

Projections of Hospital-based Healthcare Demand due to Covid-19 in Los Angeles County

April 22, 2020 Update

County DHS COVID-19 Predictive Modeling Team:

Roger J. Lewis, MD, PhD;¹ Juliana Tolles, MD, MHS;¹ M. Claire Jarashow, PhD, MPH;² Fei Wu, PhD;³ Joe Marion, PhD;⁴ Kert Viele, PhD;⁴ Todd Graves, PhD;⁴ Henry Shin;¹ Frederic Schoenberg, PhD;⁵ Andrea Bertozzi, PhD⁵

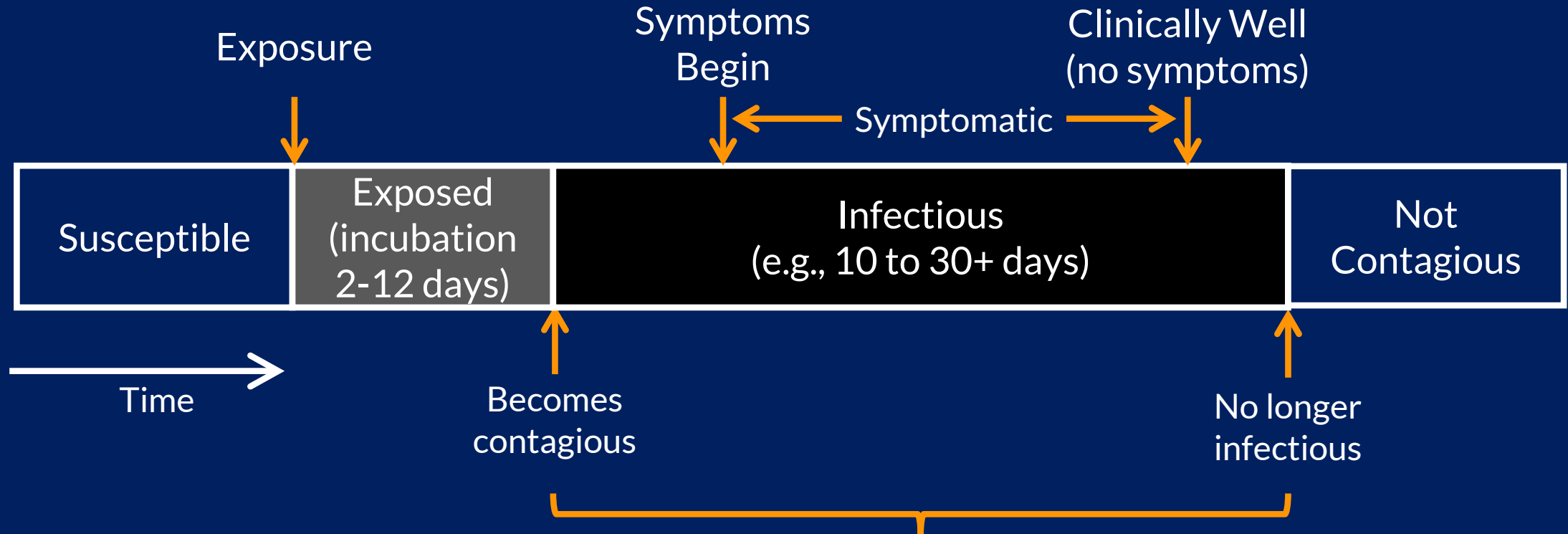
1. Los Angeles County, Department of Health Services
2. Los Angeles County, Department of Public Health
3. Los Angeles County, Office of the Chief Information Officer
4. Berry Consultants, LLC, Austin, TX
5. University of California, Los Angeles



Key Findings of this Update

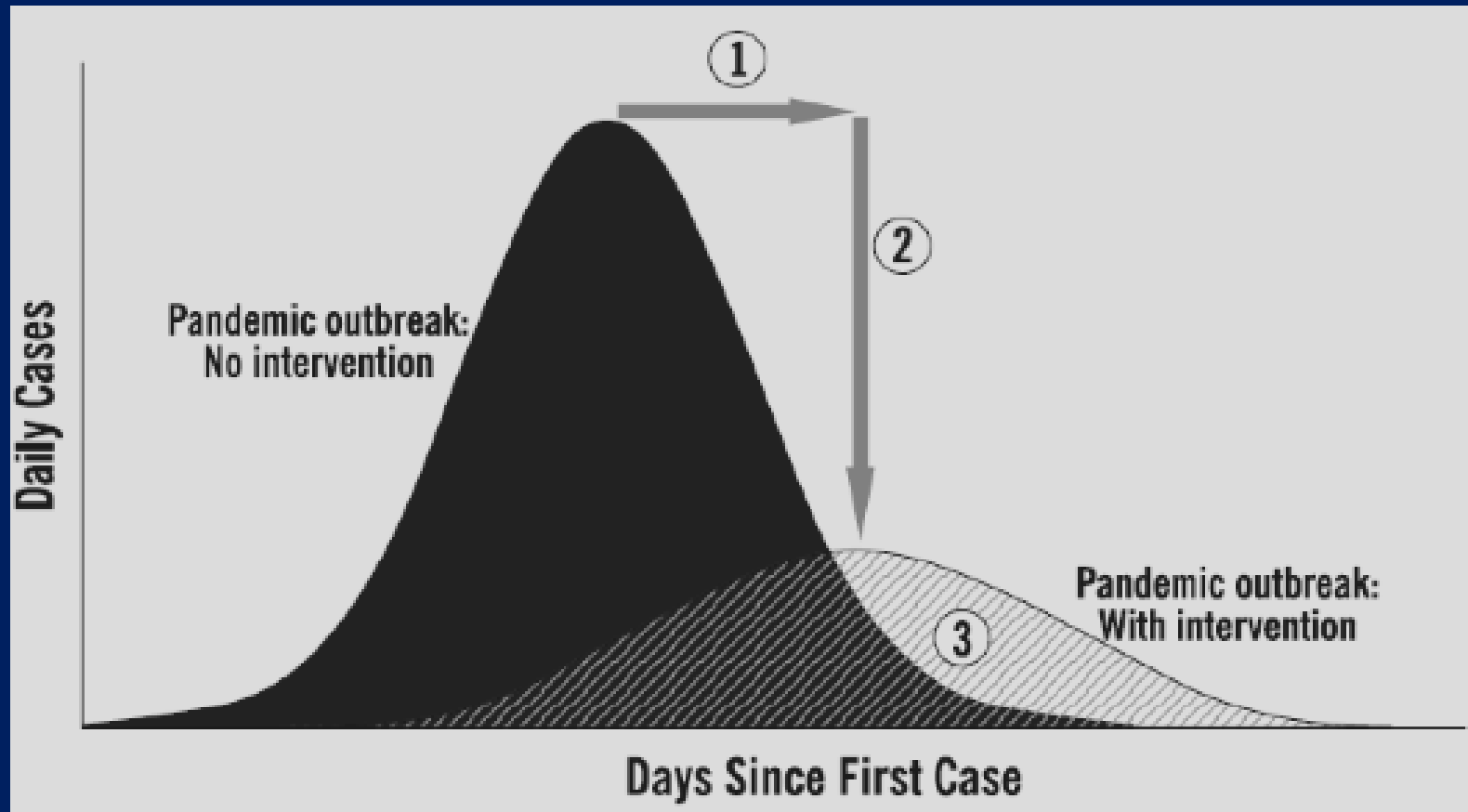
- This update includes data on hospital visits and volume through April 20, 2020.
- Key findings:
 - The overall volume of hospital-based care for patients with COVID-19 appears stable, consistent with the continued effectiveness of physical distancing and related public health measures;
 - It remains unclear if current measures are adequate to lead to a reduction in illness, or if more effective measures will be required;
 - The number of hospital beds in Los Angeles County appears adequate to meet the projected need for the care of additional COVID-19 patients over the next 4 weeks;
 - The number of ICU beds in Los Angeles County, especially with the addition of new ICU beds through multiple efforts across the County, is likely adequate to meet the projected need for the care of additional COVID-19 patients over the next 4 weeks; and
 - The number of mechanical ventilators in Los Angeles County appears adequate to meet the projected need for the care of additional COVID-19 patients over the next 4 weeks.
- Based on prior modeling results, we predict that a lessening of intensity of physical distancing and similar efforts would be followed by a rapid increase in transmission and, after 2-3 weeks, by a corresponding increase in patient volume at healthcare facilities.

A Patient's Journey | COVID-19



Goal of physical distancing, public use of cloth face coverings, quarantine, isolation and similar actions is to reduce the number of new susceptible people exposed during this time

Goal of Public Health Response

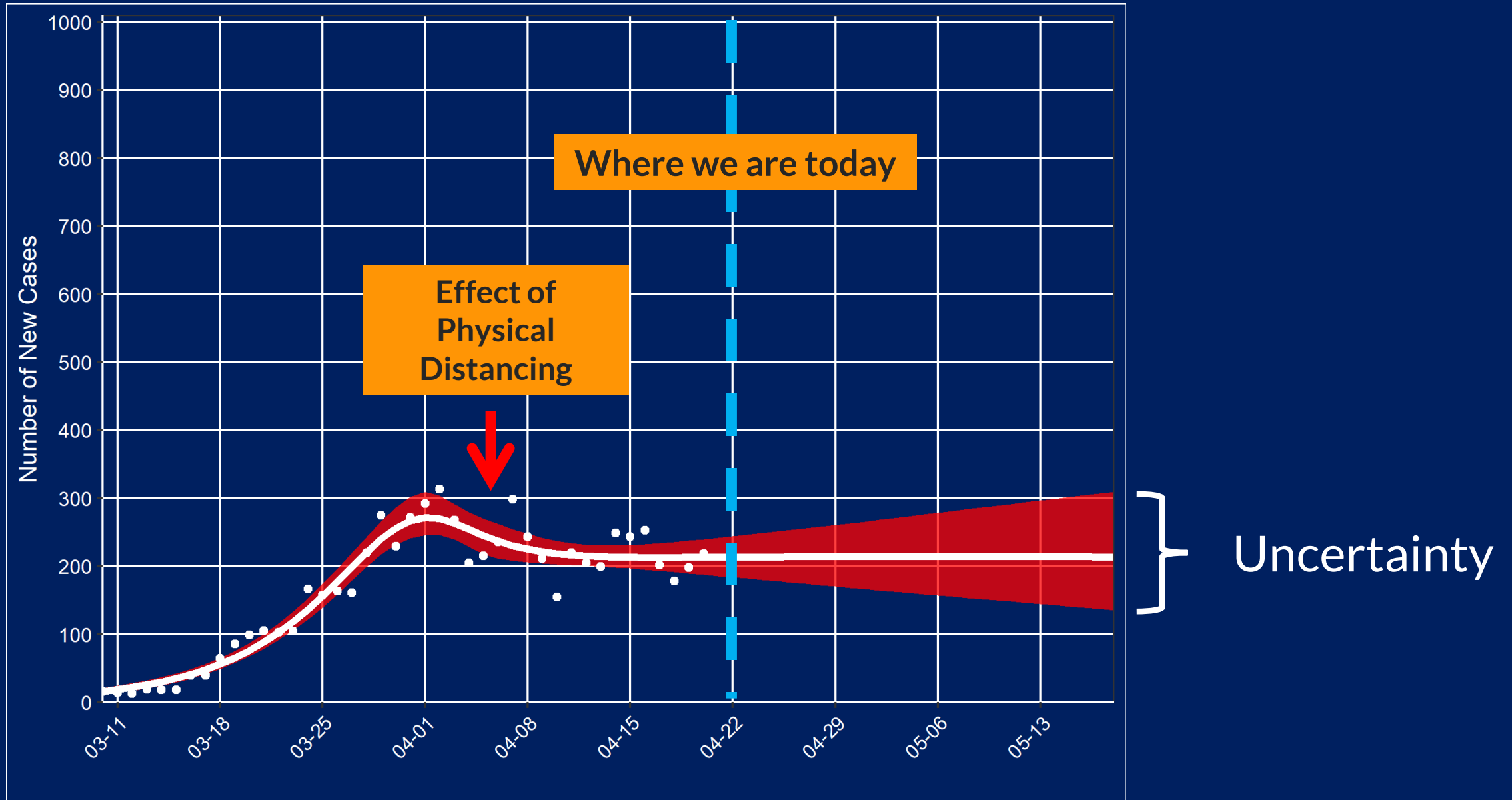


Effects of physical distancing & public health interventions:

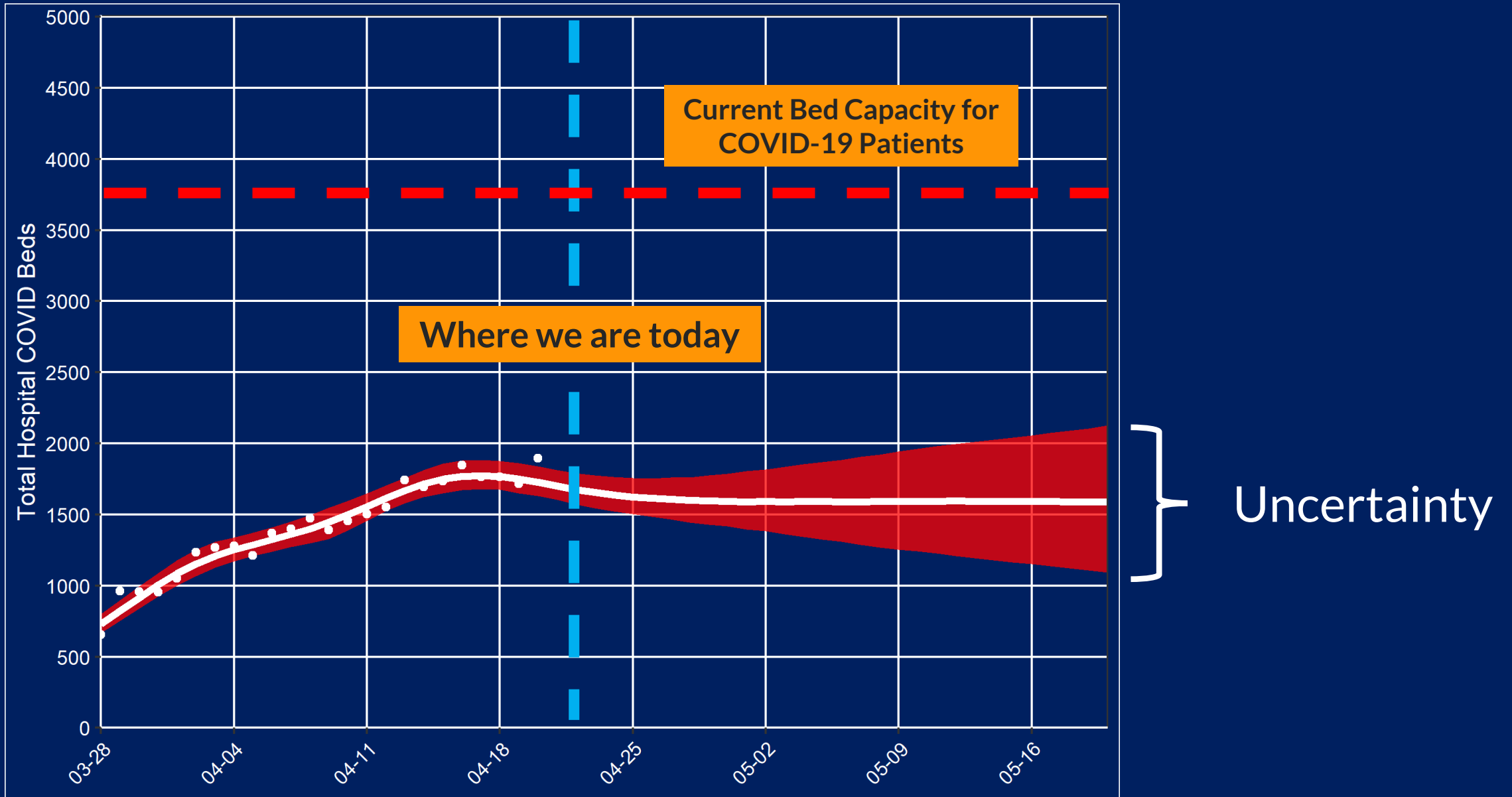
1. Delay peak in demand, increased time to prepare
2. Decrease peak demand, increased ability to surge
3. Decrease total population infected

Source: CDC 2007

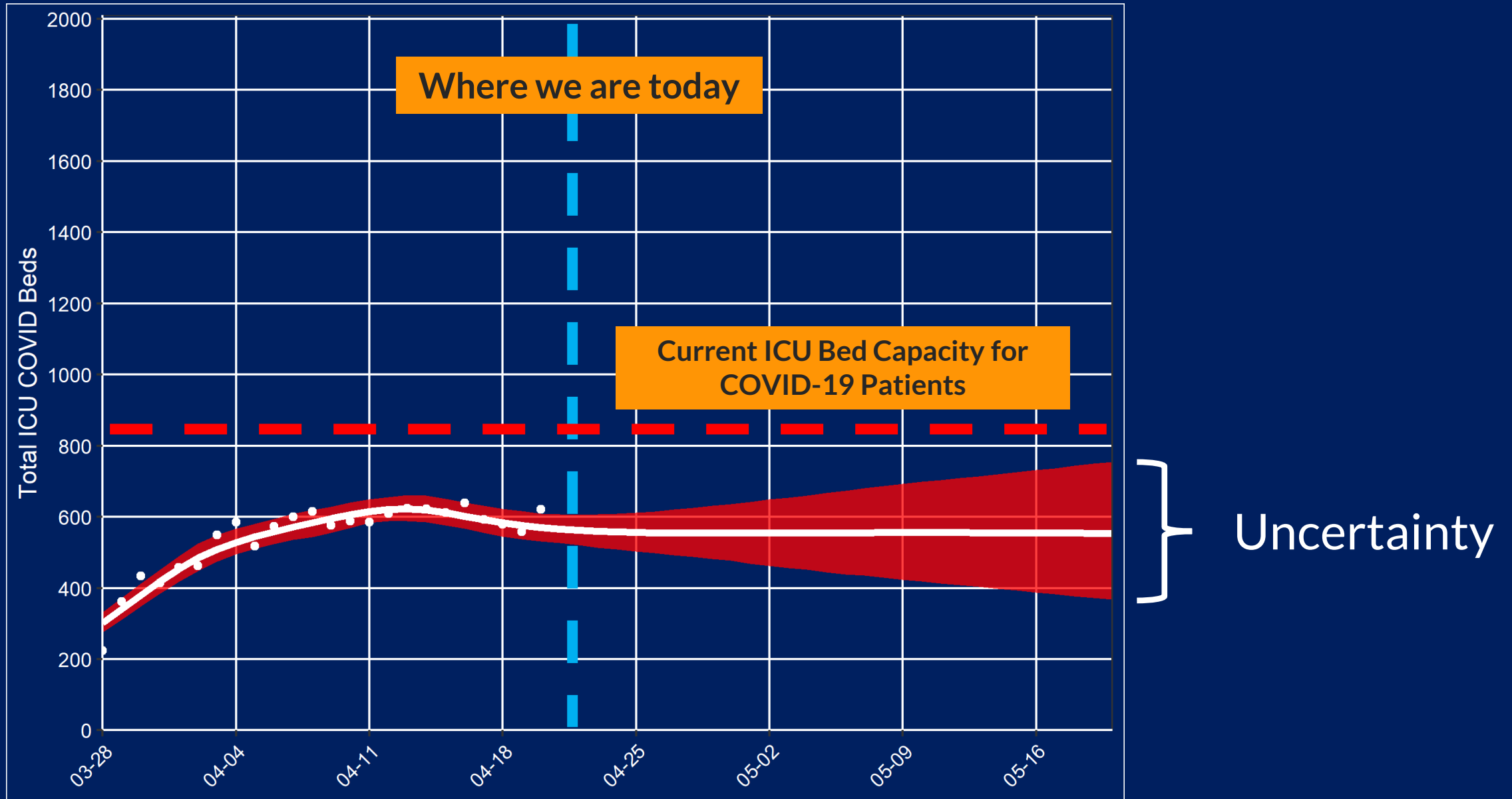
Hospital Patient Projections



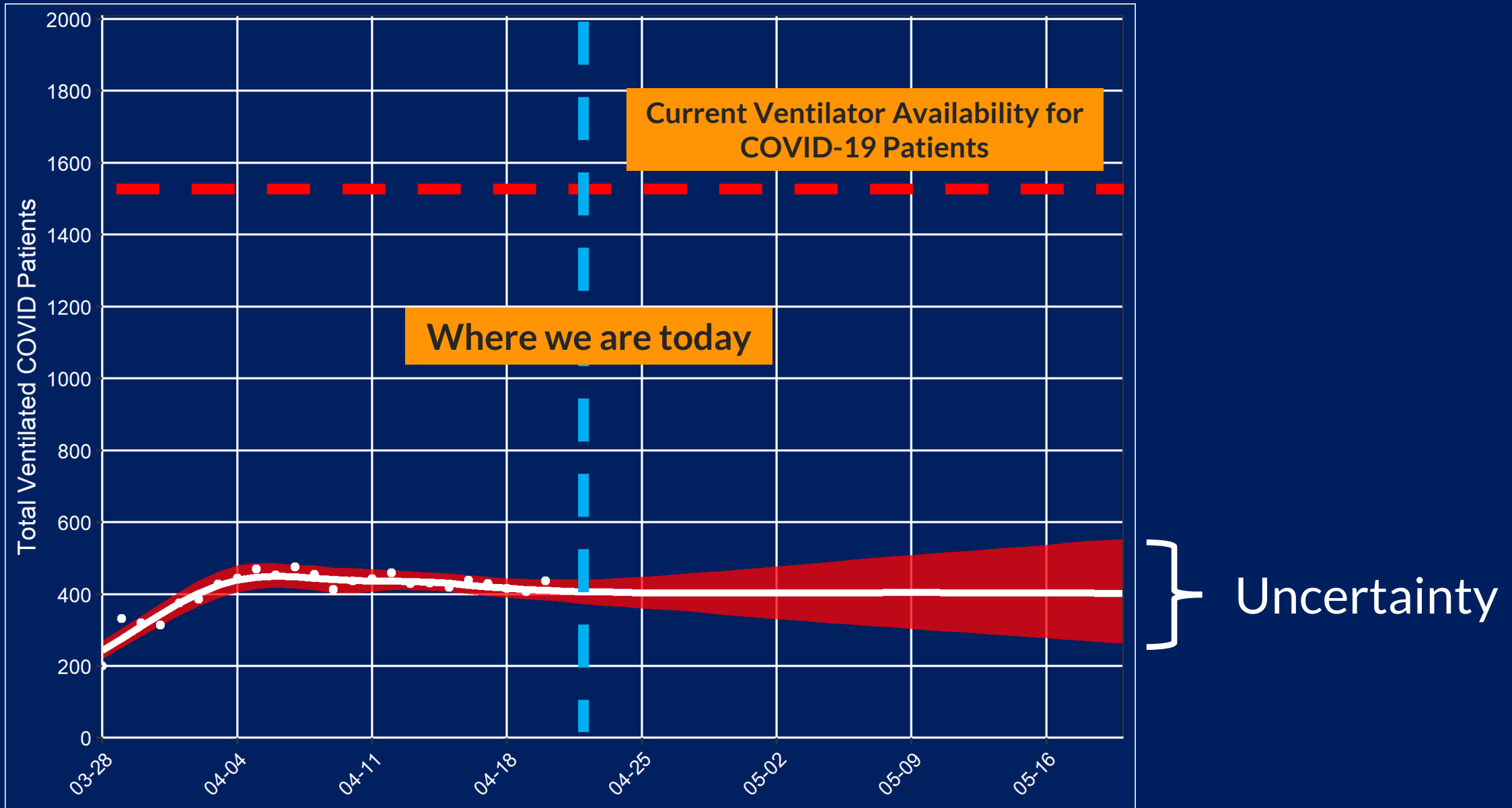
Predictions of Demand in LA County | Hospital Beds



Predictions of Demand in LA County | ICU Beds



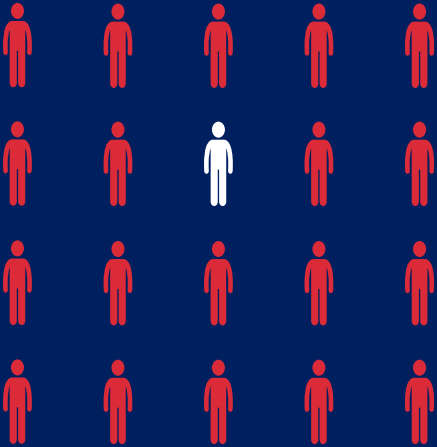
Predictions of Demand in LA County | Ventilators



Effect of Physical Distancing Behavior

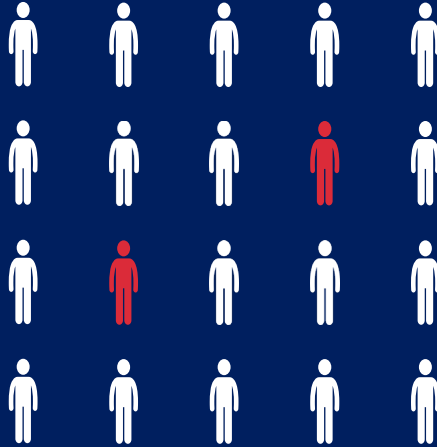
As summer approaches, if physical distancing is....

Reduced to
Pre-order Levels



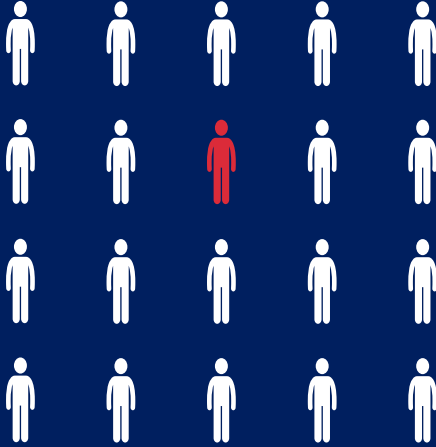
96%
(uncertainty 87% to 99%)

Maintained at
Current Levels



11%
(uncertainty 7% to 17%)

Increased Above
Current Levels



5%
(uncertainty 4% to 7%)

... of LA County residents will have been infected by August 1st, 2020 *

**(This includes adults and children)*