COVID-19 Modeling
January 19, 2021

Presentation available at:
dfr.vermont.gov
National COVID-19 Cases Trending Down

First Sustained Decrease Not Associated with a Holiday Since Late July

Source: Covid Tracking Project — January 18, 2021
National COVID-19 Hospitalizations Trending Down

Previously Trending Up for 115 Days
Now Trending Down for 6 Days

Source: Covid Tracking Project — January 18, 2021
400,000+ Deaths
In the United States

First 50,000 Deaths ~55 Days
Second 50,000 Deaths ~30 Days
Third 50,000 Deaths ~66 Days
Fourth 50,000 Deaths ~55 Days
Fifth 50,000 Deaths ~61 Days
Sixth 50,000 Deaths ~23 Days
Seventh 50,000 Deaths ~21 Days
Eighth 50,000 Deaths ~16 Days

Source: Johns Hopkins University—January 19, 2021
National COVID-19
Deaths Possibly Slowing

Expect deaths to decrease 2 to 3 weeks following a sustained reduction in cases
CDC Modeling of B.1.1.7 Variant

A. Reproductive number 1.1 on January 1, 2021; no vaccine

B. Reproductive number 0.9 on January 1, 2021; no vaccine

A. Reproductive number 1.1 on January 1, 2021; with vaccination

B. Reproductive number 0.9 on January 1, 2021; with vaccination
Regional Case Growth

**12.43% Decrease in New Cases**

New Cases Jan 5th to Jan. 11th

New Cases Jan 12th to Jan. 18th

Sources: State Health Departments & CTV National News (Quebec)
Significant Decline in Weekly Cases
Third Week of High Case Counts

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

Source: Covid Tracking Project (CT, ME, MA, NH, NY, RI & VT)—January 18, 2021
Vermont Last State To Reach 10,000 COVID-19 Cases

315 Days from 1st Case to 10,000th
Vermonters Diagnosed with COVID-19 by Week

Source: Vermont Department of Health (week calculated as Tuesday to Monday)
Active Cases per Million in Vermont

Source: VDH
VT COVID-19 Deaths: 92% are 65 years & older

VT COVID-19 Hospitalizations: 62% are 65 years & older

Source: Vermont Department of Health (week calculated as Tuesday to Monday)
Vermont COVID-19 Cases
7 Day Average Stable

Source: Vermont Department of Health
COVID-19 4.5x more prevalent now than during spring peak

Source: Johns Hopkins University Data & Oliver Wyman Forecast Model—January 18, 2020
Vermont COVID-19 Hospitalizations

Medical/Surgical Beds
7 Day Average is Trending Up

ICU Beds
7 Day Average is Stable

Source: Vermont Department of Health
Hospital & ICU Capacity Forecasts

Vermont Hospital Forecast
- Medical Surgical Beds + COVID
- Current Total Medical Surgical Capacity
- Elevated Medical Surgical Level
- Medical Surgical Beds baseline occupancy

Vermont ICU Forecast
- ICU bed baseline occupancy
- ICU beds baseline + COVID
- Elevated ICU bed level
- Total current ICU capacity

Source: Oliver Wyman Forecast Model—January 18, 2020; GNYHA Hospital Surge framework
# 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>Vermont</td>
<td>Hawaii</td>
<td>Vermont</td>
<td>Alaska</td>
</tr>
<tr>
<td>2</td>
<td>Hawaii</td>
<td>North Dakota</td>
<td>Alaska</td>
<td>Hawaii</td>
</tr>
<tr>
<td>3</td>
<td>Alaska</td>
<td>Vermont</td>
<td>New Hampshire</td>
<td>Vermont</td>
</tr>
<tr>
<td>4</td>
<td>District of Columbia</td>
<td>Minnesota</td>
<td>Idaho</td>
<td>Washington</td>
</tr>
<tr>
<td>5</td>
<td>North Dakota</td>
<td>Oregon</td>
<td>Maine</td>
<td>Colorado</td>
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<tr>
<td>6</td>
<td>Minnesota</td>
<td>Michigan</td>
<td>North Dakota</td>
<td>Utah</td>
</tr>
<tr>
<td>7</td>
<td>Rhode Island</td>
<td>Washington</td>
<td>New Mexico</td>
<td>Montana</td>
</tr>
<tr>
<td>8</td>
<td>Colorado</td>
<td>Alaska</td>
<td>Hawaii</td>
<td>Minnesota</td>
</tr>
</tbody>
</table>

Source: Covid Tracking Project; Johns Hopkins University & New York Times—January 18, 2021
Regional Heat Map

Active Cases per Million

0 5,000 25,000 +

At **5.20 doses** administered per 100 residents, Vermont ranks:

- 2\textsuperscript{nd} in Northeast
- 4\textsuperscript{th} in travel region behind West Virginia, D.C. & Connecticut
### 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>127</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>41</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>Village at Cedar Hill, Windsor</td>
<td>12</td>
</tr>
<tr>
<td>Holton Home, Brattleboro</td>
<td>12</td>
</tr>
<tr>
<td>Vermont Veterans Home, Bennington</td>
<td>8</td>
</tr>
<tr>
<td>Davis Home, Windsor</td>
<td>6</td>
</tr>
<tr>
<td>Valley Terrace, Hartford</td>
<td>6</td>
</tr>
<tr>
<td>Second Spring North, Williamstown</td>
<td>Not Shown</td>
</tr>
<tr>
<td>Meadowview Recovery Residence, Brattleboro</td>
<td>Not Shown</td>
</tr>
<tr>
<td>Long Term Care Facility D</td>
<td>Not Shown</td>
</tr>
<tr>
<td>Harbor Village, South Burlington</td>
<td>Not Shown</td>
</tr>
</tbody>
</table>

Source: Vermont Department of Health—January 18, 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*
1,596 Cases (+132)
394 Schools (+15)

Vermont
304 Cases (+52)
163 Schools (+14)

Maine
1,519 Cases (+166)
245 Schools (+10)

Source: ME, NH & VT K-12 Dashboards, ME media reports; Note: NH School Dashboard is offline, data as of January 11, 2021.
Flu vaccinations up 10.25% from same time last season

2019-2020 Actual

270,275

Year to Date

252,136

2020-2021 Goal

325,000

277,982

Year to Date

85.5% 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 January 10, 2019-2020 & 2020-2021
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 18, 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 18, 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 18, 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%

![ICU Use & Capacity Graph]

Source: Vermont Department of Health—January 18, 2021
7-Day Rolling Test Average

- 1,000 Benchmark
- Rolling 7-Day Test Average
- 5,000 Benchmark

Source: Vermont Department of Health—January 18, 2021; results reported to VDH daily