

Update: April 10, 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 **21,101 confirmed COVID-19 cases and 584 deaths** [in California](#). [In San Francisco](#), there are 797 confirmed COVID-19 cases and 13 deaths. Across the UCSF/ZSFG/VA system, 43 patients with COVID-19 are hospitalized (19 ICU). San Francisco had its first coronavirus case in a homeless shelter (Division Circle Navigation Center) on April 2, with containment efforts in place since then, moving residents out to hotels for quarantining.

NATIONAL

There are now over **492,962 cases reported and 18,466 deaths** [in the United States](#). New York State remains the epicenter of the epidemic, both in the United States and worldwide with [New York reporting more coronavirus cases than any other country worldwide](#). New York State has 170,512 cases and 7,844 deaths to date, although Governor Cuomo [announced](#) today that the number of patients on ventilators and in the ICU decreased for the first time in NY over the last day, providing more hopeful signs of a “flattening of the curve”. Deaths remain high, however, with 777 new deaths in the state over the past 24 hours. The number of deaths in New York and New York City from coronavirus is widely thought to be underestimated given that paramedic calls on deaths occurring at home have [increased substantially](#). On the final tally after the pandemic subsides, these deaths are likely to be counted as COVID-19-related. **Today we will spotlight Massachusetts**, which is reporting 20,974 cases and 599 deaths. **Boston** reported 310 new coronavirus cases Thursday marking the biggest single-day increase in the city in the outbreak so far. Boston is currently reporting 2812 cases and 34 deaths and, yesterday, at a press conference, the COVID-19 Task Force at the White House stated that ““We’re watching the Chicago metro area. We’re watching the Boston metro area” due to concern of increasing rates in both cities. New data released by Boston officials Thursday indicate that, just like other cities reporting such data, African-American and Latino residents have contracted SARS-CoV-2 at substantially higher rates than whites. With very limited data from Boston, African-Americans represented 40% of known cases, despite representing about one quarter of Boston residents. Whites make up roughly half of Boston’s [population](#), but represent about 28% of known cases. Latinos, about 20% of residents, made up 14% of known cases.

GLOBAL

There are currently **over 1.69 million cases of COVID-19 and 102,525 deaths** reported in **185 countries** around the world. The US continues to lead the world in the total numbers of infections by approaching a half-million. The second-most affected country in the world is Spain at 157,053 cases and only Italy, France and Germany, among all countries worldwide, are reporting over 100,000 infections. Spain and Italy continue to report reduced deaths, ICU admissions, and hospitalizations. Japan emerged on the world scene this week, declaring a state of emergency on Tuesday, with rapidly increasing rates of coronavirus cases (now reporting 5,347 with 88 deaths). Japan’s government had been criticized for their handling of the quarantine situation on the *Diamond Princess* cruise ship and there is variation in Prime Minister Shinzo Abe’s and the Tokyo governor’s guidelines on “lockdowns” –including whether restaurants should close and sheltering-in-place. Moreover, testing capability in Japan still remains low as of this writing and US citizens in Japan were encouraged by their Embassy to return home to the US (although many, understandably, demurred).

PUBLIC HEALTH ACTION

With improvements in case counts across Europe, a few countries have started to discuss easing of sheltering-in-place guidelines. Denmark and Austria have become the first countries in Europe to announce easing of lockdown restrictions, with both countries shutting down early (March 11 in Denmark; March 16 in Austria) with low numbers of cases and

deaths. In Austria, small stores are slated to reopen April 14, with larger stores to follow on May 1. Restaurants, hotels and schools may reopen in mid-May, although this decision will be made firmly closer to the end of April in Austria. Denmark will also begin opening up, but slowly in terms of shop openings; border controls will remain in place, and gatherings of more than 10 people will remain banned. Strict rules about masks, social distancing and the number of people allowed into a store at any one time will remain in place. In the US, more than 95% of the population is now under shelter-in-place/stay-at-home orders. Ecuador, a country of 17 million, emerged in the news this week as it now has the highest official rate of coronavirus infection and deaths per capita in Latin America. Poignantly, the number of deaths and bodies led to companies that usually package bananas and shrimp to begin converting boxes into cardboard coffins for funeral homes. Although most of the Latin America countries reacted early and prophylactically to the spread of the epidemic in Europe in March, Ecuador was the latest country in the region to shut down. Moreover, some experts believe that the virus may have traveled into Ecuador from Spain and Italy in late February—early March, both hard-hit, given the frequency of travel between these regions.

DAILY UPDATES

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

UP TO THE MINUTE DISPATCHES

Early cases of COVID-19 outbreak in San Francisco are associated with travel to New York and Europe

A [study](#) by UCSF researchers analyzed the first 46 consecutive COVID cases testing positive (COVID+) by PCR from the inpatient and outpatient setting between March 10-22. 102 randomly-selected patients with acute respiratory infection, from same time period, who tested negative for COVID-19 served as controls. Of the COVID-19 cases, 37% were classified as travel-associated, 26% as community-acquired transmission, 13% as close contacts of known COVID-19 patient, and 13% as health care workers (HCWs). Travel to New York or Europe was significantly enriched in the 20 COVID-19 cases as compared to the controls. In contrast, travel to Asia, close contact with COVID-19 patients, and being a HCW were not enriched in the COVID-19 cases. The association with travel to New York at that time suggests that COVID-19 was circulating in New York in early March. This study is consistent with another [report](#) that suggests that COVID-19 was introduced into California multiple times by travelers from outside of the state. Notably, it has also recently been shown that the New York COVID-19 outbreak most likely [originated in Europe](#). The authors conclude that interstate and international travel was as important as community transmission for California cases.

Do school closures increase COVID-19 mortality in the US by increasing child care obligations among health care workers?

School closures were amongst the first actions taken by many governments around the world, including local and state governments in the United States, in an attempt to slow the spread of COVID-19. However, such social distancing policies could have a deleterious impact on patient outcomes by contributing to healthcare worker (HCW) absenteeism due to increased child-care obligations. Researchers constructed a [model](#) using data from the US Current Population Survey to estimate childcare obligations for US HCWs arising from school closures and to identify the level at which the importance of HCW availability in increasing COVID-19 patients' survival probabilities would be undone due to absenteeism and could actually increase cumulative COVID-19 mortality. They found that US HCWs have extremely high childcare obligations and that **at least 15% would have unmet child care needs due to school closures** (approximately 2.3 million children); this varied substantially by healthcare profession and from state-to-state. Their model estimated that **if a 15% decline in the healthcare labor workforce resulted in a small increase in the COVID-19 mortality rate (from 2.0% to 2.4%), then school closures could contribute to more deaths than they prevent**. This study shows that implementing school closures to slow the spread of COVID-19 and other emerging infections must be carefully considered and should be combined with alternative childcare arrangements for HCWs in order to minimize unintended harm.

FAQ

1. What is the role of ECMO in severe COVID-19 infection?

Extracorporeal membrane oxygenation (ECMO) has been used as a rescue therapy for severe ARDS, however its role in COVID-19 remains [unclear](#). Data on its use with respiratory viral infections is encouraging. In the H1N1 influenza epidemic, ECMO reduced hospital [mortality rate](#) (23.7% ECMO-referred vs. 52.5% non-ECMO referred) and a retrospective study of 35 patients with [severe MERS](#) showed decreased in-hospital mortality, 65% with ECMO vs 100% without. To date, ECMO has been used infrequently for the care of COVID-19 patients in intensive care units (only 1% largest study from [Italy](#)) and outcomes are largely unknown. **Interim guidance:** the [WHO](#) and [ELSO](#) (Extracorporeal Life Support Organization) recommend administering venovenous ECMO to eligible patients not improving by conventional methods at experienced ECMO centers.

2. Which types of PPE can have extended-use or re-use?

Given the present shortage of PPE, strategies for extended (wearing PPE continuously without doffing between multiple patient interactions) and reuse (doffing PPE and storing in a clean dry place such as a paper bag labelled with the user's name) have been developed. Regularly updated guidelines on extended and reuse of PPE at UCSF Medical Center can be found [here](#). Extended wear of masks and face shields in areas where COVID-19 patients are cohorted is easiest to implement. N95 masks can be reused if contaminated hands have not touched inside of the mask, the mask is not wet/soiled/damaged, and appropriate fit maintained (a [fit check](#) should be performed each time the N95 is donned). If a face shield is worn over the N95 mask during aerosol generating procedures, reuse is also acceptable. If masks become contaminated, they must be discarded. Some institutions are [decontaminating N95 respirators](#) using UV germicidal irradiation, vaporous hydrogen peroxide, or moist heat, and UCSF Medical Center is investigating these options. Extended use and reuse guidance is also available for goggles and face shields.

3. What treatments are currently available for severely ill COVID-19 patients on our campuses?

The following treatments are available through clinical trials, expanded access programs (EAP) or compassionate use for intensive care unit (ICU) patients at UCSF and ZSFG: 1) Remdesivir (blocks viral replication) 2) Mesenchymal Stromal Cells (for ARDS) 3) Convalescent COVID-19 Plasma (coming soon). We will be reporting on additional studies in upcoming digests.

4. Do tigers get COVID-19?

In late March, four tigers and three lions at the Bronx Zoo developed dry cough and decreased appetite. One of the cats—Nadia, a 4-year old Malayan tiger—was sedated and tested positive for COVID-19. Nadia and the 6 other big cats are believed to have been infected by an asymptomatic zoo keeper. Early research also suggests that domesticated cats can get infected and spread SARS-CoV-2: A [study in Wuhan](#) tested 102 cats for antibodies to SARS-CoV-2 and found that 15% tested positive (3 had been living with people who were diagnosed with COVID-19 and the rest were strays or had been in pet hospitals). A [second study](#) deliberately infected cats and other animals with SARS-CoV-2 and found replication in the respiratory tracts of both cats and ferrets, but not in dogs, pigs, chickens, or ducks. Hong Kong has [reported three dogs](#) who tested positive for COVID-19; all three dogs had owners with confirmed COVID-19 infections and all three were asymptomatic. Human to human transmission is driving the current COVID-19 pandemic. **Summary:** Coronaviruses have vast animal reservoirs and understanding the transmissibility of COVID-19 within and between animal species is important as we look towards a future vaccine as animals may be a continuing source of spread.

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. Due to the high volume, requests may take more than a week to fulfill. Thank you for your understanding.*

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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.sfcddcp.org/infectious-diseases-a-to-z/coronavirus-2019-novel-coronavirus/>

*Previous digests can be found: hivdgm.ucsf.edu/covid-19
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