COVID-19 Modeling
November 9, 2021

Presentation available at:
dfr.vermont.gov

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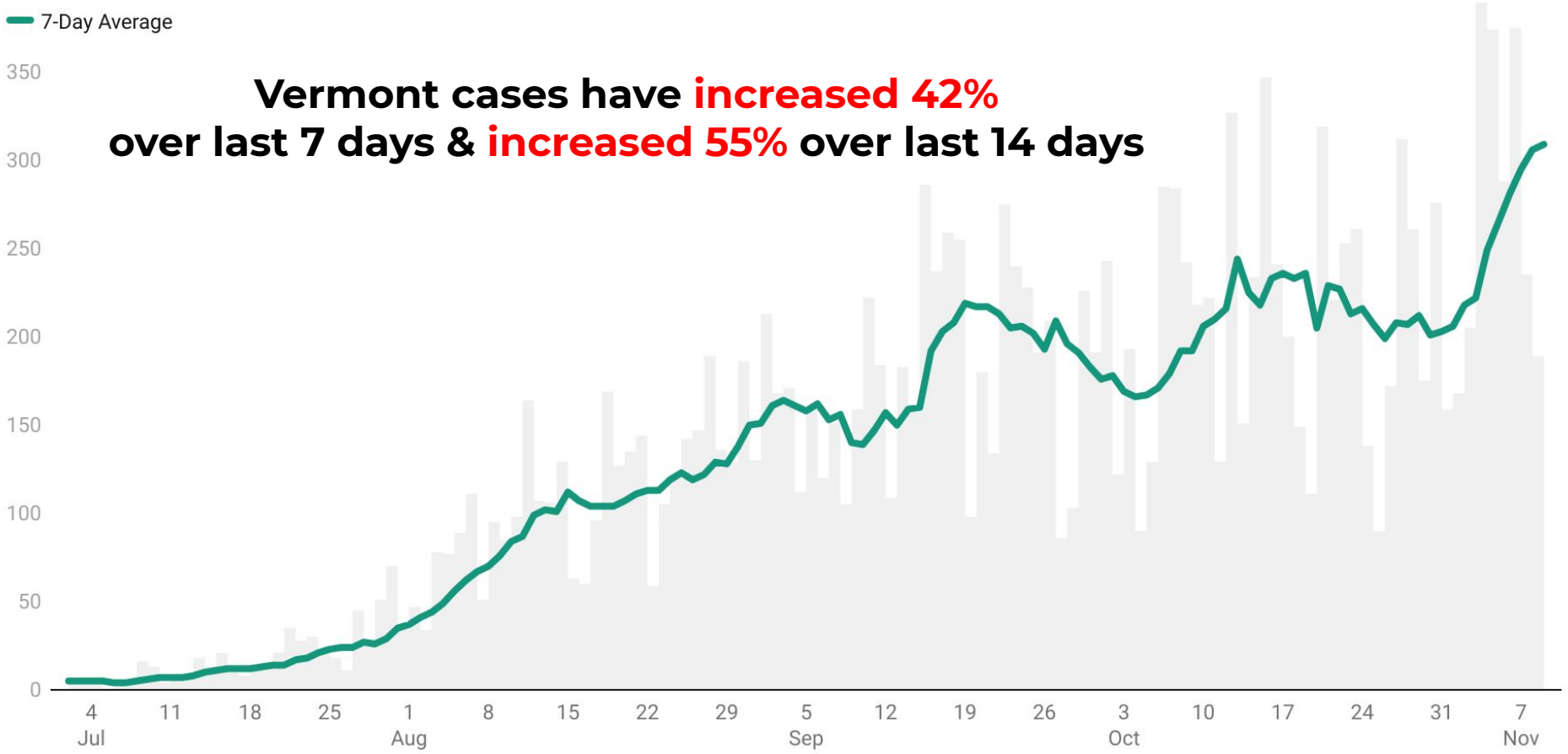
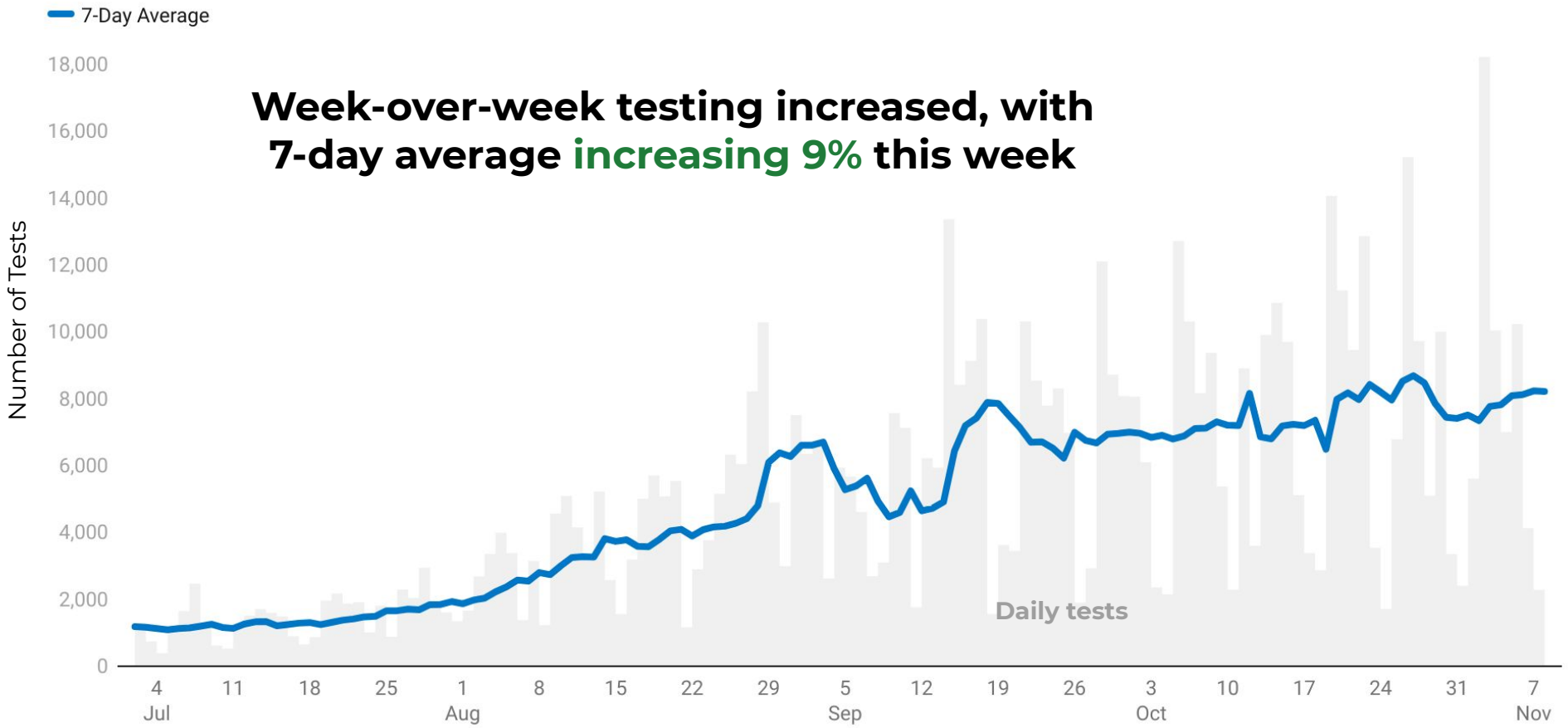
Vermont Case Data

Vermont New COVID-19 Cases



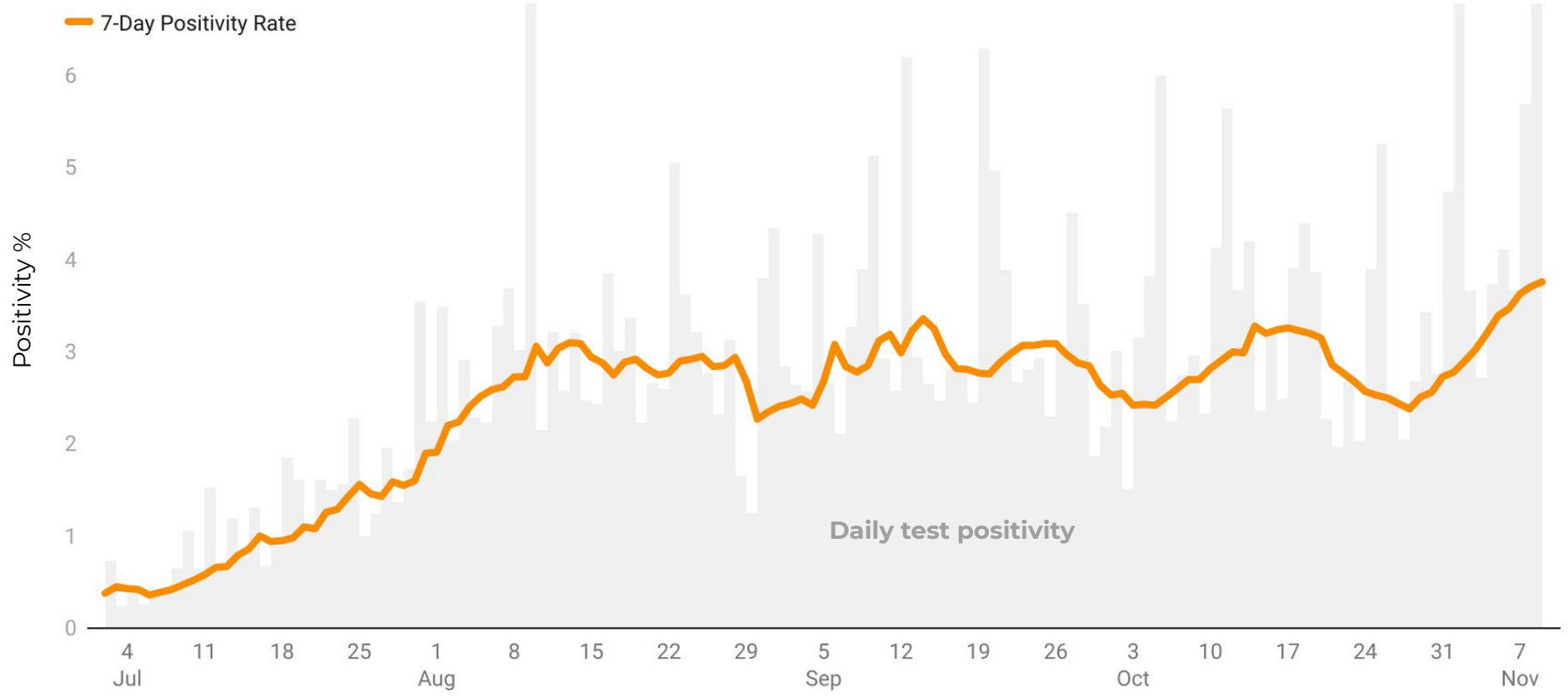
Source: Vermont Dept. of Health—November 9, 2021; created with Datawrapper

Vermont COVID-19 Testing



Source: VDH—November 9, 2021; created with Datawrapper

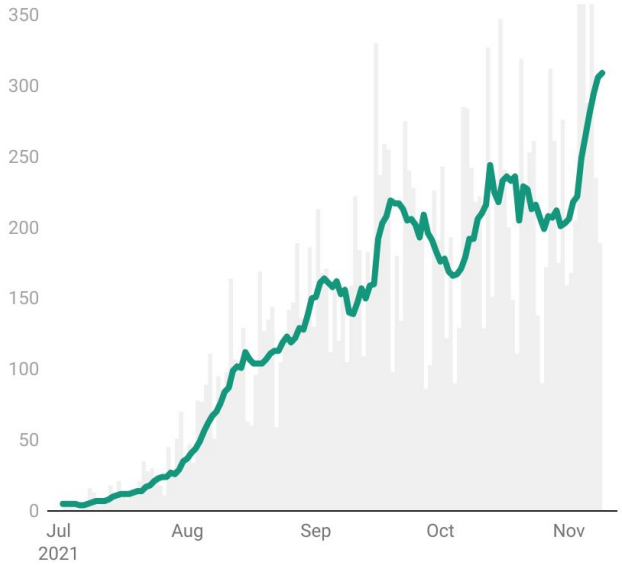
Vermont Test Positivity: Delta Wave



Source: VDH—November 9, 2021; created with Datawrapper

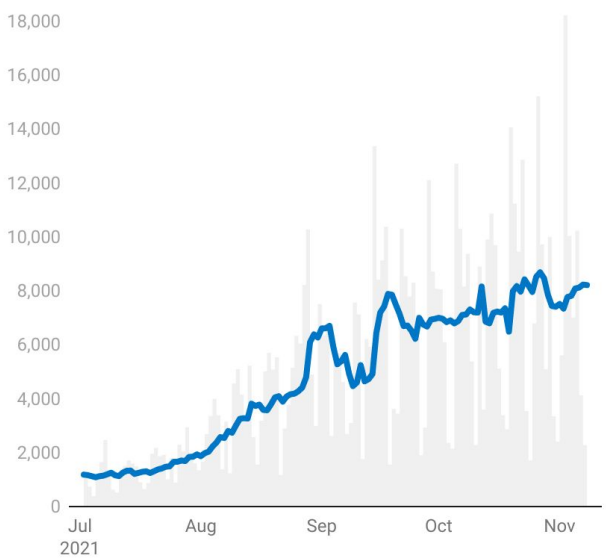
Vermont Case Growth Metrics

42% Increase
Over last 7 days



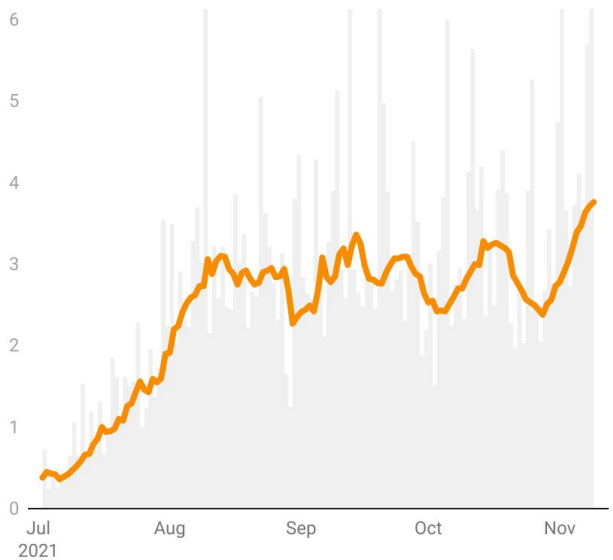
Infections

9% Increase
Over last 7 days



Testing

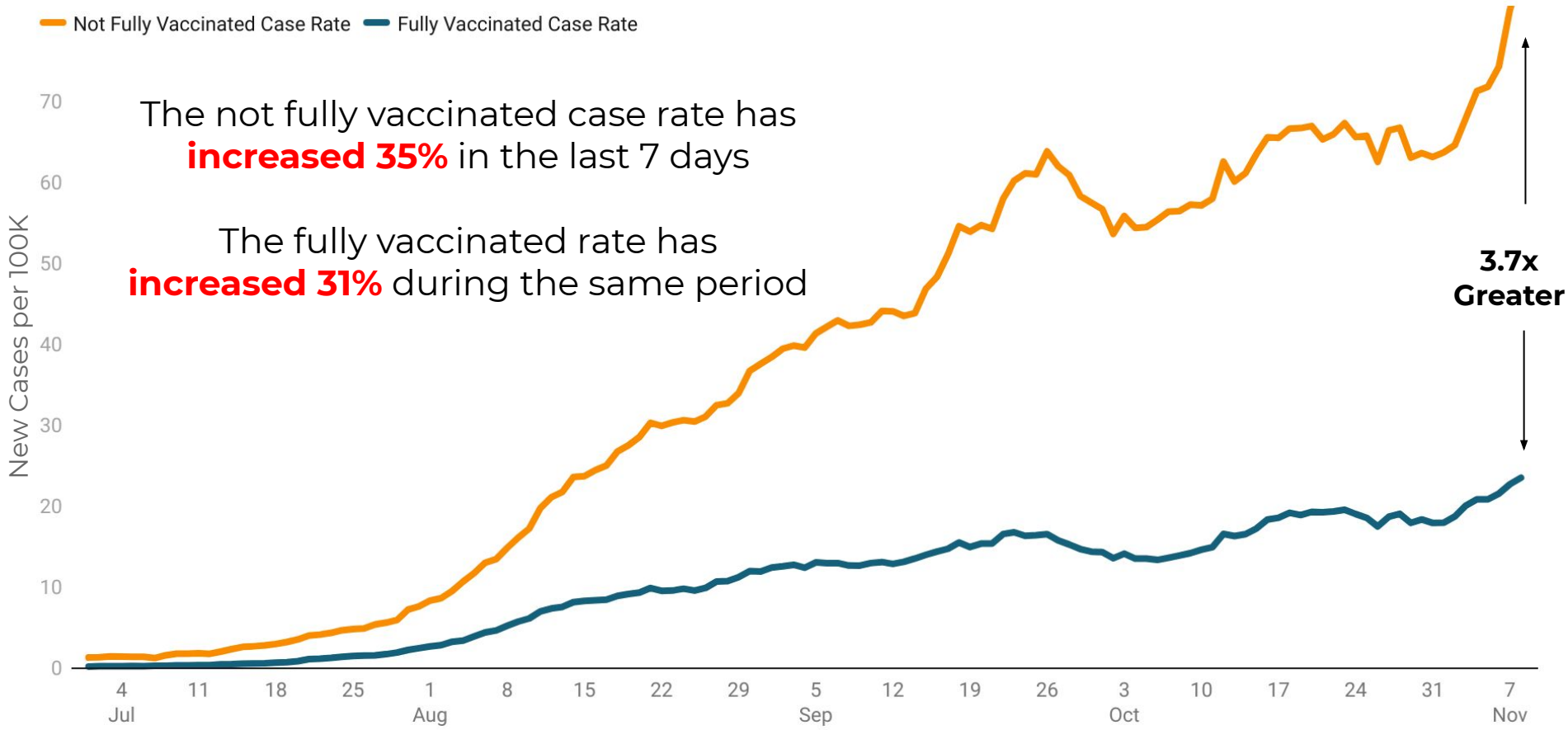
30% Increase
Over last 7 days



Positivity Rate

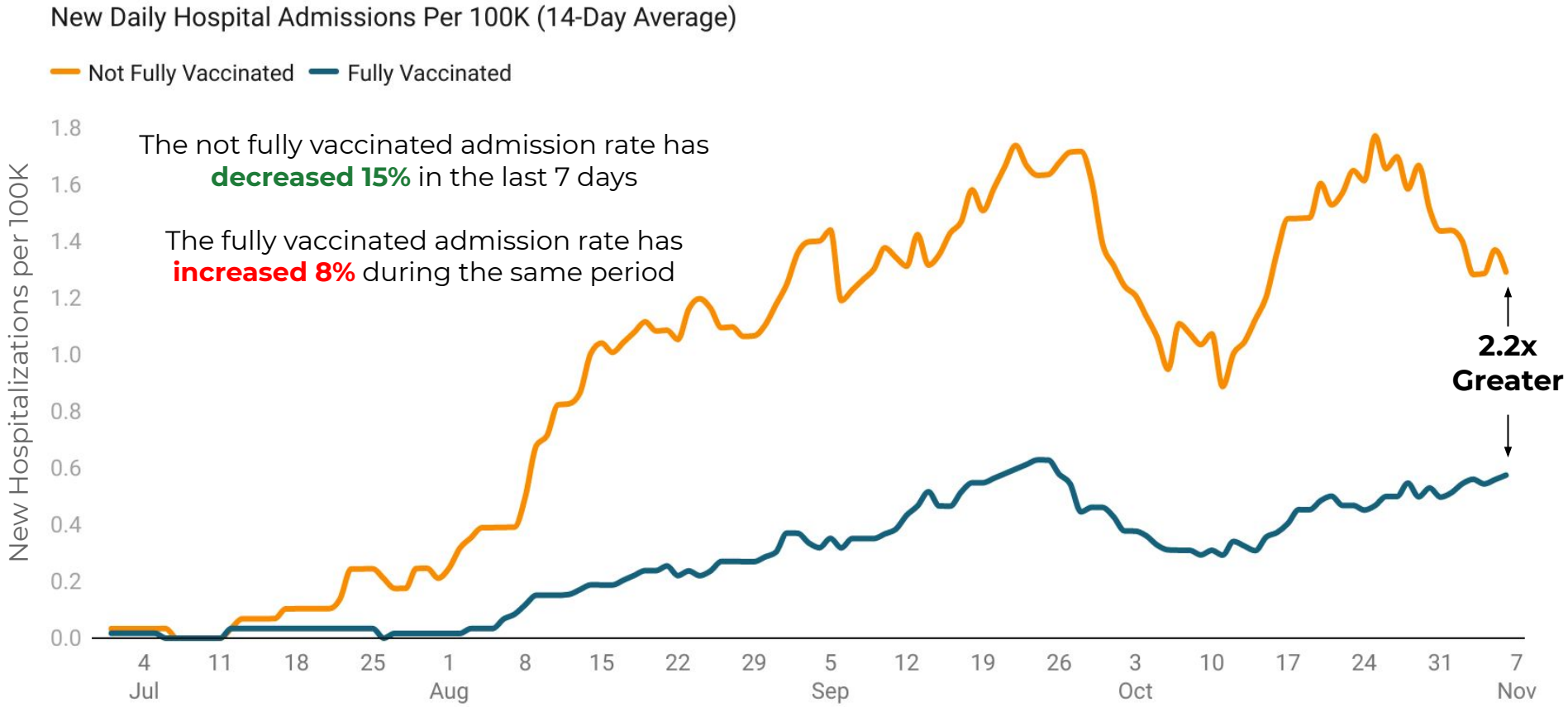
Source: VDH—November 9, 2021; created with Datawrapper

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



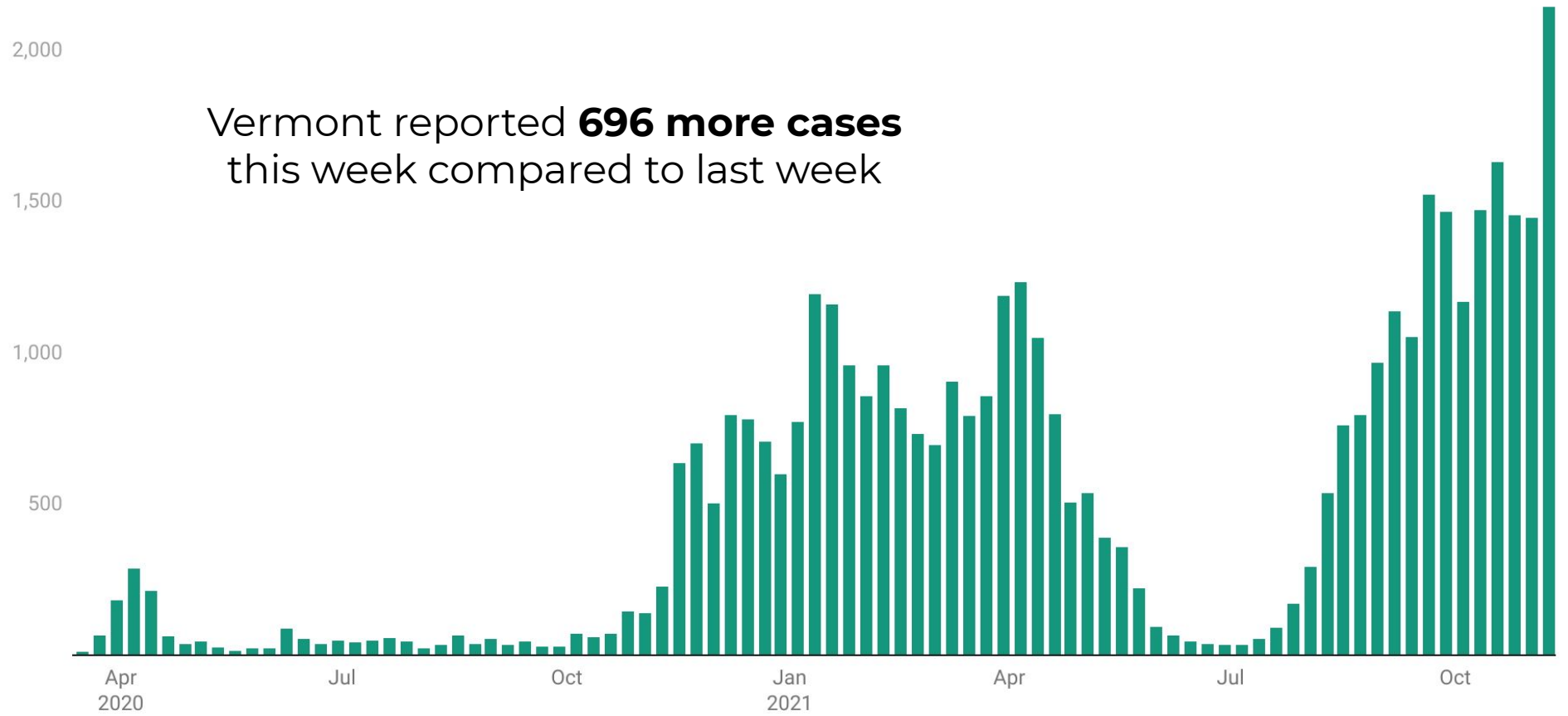
Source: Vermont Dept. of Health and CDC—November 8, 2021

Vermont COVID-19 Hospitalizations



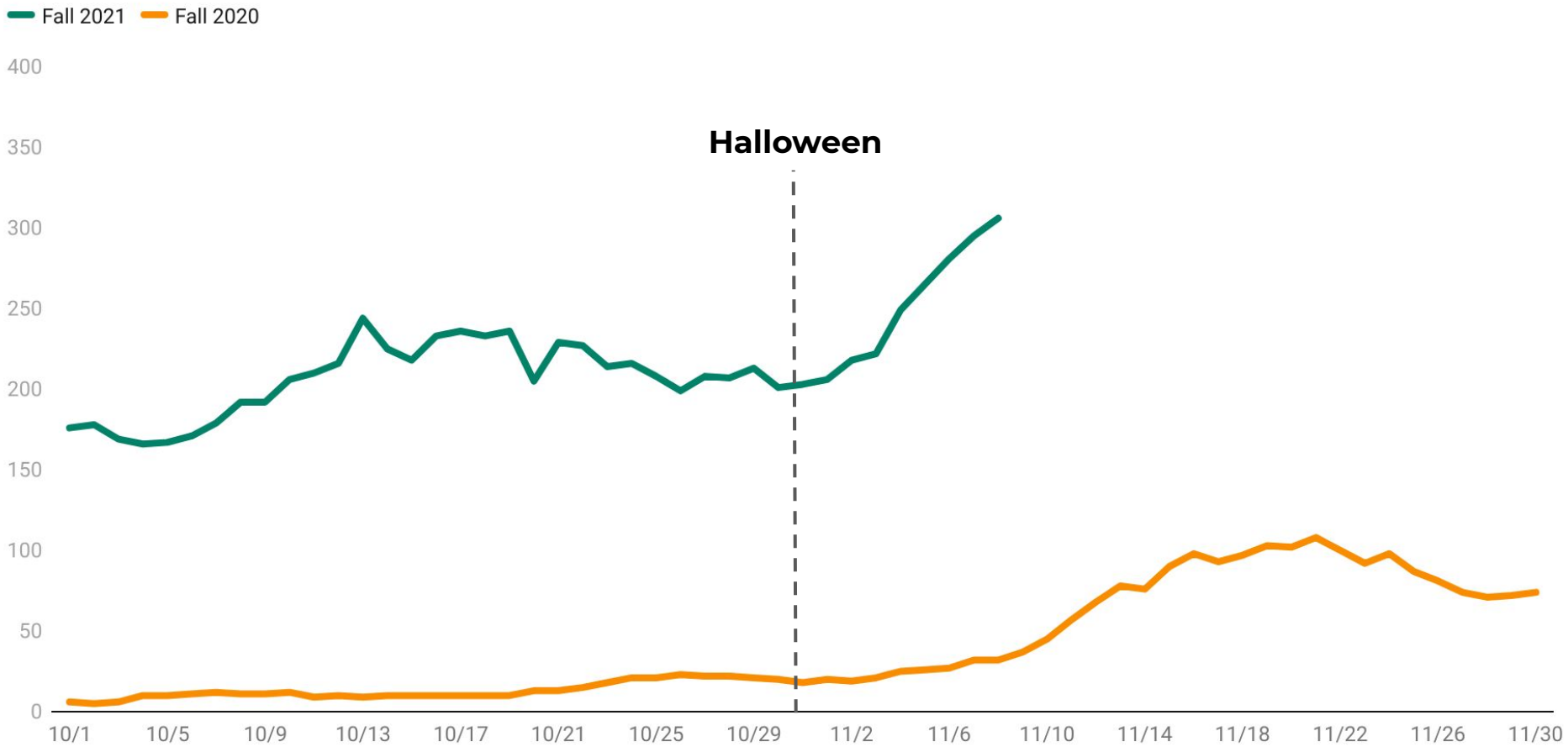
Source: Vermont Dept. of Health and CDC—November 6, 2021

Vermont New Weekly COVID-19 Cases



Source: Vermont Dept. of Health—November 9, 2021; created with Datawrapper

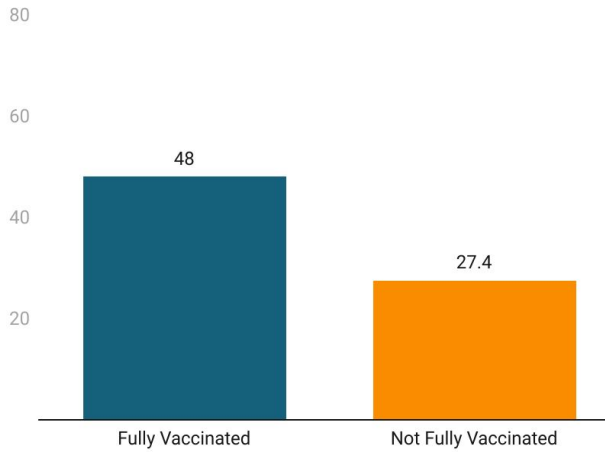
Vermont COVID-19 Cases Fall 2020 vs. Fall 2021



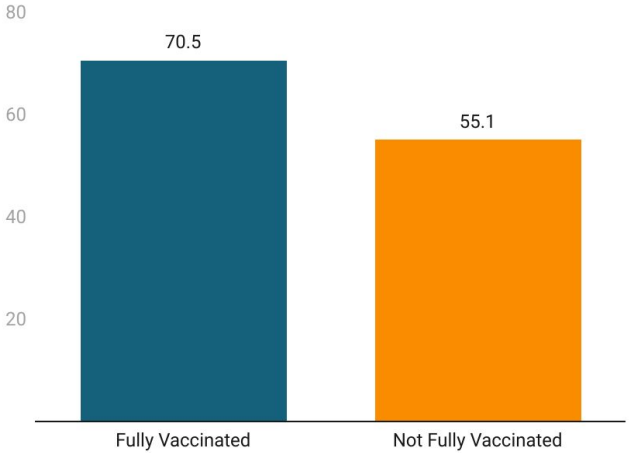
Source: Vermont Dept. of Health—November 8, 2021; created with Datawrapper

Average Age of Covid-19 Outcomes by Vaccination Status (July-Present)

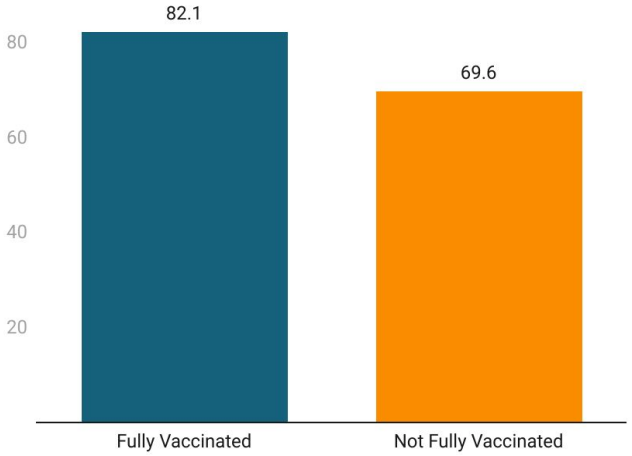
Infections



Hospitalizations

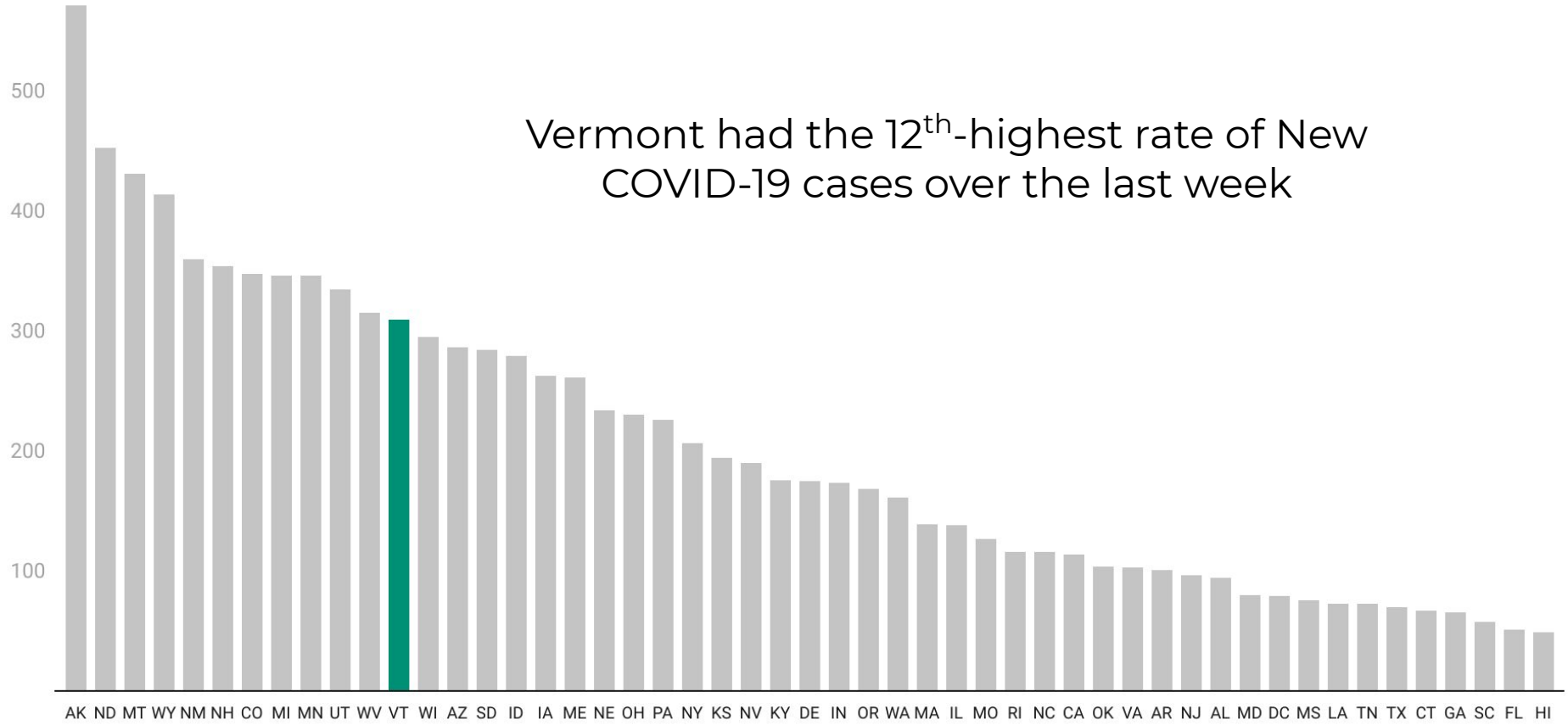


Fatalities



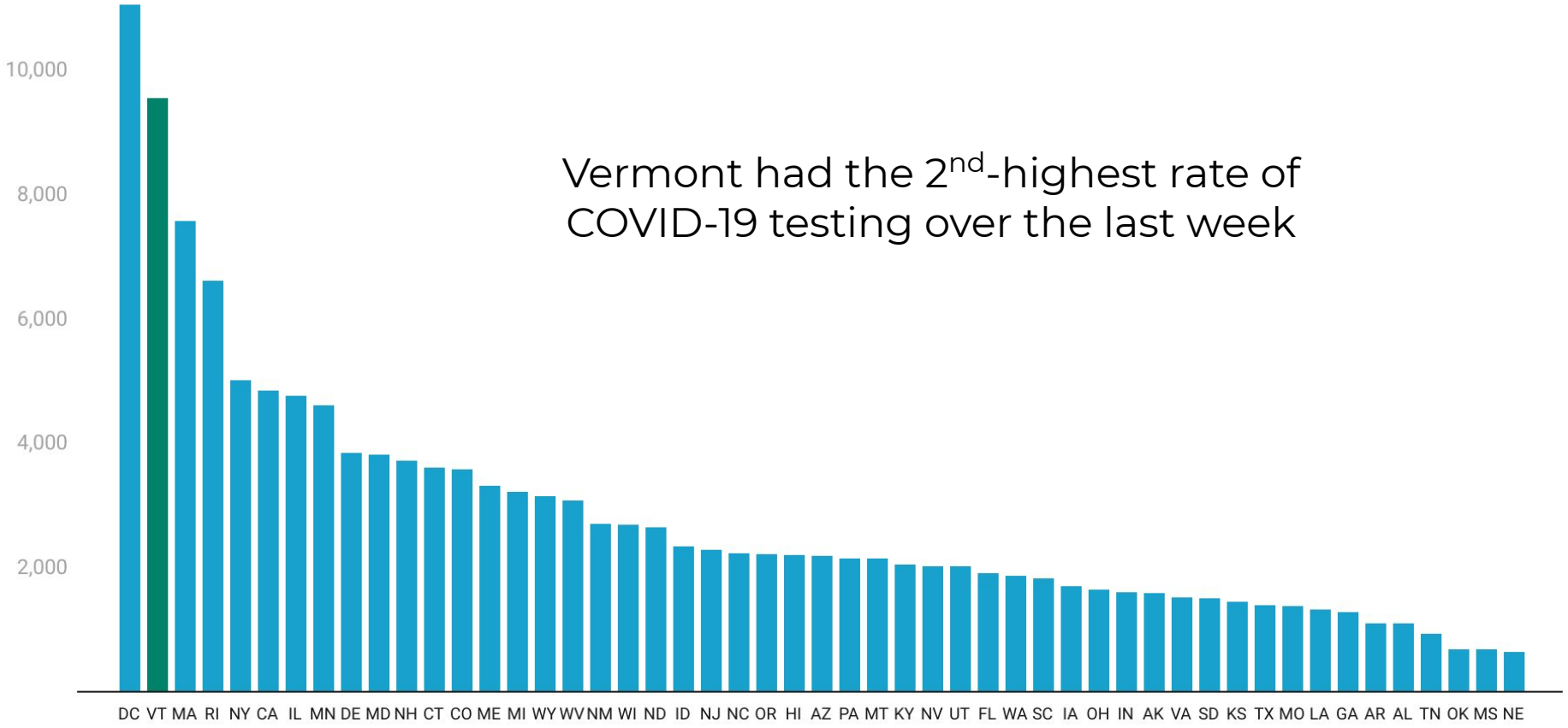
Source: VDH—Vaccination data from July 1 to November 6, 2021; created with Datawrapper

National COVID-19 Case Rates Per 100K Last 7 Days



Source: CDC—November 8, 2021; Created with Datawrapper

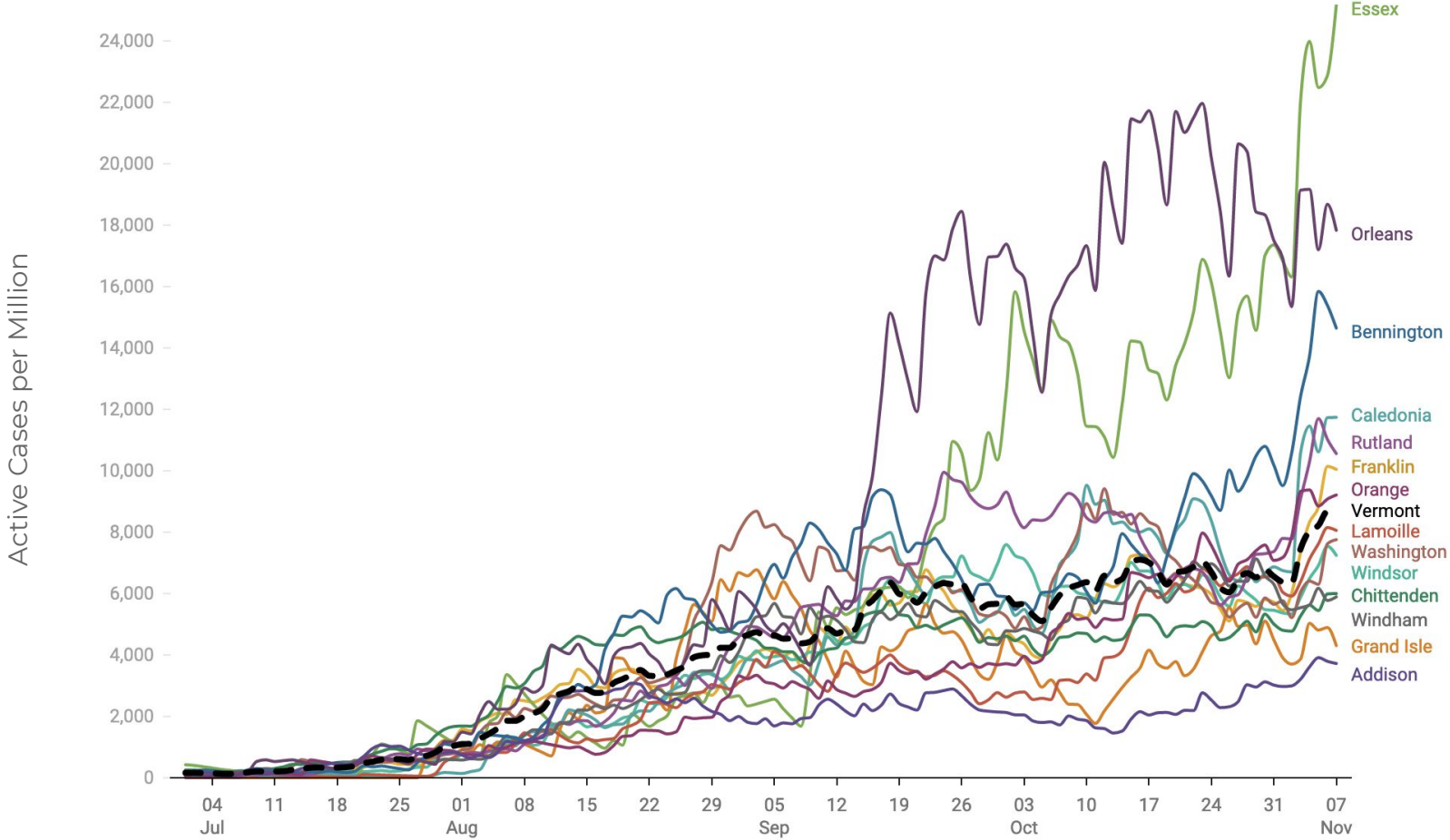
COVID-19 Testing Per 100K Last 7 Days



Vermont had the 2nd-highest rate of COVID-19 testing over the last week

Source: CDC—November 8, 2021; Created with Datawrapper

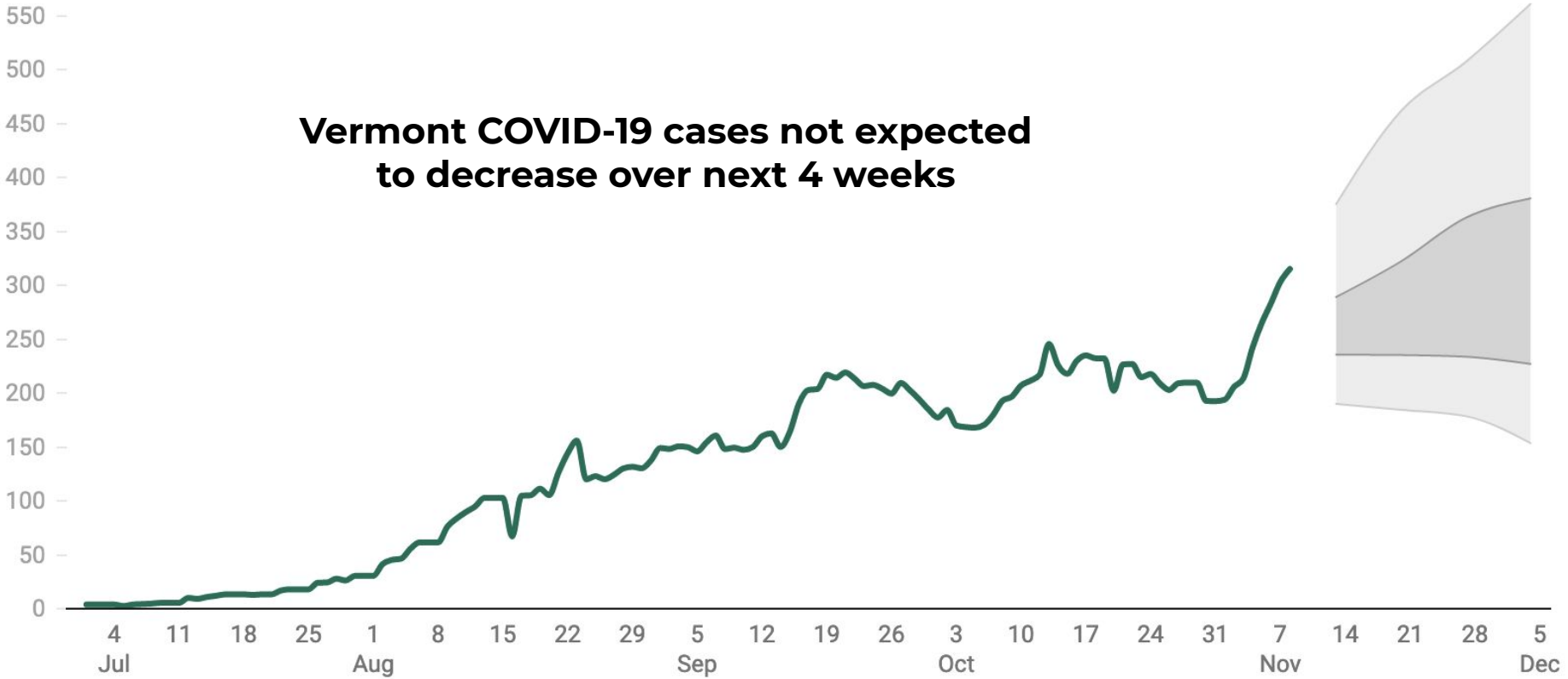
Active Cases in Vermont Counties



Source: JHU—November 9, 2021; DFR Active Case Algorithm (per million)

VT COVID-19 Infection Confidence Intervals

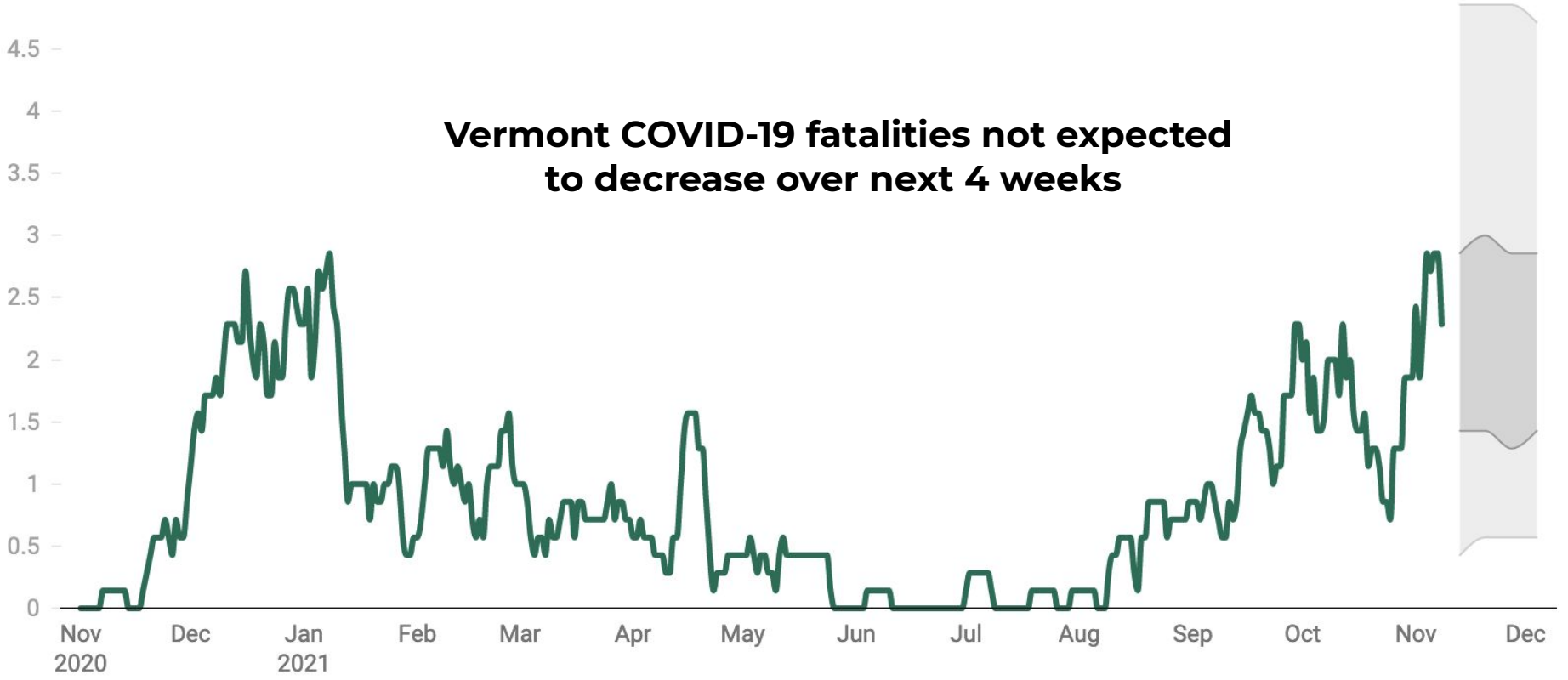
Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.



Source: CDC—November 9, 2021

VT COVID-19 Death Confidence Intervals

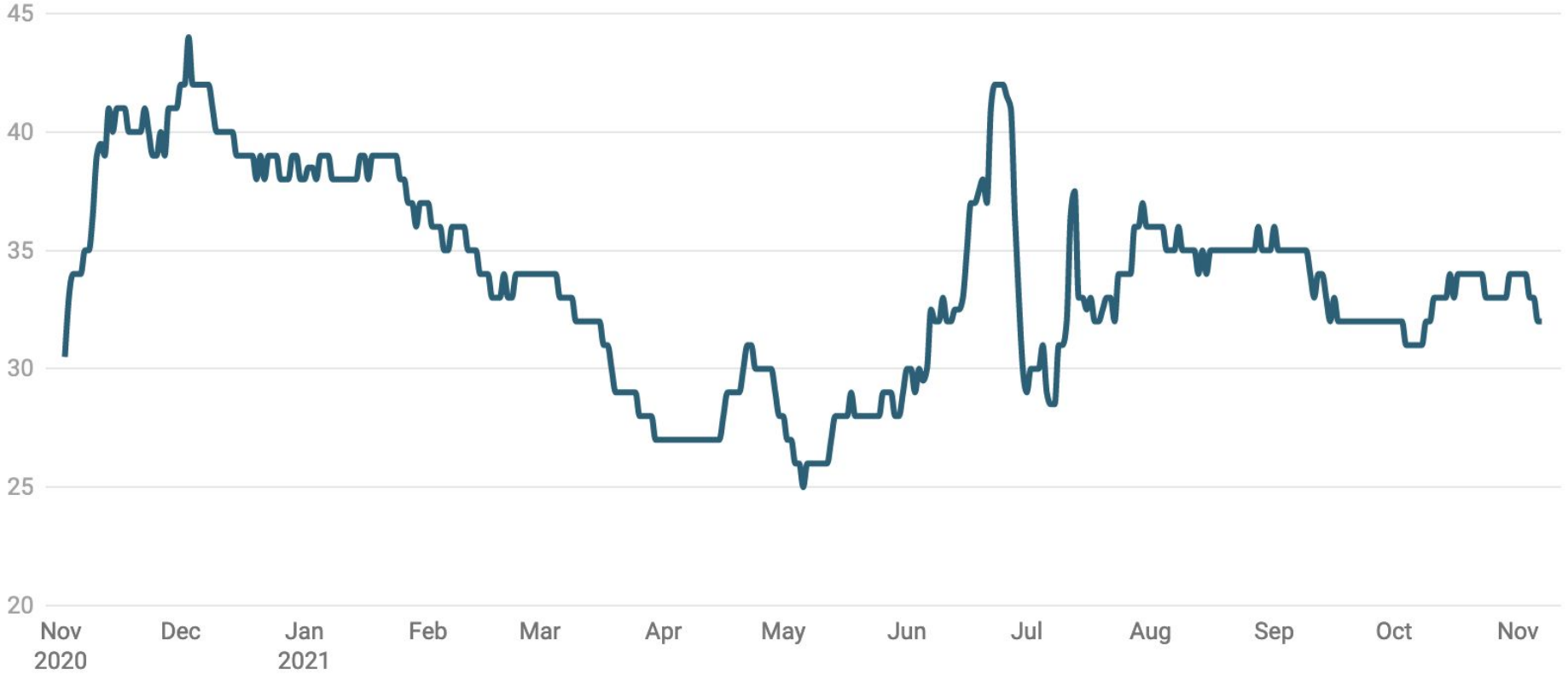
Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.



Source: CDC—November 9, 2021

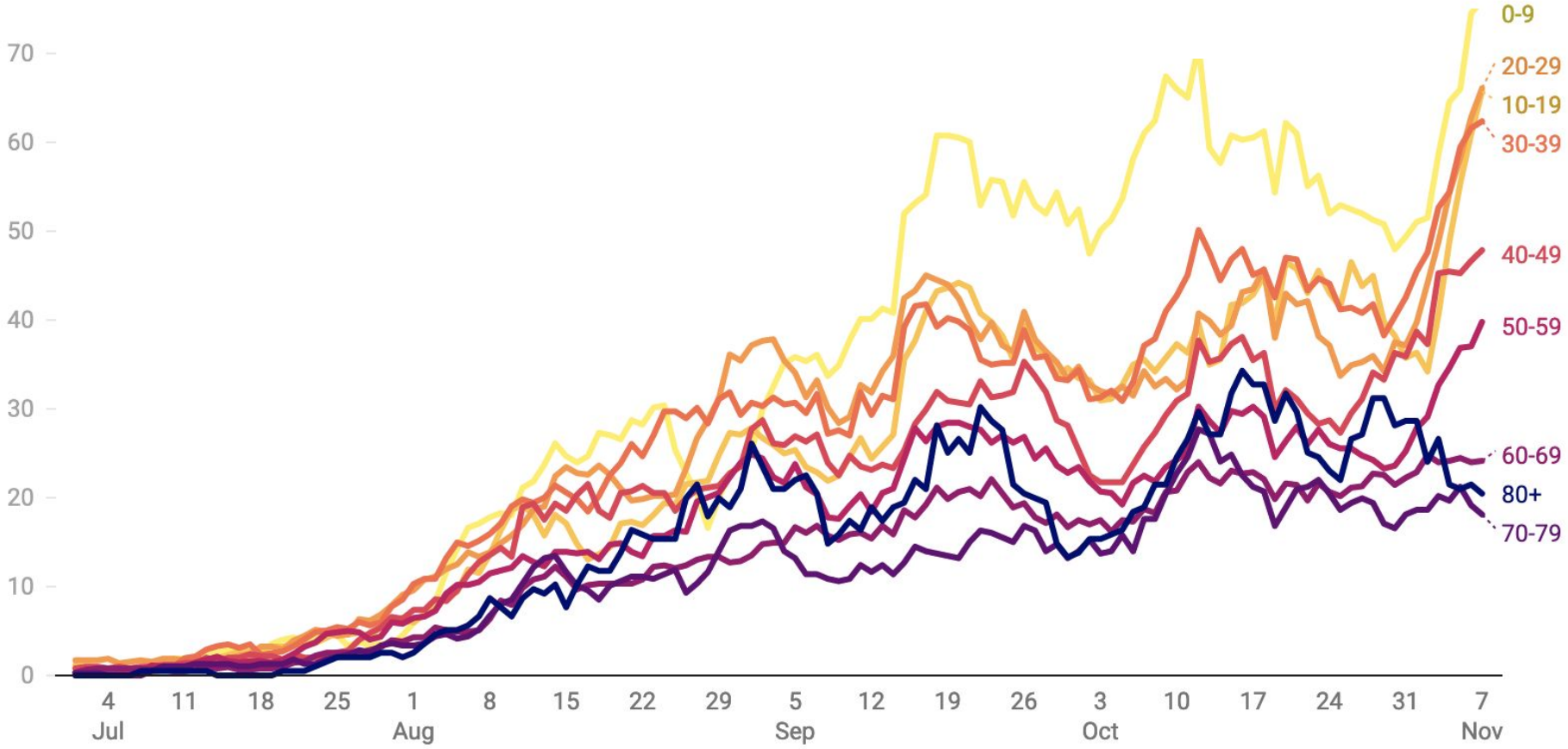
Age of Infected Vermonters

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



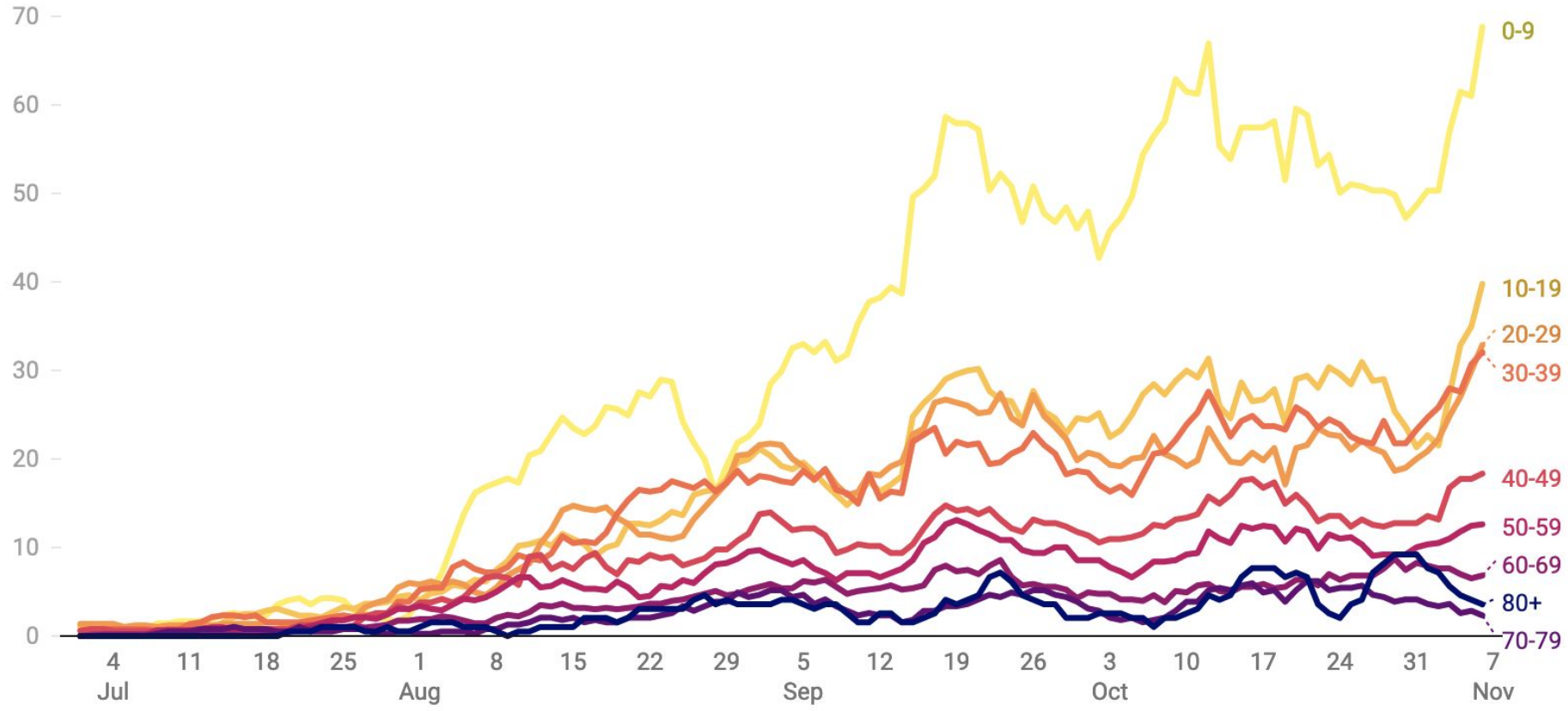
Source: VDH—November 9, 2021

VT COVID-19 Infections per 100K by Age Group



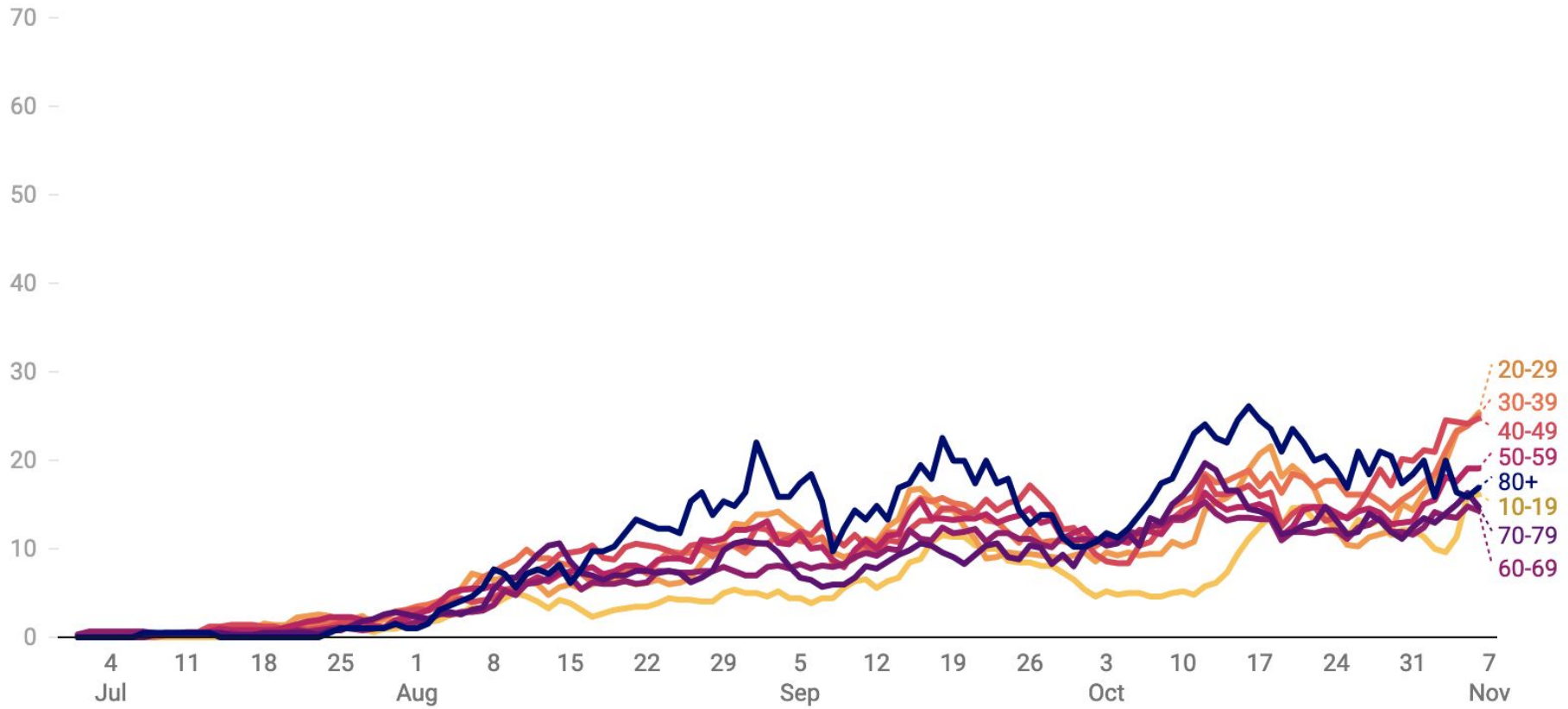
Source: VDH—November 9, 2021

VT COVID-19 Infections per 100K by Age Group (Not Fully Vaccinated)



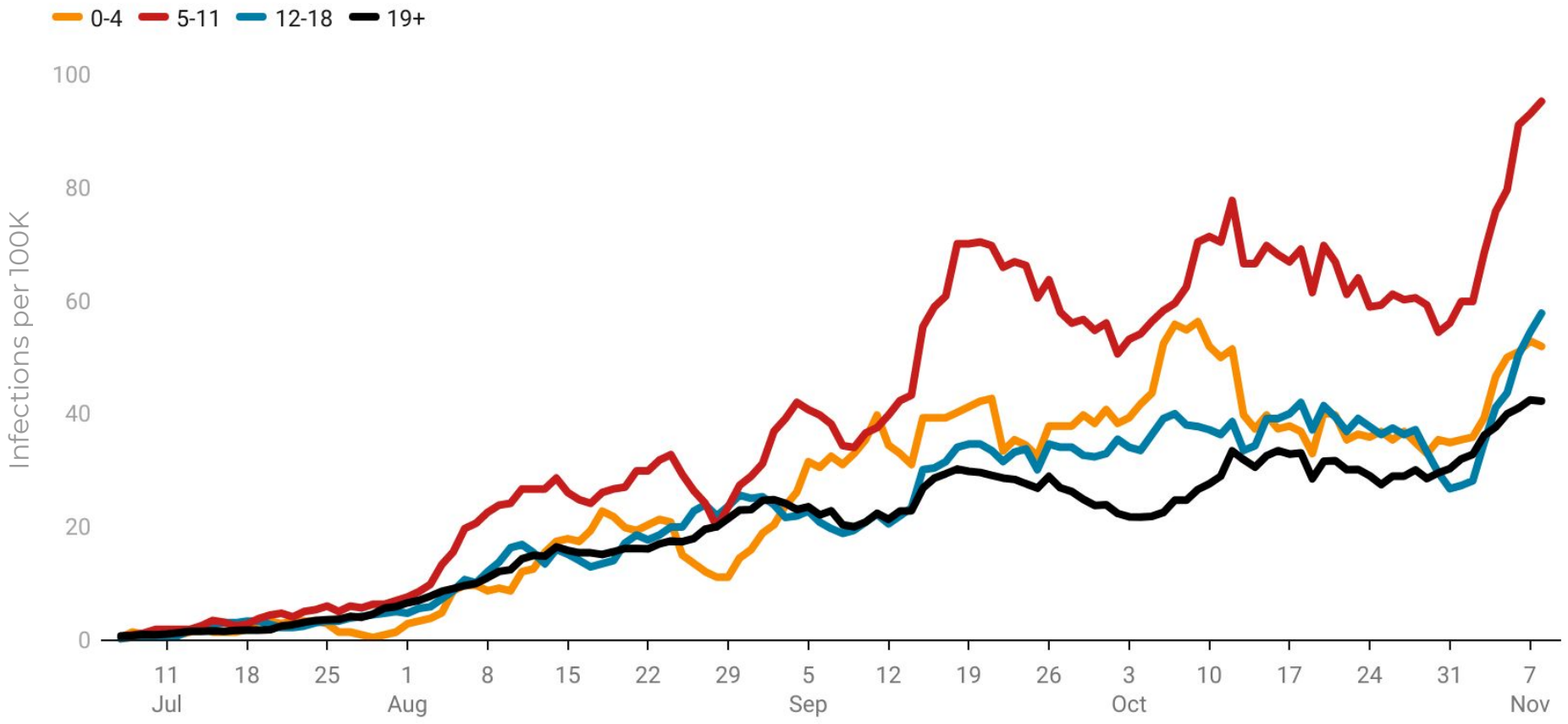
Source: VDH—November 9, 2021

VT COVID-19 Infections per 100K by Age Group (Fully Vaccinated)



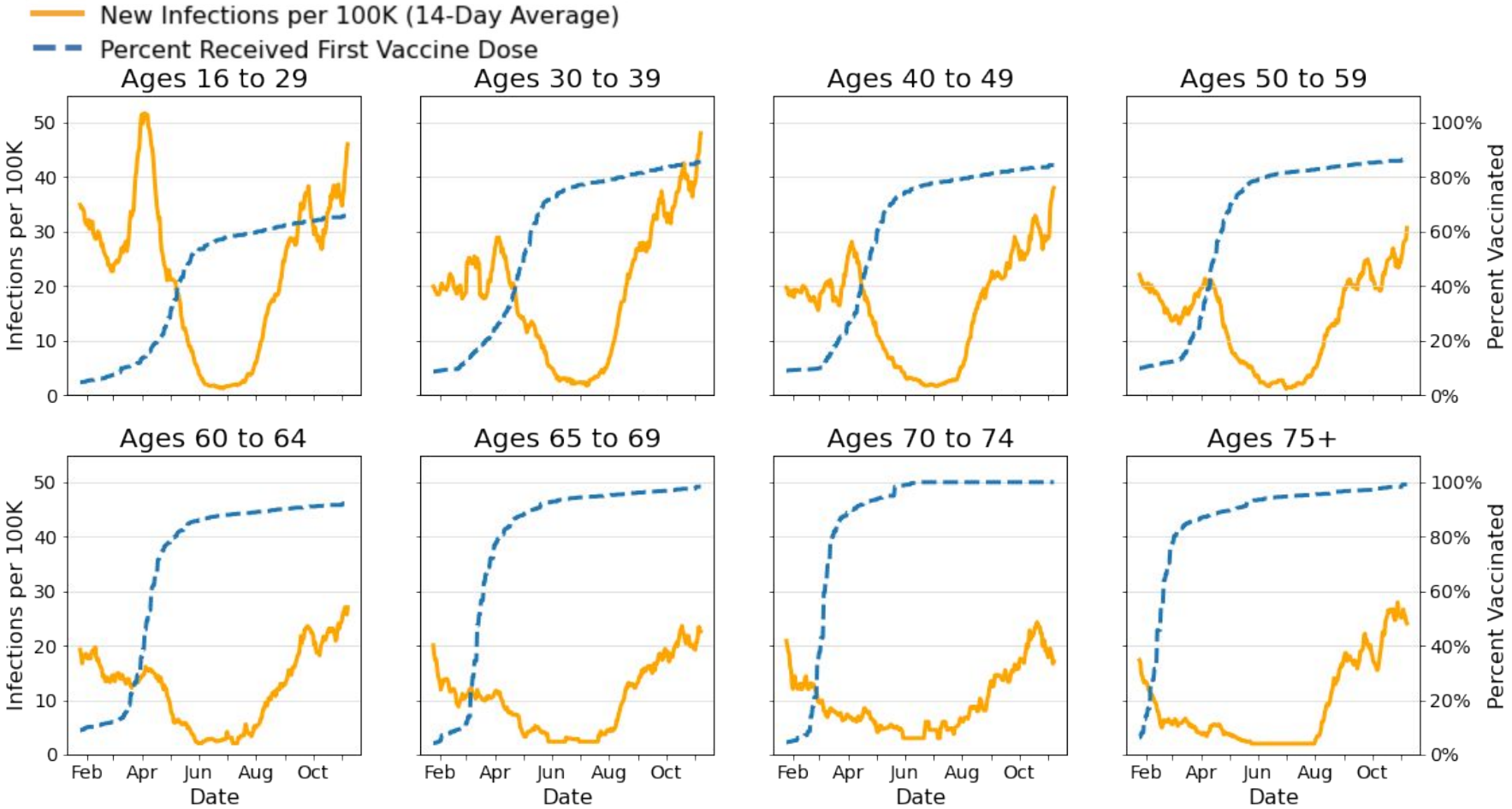
Source: VDH—November 9, 2021

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



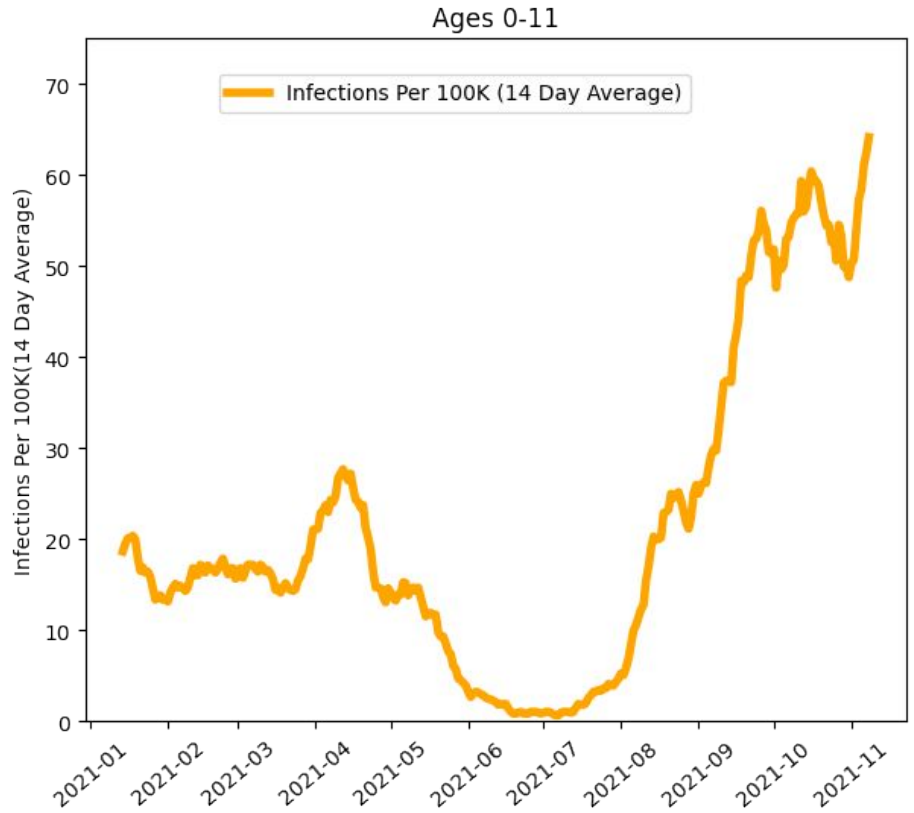
Source: VDH—November 8; created with Datawrapper

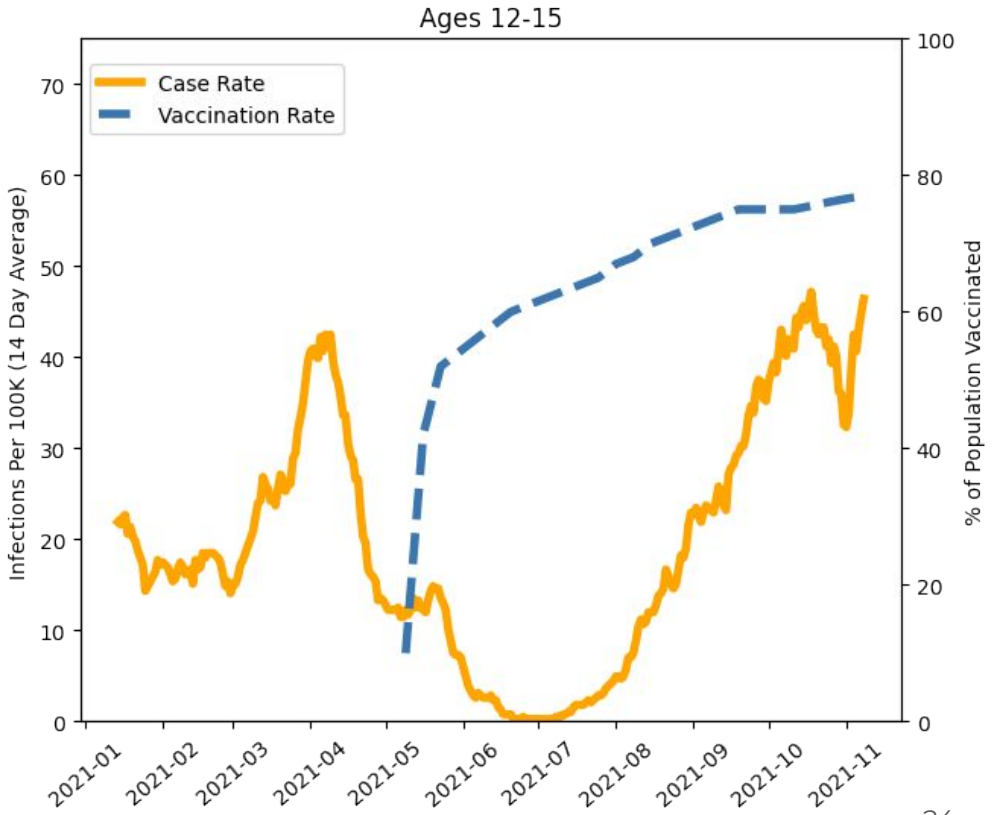
Vermont Case Rate & Vaccination by Age Band



Source: VDH—November 9, 2021

Vermont Case Rate & Vaccination by Age Band





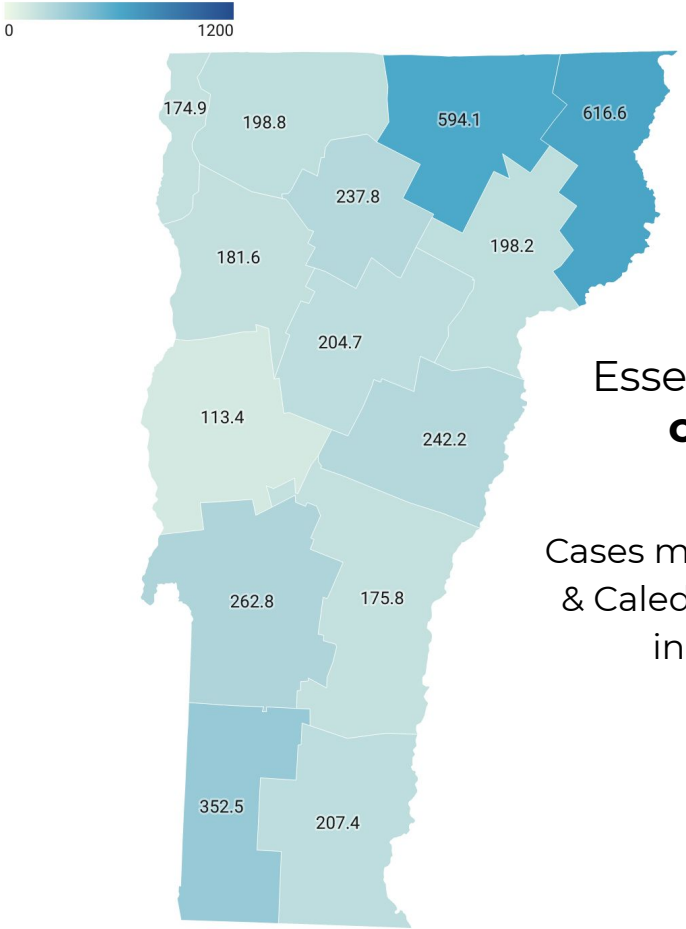
Source: VDH—November 9, 2021, 2021

Vermont Case Rate By Age (7-Day Average)

Source: VDH—November 8, 2021; created with Datawrapper

Vermont Weekly Cases by County (per 100,000)

Results Reported October 26 to November 1



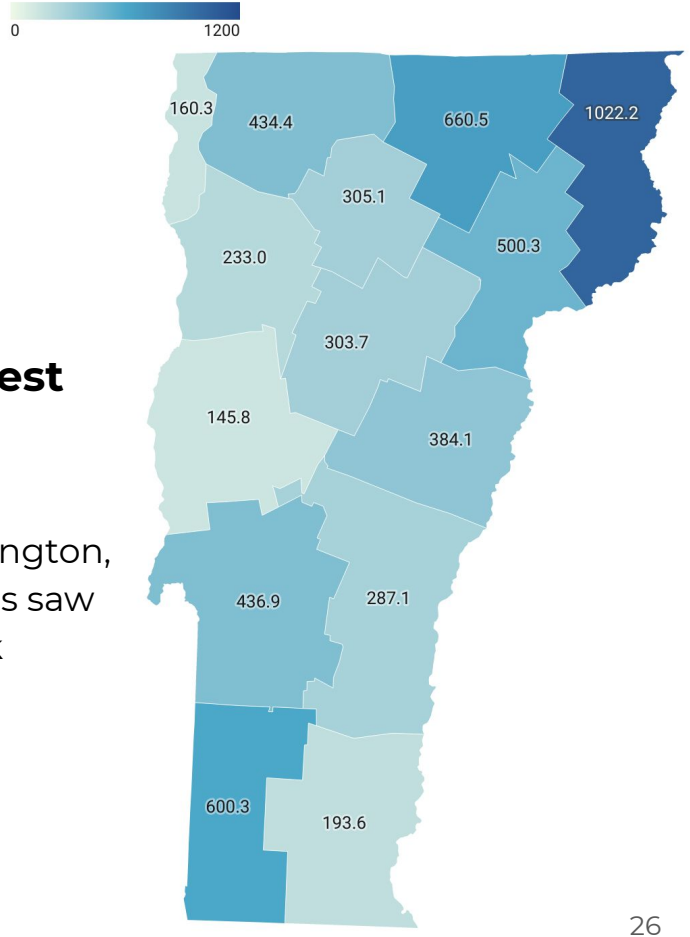
Map: Vermont DFR COVID Modeling Team • Source: Vermont Dept. of Health • Created with Datawrapper

Essex County reporting **highest case rates** of any county during pandemic

Cases most elevated in Orleans, Bennington, & Caledonia Counties; 12 of 14 counties saw increases in case rates last week

Vermont Weekly Cases by County (per 100,000)

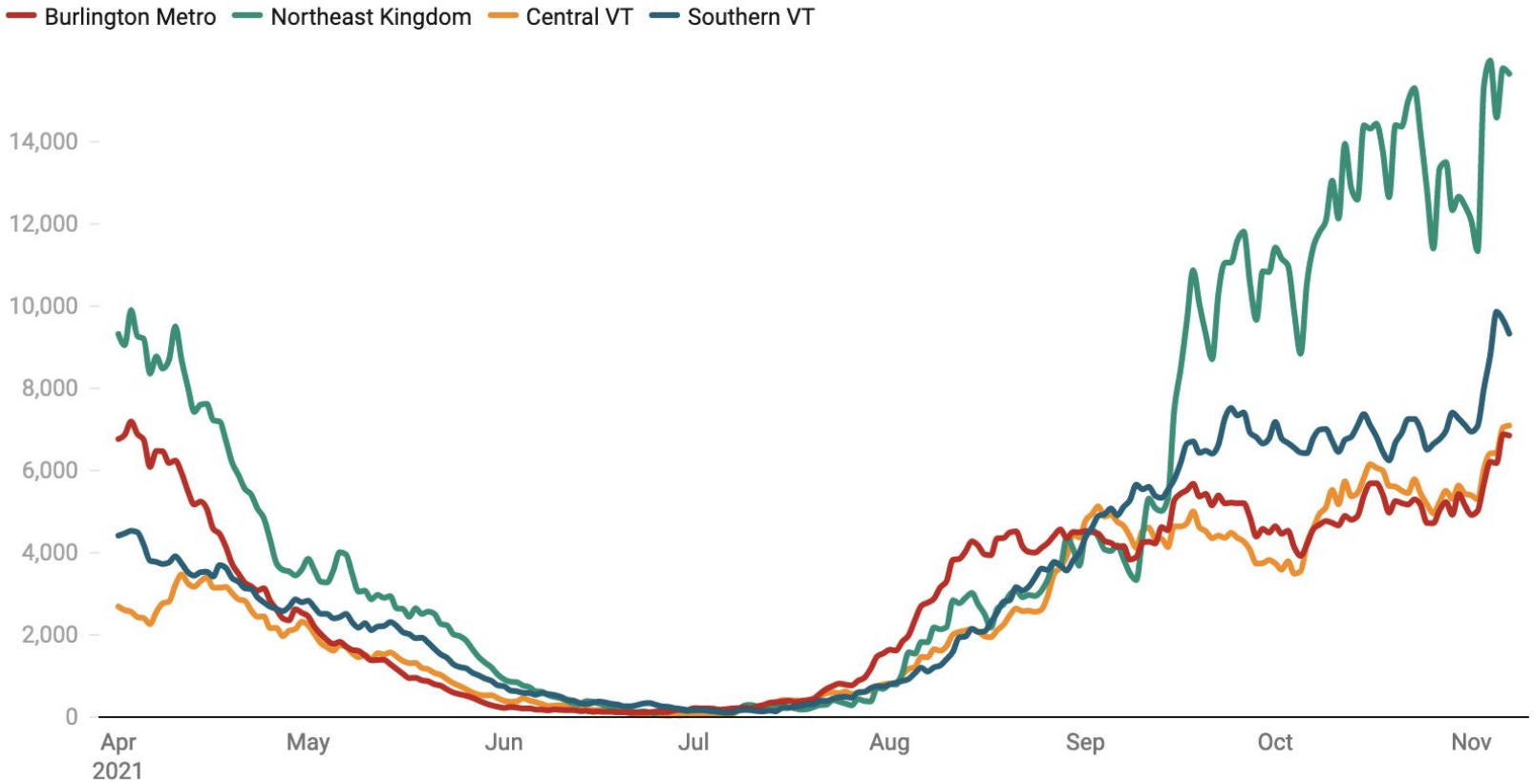
Results Reported November 2 to 8



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: JHU & DFR Active Case Algorithm—November 2, 2021

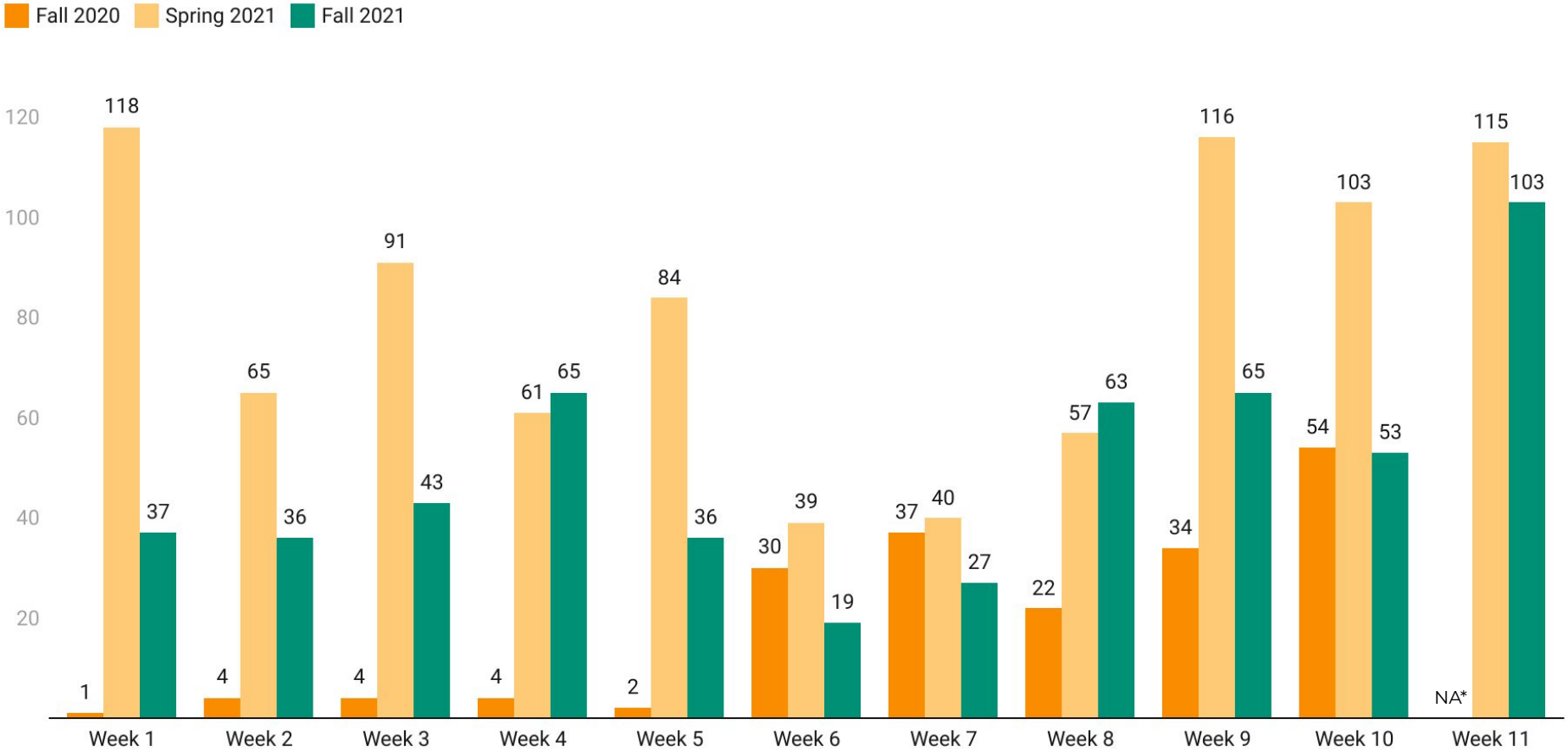
Fall 2021 Higher Education Restart

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	28,586	27,201	255	445	685
		95.2%	0.9%	1.6%	2.4%

Week 1: **37 cases** out of 12,623 tests
Week 2: **36 cases** out of 7,434 tests
Week 3: **43 cases** out of 3,053 tests
Week 4: **65 cases** out of 6,497 tests
Week 5: **36 cases** out of 4,878 tests
Week 6: **19 cases** out of 4,516 tests
Week 7: **27 cases** out of 3,536 tests
Week 8: **63 cases** out of 3,668 tests
Week 9: **65 cases** out of 4,398 tests
Week 10: **53 cases** out of 4,575 tests
Week 11: **132 cases** out of 8,404 test

Source: Vermont Higher Education Institutions—November 8, 2021

Vermont Higher Education Cases By Semester



Source: Vermont Higher Education Institutions—November 9, 2021—Created with Datawrapper; * During the Fall 2020 semester Week 1 started later than Spring and Fall 2021 and therefore reached Thanksgiving Break by Week 11.

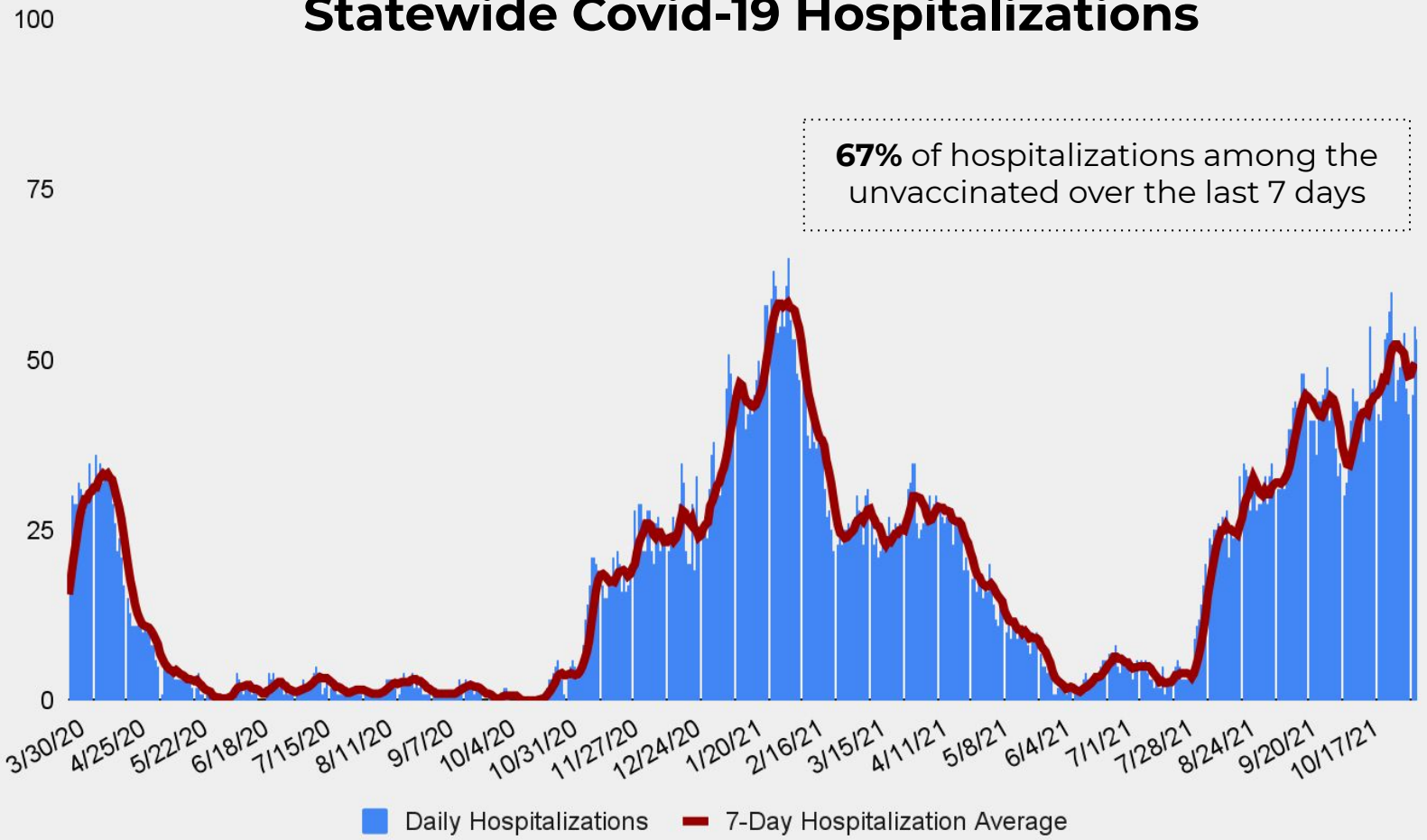
Active Outbreaks in Long Term Care Facilities

Facility Name	Total COVID-19 Cases
Crescent Manor Nursing Home & Rehab, *Bennington*	32
Harbor Village Senior Living, *South Burlington*	21
The Pines at Rutland Center for Nursing & Rehab	18
Newport Health Care Center	17
Helen Porter Rehab and Nursing, *Middlebury*	8
Maple Lane Nursing Home, *Barton*	<5
Vermont Veteran's Home, *Bennington*	<5
Total	**103**

Source: Vermont Department of Health—November 9, 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*

Vermont Hospitalization Data

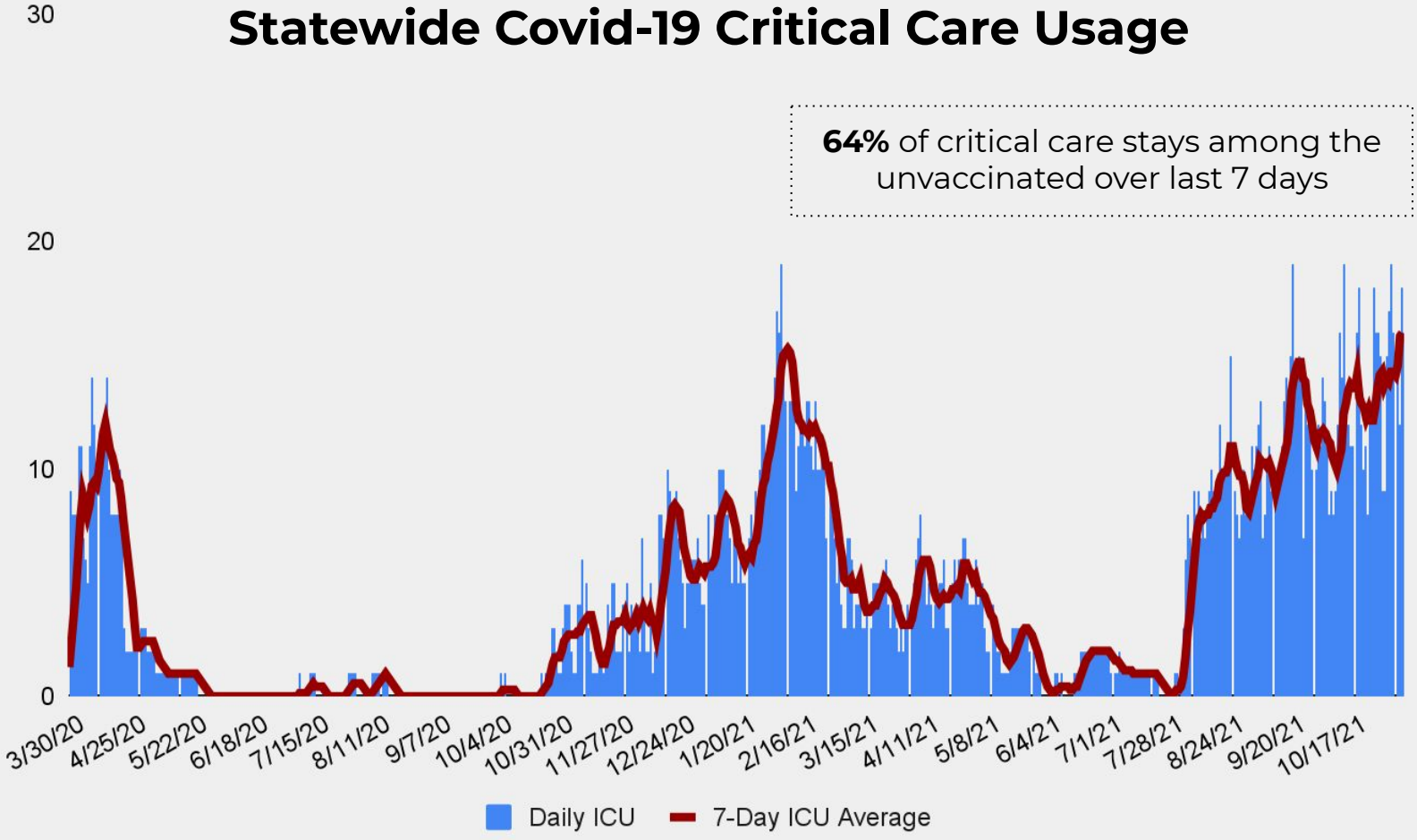
Statewide Covid-19 Hospitalizations



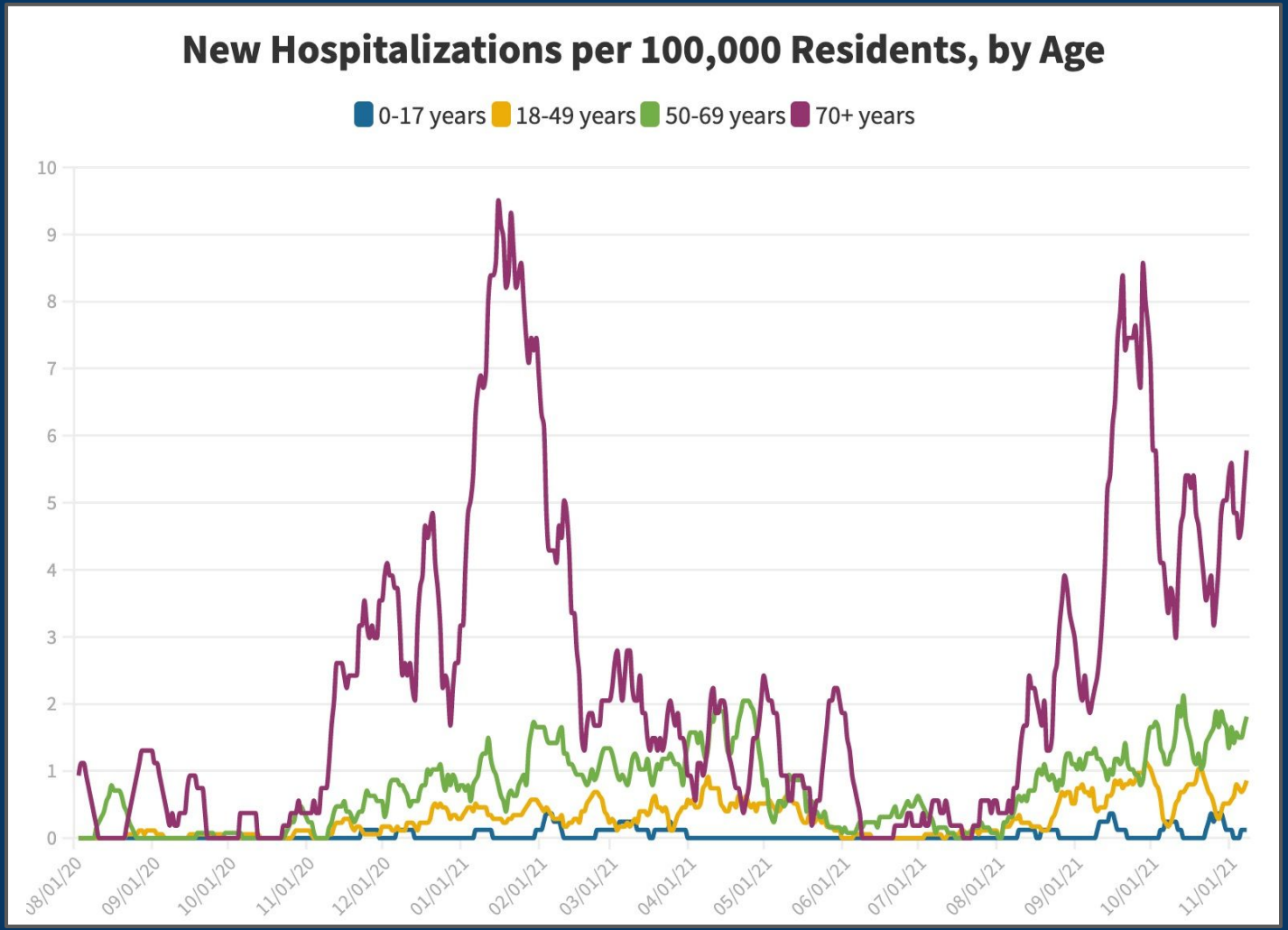
Source: Vermont Department of Health—November 9, 2021

Statewide Covid-19 Critical Care Usage

64% of critical care stays among the unvaccinated over last 7 days

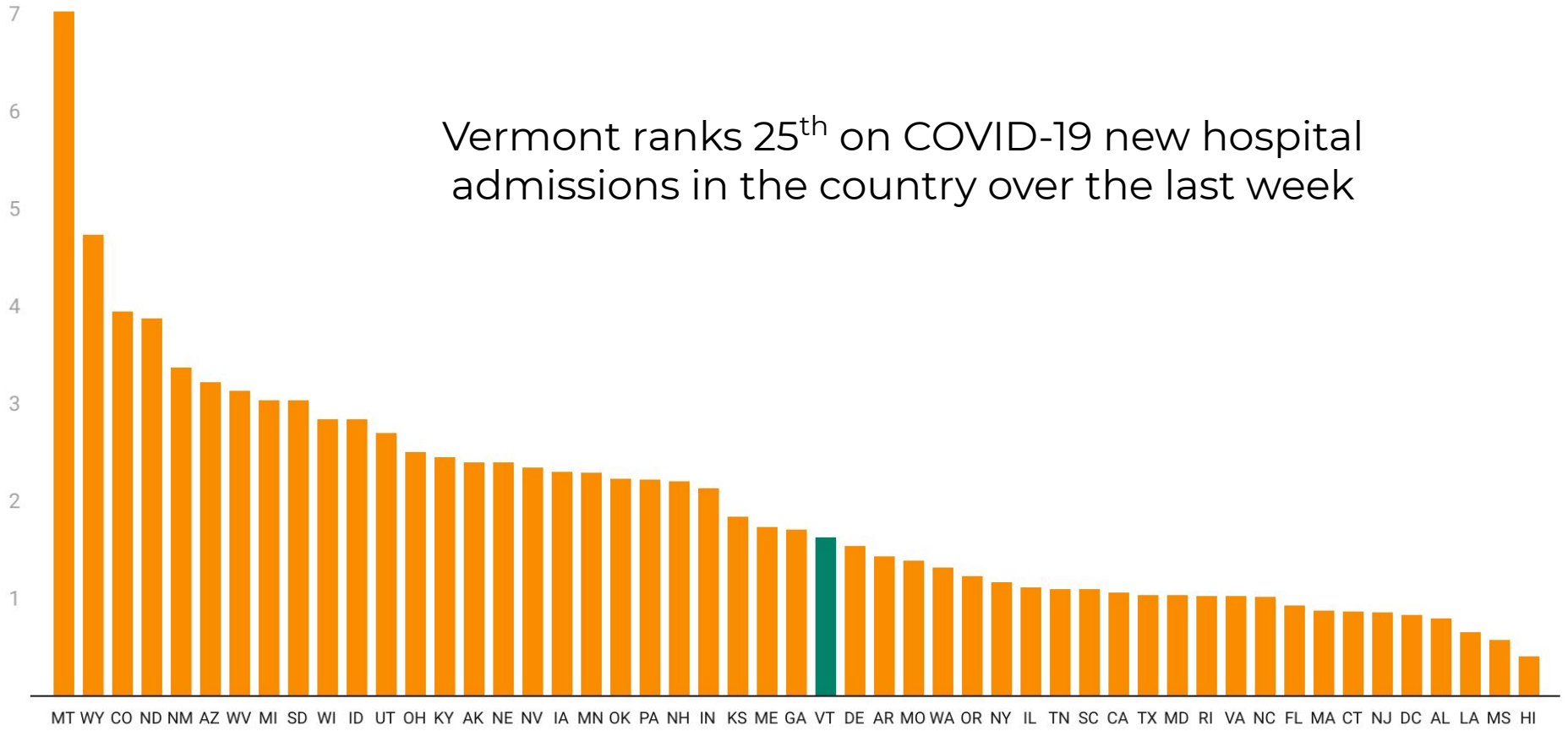


Source: Vermont Department of Health—November 9, 2021



Source: US Dept. of Health & Human Services; 7-day average—November 8, 2021

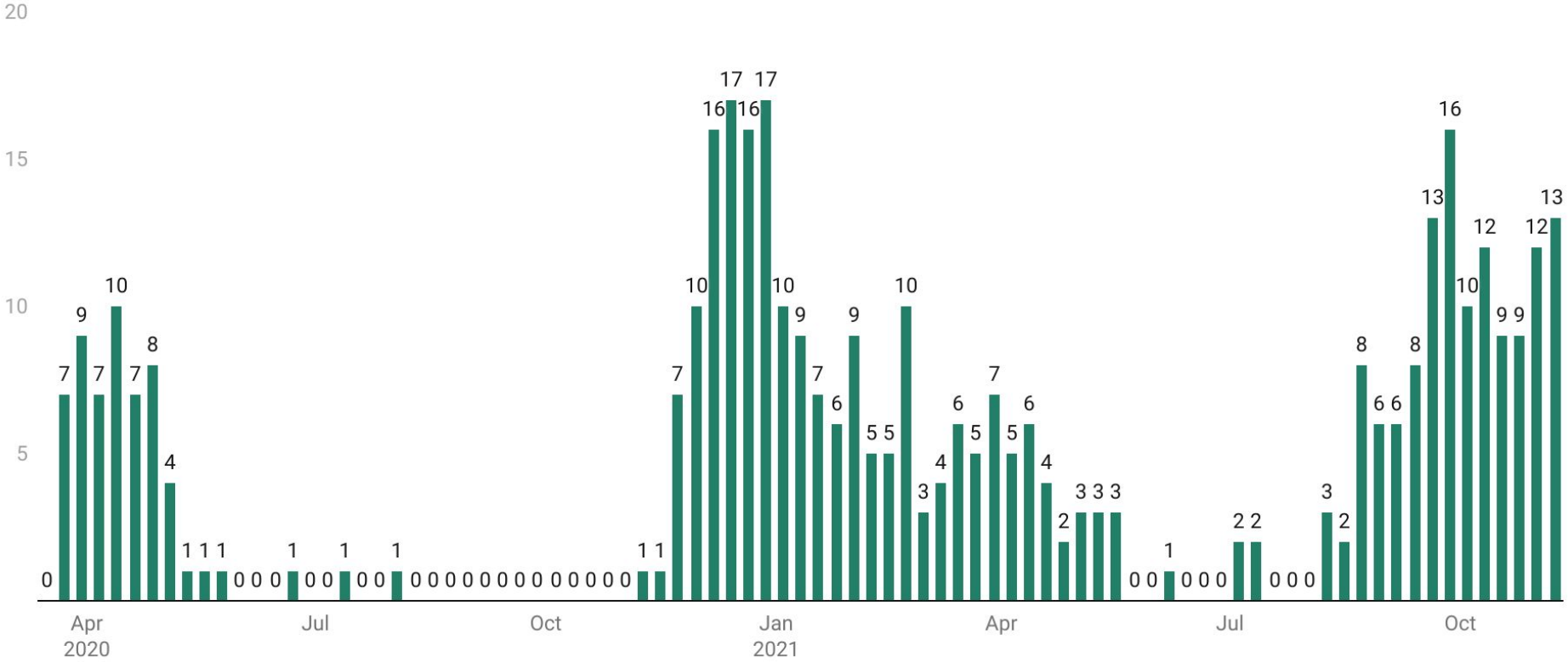
COVID-19 Hospital Admissions Last 7 Days Per 100K



Source: CDC—November 8; Created with Datawrapper

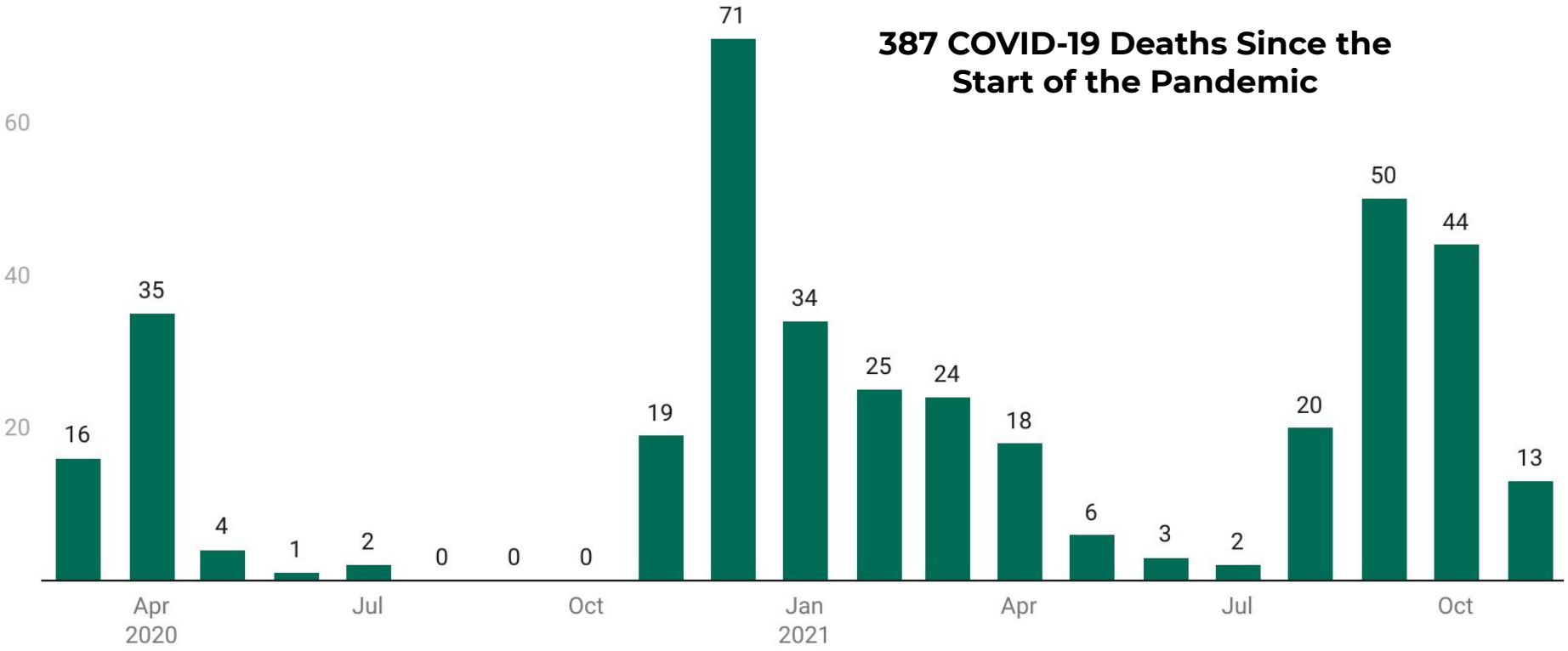
Vermont Fatality Data

Weekly Covid-19 Deaths In Vermont



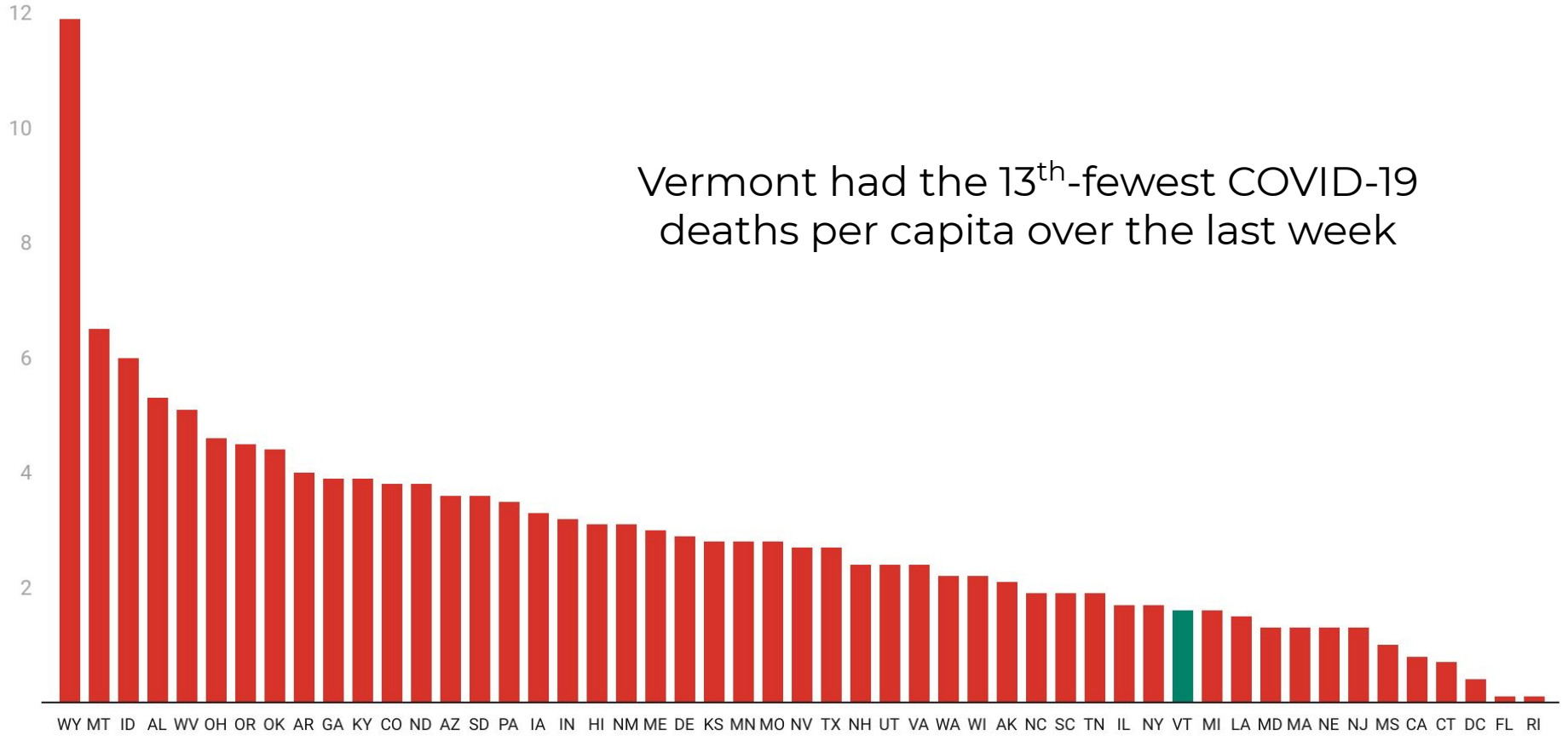
Source: Vermont Department of Health—November 9, 2021 (reporting week ending Tuesday to Monday)

Monthly Covid-19 Deaths In Vermont



Source: Vermont Department of Health—November 9, 2021; deaths attributed to month in which death occurred rather than reported

COVID-19 Deaths Per 100K Last 7 Days



Vermont had the 13th-fewest COVID-19 deaths per capita over the last week

Source: CDC—November 9, 2021; Created with Datawrapper

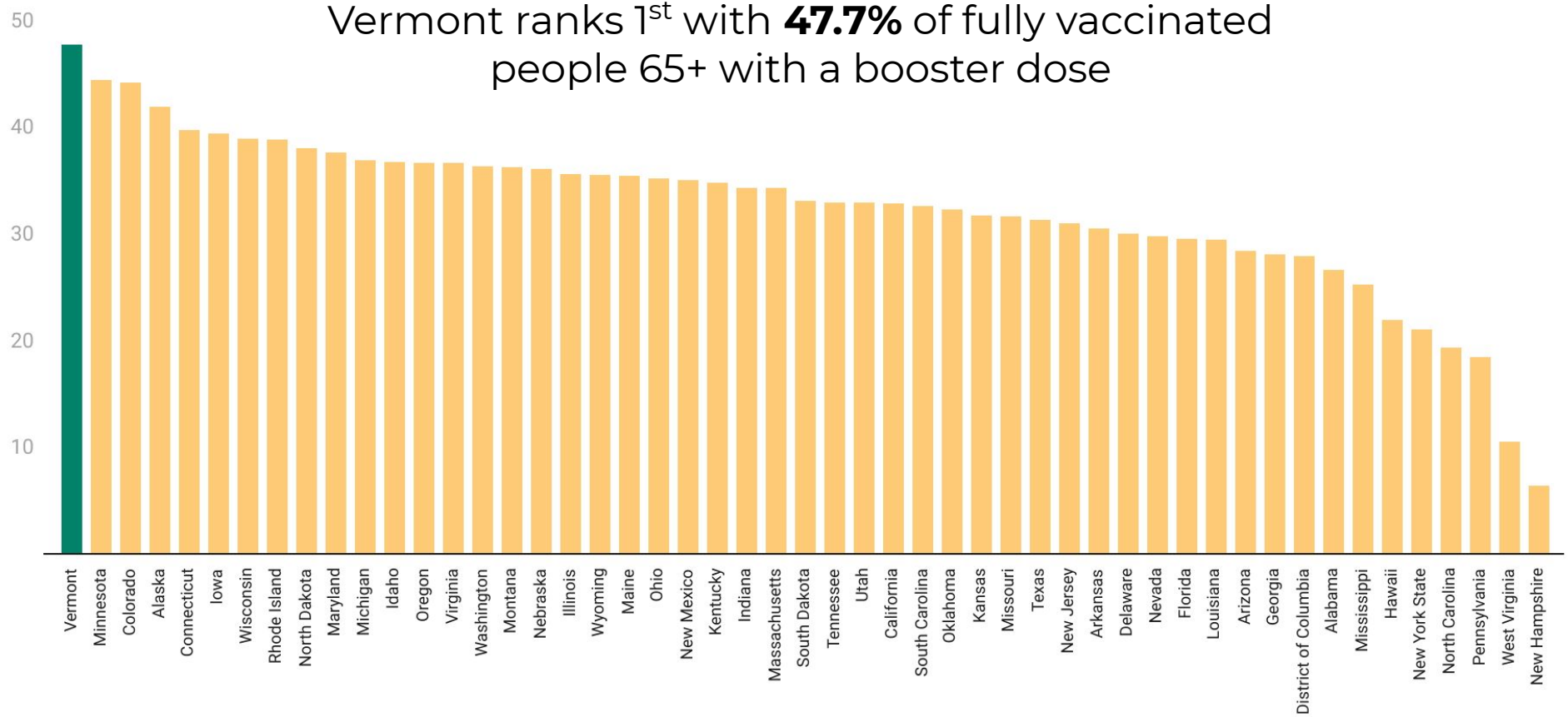
Vermont Vaccination Data

Vermont CDC Vaccine Scorecard

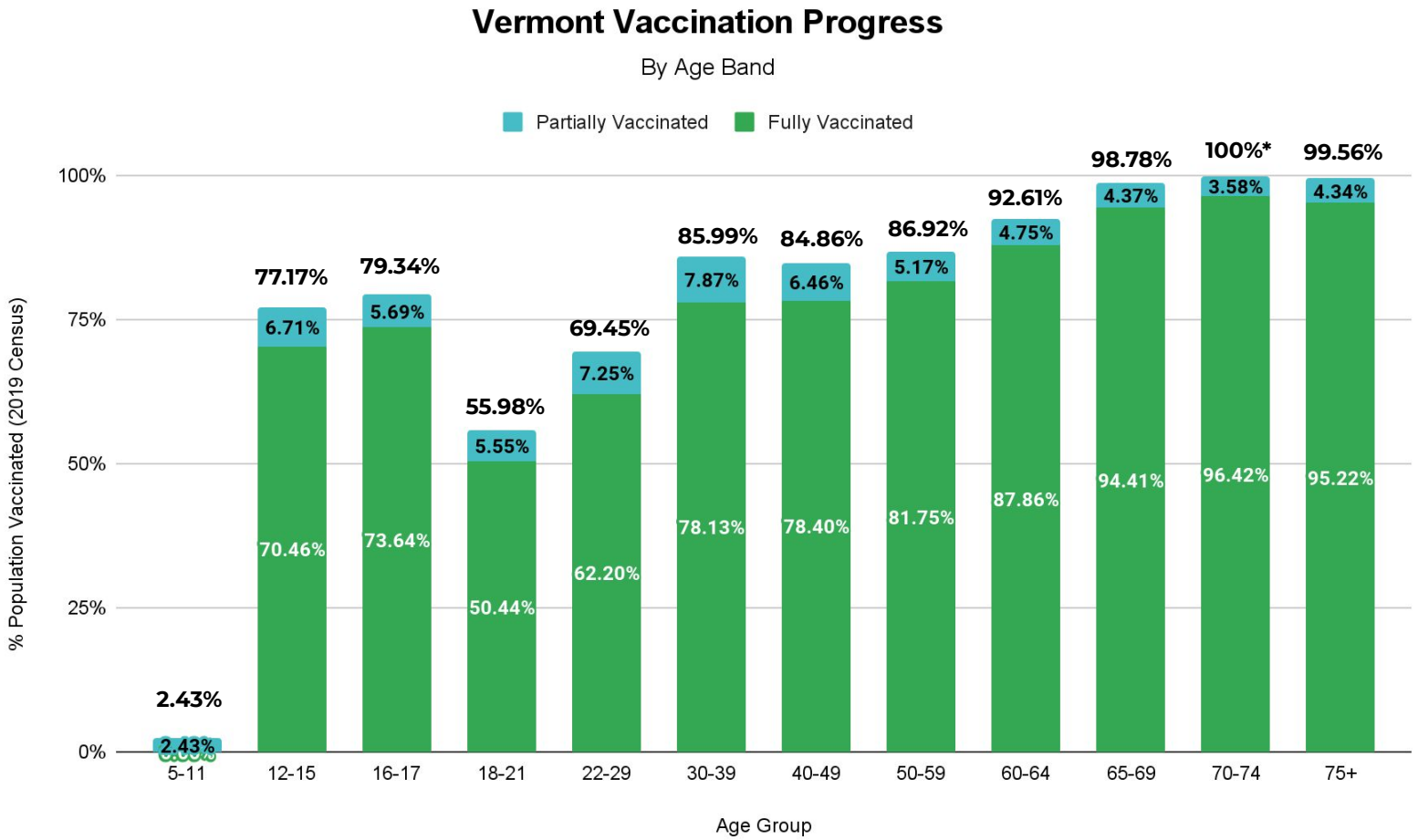
Metric	Figure	State Ranking
Doses Administered per 100K	**163,427**	**1**
% At Least 1 Dose (Eligible Population)	**91.1%**	**5**
% Fully Vaccinated (Eligible Population)	**81.2%**	**3**
% At Least 1 Dose (Full Population)	**80.6%**	**2**
% Fully Vaccinated (Full Population)	**71.7%**	**1**
% Fully Vaccinated (65 & Over)	**97.9%**	**1**

Source: CDC—November 9, 2021

Percent of Fully Vaccinated People 65+ with Booster Dose



Source: CDC—November 9, 2021



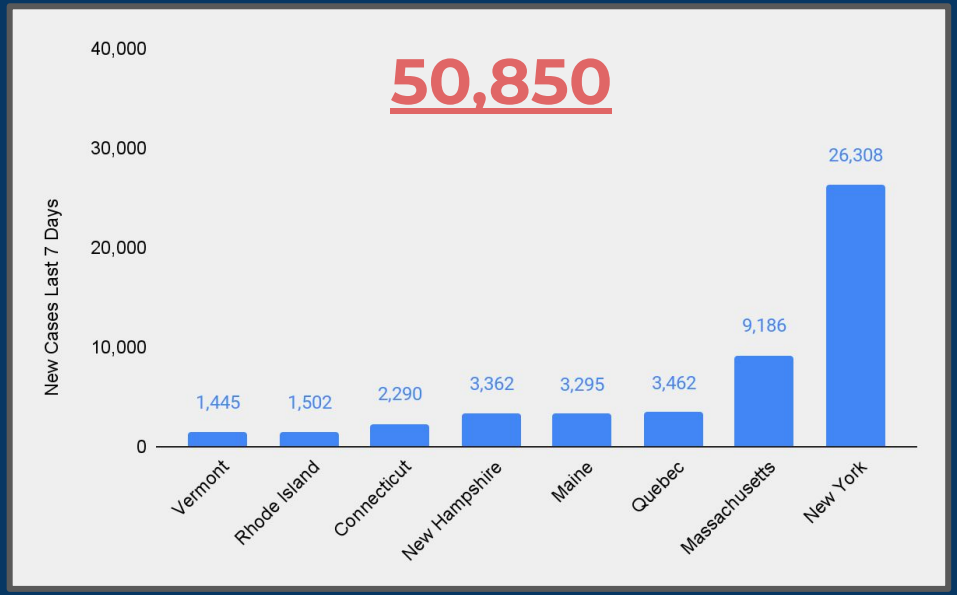
Source: Vermont Dept. of Health—November 9, 2021; *based on 2019 census estimates; state data may differ from CDC reporting

Regional Data

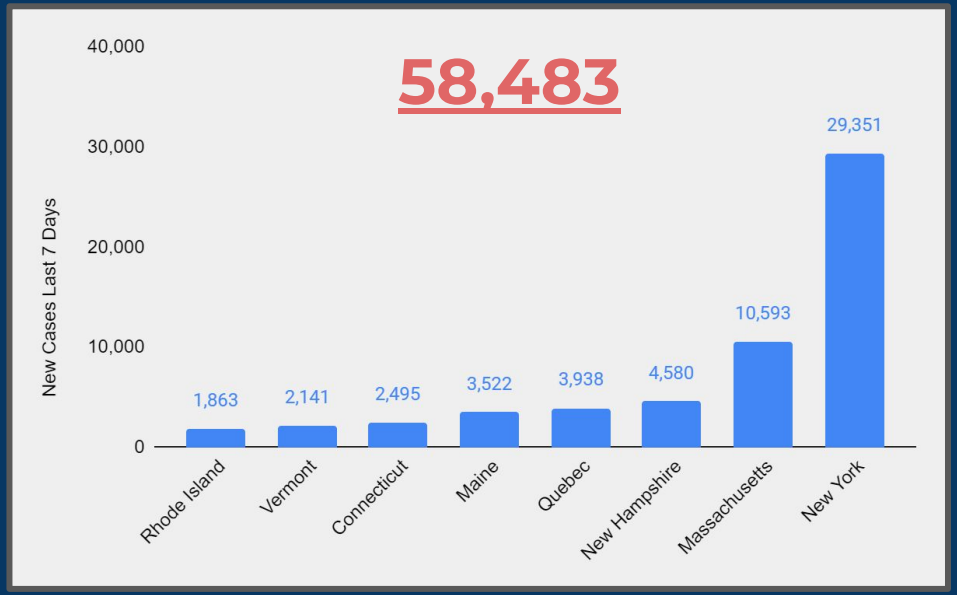
Regional Cases

15% Increase in New Cases

New Cases October 26th to November 1st



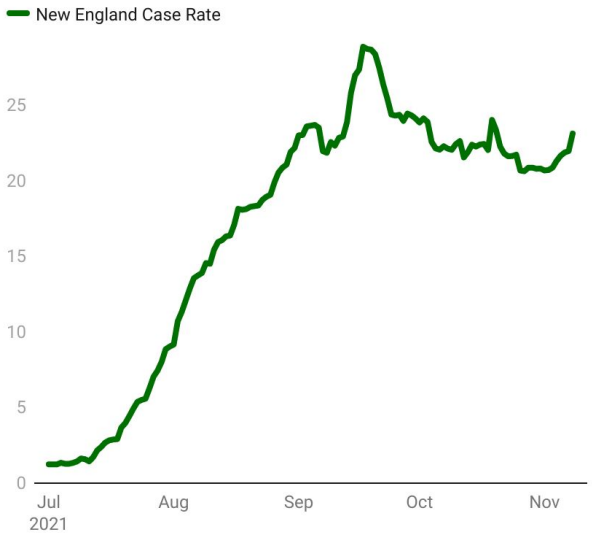
New Cases November 2nd to November 8th



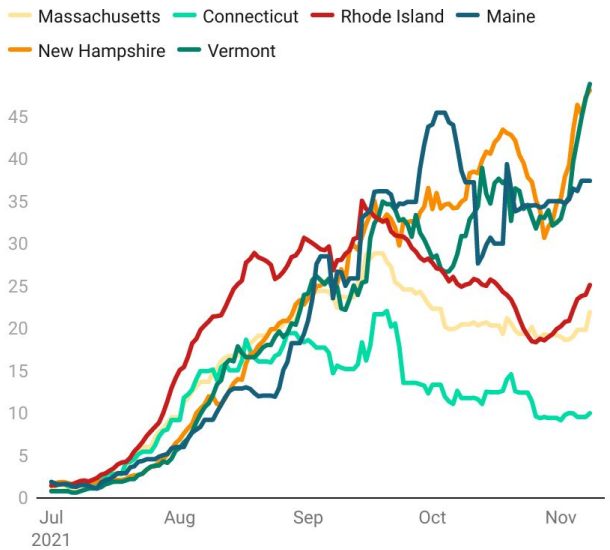
Sources: State Health Dept. & CTV National News (Quebec)

New England COVID-19 New Case Metrics
(All Calculated on 7-Day Averages)

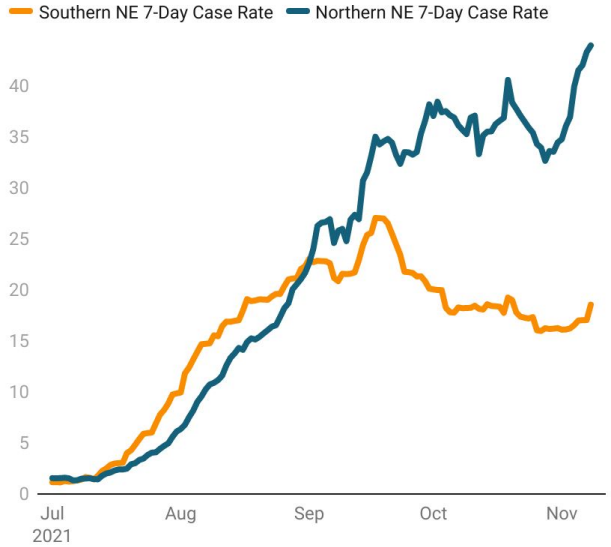
All New England States



Individual New England States

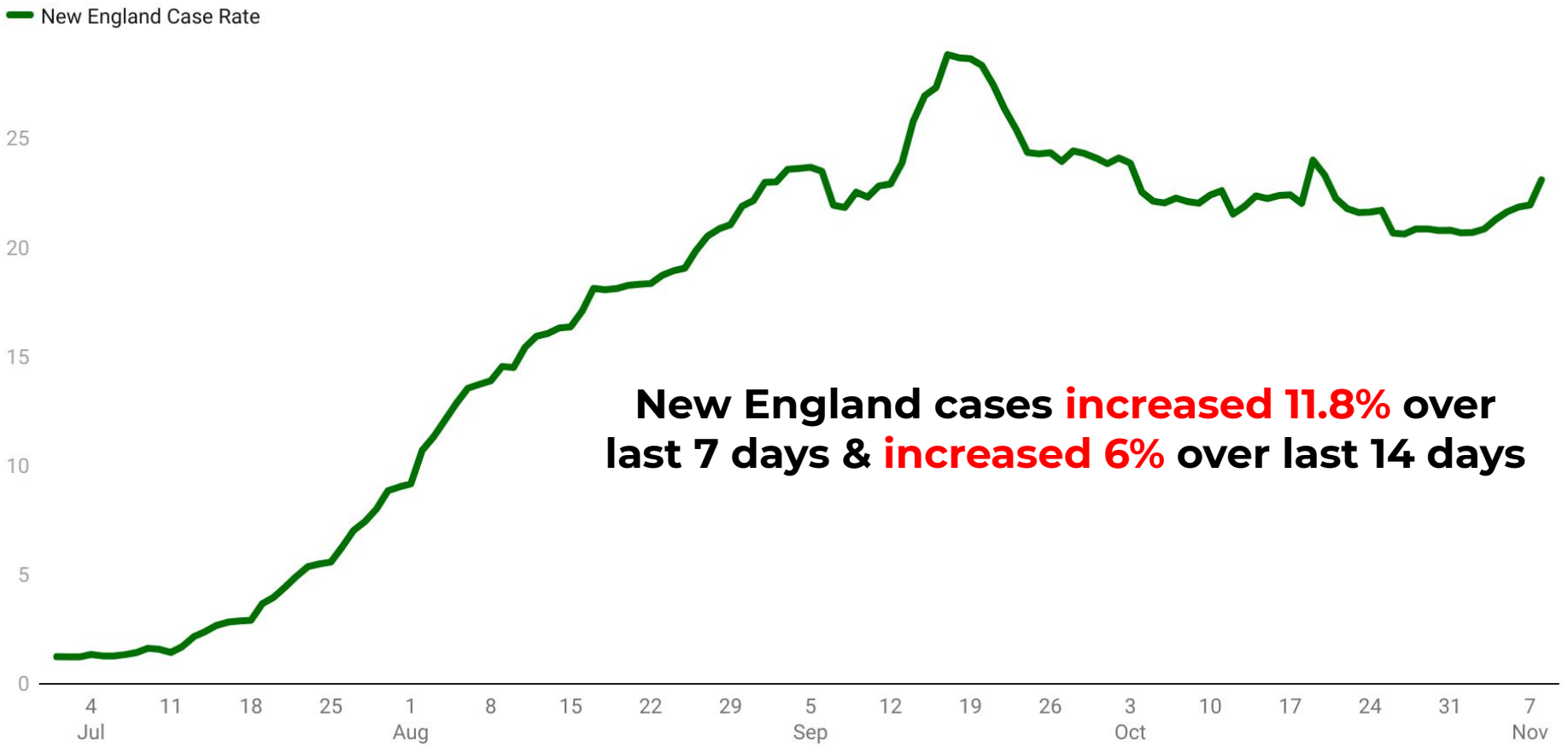


Northern vs. Southern New England States



Sources: State Health Depts.—November 8, 2021 (includes: CT, ME, MA, NH, RI & VT)

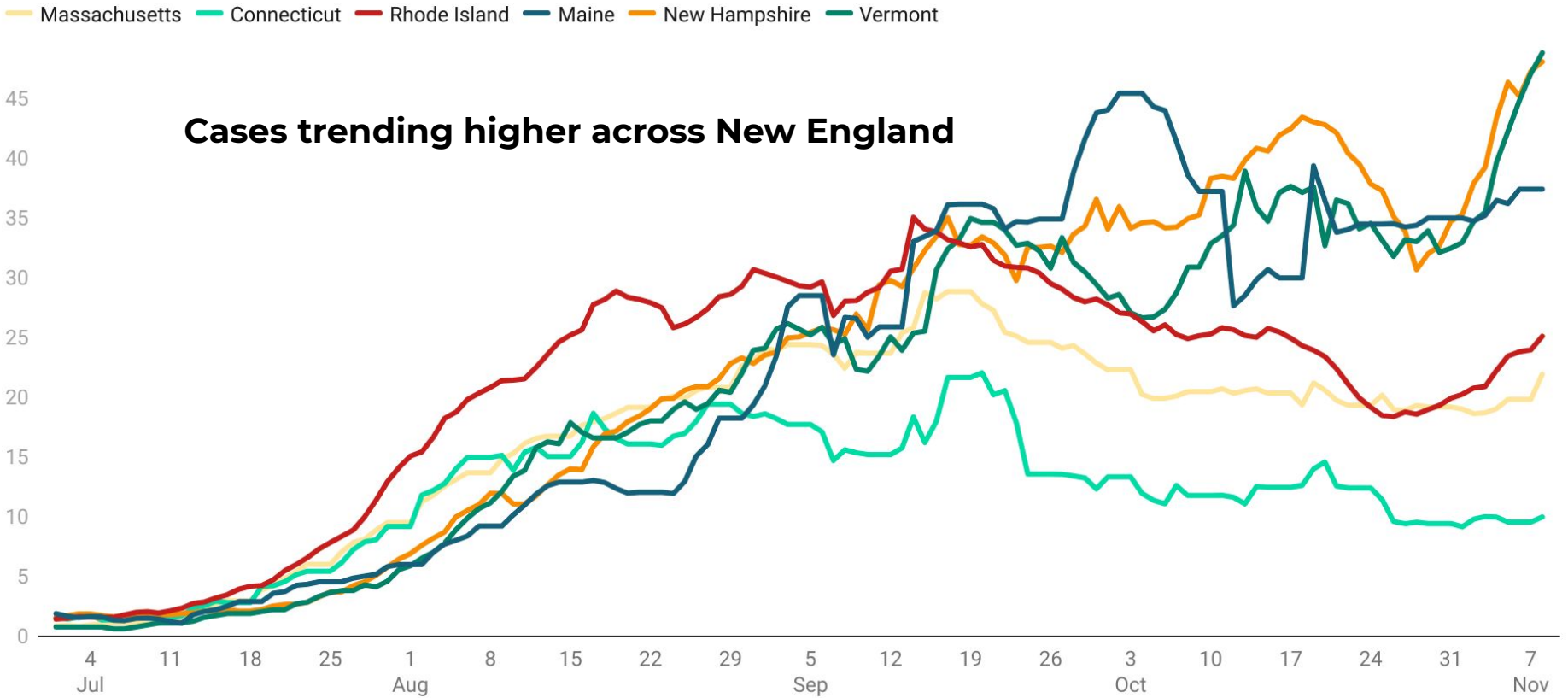
New England COVID-19 Cases Per 100K (7-Day Average)



Sources: State Health Depts.—November 8, 2021 (includes: CT, ME, MA, NH, RI & VT)

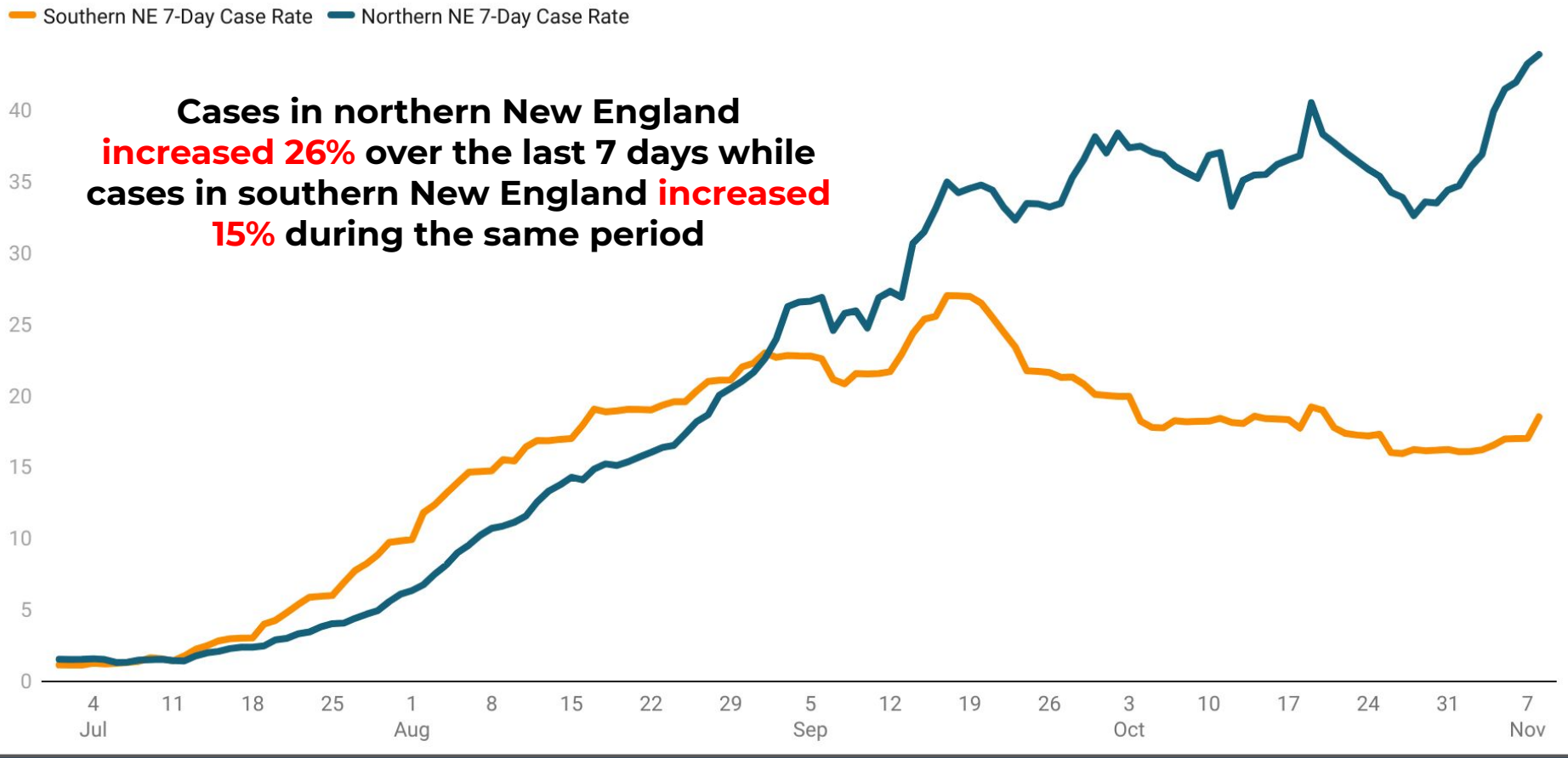
New England COVID-19 Case Trends

7-Day Average Cases Per 100K



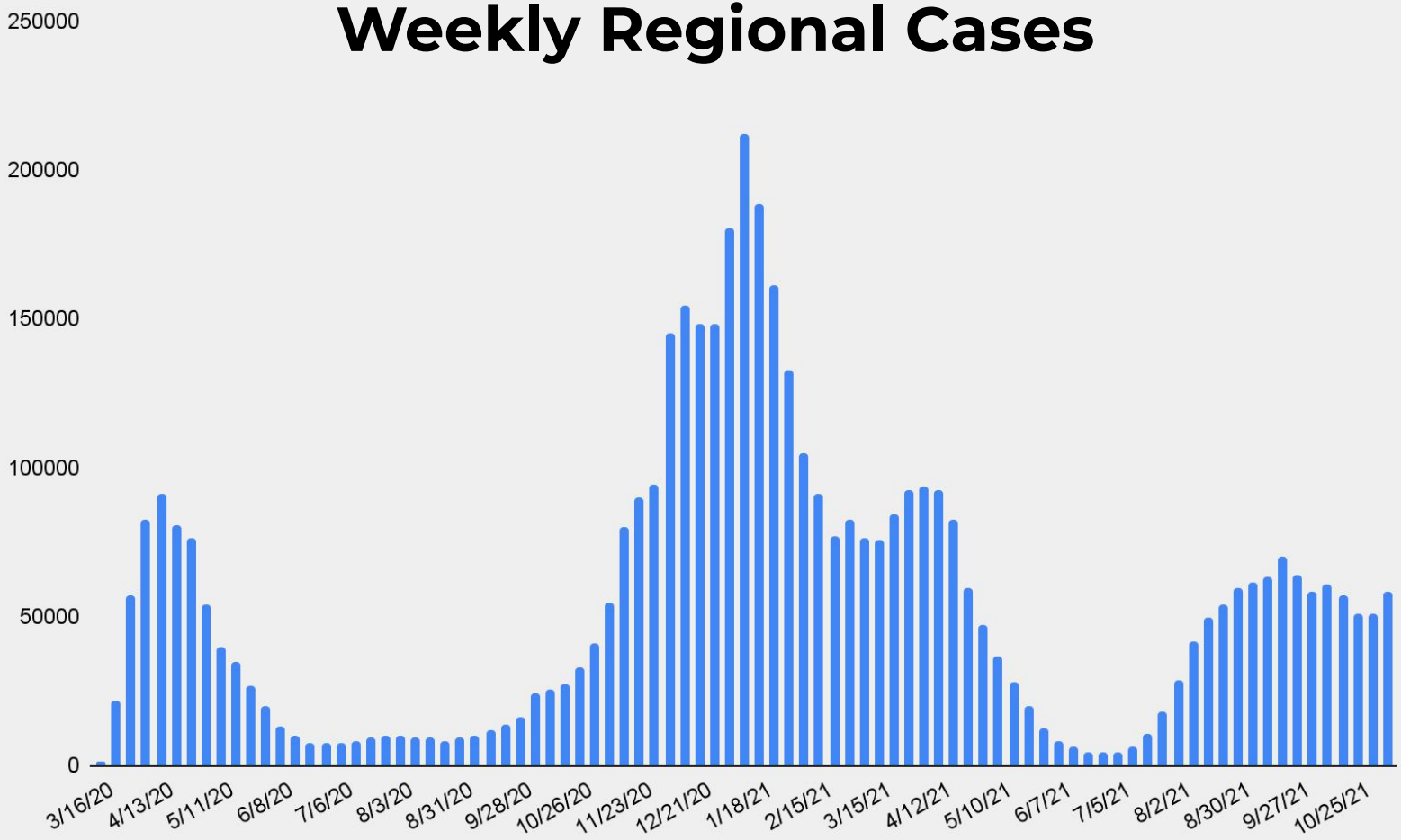
Sources: State Health Depts.—November 8, 2021 (includes: CT, ME, MA, NH, RI & VT)

Northern vs. Southern New England Case Rate Per 100K



Sources: State Health Depts.—November 8, 2021 (Northern NE includes: ME, NH & VT & Southern NE includes: CT, MA & RI)

Weekly Regional Cases

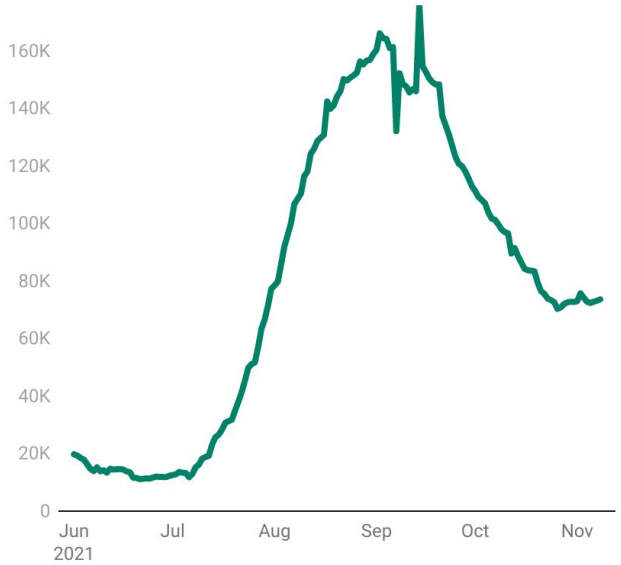


Sources: State Health Depts.—November 8, 2021 (includes: CT, ME, MA, NH, RI & VT)

National Data

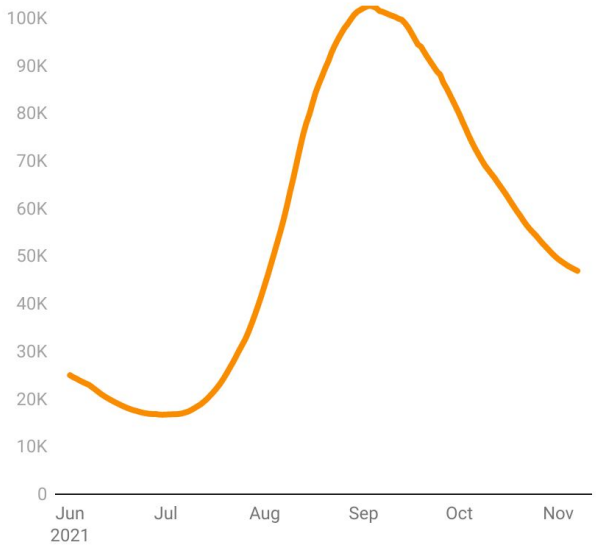
U.S. Infections, Hospitalizations, & Deaths
(7-Day Average)

0.8 Increase
Over last 7 days



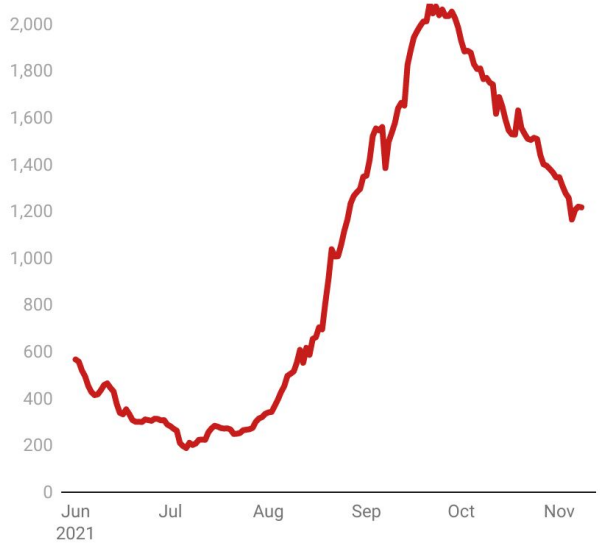
Infections

6.1% Decrease
Over last 7 days



Hospitalizations
(Current)

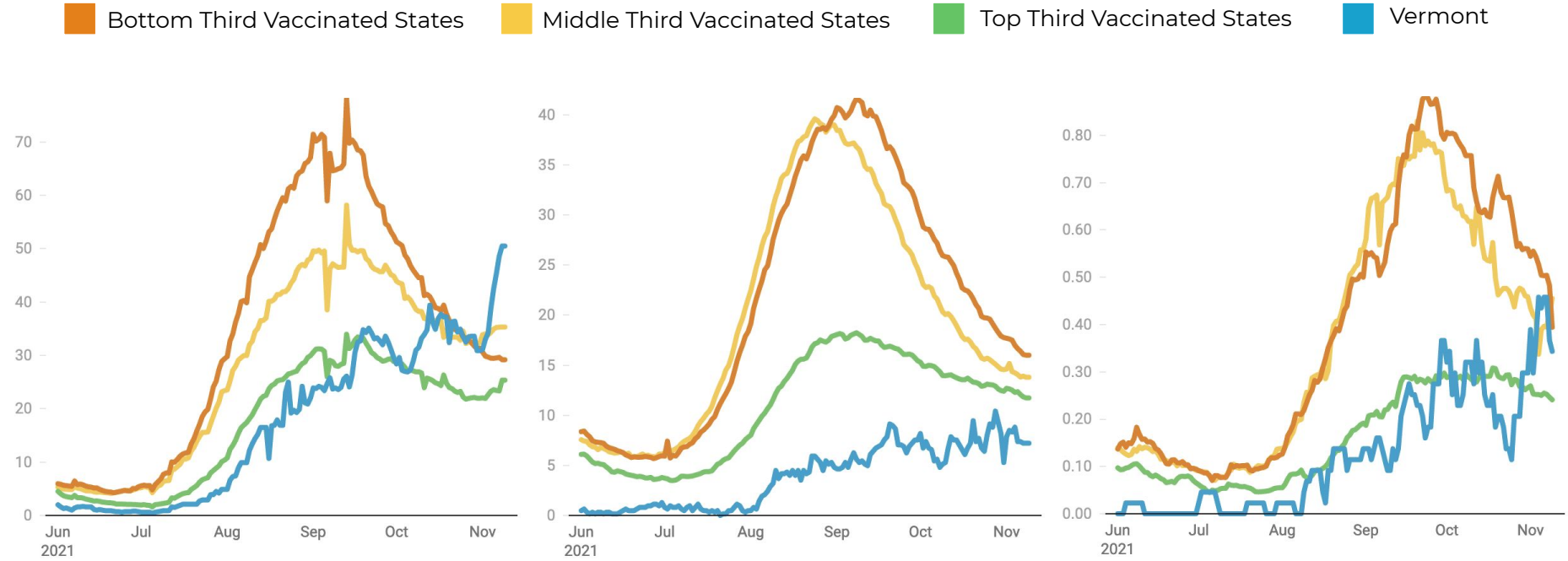
9.6% Decrease
Over last 7 days



Deaths

Source: New York Times—November 8, 2021; created with Datawrapper

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



Infections per 100K

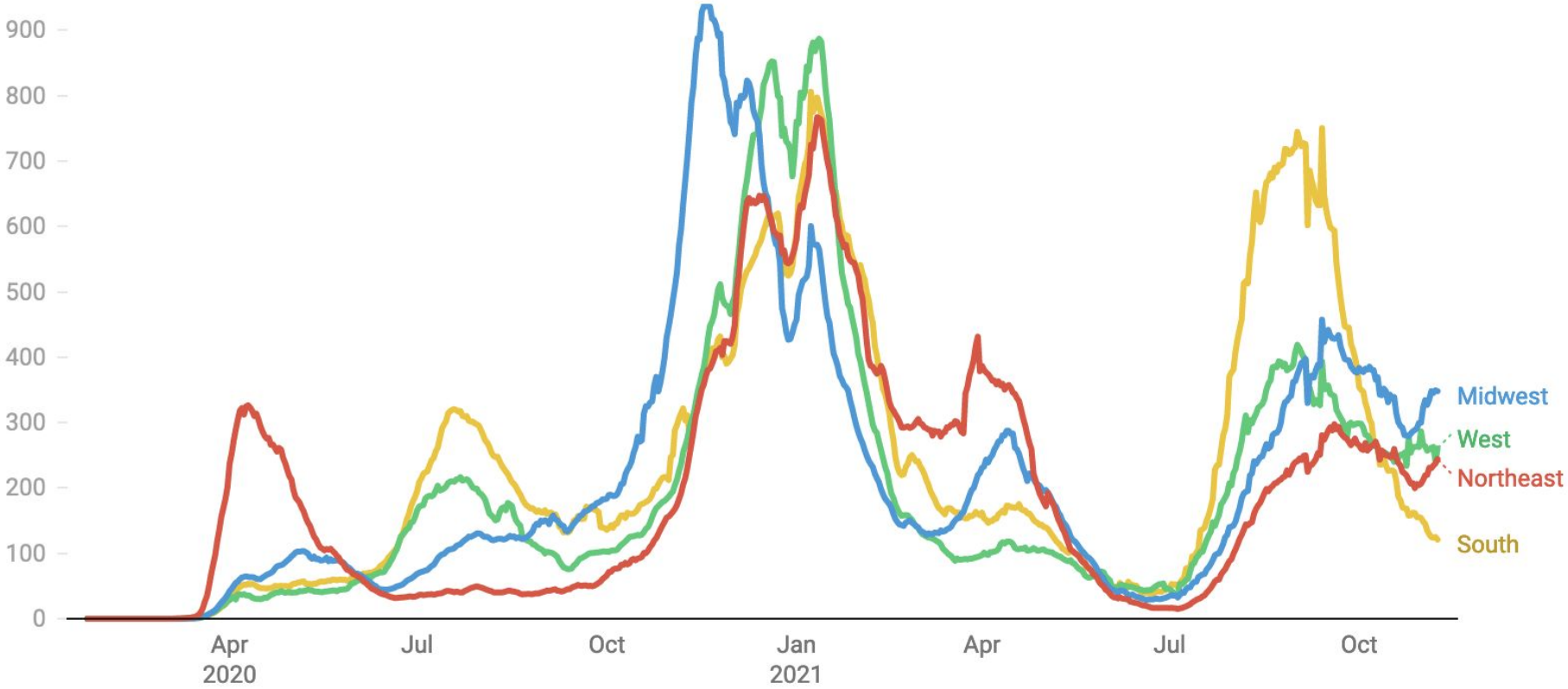
Hospitalizations per 100K
(Current)

Deaths per 100K

Source: Covid Act Now—November 9, 2021; 7-day averages; created with Datawrapper

Daily COVID-19 Infections per Million in US Regions

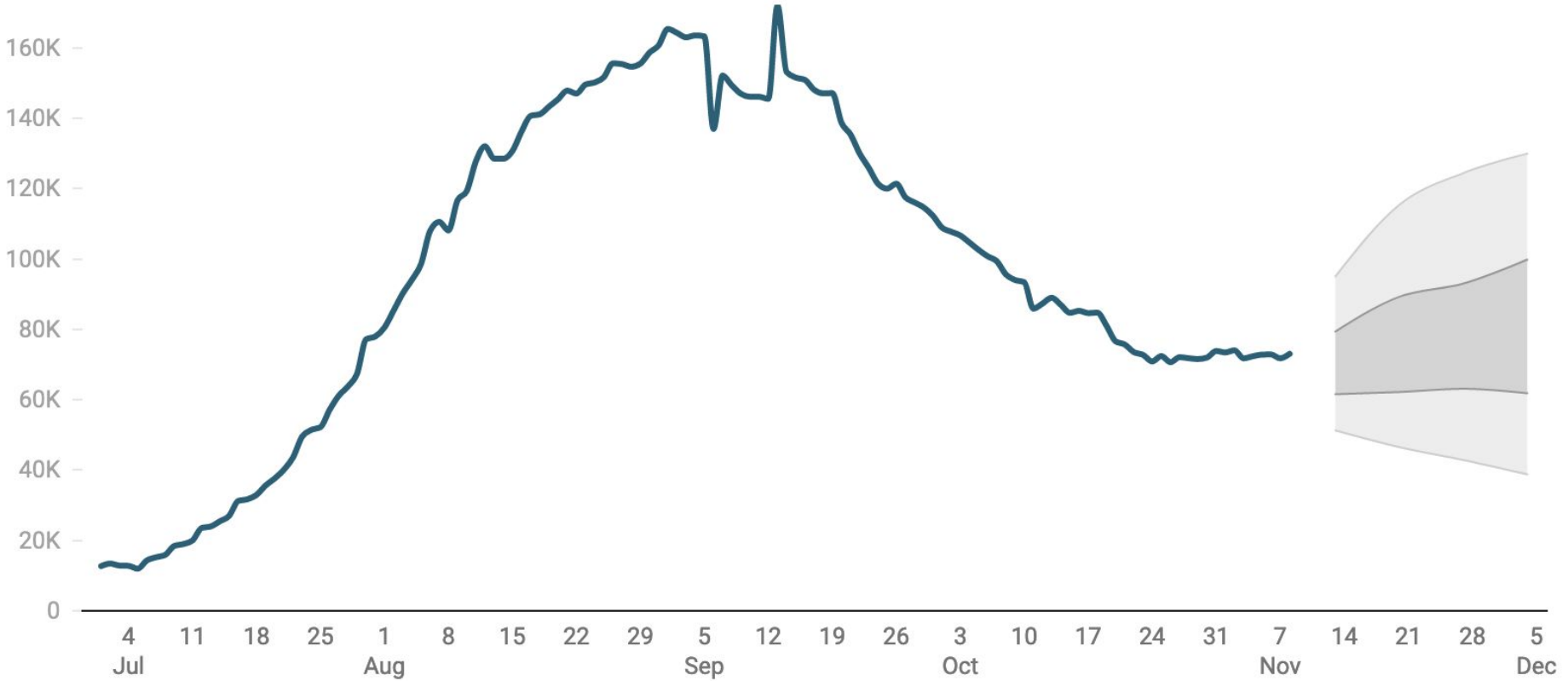
Calculated as a 7-day moving average. Definitions of North, Midwest, South, and West taken from the U.S. Census bureau.



Source: JHU—November 9, 2021; 7-day averages; created with Datawrapper

US COVID-19 Infection Confidence Intervals

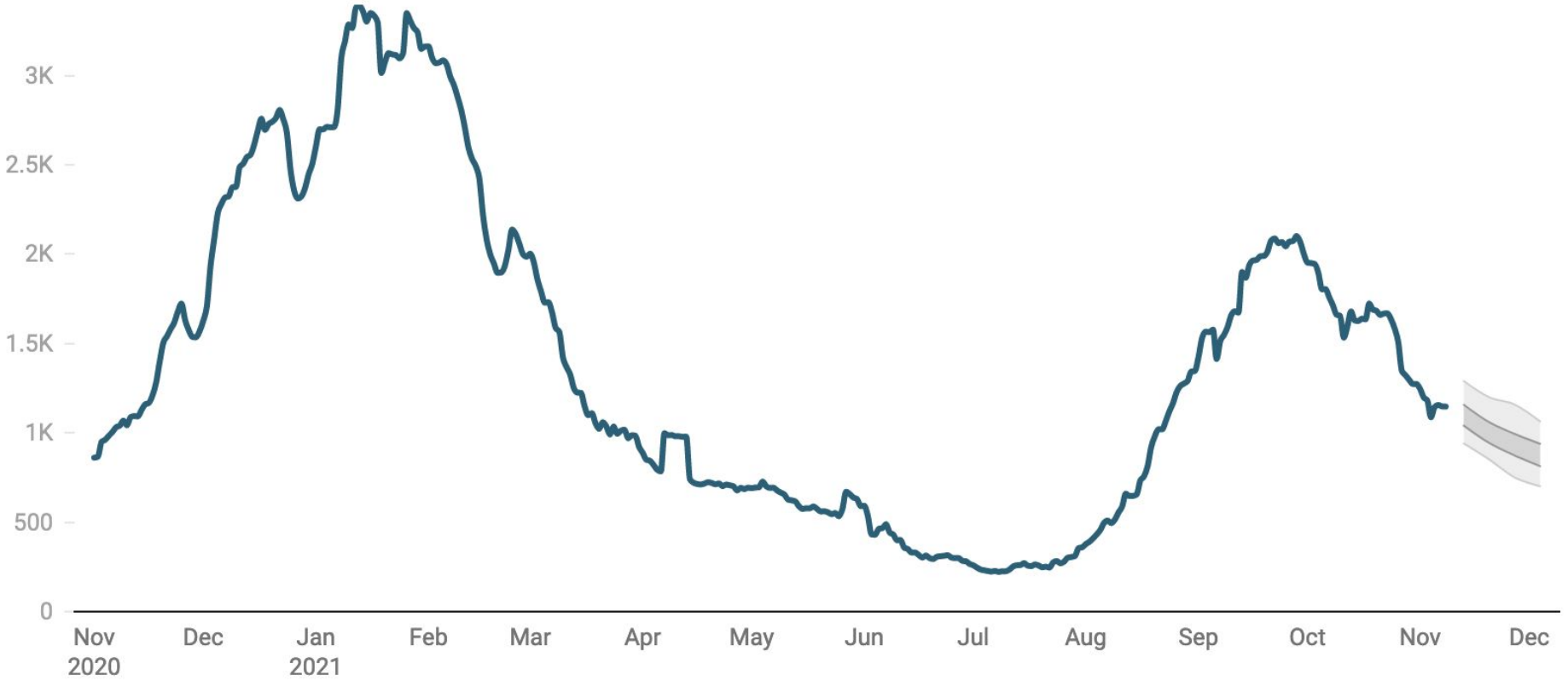
Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.



Source: CDC—November 9, 2021

US COVID-19 Death Confidence Intervals

Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.



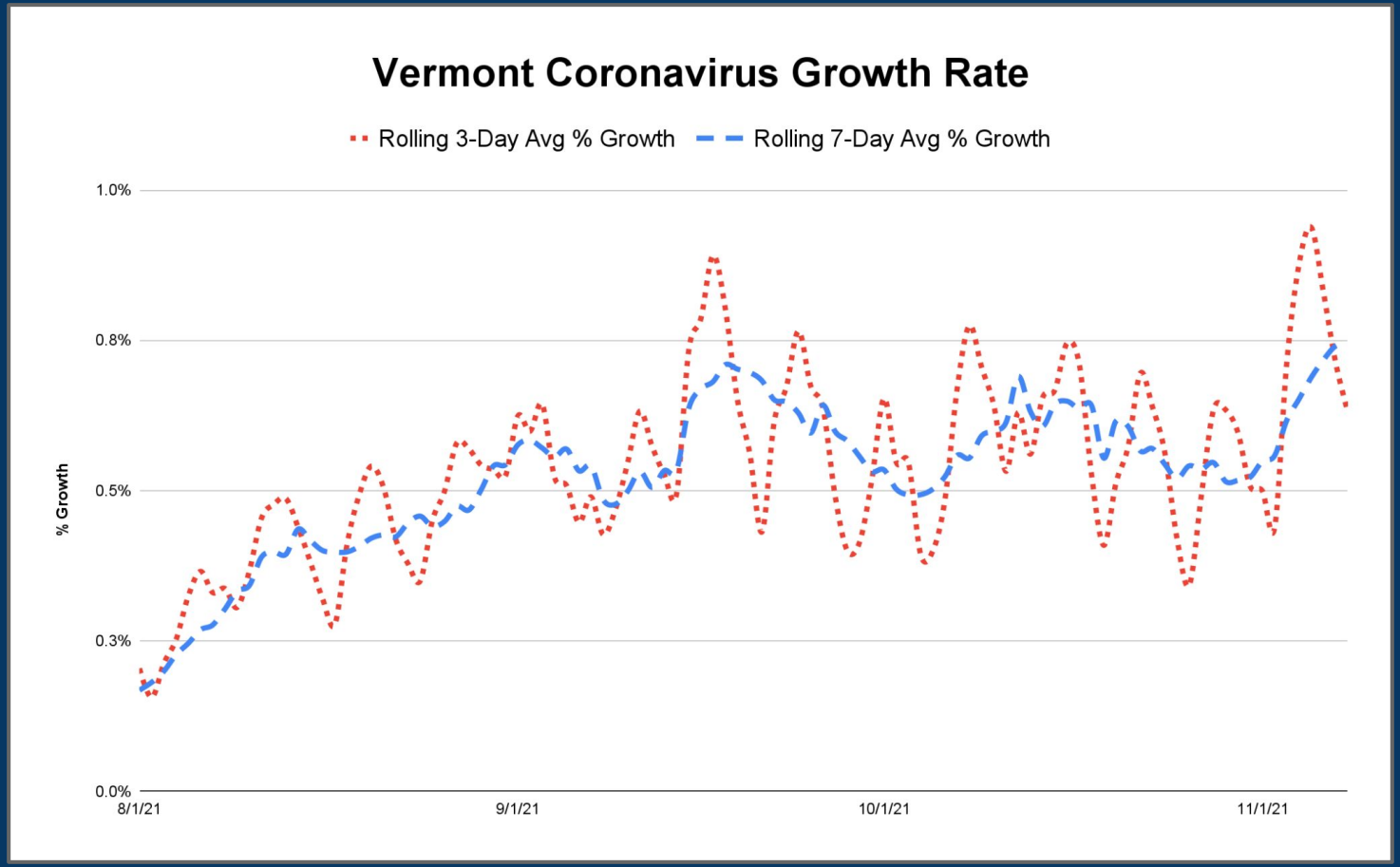
Source: CDC—November 9, 2021

RESTART VERMONT

Reopening Metrics

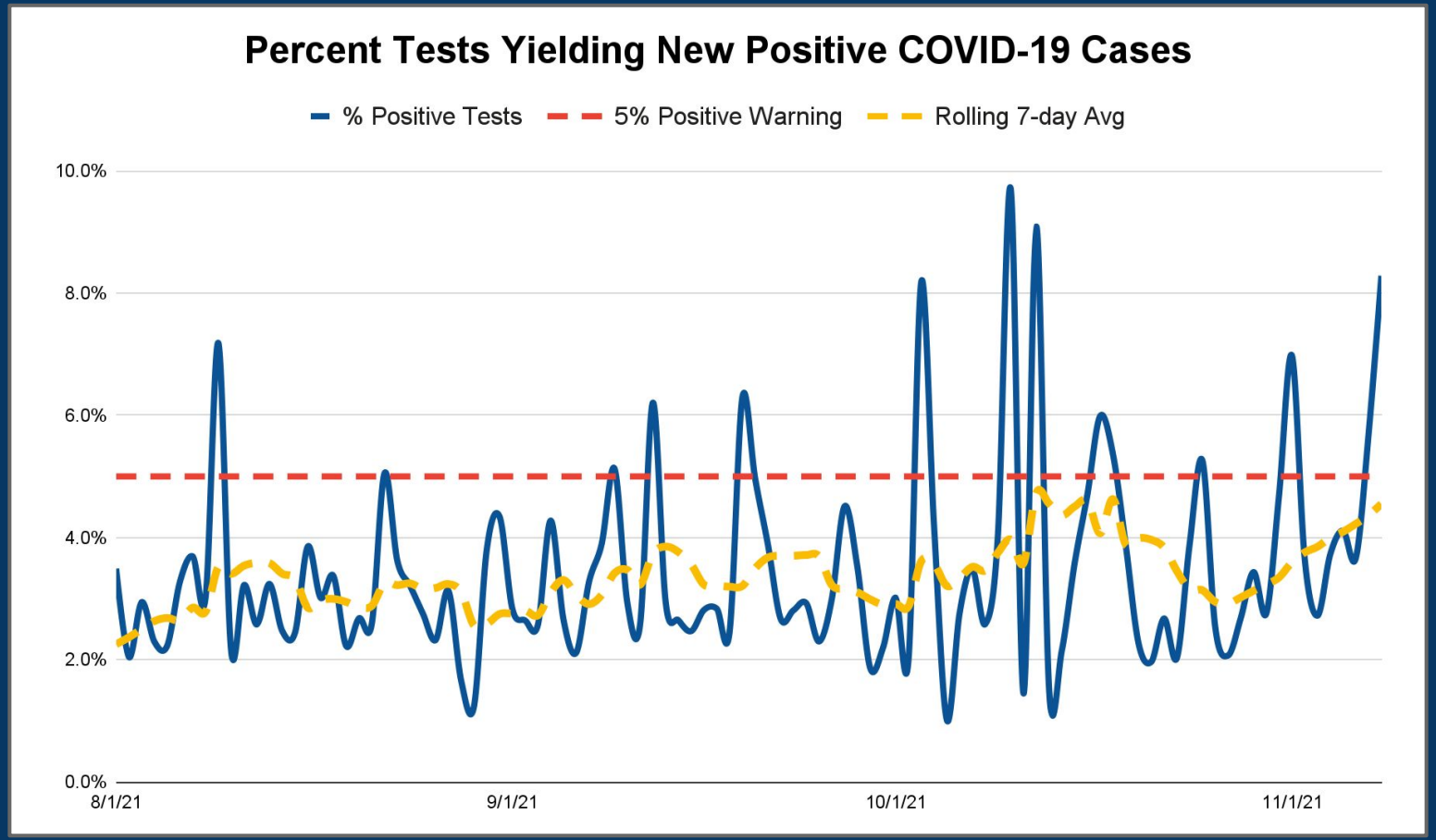
1. Syndromic Surveillance *(retired)*
2. Viral Growth & Reproductive Rates
3. Percentage of New Positive Tests
4. Hospital & Critical Care Bed Capacity

Viral Growth & Reproductive Rates



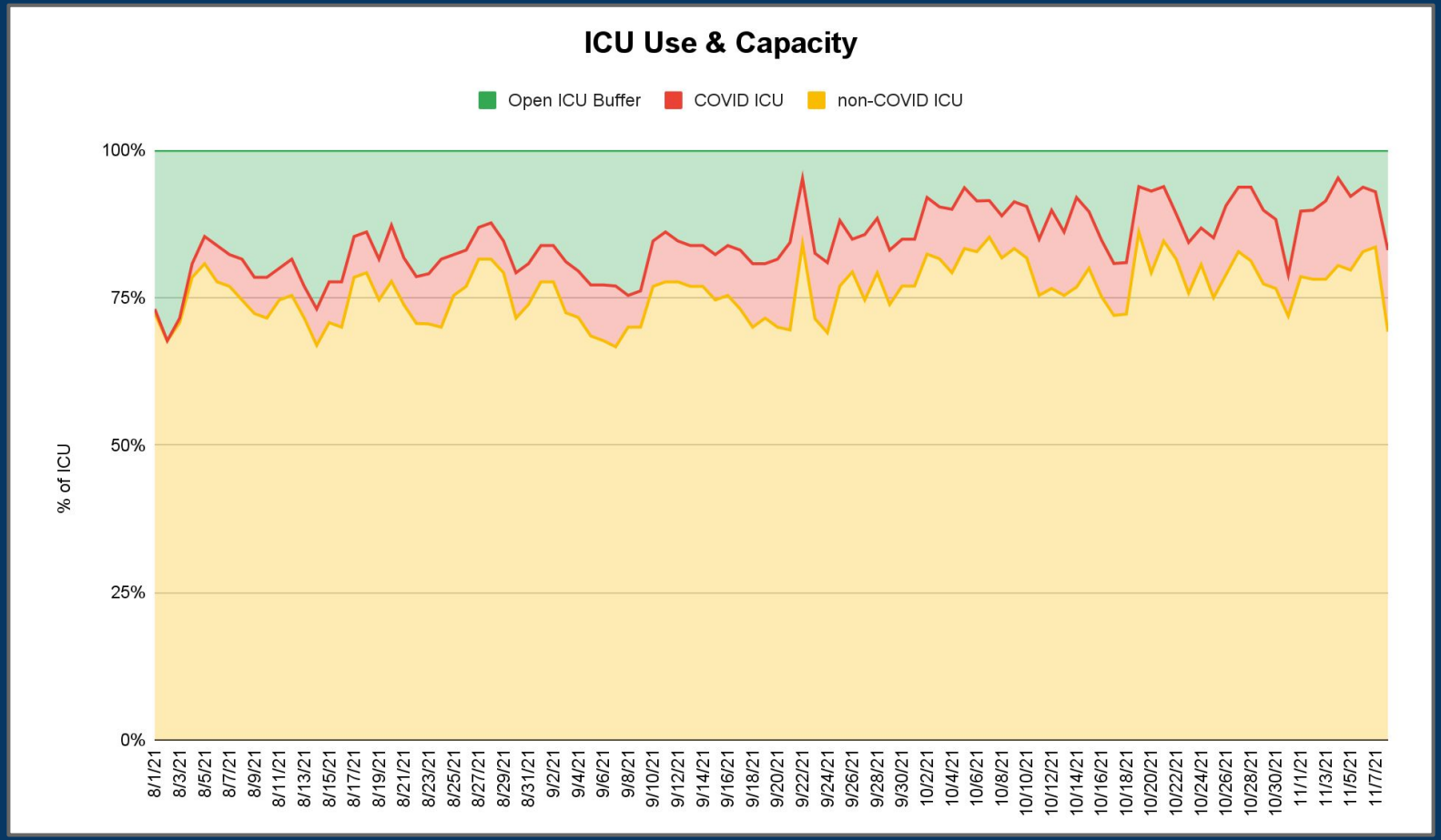
Source: Vermont Department of Health

Percentage of New Positive Tests



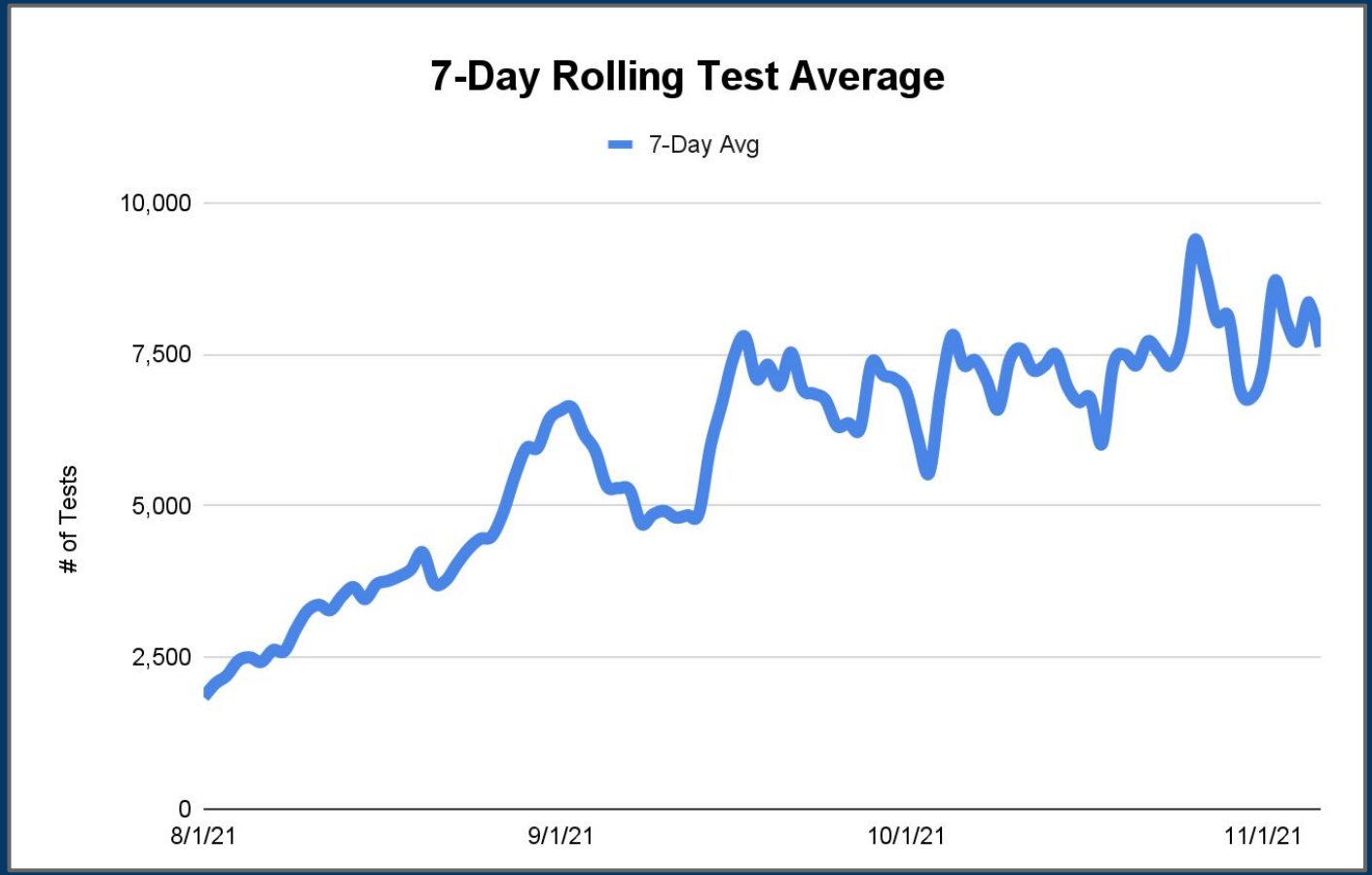
Source: Vermont Department of Health

Hospital & Critical Care Beds



Source: Vermont Department of Health

Vermont Testing



Source: Vermont Department of Health; results reported to VDH daily