

COVID-19 DIGEST

From the Infectious Diseases Divisions at UCSF, ZSFG and VA

EDUCATION

LOCAL

As of today, there are **23 confirmed COVID-19 cases and 0 deaths*** in San Francisco. San Francisco school officials announced yesterday that they are closing Pre-K through Grade 12 schools for 3 weeks. Most, if not all other Bay Area Catholic schools and independent schools have also closed. The Mayor announced [temporary housing for homeless persons awaiting COVID testing](#) results or with confirmed cases. *Data from SF DPH

NATIONAL

Latest US estimates report **1,629 cases and 41 deaths.*** The president extended travel restrictions to non-US citizens from a majority of European countries (excluding the United Kingdom and Ireland) entering the United States. First in-depth report of US community transmission [published in Lancet](#) – household but not HCW transmission in this case. Disembarkation from the **Grand Princess Cruise** ship docked in Oakland on Monday is still ongoing. *Data from CDC

GLOBAL

There are nearly **138,000 cases** of COVID-19 and **~5,000 deaths globally**. The situation in Italy continues to be dire, with an increase in cases, deaths and severe strain on the health system and providers. Cases in Iran are rising rapidly, and several high-level government officials have been infected. Cases are continuing to decline in China. *Data from CSSE at Johns Hopkins

DAILY UPDATES

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

EVALUATING PATIENTS

COVID-19 PCR testing is ramping up on our campuses. The Chan-Zuckerberg Biohub donated two high-throughput PCR machines. Once the testing on this machine meets CLIA standards (which will take 1-2 weeks), the in-house test capacity is expected to increase to over 200 tests/day. LabCorp, Quest, and ARUP are now live with their COVID-19 PCR tests. As testing becomes more easily available, each of our campuses are updating their screening algorithms, which can be found on the clinical links at the end of this digest.

UCSF health just updated its adult inpatient/ED algorithm. The important changes are:

- **Increased test availability:** Tests should be ordered *per algorithm* as “COVID-19 RNA, qualitative.” Approval for testing is no longer required.
- **Test collection:** Pooled oropharyngeal and nasopharyngeal swabs will be collected in one test. Instructions for collection can be found [here](#).
- **Updated PPE guidance:** The algorithm now specifies patients requiring “Novel Respiratory Isolation” and those requiring “Respiratory Illness Evaluation without Negative Pressure.”
- **Discontinuation of isolation:** The algorithm now specifies necessary steps.

EDUCATIONAL RESOURCES

The ID COVID 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.

PATIENT EVALUATION

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UP-TO-THE MINUTE DISPATCHES

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Patient with Flu and COVID-19: There is a [report](#) of a patient in China who presented with LRI symptoms 1 day after returning from a 5-week visit in Wuhan. He tested positive for influenza A but negative for SARS-CoV-2 on a NP swab x 2. He was sent home on oral oseltamivir. One week later, he returned for worsening symptoms. A repeat NP swab and sputum sample was negative for SARS-CoV-2. He required mechanical ventilation. 11 days after his initial presentation, metagenomic sequencing and RT-PCR of BALF and RT-PCR of sputum tested positive for SARS-CoV-2. This case illustrates that (i) SARS-CoV-2 testing may not be initially positive (although we cannot rule out nosocomial transmission) and (ii) although reportedly unusual, patients can be co-infected with both Influenza A and SARS-CoV-2.

Children were infected early during the COVID-19 outbreak in China: A [retrospective review](#) of 366 children hospitalized near central Wuhan from January 7-15, 2020 and that were all tested for respiratory pathogens revealed that 23 (6.3%) tested positive for Influenza A, 20 (5.5%) tested positive for Influenza B, and 6 (1.65%) tested positive for SARS-COV2. Age range was 1-7 years old. The most common symptoms in the 6 patients were high fever (6/6), cough (6/6), N/V (4/6). 6/6 had lymphopenia; 4/6 had abnormal chest CT. 1/6 required ICU admission; all were discharged. This study suggests that children were infected early during the epidemic in China.

RESEARCH

COVID-19 RESEARCH UPDATE WITH AN EMPHASIS ON SOME BASIC AND APPLIED VIROLOGY TO HELP UNDERSTAND THIS COVID-19 PANDEMIC

The S (for Surface or Spike, because the protein looks like a spike protruding from the virus) protein of coronaviruses is crucial for the virus to bind to a specific receptor on the host cell, enter into the host cell (which it does by fusing with the host cell membrane. The host cell receptor also defines what cells, tissues, and species can be infected and therefore is considered the best target for vaccine development. Several groups have demonstrated that human angiotensin converting enzyme protein (hACE2) is the receptor for SARS-CoV-2. This protein is expressed in much more in cells of the lower respiratory tract than in the upper respiratory tract, explaining why COVID-19 causes lower respiratory (rather than upper respiratory) tract infections. Mutations that naturally arose in the SARS-CoV-2 S protein during the SARS outbreak that affect the binding affinity of SARS-CoV-2 to hACE2 correlated with the replication, transmissibility, and disease severity of SARS-CoV. Two groups have now published structural studies with SARS-CoV-2 and finds that its S protein binds to hACE2 up to 10 times better than SARS-CoV, possibly explaining the enhanced human-human transmission of SARS-CoV-2. Like the SARS-CoV S protein, the SARS-CoV-2 spike protein is highly glycosylated (ie, it has lots of sugars attached to the protein). These sugar residues are important for the protein to fold correctly, get processed by host proteases, and to be recognized by neutralizing antibodies. The authors were able to visualize the 3D structure of the SARS-CoV-2 S protein and provided evidence that some but not all neutralizing antibodies to SARS-CoV will likely block binding to SARS-CoV-2. This study will hopefully help in the development of an effective vaccine against SARS-CoV-2.

NIH has issued their policy and information on COVID-19-related potential delays for grant applications, progress reports, meeting etc

1. [FAQs regarding proposal submission and award management](#)
2. [Policy regarding late applications due to COVID-19](#)

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INSTITUTIONAL
CONTACTS FOR
CLINICAL
OPERATIONS

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[UCSF Hospital Epidemiology and Infection Prevention COVID-19 webpage](#)
[San Francisco DPH link](#)