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

June 22, 2020 Update

County DHS COVID-19 Predictive Modeling Team:

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Health Services
LOS ANGELES COUNTY

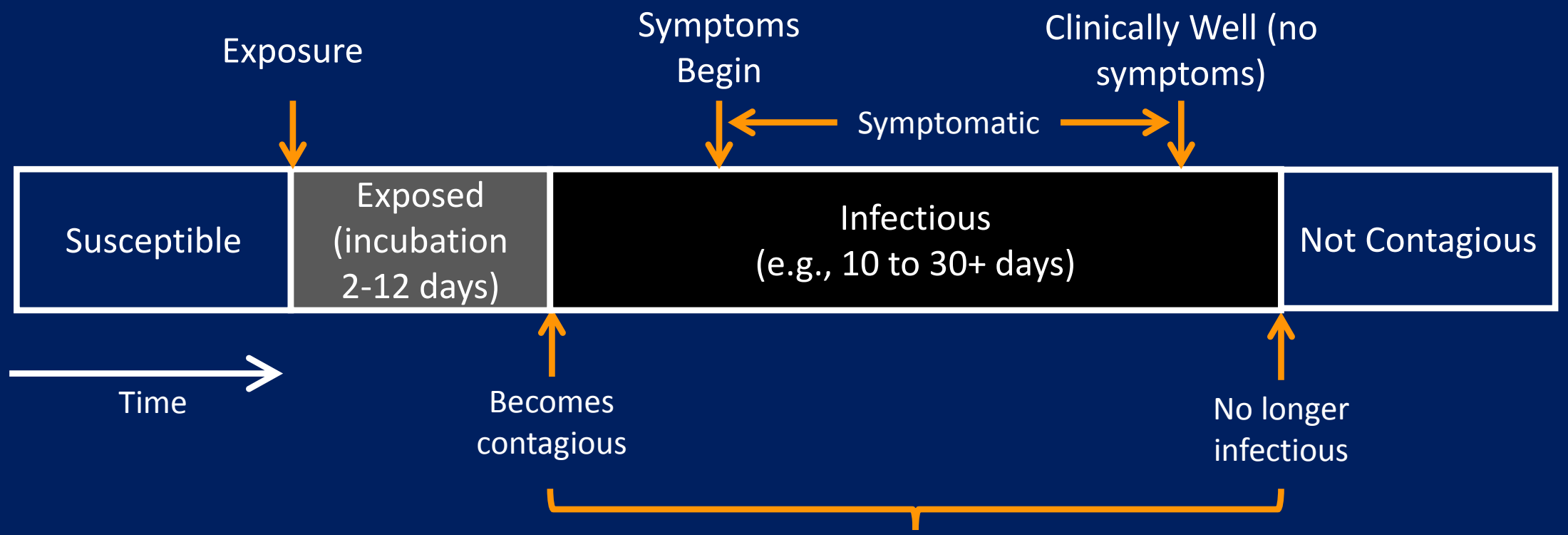
Key Findings of the June 22nd Update

- This update includes data on hospital visits and volume through June 18, 2020.
- The model now reports the effective transmission number ("R") with an adjustment for the fraction of the population that is now presumed to be immune to reinfection. This change lowers the reported estimate for R. As before, if R is below 1, the number of cases will decline over time; if R is above 1, the number of cases will increase over time.
- Key findings:
  - The overall volume of hospital-based care for patients with COVID-19 appears generally stable and within the range of uncertainty of the prior predictions.
  - The effective transmission number ("R"), including the effect of persons assumed to be immune from reinfection, is now estimated to be 0.94 with an uncertainty of 0.83 to 1.03. This reflects transmission 2 to 4 weeks ago.
  - It is still not yet known with certainty what effect the relaxation of physical distancing requirements and protest activities will have on transmission of COVID-19.
  - The number of hospital beds and 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. The number of ICU beds is more limited and may become inadequate if transmission increases.
  - The model suggest that about 1 in 400 Los Angeles County residents are currently infected and infectious to others.

How Many in Los Angeles are Infectious to Others?

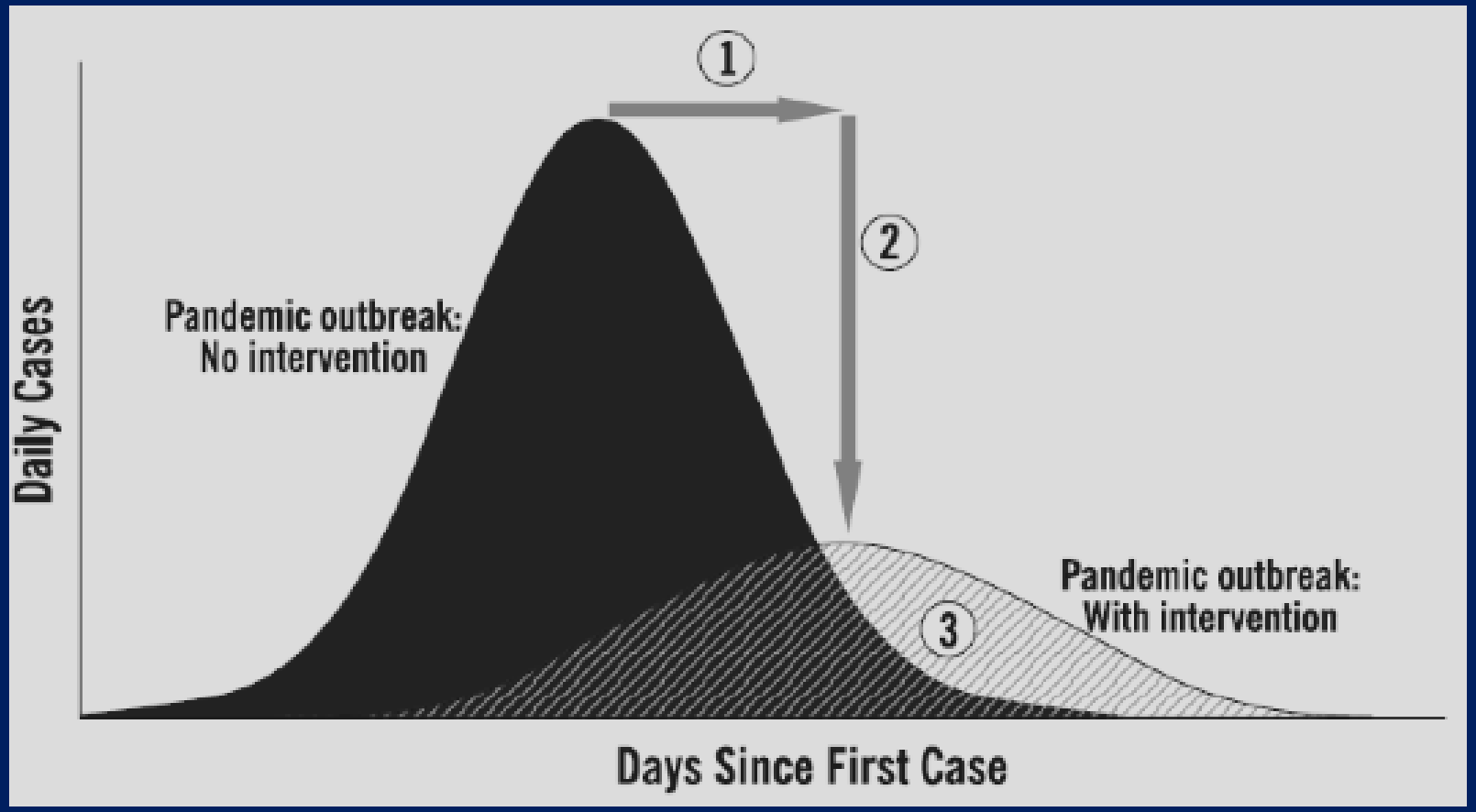
- The DHS team's epidemic model estimates the number of people in Los Angeles County who:
  - Are still susceptible to infection if exposed;
  - Have been exposed and are incubating, but not infectious;
  - Have COVID-19 and are infectious to others, though they may have no symptoms; and
  - Have had COVID-19 and either recovered or died, so they are no longer infectious
- The model suggest that about 0.25% (uncertainty of 0.14% to 0.47%) of everyone in Los Angeles County is currently infected and infectious to others. This suggests about 1 in 400 (between 1 in 200 and 1 in 700) Los Angeles County residents are currently infectious to others
- A typical large busy store is likely to have multiple infectious persons enter and shop every day

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

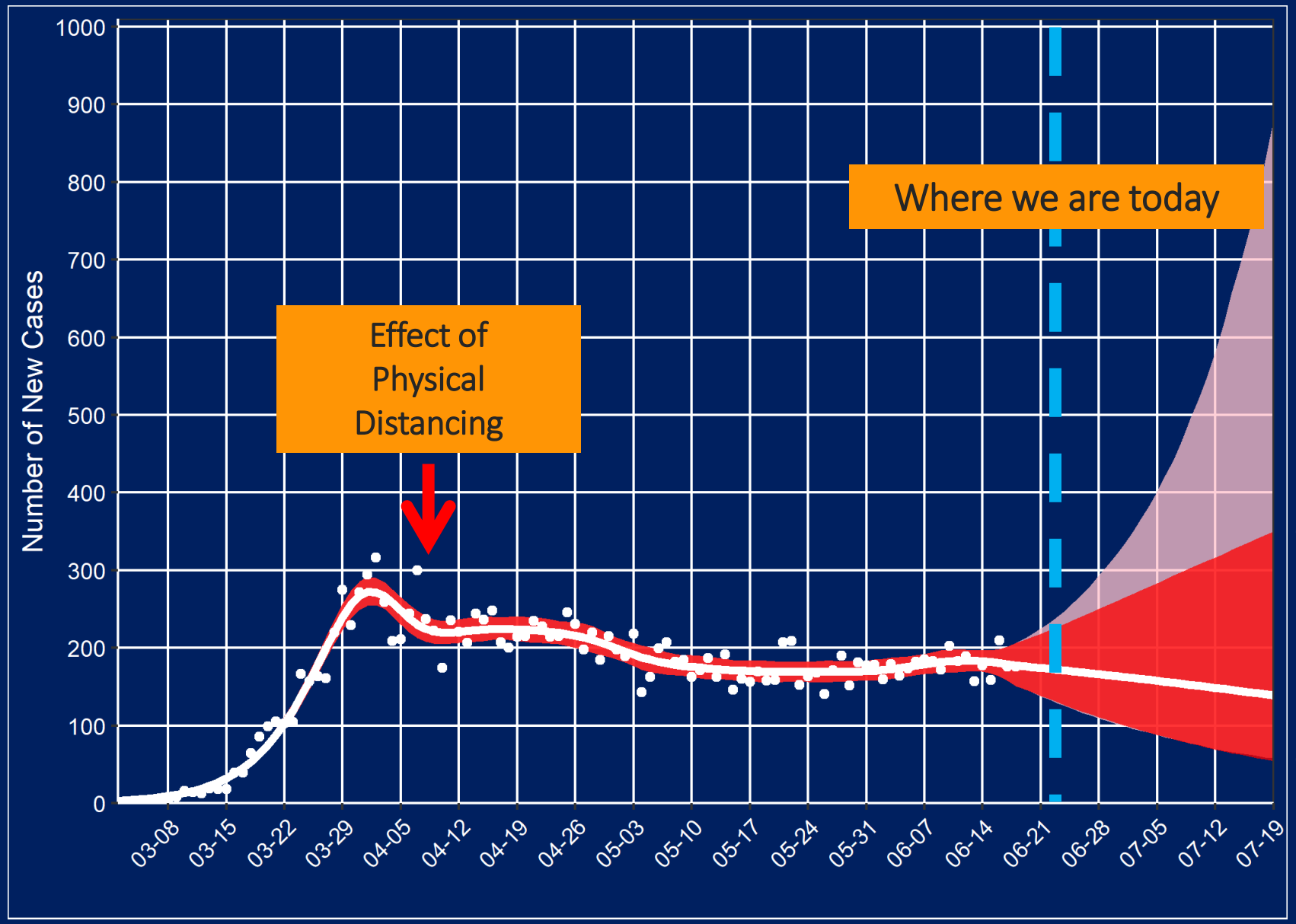


Source: CDC 2007

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

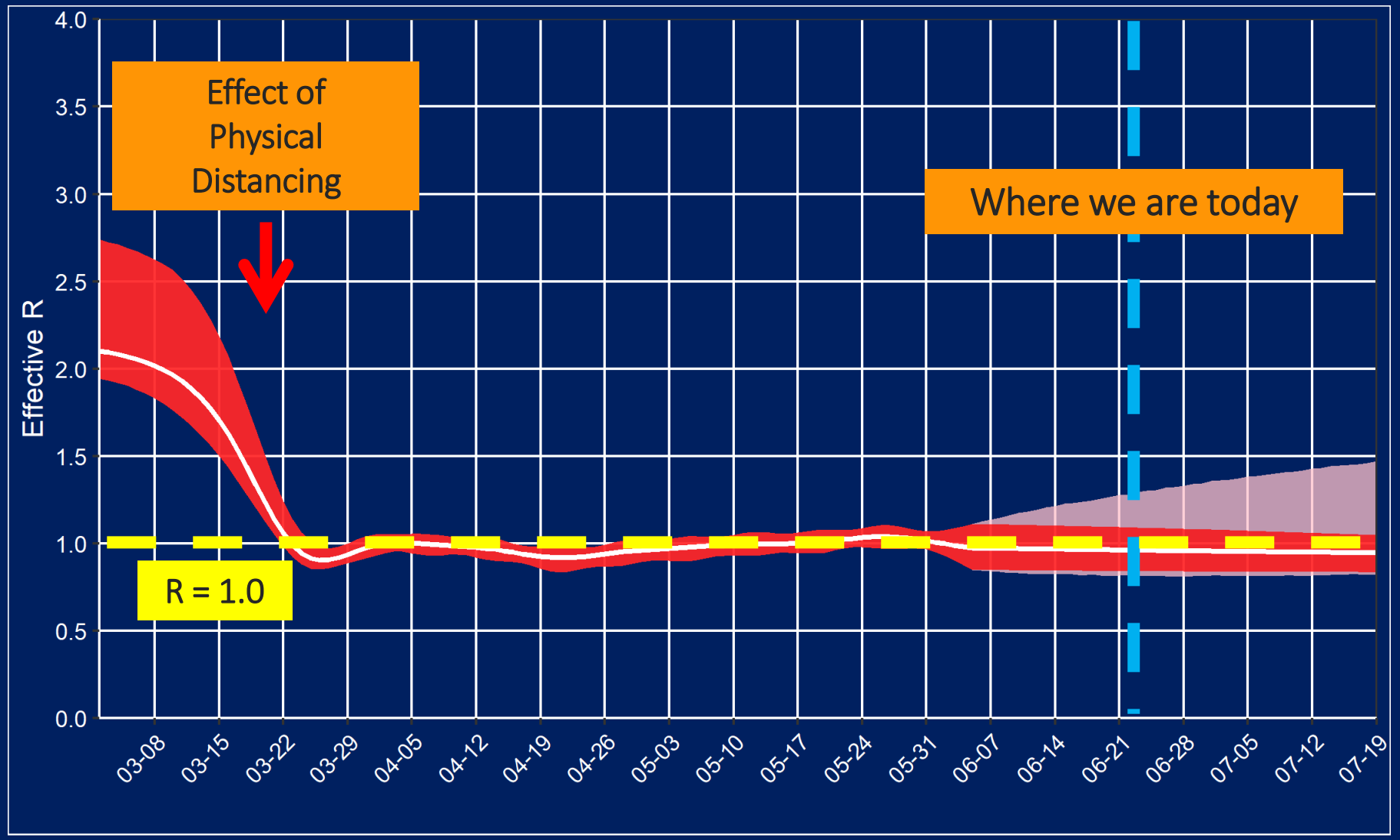
Hospital New Patient Projections



Additional Uncertainty if R increases

Uncertainty with no change in R

Effective Transmission Number “R”

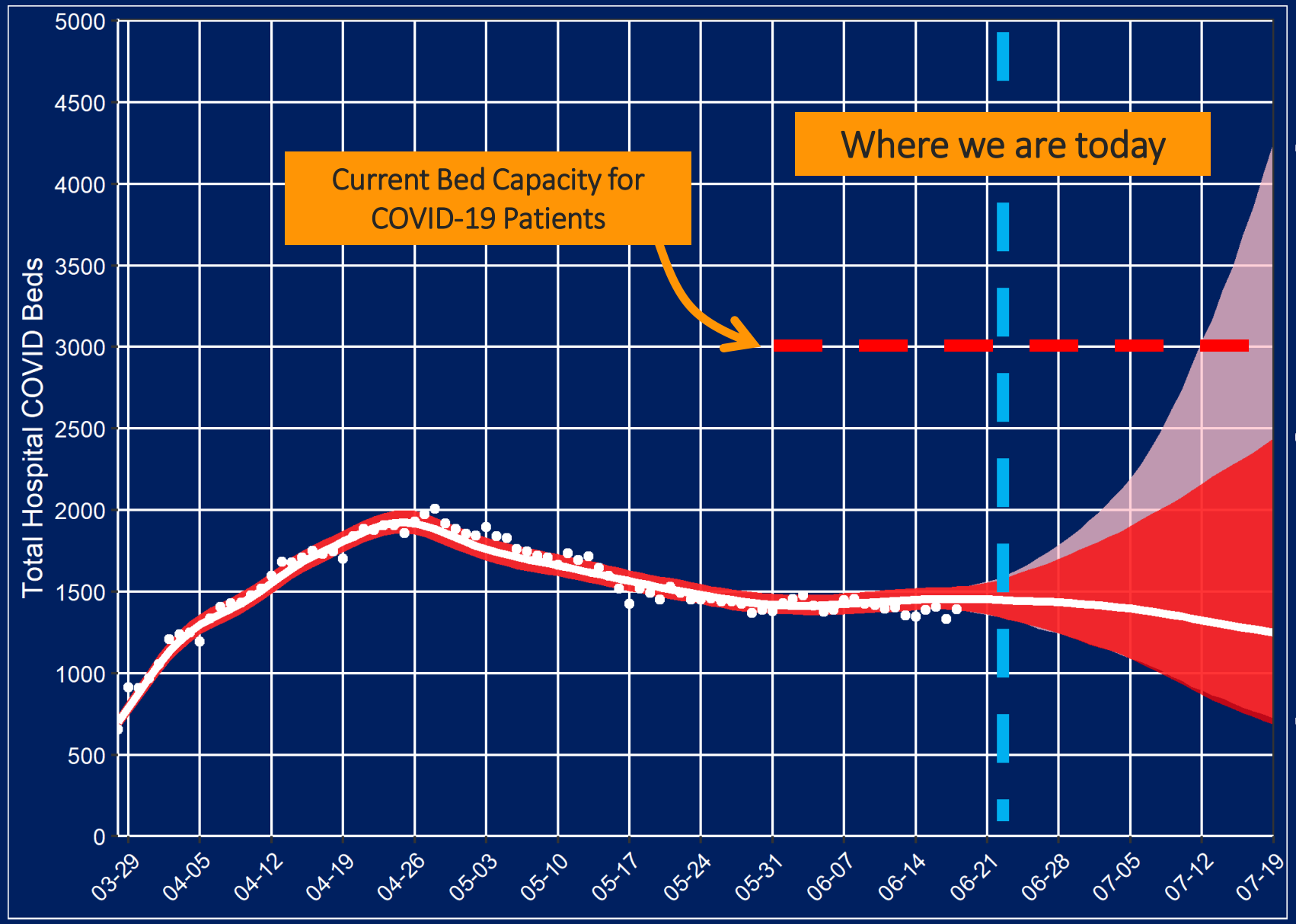


Additional Uncertainty if R is increasing

Uncertainty with no change in R

Note: As of this week, we have adjusted the R that we present to take into account the fraction of the population that is presumed to be immune to reinfection. At the beginning of the pandemic, this fraction was essential zero so this would not have made any difference. But as more people have been infected, and are presumed to have immunity, we are presenting an R that adds this factor in -- this change lowers the reported estimate for R slightly.

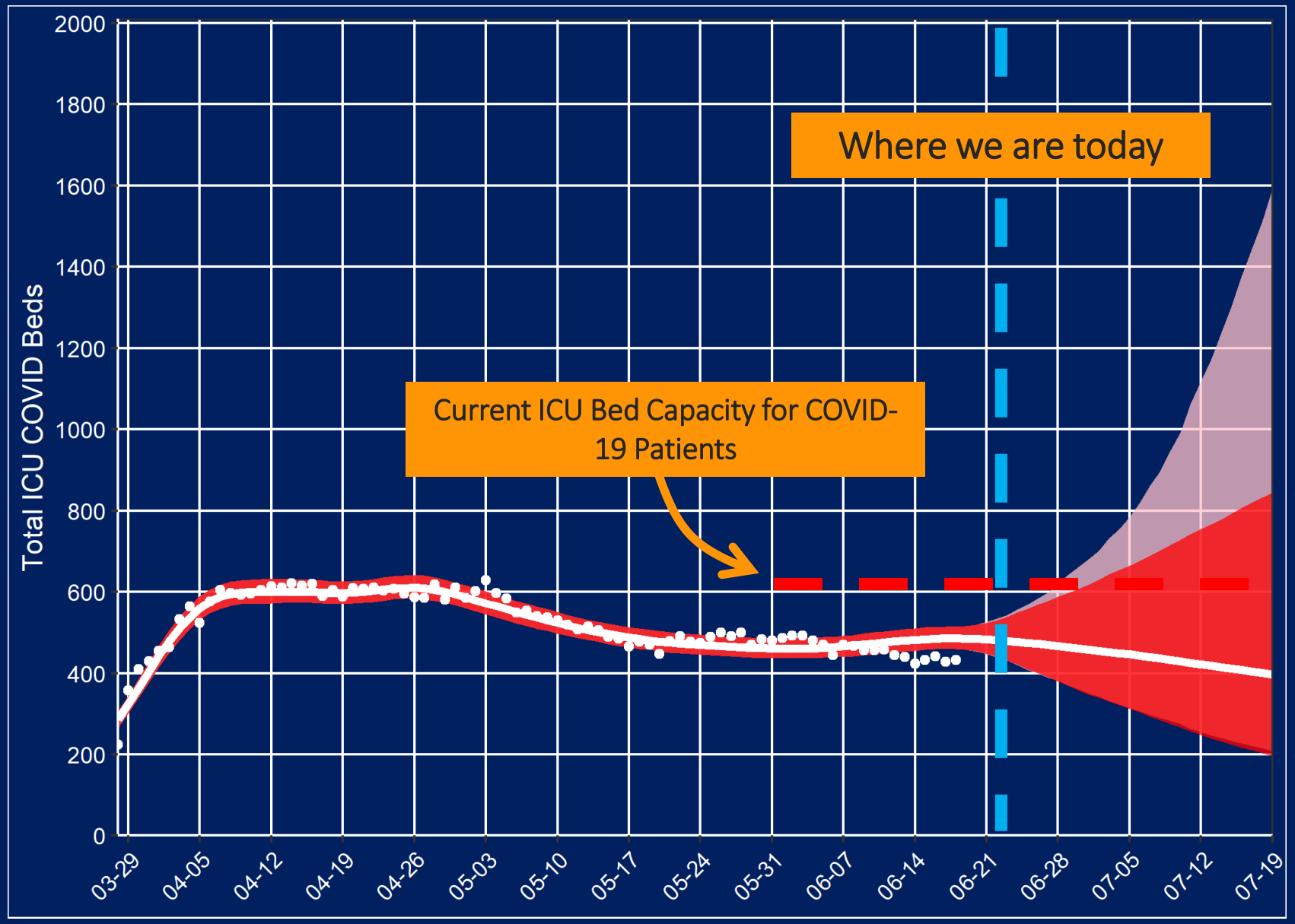
Predictions of Demand in LA County | Hospital Beds



Additional Uncertainty if R increases

Uncertainty with no change in R

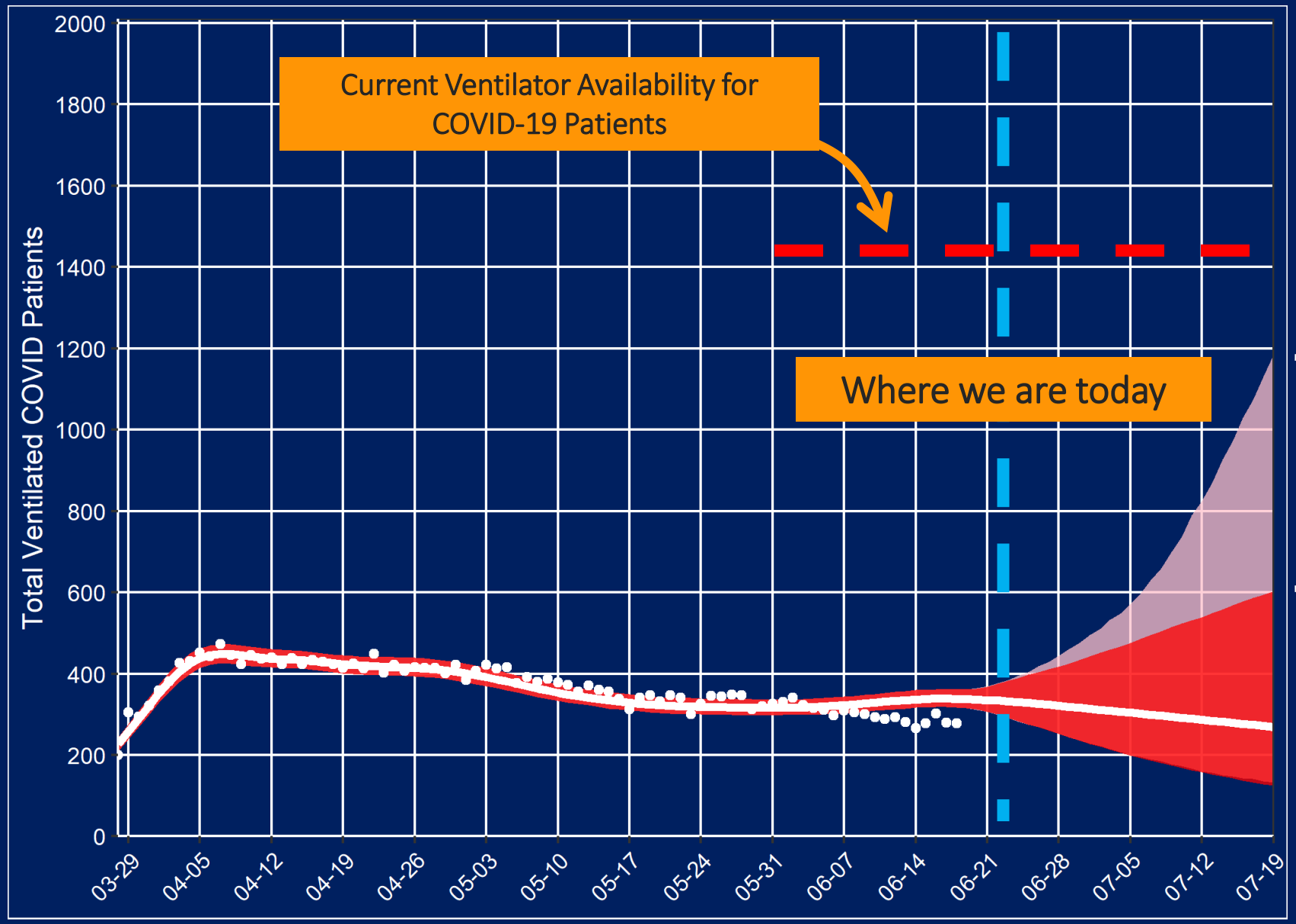
Predictions of Demand in LA County | ICU Beds



Additional Uncertainty if R increases

Uncertainty with no change in R

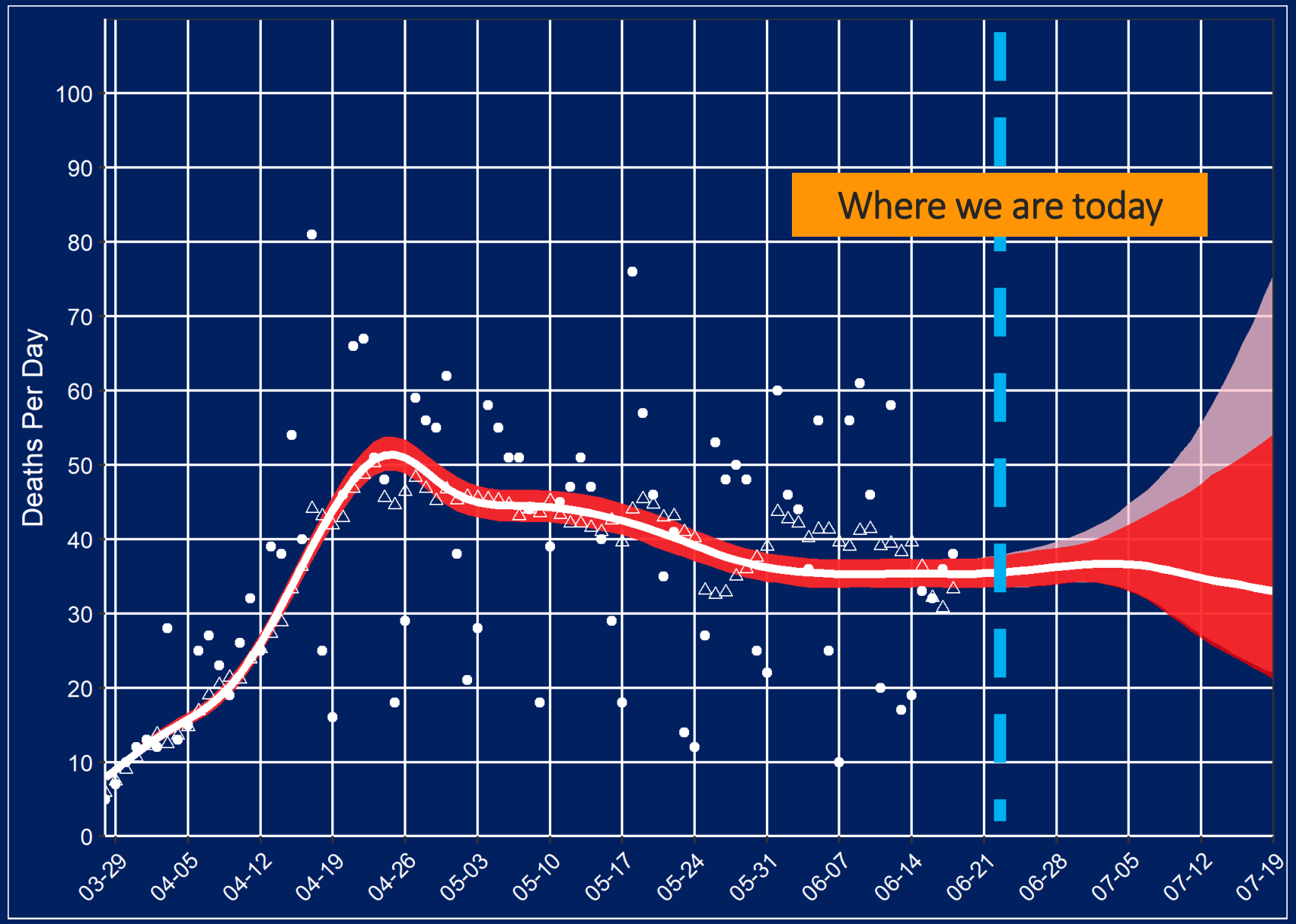
Predictions of Demand in LA County | Ventilators



Additional Uncertainty if R increases

Uncertainty with no change in R

Predictions of Daily Mortality LA County



Additional Uncertainty if R increases

Uncertainty with no change in R

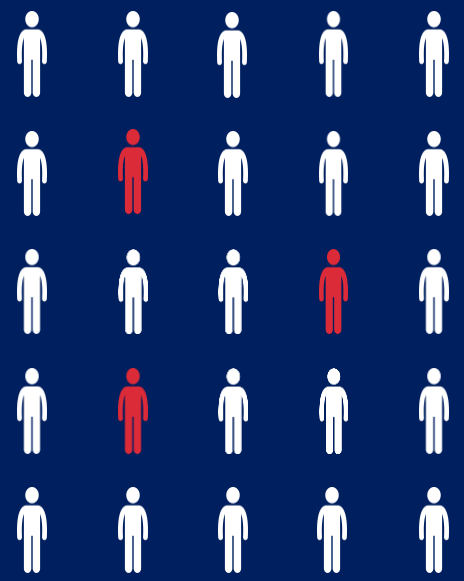
● Daily reported deaths

Δ 7-day running average

Effect of Behaviors to Control Transmission

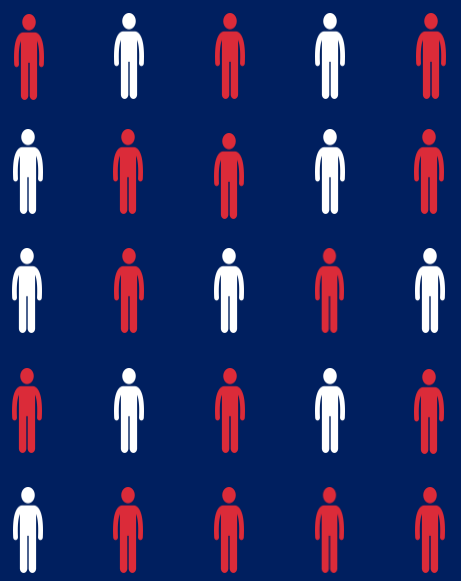
If transmission….

Maintained at Current Levels



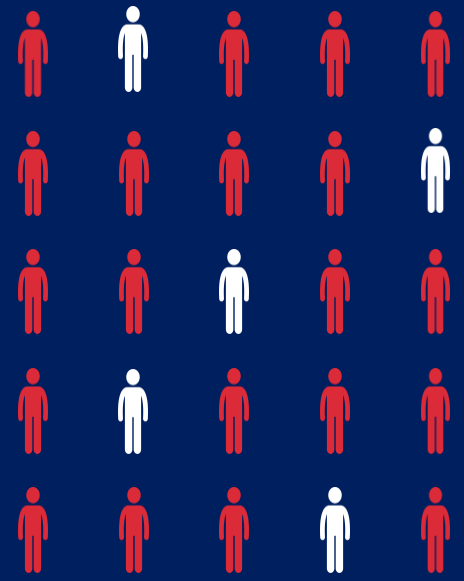
13%
(uncertainty 9% to 27%)

Increases by ½ above Current Levels



59%
(uncertainty 44% to 71%)

Increases to Pre-order Levels



82%
(uncertainty 78% to 92%)

… of LA County residents will have been infected by December 1, 2020 *

(This includes adults and children)