State of Vermont
October 2020 Training

WEALTH ADVISORY | OUTSOURCING | AUDIT, TAX, AND CONSULTING

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Create Opportunities

Agenda

- **8:30 – 8:35 a.m. – Welcome and Housekeeping**
  Jim Piotrowski and Andrew Stein
- **8:35 – 9:25 a.m. – Economic and Revenue Forecasting in the Time of COVID-19**
  Instructed by Thomas E. Kavet - State Economist and Principal Economic Advisor to the Vermont Legislature
- **9:25 – 9:35 a.m. – BREAK**
- **9:35 – 10:25 a.m. – State Budgeting Through a Pandemic**
  Instructed by Stephen Klein - Chief Fiscal Officer, Joint Fiscal Office
- **10:25 – 10:40 a.m. – BREAK**
- **10:40 a.m. – 11:30 a.m. – Programmatic and Performance Measure Budgeting**
  Instructed by Susan Zeller – Chief Performance Officer, Agency of Administration
- **11:30 – 11:40 a.m. – BREAK**
- **11:40 a.m. – 12:30 p.m. – Financial Analysis in Excel – Building a Strong Foundation**
  Instructed by Justin Kenney – Director of Continuous Improvement and Planning, Agency of Administration

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Economic and Revenue Forecasting Amidst a Pandemic

Prepared for the CPE Training Session
October 8, 2020

by Thomas E. Kavet, President
Rockler & Associates, LLC

State Economist and Principal Economic Advisor to the Vermont Legislature

CPE Learning Objectives

- Discuss the processes and uncertainties of forecasting and budgeting during an event such as the current pandemic
- Identify the range of potential revenue impacts in Vermont for FY21-22
- Describe the economic impacts on sectors and populations impacted by the pandemic

It’s Not About Economics - It’s About

- The epidemiological course of the pandemic
- The Federal government response to the pandemic, notably: fiscal policy, monetary policy and healthcare policy
- Behavioral responses to the above by the general population
- These are largely unknowable or uncertain, at best

SARS-CoV-2 Epidemiological Forecasting

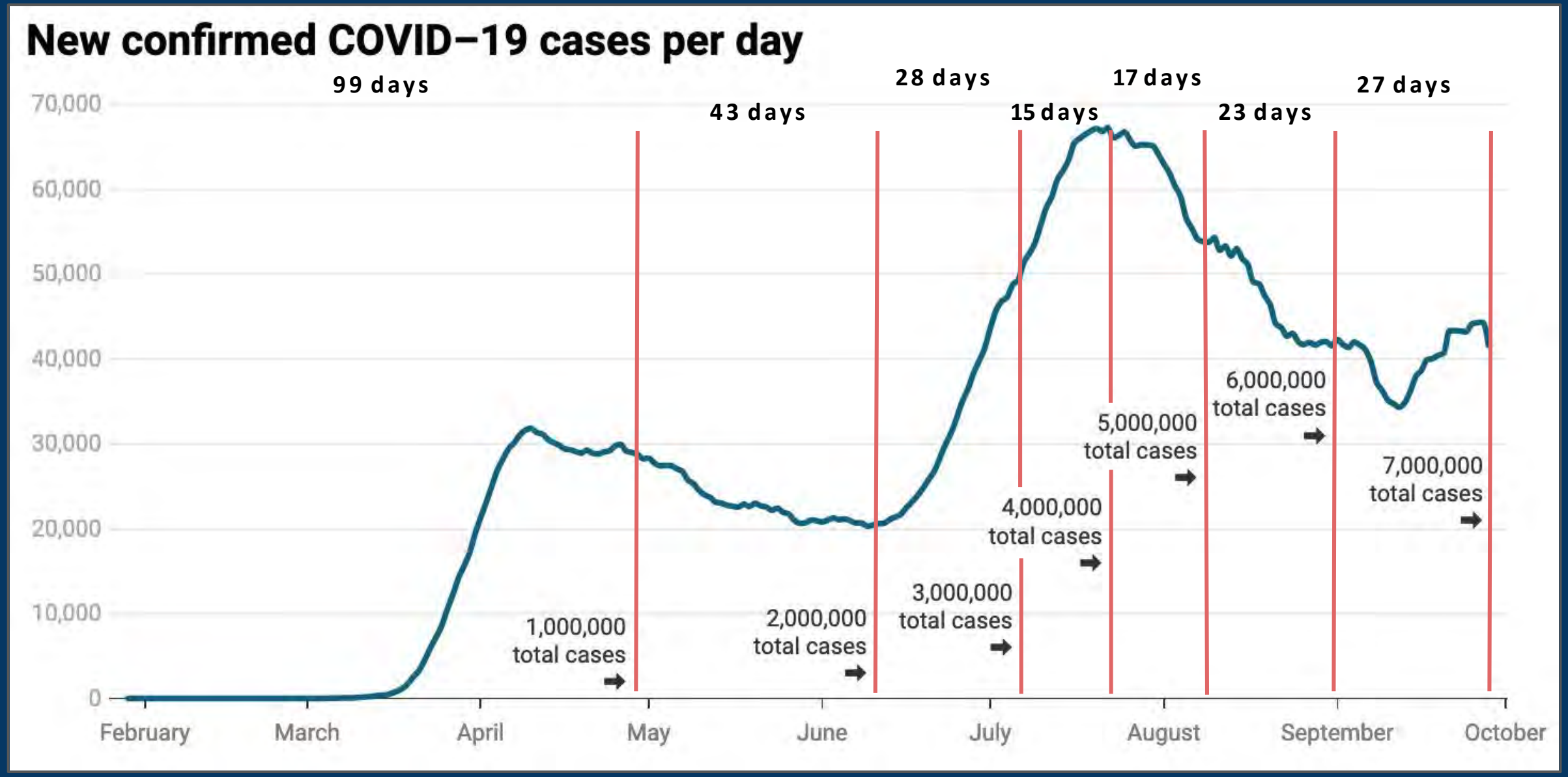
- As a novel virus, the epidemiological path of the pandemic is highly uncertain – projections are based on prior similar viruses
- While much has been learned in the past 9 months about transmissibility, source, infectious duration, comorbidity risks, immunity, possible treatments, testing and other policy responses, much remains unknown or uncertain
- Will there be a second wave? When will there be a safe, effective, widely-available vaccine? Will some of the experimental treatments prove to be widely efficacious? What public policies will be needed to prevent widespread resurgence of the virus?

The Vermont Department of Financial Regulation Coordinates Epidemiological Tracking and Forecasting in Vermont

The following slides are from their September 29, 2020 assessment and public briefing. Follow their weekly briefings for up-to-date information.

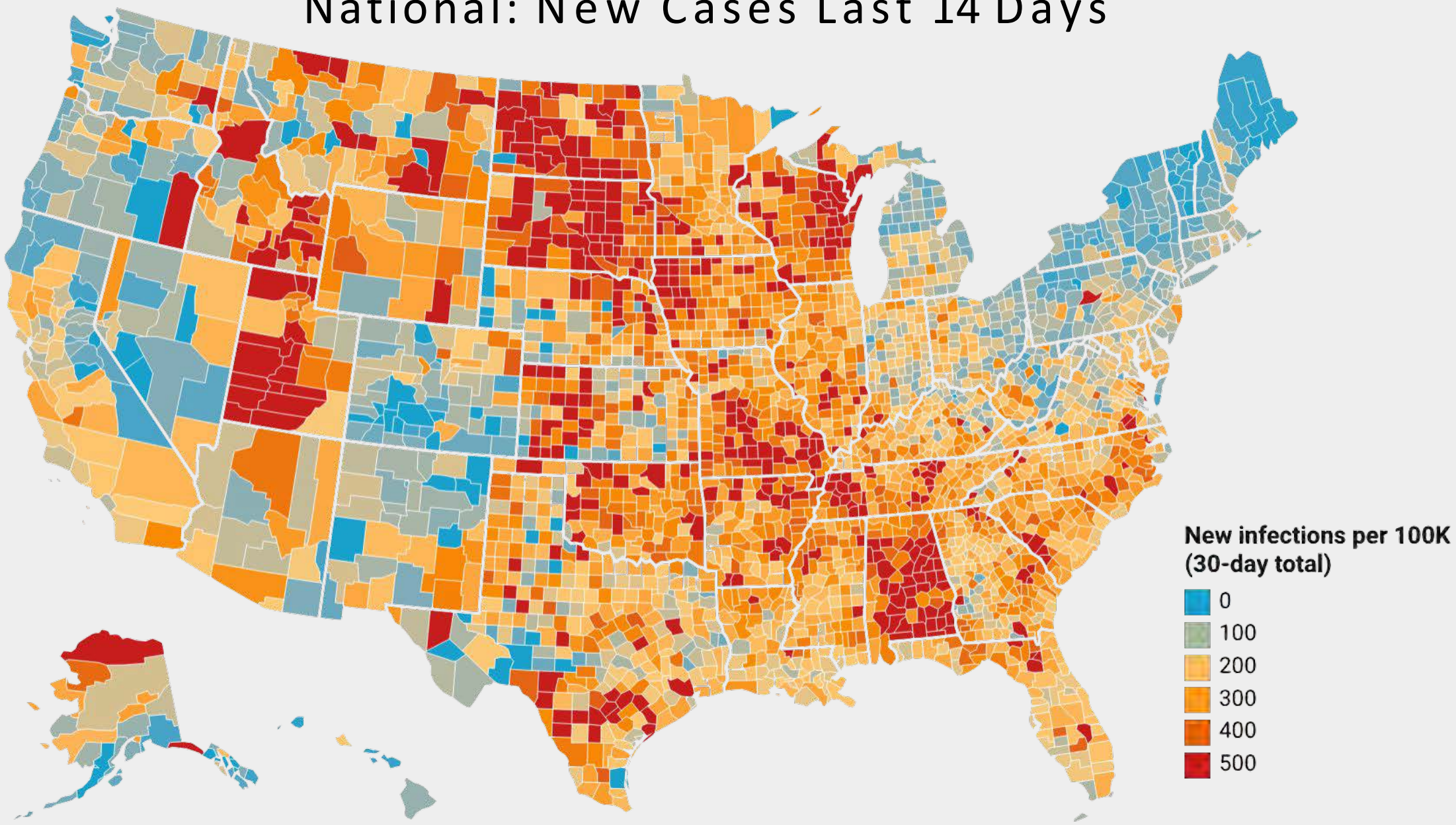
There are now more than 1,000,000 deaths worldwide from COVID-19.

National Data

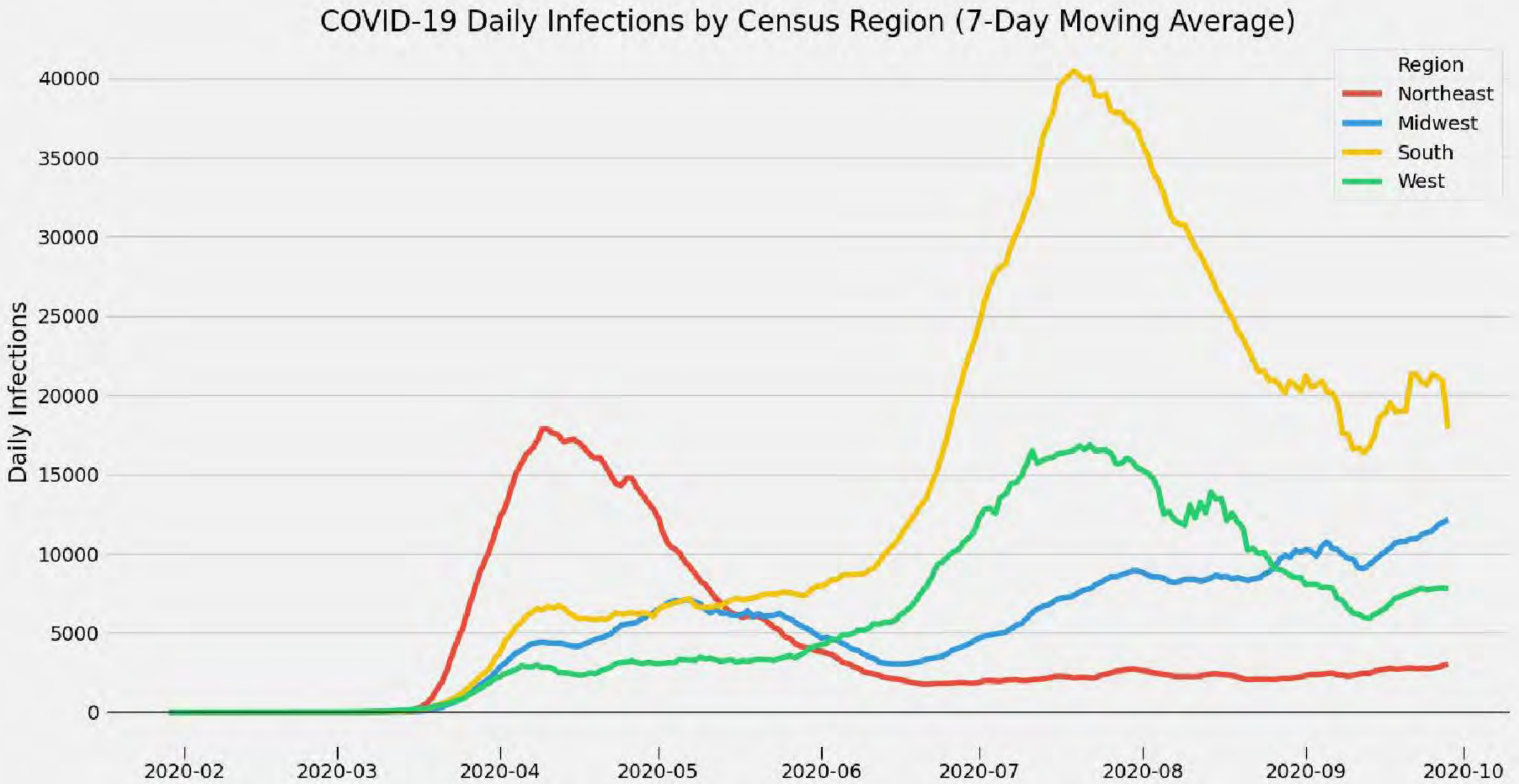


Source: Johns Hopkins University - September 28, 2020

National: New Cases Last 14 Days



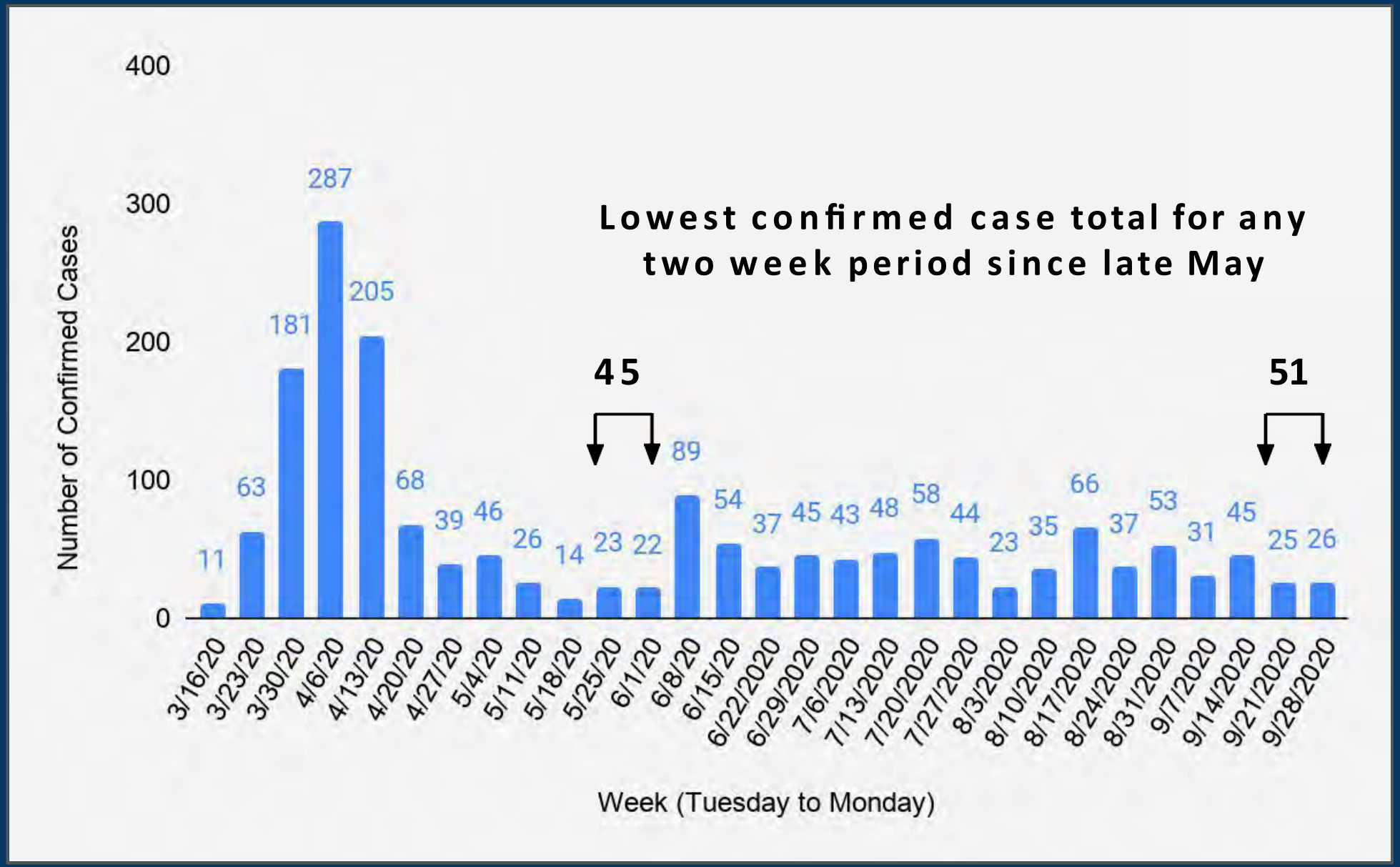
Source: Raw data from Johns Hopkins University—September 29, 2020



Source: Johns Hopkins University

09/29/2020

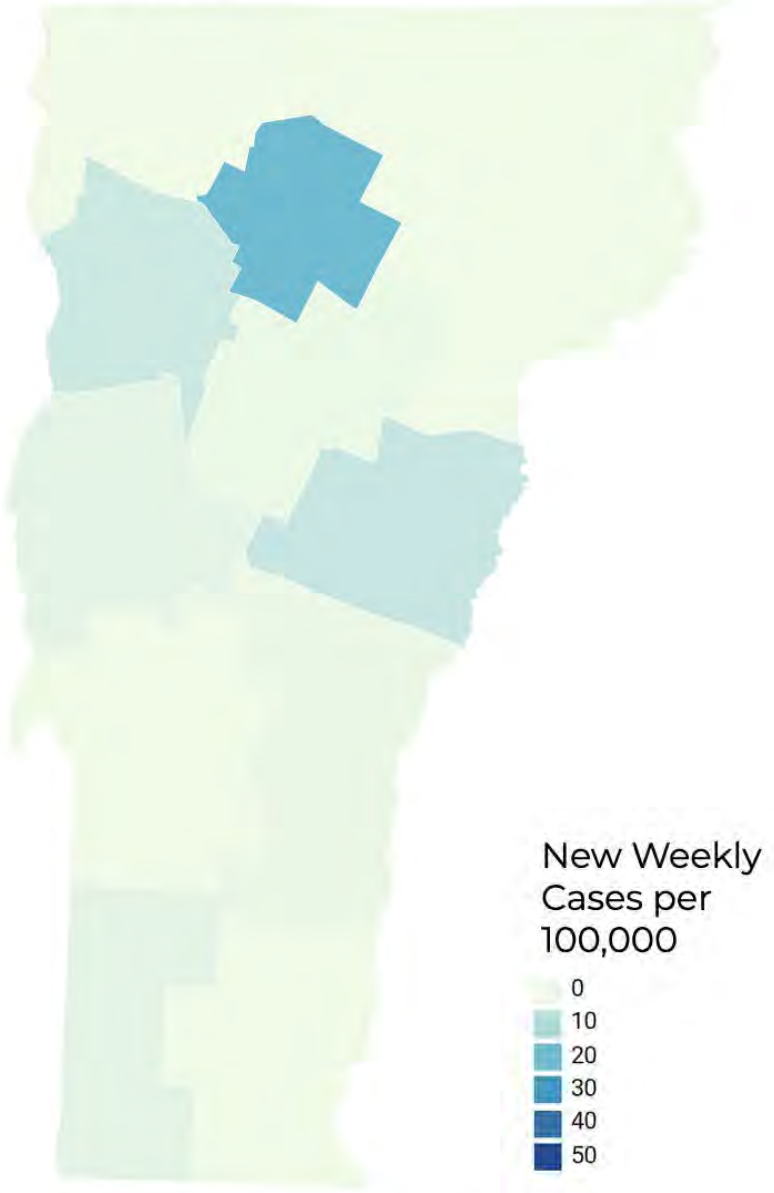
Vermont Weekly Totals



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

Vermont Weekly Cases by County (per 100,000)

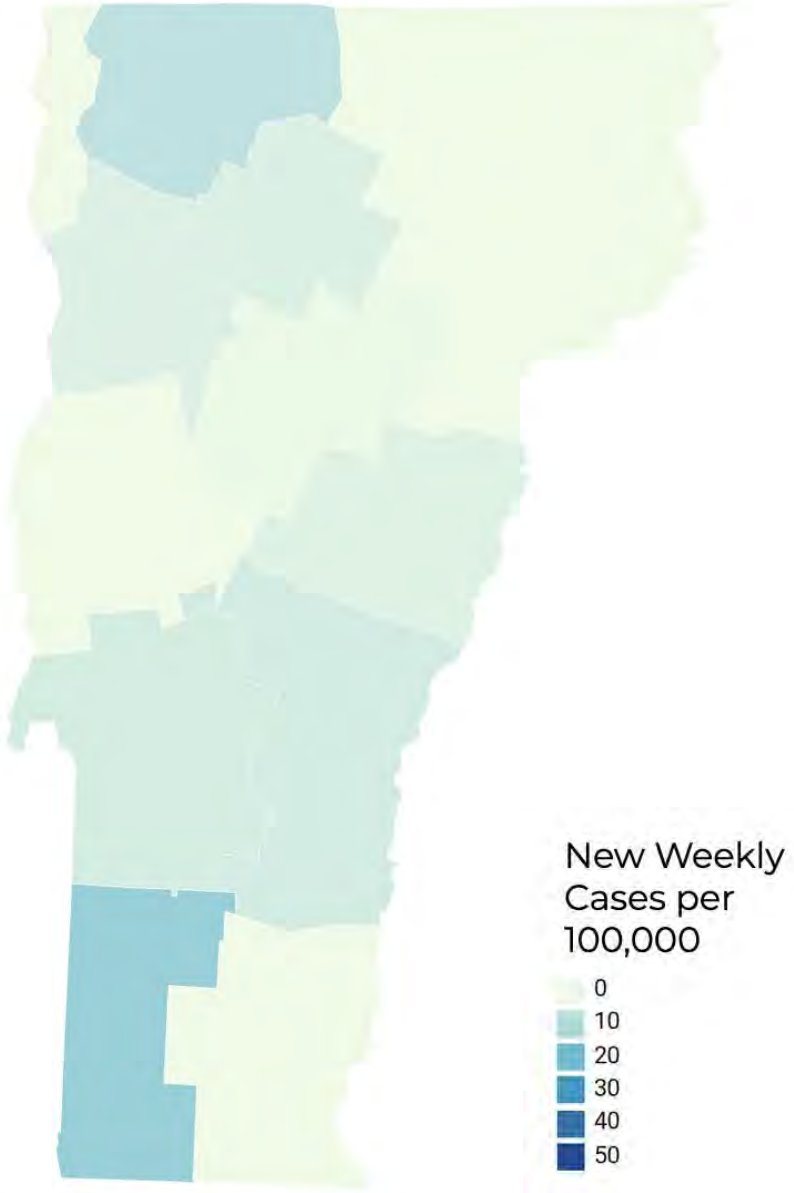
Results Reported September 15 to 21



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

Vermont Weekly Cases by County (per 100,000)

Results Reported September 22 to 28



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

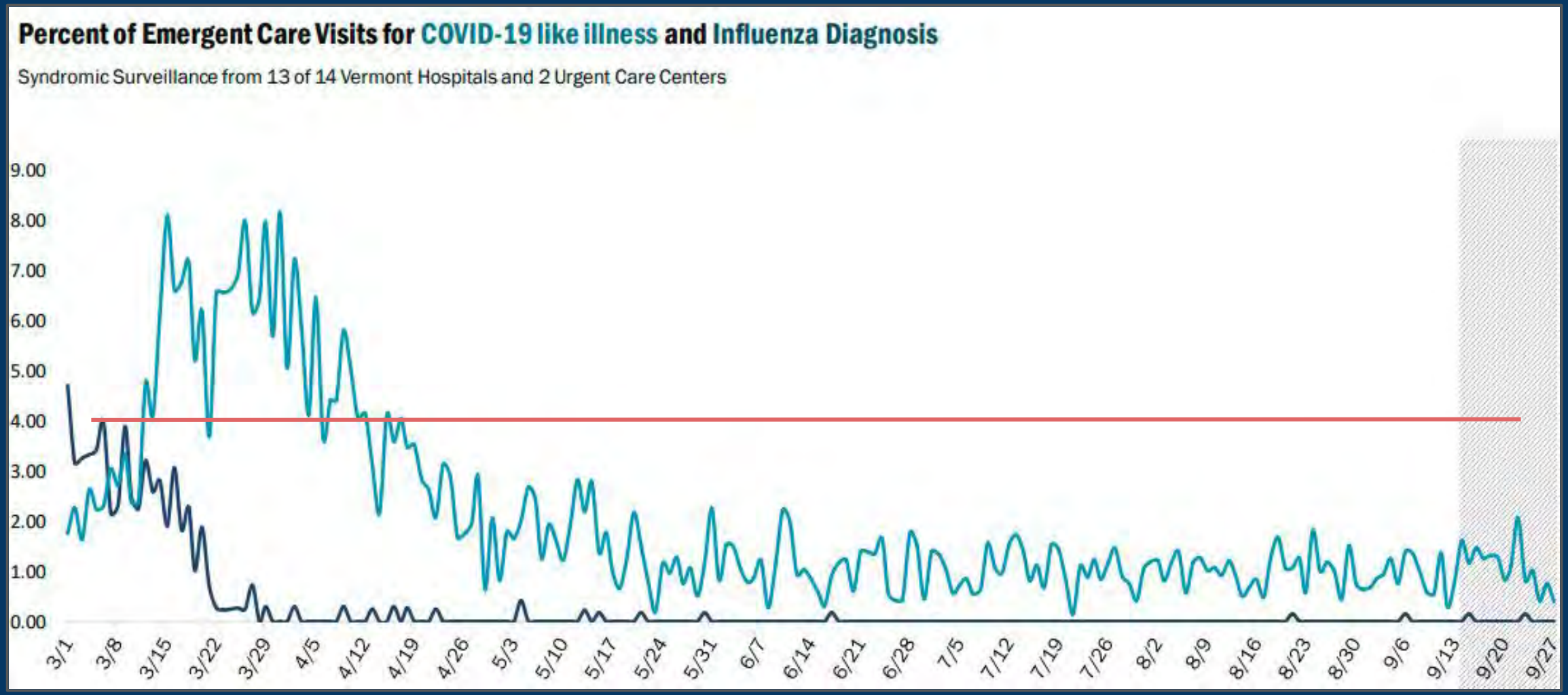
RESTART VERMONT

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

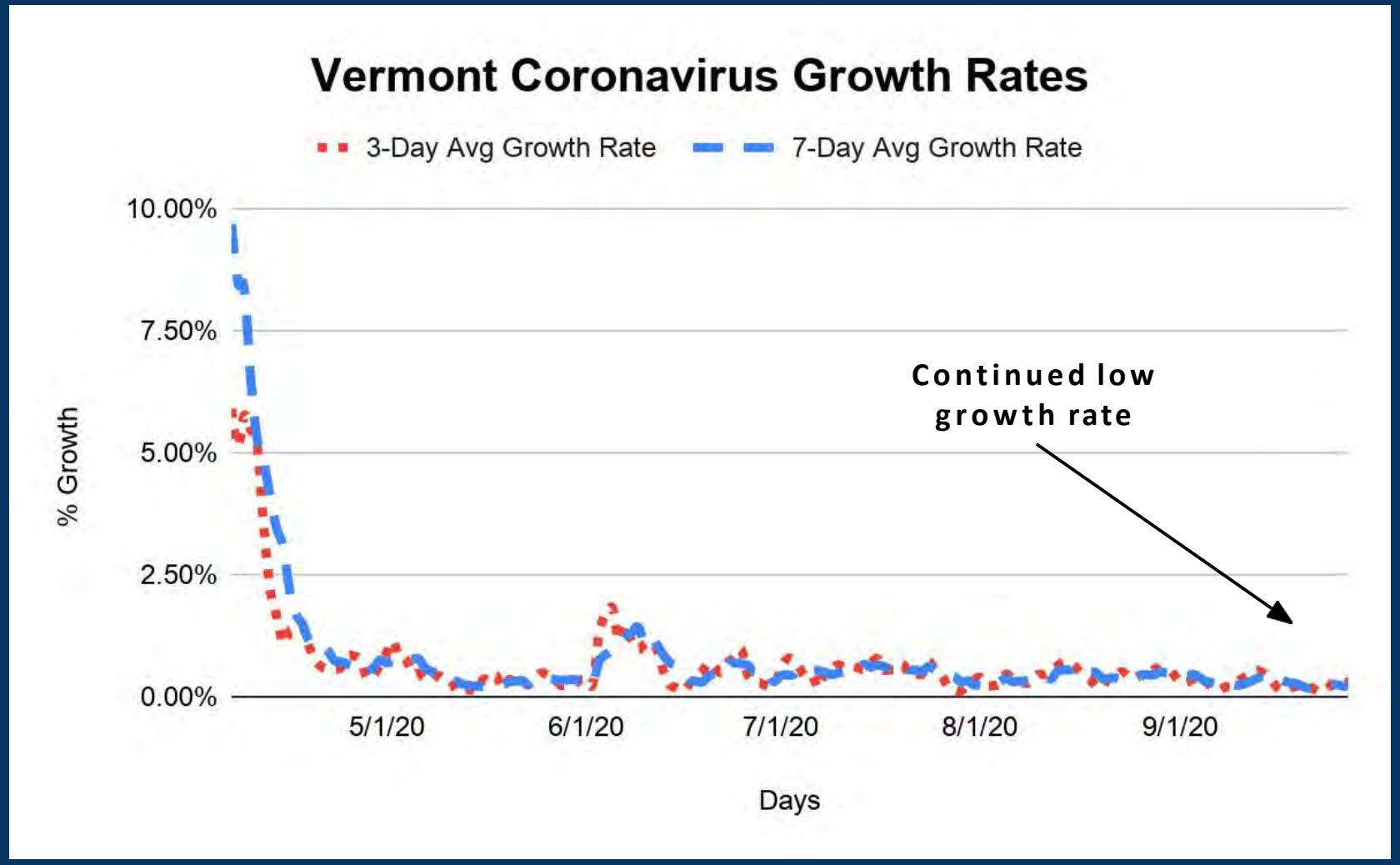
- **Summary**: Percentage of visits with COVID-19 like illness and Influenza diagnosis
- **Warning Flag**: Percentage of visits exceeding 4% for multiple consecutive days



Source: Vermont Department of Health - September 28, 2020

Data Point 2: Viral Growth and Reproductive Rates

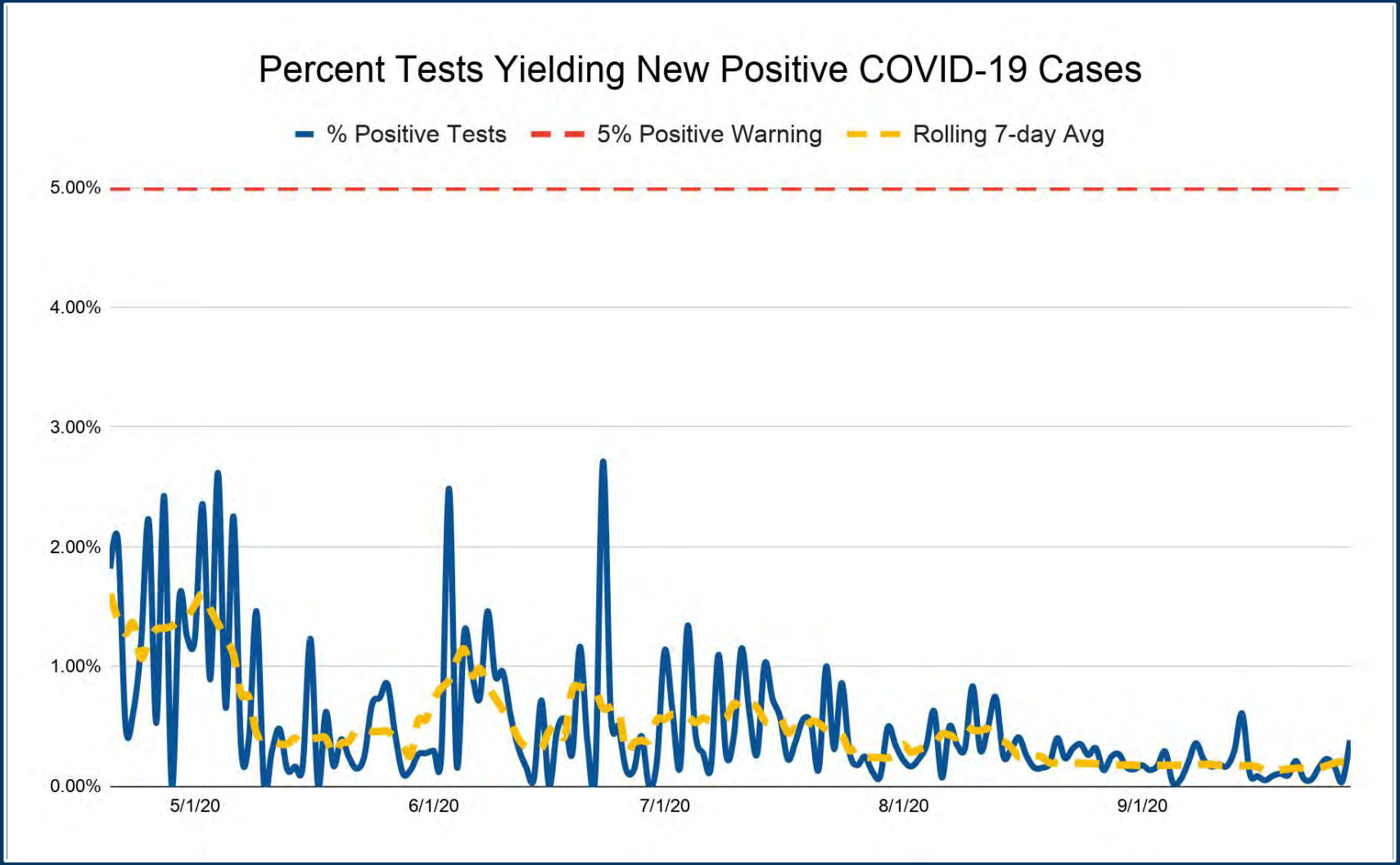
- **Summary:** Case growth measured by daily, 3-day, 7-day, and effective reproductive rate (R_t)
- **Warning Flags:** Sustained viral growth that would lead to <30% of open ICU beds



Source: Vermont Department of Health - September 28, 2020

Data Point 3: Percentage of New Positive Tests

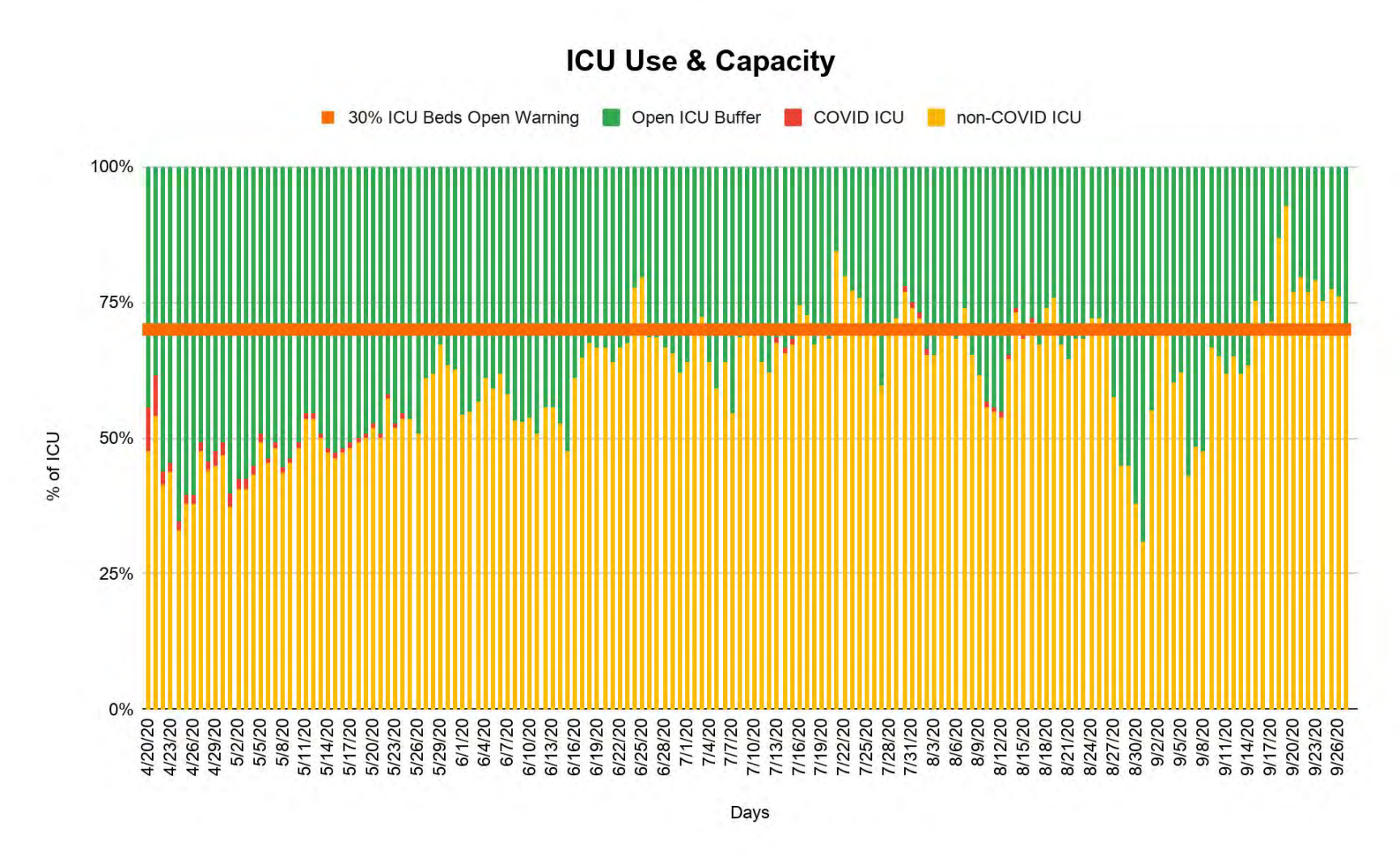
- **Summary:** Percent of tests resulting in a new positive case
- **Warning Flags:** New positives represent >5% of daily results



Source: Vermont Department of Health - September 29, 2020

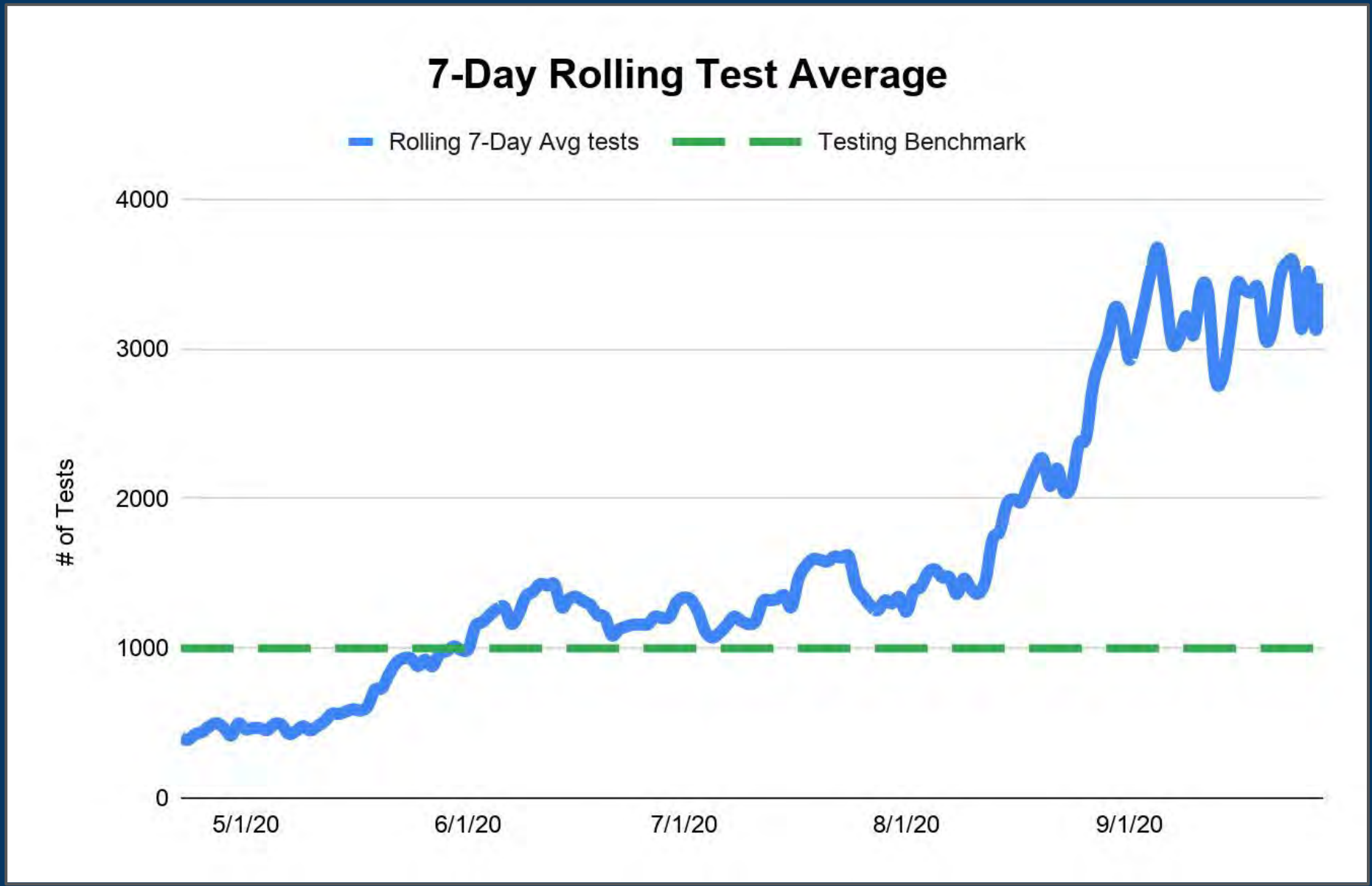
Data Point 4: Hospital & Critical Care Beds

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



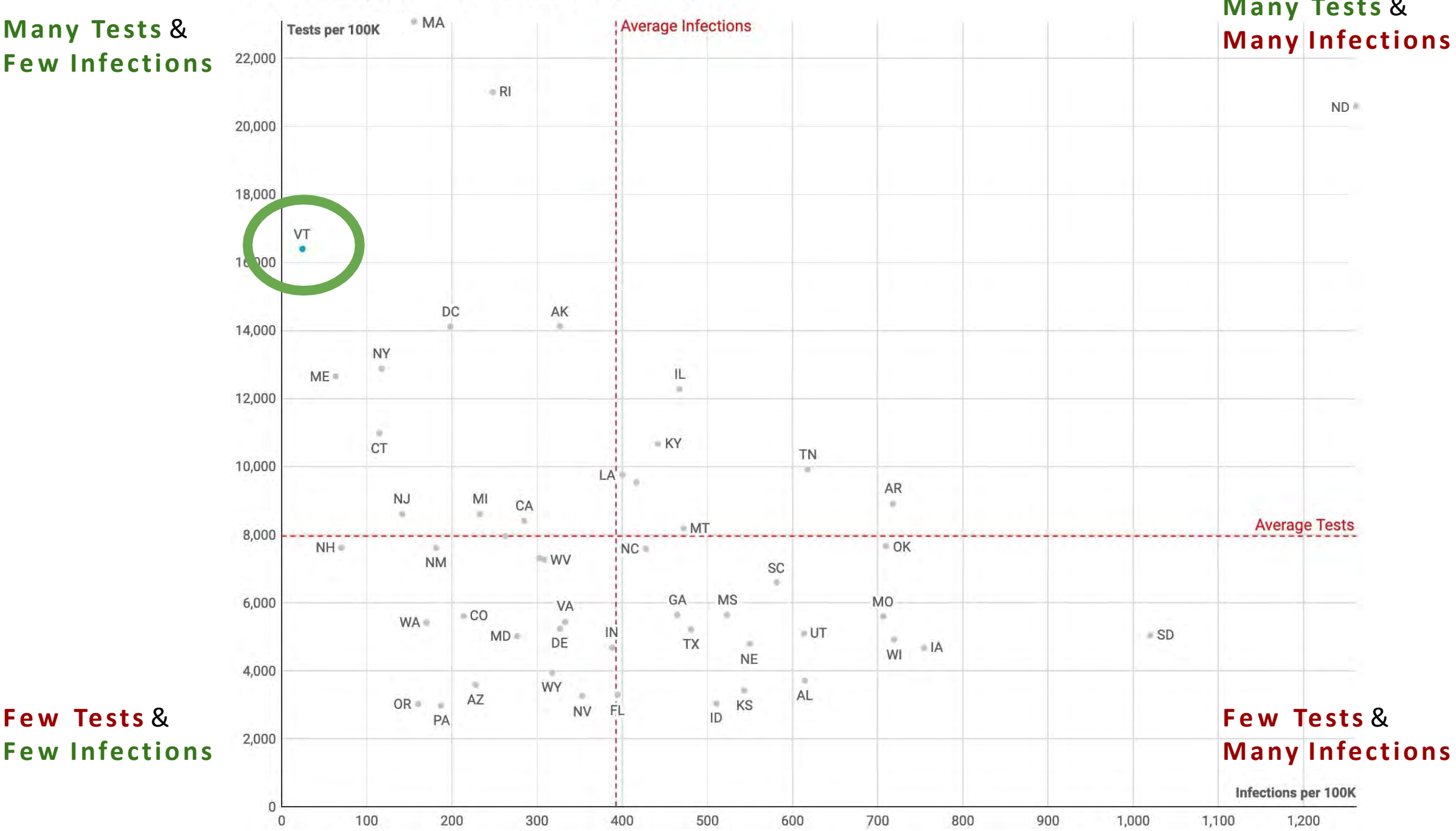
Source: Vermont Department of Health - September 29, 2020

Vermont Testing

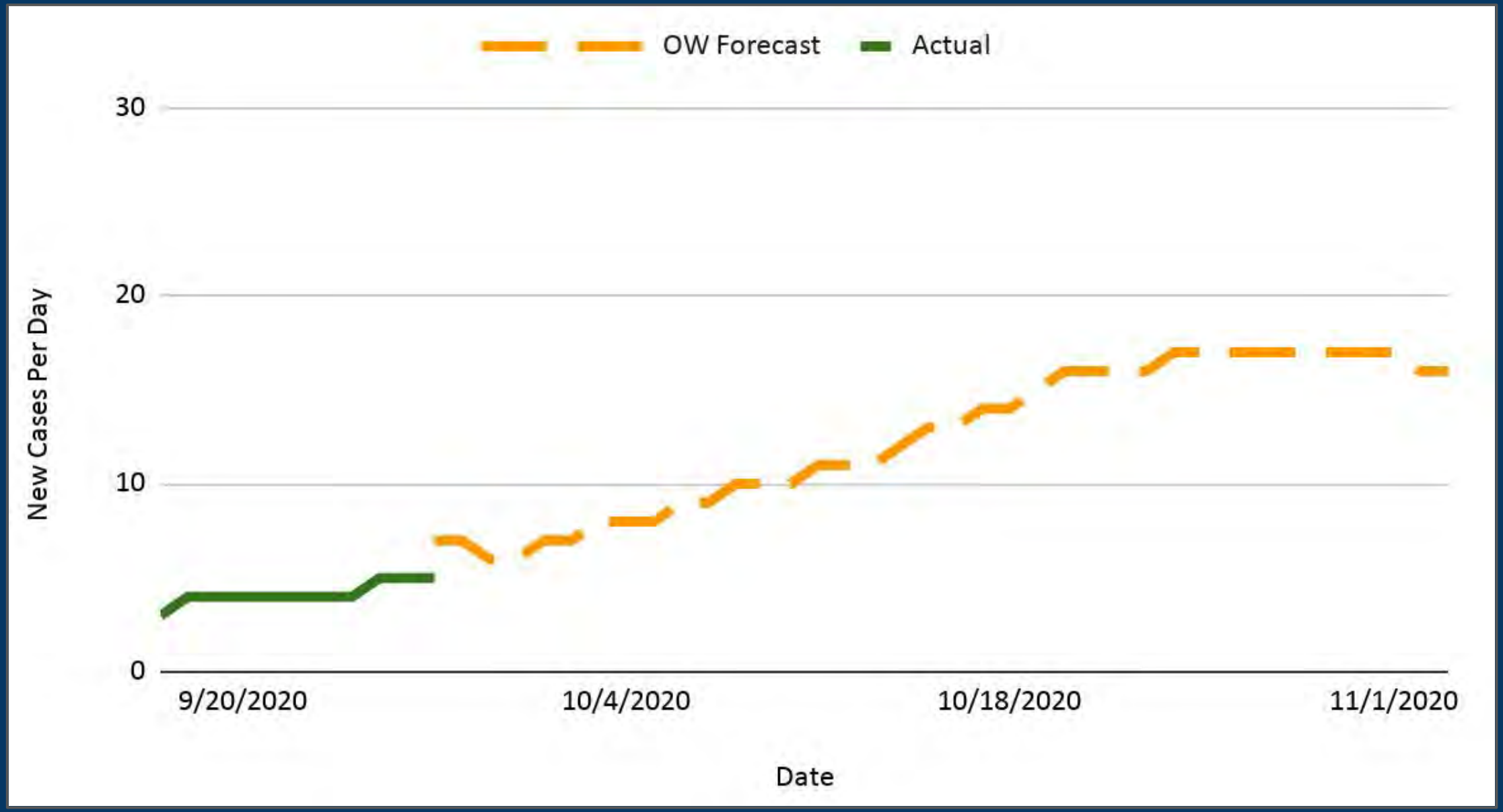


Source: Vermont Dept. of Health - September 29, 2020; results reported to VDH daily

US States by Infections and Tests per Capita



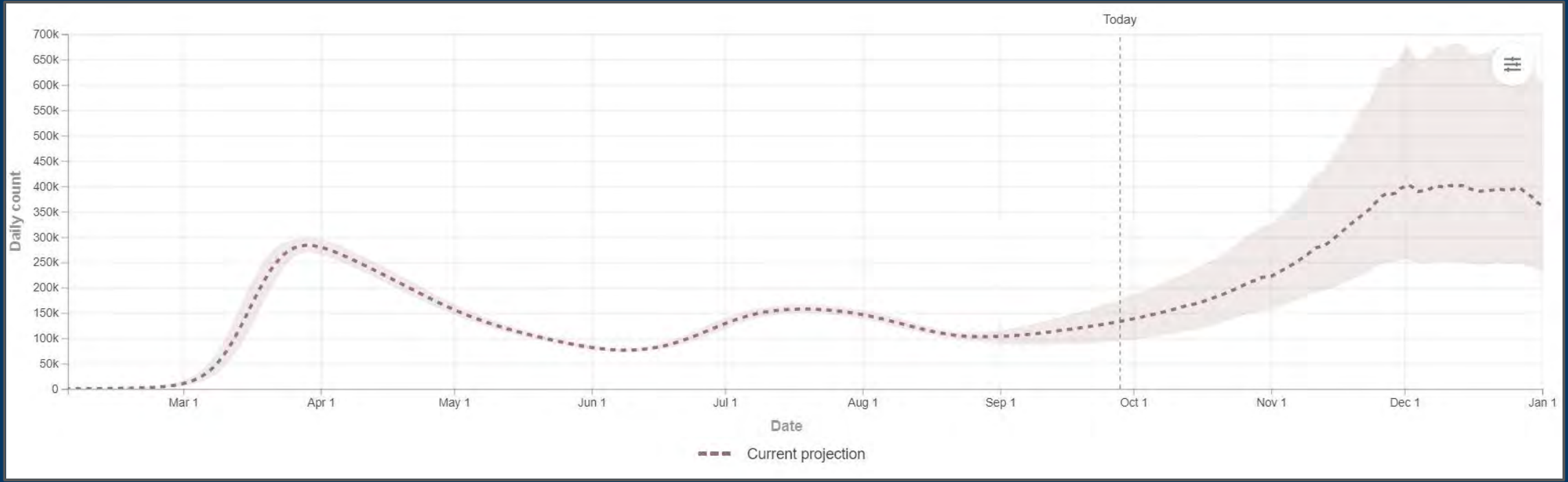
Vermont Forecast September 29 to November 3



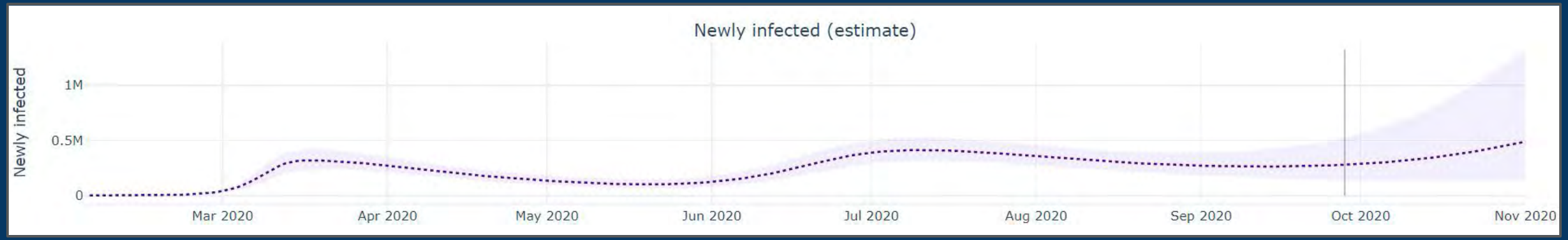
Source: Oliver Wyman Forecast Model - September 28, 2020

Avoiding Complacency In Vermont

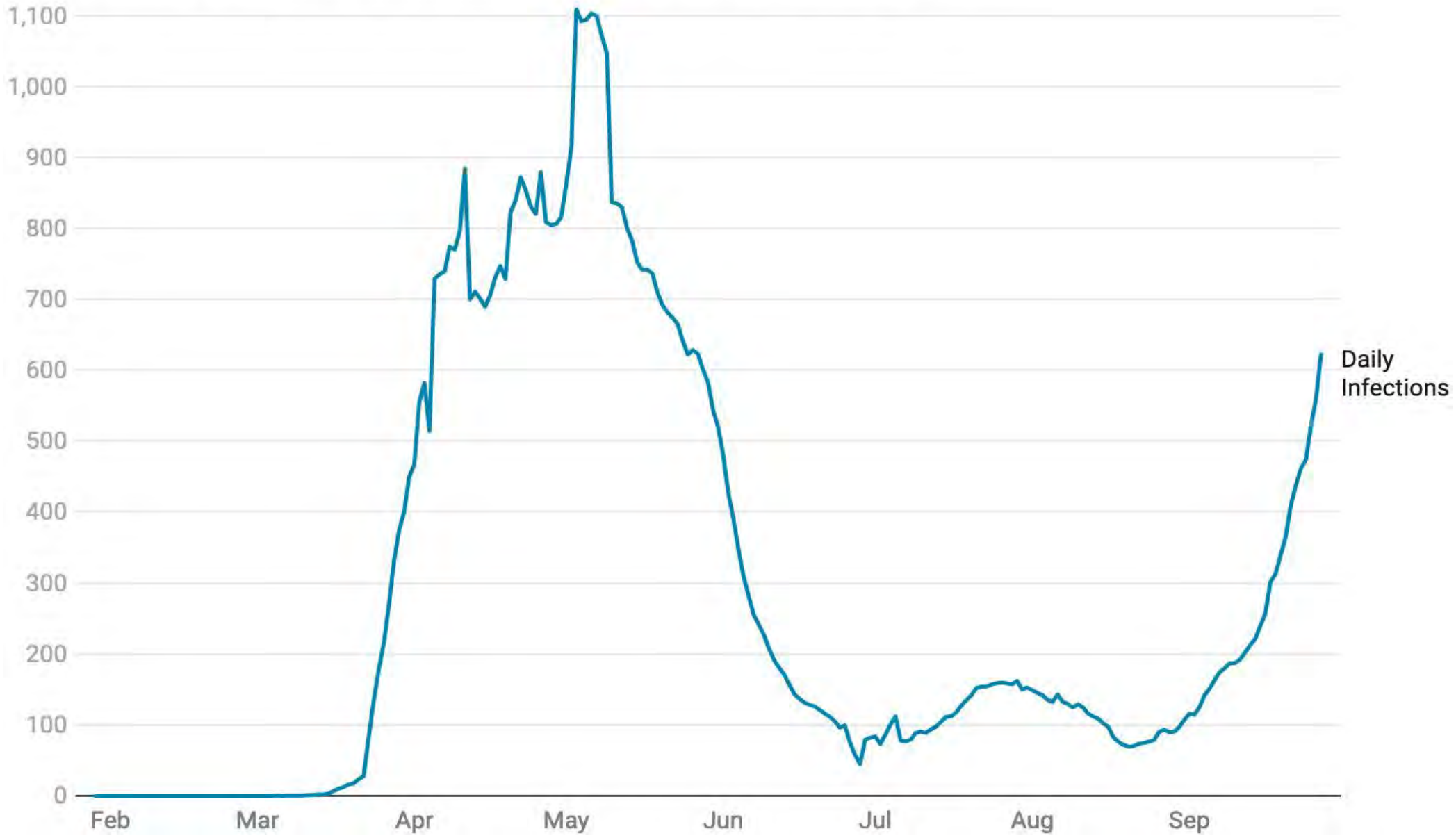
IHME Model - US Projection to January 1, 2021 (detected and undetected)



Youyang Gu Model - US Projection to November 1, 2020 (detected and undetected)



Quebec Daily Infections (7-Day Moving Average)



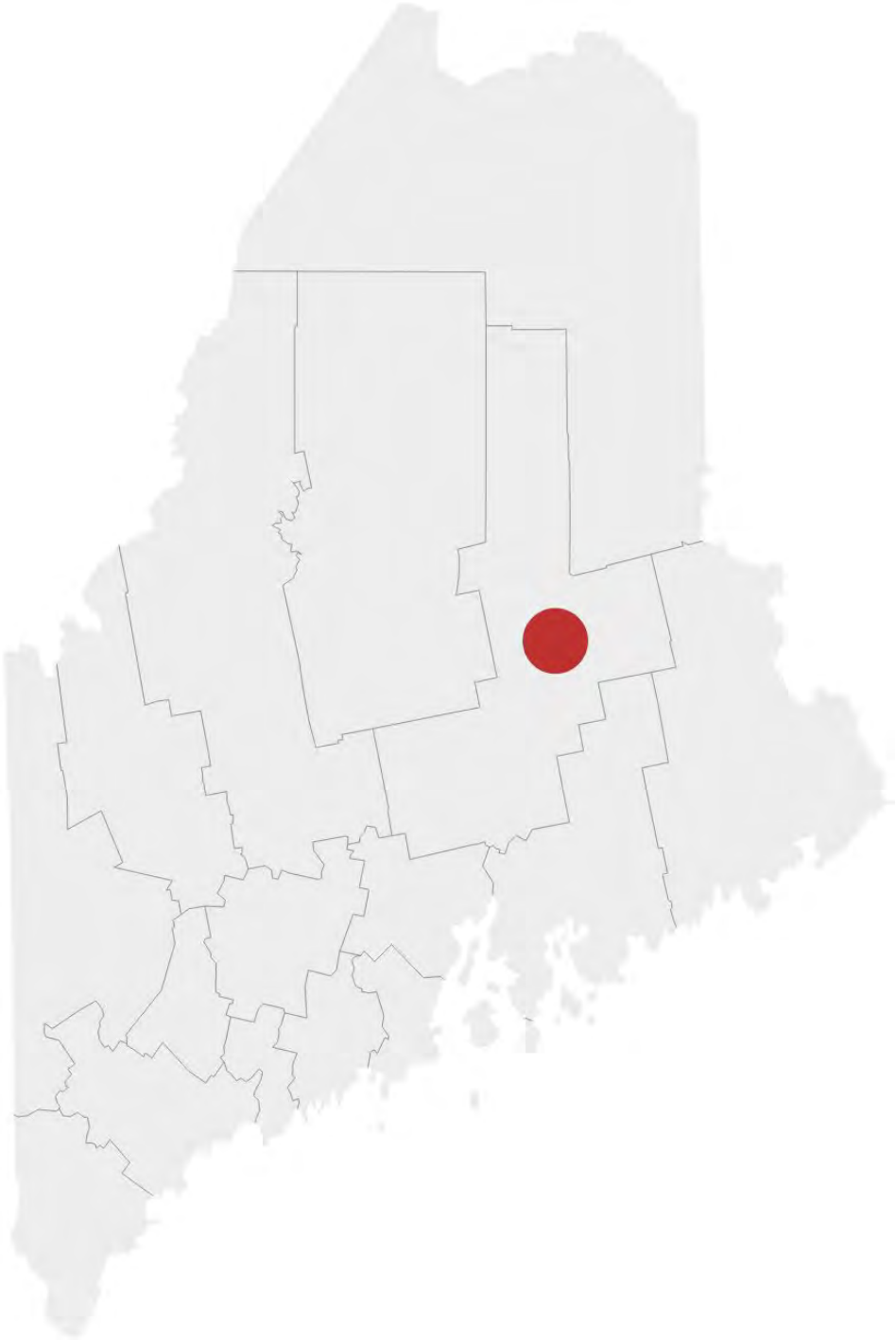
Source: Raw data from Johns Hopkins University—September 27, 2020

Outbreak Analysis

Wedding on August 7, 2020

Initial wedding event in Millinocket, Maine

- 62 attendees (state cap of 50)
- 18 attendees later test positive (no deaths)
- Indoors
- Few masks
- Little social distancing



Source: Maine CDC; Portland Press Herald

Outbreak Analysis

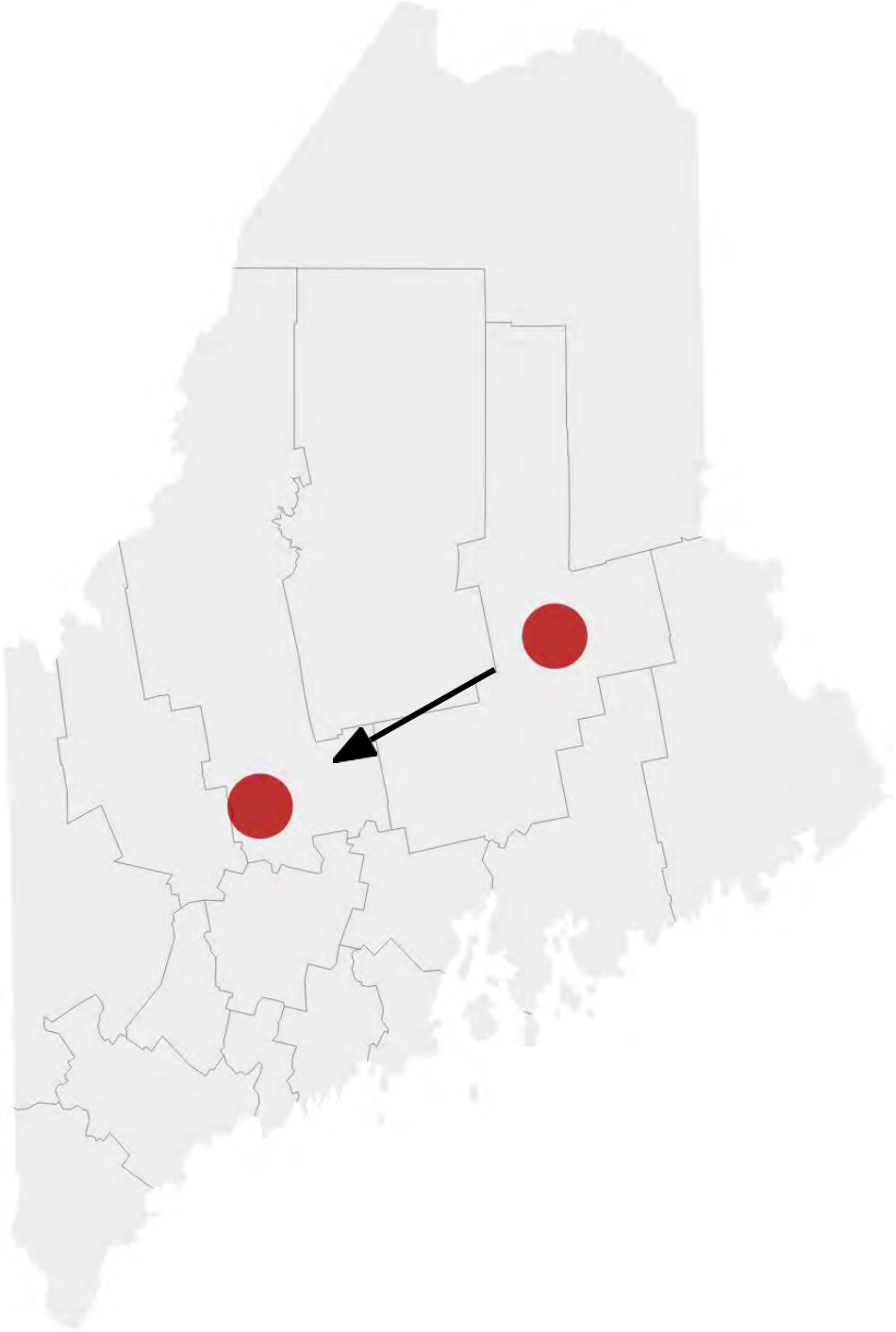
Maplecrest Rehabilitation Center

- Connected cases: **39**
- Deaths: **7**

On August 11, an infected sibling of wedding attendee works 10 hour shift at Maplecrest Rehab Center in Madison, Maine.

Employee works overnight shift despite reporting 4 symptoms and failing health screening.

Management does not check symptoms log.



Source: Maine CDC; Portland Press Herald

Outbreak Analysis

York County Jail

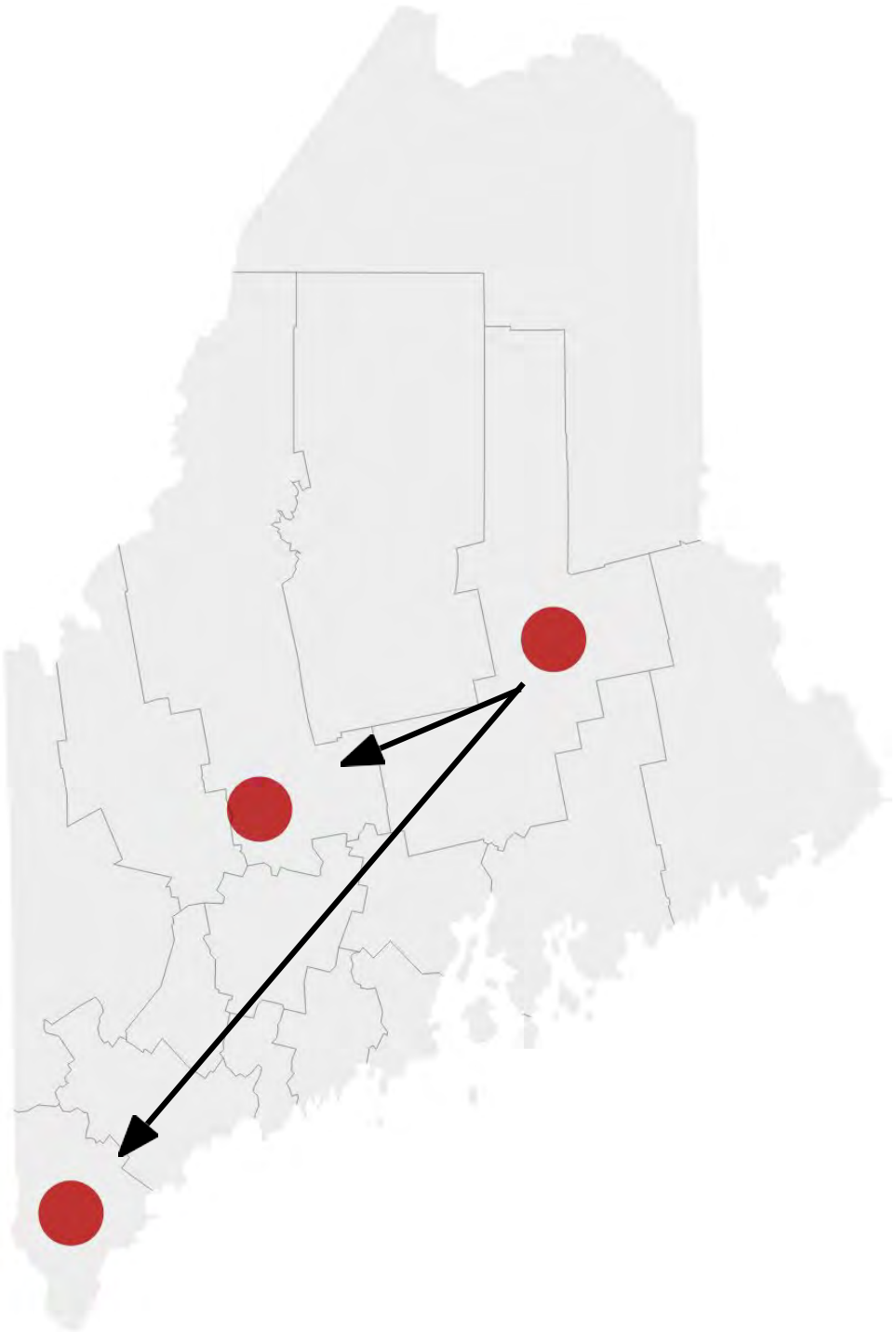
- Connected cases: **at least 85**
- Deaths: **0**

Infected wedding attendee works 200 miles south at York County Jail in Alfred, Maine.

Jail management did not require inmates or staff to wear face coverings.

No temperature checks or additional screening for staff entering jail.

Jail continued to accept new inmates, even after disease was detected in facility.



Source: Maine CDC; Portland Press Herald; Bangor Daily News

Outbreak Analysis

Calvary Baptist

- Cases: **at least 10**
- Deaths: **0**

Congregation of Calvary Baptist in Sanford includes pastor who officiated Millinocket wedding and six families who attended initial event.

Indoor service and choir singing without masks.

Pastor continues to encourage no mask wearing.

Source: Maine CDC; Portland Press Herald

Outbreak Analysis

York County Outbreaks

- York County Jail: **85**
- Portsmouth Naval Shipyard: **18**
- Sanford High School: **13**
- Sanford American Legion funeral reception: **12**
- Calvary Baptist Church: **10**
- Brink Chiropractic Clinic: **3**
- Ogunquit Beach Lobster House: **3**

The "virus has achieved a certain level that it's everywhere in wide circulation across [York] county… I am extremely, extremely concerned."

- Dr. Nirav Shah, Maine CDC Director, 9/24/20

Source: Maine CDC; Portland Press Herald

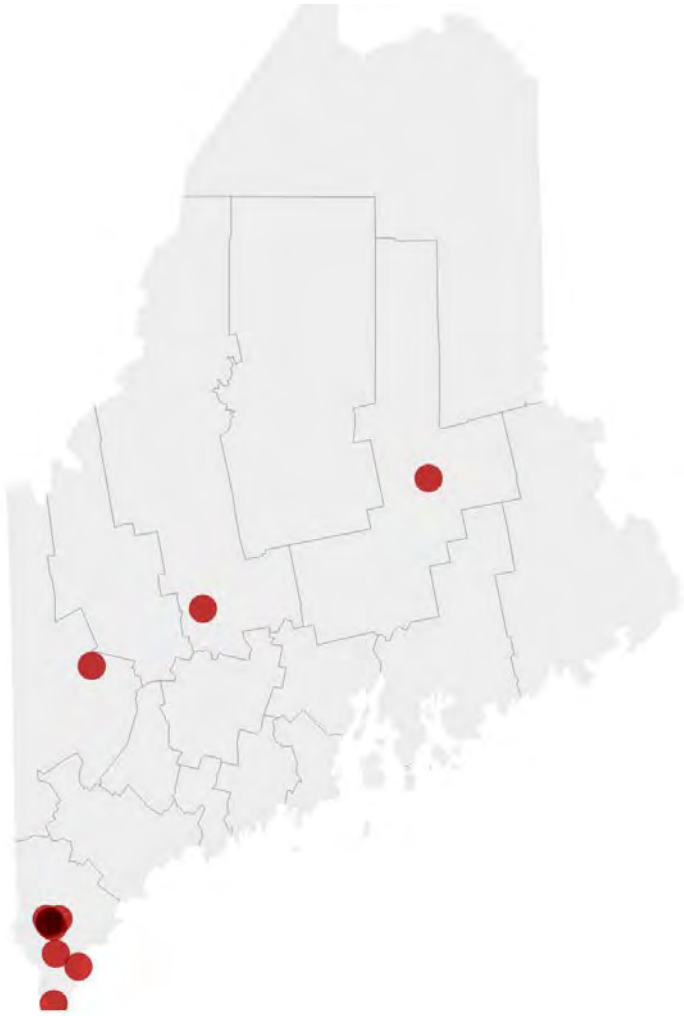
Maine Outbreak Analysis

Outbreak Numbers

- Cases connected to Millinocket wedding: **At least 180**
- Connected deaths: **8**
- New cases in York are being identified at nearly **twice** the rate as the previous surges in early April and close to **triple** the current statewide average
- Sanford, pop. 22,000, makes up 44% of Maine's new cases

Risk Factors Identified by Maine CDC

- Lack of social distancing and mask wearing by individuals
- Institutional failures in following guidelines and regulations
- Complacency



Source: Maine CDC; Portland Press Herald

K-12 & Higher Education Update

WalletHub

Safest States to Reopen Schools

WalletHub analysis ranks Vermont as safest state to reopen schools

Overall Rank (1=Best)	State	Total Score	'Risk of COVID-19 Infections' Rank	'Health & Financial Infrastructure' Rank
1	Vermont	80.48	1	1
2	Maine	74.65	2	4
3	Pennsylvania	69.66	6	6
4	Massachusetts	69.27	5	21
5	New Hampshire	68.65	4	26
6	Rhode Island	66.85	14	3
7	Ohio	66.54	7	16
8	New Jersey	65.69	8	20
9	Connecticut	65.47	19	2
10	Nebraska	64.71	15	7

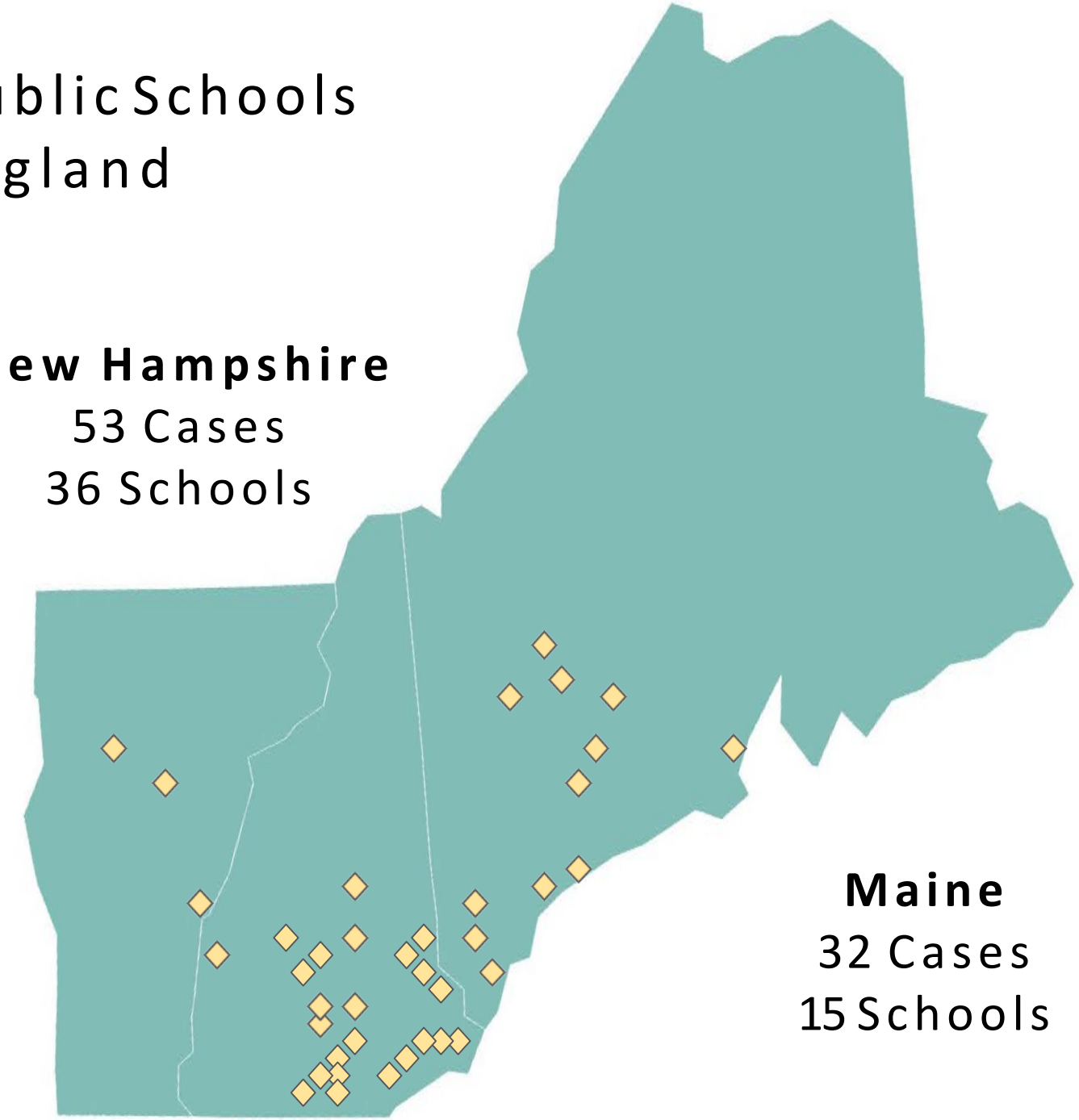
Source: WalletHub, 2020.Safest States for Schools to Reopen, September 28, 2020

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

New Hampshire
53 Cases
36 Schools

Vermont
4 Cases; 1 Presumed Positive

- 1 at Williamstown Middle & High School
  Williamstown, VT
- 1 at Hartford High School
  Hartford, VT
- 2 at Crossett Brook Middle School
  Duxbury, VT

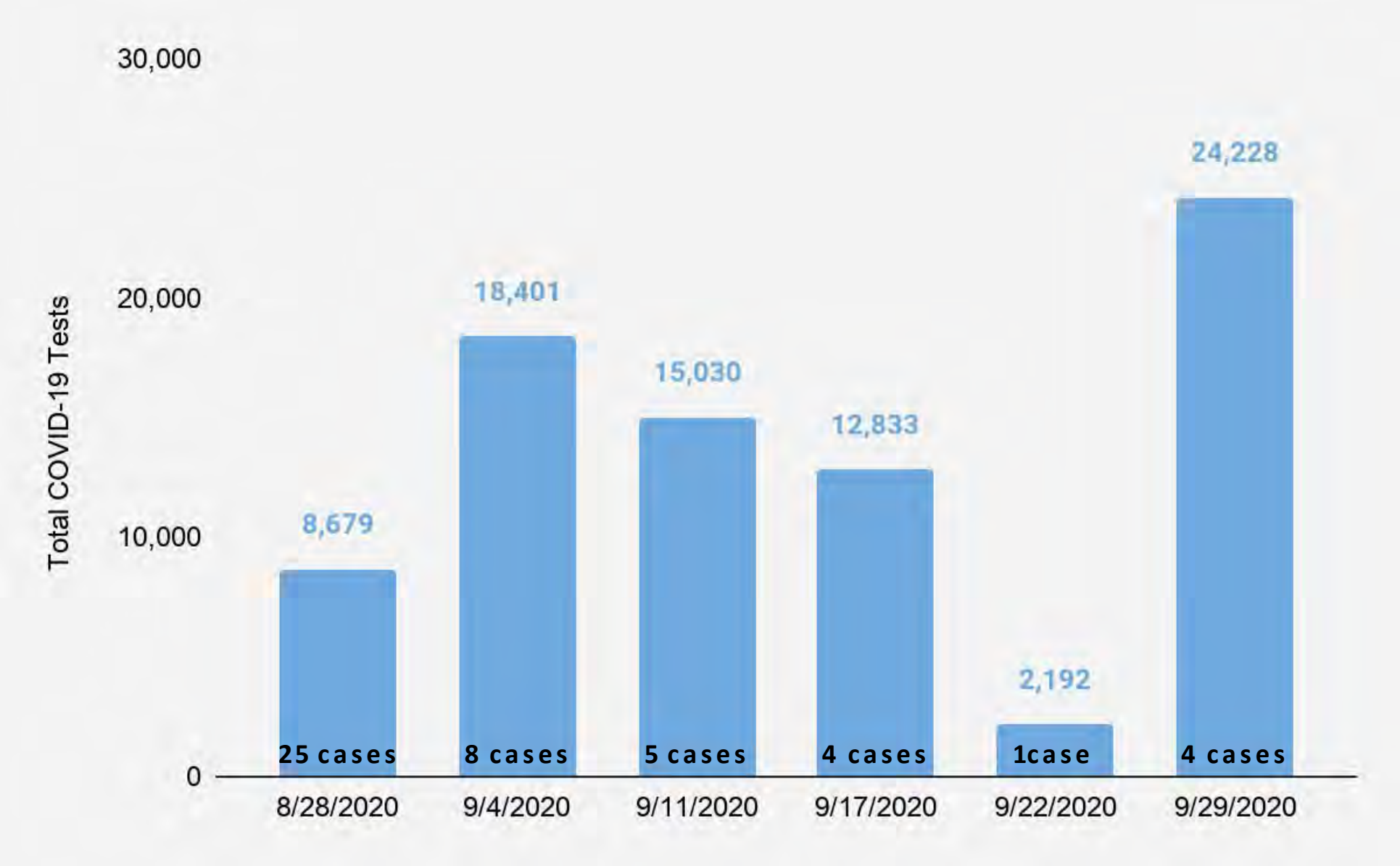


Maine
32 Cases
15 Schools

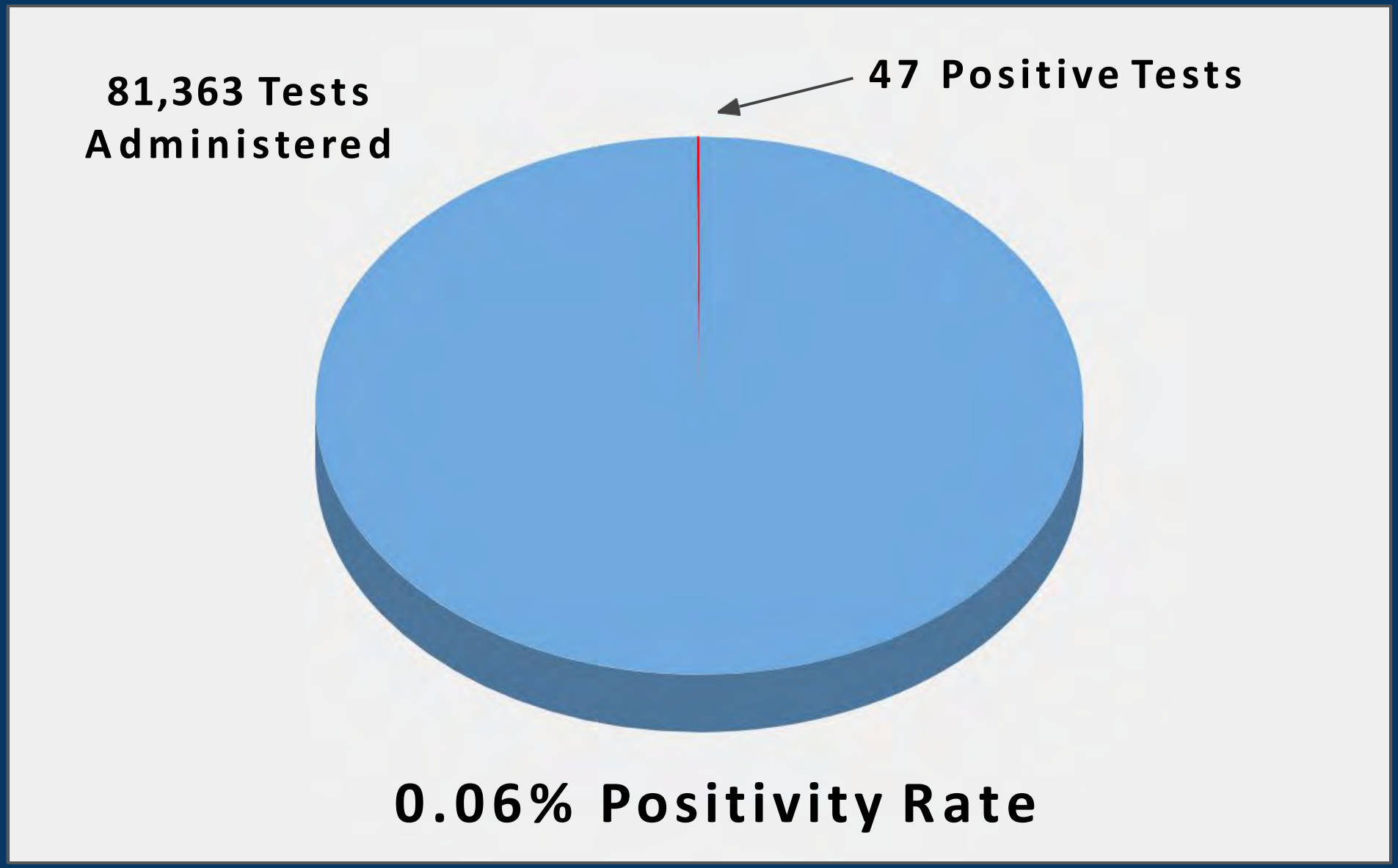
Source: VDH; New Hampshire School Dashboard; and public reporting

Weekly Test Results for Vermont Colleges & Universities

September 21to September 28



Cumulative Test Results for Vermont Colleges & Universities as of September 28, 2020



Northern New England Higher Education Update

	Total	Positives	Positivity Rate
New Hampshire*	165,309	222	0.13%
Maine*	60,738	43	0.07%
Vermont	81,363	47	0.06%

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

Individual Test Results for Vermont Colleges & Universities as of September 28, 2020

College / University	Total Tests	Total Positives	Dashboard / Public Information
Middlebury College	6,735	2	https://www.middlebury.edu/office/midd2021/covid-reporting-dashboard
University of Vermont	50,065	28*	https://www.uvm.edu/returntocampus/uvm-weekly-testing-report
Norwich University	7,013	5	https://www.norwich.edu/news/psa
Northern Vermont University	2,896	0	https://www.northernvermont.edu/nvu-during-covid-19
Castleton University	1,203	2	https://www.castleton.edu/covid-19-coronavirus-updates/covid-19-test-results/
Vermont Technical College	408	3	https://www.vtc.edu/update-on-the-covid-19-coronavirus/
Saint Michael's College	2,529	1	https://www.smcvt.edu/return-to-campus/
Sterling College	86	0	Does not have a public dashboard at this time
Champlain College	6,898	2	https://view.champlain.edu/champlain-college-covid-19-testing-dashboard/
Bennington College	2,386	3	https://www.bennington.edu/covid-19-updates-and-information
Vermont College of Fine Arts	7	0	Does not have a public dashboard at this time
Vermont Law School	161	0	Remote learning for Fall 2020 - Some students using campus facilitites
Landmark College	877	1	https://www.landmark.edu/student-life/health-counseling-wellness/covid-19/covid-19-dashboard
Albany College of Pharmacy	99	0	https://www.acphs.edu/health-safety
Totals	81,363	47	

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

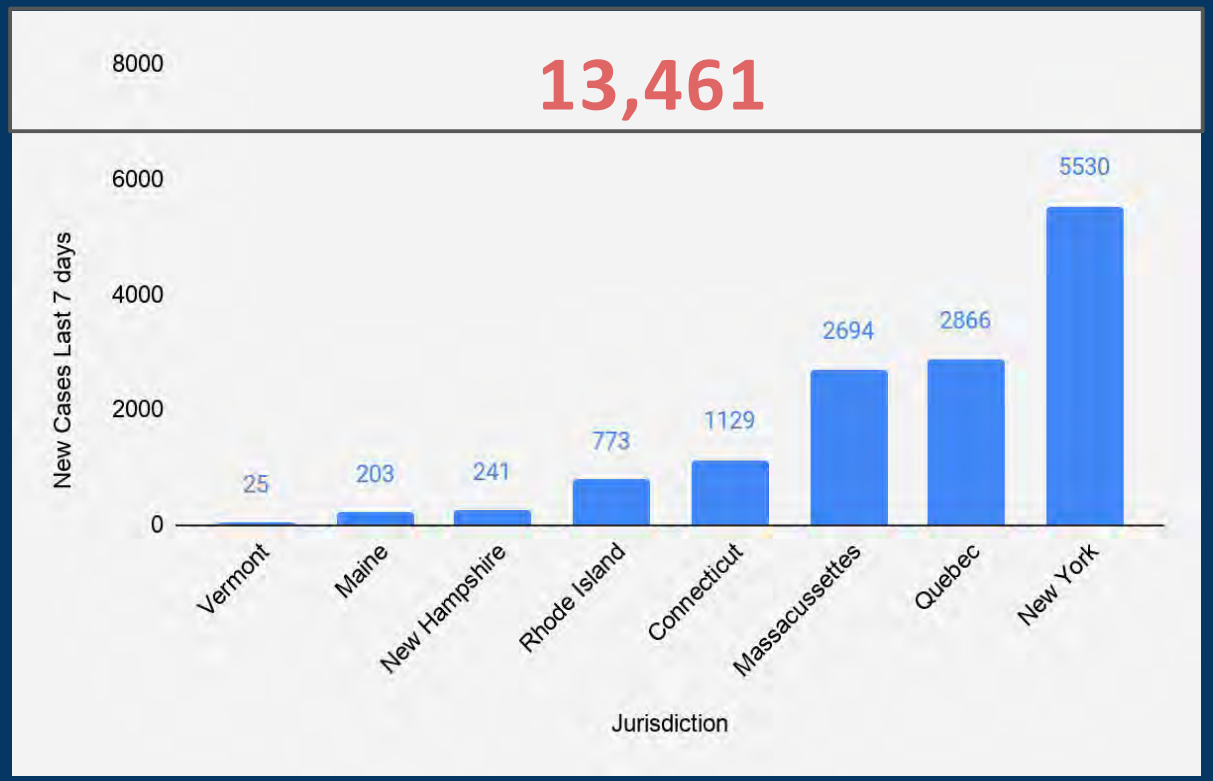
* Reconciling data that could possiblity remove up to 6 cases from the UVM count.

Regional Data

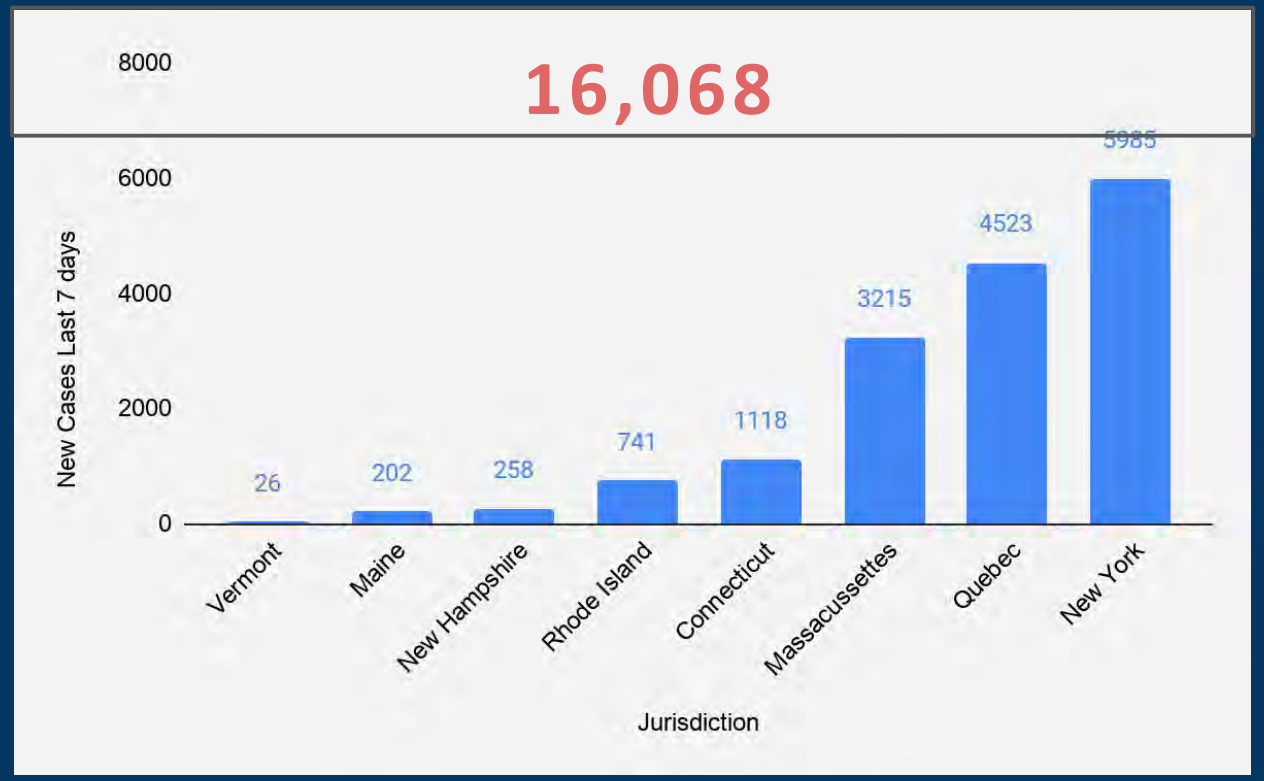
Regional Monitoring: New Cases Week Over Week

19.37% Increase in New Confirmed Cases

Positive Cases Sept. 14th to Sept. 20th

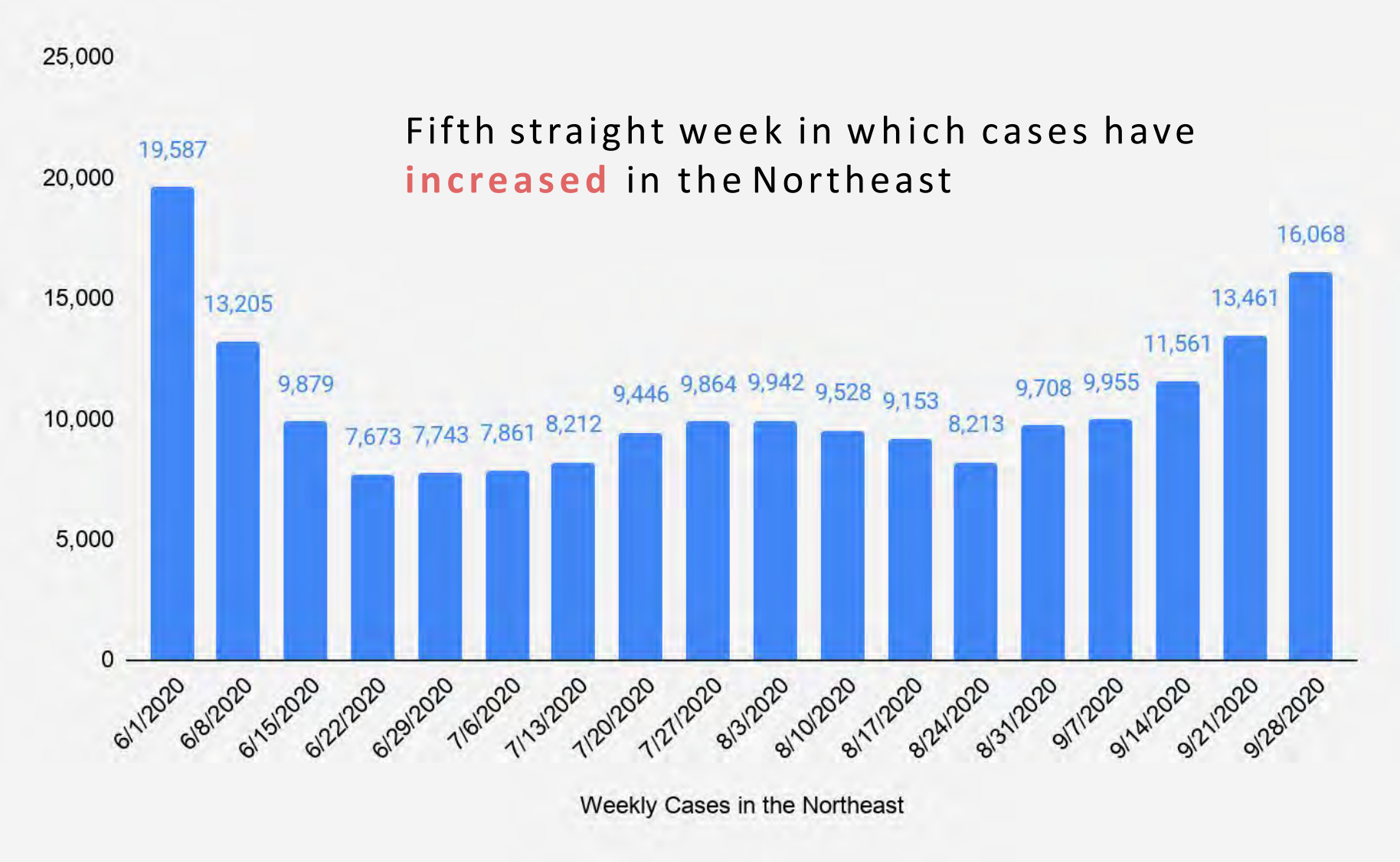


Positive Cases Sept. 21st to Sept. 28th



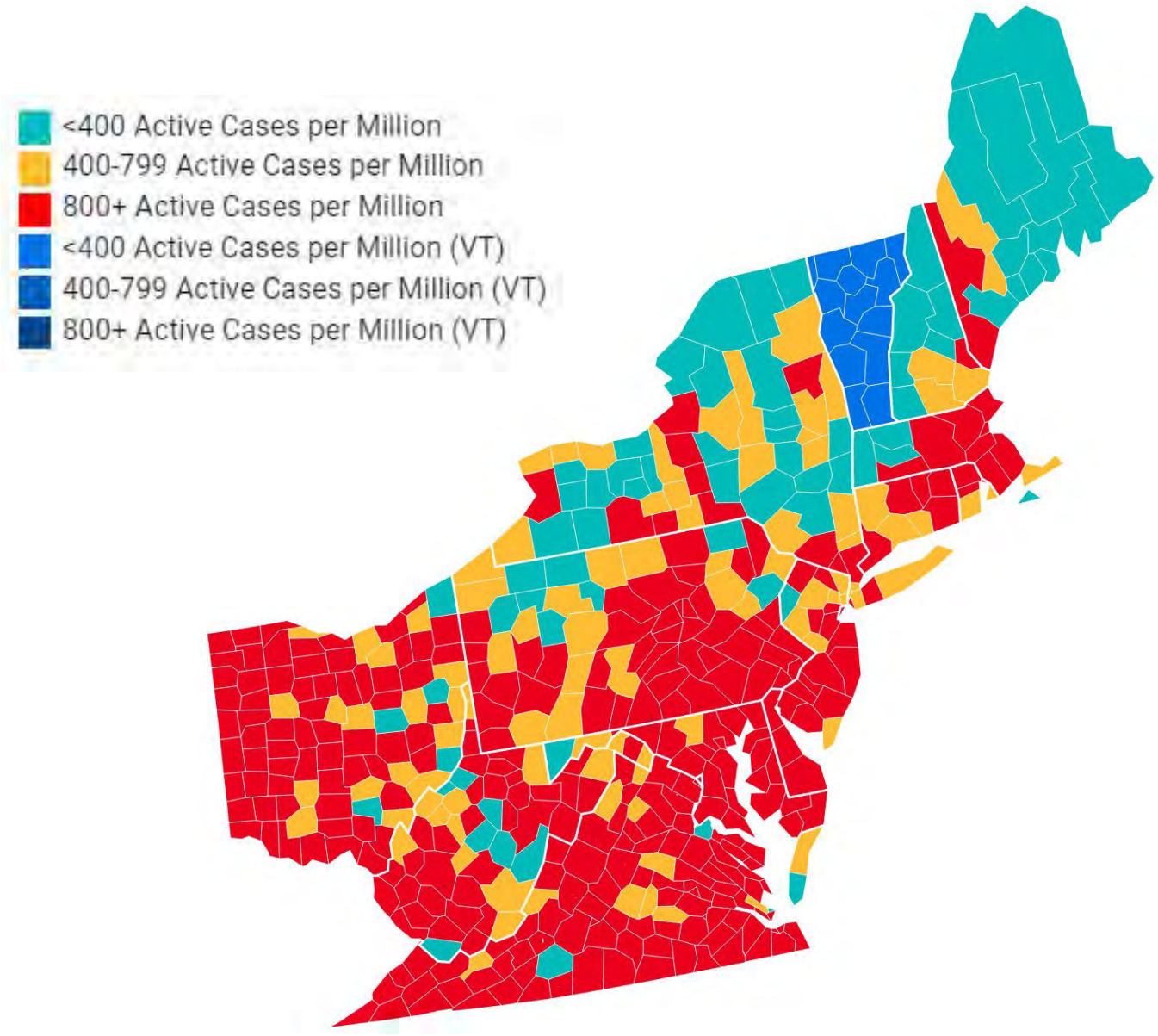
Sources: COVID-19 Tracking Project, New York Time Covid-19 Database & Government of Quebec

Regional Monitoring:
Week Over Week Case Growth Since May 21, 2020



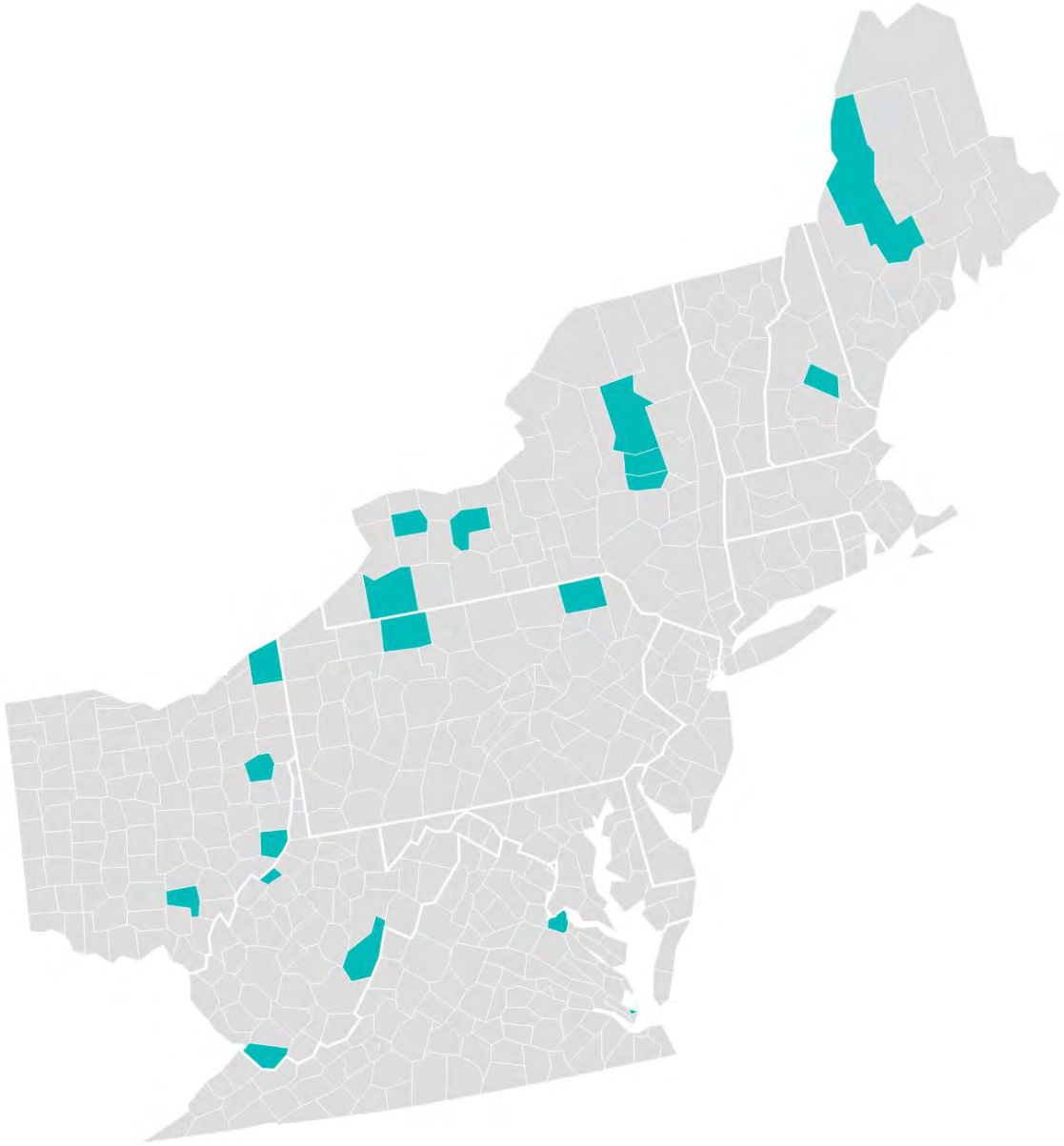
Sources: COVID-19 Tracking Project, New York Times Covid-19 Database & Government of Quebec

Updated Travel Map

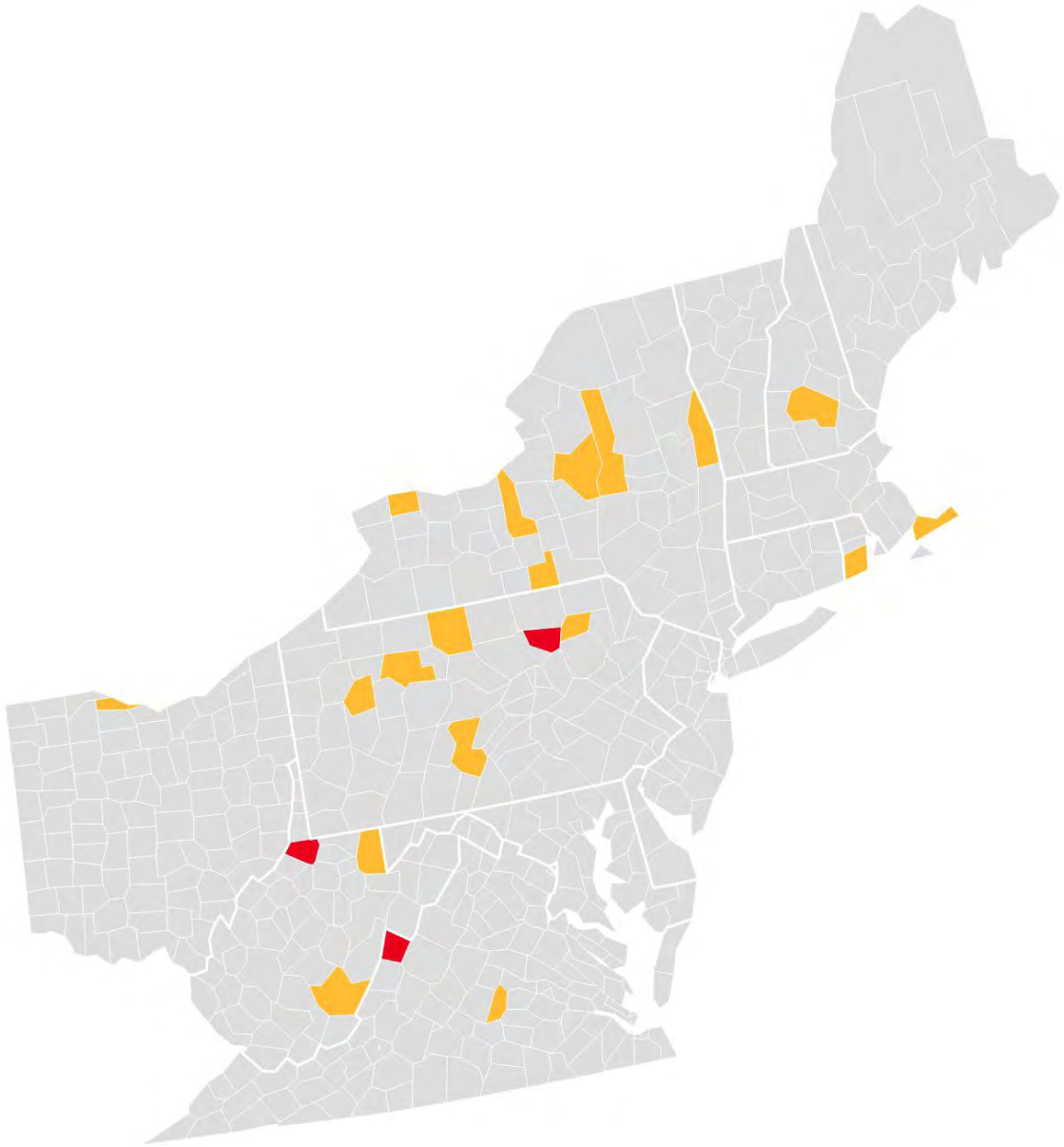


Source: Raw data from Johns Hopkins University—September 28, 2020 (dynamic map available at Vermont ACCD site)

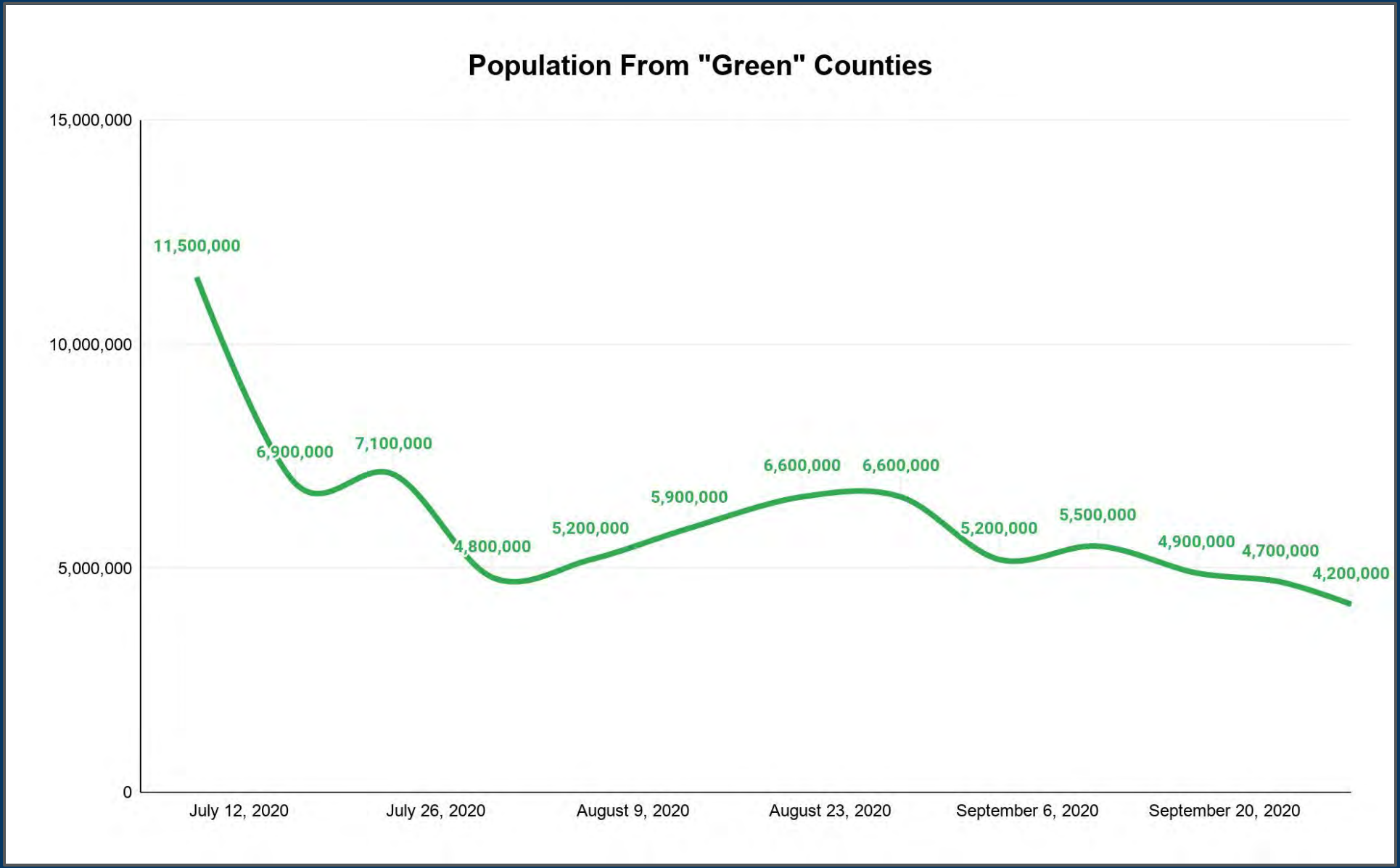
Improving: Moving from Yellow or Red to Green



Worsening: Moving to Yellow or Red



Updated Travel Map



Federal Healthcare, Fiscal and Monetary Policy Forecasting

- Chaotic Federal response in healthcare policy and execution, rapid and massive initial fiscal policy support but poorly targeted, further support now beset by political disagreement, extraordinary and steady non-politicized monetary support
- Future policy responses will hinge on November (or December? or January?) election – at all levels. Still great uncertainty about many possible outcomes: Presidential and Congressional
- Excellent and largely bipartisan, science-based State policy in Vermont. Extant leadership likely to continue

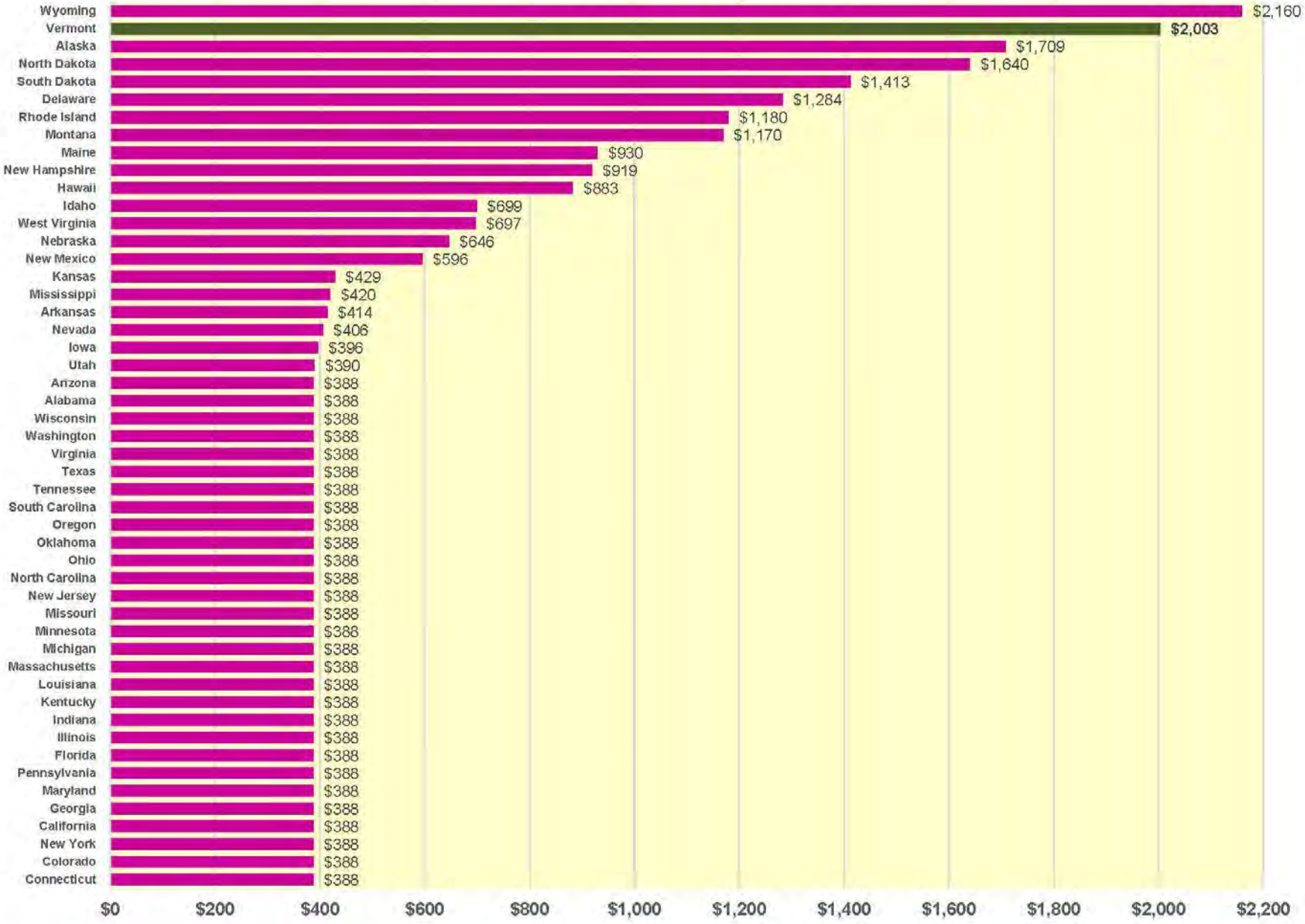
Federal Fiscal Transfer Payments to Vermont have been Massive

Total:	$4.5 Billion
Total Per Capita:	$7,158
Paycheck Protection Program:	$1,201 Million
Emergency Injury Disaster Loans:	$342 Million
Economic Impact Payments:	$575 Million
Federal Pandemic Unemployment Compensation :	$596 Million
Provider Relief Fund:	$190 Million
Coronavirus Relief Fund:	$1,250 Million
HHS COVID-19 Appropriations:	$104 Million
Pandemic Emergency Unemployment Compensation :	$9 Million
Pandemic Unemployment Assistance :	$82 Million
FEMA Disaster Relief Fund:	$26 Million
Educational Support:	$36 Million
Infrastructure Grants:	$21 Million
Emergency Injury Disaster Loan Advances:	$36 Million

Source: Peter G. Peterson Foundation

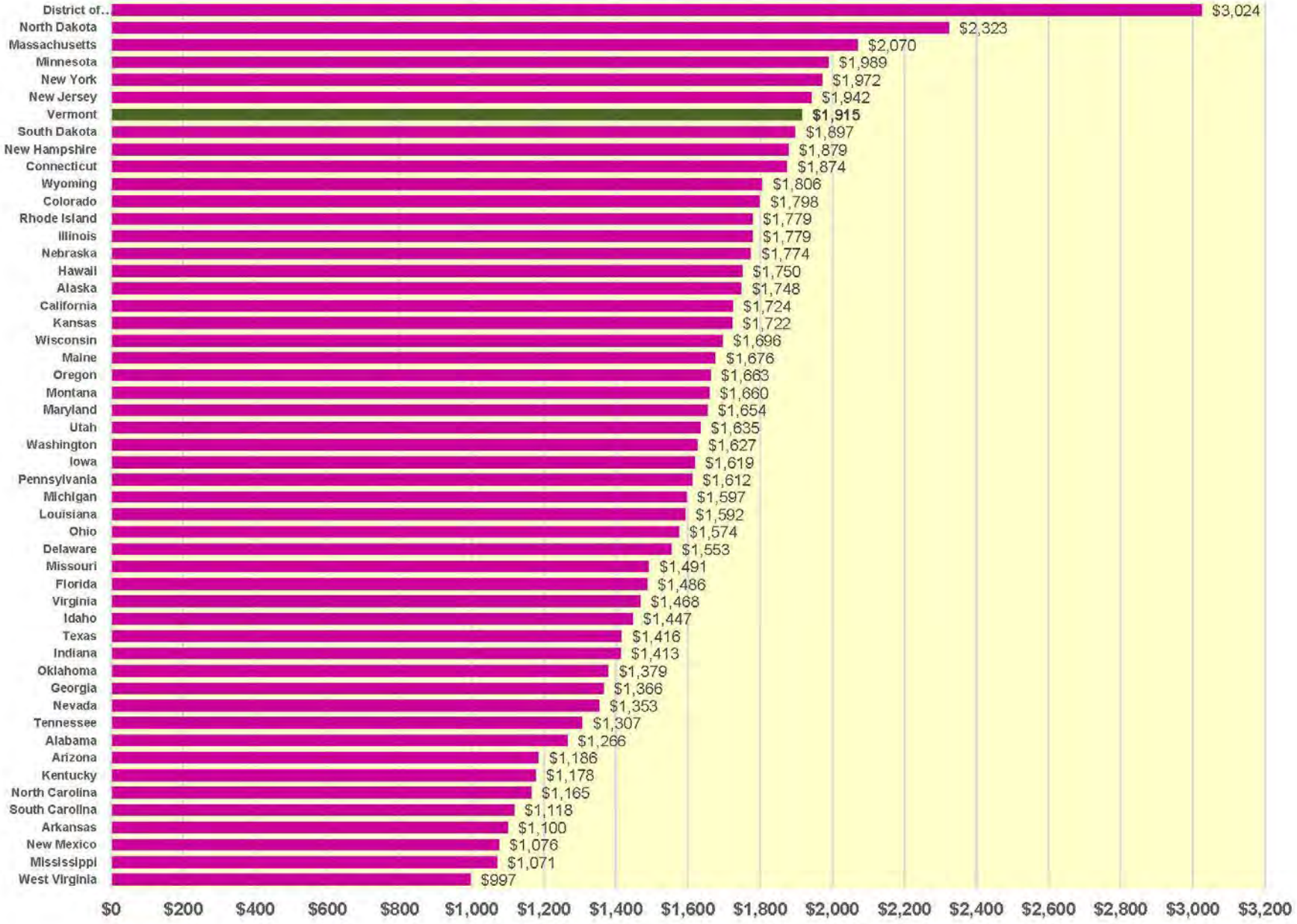
New York x 5 = Vermont: Per Capita CARES Act Funding

Source: U.S. Department of the Treasury



West Virgnia x 2 = Vermont: Per Capita PPP Funding

Source: U.S. Department of the Treasury

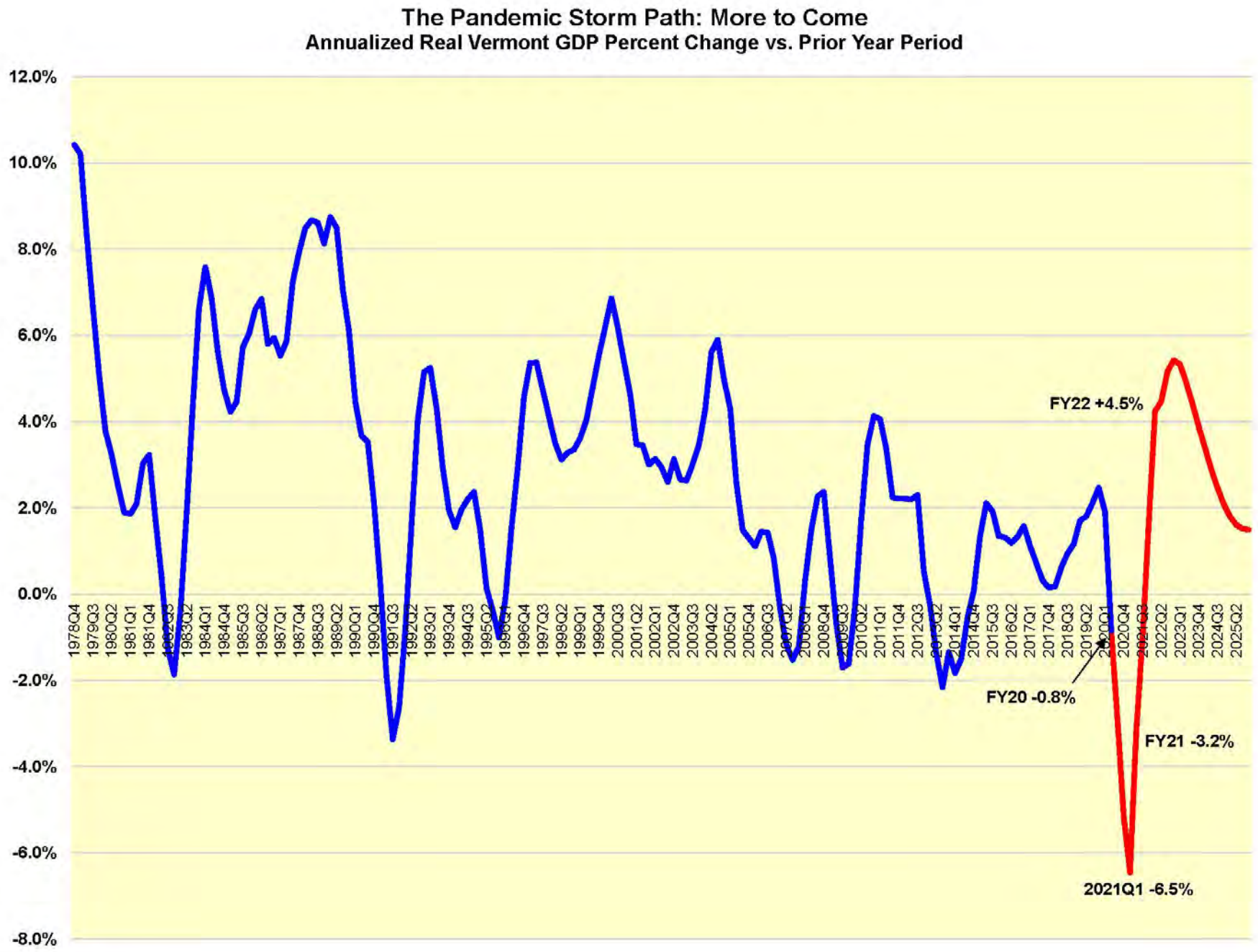


The Pandemic and Federal Policy Offsets Have Created Winners and Losers

- Some of the winners include: Internet retailers, people who can easily work remotely, residential real estate in non-urban areas with high speed internet access, owners of stocks, grocery stores, landscapers, home improvement stores and contractors, restaurants with drive-through windows and delivery services, outdoor recreational equipment sales, video conferencing and other high tech support services; etc., etc.
- Some of the losers include: Workers in leisure and hospitality, food service, entertainment, brick and mortar retail, and travel industries; Female workers who are disproportionately represented in these industries and also have to forego work to care for children; Low-income workers who are disproportionately represented in these industries and have poorer healthcare services and higher comorbitity risks; etc., etc.

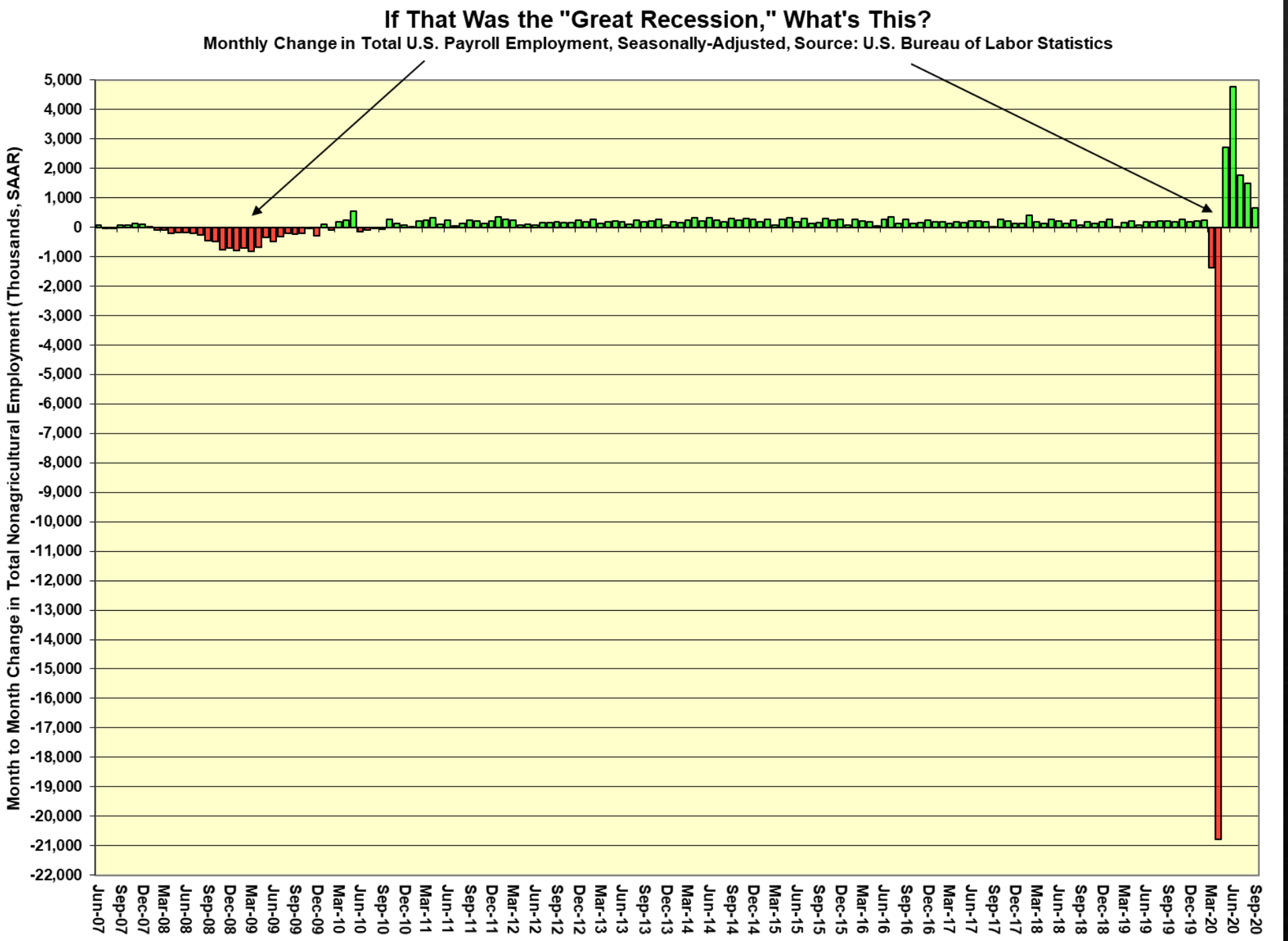
The State Economy and Tax Revenues in the Next Two Fiscal Years Will be Controlled by the Pandemic and Policy Uncertainty

- This will require extraordinary flexibility and adaptability by those affected by potential negative revenue impacts
- Economic and revenue forecasting will need to be more frequent, incorporating the latest data and developments in health and political policy arenas
- Planning will need to incorporate alternative forecast simulations in which various possible outcomes are considered, with contingency planning for each


The Pandemic Storm Path: More to Come
Annualized Real Vermont GDP Percent Change vs. Prior Year Period
12.0%
10.0%
8.0%
6.0%
4.0%
2.0%
0.0%
-2.0%
-4.0%
-6.0%
-8.0%
FY22 +4.5%
FY20 -0.8%
FY21 -3.2%
2021Q1 -6.5%

Economic Statistics Are Off the Charts

- Most regional economic statistics are backward-looking and slow to capture fast-moving events such as the onset of the pandemic
- Some statistics upon which we usually rely for forecasting models have become unreliable and unstable in the current environment. Some suffer from methodological protocols that do not function during an extreme event, such as this
- In some cases, this has required the development of new, higher frequency data sources based on more timely digital and other sources


If That Was the "Great Recession," What's This?
Monthly Change in Total U.S. Payroll Employment, Seasonally-Adjusted, Source: U.S. Bureau of Labor Statistics
Month to Month Change in Total Nonagricultural Employment (Thousands, SAAR)
5,000
4,000
3,000
2,000
1,000
0
-1,000
-2,000
-3,000
-4,000
-5,000
-6,000
-7,000
-8,000
-9,000
-10,000
-11,000
-12,000
-13,000
-14,000
-15,000
-16,000
-17,000
-18,000
-19,000
-20,000
-21,000
-22,000
Jun-07
Sep-07
Dec-07
Mar-08
Jun-08
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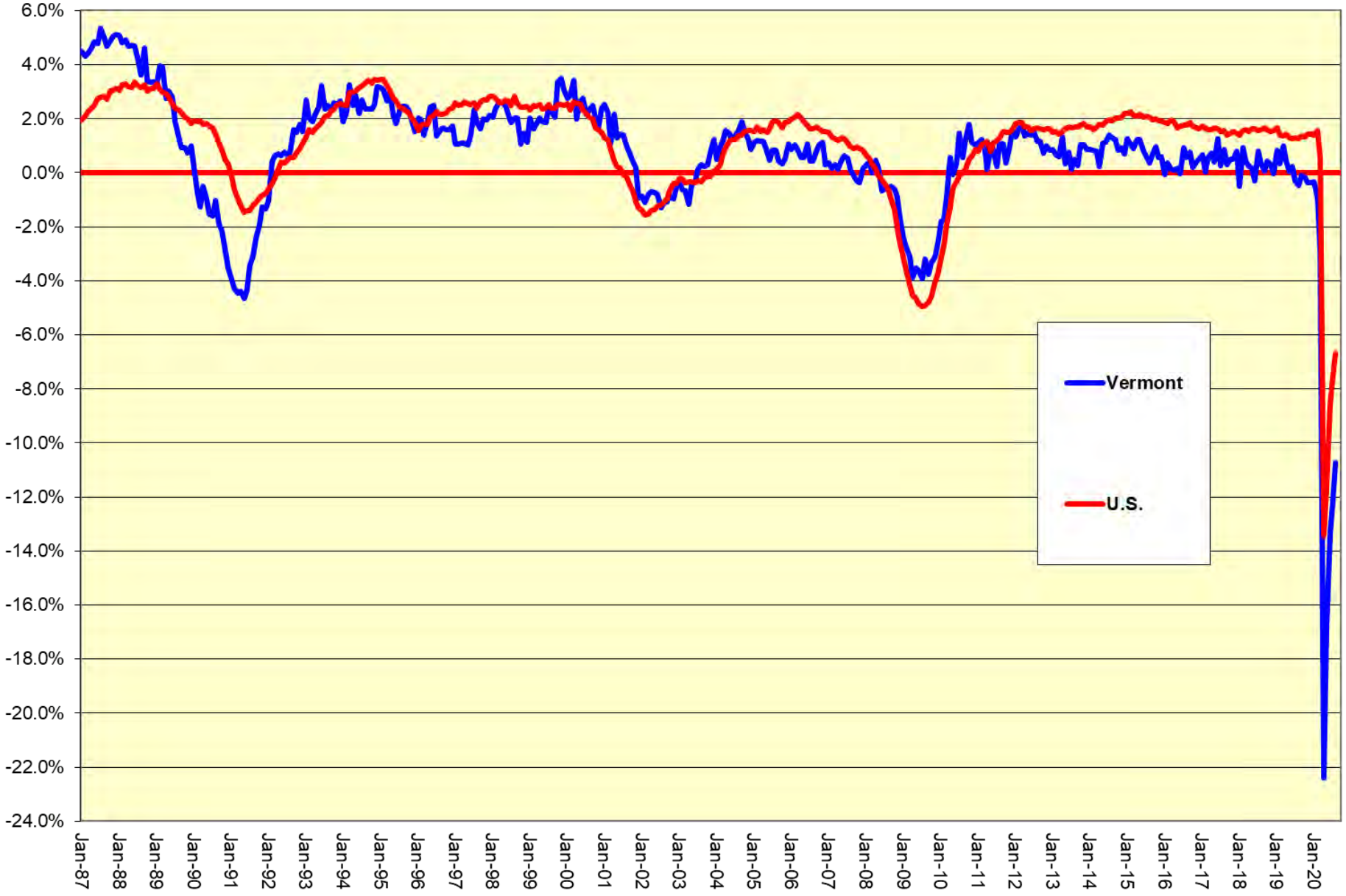
Mar-20
Jun-20
Sep-20

Employment Growth Craters During Shutdown - With Recovery Uncertain

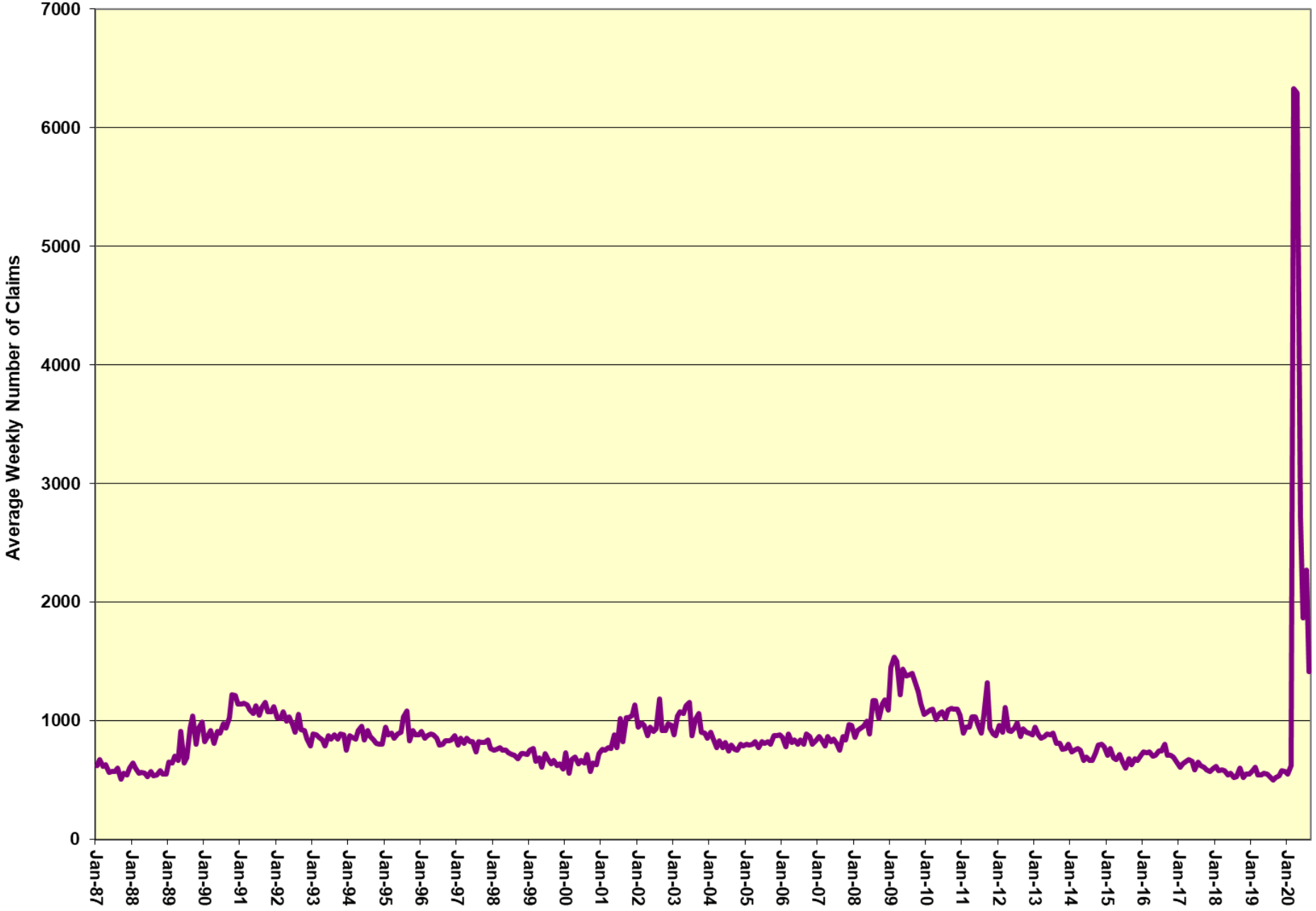
Total Nonagricultural Employment, Percent Change vs. Year Ago, Seasonally Adjusted Data



Source: Bureau of Labor Statistics, U.S. Department of Labor

Nothing Like it On Record: Vermont Initial Unemployment Claims

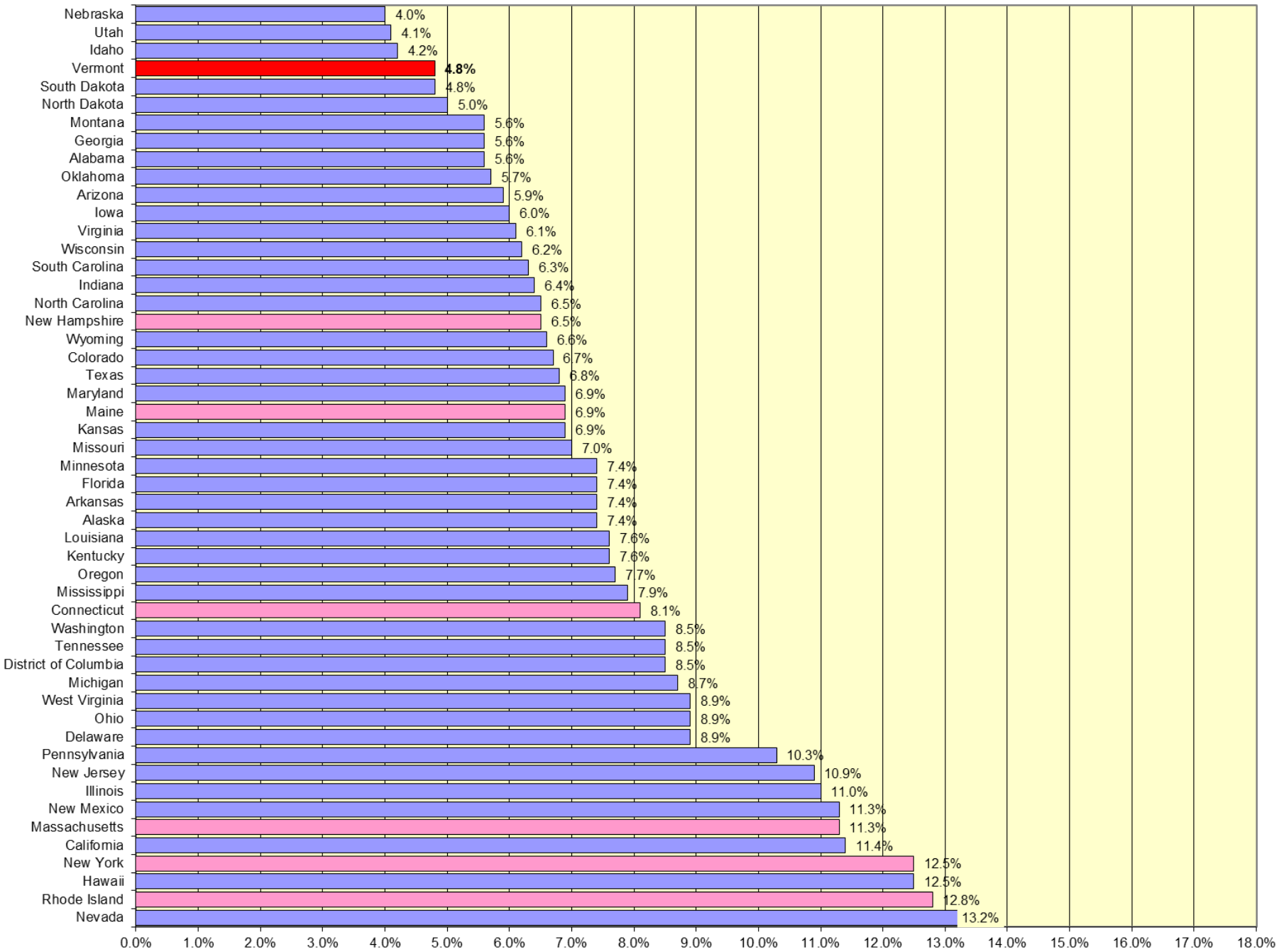
(Average Weekly Initial Claims for Unemployment in Vermont, Seasonally Adjusted)

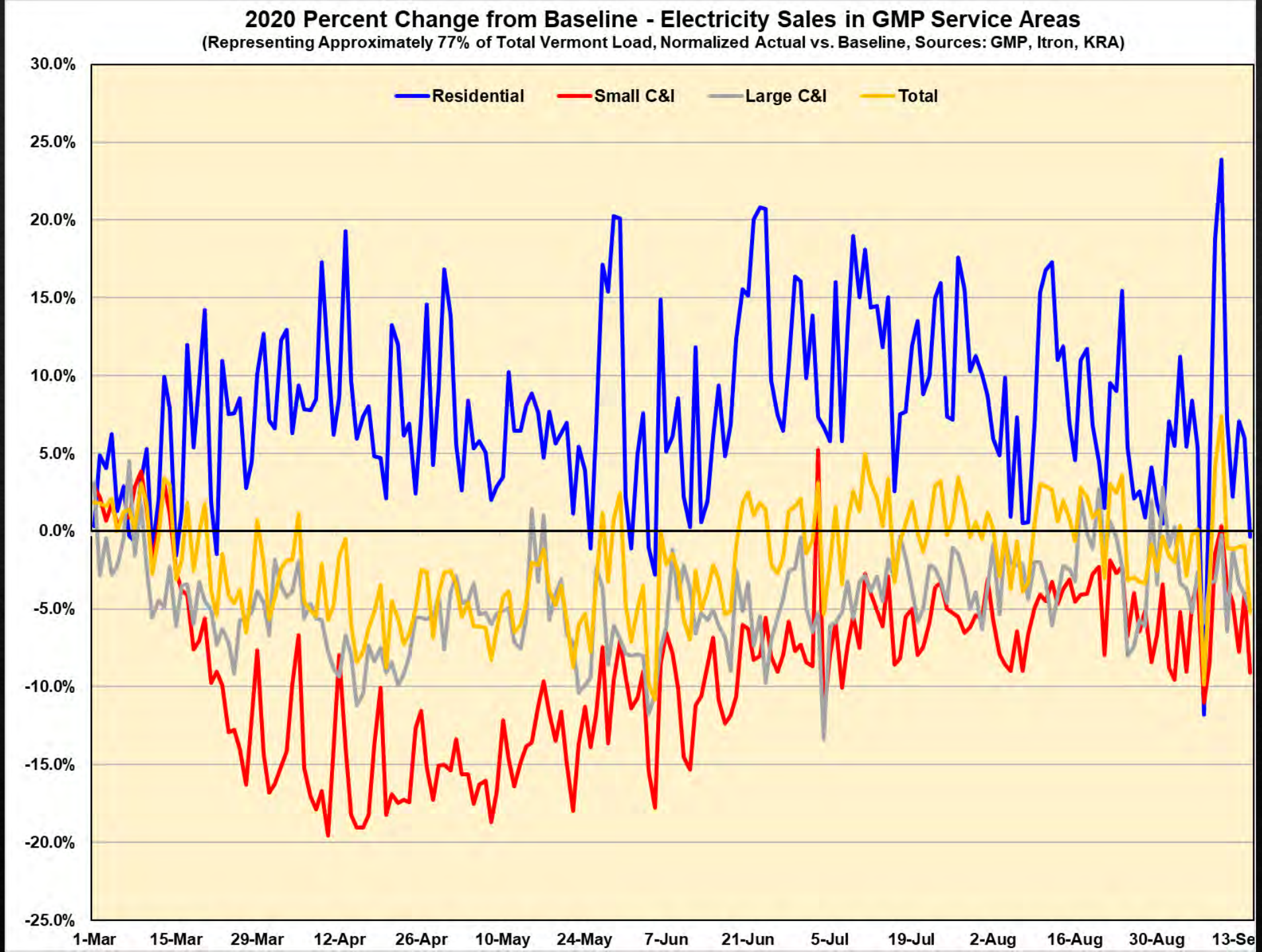


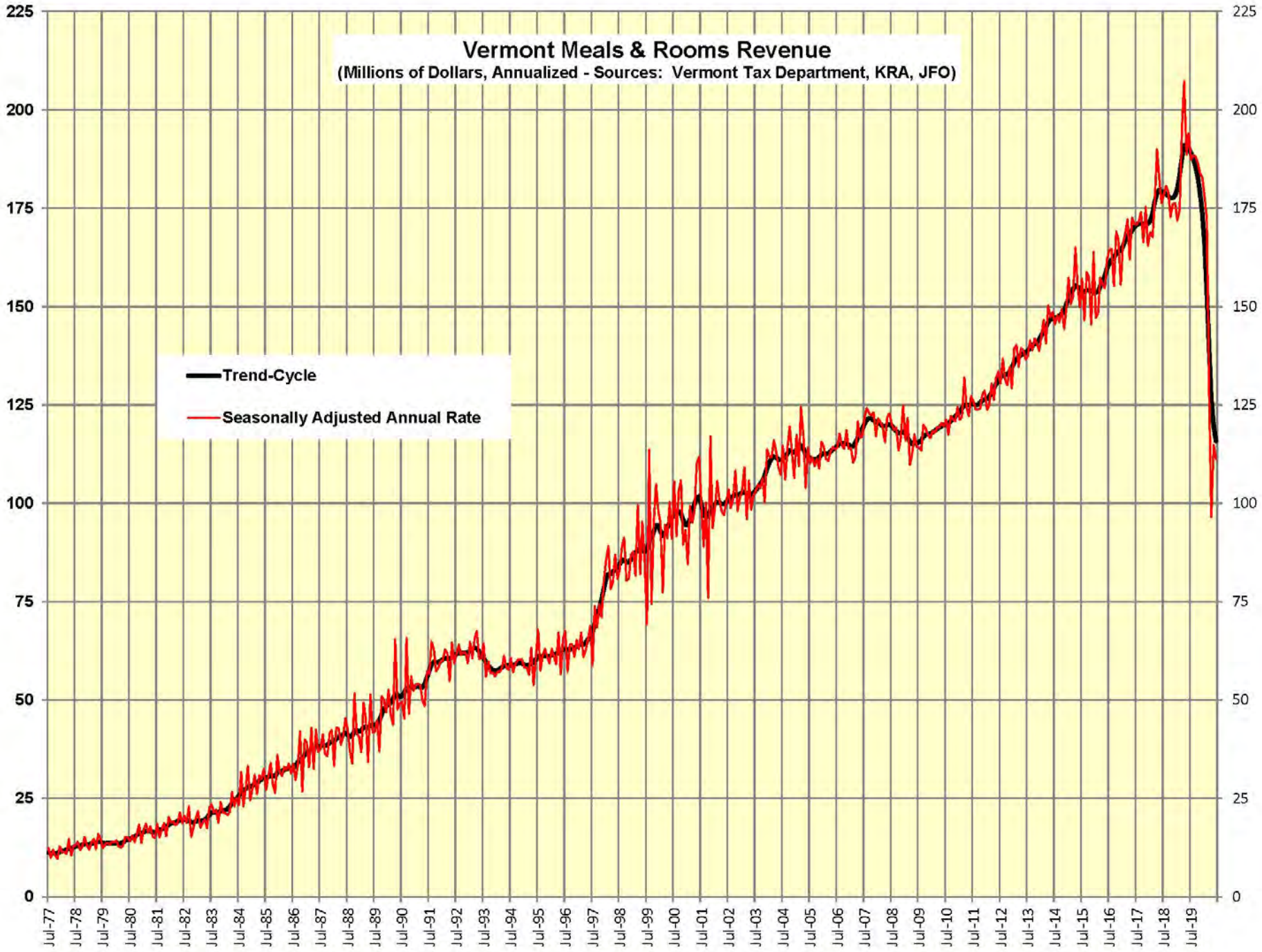
Source: U.S. Department of Labor, Boston Federal Reserve Bank

Unemployment Rate by State - August 2020

Seasonally Adjusted Data, Source: U.S. Bureau of Labor Statistics




2020 Percent Change from Baseline - Electricity Sales in GMP Service Areas
(Representing Approximately 77% of Total Vermont Load, Normalized Actual vs. Baseline, Sources: GMP, Itron, KRA)
Residential
Small C&I
Large C&I
Total
30.0%
25.0%
20.0%
15.0%
10.0%
5.0%
0.0%
-5.0%
-10.0%
-15.0%
-20.0%
-25.0%
1-Mar
15-Mar
29-Mar
12-Apr
26-Apr
10-May
24-May
7-Jun
21-Jun
5-Jul
19-Jul
2-Aug
16-Aug
30-Aug
13-Se


Vermont Meals & Rooms Revenue
(Millions of Dollars, Annualized - Sources: Vermont Tax Department, KRA, JFO)
Trend-Cycle
Seasonally Adjusted Annual Rate
225
200
175
150
125
100
75
50
25
0
Jul-77
Jul-78
Jul-79
Jul-80
Jul-81
Jul-82
Jul-83
Jul-84
Jul-85
Jul-86
Jul-87
Jul-88
Jul-89
Jul-90
Jul-91
Jul-92
Jul-93
Jul-94
Jul-95
Jul-96
Jul-97
Jul-98
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Jul-15
Jul-16
Jul-17
Jul-18
Jul-19

Potential Vermont Revenue Losses in FY21 and FY22 by Fund

	FY2021	FY2022
Education Fund	-$62.7	-$38.8
Transportation Fund	-$29.3	-$15.5
General Fund	-$182.4	-$103.8
(Healthcare Only)	-$11.2	-$2.3
(General Fund Ex HC)	-$171.2	-$101.5
Total Current Law	-$274.5	-$158.1

For More Detailed Information, See the Joint Fiscal Office Website at:

https://ljfo.vermont.gov/subjects/revenue-and-tax/state-forecasts

Questions?

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