

COVID-19 Modeling

November 10, 2020

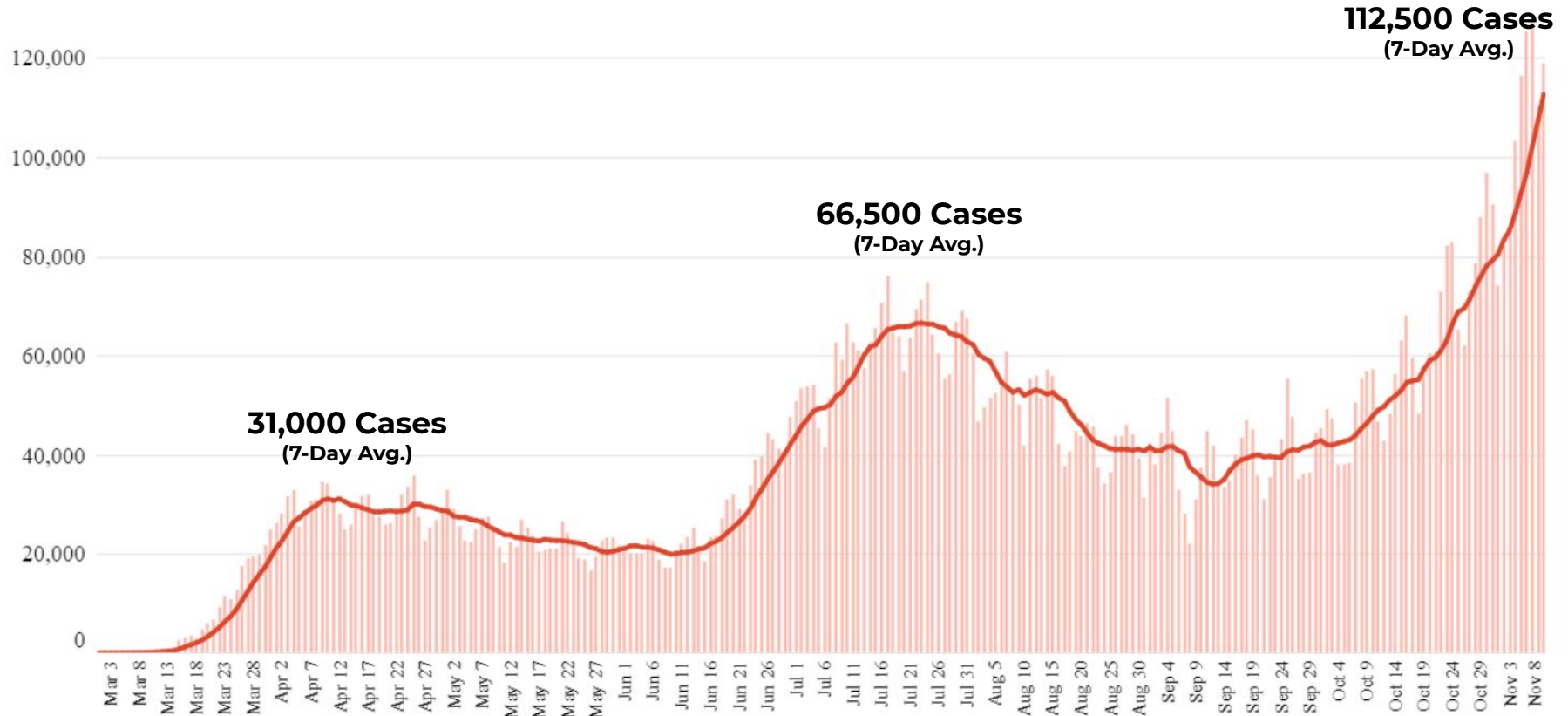
Presentation available at:
dfr.vermont.gov

10 Million+ U.S. Cases

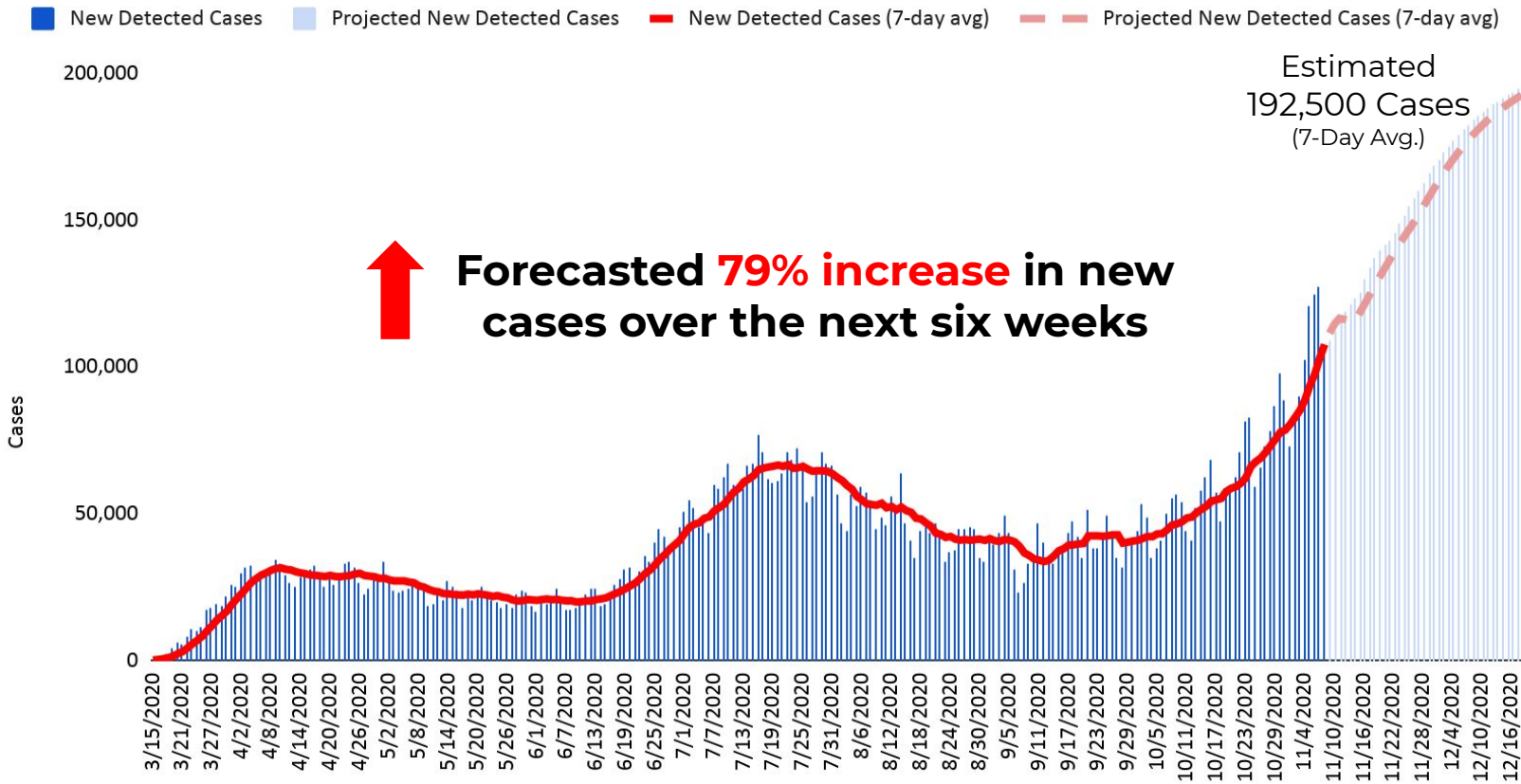
November 9, 2020

1 Million Cases	<i>99 Days</i>	6 Million Cases	<i>23 Days</i>
2 Million Cases	<i>43 Days</i>	7 Million Cases	<i>27 Days</i>
3 Million Cases	<i>28 Days</i>	8 Million Cases	<i>20 Days</i>
4 Million Cases	<i>15 Days</i>	9 Million Cases	<i>13 Days</i>
5 Million Cases	<i>17 Days</i>	10 Million Cases	<i>10 Days</i>

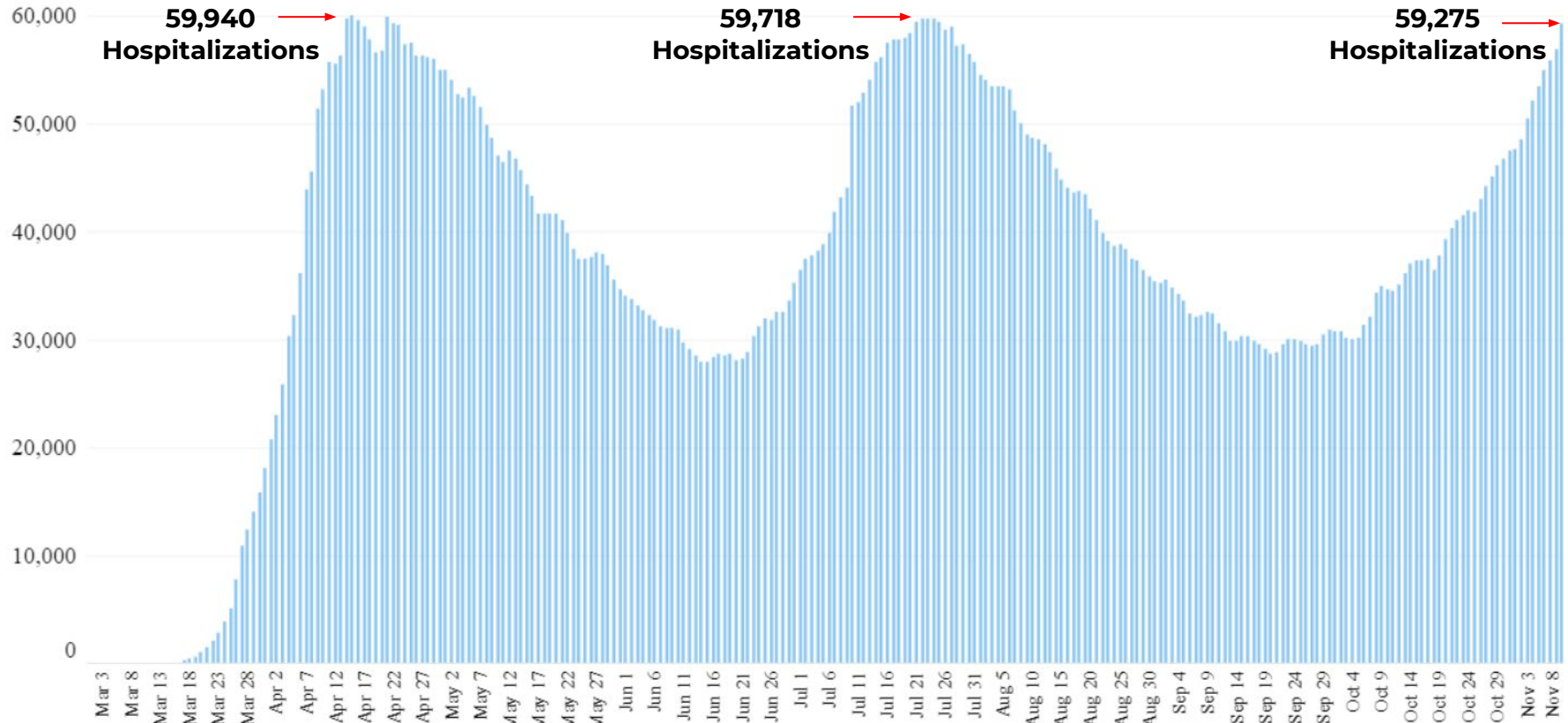
U.S. Case Growth



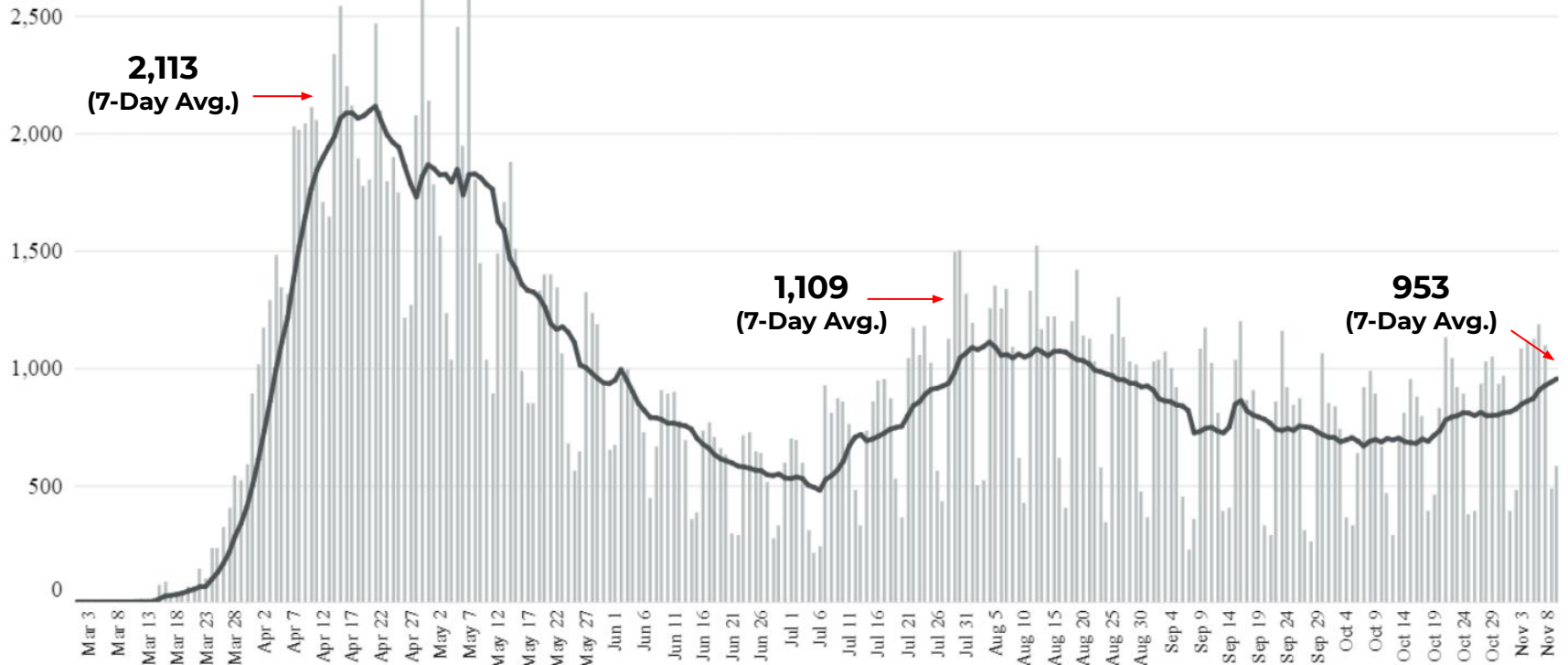
National Forecast



U.S. Hospitalization Growth



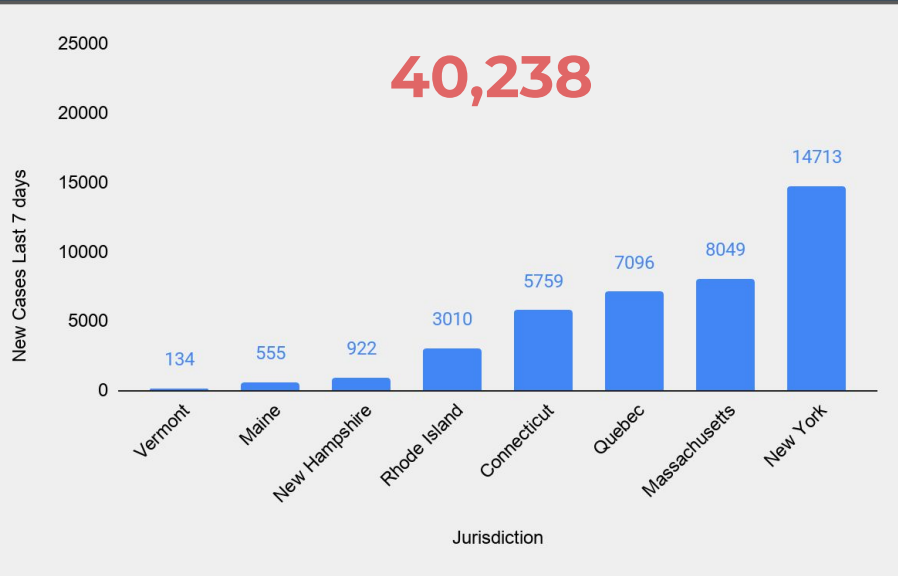
U.S. Covid-19 Deaths



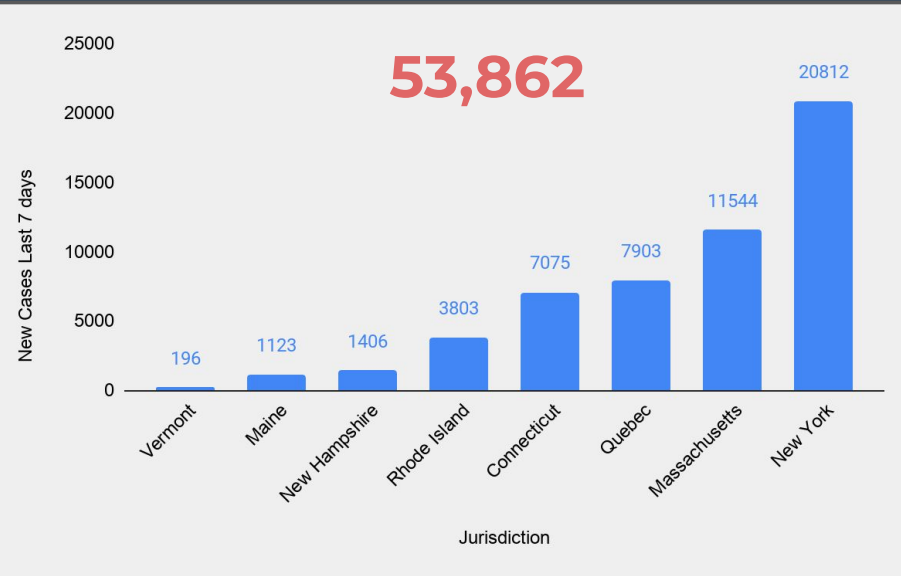
Regional Monitoring

33.86% Increase in New Confirmed Cases

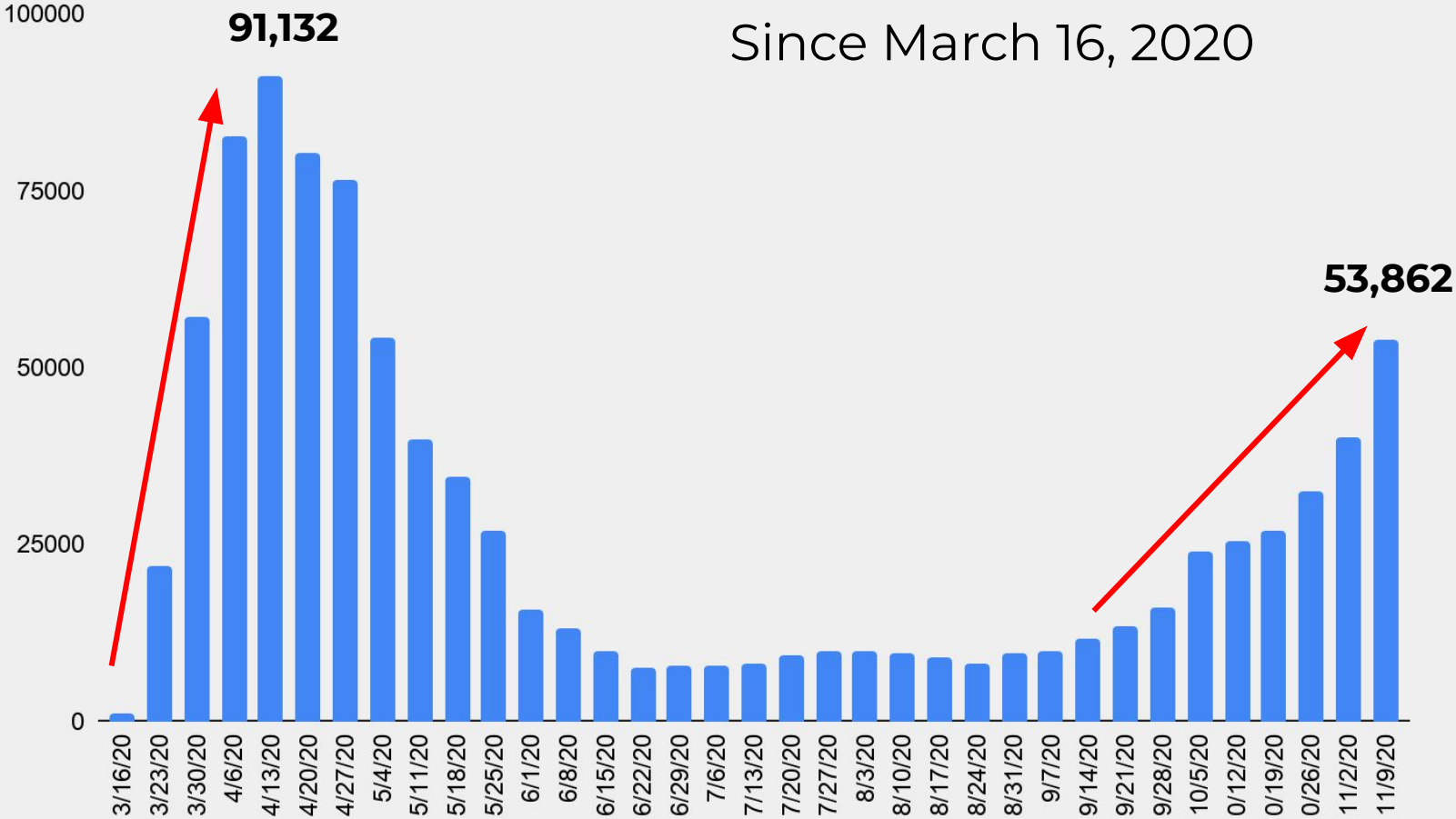
Positive Cases Oct. 27th to Nov. 2nd



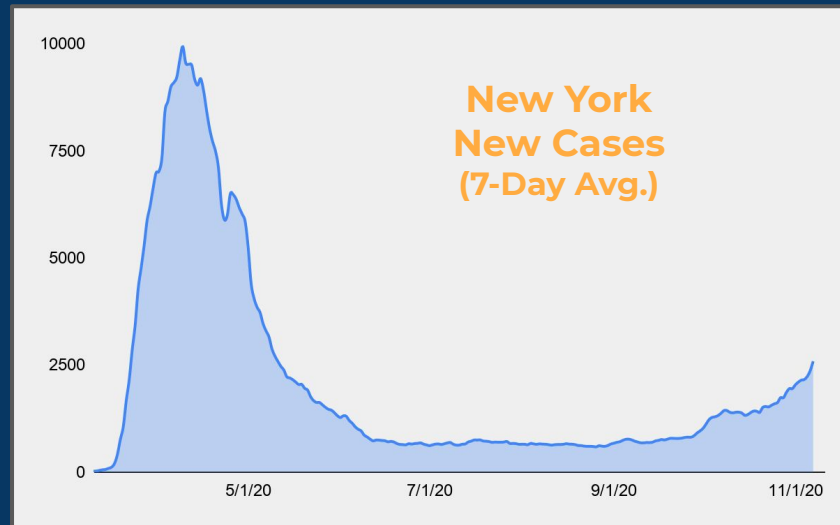
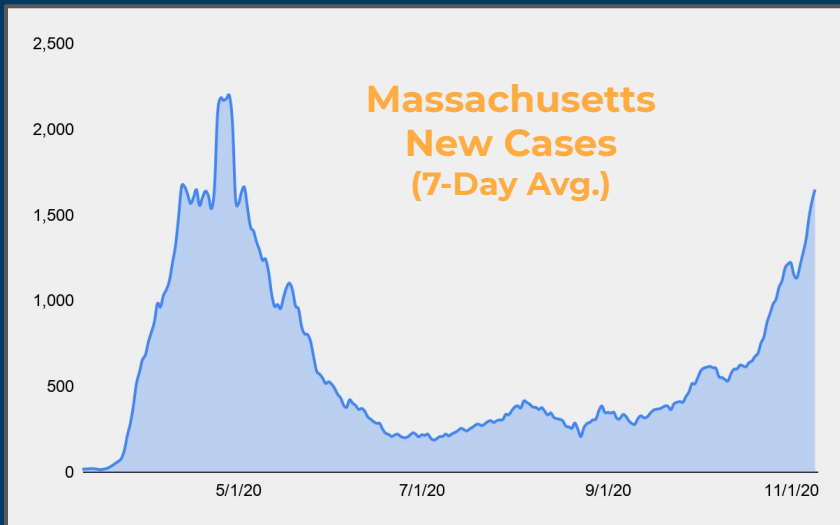
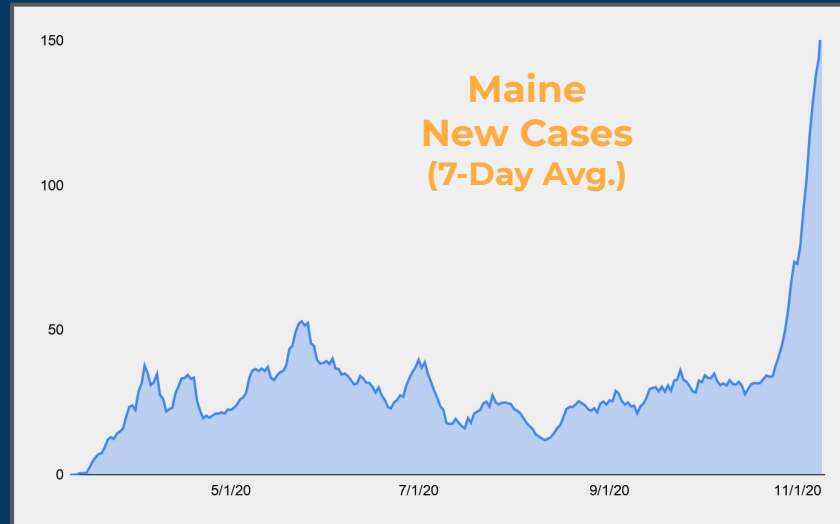
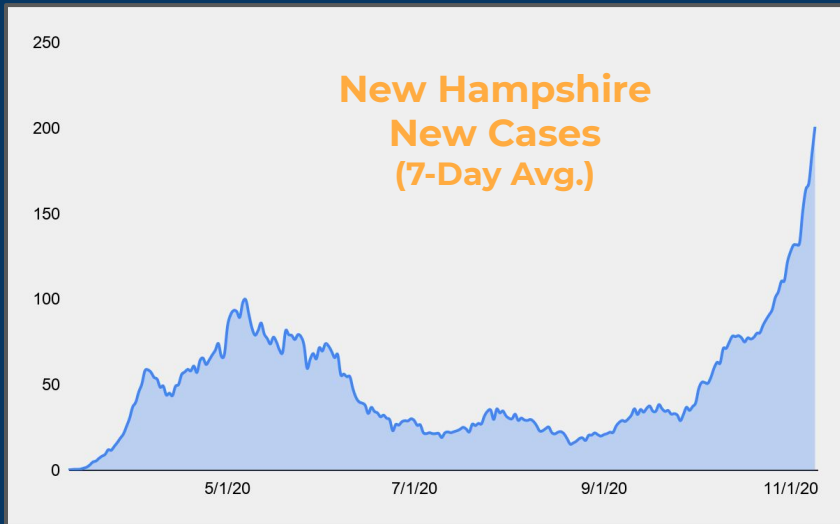
Positive Cases Nov. 3rd to Nov. 9th



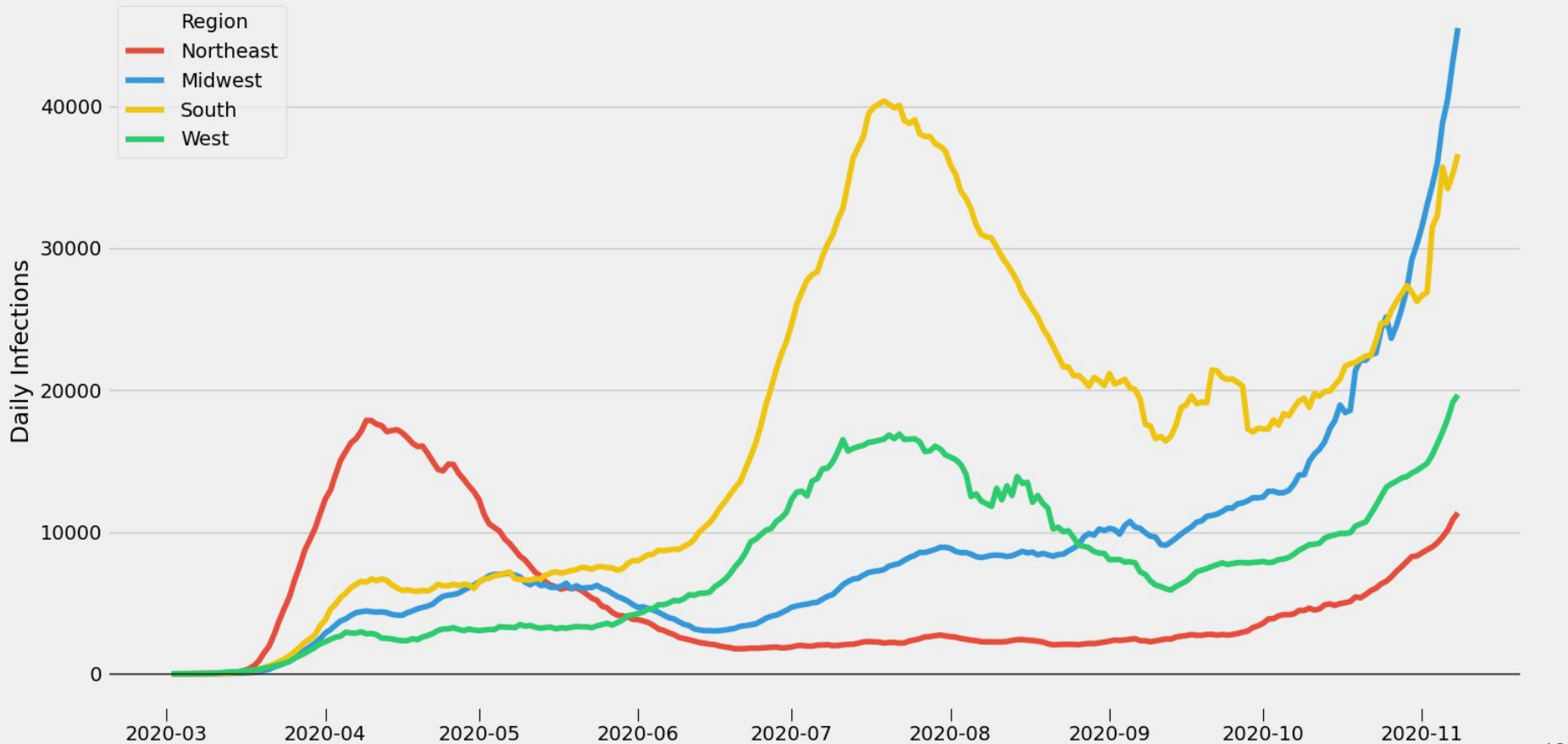
Week-over-Week Northeast Case Growth Since March 16, 2020



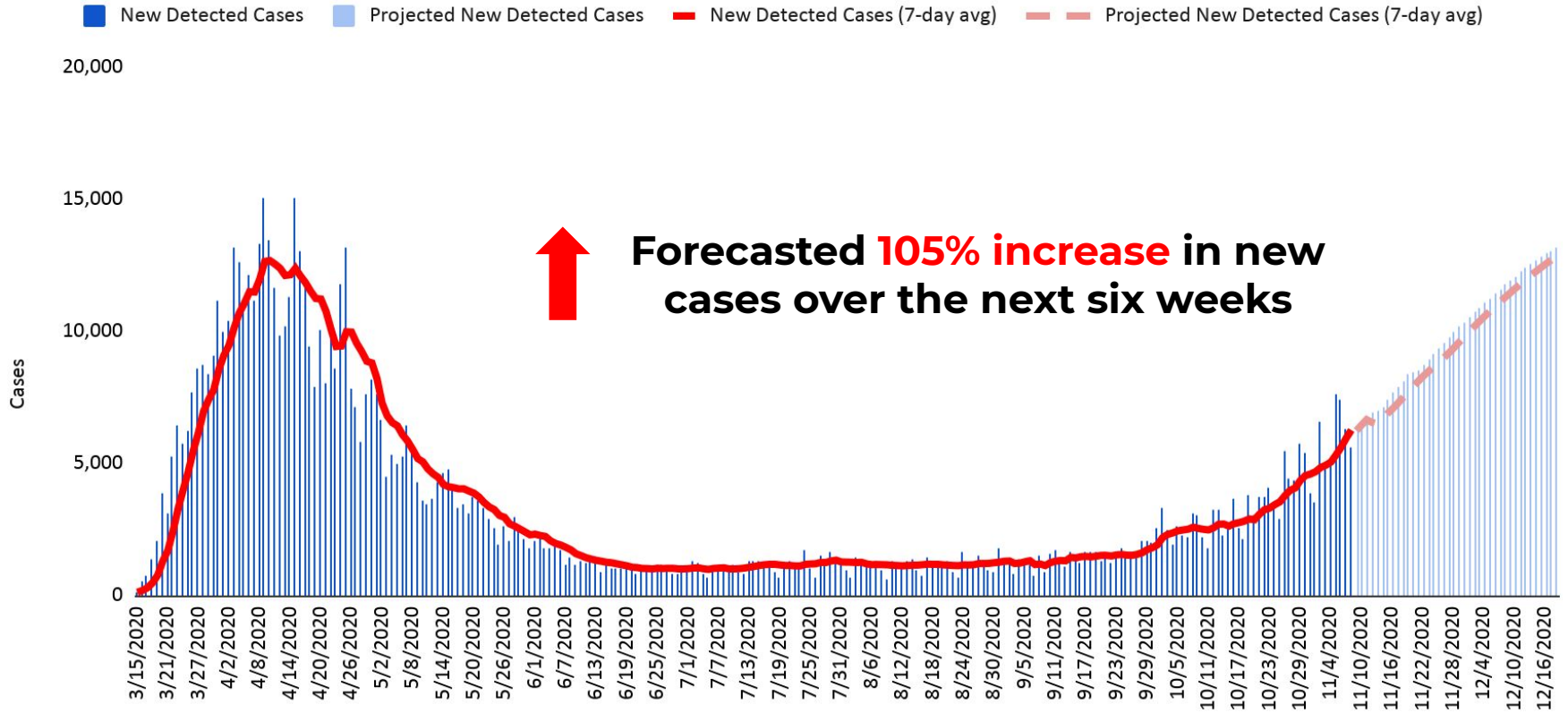
Sources: State Health Departments, New York Times Covid-19 Database & Government of Quebec



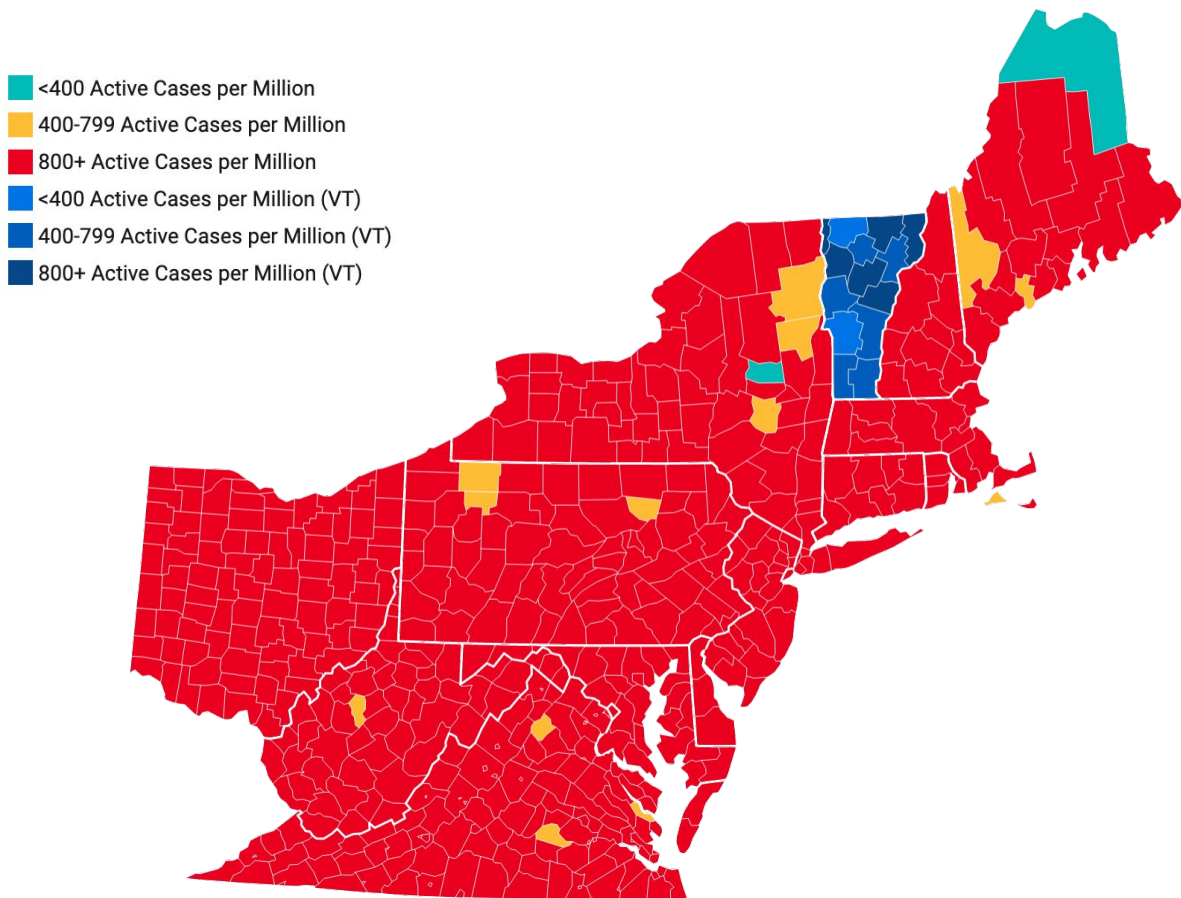
COVID-19 Daily Infections by Census Region (7-Day Moving Average)



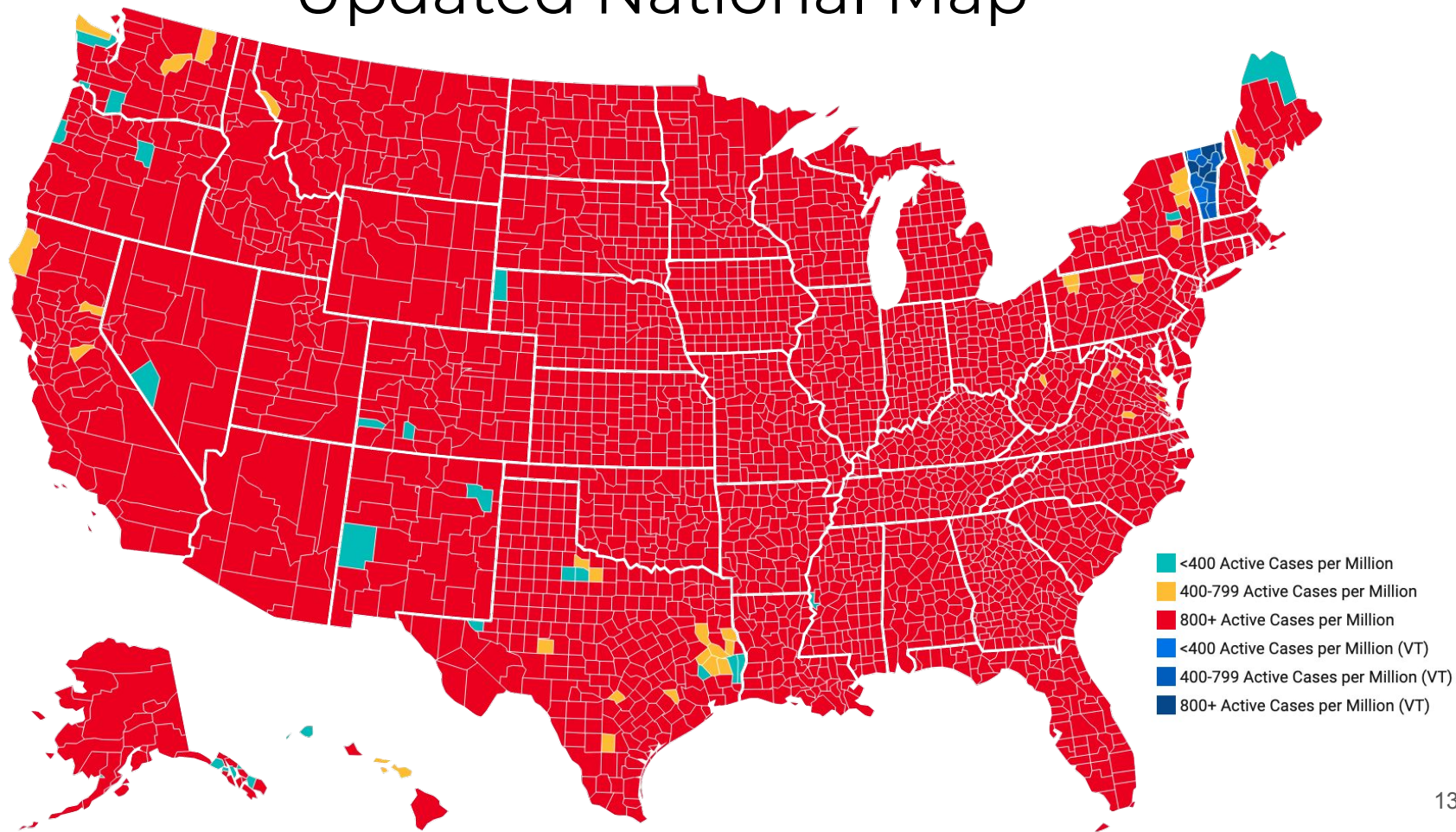
Northeast Forecast



Updated Regional Map

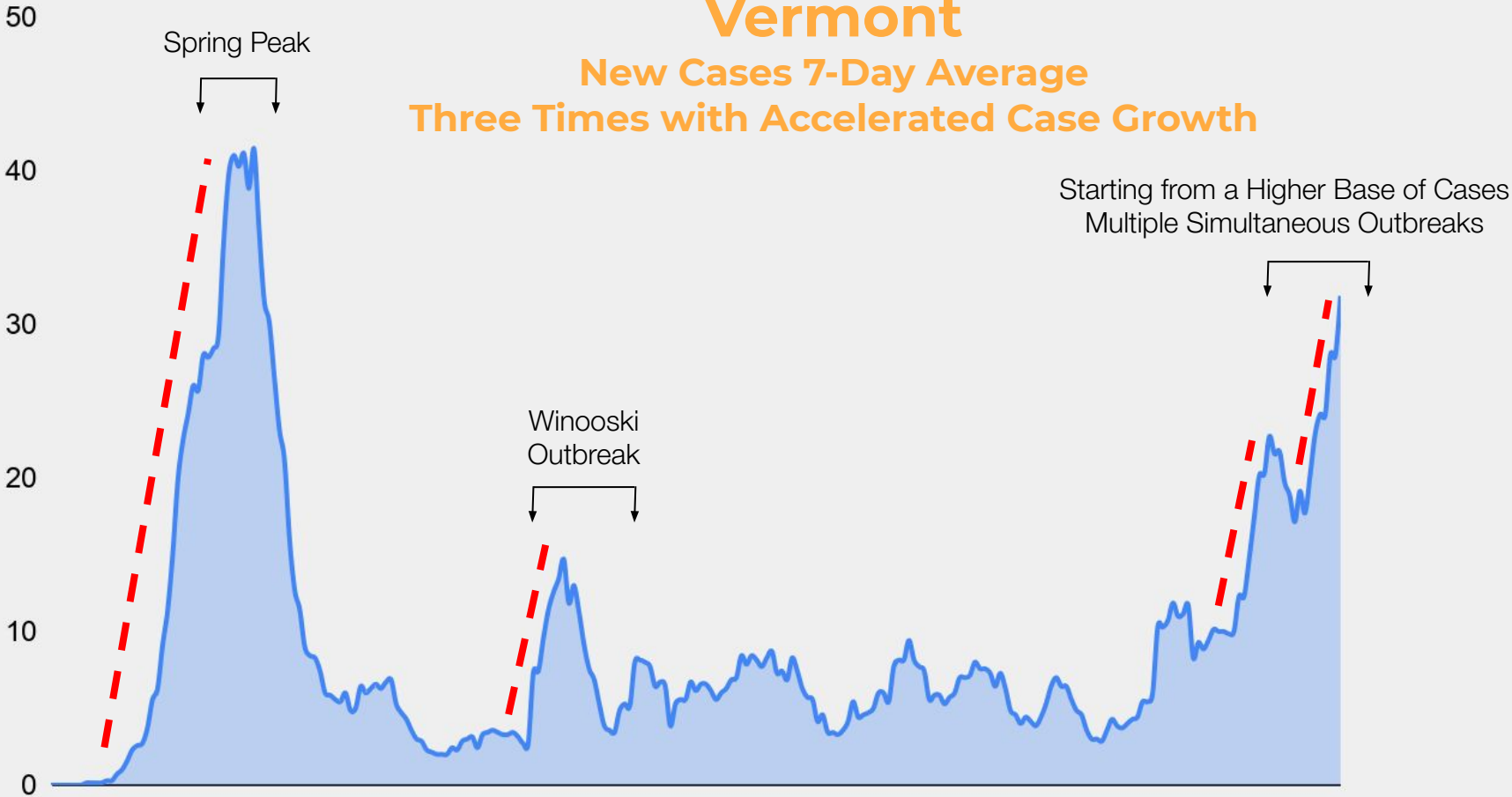


Updated National Map



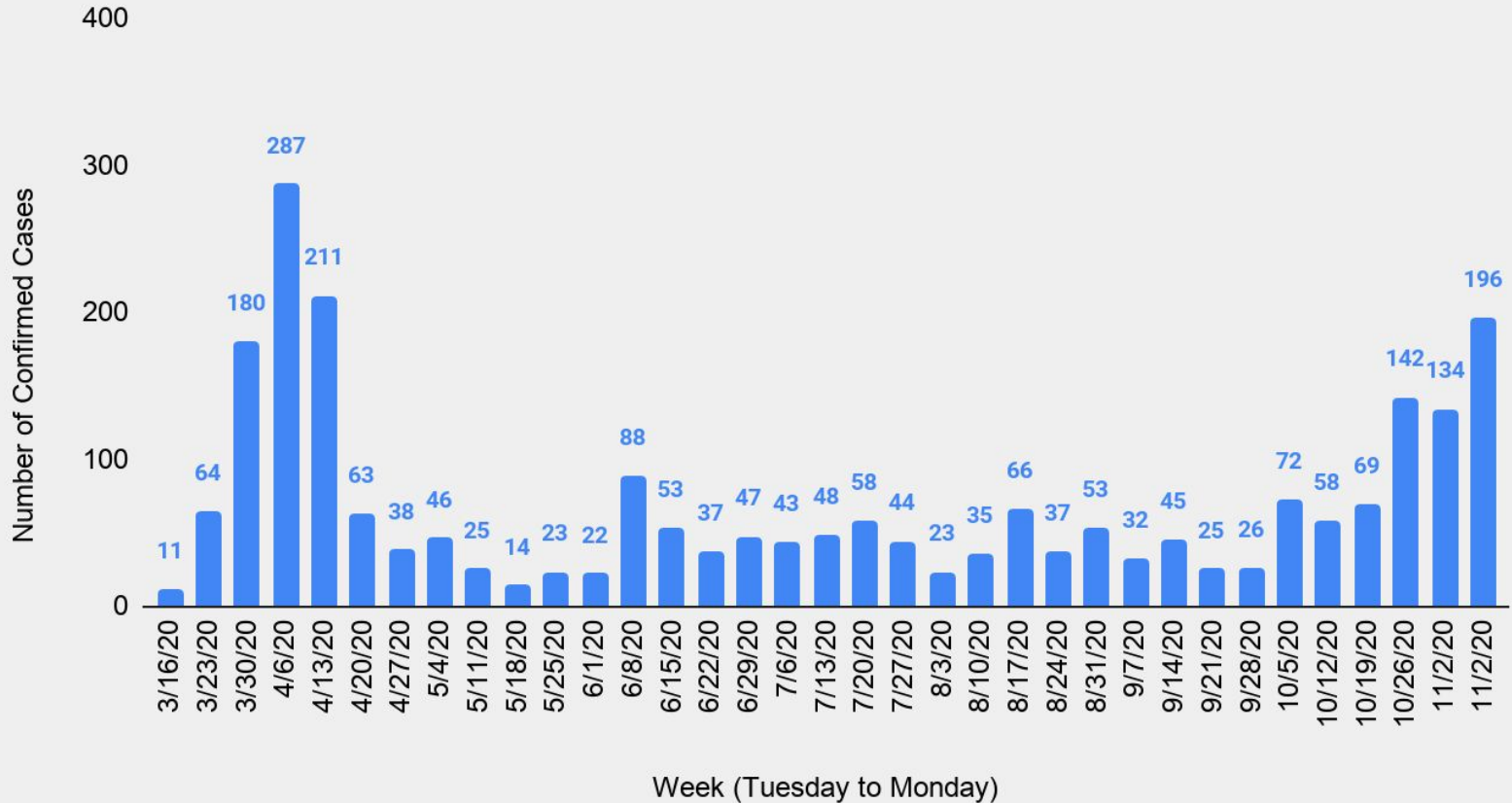
Vermont

New Cases 7-Day Average Three Times with Accelerated Case Growth



Source: Vermont Department of Health - November 9, 2020

Vermonters With Confirmed Cases



7 Day Rolling Average Hospitalizations 7 Day Rolling Average ICUs

40

30

20

10

0

Vermont Hospitalizations Recent Uptick

5/1/20

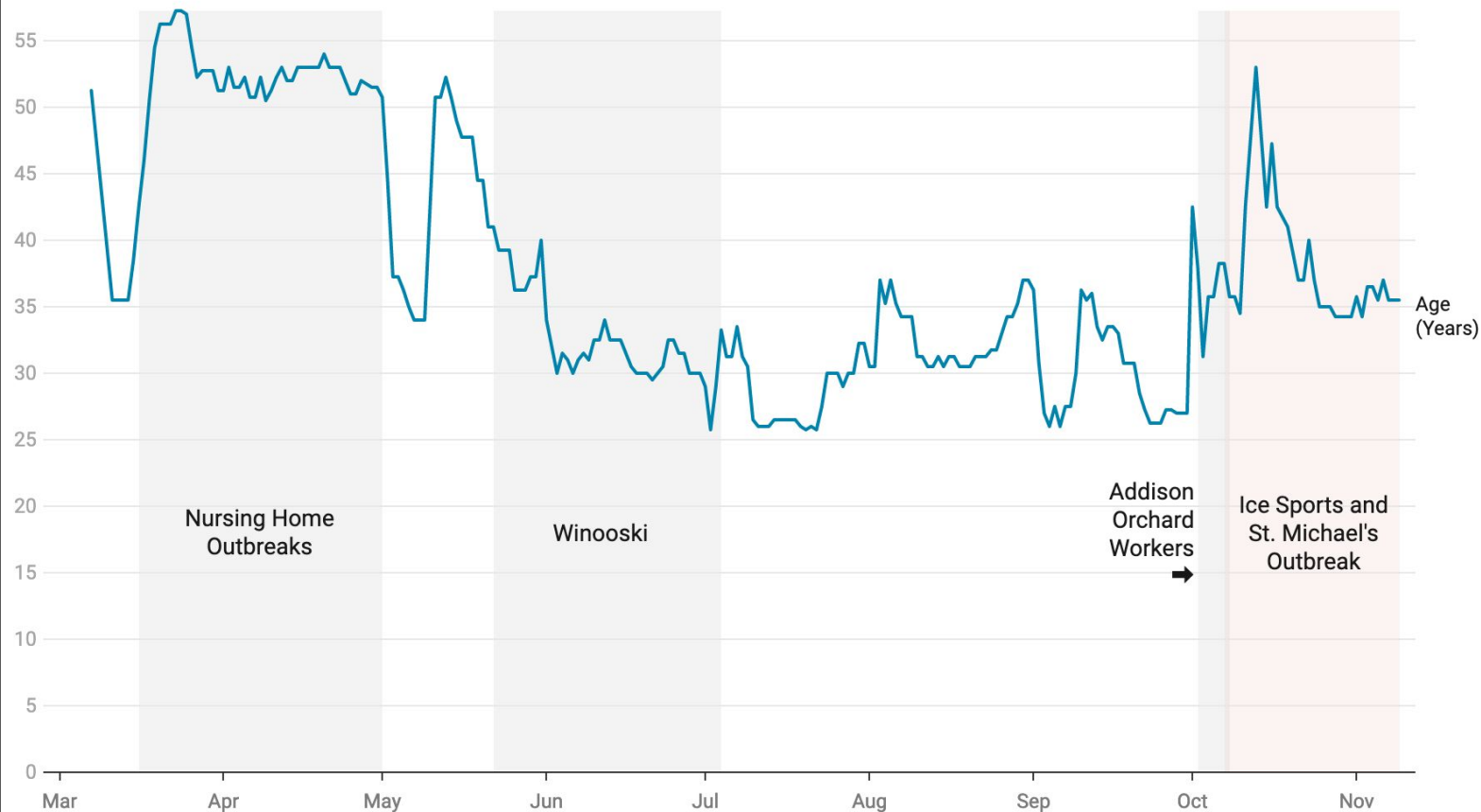
7/1/20

9/1/20

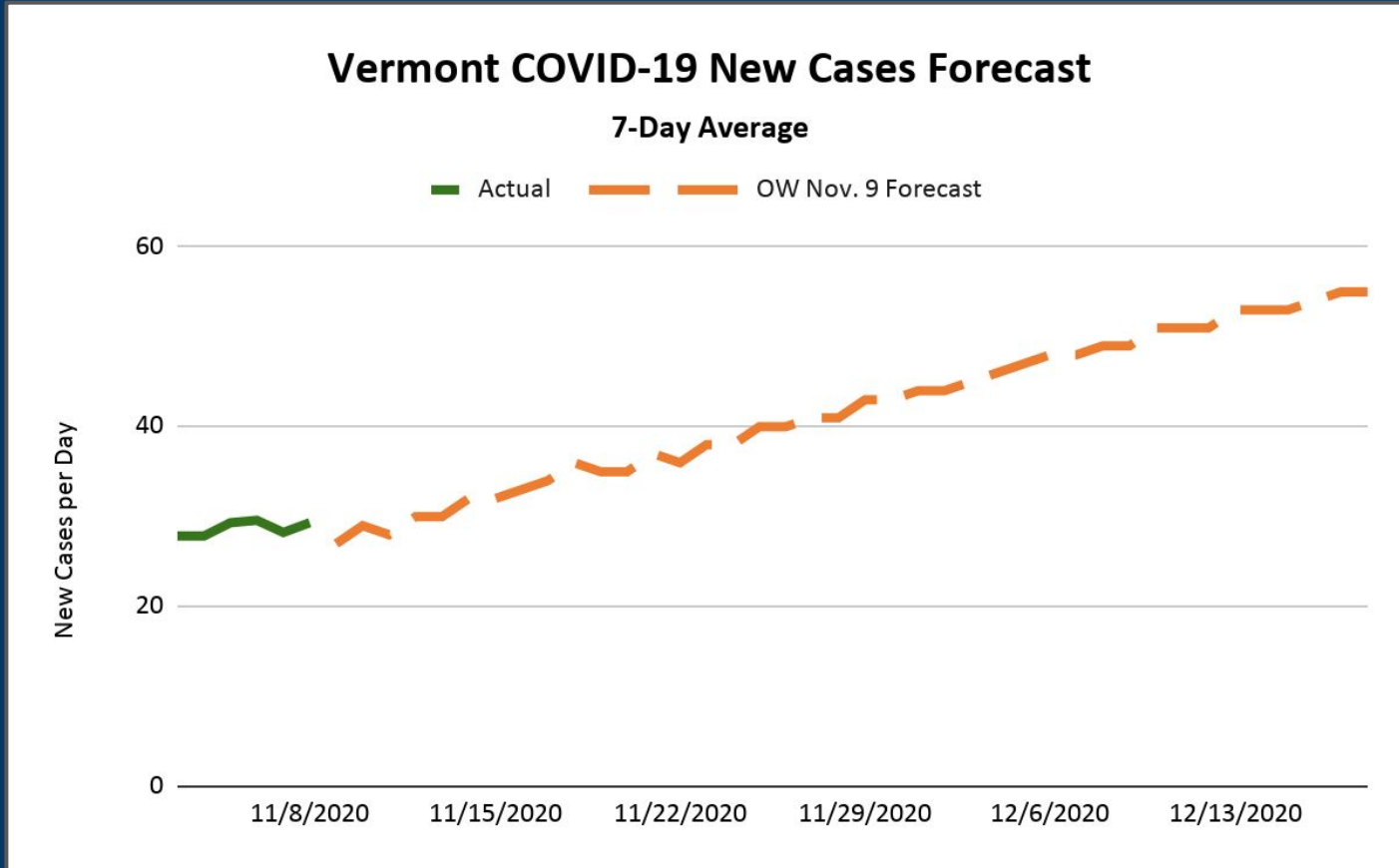
11/1/20

Age of VT COVID Cases

Calculated as the 14-day rolling median of the age of confirmed positives.

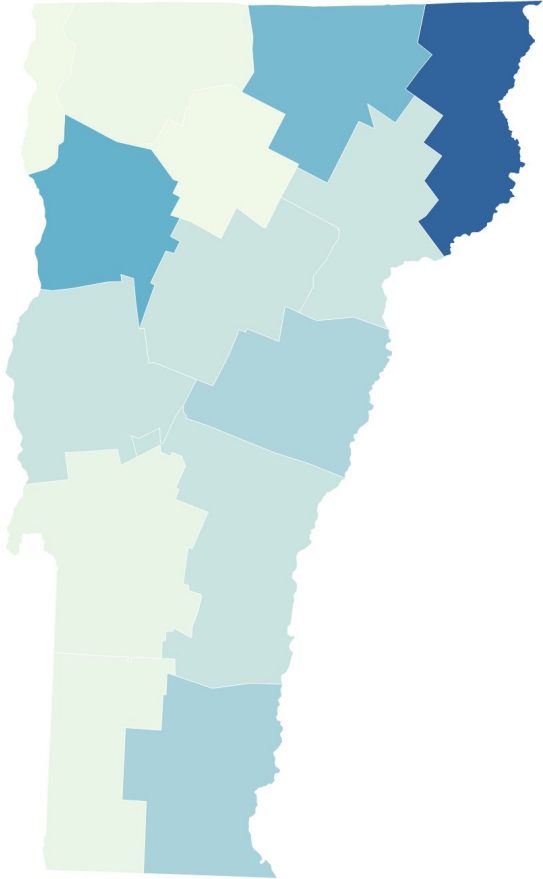


Vermont Forecast November 9 to December 18



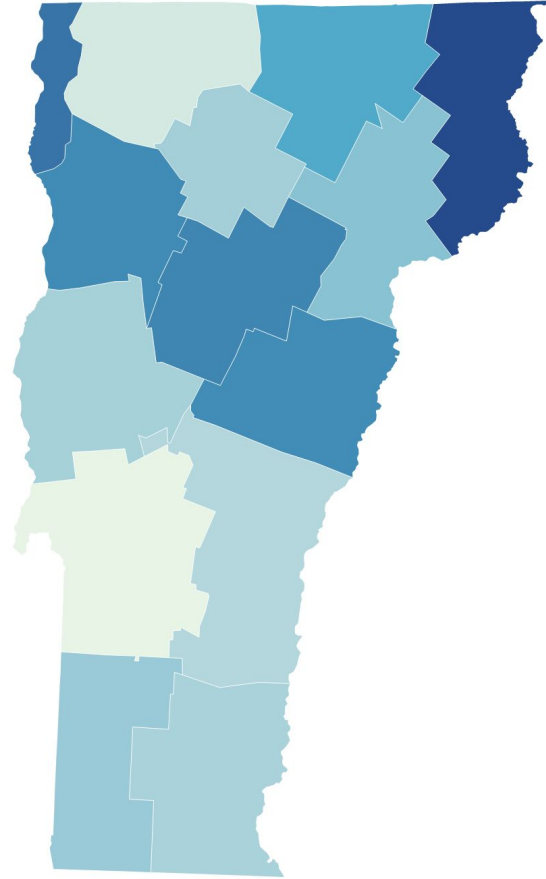
Vermont Weekly Cases by County (per 100,000)

Results Reported October 27 to November 2



Vermont Weekly Cases by County (per 100,000)

Results Reported November 3 to 9



Canadian Thanksgiving

A Cautionary Tale

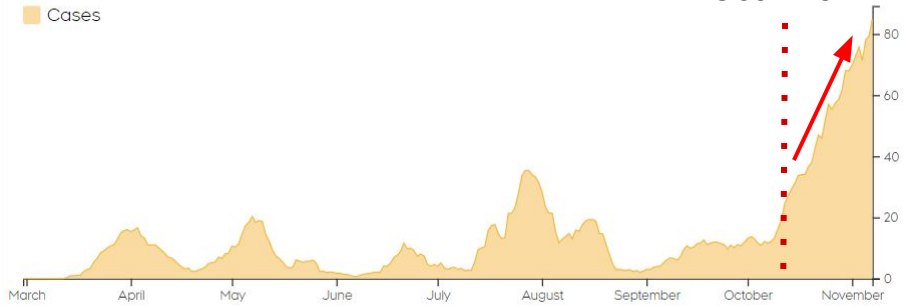
Canadian Thanksgiving

- **Celebrated Second Monday in October (October 12, 2020)**
- **Families gather for a Thanksgiving meal**
- **Turkey is the mainstay and traditional Canadian Football doubleheader played**
- **Celebrated to different degrees across Canada**

Case Growth After Canadian Thanksgiving

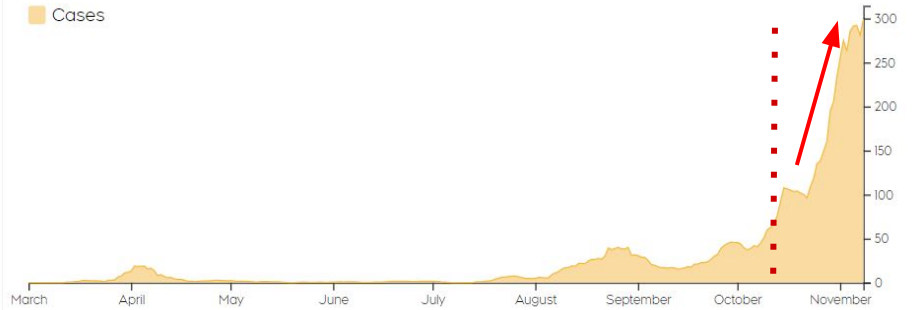
Saskatchewan

Total Breakdown Cumulative New 7-day avg Raw /100K



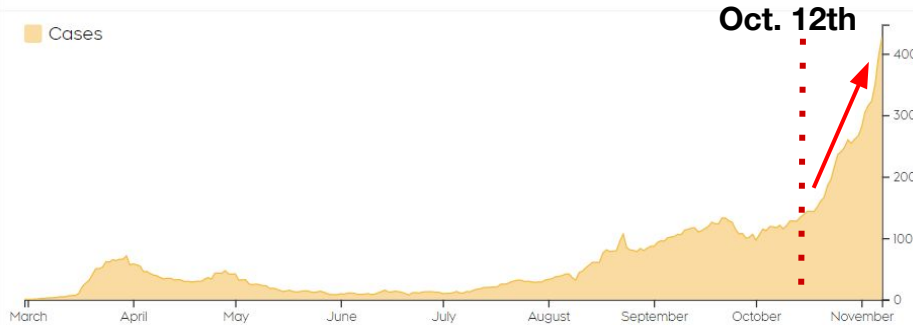
Manitoba

Total Breakdown Cumulative New 7-day avg Raw /100K



British Columbia

Total Breakdown Cumulative New 7-day avg Raw /100K



Alberta

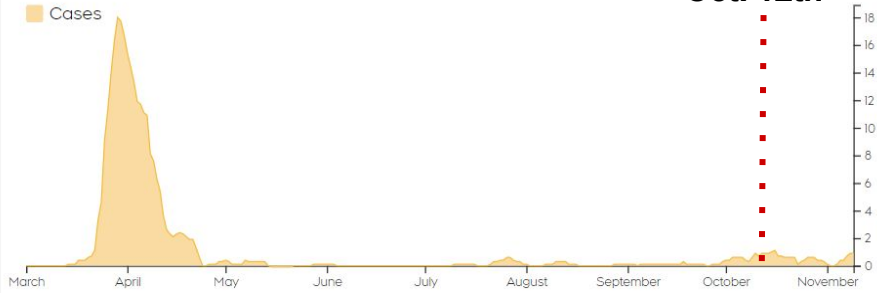
Total Breakdown Cumulative New 7-day avg Raw /100K



Case Growth After Canadian Thanksgiving

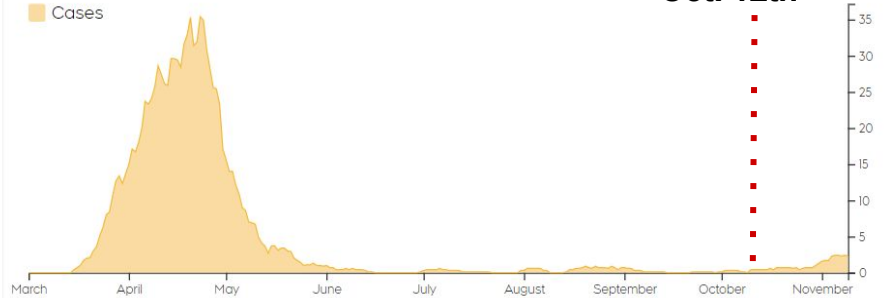
Newfoundland and Labrador

Total Breakdown Cumulative New 7-day avg Raw /100K



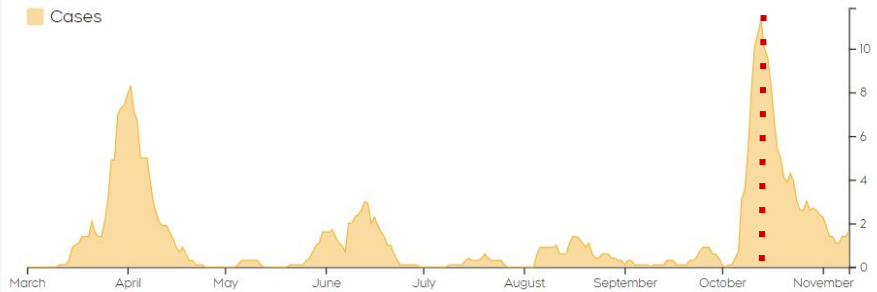
Nova Scotia

Total Breakdown Cumulative New 7-day avg Raw /100K



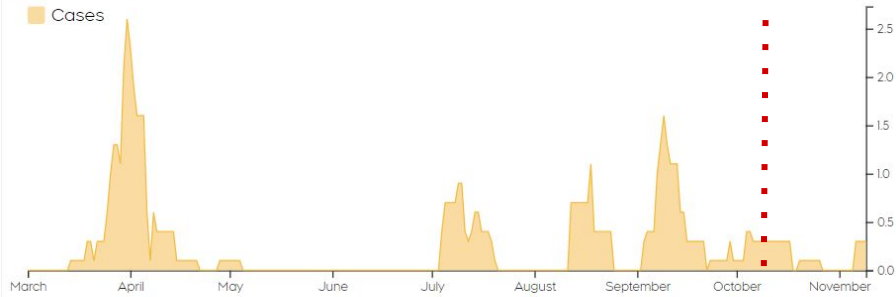
New Brunswick

Total Breakdown Cumulative New 7-day avg Raw /100K



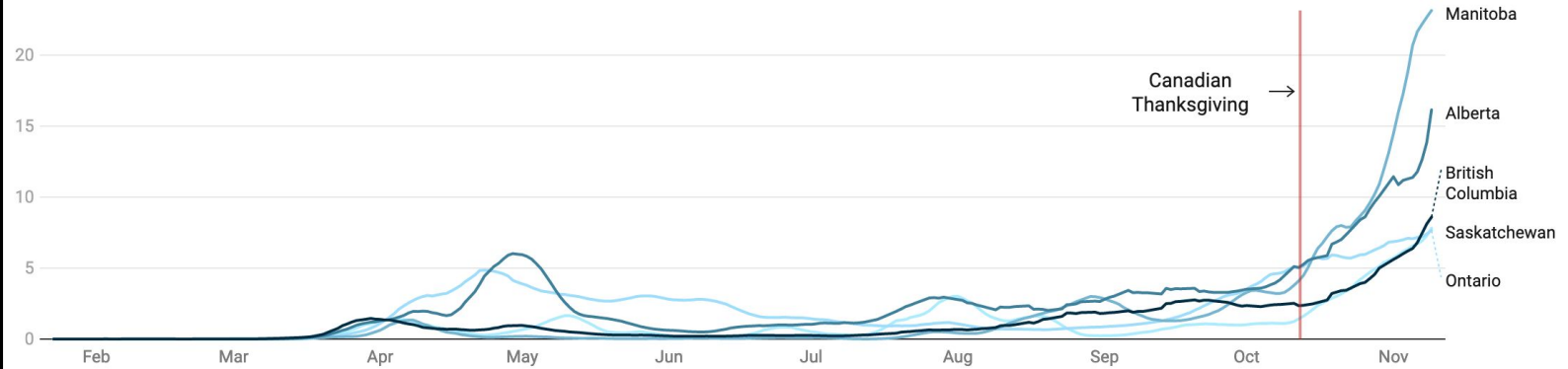
Prince Edward Island

Total Breakdown Cumulative New 7-day avg Raw /100K



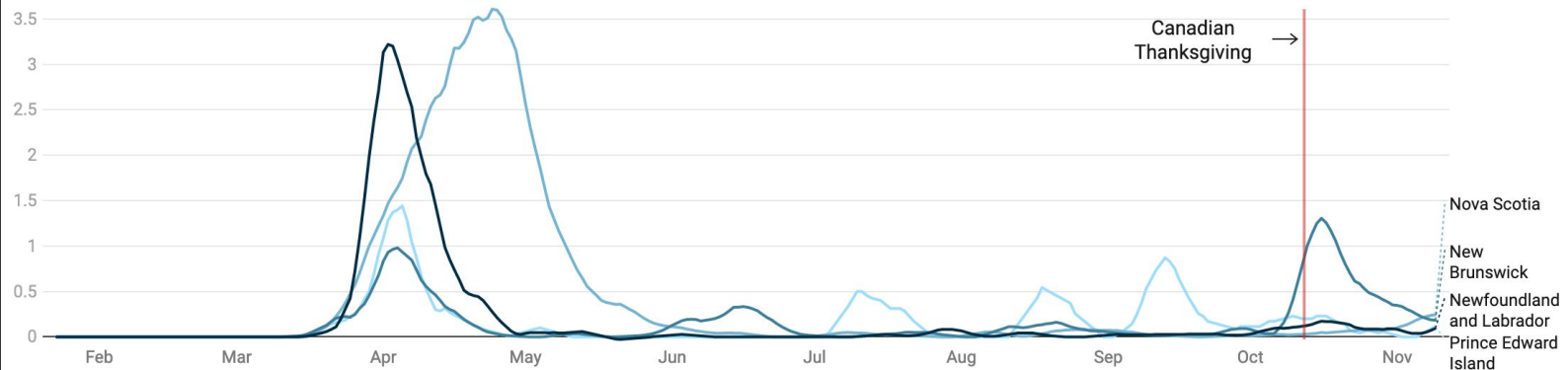
Daily COVID-19 Infections per 100K in Canadian Provinces Celebrating Thanksgiving

Measured as a 7-day moving average



Daily COVID-19 Infections per 100K in Canadian Provinces Not Celebrating Thanksgiving

Measured as a 7-day moving average



RESTART VERMONT

Reopening Metrics

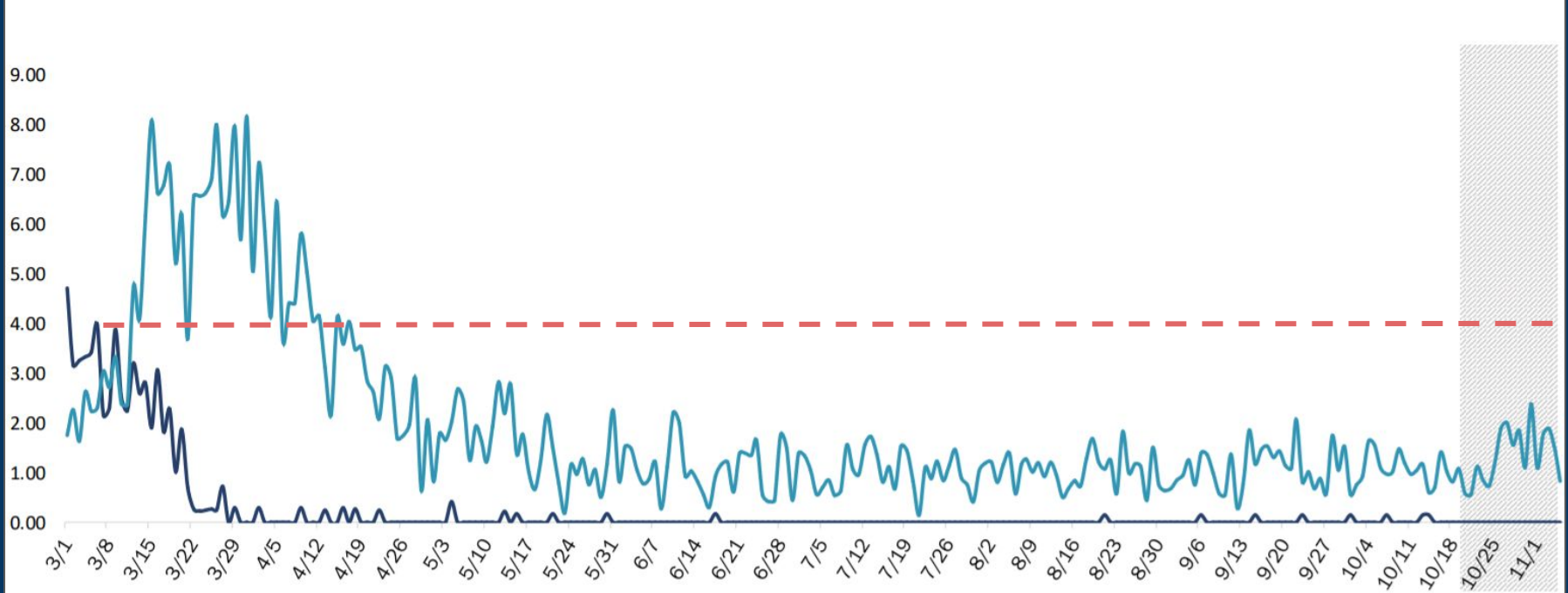
1. Syndromic Surveillance
2. Viral Growth & Reproductive Rates
3. Percentage of New Positive Tests
4. Hospital & Critical Care Bed Capacity

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

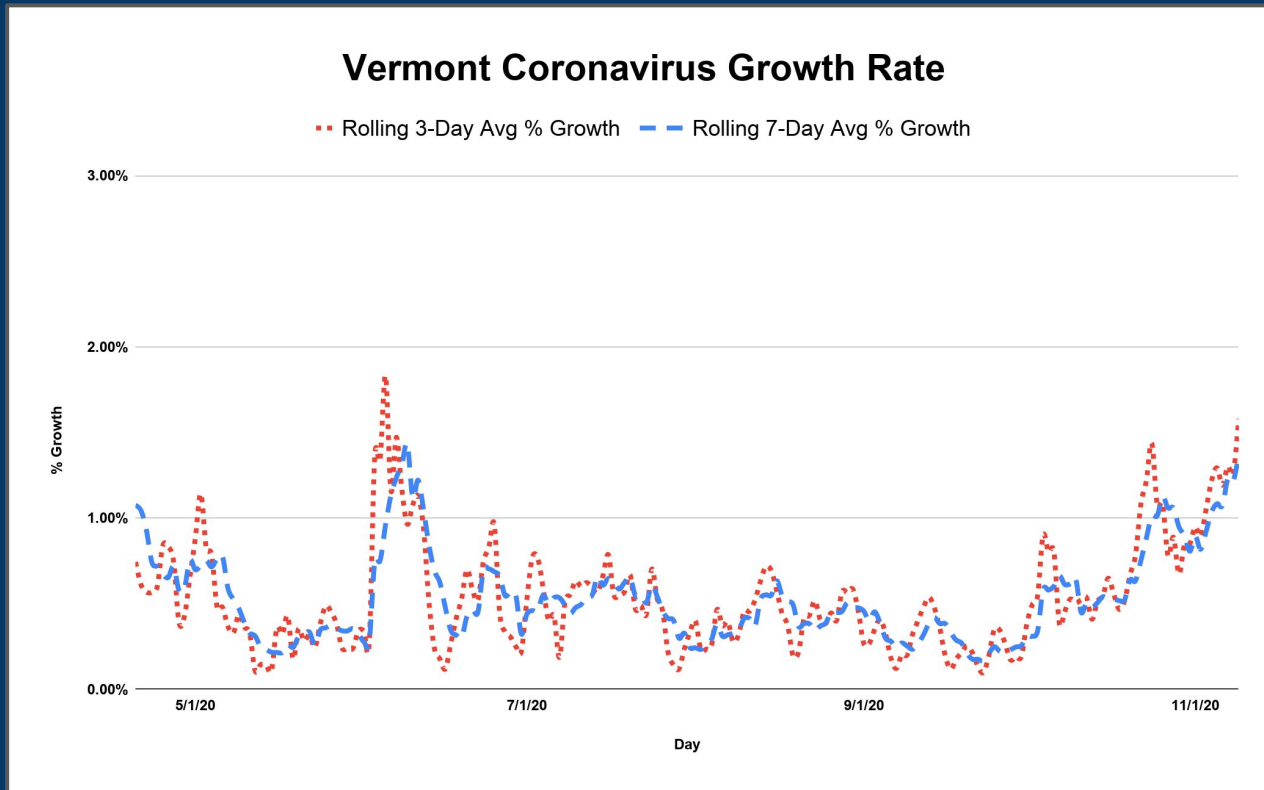
Percent of Emergent Care Visits for COVID-19 like illness and Influenza Diagnosis

Syndromic Surveillance from 13 of 14 Vermont Hospitals and 2 Urgent Care Centers



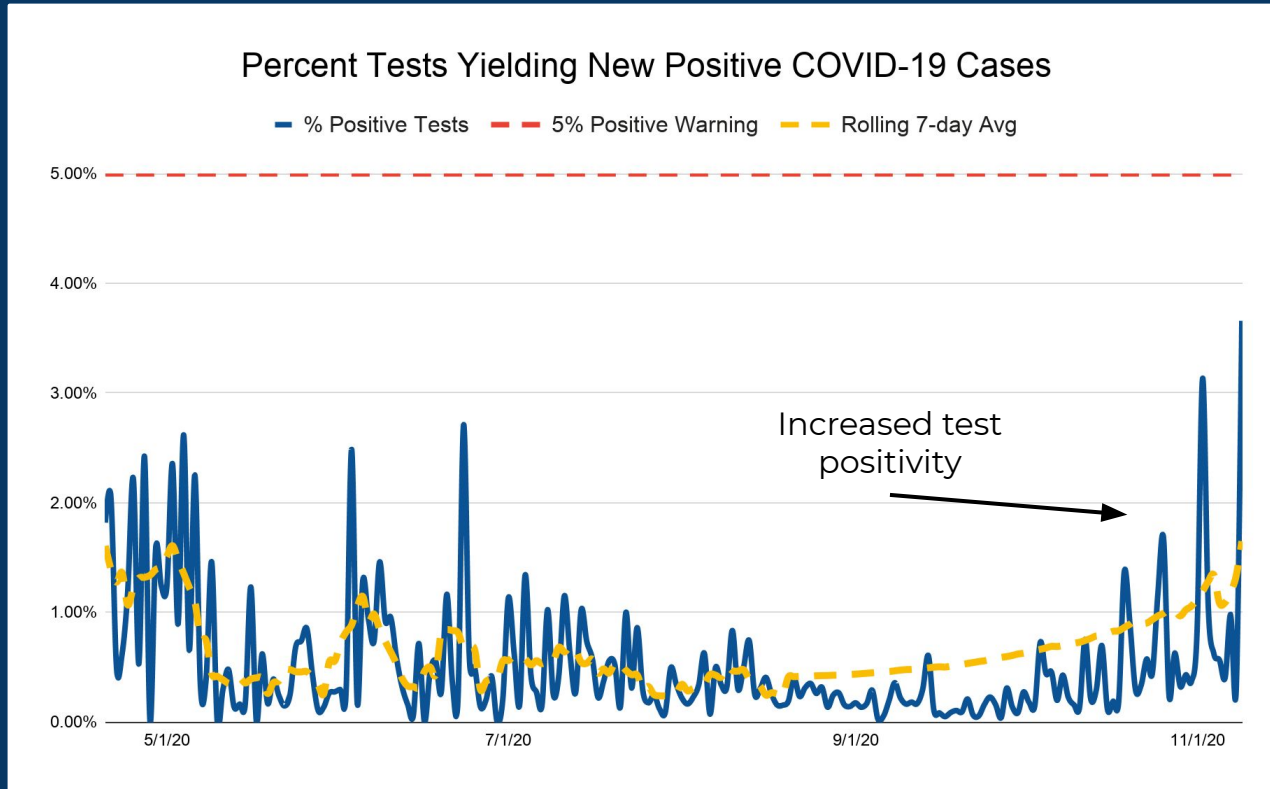
Data Point 2: Viral Growth and Reproductive Rates

- **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



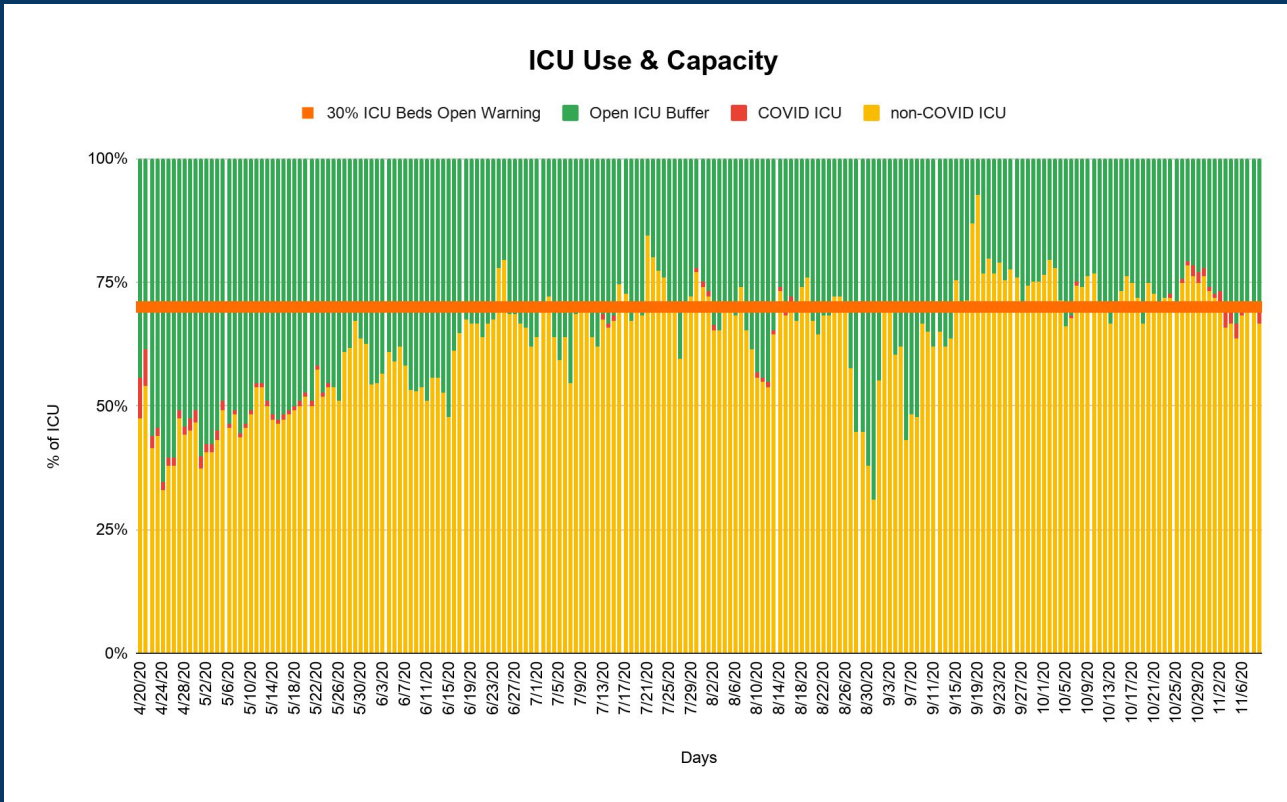
Data Point 3: Percentage of New Positive Tests

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

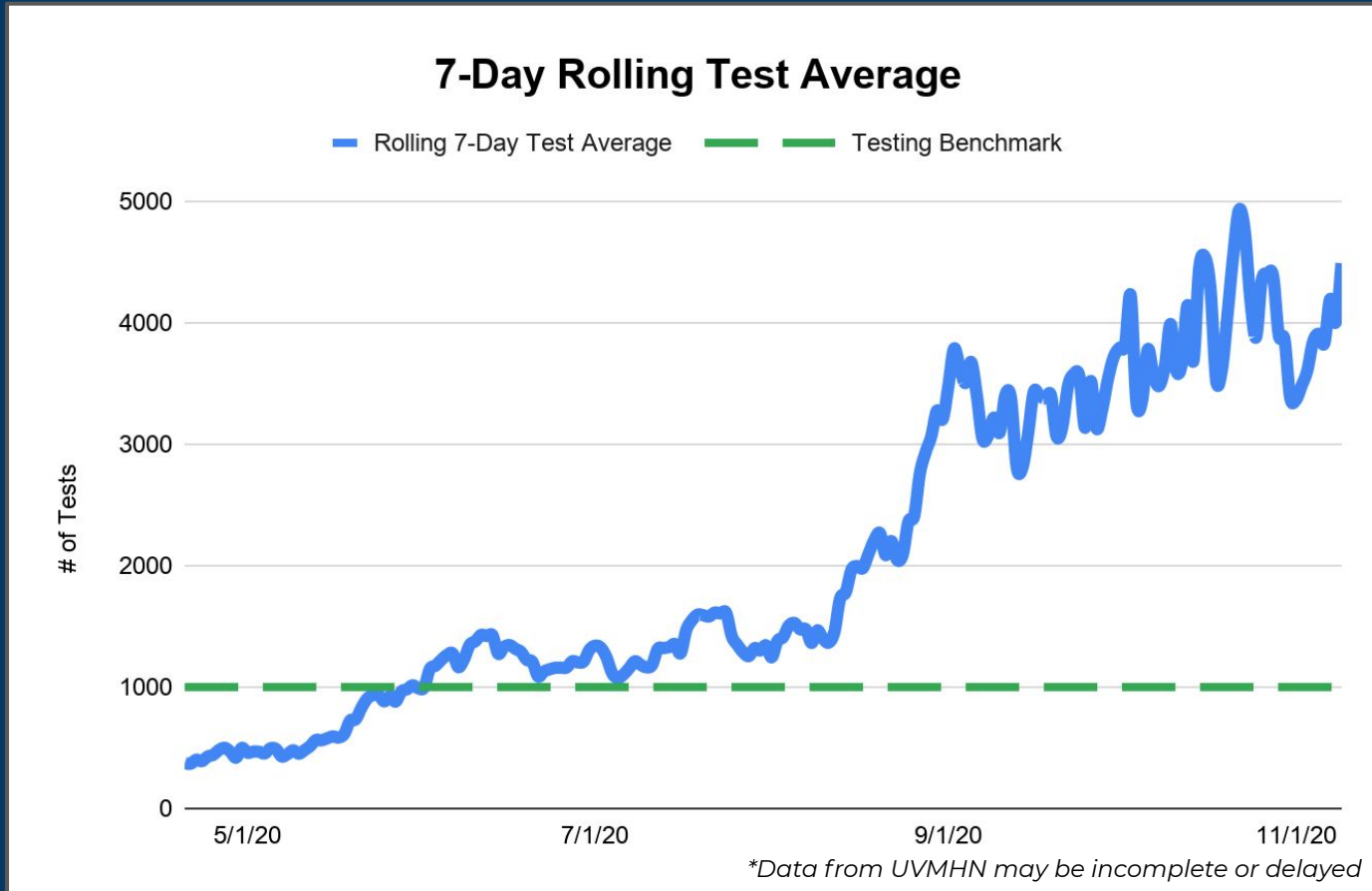


Data Point 4: Hospital & Critical Care Beds

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

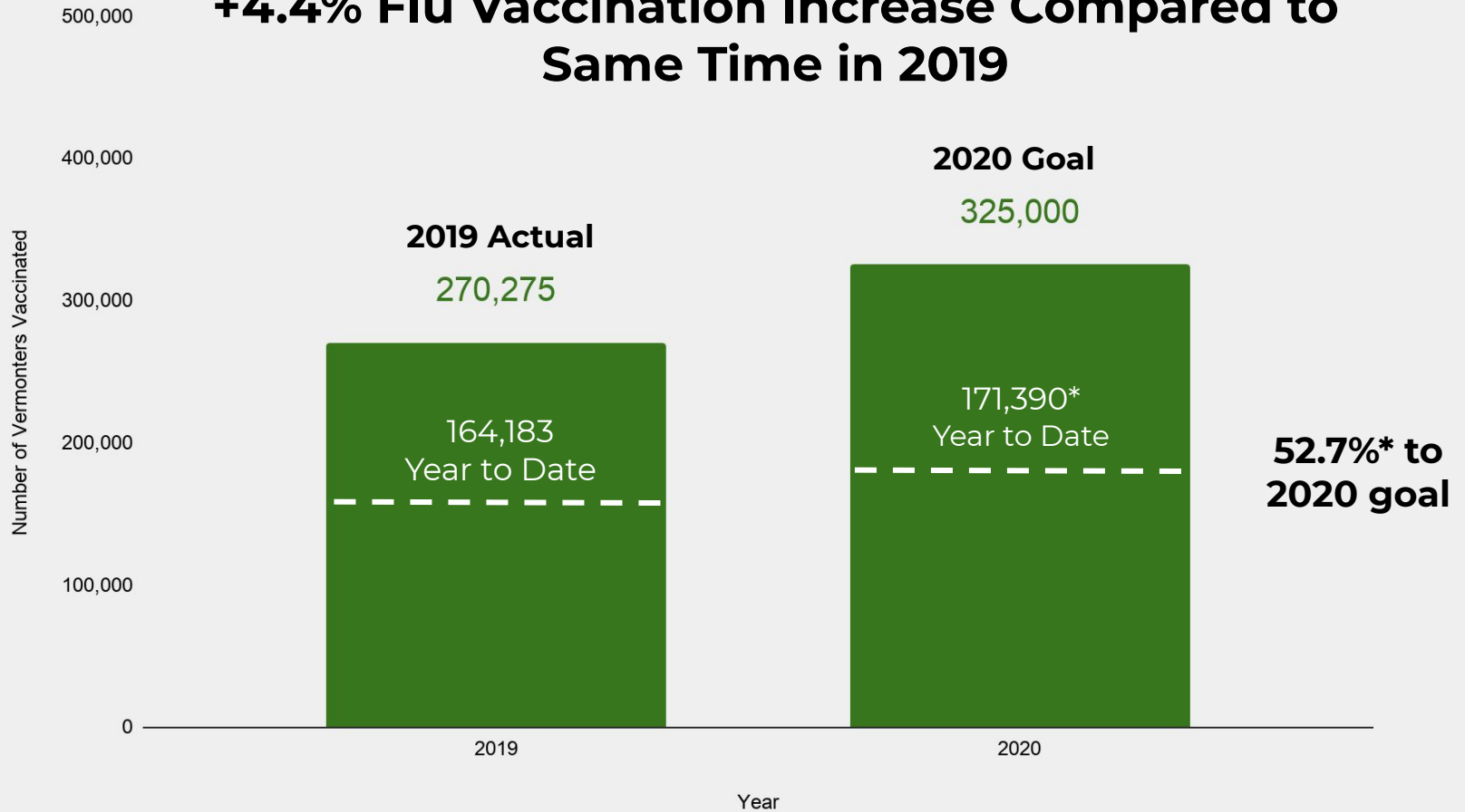


Vermont Testing



Vermont Flu Vaccine Data

+4.4% Flu Vaccination Increase Compared to Same Time in 2019

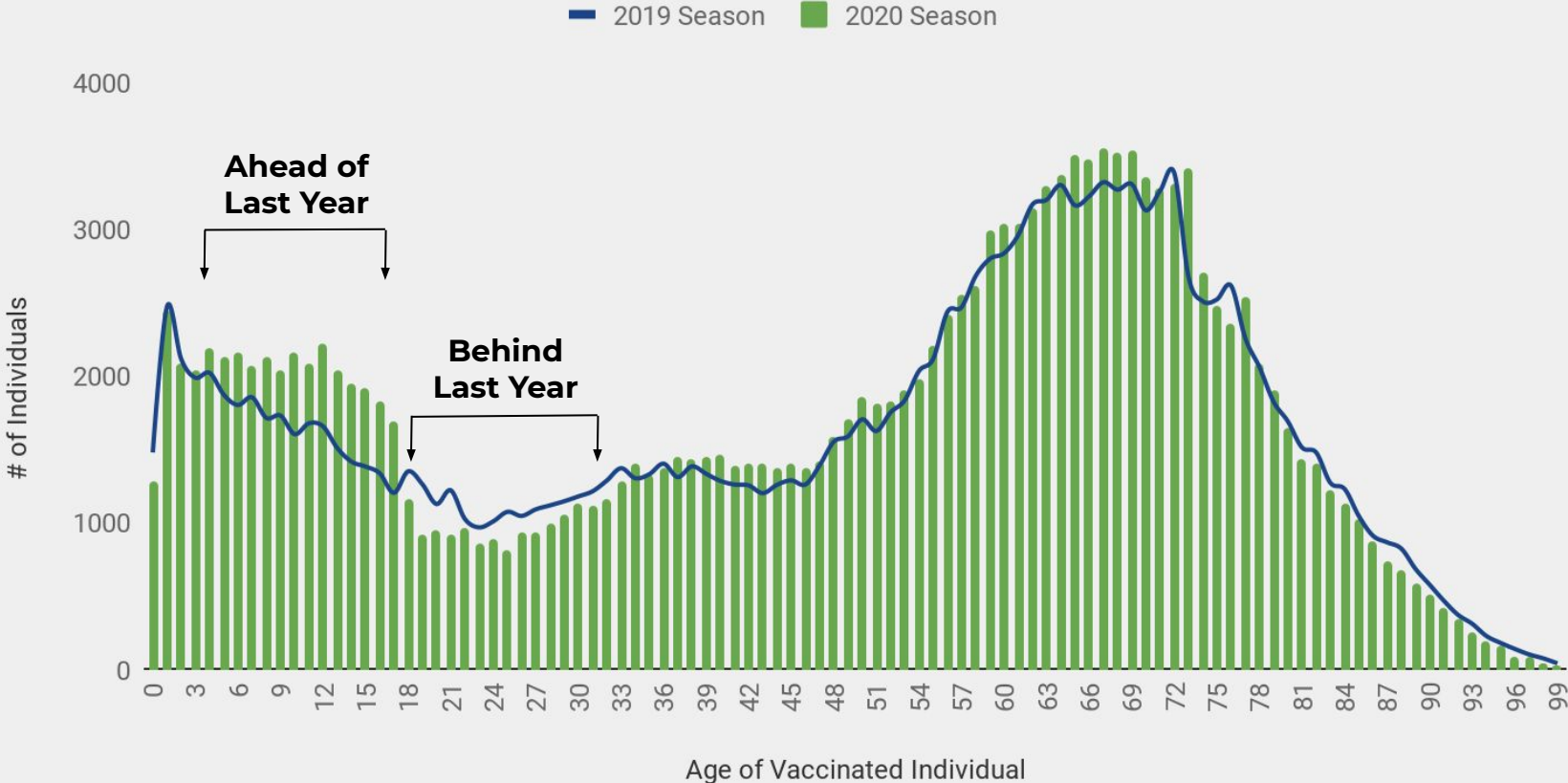


**Data from UVMHN may be incomplete or delayed*

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

Vermont Influenza Vaccinations

Through November 1, 2019 & 2020



Note: Data from UVMHN may be incomplete or delayed

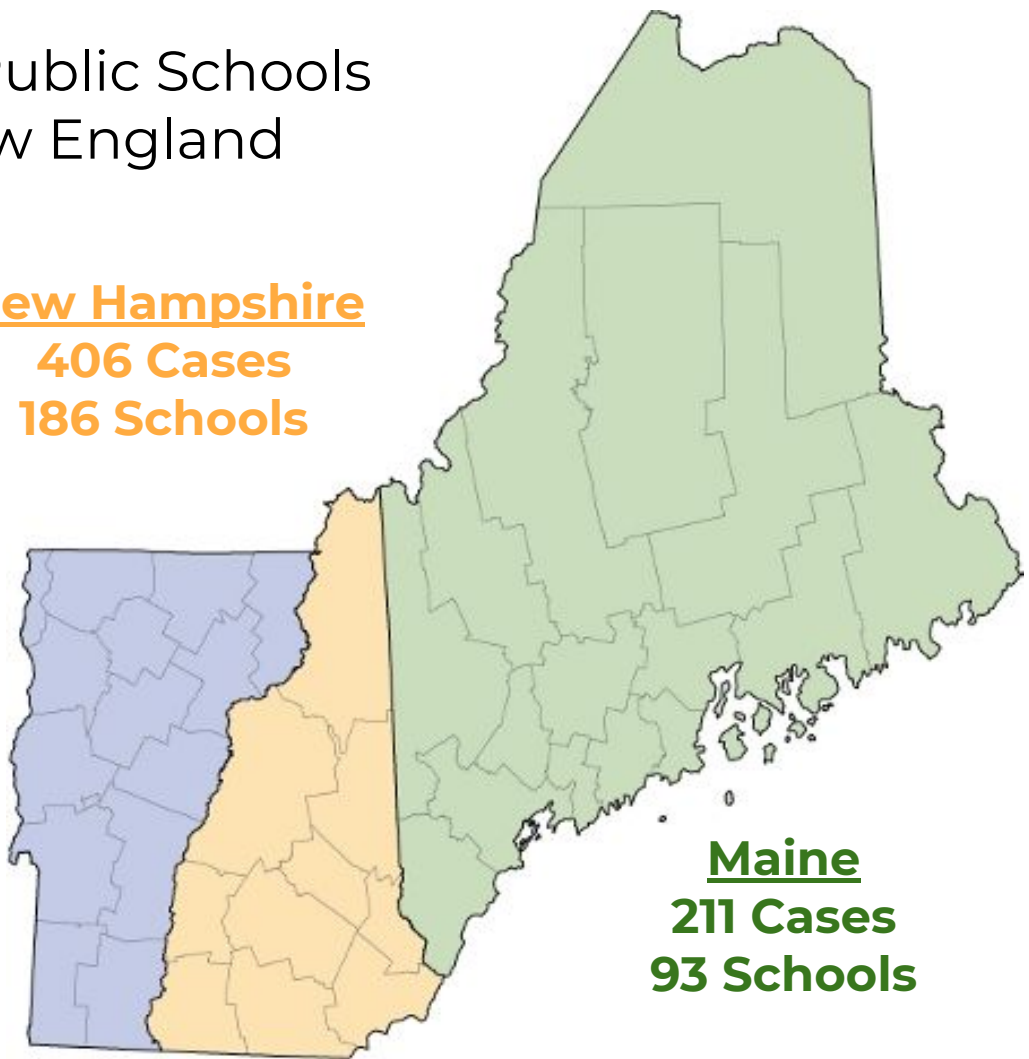
K-12 & Higher Education Update

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

Vermont
54 Cases
41 Schools

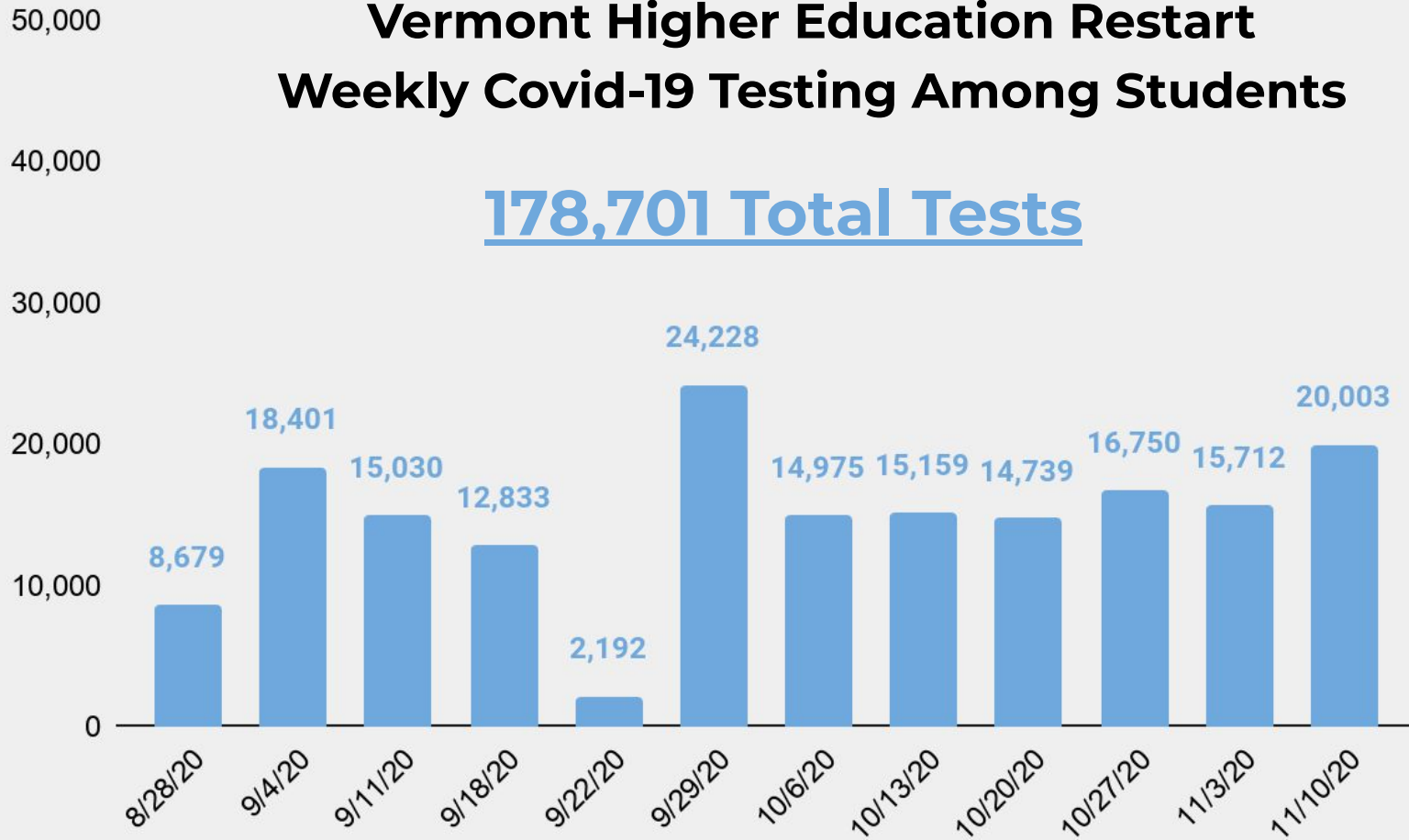
New Hampshire
406 Cases
186 Schools

Maine
211 Cases
93 Schools



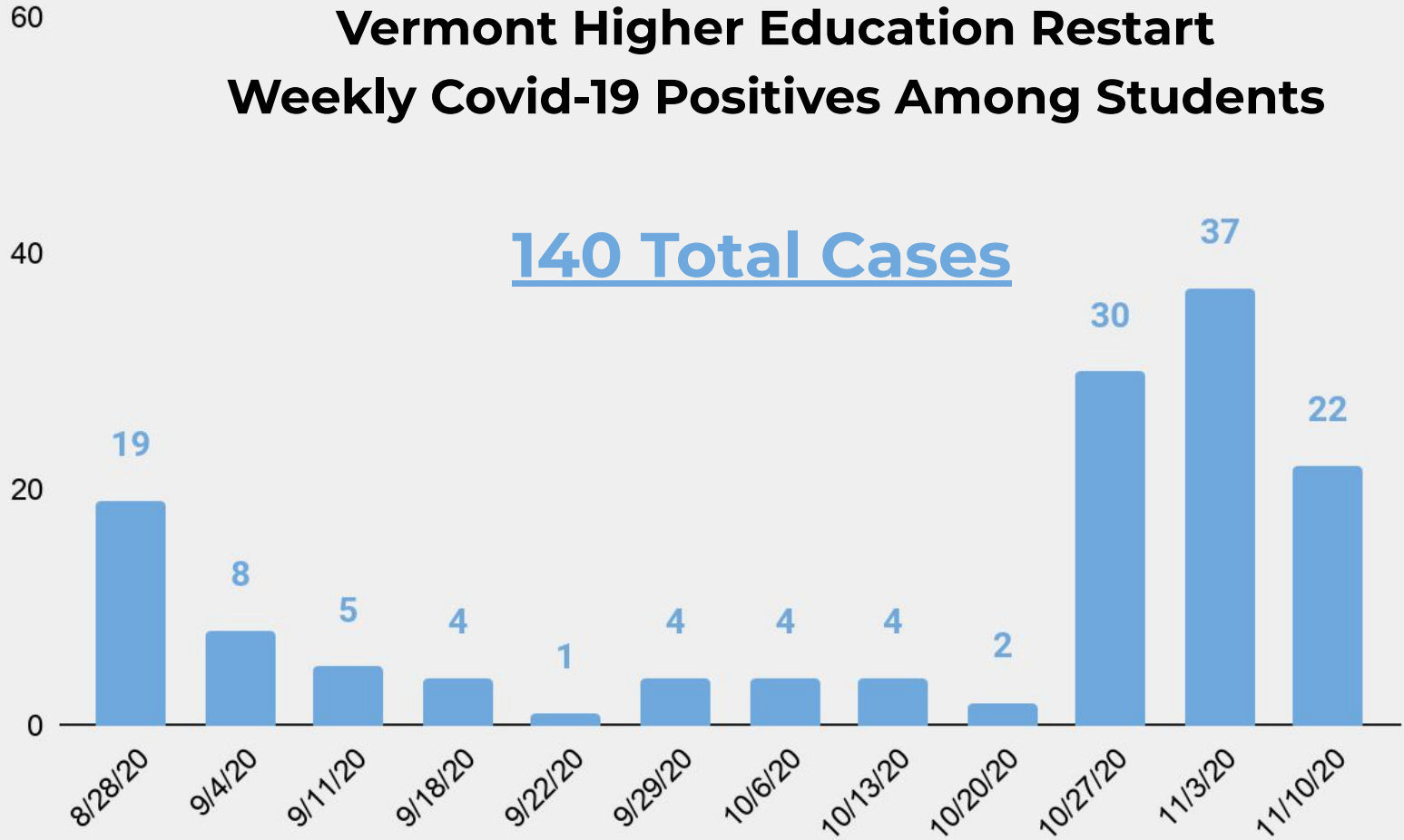
Vermont Higher Education Restart Weekly Covid-19 Testing Among Students

178,701 Total Tests



Source: Vermont Colleges and Universities (presentation switched to Tuesday on September 22, 2020)

Vermont Higher Education Restart Weekly Covid-19 Positives Among Students



Source: Vermont Colleges and Universities (presentation switched to Tuesday on September 22, 2020)

■ All Higher Education Cases ■ St. Michael's College Cases

60

140 Total Cases

40

20

0

8/28/20

9/4/20

9/11/20

9/18/20

9/22/20

9/29/20

10/6/20

10/13/20

10/20/20

10/27/20

11/3/20

11/10/20

19

8

5

4

1

4

4

4

2

2

28

1



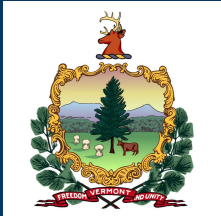
36

11

11

Source: Vermont Colleges and Universities (presentation switched to Tuesday on September 22, 2020)

Northern New England Higher Education Update

		Total Tests	Positives	Positivity Rate
New Hampshire*		370,762	463	0.12%
Maine*		122,960	107	0.09%
Vermont		178,701	140	0.08%

* Includes NH & ME colleges & universities that publicly provide COVID-19 testing data.

Vermont Higher Education Restart Institution Data as of November 10, 2020

College / University	Total Tests	Student Positives	Faculty Positives	Dashboard / Public Information
Middlebury College	11,197	2	2	https://www.middlebury.edu/office/midd2021/covid-reporting-dashboard
University of Vermont	116,417	34	2	https://www.uvm.edu/returntocampus/uvm-weekly-testing-report
Norwich University	13,720	8	1	https://www.norwich.edu/news/psa
Northern Vermont University	4,373	2	0	https://www.northernvermont.edu/nvu-during-covid-19
Castleton University	1,394	2	0	https://www.castleton.edu/covid-19-coronavirus-updates/covid-19-test-results/
Vermont Technical College	503	4	0	https://www.vtc.edu/update-on-the-covid-19-coronavirus/
Saint Michael's College	8,092	77	0	https://www.smcvt.edu/return-to-campus/
Sterling College	212	0	0	https://sterlingcollege.edu/coronavirus-2019/
Champlain College	15,058	5	0	https://view.champlain.edu/champlain-college-covid-19-testing-dashboard/
Bennington College	5,583	3	0	https://www.bennington.edu/covid-19-updates-and-information
Vermont College of Fine Arts	7	0	0	Does not have a public dashboard at this time
Vermont Law School	165	0	0	Remote learning for Fall 2020 - Some students using campus facilities
Landmark College	1,841	2	1	https://www.landmark.edu/student-life/health-counseling-wellness/covid-19/covid-19-dashboard
Albany College of Pharmacy	139	1	0	https://www.acphs.edu/health-safety
Totals	178,701	140	6	

Note: Goddard College & Community College of Vermont are remote for Fall 2020