

# COVID-19 MODELING

April 24, 2020

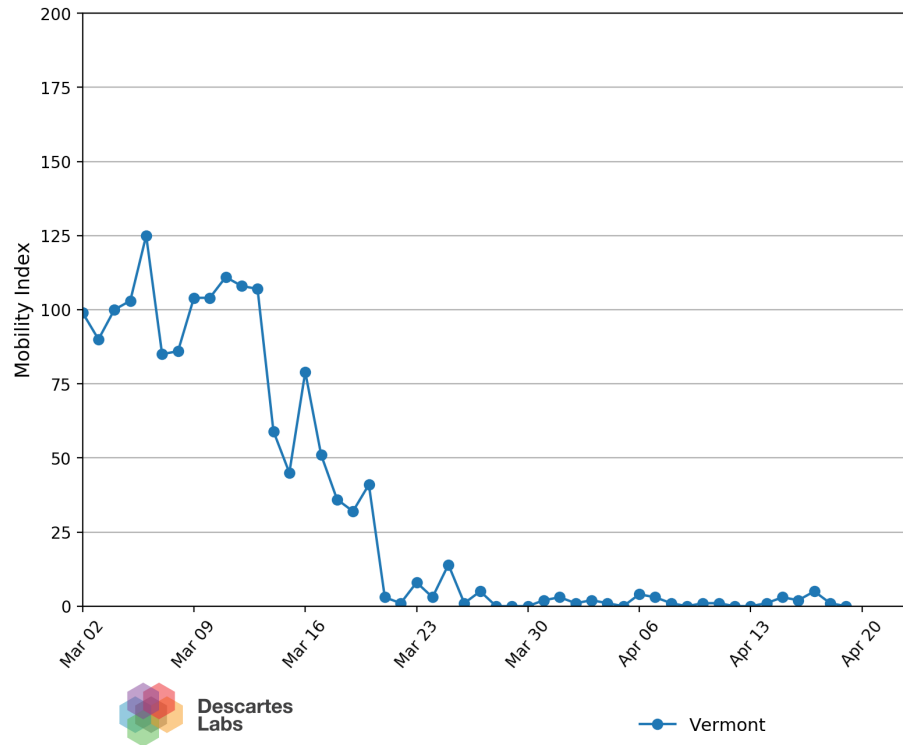
# Overview

## 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

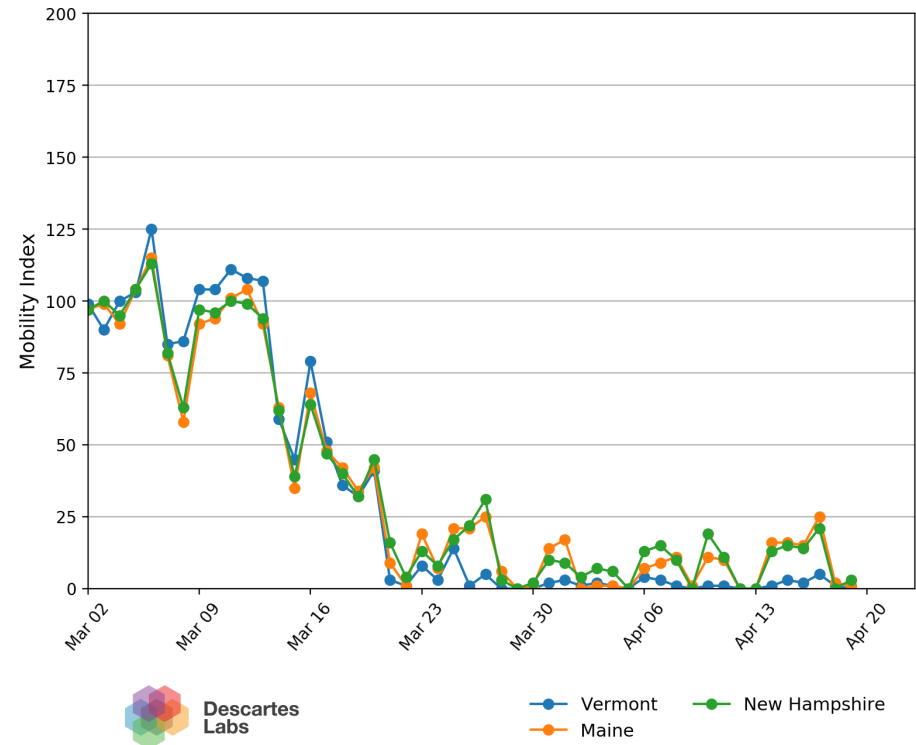
# Positive Trend: Mobility Data Indicates Strong Social Distancing Adherence

## Vermont



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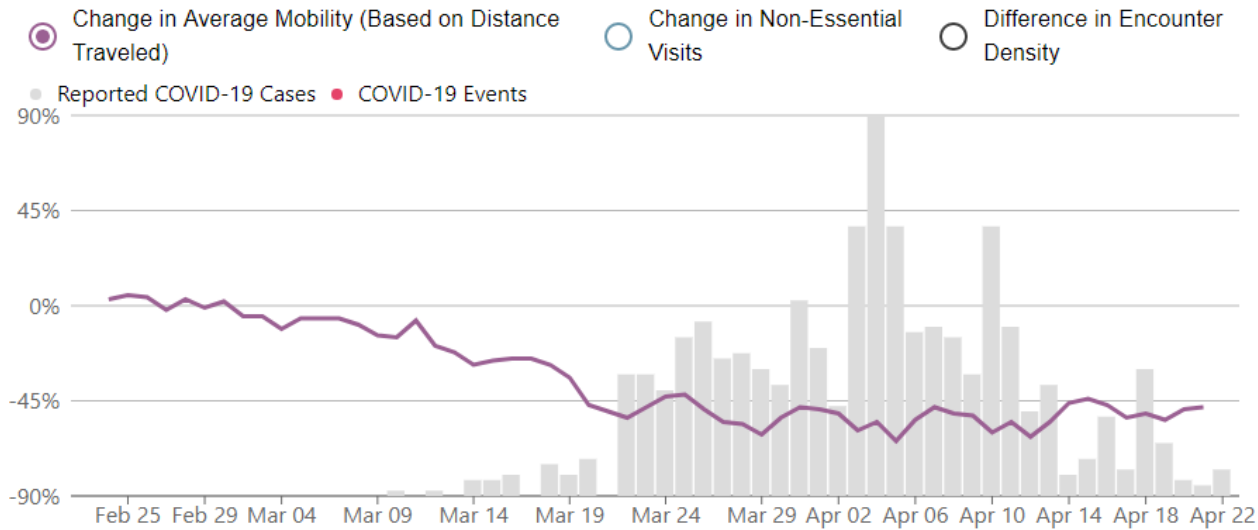
## Vermont, New Hampshire & Maine



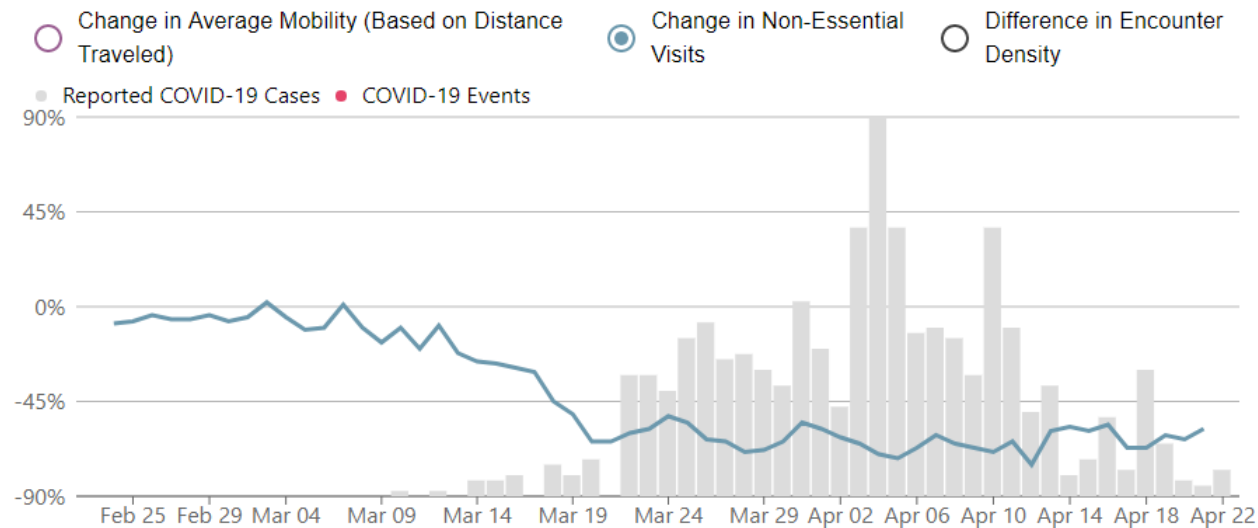
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# Positive Trend: Mobility Data Indicates Strong Social Distancing Adherence

Average Mobility

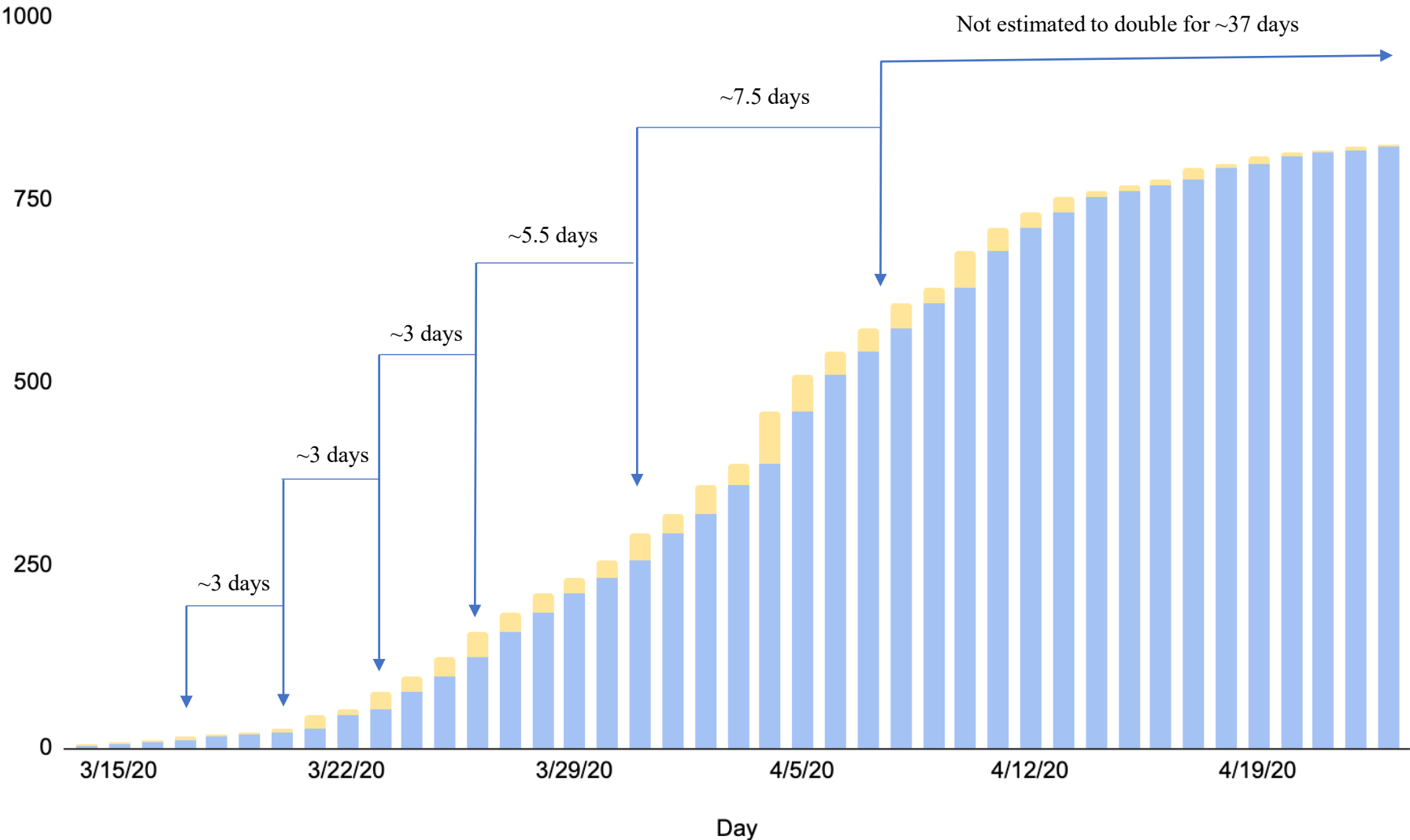


Essential Visits



# Vermont: Day Until Confirmed Cases Double

Source: Vermont Department of Health

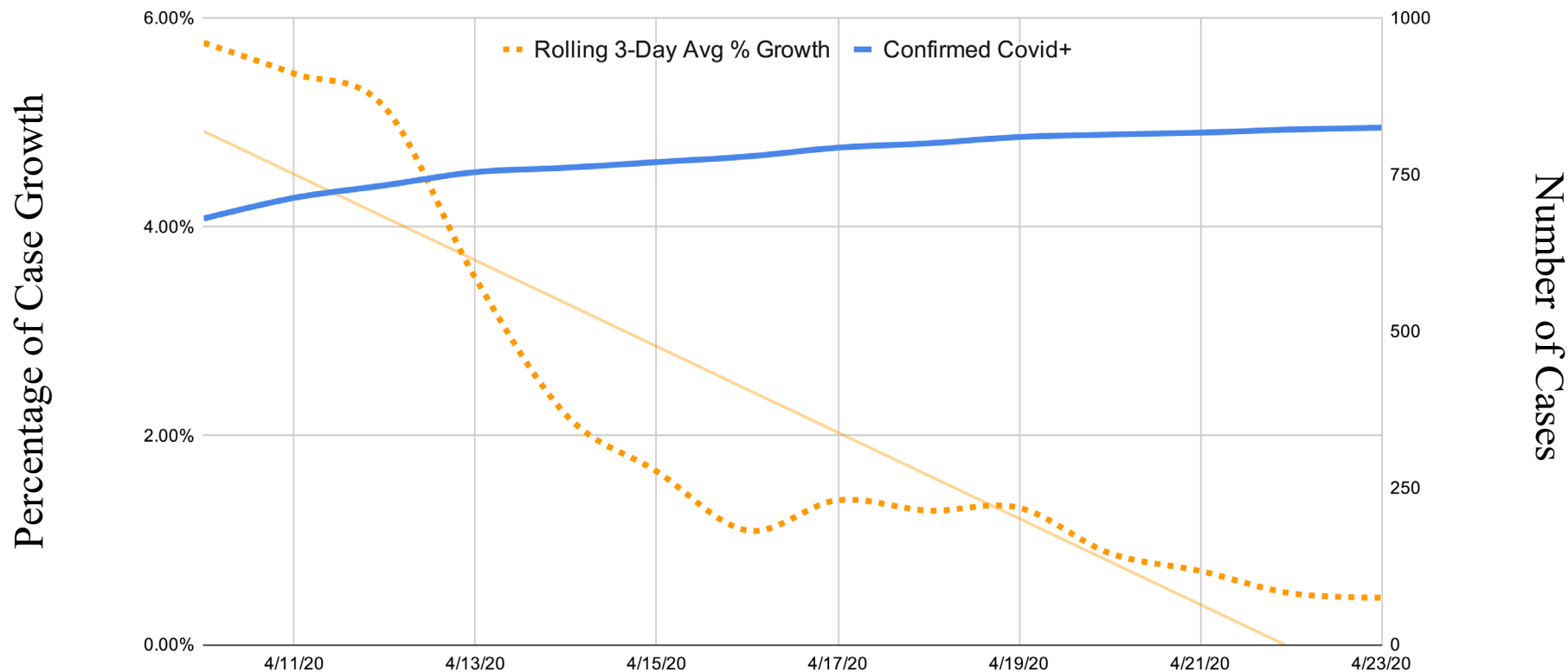


# Vermont's Daily Growth Rate Compared to Total Cases

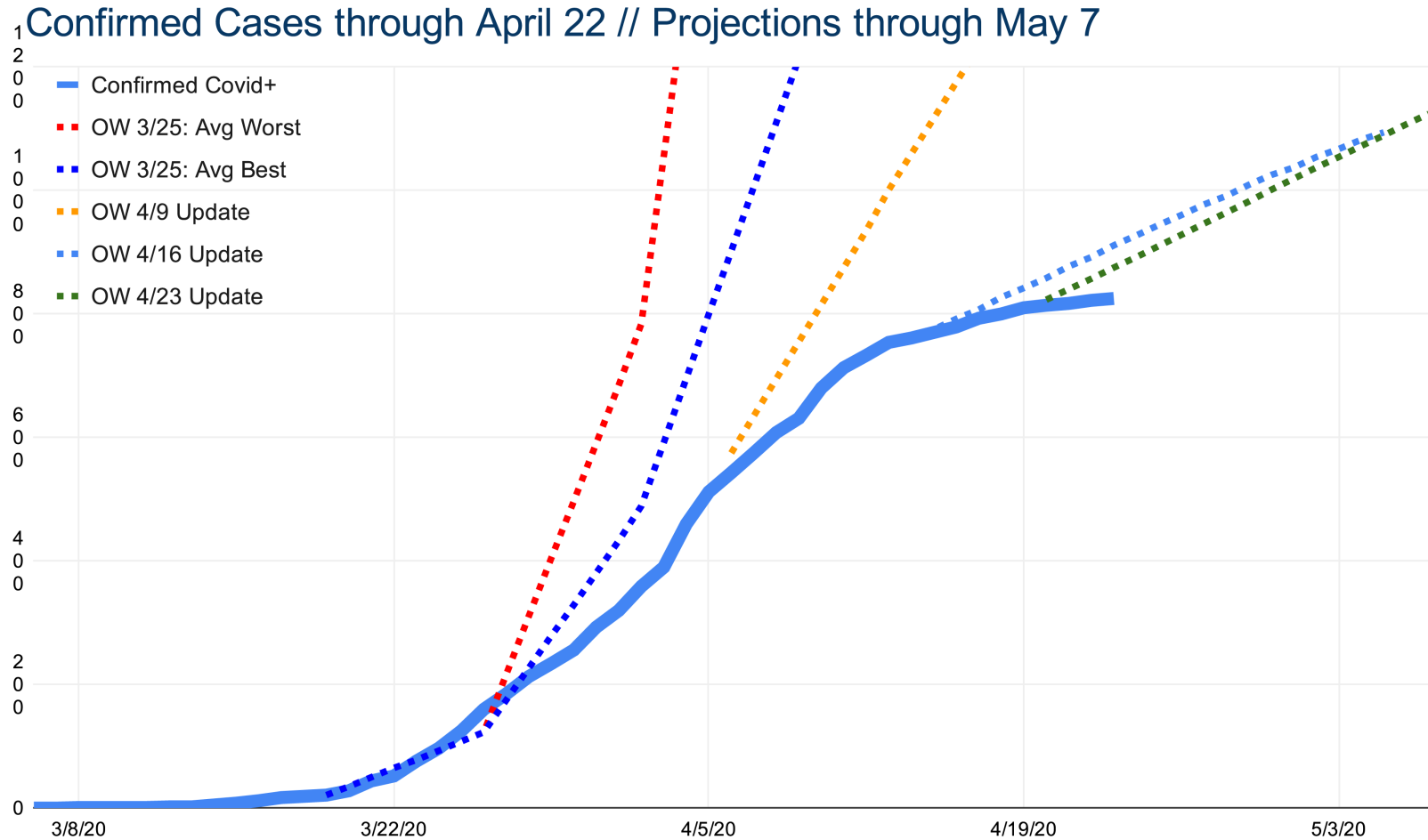
Source: Vermont Department of Health

Note: This chart notes the stability of Vermont's case growth rate as we approached and surpassed 100 confirmed cases.

### 14-day Case Growth Rate & Trendline



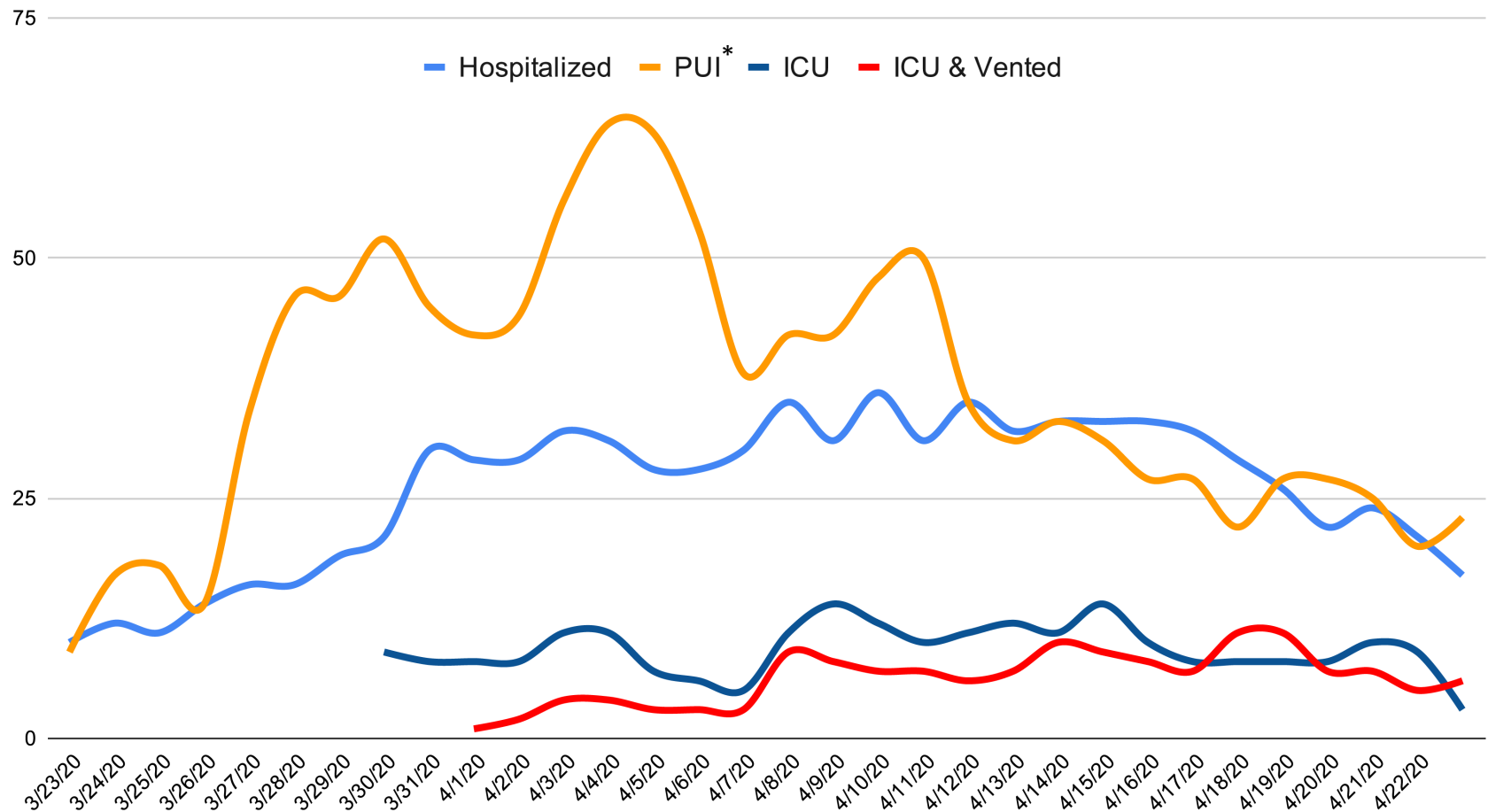
## Positive Trend: Actual Results Are Better Than Forecasts



Source: Oliver Wyman (OW) April 16, 2020 Model

# Positive Trend: Reduction in Hospital Demand

## Hospitalization Metrics since March 23rd



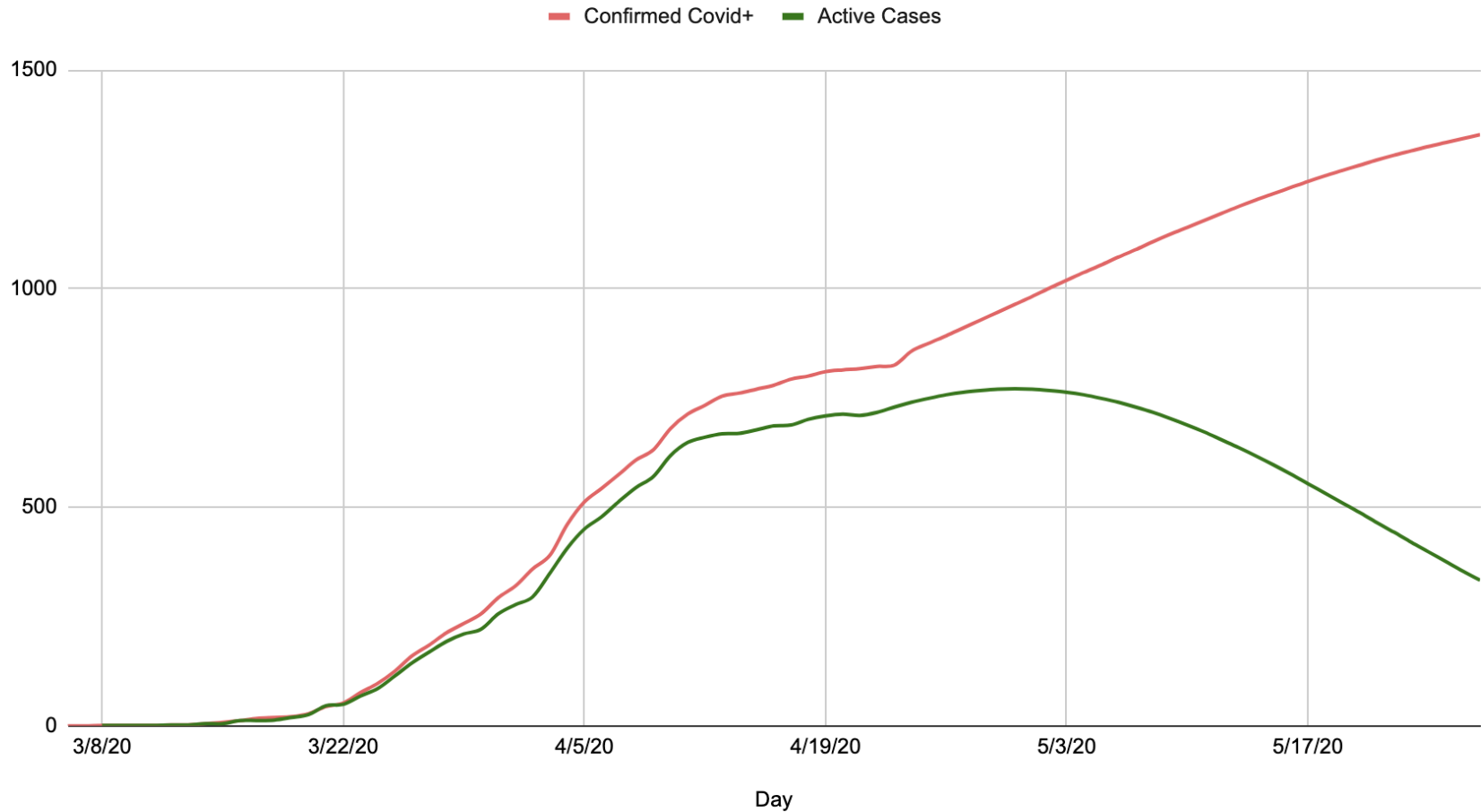
Source: Vermont Department of Health

\*PUI stands for person under investigation



# Positive Trend: Active Cases in Vermont

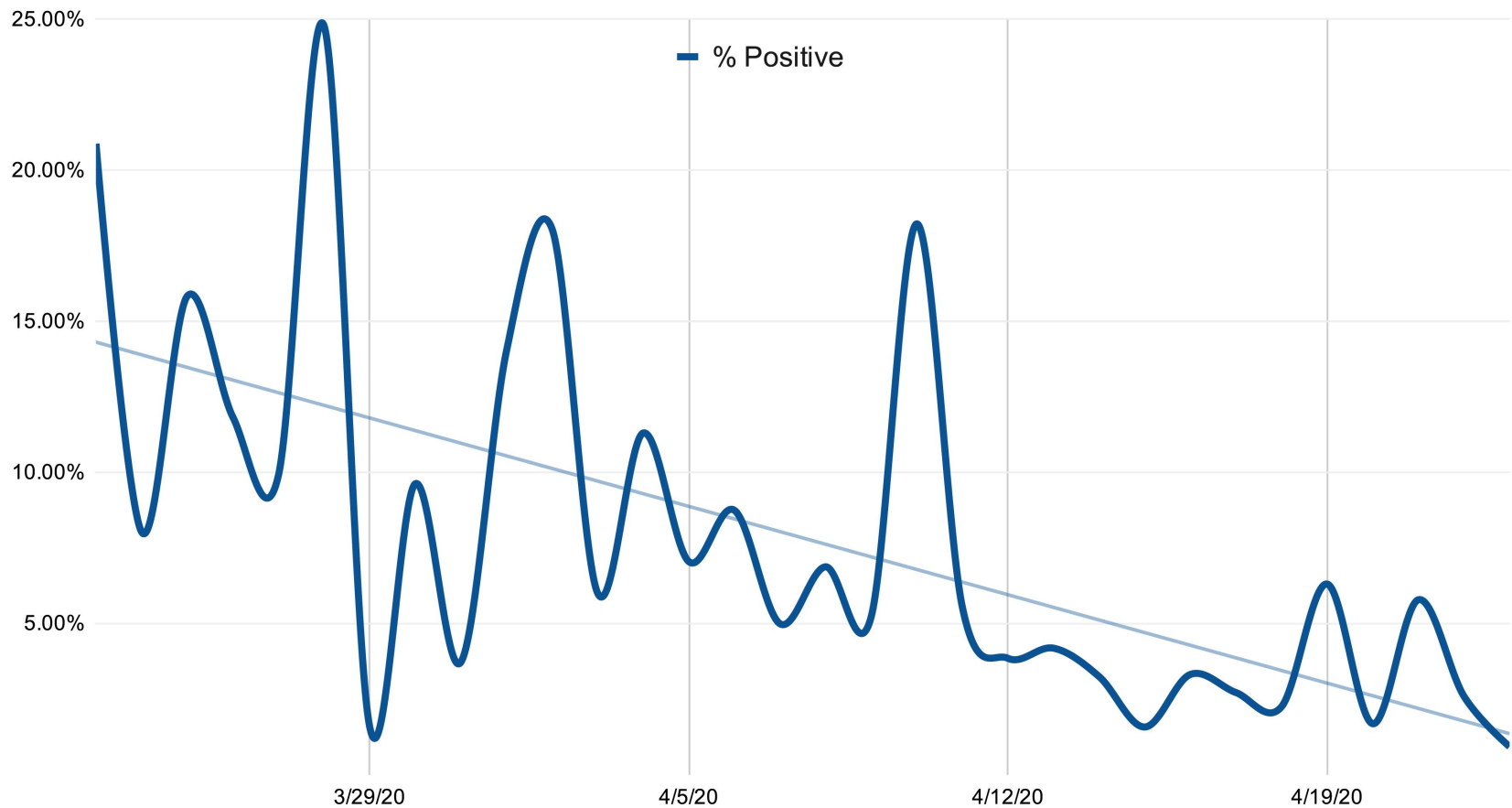
Confirmed Covid+ and Active Cases



Source: Oliver Wyman Scenario Generator – April 22, 2020

# Positive Trend: Percent of Confirmed Positive Tests

## Percent Positive since March 23rd

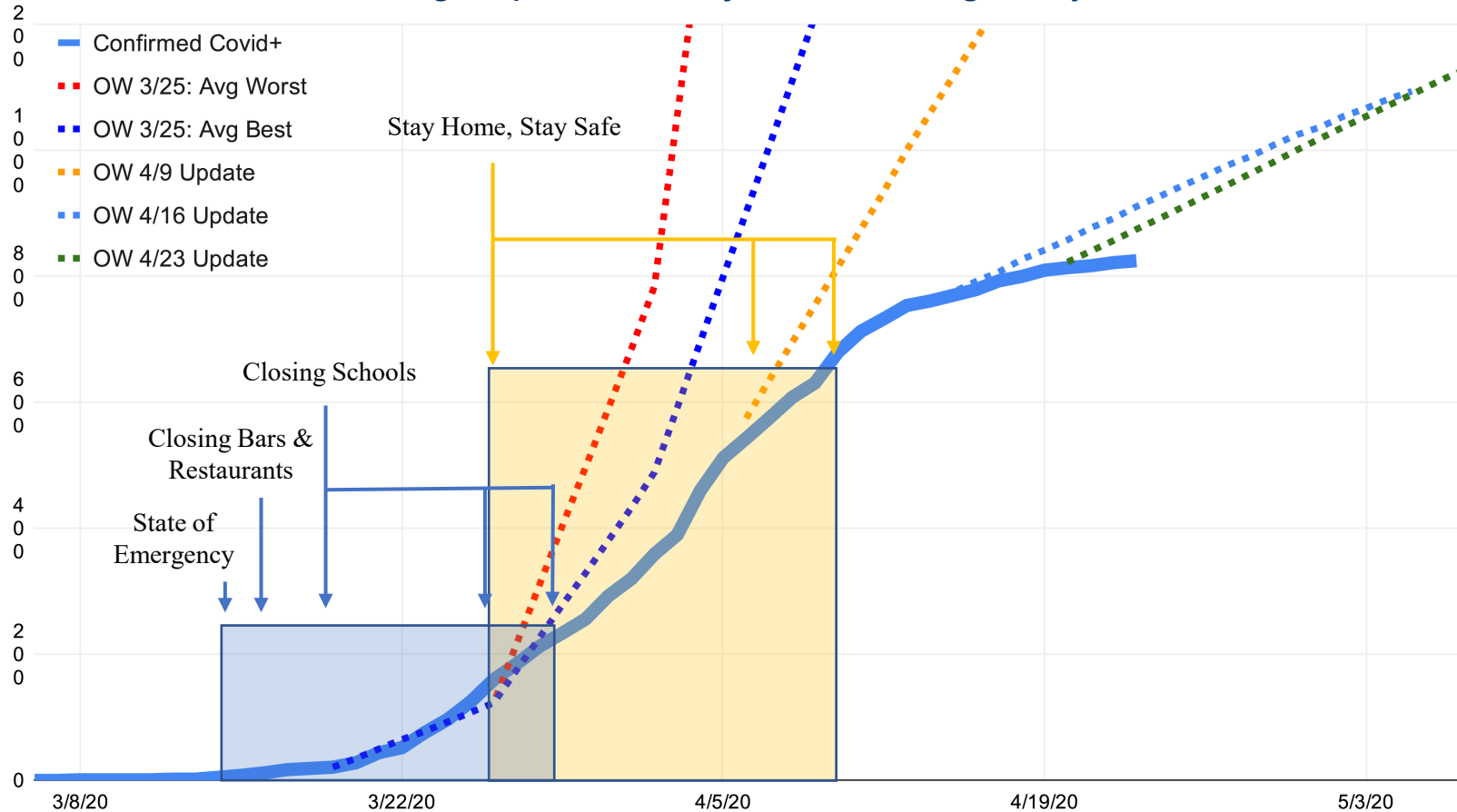


Source: Vermont Department of Health

# Social Distancing Timing & Effect

10 to 14-day delay

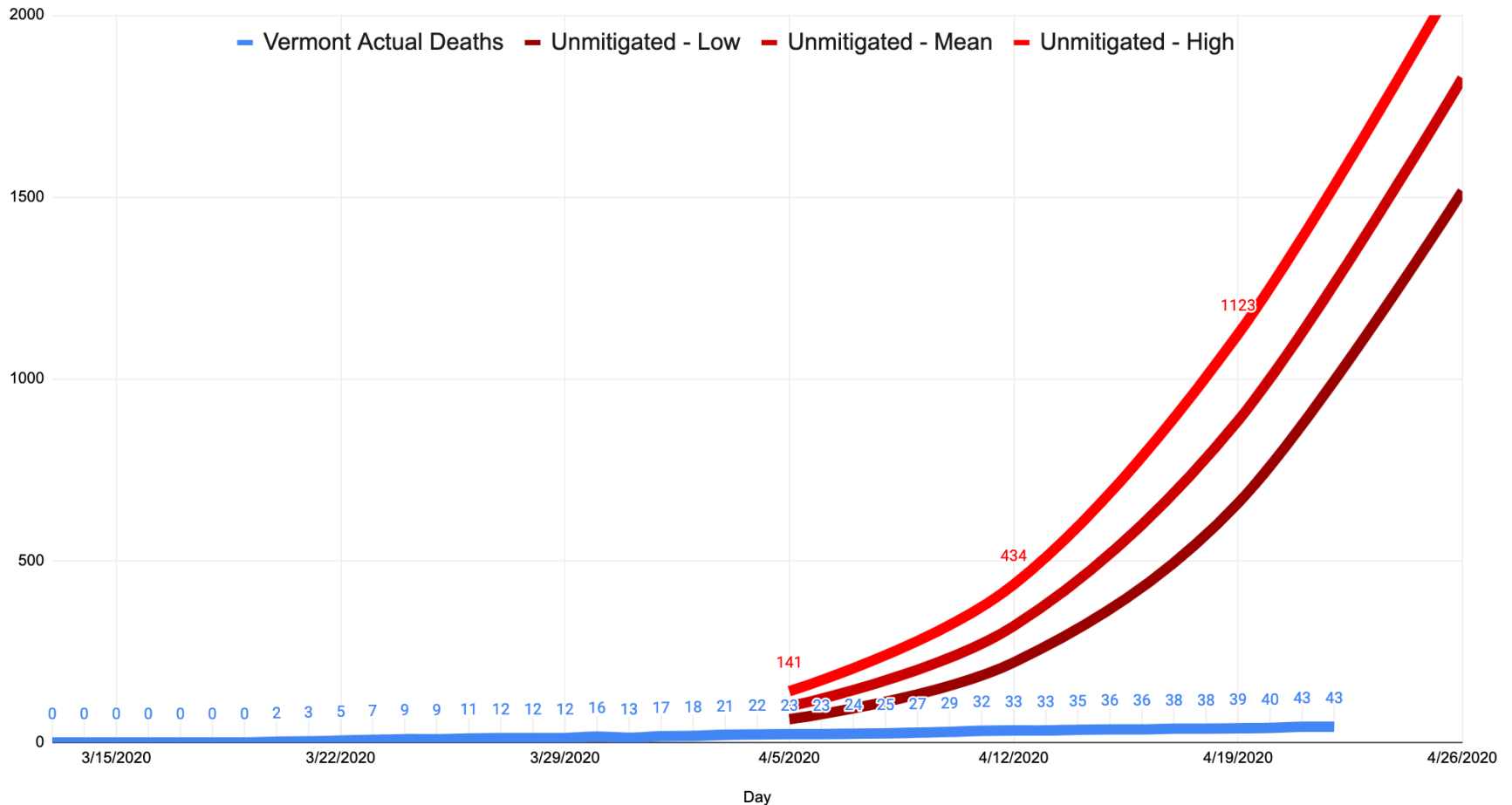
Confirmed Cases through April 22 // Projections through May 7



Source: Oliver Wyman (OW) April 22, 2020 Model

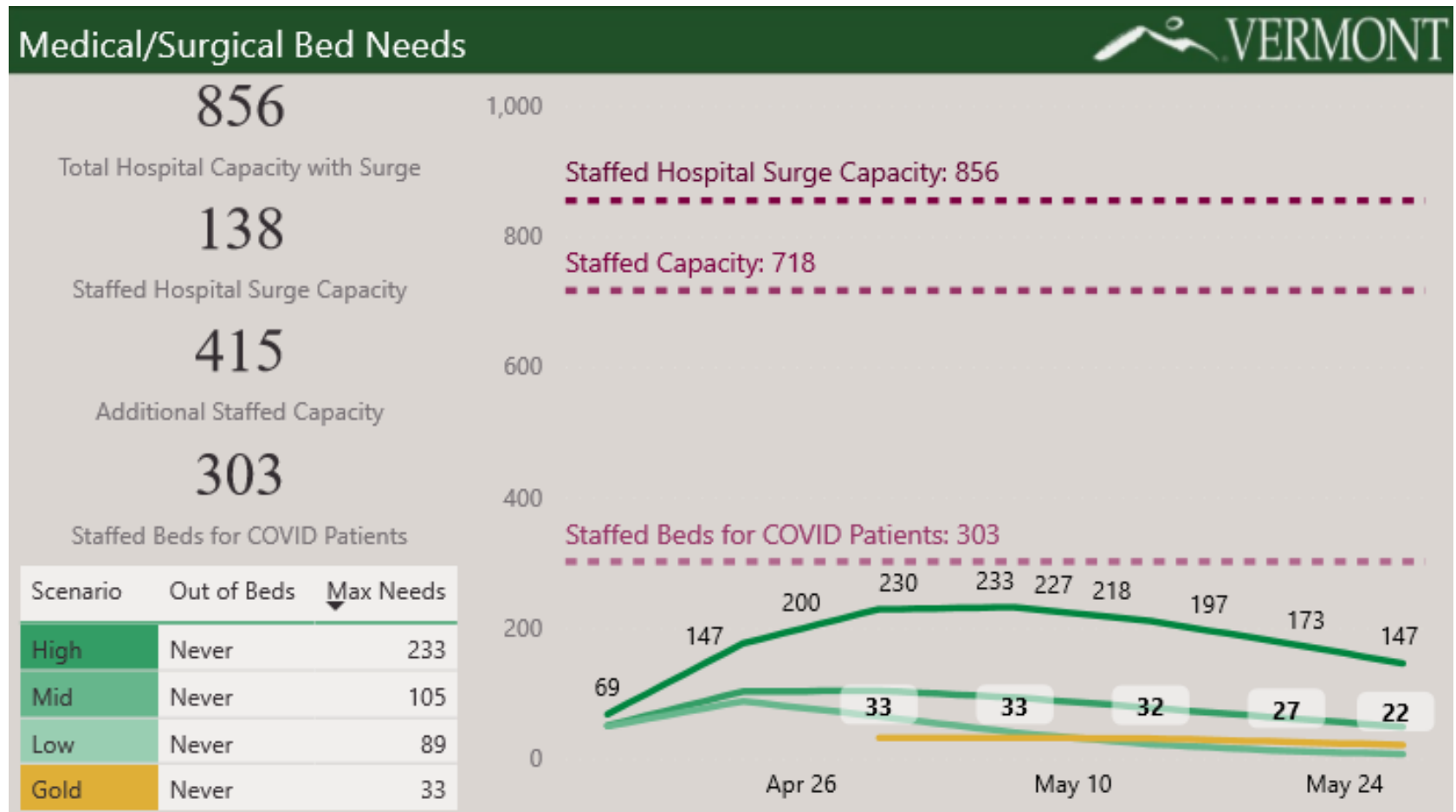
# Vermont Mortality: Actual vs Unmitigated

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



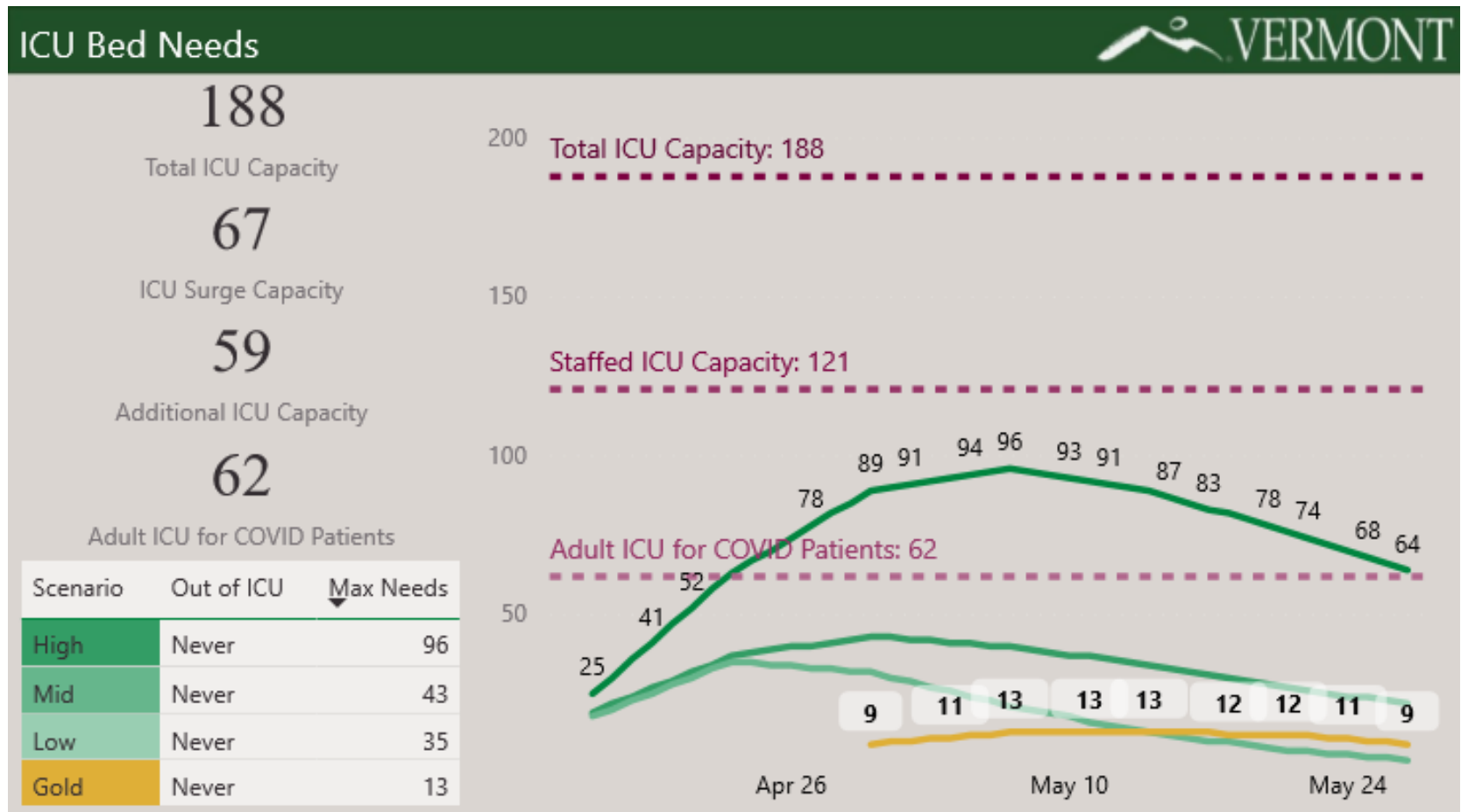
Source: Professor Vespignani April 3, 2020 Model

## Hospitalization Needs – April 22nd Trajectory



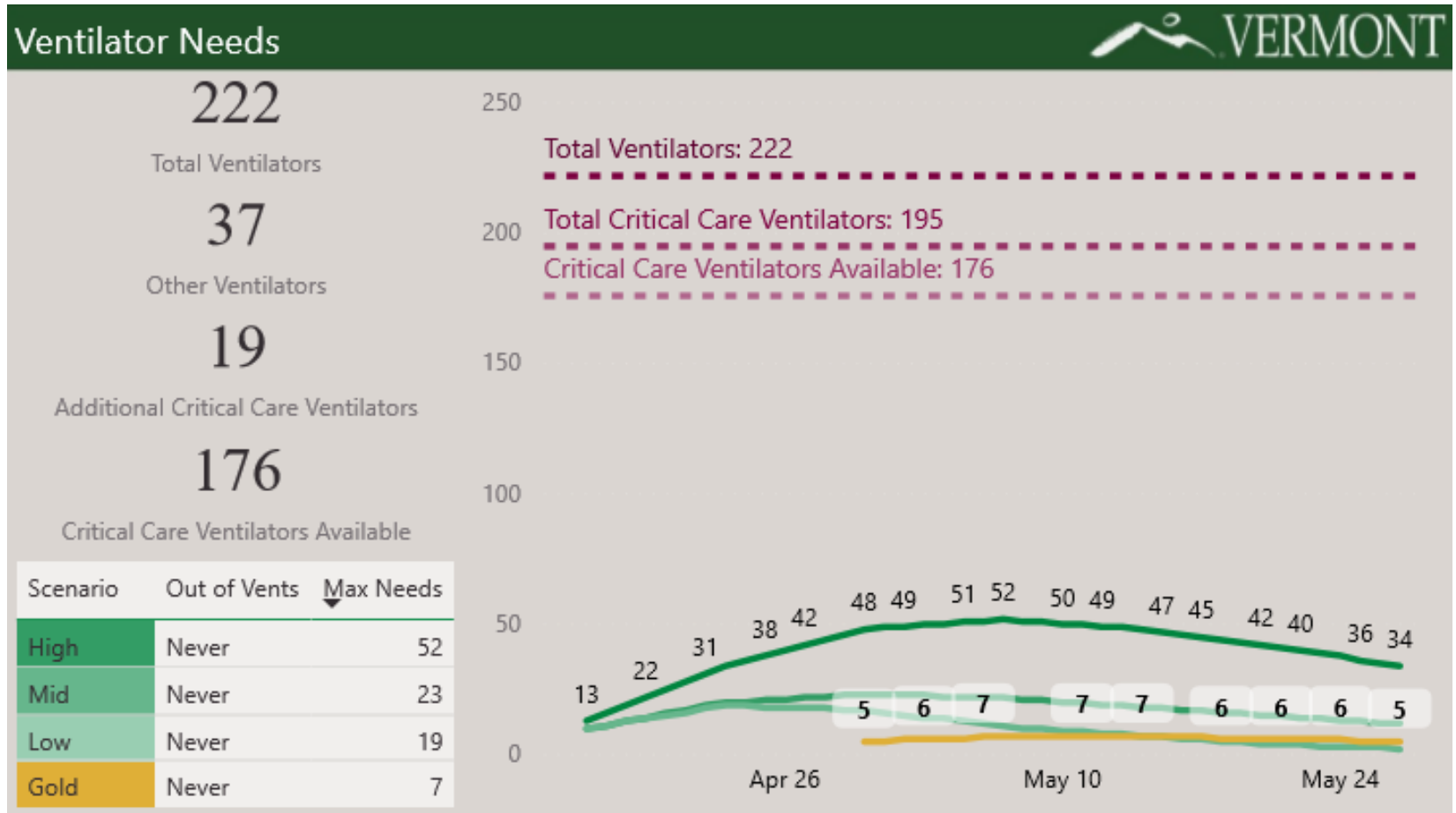
Modeling is for planning purposes only  
Not representative of definitive outcomes

## ICU Needs – April 22<sup>nd</sup> Trajectory



Modeling is for planning purposes only  
Not representative of definitive outcomes

## Ventilator Needs – April 22<sup>nd</sup> Trajectory



Modeling is for planning purposes only  
Not representative of definitive outcomes