ALAMEDA COUNTY

**HEALTH CARE SERVICES AGENCY**

**MEMORANDUM**

**To: OES Facilities Planning Group**

**Date: 4/8/2020**

**Subject: Initial surge planning estimates for Alameda County**

**NOTE THAT THESE PROJECTIONS INCLUDE MANY ASSUMPTIONS AND RESULTS ARE STILL VERY UNSTABLE. WE ANTICIPATE CHANGES IN THE NUMBERS AND DATES AS BEHAVIOR IN THE COUNTY CHANGES.**

**Overview:** To prepare to meet demand related to COVID-19, hospitals in Alameda County are developing facility-specific projections of the number of persons (“infections”) that will have COVID-19 and need hospital care. Alameda County Health Care Services Agency (HCSA) has developed county-wide projections to determine when there will be a need to have alternative care locations available—e.g., ambulatory surgery centers, hotels, and field hospitals—to meet demand that exceeds the existing supply of acute care and ICU beds; and also to estimate the supply of Personal Protective Equipment (PPE) and ventilators that will be needed.

**Findings:** Based on current information, the:

* Rate of increase in infections is projected to **accelerate in early May when the number of infections requiring hospital care will be close to 400** (est. May 7)
* **Peak is projected to occur in late June**; at this point, **hospitalizations will be just under 4,600**

**Methodology:** We used two models developed by leading academic research institutions to project the infection rate, and the associated demand for acute and ICU hospital care. The Stanford SURF model projects out 60 days; we used it for short-term projections. We used the CHIME model developed by Penn Medicine, a clinical and research entity of University of Pennsylvania, to project the peak. Inputs to these models included known information (e.g., size of the county’s population), as well as information derived from sound estimates and assumptions. (*See below*.)

**Discussion:** While the *rate* of COVID-19’s spread in Alameda County has been relatively low compared with other areas, the *number* of infections continues to increase. The projections indicate that we have 3 - 4 weeks before the infection rate begins to accelerate. From this point, we project that it will take about seven (7) weeks to reach the peak of infections requiring hospitalization.

**Caveats:** The models incorporate variables that are subject to change. Further, the values of some variables are estimates; the actual values are not known (e.g., percentage complying with shelter-in-place orders). The values of other variables—e.g., doubling time of COVID-19 hospitalizations—are dependent on these estimates. Because the situation is fluid, we will update the projections weekly.

**Description of the models:** The models were run on 3/31/20. Both used the same estimates, based on California Department of Public Health (CDPH) recommendations, for length of stay for COVID-19 acute and ICU hospitalizations: seven (7) and nine (9) days, respectively.

The Stanford SURF model (<https://surf.stanford.edu/covid-19-tools/covid-19/>), used for the short-term projection, incorporates the age distribution of the county’s population. Inputs included estimates of:

* Cumulative hospitalizations at the start date for modeling (70)
* Initial doubling time of COVID-19 hospitalizations (6 days)
* Doubling time after interventions (e.g., shelter-in-place) were widely adopted (10 days as of 4/1)

In using the CHIME model (<https://penn-chime.phl.io/>) to project when the peak level of infections requiring hospitalization will occur, we chose a conservative estimate of the impact of the shelter-in-place orders (26% reduction in social contact moving forward). We used the following estimates of the use of hospital resources, based on the Stanford model’s early projections:

* Percentage of total COVID-19 infections hospitalized: 3%
* Percentage of infections admitted to ICU: 1%

Social distancing information came from Unacast (<https://www.unacast.com/covid19/social-distancing-scoreboard>). These sites use real time data and not averaged data over weeks. We used a low-end estimate of social distancing effectiveness – 26% reduction vs the 40% that we have been achieving recently.

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**Or go to the Public Health Department website:** [**http://www.acphd.org/2019-ncov.aspx**](http://www.acphd.org/2019-ncov.aspx)