COVID-19 testing data is essential to monitor the status of ongoing epidemics across California, the United States, and the world. Because of the high rate of asymptomatic and mildly symptomatic cases that contribute to transmission, widespread testing and subsequent contact tracing and isolation are necessary to reduce epidemic spread. Testing data also encode crucial epidemiological information regarding the current status of the outbreak in a given location or population. However, much of this information is lost in the process of aggregating and de-identifying the data. The currently available public testing data is insufficient to inform meaningful action on a local scale to reduce transmission of the virus. As such, we are requesting access to the California Laboratory Test database containing records of tested individuals (both positive and negative) and the California Testing Facility database containing facility-level testing data including the daily number of tests conducted, number of positive tests, facility location, and facility type.

We aim to develop methods to identify and correct for biases in aggregated testing data that arise from variability in transmission and test-seeking behavior across demographic groups and locations. This will enable more timely identification of transmission hotspots among specific populations or locations. We will also use these data to refine an agent-based model of COVID-19 transmission currently in development to simulate transmission and testing in San Francisco county. In addition, we will use the model to identify optimal testing strategies to estimate key epidemiological metrics including , incidence, and prevalence and accurately forecast key outcomes including hospitalizations and deaths.

We have worked closely with UC Berkeley Research IT to develop a computing environment that meets the level and scope of security established by NIST 800-53. Data will be stored and analyses conducted in a secure research data and compute environment on a virtual machine, with professional management and monitoring provided by UC Berkeley Research IT.