COVID-19 Modeling
August 7, 2020

Presentation available at: dfr.vermont.gov
National Data
National Data

New confirmed COVID-19 cases per day

Source: Johns Hopkins University - July 30, 2020
New confirmed COVID-19 deaths per day

COVID-19 deaths begin a significant decline as infections shift to a younger population.

The trend reverses due to a surge in new cases.

Source: Johns Hopkins University - July 30, 2020
Cases decreasing in South & West

Cases slowing in Midwest & Northeast

Source: Johns Hopkins University
A DFR analysis of states by the percentage of residents living in an urban or rural area illustrates more rural states are not immune from significant COVID-19 viral spread.
Active infections in travel region by urbanization

Rural

Mostly Rural

Urban
January to June
First Wave, Low-level Case Growth and Outbreaks/Clusters

COVID-19 Daily Infections per Million by State (7-Day Moving Average)

Source: Johns Hopkins University date June 25, 2020
Testing Issues in Montana, Hawaii and Alaska

“On July 1, almost 700 people were tested at a community-wide event in Big Sky . . . ‘[h]ad we known on June 30 that test results would still be pending more than 14 days after the event occurred, we would not have moved forward [with the testing event].’”

Montana Free Press - July 16, 2020

“In Montana, the Quest delays forced the state to pause its community testing program, which aims to serve as an alert system for how the virus is spreading.”

Missoula Current - July 27, 2020

High positive test numbers and village outbreaks signal COVID spread in Interior Alaska

“[T]hey’re relying on the state’s testing laboratories, which have been backlogged in recent weeks with delays of up to 10 days”

Alaska Public Media - July 28, 2020

Anchorage struggles to keep up with contact tracing and testing as cases surge

Alaska Public Media - July 2, 2020

Hawaii Labs Face Shortage Of COVID-19 Testing Supplies

“[Lab] capacity will shrink from 800 tests per day to 250 tests per day and the laboratory will only conduct high-priority testing locally for the immediate future”

Civil Beat - July 8, 2020

State: Dip in New COVID-19 cases likely due to ‘significant’ delay in testing results

“[G]etting results more quickly could help the state get the upper hand on the virus.”

“Until there’s a positive result, the state can’t conduct contact tracing . . . [h]ow do you stop a disease unless you get those people in 12 hours - 24 hours at the most?”

Hawaii News Now - August 1, 2020
Covid Act Now: Contact Tracing Analysis
July to August

Slow Test Results, Testing Issues and Trouble Contact Tracing

COVID-19 Daily Infections per Million by State (7-Day Moving Average)

Source: Johns Hopkins University date August 6, 2020
Regional Data
Regional Monitoring: New Cases Week Over Week

0.55% Decrease in New Confirmed Cases

Positive Cases July 24th to July 30th

Positive Cases July 31st to August 6th

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

Ends four week streak of new case growth - cases slightly decreasing in the Northeast

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

Percent of Emergent Care Visits for **COVID-19 like illness and Influenza Diagnosis**

Syndromic Surveillance from 13 of 14 Vermont Hospitals and 2 Urgent Care Centers

Source: Vermont Department of Health - August 7, 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 - August 7, 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 - August 7, 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 - August 7, 2020
7-Day Rolling Test Average

Source: Vermont Department of Health - August 6, 2020; tests measured as results reported to VDH by day
Travel Map Update
Updated Travel Map

Source: Raw data from Johns Hopkins University—August 7, 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 Quarantine Policy Over Time

- Expanded Travel Map
- Northeast Only

Non-Quarantine Visitors in Millions

- June 14, 2020: 3,600,000
- June 28, 2020: 4,600,000
- July 12, 2020: 6,200,000
- July 26, 2020: 4,200,000

Data points:
- June 14, 2020: 6,400,000
- June 28, 2020: 6,500,000
- July 12, 2020: 5,800,000
- July 26, 2020: 4,800,000

19,000,000
13,500,000
11,500,000
6,900,000
7,100,000
4,800,000
3,900,000
5,200,000