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

January 6, 2021 Update

County DHS COVID-19 Predictive Modeling Team (alphabetical):

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Health Services
LOS ANGELES COUNTY

Key Findings of the January 6th Update

- This update includes data through January 4, 2021.
- There was no update to the predictive model last week because of inconsistent data quality and availability during the holidays.
- Key findings:
  - The number of new patients with COVID-19 requiring hospitalization each day across Los Angeles County increased markedly in the last few weeks and has appeared to level off. This likely reflects relatively less transmission in the period from after Thanksgiving through the first half of December. The effect of transmission in the period from around Christmas to New Years has not yet been seen.
  - Based on information that only reflects transmission occurring before Christmas, the estimated transmission number ("R") is 0.97 with an uncertainty of 0.93 to 1.01. This is a decrease from two weeks ago, when the estimate was 1.11 with an uncertainty of 1.06 to 1.17.

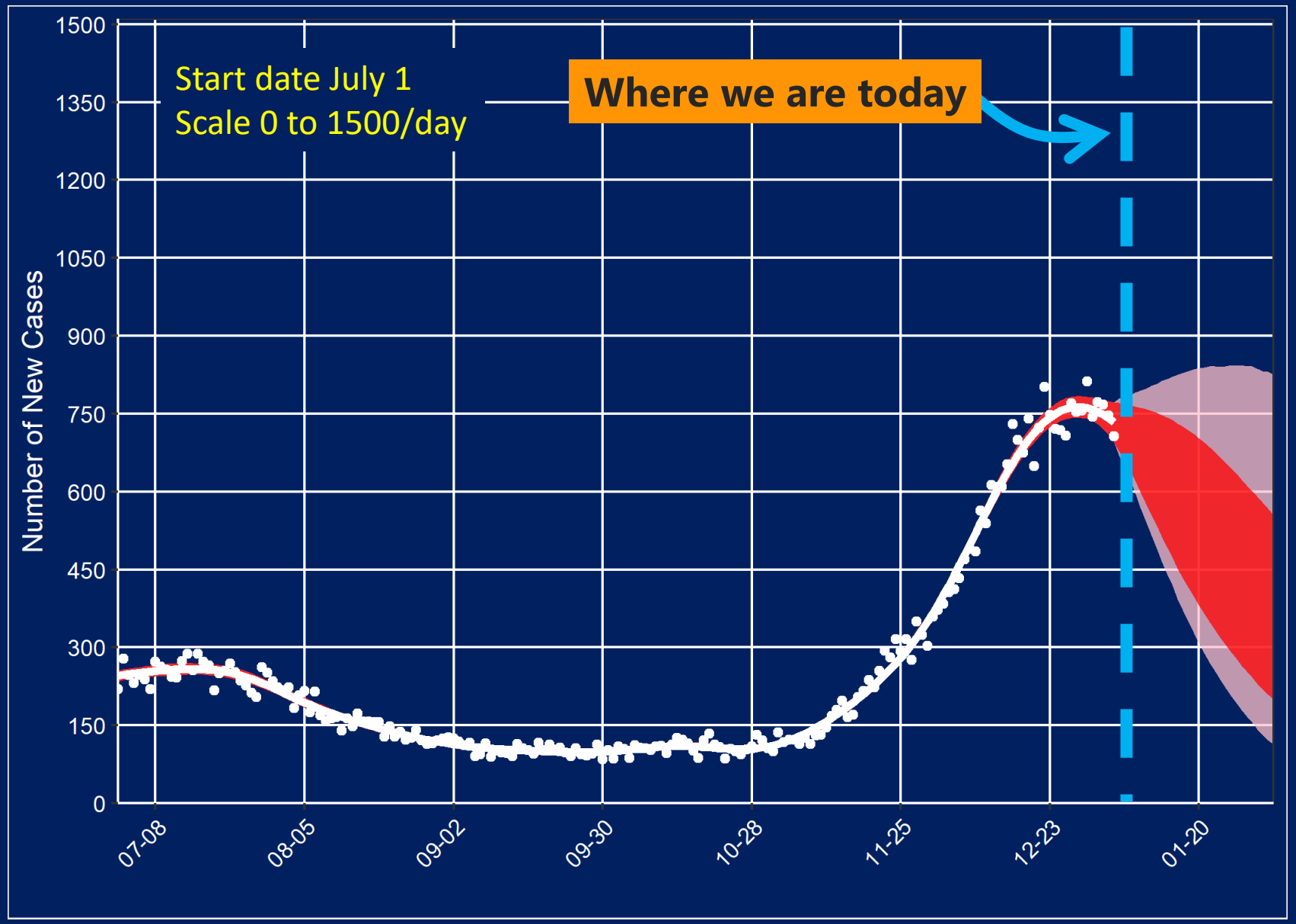
Key Findings of the January 6th Update (Continued)

- Key findings (Continued):
  - Based on external population mobility data, however, transmission is likely to have increased during the last 10 days in December through New Year's. Thus, it is likely R will rise above 1 in the coming weeks and cases will increase again over time.
  - Because the transmission occurring during the last 10 days in December through New Year's is currently unknown, it is difficult to predict demand for hospital-based services.
  - If transmission during the last 10 days in December and early January was similar to the transmission that occurred around Thanksgiving, we would expect additional demand for hospital-based services with likely shortages in the number 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.

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—if transmission did not increase over the holidays—that about 0.81% (uncertainty of 0.50% to 1.15%) of everyone in Los Angeles County is currently infected and infectious to others. The modeling team believes the true fraction who are infectious is likely higher.
- If transmission did not increase over the holidays, this would suggest about 1 in 125 (between 1 in 200 and 1 in 90) Los Angeles County residents are currently infectious to others. The modeling team believes the true fraction who are infectious is likely higher. Two weeks ago, this estimate was 1 in 95.

Hospital New Patient Projections: If No Higher Holiday Transmission

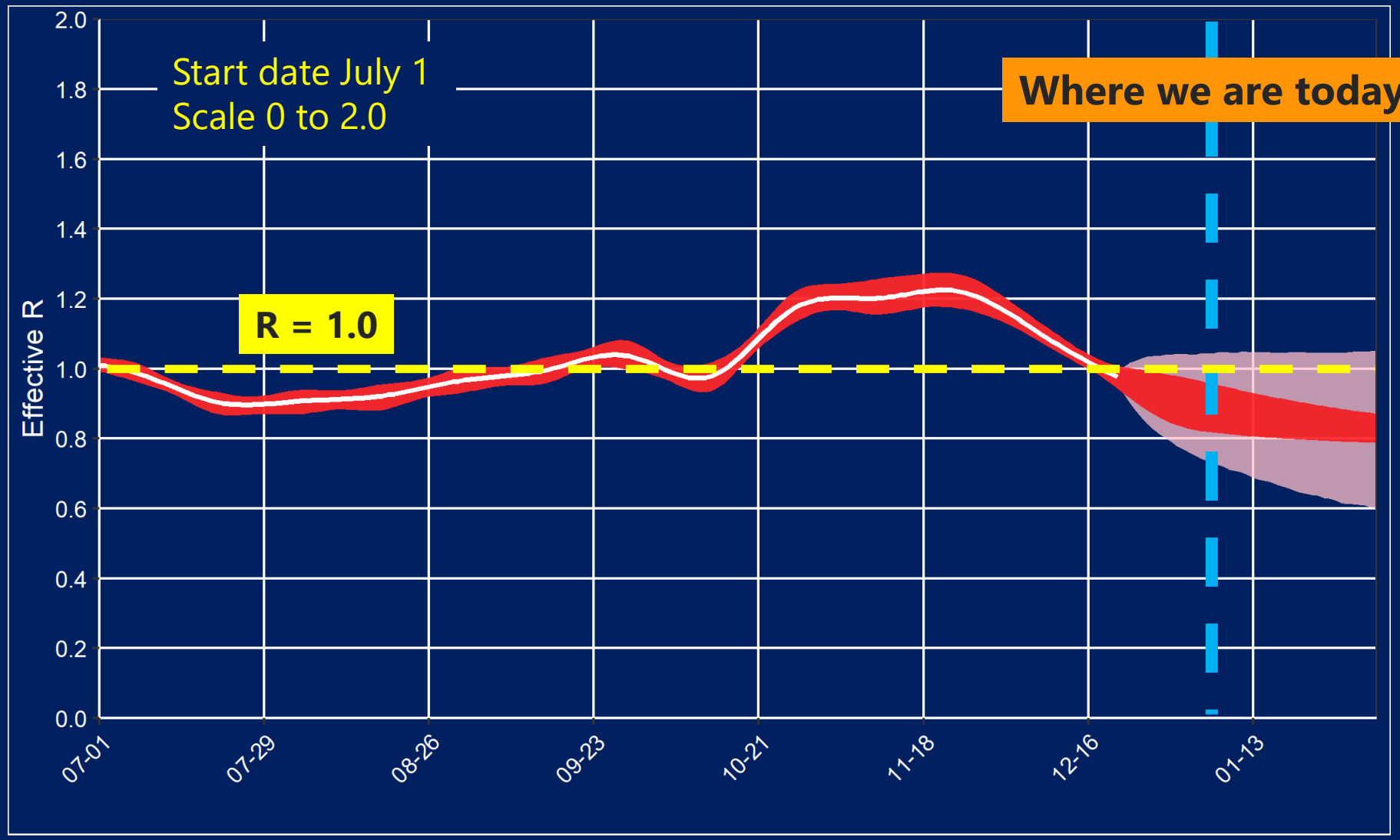


The number of new hospitalizations will be higher if there was a large increase in transmission during the holiday season

Additional uncertainty if transmission behavior varies

Uncertainty assuming no increase in transmission over the holiday season

Effective Transmission Number “R”



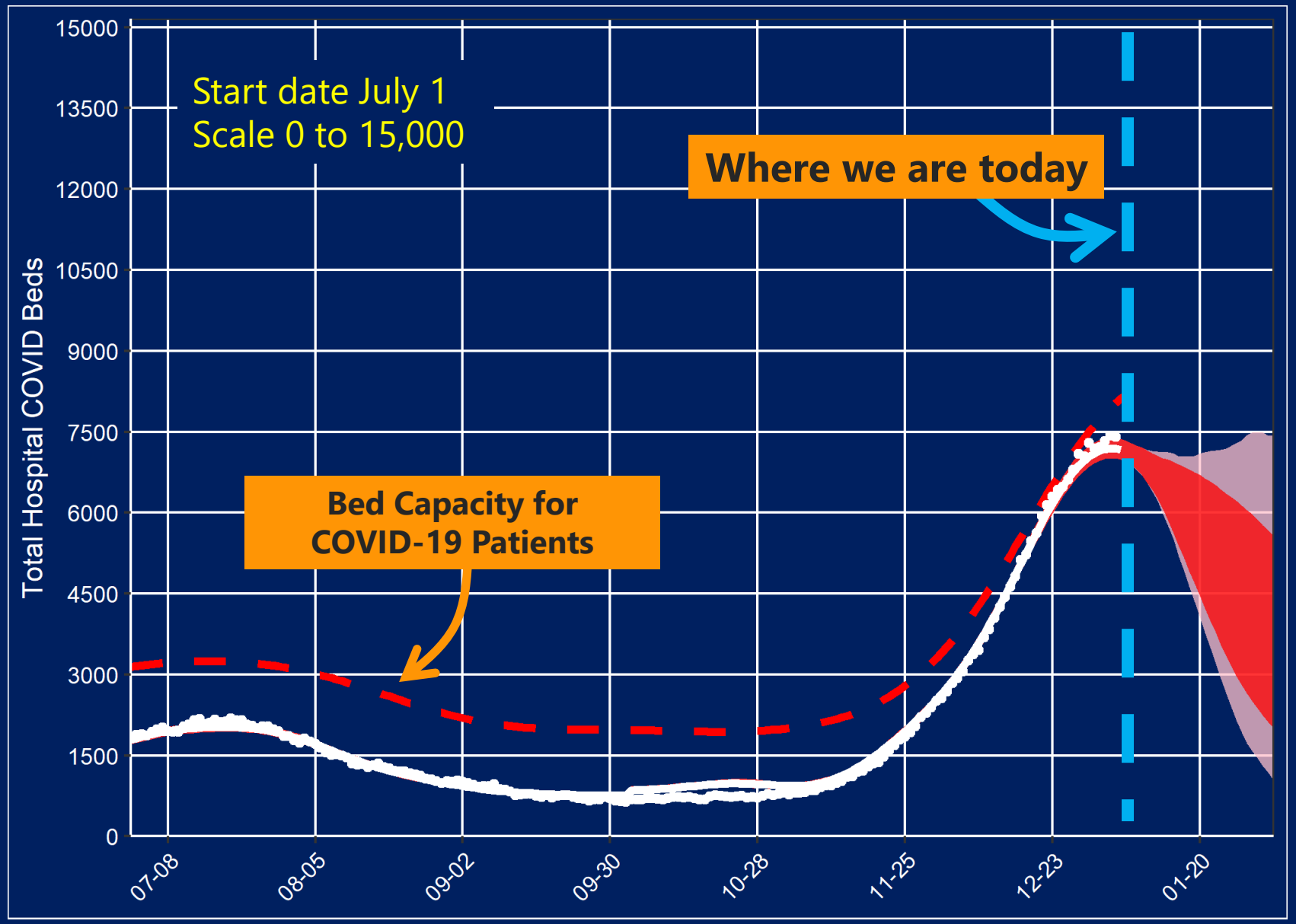
Additional uncertainty if transmission behavior varies

Uncertainty with no recent change in transmission behavior

Additional uncertainty if transmission behavior varies

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

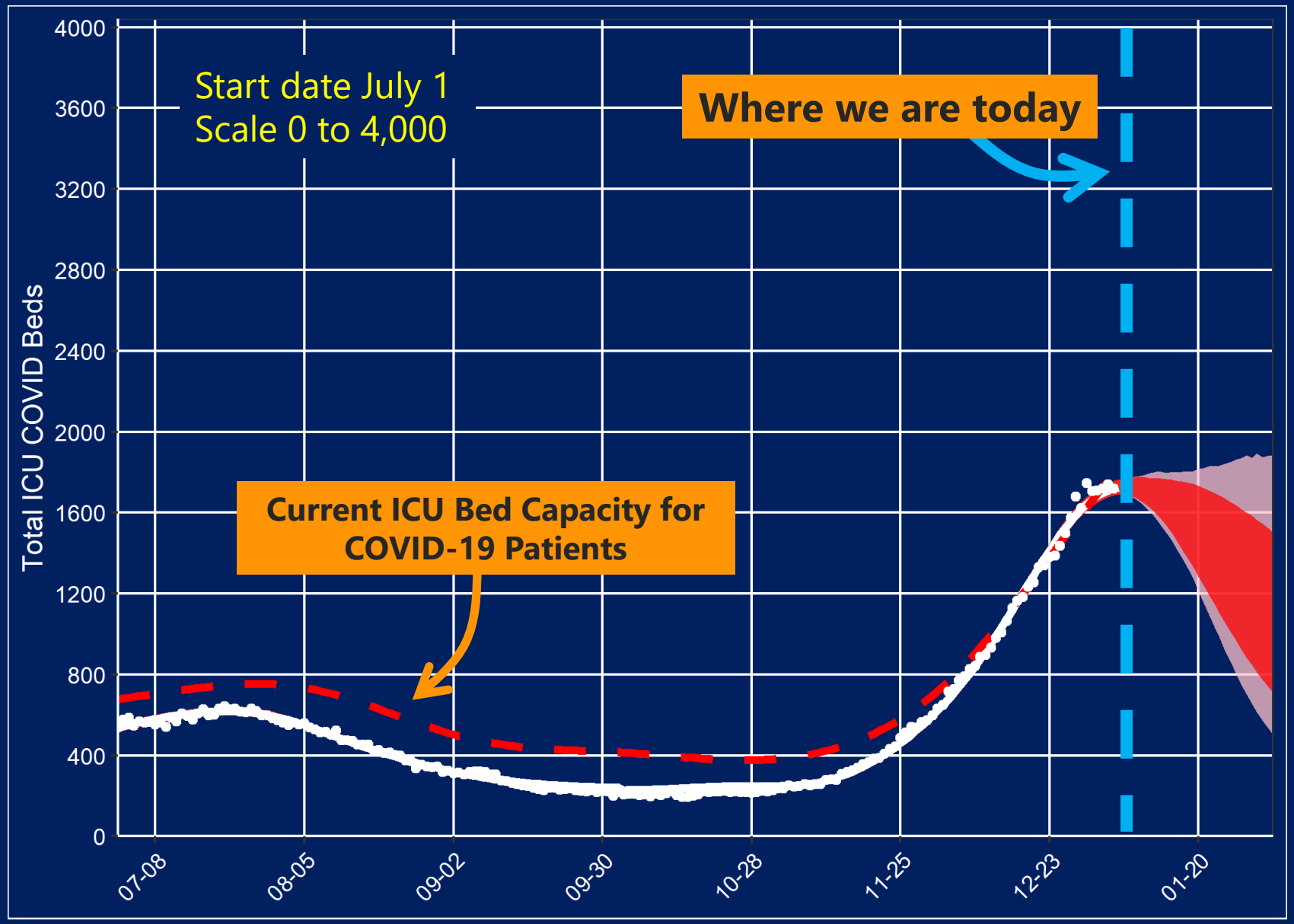


The hospital census will be higher if there was a large increase in transmission during the holiday season

Additional uncertainty if transmission behavior varies

Uncertainty with no recent change in transmission behavior

Predictions of ICU Bed Demand

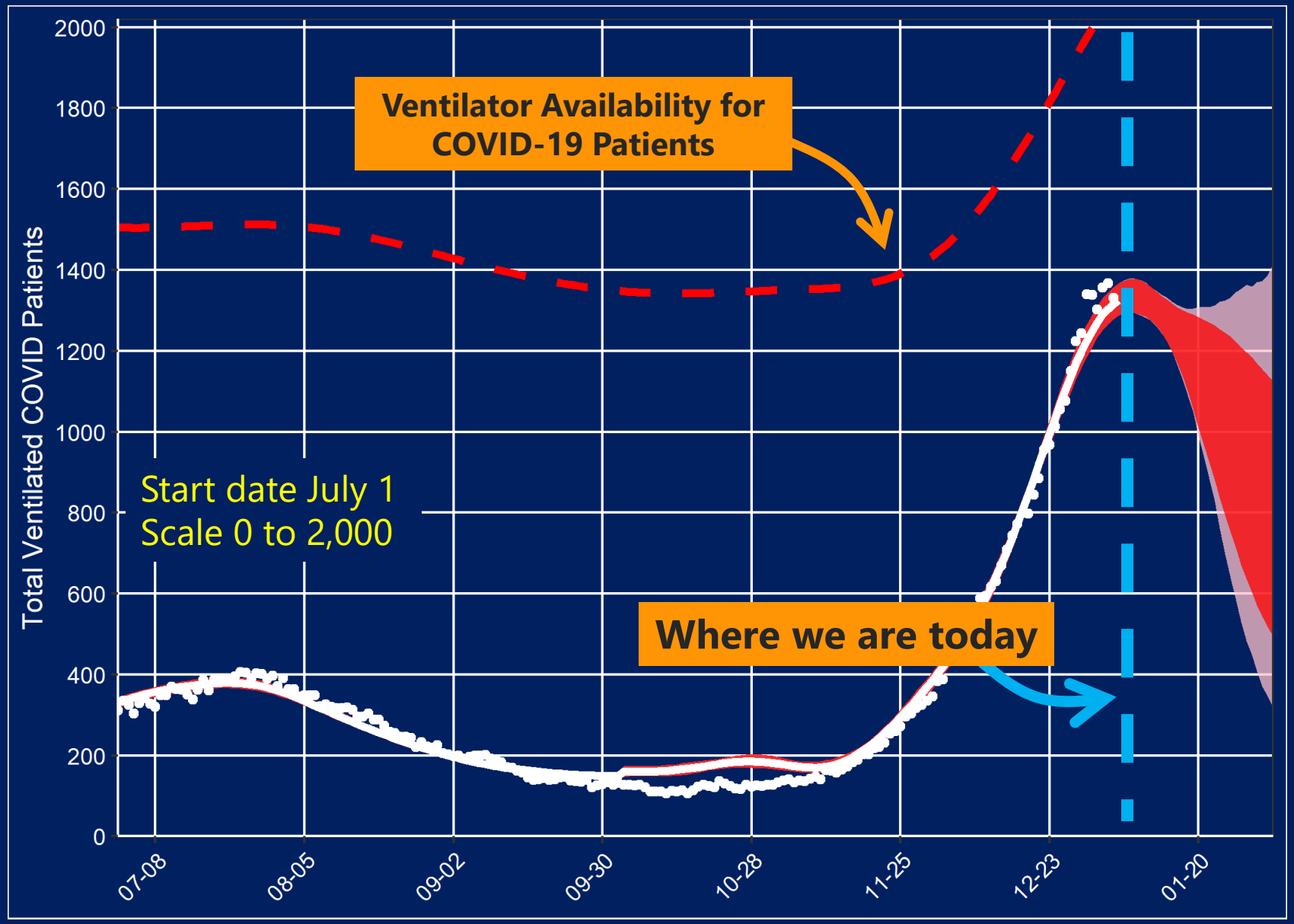


The ICU census will be higher if there was a large increase in transmission during the holiday season

Additional uncertainty if transmission behavior varies

Uncertainty with no recent change in transmission behavior

Predictions of Ventilator Demand

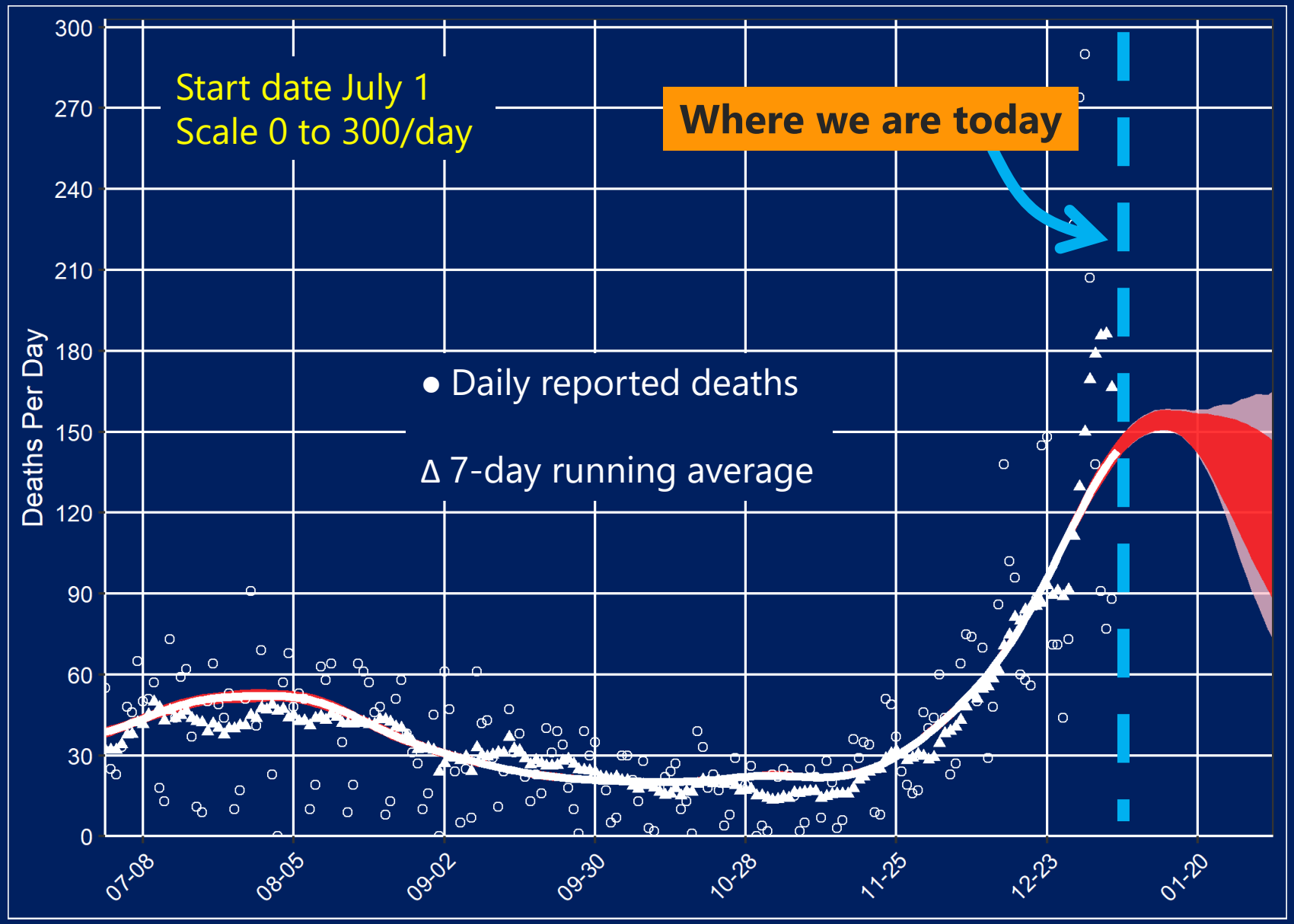


Ventilator demand will be higher if there was a large increase in transmission during the holiday season

Additional uncertainty if transmission behavior varies

Uncertainty with no recent change in transmission behavior

Predictions of Daily Mortality



Daily mortality will be higher if there was a large increase in transmission during the holiday season

Uncertainty with no recent change in transmission behavior

Additional uncertainty if transmission behavior varies