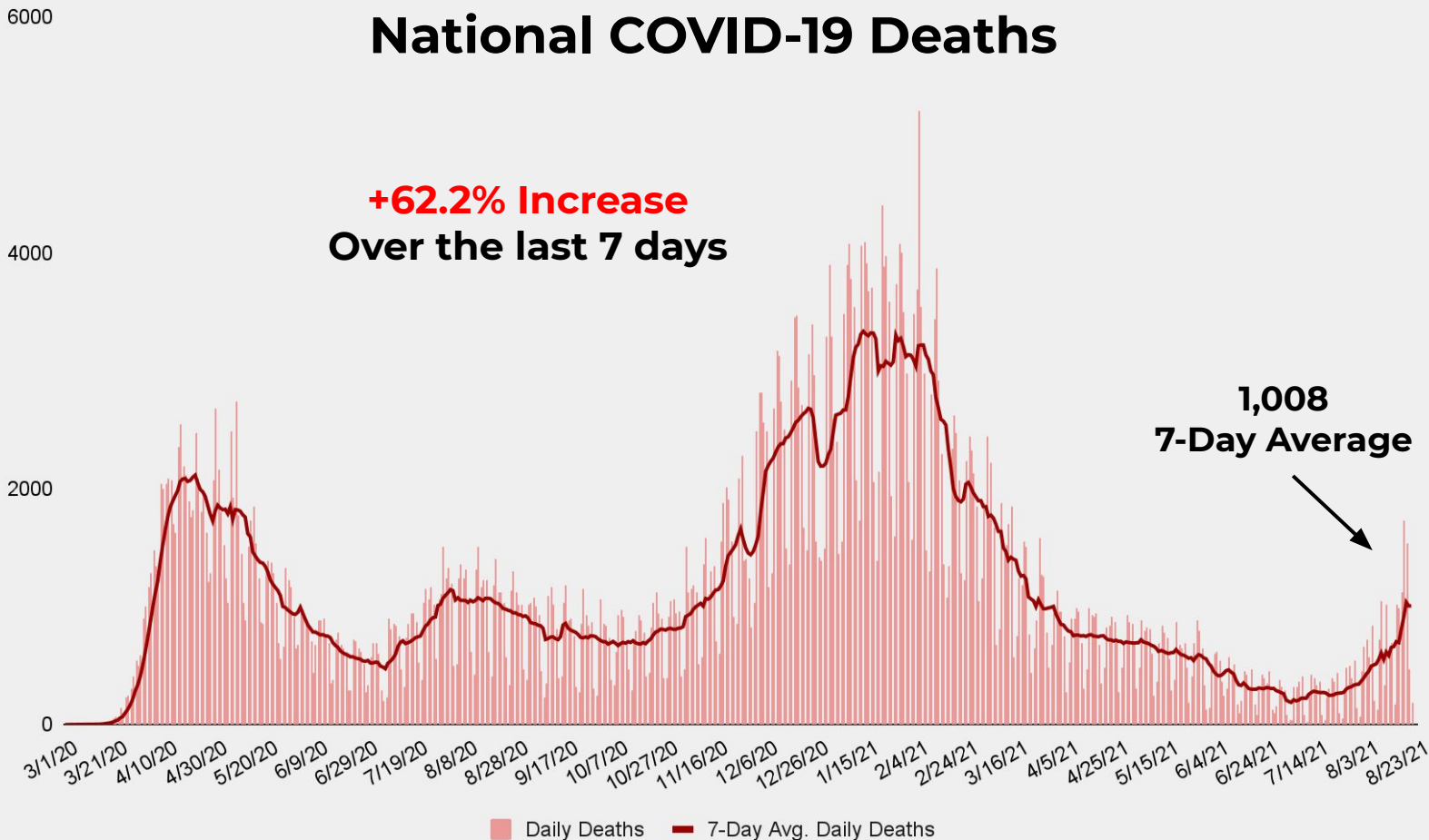
91,029
7-Day Average



National COVID-19 Deaths

**+62.2% Increase
Over the last 7 days**

**1,008
7-Day Average**



Source: Covid Tracking Project; NYT & CDC—August 23, 2021

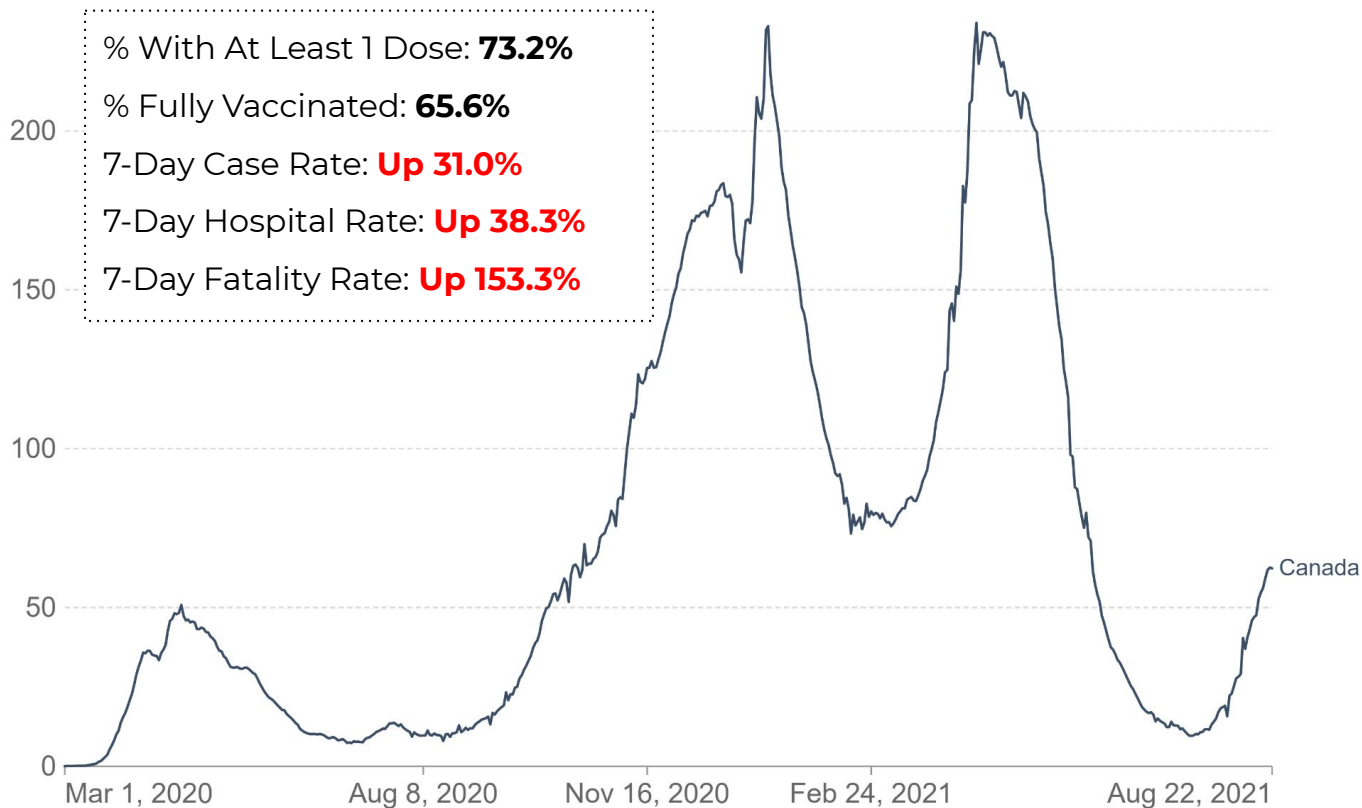
Canadian Covid-19 Trends

Canadian COVID Trends

Daily new confirmed COVID-19 cases per million people

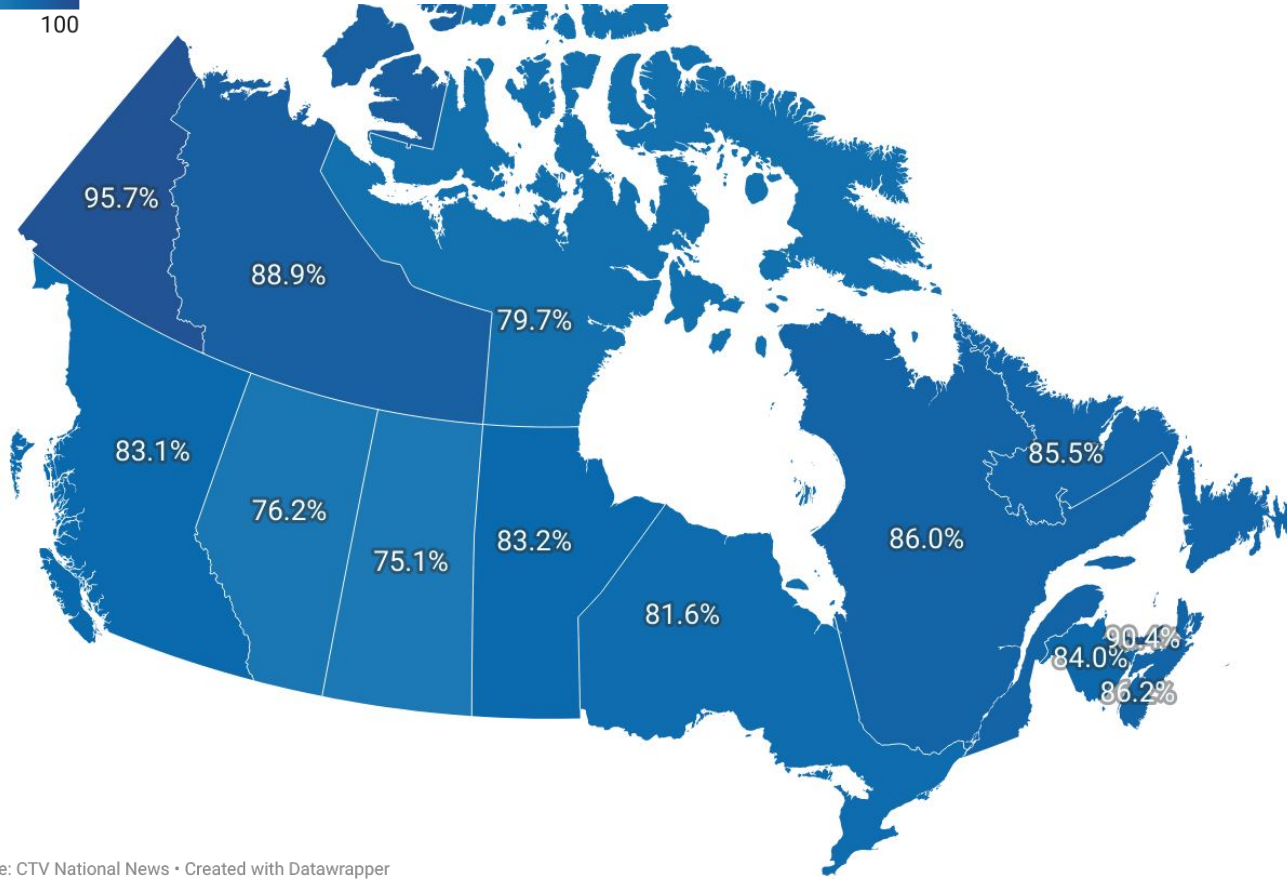
Shown is the rolling 7-day average. The number of confirmed cases is lower than the number of actual cases; the main reason for that is limited testing.

Our World
in Data



Canadian Province Vaccination Progress

Percent Eligible (12+) with at least 1 dose



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

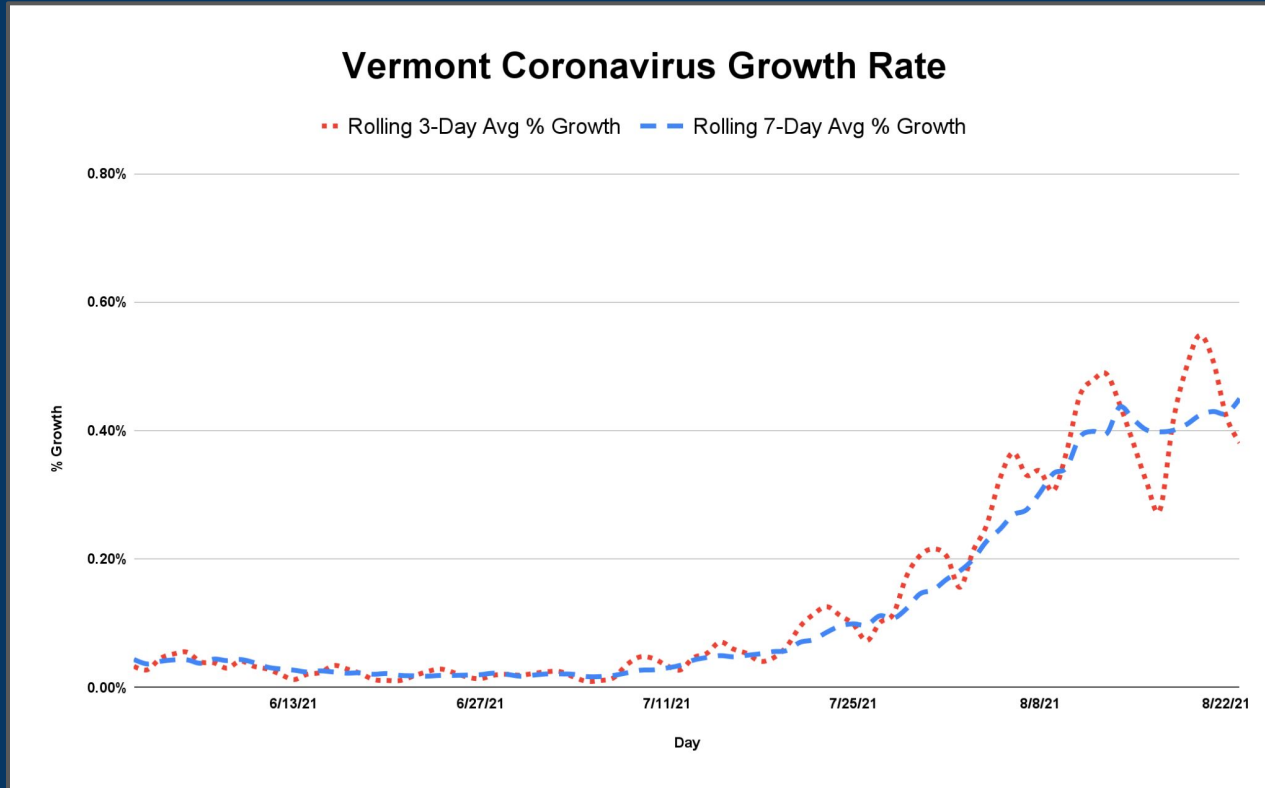
Data Point 1: Syndromic Surveillance

- **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.

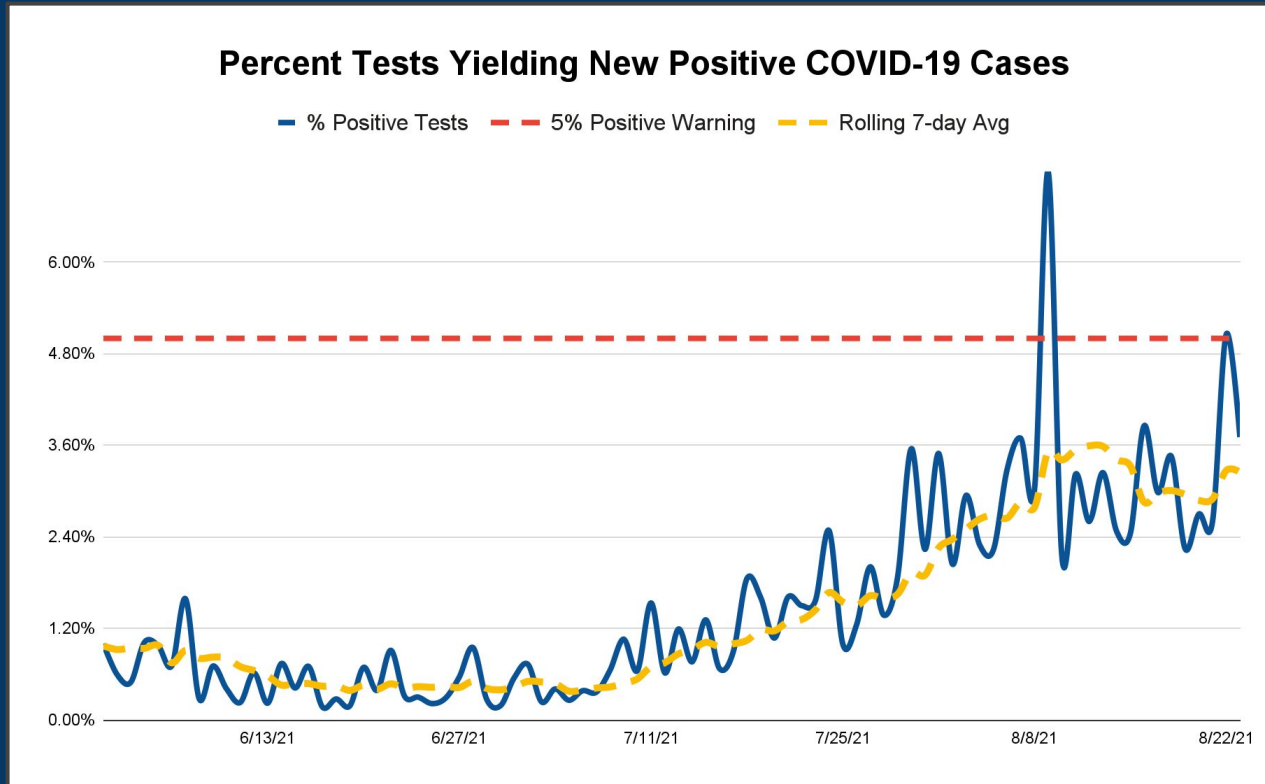
Data Point 2: Viral Growth and Reproductive Rates

- **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



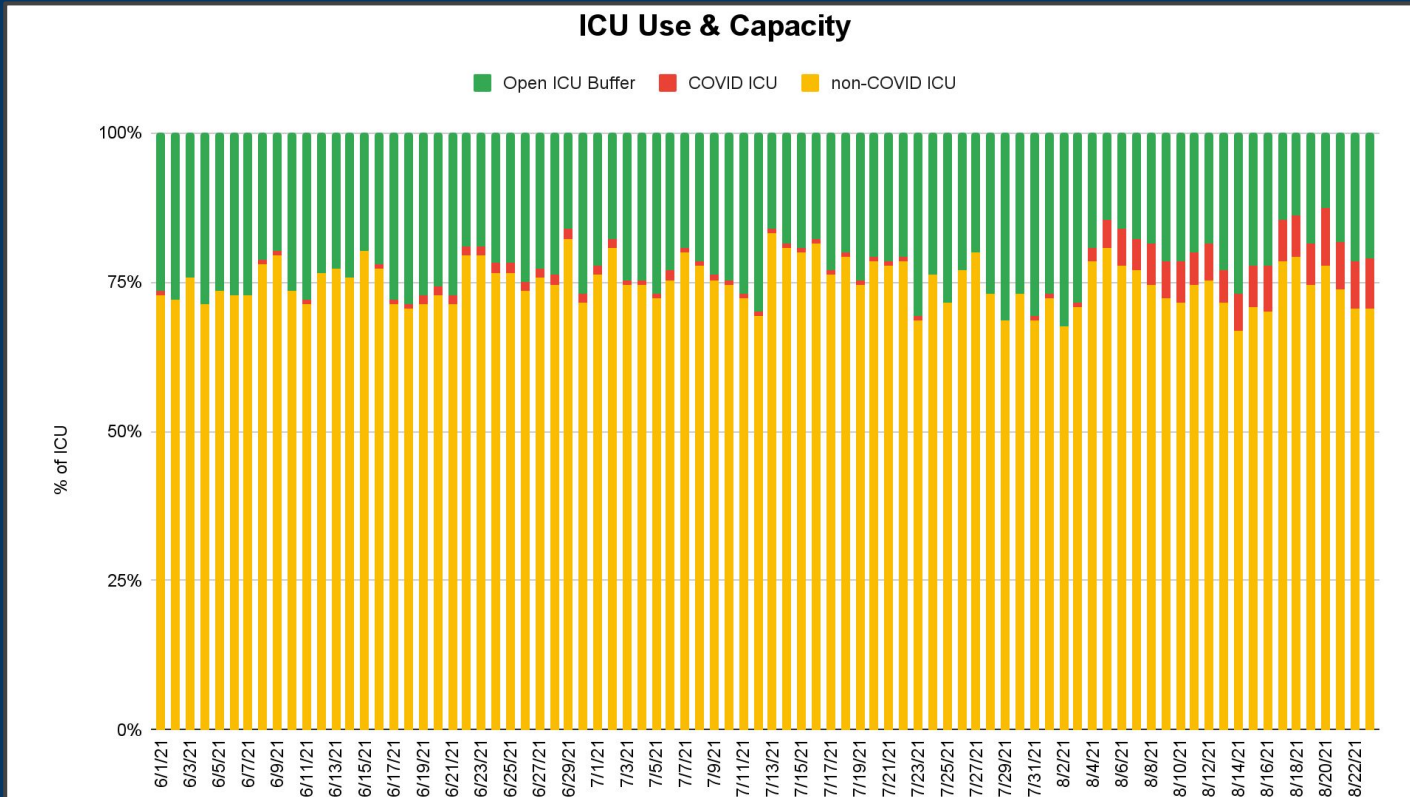
Data Point 3: Percentage of New Positive Tests

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



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%



Vermont Testing

