COVID-19 Modeling
May 25, 2021

Presentation available at: dfr.vermont.gov
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Vermont Case Data
COVID Infections per 100K in Vermont (7-Day Average)

Source: Vermont Department of Health—May 25, 2021

Cases are down 85% since April 1st and 39% in the last week.
Vermonters Diagnosed with COVID-19 by Week

Source: Vermont Department of Health (week calculated as Tuesday to Monday)
Significant decline in Vermont's active Covid-19 caseload

Source: Johns Hopkins University Data & Oliver Wyman Model—May 24, 2021
Age of Infected Vermonters

Median age of COVID positive individuals in VT over the last 14 days.

Source: VDH—May 25, 2021
Vermont Cases by Age Band

14-day averages

Source: VDH—May 24, 2021
Vermont K-12 Weekly Covid-19 Cases

Source: Vermont Department of Health—May 24, 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>None</td>
<td>None</td>
</tr>
</tbody>
</table>

Source: Vermont Department of Health—*Last updated May 24, 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 or fewer than 5 active cases.
Active Cases per Million

Last Week
May 18th

Today
May 25th
Vermont Covid-19 case rates last week declined

Widespread falling cases across the state; cases stable in Essex and Windham Counties
Active COVID Cases per Million in Vermont Regions

For the purpose of this analysis, Vermont has been split into four regions: **Burlington Metro** (Chittenden, Franklin, Grand Isle), **Northeast Kingdom** (Caledonia, Orleans, Essex), **Central** (Lamoille, Washington, Addison, Orange), and **Southern** (Rutland, Windsor, Bennington, Windham).
VT Weekly COVID-19 Infections Forecast

Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.

Source: Centers for Disease Control and Prevention—May 24, 2021
Vermont Hospitalization Data
Statewide Covid-19 Hospitalizations

20.99% Decrease
(Last 7 Days)

36.16% Decrease
(Last 14 Days)

Source: Vermont Department of Health—May 25, 2021
COVID-19 Hospitalizations By Month

Source: Vermont Department of Health—May 24, 2021

<table>
<thead>
<tr>
<th>Month</th>
<th>70 &amp; Over</th>
<th>Under 70</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>65</td>
<td>57</td>
</tr>
<tr>
<td>February</td>
<td>38</td>
<td>42</td>
</tr>
<tr>
<td>March</td>
<td>30</td>
<td>61</td>
</tr>
<tr>
<td>April</td>
<td>13</td>
<td>59</td>
</tr>
<tr>
<td>May</td>
<td>5</td>
<td>17</td>
</tr>
</tbody>
</table>

Average Ages:
- January: 66.5
- February: 64.7
- March: 58.9
- April: 55.7
- May: 53.1
Vermont Fatality Data
Vermont Covid-19 Deaths by Week

Source: Vermont Department of Health—May 24, 2021
Vermont Covid-19 Deaths by Month

Source: Vermont Department of Health—May 24, 2021
Vermont COVID-19 Deaths by Month

Vermont is predicting between 5 and 15 deaths in May

Source: Vermont Department of Health—May 24, 2021
VT Weekly COVID-19 Deaths Forecast

Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.
Vermont Vaccination Data
% Initiated Vaccinations and Change in Case Rate Since April 1st

Case rate changes calculated as the difference between 7-day averages. Linear regression shows a correlation of -0.48.

Source: CDC—May 24, 2021
### Vermont CDC Vaccine Scorecard

<table>
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<tr>
<th>Metric</th>
<th>Figure</th>
<th>State Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doses Administered per 100K</td>
<td>116,129</td>
<td>1</td>
</tr>
<tr>
<td>% At Least 1 Dose (Eligible)</td>
<td>76.9%</td>
<td>1</td>
</tr>
<tr>
<td>% At Least 1 Dose (Full Population)</td>
<td>67.9%</td>
<td>1</td>
</tr>
<tr>
<td>% Fully Vaccinated</td>
<td>51.0%</td>
<td>3</td>
</tr>
<tr>
<td>% 65+ One Dose</td>
<td>98.0%</td>
<td>2</td>
</tr>
<tr>
<td>% 65+ Fully Vaccinated</td>
<td>88.8%</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: CDC—May 24, 2021 (with VDH reconciliation); CDC data using 2019 census estimates
Vermont is 1st in the Country on Vaccines Administered Per 100K

Source: CDC—May 24, 2021 (with VDH reconciliation)
76.9% of Eligible Vermonters Have Started Vaccination, Placing Vermont 1st Nationally
67.9% of Vermonters Have Started Vaccination, Placing Vermont 1st Nationally

Source: CDC—May 24, 2021 (with VDH reconciliation)
51.0% of Vermonters Fully Vaccinated, Placing Vermont 3rd Nationally
98.0% of Vermonters 65+
Partially or Fully Vaccinated

Source: CDC—May 24, 2021 (with VDH reconciliation)
88.8% of Vermonters 65+ Fully Vaccinated

Source: CDC—May 24, 2021 (with VDH reconciliation)
US Census Region Case Rate & Vaccination by Age Band

Source: Covid Act Now—May 24, 2021; NH excluded from Northeast quadrant due to reporting issues
Daily Percentage of Population Starting Vaccination

Source: CDC—May 24, 2021 (with VDH reconciliation)
Vermont Vaccination Progress
By Age Band

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Partially Vaccinated</th>
<th>Fully Vaccinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-15</td>
<td>37.45%</td>
<td>0%</td>
</tr>
<tr>
<td>16-17</td>
<td>34.17%</td>
<td>27.47%</td>
</tr>
<tr>
<td>18-21</td>
<td>18.29%</td>
<td>24.77%</td>
</tr>
<tr>
<td>22-29</td>
<td>19.13%</td>
<td>35.65%</td>
</tr>
<tr>
<td>30-39</td>
<td>54.78%</td>
<td>48.61%</td>
</tr>
<tr>
<td>40-49</td>
<td>22.44%</td>
<td>56.28%</td>
</tr>
<tr>
<td>50-59</td>
<td>71.05%</td>
<td>73.31%</td>
</tr>
<tr>
<td>60-64</td>
<td>12.45%</td>
<td>85.46%</td>
</tr>
<tr>
<td>65-69</td>
<td>75.09%</td>
<td>92.46%</td>
</tr>
<tr>
<td>70-74</td>
<td>84.52%</td>
<td>98.65%</td>
</tr>
<tr>
<td>75+</td>
<td>93.52%</td>
<td>93.21%</td>
</tr>
</tbody>
</table>

Source: Vermont Dept. of Health—May 25, 2021; *does not reflect some college students vaccinated OOS; excludes those vaccinated through federal entities & will differ from CDC figures; uses 2019 Census data
Goal: Vaccinate 80% of Eligible Vermonters

Pace to Fully Reopen

If ~1,000 Vermonters get vaccinated a day we will reopen **June 11**

If ~1,500 Vermonters get vaccinated a day we will reopen **June 5**

If ~2,464 Vermonters get vaccinated a day we will reopen **Memorial Day**

Source: CDC—May 24, 2021 (with VDH reconciliation)
Higher Education
Summary
### Vermont COVID-19 Higher Education Summary

<table>
<thead>
<tr>
<th></th>
<th># of Tests</th>
<th># of Positives</th>
<th>Positivity Rate</th>
<th>% of VT Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2020</td>
<td>220,792</td>
<td>238</td>
<td>0.11%</td>
<td>10.1%</td>
</tr>
<tr>
<td>Spring 2021</td>
<td>379,224</td>
<td>1,167</td>
<td>0.31%</td>
<td>9.4%</td>
</tr>
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</table>

Source: Vermont Higher Education Institution Reporting—Final as of May 17, 2021
Tests Conducted Between January 15 and May 17

- Hawaii: 645,301
- Nebraska: 521,278
- Oklahoma: 515,001
- Idaho: 471,935
- Vermont Colleges/Universities: 379,224
- Montana: 355,950
- Mississippi: 338,309
- North Dakota: 308,367
- Wyoming: 214,962
- South Dakota: 141,210

Source: Vermont Higher Education Institution Reporting & HHS Testing Data Set
Regional Data
Regional Cases

29.96% Decrease in New Cases

New Cases May 11th to May 17th

New Cases May 18th to May 24th

Sources: State Health Departments & CTV National News (Quebec)
Weekly Regional Cases

New cases down 79% over last 6 weeks

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

Sources: State Health Departments & CTV National News (Quebec) (includes: CT, ME, MA, NH, NY, QC, RI & VT)
Covid-19 Cases in K-12 Schools & Colleges Across Northern New England

**New Hampshire**
- K-12: 6,054 (+175)
- Higher Ed: 3,353 (Final)

**Vermont**
- K-12: 1,379 (+17)
- Higher Ed: 1,167 (Final)

**Maine**
- K-12: 4,712 (+137)
- Higher Ed: 1,229 (Final)

Source: ME, NH & VT K-12 Dashboards; K-12 cases from the full school year; Higher Ed. cases from the Spring Semester
Regional Hospitalizations

Trending Down
-18.05% Decrease
Over Last 7-Days

Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—May 24, 2021
National Data
National COVID-19 Cases

21.78% Decrease
Over the Last 7 Days

Source: Covid Tracking Project; NYT & CDC—May 24, 2021
US Weekly COVID-19 Infections Forecast

Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.

Source: Centers for Disease Control and Prevention—May 24, 2021
National COVID-19 Hospitalizations

14.05% Decrease Over the Last 7-Days

Currently Hospitalized  7-Day Avg. Currently Hospitalized

Source: Covid Tracking Project; NYT & CDC—May 24, 2021
National COVID-19 Deaths

7.70% Decrease
Over the Last 7 Days

Source: Covid Tracking Project; NYT & CDC—May 24, 2021
US Weekly COVID-19 Deaths Forecast

Calculated as a 7-day sum. Gray bands represent 50% and 95% confidence intervals. Since projections are only released once a week, the actual number may appear to over or undershoot the forecast.
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—May 25, 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—May 24, 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

Note: low testing volume causing volatility in daily positivity

Source: Vermont Department of Health—May 24, 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—May 25, 2021
Vermont Testing

7-Day Rolling Test Average

Note: lower testing as more Vermonters fully vaccinated & campuses close

Source: Vermont Department of Health—May 24, 2021; results reported to VDH daily