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

177,159

Positive Cases Jan 5th to Jan. 11th

207,708

Sources: State Health Departments & CTV National News (Quebec)
Another Large Weekly Increase in Cases
Most Regional Cases by Week

Sources: State Health Departments & CTV National News (Quebec) (includes: CT, ME, MA, NH, NY, QC, RI & VT)
Increase in Regional Testing
(7 Day Average)

Testing increased 69% in the past 7 days

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
Daily COVID-19 Infections in Vermont (7 Day Average)

1000 Infection thresholds denoted with red dashed line.

6 days for most recent 1000 infections (8000 to 9000 total)

Source: Vermont Department of Health—January 12, 2021
Vermonters Diagnosed with COVID-19 by Week

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 Infections in VT (7-Day Average)

Christmas Day → One Week Later

Two Weeks Later
Days 11 to 17:
Halloween: Cases Surge; Thanksgiving: Cases Flat
Christmas: Cases Surging

Cases After Holidays in Vermont
## Measuring Vermont’s Pandemic Response

<table>
<thead>
<tr>
<th>Rank (Lowest)</th>
<th>Positivity (7 Day Avg.)</th>
<th>Cases (7 Day Moving Avg.)</th>
<th>Hospitalizations (7 Day Moving Avg.)</th>
<th>Fatalities (7 Day Moving Avg.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Vermont</strong></td>
<td>Hawaii</td>
<td><strong>Vermont</strong></td>
<td>Alaska</td>
</tr>
<tr>
<td>2</td>
<td>Hawaii</td>
<td><strong>Vermont</strong></td>
<td>Hawaii</td>
<td><strong>Vermont</strong></td>
</tr>
<tr>
<td>3</td>
<td>Alaska</td>
<td>Oregon</td>
<td>North Dakota</td>
<td><strong>Vermont</strong></td>
</tr>
<tr>
<td>4</td>
<td>District of Columbia</td>
<td>North Dakota</td>
<td>Alaska</td>
<td>Oregon</td>
</tr>
<tr>
<td>5</td>
<td>Oregon</td>
<td>Washington</td>
<td>Oregon</td>
<td>Utah</td>
</tr>
<tr>
<td>6</td>
<td>Maine</td>
<td>Michigan</td>
<td>Maine</td>
<td>Virginia</td>
</tr>
<tr>
<td>7</td>
<td>Michigan</td>
<td>Maine</td>
<td>Minnesota</td>
<td>Washington</td>
</tr>
<tr>
<td>8</td>
<td>Connecticut</td>
<td>Alaska</td>
<td>Colorado</td>
<td>District of Columbia</td>
</tr>
</tbody>
</table>

Source: Covid Tracking Project—January 11, 2021
Estimated Active Cases of COVID-19 in Vermont

Source: Johns Hopkins University Data & Oliver Wyman Forecast Model—January 11, 2020
Vermont COVID-19 Cases

7 Day Average Trending Up

Source: Vermont Department of Health
Vermont COVID-19 Positivity Rate

7 Day Average is Stable

Source: Vermont Department of Health
Vermont COVID-19 Fatalities

156 Deaths

Source: Vermont Department of Health
Median Age of COVID Infection in VT (14-Day Average)

Source: Vermont Department of Health
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
At 4.13 doses administered per 100 residents, Vermont ranks:

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

Source: CDC—January 11, 2021
# Regional Vaccination
(Doses Given per 100)

<table>
<thead>
<tr>
<th>State</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connecticut</td>
<td>4.13</td>
</tr>
<tr>
<td>Vermont</td>
<td>4.13</td>
</tr>
<tr>
<td>Maine</td>
<td>4.09</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>3.64</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>3.56</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>2.87</td>
</tr>
</tbody>
</table>

Source: CDC—January 12, 2021
US Vaccination

Vaccinations Started per 100 People (Vermont in Blue)

Source: CDC—January 12, 2021
### Active Outbreaks in Long Term Care Facilities

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

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

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

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

**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

2019-2020 Actual
270,275

246.9K Year to Date

2020-2021 Goal
325,000

273.4K Year to Date

84% to 2020-2021 goal

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
7-Day Rolling Test Average

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

UVM batch tests included in 1/7/21 count