

COVID-19 Modeling

November 30, 2021

Presentation available at:
dfr.vermont.gov

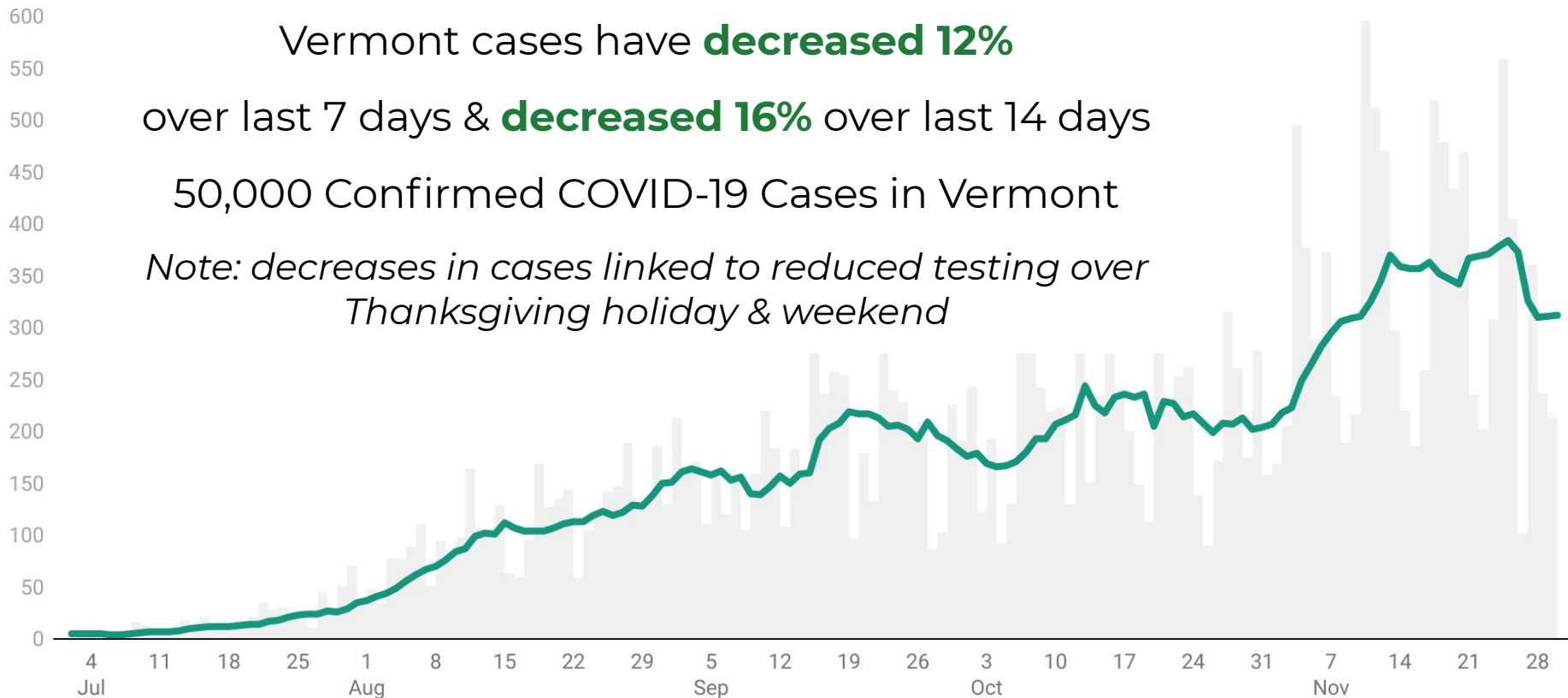
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Vermont Case Data

Vermont New COVID-19 Cases

7-Day Average

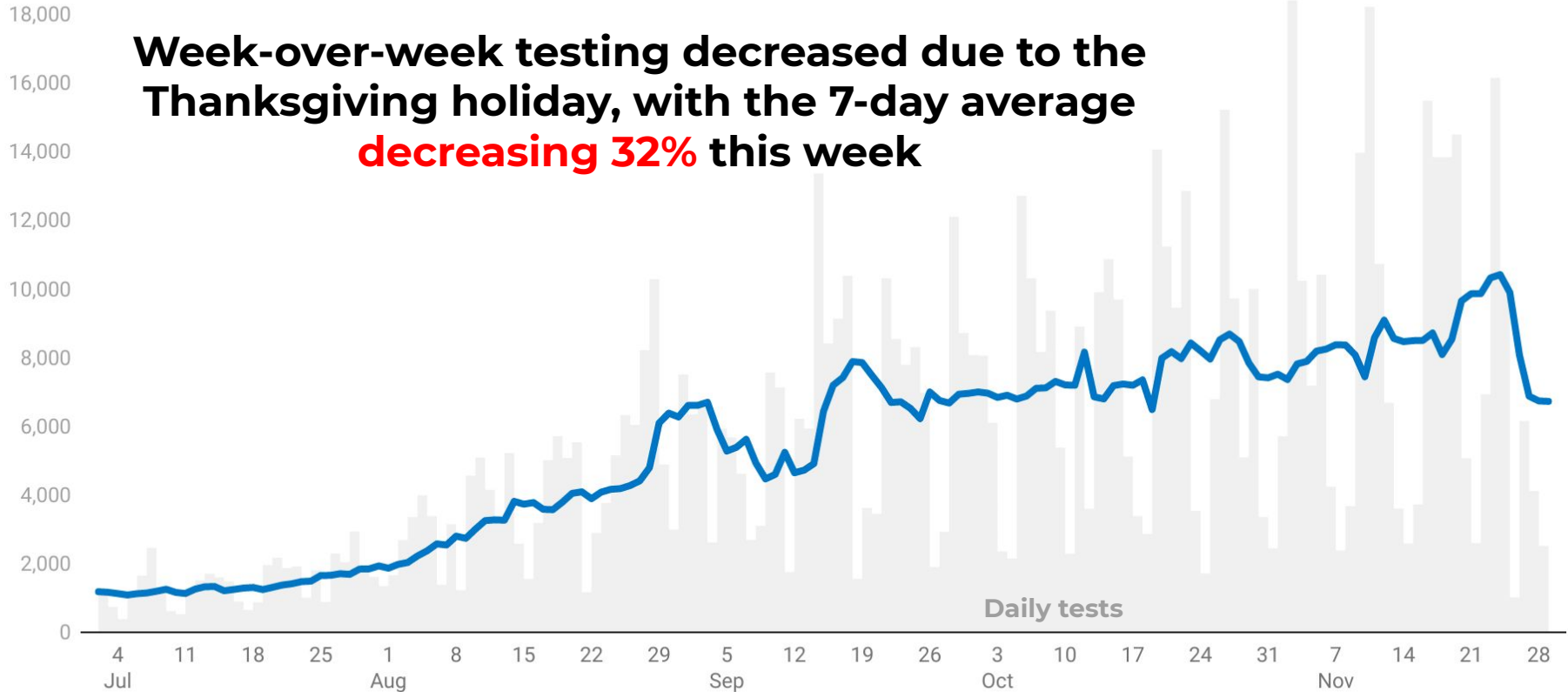


Vermont COVID-19 Testing

7-Day Average

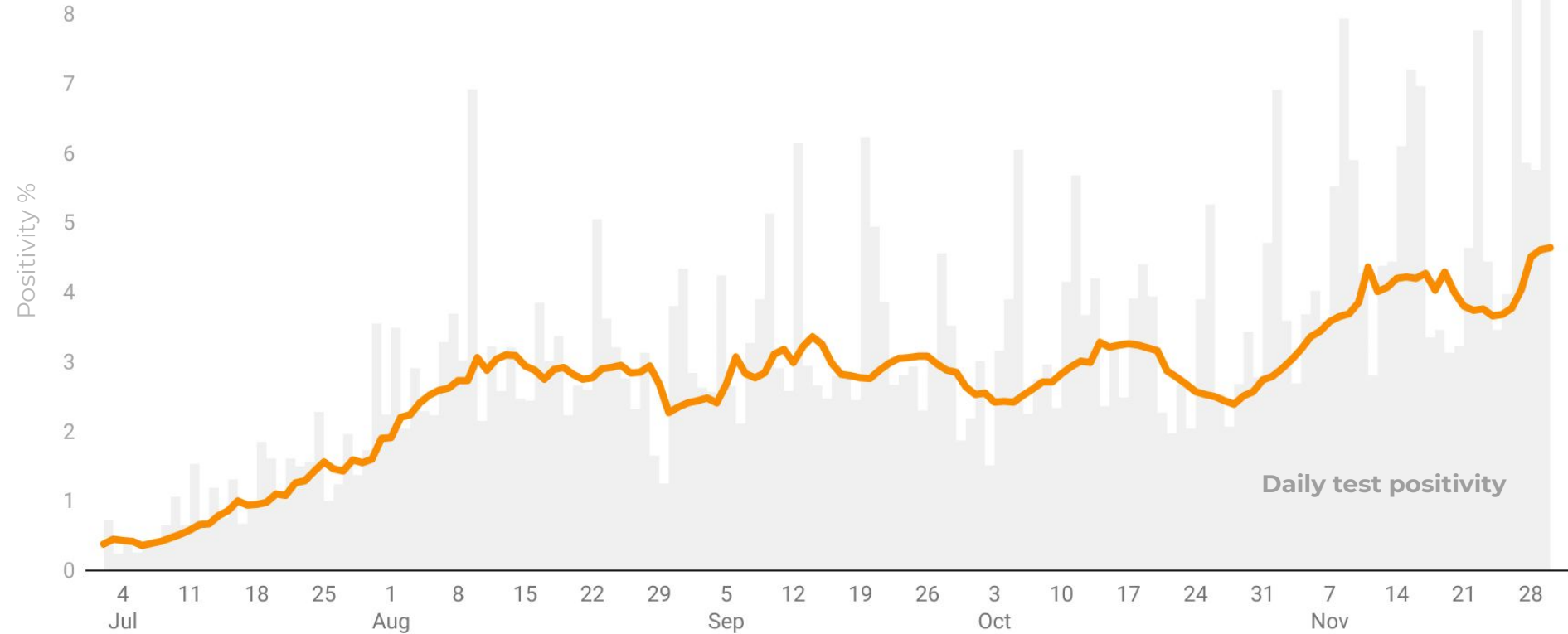
Week-over-week testing decreased due to the Thanksgiving holiday, with the 7-day average decreasing 32% this week

Number of Tests



Vermont Test Positivity: Delta Wave

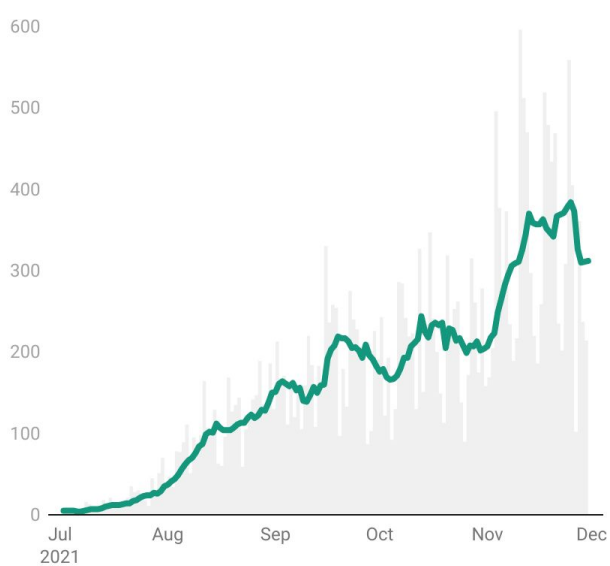
7-Day Positivity Rate



Daily test positivity

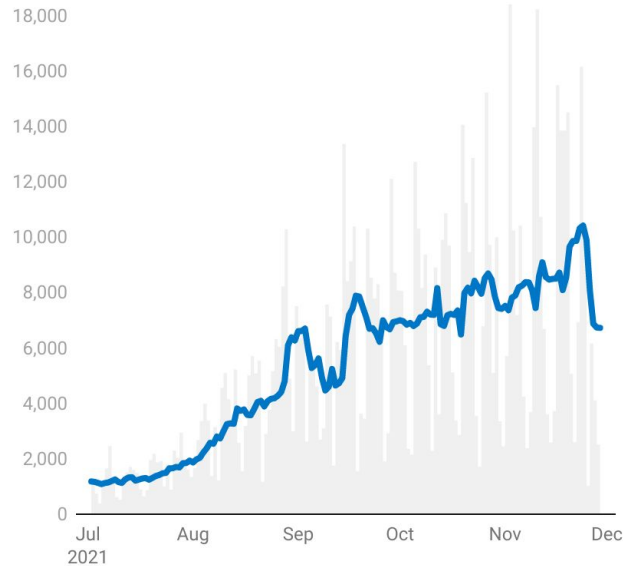
Vermont Case Growth Metrics

12% Decrease
Over last 7 days



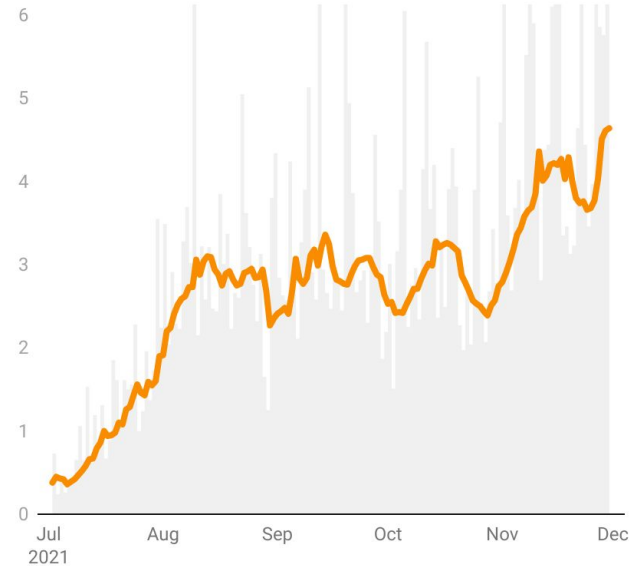
Infections

32% Decrease
Over last 7 days



Testing

23% Increase
Over last 7 days



Positivity Rate

Vermont COVID-19 New Case Rates Per 100K (7-Day Average)

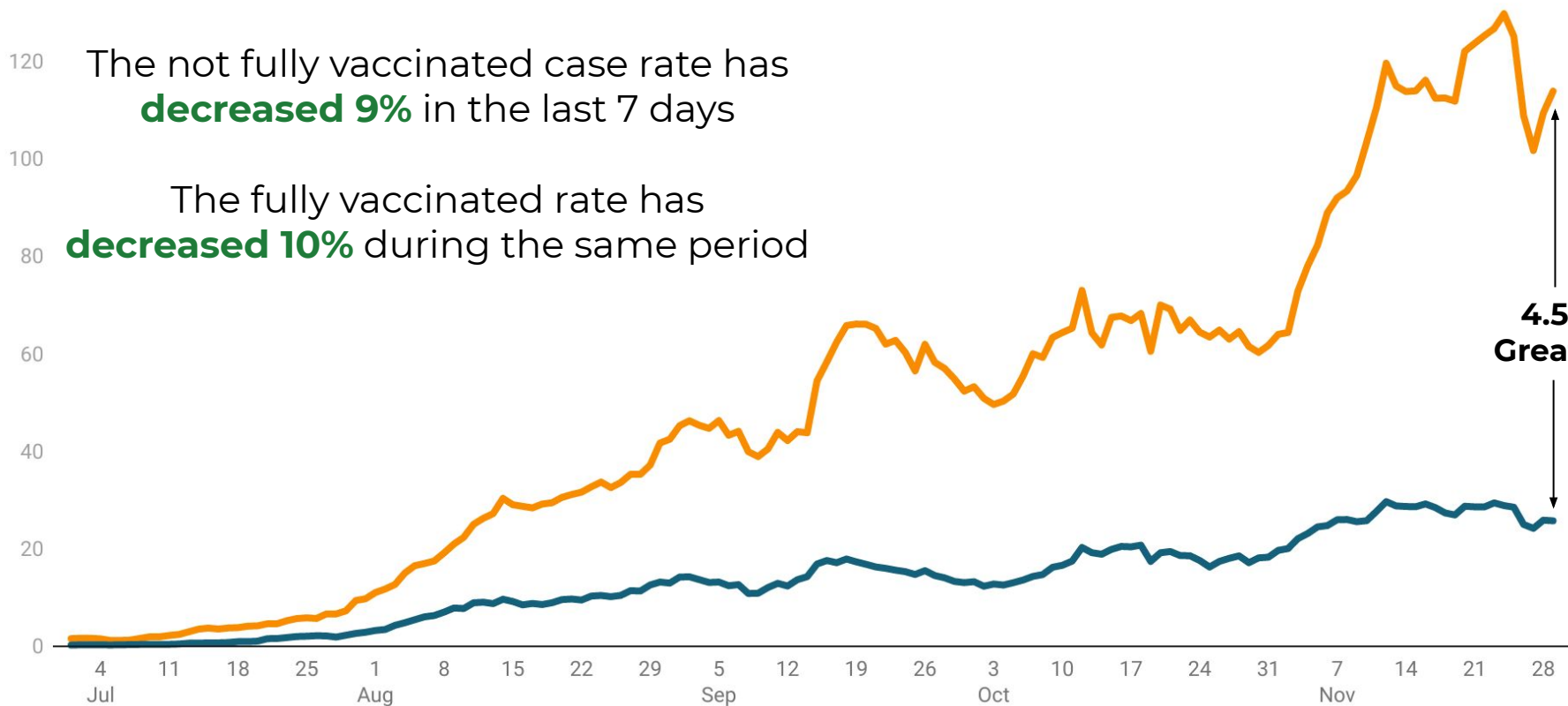
— Not Fully Vaccinated Case Rate — Fully Vaccinated Case Rate

The not fully vaccinated case rate has **decreased 9%** in the last 7 days

The fully vaccinated rate has **decreased 10%** during the same period

4.5x Greater

New Cases per 100K



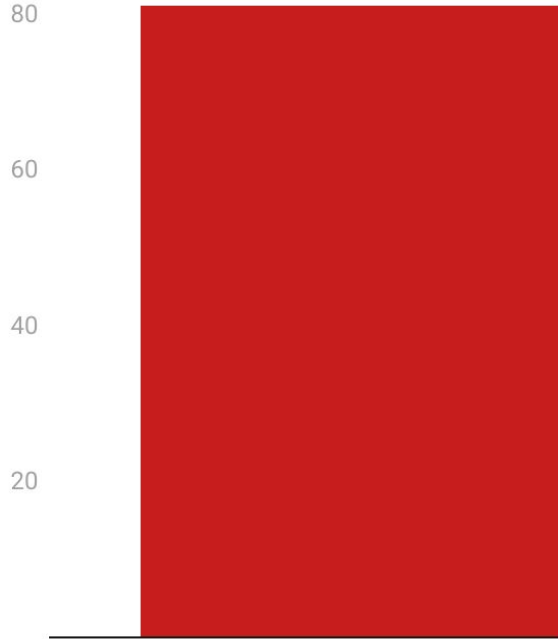
Source: Vermont Dept. of Health and CDC—November 29, 2021

November Hospitalizations by Vaccination Status Per 100K

Measured Among Vermont's 18 & Over Population

100

81



Not Fully Vaccinated

Those **Not Fully Vaccinated** were **13.5x more** likely to require hospitalization in November compared to those who are **Fully Vaccinated & Boosted**

18



Fully Vaccinated But Not Boosted

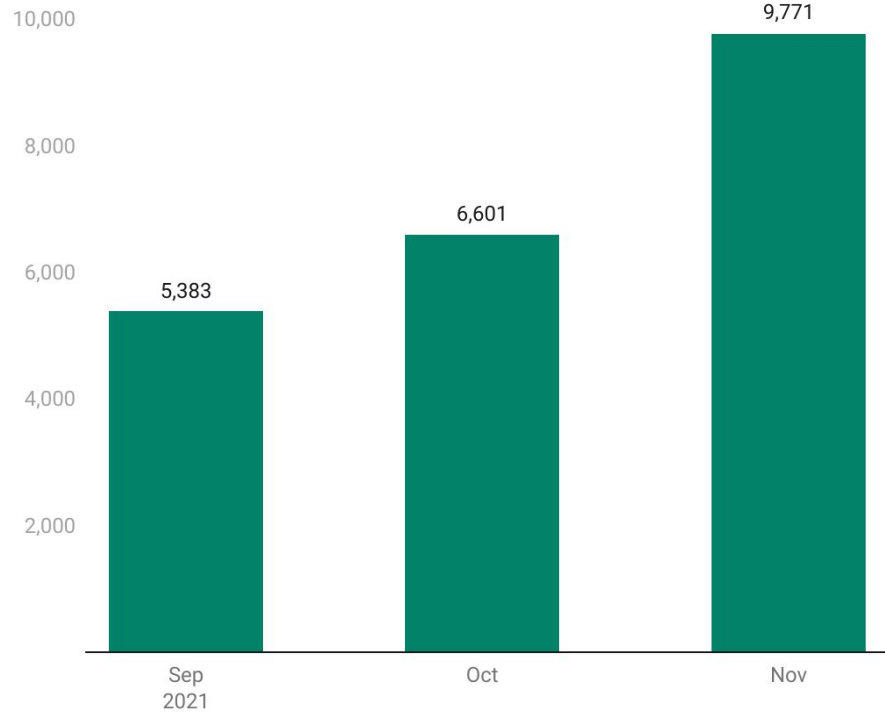
6



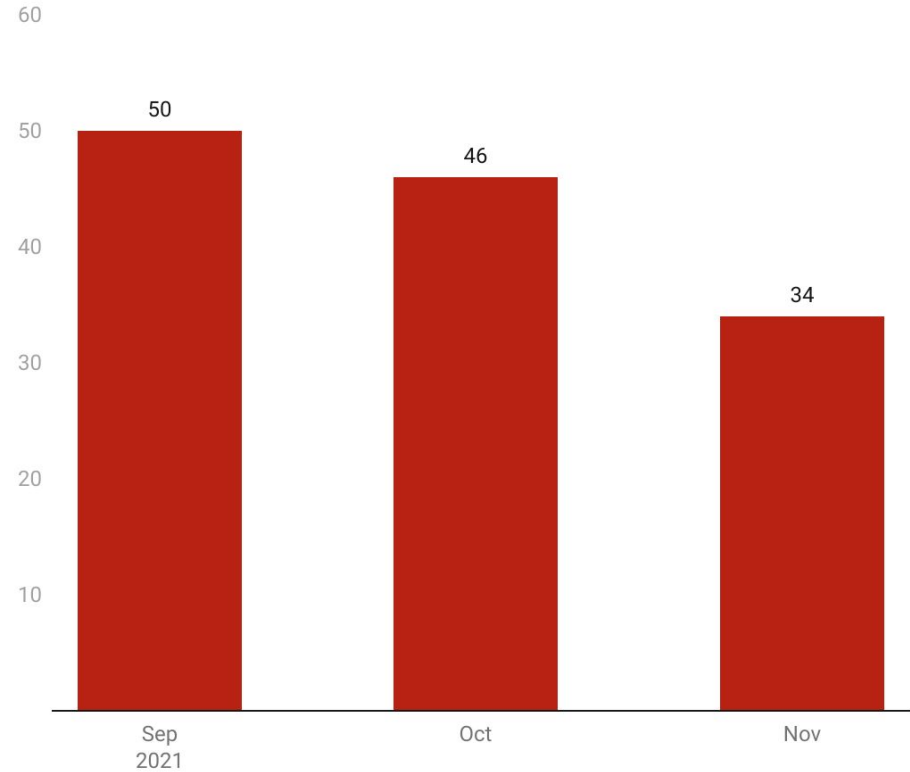
Fully Vaccinated & Boosted

Comparing Fall COVID-19 Cases to Deaths

Vermont COVID-19 Cases by Month



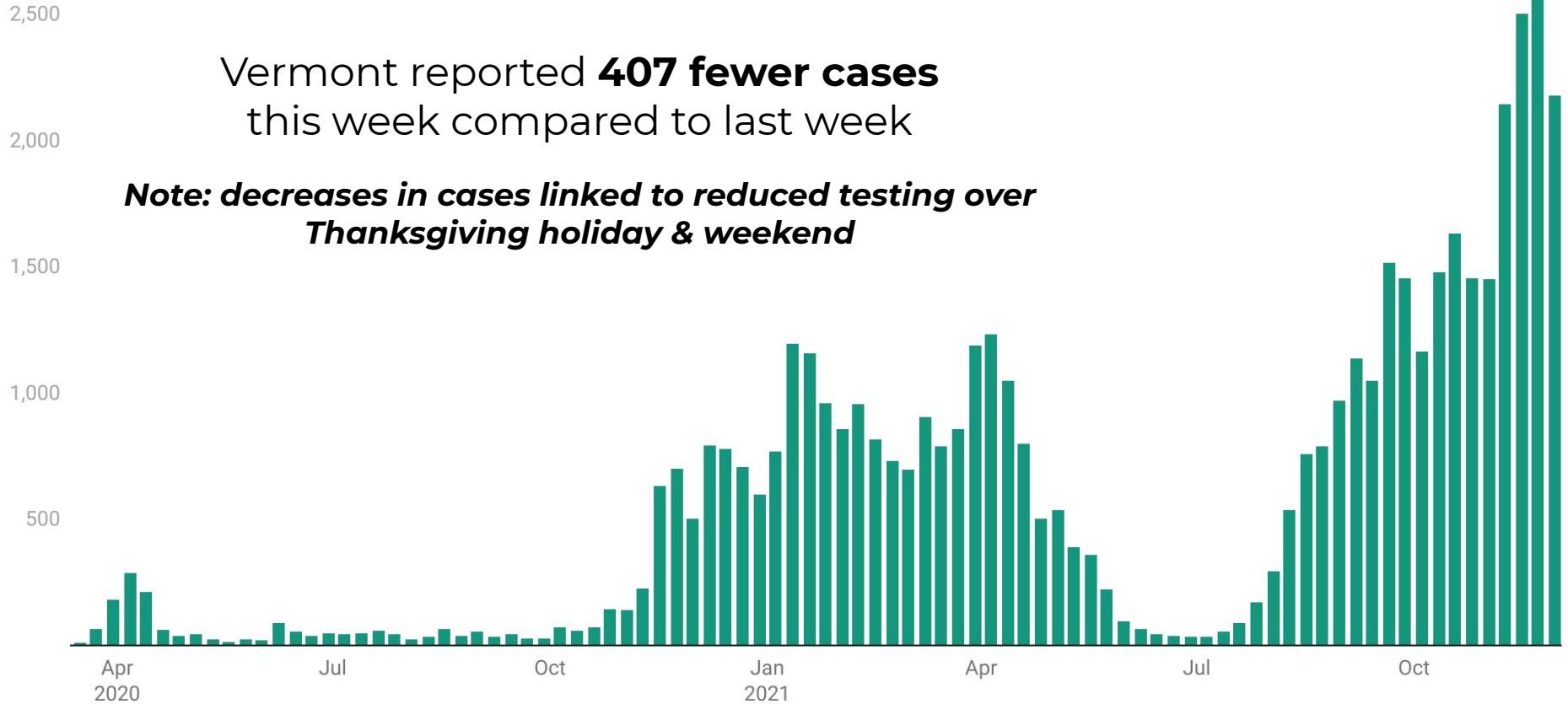
Vermont COVID-19 Deaths By Month



Vermont New Weekly COVID-19 Cases

Vermont reported **407 fewer cases**
this week compared to last week

***Note: decreases in cases linked to reduced testing over
Thanksgiving holiday & weekend***



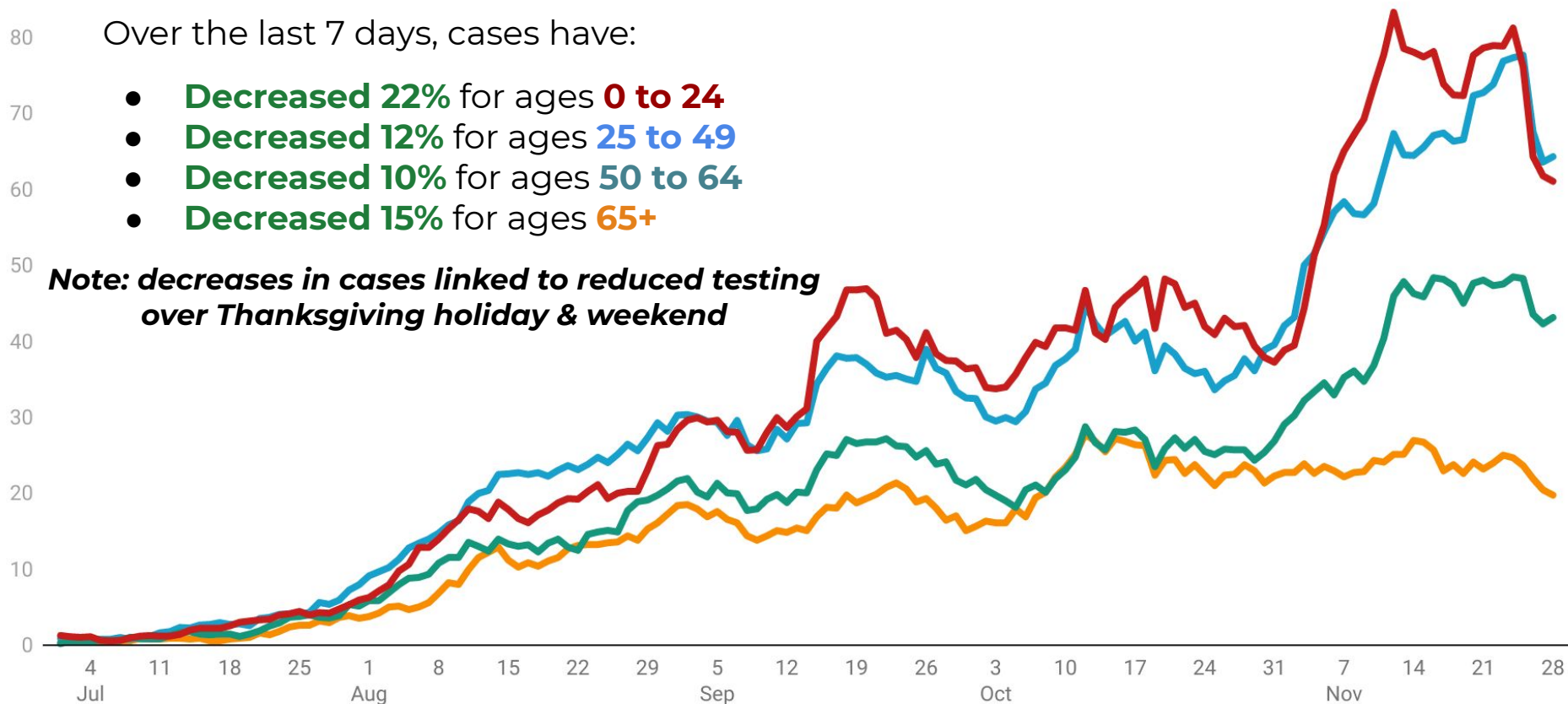
Vermont Case Rates Per 100K By Age (7-Day Average)

— 0 to 24 — 24 to 49 — 50 to 64 — 65+

Over the last 7 days, cases have:

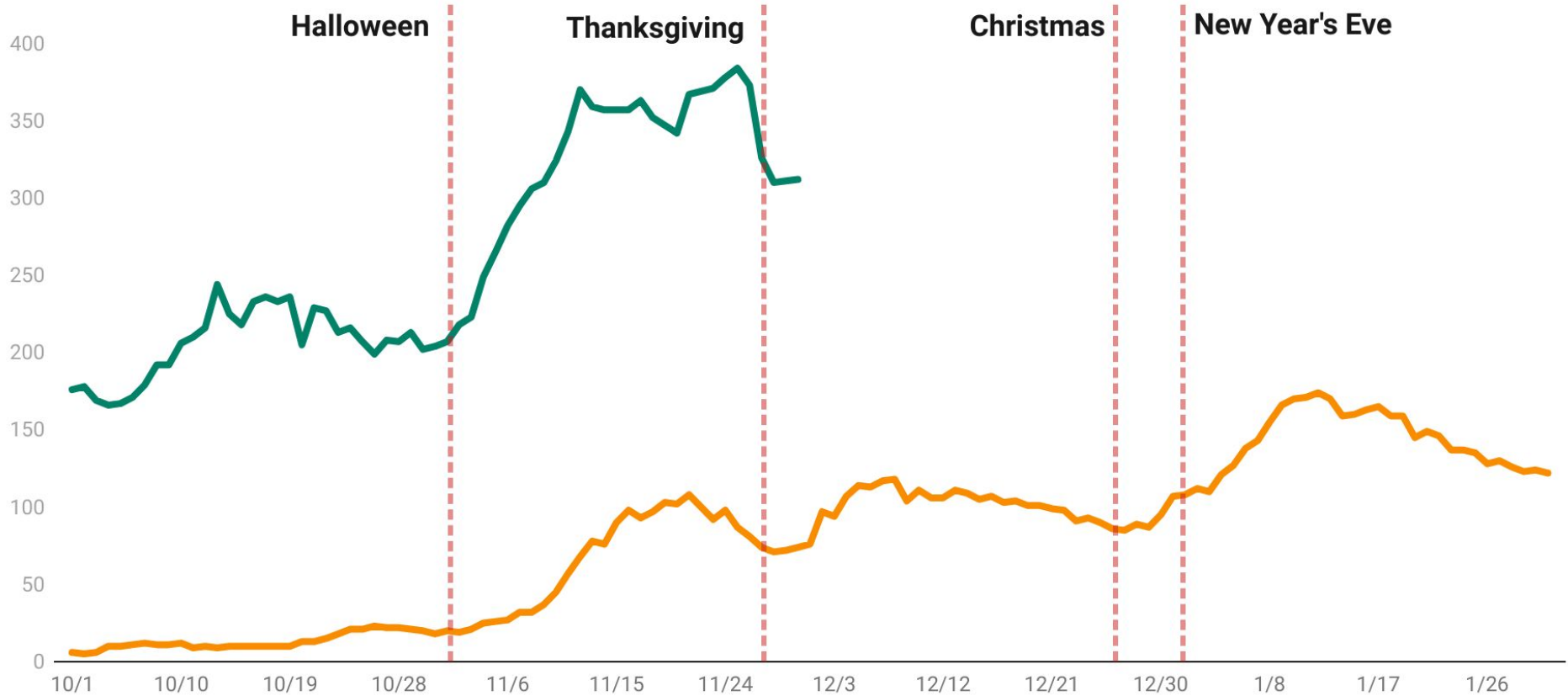
- **Decreased 22%** for ages **0 to 24**
- **Decreased 12%** for ages **25 to 49**
- **Decreased 10%** for ages **50 to 64**
- **Decreased 15%** for ages **65+**

Note: decreases in cases linked to reduced testing over Thanksgiving holiday & weekend



Vermont COVID-19 Cases Fall 2020 vs. Fall 2021

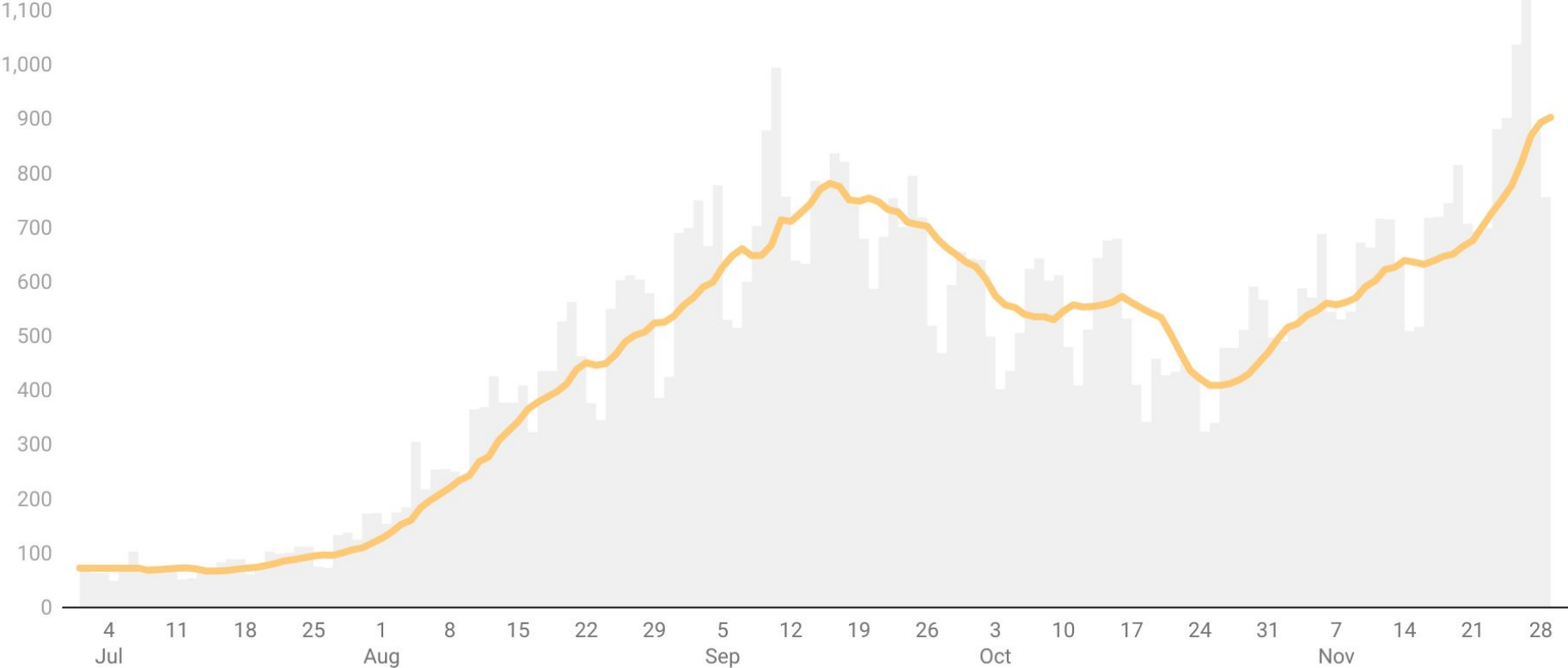
Fall 2021 Fall 2020



Source: Vermont Dept. of Health—November 30, 2021; created with Datawrapper

New COVID-19 Cases in Quebec, Canada

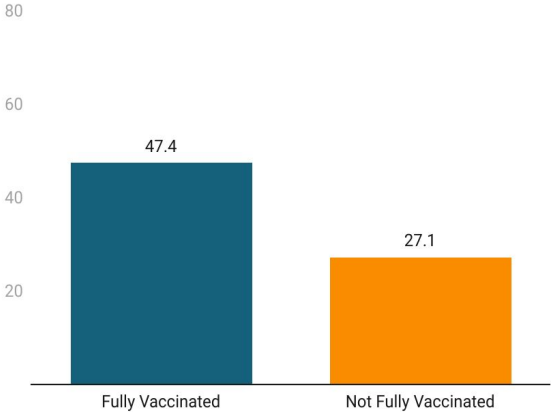
7 Day Average



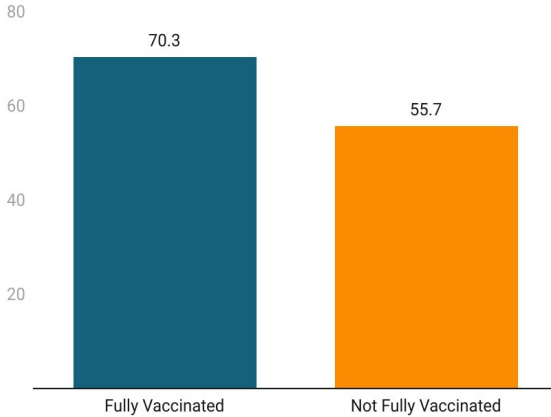
Sources: CTV National News (Quebec)—November 30, 2021; created with Datawrapper

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

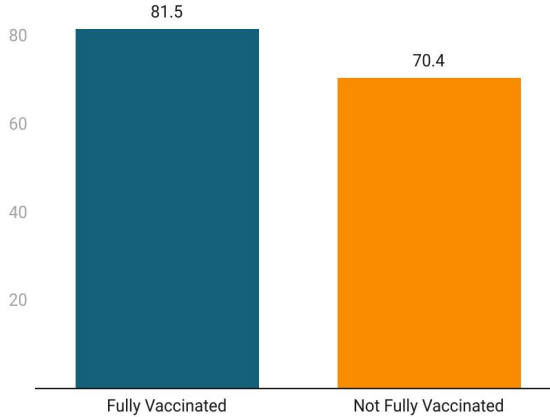
Infections



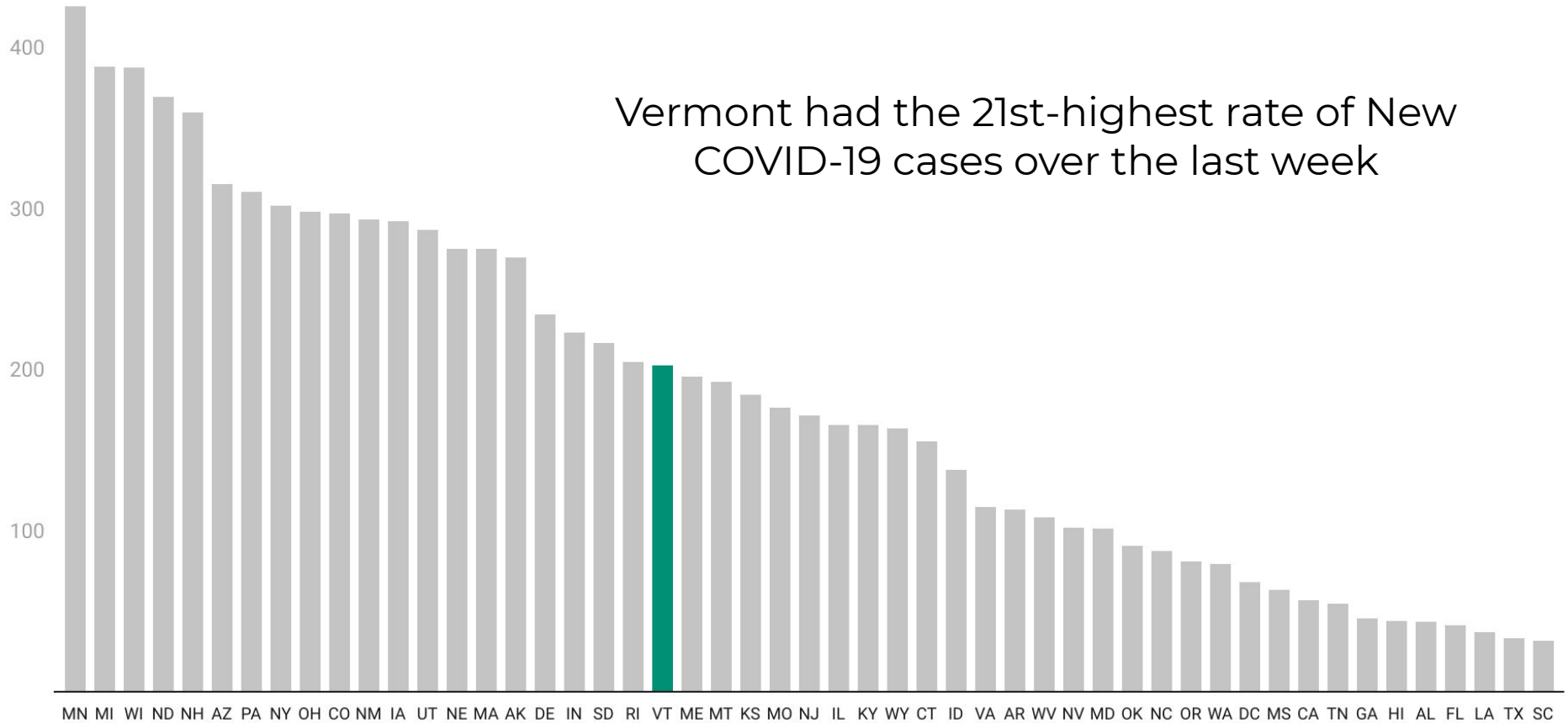
Hospitalizations



Fatalities



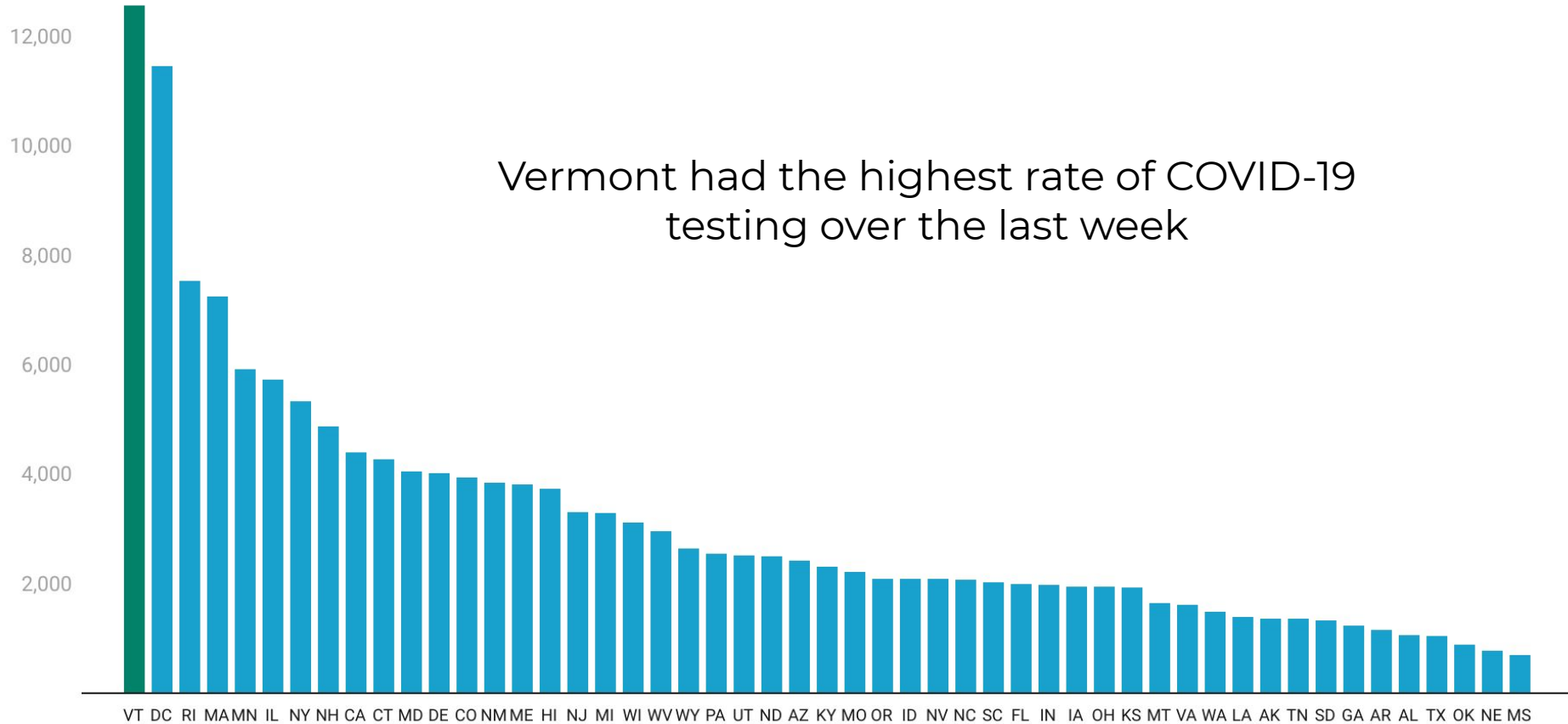
National COVID-19 Case Rates Per 100K Last 7 Days



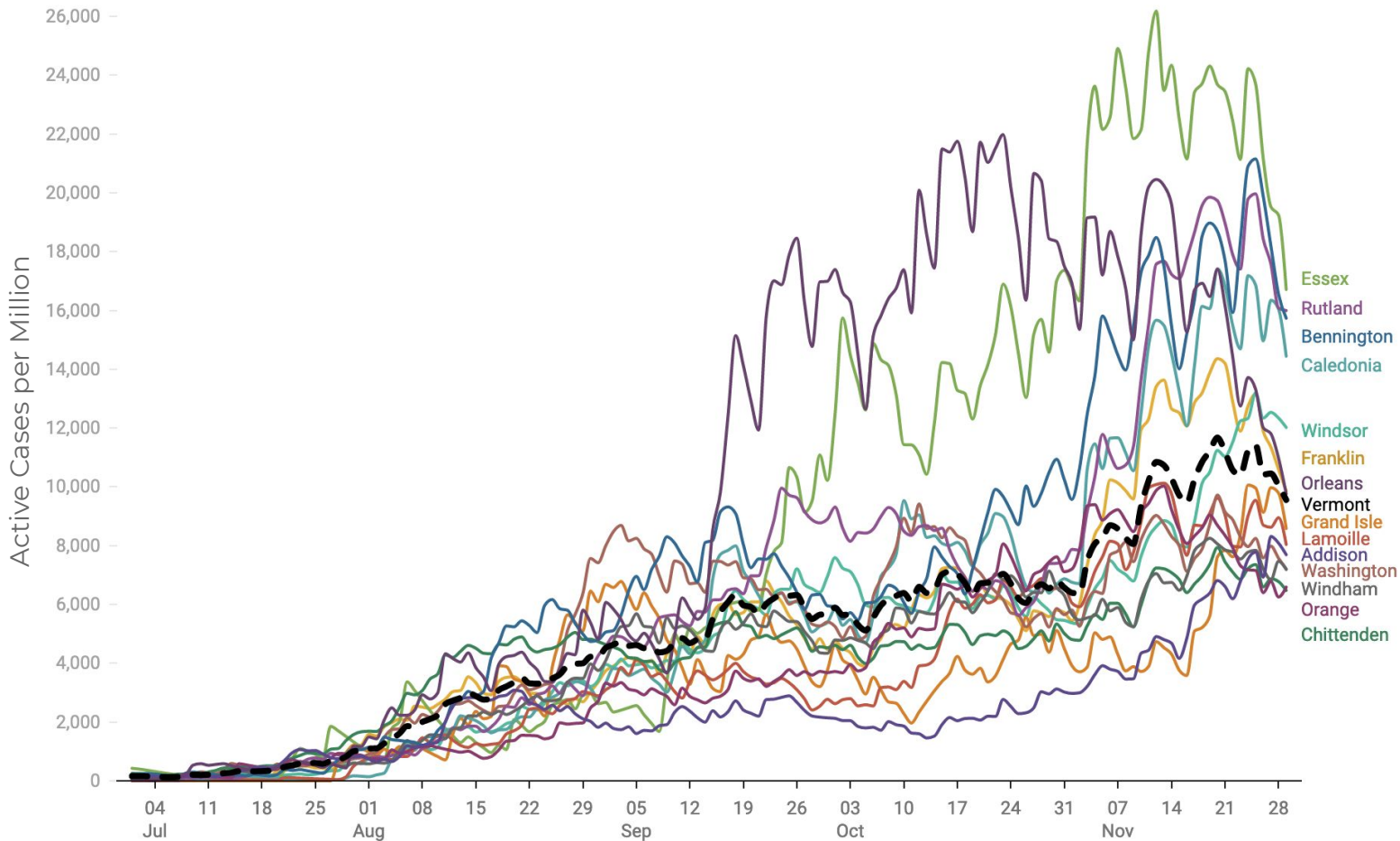
Vermont had the 21st-highest rate of New COVID-19 cases over the last week

Source: CDC—November 29, 2021; Created with Datawrapper

COVID-19 Testing Per 100K Last 7 Days

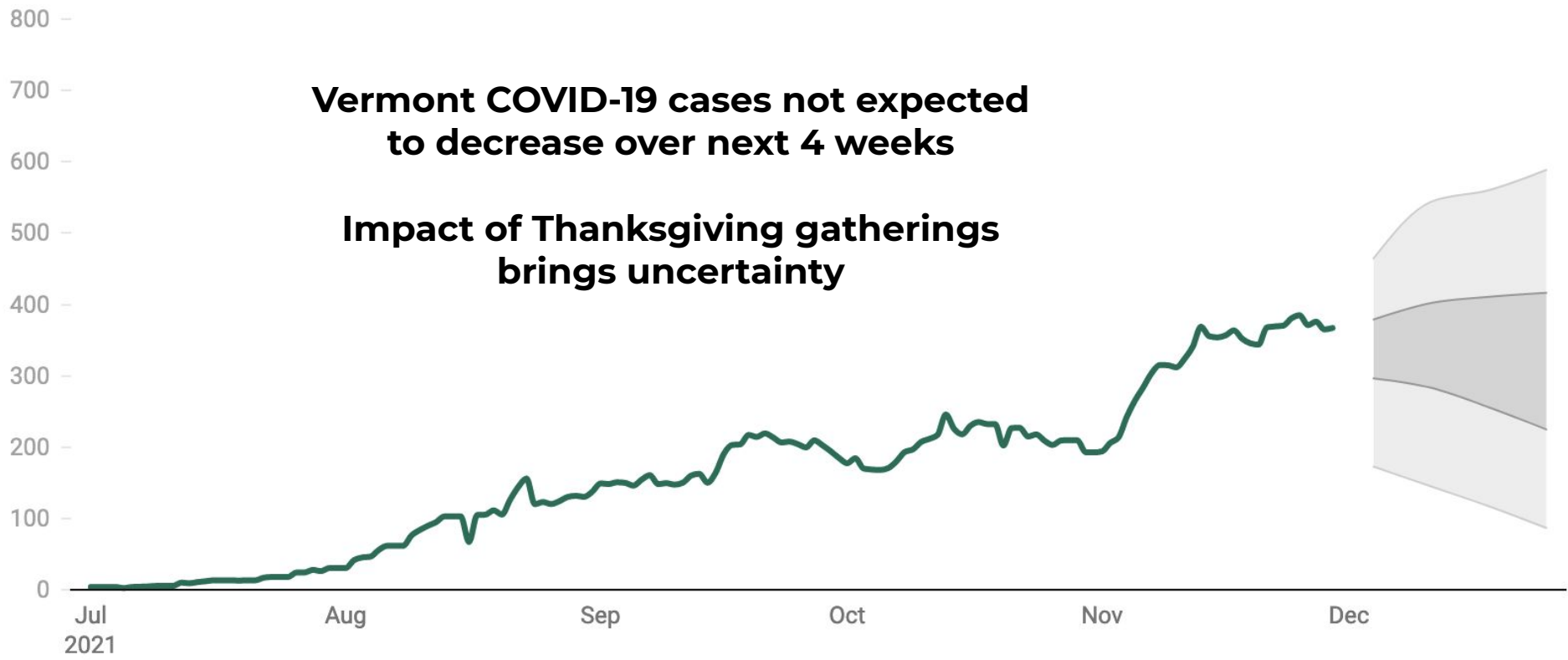


Active Cases in Vermont Counties



VT COVID-19 Infection Confidence Intervals

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



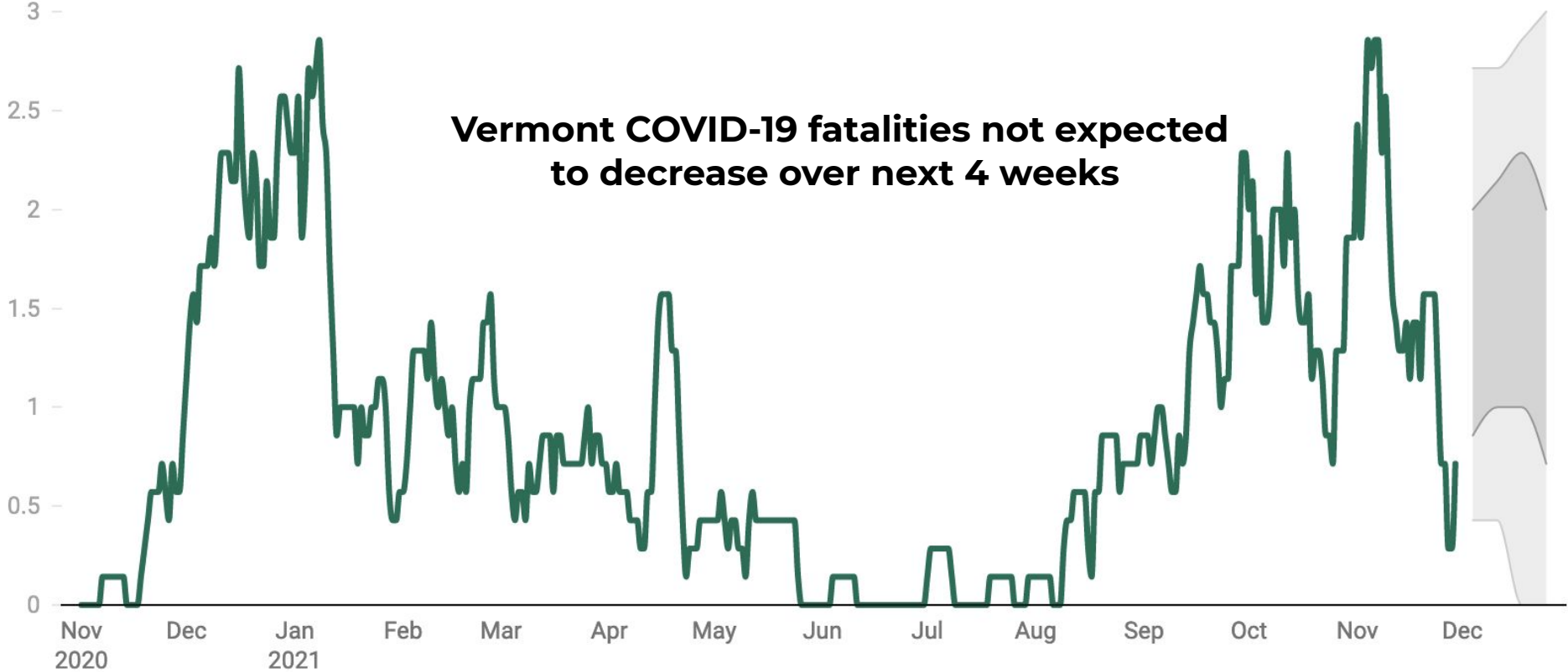
Vermont COVID-19 cases not expected to decrease over next 4 weeks

Impact of Thanksgiving gatherings brings uncertainty

Source: CDC—November 30, 2021

VT COVID-19 Death Confidence Intervals

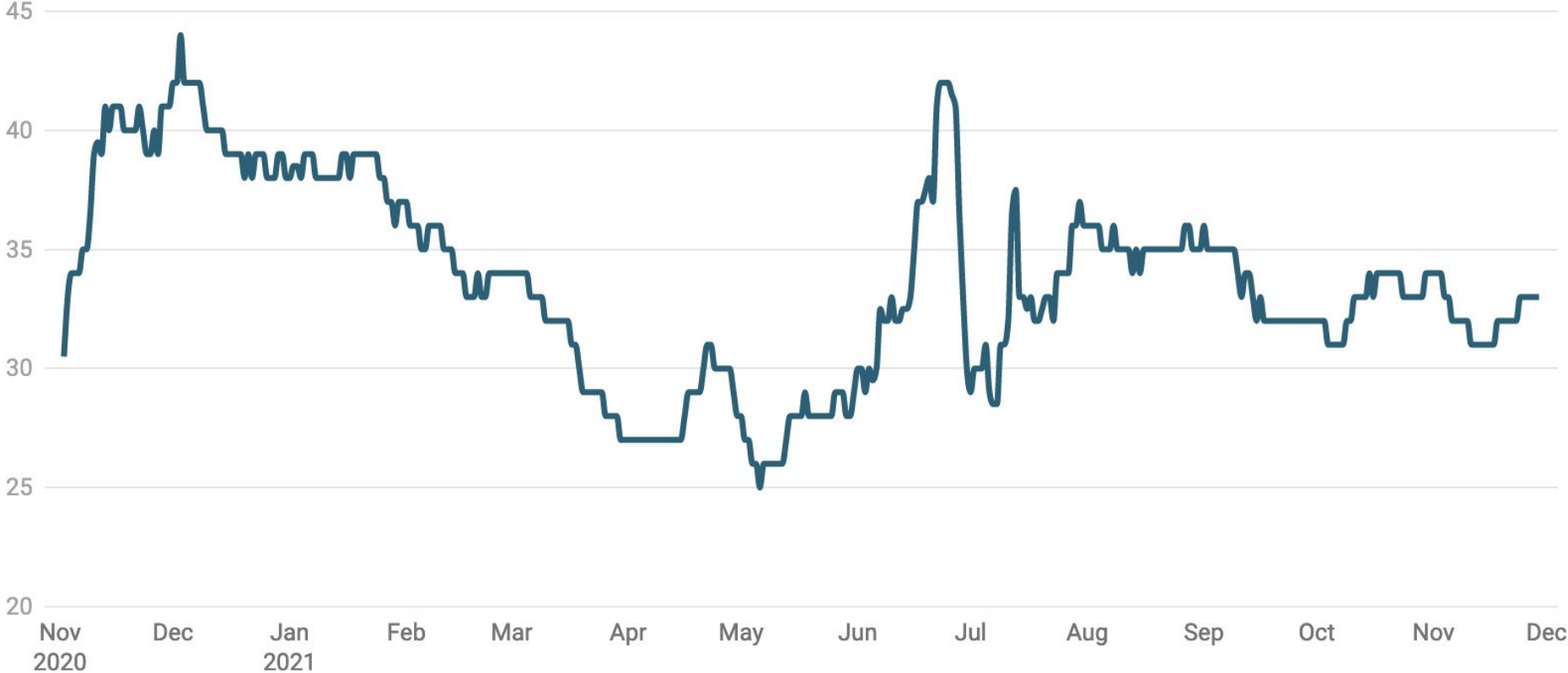
Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.



Source: CDC—November 29, 2021

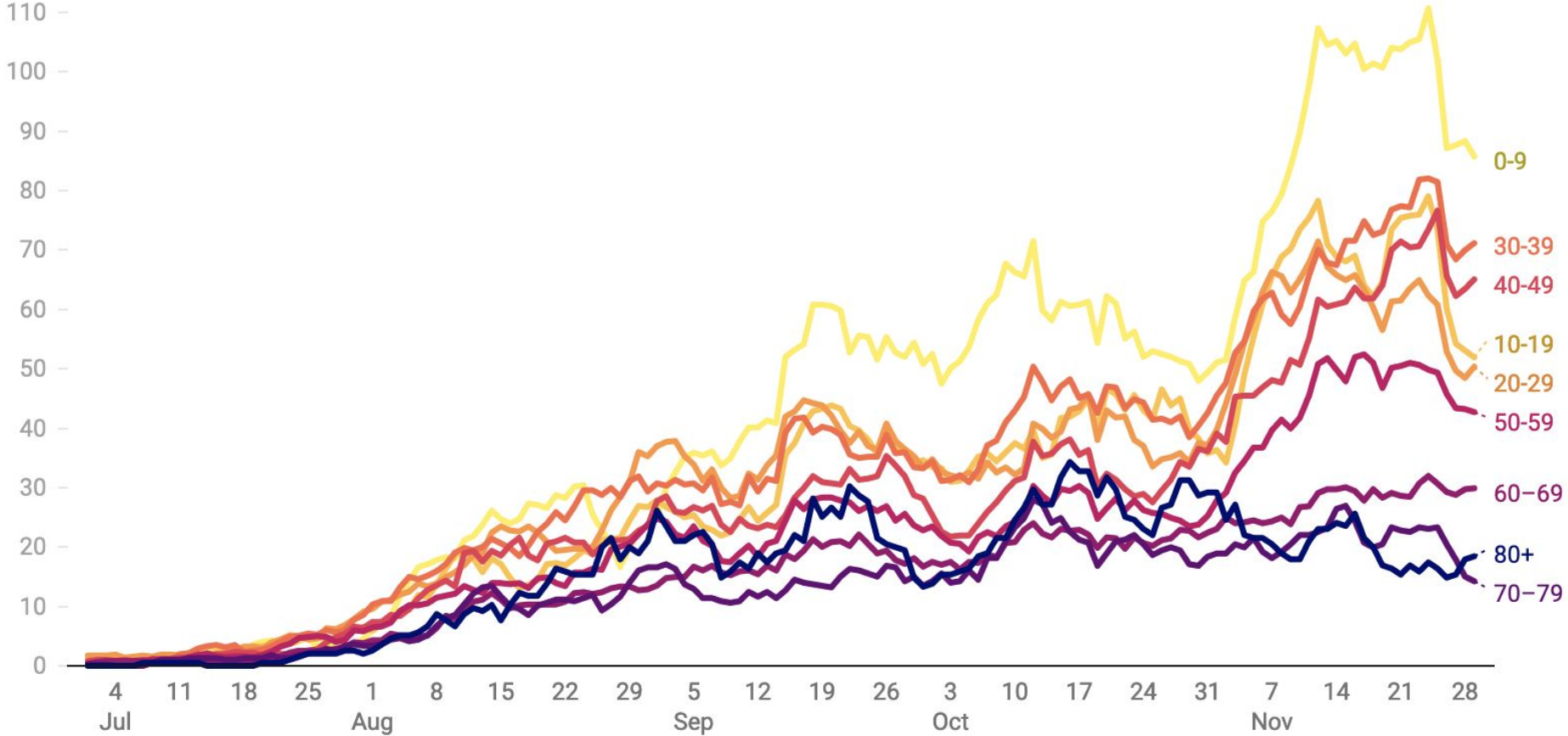
Age of Infected Vermonters

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



Source: VDH—November 30, 2021

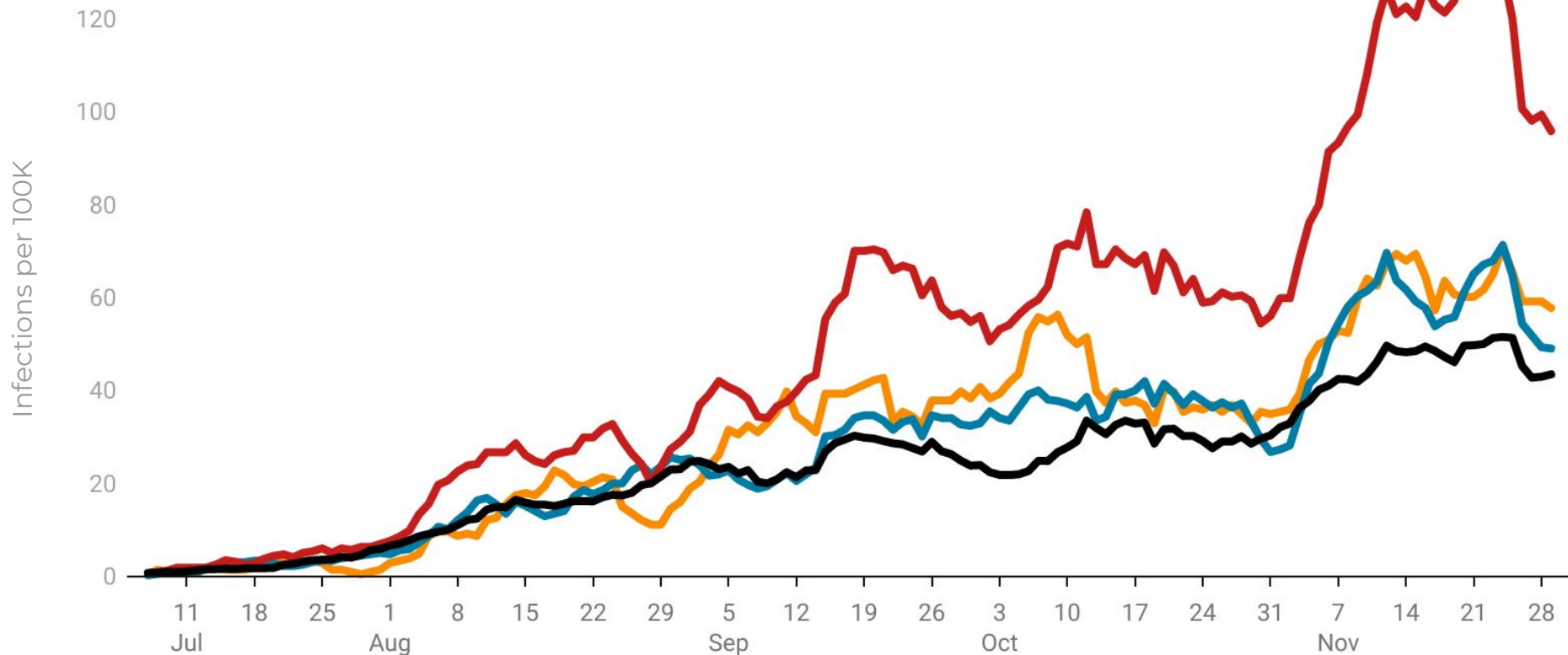
VT COVID-19 Infections per 100K by Age Group



Source: VDH—November 30, 2021

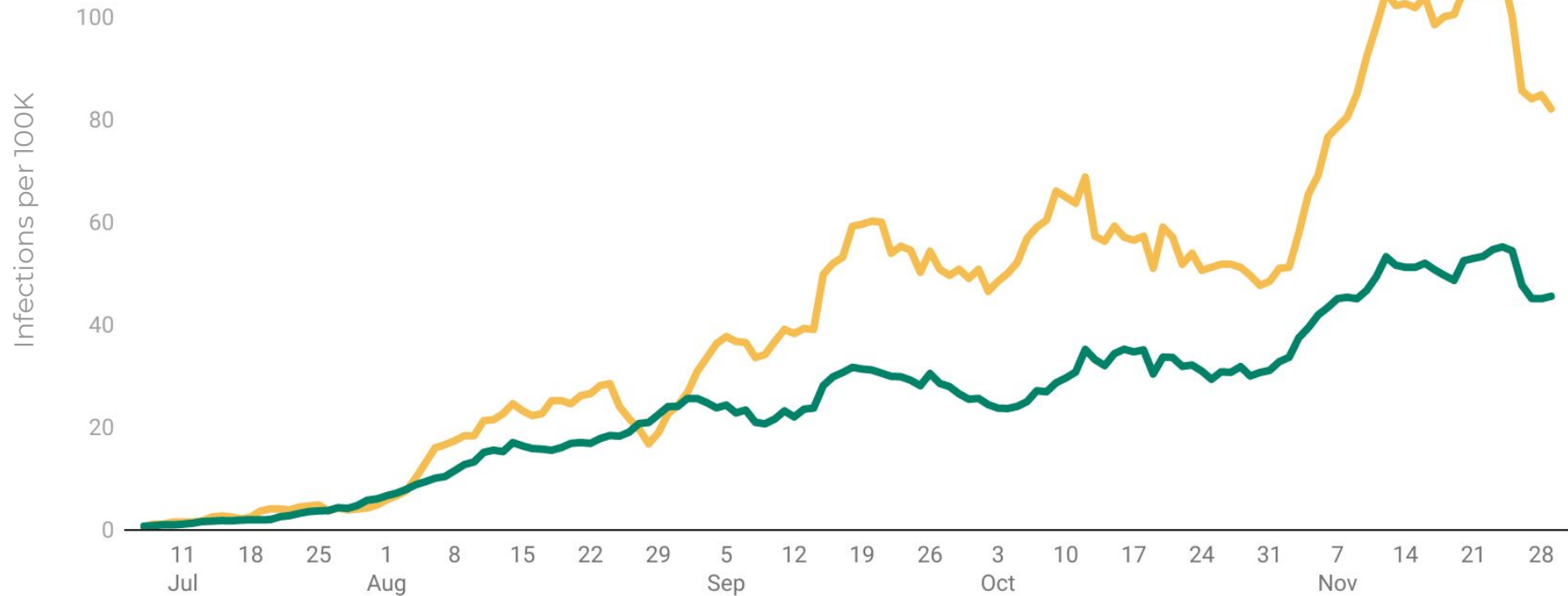
Vermont Covid-19 Case Rates by Age (7-Day Average)

0-4 5-11 12-18 19+

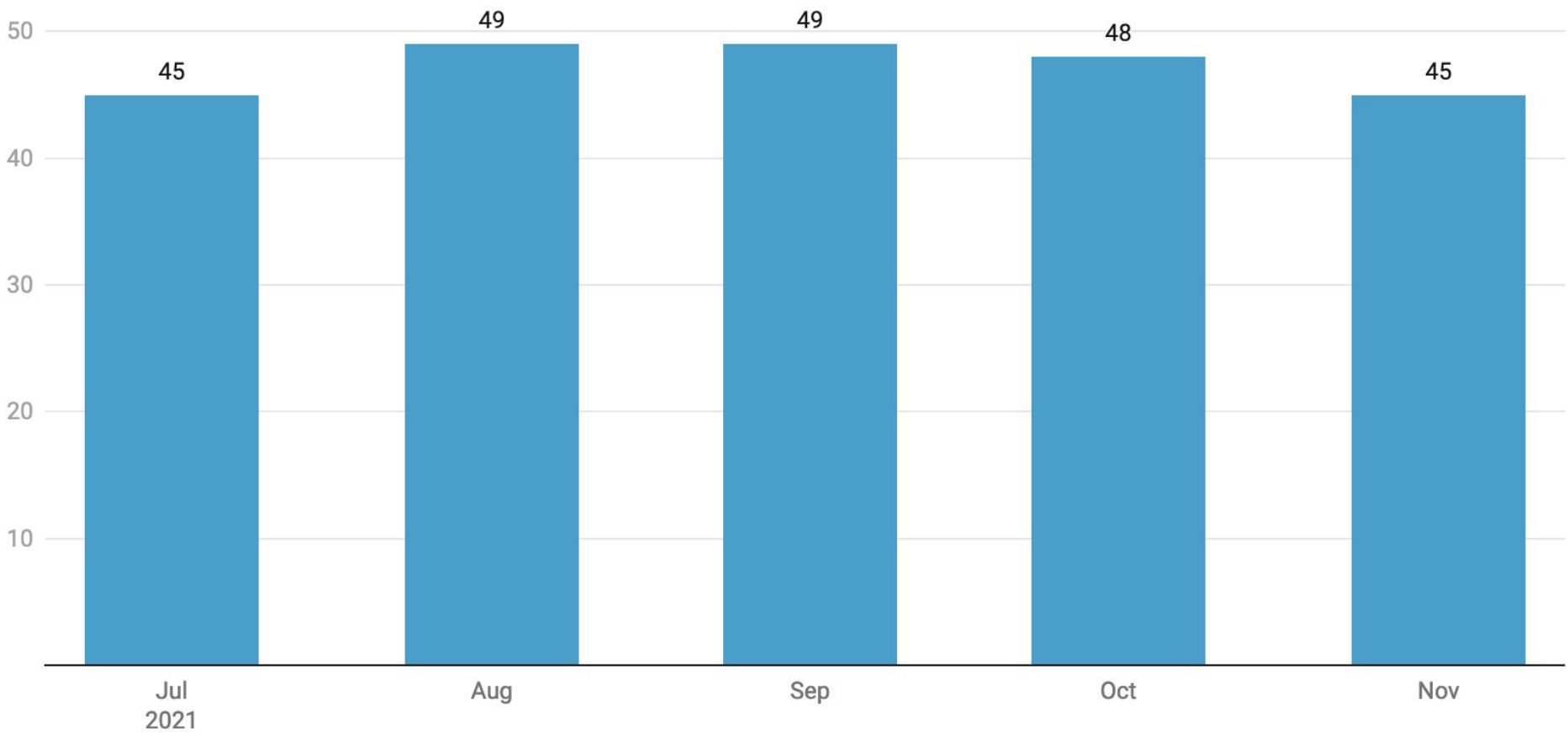


Vermont Case Rate By Age (7-Day Average)

0-11 12+



Median Age of VT Breakthrough Infections by Month

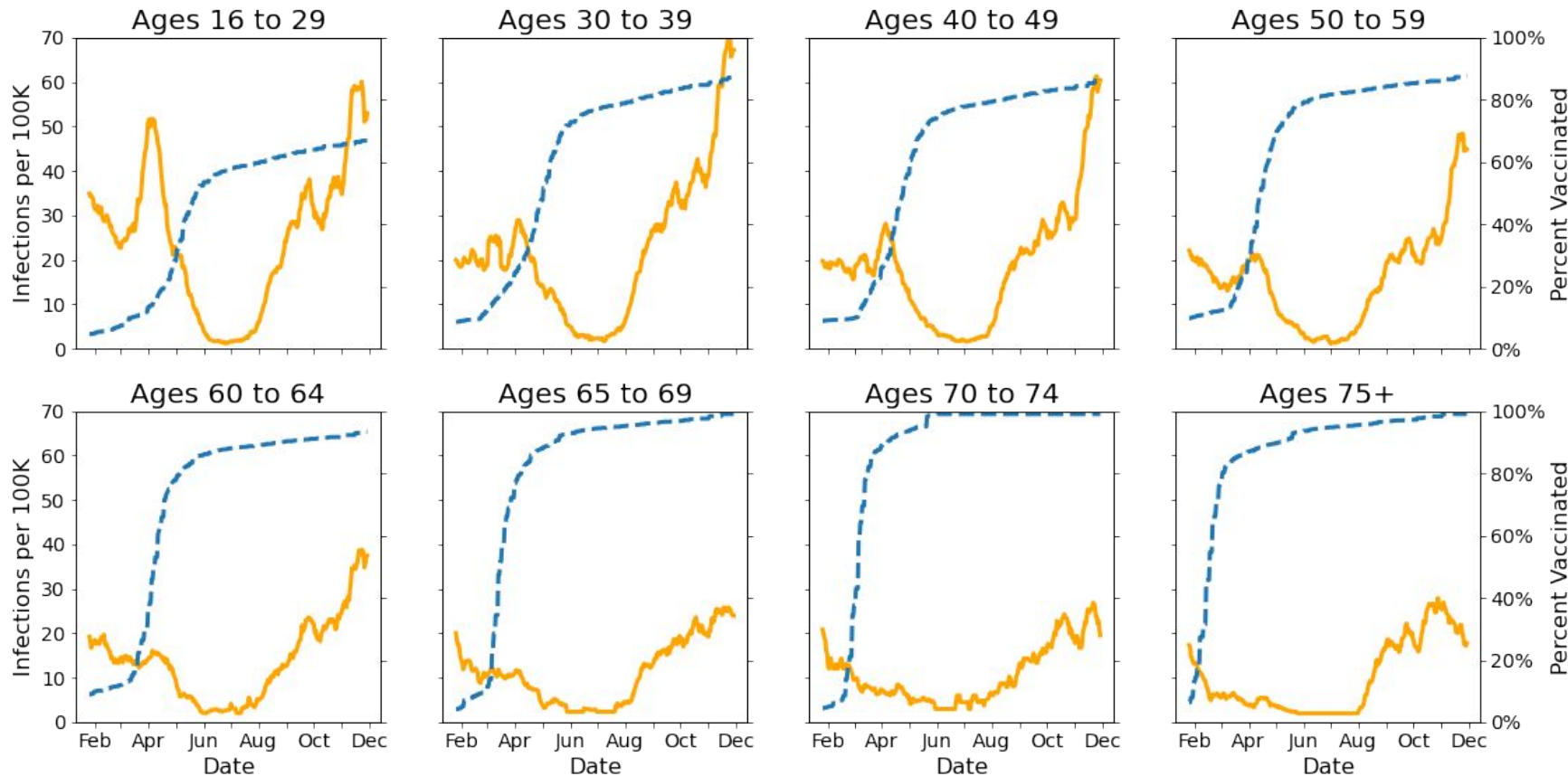


Source: Vermont Dept. of Health—November 29, 2021; created with Datawrapper

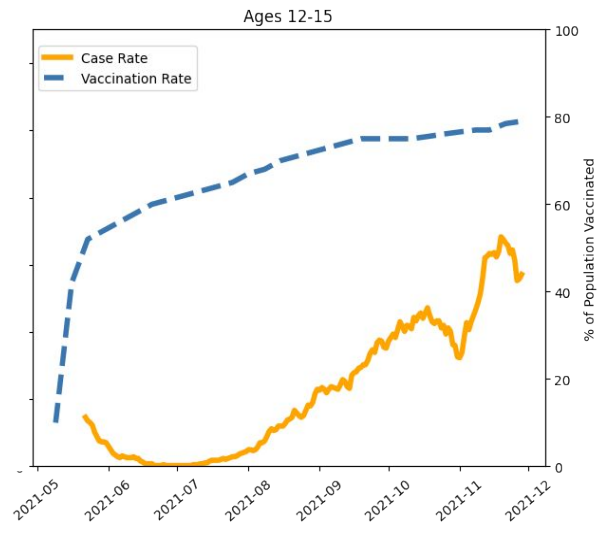
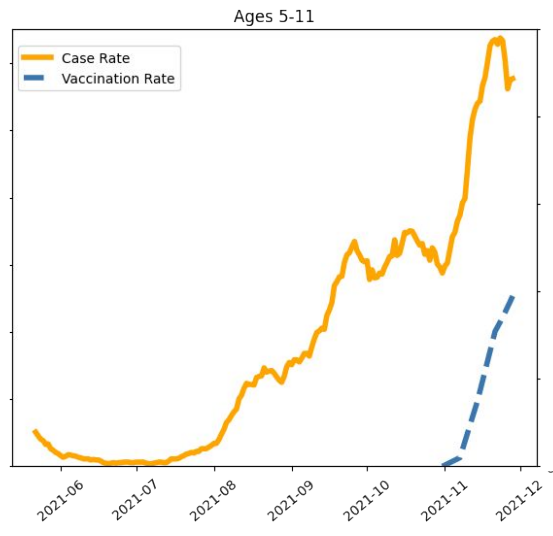
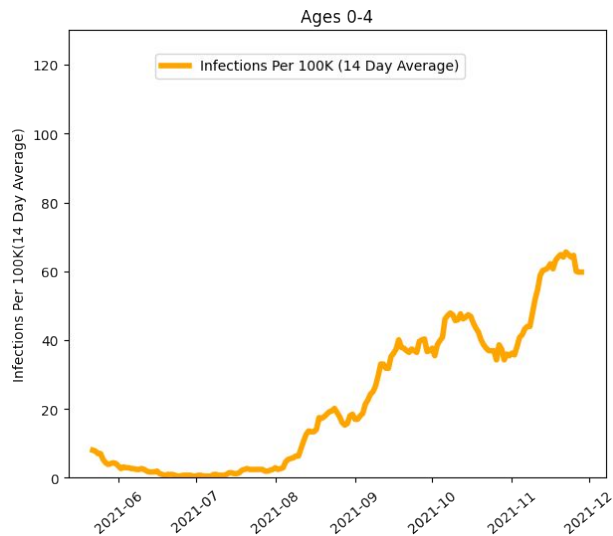
Vermont Case Rate & Vaccination by Age Band

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

— Percent Received First Vaccine Dose

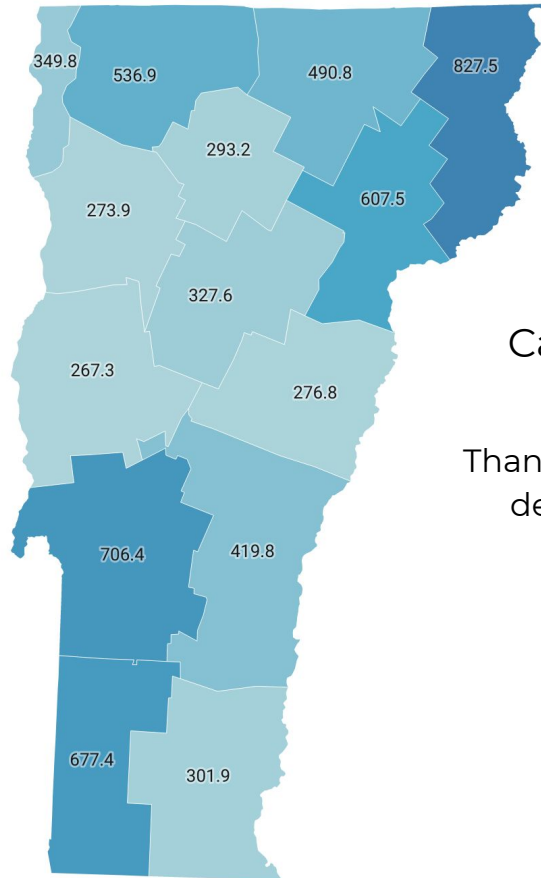


Vermont Case Rate & Vaccination by Age Band



Vermont Weekly Cases by County (per 100,000)

Results Reported November 16 to 22

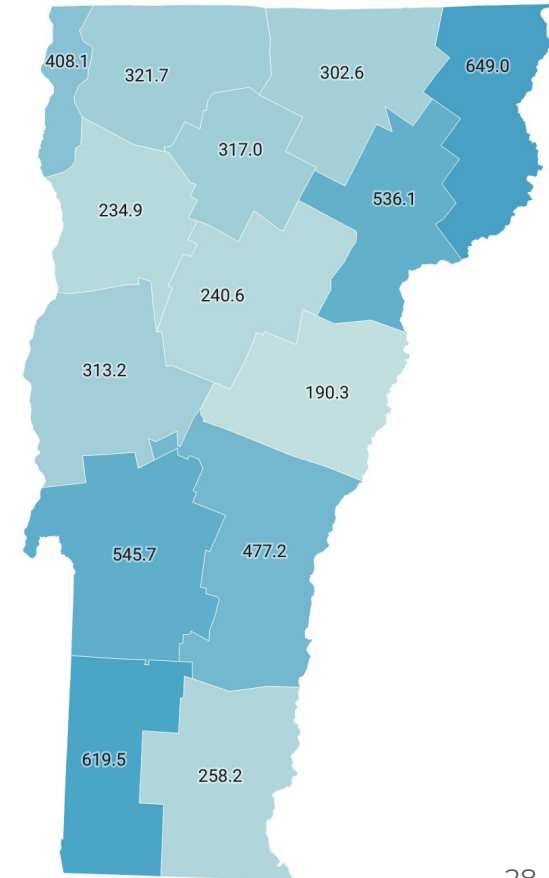


Case rates dropped in **10 of 14** counties this week

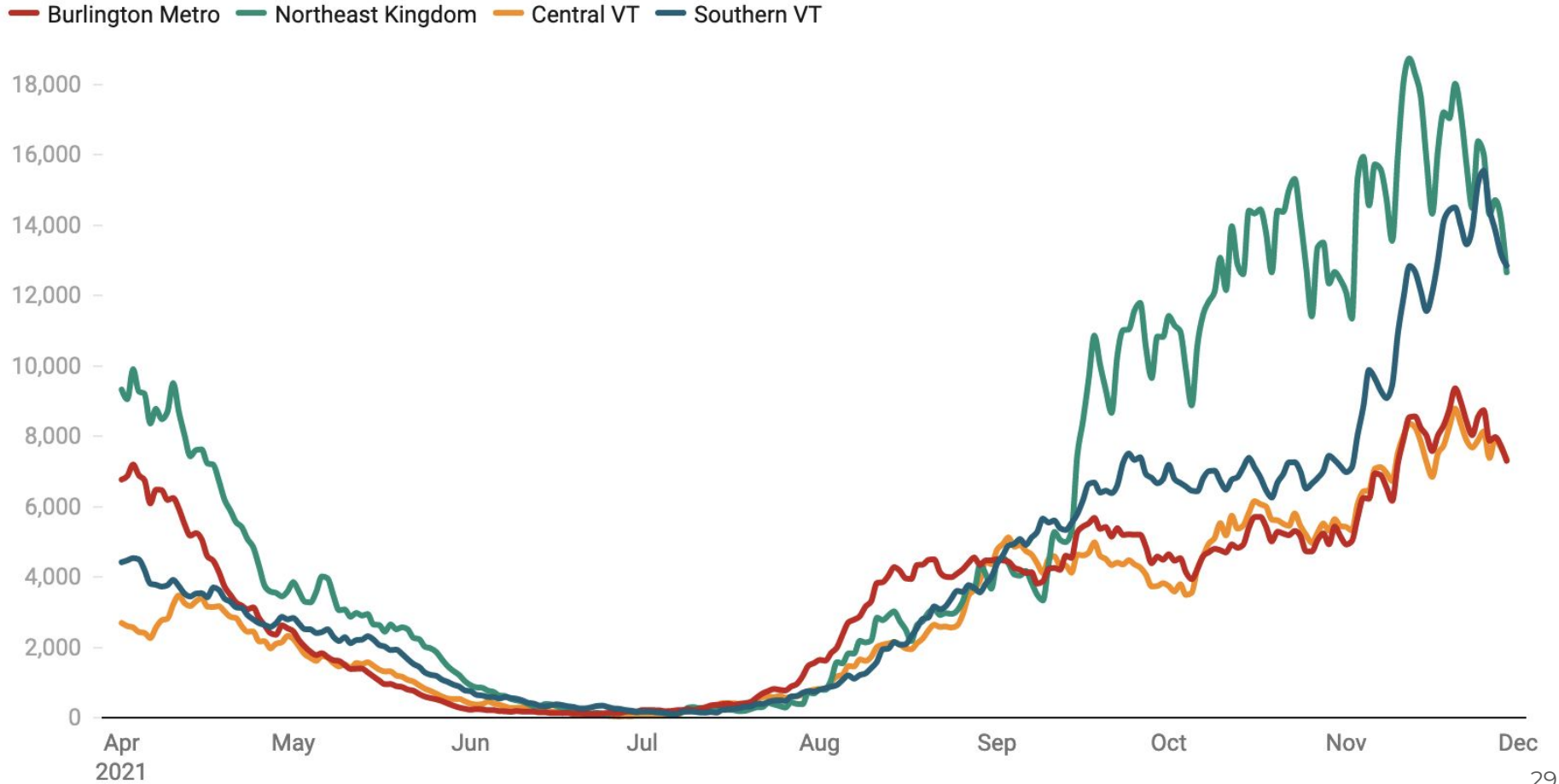
Thanksgiving holiday may create reporting delays or changes in testing demand

Vermont Weekly Cases by County (per 100,000)

Results Reported November 23 to 29



Active Cases per Million in Vermont Regions



Source: JHU & DFR Active Case Algorithm—November 30, 2021

Fall 2021 Higher Education Restart

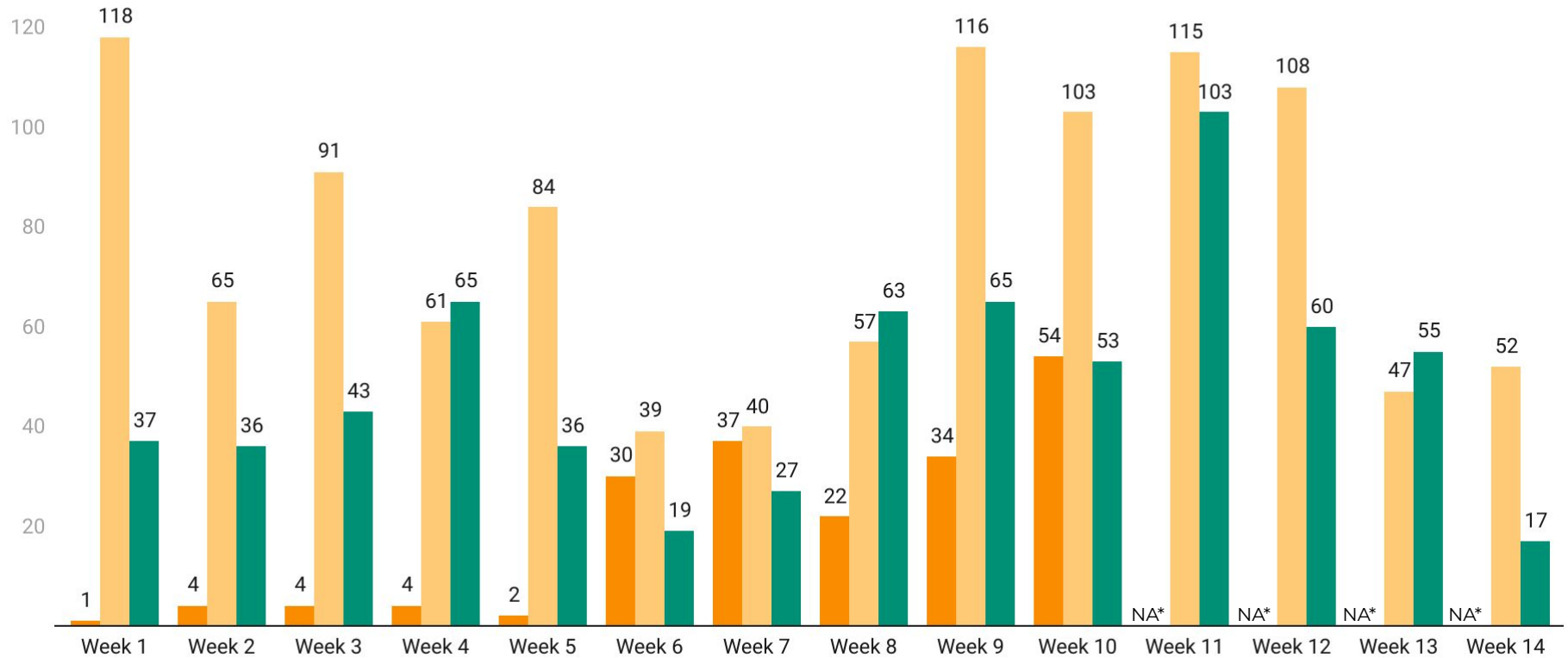
Higher Education Institutions Reporting	Enrollment	Students Fully Vaccinated	Students Not Fully Vaccinated (No Exemption Granted)	Students with Unknown Vaccine Status	Students Granted Vaccine Mandate Exemption
16 of 16	28,586	27,201	255	445	685
		95.2%	0.9%	1.6%	2.4%

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 tests
Week 12: **60 cases** out of 6,048 tests
Week 13: **55 cases** out of 6,029 tests
Week 14: **17 cases** out of 2,066 tests

Vermont Higher Education Cases By Semester

Fall 2020 Spring 2021 Fall 2021



Source: Vermont Higher Education Institutions—November 29, 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.

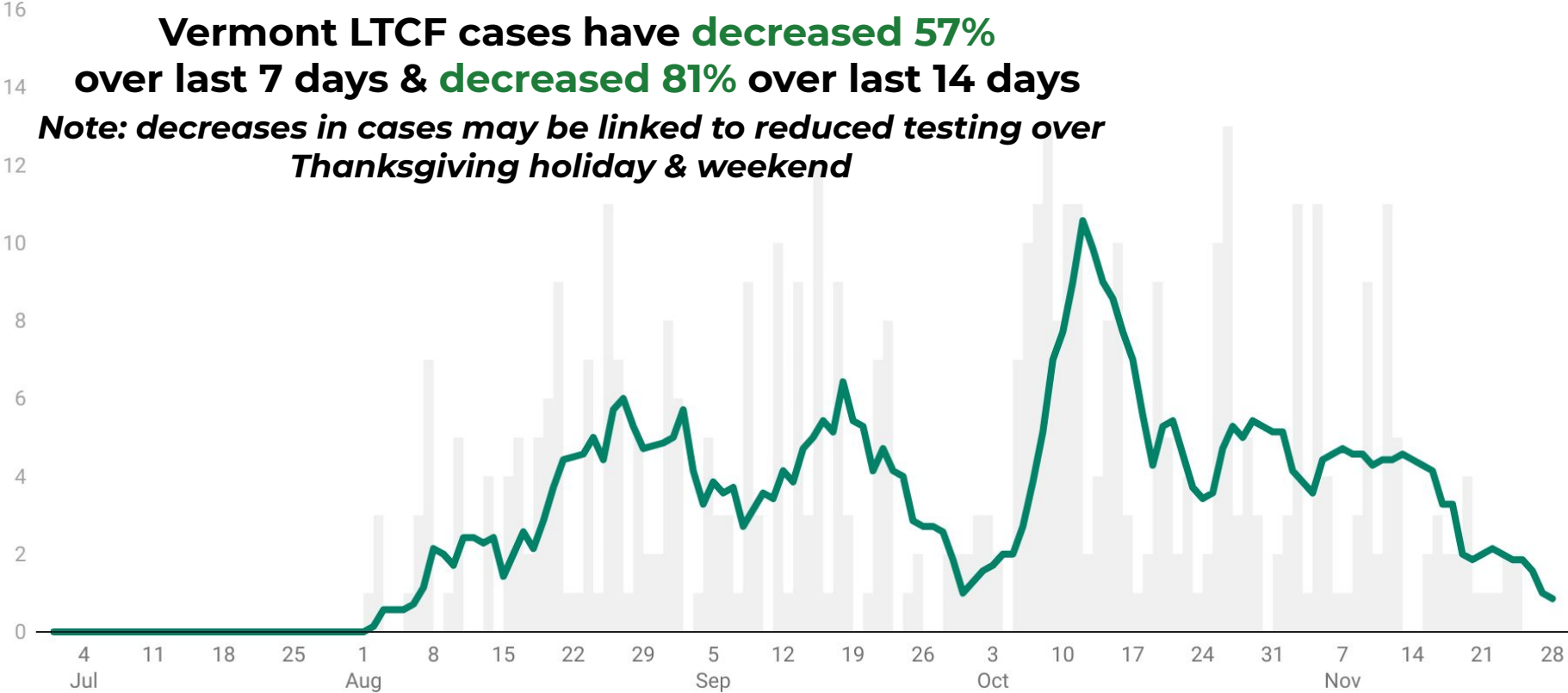
Active Outbreaks in Long Term Care Facilities

Facility Name	Total COVID-19 Cases
Crescent Manor Nursing Home & Rehab, <i>Bennington</i>	71
Harbor Village Senior Living, <i>South Burlington</i>	22
The Pines at Rutland Center for Nursing & Rehab	22
Margaret Pratt, <i>Bradford</i>	13
Vermont Veterans' Home, <i>Bennington</i>	12
Union House Nursing Home, <i>Glover</i>	12
Valley Vista, <i>Bradford</i>	12
The Meadows, <i>Rutland</i>	10
The Residence at Quarry Hill, <i>South Burlington</i>	9
Centers for Living & Rehabilitation	8
Helen Porter Rehabilitation and Nursing, <i>Middlebury</i>	8
LTCF B	8
Maple Lane Nursing Home, <i>Barton</i>	6
Barre Gardens	6
Elderwood at Burlington	Not Shown
Our House, <i>Rutland</i>	Not Shown
LTCF A	Not Shown
Total	219

Source: Vermont Department of Health—November 30, 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 LTCF COVID-19 Cases During Delta Wave

— 7-Day Average



Source: VDH—November 29, 2021; created with Datawrapper

Vermont Hospitalization Data

Statewide Covid-19 Hospitalizations

100

12% increase in the 7-Day hospitalization average over the past week

71% of hospitalizations among the unvaccinated over the last 7 days

75

50

25

0

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

■ Daily Hospitalizations ■ 7-Day Hospitalization Average

Source: Vermont Department of Health—November 30, 2021

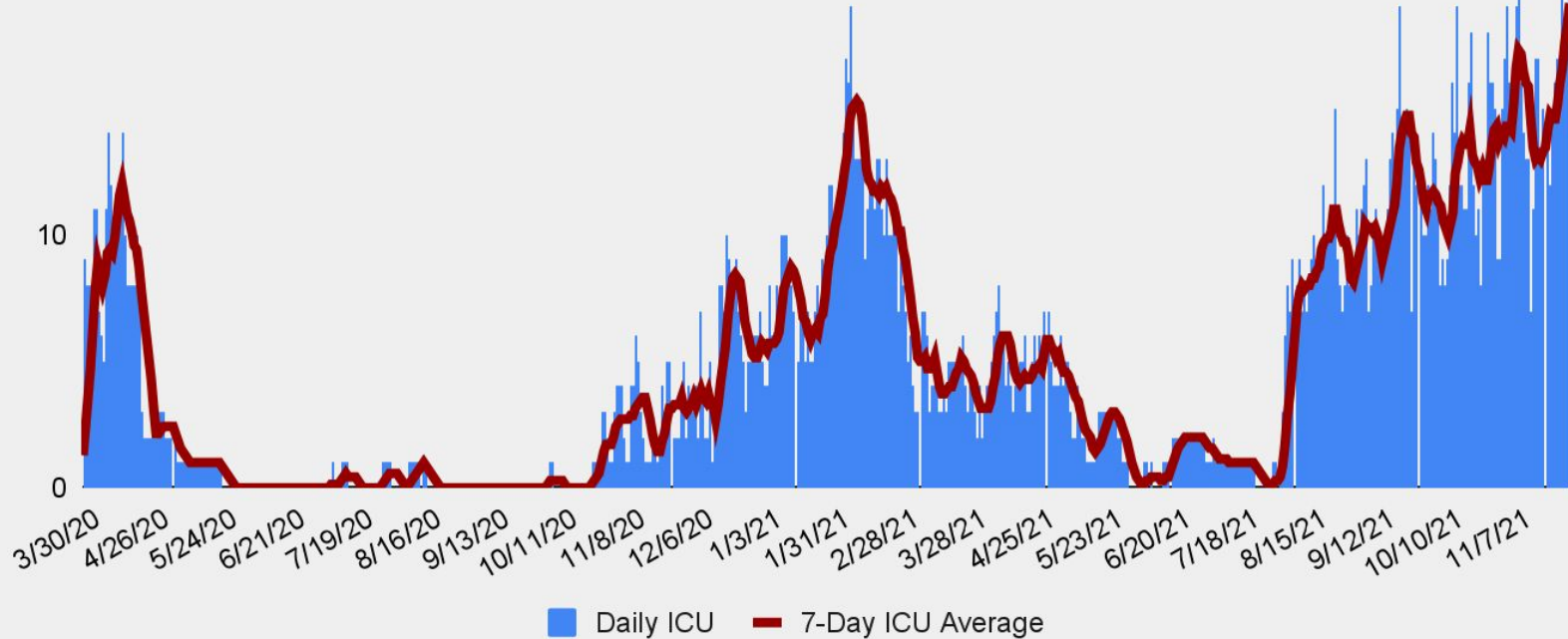
Statewide Covid-19 Critical Care Usage

30

31% Increase in the 7-Day ICU average Over the past week

81% of critical care stays among the unvaccinated over the last 7 days

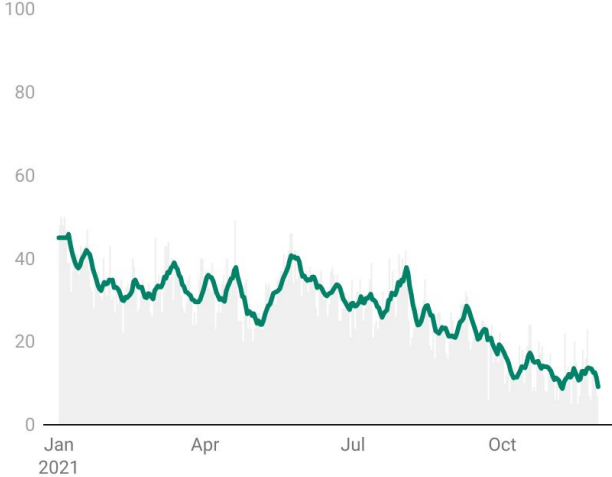
20



Source: Vermont Department of Health—November 30, 2021

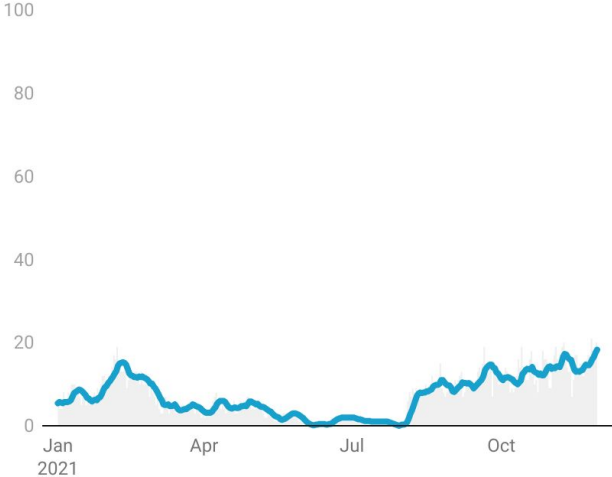
Vermont ICU Metrics (7-Day Averages)

32% Decrease
Over last 7 days



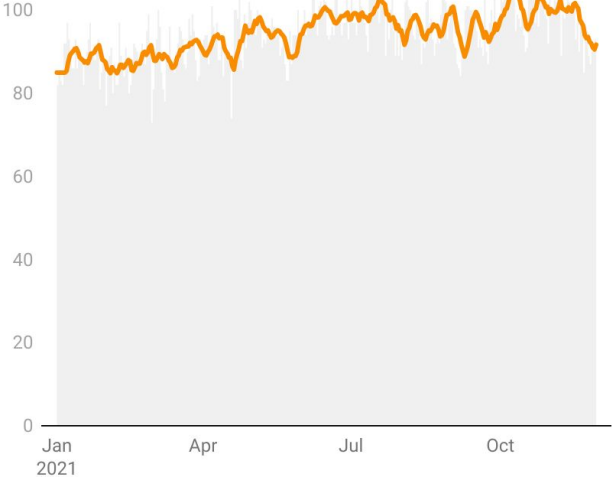
ICU Beds Available

24% Increase
Over last 7 days



COVID-19 ICU Beds Occupied

2% Decrease
Over last 7 days

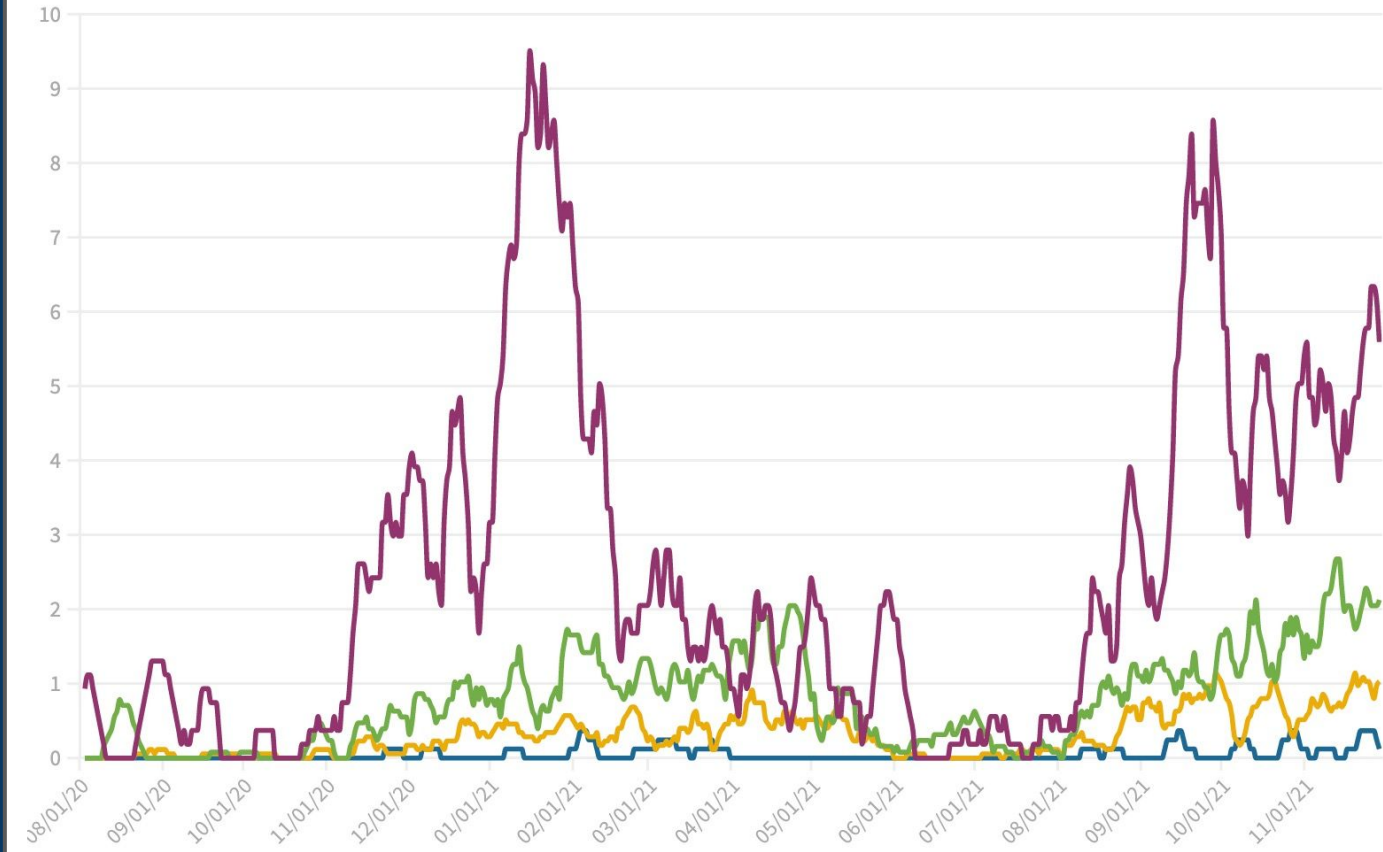


Non-COVID-19 ICU Beds Occupied

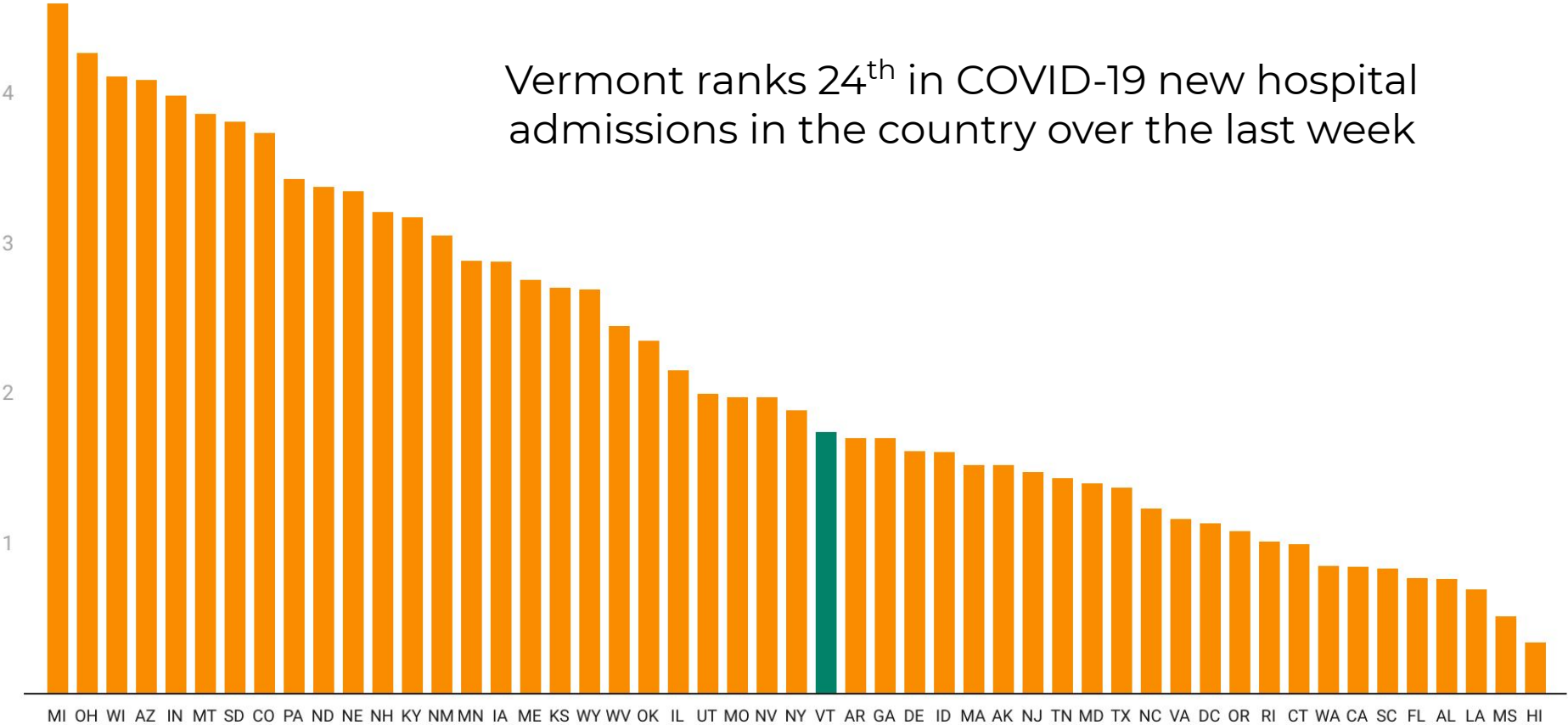
New Hospitalizations per 100,000 Residents, by Age

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

New Hospitalizations per 100K



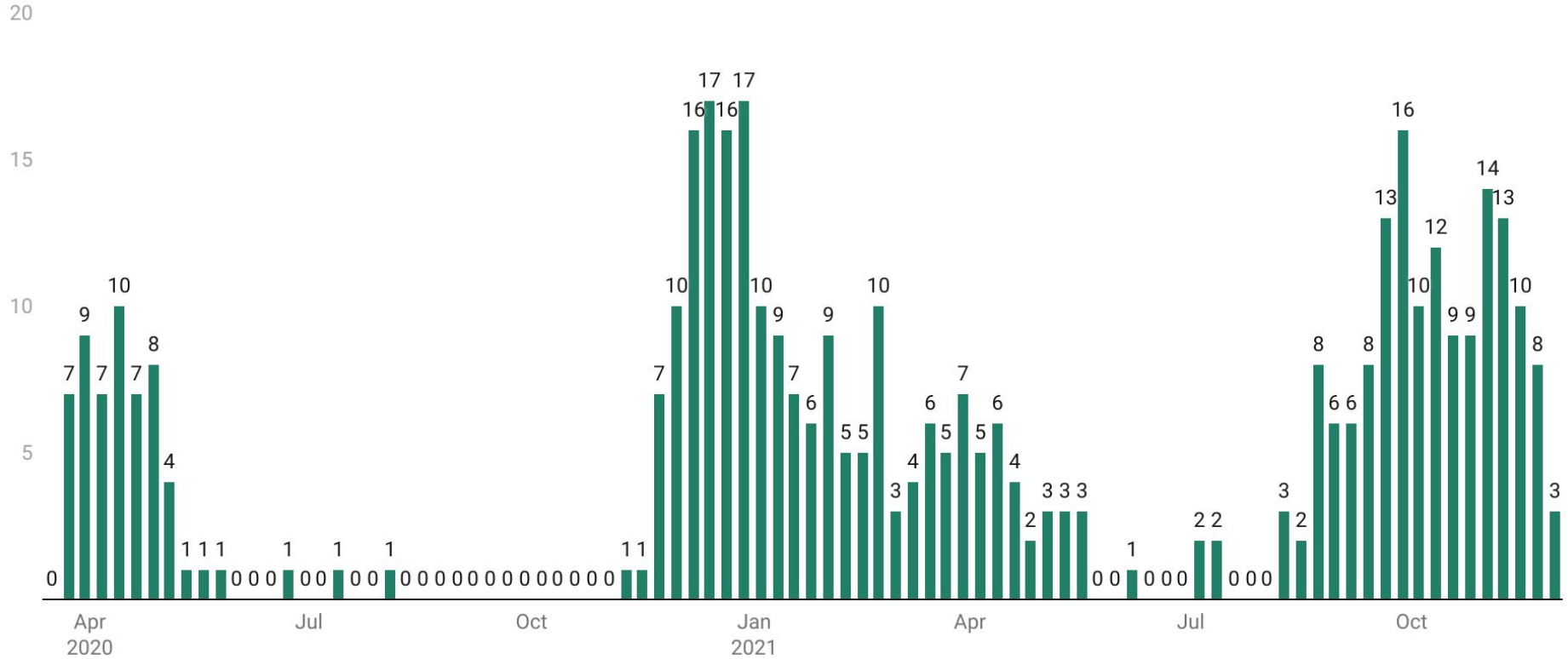
COVID-19 Hospital Admissions Last 7 Days Per 100K



Source: CDC—November 29; Created with Datawrapper

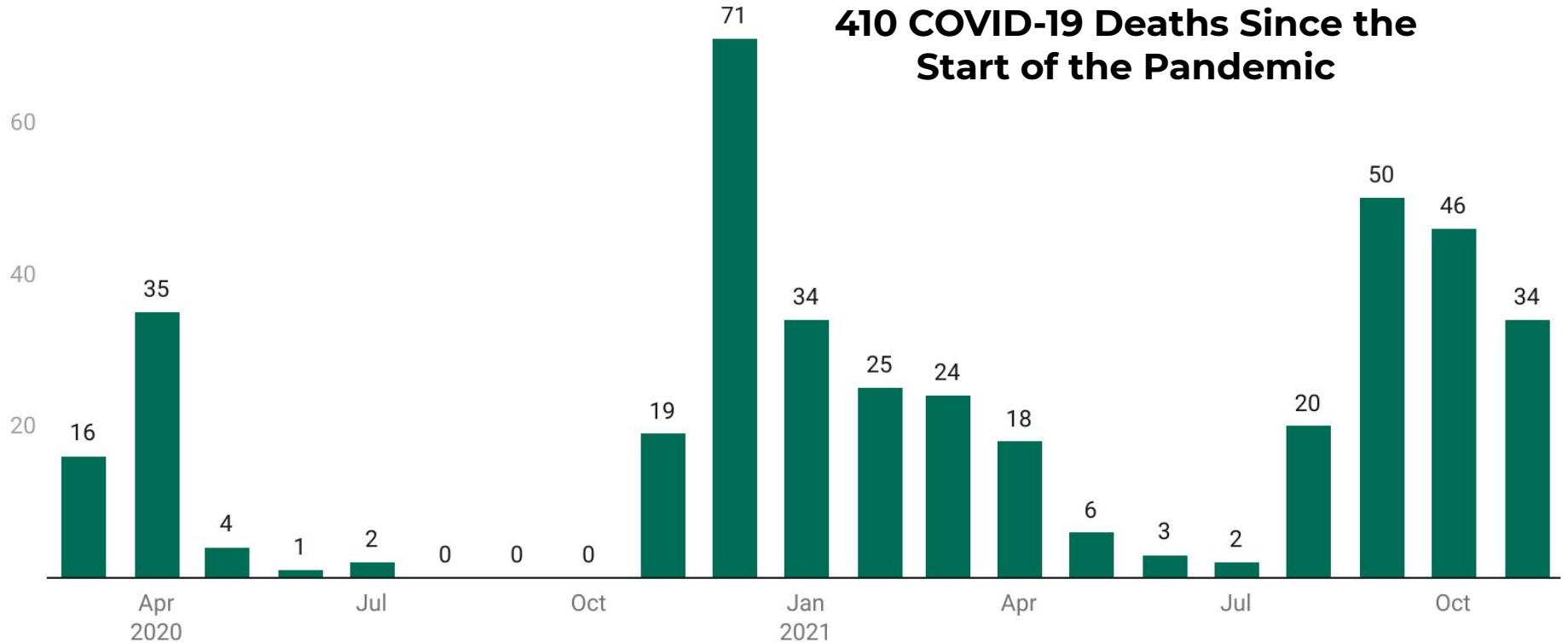
Vermont Fatality Data

Weekly Covid-19 Deaths In Vermont

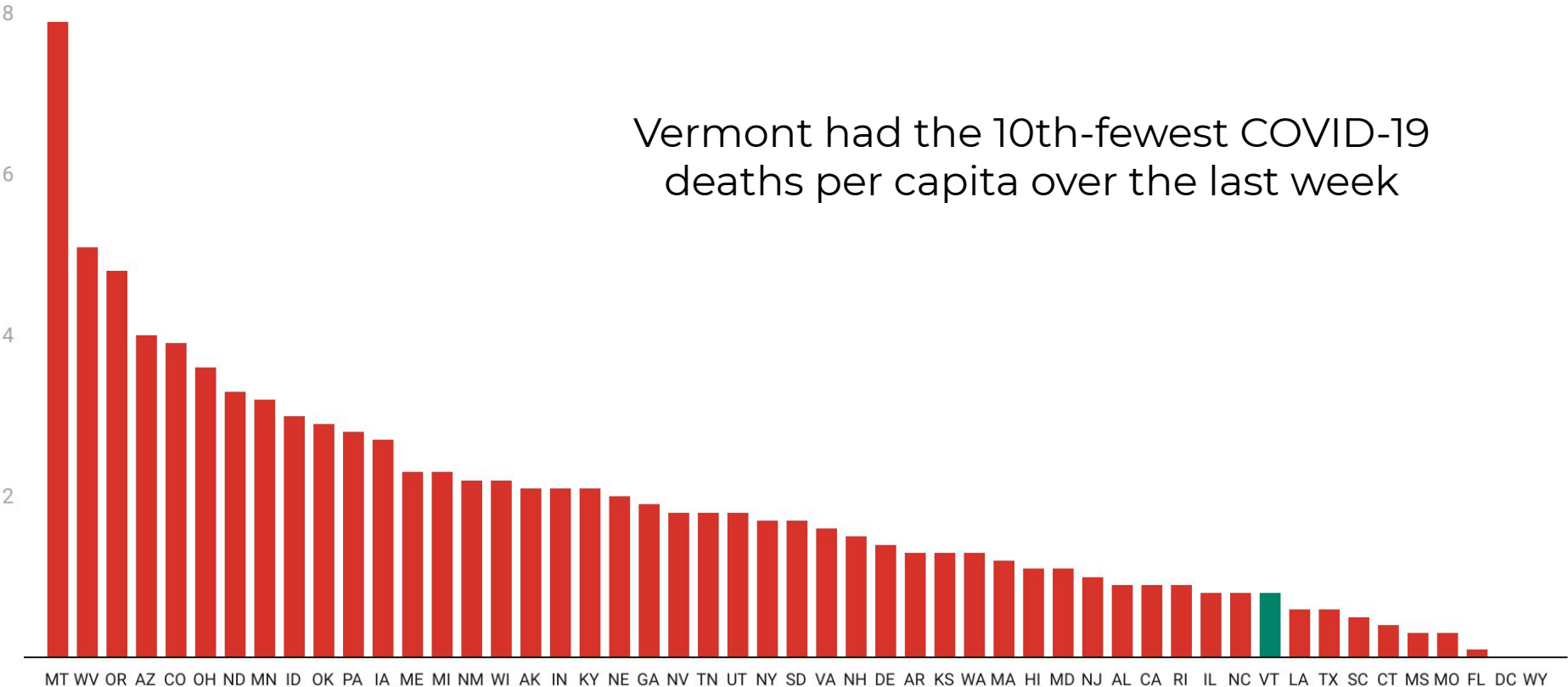


Monthly Covid-19 Deaths In Vermont

410 COVID-19 Deaths Since the Start of the Pandemic



COVID-19 Deaths Per 100K Last 7 Days



Vermont had the 10th-fewest COVID-19 deaths per capita over the last week

Source: CDC—November 29, 2021; Created with Datawrapper

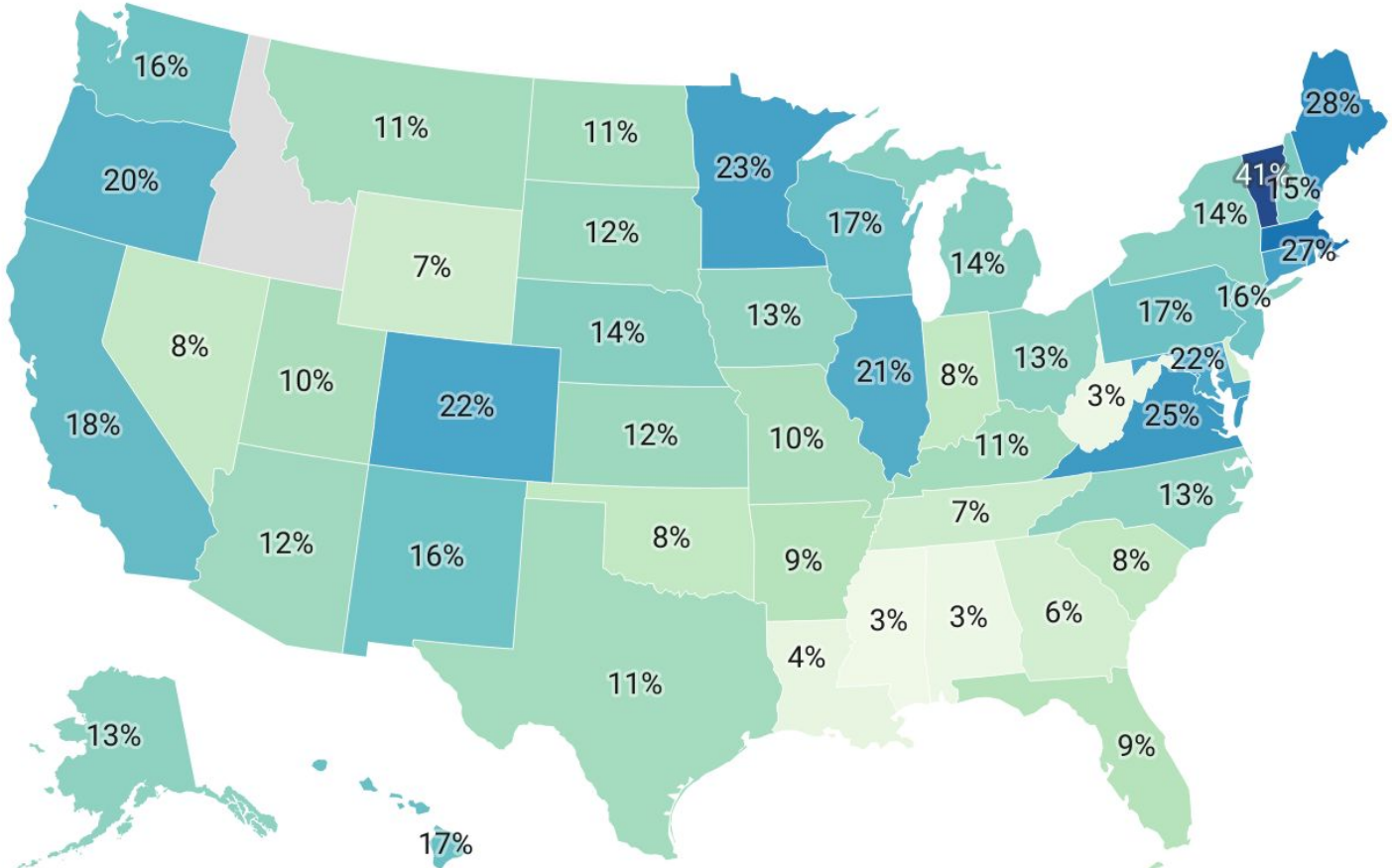
Vermont Vaccination Data

Vermont CDC Vaccine Scorecard

Metric	Figure	State Ranking
Doses Administered per 100K	179,334	1
% At Least 1 Dose (5+ Population)	89.6%	3
% Fully Vaccinated (5+ Population)	76.4%	1 (tied)
% At Least 1 Dose (Full Population)	85.4%	3
% Fully Vaccinated (Full Population)	72.9%	1
% Fully Vaccinated (65 & Over)	98.9%	1

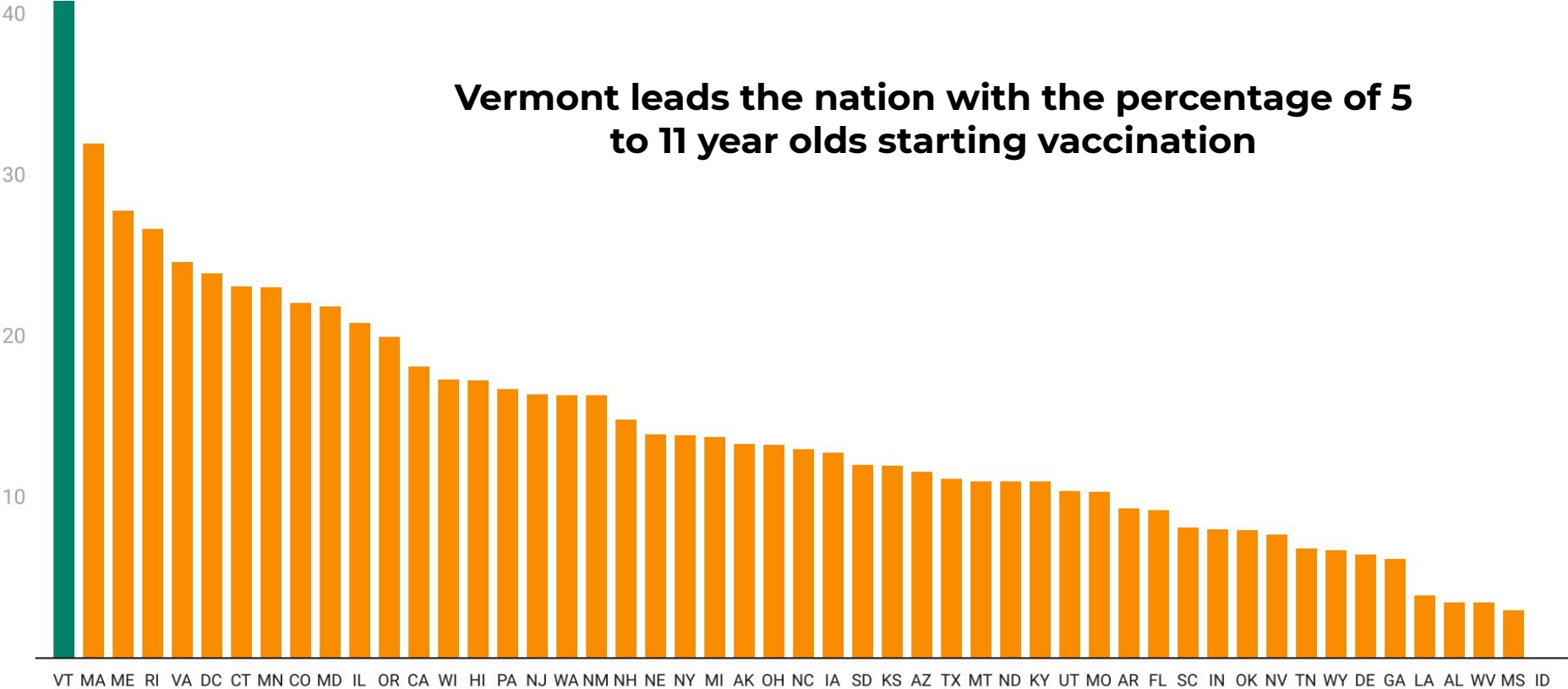
Percent of Population Ages 5 to 11 with At Least One Dose

Idaho does not publish child vaccination rates.



Source: CDC—November 29, 2021

Percent of 5 to 11 Population Starting Vaccination

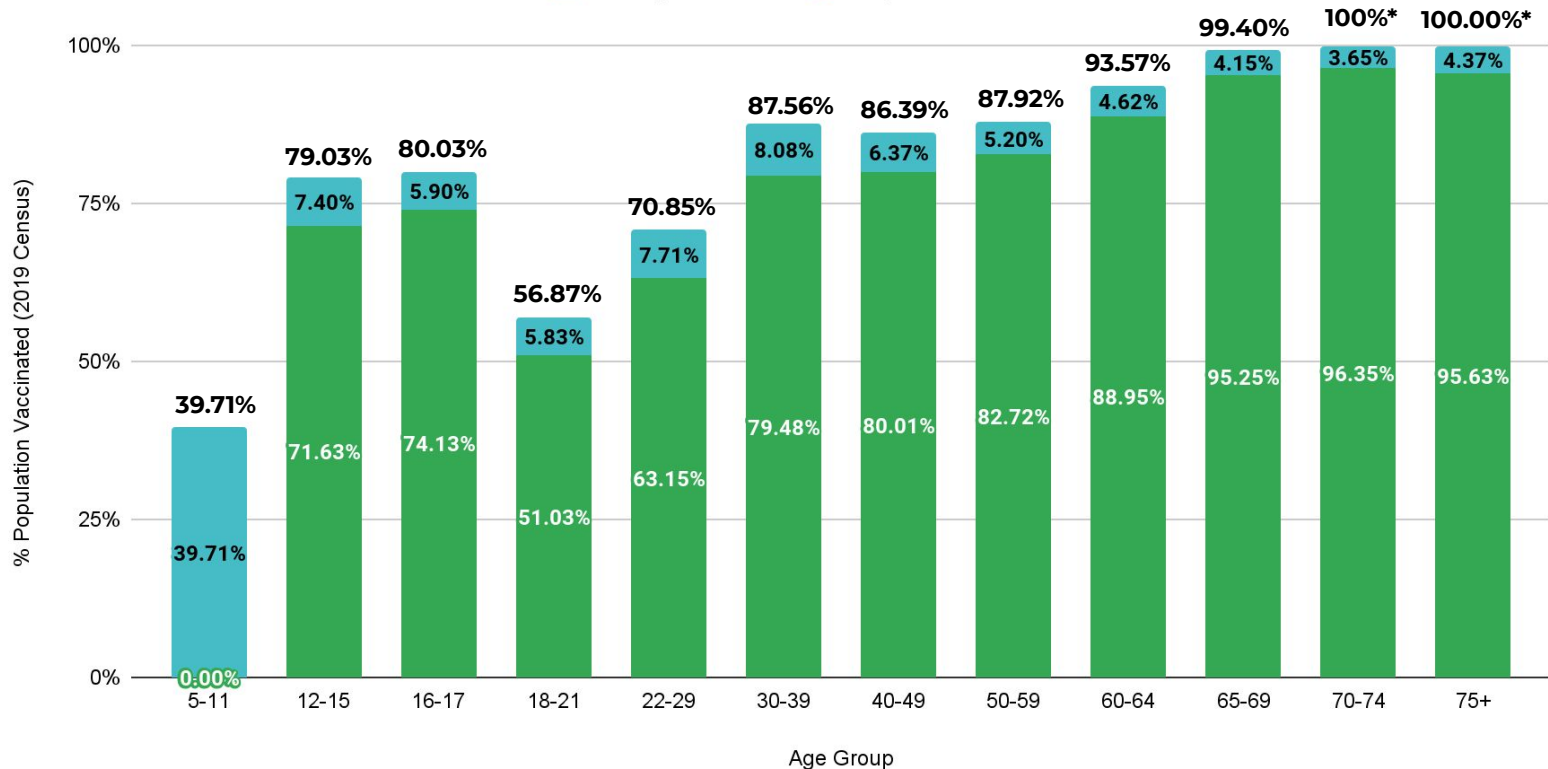


Source: CDC—November 29, 2021

Vermont Vaccination Progress

By Age Band

Partially Vaccinated Fully Vaccinated

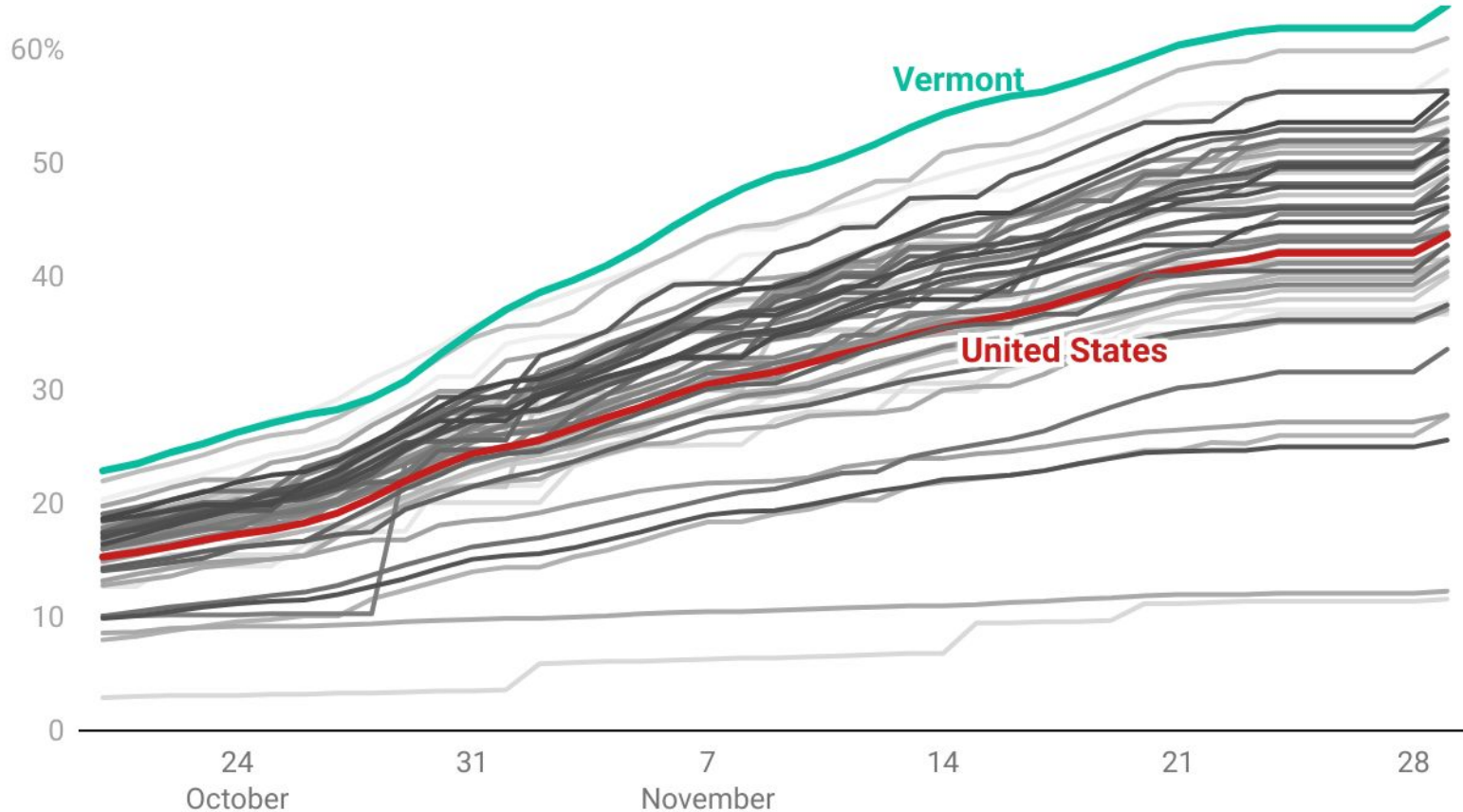


Source: Vermont Dept. of Health—November 29, 2021; *based on 2019 census estimates; state data may differ from CDC reporting

Vermont CDC Booster Scorecard

Metric	Figure	State Ranking
% of Fully Vaccinated w/ booster dose	34.7%	1
% of Fully vaccinated 18+ w/ booster doses	37.2%	1
% of Fully vaccinated 50+ w/ booster doses	50.0%	1
% of Fully vaccinated 65+ w/ booster doses	63.9%	1

Percent of Fully Vaccinated 65+ with a Booster



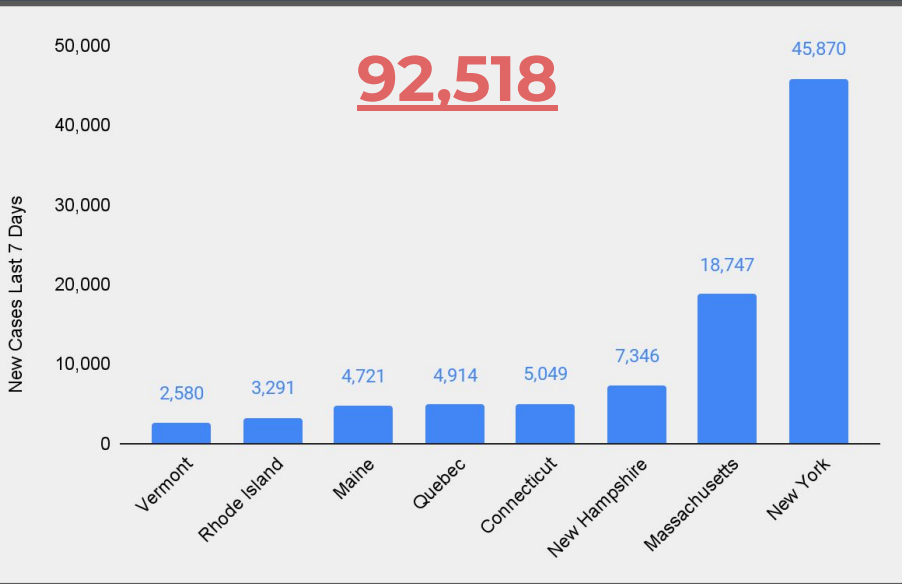
Regional Data

Northeast Regional Cases

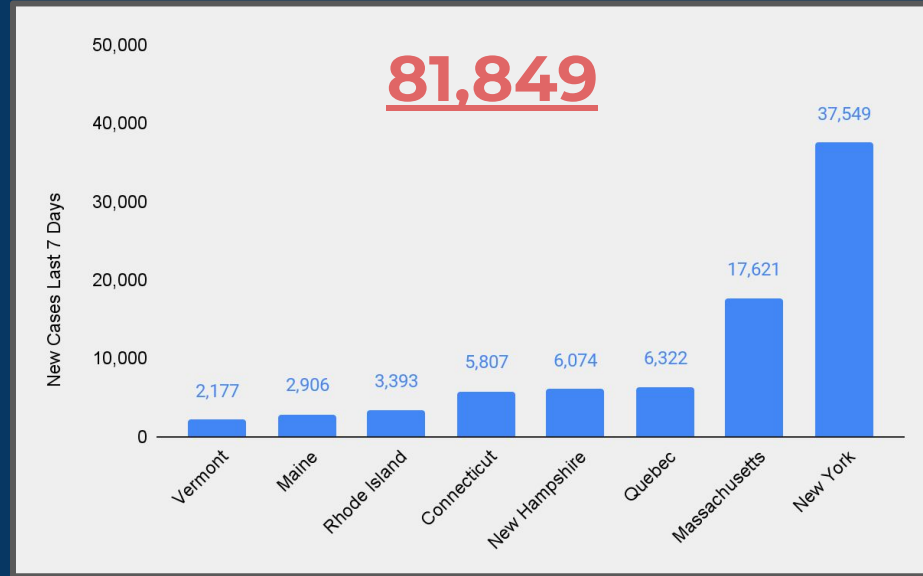
11.5% Decrease in New Cases

Note: Normal Testing & Reporting Disrupted By Thanksgiving Holiday

New Cases November 16th to November 22nd



New Cases November 23rd to November 29th



Weekly Northeast Regional Cases

250000

200000

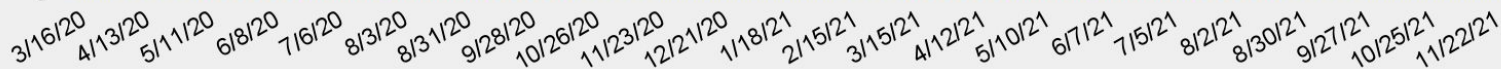
150000

100000

50000

0

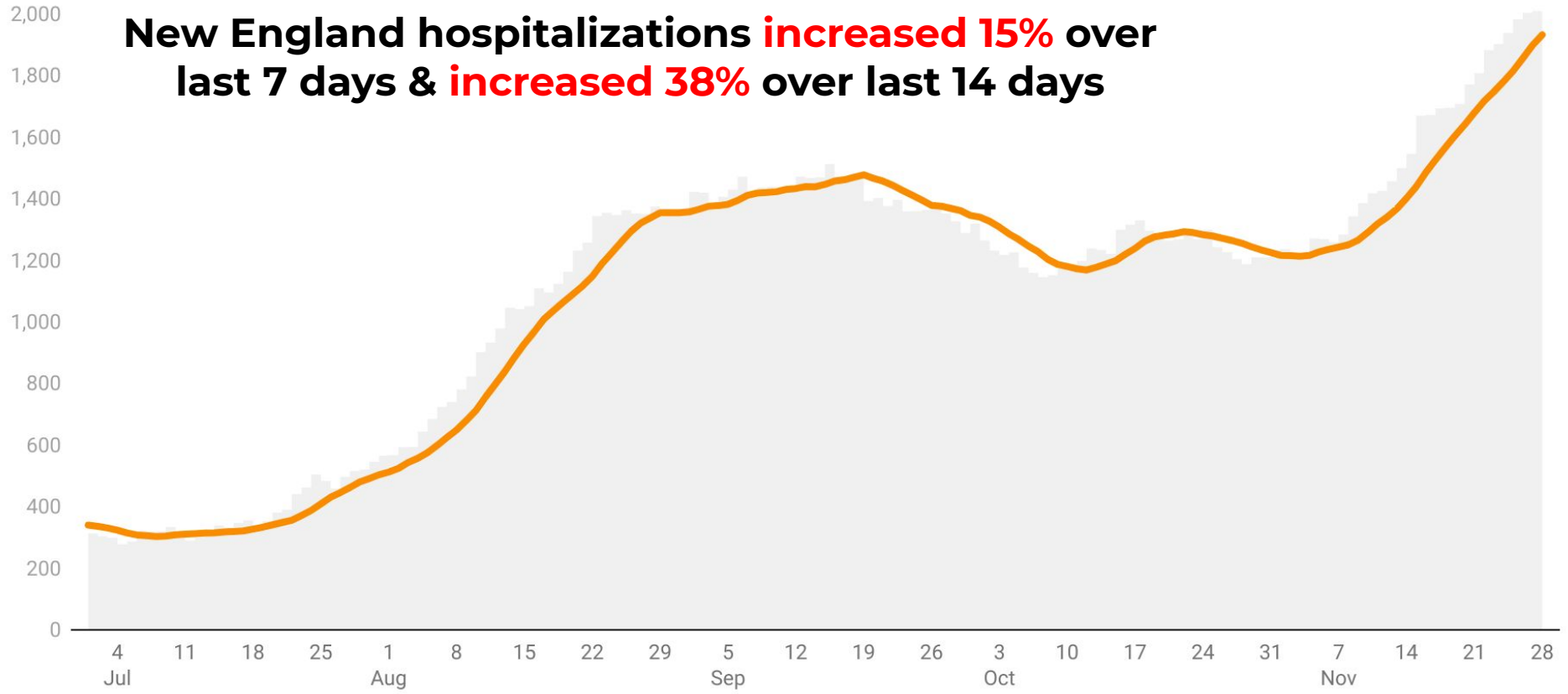
Note: Normal Testing & Reporting Disrupted By Thanksgiving Holiday



Sources: State Health Depts.—November 29, 2021 (includes: CT, ME, MA, NH, NY, QC, RI & VT)

New England COVID-19 Hospitalizations

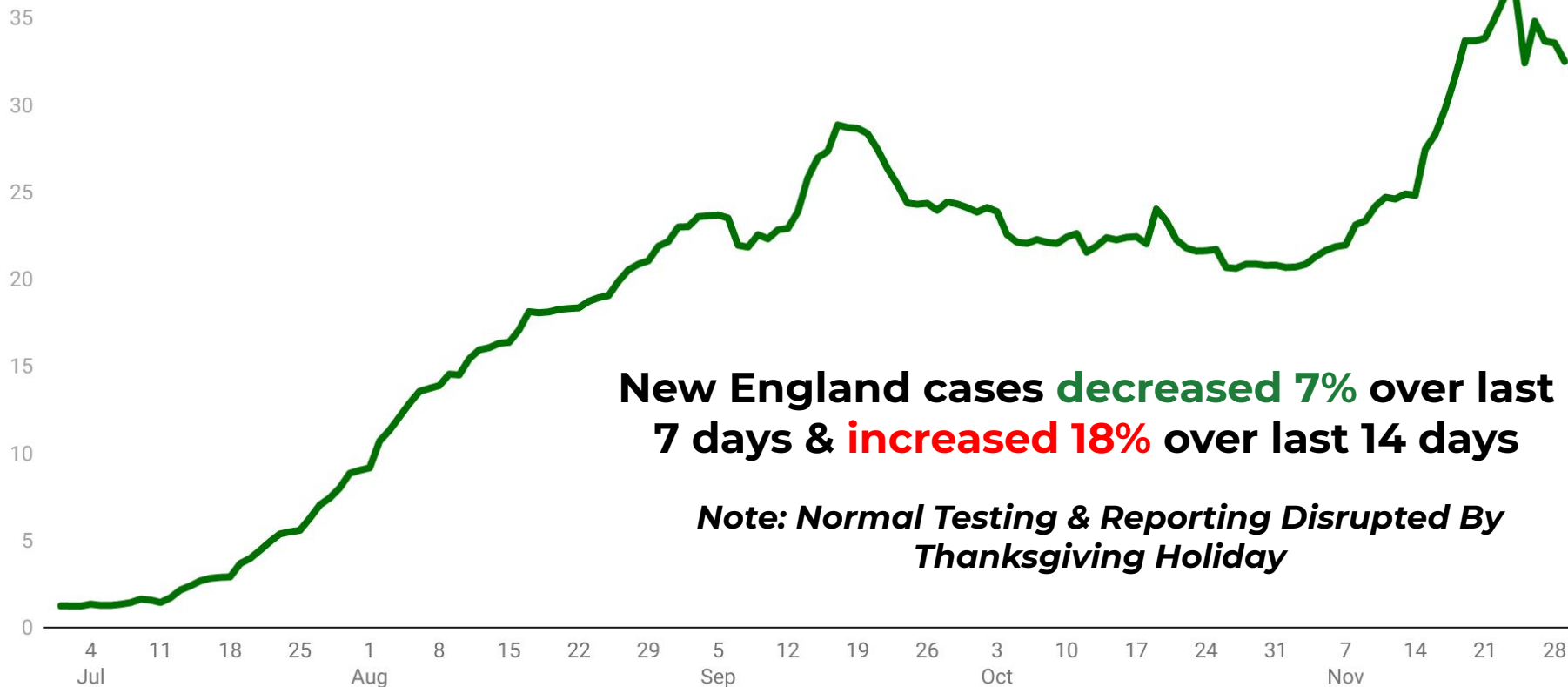
7-Day Average



Sources: HHS—November 29, 2021 (includes: CT, ME, MA, NH, RI & VT)

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

— New England Case Rate



New England cases decreased 7% over last 7 days & increased 18% over last 14 days

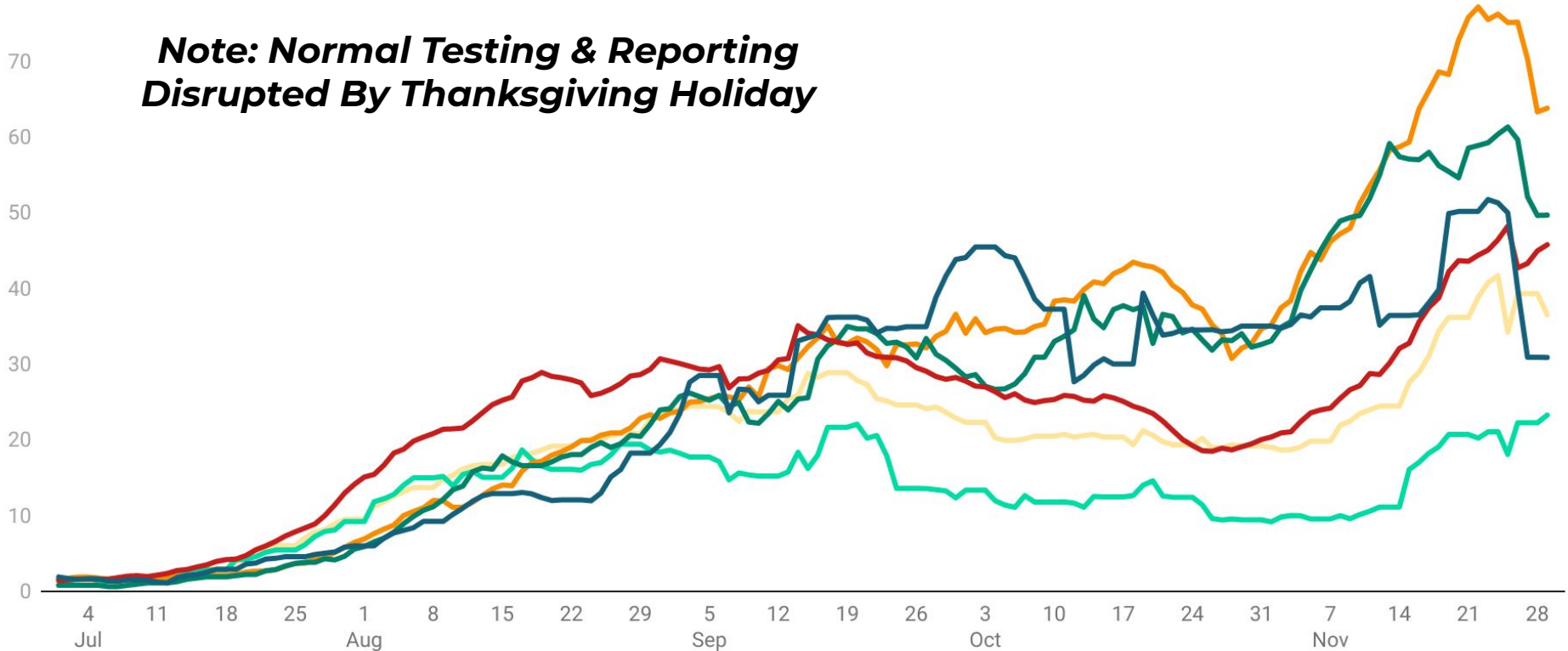
Note: Normal Testing & Reporting Disrupted By Thanksgiving Holiday

New England COVID-19 Case Trends

7-Day Average Cases Per 100K

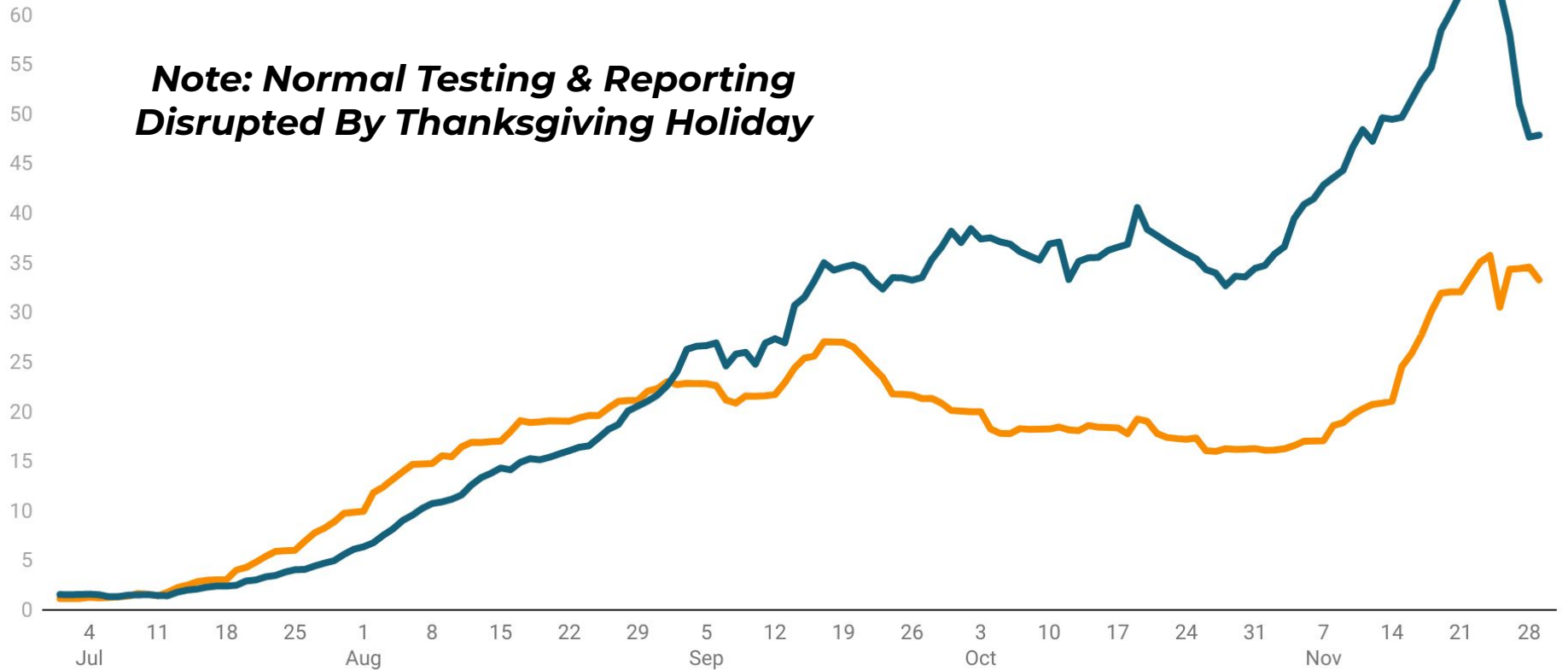
Massachusetts Connecticut Rhode Island Maine New Hampshire Vermont

Note: Normal Testing & Reporting Disrupted By Thanksgiving Holiday



Northern vs. Southern New England Case Rate Per 100K

Southern NE 7-Day Case Rate Northern NE 7-Day Case Rate

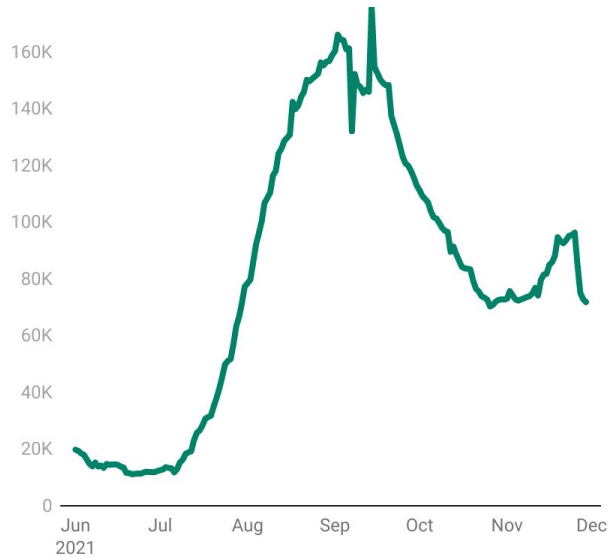


National Data

U.S. Infections, Hospitalizations, & Deaths

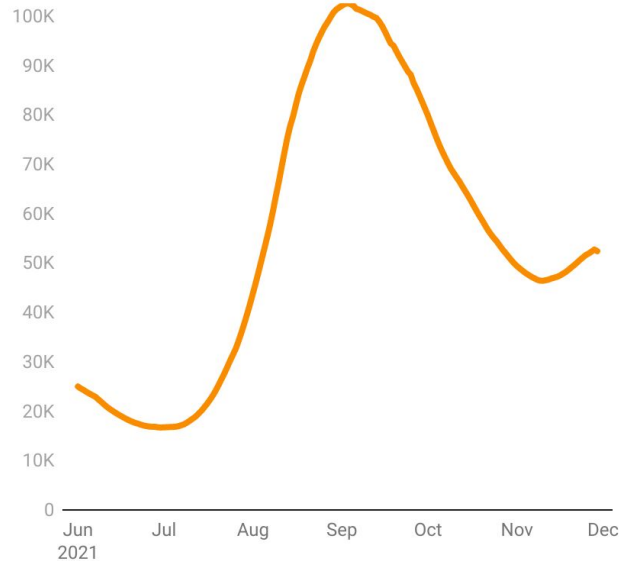
Note: Normal Testing & Reporting Disrupted By Thanksgiving Holiday

23.4% Decrease
Over last 7 days



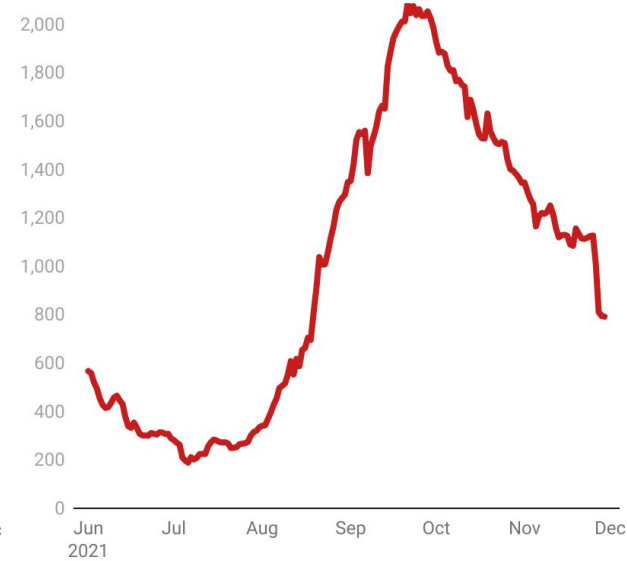
Infections
(7-Day Average)

4.6% Increase
Over last 7 days



Hospitalizations
(7-Day Average)

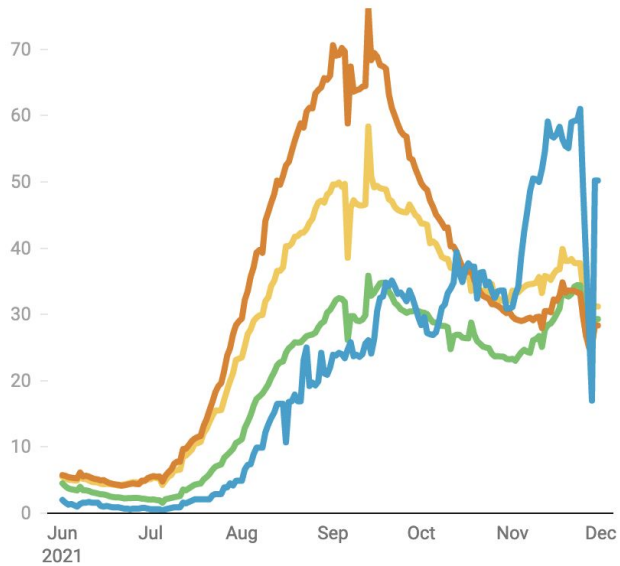
28.8% Decrease
Over last 7 days



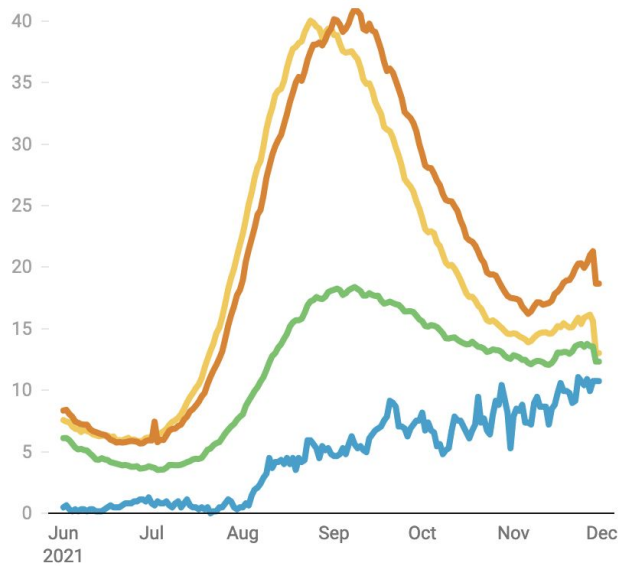
Deaths
(7-Day Average)

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

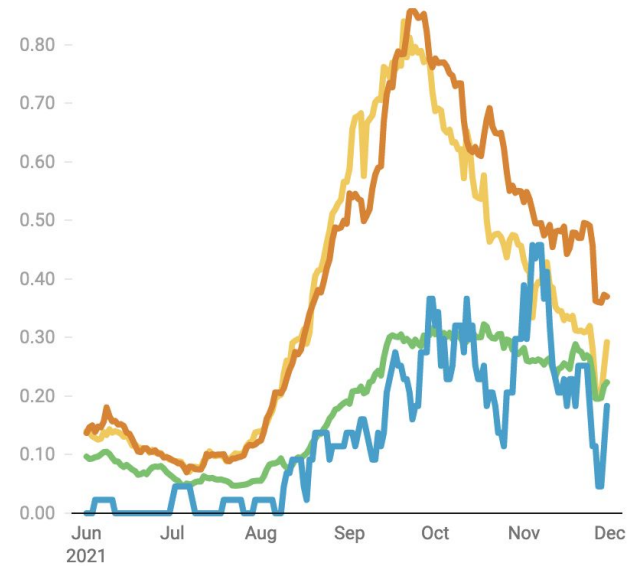
■ Bottom Third Vaccinated States
 ■ Middle Third Vaccinated States
 ■ Top Third Vaccinated States
 ■ Vermont



Infections per 100K



Hospitalizations per 100K
(Current)

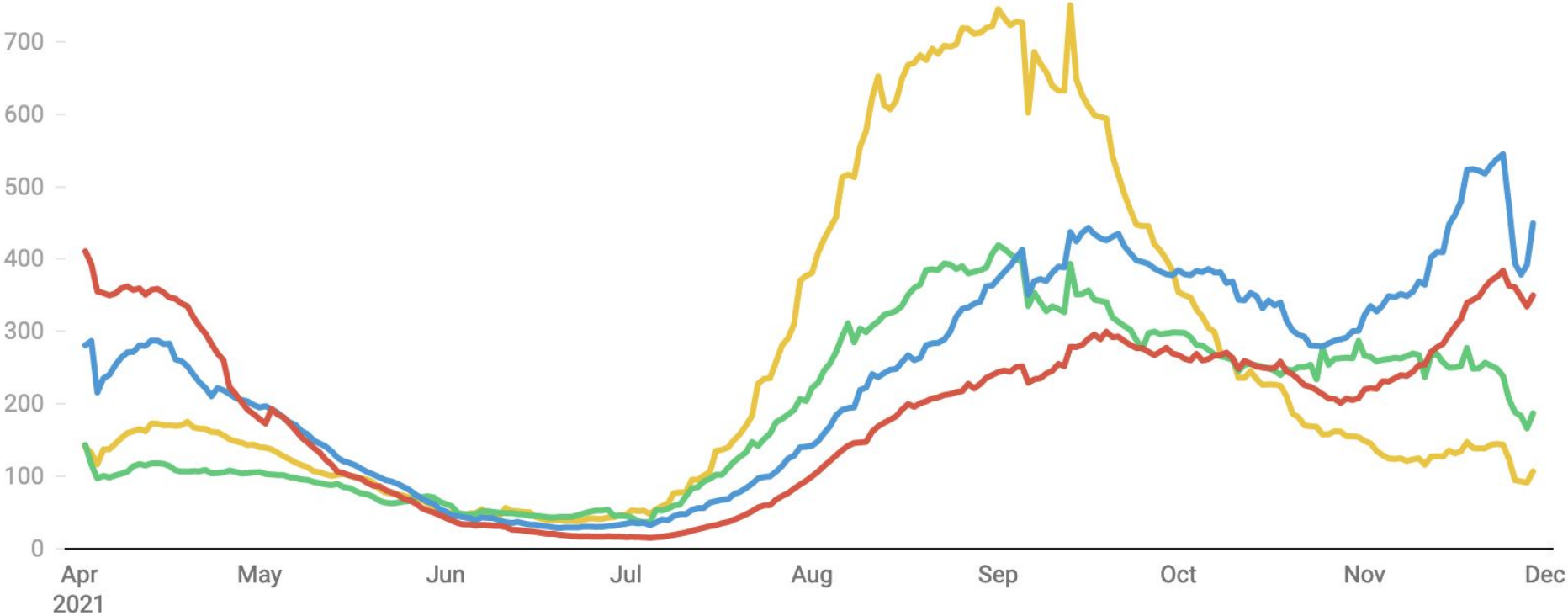


Deaths per 100K

Daily COVID-19 Cases 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.

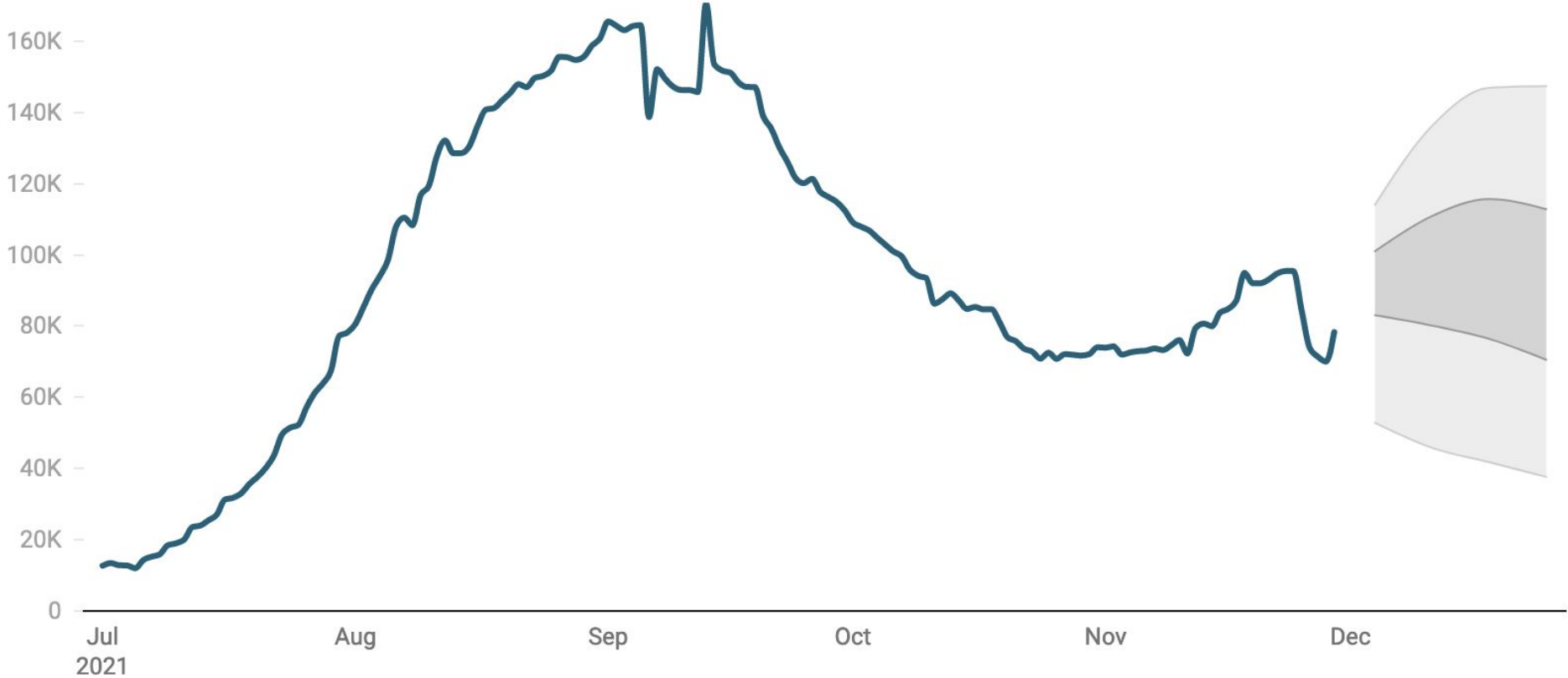
— Northeast — Midwest — South — West



Source: JHU—November 30, 2021; 7-day averages; created with Datawrapper

US COVID-19 Infection Confidence Intervals

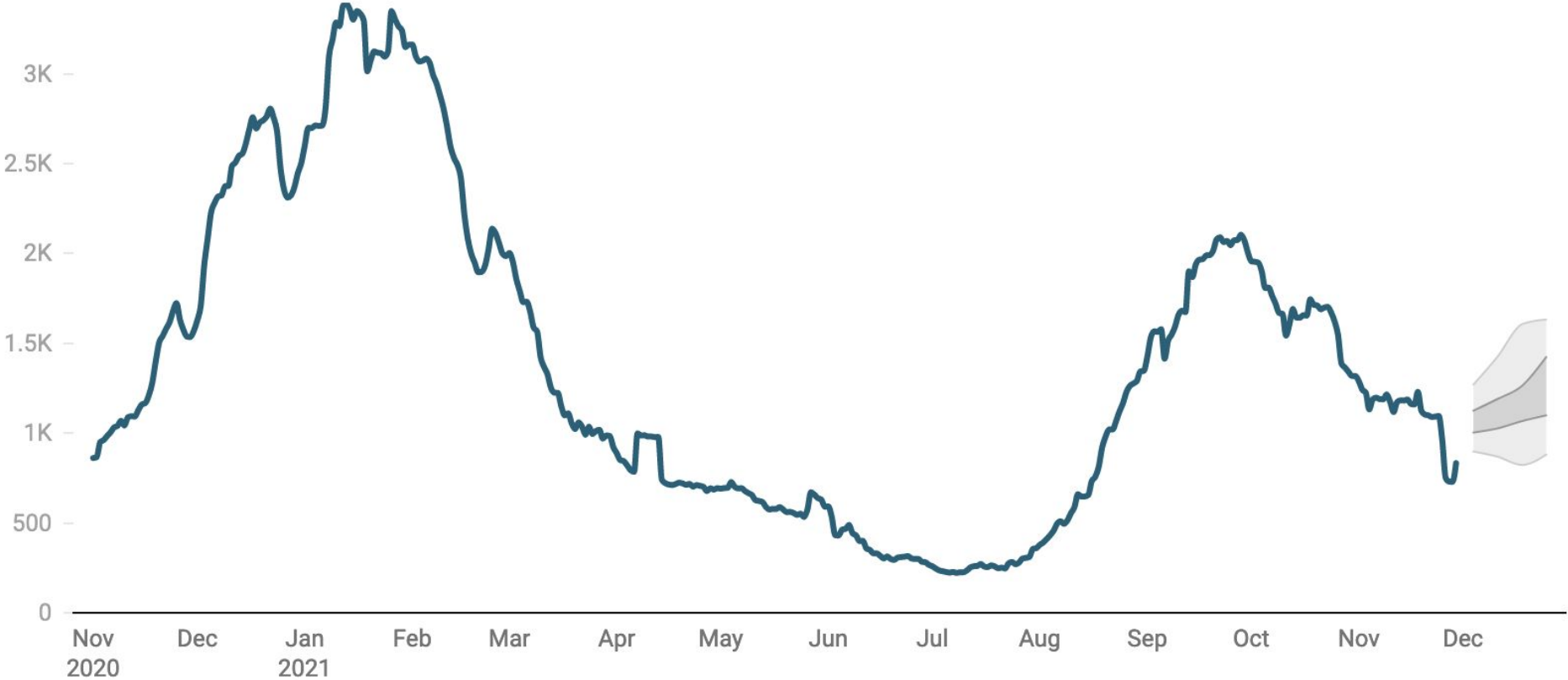
Calculated as a 7-day mean. Inner and outer bands represent 50% and 95% confidence intervals, respectively.



Source: CDC—November 30, 2021

US COVID-19 Death Confidence Intervals

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



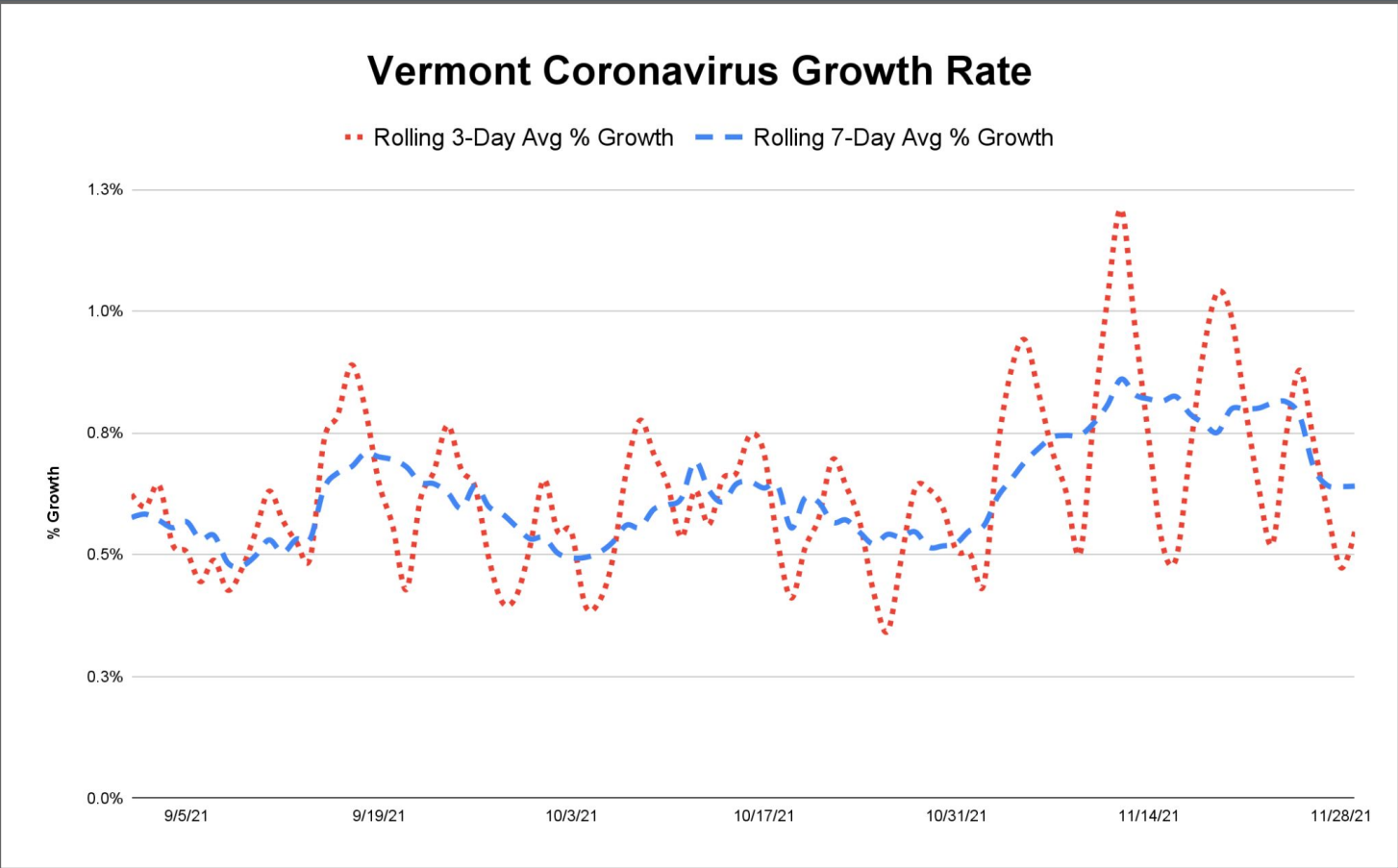
Source: CDC—November 30, 2021

RESTART VERMONT

Reopening Metrics

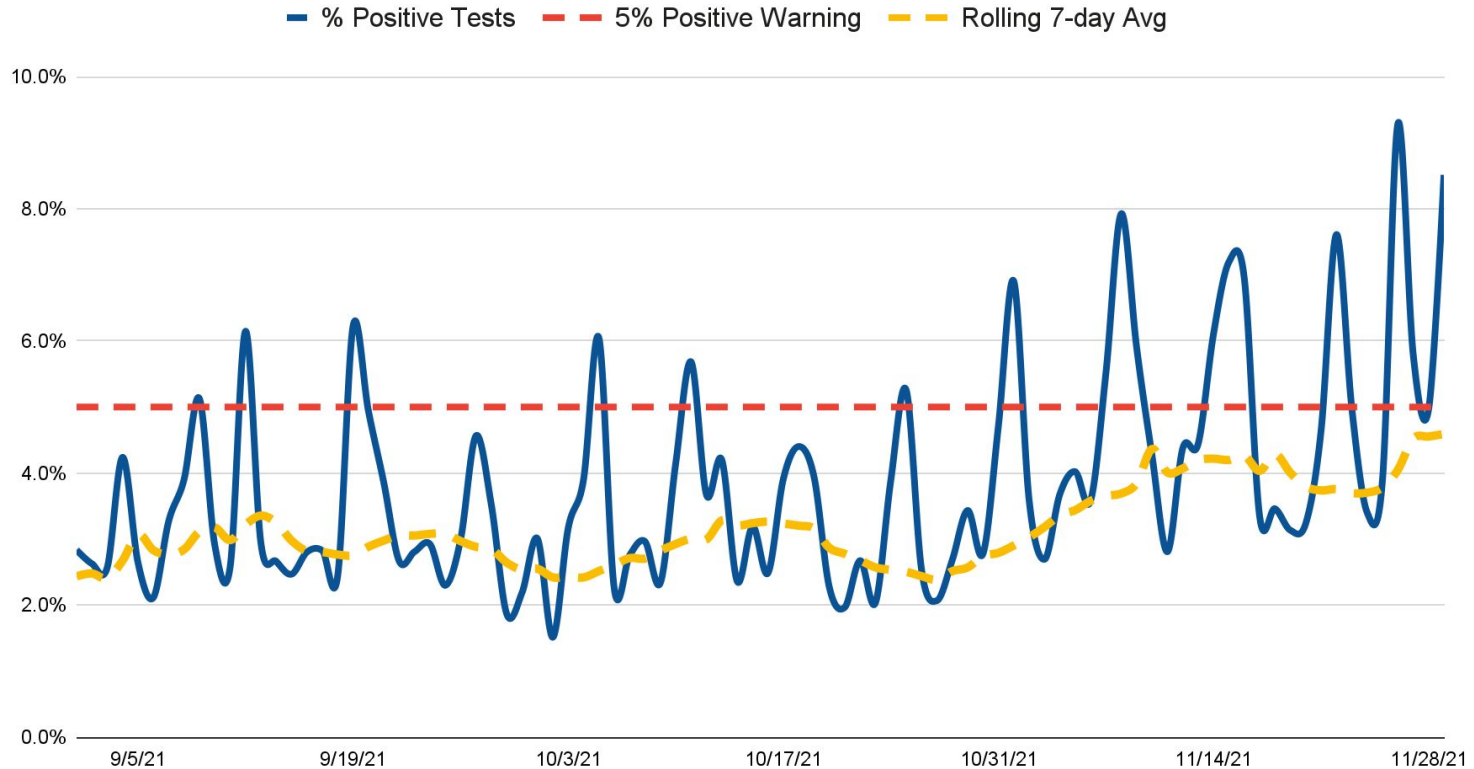
1. Syndromic Surveillance (*retired*)
2. Viral Growth & Reproductive Rates
3. Percentage of New Positive Tests
4. Hospital & Critical Care Bed Capacity
5. Testing Volume

Viral Growth & Reproductive Rates

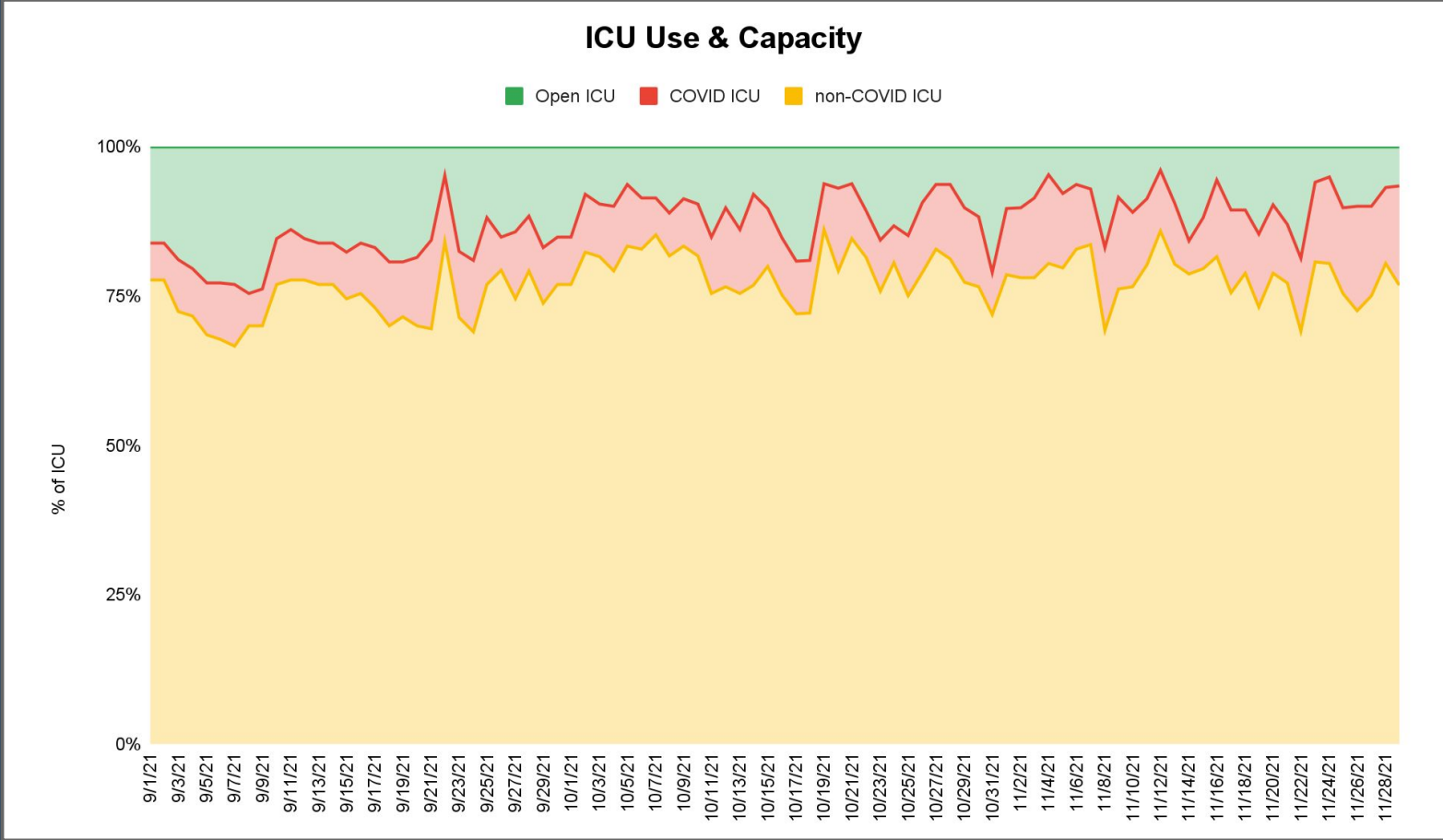


Percentage of New Positive Tests

Percent Tests Yielding New Positive COVID-19 Cases



Hospital & Critical Care Beds



Source: Vermont Department of Health

Vermont Testing

