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

June 10, 2020 Update

County DHS COVID-19 Predictive Modeling Team:

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Key Findings of the June 10th Update

• This update includes data on hospital visits and volume through June 8, 2020.

• The model allows for changes in transmission associated with relaxation of physical distancing requirements. The total number of persons infected during the epidemic, assuming differences in future transmission, is determined through December 1, 2020.

• Key findings:
  • The overall volume of hospital-based care for patients with COVID-19 appears generally stable or slightly up trending. This up trending is within the range of uncertainty of the prior predictions.
  • Prior to the relaxation of physical distancing requirements, it appears the effective transmission number (“R”) was likely less than one and there was a slow decrease in cases over time.
  • While it is not yet known with certainty what effect the relaxation of physical distancing requirements will have on transmission of COVID-19, R appears to now be greater than one and slightly up trending. If transmission has increased, as this suggests, the model predicts a continued increase in hospital patient volume over the next 2-4 weeks.
  • 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 may become inadequate in 2 to 4 weeks.
A Patient’s Journey | COVID-19

- **Susceptible**
- **Exposed (incubation 2-12 days)**
- **Infectious (e.g., 10 to 30+ days)**
- **Not Contagious**

**Time**

- **Exposure**
- **Symptoms Begin**
- **Clinically Well (no symptoms)**
- **No longer infectious**

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

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

Source: CDC 2007
Hospital Patient Projections

Effect of Physical Distancing

Where we are today

Additional Uncertainty if R increases

Uncertainty with no change in R
Effective Transmission Number “R”

Where we are today

Effect of Physical Distancing

Additional Uncertainty if R is increasing
Uncertainty with no change in R
Current Bed Capacity for COVID-19 Patients

Where we are today

Additional Uncertainty if R increases

Uncertainty with no change in R
Predictions of Demand in LA County | ICU Beds

Current ICU Bed Capacity for COVID-19 Patients

Where we are today

Additional Uncertainty if R increases

Uncertainty with no change in R
Current Ventilator Availability for COVID-19 Patients

Predictions of Demand in LA County | Ventilators

Where we are today

Additional Uncertainty if R increases

Uncertainty with no change in R
Predictions of Daily Mortality LA County

Where we are today

Additional Uncertainty if R increases

Uncertainty with no change in R
Effect of Behaviors to Control Transmission

If transmission....

Maintained at Current Levels

Increases by ½ above Current Levels

Increases to Pre-order Levels

20% (uncertainty 9% to 41%)

67% (uncertainty 49% to 78%)

83% (uncertainty 78% to 95%)

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

*(This includes adults and children)