Overview
Presentation Updated Through April 23, 2020

- **Goal**: Develop multiple forecasting perspectives
  - Oliver Wyman – Helen Leis
  - Columbia University – Professor Jeffrey Shaman, Ph.D.
  - Northeastern University – Professor Alessandro Vespignani, Ph.D.
  - University of Washington – Institute for Health Metrics and Evaluation (IHME)
  - UVM – Larner College of Medicine – Department of Microbiology & Molecular Genetics – Translational Global Infectious Disease Research (TGIR) Group – John Hanley, PhD

- **Forecasting is imprecise:**
  - **Focus on the near term**: Forecasting is much less predictable the further out you model
  - **Focus on ranges rather than specifics**: Forecasts are represented as a range of possible outcomes (i.e., likely, best & worst)
  - **Consistent refinement**: Continually updating with new data and new assumptions
  - **Appropriate Perspective**: Ultimately forecasts are developed for planning purposes and are not representative of definitive outcomes

- **Ultimate Purpose of Forecasting:**
  - Phase 1: Medical Surge Planning
  - Phase 2: Support Restart Vermont and Monitor Key Trends
Positive Trend: Mobility Data Indicates Strong Social Distancing Adherence

Vermont

Vermont, New Hampshire & Maine

Source: Descartes Labs – April 19, 2020
Positive Trend: Mobility Data Indicates Strong Social Distancing Adherence

Source: Unacast - Social Distancing Scoreboard – April 19, 2020
Vermont: Day Until Confirmed Cases Double
Source: Vermont Department of Health

- Not estimated to double for ~37 days
- ~7.5 days
- ~5.5 days
- ~3 days
- ~3 days
- ~3 days
- ~3 days

Day:
- 3/15/20
- 3/18/20
- 3/22/20
- 3/29/20
- 4/5/20
- 4/12/20
- 4/19/20
Vermont’s Daily Growth Rate Compared to Total Cases

Source: Vermont Department of Health

Note: This chart notes the stability of Vermont’s case growth rate as we approached and surpassed 100 confirmed cases.
Positive Trend: Actual Results Are Better Than Forecasts

Confirmed Cases through April 22 // Projections through May 7

- Confirmed Covid+
- OW 3/25: Avg Worst
- OW 3/25: Avg Best
- OW 4/9 Update
- OW 4/16 Update
- OW 4/23 Update

Source: Oliver Wyman (OW) April 16, 2020 Model
Positive Trend: Reduction in Hospital Demand

Hospitalization Metrics since March 23rd

Source: Vermont Department of Health

*PUI stands for person under investigation
Positive Trend: Active Cases in Vermont

Confirmed Covid+ and Active Cases

Source: Oliver Wyman Scenario Generator – April 22, 2020
Positive Trend: Percent of Confirmed Positive Tests

Percent Positive since March 23rd

Source: Vermont Department of Health
Social Distancing Timing & Effect

10 to 14-day delay

Confirmed Cases through April 22 // Projections through May 7

- Confirmed Covid+
- OW 3/25: Avg Worst
- OW 3/25: Avg Best
- OW 4/9 Update
- OW 4/16 Update
- OW 4/23 Update

State of Emergency
Closing Bars & Restaurants
Closing Schools
Stay Home, Stay Safe

Source: Oliver Wyman (OW) April 22, 2020 Model
Vermont Mortality: Actual vs Unmitigated

Vermont Deaths, Unmitigated - Low, Unmitigated - Mean and Unmitigated - High

Source: Professor Vespignani April 3, 2020 Model
Hospitalization Needs – April 22nd Trajectory

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Out of Beds</th>
<th>Max Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Never</td>
<td>233</td>
</tr>
<tr>
<td>Mid</td>
<td>Never</td>
<td>105</td>
</tr>
<tr>
<td>Low</td>
<td>Never</td>
<td>89</td>
</tr>
<tr>
<td>Gold</td>
<td>Never</td>
<td>33</td>
</tr>
</tbody>
</table>

Medical/Surgical Bed Needs

- **856** Total Hospital Capacity with Surge
- **138** Staffed Hospital Surge Capacity
- **415** Additional Staffed Capacity
- **303** Staffed Beds for COVID Patients

Staffed Hospital Surge Capacity: 856
Staffed Capacity: 718
Staffed Beds for COVID Patients: 303

Modeling is for planning purposes only
Not representative of definitive outcomes
ICU Needs – April 22\textsuperscript{nd} Trajectory

**ICU Bed Needs**

- **Total ICU Capacity**: 188
- **ICU Surge Capacity**: 67
- **Additional ICU Capacity**: 59
- **Adult ICU for COVID Patients**: 62

**Modeling is for planning purposes only**
**Not representative of definitive outcomes**
Ventilator Needs – April 22nd Trajectory

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