COVID-19 Modeling
May 11, 2021

Presentation available at: dfr.vermont.gov
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Vermont Vaccination Data
# Vermont CDC Vaccine Scorecard

<table>
<thead>
<tr>
<th>Metric</th>
<th>Figure</th>
<th>State Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doses Administered per 100K</td>
<td>102,539</td>
<td>1</td>
</tr>
<tr>
<td>% At Least 1 Dose</td>
<td>61.9%</td>
<td>1</td>
</tr>
<tr>
<td>% Fully Vaccinated</td>
<td>43.4%</td>
<td>3</td>
</tr>
<tr>
<td>% 65+ One Dose</td>
<td>96.6%</td>
<td>1</td>
</tr>
<tr>
<td>% 65+ Fully Vaccinated</td>
<td>86.7%</td>
<td>1</td>
</tr>
</tbody>
</table>

Source: CDC—May 10, 2021; CDC data using 2019 census estimates
Vermont is 1st in the Country on Vaccines Administered Per 100K

Source: CDC—May 10, 2021
61.9% of Vermonters Have Started Vaccination, Placing Vermont 1st Nationally
43.4% of Vermonters are Fully Vaccinated, Placing Vermont 3rd Nationally
96.6% of Vermonters 65+ Are Partially or Fully Vaccinated

Source: CDC—May 10, 2021
86.7% of Vermonters 65+ Are Fully Vaccinated

Source: CDC—May 10, 2021
Daily Percentage of Population Starting Vaccination

Source: CDC—May 10, 2021; Hawaii showing data volatility
COVID-19 Vaccine Doses Administered per 100K - Northeast

Source: CDC—May 10, 2021
Vermont Weekly Vaccine Administrations

Source: Vermont Department of Health—May 10, 2021; week calculated beginning given Sunday through Saturday
COVID-19 Vaccinations in Vermont

Source: Vermont Department of Health—May 10, 2021
Vaccinations by Age — Vermont vs. United States

- **<18**: 5.65% (Vermont) vs. 3.1% (United States)
- **18-29**: 40.95% (Vermont) vs. 35.2% (United States)
- **30-39**: 61.57% (Vermont) vs. 43.5% (United States)
- **40-49**: 67.89% (Vermont) vs. 49.7% (United States)
- **50+**: 83.89% (Vermont) vs. 69.53% (United States)

Source: Vermont Department of Health and CDC—May 11, 2021
Vermont Forward
Progress to Goal

Vaccine Status Tracker:
61.9%

Source: CDC—May 10, 2021; ranges represent 1+ dose for all Vermonters; VT at 60.0% using 2020 census with population of 643,503
% Of Vermonters With 1+ COVID Vaccine Doses

Potentially Hesitant or Currently Ineligible
## Unvaccinated Vermonters’ Willingness to Receive Vaccine

<table>
<thead>
<tr>
<th>Date</th>
<th>Will definitely get a vaccine</th>
<th>Will probably get a vaccine</th>
<th>Unsure about getting a vaccine</th>
<th>Will probably not get a vaccine</th>
<th>Will definitely not get a vaccine</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 3-15 (HHP24)</td>
<td>69.9%</td>
<td>14.0%</td>
<td>9.7%</td>
<td>6.4%</td>
<td></td>
</tr>
<tr>
<td>February 17-March 1 (HHP25)</td>
<td>63.4%</td>
<td>21.3%</td>
<td>8.5%</td>
<td>6.5%</td>
<td></td>
</tr>
<tr>
<td>March 3-March 15 (HHP26)</td>
<td>68.9%</td>
<td>19.1%</td>
<td>6.1%</td>
<td>5.9%</td>
<td></td>
</tr>
<tr>
<td>March 17-March 29 (HHP27)</td>
<td>66.4%</td>
<td>18.4%</td>
<td>7.3%</td>
<td>7.8%</td>
<td></td>
</tr>
<tr>
<td>April 14-April 26 (HHP28)</td>
<td>59.4%</td>
<td>12.9%</td>
<td>9.1%</td>
<td>9.2%</td>
<td>9.5%</td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau — Household Pulse Survey, Week 28 • Created with Datawrapper

Note: As survey excludes those already vaccinated, those not willing to be vaccinated growing as proportion of respondents; ‘Unsure’ option introduced in latest survey
# Unvaccinated Americans’ Willingness to Receive Vaccine

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Will definitely get a vaccine</th>
<th>Will probably get a vaccine</th>
<th>Unsure about getting a vaccine</th>
<th>Will probably not get a vaccine</th>
<th>Will definitely not get a vaccine</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 - 24</td>
<td>39.3%</td>
<td>15.2%</td>
<td>17.1%</td>
<td>12.6%</td>
<td>15.8%</td>
<td></td>
</tr>
<tr>
<td>25 - 39</td>
<td>23.3%</td>
<td>15.4%</td>
<td>23.5%</td>
<td>15.4%</td>
<td>22.2%</td>
<td></td>
</tr>
<tr>
<td>40 - 54</td>
<td>23.1%</td>
<td>15.0%</td>
<td>24.0%</td>
<td>14.3%</td>
<td>23.3%</td>
<td></td>
</tr>
<tr>
<td>55 - 64</td>
<td>24.5%</td>
<td>13.1%</td>
<td>20.2%</td>
<td>15.7%</td>
<td>26.3%</td>
<td></td>
</tr>
<tr>
<td>65 and above</td>
<td>18.3%</td>
<td>11.7%</td>
<td>19.6%</td>
<td>15.0%</td>
<td>35.3%</td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau – Household Pulse Survey, Week 28 • Created with Datawrapper

Note: As survey excludes those already vaccinated, those not willing to be vaccinated growing as proportion of respondents
Vaccination Equity

Percent with At Least 1 Dose by Race/Ethnicity

- Connecticut
- Massachusetts
- New Hampshire
- Rhode Island
- Vermont
- United States

Source: States’ Departments of Health, May 10, 2021; Vermont separates race and ethnicity in its data
Vermont Case Data
## Vermont COVID-19 Summary (Last 7 Days)

<table>
<thead>
<tr>
<th>Metric</th>
<th>Figure</th>
<th>State Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Testing Rate per 100K</td>
<td>7,535.87</td>
<td>1</td>
</tr>
<tr>
<td>Case Rate per 100K</td>
<td>9</td>
<td>5 (tied)</td>
</tr>
<tr>
<td>Positivity Rate</td>
<td>1.02%</td>
<td>3</td>
</tr>
<tr>
<td>Hospitalization Rate per 100K</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Fatality Rate per 100K</td>
<td>0.1</td>
<td>1 (tied)</td>
</tr>
</tbody>
</table>

Sources: CDC; Covid Act Now; Johns Hopkins; New York Times—May 10, 2021
COVID Infections per 100K in Vermont (7-Day Average)

Cases are down 69% since April 1st and 20% in the last week

Source: Vermont Department of Health—May 10, 2021
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
Age of Infected Vermonters

Median age of COVID positive individuals in VT over the last 14 days.
Vermont Cases by Age Band

14-day averages

Source: VDH—May 10, 2021
Vermont Case Rate & Vaccination by Age Band

- New Infections per 100K (14-Day Average)
- Percent Received First Vaccine Dose

Ages 16 to 29

Ages 30 to 39

Ages 40 to 49

Ages 50 to 59

Ages 60 to 64

Ages 65 to 69

Ages 70 to 74

Ages 75+

Date

Source: VDH—May 10, 2021
Weekly Higher Education Cases in Vermont

Source: Vermont Higher Education Institution Reporting—May 10, 2021
Vermont K-12 Weekly Cases

Source: Vermont Department of Health—May 10, 2021
Source: Vermont Higher Education Institution Reporting—May 10, 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>Our House Residential Care Homes, <em>Rutland</em></td>
<td>6</td>
</tr>
</tbody>
</table>

Source: Vermont Department of Health—*Last updated May 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 or fewer than 5 active cases.*
Cases falling in northeastern Vermont, northern New Hampshire, & western Maine

Active Cases per Million

- Today: May 11th
- Last Week: May 4th
Vermont Covid-19 case rates last week fell in 12 of 14 counties

Case rates increased in Orleans & Franklin but overall Vermont saw a large decline in Covid-19 infections confirmed
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).

Source: VDH & DFR Active Case Algotherm
Vermont 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.
Vermont Hospitalization Data
Statewide Covid-19 Hospitalizations

16.81% Decrease
(Last 7 Days)

29.30% Decrease
(Last 14 Days)

Source: Vermont Department of Health—May 10, 2021
COVID-19 Hospitalizations By Month

<table>
<thead>
<tr>
<th>Month</th>
<th>70 &amp; Over</th>
<th>Under 70</th>
<th>Average Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>65</td>
<td>57</td>
<td>66.5</td>
</tr>
<tr>
<td>February</td>
<td>38</td>
<td>42</td>
<td>64.7</td>
</tr>
<tr>
<td>March</td>
<td>30</td>
<td>61</td>
<td>58.9</td>
</tr>
<tr>
<td>April</td>
<td>12</td>
<td>58</td>
<td>55.7</td>
</tr>
<tr>
<td>May</td>
<td>4</td>
<td>6</td>
<td>54.5</td>
</tr>
</tbody>
</table>

Source: Vermont Department of Health—May 10, 2021
Vermont Fatality Data
Vermont COVID-19 Deaths by Month

Vermont is predicting between 5 and 15 deaths in May.
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.
Trends: Northern New England Hospitalization Data
Maine currently has 2.6x more infections per capita than Vermont.
Maine currently has 4x more Covid-19 hospitalizations per capita than Vermont
Maine currently has 5.6x more people in the ICU for Covid-19 per capita than Vermont.
Regional Data
Regional Cases

21.78% Decrease in New Cases

New Cases April 27th to May 3rd

<table>
<thead>
<tr>
<th>State</th>
<th>New Cases Last 7 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont</td>
<td>536</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>1,654</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>1,663</td>
</tr>
<tr>
<td>Maine</td>
<td>2,149</td>
</tr>
<tr>
<td>Connecticut</td>
<td>3,612</td>
</tr>
<tr>
<td>Quebec</td>
<td>6,981</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>8,070</td>
</tr>
<tr>
<td>New York</td>
<td>22,565</td>
</tr>
</tbody>
</table>

Total: 47,278

New Cases May 4th to May 10th

<table>
<thead>
<tr>
<th>State</th>
<th>New Cases Last 7 Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont</td>
<td>390</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>1,175</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>1,388</td>
</tr>
<tr>
<td>Maine</td>
<td>2,139</td>
</tr>
<tr>
<td>Connecticut</td>
<td>3,000</td>
</tr>
<tr>
<td>Quebec</td>
<td>6,118</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>6,137</td>
</tr>
<tr>
<td>New York</td>
<td>16,635</td>
</tr>
</tbody>
</table>

Total: 36,982

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

**Vermont**
- K-12: 1,323 (+32)
- Higher Ed: 1,162 (+17)

**New Hampshire**
- K-12: 5,655 (+239)
- Higher Ed: 3,242 (+33)

**Maine**
- K-12: 3,963 (+9)
- Higher Ed: 1,217 (+40)

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
-18.66%
Over 7 Days

Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—May 10, 2021
National Data
National COVID-19 Cases

17.27% Decrease
Over the Last 7 Days

Source: Covid Tracking Project; NYT & CDC—May 10, 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.
National COVID-19 Hospitalizations

7.36% Decrease
Over the Last 7-Days

Source: CDC & NYT—May 10, 2021
National COVID-19 Deaths

4.05% Decrease
Over the Last 7 Days

Source: Covid Tracking Project; NYT & CDC—May 10, 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.

Source: Centers for Disease Control and Prevention—May 10, 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—May 11, 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 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

Note: low testing volume causing volatility in daily positivity
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 11, 2021