



San Francisco Village

COVID – 19
Research and Advisory Team:
Report and Recommendations #35
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SFV Members:
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This report contains a summary of updates on the status of Covid-19 that are more evident since our last report. Sources include: CDC, WHO, SFPDPH, CA DPH, Science Journal, Nature Journal, New England Journal of Medicine, Journal of the American Medical Association, Scripps Research Institute, Johns Hopkins Coronavirus Resource Center, UCSF Medical Grand Rounds, STAT, Institute for Health Metrics & Evaluation, the Covid Tracking Project, other clinical journals, reports from public health professionals, and news media. This report is not intended to provide personal advice – for that please consult with your health care providers.

NEW FINDINGS

1) How to think about testing

If you think a negative test result means you don't have coronavirus, you could be wrong. It can take days before a new infection shows up on a Covid-19 test. "We know that the incubation period for Covid-19 is up to 14 days. And before that, you can be testing negative, and have no symptoms," emergency medicine physician Dr. Leana Wen told CNN. "But you could actually be harboring the virus and be able to transmit it to others."

So if you want to get tested as a precaution before seeing friends or family, here's what you need to know:

If I got infected yesterday, would a test today pick that up?

Probably not. A study in the medical journal *Annals of Internal Medicine* examined false negative test results of people who did have Covid-19. The study estimated that during four days of infection *before* symptoms typically started, the probability of getting an incorrect/negative test result on Day 1 was 100%. On the day people started showing symptoms, the average false-negative rate had dropped to 38%, according to the study. Three days after symptoms started, the false-negative rate dropped to 20%. The evidence suggests getting a test before the third day after exposure is not of much use.

Could I be contagious while testing negative?

Absolutely. "People feel like if you test (negative), you're out of the woods. And you're not," said Dr. Rochelle Walensky, chief of the infectious diseases division at Massachusetts General Hospital.

For people who get sick with Covid-19, symptoms can take up to two weeks to appear, but the average time is about five days, Walensky said.

"It's generally thought that you're most infectious the two days before that day and the two days after that," she said. One reason why this virus spreads so easily is because people can be infectious without any symptoms. The US Centers for Disease Control and Prevention estimates 40% of infections are asymptomatic, and 50% of transmissions happen before symptoms begin.

Do different kinds of Covid-19 tests matter?

When it comes to diagnostic tests -- those that detect whether you have an active coronavirus infection -- there are two main types:

Molecular tests, such as PCR tests, look for the virus' genetic material. Most of these tests are performed with nasal swabs or throat swabs, though some can be done using saliva. This test is typically highly accurate and usually does not need to be repeated. But the downside to molecular testing is that results can take a while -- anywhere from the same day to one week after testing. "For people who show symptoms, so far the studies show the accuracy of the molecular test to find a positive case increases with each day after the exposure," said Pia MacDonald, infectious disease epidemiologist at the nonprofit research institute RTI International. But for infected people who don't get symptoms, the accuracy rates are less clear, she said. "Molecular test performance studies on asymptomatic people are very limited."

Antigen tests are often known as rapid tests (though some molecular tests are rapid, too). Antigen tests are not antibody tests, which tell you whether you've *previously* had the virus and have already developed antibodies against the infection. Antigen tests don't look for the virus' genetic material, like molecular tests do. Instead, they look for specific proteins on the surface of the virus. The good news is you can get antigen test results in less than an hour. The bad news is you're more likely to get a false negative with a rapid antigen test. "Positive results are usually highly accurate but negative results may need to be confirmed with a molecular test," the FDA says. Antigen tests are more likely to miss an active coronavirus infection compared to molecular tests.

Regardless of which type of diagnostic test you use, you're generally more likely to get a false negative than a false positive. If a molecular test is positive, it's an accurate reflection of a person being infected. If it's negative, it's less reliable that the person is indeed negative. The same is true of the antigen tests.

Can I test myself at home?

Yes. There are some at-home testing kits available. Users take their own nasal swab samples and mail them to a lab, which will send results digitally within 24 to 48 hours of receiving the samples.

But taking any kind of Covid-19 test too early might miss an infection, said Dr. Frank Ong, chief medical and scientific officer at Everlywell.

"As testing capacity has continued to increase, more and more asymptomatic or mildly symptomatic individuals have undergone testing, most of whom

likely have lower viral loads in their clinical samples," he said. "My best advice is to treat yourself as if you are likely infected after suspected exposure. Quarantine, wear a mask to cover both nose and mouth, and practice good hygiene practices. If you want to take extra precautions or you believe you may have been exposed, get tested for the virus using an FDA-authorized test for Covid-19."

So what should I do if I want to see friends or relatives?

If you want to see loved ones for Thanksgiving, self-quarantining for 14 days beforehand is probably your safest bet. A 14-day quarantine -- with a real quarantine -- if you do that properly, you don't need a test. To be clear: Quarantining means staying home. It does not mean you can run errands.

2) New research points to potential link between pollution levels and Covid-19 death risk

In a study published Wednesday in *Science Advances*, researchers estimated long-term air pollution levels for more than 3,000 U.S. counties, which also had Covid-19 mortality data available through June 2020. While the study wasn't designed to show whether pollution exposure directly affected a person's risk of death due to Covid-19, it did demonstrate an association between increased pollution levels and higher Covid-19 death tolls. The researchers found that even a slight spike in fine particulate matter could be associated with an 11% increase in a county's Covid-19 death toll.

"The results of our study suggest that in counties with high levels of pollution is where we need to implement social distancing measures now more than ever, knowing that people here will be more susceptible to die from Covid-19," said Francesca Dominici, a professor of biostatistics at Harvard University's T.H. Chan School of Public Health and co-author of the study.

3) Review finds almost 20 percent of COVID-19 patients only show gastrointestinal symptoms

Almost one in five patients with COVID-19 may only show gastrointestinal symptoms, according to a review of academic studies published in the journal *Abdominal Radiology*. The findings of the review suggest abdominal radiologists need to remain vigilant during the pandemic while imaging patients.

Gastrointestinal symptoms associated with COVID-19 vary widely but can include loss of appetite, nausea, vomiting, diarrhea and generalized abdominal pain. The researchers who conducted the review report that 18 per cent of patients presented with such symptoms, while 16 per cent of COVID-19 cases may only present with gastrointestinal symptoms.

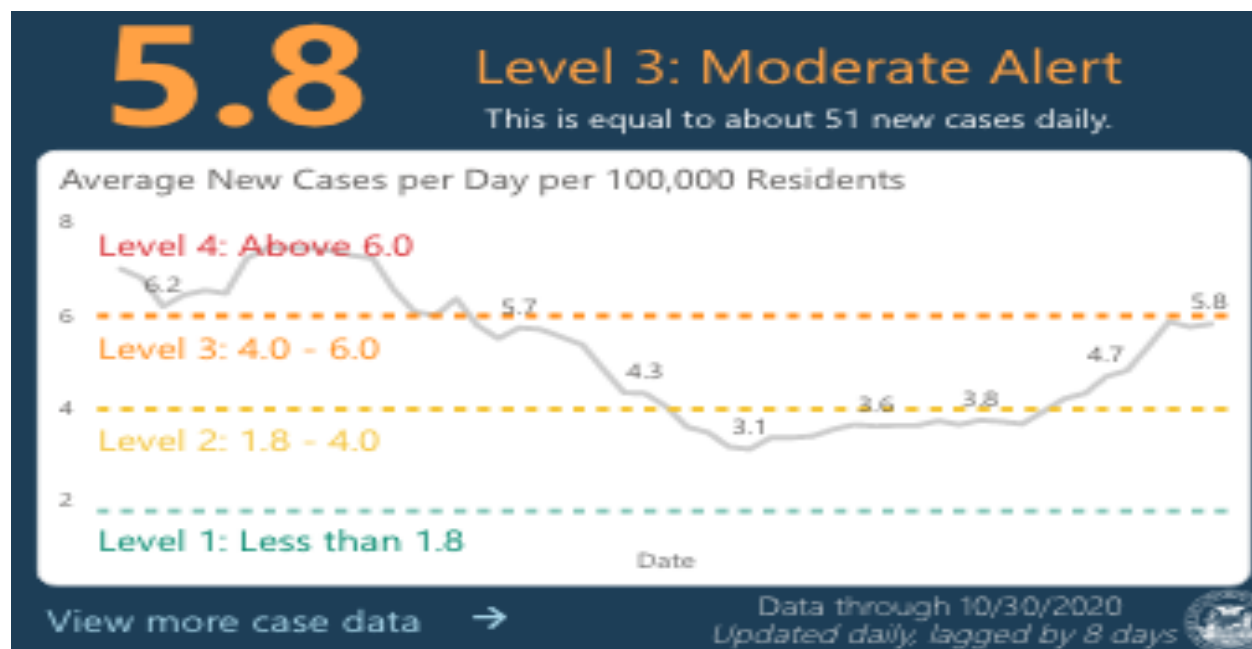
In addition to gastrointestinal symptoms, they also determined potential signs radiologists should look for while conducting abdominal imaging that could be evidence of COVID-19 infection. Those signs include inflammation of the small and large bowel, air within the bowel wall (pneumatosis) and bowel perforation (pneumoperitoneum). The signs are quite rare, said the researchers, and could indicate patients with advanced disease.

SAN FRANCISCO

Total Cases: 12,860

Deaths: 151

Total Tested: 721,107

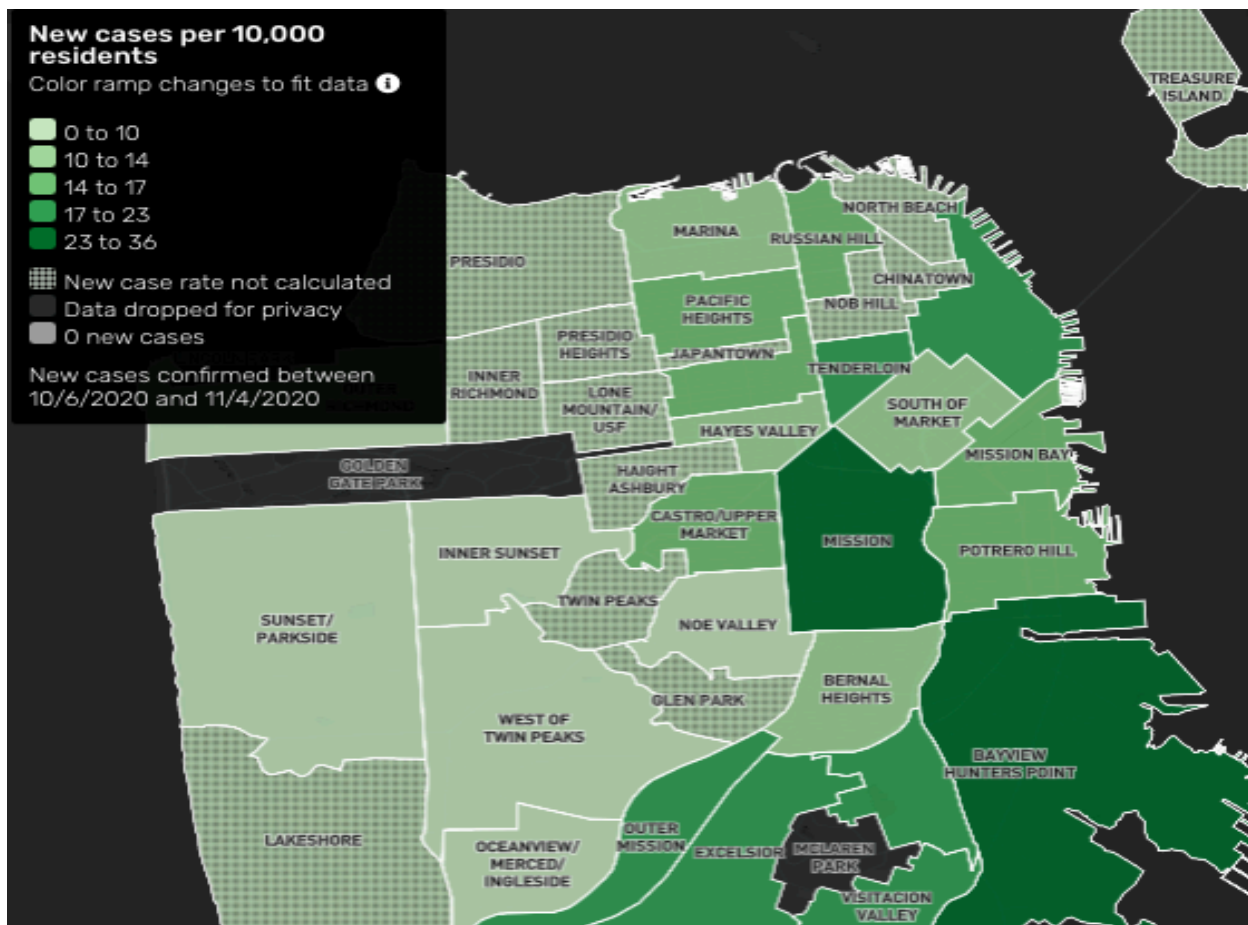
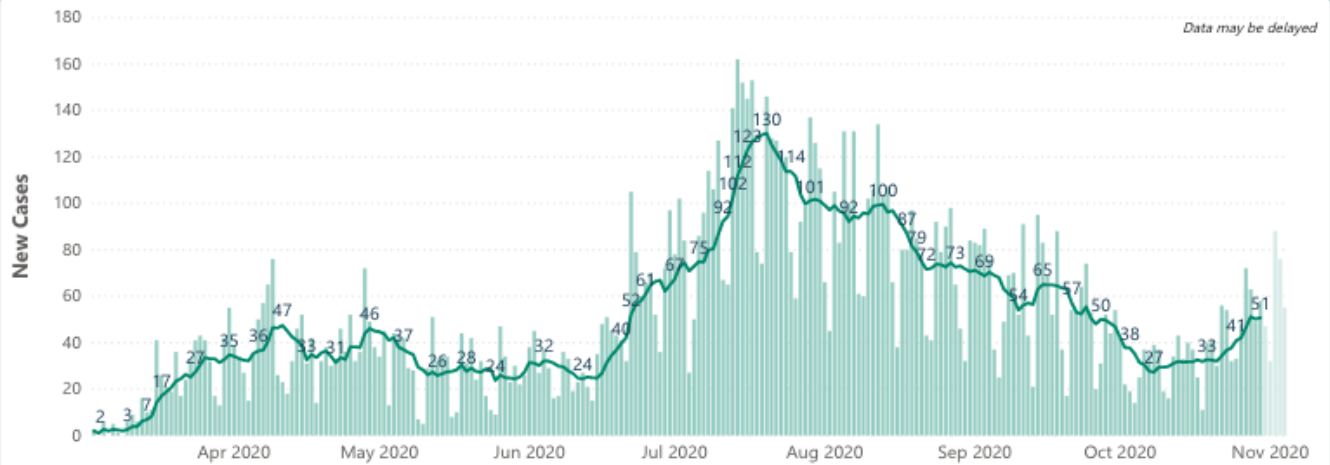


The figure below shows the **number of new COVID-19 cases in San Francisco per day** and the **7-day rolling average of new cases**. The rolling average is the average of new cases for a particular day and the prior six days, which shows the trend of new cases (smoothing out daily fluctuations).

updated and validated daily

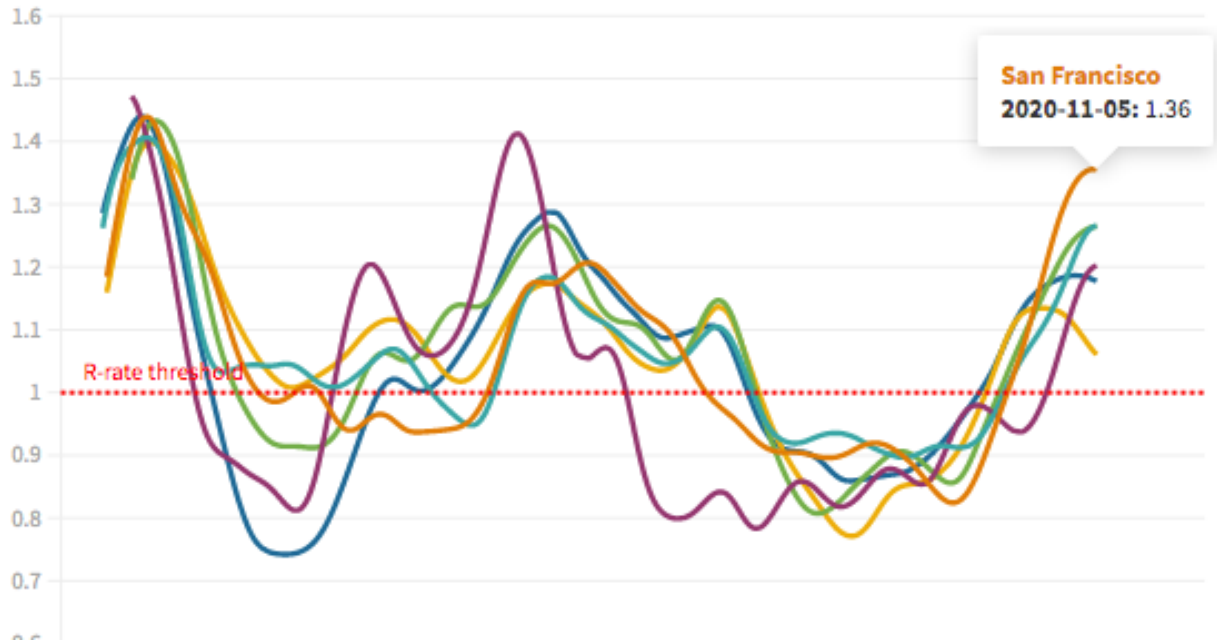
7-day Average of New Cases per Day

51



R Number for the 6 Bay Area Counties: the R Number refers to the reproductive rate of a disease. To control and eliminate the spread of a disease, an R Number of <1 is required.

■ Santa Clara
 ■ Alameda
 ■ Contra Costa
 ■ Marin
 ■ San Mateo
 ■ San Francisco



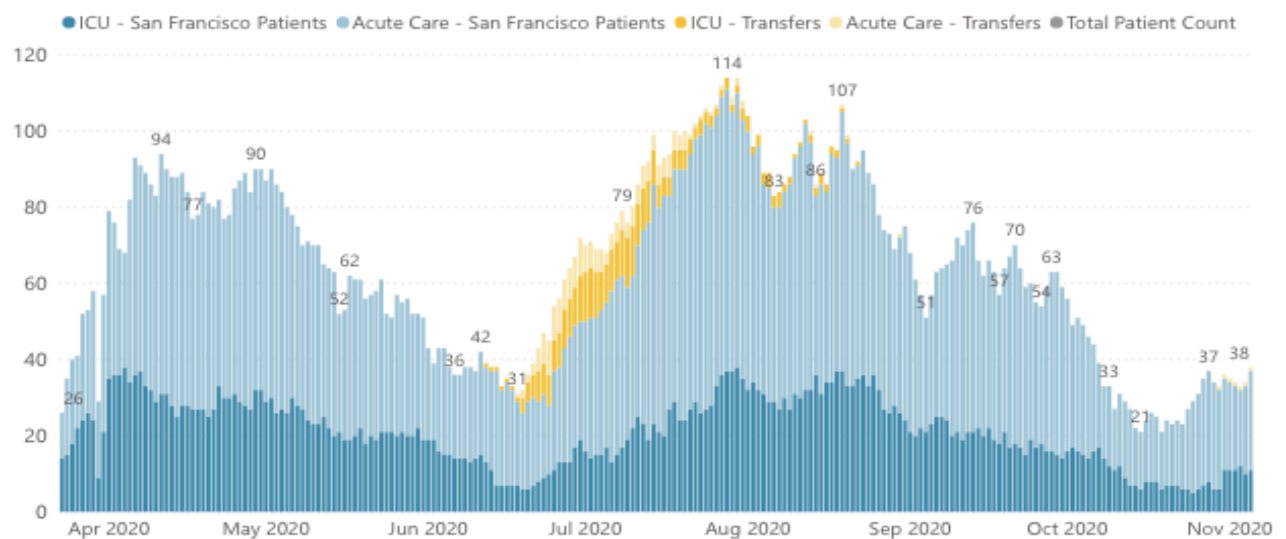
See Hospitalizations for:

Confirmed COVID-19

Suspected COVID-19

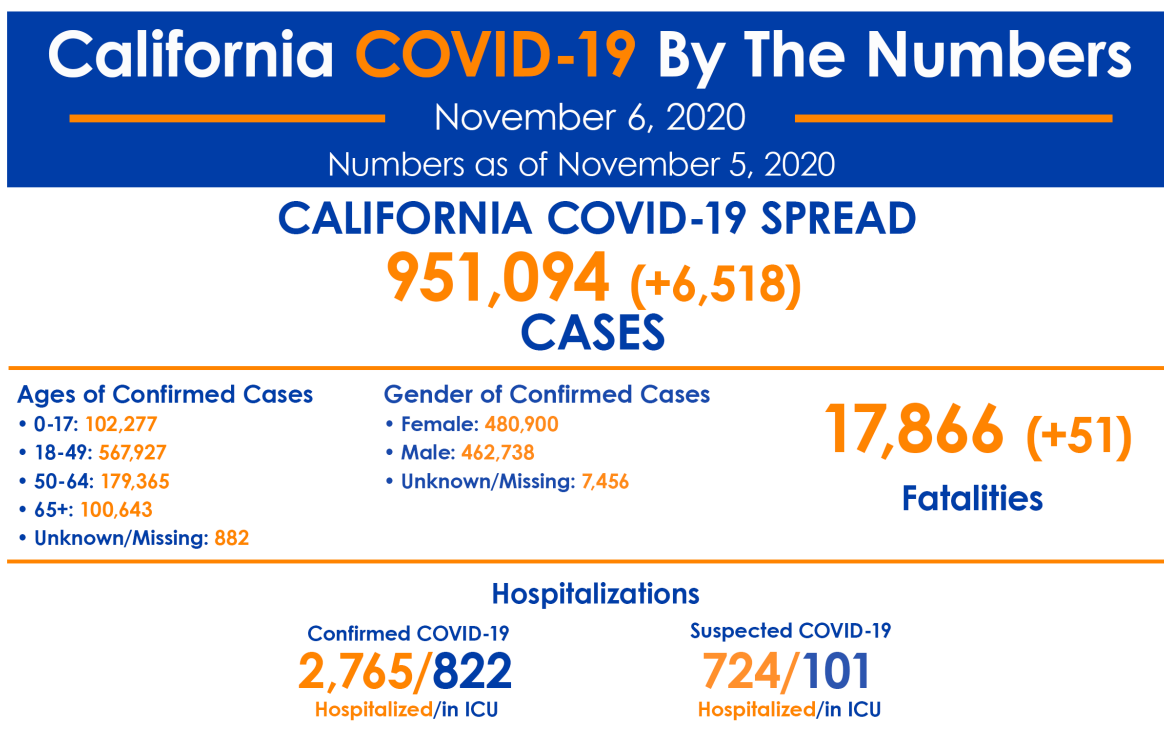
Total Combined

COVID-19 Patient Count



1) Bay Area health officials considering coronavirus travel advisory
 Bay Area health officers are considering issuing an advisory ahead of the holiday season that would urge people who travel to places where the coronavirus is spreading widely to either quarantine for two weeks after they return home or get a negative test result before going back to work or school. No decision has yet been made about the advisory, and it may not apply to all of the Bay Area. The public health officials involved in the discussion are from the six “core” counties — Alameda, Contra Costa, Marin, San Francisco, San Mateo and Santa Clara — that issued the first shelter-in-place orders in March. The travel advisory would likely be a recommendation, not an order. Cases are beginning to inch up in the Bay Area too, though the region so far has been spared from the explosive growth reported elsewhere. But with Thanksgiving and other holidays approaching, health officials are concerned about increased travel seeding the virus here.

CALIFORNIA



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covid19.ca.gov



2) California's COVID-19 efforts fare better than national average, but hospitalizations are rising

As states throughout the country experience severe spikes in coronavirus infections, California's case count remains mild by comparison. But as transmission and hospitalizations again increase, officials are returning to a cautionary refrain. The statewide number of hospitalizations increased by 13.5% over the past 14 days, and the number of patients in intensive care has grown by nearly 20%. Hospitalizations are a lagging indicator for the spread of the virus. The rise follows an increase in the statewide positivity rate for infections, which grew from 2.6% to 3.3% over the past 14 days. The metric is low when compared to the national average of 6.7%, but even a slight uptick can reverse progress.

Two counties moved backward in the state's tiered system Wednesday as Ghaly announced 5,338 new coronavirus cases. Shasta regressed to Tier 1 as case counts have continued to rise, and Plumas has moved back to Tier 3 following a similar spike. Colusa County was the only one to move forward from Tier 2 to Tier 3 for moderate risk of spread. San Diego appears headed back to Tier 1 as well.

In Los Angeles County, officials on Wednesday reported the highest single daily case count unrelated to a backlog since late August. The county, which has a lower positivity rate of 4.1% but has remained mired in Tier 1 because of a high case count, confirmed 1,843 new cases and 22 additional deaths. The projected transmission rate has again surpassed 1.0 in L.A. County. That means the number of people who could contract the virus from one infected person is likely rising.

Officials have said that private gatherings contributed greatly to the state's increase in cases. But Ghaly warned Wednesday against trying to pinpoint the origin of spread to one specific instance, be it gathering of friends and families or public demonstrations.

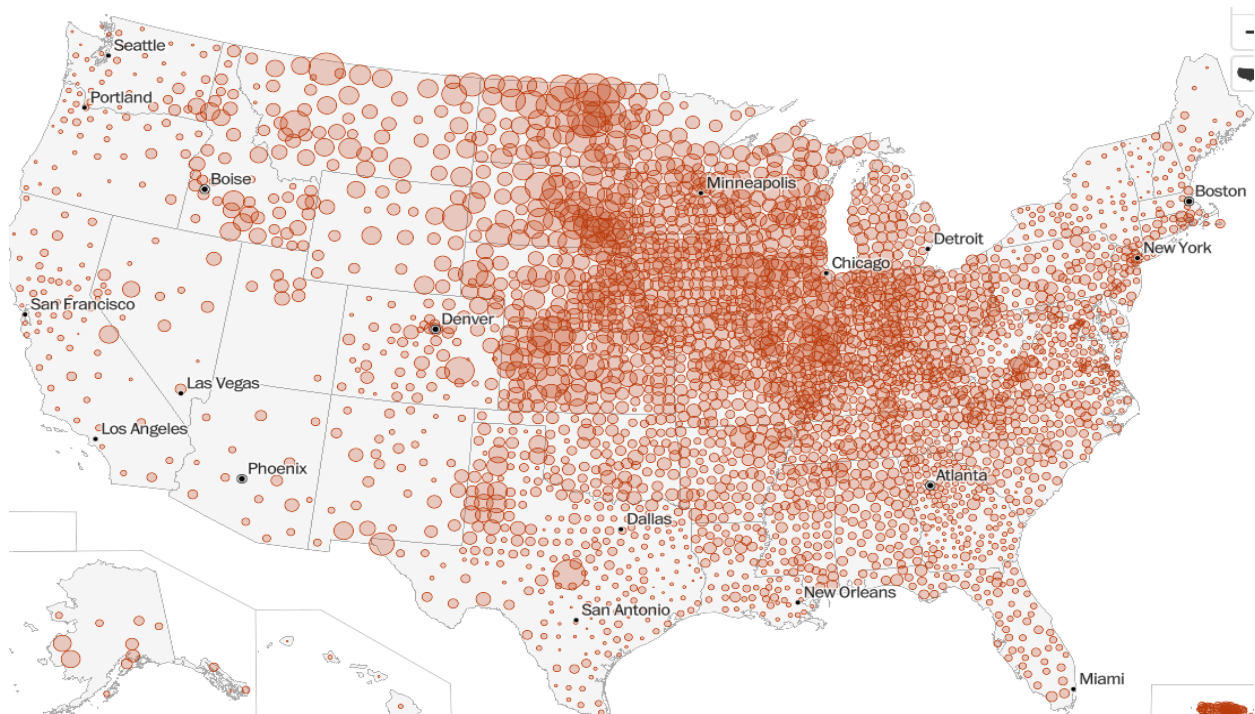
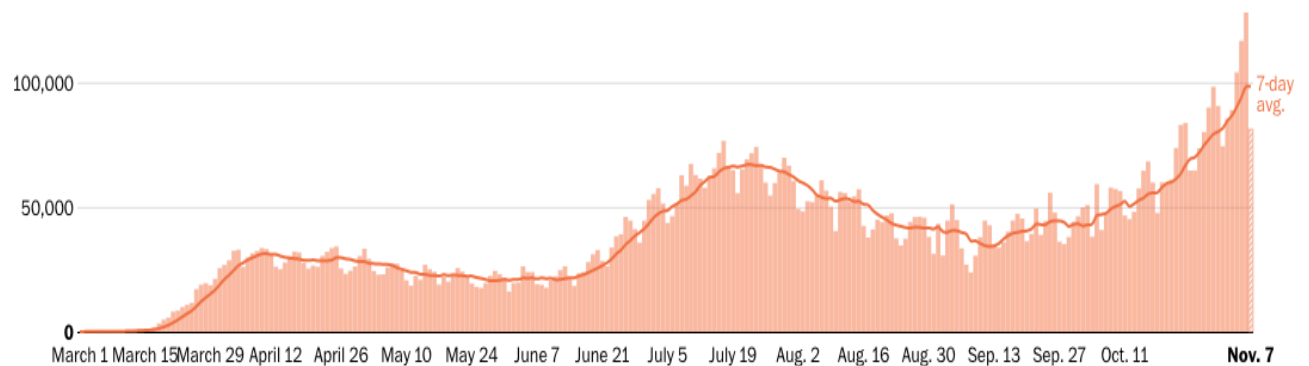
UNITED STATES

Total Cases: 9,787,734

Deaths: 236,484

In the past week in the U.S.:

- New daily reported cases rose 22.4%
- New daily reported deaths rose 18.9%
- Covid-related hospitalizations rose 17.8%
- Among reported tests, the positivity rate was 7.3%.
- The number of tests reported rose 7.9% from the previous week.



1) US tops 125,000 daily coronavirus infections -- a record high

The United States set a new record on Friday when it surpassed 125,000 daily coronavirus infections, while Covid-19 hospitalizations continued to climb, prompting health experts to issue dire predictions. Friday saw at least 125,596 new coronavirus cases -- the highest single day reporting since the pandemic began. It also marked the third straight day the country has surpassed 100,000 daily coronavirus cases.

Besides the new case numbers, by Friday evening there had been at least 1,137 deaths, according to Johns Hopkins University. Additionally, more than 54,000 Americans are hospitalized with Covid-19, with about 11,000 of them in intensive care, according to the COVID Tracking Project. Officials around the nation are warning that hospitals could soon run out of capacity. And more hospitalizations and people in intensive care could also lead to a rise in deaths. Harvard University epidemiologist Marc Lipsitch warned on Friday that coronavirus infections could double over the next month. And an ensemble forecast by the US Centers for Disease Control and Prevention projects another 31,000 people could lose their lives over the next two-and-a-half weeks.

Thirteen states reported their highest numbers of new cases on Thursday, according to Johns Hopkins: Colorado, Illinois, Indiana, Iowa, Maine, Minnesota, Nebraska, New Hampshire, North Dakota, Ohio, Oklahoma, Utah and West Virginia. And at least 38 states are reporting more new infections than the previous week. Only two states -- Alabama and Tennessee -- are trending in the right direction. Sixteen states reported record high Covid-19 hospitalizations on Friday, according to the Covid Tracking Project. Those states are: Alaska, Idaho, Indiana, Iowa, Kansas, Kentucky, Minnesota, Missouri, Montana, Nebraska, North Dakota, Ohio, South Dakota, Utah, Wisconsin and Wyoming.

As the situation around the country worsens, state and local officials are taking new steps to prevent the spread of the virus -- despite the fatigue that many are feeling. Officials in Rhode Island, Oregon and Denver, for example, are recommending nightly curfews. On Friday, Denver officials announced a 10 p.m. curfew for residents and nonexempt businesses -- a last-ditch effort to curb rising cases and avoid another citywide stay-at-home order. Oregon Gov. Kate Brown called on some counties to take a two week "social pause," as the state reported a record 805 new cases on Friday.

More than 1 million US Covid-19 cases and more than 59,000 deaths could have been prevented by early May if mitigation steps had been implemented two weeks earlier, according to a modeling study published Friday in Science Advances. Sen Pei, a research scientist at Columbia University, and colleagues built a Covid-19 transmission model that looked at all US counties from February 21 through May 3. Broad coronavirus transmission control measures were announced March 15, researchers wrote. But had interventions such as social distancing and business closures started a week earlier on March 8, there would have been 600,000 fewer confirmed cases and 32,000 fewer deaths. If those interventions started two weeks earlier, on March 1, there would have been more than a million fewer confirmed cases and more than 59,000 fewer deaths, the authors found.

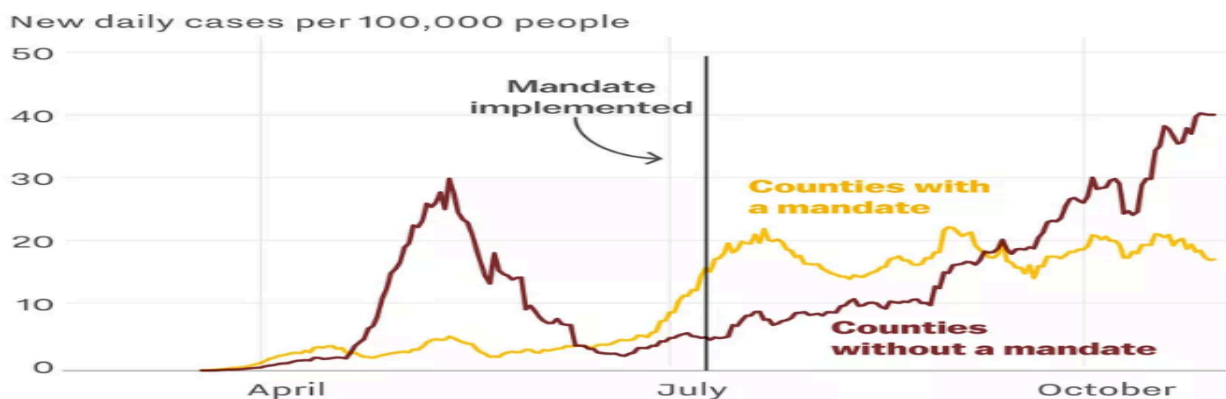
2) The latest research suggests mask mandates help control the spread of Covid-19.

Over the course of the pandemic, America has been engaged in a massive and uncontrolled mask experiment: Some jurisdictions implemented and enforced mask mandates; others rejected them as public health guidance became politicized.

New unpublished research from Kansas and Tennessee suggests that not only do mask mandates prevent Covid-19 spread, they may also blunt the severity of illness and reduce the number of serious cases that require hospitalization. Other findings support the argument more and more public health experts are making: that masks remain among our cheapest most effective tools to control the pandemic — if worn consistently.

Case counts stabilized in Kansas counties that implemented a mask mandate

Without a statewide mandate, 21 Kansas counties implemented a mandate while the others opted out. Here is what happened next:

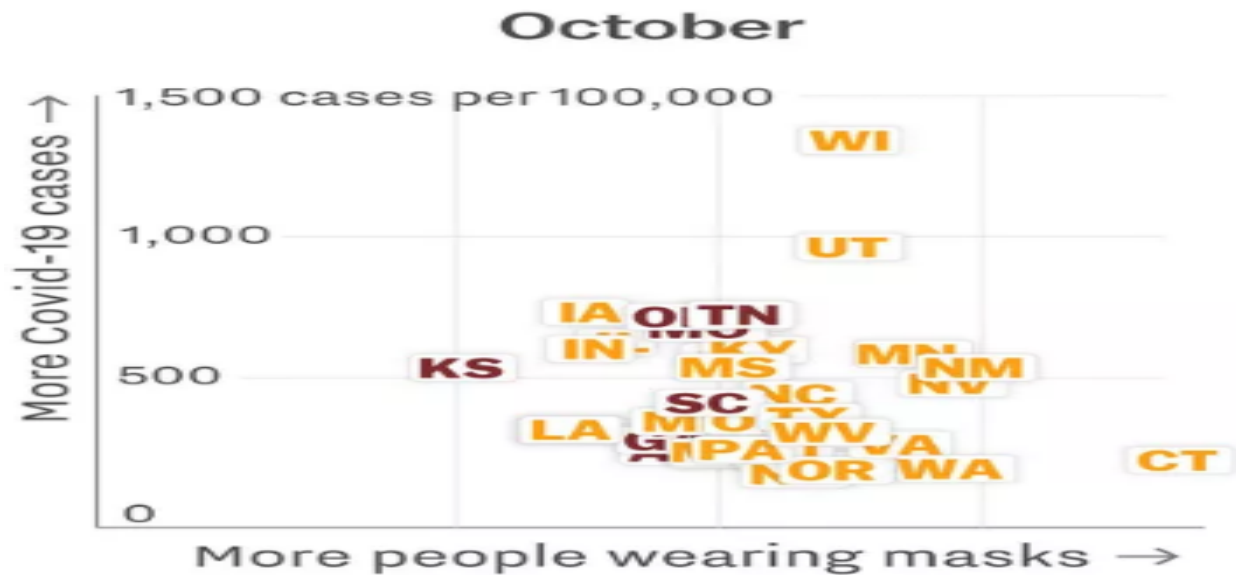


Other researchers have made related findings. A nonprofit group called Prevent Epidemics recently published a report showing that, following mask mandates, coronavirus cases declined in Alabama, Oklahoma, South Carolina, and Texas. The CDC found that in Arizona, after a mask mandate was put in place, Covid-19 cases dropped 75 percent. Conversely, cases spiked 151 percent when stay-at-home orders were lifted, demonstrating that behavior has a significant impact on viral transmission.

In addition to slowing the spread of the virus, new evidence from Tennessee shows that mask mandates could reduce the severity of the virus. A paper by researchers at Vanderbilt found that at Tennessee hospitals where at least 75 percent of Covid-19 patients came from counties with mask requirements, coronavirus hospitalization rates are the same as they were in July. In hospitals where fewer than 25 percent of patients come from places with a mask mandate, hospitalizations are 200 percent higher. What's more, the researchers wrote, hospitals in areas with mask requirements and other mitigation strategies "are in a much better position to serve the entire spectrum of community health needs, not just Covid-19 patients."

Mask mandates lead to more people wearing masks. Even if they aren't always followed, mask mandates appear to be an effective tool in encouraging behavior change. The Institute for Health Metrics and Evaluation (IHME) at the University of Washington found in August that mask use increased 8 percentage points after mask mandates, and increased 15 points if those mandates were enforced.

In fact, a study published October 23 in *Nature Medicine* by IHME's forecasting team modeled current public health interventions — projecting case numbers based on current behavior — and found that universal mask use could save as many as 130,000 lives by the end of February 2021. Vox analyzed the relationship between the frequency of wearing masks from the Premise survey data and the Covid-19 cases in states from April to October. As the chart below shows, in states with mandates where cases surged in the spring, more people now wear masks. These states — where more people consistently wear masks — are now less likely to see another huge surge in cases.



RECOMMENDATIONS

1) We'd like these reports to have more widespread visibility. Please continue to tell SFV members how to access them in newsletters and monthly emails, in addition to asking event leaders to mention them in classes. Feel free to also share with friends, family, and colleagues.

2) Consider offering an event, or having a topical discussion in the Coffee Chats on "safe holiday-ing." Members may be considering traveling or participating in larger, indoor, group gatherings, which increases the risk of infection. Certain practices can reduce that risk.