COVID-19 Modeling
July 24, 2020

Presentation available at: dfr.vermont.gov
National Data
United States Reports **4 Million** COVID-19 Cases

**Days To Next Million New Cases**

- 4 million: 15 days
- 3 million: 28 days
- 2 million: 43 days
- 1 million: 99 days

Source: COVID-19 Tracking Project - July 23, 2020
COVID-19 Daily Infections by Census Region (7-Day Moving Average)

- Northeast
- Midwest
- South
- West

Daily Infections

Source: Johns Hopkins University
National Trends

Infections per Million and Percent Positive by Region

Source: COVID-19 Tracking Project - July 23, 2020
COVID-19 Hospitalizations per Million (7-Day Avg)

Vermont lowest at 4.34 per million

Hawaii and Kansas do not report data

Source: COVID Tracking Project • Created with Datawrapper
COVID-19 Deaths per Million (7-Day Avg)

Vermont lowest at 0
Regional Data
Regional Monitoring: New Cases Last 7 Days

8.13% Increase in New Confirmed Cases

Positive Cases July 9th to July 16th

Positive Cases July 17th to July 23rd

Regional Monitoring:
Week Over Week New Case Growth Since May 21, 2020

Third week of new case growth within the Northeast

Modeling Regional Disease Growth

Oliver Wyman Model
July 19, 2020 to August 9, 2020

IHME Model
July 20, 2020 to November 1, 2020

Northeastern Model
July 20, 2020 to August 8, 2020
Modeling Regional Disease Growth

Columbia University

Projected Case Growth by County

July 19, 2020 to August 8, 2020

- Increasing
- Decreasing
- Flat
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 - July 24, 2020
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% of open ICU beds

Source: Vermont Department of Health - July 24, 2020
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 - July 24, 2020
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 - July 24, 2020
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 - July 24, 2020
Mobility Data: Small Weekly Increases in Movement

Source: Descartes Labs – July 20, 2020
Vermont Case Growth: Outbreak vs. Community Spread

Source: VDH - July 23, 2020
Source: Vermont Department of Health - July 24, 2020; tests measured as results reported to VDH by day
Travel Policy Update
Updated Travel Map

Source: Raw data from Johns Hopkins University—July 24, 2020 (dynamic map available at Vermont ACCD site)
Improving: Moving from Yellow or Red to Green

Worsening: Moving to Yellow or Red
Updated Travel Map

Population Not Subject to Vermont's Quarantine Policy Over Time

- Expanded Travel Map
- Northeast

Non Quarantine Visitors in Millions

<table>
<thead>
<tr>
<th>Date</th>
<th>Expanded Travel Map</th>
<th>Northeast</th>
</tr>
</thead>
<tbody>
<tr>
<td>June 7, 2020</td>
<td>3,600,000</td>
<td></td>
</tr>
<tr>
<td>June 14, 2020</td>
<td>4,600,000</td>
<td></td>
</tr>
<tr>
<td>June 21, 2020</td>
<td>6,400,000</td>
<td></td>
</tr>
<tr>
<td>June 28, 2020</td>
<td>6,500,000</td>
<td></td>
</tr>
<tr>
<td>July 5, 2020</td>
<td>13,500,000</td>
<td></td>
</tr>
<tr>
<td>July 12, 2020</td>
<td>11,500,000</td>
<td></td>
</tr>
<tr>
<td>July 19, 2020</td>
<td>6,900,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>7,100,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4,800,000</td>
<td></td>
</tr>
</tbody>
</table>