COVID-19 Modeling
October 6, 2020

Presentation available at:
dfr.vermont.gov
National: New Cases Last 14 Days

Source: Raw data from Johns Hopkins University—October 6, 2020
COVID-19 Daily Infections by Census Region (7-Day Moving Average)

Source: Johns Hopkins University
Regional Monitoring: New Cases Week Over Week

48.82% Increase in New Confirmed Cases

Positive Cases Sept. 21st to Sept. 28th

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Cases Last 7 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont</td>
<td>26</td>
</tr>
<tr>
<td>Maine</td>
<td>202</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>258</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>741</td>
</tr>
<tr>
<td>Connecticut</td>
<td>1118</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>3278</td>
</tr>
<tr>
<td>Quebec</td>
<td>4523</td>
</tr>
<tr>
<td>New York</td>
<td>5985</td>
</tr>
</tbody>
</table>

Positive Cases Sept. 29th to Oct. 4th

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Cases Last 7 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont</td>
<td>72</td>
</tr>
<tr>
<td>Maine</td>
<td>245</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>363</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>978</td>
</tr>
<tr>
<td>Connecticut</td>
<td>1973</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>4322</td>
</tr>
<tr>
<td>Quebec</td>
<td>6999</td>
</tr>
<tr>
<td>New York</td>
<td>9055</td>
</tr>
</tbody>
</table>

Regional Monitoring:
Week Over Week Case Growth Since June 1, 2020

Northeast’s seventh straight weekly increase
7,875 more cases this week than last

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

Vermont Data
September: By the Numbers

- Tests: **97,823**
- New cases: **132**
- Average test positivity: **0.17%**
- Average # in hospital daily: **1.3**
- Average # in ICU daily: **0**
- Deaths: **0**

Source: Vermont Department of Health; tests measured as unique results reported to VDH
COVID-19 Infections by Age Group

41% decrease in infections in 0-19 age group since August
58% decrease in infections in 0-19 age group since July

Source: Vermont Department of Health
Vermont Weekly Totals

Sources: Vermont Department of Health (week calculated as Tuesday to Monday)
Syndromic Surveillance
Viral Growth & Reproductive Rates
Percentage of New Positive Tests
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 - October 5, 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 - October 6, 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
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 - October 6, 2020
Vermont Testing

7-Day Rolling Test Average

- Rolling 7-Day Avg tests
- Testing Benchmark

Source: Vermont Dept. of Health - October 6, 2020; results reported to VDH daily
Vermont Forecast October 6 to November 10

Vermont Forecast (7 Day Average)

Source: Oliver Wyman Forecast Model - October 5, 2020
Vermont Flu Data
Frequency of Flu Season Peak by Month
1983 to 2019

Source: The Centers for Disease Control and Prevention
Vermont Inpatient Discharges w/ Influenza Diagnosis 2017 to 2019

Source: Vermont Green Mountain Care Board
21.3% Flu Vaccination Increase Compared to Same Time in 2019

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

2019 Season  2020 Season

Ahead of Last Year

Ahead of Last Year

Behind Last Year
2020 Flu Vaccination Data

- Individuals vaccinated this year vs 2019: +6,181
- New* individuals: 4,375
- Change over this time in 2019: +21.3%
  - People under 18: +50%
  - People 18-64: +16%
  - People over 65: +15%

Source: Vermont Department of Health & ADS; Immunization Registry; *defined as not recorded in IMR since 2016
K-12 & Higher Education Update
Covid-19 Cases in K-12 Public Schools Across Northern New England

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

New Hampshire
85 Cases
50 Schools

Maine
45 Cases
20 Schools

Source: VDH; New Hampshire School Dashboard; and public reporting
Weekly Test Results for Vermont Colleges & Universities

<table>
<thead>
<tr>
<th>Date</th>
<th>Total COVID-19 Tests</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/28/2020</td>
<td>8,679</td>
</tr>
<tr>
<td>9/4/2020</td>
<td>18,401</td>
</tr>
<tr>
<td>9/11/2020</td>
<td>15,030</td>
</tr>
<tr>
<td>9/17/2020</td>
<td>12,833</td>
</tr>
<tr>
<td>9/22/2020</td>
<td>2,192</td>
</tr>
<tr>
<td>9/29/2020</td>
<td>24,228</td>
</tr>
<tr>
<td>10/6/2020</td>
<td>14,975</td>
</tr>
</tbody>
</table>
Weekly Covid-19 Positives for Students at Vermont Colleges & Universities

- 25 cases on 8/28/2020
- 8 cases on 9/4/2020
- 5 cases on 9/11/2020
- 4 cases on 9/17/2020
- 1 case on 9/22/2020
- 4 cases on 9/29/2020
- 4 cases on 10/6/2020
Cumulative Test Results for Vermont Colleges & Universities as of October 4, 2020

- 96,338 Tests Administered
- 51 Students Testing Positive
## Northern New England Higher Education Update

<table>
<thead>
<tr>
<th>State</th>
<th>Total</th>
<th>Positives</th>
<th>Positivity Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>New Hampshire*</td>
<td>198,720</td>
<td>258</td>
<td>0.13%</td>
</tr>
<tr>
<td>Maine*</td>
<td>68,248</td>
<td>47</td>
<td>0.07%</td>
</tr>
<tr>
<td>Vermont</td>
<td>96,338</td>
<td>51</td>
<td>0.05%</td>
</tr>
</tbody>
</table>

* Includes colleges & universities that publicly provide COVID-19 testing data
## Individual Test Results for Vermont Colleges & Universities as of October 4, 2020

<table>
<thead>
<tr>
<th>College / University</th>
<th>Total Tests</th>
<th>Total Positives</th>
<th>Dashboard / Public Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middlebury College</td>
<td>6,735</td>
<td>2</td>
<td><a href="https://www.middlebury.edu/office/midd2021/covid-reporting-dashboard">https://www.middlebury.edu/office/midd2021/covid-reporting-dashboard</a></td>
</tr>
<tr>
<td>University of Vermont</td>
<td>50,065</td>
<td>28*</td>
<td><a href="https://www.uvm.edu/returntocampus/uvm-weekly-testing-report">https://www.uvm.edu/returntocampus/uvm-weekly-testing-report</a></td>
</tr>
<tr>
<td>Norwich University</td>
<td>7,013</td>
<td>5</td>
<td><a href="https://www.norwich.edu/news/psa">https://www.norwich.edu/news/psa</a></td>
</tr>
<tr>
<td>Northern Vermont University</td>
<td>2,896</td>
<td>0</td>
<td><a href="https://www.northernvermont.edu/nuv-during-covid-19">https://www.northernvermont.edu/nuv-during-covid-19</a></td>
</tr>
<tr>
<td>Saint Michael's College</td>
<td>2,529</td>
<td>1</td>
<td><a href="https://www.smcvt.edu/return-to-campus/">https://www.smcvt.edu/return-to-campus/</a></td>
</tr>
<tr>
<td>Sterling College</td>
<td>86</td>
<td>0</td>
<td>Does not have a public dashboard at this time</td>
</tr>
<tr>
<td>Vermont College of Fine Arts</td>
<td>7</td>
<td>0</td>
<td>Does not have a public dashboard at this time</td>
</tr>
<tr>
<td>Vermont Law School</td>
<td>161</td>
<td>0</td>
<td>Remote learning for Fall 2020 - Some students using campus facilities</td>
</tr>
<tr>
<td>Albany College of Pharmacy</td>
<td>99</td>
<td>0</td>
<td><a href="https://www.acphs.edu/health-safety">https://www.acphs.edu/health-safety</a></td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>81,363</strong></td>
<td><strong>47</strong></td>
<td></td>
</tr>
</tbody>
</table>

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

* Reconciling data that could possibly remove up to 6 cases from the UVM count.
Travel Map Update
Updated Travel Map

Source: Raw data from Johns Hopkins University—October 5, 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

Population From "Green" Counties

July 12, 2020  |  July 26, 2020  |  August 9, 2020  |  August 23, 2020  |  September 6, 2020  |  September 20, 2020
0              |  2,100,000     |  4,800,000       |  5,200,000        |  5,800,000         |  4,200,000
2,900,000      |  6,900,000     |  5,900,000       |  6,600,000        |  5,500,000         |  4,900,000
4,900,000      |  6,600,000     |  5,400,000       |  4,200,000        |  2,900,000