

COVID-19 DIGEST

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

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EPIDEMIOLOGY

LOCAL

As of today there are 24,329 confirmed COVID-19 cases and 725 deaths [in California](#). [In San Francisco](#), there are 987 cases and 15 deaths. Across the UCSF/ZSFG/VA system, 49 patients with COVID-19 are hospitalized (18 ICU). On Friday the city announced an outbreak at the [MSC South homeless shelter](#) and by the end of the weekend 92 people, 82 residents and 10 staff members had tested positive.

NATIONAL

There are now over 600,000 confirmed cases and 25,000 deaths [in the United States](#). New York, which has been a national and global epicenter, [may have reached its peak](#) with decreases in the number of hospitalized and intubated patients over the last few days and a steady number of deaths since the end of last week. The number of daily deaths across the United States has also decreased daily, since a peak of [2,108 deaths was reported on April 10](#). **Today we will highlight South Dakota**, which remains one of the few states to resist a state-wide shelter-in-place order. Last week a meat processing plant in Sioux Falls announced an outbreak at its facility which has now increased to more than [300 confirmed cases](#) and over a third of the state's reported cases and one of the county's largest clusters of infections linked to a single facility. [Smithfield Foods](#), which produces more than 5% of the nation's pork announced shutdown on Sunday due to the rate of COVID-19 infections among employees. While the total case count in rural America is lower, there is concern the number of cases may quickly overwhelm health resources there as more than half of counties in America, where more than 7 million people over the age of 60 live, have no [hospital ICU beds](#).

GLOBAL

Worldwide there are now over 1.9 million cases of COVID-19 and 121,726 deaths reported in 185 countries. Spain, Italy, France and Germany are still the only other countries reporting over 100,000 infections. Russia, which had previously stated COVID-19 infections were "[under control](#)," now acknowledges the pandemic is [spreading rapidly and straining the healthcare system](#). On Monday Russia reported [more than 2,700 new cases and 22 new deaths](#) bringing the total number of infections to 21,102 and 170 deaths.

PUBLIC HEALTH ACTION

Governors on the East and West coasts of the United States formed coalitions to coordinate eventual easing of COVID-19 restrictions and re-opening of the economy. California Governor Gavin Newsom [announced](#) a "West Coast reopen pact" between California, Washington and Oregon. [In the Northeast](#) New York, New Jersey, Connecticut, Pennsylvania, Delaware, Rhode Island, and Massachusetts have formed a multi-state regional effort to cooperate on re-opening. Italy and Spain, who have been on lockdown since March 9 and 15 respectively, are [slowly re-opening](#), while [France](#) has announced the country's strict lockdown will be extended until May 11.

DAILY UPDATES

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

UP TO THE MINUTE DISPATCHES

Outcomes from compassionate use of remdesivir in patients with severe COVID-19

Remdesivir is an intravenous antiviral with broad activity against several RNA viruses. In vitro and animal model studies were encouraging of its efficacy against COVID-19. This first human [study](#) using remdesivir for treatment of patients with COVID-19 is a description of 53 patients who received it for compassionate use. At baseline, the patients had varying degree of disease severity—34 (64%) requiring invasive ventilation which included 4 patients on ECMO, 17 (32%) requiring non-invasive oxygen support, and 2 (4%) not requiring oxygen. Among those requiring invasive ventilation upon enrollment, 6 died (18%), 9 remained on invasive ventilation (26%), and 19 clinically improved (56%) after a median 18 days of follow-up. Data on viral load change was not provided. 4 patients discontinued remdesivir prematurely—1 with worsening pre-existing renal failure, 1 with multiple organ failure, and 2 with elevated aminotransferases, including one patient with a maculopapular rash. **Conclusion:** This non-randomized study does little to inform our understanding of the efficacy of remdesivir treatment for COVID-19. Results of remdesivir randomized control trials are eagerly awaited.

New York City cases of COVID-19 likely originated from Europe

We previously reported on how COVID-19 was introduced to California. This [study](#) reports the genome sequencing and likely origins of 84 SARS-CoV-2 isolates in New York City (NYC) from patients who sought medical care at the Mt. Sinai Health System between February 29th and March 18th 2020. They revealed multiple, independent isolated introductions from Europe (Italy, Spain, France, Finland, UK) and some from US and Canada during the first 2 weeks of March. Evidence for community transmission is also provided as suggested by clusters of related viruses found in patients living in different neighborhoods of the city. Cases with a history of travel exposure showed no further evidence of community transmission, supporting efficacy of self-quarantine measure. **Conclusion:** Like in California, introduction of COVID-19 into NYC occurred from multiple independent events, not a single event with mass spread. Early introduction of COVID-19 in NYC was predominately from travel to Europe.

Studies demonstrate safety concerns when chloroquine and hydroxychloroquine are given for COVID-19

Chloroquine and hydroxychloroquine have been used as a treatment for COVID-19 despite very limited data in poorly designed studies. Two new studies call-out risks of treatment. One [study](#) of low-dose vs. high-dose chloroquine both with azithromycin for severe COVID-19 was stopped early after a safety analysis showed increased mortality in the high-dose arm. Mortality rate of 17.5% in the high-dose arm vs. 9.7% in the low dose arm. Ventricular tachycardia prior to death seen in 2 patients. There was no placebo-arm but investigators report a mortality rate in treated patients similar to untreated historical controls. Another recent observational [study](#) of patients treated with hydroxychloroquine and azithromycin found that 11% of patients developed new severe QTc prolongation (>500ms) on therapy. **Conclusion:** These studies call on providers to use caution when considering these treatments, given lack of efficacy data and increasing data on possible harm.

FAQ

1. When can inpatients with COVID-19 come off isolation precautions?

Discontinuation of isolation precautions may be done using clinical criteria or a test-based strategy. Approach depends on clinical scenario and test availability. At UCSF and ZSFG, hospitalized patients can come off precautions when they have met the following: (1) ≥ 14 days from symptom onset and (2) ≥ 72 hours fever-free without anti-pyretic and (3) improving respiratory symptoms (e.g. cough, dyspnea) and (4) 2 consecutive negative RNA swabs (nasopharyngeal/mid-nasal turbinate plus oropharyngeal) collected ≥ 24 hours apart. For patients returning home, we recommend following the [CDC criteria for discontinuation of home isolation](#). All 3 criteria must be met: (1) ≥ 72 hours fever-free without anti-pyretic and (2) improving respiratory symptoms (e.g. cough, dyspnea) and (3) ≥ 7 days since 1st symptoms appeared. For patients with immunosuppression or who have protracted symptoms, a test-based approach should be considered if testing supplies are available.

2. Does any country have herd immunity?

No. Herd immunity refers to a type of community protection against transmission of an infectious disease that occurs when most people in a population—usually 70% or more—have immunity against the infectious agent. With respect to COVID-19, herd immunity will occur when either a large proportion of the population gets infected or vaccinated. Since a vaccine for SARS-CoV-2 does not yet exist, only the former is the relevant. While robust seroprevalence studies have not yet been conducted, assumptions based on models estimating the ratio of undiagnosed cases to diagnosed cases ([~6:1 in China](#)) suggest that the prevalence of SARS-CoV-2 in China—which presumably is amongst the highest in the world—is less than 5%, far from herd immunity.

3. What is new in the overlap of COVID-19 and HIV epidemics?

There is emerging data on the overlap of the COVID-19 and HIV epidemics over the past month since we first covered this topic. Increasing concerns about the impact of shut-down of HIV clinics to in-person visits countrywide has been voiced in the HIV community around antiretroviral therapy (ART) refills. Community members are calling for both commercial insurers and ADAP to allow 90-day ART refills via mail order to avoid running out of ART in the midst of the pandemic. In other news, since the phosphorylated form of tenofovir (breakdown product of both TDF and TAF) may have activity against the SARS-CoV-2 RNA-dependent RNA polymerase and serve as immunomodulators, there has been speculation on whether tenofovir-based ART or PrEP decrease the severity or frequency of COVID-19. Based on anecdotal reports from Spain and Italy – in the setting of their large COVID-19 epidemics—of patients with HIV presenting with less severe COVID-19 disease than those without HIV, [a clinical trial has just launched in Madrid](#) to see if Truvada protects healthcare workers against contracting COVID-19 called the Randomized Clinical Trial for the Prevention of SARS-CoV-2 Infection (COVID-19) in Healthcare Personnel (EPICOS). We expect more data on the interaction of COVID-19 and HIV to be forthcoming in coming months. This topic will also be covered in an [upcoming city-wide Town Hall](#).

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

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