

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

**July 22, 2020 Update**

## County DHS COVID-19 Predictive Modeling Team:

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# Key Findings of the July 22<sup>th</sup> Update

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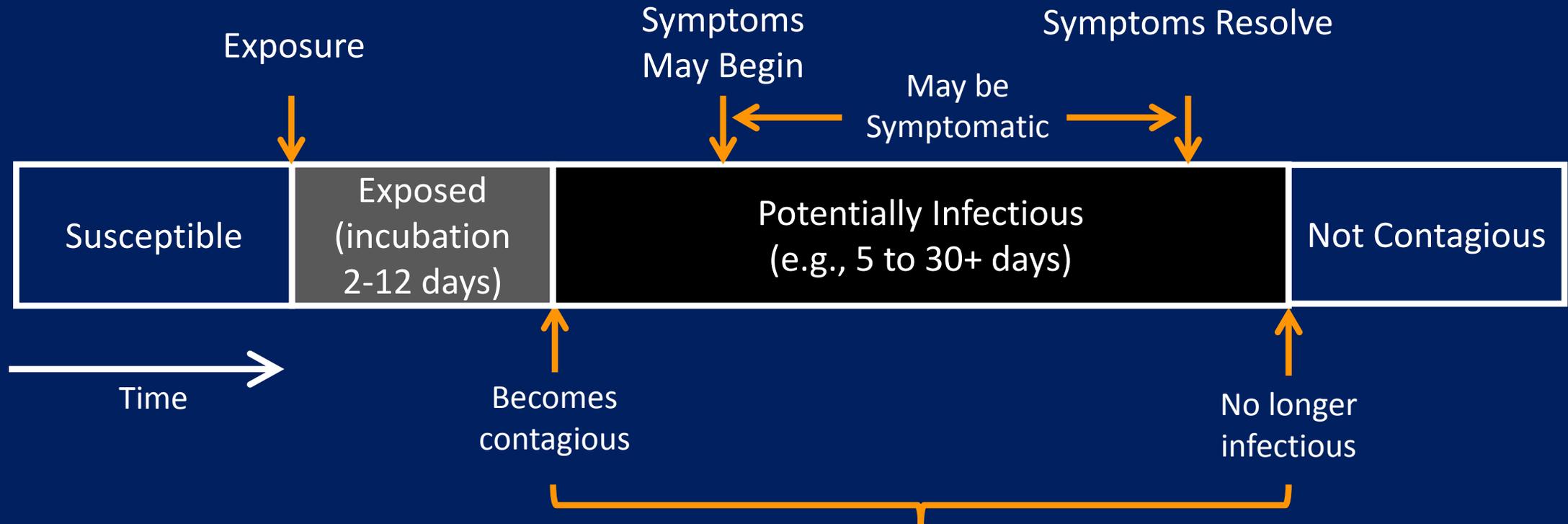
- This update includes data on hospital visits and volume through July 20, 2020.
- The predicted demand for ICU beds and ventilators now adjusts for the decreased expected need for this level of care on a per-patient basis over time, as the affected populations changes.
- Key findings:
  - The number of new patients with COVID-19 requiring hospitalization each day across Los Angeles County increased through the middle of last week and is now flat or possibly decreasing. The number of daily new cases is at a substantially higher level than seen in April and May. Additional data from the days ahead will be required to know if new daily cases are decreasing.
  - The pattern in hospital admissions is consistent with R falling from a value above one to a value slightly below one in the first week of July. The transmission number (“R”) is now estimated to be 0.94 with an uncertainty of 0.82 to 1.07 so both increases or decreases in daily hospitalizations going forward are possible.
  - 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 320 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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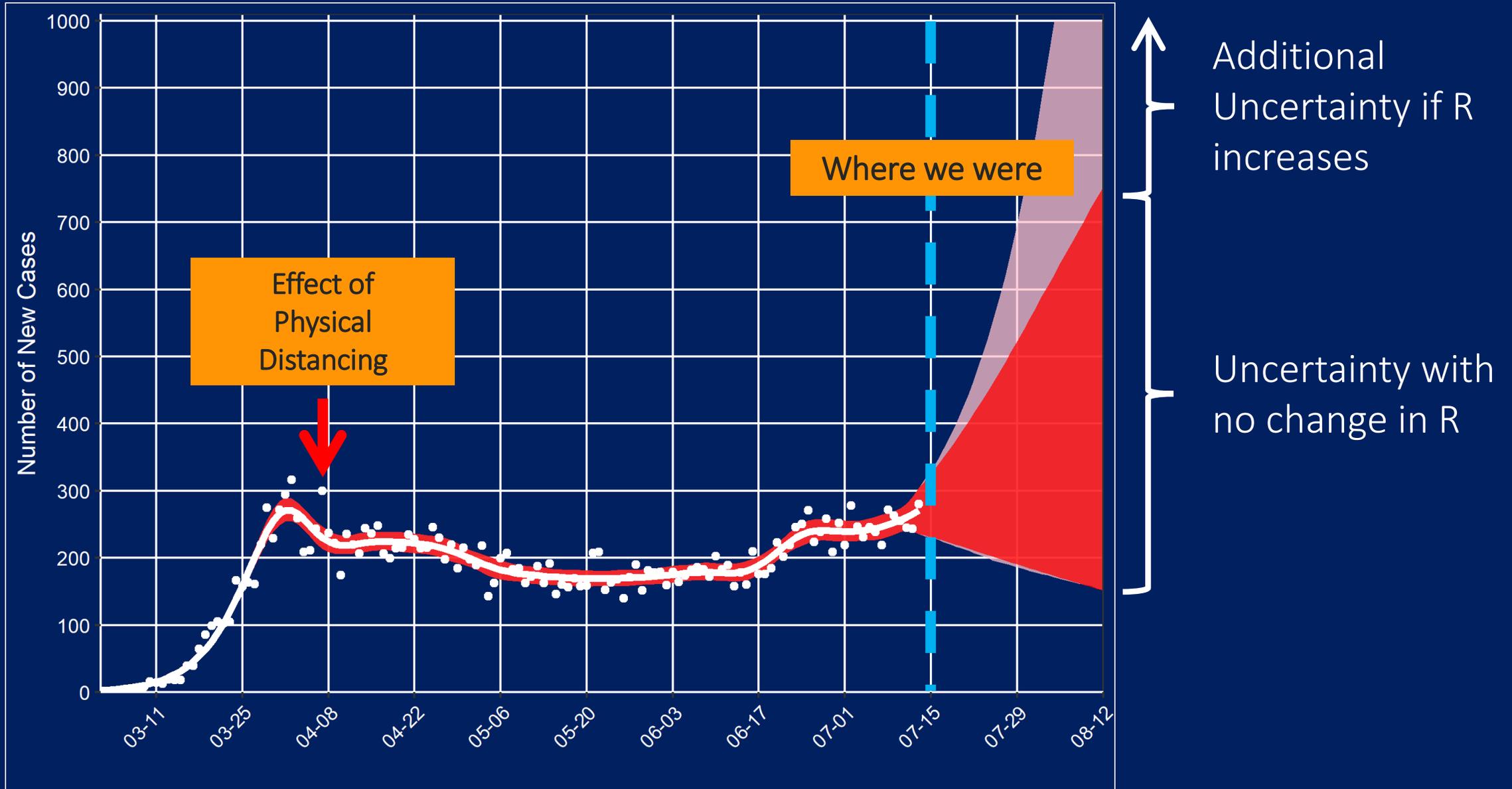
- The DHS team's epidemic model estimates the number of people in Los Angeles County who:
  - Are still **susceptible** to infection if exposed;
  - Have been **exposed** and are incubating, but not infectious;
  - Have COVID-19 and are **infectious** to others, though they may have no symptoms; and
  - Have had COVID-19 and either **recovered** or died, so they are no longer infectious
- The model suggest that about 0.31% (uncertainty of 0.18% to 0.49%) of everyone in Los Angeles County is currently infected and infectious to others. This suggests about 1 in 320 (between 1 in 550 and 1 in 200) Los Angeles County residents are currently infectious to others. Last week this estimate was 1 in 230.

# A Patient's Journey | COVID-19

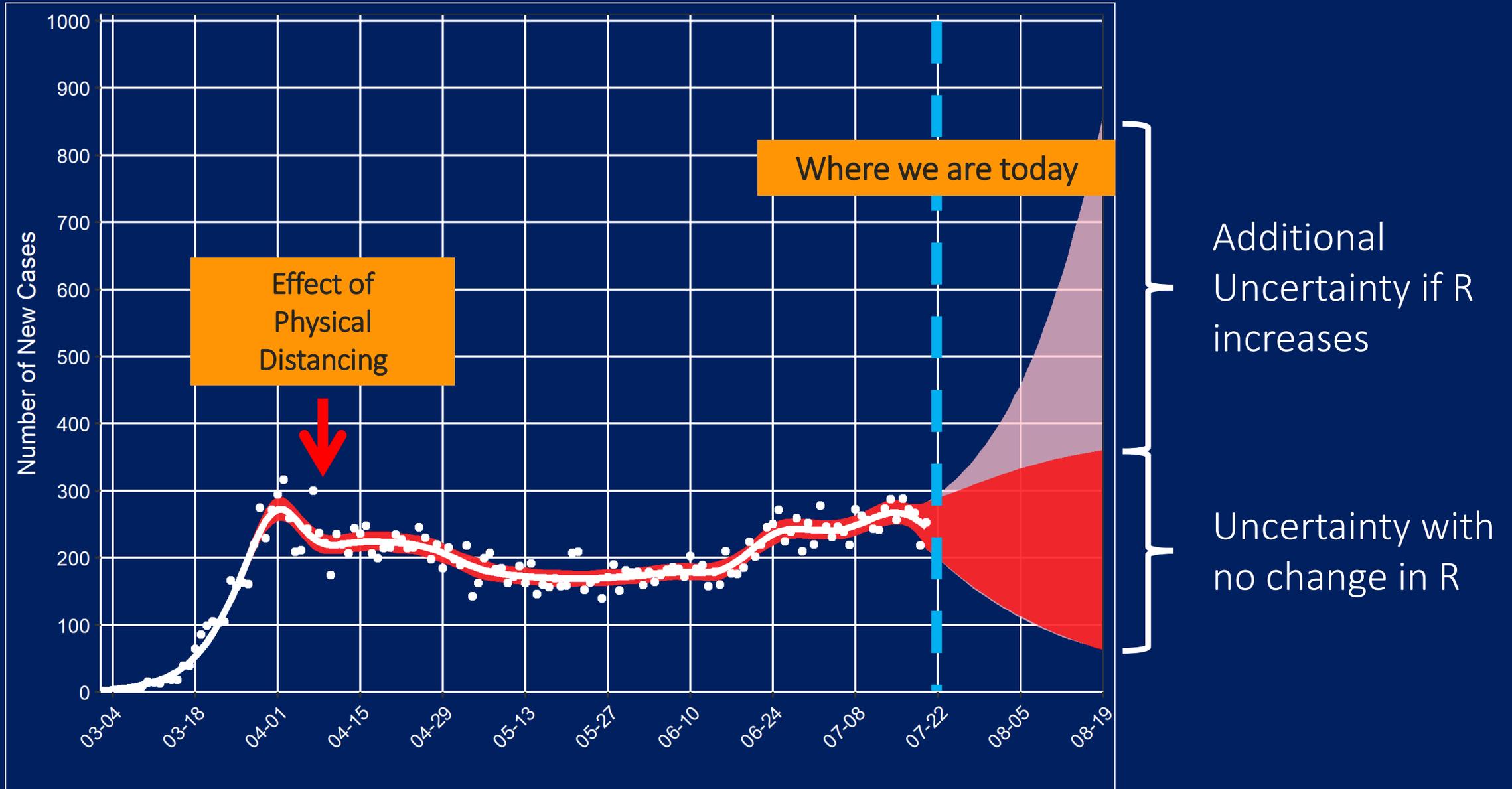


Goal of physical distancing, public use of cloth face coverings, quarantine, isolation and similar actions is to reduce the number of new susceptible people exposed during this time

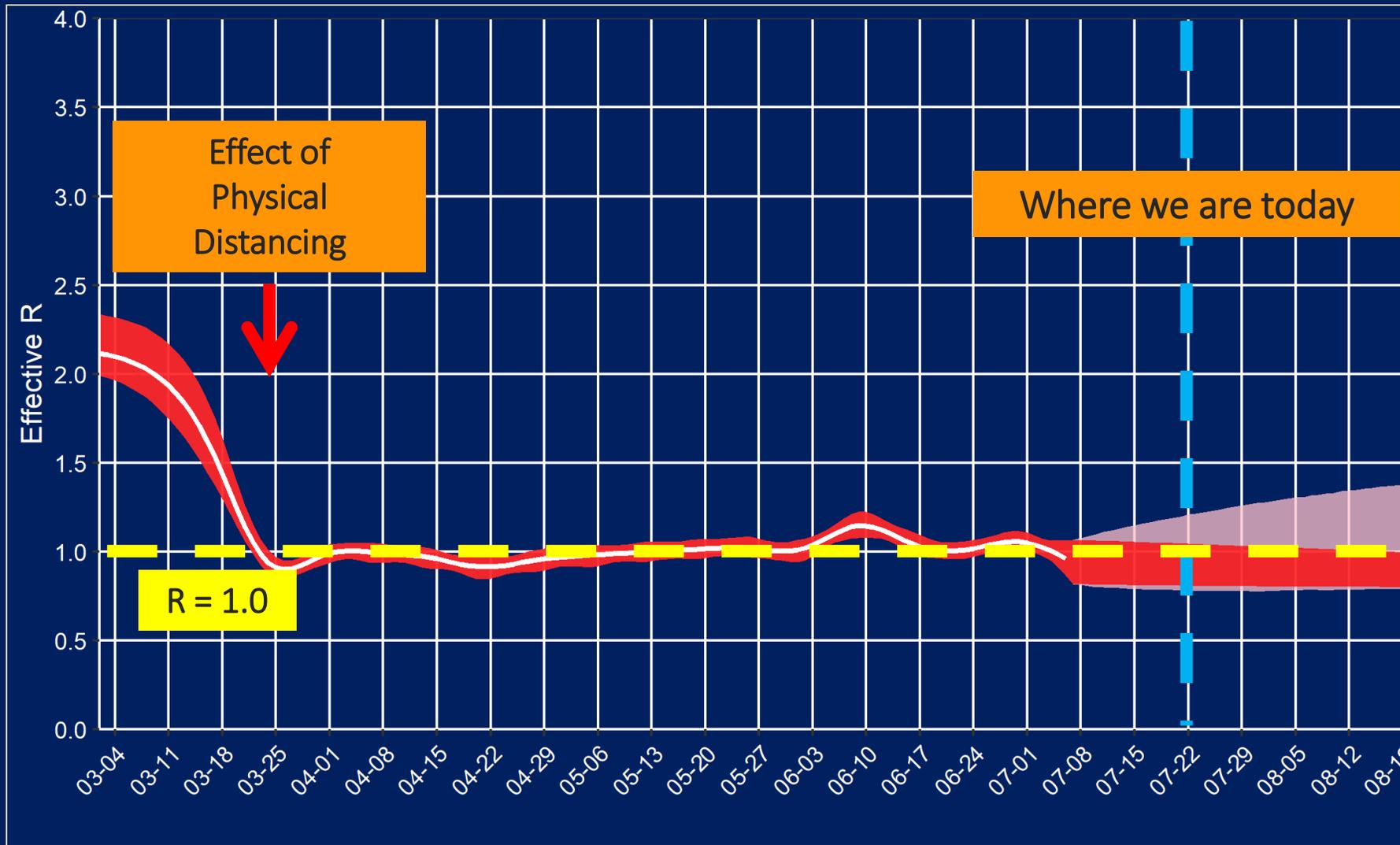
# Hospital New Patient Projections: From Last Week



# Hospital New Patient Projections

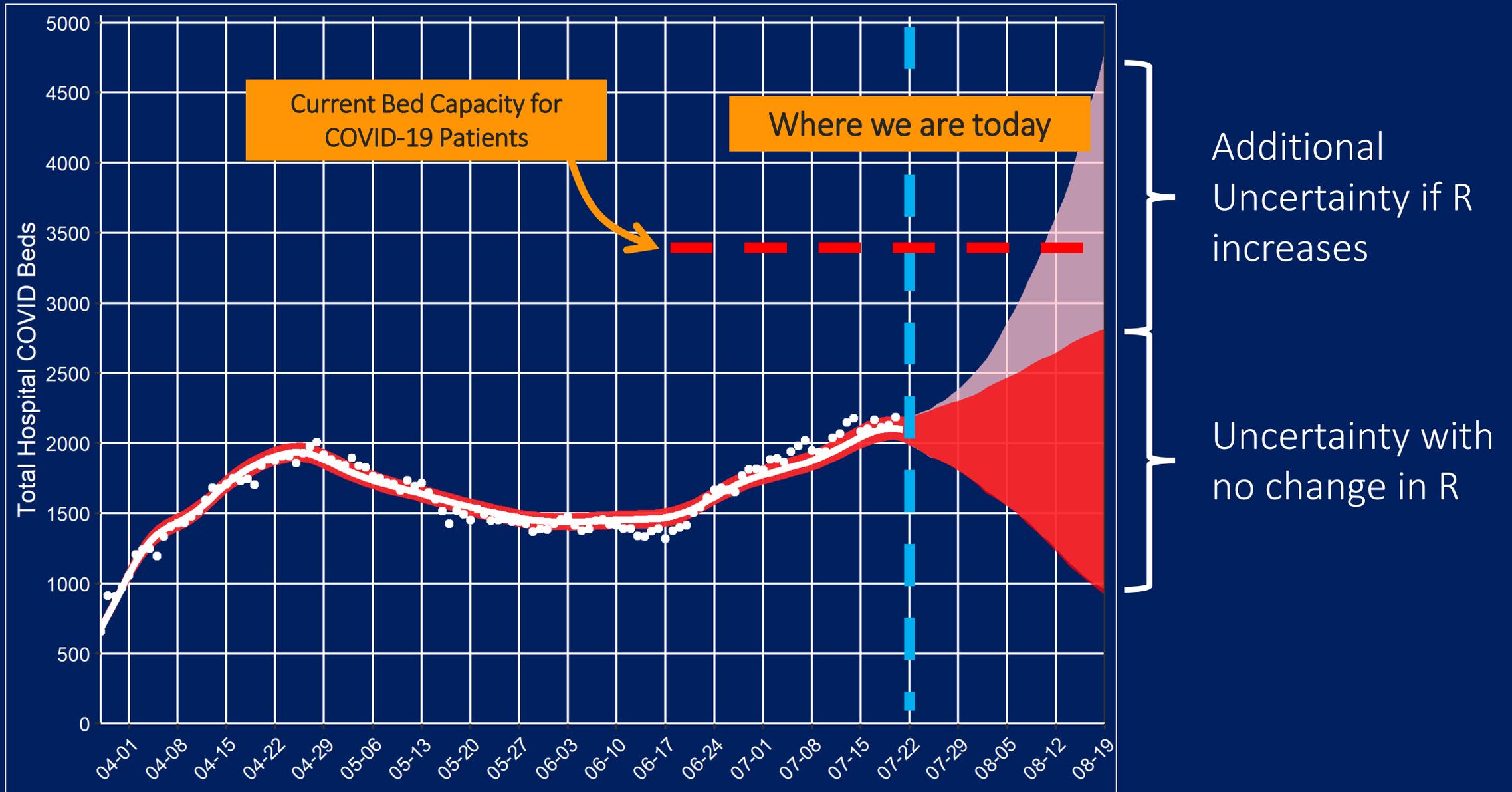


# Effective Transmission Number "R"



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

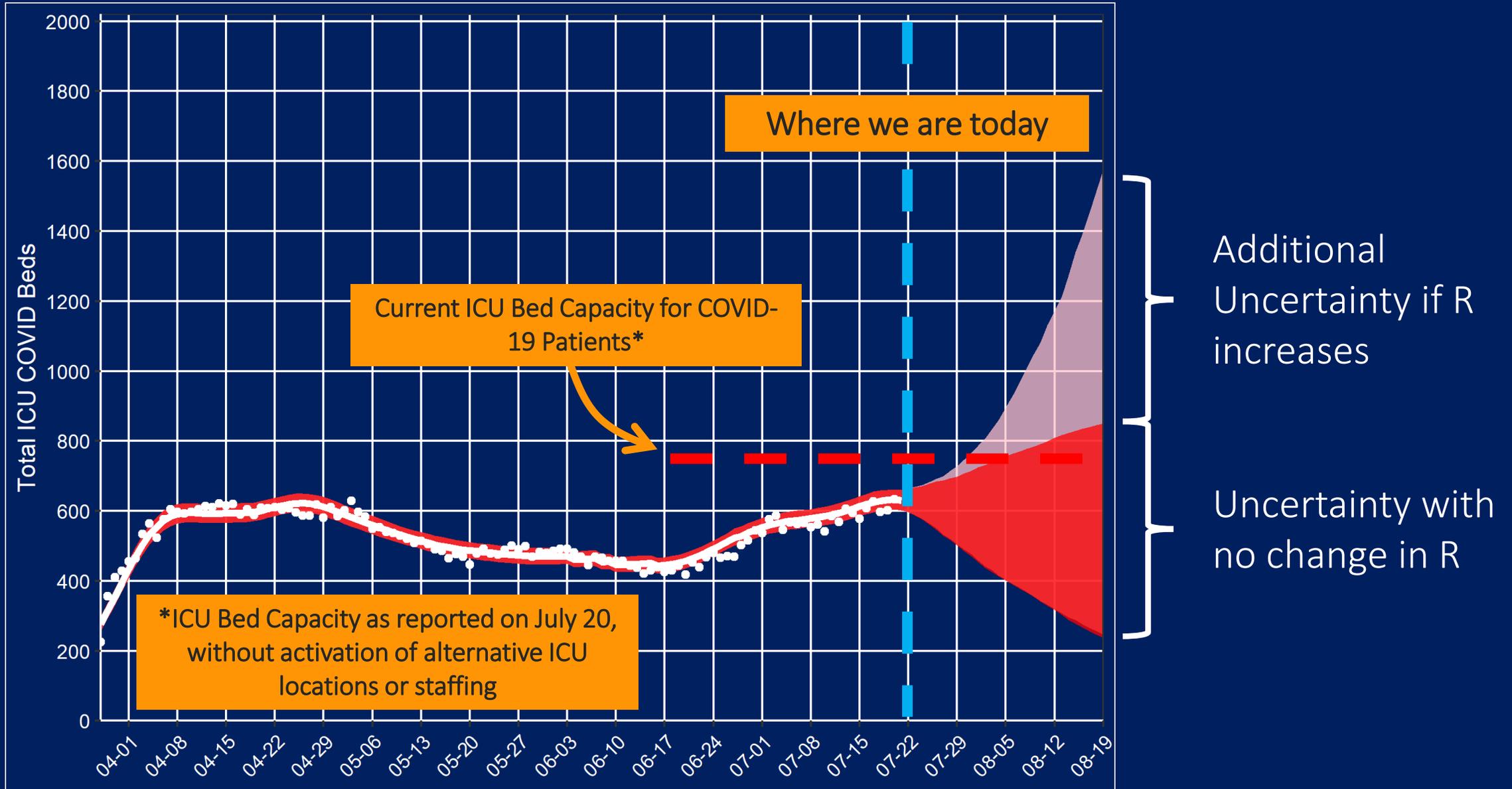


# Changes in the Epidemic and Medical Care

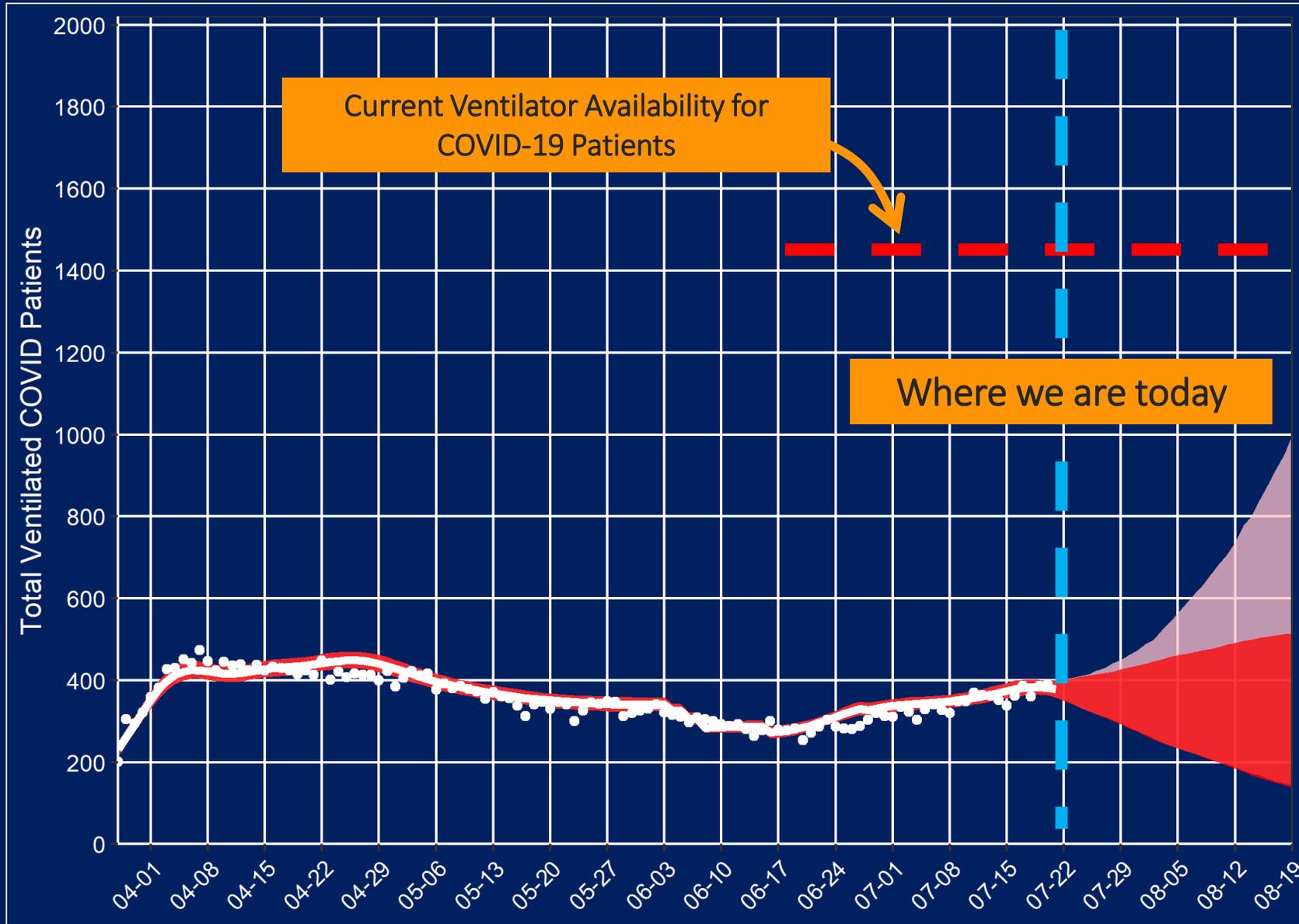
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- The COVID-19 epidemic in Los Angeles County is affecting a younger population, on average, than before
- As we have gained greater experience in treating patients hospitalized with COVID-19, we have learned that a greater share can be effectively cared for without placing them in the ICU or using mechanical ventilation
- Because of these changes, there has been a decrease in the need for ICU beds and ventilators relative to the number of hospitalized patients with COVID-19
- These changes are now incorporated into the new projections for the number of ICU beds and ventilators that we expect to be required in the future
  - The projection for future 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 projection for future ventilator utilization is a 25% 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



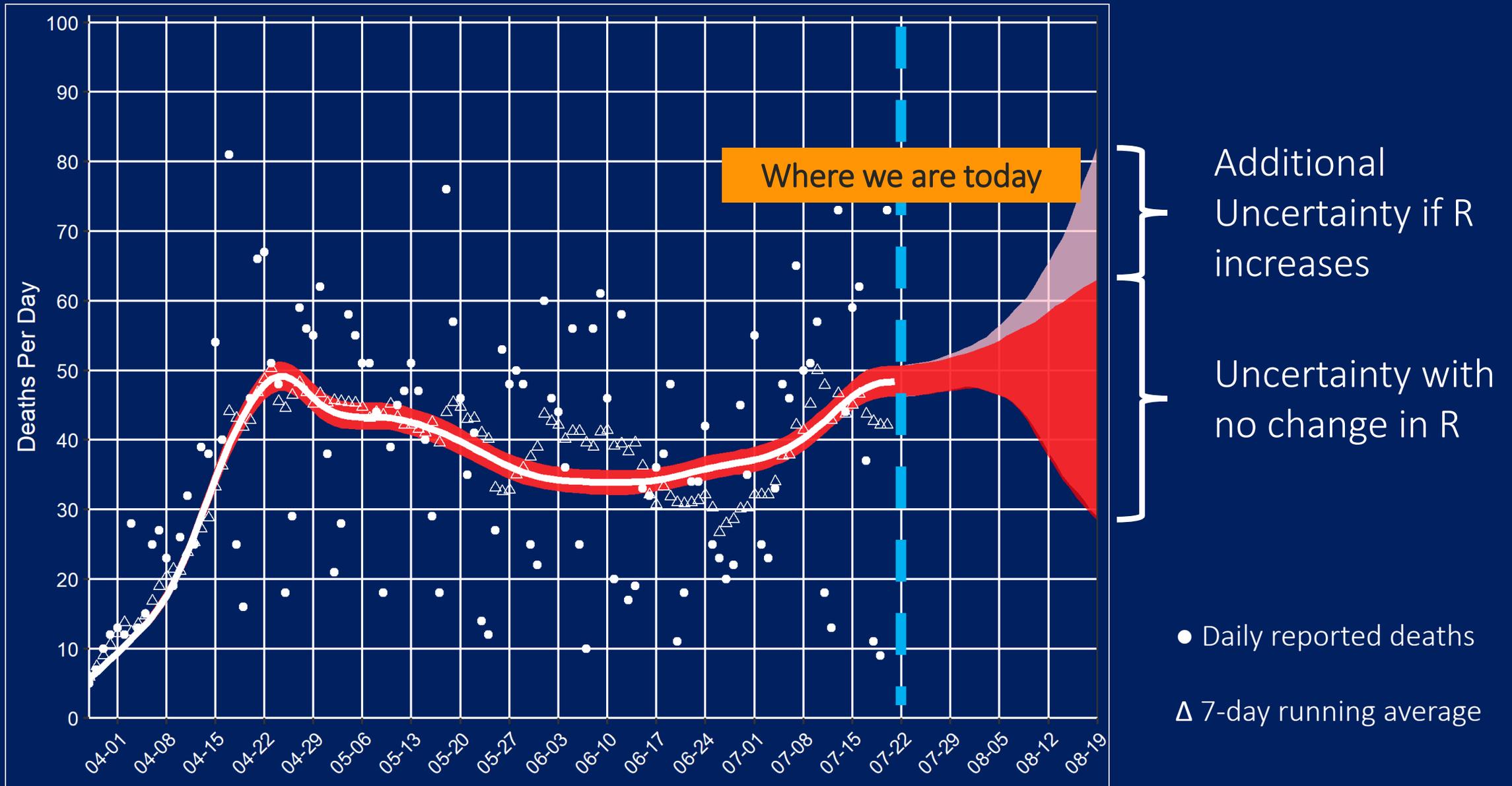
# Predictions of Demand in LA County | Ventilators



Additional  
Uncertainty if R  
increases

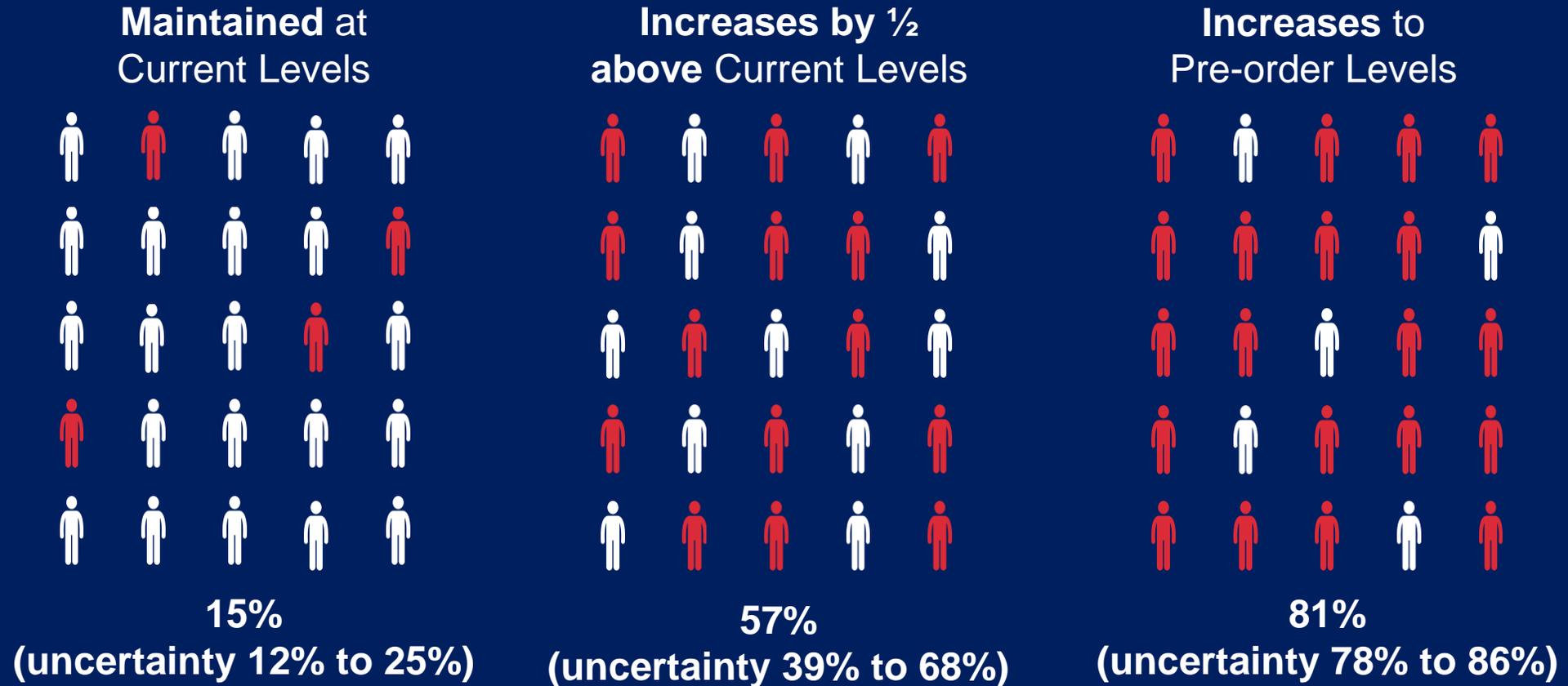
Uncertainty with  
no change in R

# Predictions of Daily Mortality LA County



# 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)*