

Update: April 7, 2020

COVID-19 DIGEST

From the Cross-Campus Infectious Diseases COVID-19 Task Force

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EPIDEMIOLOGY

LOCAL

As of today, there are **17,216 confirmed COVID-19 cases and 426 deaths in California**. [In San Francisco](#), there are 622 confirmed COVID-19 cases and 9 deaths. Across the UCSF/ZSFG/VA system, 50 patients with COVID-19 are hospitalized (23 ICU). Laguna Honda remains a concern with 11 staff and 3 residents currently infected; to date 290 staff members and 98 residents have been tested.

NATIONAL

There are now over **395,000 cases reported in the United States**. New York continues to be hard hit, with over 130,000 cases and 5,489 deaths statewide, over half of which are in New York City. This morning Governor Cuomo announced 731 new deaths, the [largest single-day increase](#). These numbers are staggering, and time will tell if projections that cases are starting to stabilize are true. Some very stark and alarming disparities are emerging in places that are reporting COVID-19 data by race: In [Chicago](#) 52% of COVID-19 cases and 69% of deaths are among Black residents, who make up 30% of the city's population. Only 14% of [Michigan's](#) population is Black but represent 33% of COVID-19 cases and 41% of deaths in the state. In [Louisiana](#), 70% of the deaths statewide are among black residents who make up 32% of the state's population. [North Carolina](#), [Washington DC](#), and [Milwaukee](#) are also reporting disproportionate infections and death among black residents. Less access to healthcare, higher rates of comorbidities, and inability to work from home are likely contributing to these disparities. **Today we will spotlight Michigan**, which is emerging as a new epicenter in the US: on Monday, total COVID-19 cases reached 17,221 and 727 deaths, with 1,503 new confirmed cases and 110 new deaths in the preceding 24 hours. Infections among health care workers is a significant concern with 1,500 workers at Beaumont Health, the state's largest hospital system, experiencing symptoms and over 700 employees at Henry Ford Health System in Detroit testing positive for COVID-19.

GLOBAL

There are currently **over 1.36 million cases of COVID-19 and 76,315 deaths** reported in 184 countries around the world. The US continues to lead the world in the total numbers of infections and Italy, Spain, and Germany are all reporting over 100,000 infections. There is hope for [Italy](#) and [Spain](#) as their curves seem to be flattening. Daily deaths in Spain have decreased daily from a peak of 900 on April 2 and on April 4 Italy reported the number of patient's hospitalized in intensive care had declined for the first time since the beginning of the outbreak. [Boris Johnson](#), who announced he had tested positive for COVID-19 on March 27, was admitted to the hospital on April 5 and is currently in the intensive care unit. On Monday, China reported [no new deaths](#) from COVID-19 in Hubei for the first time since January.

PUBLIC HEALTH ACTION

Lockdowns continue across Europe. In the US, an estimated 90% of the population is under shelter-in-place/stay at home orders. Iran, which has been a regional epicenter with 60,500 confirmed cases of the coronavirus and 3,739 deaths as of Monday, [announced](#) that "low-risk" economic activities will resume April 11. Iran. Access to testing in San Francisco continues to improve. Yesterday, Mayor London Breed announced a new drive through/walk through [COVID-19 testing facility for frontline workers](#). This dedicated COVID-19 testing facility is located at Pier 30-32 began testing workers on April 6 and by the end of the week is expected to be able to conduct 200 tests/day. By the end of the week the city will also launch an online system for eligible employees to sign themselves up for testing directly. More population health data is now available to inform public health action in California through the [UCSF Health Atlas](#), an

interactive map that aggregates publicly available data on COVID-19 infections, population demographics, and social determinants of health.

DAILY UPDATES

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019>

UP TO THE MINUTE DISPATCHES

Are public health interventions working? The mathematical modelers' answers for Europe

Given the enormous economic and social costs of large-scale public health interventions such as social distancing, closures, and travel restrictions to control the COVID-19 epidemic, it is imperative to try to understand if they are working. [Researchers from Imperial College London](#) constructed a model using the observed number of deaths in 11 European countries to assess whether these public health interventions have reduced the “effective reproduction number” (R_e ; the expected number of cases directly generated by one COVID-19 case in a population) and how many deaths may have been averted to-date. Across 11 countries through March 28th, **they estimate that 1.9-11.4% of the population had been infected (7-43 million)**, and that there has been a 64% reduction in the average R_e compared to pre-intervention values (3.9 vs. 1.4). **The number of deaths averted due to implementation of the interventions was estimated to be 59,000** (95%CI: 21,000-120,000). While there is a high level of uncertainty in these estimates, they suggest that large-scale interventions have had a substantial impact on transmission. Nonetheless, the estimates also imply that because Europe may not even be close to herd immunity (at least 50-75% of the population infected), and because R_e remains > 1 , the virus causing **COVID-19 will continue to spread if public health interventions are lifted**.

Getting serious about serologies—COVID-19 antibody testing

This [study](#) reports 535 serial plasma levels tested for serology (total antibody, IgM, and IgG) from 173 COVID-19+ patients hospitalized in Wuhan. The samples were analyzed for dynamics during disease progression in conjunction with PCR testing nasal/pharyngeal swabs for viral load. The mean time to antibody seroconversion was day 11, day 12, and day 14, respectively. Less than 40% of patients seroconverted during first week of symptoms, but increased to 100%, 94.3%, and 79.8% by day 15 after onset. At the same time, PCR positivity decreased from 66.7% to 45.5%. Combining RNA and serologies improved sensitivity of diagnosis, even within early times (7 days) after symptom onset, suggesting a role of combined serologic and PCR testing for diagnosis of COVID-19 disease. Much more work is being done in the area of optimizing diagnosis tools and use of serologies at UCSF and elsewhere. See our FAQ below—we will keep readers updated on this rapidly moving field.

FAQ

1. Is asymptomatic shedding from children an important driver in the spread of COVID-19?

This remains an area of uncertainty. Several reports of children shedding SARS-CoV-2 have raised [concern](#) about the potential impact of asymptomatic shedding from children in the spread of COVID-19. In one [study](#) of 36 children admitted with COVID-19 in China, 28% were asymptomatic and 19% had only mild URI symptoms. A [report](#) from the US CDC found that children were less likely (73%) to have symptoms of fever, cough, or shortness of breath compared to adults (93%). A recent [report](#) documented contamination in the hospital room of an asymptomatic infected 6-month old. A pre-print release of a [study](#) from Singapore suggests that children represented the source in ~ 10% (3/31) of household transmission clusters; this is lower than the 54% (30/56) for H5N1. More testing of children with little or no symptoms and investigations of transmission events in the US and the San Francisco Bay area are needed to answer this question.

2. What type of ocular findings are seen in patients with COVID-19?

The main ocular manifestation of COVID-19 is conjunctivitis. A recent [report](#) described the ocular findings in a cohort of 38 patients from China: 12 patients (38%) had chemosis, conjunctival hyperemia, and epiphora (watery eyes). All 12 patients had moderate, severe, or critical illness, suggesting that ocular findings may be found in more severe disease. Notably, one patient had epiphora (“watery eyes”) as the first symptom of COVID-19. Two out of the 12 patients had a positive conjunctival swab for COVID-19, suggesting the possibility of transmission directly from the eye. Prior to this report, there were also a few [case reports](#) where conjunctivitis was described as part of the clinical syndrome of COVID-19.

3. What is status of serological testing to measure COVID-19 immunity and who should be getting this test?

Serologic testing is now available in the US, although only one company to date has received [FDA Emergency Use Authorization](#) to market their product. Serologic testing may be useful for: 1) measuring the true prevalence of COVID-19 in the population, 2) determining the presence and duration of protective immunity, which could potentially inform safety for return to workplace in some situations, 3) identifying recovered patients who may be candidate donors for providing convalescent plasma, currently being used as an experimental therapy, and 3) reducing the false negative rate of PCR-based COVID-19 testing, which may be over 25% depending on specimen type and timing of collection. We need much more information on performance of this and soon to be released additional antibody assays in a wider range of populations and settings to make definitive recommendations on their optimal use.

4. Are patients with COVID-19 hypercoagulable and would they benefit from intensified anticoagulation interventions?

A hypercoagulable state is well [described](#) in patients with pneumonia and sepsis. Elevated D-dimer and elevated IL-6 (mediator of cytokine induced coagulation) are [correlated](#) with poor outcomes in COVID-19. Among [21/183](#) non-survivors hospitalized with COVID-19 pneumonia, 71% met criteria for disseminated intravascular coagulation. In a retrospective [study](#) of severe COVID-19 cases with coagulopathy, heparin was not associated with a benefit in reduction of 28-day mortality except in a subset of patients with very high d-dimers levels. **Bottom line:** More data are needed to inform these clinical decisions. In the meantime, in light of patient isolation and limited mobility, we agree with [The American Society of Hematology \(ASH\) recommendation](#) that “all hospitalized patients with COVID-19 should receive pharmacologic thromboprophylaxis with low molecular weight heparin (LMWH) or fondaparinux (suggested over unfractionated heparin to reduce contact) unless the patient is judged to be at increased bleeding risk.”

EDUCATION

The UCSF Task Force can provide updates by ID faculty on COVID-19 to your department, division or team in varying formats: a 15-minute talk, a Grand Rounds, a Q&A session or another format that might suit your group. *For more information or to schedule a session, please contact Chesa Cox at Chesa.Cox@ucsf.edu.*

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UCSF Hospital Epidemiology and Infection Prevention COVID-19 webpage:

<https://infectioncontrol.ucsfmedicalcenter.org/ucsf-health-covid-19-resources>

San Francisco DPH link: <https://www.sfc-dcp.org/infectious-diseases-a-to-z/coronavirus-2019-novel-coronavirus/>

*Previous digests can be found: <https://hivdqm.ucsf.edu/covid-19/downloadable-digests>
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