Update: April 21, 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 34,001 confirmed COVID-19 cases and 1,227 deaths in California. In San Francisco there are 1,231 cases and 20 deaths. Across the UCSF/ZSFG/VA system, 41 patients with COVID-19 are hospitalized. Data on infection rates by zip code released on Monday by the San Francisco Department of Public Health show neighborhoods which experience economic and health disparities are the hardest hit by COVID-19, including SOMA where the MSC South Homeless shelter is located, the Mission District with a high proportion of Latinx residents, and Bayview-Hunters Point.

NATIONAL

There are now over 820,000 confirmed cases and 43,921 deaths in the United States. Over half of the deaths are in New York and New Jersey. On Monday, NY Governor Cuomo, announced that 478 people had died in New York, the first time the daily death toll has been below 500 since April 2. There are currently over 27,000 cases and 800 deaths in Florida, which was one of the later states to issue a stay-at-home order on April 3. Modeling data project that the peak deaths had occurred on April 2, when 77 deaths occurred, and the peak hospital usage occurred on April 14. Beaches in Duval County and St. Johns County re-opened over the weekend. However, hotspots of infections are ongoing throughout the state, particularly in nursing homes. Currently over a quarter of all deaths statewide are among residents of nursing homes and long-term care facilities.

GLOBAL

Worldwide there are now over 2.5 million cases of COVID-19 and 175,812 deaths reported in 185 countries and regions. The United States continues to lead the world in number of cases, with almost 4 times as many cases as Spain, which has 200,210 cases and the second-most number of reported cases globally. Turkey reached 90,000 cases and 2,140 deaths on Monday, but the number of deaths in Istanbul alone was over 2,100 greater during the last month than expected based on historical data suggesting the outbreak is much wider spread than the official statistics suggest.

DAILY UPDATES

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

UP TO THE MINUTE DISPATCHES

Remdesivir ameliorates COVID-19 in a macaque model of acute respiratory infection

Researchers developed a macaque model of respiratory SARS-CoV-2 infection that recapitulates important aspects of human infections. Investigators from the NIH studied the effect of remdesivir treatment starting near the peak of viral replication. Remdesivir was administered with a loading dose 12 hours after respiratory and ocular inoculation, followed by a daily IV dose for 6 days, similar to protocols for humans. At 12 hours after the initial treatment, the remdesivir-treated monkeys had fewer symptoms and less radiologic evidence of pneumonia compared to the control-treated monkeys, a trend which continued during the 7-day study. The remdesivir-treated monkeys had lower viral loads and titers of infectious virus in the lungs and less damage, but interestingly, drug treatment did not decrease viral shedding in the nose, throat, or rectal swabs. While the Gilead remdesivir clinical trial results are not yet known, this primate model suggests that early treatment of COVID-19 with remdesivir may prevent progression to severe pneumonia and

sterilize viral cultures in the upper and lower airways. Upper airway viral shedding was still detectable; however, the significance of PCR detectable virus in the absence of viral growth is not known.

What proportion of Santa Clara County residents have been infected with COVID-19?
True prevalence of people who have ever been infected with COVID-19 in different US communities is unknown. Researchers sought to determine the prevalence COVID-19 infection antibodies among Santa Clara County residents and recruited adults and their children via targeted Facebook ads. Using drive-through testing sites, participants underwent serologic testing using a point-of-care test on a fingerstick blood sample to detect the presence of antibodies against COVID-19 infection (IgM [recent infection] and/or IgG [more distant infection]). The researchers reported an independent validation of the assay and estimated its sensitivity and specificity to be 80.3% (95%CI: 72.1-87.0) and 99.5% (95%CI: 98.3-99.9%), respectively. Among 2,718 adults and 612 children tested between April 3rd and 4th, the **total number who had detectable antibodies against COVID-19 infection was 50/3,330 for an unadjusted prevalence of 1.5%** (95%CI: 1.1-2.0). After adjusting for local population and test performance characteristics, **the revised prevalence was estimated to be 2.5-4.2%;** the estimated number of cases (48,000-81,000) was 50-85 times higher than the number of confirmed cases to-date. There are a number of methodologic concerns scientists have expressed related to the sampling strategy, statistical analyses, and the true performance characteristics of the antibody test utilized. We can probably safely say from this study that the true number people ever infected with COVID-19 is likely much higher than "reported cases" which have been skewed by "symptom based" testing requirements. We can also say that overall prevalence in this sample is relatively low.

FAQ

1. **What is known about COVID-19 in patients with cancer?**
   Patients with cancer are more susceptible to infections given anticancer treatment and the disease itself. In one retrospective study from England, patients with cancer admitted for COVID-19 had a similar mortality rate to those without cancer (6%). However, a nationwide analysis of COVID-19 patients in China of patients found that those with cancer had higher rates of infection and those receiving chemotherapy or recent cancer-related surgery were more likely to have severe disease. Another study found a strong association between recent of anti-cancer therapy (chemotherapy, radiotherapy, targeted therapy, and/or immunomodulatory therapy) within 14 days and COVID-19 complications. **Conclusion**: Patients with cancer, particularly those receiving anti-cancer treatment, may be at higher risk for severe COVID-19. More work is needed to understand which cancer therapies pose most risk of poor COVID-19 outcomes and how this risk can be mitigated.

2. **Are there cutaneous manifestations of COVID-19?**
   We are unsure. Cutaneous findings were rarely reported (<1%) in large studies from China. A recent study from Italy found that 18 of 88 (20%) hospitalized patients had skin findings: erythematous rash (78%), diffuse urticaria (17%), and vesicles resembling varicella (5%). Another report from Italy described 22 patients with papulovesicular eruption resembling varicella. In both reports, the trunk was most commonly involved, and itching was uncommon. Individual case reports of patients with COVID-19 and a diffuse erythematous rash, diffuse urticaria, petechial rash, and violaceous lesions in the toes have been described as well. The American Academy of Dermatology has launched a COVID-19 dermatology registry to better understand the cutaneous manifestations of COVID-19. **Conclusion**: Cutaneous findings with COVID-19 seem uncommon and work is underway to better characterize dermatologic manifestations.

3. **What does a negative RT-PCR test mean?**
   The negative predictive value [(true negatives)/(true negatives + false negatives)] allows us to understand the significance of a negative test, which differs depending on the prevalence of disease in the population being tested. In asymptomatic patients, the prevalence of SARS-CoV-2 in the Bay Area and in the U.S. is not yet known. If we assume that the prevalence in the Bay Area is 1% and the sensitivity/specificity of a NP swab test is estimated at 75%/98%, then the negative predictive value of the test is 99.7%. In symptomatic patients or those with known

exposures, the prevalence rate may be 10% or higher. In this case, the negative predictive value would be lower at 97.2%. **Conclusion**: When interpreting a negative test one must take into account both the sensitivity of the test and the prevalence of disease

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

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