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

May 29, 2020 Update

County DHS COVID-19 Predictive Modeling Team:

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Key Findings of the May 29th Update

• This update includes data on hospital visits and volume through May 26, 2020.

• The model allows for changes in transmission associated with relaxation of physical distancing requirements. The total number infected during the epidemic, assuming different patterns 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 down trending, within the model uncertainty, consistent with prior predictions;
  • Prior to the relaxation of physical distancing requirements, it appears the effective transmission number, commonly called “R,” was likely less than one. This value would be associated with a decrease in cases over time.
  • It is not yet known what effect the relaxation of physical distancing requirements will have on transmission of COVID-19. If transmission increases, modeling predicts that an increase in patient volume at healthcare facilities would occur after delay of approximately 2–4 weeks.
  • The number of hospital beds, ICU 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, unless there is a marked increase in transmission.
A Patient’s Journey | COVID-19

**Exposure**

**Susceptible**

Exposed (incubation 2-12 days)

**Symptoms Begin**

Symptomatic

**Infectious** (e.g., 10 to 30+ days)

**Clinically Well (no symptoms)**

Not Contagious

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

Uncertainty if R increases

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

Effect of Physical Distancing

Where we are today

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

Where we are today

Predictions of Demand in LA County | Hospital Beds

Uncertainty with no change in R

Uncertainty if R increases
Predictions of Demand in LA County | ICU Beds

Current ICU Bed Capacity for COVID-19 Patients

Where we are today

Uncertainty if R increases

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

Current Ventilator Availability for COVID-19 Patients

Where we are today

Uncertainty if R increases

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

Where we are today

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

10% (uncertainty 7% to 27%)

54% (uncertainty 22% to 71%)

90% (uncertainty 80% to 98%)

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

*(This includes adults and children)