

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

**July 15, 2020 Update**

## County DHS COVID-19 Predictive Modeling Team:

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# Key Findings of the July 15<sup>th</sup> Update

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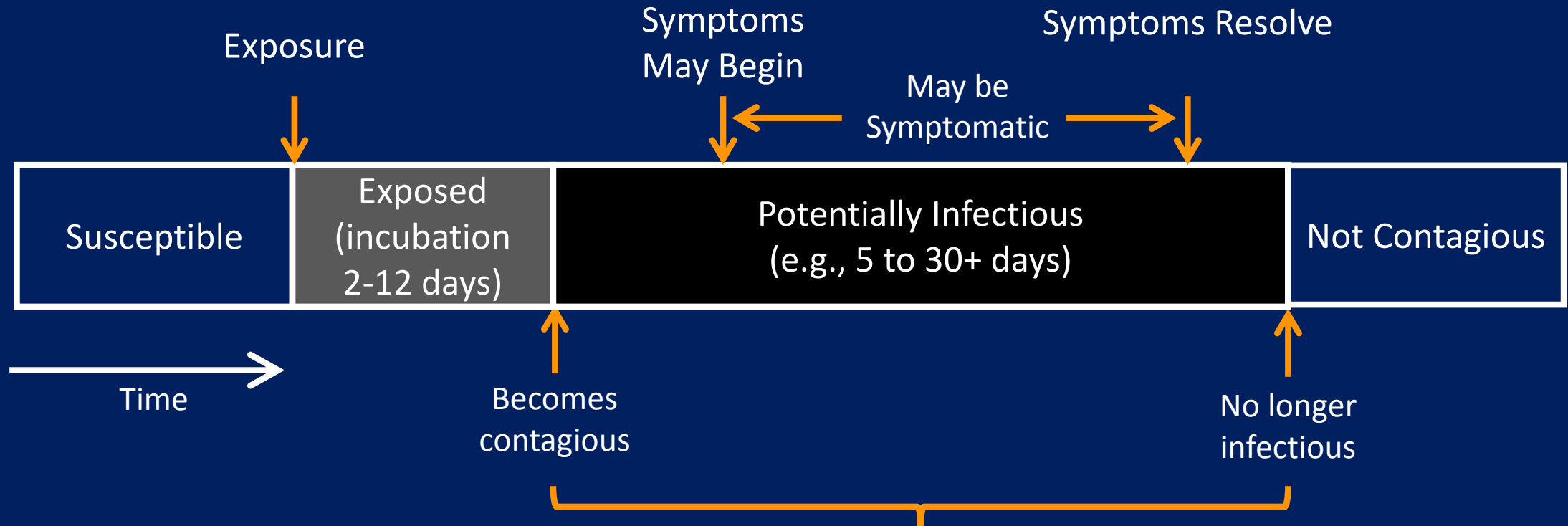
- This update includes data on hospital visits and volume through July 12, 2020.
- As before, the model reports the effective transmission number (“R”) with an adjustment for the fraction of the population that is now presumed to be immune to reinfection.
- Key findings:
  - The number of new patients with COVID-19 requiring hospitalization each day across Los Angeles County continues to increase and is at a substantially higher level than seen in April and May.
  - The pattern in hospital admissions is consistent with a continued, steady increase in transmission after a transient increase in transmission during the first three weeks of June. The transmission number (“R”) is now estimated to be 1.07 with an uncertainty of 0.94 to 1.20 so both increases or decreases in daily hospitalizations going forward are possible even with no changes in community behavior, but an increase is substantially more likely.
  - Based on the current estimate for R, the current number of available hospital beds and available ventilators in Los Angeles County are likely adequate over the next 4 weeks. The number of available, currently staffed ICU beds is more limited and could potentially become inadequate over the next 4 weeks. If this occurs, hospitals surge plans would need to be activated to accommodate the additional patient demand.
  - The model suggests that about 1 in 230 Los Angeles County residents are currently infected and infectious to others. It also estimates that about 1 in 9 have had COVID-19.

# How Many in Los Angeles are Infectious to Others?

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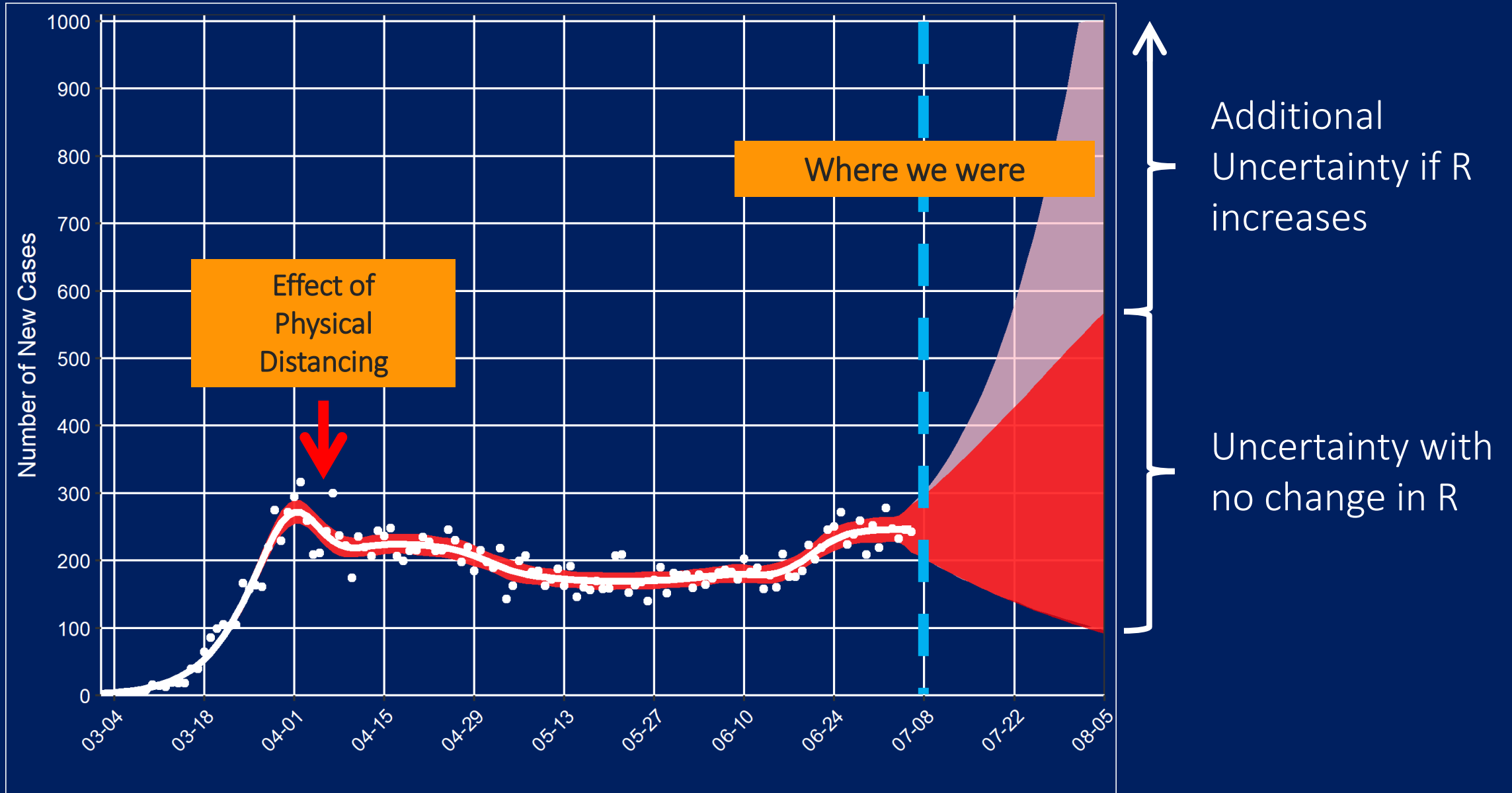
- The DHS team's epidemic model estimates the number of people in Los Angeles County who:
  - Are still **susceptible** to infection if exposed;
  - Have been **exposed** and are incubating, but not infectious;
  - Have COVID-19 and are **infectious** to others, though they may have no symptoms; and
  - Have had COVID-19 and either **recovered** or died, so they are no longer infectious
- The model suggest that about 0.43% (uncertainty of 0.26% to 0.69%) of everyone in Los Angeles County is currently infected and infectious to others. This suggests about 1 in 230 (between 1 in 380 and 1 in 145) Los Angeles County residents are currently infectious to others. Last week this estimate was 1 in 270.
- A typical large busy store is likely to have multiple infectious persons enter and shop every day

# A Patient's Journey | COVID-19

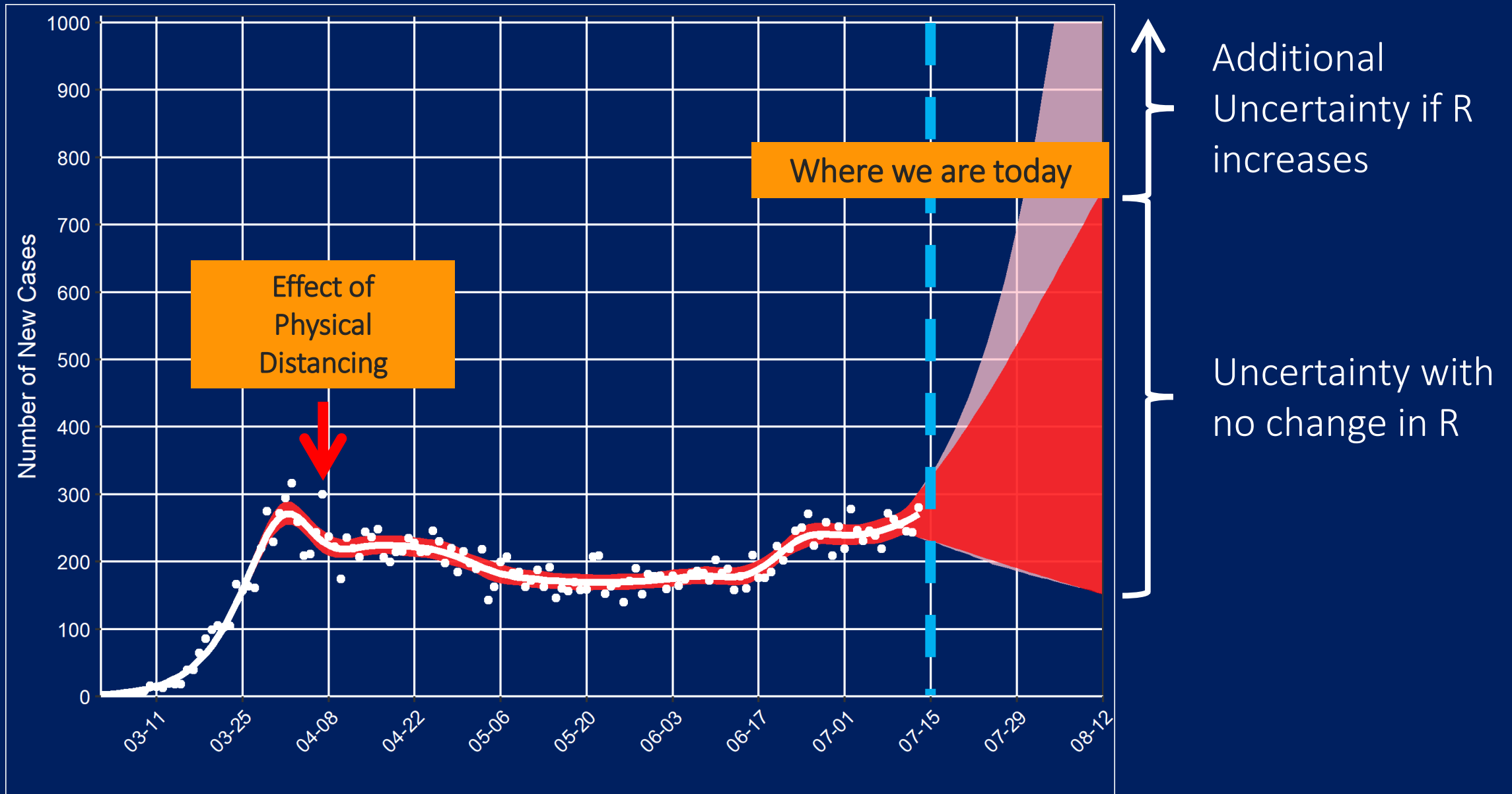


Goal of physical distancing, public use of cloth face coverings, quarantine, isolation and similar actions is to reduce the number of new susceptible people exposed during this time

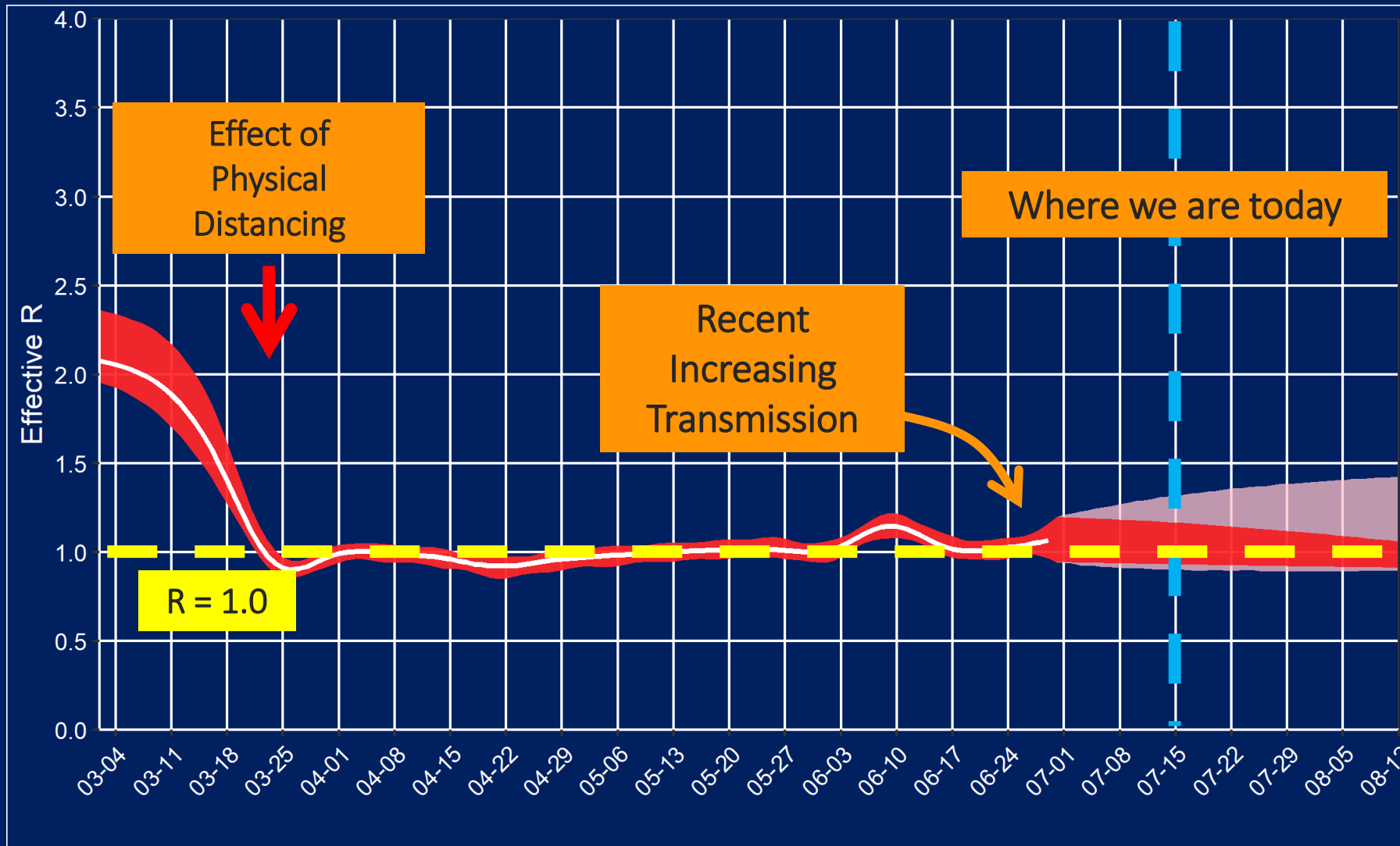
# Hospital New Patient Projections: From Last Week



# Hospital New Patient Projections



# Effective Transmission Number "R"

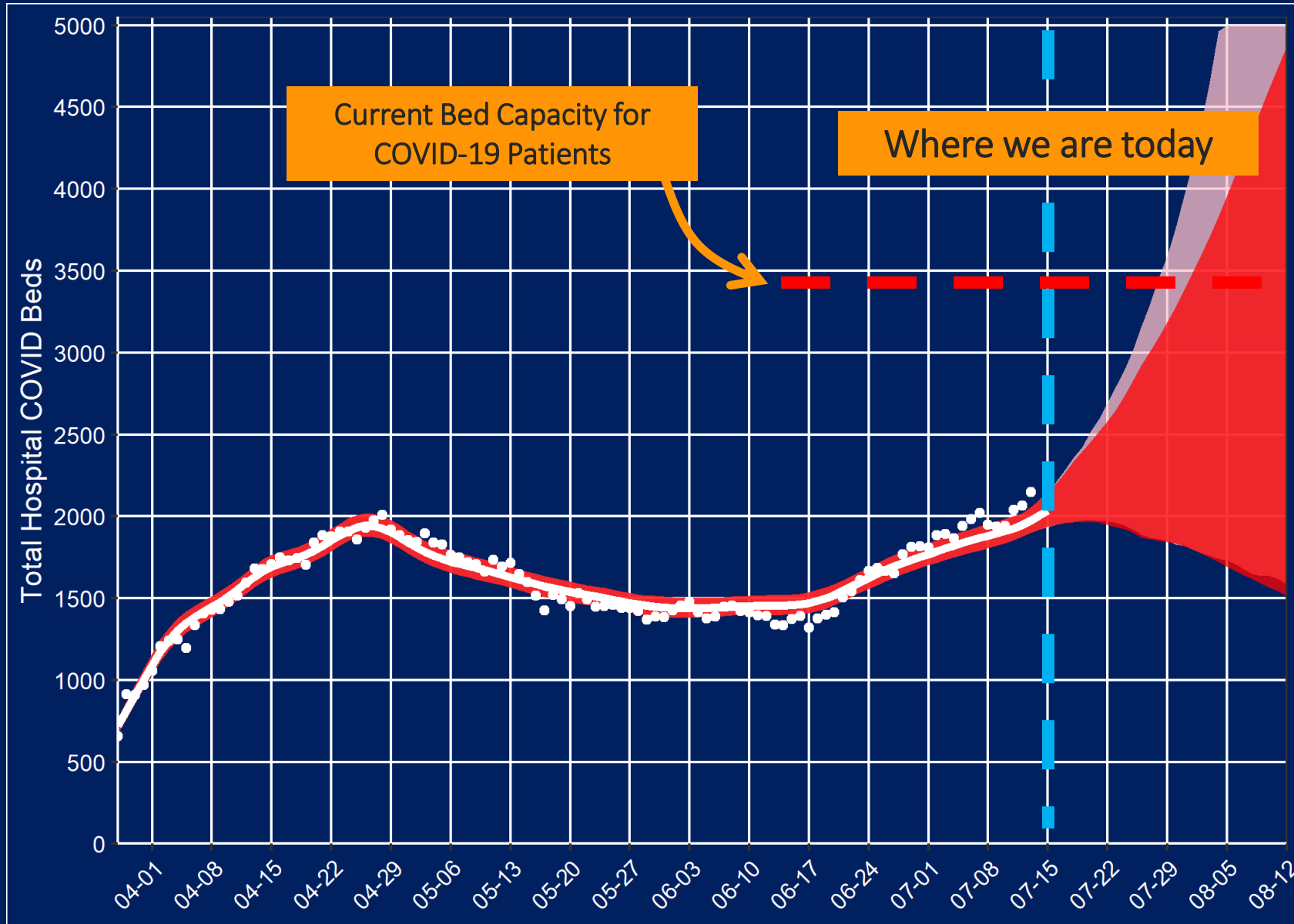


Additional uncertainty if R increases further

Uncertainty with no change in R

Note: We have adjusted the R that we present to account for 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 includes this factor.

# Predictions of Demand in LA County | Hospital Beds



← Additional  
Uncertainty if R  
increases

Uncertainty with  
no change in R

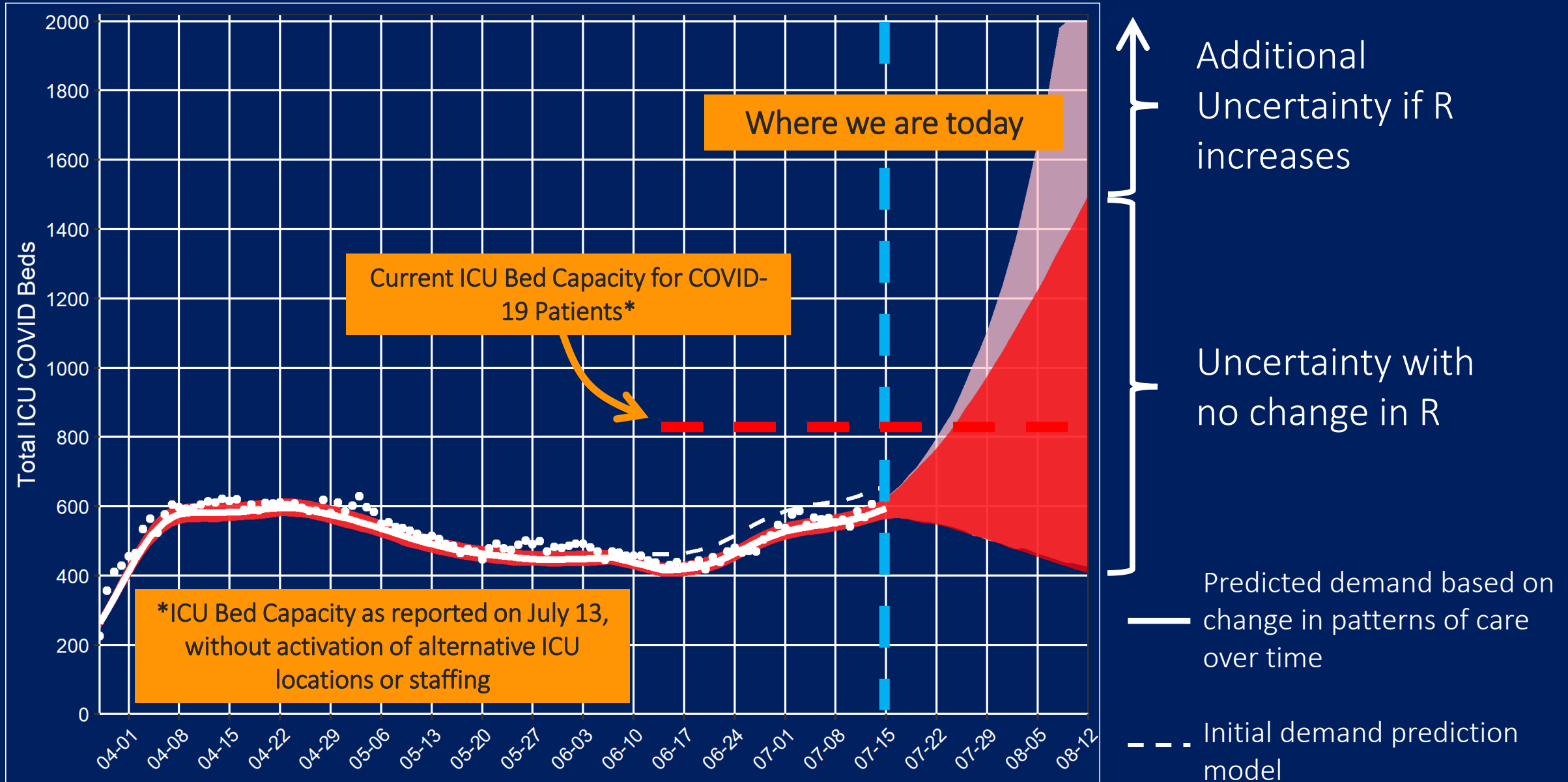


# Changes in the Epidemic and Medical Care

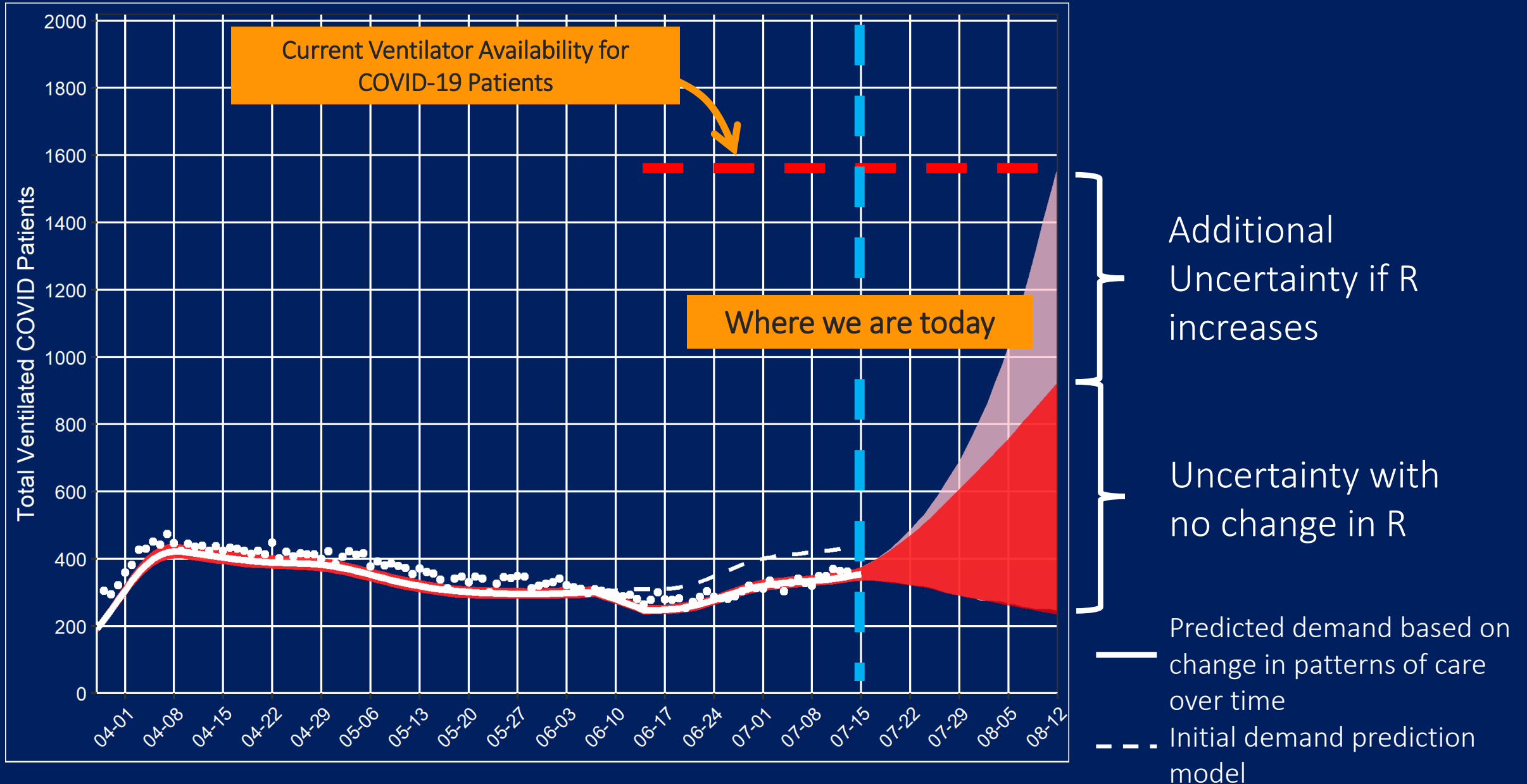
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- The COVID-19 epidemic in Los Angeles County is affecting a younger population, on average, than before
- We have learned that, for some patients with COVID-19, it is possible to care for them effectively without placing them in the ICU or using mechanical ventilation
- Because of these changes, there has been a slight decrease in the utilization of ICU beds and ventilators relative to the number of patients requiring hospital admission for COVID-19
- This change is now shown as a new projection for the number of ICU beds and ventilators that we expect to be required in the future
  - The new projection for ICU bed utilization is a 10% decrease from what would have been expected early in the epidemic with the same number of hospital admissions
  - The new projection for ventilator utilization is a 20% decrease from what would have been expected early in the epidemic with the same number of hospital admissions
  - These adjustments will continue to be reevaluated in the weeks ahead

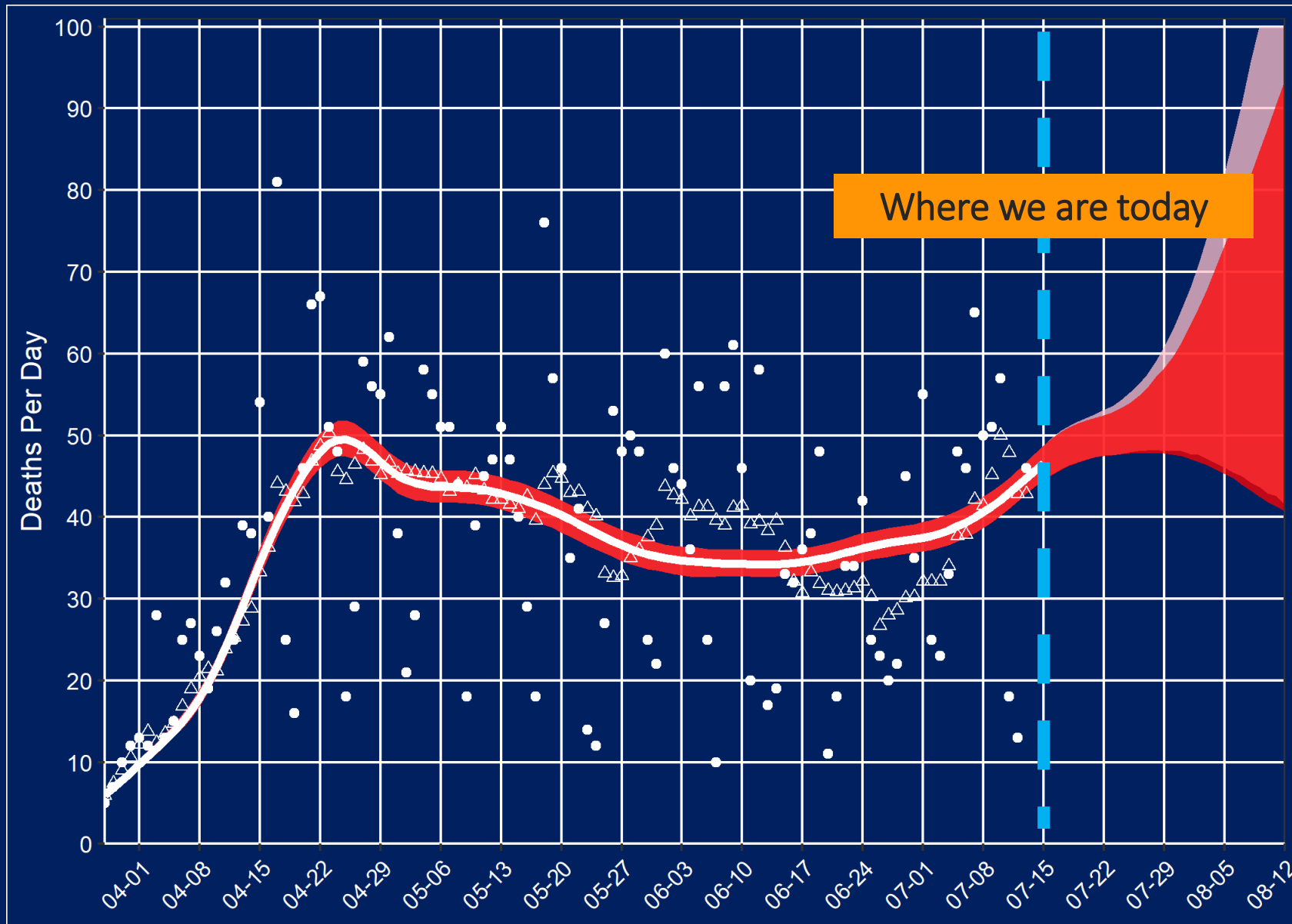
# Predictions of Demand in LA County | ICU Beds



# Predictions of Demand in LA County | Ventilators



# Predictions of Daily Mortality LA County



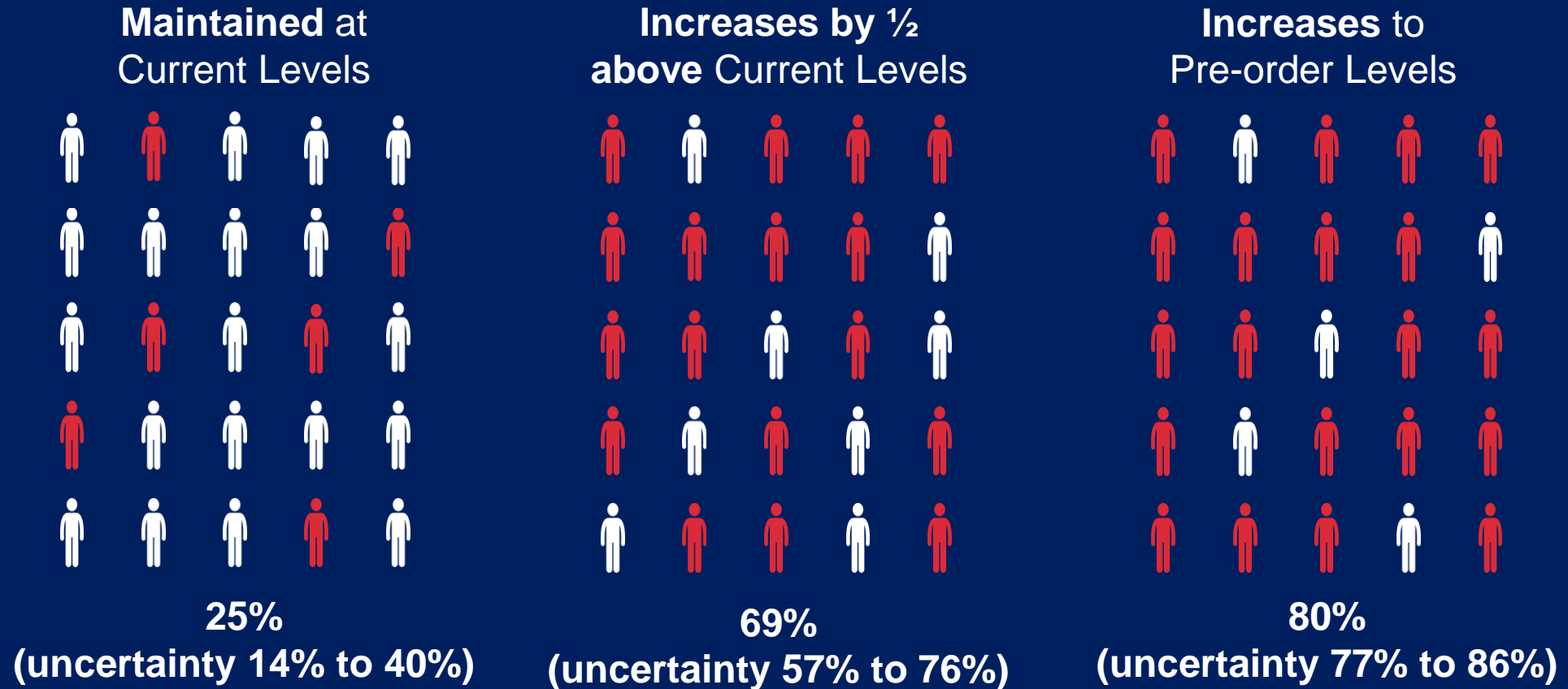
← Additional  
Uncertainty if R  
increases

Uncertainty with  
no change in R

- Daily reported deaths
- △ 7-day running average

# Effect of Behaviors to Control Transmission

If transmission....



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

*\*(This includes adults and children)*