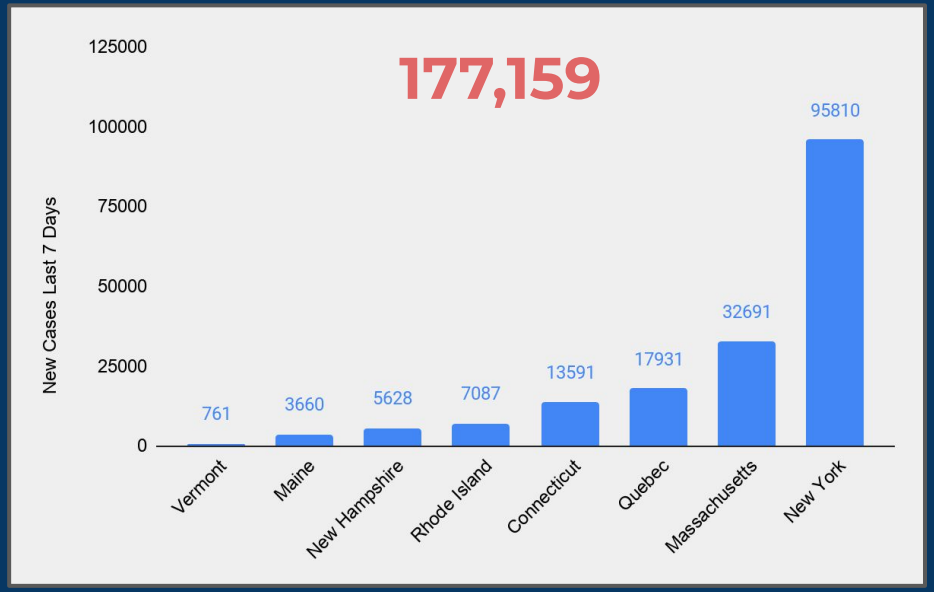
COVID-19 Modeling
January 12, 2021

Presentation available at:
dfr.vermont.gov

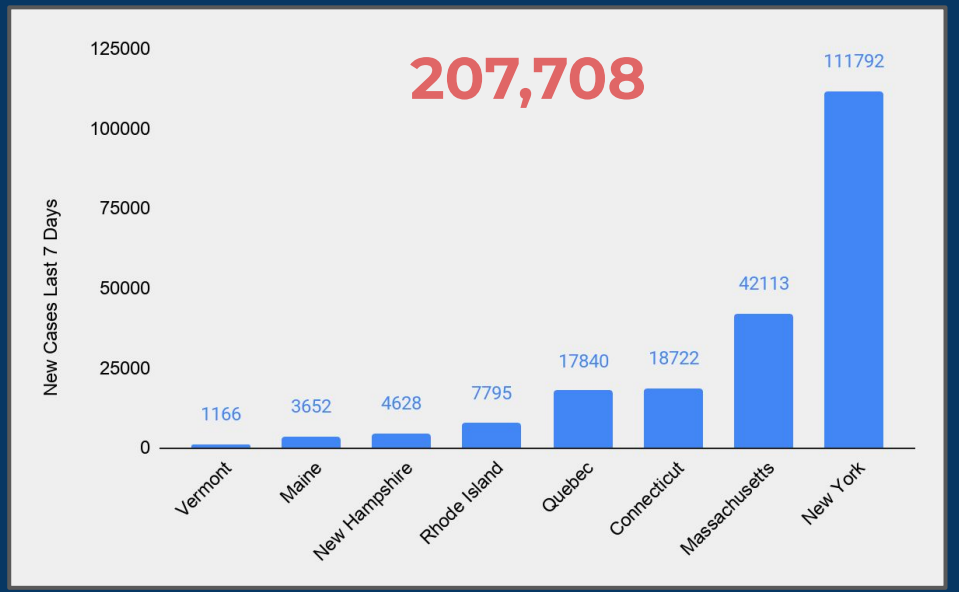
Regional Case Growth

17.24% Increase in New Confirmed Cases

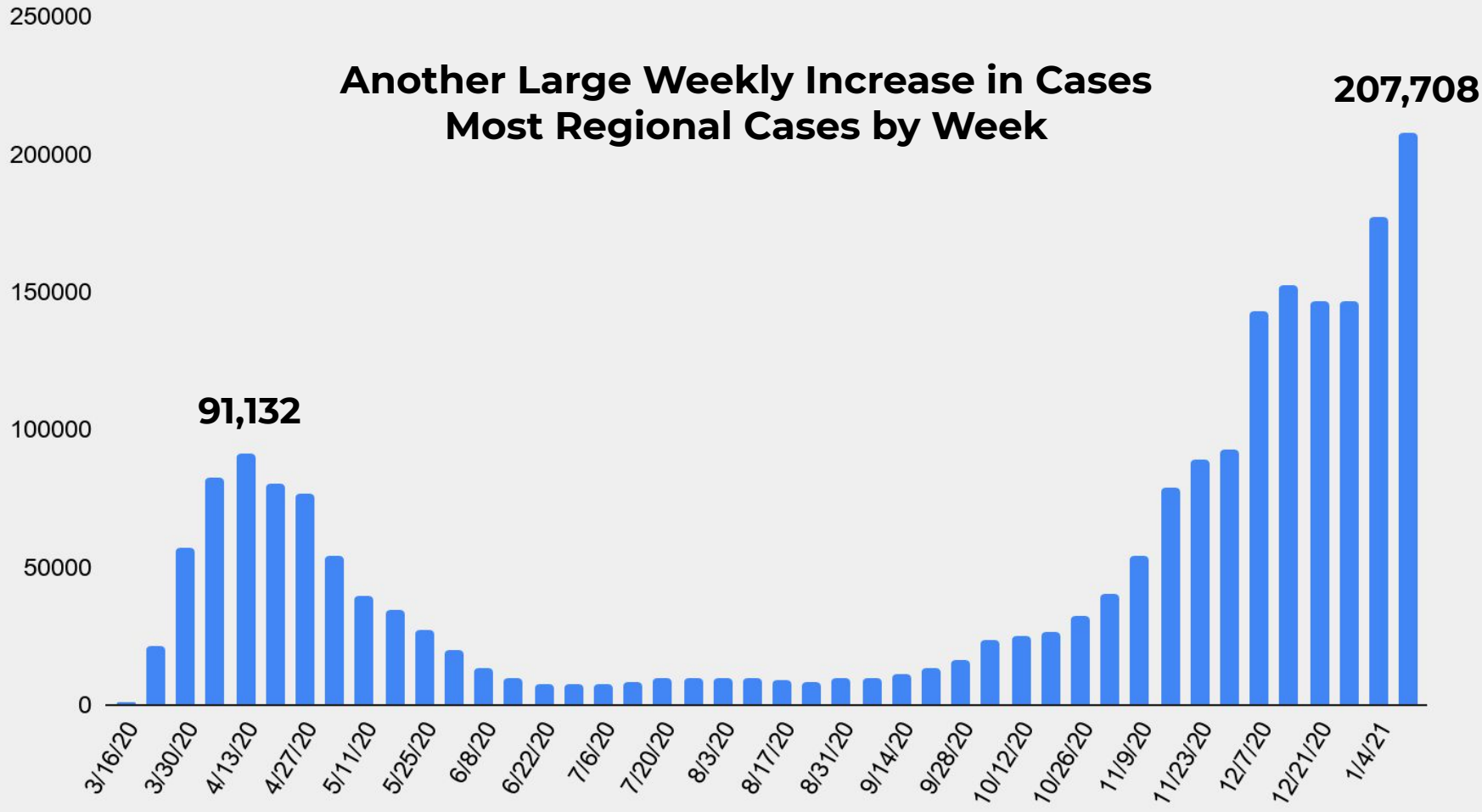
Positive Cases Dec. 29th to Jan. 4th



Positive Cases Jan 5th to Jan. 11th



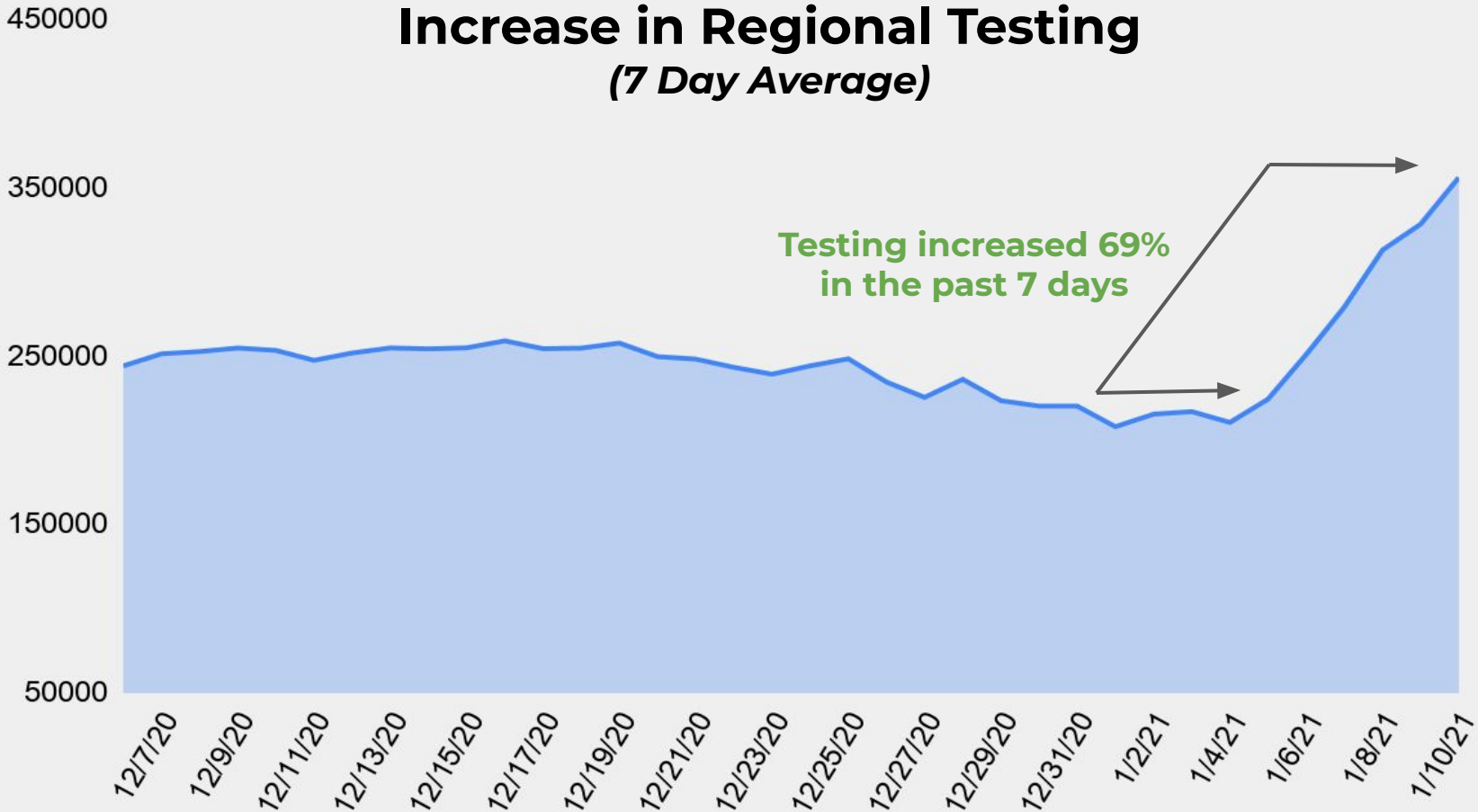
Sources: State Health Departments & CTV National News (Quebec)



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

Increase in Regional Testing

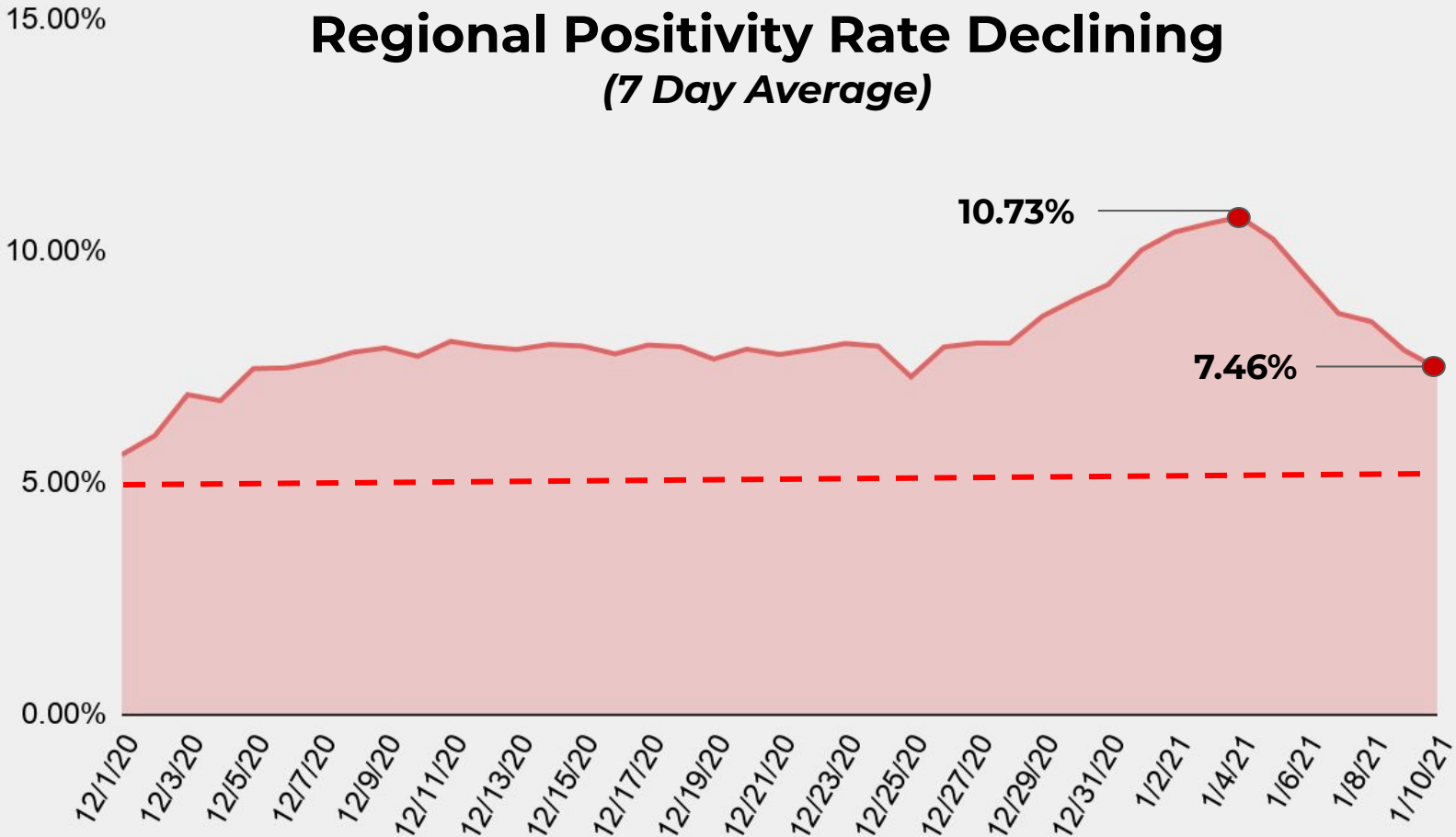
(7 Day Average)



Source: Covid Tracking Project (7 Day Average of PCR Testing in CT, ME, MA, NH, NY, RI & VT)—January 10, 2021

Regional Positivity Rate Declining

(7 Day Average)



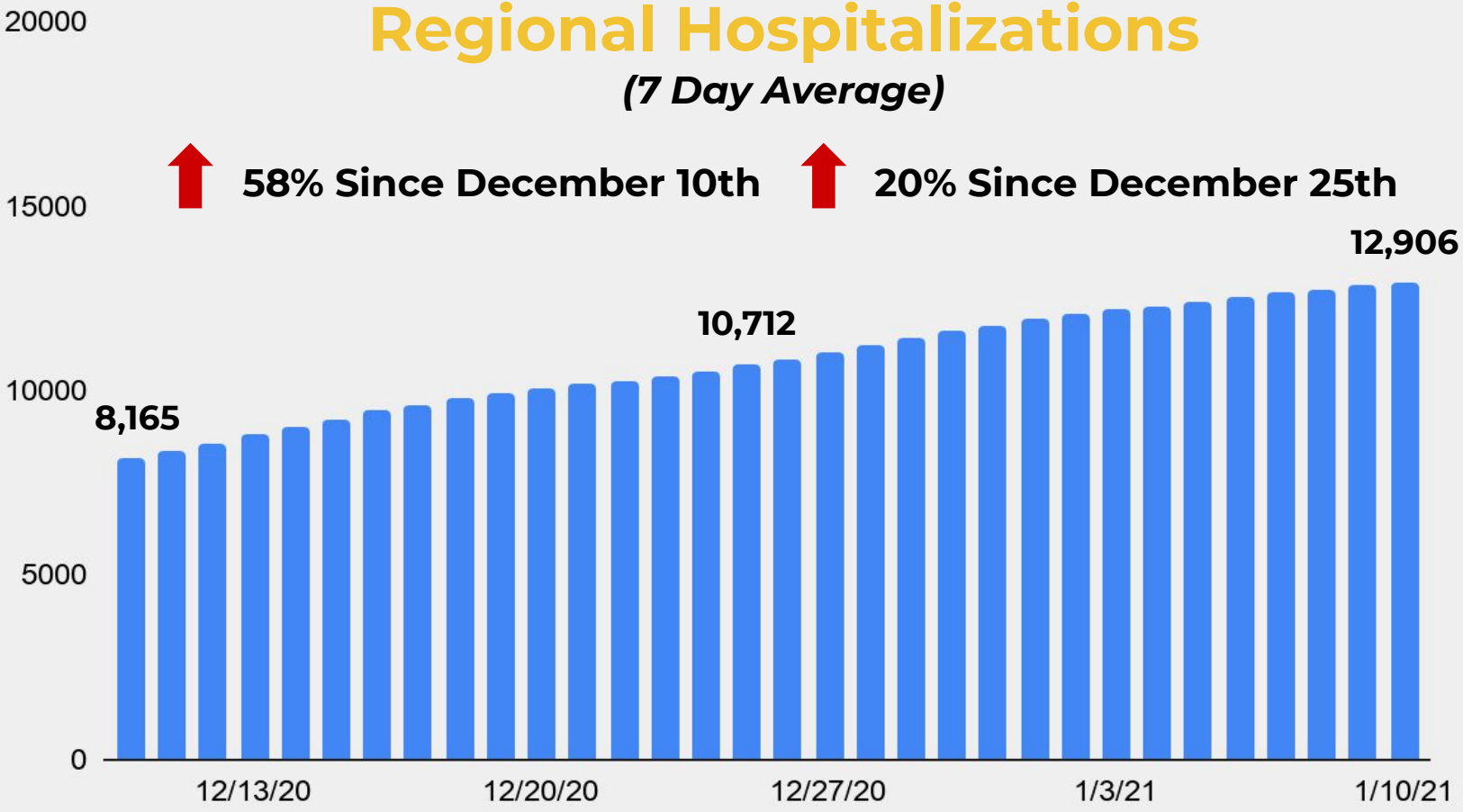
Source: Covid Tracking Project (7 Day Average in CT, ME, MA, NH, NY, RI & VT)—January 10, 2021

Regional Hospitalizations

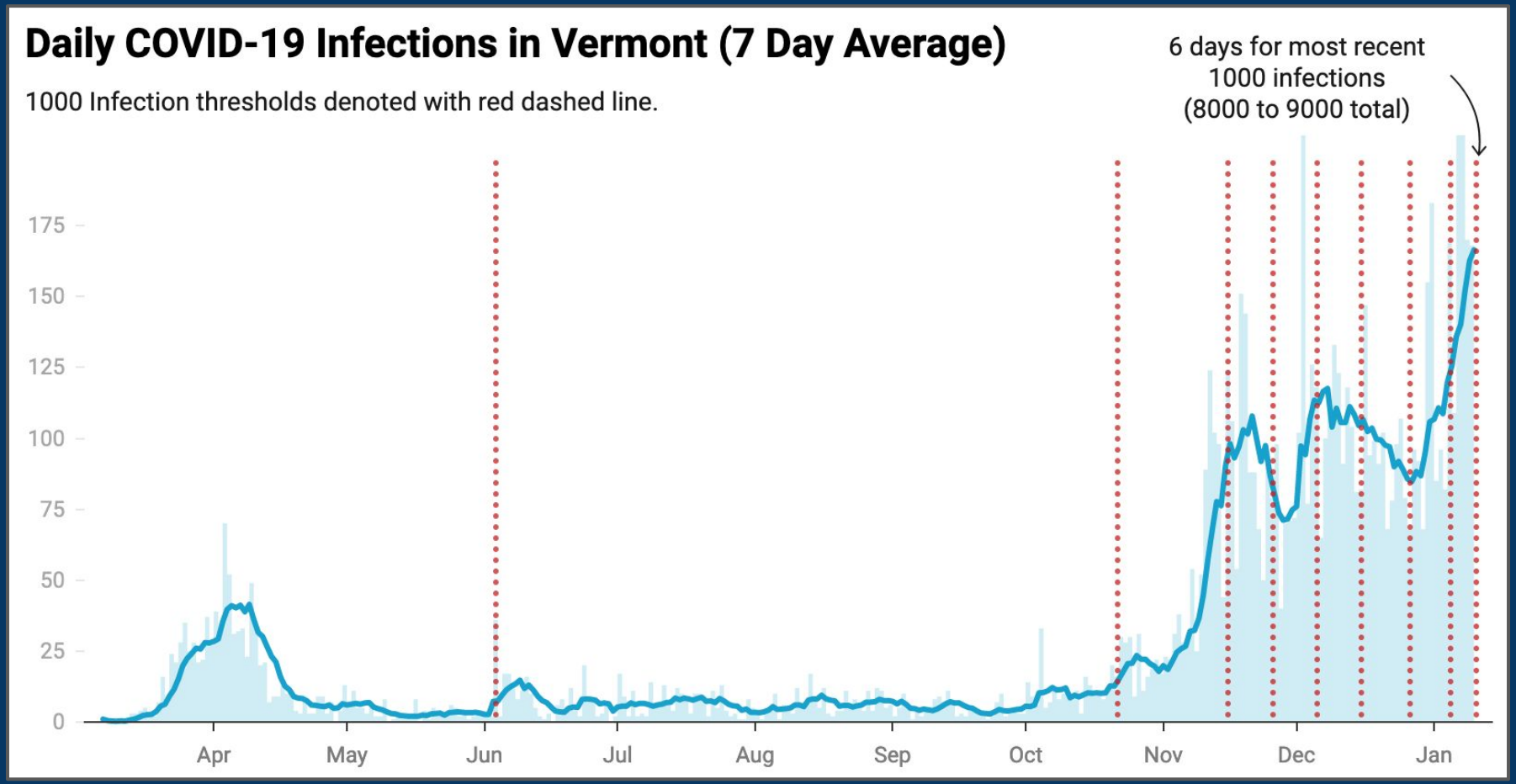
(7 Day Average)

58% Since December 10th

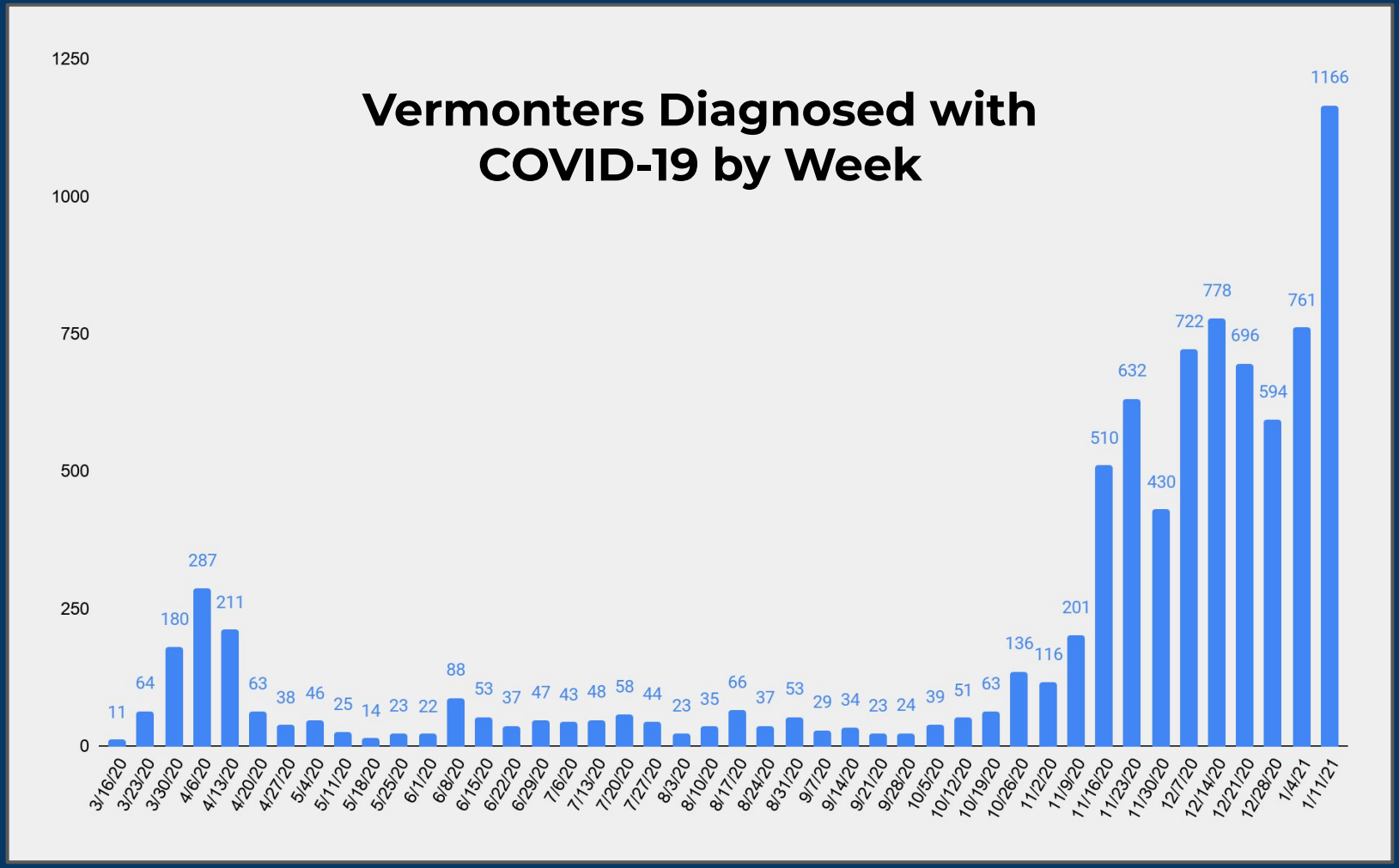
20% Since December 25th



Source: Covid Tracking Project (CT, ME, MA, NH, NY, RI & VT)—January 10, 2021



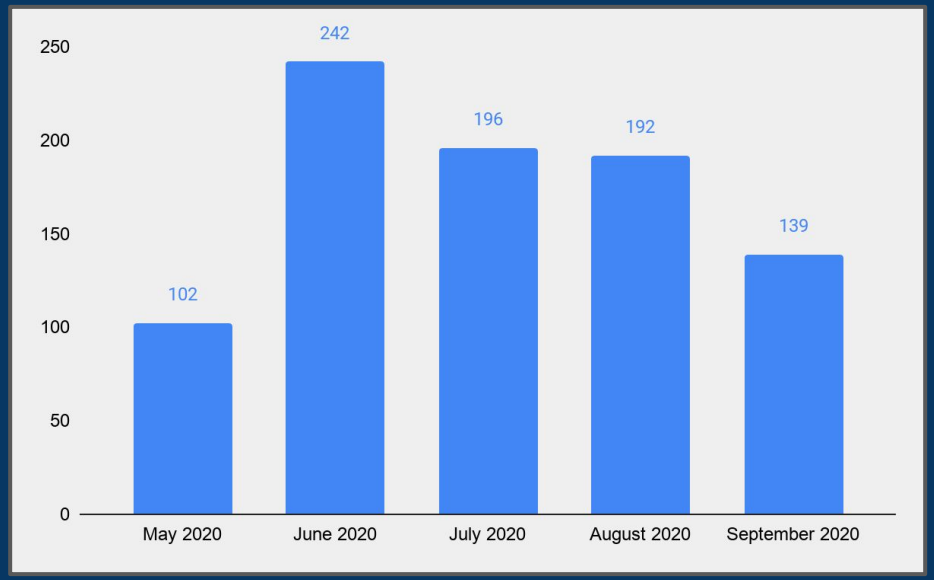
Source: Vermont Department of Health—January 12, 2021



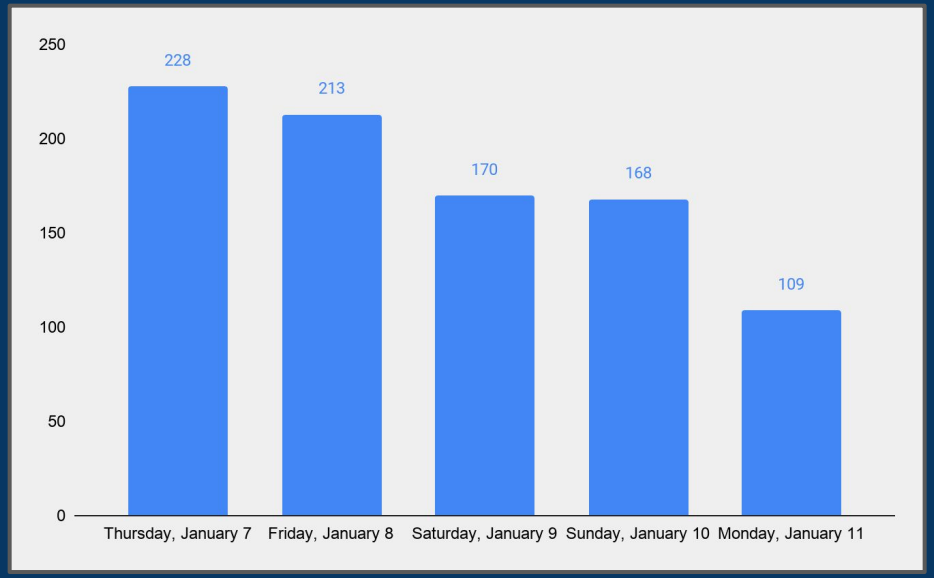
Source: Vermont Department of Health (week calculated as Tuesday to Monday)

Increased COVID-19 Risk

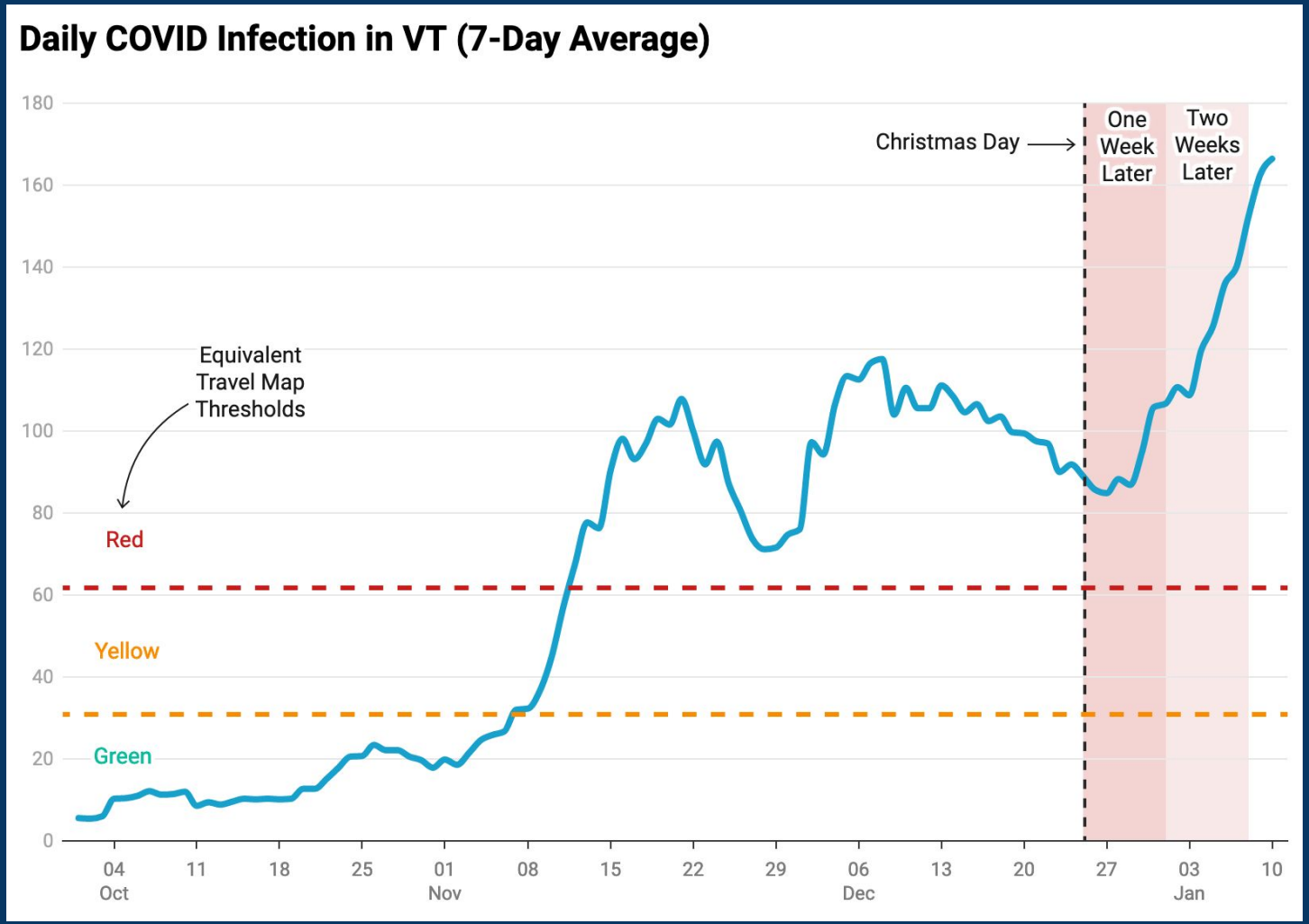
871 New Cases Over 5 Months

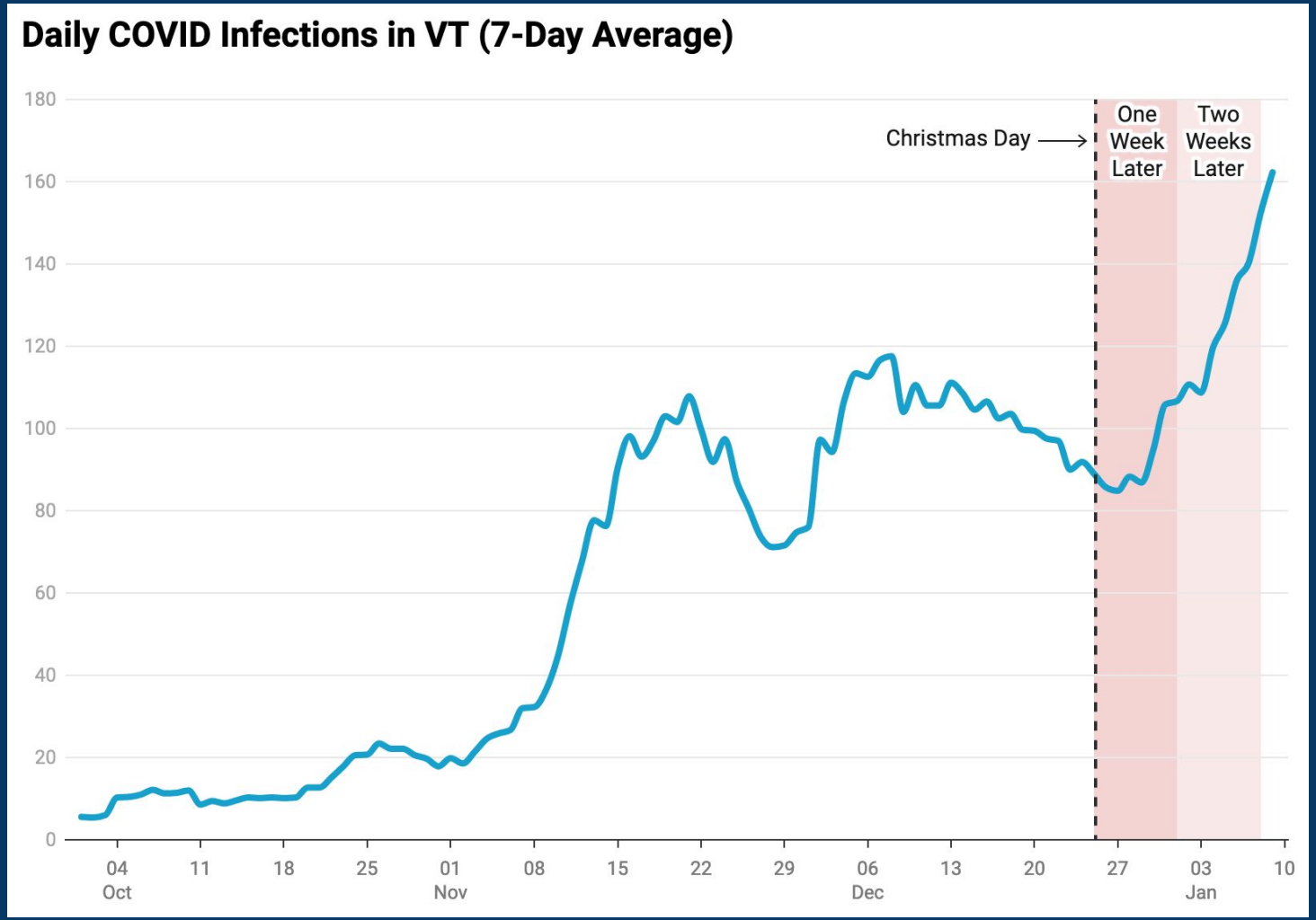


888 New Cases Over Last 5 Days



Source: Vermont Department of Health


Daily COVID Infection in VT (7-Day Average)
180
160
140
120
100
80
60
40
20
0
Christmas Day
One Week Later
Two Weeks Later
Equivalent Travel Map Thresholds
Red
Yellow
Green
04 Oct
11
18
25
01 Nov
08
15
22
29
06 Dec
13
20
27
03 Jan
10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04 Oct
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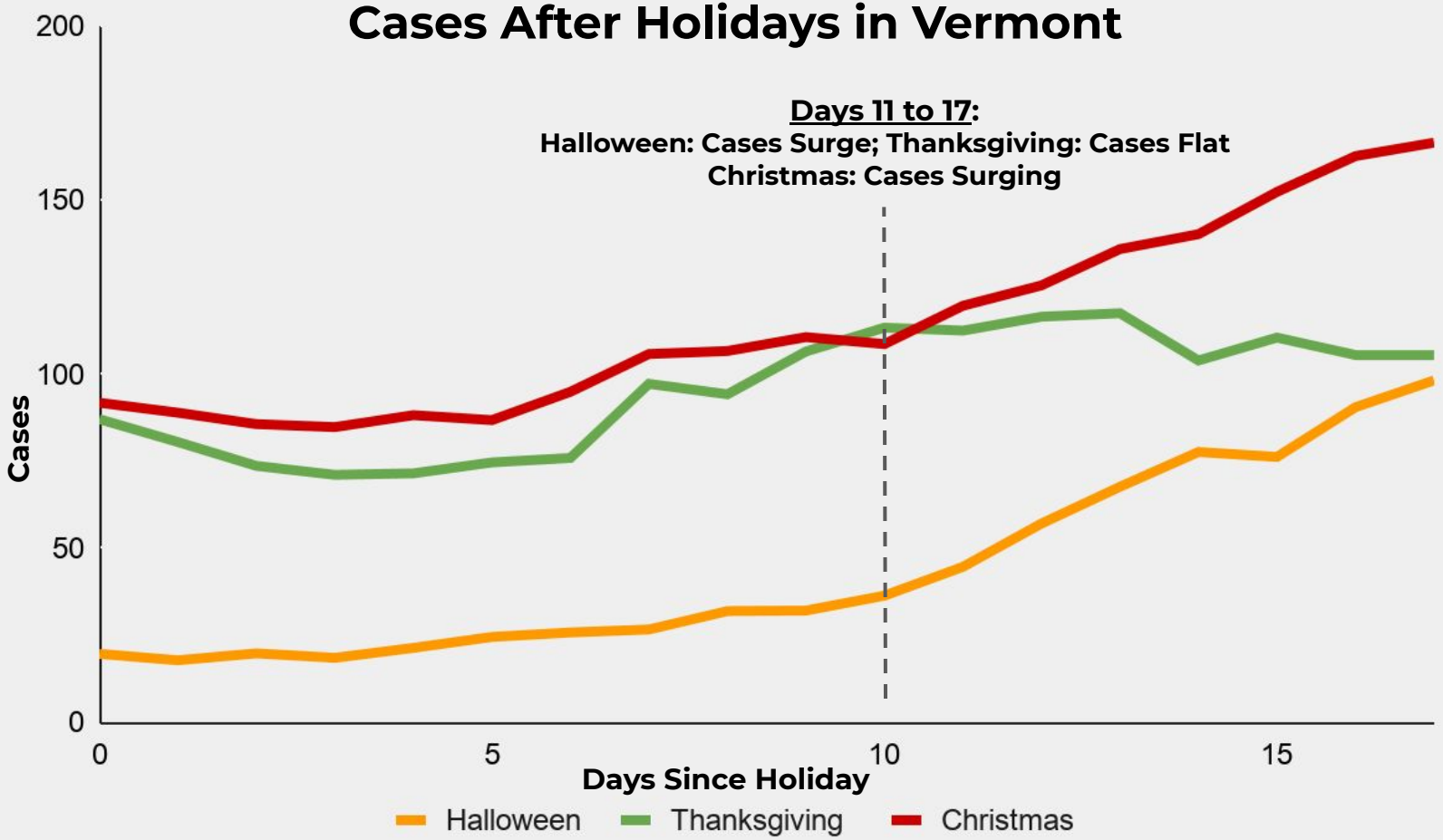
25
01 Nov
08
15
22
29
06 Dec
13
20
27
03 Jan
10

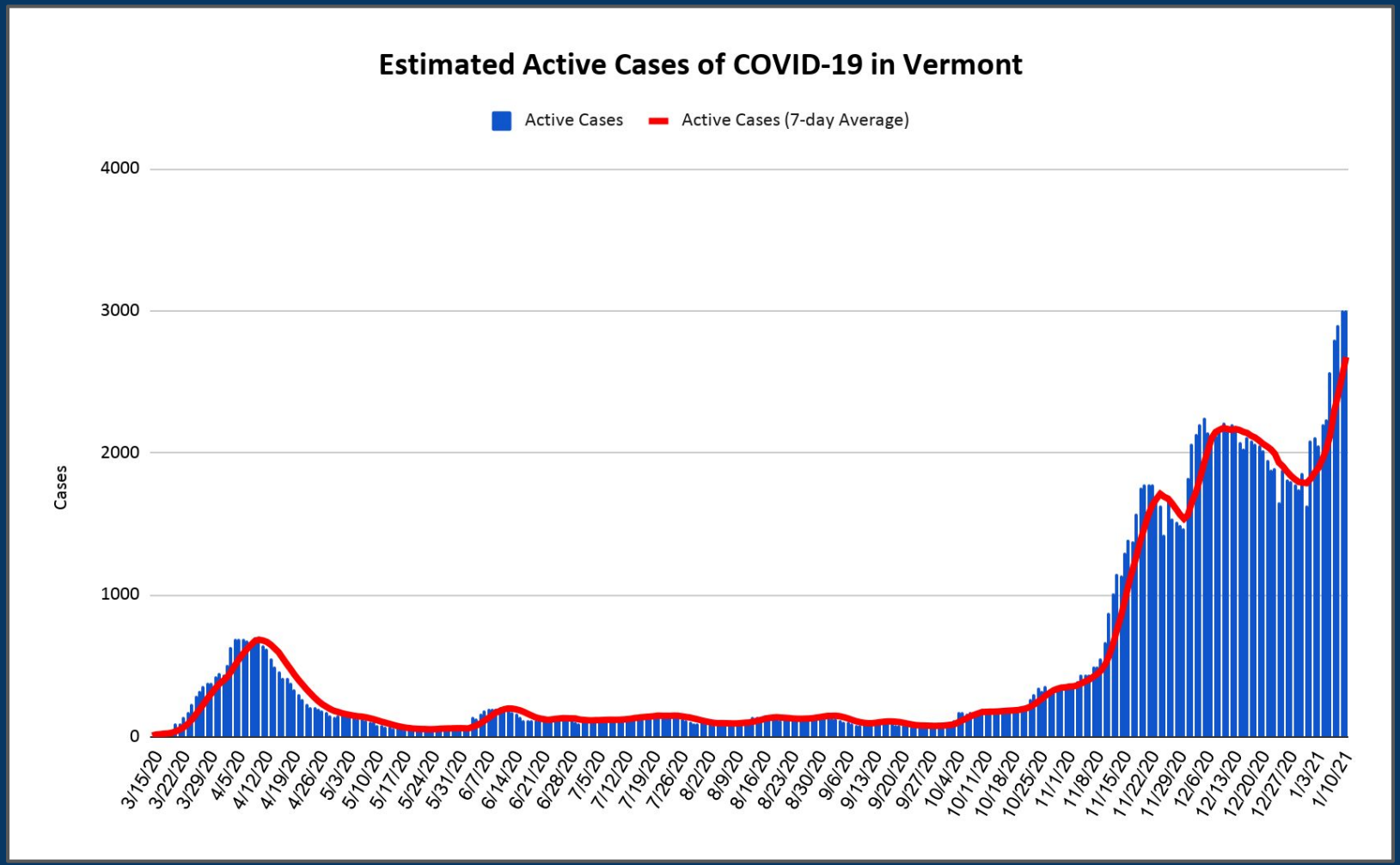
Cases After Holidays in Vermont



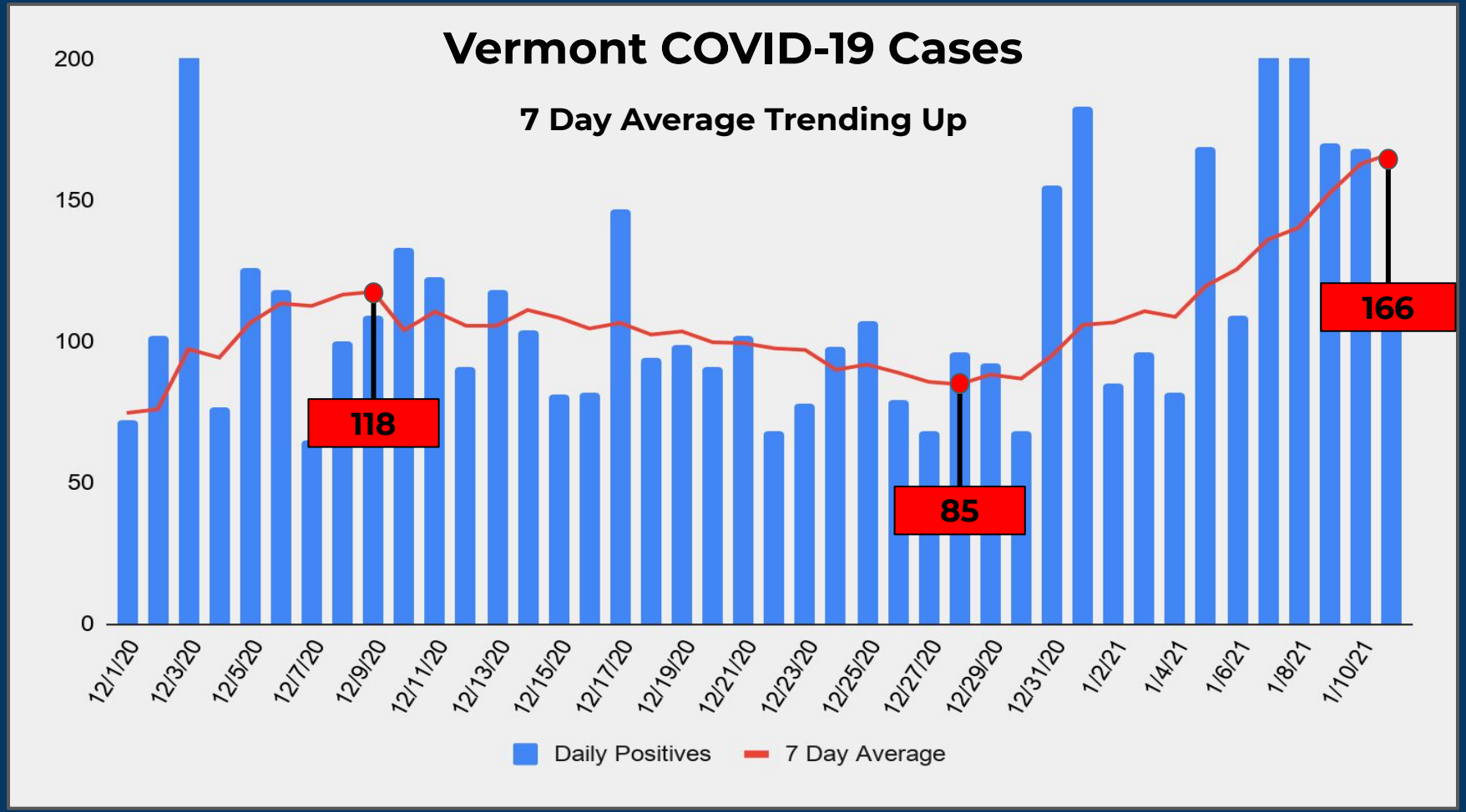
Measuring Vermont's Pandemic Response

Rank *(Lowest)*	***Positivity*** *(7 Day Avg.)*	***Cases*** *(7 Day Moving Avg.)*	***Hospitalizations*** *(7 Day Moving Avg.)*	***Fatalities*** *(7 Day Moving Avg.)*
1	**Vermont**	Hawaii	**Vermont**	Alaska
2	Hawaii	**Vermont**	Hawaii	Hawaii
3	Alaska	Oregon	North Dakota	**Vermont**
4	District of Columbia	North Dakota	Alaska	Oregon
5	Oregon	Washington	Oregon	Utah
6	Maine	Michigan	Maine	Virginia
7	Michigan	Maine	Minnesota	Washington
8	Connecticut	Alaska	Colorado	District of Columbia

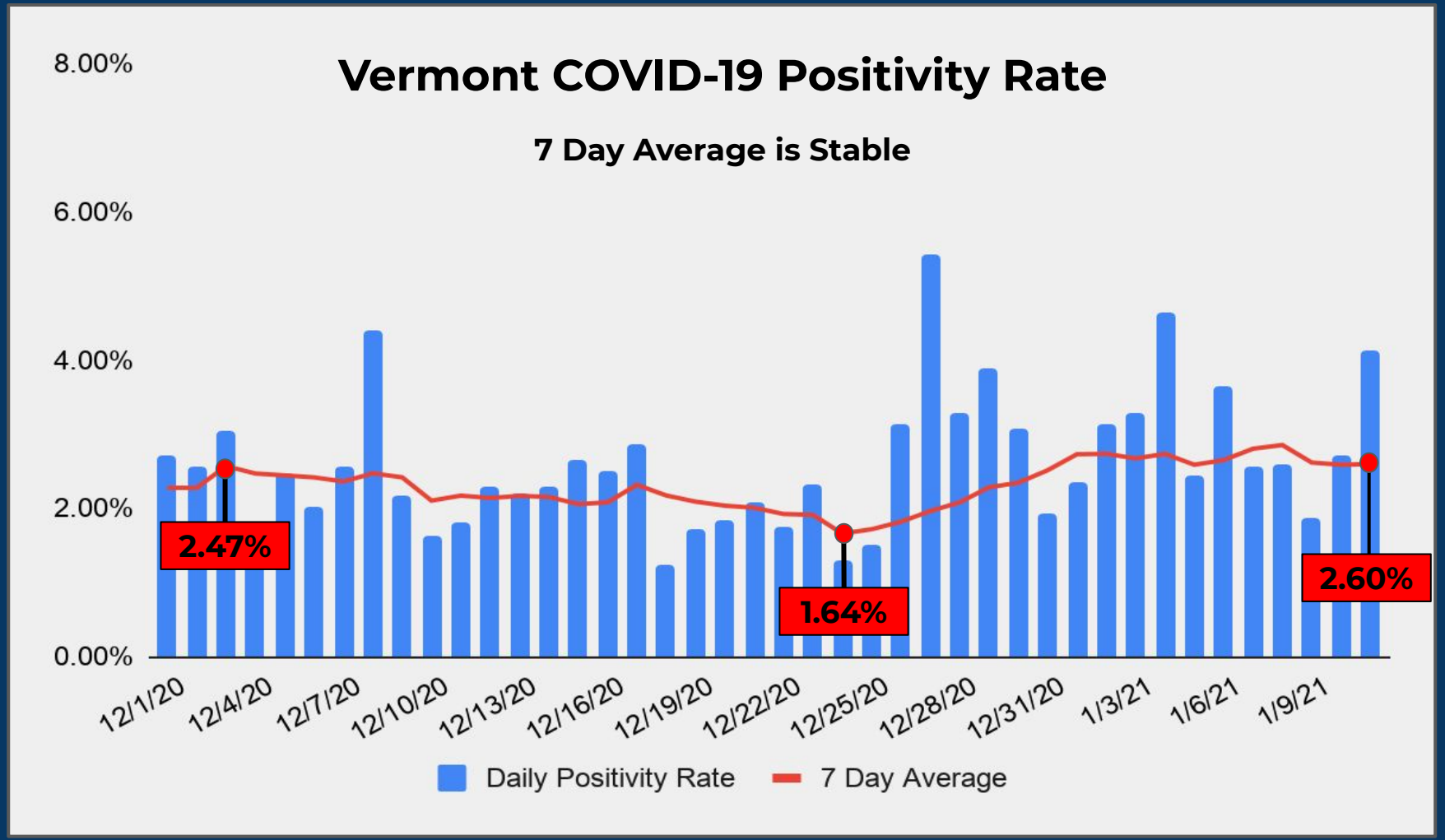
Source: Covid Tracking Project—January 11, 2021



Source: Johns Hopkins University Data & Oliver Wyman Forecast Model—January 11, 2020



Source: Vermont Department of Health



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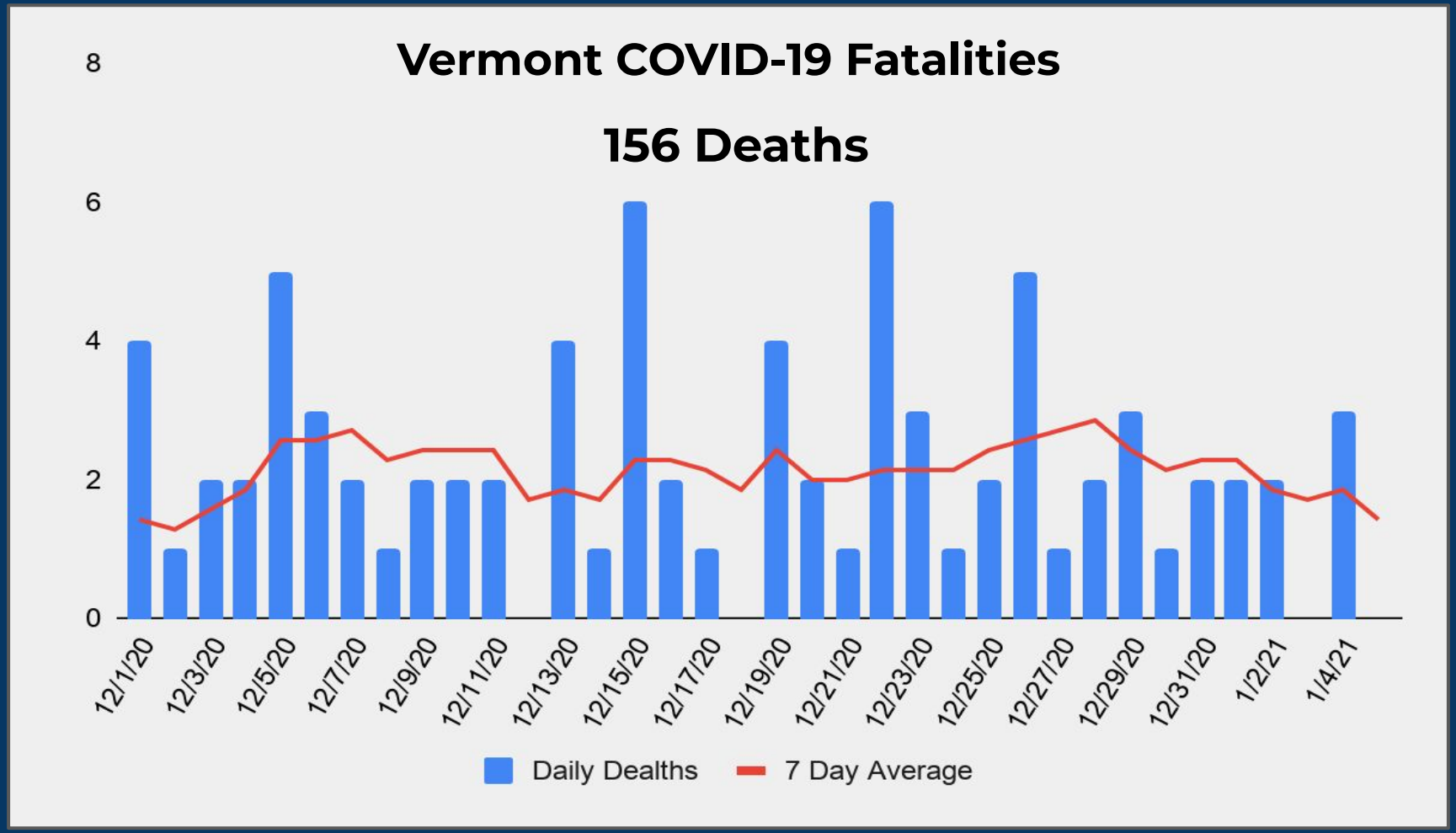

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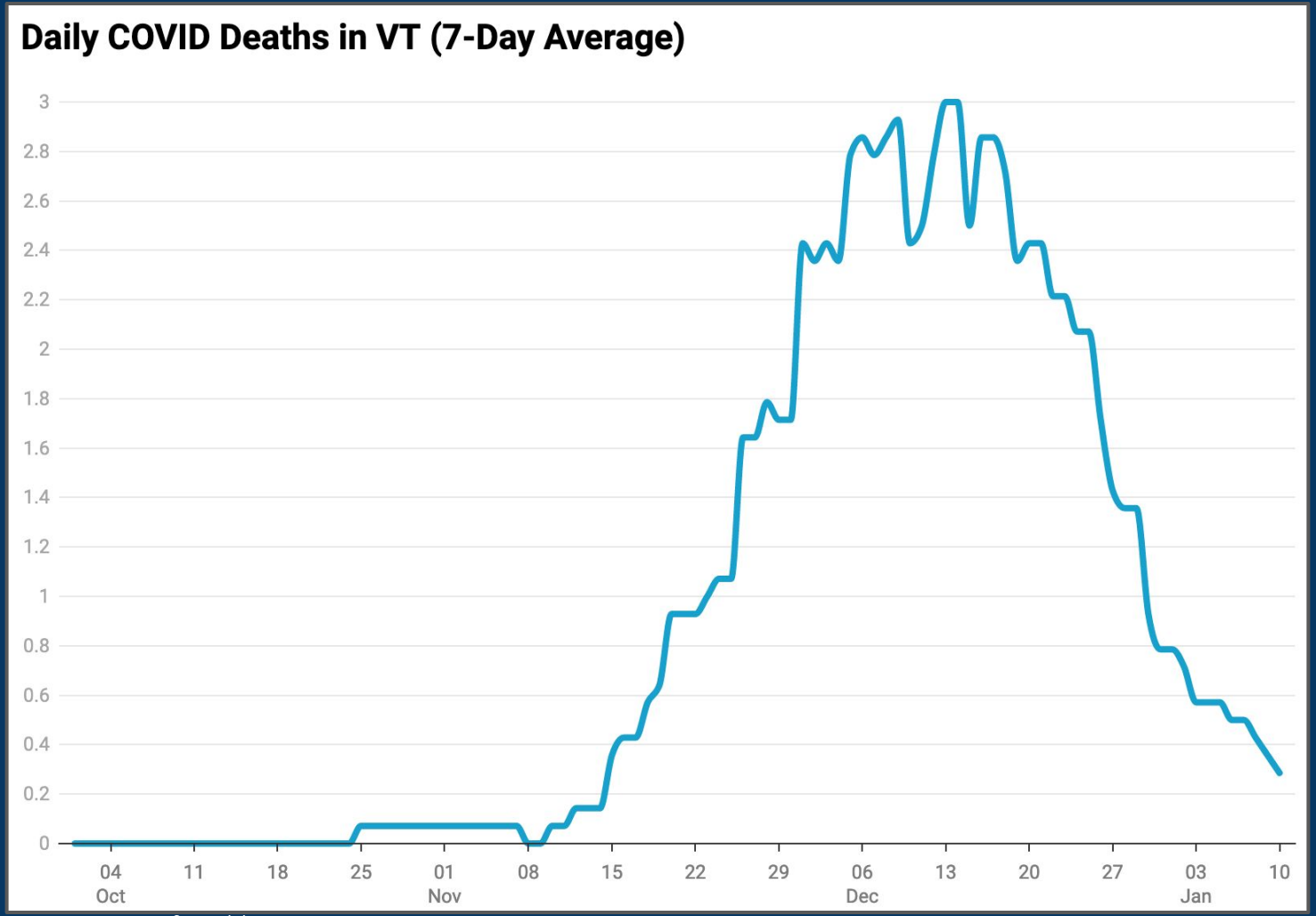
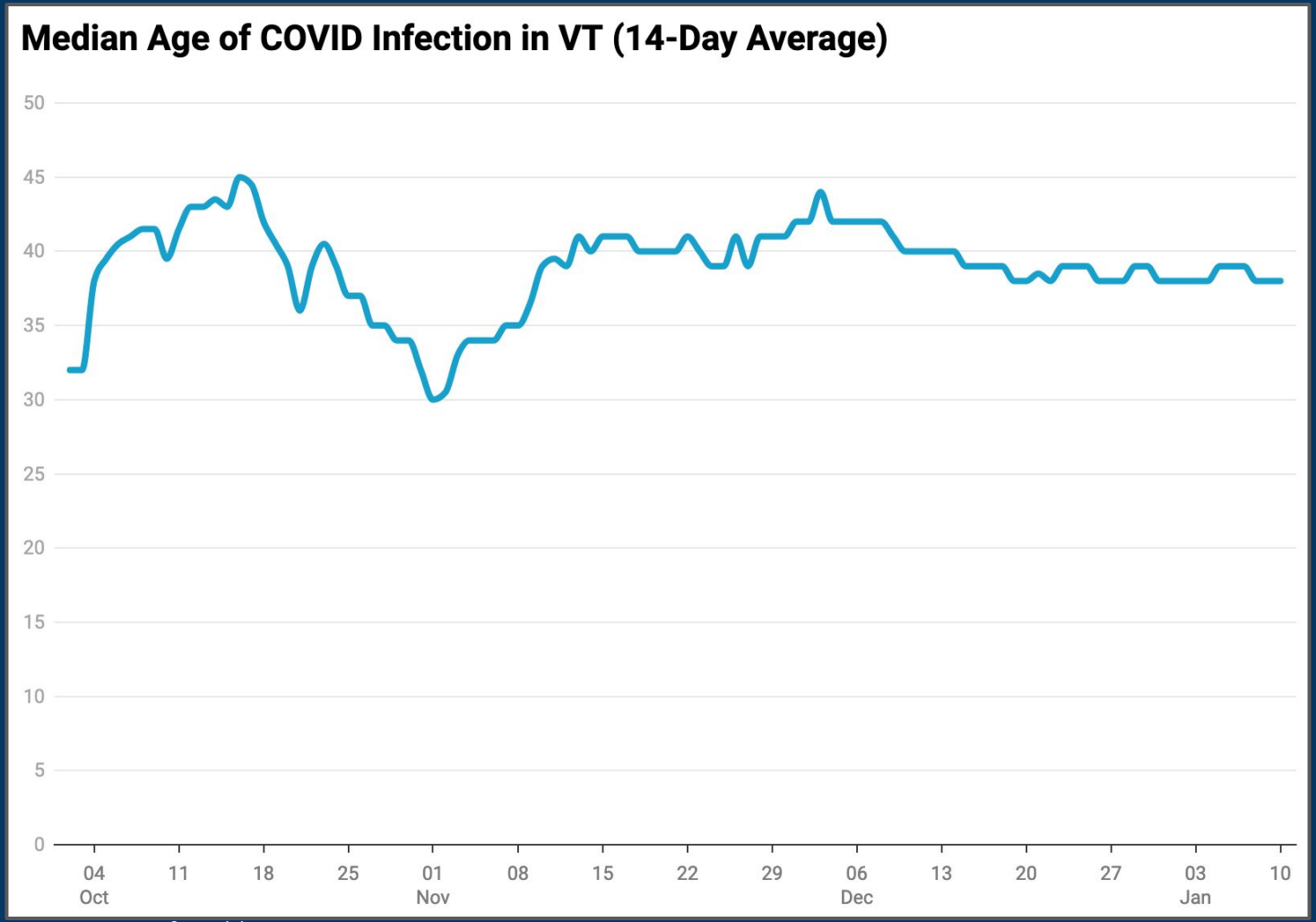
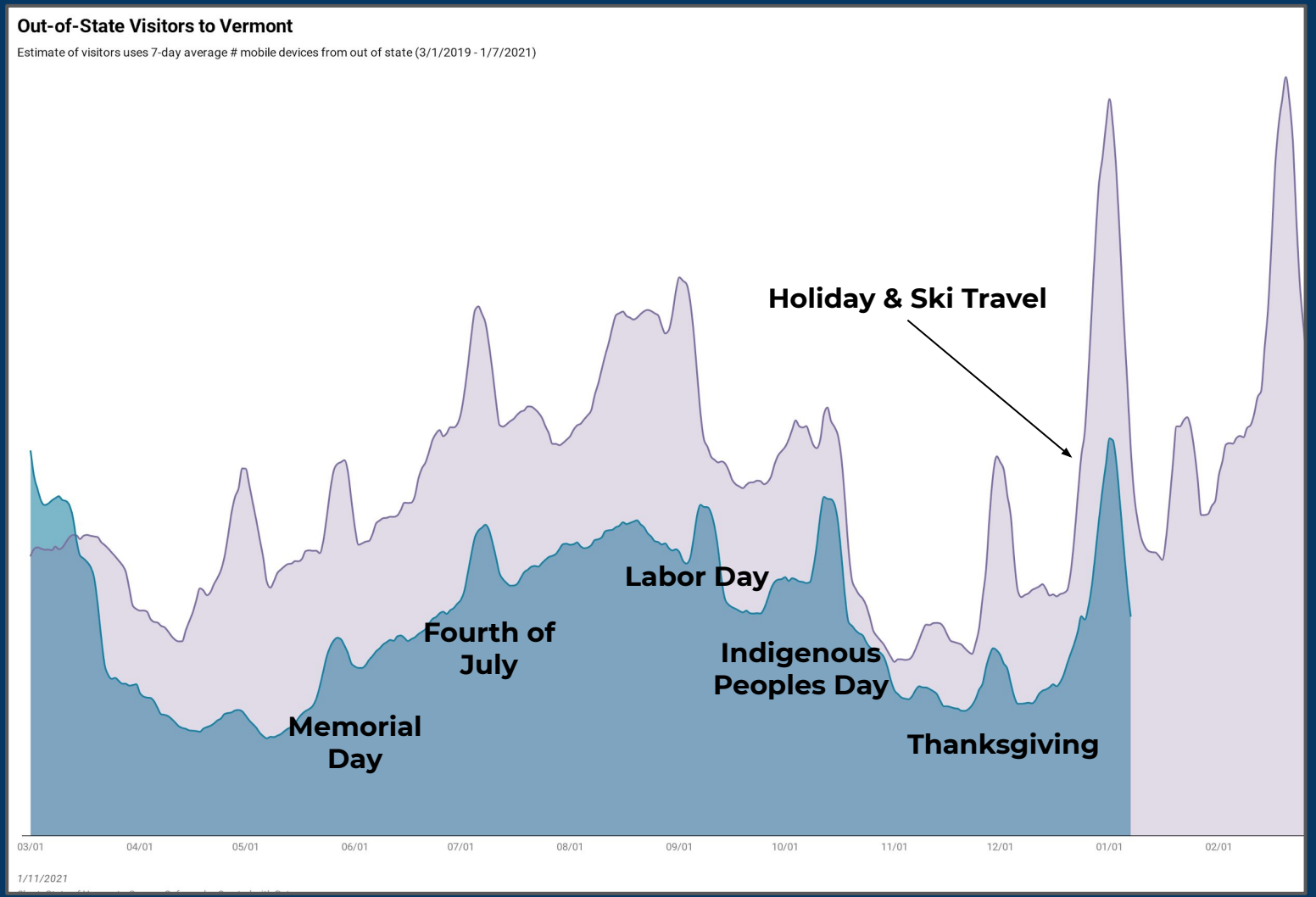


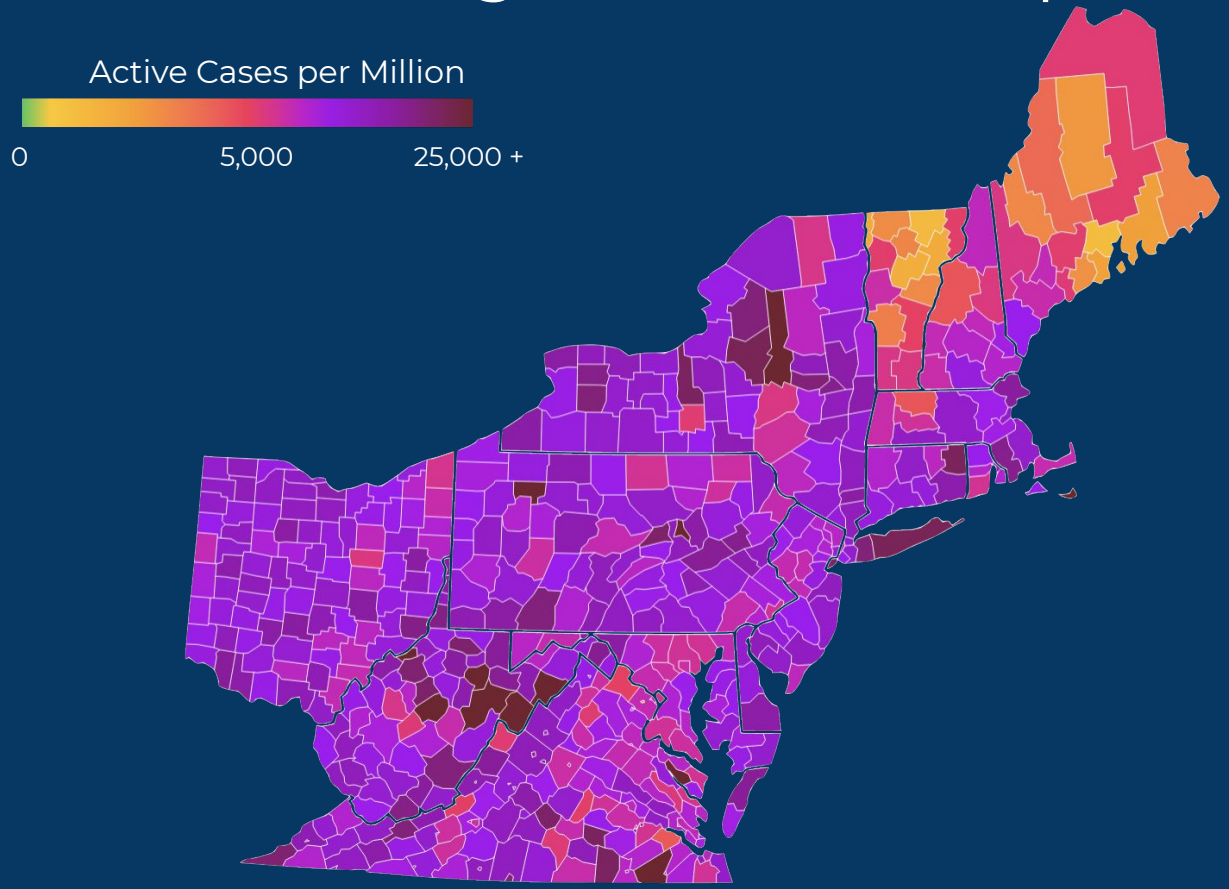
Source: Vermont Department of Health



Source: Vermont Department of Health


Out-of-State Visitors to Vermont
Estimate of visitors uses 7-day average # mobile devices from out of state (3/1/2019 - 1/7/2021)
Holiday & Ski Travel
Labor Day
Fourth of July
Indigenous Peoples Day
Memorial Day
Thanksgiving
03/01
04/01
05/01
06/01
07/01
08/01
09/01
10/01
11/01
12/01
01/01
02/01
1/11/2021

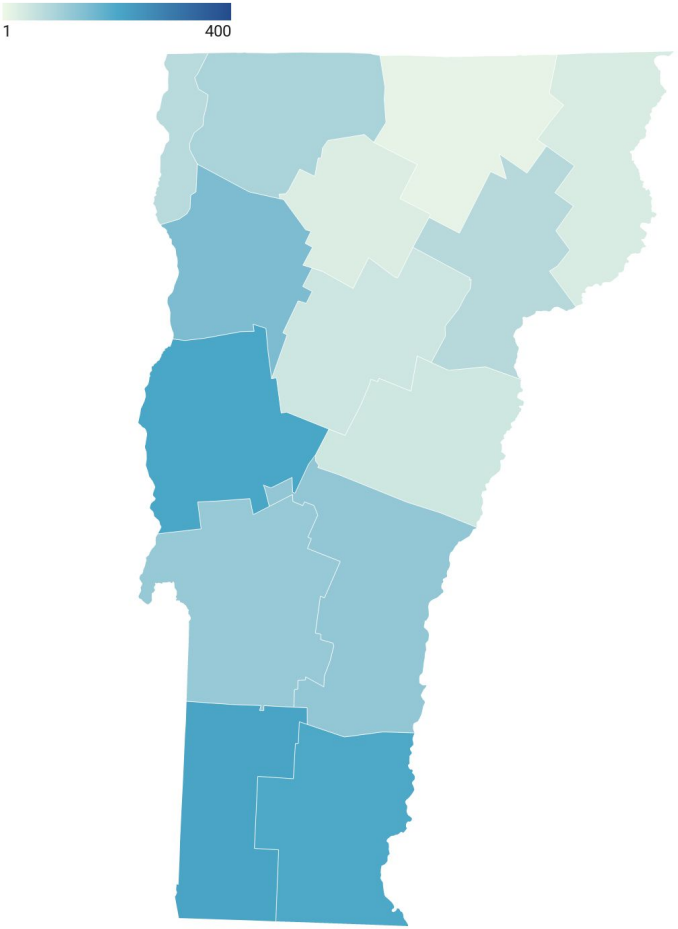
Regional Heat Map



See daily map updates at https://dfr.vermont.gov/about-us/covid-19/modeling/covid-19-modeling-graphics

Vermont Weekly Cases by County (per 100,000)

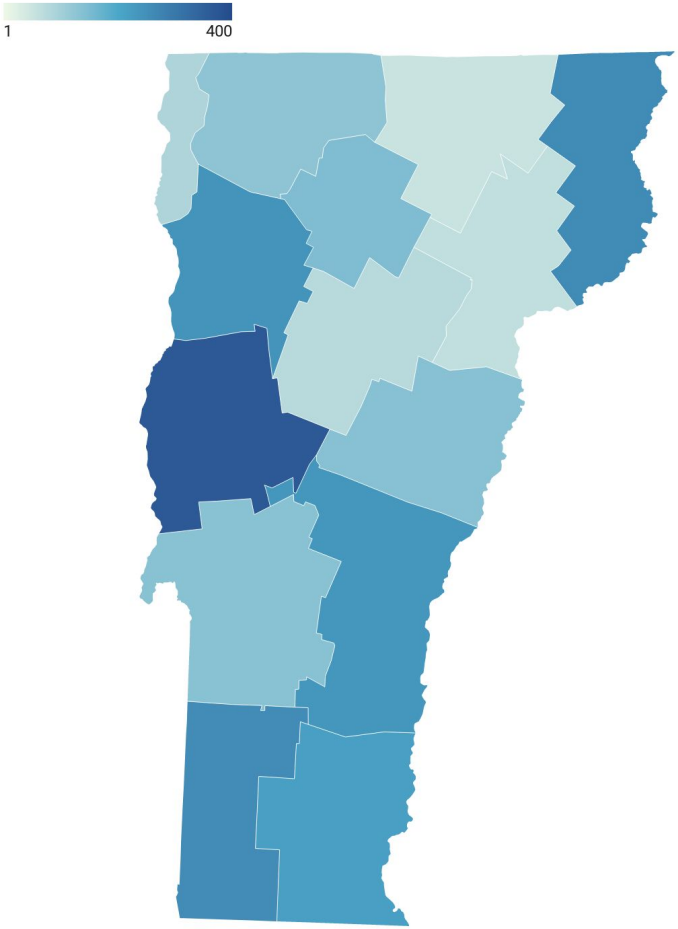
Results Reported December 29 to January 4



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

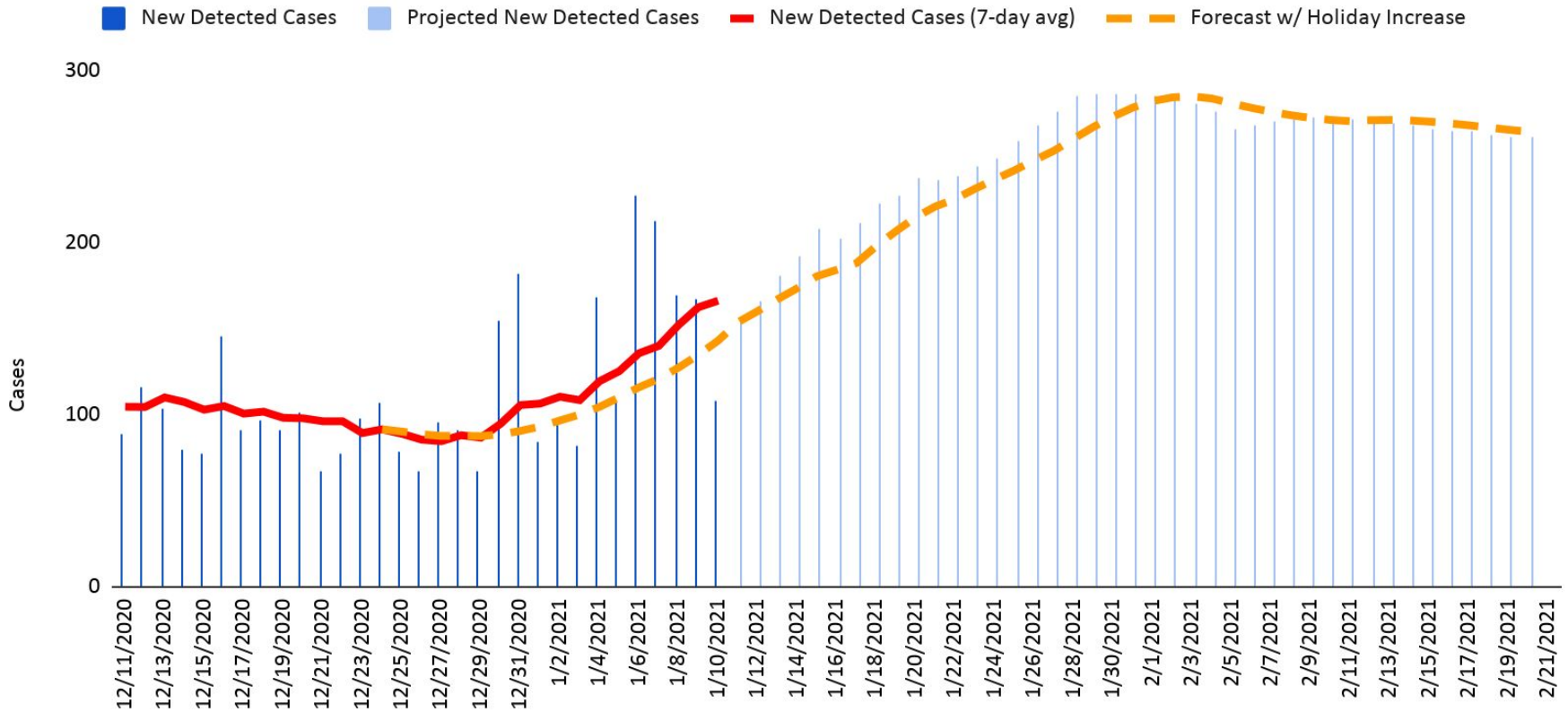
Vermont Weekly Cases by County (per 100,000)

Results Reported January 5 - 11



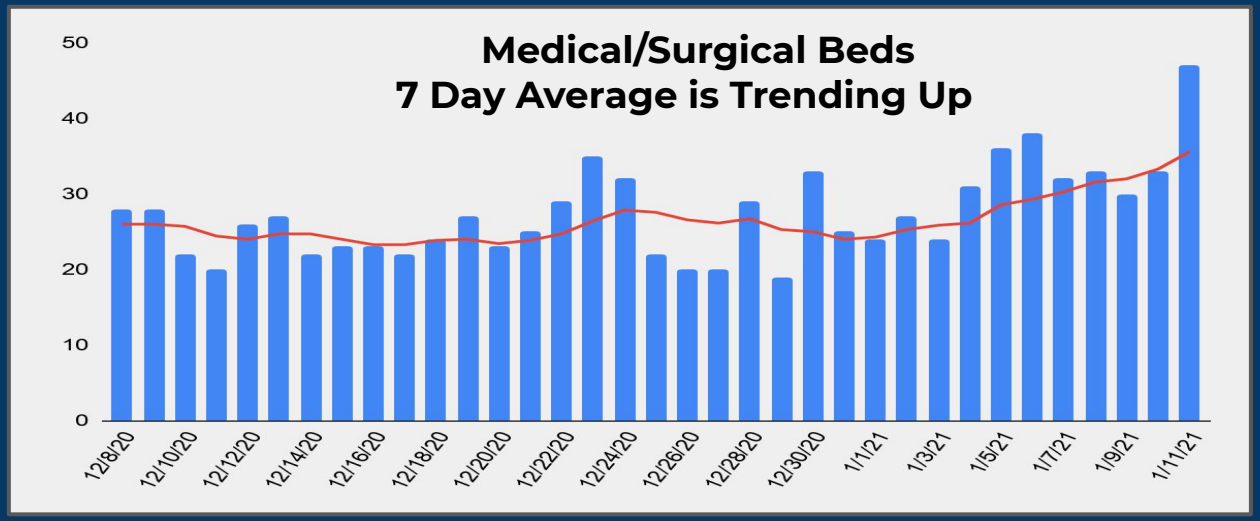
Map: Vermont DFR COVID Modeling Team • Source: Vermont Dept. of Health • Created with Datawrapper

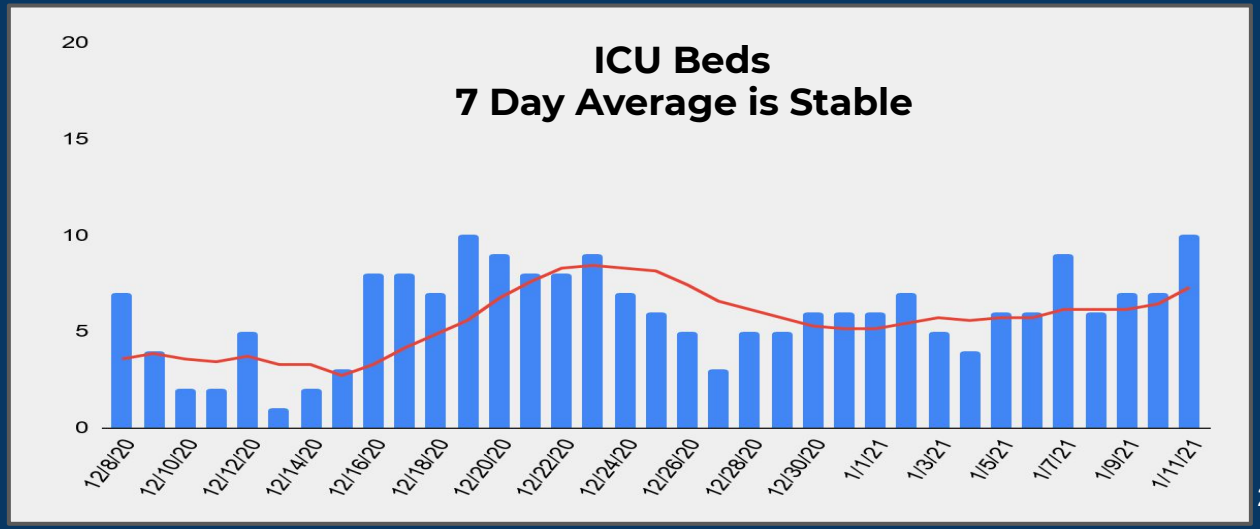
Vermont Forecast



Source: Johns Hopkins University Data & Oliver Wyman Forecast Model—January 11, 2020

Vermont COVID-19 Hospitalizations

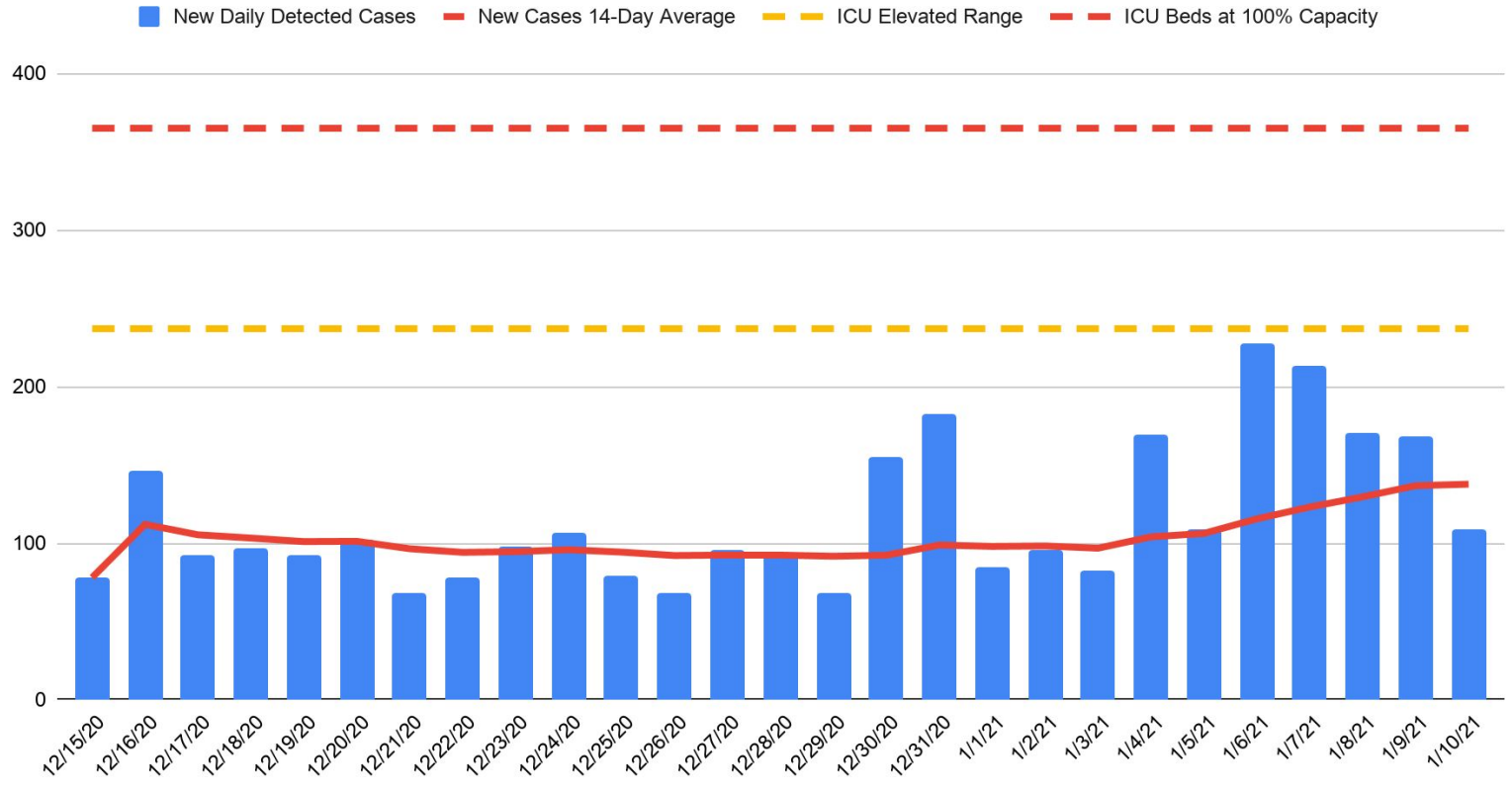




Source: Vermont Department of Health

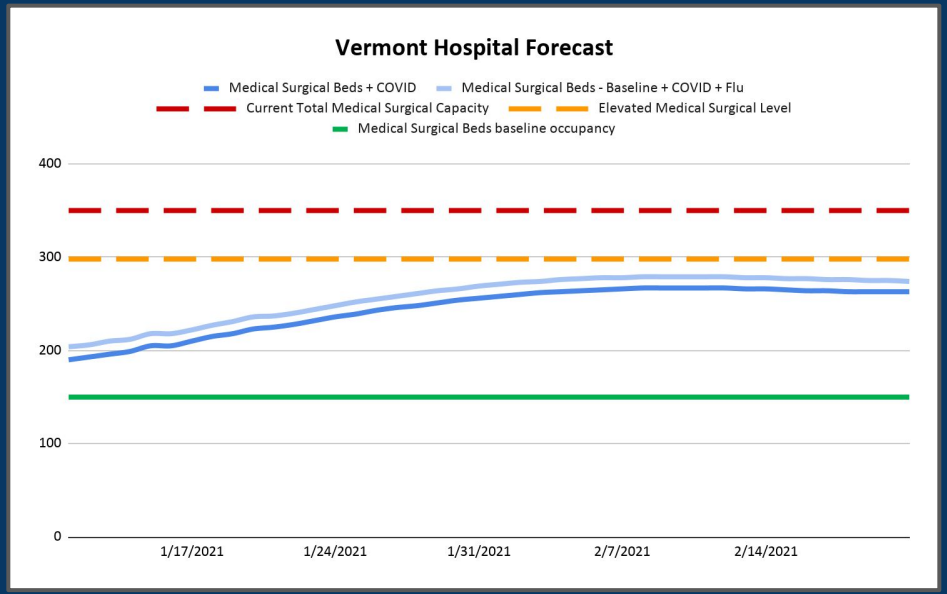
Critical Hospital Capacity Thresholds

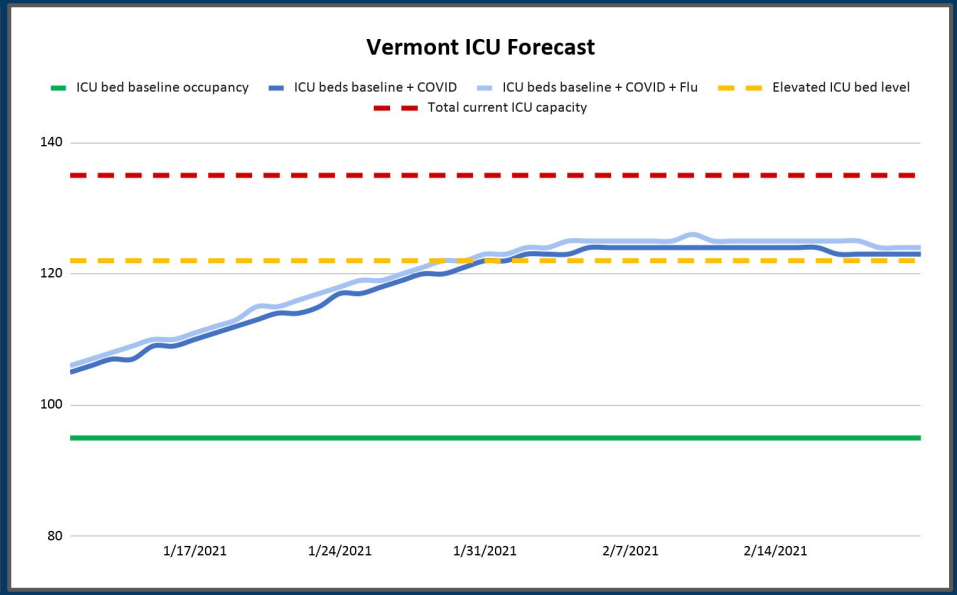
New detected cases must remain at or above dashed lines for 14 days to breach capacity thresholds



Source: VDH & Oliver Wyman Forecast Model—January 11, 2020; assumes conservative but plausible flu scenario; GNYHA Hospital Surge framework

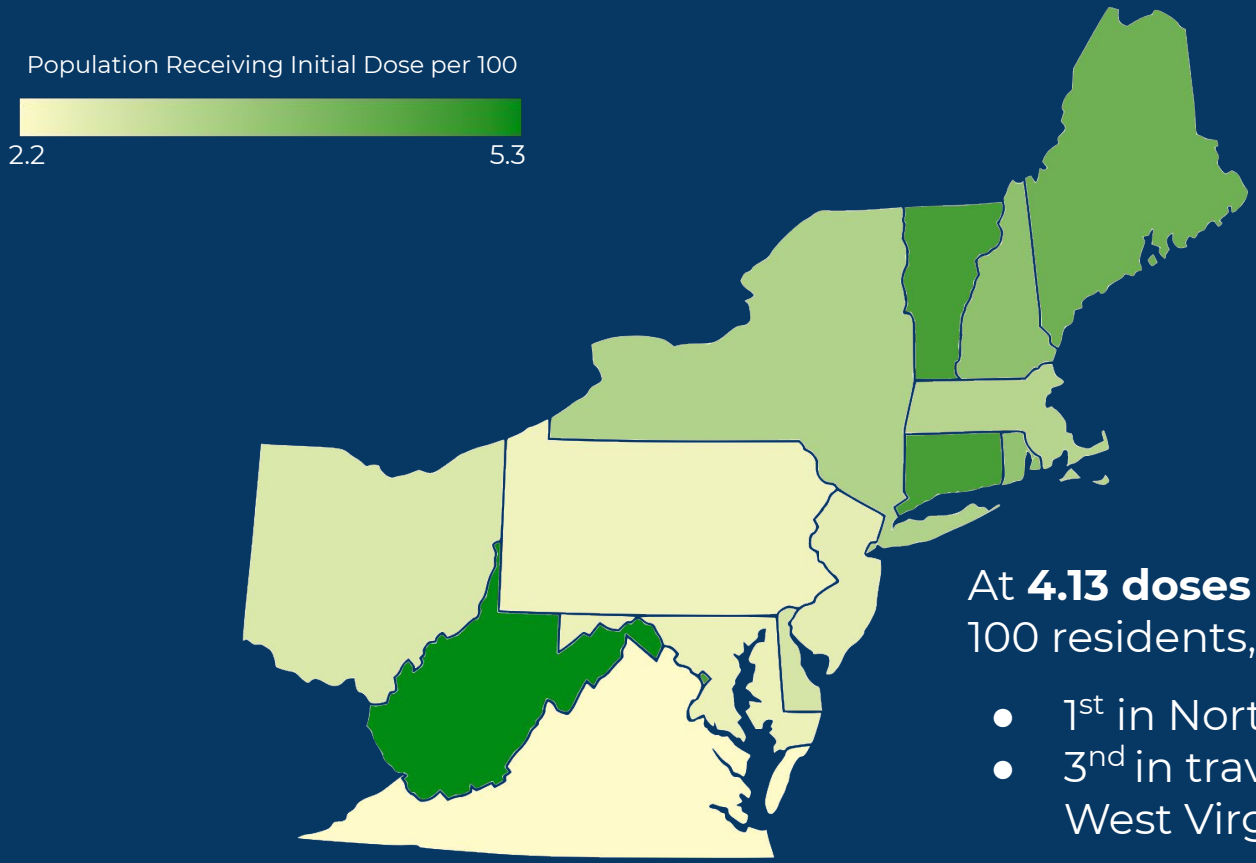
Hospital & ICU Capacity Forecasts





Source: Oliver Wyman Forecast Model—January 11, 2020; assumes conservative but plausible flu scenario; GNYHA Hospital Surge framework

Regional Vaccination Map

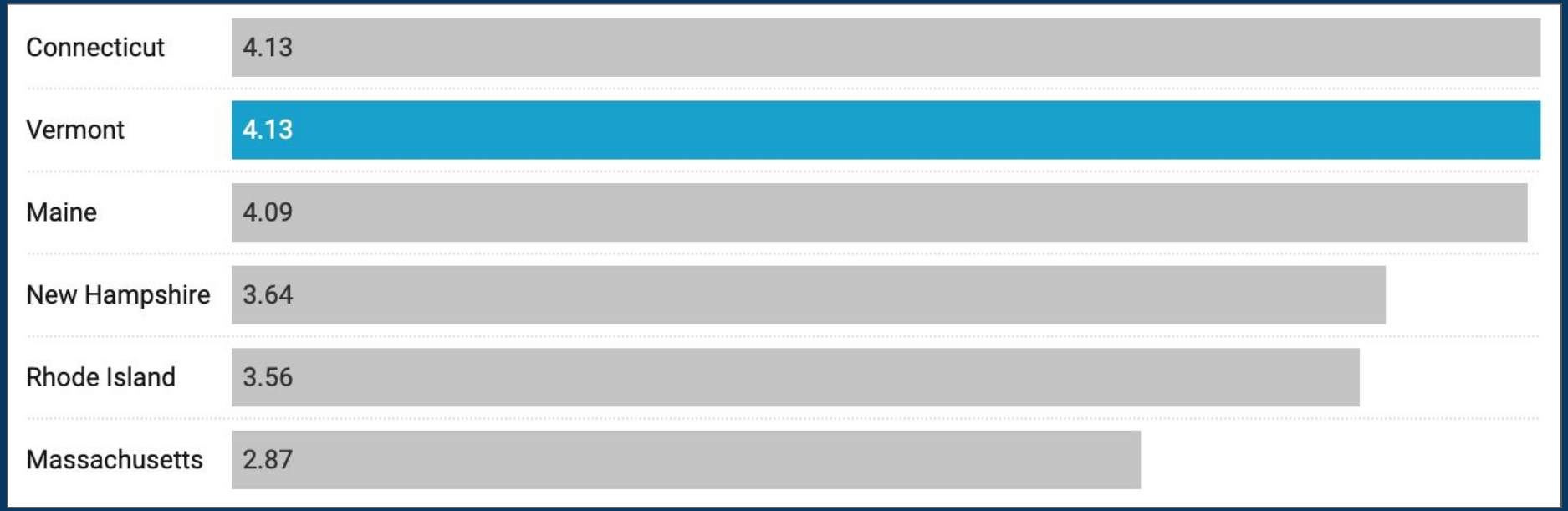


At **4.13 doses** administered per 100 residents, Vermont ranks:

- 1st in Northeast (tie)
- 3nd in travel region behind West Virginia & D.C. (tie)

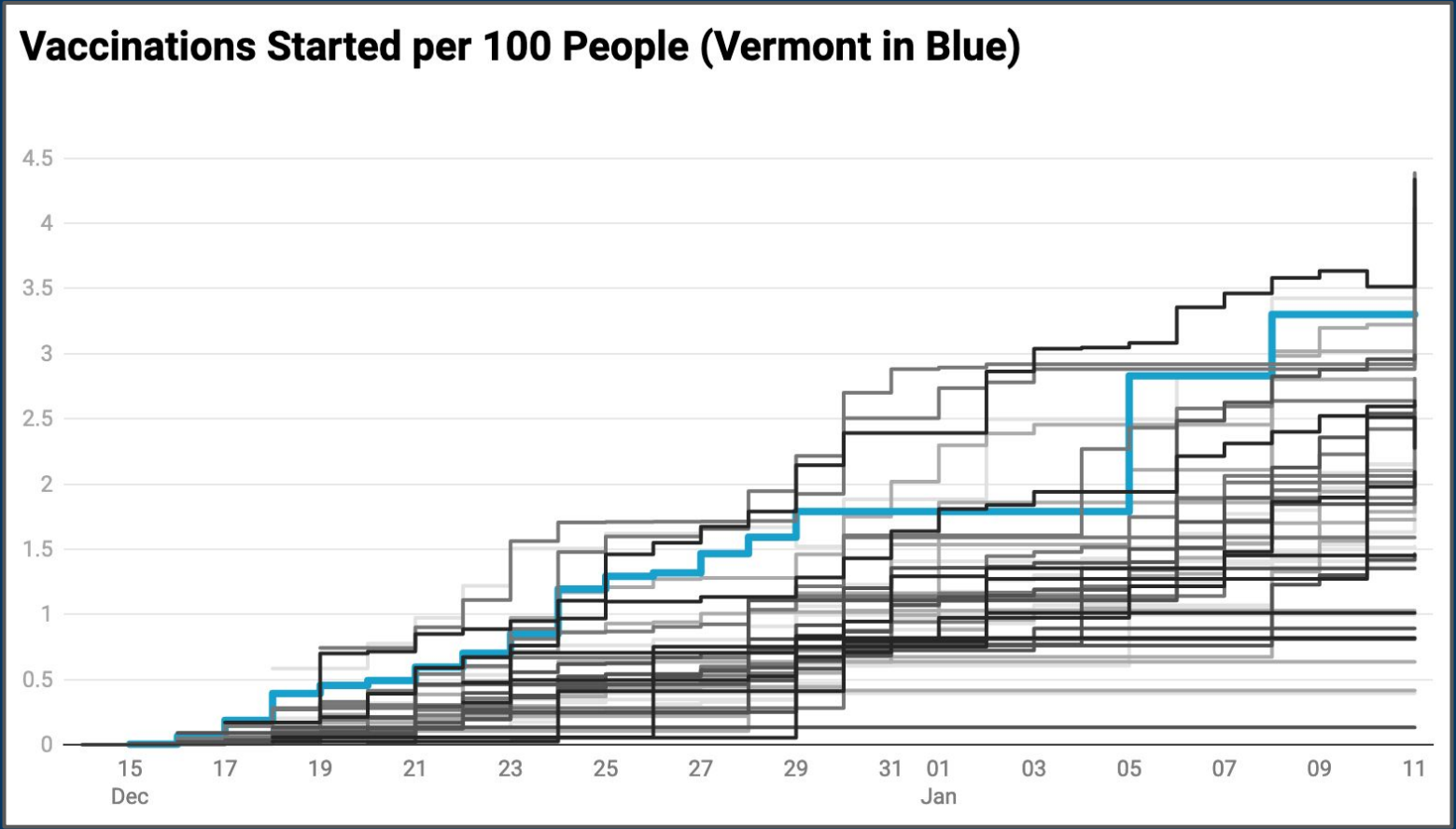
Source: CDC—January 11, 2021

Regional Vaccination (Doses Given per 100)



Source: CDC—January 12, 2021

US Vaccination



Source: CDC—January 12, 2021

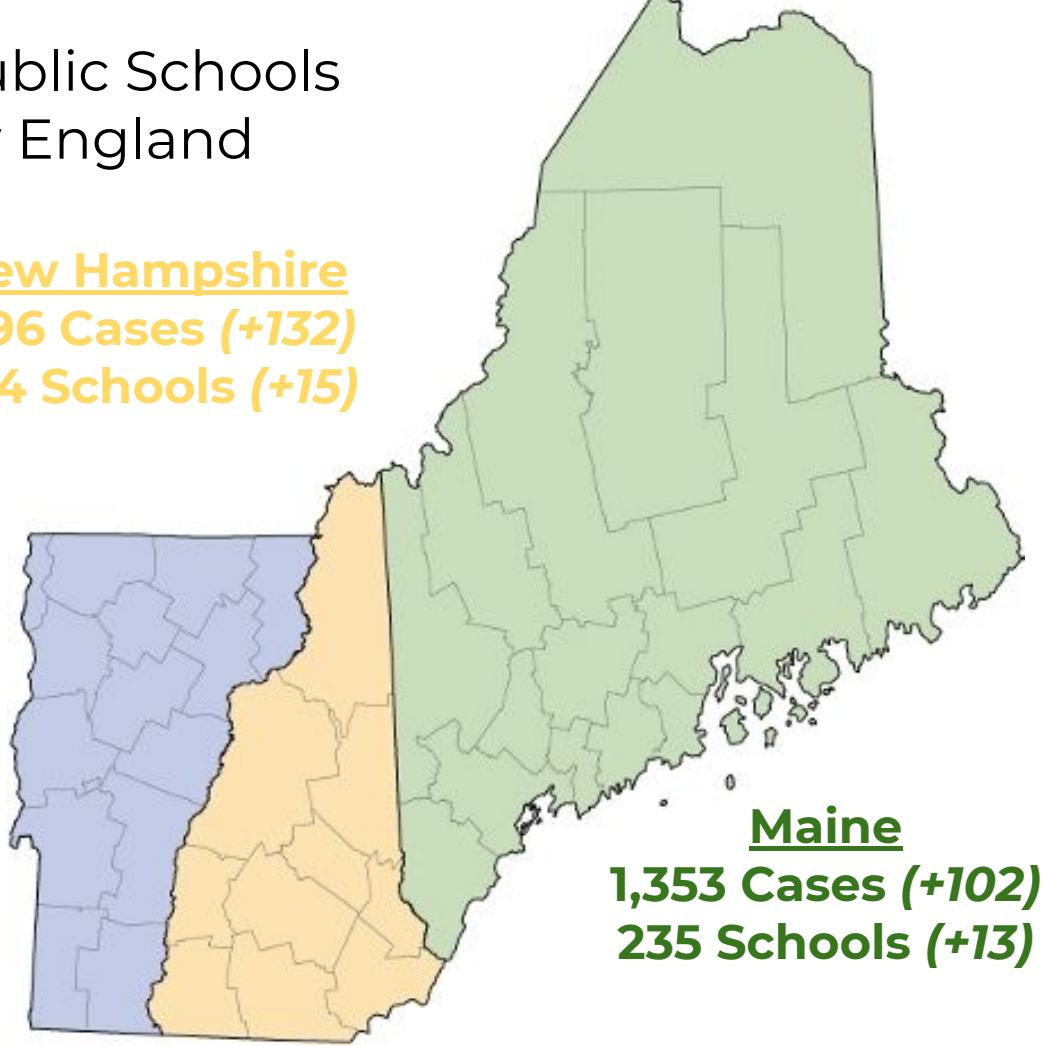
Active Outbreaks in Long Term Care Facilities

Facility Name	Total COVID-19 Cases
Elderwood at Burlington, *Burlington*	126
Saint Albans Healthcare & Rehab Center, *Saint Albans*	89
Our Lady of Providence, *Winooski*	49
The Residence at Shelburne Bay, *Shelburne*	32
Craftsbury Community Care Center, *Craftsbury*	29
Holiday House, *Saint Albans*	22
Converse Home Assisted Living, *Burlington*	17
Holton Home, *Brattleboro*	12
Residence at Quarry Hill, *South Burlington*	12
Vermont Veterans Home, *Bennington*	8
Cathedral Square, *Burlington*	7
Davis Home, *Windsor*	6

Source: Vermont Department of Health—January 10, 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 -- there are three active outbreaks that are not included as a result.*

Covid-19 Cases in K-12 Public Schools Across Northern New England

New Hampshire
1596 Cases *(+132)*
394 Schools *(+15)*

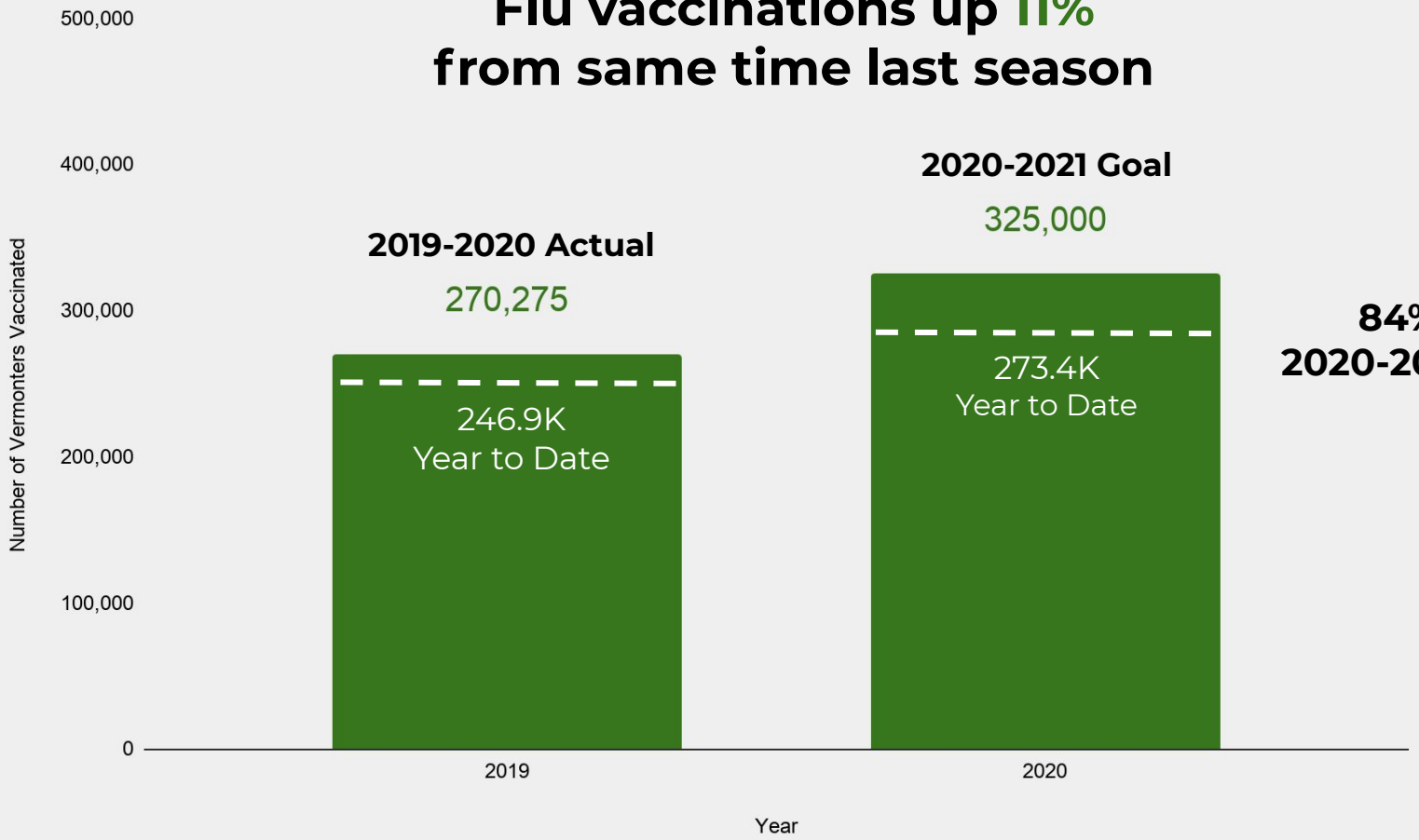


Vermont
304 Cases *(+29)*
149 Schools *(+0)*

Maine
1,353 Cases *(+102)*
235 Schools *(+13)*

Source: ME, NH & VT K-12 Dashboards, ME media reports

Flu vaccinations up 11% from same time last season



Data from UVMHN may be incomplete or delayed

Source: Vermont Department of Health & ADS; Immunization Registry; Measured from July 1 to December 27, 2019 & 2020

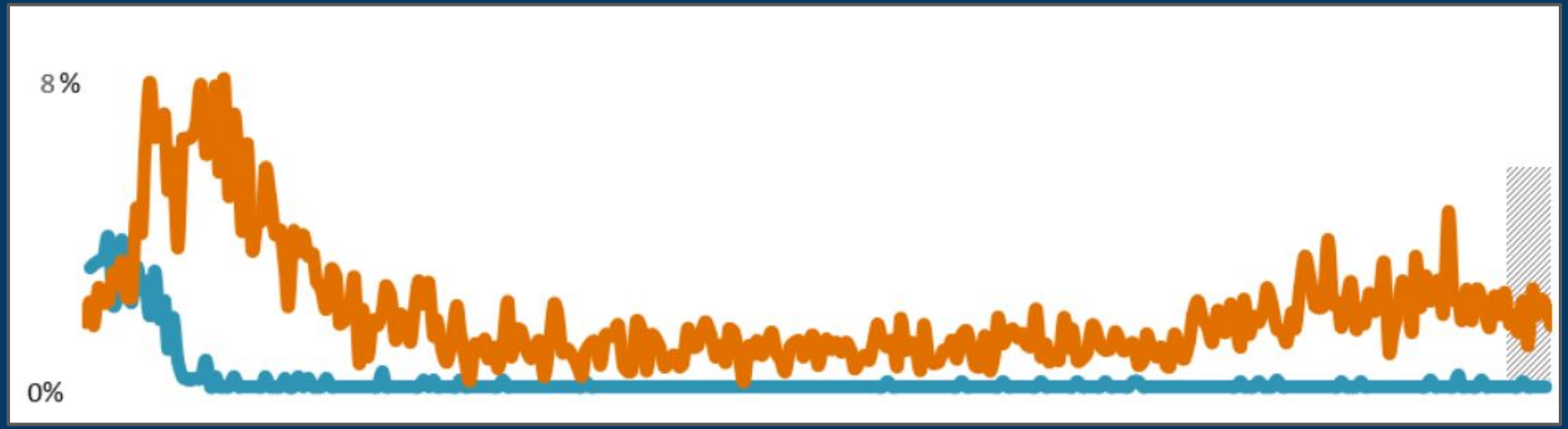
RESTART VERMONT

Reopening Metrics

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

Data Point 1: Syndromic Surveillance

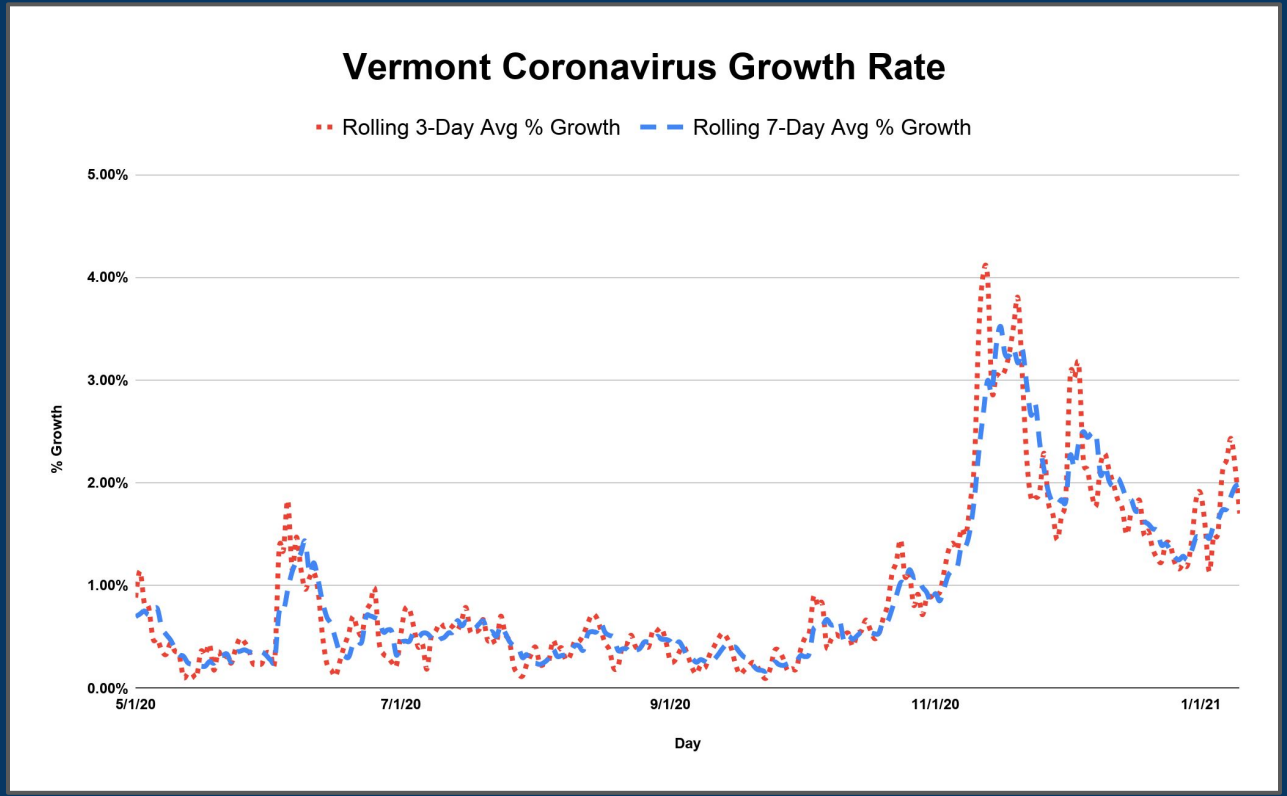
- **Summary:** Percentage of visits with COVID-19 like illness and Influenza diagnosis
- **Warning Flag:** Percentage of visits exceeding 4% for multiple consecutive days



Source: Vermont Department of Health—January 12, 2021

Data Point 2: Viral Growth and Reproductive Rates

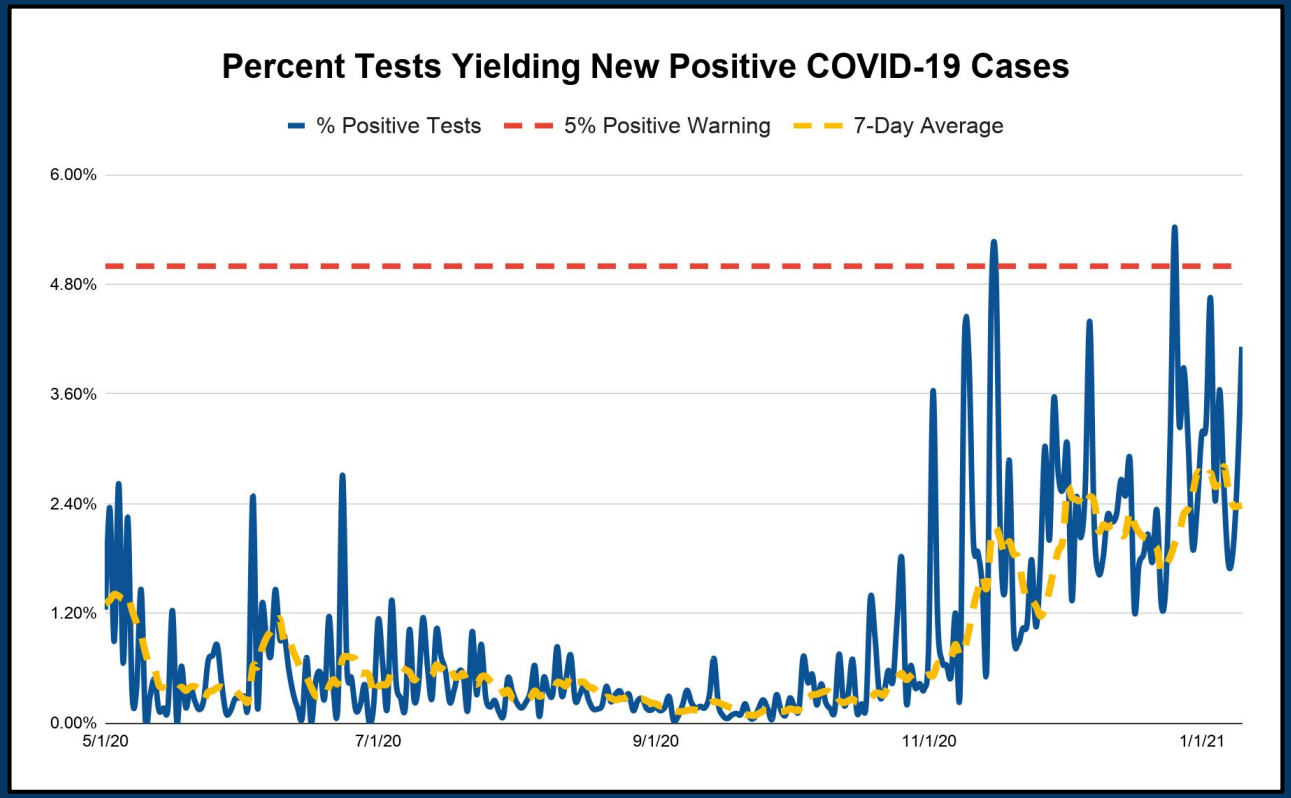
- **Summary:** Case growth measured by daily, 3-day, 7-day, and effective reproductive rate (R_t)
- **Warning Flags:** Sustained viral growth that would lead to <30% open ICU beds



Source: Vermont Department of Health—January 11, 2021

Data Point 3: Percentage of New Positive Tests

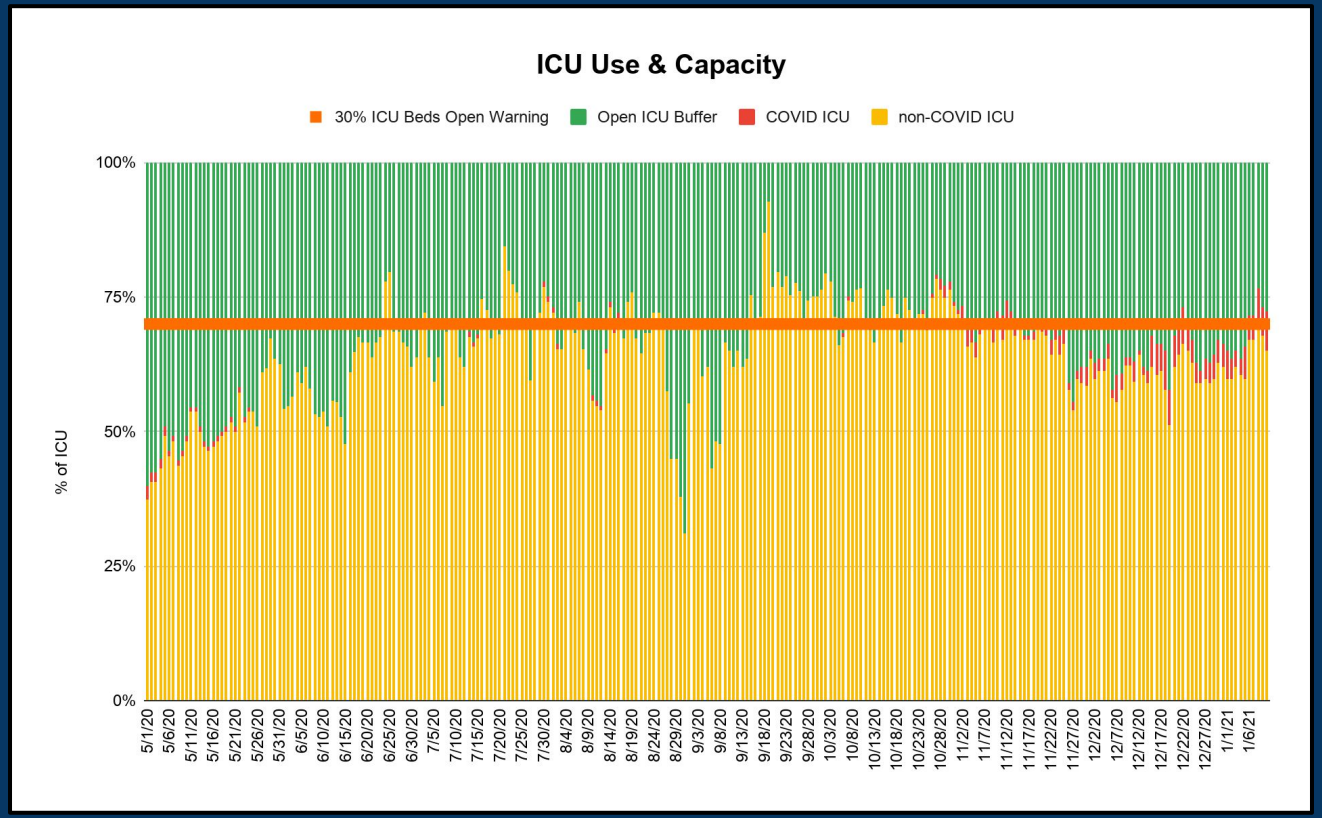
- **Summary:** Percent of tests resulting in a new positive case
- **Warning Flags:** New positives represent >5% of daily results



Source: Vermont Department of Health—January 11, 2021

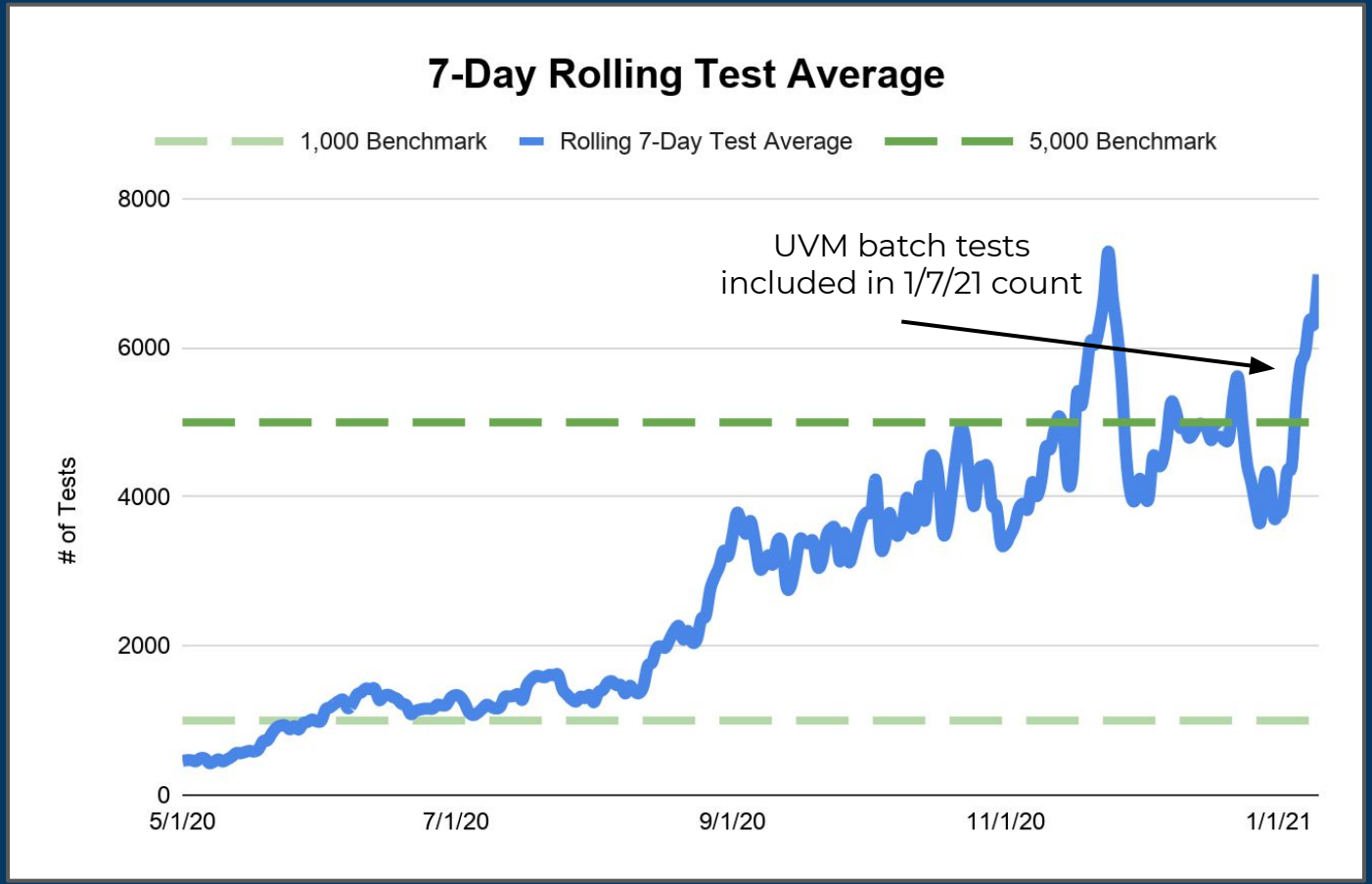
Data Point 4: Hospital & Critical Care Beds

- **Summary:** Number of occupied and unoccupied medical surgical and ICU beds
- **Warning Flags:** Reduction in ICU open beds to less than 30%



Source: Vermont Department of Health—January 11, 2021

Vermont Testing



Source: Vermont Department of Health—January 11, 2021; results reported to VDH daily