COVID-19 Modeling
April 6, 2021

Presentation available at: dfr.vermont.gov
Vermonters Diagnosed with COVID-19 by Week

Source: Vermont Department of Health (week calculated as Tuesday to Monday)
More active cases now than ever before in VT
Age of Infected Vermonters Decreasing

Median age of COVID positive individuals in VT over the last 14 days. Green bars represent expanded vaccine eligibility.
Vermont Case Rate & Vaccination by Age Band

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

**Ages 16 to 29**

- Infections per 100K:
  - Feb 1: 10
  - Mar 1: 20
  - Apr 1: 50

**Ages 30 to 39**

- Infections per 100K:
  - Feb 1: 30
  - Mar 1: 40
  - Apr 1: 50

**Ages 40 to 49**

- Infections per 100K:
  - Feb 1: 20
  - Mar 1: 30
  - Apr 1: 40

**Ages 50 to 59**

- Percent Vaccinated:
  - Feb 1: 10
  - Mar 1: 20
  - Apr 1: 30

**Ages 60 to 64**

- Infections per 100K:
  - Feb 1: 40
  - Mar 1: 50
  - Apr 1: 60

**Ages 65 to 69**

- Infections per 100K:
  - Feb 1: 50
  - Mar 1: 60
  - Apr 1: 70

**Ages 70 to 74**

- Percent Vaccinated:
  - Feb 1: 30
  - Mar 1: 40
  - Apr 1: 50

**Ages 75+**

- Percent Vaccinated:
  - Feb 1: 40
  - Mar 1: 50
  - Apr 1: 60
Vermont Vaccination Progress

By Age Band

Source: Vermont Dept. of Health—April 6, 2021
Vaccinated & Unvaccinated Vermonters

By Age Band

- 99,800 vaccinated
- 15,200 unvaccinated
- 89.9% vaccinated

Source: Vermont Dept. of Health—April 6, 2021
New Daily Doses Administered

COVID-19 Vaccinations in Vermont

Source: Vermont Department of Health — April 6, 2021
## Willingness to Receive A Covid-19 Vaccine

This analysis excludes those who have already received a vaccine.

<table>
<thead>
<tr>
<th></th>
<th>Will definitely get a vaccine</th>
<th>Will probably get 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>Vermont</td>
<td>68.9%</td>
<td>19.1%</td>
<td>6.1%</td>
<td>5.9%</td>
<td></td>
</tr>
<tr>
<td>Massachusetts</td>
<td>65.1%</td>
<td>22.9%</td>
<td>6.3%</td>
<td>5.6%</td>
<td></td>
</tr>
<tr>
<td>Maine</td>
<td>64.1%</td>
<td>15.8%</td>
<td>7.7%</td>
<td>12.5%</td>
<td></td>
</tr>
<tr>
<td>Connecticut</td>
<td>62.2%</td>
<td>20.1%</td>
<td>10.6%</td>
<td>6.7%</td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td>59.0%</td>
<td>17.7%</td>
<td>17.0%</td>
<td>6.1%</td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>57.7%</td>
<td>19.8%</td>
<td>12.7%</td>
<td>9.4%</td>
<td></td>
</tr>
<tr>
<td>New Hampshire</td>
<td>57.3%</td>
<td>18.1%</td>
<td>13.2%</td>
<td>11.1%</td>
<td></td>
</tr>
<tr>
<td>United States</td>
<td>51.3%</td>
<td>22.2%</td>
<td>14.3%</td>
<td>12.0%</td>
<td></td>
</tr>
</tbody>
</table>

Source: U.S. Census Bureau — Household Pulse Survey, March 3-15, 2021
Vermont Ranks 1st Nationally with 88.9% of 65+ Partially or Fully Vaccinated

Source: CDC—April 5, 2021
Vaccine Administration per 100K

Vermont Ranks 4th Nationally

Source: CDC—April 5, 2021
Percentage Population Fully Vaccinated

Vermont Ranks 8th Nationally

Source: CDC—April 5, 2021
Active Outbreaks in Long Term Care Facilities

**January 4, 2021**: Avg LTCF Outbreak ~38 Cases  
**April 5, 2021**: Avg LTCF Outbreak ~6 Cases

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Total COVID-19 Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vermont Veterans Home (2), Bennington</td>
<td>10</td>
</tr>
<tr>
<td>River’s Edge Community Care Home, Bennington</td>
<td>6</td>
</tr>
<tr>
<td>St. Johnsbury Health &amp; Rehab, St. Johnsbury</td>
<td>Not Shown</td>
</tr>
<tr>
<td>Maple Lane Nursing Home, Barton</td>
<td>Not Shown</td>
</tr>
</tbody>
</table>

Source: Vermont Department of Health—April 5, 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.
Higher Education Restart

Fall 2020

College Cases Equalled
~10% of all Vermont Cases

Fall 2020

College Cases Equalled
~10% of all Vermont Cases

Spring 2021

College Cases Equalled
~10% of all Vermont Cases

Source: Vermont Higher Education Institution Reporting—April 5, 2021
Continued viral spread
Statewide Covid-19 Hospitalizations

12% Increase Medical & Surgical (Last 7 Days)
28% Decrease Critical Care / ICU (Last 7 Days)

Source: Vermont Department of Health—April 5, 2021
Vermont Covid-19 Deaths by Week
Vermont Forecast

Source: Johns Hopkins University Data & Oliver Wyman Forecast Model—April 5, 2021; Note: assumes current vaccine supply
Vermont Weekly COVID-19 Infections Forecast

Calculated as the 7-day sum of new infections. 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: CDC Ensemble Model via COVID Model Hub
Vermont Covid-19 Deaths Decreased in March

Forecasted 10 to 20 Deaths in April
National COVID-19 Cases

+5.4% Increase
Over the Last 10 Days

-74% Decrease
Since January 11th

Source: Covid Tracking Project; NYT & CDC—April 5, 2021
US Weekly COVID-19 Infections Forecast

Calculated as the 7-day sum of new infections. 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: CDC Ensemble Model via COVID Model Hub
Percent Change in Weekly COVID-19 Infections

Source: JHU—April 6, 2021
National COVID-19 Hospitalizations Flat

+3.3% Increase
Over the Last 10 Days

-68% Decrease
Since January 12th

Source: Covid Tracking Project; NYT & CDC—April 5, 2021
National COVID-19
Deaths Trending Down

-17% Decrease
Over the Last 10 Days

-75% Decrease
Since January 13th

Source: Covid Tracking Project; NYT & CDC—April 5, 2021
Regional Cases

+1.05% Increase in New Cases

New Cases March 23rd to March 29th

New Cases March 30th to April 5th

Sources: State Health Departments & CTV National News (Quebec)
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: 1,074 Cases (+115)
- Higher Ed: 776 (+103)

**New Hampshire**
- K-12: 4,010 (288)
- Higher Ed: 2,755 (+171)

**Maine**
- K-12: 2,964 Cases (+66)
- Higher Ed: 872 (+125)

Source: ME, NH & VT K-12 Dashboards. *NH did not update K-12 data 4.5.21 - K-12 cases from the full school year; Higher Ed. cases from the Spring Semester.*
Regional Positivity Rate
(7-Day Average)

Threshold Recommended by the World Health Organization

Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—April 5, 2021
Regional Hospitalizations

Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—April 5, 2021

Trending Up 2% Increase Over 7-Days
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—April 6, 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—April 6, 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—April 6, 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—April 6, 2021
Vermont Testing

7-Day Rolling Test Average

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

Source: Vermont Department of Health—April 6, 2021; results reported to VDH daily