COVID-19 Modeling
March 16, 2021

Presentation available at: dfr.vermont.gov
Vermont Vaccination Progress

By Age Band

% Completed  % Started

Source: Vermont Dept. of Health—March 16, 2021
New Daily Doses Administered

COVID-19 Vaccinations in Vermont

Source: Vermont Department of Health — March 15, 2021
Vermonters Diagnosed with COVID-19 by Week

Source: Vermont Department of Health (week calculated as Tuesday to Monday)
Estimated Active Cases of COVID-19 in Vermont

Source: Johns Hopkins University Data & Oliver Wyman Model—March 15, 2021
Age of Infection Decreases

Median age of COVID positive individuals in VT over the last 14 days. Green bars represent expanded vaccine eligibility.
Falling Infections in Vermont's Long Term Care Facilities

Daily COVID infections in VT (7-Day Average)

Cases remain high statewide, but are extremely low in long term care facilities.
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>Vermont Veterans Home (2), Bennington</td>
<td>8</td>
</tr>
<tr>
<td>Pines Rehab and Health Center, Lyndonville</td>
<td>Not Shown</td>
</tr>
</tbody>
</table>

Source: Vermont Department of Health—March 8, 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.
Vermont Forecast

- New Detected Cases
- Projected New Detected Cases
- New Detected Cases (7-day avg)
- Forecast (7-day avg)

Expected case decline

Source: Johns Hopkins University Data & Oliver Wyman Forecast Model—March 15, 2021; Note: assumes current vaccine supply and no variant-specific impact
Higher Education Restart

Fall 2020

College Cases Equalled ~10% of all Vermont Cases

<table>
<thead>
<tr>
<th>Date</th>
<th>Weekly Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/22/20</td>
<td>26</td>
</tr>
<tr>
<td>9/29/20</td>
<td>23</td>
</tr>
<tr>
<td>10/6/20</td>
<td>68</td>
</tr>
<tr>
<td>10/13/20</td>
<td>55</td>
</tr>
<tr>
<td>10/20/20</td>
<td>69</td>
</tr>
<tr>
<td>10/27/20</td>
<td>115</td>
</tr>
<tr>
<td>11/3/20</td>
<td>102</td>
</tr>
<tr>
<td>11/10/20</td>
<td>204</td>
</tr>
<tr>
<td>11/17/20</td>
<td>598</td>
</tr>
<tr>
<td>11/24/20</td>
<td>645</td>
</tr>
</tbody>
</table>

Spring 2021

College Cases Equalled ~9% of all Vermont Cases

<table>
<thead>
<tr>
<th>Date</th>
<th>Weekly Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/25/21</td>
<td>118</td>
</tr>
<tr>
<td>2/1/21</td>
<td>65</td>
</tr>
<tr>
<td>2/8/21</td>
<td>91</td>
</tr>
<tr>
<td>2/15/21</td>
<td>61</td>
</tr>
<tr>
<td>2/22/21</td>
<td>84</td>
</tr>
<tr>
<td>3/1/21</td>
<td>39</td>
</tr>
<tr>
<td>3/8/21</td>
<td>40</td>
</tr>
<tr>
<td>3/15/21</td>
<td>59</td>
</tr>
</tbody>
</table>

Source: Vermont Higher Education Institution Reporting—March 15, 2021
March Fatality Rates Expected to Decline

Likelihood of COVID-19 Deaths Largely Dependent on:

Active Cases & Outbreaks in LTCFs
1/13: 71 LTCF Cases (prior 3 weeks) & 12 Outbreaks
3/15: 6 LTCF Cases (prior 3 weeks) & 2 Outbreaks

Active Cases Among Most Vulnerable by Age
1/13: 305 Cases Among 70+ (prior 3 weeks)
3/15: 118 Cases Among 70+ (prior 3 weeks)

Individuals in ICU
1/13: 7-Day Average: 8.4 (Trending Up)
3/15: 7-Day Average: 4.6 (Trending Down)

Individuals Requiring Ventilation
1/13: 7-Day Average: 1 (Trending Up)
3/15: 7-Day Average: .86 (Trending Down)
Vermont Covid-19 Deaths Expected to Decrease in March

Forecasted 7—15 Deaths in March
Covid-19 Cases in K-12 Schools & Colleges Across Northern New England

**New Hampshire**
K-12: 2,874 (+13)
Higher Ed: 2,144 (+200)

**Vermont**
K-12: 760 Cases (+59)
Higher Ed: 557 (+59)

**Maine**
2,693 Cases (+162)
Higher Ed: 623 (+69)

Source: ME, NH & VT K-12 Dashboards, ME media reports
Hospital & ICU Capacity Forecasts

Vermont Hospital Forecast
- Med-Surg Beds + Covid
- Current Total Med-Surg Capacity
- Elevated Med-Surg Level
- Med-Surg 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—March 15, 2021; GNYHA Hospital Surge framework
At **38.32 doses** administered per 100 residents (1st and 2nd doses), Vermont ranks:

- 3rd in Northeast
- 8th Nationally
Percentage Population Fully Vaccinated

Vermont Ranks 16th Nationally

Source: CDC—March 14, 2021
Percent of 65+ with 1 or more doses

Vermont Ranks 6th

Source: CDC—March 14, 2021
Percent of 65+ with 1 or more doses

Source: CDC — March 14, 2021
Vermont Started & Completed Vaccinations

Source: Vermont Department of Health — March 14, 2021
Regional Cases

0.49% Decrease in New Cases

New Cases March 2nd to March 8th

76,209

New Cases March 9th to March 15th

75,837

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)
Regional Positivity Rate Declining
(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)—March 15, 2021
Regional Hospitalizations

Trending Down

Source: Covid Tracking Project (7-Day Average in CT, ME, MA, NH, NY, RI & VT)—March 15, 2021
Regional Heat Map

Active Cases per Million

January 11, 2021

March 15, 2021
Regional Active Per Capita Case Forecast

Active Cases per Million (DFR Algorithm)

Source: Johns Hopkins University Data & Oliver Wyman Forecast Model—March 15, 2021; assumes current vaccine supply and no variant-specific impact
National COVID-19 Cases

8% Decrease
Over the Last 10 Days

78% Decrease
Since January 11th

Source: Covid Tracking Project & CDC—March 15, 2021
National COVID-19 Hospitalizations Trending Down

8% Decrease Over the Last 10 Days

68% Decrease Since January 12th

Source: Covid Tracking Project & CDC—March 15, 2021
National COVID-19 Deaths Trending Down

21% Decrease
Over the Last 10 Days

58% Decrease
Since January 13th

Source: Covid Tracking Project; NYT & CDC—March 15, 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—March 16, 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—March 16, 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—March 16, 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—March 16, 2021
Vermont Testing

7-Day Rolling Test Average

Source: Vermont Department of Health—March 16, 2021; results reported to VDH daily