

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

January 20, 2021 Update

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Key Findings of the January 20th Update

- This update includes data through January 18, 2021.
- The underlying statistical prediction model is unchanged from last week.
- Key findings:
 - The number of new patients with COVID-19 requiring hospitalization each day across Los Angeles County, although extremely high, has appeared to have leveled off and begin to decrease. The illness severity in hospitalized patients has been very high, with increased needs for intensive care, mechanical ventilation, and higher mortality.
 - Based on hospitalization information that reflects transmission up to the first week in January, the estimated transmission number (“R”) at that time was 0.94 with an uncertainty of 0.90 to 0.97. This is similar to last week, when the estimate for one week earlier was 0.97 with an uncertainty of 0.93 to 1.00.

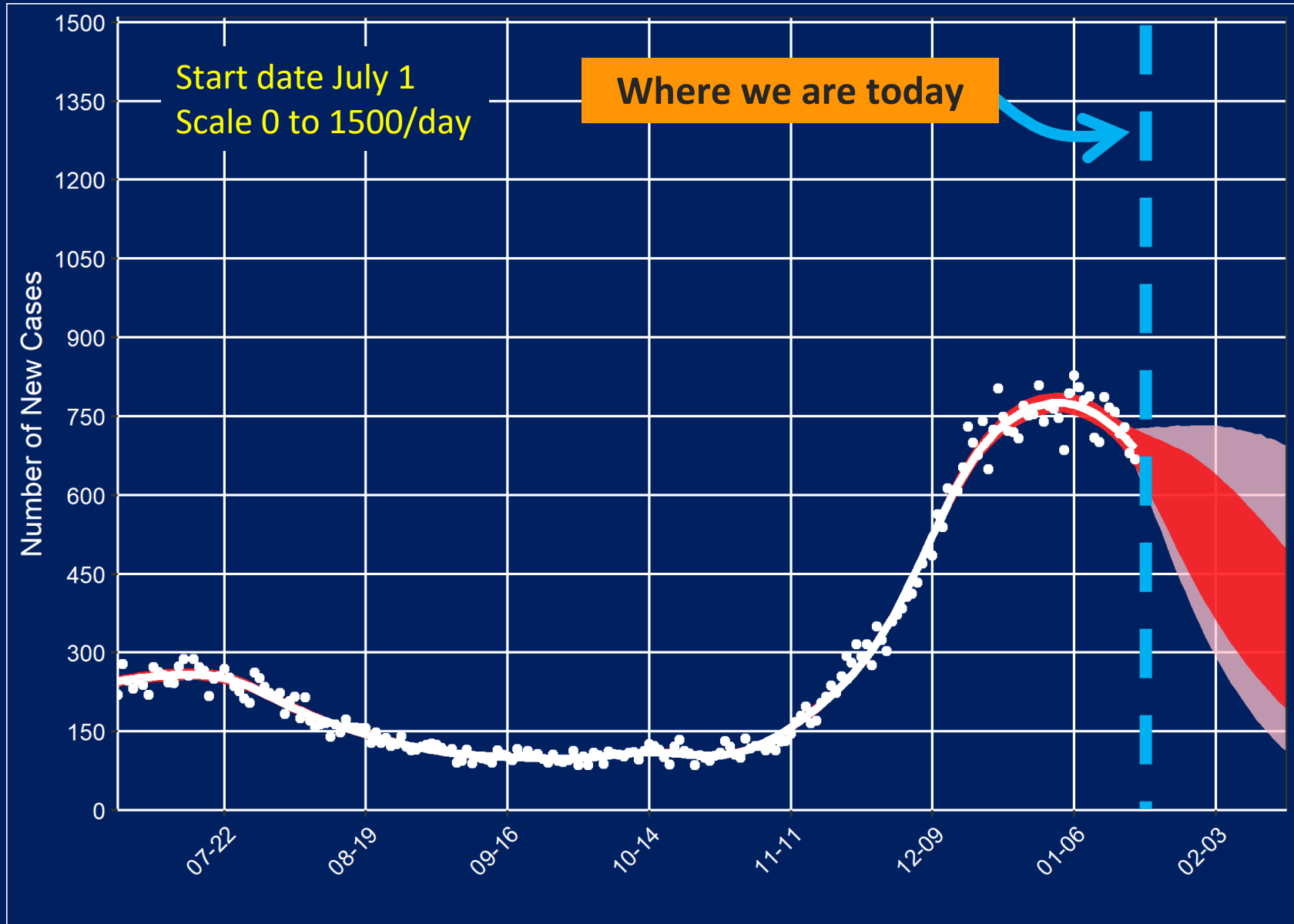
Key Findings of the January 20th Update (Continued)

- Key findings (Continued):
 - Based on the pattern in hospitalizations, we expect a continued very high demand for hospital-based services with a very limited supply of hospital beds and continued shortages in ICU beds over the next 4 weeks. The number of ventilators in Los Angeles County is likely adequate over the next 4 weeks. We expect average daily mortality to continue to be very high.

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 suggests that about 0.77% (uncertainty of 0.50% to 1.14%) of everyone in Los Angeles County is currently infected and infectious to others.
- This would suggest about 1 in 130 (between 1 in 200 and 1 in 90) Los Angeles County residents are currently infectious to others. One week ago, this estimate was 1 in 115.
- Approximately 1 in 3 persons in Los Angeles County has been infected with COVID-19 since the beginning of the pandemic.

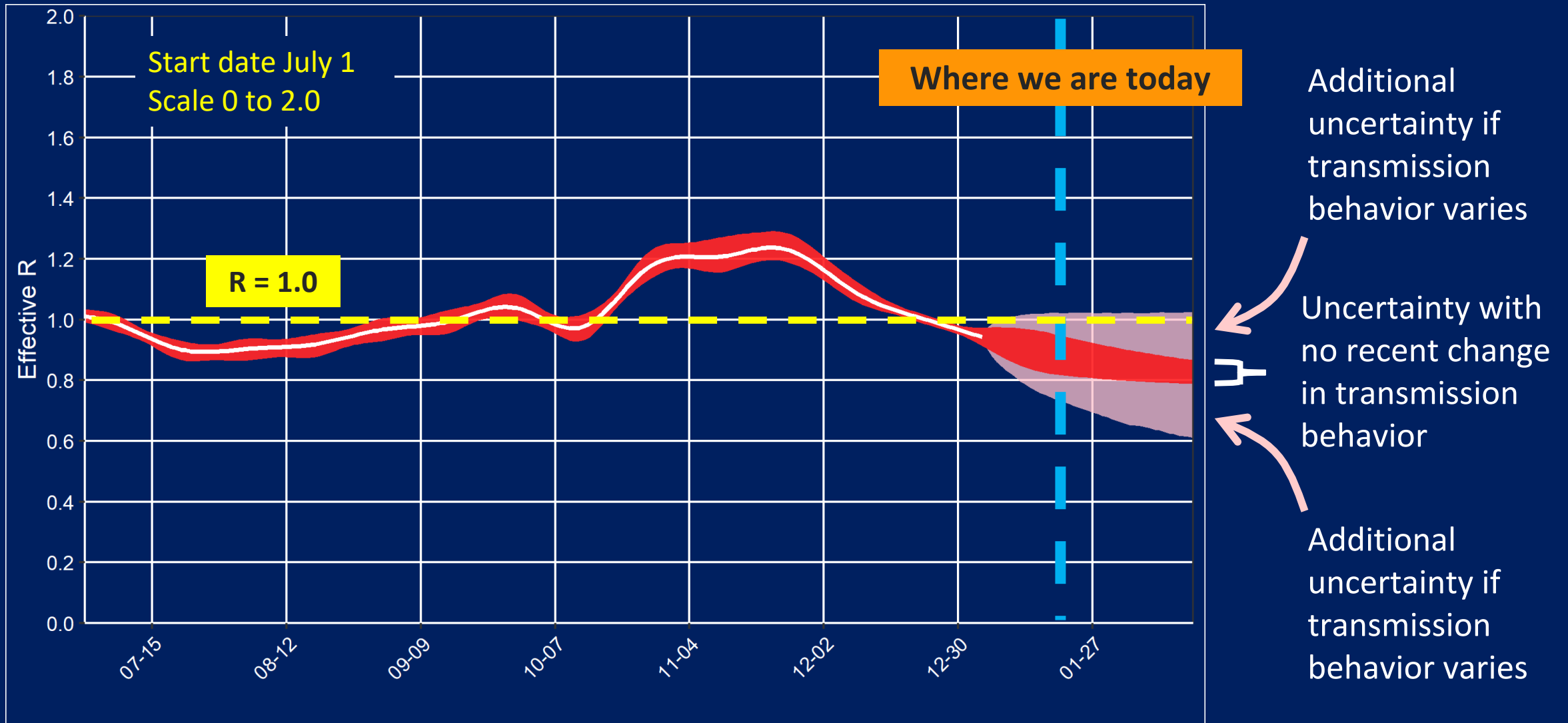
Hospital New Patient Projections



Additional uncertainty if transmission behavior varies

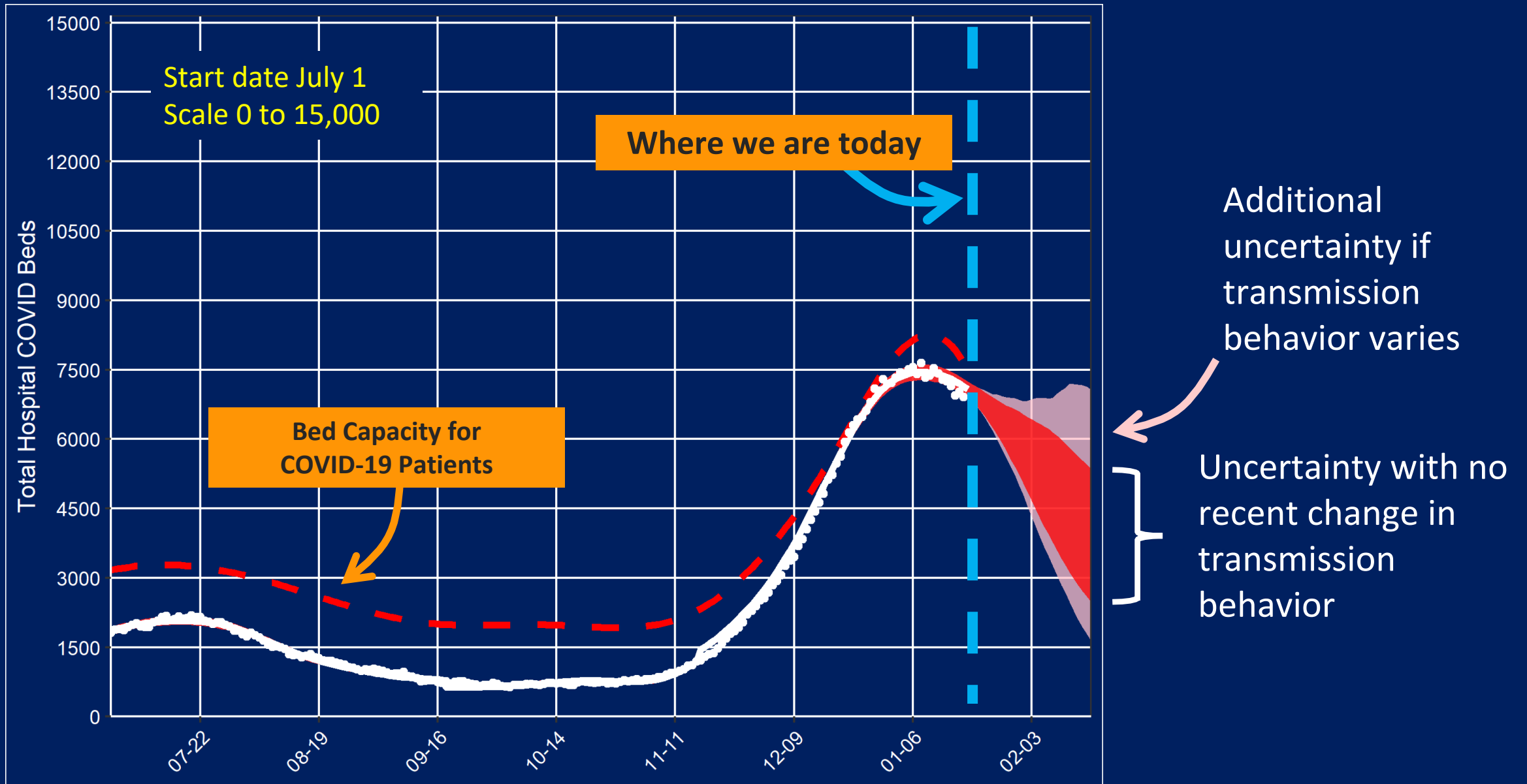
Uncertainty with no recent change in transmission behavior

Effective Transmission Number "R"

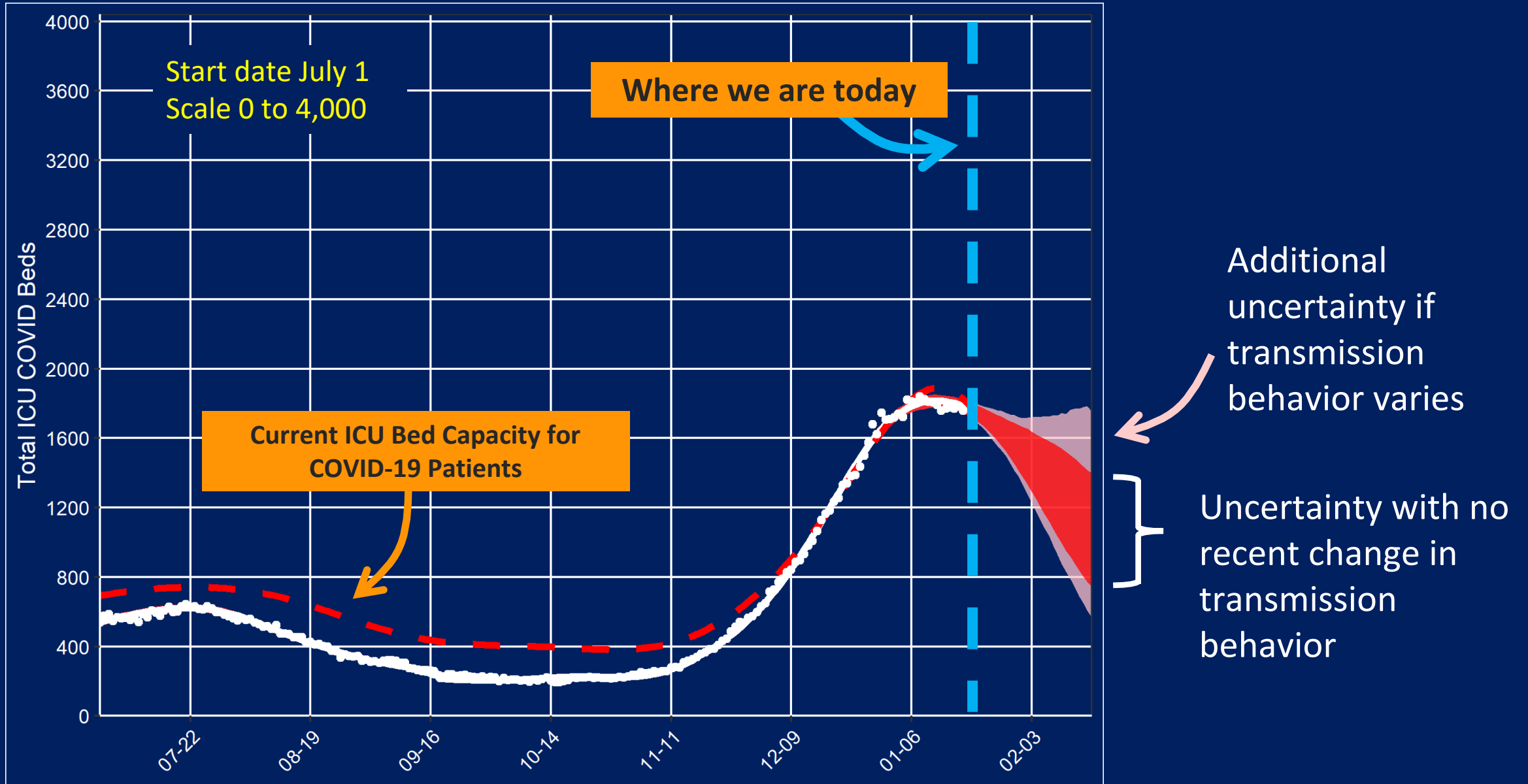


Note: We have adjusted the R that we present to account for the fraction of the population that is presumed to be immune to reinfection. At the beginning of the pandemic, this fraction was essentially zero so this would not have made any difference. But as more people have been infected, and are presumed to have immunity, we are presenting an R that includes this factor.

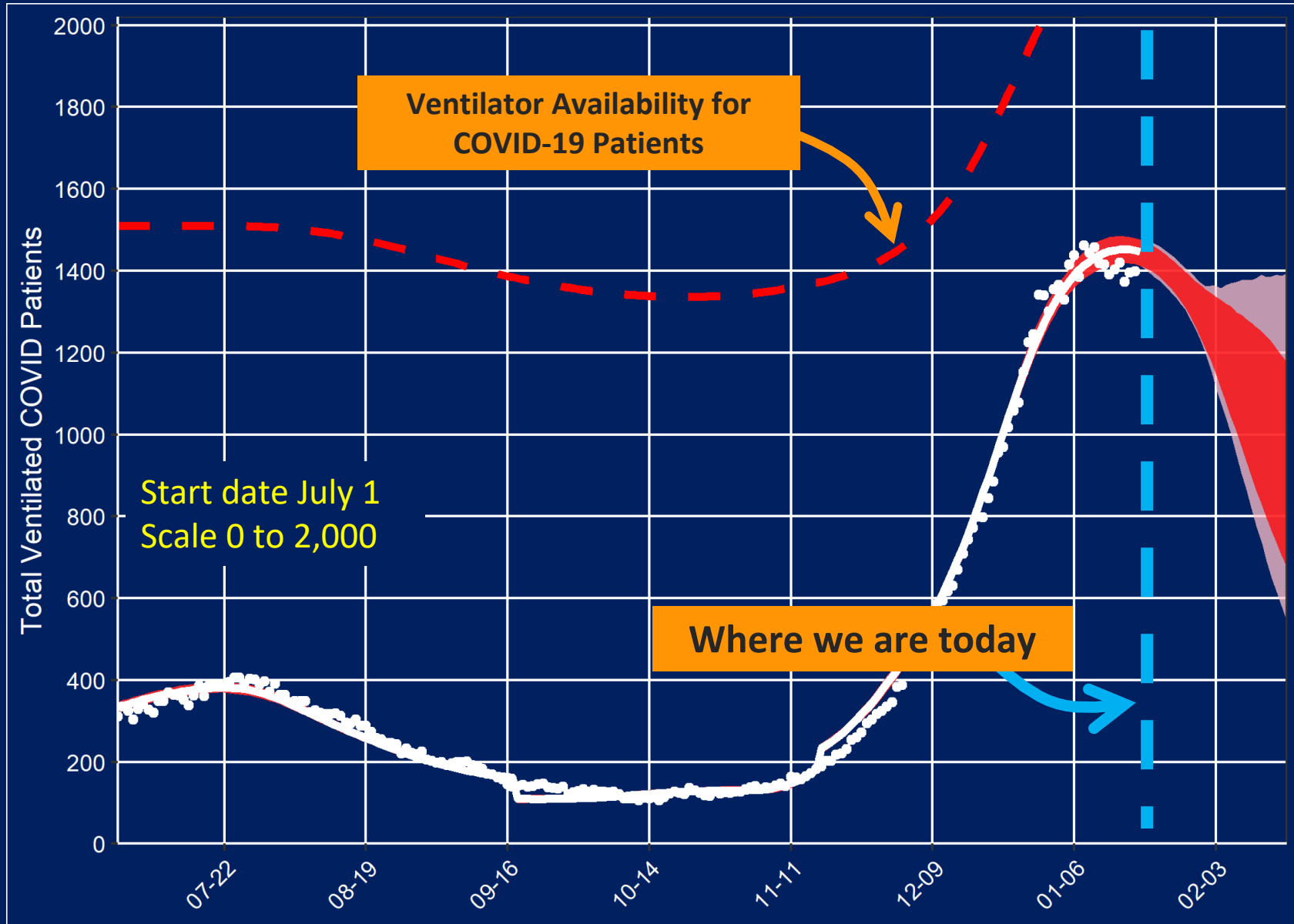
Predictions of Hospital Bed Demand



Predictions of ICU Bed Demand



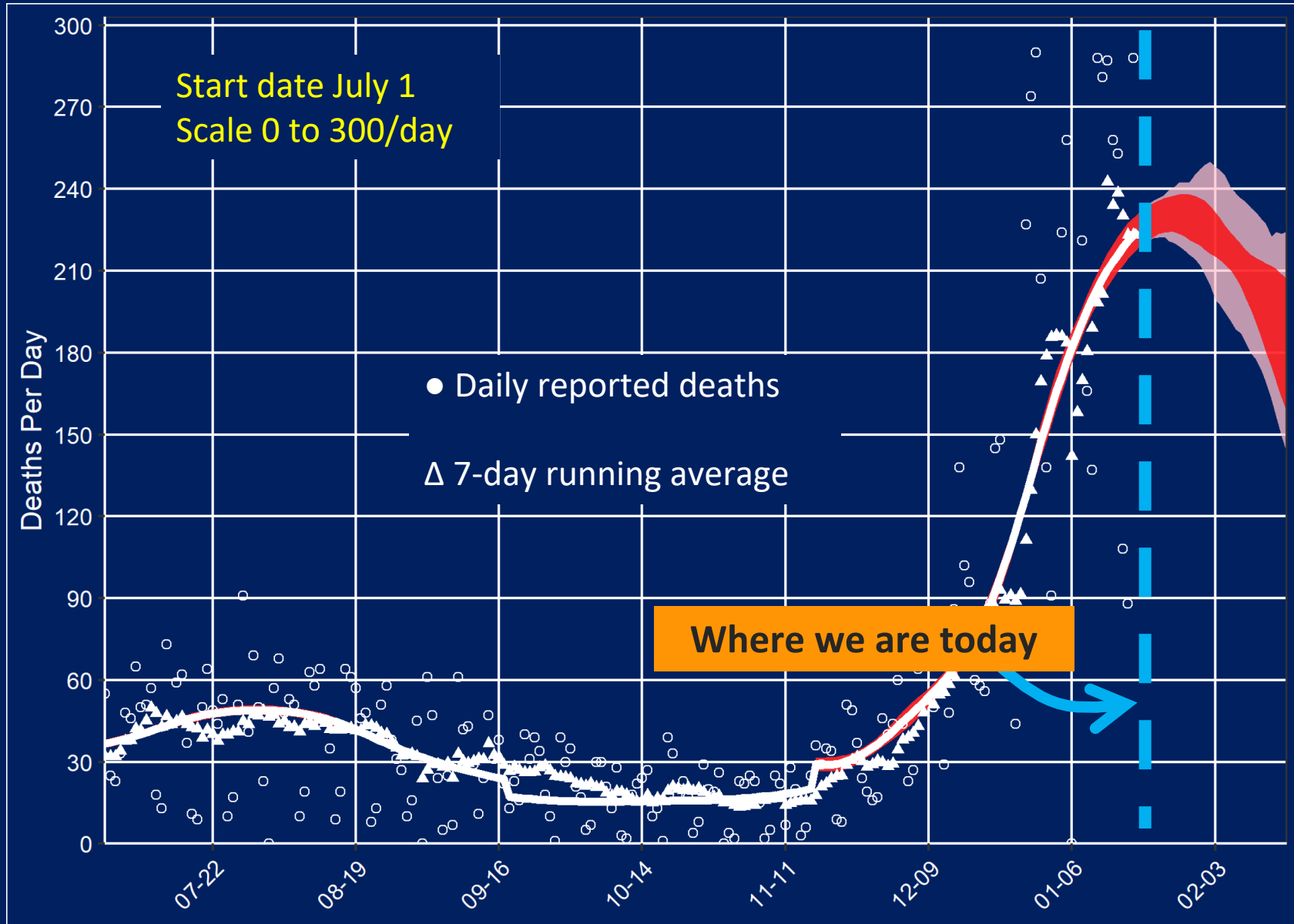
Predictions of Ventilator Demand



Additional uncertainty if transmission behavior varies

Uncertainty with no recent change in transmission behavior

Predictions of Daily Mortality



Uncertainty with no recent change in transmission behavior

Additional uncertainty if transmission behavior varies

Hospitalized COVID Patients are Increasingly Ill

- Between September 4 and November 3, each COVID patient admitted to the hospital:
 - Required an average of 6.93 days in the hospital
 - Required an average of 2.09 days in the intensive care unit (ICU)
 - Required an average of 1.16 days on mechanical ventilation
 - Had approximately a 12% chance of dying (about 1 in 8)
- From November 3 to the present, each COVID patient admitted to the hospital:
 - Requires an average of 9.49 days in the hospital
 - Requires an average of 2.38 days in the ICU
 - Requires an average of 1.89 days on mechanical ventilation
 - Has approximately a 23% chance of dying (about 1 in 4)
- These changes—despite improvements in treatments—suggest a substantial increase in the severity of illness among hospitalized patients