COVID-19 Modeling
June 1, 2021

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

Cases are down 93% since April 1st and 57% in the last week

Source: Vermont Department of Health—June 1, 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

Source: Johns Hopkins University Data & Oliver Wyman Model—May 28, 2021
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 31, 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+

Source: VDH—May 31, 2021
Vermont K-12 Weekly Covid-19 Cases

Source: Vermont Department of Health—June 1, 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 31, 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.
Covid-19 Case Rates Declined In All 14 Counties Last Week

Widespread falling cases across the state; zero cases last week in Franklin County
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 Algorithm —May 31, 2021
Vermont Forecast

Source: Johns Hopkins University Data, VDH, & Oliver Wyman April 26, 2021 Forecast Model—Actual Through June 1, 2021
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.
Vermont Hospitalization Data
Statewide Covid-19 Hospitalizations

19.15% Decrease
(Last 7 Days)

37.02% Decrease
(Last 14 Days)

Source: Vermont Department of Health—May 31, 2021
COVID-19 Hospitalizations By Month

January: 65 (66.5 average age, 57 under 70, 8 over 70)
February: 38 (64.7 average age, 42 under 70, 6 over 70)
March: 30 (58.9 average age, 61 under 70, 9 over 70)
April: 13 (55.7 average age, 59 under 70, 4 over 70)
May: 5 (51.2 average age, 23 under 70, 2 over 70)

Source: Vermont Department of Health—May 31, 2021
Vermont Fatality Data
Vermont Covid-19 Deaths by Week

Source: Vermont Department of Health—June 1, 2021
Vermont Covid-19 Deaths by Month

Source: Vermont Department of Health—June 1, 2021
Vermont COVID-19 Deaths by Month

Vermont is predicting between 0 and 5 deaths in June.
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

Source: CDC—May 31, 2021

Case rate changes calculated as the difference between 7-day averages. Linear regression shows a correlation of -0.50.
## Vermont CDC Vaccine Scorecard

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<tr>
<th>Metric</th>
<th>Figure</th>
<th>State Ranking</th>
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<tr>
<td>Doses Administered per 100K</td>
<td>117,454</td>
<td>1</td>
</tr>
<tr>
<td>% At Least 1 Dose (Eligible)</td>
<td>77.9%</td>
<td>1</td>
</tr>
<tr>
<td>% At Least 1 Dose (Full Population)</td>
<td>68.8%</td>
<td>1</td>
</tr>
<tr>
<td>% Fully Vaccinated</td>
<td>54.0%</td>
<td>2</td>
</tr>
<tr>
<td>% 65+ One Dose</td>
<td>98.2%</td>
<td>3</td>
</tr>
<tr>
<td>% 65+ Fully Vaccinated</td>
<td>89.4%</td>
<td>1</td>
</tr>
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Source: CDC—May 31, 2021 (with VDH reconciliation); CDC data using 2019 census estimates
Vermont is 1st in the Country on Vaccines Administered Per 100K

Source: CDC—May 31, 2021 (with DFR reconciliation)
77.9% of Eligible Vermonters Have Started Vaccination, Placing Vermont 1st Nationally

Source: CDC—May 31, 2021 (with DFR reconciliation)
68.8% of Vermonters Have Started Vaccination, Placing Vermont 1st Nationally

Source: CDC—May 31, 2021 (with DFR reconciliation)
54.0% of Vermonters Fully Vaccinated, Placing Vermont 2\textsuperscript{nd} Nationally

Source: CDC—May 31, 2021 (with DFR reconciliation)
98.2% of Vermonters 65+
Partially or Fully Vaccinated

Source: CDC—May 31, 2021 (with DFR reconciliation)
89.4% of Vermonters 65+
Fully Vaccinated

Source: CDC—May 31, 2021 (with DFR reconciliation)
US Census Region Case Rate & Vaccination by Age Band

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

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 31, 2021 (with DFR reconciliation)
Noticed Large Jump in CDC Data

Identified CDC Duplication ~6,973 Duplicates

CDC Removes ~6,973 Duplicates

Awaiting CDC's Removal of ~8,805 Duplicates

Vermont & CDC Data Reconciliation of Individuals Initiating Vaccination

No CDC Update

Amended CDC Total (Adjusted)

Amount to be Removed
Vermont Forward

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 7

If ~2,000 Vermonters get vaccinated a day we will reopen June 5

Source: CDC—May 30, 2021 (with DFR reconciliation)
Vermont Mobility Data
Vermont Mobility Data

Regional Data
Regional Cases

34.95% Decrease in New Cases

New Cases May 18th to May 24th

19,718

New Cases May 25th to May 31st

12,826

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

New cases down 86% over last 8 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

**Vermont**
- K-12: 1,388 (+9)
- Higher Ed: 1,167 (Final)

**New Hampshire**
- K-12: 6,158 (+104)
- Higher Ed: 3,353 (Final)

**Maine**
- K-12: 4,727 (+15)
- 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
-12% Decrease
Over Last 7-Days

Source: Covid Act Now (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—May 31, 2021
Regional Deaths

Trending Down
-12% Decrease
Over Last 7-Days

Source: CDC (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—May 31, 2021
National Data
National COVID-19 Cases

18.32% Decrease
Over the Last 7 Days

Source: Covid Tracking Project; NYT & CDC—May 31, 2021
National COVID-19 Hospitalizations

10.16% Decrease Over the Last 7-Days

Source: Covid Tracking Project; NYT & CDC—May 31, 2021
National COVID-19 Deaths

5.31% Decrease
Over the Last 7 Days

Source: Covid Tracking Project; NYT & CDC—May 31, 2021
RESTART VERMONT

Reopening Metrics

1. Syndromic Surveillance *(retired)*
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

Vermont Department of Health no longer updating syndromic surveillance on a weekly basis.
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 31, 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—May 31, 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 31, 2021
Vermont Testing

7-Day Rolling Test Average

Source: Vermont Department of Health—May 31, 2021; results reported to VDH daily

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