UCSF is deeply grateful for your timely and generous support during the COVID-19 pandemic. Your philanthropy empowers the university to pursue groundbreaking research, increases access to quality care for disadvantaged patients with COVID-19, and keeps our staff members healthy and safe.

**Fast-Tracking Crucial Research**
Your generosity helps our researchers tackle a variety of challenging questions related to this pandemic. The innovation and insights you enable contribute to several goals: stopping the spread of COVID-19, helping patients and communities through this crisis, and finding an effective cure and a vaccine.

**Diagnosing COVID-19 in Under an Hour**
With your support, scientists at UCSF have created an inexpensive new test that can diagnose COVID-19 infections in about 45 minutes – far more quickly than the tests commonly used by the US Centers for Disease Control and Prevention (CDC) and public health departments across the country. If the test is validated and approved by the US Food and Drug Administration (FDA), it could help officials rapidly increase testing. Unlike the test currently recommended by the CDC, this new test can be performed in non-specialized labs using readily available chemicals and equipment. The developers hope to produce a kit that can be used for rapid on-site testing in a variety of locations, from airports to schools.
Investigating the Accuracy of Antibody Tests
As people around the world struggle with the emotional and economic effects of COVID-19 lockdowns, many are eager to take antibody tests. However, as UCSF scientists race to develop these tests, they are also studying a crucial question: Are the existing antibody tests accurate?

Your support contributed to a UCSF-led study that recently revealed that all but one of 14 current antibody tests sometimes led to false positives – indicating antibodies in people who had none. It’s a potentially dangerous flaw, as the results could lead people vulnerable to COVID-19 to take risks that expose them to the virus. Additional research is needed to identify which antibody tests will be most useful for determining who might safely return to normal activities without fear of COVID-19 infection.

Understanding the Spread of the Virus
UCSF researchers have been using genetic data to track different strains of SARS-CoV-2, the virus that causes COVID-19. While it is not clear that genetic differences in the virus lead to any differences in COVID-19 symptoms or severity, the information could help researchers and public health officials around the world better track the spread of the virus and try to identify patterns in how cases have emerged in new locations.

Getting the Information We Need to Guide Reopening
Thanks to philanthropic support, UCSF, the Chan Zuckerberg Biohub, and Stanford University are joining forces on two long-term, large-scale studies that will provide information crucial to the management of the COVID-19 pandemic. The researchers will routinely share their emerging findings with health officials to help inform decisions about lifting restrictions and reopening the economy.

The first study will track how widespread COVID-19 is in the Bay Area and estimate how frequently people who have tested positive but report no symptoms are infecting others – particularly as restrictions ease in some areas. To accomplish this, researchers will follow 4,000 members of the general population over nine months.

The second study will follow 3,500 health care workers for three months and focuses on antibodies to the virus. The study will estimate the rate at which people with regular, ongoing exposure to COVID-19 patients get infected and develop antibodies and whether those antibodies successfully prevent people from contracting COVID-19.
Jump-Starting New Avenues of Research
UCSF is priming the pump of innovative scientific research relevant to COVID-19 across the university. In early April, UCSF’s flagship program for discovery science, the Program for Breakthrough Biomedical Research (PBBR), released a request for proposals to UCSF’s biomedical, biological sciences, and quantitative biology training programs. In just a few days, the PBBR team received 112 proposals, and they quickly selected 23 projects for funding. These projects take a broad range of approaches to understanding the virus, including how it spreads, how it functions in the body, and how to diagnose or treat COVID-19 infection. Topics span from the structure of the SARS-CoV-2 protein to nanotechnology to screening platforms for antibodies. Find a full list of projects [here](#).

Identifying Potential Treatments
Thanks to donor support, UCSF’s Quantitative Biosciences Institute Coronavirus Research Group (QCRG) recently identified more than 60 compounds that might help stop the replication of SARS-CoV-2 in the human body. Their latest findings from laboratory tests indicate that several drugs show promise in blocking the virus. Five of them are already approved by the FDA to treat conditions ranging from schizophrenia to allergies. Surprisingly, the researchers found that dextromethorphan, an over-the-counter drug used in some cough drops and syrups, actually fueled the virus in their cell samples.

The five most promising drugs are not proven treatments for COVID-19, so the QCRG and its partners will need to run more tests and clinical trials. One potential treatment, hydroxychloroquine, is already undergoing clinical trials in COVID-19 patients. Additional clinical trials will start soon; researchers hope one of the treatments they are studying might be proven effective by the end of the year. They will also examine ways to modify the drugs and potentially make them more effective against the virus.

Leading Local Testing and Revealing Inequalities
UCSF researchers have partnered with public health officials and community organizations to quickly complete studies that estimate active COVID-19 infections in two very different parts of the Bay Area.
One study revealed that about one of every 50 people living or working in San Francisco's Mission District tested positive. That’s 2 percent, a rate about 11 times higher than the city average of .18 percent. Almost all the infected participants identified as Hispanic or Latinx – a population that has been hit particularly hard by COVID-19 in California.

Experts at UCSF’s Latinx Center of Excellence (LCOE) attribute the higher rate of COVID-19 in the Mission District to socioeconomic inequalities, from overcrowded housing to low-wage jobs that cannot be done remotely. Of those who tested positive, more than half reported no symptoms, and 80 percent said they had experienced financial problems due to the pandemic. The testing project in the Mission is now offering ongoing medical screening and connecting people who have tested positive to health care, food assistance, and other benefits.

A related study of 1,845 residents, essential workers, and first responders in Bolinas, a rural town in Marin County, found no active infections. According to Bryan Greenhouse, MD, who led UCSF’s participation in the testing project, “This community-testing effort can provide an example of how testing can be expanded to other communities across the state and the nation. This shows how ‘pop-up’ community-testing can be done safely and rapidly, and could be used more systematically.”

Antibody test results, which can estimate past COVID-19 infections, are expected from both studies later in May.
UCSF volunteers and HEAL fellows have arrived into systems led by everyday heroes. They work in hospitals where COVID cases overstretch already underfunded and understaffed facilities...The volunteers expressed awe at the way so few humans with such limited material resources have done so much.

Responding to the Navajo Nation Outbreak

Despite Navajo Nation's remote location in rural Arizona and New Mexico, more than 2,300 people living on the US American Indian reservation have tested positive for COVID-19. This poses a crisis for Navajo Nation, given that many residents live far from well-staffed medical centers or emergency services like ambulances. Many also lack easy access to necessities such as running water, electricity, and grocery stores.

Your generosity helps cover the expenses of seven physicians and 14 nurses from UCSF who are volunteering in hospitals that have experienced an influx of patients from Navajo Nation. The team mobilized in response to Navajo Nation president Jonathan Nez’s call for additional health workers. Notably, UCSF has an ongoing presence in the region; 49 current fellows or alumni of the Department of Medicine’s Health, Equity, Action and Leadership (HEAL) Initiative already work in Navajo Nation.
According to a report from HEAL leadership, “UCSF volunteers and HEAL fellows have arrived into systems led by everyday heroes. They work in hospitals where COVID cases overstretch already underfunded and understaffed facilities. Some units have been able to stay open and increase capacity as the UCSF nurses arrived … The volunteers expressed awe at the way so few humans with such limited material resources have done so much.”

**Saving Time and Personal Protective Equipment**

A team of UCSF experts is working to solve some of the practical challenges that medical staff across the country face when caring for COVID-19 patients. For example: When a ventilator requires adjustment, staff members have to enter the patient’s negative-pressure isolation room. The protocol for doing so takes precious minutes away from other patients who need urgent care, and the individual who enters the room has to discard all personal protective equipment (PPE) afterward. The team is developing a way to safely modify the ventilators so they can be controlled remotely from another room, saving time and reducing PPE waste.

**Developing Low-Cost, Easy-to-Scale Respirators**

Health care workers around the world face both a PPE shortage and a high risk of airborne exposure to viruses whenever they perform intubations, nebulizer treatments, or high-flow oxygen treatments. That’s why UCSF physicians are partnering with UC Berkeley bioengineers to develop and test a low-cost version of a device that can reduce the risk of airborne virus transmission more effectively than an N95 mask can.

The device, a powered air-purified respirator (PAPR), can cost up to $2,000 each and uses a blower to pull or push air through a filter. While many hospitals have PAPRs, medical staffers need more than they have available when caring for patients during a surge of COVID-19 cases. The UCSF/UC Berkeley team has created a new PAPR prototype using readily available parts. Their model costs only about $200 to build. If proven effective, it could be used to rapidly increase production of PAPRs in places with limited resources, including developing countries. This unique initiative wouldn’t be possible without the support of donors like you.
Thank You

Our team has been able to accomplish so much in such a short time thanks, in part, to your support. We appreciate your important contribution to UCSF’s efforts to rapidly reduce the harm caused by the global COVID-19 pandemic.

See our April update to learn more about UCSF’s initial response to COVID-19 and how donations like yours have made a difference in recent weeks.

Get the latest news on UCSF’s COVID-19 initiatives here.