



DEPARTMENT OF HEALTH & HUMAN SERVICES

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Via Email: [chuck@dcnf.org](mailto:chuck@dcnf.org)

October 22, 2021

Chuck Ross  
The Daily Caller  
22110 W. 52<sup>nd</sup> Street  
Shawnee, KS 66226

Re: NIH FOIA Case No.: 53853; Daily Caller v. HHS, Case No. 20-cv-1149 (DLF) (D.D.C.)

Dear Mr. Ross:

This is a partial response to the Freedom of Information Act (FOIA) request that is the subject of the complaint filed in *Daily Caller v. HHS*, 20-cv-1149, now pending in the U.S. District Court for the District of Columbia. Your FOIA request, dated April 1, 2020, was received by the National Institutes of Allergy and Infectious Diseases (NIAID) on the same day.

You requested communications of Dr. Anthony Fauci and Dr. H. Clifford Lane that either 1) include a World Health Organization official and concern the novel coronavirus, or 2) discuss the World Health Organization or certain of its officials, as well as China and the novel coronavirus. You requested these communications from January 1, 2020 to April 1, 2020.

In accordance with the Court's order dated September 22, 2020, we have processed 301 pages of responsive records this month. The information being withheld is protected from release pursuant to Exemptions 5 and 6 of the FOIA, 5 U.S.C. § 552 (b)(5) and (b)(6); and sections 5.31 (e) and (f) of the HHS FOIA Regulations, 45 CFR Part 5. Exemption 5 permits the withholding of internal government records which are predecisional and contain staff advice, opinion, and recommendations. This exemption is intended to preserve free and candid internal dialogue leading to decision-making. Exemption 6 exempts from disclosure records the release of which would cause a clearly unwarranted invasion of personal privacy.

Please direct any questions regarding this response to James Bickford of the Department of Justice, who can be reached at [James.Bickford@usdoj.gov](mailto:James.Bickford@usdoj.gov), or (202) 305-7632.

Sincerely,

*for* Gorka Garcia-Malene  
Freedom of Information Act Officer, NIH

**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Tue, 31 Mar 2020 14:33:08 +0000  
**To:** Undisclosed recipients:  
**Subject:** KHN Morning Briefing, Tuesday, Mar 31 2020

## **KHN Morning Briefing**

### **Summaries of health policy coverage from major news organizations**

Tuesday, Mar 31 2020 UPDATED 9:26 AM

## **From Kaiser Health News - Latest Stories:**

Kaiser Health News Original Stories

[Her Genetic Test Revealed A Microscopic Problem — And A Jumbo Price Tag](#)

Molecular diagnostics are at the frontier of science, but insurance and billing questions create a minefield for patients. (Liz Szabo, 3/31)

[Online Coronavirus Tests Are Just The Latest Iffy Products Marketed To Anxious Consumers](#)

Americans are worried about the novel coronavirus, so they are turning to the internet for solutions to stem their fears. Buyer, beware. It could be dangerous. (Victoria Knight, 3/31)

[More Than 5,000 Surgery Centers Can Now Serve As Makeshift Hospitals During COVID-19 Crisis](#)

Under pressure, the federal government announced it will let surgery centers, hotels and even college dorms serve as hospitals to treat an overflow of patients. (Liz Szabo and Cara Anthony, 3/30)

[COVID-19 Bonanza: Stimulus Hands Health Industry Billions Not Directly Related To Pandemic](#)

Congress retreats on long-planned cost cuts to benefit the health care industry with a grab bag full of incentives. (Fred Schulte, 3/30)

[Should You Bring Mom Home From Assisted Living During The Pandemic?](#)

Families are weighing the challenges of providing home care with the isolation or potential danger of leaving folks in senior housing or long-term care. (Judith Graham, 3/31)

[Already Taxed Health Care Workers Not 'Immune' From Layoffs And Less Pay](#)

Revenue is way down for primary care, specialty physicians and some hospitals as patients avoid non-urgent visits. Practices small and large are doling out layoffs and furloughs to staff. (Martha Bebinger, WBUR, 3/30)

[Political Cartoon: 'Homeschooling?'](#)

Kaiser Health News provides a fresh take on health policy developments with "[Political Cartoon: 'Homeschooling?'](#)" by Jeff Danziger.

Here's today's health policy haiku:

**FDA WARNS AGAINST AT-HOME TEST KITS**

['Junk, bunk and crank](#) stuff':

At-home testing promises are

Too good to be true.

- Anonymous

If you have a health policy haiku to share, please [Contact Us](#) and let us know if you want us to include your name. Keep in mind that we give extra points if you link back to a KHN original story.

## **Summaries Of The News:**

COVID-19 Crisis

[Navy Hospital Ship Comfort Arrives In NYC As Number Of Coronavirus Deaths In Country Climbs Past 3,000](#)



The number of U.S. deaths is nearing the total China has reported. Shortly after the USNS Comfort arrived in New York, Gov. Andrew Cuomo announced that the statewide death toll had risen by 253 in a single day. The naval ship will offer 1,000 hospital beds to help alleviate the strain for local hospitals. Meanwhile, other sites in the city, including Central Park, are being turned into field hospitals to help handle the overflow. And FEMA is sending refrigerated trucks to make up for the lack of space in the city's morgues.

[The Associated Press: US Nears China's Virus Death Toll As New York Calls For Help](#) The mounting death toll from the virus outbreak in the United States had it poised Tuesday to overtake China's grim toll of 3,300 deaths, with New York Gov. Andrew Cuomo saying up to 1 million more healthcare workers were needed. "Please come help us," he urged. Hard-hit Italy and Spain have already overtaken China and now account for more than half of the nearly 38,000 COVID-19 deaths worldwide, according to figures from Johns Hopkins University. (Perry and Noveck, 3/31)

[The Wall Street Journal: New York Hospitals Plan Coordination As Coronavirus Deaths In State Top 1,200](#) A U.S. Navy hospital ship arrived in New York City on Monday to help alleviate the strain of the coronavirus crisis on local hospitals, as Gov. Andrew Cuomo outlined a new statewide plan to coordinate medical care for the infected. The USNS Comfort will provide 1,000 hospital beds to the city, which has become the epicenter of the virus's outbreak in the country. After welcoming the ship on Manhattan's West Side, Mr. Cuomo held a press conference at Jacob K. Javits Convention Center, which is being converted into a 2,500-bed hospital and began receiving patients Monday. (Chapman, 3/30)

[The Associated Press: 'Staggering': New York Virus Death Toll Rises Above 1,200](#) The Comfort, which was also sent to New York after the 9/11 terror attacks, has 12 operating rooms that could be up and running within 24 hours, officials said. The ship is docked just north of a temporary hospital constructed inside the cavernous Jacob K. Javits Convention Center. State and city officials are trying to increase hospital capacity by up to 87,000 beds to handle the outbreak. "We bring a message to all New Yorkers – now, your Navy is returned and we are with you committed in this fight," said Rear Admiral John Mustin. (Hays and Villeneuve, 3/30)

[Politico: USNS Comfort Arrives In New York City](#) "Our nation has heard our plea for help here in New York City," Mayor Bill de Blasio said as he greeted the ship at Pier 90. "There could not be a better example of all of America pulling for New York City than the arrival of the USNS Comfort." The ship, emblazoned with red crosses on its white hull, will not treat coronavirus patients, but will take on other patients including trauma cases, freeing up beds at local hospitals focused on combating the pandemic. It will have 750 beds ready to treat patients immediately. (Durkin, 3/30)

[Politico: FEMA Sends Refrigerated Trucks To New York City To Hold Bodies](#) FEMA is sending refrigerated trucks to New York City to serve as temporary morgues as the death toll from the coronavirus grows. There is a "desperate need" for morgue space in Queens in particular, FEMA regional administrator Thomas Von Essen said Monday. The borough has the most coronavirus cases in the city, and Elmhurst hospital has been swamped with gravely ill patients. (Durkin, 3/30)

[Reuters: U.S. Coronavirus Death Toll Rises Past 3,000 On Deadliest Day](#) In a grim new milestones marking the spread of the virus, total deaths across the United States hit 3,017, including at least 540 on Monday, and the reported cases climbed to more than 163,000, according to a Reuters tally. People in New York and New Jersey lined both sides of the Hudson River to cheer the U.S. Navy ship Comfort, a converted oil tanker painted white with giant red crosses, as it sailed past the Statue of Liberty accompanied by support ships and helicopters. (Kelly and Trotta, 3/30)

[The Wall Street Journal: U.S. Prepares For Prolonged Shutdowns As Coronavirus Strains Hospitals](#) At the beginning of March, the U.S. had reported fewer than 100 confirmed cases of Covid-19, the pneumonialike disease caused by the virus. It now has more than 159,100 confirmed infections, the most of any country, according to data compiled by Johns Hopkins University, though the country's 2,945 deaths are far less than in Italy and Spain, Europe's worst-hit nations. Italy's death toll climbed



Monday to 11,591—the highest of any country. Spain, with 7,340 deaths, is the second hardest-hit country. Both, like the U.S., have surpassed China in total confirmed cases. (Calfas, Ping and Simmons, 3/30)

[The Washington Post: Coronavirus Pandemic Could Kill As Many As 200,000 In U.S., White House Warns](#) Michigan, which Trump said Monday was “becoming a hotbed,” reported an 18 percent surge in cases from a day earlier, along with more than 50 additional deaths — bringing its total fatalities to 184. Michigan’s nearly 6,500 confirmed cases was the third-highest total in the nation, behind New Jersey (more than 16,600) and New York (more than 66,000). (Zapotosky, Wagner and Iati, 3/30)

[Stat: As Coronavirus Spreads, ER Doctors Warn 'The Worst Of It Has Not Hit Us Yet'](#) Streets in cities and towns across the country are eerily quiet. Car traffic has dropped so substantially air pollution is abating. In many places, people are hunkered down indoors, trying to avoid contracting Covid-19. But the true battle against the SARS-CoV-2 virus, which causes the disease, is playing out in hospitals that are currently — or will soon be — engulfed in an onslaught of patients struggling to breathe. (Branswell, 3/31)

[The Wall Street Journal: Queens Stadium To Be Converted Into Temporary Hospital In Coronavirus Fight](#) New York City’s emergency management office plans to build a 350-bed facility at the Billie Jean King National Tennis Center in Flushing Meadows-Corona Park as efforts intensify to supplement hospital space as the U.S. battles the coronavirus pandemic. Construction could begin as early as Tuesday at an indoor training center at the facility, which has multiple courts and wide spaces, according to a spokesman for the U.S. Tennis Association. The beds will likely be for patients who don’t have Covid-19, the illness caused by the novel coronavirus, but that could change depending upon need, according to a spokeswoman for the city. (Honan, 3/30)

[NBC News: 'It's Surreal,' Nurse Practitioner Says Of Field Hospital Set Up In Central Park Amid Coronavirus Pandemic](#) Shelly Kelly, a nurse practitioner from Tulsa, Oklahoma, never imagined that on her first trip to New York City, she would be unable to visit some of the area's biggest attractions. “I had no idea that on my first trip to New York I wouldn't be able to see a Broadway show. I wouldn't be able to go out to all the nice restaurants I've heard about. I wouldn't be able to see people around Times Square. It's completely different,” said Kelly, who landed in New York on Sunday. Instead, Kelly will be among a few dozen nurses and doctors from Samaritan’s Purse, a nondenominational evangelical Christian humanitarian organization, working at a field hospital set up in Central Park — across the street from Mount Sinai Hospital — for patients battling COVID-19, the disease caused by the coronavirus. (Griffith, 3/30)

[ProPublica: Life On A Block With An Emergency Morgue Truck: 'We Hear The Hum Of The Refrigerator Going All Night Long'](#) Across New York City, there are unthinkable scenes everywhere. Empty public spaces. Teeming emergency rooms. Shuttered churches. For Marc Kozlow, the unthinkable played out on Stanhope Street in Brooklyn this weekend. He lives on the block with his fiancée and dog, a rescue named Hank. Near his apartment is Wyckoff Heights Medical Center, a 350-bed nonprofit hospital in Brooklyn’s Bushwick neighborhood. Most of the hospital’s patients are people of color; about a fifth are 70 or older. (Waldman, 3/30)

Federal Response

[Trump Thinks Testing Is No Longer A Problem, But Governors Beg To Disagree](#)

President Donald Trump said in a phone call with governors that he hadn’t heard about testing concerns in weeks. “It would be shocking to me that if anyone who has had access to any newspaper, radio, social networks or any other communication would not be knowledgeable about the need for test kits,” Washington Gov. Jay Inslee said about the president’s comments. Meanwhile, The New York Times takes a deep dive into the lost month where testing flaws set the country back in its efforts to contain the outbreak. Meanwhile, companies race to put out a fast test, but the virus may be moving even faster.



[The New York Times: Trump Suggests Lack Of Testing Is No Longer A Problem. Governors Disagree.](#)

President Trump told governors on a conference call on Monday that he had not “heard about testing in weeks,” suggesting that a chronic lack of kits to screen people for the coronavirus was no longer a problem. But governors painted a different picture on the ground. Gov. Steve Bullock of Montana, a Democrat, said that officials in his state were trying to do “contact tracing” — tracking down people who have come into contact with those who have tested positive — but that they were struggling because “we don’t have adequate tests,” according to an audio recording of the conversation obtained by The New York Times. (Martin, Haberman and Baker, 3/30)

[The Hill: Trump Defends US Coronavirus Testing As 'Very Much On Par' With Other Countries](#)

President Trump on Monday insisted that America’s ability to test for the coronavirus is “very much on par” with other countries, criticizing a reporter who asked why the U.S. isn’t testing as many people per capita as South Korea. Trump said at a Monday evening White House press conference that the population of the U.S. is far more spread out, with less dense regions that have seen less of an impact from COVID-19, suggesting that testing was not needed in those places. (Chalfant, 3/30)

[The New York Times: The Lost Month: How A Failure To Test Blinded The U.S. To Covid-19](#)

Early on, the dozen federal officials charged with defending America against the coronavirus gathered day after day in the White House Situation Room, consumed by crises. They grappled with how to evacuate the United States consulate in Wuhan, China, ban Chinese travelers and extract Americans from the Diamond Princess and other cruise ships. The members of the coronavirus task force typically devoted only five or 10 minutes, often at the end of contentious meetings, to talk about testing, several participants recalled. The Centers for Disease Control and Prevention, its leaders assured the others, had developed a diagnostic model that would be rolled out quickly as a first step. (Shear, Goodnough, Kaplan, Fink, Thomas and Weiland, 3/28)

[PBS NewsHour: Why The U.S. Is Still 'Severely Constrained' In Ability To Test For COVID-19](#) Despite recent signs of advancement, many health experts say the U.S. capacity to test for the novel coronavirus remains too limited and progress too slow. President Trump has previously claimed anyone could be tested — but that isn’t what we’re hearing from people who have tried. (Nuzzo, 3/30)

[Modern Healthcare: Limited Testing Poses Challenges To Mapping COVID-19 Spread](#) As information continues to emerge about COVID-19, researchers and companies are trying new approaches to map the outbreak. But how to accurately display and project the spread of the disease has proven difficult, particularly given the limited number of tests available to confirm where cases of COVID-19 actually are. (Cohen, 3/30)

[Stat: Test Makers Are Moving Fast, But The Coronavirus May Be Moving Faster](#) In Lake Success, a village on the border of suburban Long Island and the New York City borough of Queens, there is a building that was erected to house defense engineers during World War II. It was designed to withstand enemy bombing, with a pool of water on the roof to help camouflage it in the event of airstrikes. Today, it is on the front line of a very different war. (Herper, 3/31)

[ABC News: New Rapid Coronavirus Diagnostic Test Can Provide Results In As Little As 5 Minutes](#) A new novel coronavirus test may make diagnosing COVID-19 as easy as the flu. The new point-of-care test, having just received an emergency-use authorization by the U.S. Food and Drug Administration (FDA), will be able to deliver results in as little as five minutes, according to the manufacturer. This test from medical device company Abbott, which begins shipping April 1, may soon be available at your local urgent care clinic. (David, 3/30)

[The One-Two Punch That Changed Trump's Mind On Re-Opening: Poll Numbers And Projected Deaths](#)

President Donald Trump walked back optimistic projections that the country would start returning to normal by Easter. Reporting on what changed his mind shows that it wasn’t just the coronavirus forecasts that swayed him--voters’ opinions did as well. Meanwhile, a statistical model that the White



House is consulting shows a death total that could climb past 84,000 Americans, though numbers shift daily with more information.

[The New York Times: Behind Trump's Reversal On Reopening The Country: 2 Sets Of Numbers](#) The numbers the health officials showed President Trump were overwhelming. With the peak of the coronavirus pandemic still weeks away, he was told, hundreds of thousands of Americans could face death if the country reopened too soon. But there was another set of numbers that also helped persuade Mr. Trump to shift gears on Sunday and abandon his goal of restoring normal life by Easter. Political advisers described for him polling that showed that voters overwhelmingly preferred to keep containment measures in place over sending people back to work prematurely. Those two realities — the dire threat to the country and the caution of the American public — proved decisive at a critical juncture in the response to the pandemic, his advisers said. (Baker and Haberman, 3/30)

[The Associated Press: How Dire Projections, Grim Images Dashed Trump's Easter Plan](#) The projections were grim: Even if the U.S. were to continue to do what it was doing, keeping the economy closed and most Americans in their homes, the coronavirus could leave 100,000 to 200,000 people dead and millions infected. And the totals would be far worse if the nation reopened. Those stark predictions grew even more tangible and harrowing when paired with televised images of body bags lined up at a New York City hospital not far from where President Donald Trump grew up in Queens. (Lemire, Colvin and Miller, 3/30)

[CNN: Model Cited By White House Says 82,000 People Could Die From Coronavirus By August, Even With Social Distancing](#) As of Monday morning, it estimates that more than 2,000 people could die each day in the United States in mid-April, when the virus is predicted to hit the country hardest. The model, which is updated regularly, predicts that 224,000 hospital beds — 61,000 more than we'll have — will be needed on April 15, when the US is estimated to reach "peak resource use." (Azad, 3/31)

[ABC News: What's Behind Trump's Striking Reversal On The Coronavirus Timeline?](#) Dr. Anthony Fauci, the nation's foremost infectious disease expert, said the president's decision came about after he had "intensive conversations" with members of the coronavirus task force. "We convinced him. He listened," Dr. Fauci told ABC News Chief Anchor George Stephanopoulos in a Monday interview on "Good Morning America." (Phelps and Gittleson, 3/30)

[The Washington Post: Both Public Health And Politics Played A Role In Trump's Coronavirus Decision](#) An undercurrent of political calculation has coursed through much of Trump's decision-making on the coronavirus. Despite taking some early modest steps, the president initially spent weeks downplaying the threat of the virus, in large part because he was worried about the effect on the economy. He has also clashed with Democratic governors, especially when he has felt they are being insufficiently appreciative of the federal government's relief efforts. And he first settled on an Easter timeline — which he has since extended to the end of April — in part because of an eagerness to reopen the economy sooner rather than later. (Parker, Dawsey and Abutaleb, 3/30)

[Reuters: Trump Says Coronavirus Guidelines May Get Tougher; 1 Million Americans Tested](#) U.S. President Donald Trump said on Monday that federal social distancing guidelines might be toughened and travel restrictions with China and Europe would stay in place as he urged Americans to help fight the coronavirus with tough measures through April. Trump, speaking to reporters at the White House, said more than 1 million Americans had been tested for the coronavirus, which he called a milestone. (Holland and Mason, 3/30)

[The Associated Press: White House Turns To Statistical Models For Virus Forecast](#) Like forecasters tracking a megastorm, White House officials are relying on statistical models to help predict the impact of the coronavirus outbreak and try to protect as many people as possible. The public could get its first close look at the Trump administration's own projections Tuesday at the daily briefing. (Alonso-Zaldivar and Neergaard, 3/30)



[NPR: CDC Director Says 1 In 4 May Have No Coronavirus Symptoms](#) When infectious pathogens have threatened the United States, the Centers for Disease Control and Prevention has been front and center. During the H1N1 flu of 2009, the Ebola crisis in 2014, and the mosquito-borne outbreak of Zika in 2015, the CDC has led the federal response. Yet the nation's public health agency, with its distinguished history of successfully fighting scourges such as polio and smallpox, has been conspicuously absent in recent weeks, as infections and deaths from the new coronavirus soared in the U.S. (Whitehead, 3/31)

[Smart Thermometers Reveal That Social Distancing Measures Might Be Having Desired Effect](#)

Kinsa, a maker of internet-connected thermometers, has more than 1 million in circulation and has been getting up to 162,000 daily temperature readings since COVID-19 began spreading in the country. As of noon Wednesday, the company's live map showed fevers holding steady or dropping almost universally across the country.

[The New York Times: Restrictions Are Slowing Coronavirus Infections, New Data Suggest](#) Harsh measures, including stay-at-home orders and restaurant closures, are contributing to rapid drops in the numbers of fevers — a signal symptom of most coronavirus infections — recorded in states across the country, according to intriguing new data produced by a medical technology firm. At least 248 million Americans in at least 29 states have been told to stay at home. It had seemed nearly impossible for public health officials to know how effective this measure and others have been in slowing the coronavirus. (McNeil, 3/30)

[Los Angeles Times: Social Distancing Is Slowing The Coronavirus In Seattle. But It's Not Enough, Study Says](#) Social distancing is reducing transmission of the coronavirus in the Seattle area, but not enough to contain it, according to a new study. It estimated that by March 18, each newly infected person was transmitting the virus to an average of 1.4 other people — down from 2.7 in late February, before bans on gatherings and other measures were put in place. But to start reducing the growth in new cases, that figure would have to fall below one. (Read, 3/30)

[Politico: Bend It Like The Bay Area: Doctors See Flatter Curve After 2 Weeks Of Social Isolation](#) State leaders and doctors are cautiously optimistic that the Bay Area's early moves to lock down residents two weeks ago have prevented surges of coronavirus patients from overwhelming the region's health care capacity thus far. Six Bay Area counties were first in the country to adopt aggressive tactics with an enforceable March 16 order requiring residents to stay at home. Gov. Gavin Newsom quickly followed with a statewide order three days later restricting the state's 40 million residents from all but essential activities. (Kahn and Marinucci, 3/30)

[CNN: California Doctors 'Cautiously Hopeful' Early Shelter At Home Measures Are Working](#) Two weeks after San Francisco issued the country's first shelter-in-place order for residents to prevent spread of the novel coronavirus, hospital emergency rooms throughout the region appear to be seeing the early effects. "The surge we have been anticipating has not yet come," Dr. Jahan Fahimi, an emergency physician and medical director at the University of California, San Francisco, told CNN. "We're all kind of together holding our breaths." (Simon and Becker, 3/31)

[Hospitals Granted 'Unprecedented Flexibility' As CMS Relaxes Safety Rules Around Treating Patients](#)

CMS rule changes involve what counts as a hospital bed, how closely certain medical professionals need to be supervised and what kinds of health care can be delivered at home. The move allows hospitals to use non-medical facilities like gymnasiums and hotels without the need for FEMA to get involved. Hospitals would be allowed to offer health care providers free meals, laundry or child care services, as well.

[The New York Times: Hospital Safety Rules Are Relaxed To Fight Coronavirus](#) The federal government announced Monday that it was relaxing many of its usual safety standards for hospitals so they could expand services to fight the coronavirus pandemic. The Centers for Medicare and Medicaid Services is changing rules on what counts as a hospital bed; how closely certain medical professionals need to be supervised; and what kinds of health care can be delivered at home. These broad but temporary



changes will last the length of the national emergency. "This is unprecedented flexibility," said Seema Verma, the administrator for the centers, in an interview. (Sanger-Katz, 3/30)

[Modern Healthcare: CMS Eases Requirements For Transferring Non-COVID-19 Infected Patients](#) During a White House Rose Garden event, CMS Administrator Seema Verma unveiled the hospitals without walls program. "Under the CMS's temporary new rules, hospitals will be able to transfer patients to outside facilities, such as ambulatory surgery centers, inpatient rehabilitation hospitals, hotels, and dormitories, while still receiving hospital payments under Medicare. For example, a healthcare system can use a hotel to take care of patients needing less intensive care while using its inpatient beds for COVID-19 patients," CMS noted in a press release. (Weinstock, 3/30)

[Kaiser Health News: More Than 5,000 Surgery Centers Can Now Serve As Makeshift Hospitals During COVID-19 Crisis](#) The Trump administration cleared the way Monday to immediately use outpatient surgery centers, inpatient rehabilitation hospitals, hotels and even dormitories as makeshift hospitals, health care centers or quarantine sites during the coronavirus crisis. The Centers for Medicare & Medicaid Services announced it is temporarily waiving a range of rules, thereby allowing doctors to care for more patients. (Szabo and Anthony, 3/30)

In other news from CMS —

[Medscape: CMS To Front Medicare Payments To Physicians For 3 Months](#) The Centers for Medicare and Medicaid Services (CMS) is expanding a program of accelerated and advance provider payments normally used during natural disasters to supplement the cash flow of Medicare participating healthcare providers and suppliers during the COVID-19 pandemic. The program expansion was made possible by the recently enacted \$2.2 trillion federal rescue package known as the Coronavirus Aid, Relief and Economic Security (CARES) Act. (Terry, 3/30)

[Stateline: Coronavirus And The States: Medicaid Waivers Offer Flexibility; Top Officials Clash](#) The federal agency overseeing Medicaid has moved quickly to grant applications from 34 states to exempt them from several Medicaid rules in order to respond to the coronavirus outbreak. The states received exemptions from some or all of the same handful of rules. (Ollive, 3/30)

[Modern Healthcare: COVID-19 Could Slow Payers' Movement Toward Interoperability Compliance](#) The CMS' interoperability rule, released earlier this month, includes a host of deadlines related to data-sharing, spanning from later this year to 2022. One of the main provisions is that CMS-regulated insurers like those with Medicare Advantage and Medicaid managed care offerings will be required to get processes up and running so that beneficiaries can download claims and encounter data using third-party apps. To do that, insurers will have to implement application programming interfaces—better known as APIs—by January 2021, just over nine months from when the final rules were released. (Cohen, 3/27)

From The States

[Governors Given Free Rein By Trump, But There's Only So Much They Can Do Without Federal Help](#)

"That is a Darwinian approach to federalism; that is states' rights taken to a deadly extreme," said Martin O'Malley, the former Maryland governor who served for eight years on the Homeland Security Task Force of the National Governors Association. Some view President Donald Trump's decision to let states take the lead as a way for him to avoid the worst of the criticism in the midst of the pandemic. Meanwhile, states who haven't issued shut-down orders are facing increasing pressure to do so. And media outlets look at how states are being impacted by the crisis.

[Politico: 'A Darwinian Approach To Federalism': Governors Prep For New Authority From Trump](#) The Trump White House is doubling down on a strategy to govern the coronavirus pandemic: pushing authority and responsibility for the response onto the states. As the virus spreads across the U.S. and new hot spots emerge in states such as Illinois, Louisiana, Michigan and Texas, senior administration aides have privately argued the coronavirus response is a test of local politicians' leadership and



resourcefulness — with the White House acting as a backstop for the front-line state-by-state efforts. (Cook and Diamond, 3/31)

[PBS NewsHour: More U.S. States Lock Populations Down As COVID-19 Cases Climb](#) The coronavirus pandemic keeps burning through the U.S. population. The country now has 160,000 confirmed cases of the illness and 2,900 deaths -- and infections are still rising. In New York state, the nation's worst hot spot, Gov. Andrew Cuomo continues to appeal for outside help. But health care systems across the country are straining to support the surge in patients. (Nawaz, 3/30)

[The Washington Post: Stay-Home Orders Issued In Maryland, Virginia, D.C. On Monday](#) Maryland, Virginia and the District on Monday barred residents from leaving home unless it's absolutely necessary, joining a handful of other states that have issued such orders in hopes of controlling the fast-spreading novel coronavirus. While all three jurisdictions had already banned most gatherings, closed businesses and schools, and urged people to stay home as much as possible, the orders made clear that compliance is no longer optional — and added fines and potential jail time for some violations. (Olivo, Wiggins and Schneider, 3/30)

[The Hill: Holdout Governors Face Pressure To Issue Stay-At-Home Orders](#) Holdout governors are coming under pressure to take more aggressive action as the coronavirus spreads to more areas of the country. Sweeping orders that residents stay at home and that nonessential businesses close have garnered attention, but a number of states have yet to take such statewide actions. Dr. Scott Gottlieb, President Trump's former Food and Drug Administration commissioner, issued warnings to Texas and Florida on Sunday. (Sullivan, 3/30)

[The New York Times: Florida Pastor Arrested After Defying Virus Orders](#) Before the Rev. Rodney Howard-Browne, the pastor of a Pentecostal megachurch in Florida, held two church services on Sunday — each filled with hundreds of parishioners — lawyers from the sheriff's office and local government pleaded with him to reconsider putting his congregation in danger of contracting the coronavirus. The pastor ignored them, proceeding with the services at the River at Tampa Bay Church and even providing bus transportation for members who needed a ride. (Mazzei, 3/30)

[Houston Chronicle: Hotze, Pastors Ask Texas Supreme Court To Rule Harris County Stay-At-Home Order Unconstitutional](#) A hardline conservative power broker and three area pastors filed a petition with the Texas Supreme Court Monday arguing that Harris County Judge Lina Hidalgo's stay-at-home order violates the Constitution by ordering the closure of churches and failing to define gun shops as "essential" businesses. The emergency petition for a writ of mandamus, filed by anti-LGBTQ Republican activist Steven Hotze and pastors Juan Bustamante, George Garcia and David Valdez, contends Hidalgo's order undercuts the First Amendment by limiting religious and worship services to video or teleconference calls. Pastors also may minister to congregants individually. (Scherer and Downen, 3/30)

[The New York Times: Days After A Funeral In A Georgia Town, Coronavirus 'Hit Like A Bomb'](#) It was an old-fashioned Southern funeral. There was a repast table crammed with casseroles, Brunswick stew, fried chicken and key lime cake. Andrew Jerome Mitchell, a retired janitor, was one of 10 siblings. They told stories, debated for the umpteenth time how he got the nickname Doorface. People wiped tears away, and embraced, and blew their noses, and belted out hymns. They laughed, remembering. It was a big gathering, with upward of 200 mourners overflowing the memorial chapel, so people had to stand outside. (Barry, 3/30)

[Los Angeles Times: Coronavirus Hospitalizations Spike In California](#) While Gov. Gavin Newsom issued an urgent call Monday for retired healthcare workers and students nearing graduation to join in caring for an expected surge of coronavirus patients, officials scrambled to contain a rash of outbreaks in nursing homes and find space for thousands of new hospital beds. Authorities in Los Angeles County moved to isolate and quarantine patients at 11 assisted living facilities, up from just three on Friday. (Gutierrez, Dolan, Gerber and Shalby, 3/30)



[ABC News: New Orleans Doctor On How City Is Dealing With Becoming A COVID-19 Hot Spot](#) New Orleans has become a hot spot for the novel coronavirus in the U.S. just one month after its Mardi Gras celebrations drew over a million people to the streets to celebrate. "We understood, once COVID arrived, why it came when it did," Dr. Susan Gunn, who works in pulmonology and critical care at Ochsner Hospital, told ABC News. "Now, college kids are back from spring break, which may cause another spike." (Yang and Nalty, 3/30)

[NBC News: 11 Vets Die At Massachusetts Soldiers' Home; 5 Tested Positive For COVID-19](#) The superintendent of a veterans facility in Massachusetts was placed on leave Monday, the same day it was reported that 11 residents had died, including at least five who had tested positive for the coronavirus illness COVID-19. A state official said test results are pending for five others who died at the Soldiers' Home in Holyoke. The status of the 11th person who died was unknown. (Helsel, 3/31)

[ProPublica: He Was Ordered To Self-Isolate. He Didn't. Now He's Facing Criminal Charges.](#) In what may be the first case of its kind in Illinois, a man who walked into a busy gas station store after posting on Facebook that he had been ordered to self-isolate because of coronavirus symptoms now faces criminal charges of reckless conduct. The 36-year-old man, who had stopped in the store so his 4-year-old son could use the bathroom, was recognized by an employee who had gone to high school with him and saw his social media post. After the man left, the employee alerted her supervisor, who then called authorities. (Cohen, 3/30)

[NBC News: Las Vegas Officials Invited Homeless To Parking Lot After Coronavirus Closed Shelter](#) Officials are facing criticism for using a Las Vegas parking lot as a temporary shelter after a facility was closed when a homeless man tested positive for COVID-19 last week. Officials from Las Vegas and Clark County opened the temporary shelter at an event site lot a few miles north of the Las Vegas Strip on Saturday after determining that 500 people using Catholic Charities' overnight facility would have nowhere to sleep, said David Riggelman, the city's communications director. (Stelloh, 3/30)

[State House News Service: Baker: Expect Surge Of Coronavirus Patients In Mass. As Early As April 7](#) The surge in coronavirus cases long expected by public health officials could start to hit Massachusetts between April 7 and April 17, Gov. Charlie Baker said Monday, stressing the importance of taking steps to prepare additional health care capacity. With the state's testing apparatus up to thousands of patients per day, confirmed COVID-19 cases have recently been increasing at a rapid pace.

Massachusetts had 5,752 cases as of Monday and 56 deaths attributable to the disease. (Lisinski, 3/30)

[The Hill: Brooklyn Man Accused Of Lying About Hoarding Medical Supplies, Coughing At Officers](#) A Brooklyn man has been accused of lying about hoarding medical supplies and of coughing on police officers, officials announced Monday. Baruch Feldheim, 43, was arrested over his alleged large supply and illegal sale of surgical masks, medical gowns and other medical supplies. He also was charged with assault for allegedly coughing on FBI agents while saying he had COVID-19, U.S. Attorney Craig Carpenito announced in a release. (Coleman, 3/30)

[Detroit Free Press: 2 Of Detroit's Homeless Positive For COVID-19 As City Adds 300+ Beds, Testing](#) Two people in the city's homeless shelter system have tested positive for COVID-19 and are being separated with 27 others at a new facility opened amid the fight against the novel coronavirus pandemic. Detroit has added about 325 shelter beds for homeless people, rooms for isolation and launched a formal testing program for symptomatic members of the homeless community in an attempt to quell the spread, Donald Rencher, director of the Detroit Housing and Revitalization Department, said Monday. (Moran, 3/30)

[Milwaukee Journal Sentinel: Wisconsin Coronavirus Testing Could Double; Army Scouts Locations](#) As the number of coronavirus cases in the state continues to climb, Wisconsin is hoping to double its testing capacity through a new partnership with laboratories across the state. Gov. Tony Evers announced Monday that the state is launching a public-private partnership with Exact Sciences, Marshfield Clinic



Health System, Promega and UW Health. The goal is to share knowledge, resources and technology with the Wisconsin Clinical Lab Network in an effort to bring additional testing capacity. (Spicuzza, 3/30)

[Boston Globe: 8 Boston Homeless People Test Positive For Coronavirus](#) The novel coronavirus has spread to Boston's homeless community, with eight people testing positive for COVID-19 in recent days, medical officials said Monday. Of the eight who tested positive, five spent time at local shelters in recent days, said Dr. Denise De Las Nueces, medical director the Boston Health Care for the Homeless Program. (Coleman, 3/30)

[Boston Globe: Ordered To Close And Excluded From Federal Aid, Marijuana Entrepreneurs Staring Down Insolvency](#) To open their businesses, Massachusetts marijuana entrepreneurs already had to navigate a long and expensive obstacle course, overcoming zoning restrictions, hostile neighbors, municipal demands, a plodding state licensing process, and a scarcity of financing. Now, small cannabis companies are warning that Governor Charlie Baker's decision to shutter recreational marijuana facilities until at least April 7 amid the coronavirus pandemic — while leaving medical marijuana operations and liquor stores open as "essential" services — could force them to give up altogether. (Adams, 3/30)

Preparedness

['Every Ventilator Is A Life': GM Shrugs Off Trump's Attacks; Ford, GE Vow To Produce 50,000 Ventilators In 100 Days](#)

Private companies rush to produce ventilators that hospitals and states say are desperately needed, despite President Donald Trump's attacks on General Motors. Ford says the simplified ventilator design it will use to produce thousands of ventilators has been cleared by the FDA.

[The New York Times: Inside G.M.'s Race To Build Ventilators, Before Trump's Attack](#) While much of the U.S. economy has ground to a halt because of the coronavirus outbreak, several dozen workers in orange vests and hard hats were hauling heavy equipment on Sunday at a General Motors plant in Kokomo, Ind. The crew was part of a crash effort to make tens of thousands of ventilators, the lifesaving machines that keep critically ill patients breathing. The machines are in desperate demand as hospitals face the prospect of dire shortages. New York State alone may need 30,000 or more. (Boudette and Jacobs, 3/30)

[The Wall Street Journal: GM Hustles To Pump Out Ventilators To Fight Coronavirus](#) When President Trump last week criticized General Motors Co.'s GM -0.28% effort to produce ventilators, GM executives were flabbergasted. They felt the company was being unfairly targeted by the president, say people familiar with their thinking. GM had begun collaborating with a ventilator company a couple of weeks earlier. It had mobilized more than 1,000 employees and nearly 100 auto suppliers to start making the machines, which can be used to help patients with the disease caused by the new coronavirus. "We won't let it deter us," GM global manufacturing chief Gerald Johnson said in an interview over the weekend. "Every ventilator is a life." (Colias, 3/30)

[Reuters: Ford, GE To Produce 50,000 Ventilators In 100 Days](#) Ford Motor Co said on Monday it will produce 50,000 ventilators over the next 100 days at a plant in Michigan in cooperation with General Electric's healthcare unit, and can then build 30,000 per month as needed to treat patients afflicted with the coronavirus. Ford said the simplified ventilator design, which is licensed by GE Healthcare from Florida-based Airon Corp and has been cleared by the Food and Drug Administration, can meet the needs of most COVID-19 patients and relies on air pressure without the need for electricity. (Carey, 3/30)

[CNN: Ford To Build 50,000 Ventilators In 100 Days](#) The Airon Model A-E ventilator that Ford will produce operates on air pressure alone and requires no electricity. Airon currently makes three of the ventilators per day at its factory in Melbourne, Florida. Ford's plant will produce the ventilators around the clock with three shifts of workers, Ford said, and it will make 7,200 of the devices per week. (Valdes-Dapena and Wattles, 3/30)



[The New York Times: Trump's Virus Defense Is Often An Attack, And The Target Is Often A Woman](#) As he confronts a global pandemic, President Trump's attention has also been directed at a more familiar foe: those he feels are challenging him, and particularly women. "Always a mess with Mary B.," Mr. Trump tweeted last week, attacking the female chief executive of General Motors, Mary T. Barra, as he accused the company of dragging its feet on producing ventilators. "As usual with 'this' General Motors, things just never seem to work out," he wrote, "this" G.M. apparently referring to the one led by the first female chief executive of an American auto manufacturer. (Karni, 3/30)

[A N.Y. Hospital Tells Doctors They'll Be Supported In Decisions To 'Withhold Futile Intubations' Amid Ventilator Shortages](#)

Doctors have been bracing themselves to cope with the looming threat of having to ration care because of a lack of ventilators and other medical equipment. As other New York hospitals split ventilators between two patients, NYU Langone Health has started telling doctors to "think more critically" about who gets care. In other news on equipment shortages: how taxpayer-funded low-cost ventilators ended up overseas, innovators who are rising to solve the problem, and tariffs that may be hurting the country's efforts to fight pandemic.

[The Wall Street Journal: NYU Langone Tells ER Doctors To 'Think More Critically' About Who Gets Ventilators](#) NYU Langone Health, one of the nation's top academic medical centers, told emergency-room doctors that they have "sole discretion" to place patients on ventilators and institutional backing to "withhold futile intubations." A March 28 email from Robert Femia, who heads the New York health center's department of emergency medicine, underscored the life-or-death decisions placed on the shoulders of bedside physicians as they treat increasing numbers of coronavirus patients with a limited supply of ventilators. New York state guidelines, established in 2015, recommend that hospitals appoint a triage officer or committee—someone other than the attending physician—to decide who gets a ventilator when rationing is necessary. (Ramachandran and Palazzolo, 3/30)

[CNN: NYU Langone Tells Emergency Doctors To Consider Who Gets Intubated, WSJ Reports](#) "In Emergency Medicine, we do not have the luxury of time, data, or committees to help with our critical triage decisions. Senior hospital leadership recognizes this and supports us to use our best clinical judgment," the email from Dr. Robert Femia said, according to The Journal. "For those patients who you feel intubation will not change their ultimate clinical outcome (for example cardiac arrests, some chronic disease patients at end of life, etc) you will have support in your decision making at the department and institutional level to withhold futile intubations," the email continued. (del Valle, 3/31)

[Stateline: States, Hospitals Grapple With Medical Rationing](#) State and local health departments across the country have developed detailed emergency health plans in recent years, often in response to major natural disasters, such as Hurricane Katrina, or outbreaks of diseases, such as the avian and swine flus. Many of these plans, such as those in Minnesota and New York, included guidelines for rationing care in the event of shortages of medical supplies or personnel. Federal health agencies have not issued guidelines on how to make such decisions. For example, states say they don't understand the criteria the federal government has been using in allocating limited medical resources from the U.S. stockpile. (Ollove, 3/31)

[ProPublica: Taxpayers Paid Millions To Design A Low-Cost Ventilator For A Pandemic. Instead, The Company Is Selling Versions Of It Overseas.](#) Five years ago, the U.S. Department of Health and Human Services tried to plug a crucial hole in its preparations for a global pandemic, signing a \$13.8 million contract with a Pennsylvania manufacturer to create a low-cost, portable, easy-to-use ventilator that could be stockpiled for emergencies. This past September, with the design of the new Trilogy Evo Universal finally cleared by the Food and Drug Administration, HHS ordered 10,000 of the ventilators for the Strategic National Stockpile at a cost of \$3,280 each. But as the pandemic continues to spread across the globe, there is still not a single Trilogy Evo Universal in the stockpile. (Callahan, Rotella and Golden, 3/30)



[The New York Times: Hive Mind Of Makers Rises To Meet Pandemic](#) It started with a fanciful email from one self-described science geek to another. “Hey, we should make a ventilator,” Dr. Chris Zahner, a University of Texas pathologist and former NASA engineer, wrote to Aisen Caro Chacin, an artist and medical device designer, after he learned about Italian hospitals struggling to treat the crush of coronavirus patients gasping for air. Two and a half days later, Dr. Zahner and Dr. Chacin were testing out their prototype at the university’s medical fabrication lab in Galveston: a simple air pump that uses ordinary blood pressure cuffs, car valves sold by auto parts stores and items found in most hospital supply closets. (Jacobs and Abrams, 3/30)

[The New York Times: D.I.Y. Coronavirus Solutions Are Gaining Steam](#) There are moments when Gui Cavalcanti feels like he woke up in a dystopian universe — a guy with no background in medical or disaster response, suddenly leading an international effort on Facebook to design medical equipment to fight the Covid-19 pandemic, the gravest public-health threat of our time. “I have never worked so hard for a job I didn’t want in the first place,” Mr. Cavalcanti wrote in a text, as part of a recent interview. Essential medical supplies, from exam gloves to ventilators, are in short supply. (Petri, 3/31)

[Reuters: Coronavirus Shows U.S. Too Dependent On Cheap Medical Imports, USTR Says](#) U.S. Trade Representative Robert Lighthizer on Monday said the United States would seek to promote more domestic manufacturing of key medical supplies in light of the strategic vulnerabilities laid bare by the coronavirus pandemic. (3/30)

[WBUR: How Tariffs May Be Impacting Fight Against Coronavirus](#) The trade war with China includes about \$5 billion worth of tariffs on medical products from the country. And while states across the country are struggling to get medical supplies they need to fight the coronavirus, President Trump confirmed on Friday that reports he’s considering pulling back on those tariffs are not true. (Hobson, 3/30)

['Please Come Help Us': States, Hospitals Call On Retired Doctors, Med Students And Workers From Cold Spots For Relief](#)

It's not just equipment and gear where there are shortages: doctors and other health providers are being stretched thin, as well. To help alleviate some the strain, states and hospitals are asking for help from places that are not in crisis yet, along with calling on retirees and med students. Meanwhile, a lack of protective gear continues to endanger the workers.

[The Wall Street Journal: To Fight Coronavirus, States Call On Retired Medical Staff And New Graduates](#) Dr. Lay is among thousands of retired and inactive doctors and nurses who are returning to the field to help as the number of coronavirus patients surges, inundating health-care facilities across the U.S. In heavily hit New York, 76,000 health-care workers, many of them retired, had volunteered to help as of Sunday, Gov. Andrew Cuomo said. In addition, some medical schools are starting to graduate students early so they can jump into the fray. Dr. Lay is working to get approved to also do telemedicine consultations, but said he is willing to do anything. “Heck, I can take out the garbage,” he said. Though he has spent time away from the field, he said: “An injured soldier is better than no soldier at all.” (De Avila and Chen, 3/31)

[Stat: Volunteer Network Tries To Help Health Care Workers Who Have 'Helped Us'](#) It started with a need: With the closure of schools and a shortage of household supplies in local stores, health care professionals responding to the Covid-19 pandemic were struggling to support their families. In Minneosta, a couple of medical students came up with an idea. Why couldn’t they help try to relieve the burden? The result was a volunteer network throughout the state that matches medical students with health care workers in need of child care, pet-sitting, or just help with errands like grocery runs. (Zia, 3/31)

[Los Angeles Times: Health Corps For Coronavirus Help Created In California](#) Gov. Gavin Newsom issued an urgent call for healthcare workers to join the state in caring for an expected surge of COVID-19 patients while announcing an executive order to expand the services medical professionals can perform



in their jobs. Newsom said he believes the state can add 37,000 healthcare workers by asking recently retired providers, those in the process of getting a medical license in the state and students enrolled in medical or nursing schools to apply to the newly created California Health Corps. (Gutierrez, 3/30)

[WBUR: Cuomo Makes Plea To Medical Workers Nationwide: 'Please Come Help Us In New York'](#) More than 1,200 people have now died of the coronavirus in New York, but the worst of the outbreak has yet to arrive, Gov. Andrew Cuomo said on Monday. Cuomo said the coronavirus is overtaxing the state's health care workers. He asked for the assistance of medical volunteers from other parts of the country as the pandemic continues to devastate New York, the epicenter of the coronavirus outbreak in the United States. (Allyn, 3/30)

[Modern Healthcare: Hospitals Redeploy Specialists To COVID-19 Front Lines](#) As the pandemic sweeps the U.S., prominent health systems have rolled out plans to redeploy specialists who don't typically treat infectious diseases to care for patients battling the novel coronavirus. But nowhere has this shift taken on the same urgency as in New York City, which as of Monday morning had more than 36,000 COVID-19 cases. (Bannow and Castellucci, 3/30)

[Kaiser Health News: Already Taxed Health Care Workers Not 'Immune' From Layoffs And Less Pay](#) Just three weeks ago, Dr. Kathryn Davis worried about the coronavirus, but not about how it might affect her group of five OB-GYNs who practice at a suburban hospital outside Boston. "In medicine we think we're relatively immune from the economy," Davis said. "People are always going to get sick; people are always going to need doctors." Then, two weeks ago, she watched her practice revenue drop 50% almost overnight after Massachusetts officials told doctors and hospitals to stop performing elective tests and procedures. For Davis, that meant no more non-urgent gynecological visits and screenings. (Bebinger, 3/30)

[Boston Globe: For Patients And Workers Alike, Home Health Visits Fraught With Fears Of Coronavirus](#)

Those who need in-home care, ranging from housekeeping chores and help bathing to vital health services, are afraid of being infected by workers who travel from home to home. Workers, too, feel vulnerable as they worry about catching and transmitting the virus to their own families while trying to protect themselves and their clients amid a national shortage of masks. (Murphy and Weisman, 3/30)

[ABC News: Doctor Who Shares Practice With Virus-Stricken Husband Says 'Commitment' To Patients Keeps Her Working](#) Dr. Luz Ares, a primary care physician who shares a private practice with her husband, Dr. Carlos Gonzalez, said he thought his allergies were acting up when he first began feeling symptoms of the novel coronavirus. It's been 10 days since Gonzalez was admitted into the hospital for COVID-19 on the eve of their 38th wedding anniversary and his 66th birthday, Ares said. But with her husband in stable condition, Ares said she still has a "commitment" to caring for her patients in Elmhurst, New York, the so-called "ground zero" of COVID-19 in New York City. (Rivas, 3/31)

[The Wall Street Journal: Coronavirus Prompts Hospitals To Find Ways To Reuse Masks Amid Shortages](#)

Hospitals and research groups are racing to roll out new ways to reuse face masks safely, an effort that could protect front-line workers grappling with shortages while also creating a potential path to reducing medical waste long term. As the coronavirus spreads, demand for N95 respirators is far outstripping supply, endangering the lives of health workers. The masks, which capture 95% of air particles when properly fitted, are a crucial defense against the virus but are typically used just once. (Chaudhuri, 3/31)

[The Hill: Shortage Of Medical Gear Sparks Bidding War Among States](#) A shortage of life-saving medical gear has pitted states against each other and the federal government as they scramble to try to purchase the medical equipment needed to fight COVID-19. Governors have been pleading with the Trump administration to take charge and make sure states can access enough equipment, but President Trump has been reluctant to do so, urging states to order their own personal protective equipment. Experts and governors said the lack of a central coordinating authority has turned the medical supply market into a free-for-all. (Weixel, 3/30)



[NBC News: 'So Many Patients Dying': Doctors Say NYC Public Hospitals Reeling From Coronavirus Cases](#) A doctor at a major public hospital in New York City described having worn a single N95 mask, a critical tool in protection from the coronavirus, for an entire week. Normally, the Brooklyn doctor would change it after every visit with a patient. Colleague after colleague, including nurses and residents, have been falling sick with the virus. Patients were coming in for unrelated health issues and suddenly testing positive for coronavirus after coming to the hospital. (Silva, 3/30)

[NBC News: No Evidence For Trump's Suggestion That Masks Are 'Going Out The Back Door' Of New York Hospitals](#) President Donald Trump again questioned the rate at which a hospital in New York is using medical supplies, suggesting that theft was why the unnamed facility needs 300,000 masks a week. The president claimed Monday that a distributor told him that a New York hospital's mask purchases were far too high to reflect actual need. "There's only a couple of things that could happen — is it going out the back door? And I've reported it to the city and let the city take a look at it. But when you go to 10,000 masks to 300,000 masks... there's something going on," Trump said during a coronavirus task force briefing at the White House. (Timm, 3/30)

[The Wall Street Journal: U.S. Agency Auctioned Off Small Lots Of N95 Masks In February](#) As the coronavirus was emerging as an international concern, a U.S. government agency sold 80 cases of protective masks that are now in high demand, though it canceled another sale weeks later as the nation was bracing for a domestic outbreak, reserving them for government use. The quantity of masks sold by the GSA was a tiny fraction of what is needed nationwide. Because of high demand, officials around the country are scrambling for additional masks, with some medical workers having to re-use them due to the shortage. (Kendall, 3/30)

[Funding Cuts Come As Gut-Punch To New York Hospitals Stretched To The Limits With Surge Of Patients](#)

"During a time I need to commit all the energy I have to really save lives and expand access and not skimp on resources, now I have to worry about how we're going to continue to pay our bills," said Dr. David Perlstein, CEO of St. Barnabas Hospital. In other hospital news: rural areas worry about already tight resources, outbreak deniers film activity outside facilities, White House asks for data on patients, cities and states scramble to set up overflow locations, and more.

[The New York Times: N.Y. Hospitals Face \\$400 Million In Cuts Even As Virus Battle Rages](#) For the last few weeks, Dr. David Perlstein has been scrambling to find more beds and ventilators, knowing that the coronavirus outbreak, which has filled his Bronx hospital with more than 100 patients, will undoubtedly get much worse. Then a week ago, Dr. Perlstein, the chief executive officer of St. Barnabas Hospital, was given some disturbing news by a state senator: His hospital could soon lose millions of dollars in government funding. (Ferre-Sadurni and McKinley, 3/30)

[Modern Healthcare: New York Healthcare Workers Say They've Never Faced A Medical Emergency Of This Scale Before](#) New York's battle with COVID-19 has brought the region's hospital system to its knees. The state is asking hospitals to double their bed counts and is desperately trying to find 10 times as many ventilators as they currently have. Convention centers and college dorms have been enlisted to make room for an anticipated surge of patients. Doctors and nurses have turned to social media to beg for the protective gear that will keep them from becoming patients themselves. (Lamantia, 3/30)

[NBC News: Coronavirus Strains Rural Hospitals 'To The Absolute Limit'](#) Brad Huerta found himself vacuuming the halls of his rural Idaho hospital last week. As the CEO of Lost Rivers Medical Center, in Arco, Idaho, it's not his normal job, nor is it normal for the maintenance staff to be directing traffic of patients coming in with symptoms outside, or having the emergency department doctors take on extra shifts to fill in as nurses. But rural hospitals trying to stay afloat in the middle of the coronavirus pandemic are a long way from normal. Often underfunded, understaffed and undersupplied, they're now facing the looming impacts of COVID-19. (Shivaram, 3/30)



[NBC News: Coronavirus Deniers Take Aim At Hospitals As Pandemic Grows](#) On Saturday, a video taken outside the Brooklyn Hospital Center in New York went viral, showing a quiet scene in an attempt to counter the idea that the coronavirus pandemic has strained some hospitals. The video, taken by former Fox News commentator Todd Starnes, jump-started a conspiracy theory that resulted in a trending hashtag and millions of video views — all of which pushed the idea that the pandemic has been overblown by public health organizations and the media. A day later, a different video of the same hospital went viral on Facebook and Twitter. It showed bodies being loaded onto an 18-wheeler outside the same hospital. (Zadrozny and Collins, 3/30)

[ABC News: White House Asking Hospitals To Email Them Data On Coronavirus Patients](#) Vice President Mike Pence has taken the extraordinary step of asking the nation's nearly 4,700 hospitals to submit via email daily updates to a federal inbox on how many patients have been tested for novel coronavirus, as well as information on bed capacity and requirements for other supplies. The request from Pence to hospital administrators was a stunning admission by the government that it still doesn't have a handle on the scope of the fast-moving virus and what it needs to combat it. (Flaherty, 3/30)

[San Francisco Chronicle: Bay Area Hospitals Face Huge Challenge: Stopping Spread Of Coronavirus Within Their Own Walls](#) As California hospitals brace for a surge of patients sickened by the new coronavirus, they must confront one of their biggest challenges: stopping the spread of the virus within their own walls. If history is any guide, however, it will not be easy. In recent years, even some of the state's best hospitals have faced difficulties curbing infections in their facilities. (Dizikes and Palomino, 3/30)

[Boston Globe: State Hunting For 1,000 Nursing Home Beds To Treat Recovering Coronavirus Patients](#) State officials Monday were scrambling to find about 1,000 skilled nursing beds for recovering COVID-19 patients across Massachusetts, raising the possibility of relocating hundreds of nursing home residents in a first-in-the-nation plan to relieve pressure on hospitals bracing for a surge of new patients. The goal, Governor Charlie Baker said at a news briefing Monday afternoon, is to "ensure that we have the right kinds of beds in the right places to serve people once the surge arrives." (Weisman and Krantz, 3/30)

[Detroit Free Press: TCF Center To Become A Coronavirus Field Hospital, But Staffing A Concern](#) Gov. Gretchen Whitmer has issued an executive order designed to help ease what is expected to be a serious shortage of health care professionals to staff the 900-bed field hospital that will be created at TCF Center in Detroit. When the transformation of the center from its status as the state's largest convention center to a field hospital is complete, the beds and medical equipment will all be in place. (Gray, 3/30)

[Detroit Free Press: Henry Ford Health Uses Mobile Unit For Newborn Appointments](#) Henry Ford Health System is expanding options for new parents as metro Detroit hospitals fill with novel coronavirus patients. The Department of Pediatrics at the hospital announced its mobile medical unit will be utilized for newborn follow-up appointments for babies discharged from Henry Ford Health Systems or needing an urgent appointment. (Spelbring, 3/30)

[Las Vegas Review-Journal: Southern Nevada Health District Eyes Separate Facility For Coronavirus Patients](#) The Southern Nevada Health District has called an emergency meeting of its board on Tuesday to consider allocating \$3 million for an isolation facility for people who test positive for the coronavirus. Board of Health Chair Scott Black said the facility would be a safe place to isolate for people who test positive for the virus but don't need to be hospitalized. (Hynes and Apgar, 3/30)

Capitol Watch

[Pelosi's Priorities In Next Stimulus Bill: Shoring Up Health System, Protecting Front Line Workers, Investing In Infrastructure](#)

Congress just passed a record-breaking \$2.2 trillion stimulus package, but House Democrats are already planning for phase 4: "Our first bills were about addressing the emergency. The third bill was about mitigation. The fourth bill would be about recovery. Emergency, mitigation, recovery," said House Speaker Nancy Pelosi (D-Calif.). Republicans are less sure that another massive relief package is needed



and are adopting a wait-and-see attitude. Meanwhile, a top Pentagon watchdog is tapped to oversee the distribution of the trillions of dollars in stimulus.

[The New York Times: Pelosi Floats New Stimulus Plan: Rolling Back SALT Cap](#) As lawmakers prepare for another round of fiscal stimulus to address economic fallout from the coronavirus pandemic, Speaker Nancy Pelosi suggested the next package include a retroactive rollback of a tax change that hurt high earners in states like New York and California. A full rollback of the limit on the state and local tax deduction, or SALT, would provide a quick cash infusion in the form of increased tax rebates to an estimated 13 million American households — nearly all of which earn at least \$100,000 a year. (Tankersley and Cochrane, 3/30)

[Politico: Pelosi Aims To Move Fast On Next Rescue Package](#) “Our first bills were about addressing the emergency. The third bill was about mitigation. The fourth bill would be about recovery. Emergency, mitigation, recovery,” Pelosi said on a conference call. “I think our country is united in not only wanting to address our immediate needs — emergency, mitigation, and the assault on our lives and livelihoods — but also, how we recover in a very positive way.” But Democrats’ approach could put them on a collision course with senior Republicans, who say they are very much in wait-and-see mode when it comes to another potential multi-trillion-dollar bill and are warning Pelosi not to try to jam the Senate with a progressive plan. (Ferris, Desiderio and Levine, 3/30)

[Reuters: U.S. Congress Eyes Next Steps In Coronavirus Response](#) Democrats who control the House of Representatives were discussing boosting payments to low- and middle-income workers, likely to be among the most vulnerable as companies lay off and furlough millions of workers, as well as eliminating out-of-pocket costs for coronavirus medical treatment. House Speaker Nancy Pelosi said she would work with Republicans to craft a bill that could also provide added protections for front-line workers and substantially more support for state and local governments to deal with one of the largest public health crises in U.S. history. (Morgan and Cornwell, 3/30)

[The Hill: Democrats Eye Major Infrastructure Component In Next Coronavirus Package](#) As an additional component, Democrats are also eyeing new funding for water, broadband, schools and other infrastructure systems that have proven insufficient, they said, in the face of the current coronavirus crisis. “There are infrastructure needs that our country has that directly relate to how we are proceeding with the coronavirus,” Pelosi said on a conference call with reporters. “And we would like to see in what comes next something that has always been nonpartisan, bipartisan, and that is an infrastructure piece that takes us into the future.” (Lillis, 3/30)

[Politico: Pentagon Watchdog Tapped To Lead Committee Overseeing \\$2 Trillion Coronavirus Package](#) The nation's top government watchdogs on Monday appointed Glenn Fine, the acting inspector general for the Pentagon, to lead the newly created committee that oversees implementation of the \$2 trillion coronavirus relief bill signed by President Donald Trump last week. Fine will lead a panel of fellow inspectors general, dubbed the Pandemic Response Accountability Committee, and command an \$80 million budget meant to “promote transparency and support oversight” of the massive disaster response legislation. His appointment was made by a fellow committee of inspectors general, assigned by the new law to pick a chairman of the committee. (Cheney, 3/30)

[The Wall Street Journal: Government To Begin Sending Stimulus Payments In The Next Three Weeks](#) The government will begin sending out stimulus payments to households in the next three weeks, and will distribute them automatically, with no action required for most people, officials said Monday. But some seniors and others who typically don’t file returns will need to submit a simple tax return to receive the economic-impact payments, the Treasury and Internal Revenue Service said in an announcement. (McKinnon, 3/30)

[The Associated Press: Conditions For Companies That Get Virus Aid: Room For Abuse?](#) A \$500 billion federal aid package for companies and governments hurt by the coronavirus includes rules aimed at ensuring that the taxpayer money is used in ways that would help sustain the economy. But questions



are being raised about whether those guardrails will prevent the kinds of abuses that have marked some corporate bailouts of the past. In return for the emergency loans, which could be spun by the Federal Reserve into up to \$4.5 trillion, companies will face temporary limits on what they can pay executives. (Gordon, 3/30)

[The Associated Press: Urgent Question From Small Businesses: When Will Aid Arrive?](#) When will the money arrive? That's the urgent question for small business owners who have been devastated by the coronavirus outbreak. They're awaiting help from the \$2 trillion rescue package signed into law Friday. But with bills fast coming due, no end to business closings and an economy that's all but shut down, owners are worried about survival. (Rosenberg, 3/30)

[Kaiser Health News: COVID-19 Bonanza: Stimulus Hands Health Industry Billions Not Directly Related To Pandemic](#) The coronavirus stimulus package Congress rushed out last week to help the nation's hospitals and health care networks hands the industry billions of dollars in windfall subsidies and other spending that has little to do with defeating the COVID-19 pandemic. The \$2 trillion legislation, which President Donald Trump signed Friday, includes more than \$100 billion in emergency funds to compensate hospitals and other health care providers for lost revenue and other costs associated with COVID-19. (Schulte, 3/30)

[Politico: Congress Eyes Avoiding Washington For At Least A Month](#) After passing the largest economic relief bill in history, Congress is now considering staying away from Washington for a month or more as the coronavirus makes even the routine act of legislating a dangerous risk for new transmissions. Officially, Congress is scheduled to come back on April 20 as lawmakers try to avoid traveling and congregating amid the raging crisis and as they plot a potential fourth phase of economic relief. (Everett, Cayle and Bresnahan, 3/30)

And in other Capitol Hill news —

[ProPublica: Sen. Burr Faces DOJ Investigation For Selling A Fortune In Stocks Right Before The Market Crashed](#) Federal authorities are scrutinizing Sen. Richard Burr's stock sell-off before the market crash triggered by the coronavirus outbreak, CNN reported on Sunday. The news comes less than two weeks after ProPublica and the Center for Responsive Politics reported that Burr, a Republican from North Carolina, unloaded between \$628,000 and \$1.72 million of his holdings on Feb. 13 in 33 separate transactions, a significant portion of his total portfolio. The sales came soon after he offered public assurances that the government was ready to battle the coronavirus. (Faturechi, 3/30)

Elections

[Democrats Had A Battle Plan Ready Against Trump For 2020 Election. Now It's Likely Moot.](#)

President Donald Trump's reelection chances are likely to rest upon his response to the pandemic, and there's not much Democrats can do other than wait and watch. Issues like gun control, climate change, immigration and other hot-button topics are likely to fall to the wayside in face of the pandemic. Meanwhile, Trump touts his own performance to voters as he tries to sell a message that he's handled the crisis well.

[Politico: How Coronavirus Blew Up The Plan To Take Down Trump](#) For many Democrats, it's the election of a lifetime. Yet the question preoccupying the party for several days this month was whether their presumptive presidential nominee, Joe Biden, could get the webcast working in his rec room. It was a telling obsession, one that revealed the extent of the party's anxiety as it comes to a nail-biting conclusion: Despite all the arguments Democrats have crafted and all the evidence they have amassed against Donald Trump, his reelection is likely to rise or fall on his handling of the coronavirus crisis and its fallout alone. (Siders, 3/31)

[The Wall Street Journal: Democratic Groups Adjust To Coronavirus, Spend Big To Beat Trump](#) Well-funded Democratic nonprofits and super PACs are adjusting their messaging and tactics in response to the coronavirus pandemic as they pour tens of millions of dollars into ad campaigns and digital platforms in an attempt to beat President Trump in November. The left-leaning groups have spent



months polling, interviewing voters in battleground states and building digital outreach operations to avoid any missteps from 2016. Now that the pandemic has shut down traditional canvassing and campaigning, the groups say they are leaning more on that digital infrastructure. (Parti and Day, 3/30)

[The Hill: Trump Seeks To Sell Public On His Coronavirus Response](#) President Trump is aggressively seeking to sell the public on his administration's response to the coronavirus pandemic, a push slammed by critics for presenting a rosier picture than reality. At the White House's daily press briefings, Trump has taken credit for doing a "hell of a job" and fashioned himself as a wartime president against a backdrop of steadily escalating coronavirus cases and deaths. (Chalfant and Samuels, 3/30)

[The Washington Post Fact Checker: New Trump Video Offers More Spin Than 'Hope'](#) President Trump was slow to respond to the emergence of a novel coronavirus, often reassuring Americans that the situation was under control. When confirmed cases and deaths started to spike at the end of March, his presidential election campaign released a video intended to show Trump getting the job done and earning bipartisan praise. But as always with these campaign videos, the little snippets can be misleading. So let's deconstruct this ad. (Kessler, 3/31)

[ABC News: 'We Have Some Form Of Hope': Why Some Democrats Are Giving Trump High Marks On Coronavirus](#) In the middle of a crisis of unrivaled magnitude, President Trump is finding himself on new terrain in more ways than one after a new ABC News/Washington Post poll revealed a small bump of support in the president's approval among Democrats - up 13 points. While that 13-point rise was only to a meager 17%, it does, perhaps, represent a significant movement of some Democrats behind the president with those Americans looking beyond political polarization to score his performance as the coronavirus grips the country. (Karson and Cunningham, 3/30)

And in the states —

[Politico: States Struggle To Prepare For Voting During A Pandemic](#) Time is running out to allow millions of Americans to vote this fall without fear of contracting the novel coronavirus. Mail voting — the voting method that best preserves social distancing — is infrequently used in many states, and those that don't have extensive mail voting might be unable to implement systems before November. And while 33 states, including most 2020 presidential battlegrounds, already allow any voter to cast a ballot by mail who wants to, a number of those states aren't prepared to handle the crush of mailed-in ballots that could be coming their way in November. (Montellaro, 3/31)

Economic Toll

[Although Some Cities Have Banned Evictions, Advocates See Need For More Extreme Measures](#)

The idea of a rent strike, where rent is waived instead of delayed, is gaining momentum on social media platforms as millions face the first of the month without any way to meet their bills. Meanwhile, a spate of major companies announced furloughs on Monday in the latest sign of the country's economic distress from the crisis.

[The Associated Press: Rent Strike Idea Gaining Steam During Coronavirus Crisis](#) With millions of people suddenly out of work and rent due at the first of the month, some tenants are vowing to go on a rent strike until the coronavirus pandemic subsides. New York, Boston, Los Angeles, San Francisco and St. Louis are among many cities that have temporarily banned evictions, but advocates for the strike are demanding that rent payments be waived, not delayed, for those in need during the crisis. The rent strike idea has taken root in parts of North America and as far away as London. (Salter, 3/30)

[The Hill: Majority Of Young Americans Support Universal Basic Income, Public Healthcare: Poll](#) A majority of younger Americans support both a universal basic income established by the federal government and some sort of public healthcare option, according to a new survey. The poll from University of Chicago's GenForward Survey Project indicates that 51 percent of Americans between the ages of 18-36 support a federally-funded basic income of \$1,000 per month for all U.S. residents, a plan touted by businessman Andrew Yang during his 2020 Democratic presidential campaign. Younger Americans also want to see the current U.S. healthcare system expanded at the federal level, the poll finds, with 35 percent



supporting the creation of a so-called "public option," or a public healthcare plan that would compete with private insurers. Another 17 percent said that the U.S. healthcare system should be replaced with a single-payer "Medicare for All" system. (Bowden, 3/30)

[The Washington Post: Furloughs At Macy's, Gannett And Gap Signal Mounting Economic Distress](#) Major companies signaled a new wave of economic distress Monday, sending hundreds of thousands of workers home without pay, as the Trump administration scrambled to get stimulus money to Americans already feeling the weight of unpaid bills. Macy's announced it will furlough most of its 125,000 workers as sales evaporated with the shuttering of 775 stores. Kohl's and Gap also announced furloughs of about 80,000 each. Media giant Gannett announced furloughs for newspaper employees who earn more than \$38,000 a year and pay cuts across the company. (Bhattarai, Siegel and Stein, 3/30)

[The New York Times: Some In N.Y.C. Can't Afford To Quarantine. So They Brave The Subway](#) As the coronavirus pandemic has all but shut down New York City, its subway — an emblem of urban overcrowding — has become almost unrecognizable, with overall ridership down 87 percent. But even as officials crack down on gatherings in New York, removing hoops from basketball courts and sending the police to break up parties, subway stations in poorer neighborhoods are still bustling, as if almost nothing has changed. (Goldbaum and Cook, 3/30)

[PBS NewsHour: How The Coronavirus' Economic Toll Could Also Affect Public Health](#) The novel coronavirus pandemic has already begun to take its toll on the U.S. economy as businesses have shuttered, millions of Americans have been laid off and large swaths of the country have been told to shelter in place. The financial implications are clear, though their full extent won't be known until the economy begins the task of getting back on its feet. But less clear are the public health consequences of the downturn. (Frazee, 3/30)

[New Orleans Times-Picayune: How A New Orleans Restaurant Group Pivoted To Healthcare, Saving Jobs, Serving Rising Need](#) Lepre is still working because one New Orleans hospitality business found a way to pivot from a sector that has collapsed during the coronavirus crisis to one where demand is exploding, digital health care known as telehealth. It could serve as a blueprint for others seeking an economic lifeline as the pandemic disrupts the economy. (McNulty, 3/30)

[The Wall Street Journal: Coronavirus Creates An Epidemic Of Scams](#) Danita Sienknecht was on a car ride with her husband one recent morning when a stranger called her with an outlandish offer. If she wired him \$4,000 overnight, someone would show up at her door the next morning with two doses of a coveted coronavirus vaccine she knew doesn't exist. The caller, who knew her name, said he was at a Holiday Inn not far from her southwest Missouri home and told the 84-year-old to send the money right away. He called her 29 more times when she refused to call back. (Gurman, 3/30)

[With Home Deliveries Soaring, Instacart, Amazon Workers Demand Better Protections, Pay, Sick Leave](#) Millions of Americans are ordered to stay in place and many rely on deliveries for essential items like groceries. Many of the workers at Instacart and Amazon placing those orders are concerned about their own health and are asking for increased protection, additional pay and sick leave. Some are walking off the job.

[The New York Times: Coronavirus Prompts Instacart And Amazon Strikes Over Health Concerns](#) Signaling both growing anxiety and growing solidarity brought on by the coronavirus pandemic, workers in a variety of occupations across the country are protesting what they see as inadequate safety measures and insufficient pay for the risks they are confronting. On Monday, a contingent of workers who fulfill orders for the grocery delivery service Instacart stayed off the job, demanding greater pay and better access to paid leave and disinfectant. A group of workers walked off the job at an Amazon warehouse in Staten Island on Monday, and a sickout called by Whole Foods Market workers is set for Tuesday. (Scheiber and Conger, 3/30)

[The Wall Street Journal: Some Instacart And Amazon Workers Stay Home, Calling For More Pay In Coronavirus Pandemic](#) Sarah Polito, an organizer of the Instacart strike who said she has delivered



groceries for the company for nearly two years, said she and fellow workers are asking for hazard pay of \$5 per order, a default tip of 10% and sick pay. "We're being treated as employees but not getting paid as such," Ms. Polito said. (Kang and Herrera, 3/30)

[Reuters: Instacart, Amazon Workers Strike As Labor Unrest Grows During Coronavirus Crisis](#) Fifteen workers at an Amazon.com Inc warehouse in Staten Island, New York, also walked off the job on Monday following reports of COVID-19 among the facility's staff. Amazon said later it fired an employee who helped organize the action for alleged violations of his employment, including leaving a paid quarantine to participate in the demonstration. New York's attorney general said her office was "considering all legal options" in response to the firing, citing the right to organize in the state. (Russ, 3/30)

[WBUR: Amazon, Instacart Grocery Delivery Workers Demand Coronavirus Protection And Pay At](#) Amazon, which employs some 800,000 people, workers have diagnosed positively for COVID-19 in at least 11 warehouses, forcing a prolonged closure of at least one warehouse in Kentucky. The company says it has "taken extreme measures to keep people safe," including allowing unlimited unpaid leave time for employees who feel uncomfortable working. Amazon says its decision on whether to close a w (Selyukh and Bond, 3/30)

[PBS NewsHour: As More People Order Delivery, Workers Fear Virus Exposure](#) More than 250 million Americans in 30 states have been asked or ordered to stay at home. Although some still buy essentials in person at stores, many are ordering online instead. As a result, warehouse and delivery workers and professional shoppers have become central to the current economy — and a growing number are concerned about the risks they face by doing their jobs. (Solman, 3/30)

Women's Health

[Federal Judges Lift Restrictions Imposed On Abortions In Texas, Ohio And Alabama](#)

Texas Attorney General Greg Abbott said the state exercised proper discretion in halting the procedures because abortions are not "immediately medically necessary." The court decisions could have repercussions for three other states as well. Iowa, Mississippi and Oklahoma also suspended abortions, calling them nonessential during the crisis.

[The Hill: Judges Block Texas, Ohio, Alabama From Banning Abortion As Part Of Coronavirus Response](#)

Two federal judges on Monday temporarily blocked Texas, Ohio and Alabama from enforcing a ban on abortions as part of their response to the coronavirus pandemic. U.S. District Judge Lee Yeakel wrote in an opinion Monday afternoon that the ban in Texas, which state officials say is intended to conserve medical supplies, is likely unconstitutional. "Regarding a woman's right to a pre-fetal-viability abortion, the Supreme Court has spoken clearly. There can be no outright ban on such a procedure," he wrote in his order authorizing a temporary restraining order. (Hellmann, 3/30)

[The New York Times: Texas Abortion Clinics Can Keep Operating, Judge Rules](#) The decision was a win for abortion providers, which had been scrambling to block similar restrictions in other states. Lawyers for clinics filed suit on Monday in Alabama, Iowa, Ohio and Oklahoma, states that had tried to include abortion in medical procedures that had to be delayed to preserve protective gear for medical workers. (Tavernise, 3/30)

[Politico: Judges Block 3 States From Enforcing Abortion Bans Pegged To Pandemic](#) In Ohio, District Court Judge Michael Barrett similarly sided with Planned Parenthood and other groups challenging the state's ban and issued a two-week temporary restraining order. In Alabama, District Court Judge Myron Thompson ordered the suspension of the state's abortion ban until he can hear arguments in a video conference on April 6. "The State's interest in immediate enforcement of the March 27 order — a broad mandate aimed primarily at preventing large social gatherings — against abortion providers does not, based on the current record, outweigh plaintiffs' concerns," he said. (Ollstein, 3/30)

[The Wall Street Journal: Judges Block States From Limiting Access To Abortions During Coronavirus Pandemic](#) Judge Yeakel wrote that delaying abortions causes irreparable harm because, as pregnancies



progress, abortions become less safe and eventually illegal. The judge, who was appointed by former GOP President George W. Bush, added that the providers' lawsuit is likely to be successful. "The Supreme Court has spoken clearly," Judge Yeakel wrote of a woman's right to an early-term abortion. "There can be no outright ban on such a procedure. This court will not speculate on whether the Supreme Court included a silent 'except-in-a-national-emergency clause.'" (Findell and Kendall, 3/30)

[The Oklahoman: Abortion Rights Groups Sue Stitt Over Coronavirus-Related Abortion Ban](#) Reproductive rights groups are suing Oklahoma officials over Gov. Kevin Stitt's order prohibiting most abortions during the COVID-19 outbreak. Planned Parenthood Federation of America, the Center for Reproductive Rights and Dechert LLP on Monday asked a federal judge to immediately block Stitt's order. Stitt and Oklahoma Attorney General Mike Hunter are named in the lawsuit. (Forman, 3/31)

[Cincinnati Enquirer: Coronavirus In Ohio: Judge Temporarily Blocks State Health Order Halting Abortions During Coronavirus](#) "A global pandemic is no time to be playing politics with healthcare, and we are relieved that the district court has acknowledged that abortion is an essential and time-sensitive health care service," said Chrisee France, the executive director of Cleveland's abortion clinic Preterm, in a statement. Ohio Attorney General Dave Yost plans to appeal. (Balmert, 3/30)

[Houston Chronicle: Federal Judge Suspends Texas Abortion Ban During Coronavirus Shutdown](#) Doctors and staff reported patients in tears last week as their appointments were cancelled, some begging for pills to end their pregnancies on their own. Providers said they had discussed sending women to clinics in other states, but worried that travel was not safe, let alone a viable option for those already struggling from the financial fallout of the outbreak. "Many people are already financially insecure and futures are uncertain," said Amy Hagstrom Miller, who oversees abortion clinics in Texas and is one of the plaintiffs. (Blackman, 3/30)

Pharmaceuticals

[Meet The Controversial Doctor Who Touts The Use Of Malaria Drugs To Fight Coronavirus](#)

Didier Raoult, the head of a university hospital institute in Marseille, France has been a leading voice in the fight to use a malaria drug to treat COVID-19. But the self-described "maverick" has a storied history of controversial remarks.

[Politico: In France, Controversial Doctor Stirs Coronavirus Debate](#) Sitting behind his desk in a hospital in the southern French city of Marseille, Didier Raoult has convinced thousands, including the U.S. president, that a common antimalarial drug can save people infected by Covid-19. In a few short weeks, the controversial microbiologist has become France's best-known doctor after announcing the coronavirus "endgame" on Youtube. (Braun, 3/30)

[CNN: Fact Check: Trump Again Touts Unproven Drugs For Coronavirus](#) President Donald Trump made another series of inaccurate and misleading statements during his coronavirus press briefing Monday afternoon from the White House Rose Garden. Trump inaccurately characterized previous statements he has made downplaying the severity of the crisis. He again talked up medications that have not been clinically proven safe or effective for use against the coronavirus. Immediately after boasting about having superior knowledge of South Korea, he misstated the population of Seoul. And in touting progress on coronavirus testing, he omitted important context. (Dale and Cohen, 3/30)

Meanwhile, in other treatment news —

[San Francisco Chronicle: Bay Area Researchers In Race To Develop Coronavirus Antibodies Test To Understand Immunity](#) In a new frontier to fight COVID-19, Bay Area researchers are racing to develop new blood tests that can not only help diagnose the disease, but could help determine whether people become immune after catching it and lay the groundwork for a vaccine. Scientists at UCSF and the San Francisco Vitalant Research Institute are among several across the country developing tests. UCSF hopes to start using its test as early as this week, although it won't be widely available to the public. (Moench, 3/30)

Science And Innovations



### To Mask Or Not To Mask: Will U.S. Walk Back Early Warnings For General Public Meant To Stave Off Shortages?

Some are wondering if it would have been smart for Americans to wear masks in the early days of the outbreak. There's still no simple consensus on best practices, especially in the midst of mask shortages for health care workers, but the CDC is considering altering its recommendation that people cover their faces in some way. Meanwhile, WHO stands by its recommendation for healthy people not to wear masks.

Politico: Mask Mystery: Why Are U.S. Officials Dismissive Of Protective Covering? In recent weeks, facing public uncertainty about coronavirus and a severe domestic shortage of medical-grade face masks, top Trump administration officials offered adamant warnings against widespread use of masks, going so far as to argue that members of the general public were more likely to catch the virus if they used them. ... But as the crisis has played out around the world and intensified in parts of the U.S., reasons have emerged to doubt the wisdom of this guidance, which ranks among the most forceful warnings against mask use by national health authorities anywhere and does not differentiate between medical-grade masks and simple cloth coverings. A number of societies where mask use is more widespread, and where mask shortages have been less severe, seem to have had more success containing the virus. (Schreckinger, 3/30)

The Washington Post: CDC Considering Recommending General Public Wear Face Coverings In Public Should we all be wearing masks? That simple question is under review by officials in the U.S. government and has sparked a grass-roots pro-mask movement. But there's still no consensus on whether widespread use of facial coverings would make a significant difference, and some infectious disease experts worry that masks could lull people into a false sense of security and make them less disciplined about social distancing. (Achenbach, Sun and McGinley, 3/30)

CNN: Face Masks: WHO Stands By Recommendation To Not Wear Them If You Are Not Sick Or Not Caring For Someone Who Is Sick World Health Organization officials Monday said they still recommend people not wear face masks unless they are sick with Covid-19 or caring for someone who is sick. "There is no specific evidence to suggest that the wearing of masks by the mass population has any potential benefit. In fact, there's some evidence to suggest the opposite in the misuse of wearing a mask properly or fitting it properly," Dr. Mike Ryan, executive director of the WHO health emergencies program, said at a media briefing in Geneva, Switzerland, on Monday. (Howard, 3/31)

### 'Tremendous Resource': More Than 7,000 Scientists Respond To Researcher's Tweet To Join Database

Government agencies are tapping into the nationwide database created last week by a 34-year-old Harvard University scientist looking for others wanting to volunteer to help fight the virus. Other public health news is on what makes coronavirus so risky for the elderly, a call to loosen blood donor restrictions, advice from two women who survived Spanish Flu, Holocaust, plasma treatments, and high risks for cancer patients.

ABC News: 'Calling All Scientists': Experts Volunteer For Virus Fight Michael Wells was looking for a chance to use his scientific training to help fight the coronavirus when — on the same day the pandemic forced his lab to temporarily close — he decided to create his own opportunity. "CALLING ALL SCIENTISTS," he tweeted on March 18. "Help me in creating a national database of researchers willing and able to aid in local COVID-19 efforts. This info will be a resource for institutions/(government) agencies upon their request." (Schor, 3/30)

Stat: What Explains Covid-19's Lethality For The Elderly? Researchers on Monday announced the most comprehensive estimates to date of elderly people's elevated risk of serious illness and death from the new coronavirus: Covid-19 kills an estimated 13.4% of patients 80 and older, compared to 1.25% of those in their 50s and 0.3% of those in their 40s. The sharpest divide came at age 70. Although 4% of patients in their 60s died, more than twice that, or 8.6%, of those in their 70s did, Neil Ferguson of



Imperial College London and his colleagues estimated in their paper, published in Lancet Infectious Diseases. (Begley, 3/30)

[ABC News: Senators, Activists Urge FDA To Revise Blood Donation Policy For Gay, Bisexual Men Amid Coronavirus Pandemic](#) Democratic senators and gay rights advocates are calling on the federal government to loosen restrictions on blood donations from gay and bisexual men, citing the recent blood shortages caused by the novel coronavirus pandemic as a catalyst for change. The Food and Drug Administration's current recommendations restrict men who have sex with men, commonly referred to as MSM, from donating blood within 12 months of their last sexual encounter. The policy harkens back to the HIV/AIDS crisis of the 1980s, which disproportionately impacted MSM. (Schnell, 3/31)

[The New York Times: They Survived The Spanish Flu, The Depression And The Holocaust](#) For most of us, it is almost impossible to comprehend the ferocity and regularity with which life was upended during the first half of the 20th century. Plague and conflict emerged on an epic scale, again and again. Loss and restriction were routine; disaster was its own season. At 101, Naomi Replansky, a poet and labor activist, has endured all of it. Born in her family's apartment on East 179th Street in the Bronx in May 1918, her arrival in the world coincided with the outset of the Spanish flu. (Bellafante, 3/28)

[The Associated Press: Hay Fever Or Virus? For Allergy Sufferers, A Season Of Worry](#) The spring breezes of 2020 are carrying more than just tree pollen. There's a whiff of paranoia in the air. For millions of seasonal allergy sufferers, the annual onset of watery eyes and scratchy throats is bumping up against the global spread of a new virus that produces its own constellation of respiratory symptoms. Forecasters are predicting a brutal spring allergy season for swaths of the U.S. at the same time that COVID-19 cases are rising dramatically. (Rubinkam, 3/30)

[CIDRAP: Scientists Search For Ways To Impede, Treat COVID-19](#) Nursing homes must identify and bar staff and visitors who may be infected with COVID-19, monitor patients for infection, and take stringent infection-control measures to prevent outbreaks such as the deadly one in King County, Washington, experts said in an epidemiologic study published Mar 27 in The New England Journal of Medicine. Meanwhile, preliminary research from China involving five patients suggests that transfusion with the plasma of recovered coronavirus patients that contains neutralizing antibody could benefit patients critically ill with the pandemic coronavirus and acute respiratory distress syndrome (ARDS). (Van Beusekom, 3/30)

[WBUR: For Cancer Patients, Coronavirus Pandemic Presents New Risks To Treatment](#) Some doctors are warning that if cancer patients contract COVID-19, the virus could be more dangerous than the cancer itself. There are about 650,000 cancer patients in the U.S. who are set to have chemotherapy this year. The treatment that gives many the best hope of recovery also puts them in the most compromised position during a viral outbreak, particularly one as contagious as the coronavirus. (Young and Raphelson, 3/30)

Quality

['Ticking Time Bombs': Inmates Express Concerns About Inability To Escape Pandemic In NYC Jails](#)

An inmate tells The New York Times about lying "back to back" with other men like on a "slave ship" and being guarded by men who had little protective gear. So far, about 170 prisoners have tested positive in the city. Officials around the country grapple with how to respond to the crisis as at least 8 states have inmates who tested positive. News on the prison system is from California, Illinois, Indiana and Georgia, as well.

[NBC News: Prisoners In New York City Jails Sound Alarm As Coronavirus Spreads: 'I Fear For My Life'](#) On the morning of March 15, amid escalating fears about the COVID-19 outbreak, a 62-year-old educational consultant showed up at the John F. Kennedy International Airport in New York for a flight to Trinidad, where he planned to attend a funeral, he said. But police stopped the consultant at the gate and arrested him under a year-old warrant, alleging he'd given bogus information for a state identification



card in New Jersey. The arrest led the consultant into New York's notoriously brutal and unsanitary jail system, where COVID-19 was beginning to spread. (Schuppe, 3/30)

[ABC News: One Of The Largest Single-Site Jails In The US Grapples With 134 Coronavirus Cases](#) The number of detainees testing positive for coronavirus at the Cook County Jail in Chicago skyrocketed over the weekend, leaving Sheriff Tom Dart grappling with a dilemma that runs against the very grain of a veteran lawman and former prosecutor: whether to free alleged criminals instead of keeping them locked up. As of Monday afternoon, one of America's largest single-site jails had 134 inmates who have tested positive for COVID-19, up from just 38 on Friday, Dart told ABC News. Of all the inmates tested so far only nine were negative, he said. (Hutchinson, 3/31)

[Indianapolis Star: Coronavirus In Indiana: ACLU Calls For Early Releases For Some Inmates](#) The ACLU of Indiana has called on the Indiana Supreme Court to "immediately issue emergency steps" to reduce the number of inmates in the state's prisons and jails to thwart what could be a devastating spread of coronavirus behind bars. "We're asking the Supreme Court to, among other things, direct trial courts to review persons out of their courts who are either in the DOC or in county jails to determine if they can be released to try and avoid the spread of the COVID-19," said Ken Falk, legal director at the ACLU of Indiana. (Evans, 3/30)

[Atlanta Journal-Constitution: Coronavirus Is Spreading In Georgia Prisons](#) COVID-19 continues to spread in Georgia's jails and prisons. The disease caused by the novel coronavirus is present in eight of the state's prisons. Twenty-two people — split evenly among staff and offenders — have tested positive at 10 different facilities, most located in south Georgia. At Lee State Prison, 14 miles north of one of the state's worst hot spots for the virus, five staff members and seven inmates have tested positive. (Boone, 3/30)

[Outbreaks In Los Angeles County Nursing Homes Nearly Quadruple](#)

The county released names of 11 homes with outbreaks and is working with them on infection control, quarantine and isolation protocols. Also, NBC reports more than 400 long-term care facilities have confirmed cases. News on nursing homes comes from New York and Louisiana, as well.

[Los Angeles Times: Coronavirus Outbreaks At Nursing Homes Rise In L.A. County](#) Los Angeles County officials are investigating coronavirus outbreaks at 11 area nursing homes, where elderly residents with underlying health conditions are among the most vulnerable to the deadly new pathogen. That's nearly quadruple the number of nursing home outbreaks county officials had announced on Friday. The county defines an outbreak as three or more cases involving residents or staff at a facility. (Dolan, Gerber and Ryan, 3/30)

[The Hill: More Than 400 Long-Term Care Facilities Report Coronavirus Cases](#) Hundreds of long-term care facilities across the U.S. have confirmed cases of the coronavirus among their residents, with the number of facilities growing rapidly. NBC News reported Monday that more than 400 facilities have reported cases of the virus, a 172 percent increase from the number of facilities that had reported cases this time last week, which was 146. (Bowden, 3/30)

[New Orleans Times-Picayune: 28 Long-Term Care Coronavirus Clusters Now In Louisiana, Including Poydras Home On Magazine](#) State officials on Monday said 28 long-term care facilities, mostly nursing homes, have now been identified as clusters of the novel coronavirus, an increase eight over the previous day. Moreover, Monday's report from the state Department of Health indicates the number of such facilities identified as clusters has more than tripled since Friday, when the total stood at eight. (Roberts III, 3/30)

[Kaiser Health News: Should You Bring Mom Home From Assisted Living During The Pandemic?](#) Most retirement complexes and long-term care facilities are excluding visitors. Older adults are asked to stay in their rooms and are alone for most of the day. Family members might call, but that doesn't fill the time. Their friends in the facility are also sequestered. In a matter of weeks, conditions have deteriorated in many of these centers. At assisted living sites, staff shortages are developing as aides



become sick or stay home with children whose schools have closed. Nursing homes, where seniors go for rehabilitation after a hospital stay or live long term if they're seriously ill and frail, are being hard hit by the coronavirus. They're potential petri dishes for infection. (Graham, 3/31)

Gun Violence

#### [Allowing Gun Stores To Remain Open As Essential Prompts Concerns From Gun Control Advocates](#)

The Trump administration recommended that states designate gun stores as a critical business during the pandemic. That guidance drew criticism who says that gun rights groups are sowing fears to drive up sales. "Adding more guns to more homes during a time of more anxiety could lead to more deaths. And that's the last thing we need when our hospitals are already bursting at the seams," John Feinblatt, president of Everytown for Gun Safety, a leading gun control group, told Reuters. Many states, including New Jersey are keeping the stores open.

[Reuters: Trump Coronavirus Guidance On Keeping Gun Stores Open Draws Criticism](#) Gun control activists on Monday criticized guidance issued by President Donald Trump's administration recommending that states find that gun stores are critical businesses that can stay open during the coronavirus crisis. The new guidance, issued on Saturday by the Cybersecurity and Infrastructure Security Agency, offers the administration's views on which workers are essential during the pandemic at a time when state governors have ordered numerous "non-essential" businesses to close to try to limit the spread of the virus. The agency is part of the U.S. Department of Homeland Security. (Hurley, 3/30)

[The Wall Street Journal: Gun Stores Ruled Essential Businesses During Coronavirus Shutdowns](#) The federal government is now advising states that gun stores, gun makers and shooting ranges are critical businesses that shouldn't be closed during shutdowns meant to slow the spread of the novel coronavirus. The addition of firearms-industry workers over the weekend to a federal list of essential workforces such as doctors, police officers and energy workers, came after gun-industry groups lobbied the Department of Homeland Security and the White House. (Elinson, 3/30)

[Politico: Murphy: New Jersey Gun Stores Will Be Allowed To Reopen](#) New Jersey Gov. Phil Murphy said Monday that gun shops are now considered essential businesses and can remain open during the coronavirus pandemic. The governor's decision, announced during his daily briefing, is a reversal from his earlier position on gun retailers. (Friedman, 3/30)

Global Watch

#### [Pandemic Opens Window Of Opportunity For Global Autocrats To Expand Their Power, Quell Any Dissent](#)

Extraordinary times may call for extraordinary measures, but will government leaders relinquish their new power once the crisis has passed? Many fear that it will erase democratic gains made in some countries. Global news comes out of China, North Korea, Sweden, Mexico and Europe, as well.

[The New York Times: For Autocrats, And Others, Coronavirus Is A Chance To Grab Even More Power](#) In Hungary, the prime minister can now rule by decree. In Britain, ministers have what a critic called "eye-watering" power to detain people and close borders. Israel's prime minister has shut down courts and begun an intrusive surveillance of citizens. Chile has sent the military to public squares once occupied by protesters. Bolivia has postponed elections. As the coronavirus pandemic brings the world to a juddering halt and anxious citizens demand action, leaders across the globe are invoking executive powers and seizing virtually dictatorial authority with scant resistance. (Gebrekidan, 3/30)

[The Associated Press: Dismantling Democracy? Virus Used As Excuse To Quell Dissent](#) Soldiers patrol the streets with their fingers on machine gun triggers. The army guards an exhibition center-turned-makeshift-hospital crowded with rows of metal beds for those infected with the coronavirus. And Serbia's president warns residents that Belgrade's graveyards won't be big enough to bury the dead if people ignore his government's lockdown orders. (Stojanovic, 3/31)



[The Wall Street Journal: Russian Soldiers In Italy Contain The Coronavirus And Mark A Political Shift](#) The images released by the Russian Defense Ministry were unprecedented. Russian and Italian generals gathered around a map of the Italian peninsula, plotting the route of a Russian convoy. Military vehicles, flying Russian flags and emblazoned with "From Russia with Love" in Italian, Russian and English, were shown driving across Italy to the northern city of Bergamo, one of the hardest hit by the coronavirus pandemic that has killed more than 11,000 Italians. (Trofimov, 3/31)

[Reuters: China To Focus On Asymptomatic Coronavirus Cases As Public Fears Grow](#) As it eases its strict coronavirus curbs, China has urged authorities to pay more attention to asymptomatic cases, part of efforts to allay public fears that large numbers of infectious people have gone unreported. China is easing travel restrictions and allowing people to return to work in the city of Wuhan and the surrounding province of Hubei after two months of strict curbs on people's movements with no new cases of the coronavirus reported in the region where it emerged last year for seven days. (Stanway, 3/31)

[The Washington Post: As Wuhan Reopens, China Revs Its Engine To Move Past Coronavirus. But It's Stuck In Second Gear.](#) After 10 weeks confined to their apartments, unable to exercise, shop for groceries or walk their dogs, Wuhan residents are emerging into the daylight. The subway and intercity trains are running again. Shopping malls and even the Tesla store are reopening. State-owned companies and manufacturing businesses are turning on their lights, with others to follow. (Fifield, 3/31)

[The Wall Street Journal: China's Coronavirus-Battered Economy Shows Tentative Signs Of Renewed Life](#) An official gauge of China's manufacturing activity rebounded strongly in March as work resumption picked up, though economists warned that business activity remains far from normal following a devastating coronavirus outbreak. China's official manufacturing purchasing managers index jumped to a reading of 52.0 in March from a record low of 35.7 in February, the National Bureau of Statistics said Tuesday. (Cheng, 3/31)

[Reuters: Coronavirus Epidemic 'Far From Over' In Asia: WHO Official](#) The coronavirus epidemic is "far from over" in the Asia-Pacific region, and current measures to curb the spread of the virus are buying time for countries to prepare for large-scale community transmissions, a WHO official said on Tuesday. (3/31)

[The New York Times: North Korea Claims No Coronavirus Cases. Can It Be Trusted?](#) Shin Dong-yun, a scientist from the North Korean Institute of Virology, rushed to the northwestern border with China in early February. There, he conducted 300 tests, skipping meals to assess a stream of people so that "the country is protected from the invasion of the novel coronavirus." Stories like this, carried in the state-run newspaper Rodong Sinmun, only deepen one of the biggest mysteries surrounding the Covid-19 pandemic: How could North Korea claim to not have a single coronavirus case while countries around the world stagger under the exploding epidemic? (Sang-Hun, 3/31)

[The Wall Street Journal: Inside Sweden's Radically Different Approach To The Coronavirus](#) The ski pistes are open, the restaurants are doing ample business and the malls are awash with shoppers. Welcome to Sweden, the last holdout among the small number of Western countries to have taken a radically different approach to the coronavirus pandemic. While social life in Europe and much of the U.S. now centers on the home after governments imposed increasingly drastic curbs on freedom of movement, Sweden left offices and stores open, issued recommendations rather than restrictions, and waited to see what happens. (Pancevski, 3/30)

[CIDRAP: Officials Watch For COVID-19 To Stabilize In Europe; Rapid Growth Shifts To Other Areas](#) Global COVID-19 cases continued their steady increase, with a glimmer of hope that activity may soon stabilize in some of Europe's hot spots, but with growing worries about the threat of the pandemic virus and the impact of social distancing measures in India. The global number of cases pushed well into the 700,000s



today, reaching 777,286 from 178 countries, along with 37,140 deaths, according to the Johns Hopkins online dashboard. (Schnirring, 3/30)

[The Washington Post: Coronavirus On The Border: Why Mexico Has So Few Cases Compared With The U.S.](#) The U.S.-Mexico border has long been a region of contrasts. But people in both countries are puzzling over the latest one: The number of confirmed cases of the coronavirus on the Mexican side is just a small fraction of the U.S. count. On Sunday, confirmed cases in California topped 6,200, compared with just 23 in Baja California. Arizona had 919 cases, dwarfing the 14 in neighboring Sonora. New Mexico reported 237 cases; in Chihuahua state, there were six. The U.S.-Mexico border is the busiest in the world, with an estimated 1 million legal crossings per day. The neighbors' economies are intertwined. (Sheridan, 3/30)

[The Associated Press: Crammed In Filthy Cells, Political Prisoners Fear Infection](#) Reza Khandan got the word from friends locked away in Iran's most feared prison, Evin. A prisoner and a guard in their cell block had been removed because they were suspected of having coronavirus, and two guards in the women's ward had shown symptoms. It was frightening news. Khandan's wife, Nasrin Sotoudeh, one of Iran's most prominent human rights lawyers, is imprisoned in that ward in close quarters with 20 other women. (Michael, El Deeb and Keath, 3/31)

[Politico: 'This Is A 24/7 Job': State Department's Playbook For Getting Stranded Americans Home](#) As the coronavirus spread and nations shut their borders, the State Department hustled to put together practices for bringing Americans home, according to a document that illustrates the tense nature of the massive multi-country effort to help thousands of desperate Americans amid rapidly changing circumstances. In a step-by-step checklist, obtained by POLITICO, State staff outlined how they had helped Americans stranded in Morocco, where employees at the embassy there worked to charter nine flights over 48 hours starting March 20, before the country unexpectedly closed its borders. The document stands as a sort of playbook for an agency that is continuing to try to return Americans home. (Mintz, 3/30)

Opioid Crisis

[At Dawn Of Opioid Crisis, Johnson & Johnson Genetically Created 'Supper Poppy' That Was Rich In Opiates](#)

The Washington Post takes a look at Johnson & Johnson's operations in Tasmania, which produced genetically modified "supper poppy" plants. In other public health news: e-cigarettes, mental health services, Alzheimer's treatments, and dementia.

[The Washington Post: Johnson & Johnson Companies Used A Super Poppy To Make Narcotics For Popular Opioid Pills](#) Johnson & Johnson, a company more widely known for baby powder and Band-Aids, became a major supplier of narcotic raw materials to the U.S. thanks to a Tasmanian breed of poppies. (Whoriskey, 3/26)

[The New York Times: The World Pushes Back Against E-Cigarettes And Juul](#) In January 2019, the chairman of Altria, Howard A. Willard III, flew to Silicon Valley to speak to senior executives of Juul Labs, fresh off signing a deal for the tobacco giant to pay nearly \$13 billion for a 35 percent stake in the popular e-cigarette company. With public fury growing over Juul's contribution to the epidemic of teenage vaping, he laid out his vision for the company to continue to thrive. "I believe that in five years, 50 percent of Juul's revenue will be international," Mr. Willard told the 200 executives gathered at the Four Seasons in East Palo Alto. (Kaplan, Jacobs and Sang-Hun, 3/30)

[Atlanta Journal-Constitution: How Georgia Tech Is Working To Improve Mental Health Services](#) Georgia Tech, more so than any state school in recent years, has faced public pressure and scrutiny to better help students struggling with such issues. Two students died near the end of the fall 2018 semester from apparent suicides. The family of Scout Schultz, a Georgia Tech student shot and killed by a campus police officer in 2017, filed a wrongful death lawsuit in September against the school. (Stirgus, 3/31)



[Stat: Can This Alzheimer's Trial Design More Cleanly Test The Amyloid Hypothesis?](#) The fate of aducanumab, a potential Alzheimer's treatment from Biogen, is widely seen as the last hope for an aging idea: that targeting toxic brain plaques can arrest the progress of the disease. But there's a similar, less-discussed Alzheimer's treatment working through a pivotal trial. And its outcome, positive or negative, could shift the yearslong debate over how best to target Alzheimer's. (Garde, Robbins and Feuerstein, 3/30)

[The Washington Post: Early-Onset Dementia In Her Middle-Aged Husband Was Uncurable — And Almost Unbearable.](#) In summer 2014, when he was 54, Sacramento artist David Wetzl was exhibiting the behaviors of an elderly man with Alzheimer's. "I have a bad brain," he told everyone repeatedly, using a simple phrase to explain his diagnosis to the world. Two years before that, his wife, Diana Daniels, had asked for an MRI because she was suspicious that things weren't right and fearful when he couldn't remember the word "shoelaces." The scan showed with horrific clarity how sections of his brain had shriveled. (Mailman, 3/29)

Editorials And Opinions

[Different Takes: Can Someone Be Honest About Where All The Masks Are?; Nurses Are Underappreciated Heroes Of Pandemic](#)

Editorial pages focus on these topics stemming from the pandemic and others.

[Fox News: We Understand There's A Shortage Of Medical Masks. Stop Lying To Us And Tell The Truth](#) In any crisis, trust is critical — and not just for moral reasons, for practical reasons. The government can't coordinate a national response if the public doesn't believe what it says, if it doesn't believe the government is looking out for its best interest. That's why honesty is essential at times like this. When the government lies, people know. They can tell, and then they stop listening. ...Of course, masks work. Everyone knows that. Dozens of research papers have proved it. In South Korea, Japan, Hong Kong, the rest of Asia — where coronavirus has been kept under control — masks were key. (Tucker Carlson, 3/31)

[The New York Times: It's Time To Make Your Own Face Mask](#) It shouldn't have come to this, but here we are. The world is running out of face masks for health care workers, which is one reason American officials, including the surgeon general, have warned members of the public against buying their own masks for protection against the coronavirus. But that doesn't mean face masks for the public are a bad idea, if we had enough masks. Contrary to what American officials told us, many studies show that widespread mask-wearing might be a very effective complement to hand-washing, social-distancing and other measures to mitigate the pandemic. Health officials in China, Hong Kong, Singapore and Japan suggest that people wear masks in certain situations — if they're symptomatic, for instance, or if they're in crowded, not-very-well-ventilated places, like airplanes. Studies have also shown that mask-wearing (in conjunction with hand-washing) reduces the spread of infection within households or other shared living spaces, like residence halls. But how to get your hands on a mask, when there are no masks? The internet has a plan: Make your own. (Farhad Manjoo, 3/31)

[The Wall Street Journal: Nurses Are The Coronavirus Heroes](#) I write this an hour after finishing my shift in the hospital emergency department. It's 1 a.m. A nurse I have known for a long time said to me as she left the shift, "In 18 years, I never felt the need to take a shower in the staff locker room so I could feel safe to go home." Earlier she was at the bedside in a negative pressure room, wearing a powered air-purifying respirator as she helped intubate a possible coronavirus patient who'd crashed. The precaution and gear make the work feel more dangerous. "Will that equipment be enough," she asks, "to keep the virus out of my body?" (Paul Dohrenwend, 3/30)

[Stat: Covid-19 Testing: Overcoming Challenges In The Next Phase Of The Epidemic](#) Which is a better proxy for estimating the Covid-19 infection rate in the United States: the infection rate in the NBA or the infection rate in China or Italy? The answer to that question reveals some of the pitfalls of diagnostic Covid-19 testing. (Arkun K. Manrai and Kenneth D. Mandl, 3/31)



[CNN: Doctors Never Vow To Risk Their Lives. Why Do They Still Do It Anyway?](#) Like many physicians, I find myself on the front lines of a fight that I did not realize I enlisted in. Amid a global pandemic, doctors far and wide are being called to the field to embrace roles they may feel completely inept in, oftentimes without adequate protection. When I spoke with my residency classmates this week -- all healthy doctors in their 30s -- I realized it was likely that many of us would be infected with the novel coronavirus. Given the mortality rates, it is possible one of us might not survive. (Trisah Pasricha, 3/30)

[The Washington Post: During The Flu Pandemic Of 1918, D.C.'s Girl Scouts Offered More Than Cookies](#) As the flu pandemic worsened in Washington in October 1918, the Evening Star published the names of the pandemic's local victims and urged readers to fashion masks at home for donation to the Red Cross. (Three thin layers of muslin or four layers of cheesecloth were recommended for these "simple but efficacious preventives.") The paper noted something else, too: District Girl Scouts were spearheading a remarkable effort to feed those sickened by the flu. (Kelly, 3/30)

[The Hill: COVID-19 Causes More Harm To Seniors Than Just Death](#) As a geriatric medicine physician specializing in care for older adults, I am witnessing the COVID-19 pandemic cause more problems for older adults than just sickness and death. The implications of widespread social distancing and cancellation of routine home-based medical care will be profound and potentially devastating for elders. (Dr. Alexander Sasha Rackman, 3/30)

[Chicago Sun Times: Mayor Lori Lightfoot On Lakefront Memes: 'I Love 'Em'](#) It may not seem like it, judging from her stern face and angry, podium-pounding admonitions in recent days. But Mayor Lori Lightfoot knows the value of humor, especially in these extraordinarily troubled times. Lightfoot said Monday she's getting a kick out of the memes that have emerged from her unprecedented decision to shut down Chicago's most popular gathering spots—including the entire lakefront. Those memes, showing a stony-faced Lightfoot guarding the lakefront trail and other Chicago hotspots blew up the internet over the weekend. (Alice Bazerghi and Fran Spielman, 3/30)

[Des Moines Register: Coronavirus In Iowa: If You Have A Calculator, You Can Do COVID-19 Math](#) Nowadays it seems harder than ever to find reliable information, much less make sense of it. I think this is why a lot of Iowans are skeptical about whether strong preventive measures are really necessary to deal with this virus. But numbers have no agenda. And you can trust your own ability to do simple arithmetic. Put this together and you can see for yourself what we are facing. That's why today I want to talk about math. OK, now, stick with me. I know math isn't too popular, but the math will be minimal. All you will have to do in the end is push a button and count. You can do that! According to the numbers, the first reported positive test in Iowa was on March 8. Since then we have the following running total of reported positive tests: 3, 8, 13, 14, 16, 17, 18, 22, 23, 29, 38, 44, 45, 68, 90, 105, 124, 145, 179, 234, 298, 336, 424. (Rick Autry, 3/30)

[Dallas Morning News: Dallas Must Save Lives, Open Hospital Capacity And Preserve Our Economy](#) COVID-19 is the most complex challenge we've faced in this generation because it's being fought on three fronts simultaneously: medically, economically and emotionally. The decisions we make today will impact what our world looks like once this crisis is behind us. Our political leaders must make tough decisions after hearing input from medical experts, business leaders and community leaders. Balancing health risks with the risks to jobs and our economy, while keeping citizens emotionally stable, is a tall order. These are tough calls. (John Olajide and Fred Perpall, 3/31)

[Miami Herald: Four Dead, Hundreds Of Passengers Exposed To Coronavirus](#) South Florida faces a moral dilemma that will play out on the national stage, and soon, unless the White House steps in. And we believe that it should. Holland America wants permission for its Zaandam cruise ship to dock at Port Everglades on Wednesday, bringing with it four dead, likely of COVID-19, and almost 200 passengers and crew with flu-like symptoms. "Not in our backyard" has been the unwavering response from Gov. DeSantis and the mayors of Broward and Fort Lauderdale, Dale Holness and Dean Trantalis, respectively. (3/31)



### [Viewpoints: Pros, Cons On FDA Approval Of Unproven Drugs For Treatment; States' Patchwork Response Undermines Recovery](#)

Opinion writers weigh in on these COVID-19 topics and others.

[The Wall Street Journal: An FDA Breakthrough On Treatment](#) The Food and Drug Administration on Sunday green-lighted two malaria medicines that have shown some promise treating the novel coronavirus, and the emergency approvals couldn't come soon enough. Expanding their use could bring quicker relief to patients and hospitals while allowing scientists to better assess their efficacy. The malaria drugs hydroxychloroquine (HC) and chloroquine have been around for more than five decades, so their safety is well documented. New evidence suggests that they could also help fight the novel coronavirus, as op-eds by Dr. Jeff Colyer on these pages have reported. Both chloroquine and HC in vitro block the replication of RNA viruses like the novel coronavirus. (3/30)

[Stat: We Shouldn't Rush To Use An Unproven Drug To Treat The Coronavirus](#) As the pandemic deepens, physicians face an agonizing decision — to medicate or not to medicate? Here's the dilemma: Over the past few weeks, some small studies suggested a decades-old malaria drug called hydroxychloroquine may have the potential to combat the novel coronavirus known as Covid-19. And as the results trickled out, the tablet has become more valuable than gold. (Ed Silverman, 3/31)

[The Washington Post: Trump Rightly Extended Pandemic Guidance. Here's What He Should Do Next.](#) President Trump abandoned his reckless speculation about going back to work by Easter and wisely extended the federal government's pandemic guidance through April. Mr. Trump properly announced this unpleasant news personally on Sunday and acknowledged much higher estimates of the possible death toll. Since December, too much time has been squandered. Now, the month ahead must be well spent — with action. (3/30)

[Bloomberg: Coronavirus: Abbott's Five-Minute Tests Aid Every Stage Of Fight](#) Americans anxious about their coronavirus status and ability to get tested got excellent news over the weekend. On Saturday, medical-device giant Abbott Laboratories said it got the green light from the Food and Drug Administration to roll out a new rapid and portable Covid-19 test. It's going to start doing so this week. Abbott's test can detect the virus in as little as five minutes and runs on a 6.6-pound machine that is already set up in doctors' offices around the country to test for strep throat and flu. (Max Nisen, 3/30)

[The Washington Post: Five Ways The Federal Government Can Help Health-Care Professionals Get Critical Gear](#) The coronavirus pandemic is a generational event. Much as our firefighters, paramedics and police officers ran toward the flames on 9/11 while crowds ran away from the twin towers, today our nurses, doctors and first responders are running toward the crisis. As most Americans shelter at home, our health-care workers are on the front lines — and too many are heading into battle without proper gear. (Rep. Elissa Slotkin, 3/30)

[CNN: Trump Touting His Coronavirus Press Conference Ratings Reveals A Deep Leadership Flaw](#) On Sunday afternoon, President Donald Trump quoted snippets from a New York Times article by Michael Grynbaum headlined: "Trump's Briefings Are a Ratings Hit. Should Networks Cover Them Live?" The essence of the piece dealt with the delicate journalistic question of what responsibility TV networks owe to their viewers to broadcast the President discussing the ongoing coronavirus epidemic given that these near-daily briefings have now turned into Trump spouting mistruths and settling scores with journalists. (Chris Cillizza, 3/30)

[Los Angeles Times: Trump's Daily Coronavirus Press Conferences Are Dangerous](#) On Sunday, President Trump, absent any hard evidence, suggested that large numbers of masks were being stolen from New York hospitals, citing an unnamed facility he said had seen a huge surge in mask usage. "How do you go from 10 to 20 [thousand masks being used], to 300,000?" he said. And he didn't stop there. "Where are the masks going — are they going out the back door?" Trump posited. "Somebody should probably look into that, because I just don't see from a practical standpoint how that's possible." Perhaps — just perhaps — the increased volume of masks being used is correlated with the emergence of a runaway,



highly contagious pandemic? I wonder if Joseph Stalin ever said during the Battle of Stalingrad: "This doesn't make sense. Normally they only want 20,000 boxes of ammunition. All of sudden they want 300,000? Someone must be stealing the bullets." (Jonah Goldberg, 3/30)

[The Hill: We Need A 'Pay Everything' Policy To Combat Coronavirus Recession](#) The effect of the COVID-19 crisis on the economy differs from recessions of the past, and the tools familiar to policymakers are not designed to address our current situation. For example, cutting interest rates works in most recessions by reducing the cost of new consumer loans. But who needs a loan when people are forced to stay at home, unable to, say, shop for a car or a home? (David Souder, 3/29)

[Los Angeles Times: Stop Detaining Migrant Children During The Coronavirus Pandemic](#) A federal judge in Los Angeles, concerned that migrant children being held in federal detention are facing dangerous exposure to the coronavirus, ordered the Trump administration on Saturday to speed up the release of minors to relatives or other qualified sponsors. U.S. District Judge Dolly M. Gee stopped short of ordering the children's immediate release because of the need to find appropriate places for them to go and the logistical challenges posed by travel advisories related to the public-health crisis. Given the practical realities, Gee seems to have gone as far as she could. The government currently holds about 3,600 unaccompanied minors in shelters overseen by the Office of Refugee Resettlement and about 3,300 children with parents at facilities operated by Immigration and Customs Enforcement. Four unaccompanied minors held at a detention facility in New York have tested positive for the virus, and at least one child in a family detention center is under quarantine. (3/31)

[Los Angeles Times: Economists Warn Against Lifting The Coronavirus Lockdowns](#) Until now, the voices warning against prematurely lifting stringent social regulations to combat the novel coronavirus have been those of doctors and epidemiologists. But a blue-ribbon group of economists has just weighed in, and they agree -- virtually unanimously. The panel of 44 economists assembled by the Booth School of Business of the University of Chicago was asked to opine on coronavirus policy in three respects. (Michael Hiltzik, 3/30)

[Modern Healthcare: Some Optimism For The Post-COVID Healthcare System](#) COVID-19 has taught us two things. We need intensive-care units and a surge capacity for crises. But we also need to help people at home. (Stephen K. Klasko, 3/30)

[The Hill: Conservatives Privilege Ideology Over Expertise In This Global Health Crisis](#) I was deeply troubled by Father Frank Pavone's attack on the American College of Obstetricians and Gynecologists (ACOG) in The Hill. Pavone seeks to discredit ACOG's medical expertise by suggesting that the body, along with its 60,000 board-certified obstetrician-gynecologists members, cannot simultaneously support abortion access, a key component of women's reproductive health, and also be an "a dispassionate observer of abortion policy." This is yet another example of conservatives privileging ideology over expertise in the midst of a global health crisis. (Sara Hutchinson Ratcliffe, 3/30)

[Detroit Free Press: How To Protect Elections, Other Democratic Institutions Against Virus](#) Stay home! the public health guardians counsel. Avoid congregating in groups! But more than 300 federal lawmakers violated that cardinal prescription last week in order to get a \$2-trillion coronavirus relief bill to President Donald Trump's desk, because the U.S. Constitution bars both the Senate and the House of Representatives from adopting legislation without at least half its members physically present. Closer to home, Michigan legislators, one of whom is already sick with COVID-19, have decided to meet just one day a week for the next month. Gov. Gretchen Whitmer has suspended some provisions of the state's Open Meetings Act, which in normal times requires county commissions, city councils and school boards to do business in public. (3/30)

[The Detroit News: Don't Neglect Prisoners During Pandemic](#) Understanding the epidemiology of the coronavirus is important. But it is equally important to ask these challenging questions: Who is disproportionately affected by the pandemic and how must we, as a collective, support vulnerable populations at this time? A vulnerable group we cannot afford to disregard is the incarcerated



population. If we ignore the them, jails and prisons will become an epicenter of the COVID-19 pandemic. (Ira Memaj and Robert Fullilove, 3/30)

[New Orleans Times-Picayune: Arrest Those With Louisiana Coronavirus Foolishness. 'Stupid' Should Stop.](#) So much for returning to normal come Easter Sunday or even Easter Monday. At least it's not likely in Louisiana. "As you know, my stay at home order is scheduled to end on April 13," Louisiana Gov. John Bel Edwards said Sunday afternoon during a joint news conference with New Orleans Mayor LaToya Cantrell. "I do want people to know that based on facts on the ground as we get close to that date we will determine whether to extend that date." The novel coronavirus spreading across the world is once again showing that science trumps politics, the economy and elected officials and the facts are as they exist. (Will Sutton, 3/30)

### **Recent Morning Briefings**

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Fri, 6 Mar 2020 12:18:28 +0000  
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**Subject:** LA Times: Here's why Chinese scientists say there's a second, more dangerous coronavirus strain

# Here's why Chinese scientists say there's a second, more dangerous coronavirus strain

By [MELISSA HEALY](#) STAFF WRITER  
MARCH 5, 2020  
9:47 PM

The global outbreak that has sickened nearly 100,000 people across six continents may actually be fueled by two variants of the same coronavirus: one older and less aggressive and a newer version whose mutations may have made it more contagious and more deadly, according to a controversial new study.

Chinese scientists who compared the genetic sequences of 103 viral samples from patients infected with COVID-19 said their evidence suggests that the virulent version of the coronavirus — which they tagged the “L-type” version — was the dominant strain in the earliest phase of the outbreak that began in Wuhan late last year. That strain, they said, appeared to recede as the epidemic progressed.



But among samples collected later, as COVID-19 spread across China and into other countries, a variant of the virus they dubbed the "S-type" was more common, the scientists reported. They suggested that the genetic makeup of the S version more closely resembles coronaviruses circulating in bats and pangolins, the animals that are thought to have incubated the virus before it jumped to humans. And they surmised that it is a less virulent version.

The findings suggest the S-type version of the coronavirus may have escaped its animal hosts earlier than previously believed — and that it may have been circulating longer without causing enough illness to set off alarm bells.

The Chinese scientists [reported their analysis](#) Thursday in the journal National Science Review. The team was led by Peking University's bioinformatics researcher Jian Lu in Beijing.

The study authors acknowledged that their conclusions are very preliminary and are based on a very small sample of viruses. The variations they found will need to be observed in many more specimens taken from other patients, and their genetic differences will need to be compared with physicians' reports and epidemiological notes. Only then can their suspicions can be confirmed, they wrote.

Officials at the World Health Organization warned that "it's important we don't overinterpret" the scientists' findings.

"It's got a slightly different signature, but it's not a fundamentally different virus," said Mike Ryan, the WHO official coordinating the agency's response to the COVID-19 epidemic.



Some scientists were far more critical, with some calling for [the paper to be retracted](#).

The new analysis comes from scientists in a relatively new and fast-moving field that's devoted to the genetic investigation of disease-causing germs.

Using a [technique](#) called phylodynamic analysis, researchers collect and sequence the genomes of many samples of a given microbe and scour them for tiny substitutions in their DNA or RNA. By tracking those genetic shifts, they can reconstruct a rough picture of a germ's passage through a population, and detect turning points along the way.

The authors of the new study compared genetic sequences of viral samples taken from 27 patients in Wuhan, 33 patients from elsewhere in mainland China, three from Taiwan and 40 from patients outside China.

Comparing all those samples to those taken from bats, they found relatively little evidence of variability. That suggests the novel coronavirus has circulated in humans for only a few months, changing little as it jumped from person to person and replicated itself, they wrote.

But when the scientists compared the 30,000 nucleotides of each sample to one another and focused on finding differences among them, they found a much greater degree of variability. That's a sign that the changes in the virus since it began to infect humans were "much larger than previously estimated," they wrote.



Of the 103 viral genomes they scoured, 70% were of the L-type variant. But by early January, the scientists wrote, it appears that “human intervention” — possibly the “rapid and comprehensive prevention and control measures” adopted by China — had begun to limit the spread of this strain.

By late January, doctors and health authorities were on high alert and testing widely for COVID-19 infection. But at that point, the Chinese scientists speculated, they were collecting samples from patients who were sickened by the older, less dangerous S-type version of the virus.

Some geneticists who weren’t involved in the study argued that the data could support an alternative interpretation: that the virus has simply spread more widely than they had realized, picking up random mutations along the way. Those mutations may or may not make the virus behave differently.

If the S-type of the virus is the older version that was circulating first, a final mystery remains: Why would the majority of samples taken from the initial patients in Wuhan have fallen into the L-type category? Shouldn’t there be more S-types in the mix?

This is where the Chinese scientists make a hotly debated leap: They surmise that the newer L-type version probably picked up more mutations, and evolved further from the bat coronavirus from which it originated, because it either infects people more readily or it replicates more vigorously once it infects.

In other words, it’s more transmissible or more aggressive — or both.



University of Edinburgh geneticist [Andrew Rambaut](#) urged caution about that conclusion. When genetically sequenced samples represent a small and haphazardly collected subset of all infections, the kinds of genetic variations noted by the scientists are "entirely expected," he wrote on Twitter.

To claim that such mutations necessarily make a virus behave differently, he added, "is a flawed inference."

A group of researchers from the MRC-University of Glasgow Center for Virus Research in Scotland offered a [more detailed rebuttal](#) of the new paper. Among other things, they said the study authors misinterpreted their data and failed to account for limitations in their statistical methods.

"Given these flaws, we believe that Tang et al. should retract their paper, as the claims made in it are clearly unfounded and risk spreading dangerous misinformation at a crucial time in the outbreak," the Glasgow team wrote.



**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Fri, 24 Jan 2020 19:27:54 +0000  
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**Subject:** Lancet: Emerging understandings of 2019-nCoV <http://bit.ly/30SDUo0>

## Emerging understandings of 2019-nCoV

- [The Lancet](#)

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“There is an emergency in China, but it has not yet become a global health emergency...WHO is following this outbreak every minute of every day”, said Dr Tedros Ghebreyesus, Director-General of WHO, on Jan 23. A novel coronavirus (2019-nCoV) outbreak is emerging, but it is not yet a Public Health Emergency of International Concern (PHEIC). As we went to press, more than 500 cases have been confirmed in China, as well as in Japan, South Korea, Thailand, and the US. The virus can cause a severe respiratory illness, like SARS and MERS, and human-to-human transmission has been confirmed. These characteristics are driving China's urgent public health actions, as well as international concern. But much remains unknown. The pieces of the puzzle that is 2019-nCoV are only now beginning to come together.

Today, we publish the first clinical data from individuals confirmed to be infected with 2019-nCoV from Wuhan, China. Chaolin Huang and colleagues provide comprehensive findings for the first 41 laboratory-confirmed cases. 27 of these 41 cases had direct exposure to the Wuhan seafood market that is thought to be the initial site of infection from an animal source. All had viral pneumonia. The severity of illness is concerning: almost a third of patients developed acute respiratory distress syndrome requiring intensive care; six patients died; five had acute cardiac injury; and four required ventilation.

Separately, Jasper Fuk-Woo Chan and colleagues report clinical and microbiological data from a family of six people who had travelled to Wuhan and later presented with pneumonia to Shenzhen Hospital in Guangdong province. Five were identified as infected with 2019-nCoV. Notably, none had been to the Wuhan market, but two had visited a Wuhan hospital. The authors suggest these findings confirm human-to-human transmission. Together, these Articles provide an important initial picture of the clinical spectrum and transmission of this new disease.

In an accompanying Comment, Chen Wang, George Gao, and colleagues describe the early sharing of clinical data from the outbreak and emphasise the urgent need for more information about pathogenesis and viral transmission, as well as the pressing need to develop best supportive care and a



vaccine. They also caution against overstating the mortality risk, as early reported case-fatality rates may be high due to bias towards detecting severe cases. As David Heymann reflects in another accompanying Comment, publication of these Articles provides peer-reviewed information urgently needed to refine the risk assessment and response, which are happening in real time.

China has quickly isolated and sequenced the virus and shared these data internationally. The lessons from the SARS epidemic—where China was insufficiently prepared to implement infection control practices—have been successfully learned. By most accounts, Chinese authorities are meeting international standards and isolating suspected cases and contacts, developing diagnostic and treatment procedures, and implementing public education campaigns. Dr Tedros has praised China for its transparency, data sharing, and quick response. Likewise, WHO has reacted fast and diligently. Despite massive attention and conjecture about the level of threat posed by 2019-nCoV, and whether WHO should declare a PHEIC, the agency's emergency committee has not bowed to pressure to take such a decision until necessary. We commend WHO for its resilience.

There are still many gaps in our understanding. The early experiences of these patients and the response to their symptoms before cases were reported remain undocumented. The exposure and possible infection of health workers remain extremely worrying. We will not know for some time the consequences of the quarantine imposed in Wuhan on Jan 23, 2020. Chinese public health authorities are under enormous pressure to make difficult decisions with an incomplete, and rapidly changing, understanding of the epidemic. The shutdowns may seem a drastic step—whether they represent an effective control measure deserves careful investigation and much will likely depend on maintaining trust between authorities and the local population. News media that worsen fears by reporting a “killer virus” only harm efforts to implement a successful and safe infection control strategy.

Openness and sharing of data are paramount. There are enormous demands for rapid access to information about this new virus, the patients and communities affected, and the response. But equally crucial is the need to ensure that those data are reliable, accurate, and independently scrutinised. As for all public health emergencies, we will be making all related *Lancet* content fully and freely available.



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**From:** Folkers, Greg (NIH/NIAID) [E]  
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**Subject:** Maggie Fox: Travel restrictions and quarantines. Will they work?  
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## Travel restrictions and quarantines. Will they work?

January 31, 2020 | Coronavirus



A CDC map of where the new coronavirus has already spread.

### What happened today?

The Trump administration announced a ban, not starting until Sunday, on any foreign travelers who have been in China in the past two weeks. U.S. citizens who admit to having been in China's Hubei province – believed to be the epicenter of the outbreak – in the past 14 days will get extra screening and asked to quarantine themselves at home for two weeks.

Several airlines, including United, Delta, American and British Airways, suspended flights to and from China. Flights from China will be funneled through seven U.S. airports for closer scrutiny: LAX, SFO, JFK, ORD (Chicago), ATL, SEA, AND HNL (Honolulu).

Health and Human Services Secretary Alex Azar said it was President Trump's idea. Public health experts have said for years that travel bans do little to control the spread of germs, especially not respiratory diseases.

The World Health Organization specifically advises against them.

But the administration has been under intense pressure to be seen as doing something, anything, to stop the further spread of the new virus. "I hope that people will see that their government is taking responsible steps to protect them," Azar said in a livestreamed briefing.

A lot of information has come out about the virus over the past two days. Important points:

- People can be infected and not show symptoms
- People can infect others before they develop any symptoms themselves
- We are still only seeing mostly the worst cases – people who develop pneumonia. So all we know about the death rate is from among the sickest people.
- It's still unclear how many people get infected and only get mildly ill, or not ill at all. If many people get mildly ill, that brings the overall death rate down but may mean the virus will spread more widely,
- The main symptoms appear to be fever and a dry cough. A few patients get nausea or diarrhea. Runny noses do not appear to be a symptom.



- The first U.S. case is [a lot better already](#).
- We don't know how many cases there are outside China. There are likely many cases inside China – tens or hundreds of thousands, according to the best projections. Officially, it's around 10,000.

The virus started spreading in December. Thousands and thousands of people have already traveled to the U.S. from China since then. It is far too late for a travel ban or quarantines to stop it. If it spreads easily, which it appears to, and before anyone has symptoms, it has certainly spread already and will continue to do so.

Every single medical doctor and public health expert I have spoken to says travel restrictions come too late and most say they would never have worked. But these measures will be popular with the public, who will see them as strong action by the U.S. government.

It's hard to explain why travel bans don't work. Common sense might dictate that stopping more cases from coming in might be good.

But once a respiratory virus is already spreading, it is very hard to stop that way. The way to stop a virus is by hard work: identifying each case, isolating that person and treating them, tracking down everyone they might have infected and watching those people for symptoms.

If there's a vaccine, you vaccinate contacts. That stopped smallpox completely, and wiped it out. It works with measles outbreaks, and measles is far more infectious than this or any other virus.

There's no vaccine against this new coronavirus, so that makes it harder. But health experts still say travel bans and quarantines do little.

This study ran computer models of various travel bans to the U.S. and found at best, a very successful travel ban that stopped almost everyone would only [delay the spread of a new respiratory virus](#) by a weeks at the best.

People are very good at getting around travel bans and quarantines if they don't want to comply. Travelers from China can go to an airport in a non-affected country and travel to the U.S. from there. Travel bans and forced quarantines can encourage people to lie about or conceal a travel or exposure history, making it more likely they'll miss out on medical care and infect others if they do turn to to be carrying the virus.

These are not new questions. People have been studying these risks for decades, and stepped up the work after fears about H5N1 bird flu started 20 years ago. They've had SARS, MERS and the new pandemic H1N1 influenza virus as real-life studies.

And identifying people from one geographic region as the primary risk makes people behave illogically. They'll think if anyone is stopped from coming in from China, that there will be no more imported cases. That's ridiculous, especially since the new coronavirus is already infecting people in other Asian countries and in Europe.

So what can you do? Wash your hands. It protects against all sorts of infections, not just new viruses. And stay away from people who are coughing.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
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# Mission summary: WHO Field Visit to Wuhan, China 20-21 January 2020

22 January 2020  
Statement

On 20-21 January 2020, a World Health Organization (WHO) delegation conducted a field visit to Wuhan to learn about the response to 2019 novel coronavirus (2019-nCoV). The mission was part of the on-going close collaboration between WHO and Chinese national, provincial, and Wuhan health authorities in responding to 2019-nCoV.

The delegation visited the Wuhan Tianhe Airport, Zhongnan hospital, Hubei provincial CDC, including the BSL3 laboratory in China's Center for Disease Control (CDC). The delegation observed and discussed active surveillance processes, temperature screening at the airport, laboratory facilities, infection prevention and control measures at the hospital and its associated fever clinics, and the deployment of the rRT-PCR test kit to detect the virus.

Data collected through detailed epidemiological investigation and through the deployment of the new test kit nationally suggests that human-to-human transmission is taking place. More analysis of the epidemiological data is needed to understand the full



extent of human-to-human transmission. WHO stands ready to provide support to China to conduct further detailed analysis.

The delegation discussed China's plan to expand the 2019-nCoV case definition. This will allow China and the international community to build a clearer picture of the spectrum of severity of the novel coronavirus. The new case definition and the provision of test kits to all provinces, are expected to lead to further increases in the number of cases identified and confirmed in Hubei Province and other provinces. Increases in confirmed cases are to be expected as testing is increased.

The delegation discussed with the local authorities their on-going efforts to communicate to the general public to expect more cases of 2019-nCoV to be confirmed, and to follow public health advice regarding infection control procedures. This is especially important at a time when seasonal influenza is at its highest, and over the Chinese New Year period when many people travel across China. The delegation and their counterparts agreed close attention should be paid to hand and respiratory hygiene, food safety and avoiding mass gatherings where possible. People with fever should avoid close contact with others and seek medical help.

The facilities for fever triage and for treatment of suspected and confirmed cases were visited in Zhongnan hospital. The delegation witnessed the systems that have been put in place to provide high quality diagnostic, treatment, and isolation services. The identification of infection among 16 health care workers reinforces the importance of ensuring appropriate infection prevention and control measures are in place for patients, staff and hospital visitors at all times. All health professionals should adhere to infection control procedures even in parts of the health care system that do not usually deal with cases of infectious disease.

On 21 January 2020, at the conclusion of the visit the Chinese Government has released the primers and probes used in the rRT-PCR test kit. This follows China's rapid identification of the virus and sharing of the genetic sequence. The primers will assist with establishing real-time RT-PCR for the detection of 2019-nCoV in other countries. Chinese experts also shared with the delegation a range of protocols that will be used in developing international guidelines, including case definitions, clinical management protocols, and infection control among others.



The delegation commended the commitment and capacity demonstrated by national, provincial, and Wuhan authorities and by hundreds of local health care workers and public health specialists working to respond to the 2019-nCoV outbreak. While challenges still remain regarding the transmission, epidemiology and our understanding of the behavior of the virus, WHO and its partners will work together with China to respond to this outbreak.



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# Initial Public Health Response and Interim Clinical Guidance for the 2019 Novel Coronavirus Outbreak — United States, December 31, 2019–February 4, 2020

*Early Release* / February 5, 2020 / 69

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[View suggested citation](#)

## Summary

### What is already known about this topic?

In December 2019, an outbreak of acute respiratory illness caused by a novel coronavirus (2019-nCoV) was detected in mainland China. Cases have been reported in 26 additional locations, including the United States.

### What is added by this report?

Nine of the first 11 U.S. 2019-nCoV patients were exposed in Wuhan, China. CDC expects more U.S. cases.

### What are the implications for public health practice?

CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to substantially slow U.S. transmission of 2019-nCoV, including identification of U.S. cases and contacts and managing travelers arriving from mainland China to the United States. Interim guidance is available at <https://www.cdc.gov/coronavirus/index.html> and will be updated as more information becomes available.

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On December 31, 2019, Chinese health officials reported a cluster of cases of acute respiratory illness in persons associated with the Hunan seafood and animal market in the city of Wuhan, Hubei Province, in central China. On January 7, 2020, Chinese health officials confirmed that a novel coronavirus (2019-nCoV) was associated with this initial cluster (1). As of February 4, 2020, a total of 20,471 confirmed cases, including 2,788 (13.6%) with severe illness,\* and 425 deaths (2.1%) had been reported by the National Health Commission of China (2). Cases have also been reported in 26 locations outside of mainland China, including documentation of some person-to-person transmission and one death (2). As of February 4, 11 cases had been reported in the United States. On January 30, the World Health Organization (WHO) Director-General declared that the 2019-nCoV outbreak constitutes a Public Health Emergency of International Concern.<sup>†</sup> On January 31, the U.S. Department of Health and Human Services (HHS) Secretary declared a U.S. public health emergency to respond to 2019-nCoV.<sup>§</sup> Also on January 31, the president of the United States signed a “Proclamation on Suspension of Entry as Immigrants and Nonimmigrants of Persons who Pose a Risk of Transmitting 2019 Novel Coronavirus,” which limits entry into the United States of persons who traveled to mainland China to U.S. citizens and lawful permanent residents and their families (3). CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to slow transmission of 2019-nCoV in the United States (4,5). These measures require the identification of cases and their contacts in the United States and the appropriate assessment and care of travelers arriving from mainland China to the United States. These measures are being implemented in anticipation of additional 2019-nCoV cases in the United States. Although these measures might not prevent the eventual establishment of ongoing, widespread transmission of the virus in the United States, they are being implemented to 1) slow the spread of illness; 2) provide time to better prepare health care systems and the general public to be ready if widespread transmission with substantial associated illness occurs; and 3) better characterize 2019-nCoV infection to guide public health recommendations and the development of medical countermeasures including diagnostics, therapeutics, and vaccines. Public health authorities are monitoring the situation closely. As more is learned about this novel virus and this outbreak, CDC will rapidly incorporate new knowledge into guidance for action by CDC and state and local health departments.

Some coronaviruses, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), are the result of human-animal interactions. Preliminary investigation of 2019-nCoV also suggests a zoonotic origin (6), but the exact origin has not yet been determined. Person-to-person spread is evident (7); however, how easily the virus is transmitted between persons is currently unclear. 2019-nCoV is similar to coronaviruses that cause MERS and SARS, which are transmitted mainly by respiratory droplets. Signs and symptoms of patients with confirmed 2019-nCoV infection include fever, cough, and shortness of breath (8). Based on the incubation period of illness from MERS and SARS coronaviruses, CDC believes that symptoms of 2019-nCoV infection occur within 2 to 14 days following infection. Preliminary information suggests that older adults and persons with underlying health conditions or compromised immune systems might be at higher risk for severe illness from this virus (9); however, many characteristics of this novel coronavirus and how it might affect individual persons and potentially vulnerable population subgroups, such as the elderly or those with chronic health conditions, remain unclear.



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## Epidemiology of First U.S. Cases

On January 21, 2020, the first person in the United States with diagnosed 2019-nCoV infection was reported. As of February 4, a total of 293 persons from 36 states, the District of Columbia, and the U.S. Virgin Islands were under investigation based on current patient under investigation (PUI) definitions,<sup>¶</sup> and also included those being evaluated because they are close contacts. Of these PUIs, 11 patients have confirmed 2019-nCoV infection using a real-time reverse transcription–polymerase chain reaction (RT-PCR) assay developed by CDC. These 11 cases were diagnosed in the following states: Arizona (one), California (six), Illinois (two), Massachusetts (one), and Washington (one) ([Table](#)). Nine cases were in travelers from Wuhan. Eight of these nine cases were identified as a result of patients seeking clinical care for symptoms and clinicians connecting with the appropriate public health systems. Two cases (one each in California and Illinois) occurred in close contacts of two confirmed cases and were diagnosed as part of routine monitoring of case contacts. All patients are being monitored closely for progressing illness. No deaths have been reported in the United States.

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## Public Health Response

CDC established a 2019-nCoV Incident Management Structure on January 7, 2020. On January 21, CDC activated its Emergency Operations Center to optimize coordination for domestic and international 2019-nCoV response efforts. To date, CDC has deployed teams to the U.S. jurisdictions with cases to assist with epidemiologic investigation and to work closely with state and local partners to identify and monitor close contacts and better understand the spectrum of illness, transmission, and virulence associated with this novel virus. Information learned from these investigations will help inform response actions. CDC has closely monitored the global impact of this virus with staff members positioned in CDC offices around the world, including mainland China, and in coordination with other countries and WHO. This coordination has included deploying CDC staff members to work with WHO and providing active support to CDC offices in affected countries. In addition, CDC in response to the escalating risks of travel from China has issued a series of Travelers' Health Notices for both Wuhan and the rest of China regarding the 2019-nCoV outbreak. On January 27, CDC issued a Level 3 travel notice for travelers to avoid all nonessential travel to mainland China.\*\*

U.S. quarantine stations, located at 18 major U.S. ports of entry, are part of a comprehensive regulatory system authorized under section 361 of the Public Health Service Act (42 U.S. Code Section 264), that limits the introduction of infectious diseases into the United States to prevent their spread. On January 17, consistent with existing communicable disease response protocols, CDC Quarantine staff members instituted enhanced entry screening of travelers on direct and connecting flights from Wuhan, China, arriving at three major U.S. airports: Los Angeles (LAX), New York City (JFK), and San Francisco (SFO),<sup>††</sup> which then expanded to include travelers arriving in Atlanta (ATL) and Chicago (ORD). These five airports together receive approximately 85% of all air travelers from Wuhan, China, to the United States. U.S. Customs and Border Protection officers identified travelers arriving from Wuhan and referred them to CDC for health screening.<sup>§§</sup> Any traveler from Wuhan with signs or symptoms of illness (e.g., fever, cough, or difficulty breathing) received a more comprehensive public health assessment performed by CDC public health and medical officers.<sup>¶¶</sup> All travelers from Wuhan were also provided CDC's Travel Health Alert Notice (T-HAN)\*\*\* that advised them to monitor their health for 14 days and described recommended actions to take if relevant symptoms develop. As of February 1, 2020, a total of 3,099 persons on 437 flights were screened; five symptomatic travelers were referred by CDC to local health care providers for further medical evaluation, and one of these persons tested positive for 2019-nCoV.



On January 24, 2020, travel bans began to be instituted by the Chinese government, resulting in restricted travel in and out of Hubei Province, including the city of Wuhan, and fewer travelers undergoing entry screening in the United States. In response to the escalating risks associated with travel from mainland China, on January 31, 2020, the Presidential Proclamation further refined the border health strategy to temporarily suspend entry, undergo additional screening, or possible quarantine for individuals that have visited China (excluding Hong Kong, Macau, and Taiwan) in the past 14 days. These enhanced entry screening efforts are taking place at 11 airports at which all air travelers from China are being directed.

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## Laboratory and Diagnostic Support

Chinese health officials posted the full 2019-nCoV genome sequence on January 10, 2020, to inform the development of specific diagnostic tests for this emergent coronavirus (1). Within a week, CDC developed a Clinical Laboratory Improvement Amendments–approved real-time RT-PCR test that can diagnose 2019-nCoV respiratory samples from clinical specimens. On January 24, CDC publicly posted the assay protocol for this test (<https://www.cdc.gov/coronavirus/2019-nCoV/lab/index.html>). On January 4, 2020, the Food and Drug Administration issued an Emergency Use Authorization to enable emergency use of CDC's 2019-nCoV Real-Time RT-PCR Diagnostic Panel. To date, this test has been limited to use at CDC laboratories. This authorization allows the use of the test at any CDC-qualified lab across the country. CDC is working closely with FDA and public health partners, including the American Public Health Laboratories, to rapidly share these tests domestically and internationally through CDC's International Reagent Resource (<https://www.internationalreagentresource.org/external icon>). In addition, CDC uploaded the genome of the virus from the first reported cases in the United States to GenBank, the National Institutes of Health genetic sequence database of publicly available DNA sequences (<https://www.ncbi.nlm.nih.gov/genbank/external icon>). CDC also is growing the virus in cell culture, which is necessary for further studies, including for additional genetic characterization. Once isolated, the virus will be made available through BEI Resources (<https://www.beiresources.org/external icon>) to assist research efforts.

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## Clinical and Infection Control Guidance

Additional information about 2019-nCoV is needed to better understand transmission, disease severity, and risk to the general population. Although CDC and partners are actively learning about 2019-nCoV, initial CDC guidance is based on guidance for management and prevention of respiratory illnesses including influenza, MERS, and SARS. No vaccine or specific treatment for 2019-nCoV infection is currently available. At present, medical care for patients with 2019-nCoV is supportive.

On January 31, CDC published its third Health Advisory with interim guidance for clinicians and public health practitioners.<sup>†††</sup> In addition, CDC issued a Clinical Action Alert through its Clinician Outreach and Communication Activity network on January 31.<sup>§§§</sup> Interim guidance for health care professionals is available at <https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html>. Health care providers should identify patients who might have been exposed and who have signs or symptoms related to 2019-nCoV infection, isolate these patients, and inform public health departments. This includes obtaining a detailed travel history for patients being evaluated with fever and lower respiratory tract illness. Criteria to guide evaluation and testing of PUIs for 2019-nCoV include 1) fever or signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person, including health care workers, who has had close contact<sup>¶¶¶</sup> with a patient with laboratory-confirmed 2019-nCoV infection within 14 days of symptom onset; 2) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person with a history of travel from Hubei Province,



China, within 14 days of symptom onset; or 3) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) requiring hospitalization in any person with a history of travel from mainland China within 14 days of symptom onset. Additional nonhospitalized PUIs may be tested based on consultation with state and local public health officials. Clinicians should evaluate PUIs for other possible causes of illness (e.g., influenza and respiratory syncytial virus) as clinically indicated. CDC currently recommends a cautious approach to the examination of PUIs. These patients should be asked to wear a surgical mask as soon as they are identified, and directed to a separate area, if possible, separated by at least 6 ft (2 m) from other persons. Patients should be evaluated in a private room with the door closed, ideally an airborne infection isolation room, if available. Health care personnel entering the room should use standard precautions, contact precautions, airborne precautions, and eye protection (e.g., goggles or a face shield).

Clinicians should immediately notify the health care facility's infection control personnel and local health department. The health department will determine whether the patient needs to be considered a PUI for 2019-nCoV and be tested for infection. If directed by the health department, to increase the likelihood of detecting 2019-nCoV infection, CDC recommends collecting and testing both upper and lower respiratory tract specimens.\*\*\*\* Additional specimen types (e.g., stool or urine) may be collected and stored. Specimens should be collected as soon as possible once a PUI is identified regardless of time since symptom onset.

For persons who might have 2019-nCoV infection and their close contacts, information and guidance on how to reduce the risk for transmitting and acquiring infection is available at <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html>. Close contacts should immediately call their health care providers if they develop symptoms. In addition, CDC is working closely with state and local health partners to develop and disseminate information to the public on general prevention of respiratory illness, including the 2019-nCoV. This includes everyday preventive actions such as washing your hands, covering your cough, and staying home when you are ill. Additional information and resources for this outbreak are available on the CDC website (<https://www.cdc.gov/coronavirus/2019-ncov/index.html>).

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## Discussion

The 2019-nCoV has impacted multiple countries, caused severe illness, and sustained person-to-person transmission making it a concerning and serious public health threat. It is unclear how this virus will impact the U.S. over time. For the general population, who are unlikely to be exposed to this virus at the current time, the immediate health risk from 2019-nCoV is considered low. CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to slow U.S. transmission of 2019-nCoV (4,5). These measures require the identification of cases and contacts in the United States and the effective management of the estimated 14,000 travelers arriving from mainland China to the United States each day (3). These measures are being implemented based on the assumption that there will be more U.S. 2019-nCoV cases occurring with potential chains of transmission, with the understanding that these measures might not prevent the eventual establishment of ongoing, widespread transmission of the virus in the United States.

It is important for public health agencies, health care providers, and the public to be aware of this new 2019-nCoV so that coordinated, timely, and effective actions can help prevent additional cases or poor health outcomes. The critical role that the U.S. health care system plays in halting or significantly slowing U.S. transmission of 2019-nCoV is already evident: eight of the first 11 U.S. cases were detected by clinicians collaborating with public health to test persons at risk. The early recognition of cases in the United States reduces transmission risk and increases understanding of the virus, including its transmission and severity, to inform national and global response actions.



2019-nCoV symptoms are similar to those of influenza (e.g., fever, cough, or sore throat), and the outbreak is occurring during a time of year when respiratory illnesses from influenza, respiratory syncytial virus, and other respiratory viruses are highly prevalent. To prevent influenza, all persons aged ≥6 months should receive an annual influenza vaccine, and vaccination is still available and effective in helping to prevent influenza (10). Reducing the number of persons in the United States with seasonal influenza will reduce possible confusion with 2019-nCoV infection and possible additional risk to patients with seasonal influenza. Public health authorities are monitoring the situation closely. As more is learned about this novel virus and this outbreak, CDC will rapidly incorporate new knowledge into guidance for action.

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\* Includes any of the following: dyspnea, respiratory rate >30 breaths per minute, hypoxemia, or chest x-ray with multilobar infiltrates or >50% progression of pulmonary infiltration within 24–48 hours per WHO. <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200123-sitrep-3-2019-ncov.pdf>

<sup>†</sup> [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov))

<sup>§</sup> <https://www.phe.gov/emergency/news/healthactions/phe/Pages/2019-nCoV.aspx>

<sup>¶</sup> Criteria to guide evaluation and testing of patients under investigation for 2019-nCoV include 1) fever or signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person, including a health care worker, who has had close contact with a patient with laboratory-confirmed 2019-nCoV infection within 14 days of symptom onset; 2) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person with a history of travel from Hubei Province, China, within 14 days of symptom onset; or 3) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) requiring hospitalization in any person with a history of travel from mainland China within 14 days of symptom onset. More information is available at <https://emergency.cdc.gov/han/han00427.asp> and <https://emergency.cdc.gov/han/han00426.asp>.

\*\* <https://wwwnc.cdc.gov/travel/notices/warning/novel-coronavirus-china>.

<sup>††</sup> <https://www.cdc.gov/media/releases/2020/p0117-coronavirus-screening.html>.

<sup>§§</sup> CDC's initial health screening includes a measurement of each traveler's temperature with a handheld noncontact thermometer; observation of these travelers for visible signs of respiratory illness (e.g., cough or difficulty breathing), and review of symptoms through a self-administered questionnaire.



¶¶ The more comprehensive public health assessment determines, based on the traveler's illness and exposure, whether the traveler should be taken to a hospital for further medical evaluation and care, which might include testing for 2019-nCoV.

\*\*\* <https://www.cdc.gov/coronavirus/2019-ncov/travelers/communication-resources.html>.

+++ <https://emergency.cdc.gov/han/han00427.asp>.

\$\$\$ [https://emergency.cdc.gov/coca/calls/2020/callinfo\\_013120.asp](https://emergency.cdc.gov/coca/calls/2020/callinfo_013120.asp).

¶¶¶ Close contact is defined as 1) being within approximately 6 ft (2 m) of a 2019-nCoV patient for a prolonged period while not wearing recommended personal protective equipment (PPE) (e.g., gowns, gloves, National Institute for Occupational Safety and Health–certified disposable N95 respirator, and eye protection); close contact can occur while caring for, living with, visiting, or sharing a health care waiting area or room with a 2019-nCoV patient; or 2) having direct contact with infectious secretions of a 2019-nCoV patient (e.g., being coughed on) while not wearing recommended PPE.

\*\*\*\* <https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html>.

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**TABLE. Characteristics of Initial 2019 novel coronavirus cases (N = 11) — United States, January 21–February 4,**

**2020**

Case	State	Approximate age (yrs)	Sex	Place of exposure	Date laboratory confirmation announced
1	Washington	30s	M	Wuhan	1/21/2020
2	Illinois	60s	F	Wuhan	1/24/2020
3	Arizona	20s	M	Wuhan	1/26/2020
4	California	30s	M	Wuhan	1/27/2020
5	California	50s	M	Wuhan	1/27/2020
6	Illinois	60s	M	Household Illinois	1/30/2020
7	California	40s	M	Wuhan	1/31/2020
8	Massachusetts	20s	M	Wuhan	2/01/2020
9	California	50s	F	Wuhan	2/02/2020
10	California	50s	M	Wuhan	2/02/2020
11	California	50s	F	Household California	2/02/2020

**Abbreviations:** F = female; M = male.

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# Initial Public Health Response and Interim Clinical Guidance for the 2019 Novel Coronavirus Outbreak — United States, December 31, 2019–February 4, 2020

*Early Release* / February 5, 2020 / 69

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## Summary

### What is already known about this topic?

In December 2019, an outbreak of acute respiratory illness caused by a novel coronavirus (2019-nCoV) was detected in mainland China. Cases have been reported in 26 additional locations, including the United States.

### What is added by this report?

Nine of the first 11 U.S. 2019-nCoV patients were exposed in Wuhan, China. CDC expects more U.S. cases.

### What are the implications for public health practice?

CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to substantially slow U.S. transmission of 2019-nCoV, including identification of U.S. cases and contacts and managing travelers arriving from mainland China to the United States. Interim guidance is available at <https://www.cdc.gov/coronavirus/index.html> and will be updated as more information becomes available.

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On December 31, 2019, Chinese health officials reported a cluster of cases of acute respiratory illness in persons associated with the Hunan seafood and animal market in the city of Wuhan, Hubei Province, in central China. On January 7, 2020, Chinese health officials confirmed that a novel coronavirus (2019-nCoV) was associated with this initial cluster (1). As of February 4, 2020, a total of 20,471 confirmed cases, including 2,788 (13.6%) with severe illness,\* and 425 deaths (2.1%) had been reported by the National Health Commission of China (2). Cases have also been reported in 26 locations outside of mainland China, including documentation of some person-to-person transmission and one death (2). As of February 4, 11 cases had been reported in the United States. On January 30, the World Health Organization (WHO) Director-General declared that the 2019-nCoV outbreak constitutes a Public Health Emergency of International Concern.<sup>†</sup> On January 31, the U.S. Department of Health and Human Services (HHS) Secretary declared a U.S. public health emergency to respond to 2019-nCoV.<sup>§</sup> Also on January 31, the president of the United States signed a “Proclamation on Suspension of Entry as Immigrants and Nonimmigrants of Persons who Pose a Risk of Transmitting 2019 Novel Coronavirus,” which limits entry into the United States of persons who traveled to mainland China to U.S. citizens and lawful permanent residents and their families (3). CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to slow transmission of 2019-nCoV in the United States (4,5). These measures require the identification of cases and their contacts in the United States and the appropriate assessment and care of travelers arriving from mainland China to the United States. These measures are being implemented in anticipation of additional 2019-nCoV cases in the United States. Although these measures might not prevent the eventual establishment of ongoing, widespread transmission of the virus in the United States, they are being implemented to 1) slow the spread of illness; 2) provide time to better prepare health care systems and the general public to be ready if widespread transmission with substantial associated illness occurs; and 3) better characterize 2019-nCoV infection to guide public health recommendations and the development of medical countermeasures including diagnostics, therapeutics, and vaccines. Public health authorities are monitoring the situation closely. As more is learned about this novel virus and this outbreak, CDC will rapidly incorporate new knowledge into guidance for action by CDC and state and local health departments.

Some coronaviruses, such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS), are the result of human-animal interactions. Preliminary investigation of 2019-nCoV also suggests a zoonotic origin (6), but the exact origin has not yet been determined. Person-to-person spread is evident (7); however, how easily the virus is transmitted between persons is currently unclear. 2019-nCoV is similar to coronaviruses that cause MERS and SARS, which are transmitted mainly by respiratory droplets. Signs and symptoms of patients with confirmed 2019-nCoV infection include fever, cough, and shortness of breath (8). Based on the incubation period of illness from MERS and SARS coronaviruses, CDC believes that symptoms of 2019-nCoV infection occur within 2 to 14 days following infection. Preliminary information suggests that older adults and persons with underlying health conditions or compromised immune systems might be at higher risk for severe illness from this virus (9); however, many characteristics of this novel coronavirus and how it might affect individual persons and potentially vulnerable population subgroups, such as the elderly or those with chronic health conditions, remain unclear.

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## Epidemiology of First U.S. Cases

On January 21, 2020, the first person in the United States with diagnosed 2019-nCoV infection was reported. As of February 4, a total of 293 persons from 36 states, the District of Columbia, and the U.S. Virgin Islands were under investigation based on current patient under investigation (PUI) definitions,<sup>¶</sup> and also included those being evaluated because they are close contacts. Of these PUIs, 11 patients have confirmed 2019-nCoV infection using a real-time reverse transcription–polymerase chain reaction (RT-PCR) assay developed by CDC. These 11 cases were diagnosed in the following states: Arizona (one), California (six), Illinois (two), Massachusetts (one), and Washington (one) ([Table](#)). Nine cases were in travelers from Wuhan. Eight of these nine cases were identified as a result of patients seeking clinical care for symptoms and clinicians connecting with the appropriate public health systems. Two cases (one each in California and Illinois) occurred in close contacts of two confirmed cases and were diagnosed as part of routine monitoring of case contacts. All patients are being monitored closely for progressing illness. No deaths have been reported in the United States.

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## Public Health Response

CDC established a 2019-nCoV Incident Management Structure on January 7, 2020. On January 21, CDC activated its Emergency Operations Center to optimize coordination for domestic and international 2019-nCoV response efforts. To date, CDC has deployed teams to the U.S. jurisdictions with cases to assist with epidemiologic investigation and to work closely with state and local partners to identify and monitor close contacts and better understand the spectrum of illness, transmission, and virulence associated with this novel virus. Information learned from these investigations will help inform response actions. CDC has closely monitored the global impact of this virus with staff members positioned in CDC offices around the world, including mainland China, and in coordination with other countries and WHO. This coordination has included deploying CDC staff members to work with WHO and providing active support to CDC offices in affected countries. In addition, CDC in response to the escalating risks of travel from China has issued a series of Travelers' Health Notices for both Wuhan and the rest of China regarding the 2019-nCoV outbreak. On January 27, CDC issued a Level 3 travel notice for travelers to avoid all nonessential travel to mainland China.\*\*

U.S. quarantine stations, located at 18 major U.S. ports of entry, are part of a comprehensive regulatory system authorized under section 361 of the Public Health Service Act (42 U.S. Code Section 264), that limits the introduction of infectious diseases into the United States to prevent their spread. On January 17, consistent with existing communicable disease response protocols, CDC Quarantine staff members instituted enhanced entry screening of travelers on direct and connecting flights from Wuhan, China, arriving at three major U.S. airports: Los Angeles (LAX), New York City (JFK), and San Francisco (SFO),<sup>††</sup> which then expanded to include travelers arriving in Atlanta (ATL) and Chicago (ORD). These five airports together receive approximately 85% of all air travelers from Wuhan, China, to the United States. U.S. Customs and Border Protection officers identified travelers arriving from Wuhan and referred them to CDC for health screening.<sup>§§</sup> Any traveler from Wuhan with signs or symptoms of illness (e.g., fever, cough, or difficulty breathing) received a more comprehensive public health assessment performed by CDC public health and medical officers.<sup>¶¶</sup> All travelers from Wuhan were also provided CDC's Travel Health Alert Notice (T-HAN)\*\*\* that advised them to monitor their health for 14 days and described recommended actions to take if relevant symptoms develop. As of February 1, 2020, a total of 3,099 persons on 437 flights were screened; five symptomatic travelers were referred by CDC to local health care providers for further medical evaluation, and one of these persons tested positive for 2019-nCoV.



On January 24, 2020, travel bans began to be instituted by the Chinese government, resulting in restricted travel in and out of Hubei Province, including the city of Wuhan, and fewer travelers undergoing entry screening in the United States. In response to the escalating risks associated with travel from mainland China, on January 31, 2020, the Presidential Proclamation further refined the border health strategy to temporarily suspend entry, undergo additional screening, or possible quarantine for individuals that have visited China (excluding Hong Kong, Macau, and Taiwan) in the past 14 days. These enhanced entry screening efforts are taking place at 11 airports at which all air travelers from China are being directed.

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## Laboratory and Diagnostic Support

Chinese health officials posted the full 2019-nCoV genome sequence on January 10, 2020, to inform the development of specific diagnostic tests for this emergent coronavirus (1). Within a week, CDC developed a Clinical Laboratory Improvement Amendments–approved real-time RT-PCR test that can diagnose 2019-nCoV respiratory samples from clinical specimens. On January 24, CDC publicly posted the assay protocol for this test (<https://www.cdc.gov/coronavirus/2019-nCoV/lab/index.html>). On January 4, 2020, the Food and Drug Administration issued an Emergency Use Authorization to enable emergency use of CDC's 2019-nCoV Real-Time RT-PCR Diagnostic Panel. To date, this test has been limited to use at CDC laboratories. This authorization allows the use of the test at any CDC-qualified lab across the country. CDC is working closely with FDA and public health partners, including the American Public Health Laboratories, to rapidly share these tests domestically and internationally through CDC's International Reagent Resource (<https://www.internationalreagentresource.org/external icon>). In addition, CDC uploaded the genome of the virus from the first reported cases in the United States to GenBank, the National Institutes of Health genetic sequence database of publicly available DNA sequences (<https://www.ncbi.nlm.nih.gov/genbank/external icon>). CDC also is growing the virus in cell culture, which is necessary for further studies, including for additional genetic characterization. Once isolated, the virus will be made available through BEI Resources (<https://www.beiresources.org/external icon>) to assist research efforts.

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## Clinical and Infection Control Guidance

Additional information about 2019-nCoV is needed to better understand transmission, disease severity, and risk to the general population. Although CDC and partners are actively learning about 2019-nCoV, initial CDC guidance is based on guidance for management and prevention of respiratory illnesses including influenza, MERS, and SARS. No vaccine or specific treatment for 2019-nCoV infection is currently available. At present, medical care for patients with 2019-nCoV is supportive.

On January 31, CDC published its third Health Advisory with interim guidance for clinicians and public health practitioners.<sup>†††</sup> In addition, CDC issued a Clinical Action Alert through its Clinician Outreach and Communication Activity network on January 31.<sup>§§§</sup> Interim guidance for health care professionals is available at <https://www.cdc.gov/coronavirus/2019-nCoV/hcp/clinical-criteria.html>. Health care providers should identify patients who might have been exposed and who have signs or symptoms related to 2019-nCoV infection, isolate these patients, and inform public health departments. This includes obtaining a detailed travel history for patients being evaluated with fever and lower respiratory tract illness. Criteria to guide evaluation and testing of PUIs for 2019-nCoV include 1) fever or signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person, including health care workers, who has had close contact<sup>¶¶¶</sup> with a patient with laboratory-confirmed 2019-nCoV infection within 14 days of symptom onset; 2) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person with a history of travel from Hubei Province,



China, within 14 days of symptom onset; or 3) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) requiring hospitalization in any person with a history of travel from mainland China within 14 days of symptom onset. Additional nonhospitalized PUIs may be tested based on consultation with state and local public health officials. Clinicians should evaluate PUIs for other possible causes of illness (e.g., influenza and respiratory syncytial virus) as clinically indicated. CDC currently recommends a cautious approach to the examination of PUIs. These patients should be asked to wear a surgical mask as soon as they are identified, and directed to a separate area, if possible, separated by at least 6 ft (2 m) from other persons. Patients should be evaluated in a private room with the door closed, ideally an airborne infection isolation room, if available. Health care personnel entering the room should use standard precautions, contact precautions, airborne precautions, and eye protection (e.g., goggles or a face shield).

Clinicians should immediately notify the health care facility's infection control personnel and local health department. The health department will determine whether the patient needs to be considered a PUI for 2019-nCoV and be tested for infection. If directed by the health department, to increase the likelihood of detecting 2019-nCoV infection, CDC recommends collecting and testing both upper and lower respiratory tract specimens.\*\*\*\* Additional specimen types (e.g., stool or urine) may be collected and stored. Specimens should be collected as soon as possible once a PUI is identified regardless of time since symptom onset.

For persons who might have 2019-nCoV infection and their close contacts, information and guidance on how to reduce the risk for transmitting and acquiring infection is available at <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html>. Close contacts should immediately call their health care providers if they develop symptoms. In addition, CDC is working closely with state and local health partners to develop and disseminate information to the public on general prevention of respiratory illness, including the 2019-nCoV. This includes everyday preventive actions such as washing your hands, covering your cough, and staying home when you are ill. Additional information and resources for this outbreak are available on the CDC website (<https://www.cdc.gov/coronavirus/2019-ncov/index.html>).

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## Discussion

The 2019-nCoV has impacted multiple countries, caused severe illness, and sustained person-to-person transmission making it a concerning and serious public health threat. It is unclear how this virus will impact the U.S. over time. For the general population, who are unlikely to be exposed to this virus at the current time, the immediate health risk from 2019-nCoV is considered low. CDC, multiple other federal agencies, state and local health departments, and other partners are implementing aggressive measures to slow U.S. transmission of 2019-nCoV (4,5). These measures require the identification of cases and contacts in the United States and the effective management of the estimated 14,000 travelers arriving from mainland China to the United States each day (3). These measures are being implemented based on the assumption that there will be more U.S. 2019-nCoV cases occurring with potential chains of transmission, with the understanding that these measures might not prevent the eventual establishment of ongoing, widespread transmission of the virus in the United States.

It is important for public health agencies, health care providers, and the public to be aware of this new 2019-nCoV so that coordinated, timely, and effective actions can help prevent additional cases or poor health outcomes. The critical role that the U.S. health care system plays in halting or significantly slowing U.S. transmission of 2019-nCoV is already evident: eight of the first 11 U.S. cases were detected by clinicians collaborating with public health to test persons at risk. The early recognition of cases in the United States reduces transmission risk and increases understanding of the virus, including its transmission and severity, to inform national and global response actions.



2019-nCoV symptoms are similar to those of influenza (e.g., fever, cough, or sore throat), and the outbreak is occurring during a time of year when respiratory illnesses from influenza, respiratory syncytial virus, and other respiratory viruses are highly prevalent. To prevent influenza, all persons aged ≥6 months should receive an annual influenza vaccine, and vaccination is still available and effective in helping to prevent influenza (10). Reducing the number of persons in the United States with seasonal influenza will reduce possible confusion with 2019-nCoV infection and possible additional risk to patients with seasonal influenza. Public health authorities are monitoring the situation closely. As more is learned about this novel virus and this outbreak, CDC will rapidly incorporate new knowledge into guidance for action.

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\* Includes any of the following: dyspnea, respiratory rate >30 breaths per minute, hypoxemia, or chest x-ray with multilobar infiltrates or >50% progression of pulmonary infiltration within 24–48 hours per WHO. <https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200123-sitrep-3-2019-ncov.pdf>

<sup>†</sup> [https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-\(2005\)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-\(2019-ncov\)](https://www.who.int/news-room/detail/30-01-2020-statement-on-the-second-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-outbreak-of-novel-coronavirus-(2019-ncov))

<sup>§</sup> <https://www.phe.gov/emergency/news/healthactions/phe/Pages/2019-nCoV.aspx>

<sup>¶</sup> Criteria to guide evaluation and testing of patients under investigation for 2019-nCoV include 1) fever or signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person, including a health care worker, who has had close contact with a patient with laboratory-confirmed 2019-nCoV infection within 14 days of symptom onset; 2) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) in any person with a history of travel from Hubei Province, China, within 14 days of symptom onset; or 3) fever and signs or symptoms of lower respiratory tract illness (e.g., cough or shortness of breath) requiring hospitalization in any person with a history of travel from mainland China within 14 days of symptom onset. More information is available at <https://emergency.cdc.gov/han/han00427.asp> and <https://emergency.cdc.gov/han/han00426.asp>.

\*\* <https://wwwnc.cdc.gov/travel/notices/warning/novel-coronavirus-china>.

<sup>††</sup> <https://www.cdc.gov/media/releases/2020/p0117-coronavirus-screening.html>.

<sup>§§</sup> CDC's initial health screening includes a measurement of each traveler's temperature with a handheld noncontact thermometer, observation of these travelers for visible signs of respiratory illness (e.g., cough or difficulty breathing), and review of symptoms through a self-administered questionnaire.



¶¶ The more comprehensive public health assessment determines, based on the traveler's illness and exposure, whether the traveler should be taken to a hospital for further medical evaluation and care, which might include testing for 2019-nCoV.

\*\*\* <https://www.cdc.gov/coronavirus/2019-ncov/travelers/communication-resources.html>.

+++ <https://emergency.cdc.gov/han/han00427.asp>.

\$\$\$ [https://emergency.cdc.gov/coca/calls/2020/callinfo\\_013120.asp](https://emergency.cdc.gov/coca/calls/2020/callinfo_013120.asp).

¶¶¶ Close contact is defined as 1) being within approximately 6 ft (2 m) of a 2019-nCoV patient for a prolonged period while not wearing recommended personal protective equipment (PPE) (e.g., gowns, gloves, National Institute for Occupational Safety and Health–certified disposable N95 respirator, and eye protection); close contact can occur while caring for, living with, visiting, or sharing a health care waiting area or room with a 2019-nCoV patient; or 2) having direct contact with infectious secretions of a 2019-nCoV patient (e.g., being coughed on) while not wearing recommended PPE.

\*\*\*\* <https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html>.

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**TABLE. Characteristics of Initial 2019 novel coronavirus cases (N = 11) — United States, January 21–February 4,**

**2020**

Case	State	Approximate age (yrs)	Sex	Place of exposure	Date laboratory confirmation announced
1	Washington	30s	M	Wuhan	1/21/2020
2	Illinois	60s	F	Wuhan	1/24/2020
3	Arizona	20s	M	Wuhan	1/26/2020
4	California	30s	M	Wuhan	1/27/2020
5	California	50s	M	Wuhan	1/27/2020
6	Illinois	60s	M	Household Illinois	1/30/2020
7	California	40s	M	Wuhan	1/31/2020
8	Massachusetts	20s	M	Wuhan	2/01/2020
9	California	50s	F	Wuhan	2/02/2020
10	California	50s	M	Wuhan	2/02/2020
11	California	50s	F	Household California	2/02/2020

**Abbreviations:** F = female; M = male.

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# Persons Evaluated for 2019 Novel Coronavirus — United States, January 2020

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## Summary

### What is already known about this topic?

During a 2020 outbreak of novel coronavirus (2019-nCoV) infection, CDC provided consultation to public health officials and health care providers evaluating persons at risk for 2019-nCoV infection.

### What is added by this report?

During January 2020, CDC responded to clinical inquiries regarding approximately 650 persons in the United States and tested 210 for 2019-nCoV, one fifth of whom reported no recent travel-related risk but had close contact with a 2019-nCoV patient or a person under investigation for 2019-nCoV in the United States.

### What are the implications for public health practice?

Health care providers should remain vigilant regarding possible 2019-nCoV exposure not only among returning travelers, but also among persons in close contact with 2019-nCoV patients in the United States.

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In December 2019, a cluster of cases of pneumonia emerged in Wuhan City in central China's Hubei Province. Genetic sequencing of isolates obtained from patients with pneumonia identified a novel coronavirus (2019-nCoV) as the etiology (1). As of February 4, 2020, approximately 20,000 confirmed cases had been identified in China and an additional 159 confirmed cases in 23 other countries, including 11 in the United States (2,3). On January 17, CDC and the U.S. Department of Homeland Security's Customs and Border Protection began health screenings at U.S. airports to identify ill travelers returning from Wuhan City (4). CDC activated its Emergency Operations Center on January 21 and formalized a process for inquiries regarding persons suspected of having 2019-nCoV infection (2). As of January 31, 2020, CDC had responded to clinical inquiries from public health officials and health care providers to assist in evaluating approximately 650 persons thought to be at risk for 2019-nCoV infection. Guided by CDC criteria for the evaluation of persons under investigation (PUIs) (5), 210 symptomatic persons were tested for 2019-nCoV; among these persons, 148 (70%) had travel-related risk only, 42 (20%) had close contact with an ill laboratory-confirmed 2019-nCoV patient or PUI, and 18 (9%) had both travel- and contact-related risks. Eleven of these persons had laboratory-confirmed 2019-nCoV infection. Recognizing persons at risk for 2019-nCoV is critical to identifying cases and preventing further transmission. Health care providers should remain vigilant and adhere to recommended infection prevention and control practices when evaluating patients for possible 2019-nCoV infection (6). Providers should consult with their local and state health departments when assessing not only ill travelers from 2019-nCoV-affected countries but also ill persons who have been in close contact with patients with laboratory-confirmed 2019-nCoV infection in the United States.

As part of CDC's Emergency Operations Center activation, CDC personnel assist state and local health departments with the evaluation of 2019-nCoV PUIs. Public health laboratories were not yet conducting 2019-nCoV testing during the period covered by this report, while awaiting Food and Drug Administration emergency use authorization for the test. (The authorization occurred on February 4\*). Therefore, all testing was conducted at CDC. A call center was staffed by a team of physicians and nurses 24 hours per day. During January 17–31, criteria used to determine whether a person was considered to be a PUI included presence of fever and symptoms of lower respiratory tract illness (e.g., cough or difficulty breathing) in addition to epidemiologic risk. Epidemiologic risk factors included history of travel from Wuhan City, close contact with a patient with laboratory-confirmed 2019-nCoV infection, or close contact with an ill PUI. Given the evolving understanding of 2019-nCoV epidemiology, testing was recommended for some persons who did not strictly meet the PUI definition, based on clinical discretion. For clinical inquiries that resulted in 2019-nCoV testing, real-time reverse transcription polymerase chain reaction testing was conducted at CDC using methods developed specifically to detect 2019-nCoV (7).

For this report, CDC reviewed inquiries regarding potential 2019-nCoV PUIs received by CDC through January 31, 2020, from state and local health departments, health care providers, and airport health screening personnel. Information was compiled from call logs and PUI forms to assess source of inquiry, PUI demographic data (including age and sex), clinical information, epidemiologic risk factors, and 2019-nCoV test results. To allow for delays in specimen shipping and testing, data for PUIs for whom an initial inquiry was received during January 2020 were collected through February 4, 2020.

During January 2020, approximately 30 CDC physicians and nurses responded to inquiries regarding approximately 650 persons. Testing was recommended for 256 persons (Figure) across 34 jurisdictions (the jurisdictions included states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands) and was completed for 210 persons. Testing of PUIs was not always performed because alternative diagnoses were made, or symptoms resolved. Among inquiries resulting in testing, six (3%) persons were identified through airport screening, 178 (85%) in a health care setting, and 26 (12%) through contact tracing (Table). Among 178 persons identified in a health care setting, the type of setting was reported for 125 (70%), including 79 (63%) who were evaluated at an emergency department or hospital, 22



(18%) at a student clinic, and 24 (19%) in other outpatient care settings. A total of 115 (55%) persons tested were male, and median age was 29 years (interquartile range = 21–49 years). Seventeen (8%) were health care workers, and 48 of 129 persons with available information were reported to be college students.

All 210 persons who were tested were symptomatic: 143 (68%) had subjective fever or a measured temperature  $\geq 100.4^{\circ}\text{F}$  ( $\geq 38^{\circ}\text{C}$ ), and 189 (90%) had cough or shortness of breath. Upper respiratory tract symptoms (i.e., sore throat, rhinorrhea, or congestion) were common and were present in nine persons who did not have cough or shortness of breath. Thirty persons were reported to test positive for another respiratory viral pathogen, including influenza or respiratory syncytial virus. Forty-two (20%) patients were hospitalized, and four (2%) were admitted to an intensive care unit. One patient was deceased at the time of notification; testing for this person was negative, and an alternative cause of death was established. Travel-related risk was identified for 148 (70%) persons, 42 (20%) had close contact with ill patients with laboratory-confirmed 2019-nCoV infection or PUIs, 18 (9%) had both travel- and contact-related risks, and two (<1%) had possible contact with a laboratory-confirmed 2019-nCoV patient and were therefore tested.

Among the 210 persons tested, 11 (5%) were found to have 2019-nCoV infection. Nine of these persons had traveled to Wuhan City; two persons had not traveled but had been in close contact with patients with laboratory-confirmed 2019-nCoV in the United States. All were symptomatic with fever (subjective or measured) or cough.

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## Discussion

Quickly identifying persons at risk for 2019-nCoV is critical to slowing the potential spread of 2019-nCoV in the United States. This report describes CDC's current approach to facilitating recommended diagnostic testing of persons who might have 2019-nCoV infection. In response to the emergence of 2019-nCoV in China during a time of rapidly evolving understanding of the epidemiology and clinical presentation of 2019-nCoV infection, CDC has provided consultation regarding persons suspected of being at risk for 2019-nCoV to public health officials and health care providers throughout the United States.

Epidemiologic risk factors among the 210 persons tested for 2019-nCoV were not limited to travel: 20% of PUIs tested had not recently traveled to China but reported close contact with a person being evaluated for 2019-nCoV infection. Because person-to-person transmission is expected to continue, and as further travel restrictions are implemented, it is likely that the proportion of PUIs with such contact risk in the United States will increase among all persons evaluated for 2019-nCoV.

CDC mobilized early in the response and state and local health departments similarly increased capacity to provide clinical consultation regarding 2019-nCoV. The collection of clinical and epidemiologic data that described characteristics of persons tested for 2019-nCoV helped to inform changes to criteria for PUI evaluation.

On January 31, 2020, CDC published updated PUI guidance (8) in response to the evolving global epidemiology of 2019-nCoV, including the rapid geographic expansion and documentation of person-to-person transmission (9). Updated guidance emphasizes 2019-nCoV testing for symptomatic persons in close contact with patients with laboratory-confirmed 2019-nCoV infection, persons returning from Hubei province in addition to Wuhan City, and persons from mainland China requiring hospitalization because of fever and lower respiratory tract illness. Additional refinements to this approach likely will be needed in the future as understanding of 2019-nCoV epidemiology continues to improve.

The findings in this report are subject to at least three limitations. First, the number of clinical inquiries received by CDC does not represent all inquiries received by health departments. Second, because the primary objective of this effort was to guide a timely public health response, some clinical and



epidemiologic risk factor data might be incomplete. Finally, given the limited available epidemiologic information early in the outbreak, to provide some latitude for clinical decision-making regarding diagnostic testing, the PUI definition was not strictly applied in all cases.

A coordinated national effort to diagnose 2019-nCoV among persons at high risk for infection is important to facilitate appropriate management and limit transmission in the United States. CDC's website provides guidance for health care professionals on evaluating persons for 2019-nCoV (10). Clinicians should maintain a high index of suspicion for possible 2019-nCoV illness not only among persons with fever and lower respiratory tract illness who report travel from China in the past 14 days but also symptomatic persons who have had close contact with patients with laboratory-confirmed 2019-nCoV infection. Clinicians should consult their local and state health departments when they suspect possible 2019-nCoV illness to facilitate diagnosis and aid prevention efforts.

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\* <https://www.fda.gov/news-events/press-announcements/fda-takes-significant-step-coronavirus-response-efforts-issues-emergency-use-authorization-firstexternal icon>.

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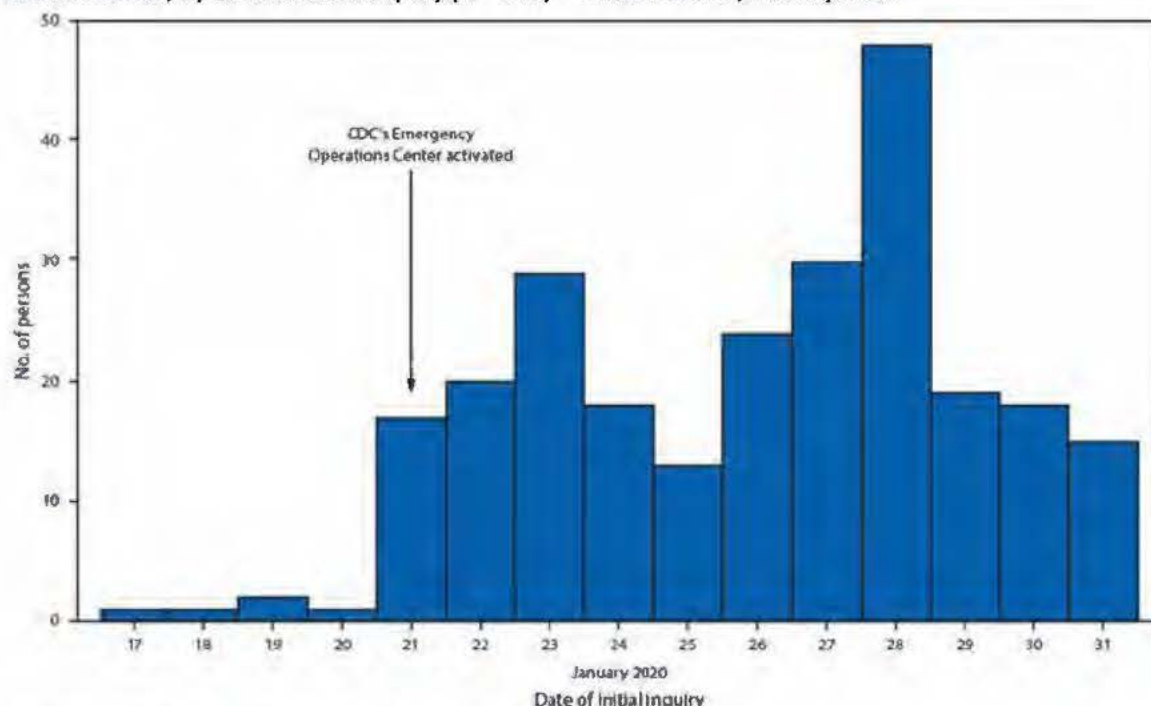
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**FIGURE. Number of persons for whom 2019 novel coronavirus (2019-nCoV) testing was recommended, by date of initial inquiry (N = 256) — United States, January 2020\*,†**



\* Confirmed cases were reported as of January 31, 2020.

† Public announcements of a confirmed 2019-nCoV case in the United States were made on the following dates: Jan 21, Jan 24, Jan 26, Jan 27 (two cases), Jan 30, and Jan 31.

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TABLE. Clinical characteristics and epidemiologic risk factors among persons tested for 2019 novel coronavirus

(2019-nCoV) infection (N = 210) — United States, January 2020



Characteristic	Completed 2019-nCoV testing No.* (%)
<b>Demographics</b>	
Age group (yrs), median (IQR)	29 (21–49)
<5	10 (5)
5–17	8 (4)
18–49	138 (66)
50–64	46 (22)
≥65	4 (2)
Male sex	115 (55)
<b>Clinical features</b>	
<b>Signs or symptoms</b>	
Subjective fever or measured temperature ≥100.4°F (≥38.0°C)	143 (68)
Cough or shortness of breath	189 (90)
<b>Clinical Course</b>	
Hospitalized	42 (20)
Admitted to ICU	4 (2)
Died <sup>†</sup>	1 (<1)
<b>Setting where patient identified</b>	
Airport screening	6 (3)
Health care setting	178 (85)
Contact tracing <sup>§</sup>	26 (12)
<b>Epidemiologic risk category</b>	
Travel from China <sup>¶</sup>	148 (70)
Close contact with an ill laboratory-confirmed 2019-nCoV patient or a PUI in the United States <sup>**</sup>	42 (20)
Travel from China and close contact identified <sup>††</sup>	18 (9)
Other risk <sup>§§</sup>	2 (<1)

**Abbreviations:** ICU = intensive care unit; IQR = interquartile range; PUI = person under investigation.

\* Numbers might not sum to total because of missing data.

<sup>†</sup> For this person, testing was negative for 2019-nCoV, and an alternative cause of death was established.

<sup>§</sup> Additional persons who were being followed through contact tracing but initially sought treatment at a health care setting are not included in this category.

<sup>¶</sup> Includes 113 persons who traveled from Wuhan City and 35 who traveled from areas of China outside Wuhan within 14 days of symptom onset.

<sup>\*\*</sup> Includes 33 persons who were close contacts of an ill laboratory-confirmed 2019-nCoV patient and nine who were close contacts of PUIs. All contacts occurred within 14 days of symptom onset.

<sup>††</sup> Includes four persons who traveled from Wuhan City and were close contacts of an ill laboratory-

confirmed 2019-nCoV patient, 11 who traveled from Wuhan City and were close contacts of PUIs, and three who traveled from China and were close contacts of a PUI.

<sup>§§</sup> Had possible contact with a laboratory-confirmed 2019-nCoV patient and were therefore tested.

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# Public Health Responses to COVID-19 Outbreaks on Cruise Ships — Worldwide, February–March 2020

*Early Release* / March 23, 2020 / 69

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## Summary

### What is already known about this topic?

Cruise ships are often settings for outbreaks of infectious diseases because of their closed environment and contact between travelers from many countries.

### What is added by this report?

More than 800 cases of laboratory-confirmed COVID-19 cases occurred during outbreaks on three cruise ship voyages, and cases linked to several additional cruises have been reported across the United States. Transmission occurred across multiple voyages from ship to ship by crew members; both crew members and passengers were affected; 10 deaths associated with cruise ships have been reported to date.

### What are the implications for public health practice?

Outbreaks of COVID-19 on cruise ships pose a risk for rapid spread of disease beyond the voyage. Aggressive efforts are required to contain spread. All persons should defer all cruise travel worldwide during the COVID-19 pandemic.

An estimated 30 million passengers are transported on 272 cruise ships worldwide each year\* (1). Cruise ships bring diverse populations into proximity for many days, facilitating transmission of respiratory illness (2). SARS-CoV-2, the virus that causes coronavirus disease (COVID-19) was first identified in

Wuhan, China, in December 2019 and has since spread worldwide to at least 187 countries and territories. Widespread COVID-19 transmission on cruise ships has been reported as well (3). Passengers on certain cruise ship voyages might be aged  $\geq 65$  years, which places them at greater risk for severe consequences of SARS-CoV-2 infection (4). During February–March 2020, COVID-19 outbreaks associated with three cruise ship voyages have caused more than 800 laboratory-confirmed cases among passengers and crew, including 10 deaths. Transmission occurred across multiple voyages of several ships. This report describes public health responses to COVID-19 outbreaks on these ships. COVID-19 on cruise ships poses a risk for rapid spread of disease, causing outbreaks in a vulnerable population, and aggressive efforts are required to contain spread. All persons should defer all cruise travel worldwide during the COVID-19 pandemic.

During February 7–23, 2020, the largest cluster of COVID-19 cases outside mainland China occurred on the Diamond Princess cruise ship, which was quarantined in the port of Yokohama, Japan, on February 3 (3). On March 6, cases of COVID-19 were identified in persons on the Grand Princess cruise ship off the coast of California; that ship was subsequently quarantined. By March 17, confirmed cases of COVID-19 had been associated with at least 25 additional cruise ship voyages. On February 21, CDC recommended avoiding travel on cruise ships in Southeast Asia; on March 8, this recommendation was broadened to include deferring all cruise ship travel worldwide for those with underlying health conditions and for persons aged  $\geq 65$  years. On March 13, the Cruise Lines International Association announced a 30-day voluntary suspension of cruise operations in the United States (5). CDC issued a level 3 travel warning on March 17, recommending that all cruise travel be deferred worldwide.<sup>†</sup>

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## Diamond Princess

On January 20, 2020, the Diamond Princess cruise ship departed Yokohama, Japan, carrying approximately 3,700 passengers and crew ([Table](#)). On January 25, a symptomatic passenger departed the ship in Hong Kong, where he was evaluated; testing confirmed SARS-CoV-2 infection. On February 3, the ship returned to Japan, after making six stops in three countries. Japanese authorities were notified of the COVID-19 diagnosis in the passenger who disembarked in Hong Kong, and the ship was quarantined. Information about social distancing and monitoring of symptoms was communicated to passengers. On February 5, passengers were quarantined in their cabins; crew continued to work and, therefore, could not be isolated in their cabins (6). Initially, travelers with fever or respiratory symptoms and their close contacts were tested for SARS-CoV-2 by reverse transcription–polymerase chain reaction (RT-PCR). All those with positive test results were disembarked and hospitalized. Testing was later expanded to support a phased disembarkation of passengers, prioritizing testing of older persons, those with underlying medical conditions, and those in internal cabins with no access to the outdoors. During February 16–23, nearly 1,000 persons were repatriated by air to their home countries, including 329 persons who returned to the United States and entered quarantine or isolation.<sup>§,¶</sup>

The remaining passengers who had negative SARS-CoV-2 RT-PCR test results,\*\* no respiratory symptoms, and no close contact with a person with a confirmed case of COVID-19 completed a 14-day ship-based quarantine before disembarkation. Those passengers who had close contact with a person with a confirmed case completed land-based quarantine, with duration determined by date of last contact. After disembarkation of all passengers, crew members either completed a 14-day ship-based quarantine, were repatriated to and managed in their home country, or completed a 14-day land-based quarantine in Japan.

Overall, 111 (25.9%) of 428 U.S. citizens and legal residents did not join repatriation flights either because they had been hospitalized in Japan or for other reasons. To mitigate SARS-CoV-2 importation into the United States, CDC used temporary “Do Not Board” restrictions (7) to prevent commercial



airline travel to the United States,<sup>††</sup> and the U.S. Departments of State and Homeland Security restricted travel to the United States for non-U.S. travelers.

Among 3,711 Diamond Princess passengers and crew, 712 (19.2%) had positive test results for SARS-CoV-2 ([Figure 1](#)). Of these, 331 (46.5%) were asymptomatic at the time of testing. Among 381 symptomatic patients, 37 (9.7%) required intensive care, and nine (1.3%) died (8). Infections also occurred among three Japanese responders, including one nurse, one quarantine officer, and one administrative officer (9). As of March 13, among 428 U.S. passengers and crew, 107 (25.0%) had positive test results for COVID-19; 11 U.S. passengers remain hospitalized in Japan (median age = 75 years), including seven in serious condition (median age = 76 years).

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## Grand Princess

During February 11–21, 2020, the Grand Princess cruise ship sailed roundtrip from San Francisco, California, making four stops in Mexico (voyage A). Most of the 1,111 crew and 68 passengers from voyage A remained on board for a second voyage that departed San Francisco on February 21 (voyage B), with a planned return on March 7 (Table). On March 4, a clinician in California reported two patients with COVID-19 symptoms who had traveled on voyage A, one of whom had positive test results for SARS-CoV-2. CDC notified the cruise line, which began cancelling group activities on voyage B. More than 20 additional cases of COVID-19 among persons who did not travel on voyage B have been identified from Grand Princess voyage A, the majority in California. One death has been reported. On March 5, a response team was transported by helicopter to the ship to collect specimens from 45 passengers and crew with respiratory symptoms for SARS-CoV-2 testing; 21 (46.7%), including two passengers and 19 crew, had positive test results. Passengers and symptomatic crew members were asked to self-quarantine in their cabins, and room service replaced public dining until disembarkation. Following docking in Oakland, California, on March 8, passengers and crew were transferred to land-based sites for a 14-day quarantine period or isolation. Persons requiring medical attention for other conditions or for symptoms consistent with COVID-19 were evaluated, tested for SARS-CoV-2 infection, and hospitalized if indicated. During land-based quarantine in the United States, all persons were offered SARS-CoV-2 testing. As of March 21, of 469 persons with available test results, 78 (16.6%) had positive test results for SARS-CoV-2. Repatriation flights for foreign nationals were organized by several governments in coordination with U.S. federal and California state government agencies. Following disinfection of the vessel according to guidance from CDC's Vessel Sanitation Program, remaining foreign nationals will complete quarantine on board. The quarantine will be managed by the cruise company, with technical assistance provided by public health experts.

On February 21, five crew members from voyage A transferred to three other ships with a combined 13,317 passengers on board. No-sail orders<sup>§§</sup> were issued by CDC for these ships until medical logs were reviewed and the crew members tested negative for SARS-CoV-2.

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## Additional Ships

The Diamond Princess and Grand Princess had more than 800 total COVID-19 cases, including 10 deaths. During February 3–March 13, in the United States, approximately 200 cases of COVID-19 were confirmed among returned cruise travelers from multiple ship voyages, including the Diamond Princess and Grand Princess, accounting for approximately 17% of total reported U.S. cases at the time (10). Cases linked with cruise travel have been reported to CDC in at least 15 states. Since February, multiple international cruises have been implicated in reports of COVID-19 cases, including at least 60 cases in the United States from Nile River cruises in Egypt ([Figure 2](#)). Secondary community-acquired cases linked to returned passengers on cruises have also been reported (CDC, unpublished data, 2020).



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## Discussion

Public health responses to COVID-19 outbreaks on cruise ships were aimed at limiting transmission among passengers and crew, preventing exportation of COVID-19 to other communities, and assuring the safety of travelers and responders. These responses required the coordination of stakeholders across multiple sectors, including U.S. Government departments and agencies, foreign ministries of health, foreign embassies, state and local public health departments, hospitals, laboratories, and cruise ship companies. At the time of the Diamond Princess outbreak, it became apparent that passengers disembarking from cruise ships could be a source of community transmission. Therefore, aggressive efforts to contain transmission on board and prevent further transmission upon disembarkation and repatriation were instituted. These efforts included travel restrictions applied to persons, movement restrictions applied to ships, infection prevention and control measures, (e.g., use of personal protective equipment for medical and cleaning staff), disinfection of the cabins of persons with suspected COVID-19, provision of communication materials, notification of state health departments, and investigation of contacts of cases identified among U.S. returned travelers.

Cruise ships are often settings for outbreaks of infectious diseases because of their closed environment, contact between travelers from many countries, and crew transfers between ships. On the Diamond Princess, transmission largely occurred among passengers before quarantine was implemented, whereas crew infections peaked after quarantine (6). On the Grand Princess, crew members were likely infected on voyage A and then transmitted SARS-CoV-2 to passengers on voyage B. The results of testing of passengers and crew on board the Diamond Princess demonstrated a high proportion (46.5%) of asymptomatic infections at the time of testing. Available statistical models of the Diamond Princess outbreak suggest that 17.9% of infected persons never developed symptoms (9). A high proportion of asymptomatic infections could partially explain the high attack rate among cruise ship passengers and crew. SARS-CoV-2 RNA was identified on a variety of surfaces in cabins of both symptomatic and asymptomatic infected passengers up to 17 days after cabins were vacated on the Diamond Princess but before disinfection procedures had been conducted (Takuya Yamagishi, National Institute of Infectious Diseases, personal communication, 2020). Although these data cannot be used to determine whether transmission occurred from contaminated surfaces, further study of fomite transmission of SARS-CoV-2 aboard cruise ships is warranted.

During the initial stages of the COVID-19 pandemic, the Diamond Princess was the setting of the largest outbreak outside mainland China. Many other cruise ships have since been implicated in SARS-CoV-2 transmission. Factors that facilitate spread on cruise ships might include mingling of travelers from multiple geographic regions and the closed nature of a cruise ship environment. This is particularly concerning for older passengers, who are at increased risk for serious complications of COVID-19 (4). The Grand Princess was an example of perpetuation of transmission from crew members across multiple consecutive voyages and the potential introduction of the virus to passengers and crew on other ships. Public health responses to cruise ship outbreaks require extensive resources. Temporary suspension of cruise ship travel during the current phase of the COVID-19 pandemic has been partially implemented by cruise lines through voluntary suspensions of operations, and by CDC through its unprecedented use of travel notices and warnings for conveyances to limit disease transmission (5).

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<sup>1</sup>CDC COVID-19 Response Team; <sup>2</sup>California Department of Public Health; <sup>3</sup>Solano Public Health, Fairfield, California; <sup>4</sup>Epidemic Intelligence Service, CDC; <sup>5</sup>Sutter Medical Group of the Redwoods, Santa Rosa, California.

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\* Not including river cruises.



<sup>†</sup> Warning level 3: avoid non-essential travel due to widespread ongoing transmission:

<https://wwwnc.cdc.gov/travel/notices/warning/novel-coronavirus-china>.

<sup>§</sup> Quarantine was used for persons who were exposed; isolation was used for persons who had positive test results for SARS-CoV-2.

<sup>¶</sup> Movement for one person with resolved COVID-19 was not restricted.

<sup>\*\*</sup> Based on Japanese testing procedures, which at the time included taking one oropharyngeal swab.

<sup>††</sup> Travel restrictions were lifted when persons had either completed a 14-day monitoring period without symptoms or had met clinical criteria for release from isolation.

<https://japan2.usembassy.gov/pdfs/alert-20200227-diamond-princess.pdf>[pdf icon](#)[external icon](#).

<sup>§§</sup> CDC has the authority to institute a no-sail order to prevent ships from sailing when it is reasonably believed that continuing normal operations might subject newly arriving passengers to disease.

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**TABLE. Demographic characteristics of passengers and crew members on board two cruise ships with COVID-**

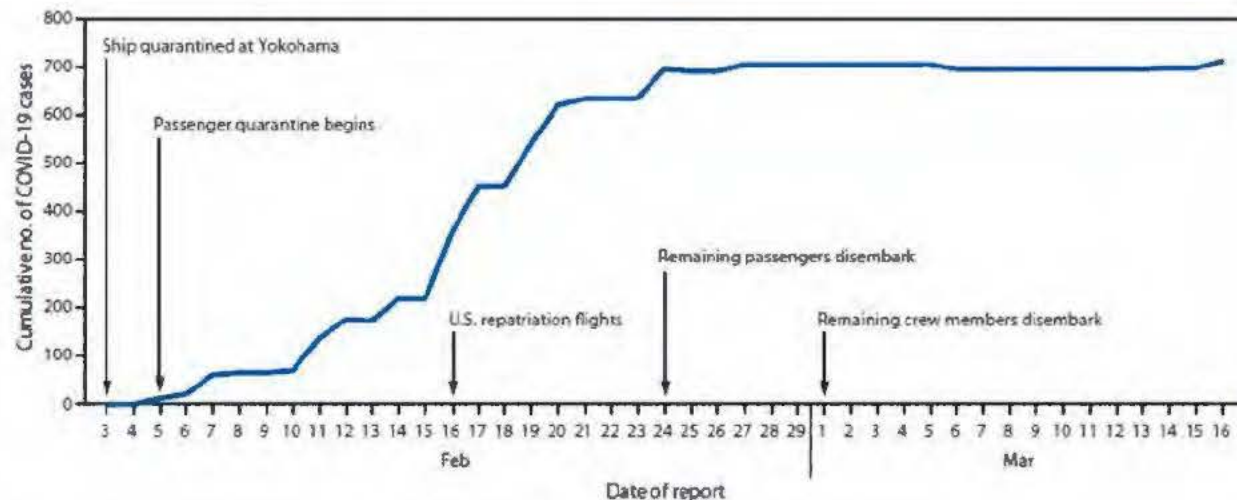
**19 outbreaks January 20–March 8, 2020**

Characteristic	Diamond Princess (total 3,711 persons)		Grand Princess, voyage B (total 3,571 persons)	
	Crew	Passengers	Crew	Passengers
<b>Total no.</b>	<b>1,045</b>	<b>2,666</b>	<b>1,111</b>	<b>2,460</b>
<b>Age median (interquartile range), yrs</b>	36 (29–43)	69 (62–73)	36 (30–43)	68 (61–74)
<b>Total nations represented</b>	48	36	44	24
<b>Country of residence of passengers, no. (%)</b>				
Japan	N/A	1,281 (48)	N/A	3 (1)
United States	N/A	416 (16)	N/A	2,008 (82)
Hong Kong	N/A	260 (10)	N/A	0 (0)
Canada	N/A	251 (9)	N/A	231 (9)
Australia	N/A	223 (8)	N/A	1 (0)
United Kingdom	N/A	57 (2)	N/A	113 (4)
Other countries or unknown	N/A	178 (7)	N/A	104 (4)
<b>Country of residence of crew members, no. (%)</b>				
Philippines	531 (51)	N/A	529 (48)	N/A
India	132 (13)	N/A	131 (12)	N/A
Indonesia	78 (7)	N/A	57 (5)	N/A
Other countries or unknown	304 (29)	N/A	394 (35)	N/A
<b>Sex, no. (%)</b>				
Male	843 (81)	1,189 (45)	928 (84)	1,120 (46)
Female	202 (19)	1,477 (55)	183 (16)	1,340 (54)
<b>No. of persons per cabin, mean (range)</b>	1.73 (1–3)	1.98 (1–4)	1.75 (1–4)	1.95 (1–4)

N/A = not applicable.

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**FIGURE 1. Cumulative number of confirmed coronavirus disease 2019 (COVID-19) cases\* by date of detection — Diamond Princess cruise ship, Yokohama, Japan, February 3–March 16, 2020**



**Source:** World Health Organization (WHO) coronavirus disease (COVID-19) situation reports.

[https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/external icon](https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports/external-icon).

\* Decline in cumulative number of cases on February 13 and February 25 due to correction by WHO for cases that had been counted twice.

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**FIGURE 2. Cruise ships with coronavirus disease 2019 (COVID-19) cases requiring public health responses — worldwide, January–March 2020**



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**Sent:** Mon, 16 Mar 2020 12:44:29 -0400  
**To:** Fauci, Anthony (NIH/NIAID) [E]  
**Subject:** Moderna Announces First Participant Dosed in NIH-led Phase 1 Study of mRNA Vaccine (mRNA-1273) Against Novel Coronavirus



March 16, 2020 12:42 PM EDT

## **Moderna Announces First Participant Dosed in NIH-led Phase 1 Study of mRNA Vaccine (mRNA-1273) Against Novel Coronavirus**

*63 days from sequence selection to Phase 1 study dosing*

*mRNA-1273 is Moderna's 10<sup>th</sup> infectious disease vaccine to begin a clinical trial*

CAMBRIDGE, Mass.--(BUSINESS WIRE)-- Moderna, Inc., (Nasdaq: MRNA) a clinical stage biotechnology company pioneering messenger RNA (mRNA) therapeutics and vaccines to create a new generation of transformative medicines for patients, today announced that the first participant has been dosed in the Phase 1 study of the Company's mRNA vaccine (mRNA-1273) against the novel coronavirus (SARS-CoV-2). This Phase 1 study is being conducted by the National Institutes of Health (NIH) under its own Investigational New Drug (IND) application.

mRNA-1273 is an mRNA vaccine against SARS-CoV-2 encoding for a [prefusion stabilized](#) form of the Spike (S) protein, which was selected by Moderna in collaboration with investigators from the Vaccine Research Center (VRC) at the National Institute of Allergy and Infectious Diseases (NIAID), a part of NIH. Manufacture of the first clinical batch was funded by the Coalition for Epidemic Preparedness Innovations (CEPI).

The Phase 1 study is evaluating the safety and immunogenicity of three dose levels of mRNA-1273 (25, 100, 250 µg) administered on a two-dose vaccination schedule, given 28 days apart. A total of 45 healthy adults will be enrolled in the study. Participants will be followed through 12 months after the second vaccination. The primary objective is to evaluate the safety and reactogenicity of a two-dose vaccination schedule of mRNA-1273. The secondary objective is to evaluate the immunogenicity to the SARS-CoV-2 S protein.

"This study is the first step in the clinical development of an mRNA vaccine against



SARS-CoV-2, and we expect it to provide important information about safety and immunogenicity. We are actively preparing for a potential Phase 2 study under our own IND,” said Tal Zaks, M.D., Ph.D., Chief Medical Officer at Moderna. “We are grateful to NIH for their ongoing collaboration and to CEPI for funding the initial manufacturing of mRNA-1273 and are proud to be included with the many companies, worldwide health agencies and NGOs working on a possible response to the novel coronavirus outbreak.”

On January 11, 2020, the Chinese authorities shared the genetic sequence of the novel coronavirus. On January 13, 2020 the VRC and Moderna's infectious disease research team finalized the sequence for the SARS-CoV-2 vaccine and Moderna mobilized toward clinical manufacture. The first clinical batch was completed on February 7, 2020 and underwent analytical testing; it was shipped on February 24, 2020 from Moderna and delivered to NIH from the Company's manufacturing facility in 42 days from sequence selection.

### **Next Steps for mRNA-1273**

The Company is actively preparing for a potential Phase 2 study under its own IND to build on data from the ongoing Phase 1 study being conducted by the NIH. In order to continue to progress this potential vaccine during the ongoing global public health emergency, Moderna intends to work with the FDA and other government and non-government organizations to be ready for a Phase 2 and any subsequent trials, which are anticipated to include a larger number of subjects and which will seek to generate additional safety and immunogenicity data. Manufacture of the mRNA-1273 material for the potential Phase 2 trial, which could begin in a few months, is underway. Moderna continues to prepare for rapid acceleration of its manufacturing capabilities that could allow for the future manufacture of millions of doses should mRNA-1273 prove to be safe and effective.

### **About Coronavirus**

Coronaviruses are a family of viruses that can lead to respiratory illness, including Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV). Coronaviruses can be transmitted between animals and people and evolve into strains not previously identified in humans. On January 7, 2020, a novel coronavirus (SARS-CoV-2) was identified as the cause of pneumonia cases in Wuhan, Hubei Province of China, and additional cases have been found in a growing number of countries.<sup>1,2</sup>

### **About Moderna's Prophylactic Vaccines Core Modality**

Moderna scientists designed the Company's prophylactic vaccines modality to

prevent infectious diseases. More than 1,400 participants have been enrolled in Moderna's infectious disease vaccine clinical studies under health authorities in the U.S., Europe and Australia. Based on clinical experience across six Phase 1 studies, the Company has designated prophylactic vaccines a core modality and intends to accelerate development of its infectious disease vaccine candidates.

The potential advantages of an mRNA approach to prophylactic vaccines include the ability to mimic natural infection to stimulate a more potent immune response, combining multiple mRNAs into a single vaccine, rapid discovery to respond to emerging pandemic threats and manufacturing agility derived from the platform nature of mRNA vaccine design and production. Moderna has built a fully integrated manufacturing plant in Norwood, MA which enables the promise of the technology platform.

Moderna currently has nine development candidates in its prophylactic vaccines modality, including:

*Vaccines against respiratory infections*

- Respiratory syncytial virus (RSV) vaccine for older adults (mRNA-1777 and mRNA-1172 or V172 with Merck)
- RSV vaccine for young children (mRNA-1345)
- Human metapneumovirus and parainfluenza virus type 3 (hMPV/PIV3) vaccine (mRNA-1653)
- Novel coronavirus (SARS-CoV-2) vaccine (mRNA-1273)
- Influenza H7N9 (mRNA-1851)

*Vaccines against infections transmitted from mother to baby*

- Cytomegalovirus (CMV) vaccine (mRNA-1647)
- Zika vaccine (mRNA-1893) with the Biomedical Advanced Research and Development Authority (BARDA)

*Vaccines against highly prevalent viral infections*

- Epstein-Barr virus (EBV) vaccine (mRNA-1189)

To date, Moderna has demonstrated positive Phase 1 data readouts for six prophylactic vaccines (H10N8, H7N9, RSV, chikungunya virus, hMPV/PIV3 and CMV). Moderna's CMV vaccine is currently in a Phase 2 dose-confirmation study. Moderna's investigational Zika vaccine (mRNA-1893), currently in a Phase 1 study, was granted FDA Fast Track designation.



## **About Moderna**

Moderna is advancing messenger RNA (mRNA) science to create a new class of transformative medicines for patients. mRNA medicines are designed to direct the body's cells to produce intracellular, membrane or secreted proteins that can have a therapeutic or preventive benefit and have the potential to address a broad spectrum of diseases. The Company's platform builds on continuous advances in basic and applied mRNA science, delivery technology and manufacturing, providing Moderna the capability to pursue in parallel a robust pipeline of new development candidates. Moderna is developing therapeutics and vaccines for infectious diseases, immuno-oncology, rare diseases and cardiovascular diseases, independently and with strategic collaborators.

Headquartered in Cambridge, Mass., Moderna currently has strategic alliances for development programs with AstraZeneca, Plc. and Merck, Inc., as well as the Defense Advanced Research Projects Agency (DARPA), an agency of the U.S. Department of Defense, the Biomedical Advanced Research and Development Authority (BARDA), a division of the Office of the Assistant Secretary for Preparedness and Response (ASPR) within the U.S. Department of Health and Human Services (HHS) and the Coalition for Epidemic Preparedness Innovations (CEPI). Moderna has been ranked in the top ten of *Science's* list of top biopharma industry employers for the past four years. To learn more, visit [www.modernatx.com](http://www.modernatx.com).

## **Forward Looking Statement**

This press release contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995, as amended, including regarding the Company's development of a potential vaccine against the novel Coronavirus, the conduct and timing of the Phase I trial of mRNA-1273, the planning, conduct and timing of a potential Phase 2 and any subsequent trials of mRNA-1273, and potential manufacturing capabilities. In some cases, forward-looking statements can be identified by terminology such as "will," "may," "should," "expects," "intends," "plans," "aims," "anticipates," "believes," "estimates," "predicts," "potential," "continue," or the negative of these terms or other comparable terminology, although not all forward-looking statements contain these words. The forward-looking statements in this press release are neither promises nor guarantees, and you should not place undue reliance on these forward-looking statements because they involve known and unknown risks, uncertainties, and other factors, many of which are beyond Moderna's control and which could cause actual results to differ materially from those expressed or implied by these forward-looking statements. These risks, uncertainties, and other factors include, among others: the fact that there has never been a commercial product utilizing mRNA technology approved

for use; the fact that the rapid response technology in use by Moderna is still being developed and implemented; and those other risks and uncertainties described under the heading "Risk Factors" in Moderna's most recent Annual Report on Form 10-K filed with the U.S. Securities and Exchange Commission (SEC) and in subsequent filings made by Moderna with the SEC, which are available on the SEC's website at [www.sec.gov](http://www.sec.gov). Except as required by law, Moderna disclaims any intention or responsibility for updating or revising any forward-looking statements contained in this press release in the event of new information, future developments or otherwise. These forward-looking statements are based on Moderna's current expectations and speak only as of the date hereof.

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<sup>1</sup> "Coronavirus." *World Health Organization*, <https://www.who.int/health-topics/coronavirus>.

<sup>2</sup> "2019 Novel Coronavirus, Wuhan, China." *Centers for Disease Control and Prevention*, <https://www.cdc.gov/coronavirus/2019-nCoV/index.html>.



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**Sent:** Mon, 16 Mar 2020 19:44:53 +0000  
**To:** Undisclosed recipients:  
**Subject:** Nature: Don't rush to deploy COVID-19 vaccines and drugs without sufficient safety guarantees

16 March 2020

## Don't rush to deploy COVID-19 vaccines and drugs without sufficient safety guarantees



We must urgently develop measures to tackle the new coronavirus — but safety always comes first, says Shibo Jiang.

### [Shibo Jiang](#)

Around the world, I am seeing efforts to support 'quick-fix' programmes aimed at developing vaccines and therapeutics against COVID-19. Groups in the United States and China are already planning to test vaccines in healthy human volunteers. Make no mistake, it's essential that we work as hard and fast as possible to develop drugs and vaccines that are widely available across the world. But it is important not to cut corners.

Vaccines for measles, mumps, rubella, polio, smallpox and influenza have a long history of safe use and were developed in line with requirements of regulatory agencies.

I have worked to develop vaccines and treatments for coronaviruses since 2003, when the severe acute respiratory syndrome (SARS) outbreak happened. In my view, standard protocols are essential for safeguarding health. Before allowing use of a COVID-19 vaccine in humans, regulators should evaluate safety with a range of virus strains and in more than one animal model. They should also demand strong preclinical evidence that the experimental vaccines prevent infection, even though that will probably mean waiting weeks or even months for the models to become available.

That is time well spent. Work with the SARS virus shows that worrying immune responses were seen in ferrets and monkeys, but not in mice. Also, some viral protein fragments can elicit more potent or less risky immune responses than others, and it makes sense to learn this in animal studies before trying them in people.

Governments are understandably desperate for anything that would forestall the deaths, closures and quarantines resulting from COVID-19. But combating this disease demands a vaccine that is safe and potent. The fatality rate is low (3.4% by the World Health Organization's latest estimate, although this is highly uncertain), yet transmission rates are high and the spread is difficult to track. That means many people — perhaps the majority in hotspots — would need to be vaccinated to stop the spread and



prevent deaths. By contrast, Ebola virus has very high fatality rates (averaging around 50%, but varying from 25% to 90%), yet is less contagious, so vaccination can be more targeted.

Decades ago, vaccines developed against another coronavirus, feline infectious peritonitis virus, increased cats' risk of developing the disease caused by the virus ([T. Takano et al. J. Vet. Med. Sci. 81, 911–915; 2019](#)). Similar phenomena have been seen in animal studies for other viruses, including the coronavirus that causes SARS ([Y. W. Kam et al. Vaccine 25, 729–740; 2007](#)).

Regulators must continue to require that vaccine developers check for potentially harmful responses in animal studies. They must also be careful to assess healthy human volunteers for antibodies against any coronaviruses before enrolling them in safety trials. Funders should beware of hype, and release more grants for appropriate tests for coronavirus drug and vaccine development.

China is advancing several COVID-19 vaccines of different types, and has announced plans to have products in human tests or emergency use in healthy people in April. My worry is that this could mean a vaccine is administered before its efficacy and safety have been fully evaluated in animal models or clinical trials. And in the United States, the biotechnology company Moderna in Norwood, Massachusetts, has shipped an experimental vaccine based on messenger RNA to the US National Institute of Allergy and Infectious Diseases (NIAID) in Bethesda, Maryland, for testing in a clinical trial. The mRNA-based platform for delivering vaccines has been shown to be safe in humans, but this COVID-19 vaccine has not. The NIAID argues that the risk of delaying the advancement of vaccines is much higher than the risk of causing illness in healthy volunteers, but I worry that vaccine developers will rush in too hastily if standards are lowered.

More than 100 COVID-19 treatments are listed in China's public clinical-trials registry. Most of these involve a drug that has already been approved for another disease. That means that they do not act specifically against human coronaviruses and have not been tested in COVID-19 animal models, even though that would usually be required by Chinese regulators. What is more, trials done to gain approval of the treatment for other diseases often do not consider combinations with other drugs. The potential for synergistic toxicity needs to be assessed before such 'old' drugs enter COVID-19 treatment regimes. Another factor should also be considered: the potential for emerging and re-emerging coronaviruses to cause future outbreaks. The virus behind COVID-19 might well mutate in ways that would make previously effective vaccines and antivirals useless. Therefore, any regulatory agency considering ways to accelerate treatments into testing should also weigh up how likely these drugs are to work beyond this particular coronavirus.

Testing vaccines and medicines without taking the time to fully understand safety risks could bring unwarranted setbacks during the current pandemic, and into the future. The public's willingness to back quarantines and other public-health measures to slow spread tends to correlate with how much people trust the government's health advice. A rush into potentially risky vaccines and therapies will betray that trust and discourage work to develop better assessments. Despite the genuine need for urgency, the old saying holds: measure twice, cut once.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
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**To:** Undisclosed recipients:  
**Subject:** Nature: New virus surging in Asia rattles scientists

20 January 2020

## New virus surging in Asia rattles scientists

Chinese officials reported more than 100 new infections and South Korea confirmed its first case.

[David Cyranoski](#)



A lethal viral outbreak in China probably originated in a Wuhan animal market, which has since been closed. Credit: Noel Celis/AFP/Getty

Scientists are increasingly concerned about a new virus that is spreading in Asia. The number of people known to have the respiratory illness, which originated in China, has more than doubled in the past few days. On 20 January, Chinese government officials reported 136 new cases in Wuhan, where the outbreak began, as well as a slew of new cases elsewhere in China. South Korea also reported its first infection. The total number of confirmed cases is now 221: 217 in China and four outside the country. It also now seems that the virus can be spread from person to person, although the extent of such transmissibility is unclear. So far, three people with the illness are known to have died.

The surge in new infections is particularly alarming given the approach of the Chinese New Year, the country's most significant annual holiday. From Friday, hundreds of millions of people will travel back to their home towns or overseas.

"This could be the beginning of a disaster," says Seungtak Kim, a virologist at the Institut Pasteur Korea in Seongnam, South Korea.

The illness was first detected last December among people who had visited a live-animal market in the city of Wuhan. But on 20 January, officials in South Korea reported the country's first case of the virus, which belongs to the same coronavirus family as the pathogen that causes severe acute respiratory syndrome, or SARS, and that killed hundreds of people between 2002 and 2003. The South Korea detection comes after two people in Thailand and one in Japan tested positive last week.

The virus is also being detected more widely within China. Shenzhen and Beijing reported their first cases over the weekend. On 20 January, there were 5 confirmed cases in Beijing, and 14 in Guangdong.



province, where Shenzhen is located. The total in Wuhan was 198 and there were 7 suspected cases elsewhere in China.

The World Health Organization has moved to subdue rising panic. On Twitter, it said that the increase in cases was the result of authorities increasing their searching and testing of people already sick with respiratory illnesses. It said that some human-to-human transmission was occurring between people in close contact, but that an animal seems the most likely primary source of the virus. China's National Health Commission has also tried to allay fears.

## Cases jump

But some scientists are concerned that the jump in new cases, and the outbreak's geographic spread, might suggest that the virus is spreading more quickly than is currently reported by authorities. The initial cases were traced back to the live-animal market in Wuhan. But although the market has been shut since 1 January, new cases continue to be reported, including in people who had not visited the market.

The latest cases probably include some of the 'first generation' human-to-human infections, says Linfa Wang, director of the Emerging Infectious Diseases programme at Duke-NUS Medical School in Singapore. If people are newly infected in other locations where the virus has since shown up, including Japan, Thailand, Beijing and Shenzhen, they are likely be part of a second generation of human-to-human cases, he says.

A group led by researchers at Imperial College London estimate that, on the basis of its [simulations of travel in and out of Wuhan](#), some 1,700 people have been infected with the coronavirus. Airports in the United States, South Korea, Japan and other countries have already started to screen passengers from Wuhan for signs of infection.

Earlier this month, Chinese scientists [announced that they had identified the new virus](#) — and that it was the cause of the infections. Since then, research groups have sequenced six different samples of the virus. Although the new coronavirus is related to the virus that causes SARS, so far it lacks the transmissibility of SARS, says Yoshihiro Kawaoka, a virologist at the University of Tokyo. It has also caused only 3 deaths among the more than 200 people it is known to have infected, [whereas SARS killed some 15% of those it infected, and about half of those over 60 years old](#). But the new virus could mutate into something more easily transmitted and more virulent, says Kawaoka.

Scientists will need to keep sequencing the virus to know how it is evolving, says Kim, and to make sure that detection tests don't miss cases. It is also crucial that China identifies the animal source of the virus so that proper measures can be taken to limit its spread, he says.

Scientists outside China are hungry for information about the infected people, such as the exact dates they fell ill and whether they had been to a live-animal market, notes Kim. "China needs to share more appropriate information and as soon as possible," says Kim. "The disease is no longer confined within the country. A virus doesn't know borders."

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**Subject:** NBC: China criticizes U.S. border closure as coronavirus death toll rises

## China criticizes U.S. border closure as coronavirus death toll rises

"It is certainly not a gesture of goodwill," China's foreign ministry spokesperson said in a statement Saturday.



### Coronavirus: US declares public health emergency

Feb. 1, 2020 1:47

Feb. 1, 2020, 9:01 AM EST

By Yuliya Talmazan

A U.S. ban on foreign nationals traveling into the country if they have visited China in the last two weeks is "neither based on facts, nor helpful," Chinese officials said Saturday.

The White House announced Friday they would temporarily suspend the entry into the United States of foreign nationals who may pose a risk of transmitting a [deadly coronavirus](#).

As the result, all foreign nationals, other than the immediate family of U.S. citizens and permanent residents, who have traveled to China within the last 14 days will not be allowed to enter the U.S. effective Sunday.

China's health authority authorities said Saturday that 259 people had died and [11,791](#) people were now confirmed to have contracted the virus, surpassing the number in the 2002-03 outbreak of Severe Acute Respiratory Syndrome or SARS.

The announcement came less than 48 hours after the World Health Organization (WHO) [declared the outbreak a global public health emergency](#). The U.S. officials also declared that the novel coronavirus, dubbed 2019-nCoV, presented [a public health emergency](#).





U.S. actions were criticized by Chinese officials.

"Many countries have offered China help and support through various ways. In contrast, the U.S. comments and actions are neither based on facts, nor helpful at this particular time," foreign ministry spokesperson Hua Chunying said [in a statement](#).

While the WHO has advised against any travel restrictions, Hua said the U.S. has decided to act "in the opposite way," setting a bad example.

"It is certainly not a gesture of goodwill," she added.

Australia has also followed suit, with Prime Minister Scott Morrison saying the country will deny entry to all foreign nationals traveling from mainland China from Saturday.

In its [updated guidance for international movement](#), the WHO said it advises that measures to limit the risk of exportation or importation of the disease should be implemented, without unnecessary restrictions of international traffic.

The WHO doesn't recommend limiting trade and movement, the agency's director-general, Dr. Tedros Adhanom Ghebreyesus, reiterated in a [tweet Friday](#).

"Travel restrictions can cause more harm than good by hindering information sharing and medical supply chains, and harming economies. We urge countries and companies to make evidence-based, consistent decisions," he said.

Seven people have been [diagnosed with the infection in the U.S. so far](#), with the latest case announced Friday in California. The husband of one of those patients has also been diagnosed with the illness — [the first evidence that the new virus has spread person-to-person in the U.S.](#)

The virus is believed to have originated in Wuhan, an industrial center of 11 million people and capital of China's central Hubei province.

On Friday, [China's foreign ministry said](#) that in view of the difficulties Chinese nationals from Hubei province, and especially Wuhan, have encountered overseas in recent days, the Chinese government has decided to send chartered flights to bring them back directly to Wuhan as soon as possible.



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**From:** Folkers, Greg (NIH/NIAID) [E]  
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Access provided by NIH

# A Novel Coronavirus Emerging in China — Key Questions for Impact Assessment

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- [Article](#)
- [Figures/Media](#)

## [Metrics](#)

- [5 References](#)

A novel coronavirus, designated as 2019-nCoV, emerged in Wuhan, China, at the end of 2019. As of January 24, 2020, at least 830 cases had been diagnosed in nine countries: China, Thailand, Japan, South Korea, Singapore, Vietnam, Taiwan, Nepal, and the United States. Twenty-six fatalities occurred, mainly in patients who had serious underlying illness.<sup>1</sup> Although many details of the emergence of this virus — such as its origin and its ability to spread among humans — remain unknown, an increasing number of cases appear to have resulted from human-to-human transmission. Given the severe acute respiratory syndrome coronavirus (SARS-CoV) outbreak in 2002 and the Middle East respiratory syndrome coronavirus (MERS-CoV) outbreak in 2012,<sup>2</sup> 2019-nCoV is the third coronavirus to emerge in the human population in the past two decades — an emergence that has put global public health institutions on high alert.

China responded quickly by informing the World Health Organization (WHO) of the outbreak and sharing sequence information with the international community after discovery of the causative agent. The WHO responded rapidly by coordinating diagnostics development; issuing guidance on patient monitoring, specimen collection, and treatment; and providing up-to-date information on the outbreak.<sup>3</sup> Several countries in the region as well as the United States are screening travelers from Wuhan for fever, aiming to detect 2019-nCoV cases before the virus spreads further. Updates from China, Thailand, Korea, and Japan indicate that the disease associated with 2019-nCoV appears to be relatively mild as compared with SARS and MERS.

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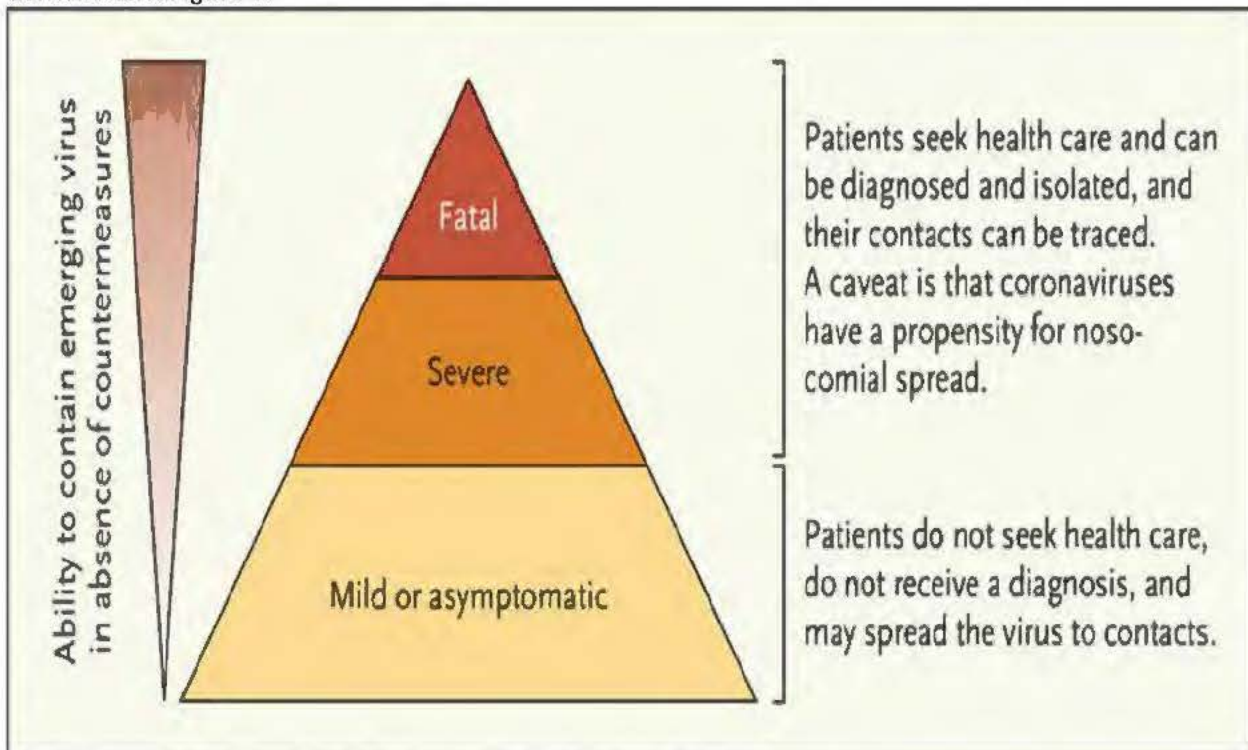
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Table 1.

Table 1. Pathogenicity and Transmissibility Characteristics of Recently Emerged Viruses in Relation to Outbreak Containment.				
Virus	Case Fatality Rate (%)	Pandemic	Contained	Remarks
2019-nCoV	Unknown*	Unknown	No, efforts ongoing	
pH1N1	0.02–0.4	Yes	No, postpandemic circulation and establishment in human population	
H7N9	39	No	No, eradication efforts in poultry reservoir ongoing	
NL63	Unknown	Unknown	No, endemic in human population	
SARS-CoV	9.5	Yes	Yes, eradicated from intermediate animal reservoir	58% of cases result from nosocomial transmission
MERS-CoV	34.4	No	No, continuous circulation in animal reservoir and zoonotic spillover	70% of cases result from nosocomial transmission
Ebola virus (West Africa)	63	No	Yes	

\* Number will most likely continue to change until all infected persons recover.

Pathogenicity and Transmissibility Characteristics of Recently Emerged Viruses in Relation to Outbreak Containment. Figure 1.



Surveillance Pyramid and Its Relation to Outbreak Containment.



After initial reports of a SARS-like virus emerging in Wuhan, it appears that 2019-nCoV may be less pathogenic than MERS-CoV and SARS-CoV (see [table](#)). However, the virus's emergence raises an important question: What is the role of overall pathogenicity in our ability to contain emerging viruses, prevent large-scale spread, and prevent them from causing a pandemic or becoming endemic in the human population? Important questions regarding any emerging virus are, What is the shape of the disease pyramid? What proportion of infected people develop disease? And what proportion of those seek health care? These three questions inform the classic surveillance pyramid (see [diagram](#)).<sup>4</sup> Emerging coronaviruses raise an additional question: How widespread is the virus in its reservoir? Currently, epidemiologic data that would allow us to draw this pyramid are largely unavailable (see [diagram](#)).

Clearly, efficient human-to-human transmission is a requirement for large-scale spread of this emerging virus. However, the severity of disease is an important indirect factor in a virus's ability to spread, as well as in our ability to identify those infected and to contain it — a relationship that holds true whether an outbreak results from a single spillover event (SARS-CoV) or from repeated crossing of the species barrier (MERS-CoV).

If infection does not cause serious disease, infected people probably will not end up in health care centers. Instead, they will go to work and travel, thereby potentially spreading the virus to their contacts, possibly even internationally. Whether subclinical or mild disease from 2019-nCoV is also associated with a reduced risk of virus spread remains to be determined.

Much of our thinking regarding the relationship between transmissibility and pathogenicity of respiratory viruses has been influenced by our understanding of influenza A virus: the change in receptor specificity necessary for efficient human-to-human transmission of avian influenza viruses leads to a tropism shift from the lower to the upper respiratory tract, resulting in a lower disease burden. Two primary — and recent — examples are the pandemic H1N1 virus and the avian influenza H7N9 virus. Whereas the pandemic H1N1 virus — binding to receptors in the upper respiratory tract — caused relatively mild disease and became endemic in the population, the H7N9 virus — binding to receptors in the lower respiratory tract — has a case-fatality rate of approximately 40% and has so far resulted in only a few small clusters of human-to-human transmission.

It is tempting to assume that this association would apply to other viruses as well, but such a similarity is not a given: two coronaviruses that use the same receptor (ACE2) — NL63 and SARS-CoV — cause disease of different severity. Whereas NL63 usually causes mild upper respiratory tract disease and is endemic in the human population, SARS-CoV induced severe lower respiratory tract disease with a case-fatality rate of about 11% (see [table](#)). SARS-CoV was eventually contained by means of syndromic surveillance, isolation of patients, and quarantine of their contacts. Thus, disease severity is not necessarily linked to transmission efficiency.

Even if a virus causes subclinical or mild disease in general, some people may be more susceptible and end up seeking care. The majority of SARS-CoV and MERS-CoV cases were associated with nosocomial transmission in hospitals,<sup>5</sup> resulting at least in part from the use of aerosol-generating procedures in patients with respiratory disease. In particular, nosocomial super-spreader events appear to have driven large outbreaks within and between health care settings. For example, travel from Hong Kong to Toronto by one person with SARS-CoV resulted in 128 SARS cases in a local hospital. Similarly, the introduction of a single patient with MERS-CoV from Saudi Arabia into the South Korean health care system resulted in 186 MERS cases.

The substantial involvement of nosocomial transmission in both SARS-CoV and MERS-CoV outbreaks suggests that such transmission is a serious risk with other newly emerging respiratory coronaviruses. In addition to the vulnerability of health care settings to outbreaks of emerging coronaviruses, hospital populations are at significantly increased risk for complications from infection. Age and coexisting conditions (such as diabetes or heart disease) are independent predictors of adverse outcome in SARS-

CoV and MERS-CoV. Thus, emerging viruses that may go undetected because of a lack of severe disease in healthy people can pose significant risk to vulnerable populations with underlying medical conditions. A lack of severe disease manifestations affects our ability to contain the spread of the virus.

Identification of chains of transmission and subsequent contact tracing are much more complicated if many infected people remain asymptomatic or mildly symptomatic (assuming that these people are able to transmit the virus). More pathogenic viruses that transmit well between humans can generally be contained effectively through syndromic (fever) surveillance and contact tracing, as exemplified by SARS-CoV and, more recently, Ebola virus. Although containment of the ongoing Ebola virus outbreak in the Democratic Republic of Congo is complicated by violent conflict, all previous outbreaks were contained through identification of cases and tracing of contacts, despite the virus's efficient person-to-person transmission.

We currently do not know where 2019-nCoV falls on the scale of human-to-human transmissibility. But it is safe to assume that *if* this virus transmits efficiently, its seemingly lower pathogenicity as compared with SARS, possibly combined with super-spreader events in specific cases, could allow large-scale spread. In this manner, a virus that poses a low health threat on the individual level can pose a high risk on the population level, with the potential to cause disruptions of global public health systems and economic losses. This possibility warrants the current aggressive response aimed at tracing and diagnosing every infected patient and thereby breaking the transmission chain of 2019-nCoV. Epidemiologic information on the pathogenicity and transmissibility of this virus obtained by means of molecular detection and serosurveillance is needed to fill in the details in the surveillance pyramid and guide the response to this outbreak. Moreover, the propensity of novel coronaviruses to spread in health care centers indicates a need for peripheral health care facilities to be on standby to identify potential cases as well. In addition, increased preparedness is needed at animal markets and other animal facilities, while the possible source of this emerging virus is being investigated. If we are proactive in these ways, perhaps we will never have to discover the true epidemic or pandemic potential of 2019-nCoV.

[Disclosure forms](#) provided by the authors are available at NEJM.org.

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## Supplementary Material

[Disclosure Forms](#) PDF 191KB

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[Original Article](#) Brief Report

# A Novel Coronavirus from Patients with Pneumonia in China, 2019

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## Summary

In December 2019, a cluster of patients with pneumonia of unknown cause was linked to a seafood wholesale market in Wuhan, China. A previously unknown betacoronavirus was discovered through the use of unbiased sequencing in samples from patients with pneumonia. Human airway epithelial cells were used to isolate a novel coronavirus, named 2019-nCoV, which formed another clade within the subgenus sarbecovirus, Orthocoronavirinae subfamily. Different from both MERS-CoV and SARS-CoV, 2019-nCoV is the seventh member of the family of coronaviruses that infect humans. Enhanced surveillance and further investigation are ongoing. (Funded by the National Key Research and Development Program of China and the National Major Project for Control and Prevention of Infectious Disease in China.)



Emerging and reemerging pathogens are global challenges for public health.<sup>1</sup> Coronaviruses are enveloped RNA viruses that are distributed broadly among humans, other mammals, and birds and that cause respiratory, enteric, hepatic, and neurologic diseases.<sup>2,3</sup> Six coronavirus species are known to cause human disease.<sup>4</sup> Four viruses — 229E, OC43, NL63, and HKU1 — are prevalent and typically cause common cold symptoms in immunocompetent individuals.<sup>4</sup> The two other strains — severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) — are zoonotic in origin and have been linked to sometimes fatal illness.<sup>5</sup> SARS-CoV was the causal agent of the severe acute respiratory syndrome outbreaks in 2002 and 2003 in Guangdong Province, China.<sup>6,8</sup> MERS-CoV was the pathogen responsible for severe respiratory disease outbreaks in 2012 in the Middle East.<sup>9</sup> Given the high prevalence and wide distribution of coronaviruses, the large genetic diversity and frequent recombination of their genomes, and increasing human–animal interface activities, novel coronaviruses are likely to emerge periodically in humans owing to frequent cross-species infections and occasional spillover events.<sup>5,10</sup>

In late December 2019, several local health facilities reported clusters of patients with pneumonia of unknown cause that were epidemiologically linked to a seafood and wet animal wholesale market in Wuhan, Hubei Province, China.<sup>11</sup> On December 31, 2019, the Chinese Center for Disease Control and Prevention (China CDC) dispatched a rapid response team to accompany Hubei provincial and Wuhan city health authorities and to conduct an epidemiologic and etiologic investigation. We report the results of this investigation, identifying the source of the pneumonia clusters, and describe a novel coronavirus detected in patients with pneumonia whose specimens were tested by the China CDC at an early stage of the outbreak. We also describe clinical features of the pneumonia in two of these patients.

## Methods

### Viral Diagnostic Methods

Four lower respiratory tract samples, including bronchoalveolar-lavage fluid, were collected from patients with pneumonia of unknown cause who were identified in Wuhan on December 21, 2019, or later and who had been present at the Huanan Seafood Market close to the time of their clinical presentation. Seven bronchoalveolar-lavage fluid specimens were collected from patients in Beijing hospitals with pneumonia of known cause to serve as control samples. Extraction of nucleic acids from clinical samples (including uninfected cultures that served as negative controls) was performed with a High Pure Viral Nucleic Acid Kit, as described by the manufacturer (Roche). Extracted nucleic acid samples were tested for viruses and bacteria by polymerase chain reaction (PCR), using the RespiFinderSmart22kit (PathoFinder BV) and the LightCycler 480 real-time PCR system, in accordance with manufacturer instructions.<sup>12</sup> Samples were analyzed for 22 pathogens (18 viruses and 4 bacteria) as detailed in the [Supplementary Appendix](#). In addition, unbiased, high-throughput sequencing, described previously,<sup>13</sup> was used to discover microbial sequences not identifiable by the means described above. A real-time reverse transcription PCR (RT-PCR) assay was used to detect viral RNA by targeting a consensus RdRp region of pan  $\beta$ -CoV, as described in the [Supplementary Appendix](#).

### Isolation of Virus

Bronchoalveolar-lavage fluid samples were collected in sterile cups to which virus transport medium was added. Samples were then centrifuged to remove cellular debris. The supernatant was inoculated on human airway epithelial cells,<sup>14</sup> which had been obtained from airway specimens resected from patients undergoing surgery for lung cancer and were confirmed to be special-pathogen-free by NGS.<sup>15</sup> Human airway epithelial cells were expanded on plastic substrate to generate passage-1 cells and were subsequently plated at a density of  $2.5 \times 10^5$  cells per well on permeable Transwell-COL (12-mm diameter) supports. Human airway epithelial cell cultures were generated in an air–liquid interface for 4

to 6 weeks to form well-differentiated, polarized cultures resembling *in vivo* pseudostratified mucociliary epithelium.<sup>13</sup>

Prior to infection, apical surfaces of the human airway epithelial cells were washed three times with phosphate-buffered saline; 150 µl of supernatant from bronchoalveolar-lavage fluid samples was inoculated onto the apical surface of the cell cultures. After a 2-hour incubation at 37°C, unbound virus was removed by washing with 500 µl of phosphate-buffered saline for 10 minutes; human airway epithelial cells were maintained in an air–liquid interface incubated at 37°C with 5% carbon dioxide. Every 48 hours, 150 µl of phosphate-buffered saline was applied to the apical surfaces of the human airway epithelial cells, and after 10 minutes of incubation at 37°C the samples were harvested. Pseudostratified mucociliary epithelium cells were maintained in this environment; apical samples were passaged in a 1:3 diluted vial stock to new cells. The cells were monitored daily with light microscopy, for cytopathic effects, and with RT-PCR, for the presence of viral nucleic acid in the supernatant. After three passages, apical samples and human airway epithelial cells were prepared for transmission electron microscopy.

## **Transmission Electron Microscopy**

Supernatant from human airway epithelial cell cultures that showed cytopathic effects was collected, inactivated with 2% paraformaldehyde for at least 2 hours, and ultracentrifuged to sediment virus particles. The enriched supernatant was negatively stained on film-coated grids for examination. Human airway epithelial cells showing cytopathic effects were collected and fixed with 2% paraformaldehyde–2.5% glutaraldehyde and were then fixed with 1% osmium tetroxide dehydrated with grade ethanol embedded with PON812 resin. Sections (80 nm) were cut from resin block and stained with uranyl acetate and lead citrate, separately. The negative stained grids and ultrathin sections were observed under transmission electron microscopy.

## **Viral Genome Sequencing**

RNA extracted from bronchoalveolar-lavage fluid and culture supernatants was used as a template to clone and sequence the genome. We used a combination of Illumina sequencing and nanopore sequencing to characterize the virus genome. Sequence reads were assembled into contig maps (a set of overlapping DNA segments) with the use of CLC Genomics software, version 4.6.1 (CLC Bio). Specific primers were subsequently designed for PCR, and 5'- or 3'- RACE (rapid amplification of cDNA ends) was used to fill genome gaps from conventional Sanger sequencing. These PCR products were purified from gels and sequenced with a BigDye Terminator v3.1 Cycle Sequencing Kit and a 3130XL Genetic Analyzer, in accordance with the manufacturers' instructions.

Multiple-sequence alignment of the 2019-nCoV and reference sequences was performed with the use of Muscle. Phylogenetic analysis of the complete genomes was performed with RAxML (13) with 1000 bootstrap replicates and a general time-reversible model used as the nucleotide substitution model.

## **Results**

### **Patients**



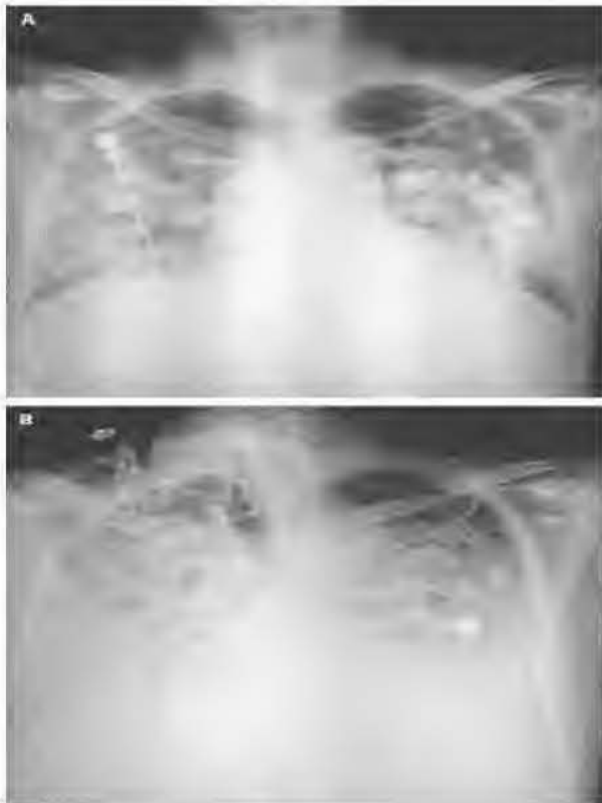


Figure 1. Chest Radiographs.

Three adult patients presented with severe pneumonia and were admitted to a hospital in Wuhan on December 27, 2019. Patient 1 was a 49-year-old woman, Patient 2 was a 61-year-old man, and Patient 3 was a 32-year-old man. Clinical profiles were available for Patients 1 and 2. Patient 1 reported having no underlying chronic medical conditions but reported fever (temperature, 37°C to 38°C) and cough with chest discomfort on December 23, 2019. Four days after the onset of illness, her cough and chest discomfort worsened, but the fever was reduced; a diagnosis of pneumonia was based on computed tomographic (CT) scan. Her occupation was retailer in the seafood wholesale market. Patient 2 initially reported fever and cough on December 20, 2019; respiratory distress developed 7 days after the onset of illness and worsened over the next 2 days (see chest radiographs, [Figure 1](#)), at which time mechanical ventilation was started. He had been a frequent visitor to the seafood wholesale market. Patients 1 and 3 recovered and were discharged from the hospital on January 16, 2020. Patient 2 died on January 9, 2020. No biopsy specimens were obtained.

## Detection and Isolation of a Novel Coronavirus

Three bronchoalveolar-lavage samples were collected from Wuhan Jinyintan Hospital on December 30, 2019. No specific pathogens (including HCoV-229E, HCoV-NL63, HCoV-OC43, and HCoV-HKU1) were detected in clinical specimens from these patients by the RespiFinderSmart22kit. RNA extracted from bronchoalveolar-lavage fluid from the patients was used as a template to clone and sequence a genome using a combination of Illumina sequencing and nanopore sequencing. More than 20,000 viral reads from individual specimens were obtained, and most contigs matched to the genome from lineage B of the genus betacoronavirus — showing more than 85% identity with a bat SARS-like CoV (bat-SL-CoVZC45, MG772933.1) genome published previously. Positive results were also obtained with use of a real-time RT-PCR assay for RNA targeting to a consensus RdRp region of pan  $\beta$ -CoV (although the cycle threshold value was higher than 34 for detected samples). Virus isolation from the clinical specimens was performed with human airway epithelial cells and Vero E6 and Huh-7 cell lines. The isolated virus was named 2019-nCoV.

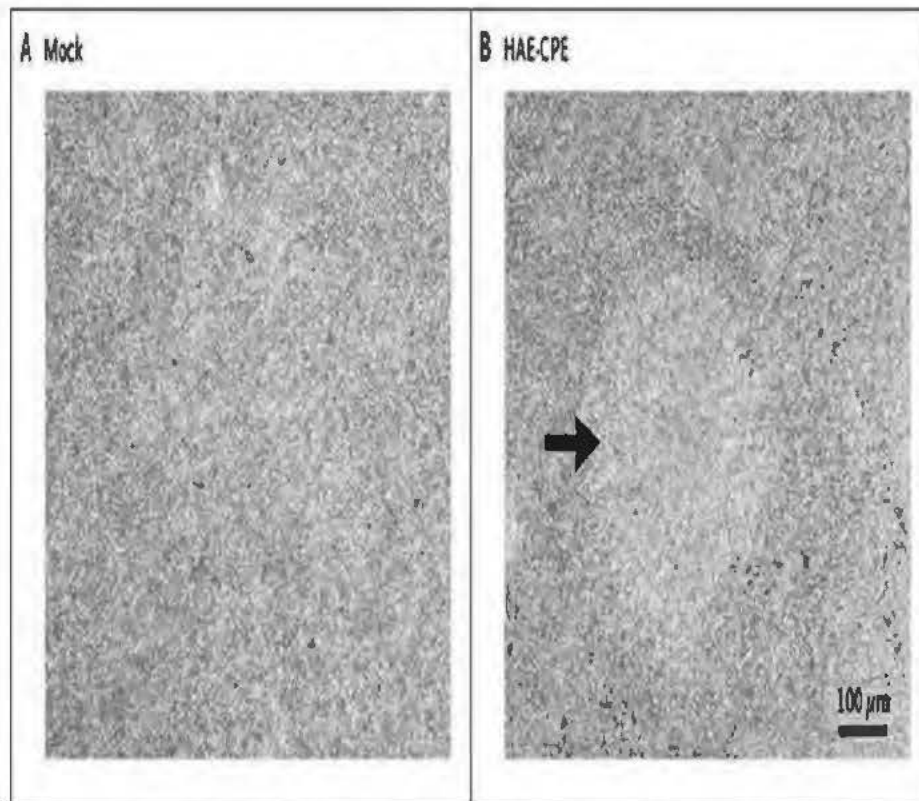


Figure 2. Cytopathic Effects in Human Airway Epithelial Cell Cultures after Inoculation with 2019-nCoV.

To determine whether virus particles could be visualized in 2019-nCoV–infected human airway epithelial cells, mock-infected and 2019-nCoV–infected human airway epithelial cultures were examined with light microscopy daily and with transmission electron microscopy 6 days after inoculation. Cytopathic effects were observed 96 hours after inoculation on surface layers of human airway epithelial cells; a lack of cilium beating was seen with light microscopy in the center of the focus (Figure 2). No specific cytopathic effects were observed in the Vero E6 and Huh-7 cell lines until 6 days after inoculation.



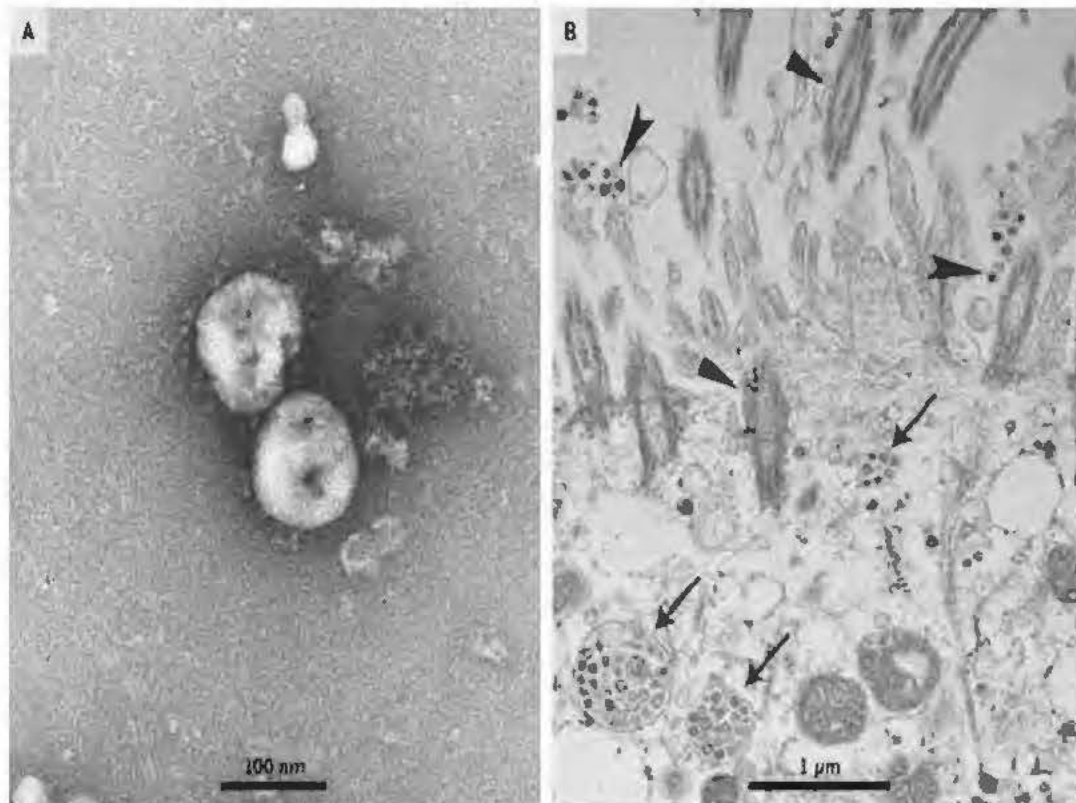
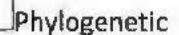


Figure 3.

Visualization of 2019-nCoV with Transmission Electron Microscopy.

Electron micrographs of negative-stained 2019-nCoV particles were generally spherical with some pleomorphism (Figure 3). Diameter varied from about 60 to 140 nm. Virus particles had quite distinctive spikes, about 9 to 12 nm, and gave virions the appearance of a solar corona. Extracellular free virus particles and inclusion bodies filled with virus particles in membrane-bound vesicles in cytoplasm were found in the human airway epithelial ultrathin sections. This observed morphology is consistent with the Coronaviridae family.

To further characterize the virus, de novo sequences of 2019-nCoV genome from clinical specimens (bronchoalveolar-lavage fluid) and human airway epithelial cell virus isolates were obtained by Illumina and nanopore sequencing. The novel coronavirus was identified from all three patients. Two nearly full-length coronavirus sequences were obtained from bronchoalveolar-lavage fluid (BetaCoV/Wuhan/IVDC-HB-04/2020, BetaCoV/Wuhan/IVDC-HB-05/2020|EPI\_ISL\_402121), and one full-length sequence was obtained from a virus isolated from a patient (BetaCoV/Wuhan/IVDC-HB-01/2020|EPI\_ISL\_402119). Complete genome sequences of the three novel coronaviruses were submitted to GISAID (BetaCoV/Wuhan/IVDC-HB-01/2020, accession ID: EPI\_ISL\_402119; BetaCoV/Wuhan/IVDC-HB-04/2020, accession ID: EPI\_ISL\_402120; BetaCoV/Wuhan/IVDC-HB-05/2020, accession ID: EPI\_ISL\_402121) and have a 86.9% nucleotide sequence identity to a previously published bat SARS-like CoV (bat-SL-CoVZC45, MG772933.1) genome. The three 2019-nCoV genomes clustered together and formed an independent subclade within the sarbecovirus subgenus, which shows the typical betacoronavirus organization: a 5' untranslated region (UTR), replicase complex (orf1ab), S gene, E gene, M gene, N gene, 3' UTR, and several unidentified nonstructural open reading frames.



## Discussion

We report a novel CoV (2019-nCoV) that was identified in hospitalized patients in Wuhan, China, in December 2019 and January 2020. Evidence for the presence of this virus includes identification in bronchoalveolar-lavage fluid in three patients by whole-genome sequencing, direct PCR, and culture. The illness likely to have been caused by this CoV was named “novel coronavirus-infected pneumonia” (NCIP). Complete genomes were submitted to GISAID. Phylogenetic analysis revealed that 2019-nCoV falls into the genus betacoronavirus, which includes coronaviruses (SARS-CoV, bat SARS-like CoV, and others) discovered in humans, bats, and other wild animals.<sup>15</sup> We report isolation of the virus and the initial description of its specific cytopathic effects and morphology.

Molecular techniques have been used successfully to identify infectious agents for many years. Unbiased, high-throughput sequencing is a powerful tool for the discovery of pathogens.<sup>14,16</sup> Next-generation sequencing and bioinformatics are changing the way we can respond to infectious disease outbreaks, improving our understanding of disease occurrence and transmission, accelerating the identification of pathogens, and promoting data sharing. We describe in this report the use of molecular techniques and unbiased DNA sequencing to discover a novel betacoronavirus that is likely to have been the cause of severe pneumonia in three patients in Wuhan, China.



Although establishing human airway epithelial cell cultures is labor intensive, they appear to be a valuable research tool for analysis of human respiratory pathogens.<sup>14</sup> Our study showed that initial propagation of human respiratory secretions onto human airway epithelial cell cultures, followed by transmission electron microscopy and whole genome sequencing of culture supernatant, was successfully used for visualization and detection of new human coronavirus that can possibly elude identification by traditional approaches.

Further development of accurate and rapid methods to identify unknown respiratory pathogens is still needed. On the basis of analysis of three complete genomes obtained in this study, we designed several specific and sensitive assays targeting ORF1ab, N, and E regions of the 2019-nCoV genome to detect viral RNA in clinical specimens. The primer sets and standard operating procedures have been shared with the World Health Organization and are intended for surveillance and detection of 2019-nCoV infection globally and in China. More recent data show 2019-nCoV detection in 830 persons in China.<sup>12</sup>

Although our study does not fulfill Koch's postulates, our analyses provide evidence implicating 2019-nCoV in the Wuhan outbreak. Additional evidence to confirm the etiologic significance of 2019-nCoV in the Wuhan outbreak include identification of a 2019-nCoV antigen in the lung tissue of patients by immunohistochemical analysis, detection of IgM and IgG antiviral antibodies in the serum samples from a patient at two time points to demonstrate seroconversion, and animal (monkey) experiments to provide evidence of pathogenicity. Of critical importance are epidemiologic investigations to characterize transmission modes, reproduction interval, and clinical spectrum resulting from infection to inform and refine strategies that can prevent, control, and stop the spread of 2019-nCoV.

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Drs. Zhu, Zhang, W. Wang, Li, and Yang contributed equally to this article.

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## Supplementary Material

[Supplementary Appendix](#) PDF 154KB

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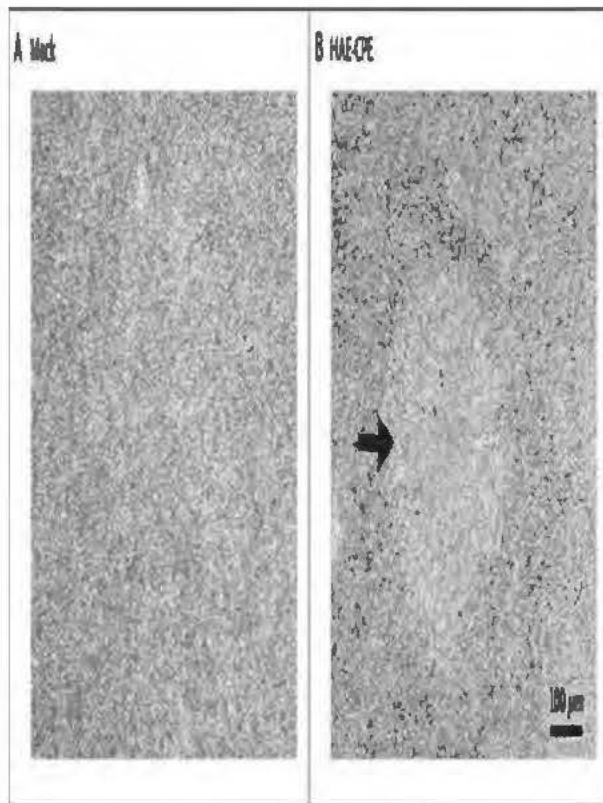
1. **Figure 1. Chest Radiographs.**



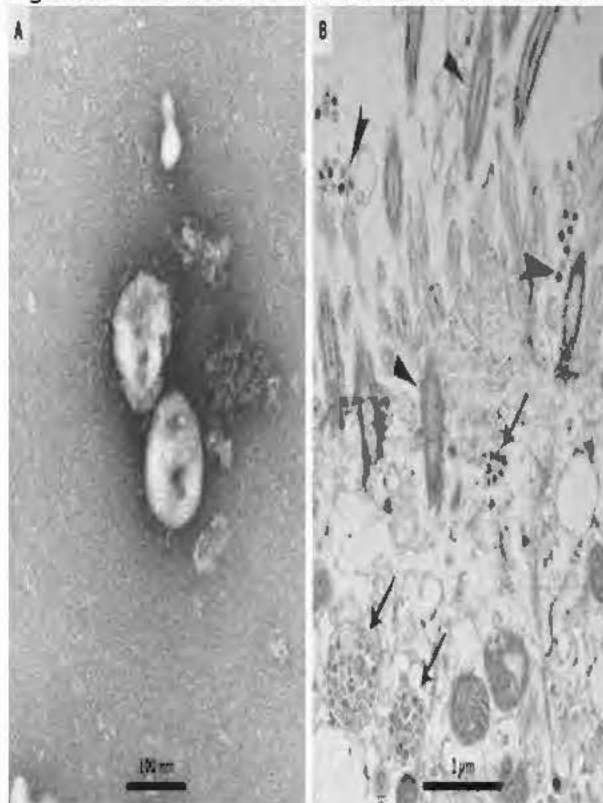
Shown are chest radiographs from Patient 2 on days 8 and 11 after the onset of illness. The trachea was intubated and mechanical ventilation instituted in the period between the acquisition of the two images. Bilateral fluffy opacities are present in both images but are increased in density, profusion, and confluence in the second image; these changes are most marked in the lower lung fields. Changes consistent with the accumulation of pleural liquid are also visible in the second image.

2. **Figure 2. Cytopathic Effects in Human Airway Epithelial Cell Cultures after Inoculation with 2019-nCoV.**



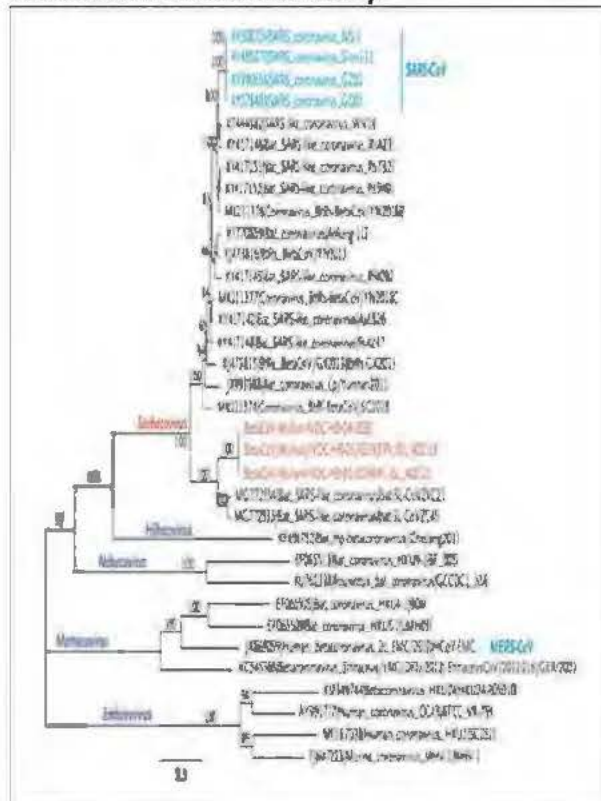


3. *Figure 3. Visualization of 2019-nCoV with Transmission Electron Microscopy.*



Negative-stained 2019-nCoV particles are shown in Panel A, and 2019-nCoV particles in the human airway epithelial cell ultrathin sections are shown in Panel B.

**4. Figure 4. Phylogenetic Analysis of 2019-nCoV and Other Betacoronavirus Genomes in the Orthocoronavirinae Subfamily.**



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# First Case of 2019 Novel Coronavirus in the United States

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## Summary

An outbreak of novel coronavirus (2019-nCoV) that began in Wuhan, China, has spread rapidly, with cases now confirmed in multiple countries. We report the first case of 2019-nCoV infection confirmed in the United States and describe the identification, diagnosis, clinical course, and management of the case, including the patient's initial mild symptoms at presentation with progression to pneumonia on day 9 of illness. This case highlights the importance of close coordination between clinicians and public health authorities at the local, state, and federal levels, as well as the need for rapid dissemination of clinical information related to the care of patients with this emerging infection.

On December 31, 2019, China reported a cluster of cases of pneumonia in people associated with the Huanan Seafood Wholesale Market in Wuhan, Hubei Province.<sup>1</sup> On January 7, 2020, Chinese health authorities confirmed that this cluster was associated with a novel coronavirus, 2019-nCoV.<sup>2</sup> Although cases were originally reported to be associated with exposure to the seafood market in Wuhan, current epidemiologic data indicate that person-to-person transmission of 2019-nCoV is occurring.<sup>3-6</sup> As of January 30, 2020, a total of 9976 cases had been reported in at least 21 countries,<sup>7</sup> including the first confirmed case of 2019-nCoV infection in the United States, reported on January 20, 2020.

Investigations are under way worldwide to better understand transmission dynamics and the spectrum of clinical illness. This report describes the epidemiologic and clinical features of the first case of 2019-nCoV infection confirmed in the United States.

## Case Report

On January 19, 2020, a 35-year-old man presented to an urgent care clinic in Snohomish County, Washington, with a 4-day history of cough and subjective fever. On checking into the clinic, the patient put on a mask in the waiting room. After waiting approximately 20 minutes, he was taken into an examination room and underwent evaluation by a provider. He disclosed that he had returned to Washington State on January 15 after traveling to visit family in Wuhan, China. The patient stated that he had seen a health alert from the U.S. Centers for Disease Control and Prevention (CDC) about the novel coronavirus outbreak in China and, because of his symptoms and recent travel, decided to see a health care provider.





Figure 1. Posteroanterior and Lateral Chest Radiographs, January 19, 2020 (Illness Day 4).

Apart from a history of hypertriglyceridemia, the patient was an otherwise healthy nonsmoker. The physical examination revealed a body temperature of 37.2°C, blood pressure of 134/87 mm Hg, pulse of 110 beats per minute, respiratory rate of 16 breaths per minute, and oxygen saturation of 96% while the patient was breathing ambient air. Lung auscultation revealed rhonchi, and chest radiography was performed, which was reported as showing no abnormalities (Figure 1). A rapid nucleic acid amplification test (NAAT) for influenza A and B was negative. A nasopharyngeal swab specimen was obtained and sent for detection of viral respiratory pathogens by NAAT; this was reported back within 48 hours as negative for all pathogens tested, including influenza A and B, parainfluenza, respiratory syncytial virus, rhinovirus, adenovirus, and four common coronavirus strains known to cause illness in humans (HKU1, NL63, 229E, and OC43).

Given the patient's travel history, the local and state health departments were immediately notified. Together with the urgent care clinician, the Washington Department of Health notified the CDC Emergency Operations Center. Although the patient reported that he had not spent time at the Huanan seafood market and reported no known contact with ill persons during his travel to China, CDC staff concurred with the need to test the patient for 2019-nCoV on the basis of current CDC "persons under investigation" case definitions.<sup>8</sup> Specimens were collected in accordance with CDC guidance and included serum and nasopharyngeal and oropharyngeal swab specimens. After specimen collection, the patient was discharged to home isolation with active monitoring by the local health department. On January 20, 2020, the CDC confirmed that the patient's nasopharyngeal and oropharyngeal swabs tested positive for 2019-nCoV by real-time reverse-transcriptase–polymerase-chain-reaction (rRT-PCR) assay. In coordination with CDC subject-matter experts, state and local health officials, emergency medical services, and hospital leadership and staff, the patient was admitted to an airborne-isolation unit at Providence Regional Medical Center for clinical observation, with health care workers following CDC recommendations for contact, droplet, and airborne precautions with eye protection.<sup>9</sup>

On admission, the patient reported persistent dry cough and a 2-day history of nausea and vomiting; he reported that he had no shortness of breath or chest pain. Vital signs were within normal ranges. On physical examination, the patient was found to have dry mucous membranes. The remainder of the examination was generally unremarkable. After admission, the patient received supportive care, including 2 liters of normal saline and ondansetron for nausea.

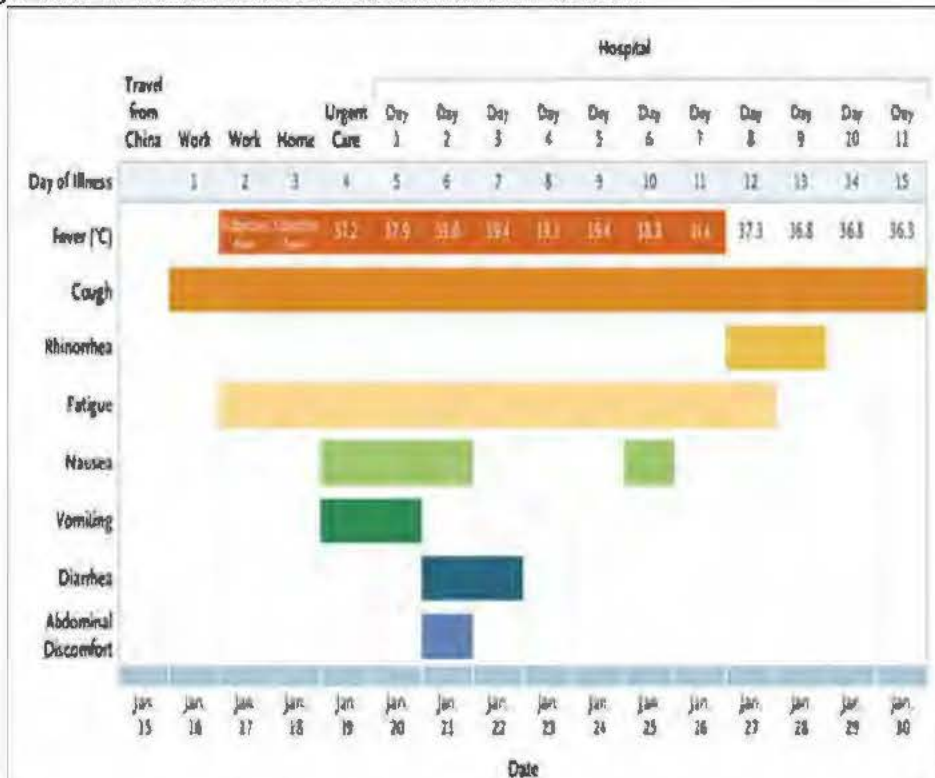


Figure 2. Symptoms and Maximum Body Temperatures According to Day of Illness and Day of Hospitalization, January 16 to January 30, 2020.

On days 2 through 5 of hospitalization (days 6 through 9 of illness), the patient's vital signs remained largely stable, apart from the development of intermittent fevers accompanied by periods of tachycardia (Figure 2). The patient continued to report a nonproductive cough and appeared fatigued. On the afternoon of hospital day 2, the patient passed a loose bowel movement and reported abdominal discomfort. A second episode of loose stool was reported overnight; a sample of this stool was collected for rRT-PCR testing, along with additional respiratory specimens (nasopharyngeal and oropharyngeal) and serum. The stool and both respiratory specimens later tested positive by rRT-PCR for 2019-nCoV, whereas the serum remained negative.

Treatment during this time was largely supportive. For symptom management, the patient received, as needed, antipyretic therapy consisting of 650 mg of acetaminophen every 4 hours and 600 mg of ibuprofen every 6 hours. He also received 600 mg of guaifenesin for his continued cough and approximately 6 liters of normal saline over the first 6 days of hospitalization.



Measure	Reference Range	Illness Day 6, Hospital Day 2 <sup>†</sup>	Illness Day 7, Hospital Day 3	Illness Day 9, Hospital Day 5	Illness Day 11, Hospital Day 7	Illness Day 13, Hospital Day 9	Illness Day 14, Hospital Day 10
White-cell count (per $\mu$ l)	3800–11,000	*"Slight decrease"	11,201	1300‡	5400	5600	6500
Red-cell count (per $\mu$ l)	4,200,000–5,700,000	—	4,870,000	5,150,000	5,010,000	4,650,000	5,010,000
Abnormal neutrophil count (per $\mu$ l)	1900–7400	—	1750‡	1700‡	1700	1800	3200
Abnormal lymphocyte count (per $\mu$ l)	1000–1900	—	1070	1400	1400	1400	2100
Platelet count (per $\mu$ l)	150,000–400,000	*"Adequate"	122,000‡	132,000‡	151,000	150,000	219,000
Hemoglobin (g/dl)	13.2–17.0	12.2‡	14.2	14.8	14.8	13.5	14.2
Hematocrit (%)	39.0–50.0	36.0‡	42.0	43.0	43.0	39.3	42.0
Sodium (mmol/liter)	136–145	134‡	136	138	138	135‡	138
Potassium (mmol/liter)	3.5–5.1	3.3‡	3.8	3.4‡	3.6	4.1	3.9
Chloride (mmol/liter)	98–107	99	101	105	106	100	101
Calcium (mg/dl)	8.7–10.4	—	8.5‡	9.1	9.0	8.6‡	9.1
Carbon dioxide (mmol/liter)	20–31	—	26	24	25	23	30‡
Anion gap (mmol/liter)	5–16	—	9	9	7	12	9
Glucose (mmol/liter)	85–140	104	103	120	96	148‡	104
Blood urea nitrogen (mg/dl)	9–23	15	10	11	13	22‡	18
Creatinine (mg/dl)	0.7–1.3	1.0	1.06	1.06	0.88	1.08	0.84
Total protein (g/dl)	5.7–8.2	—	6.9	7.1	6.8	6.9	6.8
Albumin (g/dl)	4.2–4.8	—	4.2	4.7	4.3	2.9‡	4.4
Total bilirubin (mg/dl)	0.8–1.2	1.0	1.1	1.1	1.5‡	0.8	1.0
Procalcitonin (ng/ml)	<0.05	—	—	<0.05	<0.05	—	—
Alanine aminotransferase (U/liter)	10–49	—	68‡	105‡	119‡	219‡	20‡
Aspartate aminotransferase (U/liter)	<33	—	17‡	77‡	85‡	129‡	89‡
Alkaline phosphatase (U/liter)	46–116	—	50	68‡	83‡	117‡	143‡
$\gamma$ -glutamyl transferase (mg/dl)	150–450	—	47‡	—	—	—	—
Lactate dehydrogenase (U/liter)	120–246	—	250‡	465‡	—	—	188‡
Prothrombin time (sec)	12.2–14.8	—	11.9‡	11.9‡	—	—	12.7
International normalized ratio	0.9–1.1	—	0.9	0.9	—	—	1.0
Creatine kinase (U/liter)	62–325	—	353‡	332‡	—	—	—
Venous lactate (mmol/liter)	0.4–2.0	—	1.3	1.7	—	—	—

<sup>a</sup> To convert the values for calcium to millimoles per liter, multiply by 0.250. To convert the values for blood urea nitrogen to millimoles per liter of urea, multiply by 0.357. To convert the values for creatinine to micromoles per liter, multiply by 88.4. To convert the values for total bilirubin to micromoles per liter, multiply by 17.1.

<sup>†</sup> Results are from point-of-care blood analysis (STAT) testing.

<sup>‡</sup> The value in the patient was below normal.

<sup>§</sup> The value in the patient was above normal.

Table 1. Clinical Laboratory Results.

The nature of the patient isolation unit permitted only point-of-care laboratory testing initially; complete blood counts and serum chemical studies were available starting on hospital day 3. Laboratory results on hospital days 3 and 5 (illness days 7 and 9) reflected leukopenia, mild thrombocytopenia, and elevated levels of creatine kinase (Table 1). In addition, there were alterations in hepatic function measures: levels of alkaline phosphatase (68 U per liter), alanine aminotransferase (105 U per liter), aspartate aminotransferase (77 U per liter), and lactate dehydrogenase (465 U per liter) were all elevated on day 5 of hospitalization. Given the patient's recurrent fevers, blood cultures were obtained on day 4; these have shown no growth to date.



Figure 3. Posteroanterior and Lateral Chest Radiographs, January 22, 2020 (Illness Day 7, Hospital Day 3).Figure 4.



Posteroanterior Chest Radiograph, January 24, 2020 (Illness Day 9, Hospital Day 5).



A chest radiograph taken on hospital day 3 (illness day 7) was reported as showing no evidence of infiltrates or abnormalities (Figure 3). However, a second chest radiograph from the night of hospital day 5 (illness day 9) showed evidence of pneumonia in the lower lobe of the left lung (Figure 4). These radiographic findings coincided with a change in respiratory status starting on the evening of hospital day 5, when the patient's oxygen saturation values as measured by pulse oximetry dropped to as low as 90% while he was breathing ambient air. On day 6, the patient was started on supplemental oxygen, delivered by nasal cannula at 2 liters per minute. Given the changing clinical presentation and concern about hospital-acquired pneumonia, treatment with vancomycin (a 1750-mg loading dose followed by 1 g administered intravenously every 8 hours) and cefepime (administered intravenously every 8 hours) was initiated.

Figure 5.



Anteroposterior and Lateral Chest Radiographs, January 26, 2020 (Illness Day 10, Hospital Day 6).

On hospital day 6 (illness day 10), a fourth chest radiograph showed basilar streaky opacities in both lungs, a finding consistent with atypical pneumonia (Figure 5), and rales were noted in both lungs on auscultation. Given the radiographic findings, the decision to administer oxygen supplementation, the patient's ongoing fevers, the persistent positive 2019-nCoV RNA at multiple sites, and published reports of the development of severe pneumonia<sup>3,4</sup> at a period consistent with the development of radiographic pneumonia in this patient, clinicians pursued compassionate use of an investigational antiviral therapy. Treatment with intravenous remdesivir (a novel nucleotide analogue prodrug in development<sup>10,11</sup>) was initiated on the evening of day 7, and no adverse events were observed in association with the infusion. Vancomycin was discontinued on the evening of day 7, and cefepime was discontinued on the following day, after serial negative procalcitonin levels and negative nasal PCR testing for methicillin-resistant *Staphylococcus aureus*.

On hospital day 8 (illness day 12), the patient's clinical condition improved. Supplemental oxygen was discontinued, and his oxygen saturation values improved to 94 to 96% while he was breathing ambient

air. The previous bilateral lower-lobe rales were no longer present. His appetite improved, and he was asymptomatic aside from intermittent dry cough and rhinorrhea. As of January 30, 2020, the patient remains hospitalized. He is afebrile, and all symptoms have resolved with the exception of his cough, which is decreasing in severity.

## **Methods**

### **Specimen Collection**

Clinical specimens for 2019-nCoV diagnostic testing were obtained in accordance with CDC guidelines.<sup>12</sup> Nasopharyngeal and oropharyngeal swab specimens were collected with synthetic fiber swabs; each swab was inserted into a separate sterile tube containing 2 to 3 ml of viral transport medium. Serum was collected in a serum separator tube and then centrifuged in accordance with CDC guidelines. The urine and stool specimens were each collected in sterile specimen containers. Specimens were stored between 2°C and 8°C until ready for shipment to the CDC. Specimens for repeat 2019-nCoV testing were collected on illness days 7, 11, and 12 and included nasopharyngeal and oropharyngeal swabs, serum, and urine and stool samples.

### **Diagnostic Testing for 2019-nCoV**

Clinical specimens were tested with an rRT-PCR assay that was developed from the publicly released virus sequence. Similar to previous diagnostic assays for severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV), it has three nucleocapsid gene targets and a positive control target. A description of this assay<sup>13</sup> and sequence information for the rRT-PCR panel primers and probes<sup>14</sup> are available on the CDC Laboratory Information website for 2019-nCoV.<sup>15</sup>

### **Genetic Sequencing**

On January 7, 2020, Chinese researchers shared the full genetic sequence of 2019-nCoV through the National Institutes of Health GenBank database<sup>16</sup> and the Global Initiative on Sharing All Influenza Data (GISAID)<sup>17</sup> database; a report about the isolation of 2019-nCoV was later published.<sup>18</sup> Nucleic acid was extracted from rRT-PCR-positive specimens (oropharyngeal and nasopharyngeal) and used for whole-genome sequencing on both Sanger and next-generation sequencing platforms (Illumina and Minlon). Sequence assembly was completed with the use of Sequencher software, version 5.4.6 (Sanger); minimap software, version 2.17 (Minlon); and freebayes software, version 1.3.1 (MiSeq). Complete genomes were compared with the available 2019-nCoV reference sequence (GenBank accession number NC\_045512.2).

## **Results**

### **Specimen Testing for 2019-nCoV**



**Table 2.** Results of Real-Time Reverse-Transcriptase-Polymerase-Chain-Reaction Testing for the 2019 Novel Coronavirus (2019-nCoV).<sup>a</sup>

Specimen	Illness Day 4	Illness Day 7	Illness Day 11	Illness Day 12
Nasopharyngeal swab	Positive (Ct, 18–20)	Positive (Ct, 23–24)	Positive (Ct, 33–34)	Positive (Ct, 37–40)
Oropharyngeal swab	Positive (Ct, 21–22)	Positive (Ct, 32–33)	Positive (Ct, 36–40)	Negative
Serum	Negative	Negative	Pending	Pending
Urine	NT	Negative	NT	NT
Stool	NT	Positive (Ct, 36–38)	NT	NT

<sup>a</sup> Lower cycle threshold (Ct) values indicate higher viral loads. NT denotes not tested.

Table 2.

Results of Real-Time Reverse-Transcriptase-Polymerase-Chain-Reaction Testing for the 2019 Novel Coronavirus (2019-nCoV).

The initial respiratory specimens (nasopharyngeal and oropharyngeal swabs) obtained from this patient on day 4 of his illness were positive for 2019-nCoV (Table 2). The low cycle threshold (Ct) values (18 to 20 in nasopharyngeal specimens and 21 to 22 in oropharyngeal specimens) on illness day 4 suggest high levels of virus in these specimens, despite the patient's initial mild symptom presentation. Both upper respiratory specimens obtained on illness day 7 remained positive for 2019-nCoV, including persistent high levels in a nasopharyngeal swab specimen (Ct values, 23 to 24). Stool obtained on illness day 7 was also positive for 2019-nCoV (Ct values, 36 to 38). Serum specimens for both collection dates were negative for 2019-nCoV. Nasopharyngeal and oropharyngeal specimens obtained on illness days 11 and 12 showed a trend toward decreasing levels of virus. The oropharyngeal specimen tested negative for 2019-nCoV on illness day 12. The rRT-PCR results for serum obtained on these dates are still pending.

## Genetic Sequencing

The full genome sequences from oropharyngeal and nasopharyngeal specimens were identical to one another and were nearly identical to other available 2019-nCoV sequences. There were only 3 nucleotides and 1 amino acid that differed at open reading frame 8 between this patient's virus and the 2019-nCoV reference sequence (NC\_045512.2). The sequence is available through GenBank (accession number MN985325).<sup>16</sup>

## Discussion

Our report of the first confirmed case of 2019-nCoV in the United States illustrates several aspects of this emerging outbreak that are not yet fully understood, including transmission dynamics and the full spectrum of clinical illness. Our case patient had traveled to Wuhan, China, but reported that he had not visited the wholesale seafood market or health care facilities or had any sick contacts during his stay in Wuhan. Although the source of his 2019-nCoV infection is unknown, evidence of person-to-person

transmission has been published. Through January 30, 2020, no secondary cases of 2019-nCoV related to this case have been identified, but monitoring of close contacts continues.<sup>19</sup>

Detection of 2019-nCoV RNA in specimens from the upper respiratory tract with low Ct values on day 4 and day 7 of illness is suggestive of high viral loads and potential for transmissibility. It is notable that we also detected 2019-nCoV RNA in a stool specimen collected on day 7 of the patient's illness. Although serum specimens from our case patient were repeatedly negative for 2019-nCoV, viral RNA has been detected in blood in severely ill patients in China.<sup>4</sup> However, extrapulmonary detection of viral RNA does not necessarily mean that infectious virus is present, and the clinical significance of the detection of viral RNA outside the respiratory tract is unknown at this time.

Currently, our understanding of the clinical spectrum of 2019-nCoV infection is very limited.

Complications such as severe pneumonia, respiratory failure, acute respiratory distress syndrome (ARDS), and cardiac injury, including fatal outcomes, have been reported in China.<sup>4,18,20</sup> However, it is important to note that these cases were identified on the basis of their pneumonia diagnosis and thus may bias reporting toward more severe outcomes.

Our case patient initially presented with mild cough and low-grade intermittent fevers, without evidence of pneumonia on chest radiography on day 4 of his illness, before having progression to pneumonia by illness day 9. These nonspecific signs and symptoms of mild illness early in the clinical course of 2019-nCoV infection may be indistinguishable clinically from many other common infectious diseases, particularly during the winter respiratory virus season. In addition, the timing of our case patient's progression to pneumonia on day 9 of illness is consistent with later onset of dyspnea (at a median of 8 days from onset) reported in a recent publication.<sup>4</sup> Although a decision to administer remdesivir for compassionate use was based on the case patient's worsening clinical status, randomized controlled trials are needed to determine the safety and efficacy of remdesivir and any other investigational agents for treatment of patients with 2019-nCoV infection.

We report the clinical features of the first reported patient with 2019-nCoV infection in the United States. Key aspects of this case included the decision made by the patient to seek medical attention after reading public health warnings about the outbreak; recognition of the patient's recent travel history to Wuhan by local providers, with subsequent coordination among local, state, and federal public health officials; and identification of possible 2019-nCoV infection, which allowed for prompt isolation of the patient and subsequent laboratory confirmation of 2019-nCoV, as well as for admission of the patient for further evaluation and management. This case report highlights the importance of clinicians eliciting a recent history of travel or exposure to sick contacts in any patient presenting for medical care with acute illness symptoms, in order to ensure appropriate identification and prompt isolation of patients who may be at risk for 2019-nCoV infection and to help reduce further transmission. Finally, this report highlights the need to determine the full spectrum and natural history of clinical disease, pathogenesis, and duration of viral shedding associated with 2019-nCoV infection to inform clinical management and public health decision making.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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We thank the patient; the nurses and clinical staff who are providing care for the patient; staff at the local and state health departments; staff at the Washington State Department of Health Public Health Laboratories and at the Centers for Disease Control and Prevention (CDC) Division of Viral Disease Laboratory; CDC staff at the Emergency Operations Center; and members of the 2019-nCoV response teams at the local, state, and national levels.

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A full list of the members of the Washington State 2019-nCoV Case Investigation Team is provided in the [Supplementary Appendix](#), available at NEJM.org.

## Supplementary Material

[Supplementary Appendix](#) PDF 117KB

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## Figures/Media

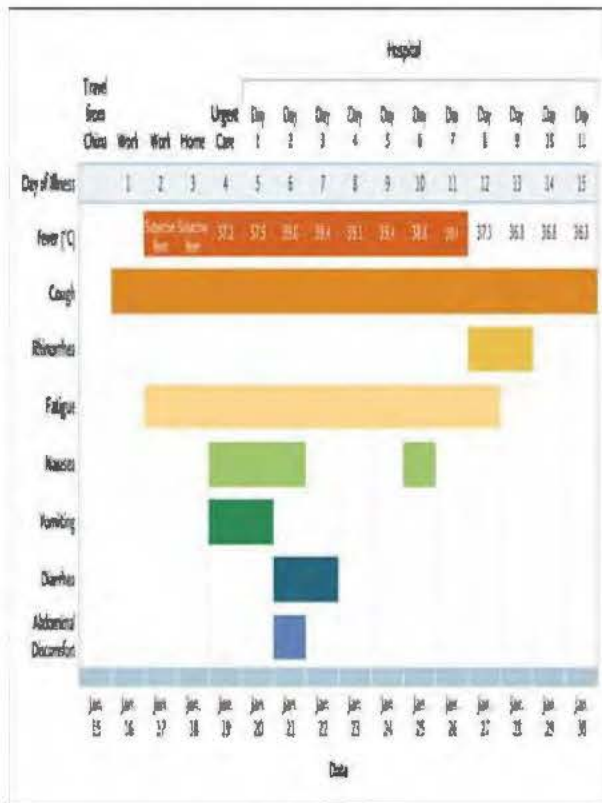
1. *Figure 1. Posteroanterior and Lateral Chest Radiographs, January 19, 2020 (Illness Day 4).*



No thoracic abnormalities were noted.

2. **Figure 2. Symptoms and Maximum Body Temperatures According to Day of Illness and Day of Hospitalization, January 16 to January 30, 2020.**





### 3. Table 1. Clinical Laboratory Results.\*

Measure	Reference Range	Illness Day 4, Hospital Day 1	Illness Day 7, Hospital Day 3	Illness Day 9, Hospital Day 5	Illness Day 11, Hospital Day 7	Illness Day 13, Hospital Day 9	Illness Day 14, Hospital Day 10
White cell count (per µl)	8000–11,000	"Slight decrease"	11,000	13,000	9400	9600	6500
Red cell count (per µl)	4,200,000–5,700,000	—	4,870,000	5,150,000	5,010,000	4,650,000	5,010,000
Absolute neutrophil count (per µl)	1,800–7400	—	1750	1700	1700	3800	1500
Absolute lymphocyte count (per µl)	1000–3900	—	1070	1400	1400	1400	2100
Platelet count (per µl)	150,000–400,000	"Adequate"	122,000	120,000	121,000	120,000	126,000
Hemoglobin (g/dl)	13.1–17.0	12.2	14.2	14.8	14.8	15.1	14.2
Hematocrit (%)	39.0–50.0	36.0	42.0	43.0	43.0	39.3	42.0
Serum iron (nmol/liter)	126–140	134	136	138	138	135	136
Aspartate (nmol/liter)	3.5–5.1	3.3	3.6	3.4	3.6	4.1	3.6
Creatinine (nmol/liter)	96–107	88	101	100	106	100	101
Creatinine (mg/dl)	0.7–1.0	—	0.9	0.9	0.9	0.9	0.9
Carbon dioxide (nmol/liter)	26–31	—	26	24	25	23	30
Anion gap (nmol/liter)	3–14	—	8	9	7	12	9
Glucose (nmol/liter)	45–140	104	103	100	96	140	104
Blood urea nitrogen (mg/dl)	9–20	10	10	11	11	12	10
Creatinine (mg/dl)	0.7–1.2	1.0	1.0	1.0	0.9	1.0	0.9
Total protein (g/dl)	3.7–4.2	—	3.9	3.1	3.2	3.9	3.8
Albumin (g/dl)	1.5–4.5	—	4.2	4.7	4.5	2.9	4.4
Total bilirubin (mg/dl)	0.1–1.2	—	1.0	1.1	1.1	0.8	1.0
Prothrombin (mg/dl)	—	—	—	—	—	—	—
Aspartate aminotransferase (U/liter)	10–40	—	65	105	118	116	30
Aspartate aminotransferase (U/liter)	—	—	17	17	81	116	89
Alkaline phosphatase (U/liter)	40–116	—	30	68	80	117	143
Fibrinogen (mg/dl)	190–420	—	417	—	—	—	—
Lactate dehydrogenase (U/liter)	120–240	—	245	465	—	—	388
Prothrombin time (sec)	12.1–14.6	—	11.9	11.9	—	—	11.7
International normalized ratio	0.9–1.1	—	0.9	0.9	—	—	1.0
Quadrant time (sec)	40–60	—	32	11	—	—	—
Prothrombin time (sec)	11–13	—	1.1	1.1	—	—	—

\* To convert the values for calcium to millimoles per liter, multiply by 0.02. To convert the values for blood urea nitrogen to millimoles per liter of urea, multiply by 0.07. To convert the values for creatinine to millimoles per liter, multiply by 0.08. To convert the values for total bilirubin to millimoles per liter, multiply by 0.05.

† Results are from point-of-care blood glucose (Gluco) testing.

‡ The value in the patient was below normal.

§ The value in the patient was above normal.

4. **Figure 3. Posteroanterior and Lateral Chest Radiographs, January 22, 2020 (Illness Day 7, Hospital Day 3).**



No acute intrathoracic plain-film abnormality was noted.

5. **Figure 4. Posteroanterior Chest Radiograph, January 24, 2020 (Illness Day 9, Hospital Day 5).**





Increasing left basilar opacity was visible, arousing concern about pneumonia.

6. **Figure 5. Anteroposterior and Lateral Chest Radiographs, January 26, 2020 (Illness Day 10, Hospital Day 6).**



Stable streaky opacities in the lung bases were visible, indicating likely atypical pneumonia; the opacities have steadily increased in density over time.

7. **Table 2. Results of Real-Time Reverse-Transcriptase–Polymerase-Chain-Reaction Testing for the 2019 Novel Coronavirus (2019-nCoV).**<sup>\*</sup>



**Table 2.** Results of Real-Time Reverse Transcriptase-Polymerase-Chain-Reaction Testing for the 2019 Novel Coronavirus (2019-nCoV).<sup>a</sup>

Specimen	Illness Day 4	Illness Day 7	Illness Day 11	Illness Day 12
Nasopharyngeal swab	Positive (Ct, 18–20)	Positive (Ct, 23–24)	Positive (Ct, 33–34)	Positive (Ct, 37–40)
Oropharyngeal swab	Positive (Ct, 21–22)	Positive (Ct, 32–33)	Positive (Ct, 36–40)	Negative
Serum	Negative	Negative	Pending	Pending
Urine	NT	Negative	NT	NT
Stool	NT	Positive (Ct, 36–38)	NT	NT

<sup>a</sup> Lower cycle threshold (Ct) values indicate higher viral loads. NT denotes not tested.

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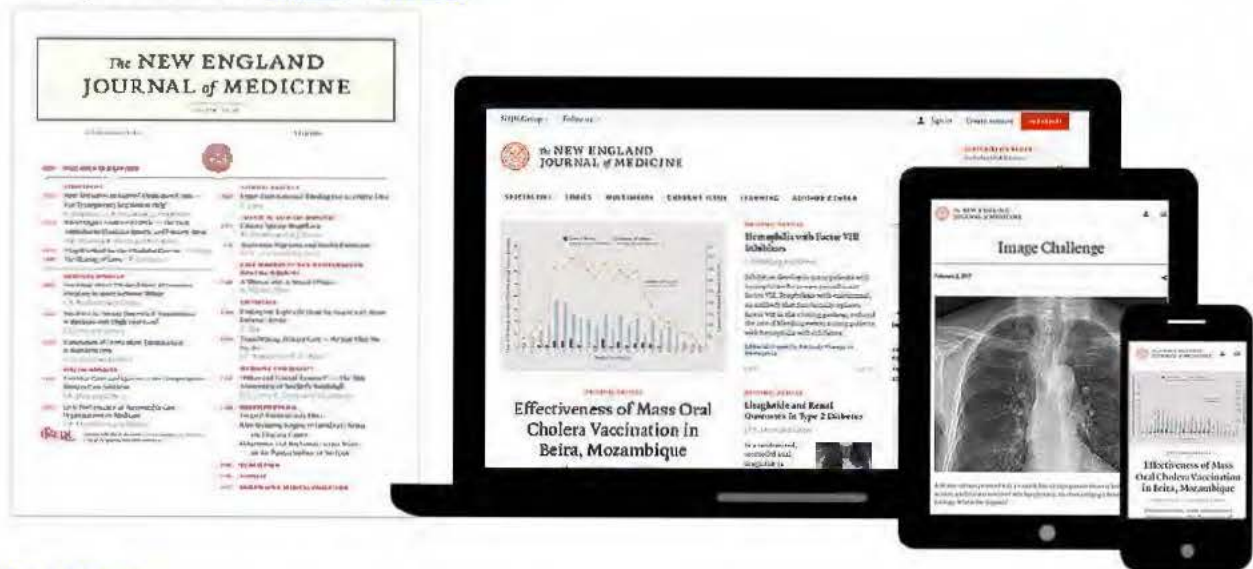
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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Thu, 20 Feb 2020 14:41:13 +0000  
**To:** Undisclosed recipients:  
**Subject:** NEJM: SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients

[Correspondence](#)

# SARS-CoV-2 Viral Load in Upper Respiratory Specimens of Infected Patients

To the Editor:

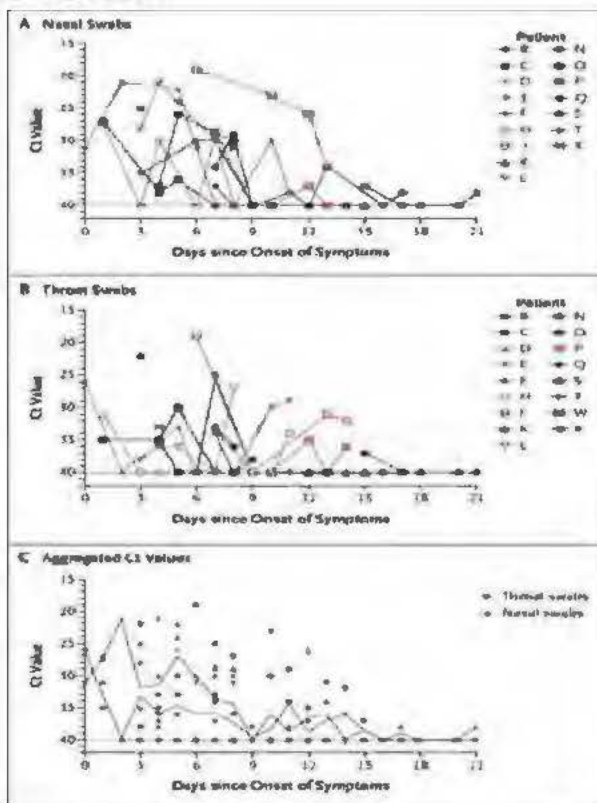


Figure 1. Viral Load Detected in Nasal and Throat Swabs Obtained from Patients Infected with SARS-CoV-2.

The 2019 novel coronavirus (SARS-CoV-2) epidemic, which was first reported in December 2019 in Wuhan, China, and has been declared a public health emergency of international concern by the World Health Organization, may progress to a pandemic associated with substantial morbidity and mortality. SARS-CoV-2 is genetically related to SARS-CoV, which caused a global epidemic with 8096 confirmed cases in more than 25 countries in 2002–2003.<sup>1</sup> The epidemic of SARS-CoV was successfully contained through public health interventions, including case detection and isolation. Transmission of SARS-CoV occurred mainly after days of illness<sup>2</sup> and was associated with modest viral loads in the respiratory tract early in the illness, with viral loads peaking approximately 10 days after symptom onset.<sup>3</sup> We monitored SARS-CoV-2 viral loads in upper respiratory specimens obtained from 18 patients (9 men and 9 women;



median age, 59 years; range, 26 to 76) in Zhuhai, Guangdong, China, including 4 patients with secondary infections (1 of whom never had symptoms) within two family clusters (Table S1 in the [Supplementary Appendix](#), available with the full text of this letter at NEJM.org). The patient who never had symptoms was a close contact of a patient with a known case and was therefore monitored. A total of 72 nasal swabs (sampled from the mid-turbinate and nasopharynx) ([Figure 1A](#)) and 72 throat swabs ([Figure 1B](#)) were analyzed, with 1 to 9 sequential samples obtained from each patient. Polyester flock swabs were used for all the patients.

From January 7 through January 26, 2020, a total of 14 patients who had recently returned from Wuhan and had fever ( $\geq 37.3^{\circ}\text{C}$ ) received a diagnosis of Covid-19 (the illness caused by SARS-CoV-2) by means of reverse-transcriptase–polymerase-chain-reaction assay with primers and probes targeting the N and Orf1b genes of SARS-CoV-2; the assay was developed by the Chinese Center for Disease Control and Prevention. Samples were tested at the Guangdong Provincial Center for Disease Control and Prevention. Thirteen of 14 patients with imported cases had evidence of pneumonia on computed tomography (CT). None of them had visited the Huanan Seafood Wholesale Market in Wuhan within 14 days before symptom onset. Patients E, I, and P required admission to intensive care units, whereas the others had mild-to-moderate illness. Secondary infections were detected in close contacts of Patients E, I, and P. Patient E worked in Wuhan and visited his wife (Patient L), mother (Patient D), and a friend (Patient Z) in Zhuhai on January 17. Symptoms developed in Patients L and D on January 20 and January 23, respectively, with viral RNA detected in their nasal and throat swabs soon after symptom onset. Patient Z reported no clinical symptoms, but his nasal swabs (cycle threshold [Ct] values, 22 to 28) and throat swabs (Ct values, 30 to 32) tested positive on days 7, 10, and 11 after contact. A CT scan of Patient Z that was obtained on February 6 was unremarkable. Patients I and P lived in Wuhan and visited their daughter (Patient H) in Zhuhai on January 11 when their symptoms first developed. Fever developed in Patient H on January 17, with viral RNA detected in nasal and throat swabs on day 1 after symptom onset.

We analyzed the viral load in nasal and throat swabs obtained from the 17 symptomatic patients in relation to day of onset of any symptoms ([Figure 1C](#)). Higher viral loads (inversely related to Ct value) were detected soon after symptom onset, with higher viral loads detected in the nose than in the throat. Our analysis suggests that the viral nucleic acid shedding pattern of patients infected with SARS-CoV-2 resembles that of patients with influenza<sup>2</sup> and appears different from that seen in patients infected with SARS-CoV.<sup>3</sup> The viral load that was detected in the asymptomatic patient was similar to that in the symptomatic patients, which suggests the transmission potential of asymptomatic or minimally symptomatic patients. These findings are in concordance with reports that transmission may occur early in the course of infection<sup>5</sup> and suggest that case detection and isolation may require strategies different from those required for the control of SARS-CoV. How SARS-CoV-2 viral load correlates with culturable virus needs to be determined. Identification of patients with few or no symptoms and with modest levels of detectable viral RNA in the oropharynx for at least 5 days suggests that we need better data to determine transmission dynamics and inform our screening practices.

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[Disclosure forms](#) provided by the authors are available with the full text of this letter at NEJM.org.

This letter was published on February 19, 2020, at NEJM.org.

Ms. Zou, Mr. Ruan, and Dr. Huang contributed equally to this letter.


1. Summary of probable SARS cases with onset of illness from 1 November 2002 to 31 July 2003. Geneva: World Health Organization, 2004

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5. 5. Rothe C, Schunk M, Sothmann P, et al. Transmission of 2019-nCoV infection from an asymptomatic contact in Germany. N Engl J Med. DOI: 10.1056/NEJMc2001468.

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To the Editor:

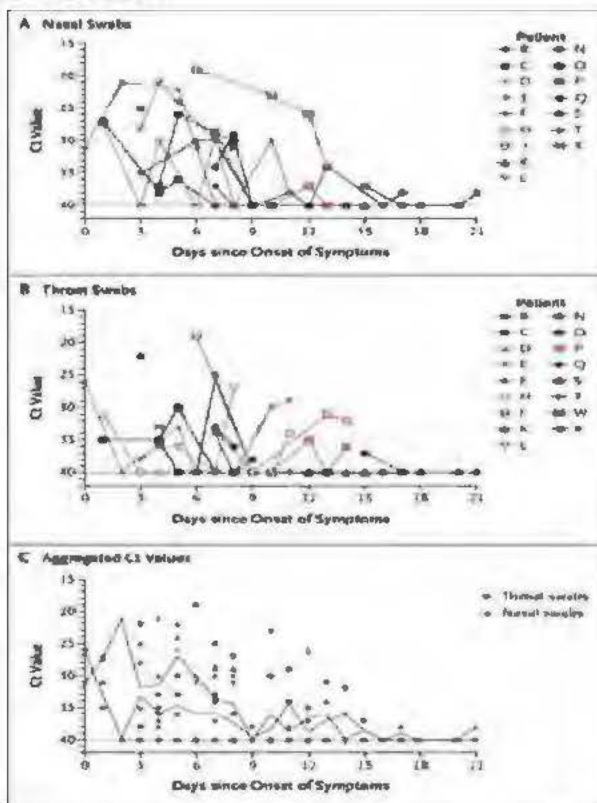


Figure 1. Viral Load Detected in Nasal and Throat Swabs Obtained from Patients Infected with SARS-CoV-2.

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This letter was published on February 19, 2020, at NEJM.org.

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## Supplementary Material

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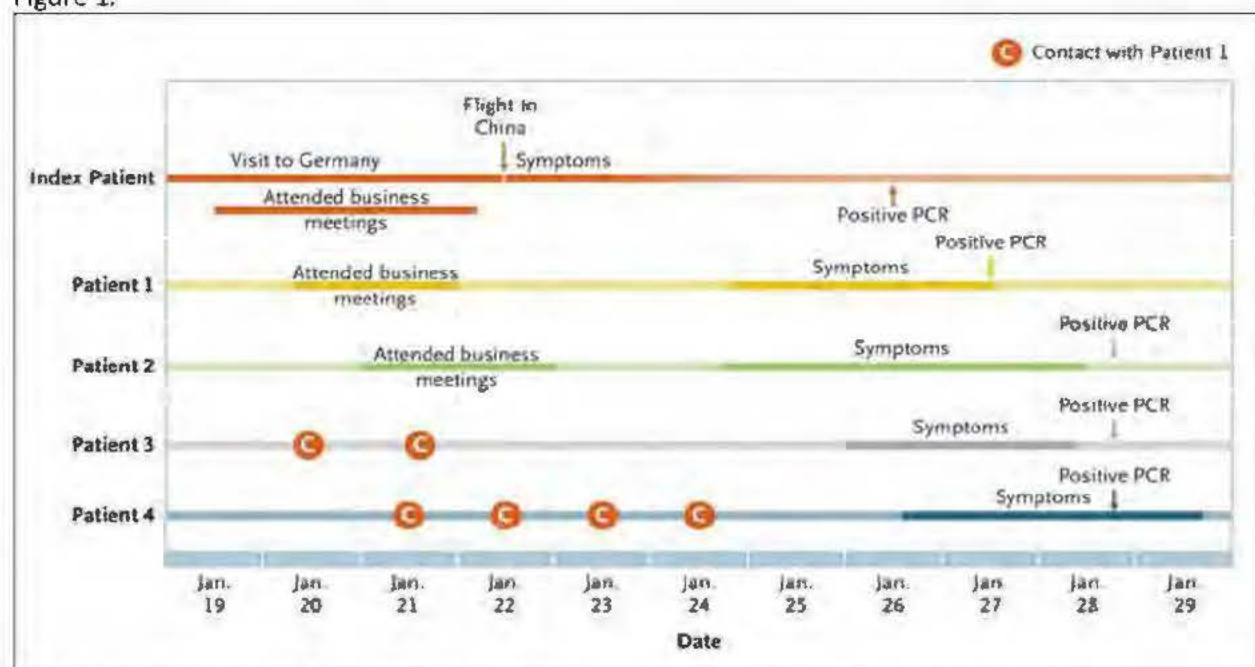
**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Fri, 31 Jan 2020 03:56:02 +0000  
**To:** Undisclosed recipients:  
**Subject:** NEJM: Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany <http://bit.ly/3aTDIPv>

## Transmission of 2019-nCoV Infection from an Asymptomatic Contact in Germany

### To the Editor:

The novel coronavirus (2019-nCoV) from Wuhan is currently causing concern in the medical community as the virus is spreading around the world.<sup>1</sup> Since its identification in late December 2019, the number of cases from China that have been imported into other countries is on the rise, and the epidemiologic picture is changing on a daily basis. We are reporting a case of 2019-nCoV infection acquired outside of Asia in which transmission appears to have occurred during the incubation period in the index patient. A 33-year-old otherwise healthy German businessman (Patient 1) became ill with a sore throat, chills, and myalgias on January 24, 2020. The following day, a fever of 39.1°C (102.4°F) developed, along with a productive cough. By the evening of the next day, he started feeling better and went back to work on January 27.

Figure 1.



Timeline of Exposure to Index Patient with Asymptomatic 2019-CoV Infection in Germany.

Before the onset of symptoms, he had attended meetings with a Chinese business partner at his company near Munich on January 20 and 21. The business partner, a Shanghai resident, had visited Germany between Jan. 19 and 22. During her stay, she had been well with no signs or symptoms of infection but had become ill on her flight back to China, where she tested positive for 2019-nCoV on January 26 (index patient in [Figure 1](#)).



On January 27, she informed the company about her illness. Contact tracing was started, and the above-mentioned colleague was sent to the Division of Infectious Diseases and Tropical Medicine in Munich for further assessment. At presentation, he was afebrile and well. He reported no previous or chronic illnesses and had no history of foreign travel within 14 days before the onset of symptoms. Two nasopharyngeal swabs and one sputum sample were obtained and were found to be positive for 2019-nCoV on quantitative reverse-transcriptase–polymerase-chain-reaction (qRT-PCR) assay.<sup>2</sup> Follow-up qRT-PCR assay revealed a high viral load of  $10^8$  copies per milliliter in his sputum during the following days, with the last available result on January 29.

On January 28, three additional employees at the company tested positive for 2019-nCoV (Patients 2 through 4 in [Figure 1](#)). Of these patients, only Patient 2 had contact with the index patient; the other two patients had contact only with Patient 1. In accordance with the health authorities, all the patients with confirmed 2019-nCoV infection were admitted to a Munich infectious diseases unit for clinical monitoring and isolation. So far, none of the four confirmed patients show signs of severe clinical illness.

This case of 2019-nCoV infection was diagnosed in Germany and transmitted outside of Asia. However, it is notable that the infection appears to have been transmitted during the incubation period of the index patient, in whom the illness was brief and nonspecific.<sup>3</sup>

The fact that asymptomatic persons are potential sources of 2019-nCoV infection may warrant a reassessment of transmission dynamics of the current outbreak. In this context, the detection of 2019-nCoV and a high sputum viral load in a convalescent patient (Patient 1) arouse concern about prolonged shedding of 2019-nCoV after recovery. Yet, the viability of 2019-nCoV detected on qRT-PCR in this patient remains to be proved by means of viral culture.

Despite these concerns, all four patients who were seen in Munich have had mild cases and were hospitalized primarily for public health purposes. Since hospital capacities are limited — in particular, given the concurrent peak of the influenza season in the northern hemisphere — research is needed to determine whether such patients can be treated with appropriate guidance and oversight outside the hospital.

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[Disclosure forms](#) provided by the authors are available with the full text of this letter at NEJM.org.

This letter was published on January 30, 2020, at NEJM.org.

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(<https://www.who.int/docs/default-source/coronaviruse/wuhan-virus-assay-v1991527e5122341d99287a1b17c111902.pdf>. [opens in new tab](#)).

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**Sent:** 31 Jan 2020 02:38:07 -0000  
**To:** Fauci, Anthony (NIH/NIAID) [E]  
**Subject:** News Alert: State Department tells Americans not to travel to China due to coronavirus

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## **News Alert: State Department tells Americans not to travel to China due to coronavirus**

The State Department announced a warning today not to travel to China due to the recent coronavirus outbreak.

"Do not travel to China due to novel coronavirus first identified in Wuhan, China," the alert states, noting that the World Health Organization declared the coronavirus a public health emergency of international concern earlier that day.

"Travelers should be prepared for travel restrictions to be put into effect with little or no advance notice. Commercial carriers have reduced or suspended routes to and from China," the alert stated. "Those currently in China should consider departing using commercial means."

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**Sent:** Tue, 18 Feb 2020 19:02:54 +0000  
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**Subject:** NPR: Coronavirus Update: 1st Group Of Americans Emerges From Quarantine At Travis AFB  
Travis AFB

## Coronavirus Update: 1st Group Of Americans Emerges From Quarantine At Travis AFB

• • • February 18, 2020 11:04 AM ET

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Checking for signs of COVID-19, a medical worker in a protective suit checks the temperatures of people who were on board the Diamond Princess cruise ship as they fly on a chartered evacuation plane from Japan to Lackland Air Force Base in Texas.

Philip and Gay Courter/via Reuters

**Updated at 1:34 p.m. ET**

The 180 Americans who were on the first coronavirus evacuation flight from Wuhan, China, to Travis Air Force Base emerged from their quarantine Tuesday, U.S. officials announced. The group was on one of two planes chartered by the State Department in early February, as the epicenter of the COVID-19 outbreak was placed under a near-total lockdown. Their 14-day mandatory quarantine is now over. The U.S. evacuees "have been medically cleared and CDC officials have lifted their quarantine orders," said Jason McDonald, a press officer for the Centers for Disease Control and Prevention, in a statement to NPR.

"It is important to know that these people being released from quarantine pose no health risk to the surrounding community, or to the communities they will be returning to," McDonald said.

He added that all the remaining Americans who took U.S.-chartered flights to leave Wuhan are expected to complete their own quarantine periods later this week.

"Newly quarantined Diamond Princess cruise ship passengers are being kept separate from those individuals who are already at Travis and nearing the end of their quarantine," McDonald said, referring to the ship that's been sitting at a cruise ship terminal under a quarantine in Yokohama, Japan. The group is being released from quarantine one week after another flightload of 195 Americans was [freed from quarantine orders](#) at the March Air Reserve Base in Southern California.

#### **Quarantined cruise ship to get meals from José Andrés' charity**

World Central Kitchen, initially created by chef José Andrés to help people stricken by natural disasters in the Caribbean, says it has set up a field kitchen in a parking lot near the Diamond Princess cruise ship at Shinko Pier in Yokohama, Japan, where the vessel is nearing the end of a 14-day coronavirus quarantine.

The charity is providing food for those on board in a bid to ease the strain on the ship's crew, which has been working to feed passengers, keep the ship clean and perform other duties as the cruise ship sits in isolation at the terminal.

The Diamond Princess's captain announced World Central Kitchen's new role in a ship-wide address Tuesday, according to passenger Matthew Smith.

"This is to relieve pressure on the crew," [Smith said via Twitter](#), adding that he believes the extra help could make it easier for people working on the ship to observe quarantine rules.

"It's definitely a different situation for us," World Central Kitchen's Sam Bloch [said in a video update](#) about the operation, acknowledging the uncertainty over how long the quarantine might last for some passengers and crew.

The food is prepared and cooked in a full kitchen before it's taken to an impromptu kitchen at the terminal, the group says. From there, it gets reheated as needed and delivered to the ship. Bloch, who directs the group's field operations, says the meals are ready to serve when their containers are loaded onto the ship by forklift.

"The crew doesn't have to cook and do all the work," Bloch says. "They get to get some rest."

[Andres said via Twitter](#) that the World Central Kitchen team "will be there working side by side with everyone on the ground as long as we are needed."

Before arriving in Japan, Bloch was working in Australia, where World Central Kitchen operates a "relief kitchen" to feed firefighters and evacuees. The organization is active in a number of other places, from Puerto Rico and the Bahamas to Venezuela and along the U.S.-Mexico border.

#### **Hospital director in Wuhan dies of COVID-19**

The director of a hospital in Wuhan, China, the center of a deadly coronavirus outbreak, has died from the disease COVID-19, state media reported Tuesday, highlighting the risk that the respiratory virus poses to health professionals.

Liu Zhiming, whose age is variously being reported as 50 or 51, was head of the Wuchang Hospital. He was also one of more than 1,700 medical workers confirmed to be infected with the highly contagious virus, according to [China Daily](#). The state news outlet adds that the number of workers dates from last Tuesday — meaning even more doctors, nurses and other medical staff might now be infected.





Mainland China currently has more than 70,000 confirmed COVID-19 cases. Here, people pass through a disinfection channel set up at the entrance to their residential compound in Tongzhou, east of Beijing.

#### **Outbreak's pace is seen slowing in China**

Mainland China currently has seen more than 70,000 confirmed COVID-19 cases, according to the World Health Organization. And while the country has suffered the majority of deaths associated with the outbreak, health experts in China say there are signs that the pace at which the virus is spreading might be slowing down.

As NPR's Emily Feng reports from Beijing:

"Today's numbers from China's national health commission show that the rate at which new cases reported outside Hubei province, where the epidemic has been concentrated, has dropped for two weeks. China's top state epidemiologist said earlier this week that he expected the outbreak to peak sometime in April.

"However, distrust in official state statistics is still high. Hubei in part has the largest share of virus cases in China because it is the only province that discloses so called clinical cases — symptomatic patients who haven't tested positive for the virus. Other provinces are mandated to collect such data but have not disclosed these types of cases publicly."

#### **88 more cases on Diamond Princess cruise ship**

The Diamond Princess cruise ship quarantined at a terminal in Yokohama, Japan, still represents the largest cluster of COVID-19 cases outside China. On Tuesday, [Japan's health ministry said](#) tests confirmed 88 more cases — including 65 people who were identified as asymptomatic pathogen carriers. The diagnoses bring the total number of cases from the ship to 542 out of 2,404 people who have been tested, Japanese officials say.

The Diamond Princess had some 3,700 people aboard when it docked in the port south of Tokyo earlier this month. But hundreds of people have since disembarked, either to receive care at local hospitals or, in the case of more than 300 American passengers, to fly back to the U.S. on chartered evacuation flights.

"We walked into the airplane hangar, and there were military people clapping and cheering for us," former Diamond Princess passenger Gay Courter told NPR's [Morning Edition](#), describing the scene as she and her husband, Philip, arrived at Lackland Air Force Base in Texas. "And that's when I broke down in tears. It was this overwhelming relief."

**Infected U.S. evacuees taken to Omaha, Neb.**

After the U.S. passengers were taken off the Diamond Princess, 14 of them were revealed to have tested positive for the new coronavirus. U.S. officials say they got the results after the patients had been taken off the ship — and that all 14 were placed in a special section at the rear of one of the chartered jets because of the possible health risk to other evacuees.

The evacuees were flown to Lackland in Texas and Travis Air Force Base in California — the two designated quarantine spots for Diamond Princess passengers taken to the U.S. But 13 infected evacuees were then flown to Omaha, Neb., to receive care at the University of Nebraska Medical Center. It's not clear why the other infected evacuee wasn't among them.

"Those who have tested positive for this novel coronavirus, are only showing mild symptoms of the disease," Nebraska Medicine said in a statement.

The facility includes a 20-bed national quarantine unit, where 12 of the evacuees are now being monitored. But another evacuee was deemed to need specialized care and was placed in a biocontainment unit.

Sixty-one U.S. citizens remain on the Diamond Princess, which is slated to begin emerging from its blanket quarantine on Wednesday. While many passengers will be allowed to leave the ship if they test negative for the new coronavirus, others will have to undergo a longer quarantine if they've been in close contact with anyone who has the COVID-19 disease.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Wed, 5 Feb 2020 22:28:18 +D000  
**To:** Undisclosed recipients:  
**Subject:** NPR: Does The New Coronavirus Spread Silently?

## Does The New Coronavirus Spread Silently?

• • • February 5, 2020 4:34 PM ET

Heard on [All Things Considered](#)



[Richard Harris](#)

[Twitter](#)

**Audio will be available later today.**



A delivery person wears a protective mask and suit as he delivers packages by bicycle on Saturday in Wuhan, China.

Getty Images

Public health officials attempting to contain the new coronavirus are trying to figure out how easily it spreads. One key question is whether people who are infected but show no symptoms can infect other people.

"If you have a lot of people who [have mild disease or are] asymptomatic and not seeking medical care for respiratory illness but are still contagious, you're going to have a very difficult time," says [Jeffrey Shaman](#), a professor of environmental health sciences at Columbia University.

Two previous deadly outbreaks of coronavirus – SARS and MERS – only spread from people who were showing symptoms of disease.

But Shaman has looked at more common coronaviruses, in particular four other coronaviruses that usually don't cause anything more serious than a cold. He's found many people shed those viruses even when they report no symptoms at all. (His results are not peer-reviewed but are [available as a preprint](#)).

His study found the coronavirus in the nasal passages of people who didn't report any symptoms, "and it's going to leak out as they're speaking and breathing and coughing and sneezing and wiping their nose," Shaman says. "Whether it's ... a sufficient quantity to make somebody else infectious, we can't discern that from what we've done."

Likewise, it's hard to know what's up with the novel coronavirus. Scientists in Germany reported [a case in the New England Journal of Medicine](#) on Jan. 30 in which a visitor from China without symptoms passed the disease along to a colleague in Munich. But, as *Science* magazine [first reported, that was wrong](#). The woman actually did have symptoms.

Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, had cited that case last week at a White House meeting in which health officials announced a quarantine for people returning from the disease's hotspot in China. He says the errant letter in the journal doesn't alter his view.

Fauci says he's been talking to trusted colleagues in China about this issue, and "they told me without a doubt there is some degree of asymptomatic transmission."

But he says to the extent it's happening, it doesn't explain the apparently explosive spread of this disease within China.

The history of respiratory disease is that "asymptomatic transmission is not the main driver of [any] outbreak."

Even so, Maria van Kerkhove at the World Health Organization says this question is subject of intense scrutiny right now.

"We know from a lot of experience in other diseases that people that claim to be asymptomatic, when you go back and interview them they were in the early stages of actually developing symptoms," she told reporters at a recent briefing. "So they weren't completely asymptomatic."

The bigger risk could well be from people who have symptoms, but whose illness is mild enough that they don't stay home in bed. The German man who caught the coronavirus from his Chinese colleague had a brief fever, but went back to work quickly – and spread his infection to other colleagues.

This pattern of infection is similar to that of the flu. "It's looking more like a really bad influenza than it is a SARS-like disease," Fauci says.

That would mean the risk of serious illness is low for most healthy individuals, but if the novel coronavirus spreads as widely as influenza does, it could still take a lot of lives.

*You can contact NPR Science Correspondent Richard Harris at [rharris@npr.org](mailto:rharris@npr.org).*

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Sat, 15 Feb 2020 13:26:49 +0000  
**To:** Undisclosed recipients:  
**Subject:** NPR: How COVID-19 Kills: The New Coronavirus Disease Can Take A Deadly Turn

# How COVID-19 Kills: The New Coronavirus Disease Can Take A Deadly Turn

•  
• • • February 14, 2020 1:07 PM ET

[Maria Godoy](#)  
[Facebook](#) [Twitter](#)



A doctor wearing a face mask looks at a CT image of a lung of a patient at a hospital in Wuhan, China.  
AFP via Getty Images

More than 1,300 people, almost all in China, have now died from COVID-19 — the newly minted name for the coronavirus disease first identified in Wuhan, China, that has infected more than 55,000 people. Yet according to the World Health Organization, the disease is relatively mild in about 80% of cases, based on preliminary data from China.

What does mild mean?

And how does this disease turn fatal?

The first symptoms of COVID-19 are pretty common with respiratory illnesses — fever, a dry cough and shortness of breath, says [Dr. Carlos del Rio](#), a professor of medicine and global health at Emory University who has consulted with colleagues treating coronavirus patients in China and Germany.

"Some people also get a headache, sore throat," he says. Fatigue has also been reported — and less

commonly, diarrhea. It may feel as if you have a cold. Or you may feel that flu-like feeling of being hit by a train.

Doctors say these patients with milder symptoms should check in with their physician to make sure their symptoms don't progress to something more serious, but they don't require major medical intervention.

But the new coronavirus attacks the lungs, and in about 20% of patients, infections can get more serious. As the virus enters lung cells, it starts to replicate, destroying the cells, explains [Dr. Yoko Furuya](#), an infectious disease specialist at Columbia University Irving Medical Center.

"Because our body senses all of those viruses as basically foreign invaders, that triggers our immune system to sweep in and try to contain and control the virus and stop it from making more and more copies of itself," she says.

But Furuya says that this immune system response to this invader can also destroy lung tissue and cause inflammation. The end result can be pneumonia. That means the air sacs in the lungs become inflamed and filled with fluid, making it harder to breathe.

Del Rio says that these symptoms can also make it harder for the lungs to get oxygen to your blood, potentially triggering a cascade of problems. "The lack of oxygen leads to more inflammation, more problems in the body. Organs need oxygen to function, right? So when you don't have oxygen there, then your liver dies and your kidney dies," he says.

That's what seems to be happening in the most severe cases. About 3% to 5% of patients end up in intensive care, according to the WHO. And many hospitalized patients require supplemental oxygen. In extreme cases, they need mechanical ventilation — including the use of a sophisticated technology known as [ECMO](#) (extracorporeal membrane oxygenation), which basically acts as the patient's lungs, adding oxygen to their blood and removing carbon dioxide. The technology "allows us to save more severe patients," Dr. Sylvie Briand, director of the WHO's pandemic and epidemic diseases department, said at a press conference Monday.

Many of the more serious cases have been in people who are middle-aged and elderly — Furuya notes that our immune system gets weaker as we age. She says for long-term smokers, it could be even worse because their airways and lungs are more vulnerable. People with other underlying medical conditions, such as heart disease, diabetes or chronic lung disease, have also proved most vulnerable. Furuya says those kinds of conditions can make it harder for the body to recover from infections.

"Of course, you have outliers — people who are young and otherwise previously healthy who are dying," [Dr. Anthony Fauci](#), director of the National Institute of Allergy and Infectious Diseases, recently told NPR's *1A* show. "But if you look at the vast majority of the people who have serious disease and who will ultimately die, they are in that group that are either elderly and/or have underlying conditions."

The WHO has said most deaths so far appear to be from multi-organ failure and has calculated the case fatality rate at about 2% or less, based on earlier data from China. However, infectious disease experts [note that it's hard to know the true numbers](#) at this point in the epidemic.

But del Rio notes that it's not just COVID-19 that can bring on multi-organ failure. Just last month, he saw the same thing in a previously healthy flu patient in the U.S. who had not gotten a flu shot.

"He went in to a doctor. They said, 'You have the flu — don't worry.' He went home. Two days later, he was in the ER. Five days later, he was very sick and in the ICU" with organ failure, del Rio says. While it's possible for patients who reach this stage to survive, recovery can take many weeks or months.

In fact, many infectious disease experts have been making comparisons between this new coronavirus and the flu and common cold, because it appears to be highly transmissible.

"What this is acting like — it's spreading much more rapidly than SARS [severe acute respiratory syndrome], the other coronavirus, but the fatality rate is much less," Fauci told *1A*. "It's acting much more like a really bad influenza."



What experts fear is that, like the flu, COVID-19 will keep coming back year after year.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Fri, 27 Mar 2020 18:03:08 +0000  
**To:** Undisclosed recipients:  
**Subject:** NPR: How South Korea Reined In The Outbreak Without Shutting Everything Down

## [The Coronavirus Crisis](#)

# How South Korea Reined In The Outbreak Without Shutting Everything Down

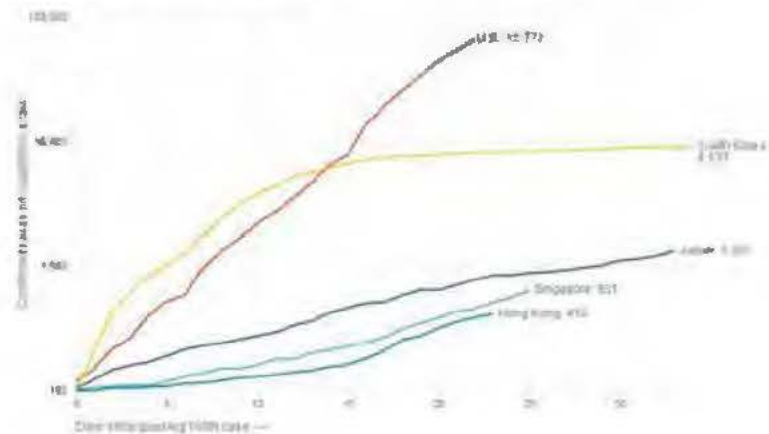
• • • March 26, 2020 2:41 PM ET



[Jason Beaubien](#)

### Growth in COVID-19 Cases Has Slowed In Some Asian Countries

The number of confirmed cases over time, plotted on a logarithmic scale, shows a sharp increase in some Asian countries. South Korea is the only country represented by the black line, which shows a sharp increase in cases.



As of this week, South Korea had just over 9,000 confirmed coronavirus cases, which puts it among the top 10 countries for total cases.

But South Korea has another distinction: Health experts are noting that recently the nation has managed to significantly slow the number of new cases. And the country appears to have reined in the outbreak without some of the strict lockdown strategies deployed elsewhere in the world.



"We've seen examples in places like Singapore and [South] Korea, where governments haven't had to shut everything down," said [Mike Ryan](#), head of the World Health Organization's Health Emergencies Programme. "They've been able to make tactical decisions regarding schools, tactical decisions regarding movements, and been able to move forward without some of the draconian measures." Speaking this week to journalists, Ryan said that countries that have tested widely for the virus, isolated cases and quarantined suspected cases — in the way that South Korea and Singapore have done — have managed to suppress transmission of the virus. President Trump has also praised South Korea's handling of the health crisis and even asked President Moon Jae-in for help with medical equipment to fight the outbreak in the United States.

The head of the WHO, [Tedros Adhanom Ghebreyesus](#), has called on other countries around the world to "apply the lessons learned in [South] Korea and elsewhere" in their own battles against the coronavirus. South Korea's foreign minister, [Kang Kyung-wha](#), speaking to the BBC last week, said the key lessons from her country are that it developed testing for the virus even before it had a significant number of cases.

"In mid-January, our health authorities quickly conferred with the research institutions here [to develop a test]," Kang said. "And then they shared that result with the pharmaceutical companies, who then produced the reagent [chemical] and the equipment needed for the testing."

So when members of a religious sect in Daegu started getting sick in February, South Korea was able to rapidly confirm that it was COVID-19.

"Testing is central" to the outbreak response, said Kang, "because that leads to early detection. It minimizes further spread." And it allows health authorities to quickly isolate and treat those found with the virus.

Hong Kong and Singapore have followed similar paths in responding to this outbreak.

They've used testing aggressively to identify cases — not only testing people who are so sick that they're hospitalized but also mild cases and even suspected cases. They've quarantined tens of thousands of people who may have been exposed to confirmed cases.

The vast majority of the people ordered to quarantine at home are perfectly healthy and never do get sick, but the few who do develop symptoms can be quickly isolated further. Tedros of the WHO refers to this as cutting off the virus at the bud — basically stopping the virus from spreading further and preventing community transmission.

Hong Kong also reacted with incredible speed in the outbreak's early days. On Dec. 31, 2019, Hong Kong's Centre for Health Protection, the city's health department, sent out an alert to its doctors telling them to be on the lookout for patients presenting with fever, acute respiratory illness, pneumonia and/or shortness of breath — and particularly patients with these symptoms who'd recently traveled to the Chinese city of Wuhan, the initial epicenter of the pandemic. Prior to this crisis, a high-speed rail line went directly from downtown Hong Kong to Wuhan (it was shut down on Jan. 30 and hasn't run since).

The other thing that South Korea, Hong Kong and Singapore have in common is that they've been able to keep most factories, shopping malls and restaurants open. Singapore has even kept its schools open at a time when nations around the world are shutting down classrooms.

Japan is another Asian country notable for its response. Although Japan has more than twice the population of South Korea and also has strong ties to China, it has recorded only a fraction of the cases that South Korea has — just over 1,000 as of Thursday. Japan hasn't been testing nearly as widely as South Korea, but it appears to have fended off significant community transmission by quickly investigating any flare-ups of cases, identifying who exactly is infected and then monitoring their contacts.

Despite the successes in Asia in containing this virus, recently several places have seen surges in imported cases from Europe. This week, after Singapore saw an uptick in cases among people who'd



recently flown into the country, it announced new [restrictions](#) on travelers, blocking all short-term visitors from entering.

"Part of the reason for the tougher border measures is to ensure we keep Singapore as safe as possible," Singapore's minister of education, Ong Ye Kung, wrote this week in a Facebook [post](#). He said the highly restrictive entry rules are "so that daily activities, like going to work, eating out and attending school, can go on."

He argued that children are safer and more productive in school and that closing schools places a significant burden on working adults, including health care workers.

"Keeping our healthcare system strong is paramount in the fight against COVID-19," he said. "Our frontline warriors will be much more assured if their children are in school, meaningfully engaged, in a safe and healthy environment."

He also pushed back against the idea that schools could be breeding grounds for the virus, saying there is little "evidence to show that the young are vectors or spreaders of the virus. The reverse appears to be the case, where the young get infected by adults at home." (Health agencies such as the [Centers for Disease Control and Prevention](#) do note that even though children may often present with milder symptoms than adults, "There is much more to be learned about how the disease impacts children.") Another thing that links Hong Kong, Singapore and South Korea is that they've all had bad coronavirus outbreaks in the past. Hong Kong and Singapore were hit hard by SARS in 2003, and South Korea came to a standstill during a MERS outbreak in 2015.

Their experiences with these past outbreaks may have made officials more aggressive in responding to COVID-19 and possibly made residents more willing to accept intrusive measures to contain the virus. South Korea has used data from surveillance cameras, cellphones and credit card transactions to map the social connections of suspected cases. Hong Kong issues detailed information each evening about every newly confirmed case. While Hong Kong doesn't give out the names of those infected, health officials release each person's age, gender, street address, medical symptoms — and often the exact location of where the person works. This allows other residents to determine if they might have been in contact with the infected individual.

For instance, in late February the health department announced that a 55-year-old fry cook at a KFC restaurant on King's Road in the North Point neighborhood had tested positive. The department reassured residents that the heat of cooking oil probably kills the coronavirus and that patrons were not considered at risk of having contracted the virus. The fast-food branch, however, closed immediately and has remained shut. A sign on the door said the management was going to thoroughly clean the premises.

Another day in February, one of the newly diagnosed patients was a 75-year-old man living in Block 1, Seaview Garden in Tuen Mun. He first developed symptoms on Jan. 25, according to a [statement](#) released by the health department. Until he was isolated at Tuen Mun Hospital on Feb. 18, he had breakfast each morning at the Hoi Tin Garden Restaurant located at 5 Sam Shing Street, Tuen Mun — except for Feb. 15, when for some reason he didn't. The report details that his wife, age 83, tested positive the day before he did.

The health department also releases license plate numbers of taxi drivers who test positive and the flight numbers of infected travelers who recently arrived — again, so members of the public can determine if they might have had contact. In Singapore, the police force works with the Ministry of Health to trace connections between cases and to track chains of transmission. Singapore also makes details of these infections public in the hope that other residents will come forward if they may have come in contact with a confirmed case.

The aggressive efforts by Hong Kong, Japan, Singapore and South Korea to investigate and isolate every possible infection is exactly what the World Health Organization has been calling for since January.



The WHO's [Maria Van Kerkhove](#) acknowledged this week that for countries dealing with hundreds and even thousands of new cases every day, "finding every case" can be difficult.

"We hear you. This is overwhelming," Van Kerkhove said on Wednesday. "But it's really important for us to take the examples of all these countries, look at what they did as it relates to the epidemiology in their country and learn from them."

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Thu, 30 Jan 2020 04:14:45 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: As Coronavirus Explodes in China, Countries Struggle to Control Its Spread

## As Coronavirus Explodes in China, Countries Struggle to Control Its Spread

The time to prevent more epidemics is now, and countries are trying to seize the moment.



A patient was helped off an ambulance in Wuhan, China, on Sunday. Credit... Agence France-Presse — Getty Images

By [Denise Grady](#)

• Jan. 29, 2020 Updated 7:50 p.m. ET

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• • Australians flown home from Wuhan, China, will be quarantined on an island for two weeks. Americans, also evacuated from Wuhan, will be “temporarily housed” on an air base in California. And in South Korea, the police have been empowered to detain people who refuse to be quarantined. For countries outside China, the time to prevent an epidemic is now, when cases are few and can be isolated. They are trying to seize the moment to protect themselves against the coronavirus outbreak, which has reached every province in China, sickening more than 7,700 people and killing 170.



More than a dozen nations with a handful of cases — including the United States — are isolating patients and monitoring their contacts, as well as screening travelers from China and urging people to postpone trips there.

But whether this virus can be contained depends on factors still unknown, like just how contagious it is and when in the course of the infection the virus starts to spread.

China, with nearly 1.4 billion people, is the most populous nation on Earth, and it has taken extreme measures to try to stop the disease, first reported in December in Wuhan, a city of 11 million. The government has stopped travel in and out of that city and surrounding ones, effectively locking down tens of millions of people.

"The fact that to date we have only seen 68 cases outside China and no deaths is due in no small part to the extraordinary steps the government has taken to prevent the export of cases," Dr. Tedros Adhanom Ghebreyesus, the director-general of the World Health Organization, said at a news briefing on Wednesday.

But the disease has spread far and wide inside China and, with extensive worldwide travel by its citizens, especially during the celebration of the Lunar New Year, countries everywhere are bracing for the arrival of more new cases.

Person-to-person transmission is occurring, and cases have turned up in several countries with people who have not visited China. Mentioning those cases, Dr. Tedros said the potential for further global spread was one of the reasons he had called on the W.H.O.'s emergency committee to meet again on Thursday to decide whether to declare the epidemic a public health emergency of international concern. The committee met twice last week but was [split about whether to declare an emergency](#), saying it did not have enough information to decide.

"I think things are going to get worse before they get better," Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases in the United States, said in a [podcast posted](#) on Tuesday by the medical journal JAMA.

If China can somehow contain its outbreak, and if other countries with cases can prevent sustained transmission, Dr. Fauci said that it might be possible to end the outbreak, just as the coronavirus that caused the SARS epidemic in 2003 was stamped out.

"But it's going to be a real kind of tightrope walk, because if it gets so expansive then it's not going to just disappear the way SARS did," he said. "I think the next four to five weeks are going to be critical. It's either going to start peaking and go into a downturn, or it's going to explode into a global outbreak."

Dr. Thomas R. Frieden, a former director of the Centers for Disease Control and Prevention, said in an interview that he thought it would become clear in a few days whether the outbreak could be contained.

"If we're seeing widespread transmission, thousands or tens of thousands of infections in the community, I don't see how this gets controlled," Dr. Frieden said. "On the other hand, if we see a SARS-like situation, where with incredible effort they were able to isolate people, tamp down the spread, then we're in a containment situation."

A particular concern is the possibility that the virus could wreak havoc in Africa, where possible cases are being investigated.

"We are very concerned about Africa because some of the least prepared countries for outbreaks are in Africa," Dr. Frieden said, adding, "We know the systems there to find it and stop it are weaker there than elsewhere."

If efforts to contain an outbreak fail, public health authorities will focus on "mitigation" — dealing with the disease and trying to minimize the harm it does to people and communities.

"It's a worrisome situation in China," Dr. Nancy Messonnier, director of the National Center for Immunization and Respiratory Diseases, said in an interview on Wednesday. "It seems like more of a mitigation strategy than a control strategy that China has moved to."

The United States still has a chance to avoid China's fate, she said.

"We still only have five cases, and we can really do aggressive measures around those cases," Dr. Messonnier said. "We're trying to contain the disease, and by being aggressive we're hoping to learn more about what it takes to contain it."

The five patients have hundreds of contacts. Some are being tested for the virus, and the results may help researchers understand how the disease is transmitted. The C.D.C. is also monitoring more than 100 "patients under investigation" — some with cough or fever who have been to Wuhan, or have had contact with a patient.

But if the case count were to increase exponentially, Dr. Messonnier said, it would be hard to continue the concerted containment efforts. The C.D.C. is already gearing up should the approach need to evolve to mitigation strategies like closing schools, preventing public gatherings and helping hospitals prepare for a surge of cases.

One troubling question is whether infected people can start spreading the virus before they themselves get sick. Chinese health officials have said they believe such transmission has taken place. If it happened often, it could make stopping an outbreak much harder.

The reason is that the first step in halting outbreaks has traditionally been to identify people who are ill and then stop them from infecting others, usually by isolating them. But that approach will not work as well if people without any symptoms are already transmitting the disease.

Health officials in the United States said they had not seen data from China to support that claim, nor any evidence that people without symptoms had spread the disease in the United States. The five patients in the United States had all visited Wuhan, and so far none of their contacts have become ill or tested positive for the virus.

Dr. Fauci said that epidemics are fueled by people with symptoms — like sneezing and coughing, which help spray the virus around — and not by those without symptoms, even if some of them can spread the virus. Dr. Frieden said if asymptomatic people do transmit some virus, sick patients are likely to spread a lot more.

People with colds or flu can spread viruses for a day or two before they become ill, but how big a role that plays in outbreaks is not known, researchers say.

In any case, flu spreads worldwide every year, infecting tens of millions of people.

And the spread of the new coronavirus is starting to resemble that of seasonal flu, said Dr. Michael T. Osterholm, director of the Center for Infectious Disease Research and Policy at the University of Minnesota.

"I think we have to revisit which model we're really using, and I think we really over the past week and a half have come closer to the influenza model," Dr. Osterholm said. "Trying to stop influenza in a community without vaccine is like trying to stop the wind. I don't know how we're going to stop this." He added, "The only thing operating in our favor is at least it doesn't appear to be as severe as SARS or as MERS."

Among patients with the Wuhan coronavirus, about 20 percent have become seriously ill, and the rest have a mild illness, the W.H.O. said at a news briefing on Wednesday. So far, the death rate appears to be about 2 percent, but that is not certain yet. Those who die tend to be older people with underlying ailments. The median age of the first 425 patients in China was 59, and a little more than half were male, [according to a report published](#) in The New England Journal of Medicine on Wednesday. Diseases caused by related coronaviruses are deadlier: SARS killed 10 percent, and MERS about 35 percent.

But if the new virus were to spread even more widely and a 2 percent mortality rate continued, the death toll could be considerable. Seasonal flu, with a much lower overall death rate of 0.1 percent, kills more than half a million people worldwide every year. At least 8,200 people in the United States have died during this flu season, according to [estimates from the C.D.C.](#)



Roni Caryn Rabin contributed reporting for this article.

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**Sent:** Thu, 30 Jan 2020 04:20:17 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: China Now Has More Cases Than It Had of SARS

## China Now Has More Cases Than It Had of SARS

Chinese officials have confirmed over 7,700 cases of the mysterious illness as foreign governments airlifted their citizens out of Wuhan, the outbreak's epicenter.

By The New York Times

• Jan. 29, 2020 Updated 11:03 p.m. ET

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Read Updates in Chinese: [武汉疫情每日汇总中文版](#)

Image





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In China, a total of 170 people have now died from the mysterious new coronavirus, according to official Chinese statistics, but [the real number is likely much higher](#). A dearth of test kits has hindered health officials' ability to accurately diagnose and track the illness.

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### **Coronavirus Map: Tracking the Spread of the Outbreak**

The virus has sickened more than 7,700 people in China and 15 other countries.

**Americans evacuated from Wuhan land in Southern California.**





An aircraft transporting government employees and other Americans from Wuhan arriving at March Air Reserve Base in Riverside County, California, on Wednesday. Credit...Mike Blake/Reuters

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Once cleared, the passengers will be allowed to fly home, where they will be monitored for 14 days by medical teams in their area.

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Researchers are [hunting for a vaccine](#) to prevent coronavirus, a quest that could take months, if not years.

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Other airlines have begun to scale back flights to China as the death toll and number of cases rises, but the British flag carrier, one of the world's largest international airlines, is the first to cancel all its scheduled flights.

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Medical staff in protective suits treated a patient with pneumonia caused by the new coronavirus at the Zhongnan Hospital of Wuhan University on Tuesday. Credit...China Daily/Reuters

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colleague flew home two days later. The German man was being treated under isolation while officials identified other people with whom he might have been in contact.

Late Tuesday, health officials in Germany said three more people from the same company in Bavaria were also infected. The three were admitted to a clinic in Munich, where they were to be isolated and treated. An additional 40 people with close contact to those infected would be tested on Wednesday, officials said.

Taiwan said on Tuesday that a man had become infected after his wife had contracted the virus while working in Wuhan. He became Taiwan's eighth case and the first known to be transmitted locally.

In an [article published by The New England Journal of Medicine](#) on Tuesday, Vietnamese physicians reported that a 65-year-old man from Wuhan appeared to have transmitted the coronavirus to his son, 27, who was living in Long An Province, southwest of Ho Chi Minh City. The father developed a fever on Jan. 17, four days after flying to Hanoi, Vietnam, from Wuhan.

The son met his father on Jan. 17, and by Jan. 20 he had a dry cough and fever. The father's condition has improved, and the son is stable, the doctors wrote. None of their 28 identified close contacts, including the father's wife, have developed symptoms of respiratory infection, they said.

## **A Beijing drugstore gets a big fine for price gouging on masks.**



Workers at a mask factory in Handan, China, last week. Credit...EPA, via Shutterstock

With demand for surgical masks on the rise in China, a drugstore in Beijing has been fined more than \$400,000 by the government for charging customers roughly six times what the masks are being sold for online.

State-run media said that the store was charging customers 850 yuan, or \$122, for the masks, while they were being sold online for 143 yuan.

Infectious disease specialists say the disposable masks, which cover the nose and mouth, [can help prevent the spread](#) of infections if they are worn properly and used consistently.



The masks have become ubiquitous in cities across China. In Hong Kong, where the outbreak has brought back painful memories of the SARS epidemic in 2002-03, officials said that customs authorities were examining surgical masks being sold in the city for counterfeit labeling and not meeting safety standards.

In announcing the fine against the Beijing drugstore, a government notice warned that the authorities would "continue to step up enforcement and make every effort to curb the excessive and rapid rise in protective enforcement prices."

Surgical masks have become so much in demand that a [website advertising](#) more fashionable versions of them warns that deliveries are at risk of being delayed.

Reporting was contributed by Chris Buckley, Russell Goldman, Elaine Yu, Raymond Zhong, Austin Ramzy, Alexandra Stevenson, Sui-Li Wee, Miriam Jordan, Paul Mozur, Knvul Sheikh, Katie Thomas, James Gorman, Motoko Rich, Ben Dooley, Makiko Inoue, Eimi Yamamitsu, Patricia Cohen, Donald G. McNeil Jr., Roni Caryn Rabin, Motoko Rich and Karen Zraick. Zoe Mou, Albee Zhang, Amber Wang, Yiwei Wang and Claire Fu contributed research.

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Image





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colleague flew home two days later. The German man was being treated under isolation while officials identified other people with whom he might have been in contact.

Late Tuesday, health officials in Germany said three more people from the same company in Bavaria were also infected. The three were admitted to a clinic in Munich, where they were to be isolated and treated. An additional 40 people with close contact to those infected would be tested on Wednesday, officials said.

Taiwan said on Tuesday that a man had become infected after his wife had contracted the virus while working in Wuhan. He became Taiwan's eighth case and the first known to be transmitted locally.

In an [article published by The New England Journal of Medicine](#) on Tuesday, Vietnamese physicians reported that a 65-year-old man from Wuhan appeared to have transmitted the coronavirus to his son, 27, who was living in Long An Province, southwest of Ho Chi Minh City. The father developed a fever on Jan. 17, four days after flying to Hanoi, Vietnam, from Wuhan.

The son met his father on Jan. 17, and by Jan. 20 he had a dry cough and fever. The father's condition has improved, and the son is stable, the doctors wrote. None of their 28 identified close contacts, including the father's wife, have developed symptoms of respiratory infection, they said.

## **A Beijing drugstore gets a big fine for price gouging on masks.**



Workers at a mask factory in Handan, China, last week. Credit...EPA, via Shutterstock

With demand for surgical masks on the rise in China, a drugstore in Beijing has been fined more than \$400,000 by the government for charging customers roughly six times what the masks are being sold for online.

State-run media said that the store was charging customers 850 yuan, or \$122, for the masks, while they were being sold online for 143 yuan.

Infectious disease specialists say the disposable masks, which cover the nose and mouth, [can help prevent the spread](#) of infections if they are worn properly and used consistently.



The masks have become ubiquitous in cities across China. In Hong Kong, where the outbreak has brought back painful memories of the SARS epidemic in 2002-03, officials said that customs authorities were examining surgical masks being sold in the city for counterfeit labeling and not meeting safety standards.

In announcing the fine against the Beijing drugstore, a government notice warned that the authorities would "continue to step up enforcement and make every effort to curb the excessive and rapid rise in protective enforcement prices."

Surgical masks have become so much in demand that a [website advertising](#) more fashionable versions of them warns that deliveries are at risk of being delayed.

Reporting was contributed by Chris Buckley, Russell Goldman, Elaine Yu, Raymond Zhong, Austin Ramzy, Alexandra Stevenson, Sui-Li Wee, Miriam Jordan, Paul Mozur, Knvul Sheikh, Katie Thomas, James Gorman, Motoko Rich, Ben Dooley, Makiko Inoue, Eimi Yamamitsu, Patricia Cohen, Donald G. McNeil Jr., Roni Caryn Rabin, Motoko Rich and Karen Zraick. Zoe Mou, Albee Zhang, Amber Wang, Yiwei Wang and Claire Fu contributed research.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Thu, 23 Jan 2020 20:06:16 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: Coronavirus Is Spreading, but W.H.O. Says It Is Not a Global Emergency  
/The number of cases outside China is small, and the disease does not seem to be spreading within other countries.

## Coronavirus Is Spreading, but W.H.O. Says It Is Not a Global Emergency

The number of cases outside China is small, and the disease does not seem to be spreading within other countries.



At the Hongqiao Railway Station in Shanghai on Thursday, police officers and passengers wore masks to guard against infection. Credit...Hector Retamal/Agence France-Presse — Getty Images

By [Denise Grady](#)

• Jan. 23, 2020 Updated 2:43 p.m. ET

- • The World Health Organization on Thursday decided not to declare the Wuhan coronavirus outbreak a global emergency despite the spread of the dangerous respiratory infection from China to at least five other countries.

Agency officials explained that although the disease has reached beyond China, the number of cases in other countries is still relatively small, and the disease does not seem to be spreading within those countries. Of 584 cases now reported, 575 of them and all the deaths have been in China, according to the W.H.O.

“At this time, there is no evidence of human to human transmission outside China,” Dr. Tedros Adhanom Ghebreyesus, the W.H.O.’s director general, said at a news conference in Geneva. “That doesn’t mean it won’t happen.”

“Make no mistake,” he said. “This is an emergency in China, but it has not yet become a global health emergency. It may yet become one.”



The committee weighing the decision was divided, its chairman, Dr. Didier Houssin, said during the briefing. Some felt the course of the outbreak warranted an emergency declaration, but others said it that was too soon to decide, citing the limited number of cases in countries outside China as well as China's efforts to contain the virus.

Dr. Houssin also said it was important to consider the international perception of an emergency declaration, and its impact on the people in the country at the center of the outbreak.

Dr. Tedros said he would not hesitate to ask the W.H.O. to reconsider declaring an emergency, even within a matter of days, if more evidence emerges to prove that the outbreak poses a global threat. "There is still a lot we don't know," Dr. Tedros said. "We don't know the source, we don't know how easily it spreads, we don't understand its clinical features or severity."

The new infection is caused by a coronavirus, from the same family that caused epidemics of SARS and MERS, which have killed hundreds of people in dozens of countries.

So far, he said, about a quarter of the people infected had become severely ill, but most others had milder symptoms. Most who died had underlying health problems, and many were older than 60.

Carried by travelers, the virus has reached Japan, South Korea, Thailand, Singapore, Taiwan and the United States. Investigators in other countries, including Mexico, are evaluating suspected cases.

Officials in China have closed transportation links from and within Wuhan, and are imposing travel restrictions on other affected cities. These steps have significantly escalated the country's efforts to contain the spread of the virus just days before the Lunar New Year holiday, when hundreds of millions travel in and out of the country.

Dr. Tedros said that he hoped that the measures China took would be effective and short-lived.



Only five global public health emergency declarations have been made in the past:

- In 2009, for pandemic influenza;
- In 2014, for a polio resurgence in several countries;
- Again in 2014, for the Ebola epidemic in West Africa;
- In 2016, for the Zika virus epidemic;
- And in 2019, for an Ebola outbreak in the Democratic Republic of Congo.

The decisions are fraught. Health authorities do not want to cry wolf by raising alarms about an illness that turns out not to be severe — or to ignore a real threat. If they act relatively early in an outbreak, as in this case, they may lack key information about the severity and contagiousness of the disease.

There are political and economic considerations as well. Declaring an emergency signals to governments that the situation is serious and that international help and cooperation are needed to contain the outbreak.

Control measures may save not only lives, but money: the SARS epidemic, caused by a related coronavirus in 2002 and 2003, cost the global economy \$30 billion to \$100 billion, according to [an article published Thursday](#) in the Journal of the American Medical Association.

But declaring an emergency may stigmatize the country struggling with an outbreak, and spur costly bans on travel and trade by other countries, even if health authorities discourage those actions.

"I think there is a general sense that we need to go back and revisit public health emergencies and what they mean," said Michael Osterholm, an epidemiologist at the University of Minnesota. "I think it's not clear, do they or do they not bring more resources, or more controversy?"

Denise Grady has been a science reporter for The Times since 1998. She wrote "Deadly Invaders," a book about emerging viruses. [@nytDeniseGrady](#)

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Fri, 14 Feb 2020 17:13:25 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: Coronavirus Live Updates: Beijing Sets Stringent New Quarantine Rules

LIVE UPDATES

## Coronavirus Live Updates: Beijing Sets Stringent New Quarantine Rules

The mandate came as the national government disclosed that hundreds of medical workers who had been helping combat the coronavirus had become infected and at least six had died.

Beijing demands that all who enter its territory isolate themselves for 14 days, or "be held accountable according to law."

READ UPDATES IN CHINESE: [新冠病毒疫情最新消息汇总](#)

Here's what you need to know:

- [Seeking to protect the city from a major outbreak, Beijing imposes new quarantine rules.](#)
- [Release of information on infected medical workers underscores risks.](#)
- [Blood plasma from survivors could help create a treatment.](#)
- [China records more than 5,000 new cases in 24 hours.](#)
- [A coronavirus clinic in Hong Kong is attacked.](#)



Image

A checkpoint outside an office building in Beijing. Even before the capital issued its new rules, local committees had been playing an increasingly assertive role across China. Credit...Gilles Sabrie for The New York Times

## **Seeking to protect the city from a major outbreak, Beijing imposes new quarantine rules.**

Chinese state-run television announced on its website on Friday evening that everyone returning to Beijing would be required to isolate themselves for 14 days.

Anyone who does not comply “shall be held accountable according to law,” according to a text of the order released by state television. The order was issued by a Communist Party “leading group” at the municipal level, not the national Communist Party.

It was the latest sign that China’s leaders were still struggling to set the right balance between restarting the economy and continuing to fight the coronavirus outbreak.

On Tuesday and Wednesday, the country’s top officials met and issued orders that included a mandate to help people to return to workplaces from their hometowns. Tens of millions had gone home to celebrate Lunar New Year holidays before the government acknowledged the seriousness of the epidemic. They have faced local government checkpoints on the way back to work and then lengthy quarantines upon their return to big cities.

But while national leaders may be worried that travel restrictions and quarantines may be preventing companies from finding enough workers to resume full production, that did not stop Beijing municipal leaders from further tightening controls on Friday evening in the city.

The policy may reduce the chances that people returning from the hinterlands could infect the country’s elite.

The new rules also require those returning to the city to give advance warning of their arrival to the authorities in their residential area. China maintained extensive controls on citizens’ movements under Mao, and some of the institutions and rules from that period have been re-emerging lately.

Even before Beijing issued its new rules, so-called neighborhood committees had been playing an increasingly assertive role across the country, including in Shanghai. They have been demanding that recent returnees isolate themselves for 14 days upon arrival, venturing out for little except food.

## **Release of information on infected medical workers underscores risks.**





A doctor checked on a patient at Jinyintan Hospital, designated for critical coronavirus patients, in Wuhan, China, on Thursday. Credit... Chinatopix, via Associated Press

For more than a month, medical workers in Hubei, [the province at the center of the coronavirus outbreak](#), have been working nearly nonstop even as they struggled with a shortage of personal protective equipment such as masks, gowns and safety goggles.

For the first time on Friday, China disclosed figures that drove home the risks faced by those on the front line: 1,716 medical workers have contracted the virus and six of them have died. Of those people, 1,502 were in Hubei Province, with 1,102 of them in Wuhan, the provincial capital and the center of the outbreak.

The announcement was the first official confirmation about the number of infected medical workers, and is likely to ratchet up fears about the spread of the virus.

"I think it's quite concerning," said Benjamin Cowling, a professor of epidemiology at the University of Hong Kong. "Health care workers face the challenge of caring for a substantial number of patients in Wuhan. It's worrying to discover that a number of them have been infected."

**A Medical Worker Dies**

The death of the doctor whose warnings about the coronavirus were silenced has become [a potent symbol of Beijing's failures](#).

Zeng Yixin, deputy director of the National Health Commission, said the numbers of infected workers represented 3.8 percent of China's overall confirmed infections as of Feb. 11.

He added that further research was needed to ascertain whether the infections spread throughout the hospital or within the community.

## The Coronavirus Outbreak

## • What do you need to know? Start here.

Updated Feb. 10, 2020

- **What is a Coronavirus?**

It is a novel virus named for the crown-like spikes that protrude from its surface. The coronavirus can infect both animals and people, and can cause [a range of respiratory illnesses](#) from the common cold to more dangerous conditions like Severe Acute Respiratory Syndrome, or SARS.

- **How contagious is the virus?**

According to preliminary research, [it seems moderately infectious, similar to SARS](#), and is possibly transmitted through the air. Scientists have estimated that each infected person could spread it to somewhere between 1.5 and 3.5 people without effective containment measures.

- **Where has the virus spread?**

The virus originated in Wuhan, China, and has sickened tens of thousands of people in China and [at least two dozen other countries](#).

- **How worried should I be?**

While the virus is a serious public health concern, the [risk to most people outside China](#) remains very low, and seasonal flu is a more immediate threat.

- **Who is working to contain the virus?**

World Health Organization officials have praised China's aggressive response to the virus by closing transportation, schools and markets. This week, a team of experts from the W.H.O. [arrived in Beijing to offer assistance](#).

- **What if I'm traveling?**

The United States and Australia are temporarily denying entry to noncitizens who recently traveled to China and several [airlines have canceled flights](#).

- **How do I keep myself and others safe?**

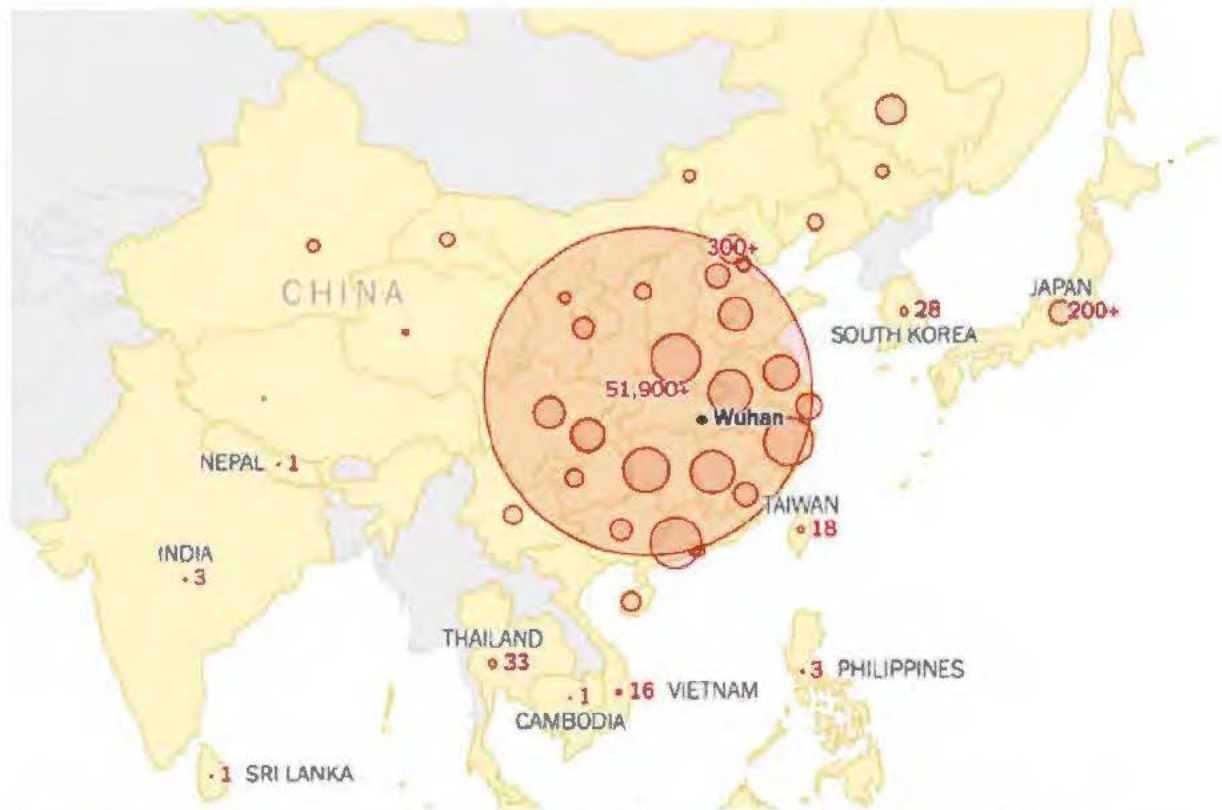
[Washing your hands](#) frequently is the most important thing you can do, along with staying at home when you're sick.

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Medical workers, struggling to both treat patients and keep themselves safe, have resorted to begging from friends, putting out frequent calls for donations, and using tape to patch up torn masks and gowns.

Many doctors and nurses there say they eat just one meal a day because going to the restroom means removing and discarding safety gowns that they would not be able to replace. During the SARS outbreak of 2002-3, 961 medical workers were infected, representing 18 percent of all infections, according to government data. About 1 percent of the medical workers infected with SARS died, a medical expert, Xu Dezhong, told Xinhua, China's official news agency.





### **Coronavirus Map: Tracking the Spread of the Outbreak**

The virus has sickened more than 64,400 people in China and 24 other countries.

**Blood plasma from survivors could help create a treatment.**



Commuters waiting at a bus stop in Beijing. Credit...Kevin Frayer/Getty Images

A senior health official in Wuhan, China, the center of the outbreak, has called on residents who have recovered from the coronavirus to donate blood plasma, believing their naturally produced antibodies could be used to treat patients who are still sick.

Dr. Zhang Dingyu, the director of the Jinyintan Hospital in Wuhan, made his appeal on Thursday after Chinese researchers said they believed that such antibody treatments could help people recover from the virus.

The search for a drug capable of treating or curing the virus has frustrated researchers, as rates of infection and deaths continue to mount.

The government is currently prescribing a combination of antiviral drugs and traditional Chinese medicine. But on Thursday, China National Biotec Group, a state-owned company under the Ministry of Health, said it had found that administering a round of human antibodies from the survivors to more than 10 critically ill patients caused inflammation levels to drop significantly after 12 to 24 hours of treatment.

The company called the use of plasma “the most effective method, which can significantly reduce the mortality of critically ill patients.”

Benjamin Cowling, a professor of epidemiology at the University of Hong Kong, said the use of antibodies to treat the coronavirus was “a really good idea,” noting that it had been used before in influenza pandemics. But he cautioned that it needed to be proven in a controlled trial.

“It’s basically transferring immunity from a patient who has recovered to a patient still fighting the infection, and then helping them to recover,” he said.

**China records more than 5,000 new cases in 24 hours.**





A health worker checking a pedestrian for fever in Guangzhou on Thursday.Credit...Alex Plavevski/EPA, via Shutterstock

Numbers continued to climb after the government changed the criteria by which it tracks confirmed cases. China on Friday reported 5,090 new coronavirus cases and 121 new deaths in the previous 24 hours.

The authorities said a total of 63,851 people had been infected by the coronavirus and at least 1,380 had been killed by the disease. Most of the cases occurred in Hubei Province, the center of the outbreak, which recorded 4,823 new cases and 116 deaths over the same period.

The tally in Hubei jumped most drastically on Thursday after the authorities changed the diagnostic criteria for counting new cases. The government now takes into account cases diagnosed in clinical settings, including the use of CT scans, and not just those confirmed with specialized testing kits.

Measuring an Outbreak

Here's [an explanation](#) for why the case numbers suddenly changed.

## A coronavirus clinic in Hong Kong is attacked.

Image

Police officers and medical workers outside a residential building where dozens of residents were evacuated last week.Credit...Lam Yik Fei for The New York Times

A Hong Kong clinic designated to treat suspected coronavirus cases suffered a second arson attack early Friday, officials said.

Hong Kong's Hospital Authority said it "seriously condemned" the attack, against an outpatient clinic in the New Territories district of Tsuen Wan. A police spokeswoman said it had occurred overnight and left a door charred. The first attack, on Saturday afternoon, damaged an air-conditioner. No one was wounded in either attack.



The clinic is about four miles from [an apartment building where dozens of residents were evacuated](#) this week after two residents on different floors were found to be infected, raising fresh fears about how the virus spreads. (Officials said an unsealed pipe might be to blame.)

There were 56 confirmed cases in the city as of Friday. Fearing a wider outbreak, residents have been staging small-scale protests at several clinics assigned to treat people with mild symptoms of the virus. Late last month, the government shelved a plan to turn an unoccupied housing project into a quarantine facility [after protesters set a fire](#) in the lobby.

As public anger and anxiety mount, the Beijing-backed government has been accused by many residents of not doing enough to contain the spread of the virus, including the refusal to quickly order a complete shutdown of the border with mainland China. The authorities have gradually restricted arrivals from mainland China over the past few weeks.

Carrie Lam, Hong Kong's chief executive, said on Friday that her administration would do its best to repatriate more than 2,000 of the city's residents stranded in Hubei province and aboard the Diamond Princess, the cruise ship quarantined off Japan's coast.

The Hong Kong government has received more than 1,000 requests for help from over 300 cities across Hubei, including from Wuhan, Mrs. Lam said. Ten people from Hong Kong in the region were confirmed to have been infected.

Some 330 Hong Kong residents remain stuck on the cruise ship in Japan, and 11 of them were infected, officials said. The Hong Kong authorities are pressing their Japanese counterparts to consider allowing its citizens to be quarantined onshore and to get tested for the virus as soon as possible, said John Lee, the city's security minister, on Friday.

**As the mind assesses risk, the coronavirus 'hits all the hot buttons.'**





Medical workers at an isolation ward in Wuhan on Thursday.Credit...CHINATOPIX, via Associated Press  
The coronavirus has killed more than 1,300 and infected tens of thousands in China. Those are alarming statistics, but a much more common illness, influenza, [kills about 400,000](#) every year, including [34,200 Americans](#) last flu season and [61,099 the year before](#).

There remains deep uncertainty about the new coronavirus's mortality rate, with the high-end estimate that it is up to 20 times that of the flu, but some estimates go as low as 0.16 percent for those affected outside of China's overwhelmed Hubei Province. That's about on par with the flu.

While the metrics of public health might put the flu alongside or even ahead of the new coronavirus for sheer deadliness, the mind has its own ways of measuring danger.

Experts used to believe that people gauged risk like actuaries, parsing out cost-benefit analyses every time a merging car came too close or local crime rates spiked. But a wave of psychological experiments in the 1980s upended this thinking.

Researchers instead found that people use a set of mental shortcuts for measuring danger. And they tend to do it unconsciously, meaning that instinct can play a large role.

The coronavirus, which has created a wave of fear, may be a case in point.

"This hits all the hot buttons that lead to heightened risk perception," said Paul Slovic, a University of Oregon psychologist who helped pioneer modern risk psychology.

How the Mind Judges Danger

The flu might kill more people, but that's not [how we assess risk](#).

## Citing frustration, quarantined Russians escape hospitals.



Medical workers preparing to check passengers arriving from Beijing at a Moscow train station in late January.Credit...Pavel Golovkin/Associated Press

At least five people fled coronavirus quarantine across Russia, local news media reported on Friday, citing frustration, erratic and inconsistent government policies, and bad conditions in the hospitals where they were held.

Alla Ilyina, 32, a woman from St. Petersburg, had enough patience to stay for only one day at a hospital in Russia's second-largest city. She detailed how she had [broken a lock in her room and sneaked away](#) while doctors were distracted by another patient.

"I am a reasonable person, if someone told me that there was a suspicion, if doctors didn't tell me that I was healthy, if I had not done three tests in separate hospitals, I would sit there," Ms. Ilyina told reporters in an interview, broadcast on Russian television. "I don't want to infect my relatives or threaten anybody, but I just don't understand why an absolutely healthy person should be held somewhere."

Three more people escaped quarantine in the same hospital, Fontanka.ru [reported on Friday](#).

In the city of Samara, Guzel Neder, 34, escaped through the window of another hospital. After staying in quarantine for four days, Mrs. Neder called a testing center and a specialist said if she hadn't received a positive result within two hours, "then you should be fine."

"My son already felt well, he didn't have any fever symptoms, but doctors deliberately made us stay for longer, so that we wouldn't leave, to 'fulfill the order' of isolating people, coming from China," she said. She described conditions at the hospital, where doctors didn't wear any protective gear.

Only two confirmed cases of coronavirus have been reported in Russia so far. Hundreds of Russian and Chinese nationals have been quarantined across the country for the 14-day period, following recommendations from the World Health Organization.

**Singapore's prime minister says the coronavirus could lead to a recession.**





A tourist in Singapore last week. Credit...Roslan Rahman/Agence France-Presse — Getty Images  
Lee Hsien Loong, the prime minister of Singapore, [said on Friday](#) that it was possible the city-state could fall into recession as the coronavirus spreads.

"I think the impact will be significant at least in the next couple of quarters," said Mr. Lee, in a video posted on his Facebook page.

At Singapore Changi Airport, the number of flights has fallen by a third and travelers who have recently visited mainland China are [not allowed to disembark](#).

"It's a very intense outbreak," said Mr. Lee, who visited the airport to show his support for the workers there. "It is already much more than SARS, and economies of the region are much more [interlinked together](#)."

Singapore, whose economy is [particularly sensitive to global fluctuations](#), has already seen a slowdown in growth. The [economy is estimated](#) to have expanded by 0.7 percent in 2019, compared to 3.1 percent the year before, according to government statistics.

"China particularly is a much bigger factor in the region and therefore I can't say whether we'll have a recession or not," Mr. Lee added. "It's possible, but definitely our economy will take a hit."

**Wuhan doctor issues a rare public rebuke of the government's handling of the crisis.**



Medical workers at the Red Cross Hospital in Wuhan last month. Credit...Hector Retamal/Agence France-Presse — Getty Images

The Chinese government failed to sound a public warning in the early days of the outbreak even though scientists were aware of human-to-human transmission, a doctor from Wuhan wrote in a paper published by *The Lancet* this week.

Dr. Zhang Hong of Zhongnan Hospital wrote that the local authorities had allowed more than five million people to leave Wuhan to travel for the Lunar New Year holiday despite warnings from Chinese scientists.

"Early detection and early reporting were delayed," Dr. Zhang wrote.

[The paper](#) was a rare instance of a medical professional criticizing the government, especially at a time when doctors and nurses have come under pressure not to speak out. Dr. Zhang also wrote that doctors did not understand the severity and contagiousness of the new coronavirus early on, and that medical workers failed to fully protect themselves as a result.

He wrote that the supplies of protective equipment in hospitals were severely insufficient and were worsened by the implementation of traffic controls after the government sealed off cities across China. He called on the government to "pay attention to the front-line doctors and provide adequate protective equipment to reduce their risk of infection."

Overstretched hospitals were forced to turn patients away as the virus spread, "inevitably increasing morbidity and mortality," he added.

The authorities in Wuhan have admitted that public announcements about the virus were delayed. In late January, when the outbreak was spreading through Wuhan, the city's mayor, Zhou Xianwang, acknowledged that the disclosures had not been timely, but said his hands were tied because he could only publicize it "in accordance with the law."



Reporting and research was contributed by Keith Bradsher, Ivan Nechepurenko, Sui-Lee Wee, Choe Sang-Hun, Richard C. Paddock, Elaine Yu, Motoko Rich, Lin Qiqing, Karen Zraick, Amie Tsang, Amber Wang, Zoe Mou, Albee Zhang, Yiwei Wang, and Claire Fu.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Fri, 21 Feb 2020 17:12:30 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: Coronavirus Live Updates: Fears of Global Spread as Cases Accelerate in Iran and South Korea

LIVE UPDATES

## Coronavirus Live Updates: Fears of Global Spread as Cases Accelerate in Iran and South Korea

- Iran acknowledged 18 cases in three cities, with four fatalities, and a surge in cases in South Korea was linked to a secretive church.
- China reported outbreaks in hospitals in Beijing and clusters of infections in at least four prisons in three provinces.

### Here's what you need to know:

- [Fears of global spread increase as new cases emerge.](#)
- [New clusters of the virus are found in China's prisons.](#)
- [A South Korean church is tied to a surge in new infections.](#)
- [A spike in cases in Beijing, which had largely been spared.](#)
- [Another young doctor in Wuhan has died.](#)

Read updates in Chinese: [新冠病毒疫情最新消息汇总](#)





A suspected coronavirus patient on Friday in South Korea, where confirmed cases have surged above 200, with hundreds more being tested. Credit...Yonhap, via Agence France-Presse — Getty Images

## **Fears of global spread increase as new cases emerge.**

The coronavirus outbreak showed dangerous signs of breaking out beyond China on Friday, as new cases were reported in the Middle East and large clusters emerged around Asia.

Countries were closing their borders with Iran as health officials scrambled to make sense of reports out of Tehran suggesting that the virus was being transmitted more widely than officials there have publicly acknowledged.

As recently as Tuesday, Iranian officials had said there were no cases of the virus in the country. By Friday, however, they acknowledged 18 cases in three cities, with four deaths.

It was not immediately known how the virus made its way to Iran. But the numbers suggested wider transmission that, if verified, would raise the chances of a pandemic.

At the same time, a surge in cases in South Korea — where the total figure [soared above 200 on Friday and scores more were being monitored for symptoms](#) — added to fears that the virus was also spreading across Asia with dangerous speed.

Those cases have been tied to a secretive church. The South Korean authorities are racing to trace people who have come into contact with the infected congregation members, but have struggled to find all of those connected to the church's hundreds of members.

And in China there was concern that the virus could spread beyond its starting point in Hubei Province after officials reported outbreaks in hospitals in Beijing and clusters of infections in at least four prisons across three provinces.

The disturbing new clusters were announced on the same day that Chinese officials acknowledged that their repeated shifts in methodology for counting new cases had sown confusion.



Officials in Hubei revised their case tallies again because of shifting definitions of a confirmed case and what officials described as previously unknown information.

The acknowledgment by provincial leaders came as national officials announced that 889 new coronavirus cases had been reported in China in the previous 24 hours, raising the overall total above 75,000. The death toll went up by 118, to 2,236.

China is now counting “lab-confirmed” and “suspect” cases. On Friday, Tedros Adhanom Ghebreyesus, the World Health Organization’s director general, praised that decision as “adding clarity” and noted that the same approach was used in Ebola outbreaks, in which many people die without every case being laboratory tested.

## **New clusters of the virus are found in China’s prisons.**



Empty streets in Wuhan on Thursday. Nearly 300 people are infected with the coronavirus in prisons in Hubei Province, whose capital is Wuhan. Credit...Agence France-Presse — Getty Images

China faced a new front in the coronavirus epidemic on Friday as officials reported clusters of infections in at least four prisons in three provinces. The outbreaks, affecting at least 512 prisoners and guards, raised the specter of the disease spreading through the country’s extensive prison system.

Two of the prisons are in Hubei Province, where the epidemic originated. Wuhan Women’s Prison reported 230 confirmed cases, while 41 prisoners tested positive in Hanjin Prison in Shayang County, to the west, according to a [statement](#) on the provincial government’s website.

In Shandong Province, officials said 207 cases had emerged in a prison in the city of Jining, 450 miles east of Wuhan. The outbreak prompted the local authorities to dismiss the director and party secretary of the provincial justice department, which oversees the prisons there, along with seven other officials.



The cases there may have spread from a prison guard who developed a cough on Feb. 12 and tested positive for the virus the next day, according to [a statement](#) by the provincial government. A second guard was also found to have the virus that day, prompting the prison authorities to begin screening the entire prison population.

In all, 2,077 inmates and prison workers were tested in Shandong, with 200 prisoners and seven guards testing positive for the coronavirus. No deaths have been reported.

The Shandong government is carrying out inspections at other prisons and medical centers where prisoners are being treated for illnesses, including drug and alcohol addiction. It also plans “to quickly set up a hospital” on prison grounds to treat those infected, the statement said.

A similar outbreak in Zhejiang Province prompted the dismissal of a warden and a party secretary at a prison in the city of Quzhou. The facility reported 27 new infections on Friday, according to a report in China Daily, bringing the number of prisoners infected there to 34. A prison guard is also believed to be the source of those infections.

## **A South Korean church is tied to a surge in new infections.**



Workers disinfecting a branch of the Shincheonji Church of Jesus the Temple of the Tabernacle of the Testimony, in Daegu, South Korea, on Wednesday. Credit...Yonhap, via Reuters

South Korea reported a surge in confirmed infections and a second death from the coronavirus on Friday, with the latest outbreak linked to a secretive church whose members account for two-thirds of the new infections in the country.

Health officials are zeroing in on the Shincheonji Church of Jesus — whose members continued to sit packed together on the floor of the church even when sick — as they seek to contain the country’s alarming outbreak.

On Friday, the number of cases in the country soared above 200 — second only to mainland China, if the outbreak on [the Diamond Princess cruise ship](#) is excluded from Japan’s count.

More than 540 other church members have reported potential symptoms, health officials said, raising the possibility that the nation's caseload could soon skyrocket further. In response, the government is shutting down thousands of kindergartens, nursing homes and community centers, even banning the outdoor political rallies that are a feature of life in downtown Seoul.

As of Friday, more than 340 members of Shincheonji, which mainstream South Korean churches consider a cult, still could not be reached, according to health officials, who were frantically hoping to screen them for signs of infection.

The church, founded by Lee Man-hee in 1984, says it has over 200,000 members around the world, according to the South Korean news agency Yonhap. It closed all of its churches in South Korea this week and told followers to watch its services online.

The church dismissed criticism of its practices on Friday, calling it "slandering based on the prejudices among the established churches."

### **A spike in cases in Beijing, which had largely been spared.**



Fuxing Hospital in Beijing has reported at least 36 coronavirus cases. Credit...Greg Baker/Agence France-Presse — Getty Images

A spike in coronavirus cases at two Beijing hospitals has raised fears that the epidemic could be growing in a city that has so far largely been spared.

Compared with other cities, Beijing has had relatively few cases: 396 as of Thursday, and four deaths. But Fuxing Hospital now has at least 36 infections, a sizable increase since Feb. 3, when officials [first announced](#) that five medical workers there had tested positive.

Peking University Hospital also recorded three cases: a woman who had previously been hospitalized and her daughter and son-in-law who visited her after traveling to Xinjiang, the western region. The couple tested positive for the virus on Feb. 17, days after Beijing's municipal government [announced](#)



that all people arriving in the capital must quarantine themselves for 14 days or face legal consequences.

On Friday, officials said that people flying into the city from abroad who had not been in China in the previous 14 days would be exempt from the rules.

Beijing's measures appear to reflect a strong effort by officials to minimize the spread of the epidemic in the capital as millions of workers return from a prolonged break following the Lunar New Year. Since the new measures were announced, the city authorities have stepped up efforts to control movement in the city, which has been [uncharacteristically deserted](#) for nearly a month.

The National People's Congress, the country's legislative body, also announced that it was [preparing to postpone](#) its annual meetings, scheduled for the first week of March.

## **Another young doctor in Wuhan has died.**



Checking a patient infected by the coronavirus at the Wuhan Red Cross Hospital on Sunday.Credit...Agence France-Presse — Getty Images

A 29-year-old respiratory doctor in Wuhan, the city at the heart of the coronavirus outbreak in China, died on Thursday night after being infected by the virus, according to an announcement from the hospital where he worked. It was the latest in a string of deaths among health care providers working to contain the outbreak.

The doctor, Peng Yinhua, was also among the youngest of the publicly announced victims of the virus, which has largely killed [older men with underlying health conditions](#).

On Chinese social media, users expressed shock at Dr. Peng's age. They also cited state media reports that Dr. Peng had planned to get married on Feb. 1, but that he had postponed the wedding because of the epidemic.

Last month, the death of another young Wuhan doctor, Li Wenliang, provoked an outpouring of anger and grief on social media. Dr. Li, 34, had been reprimanded by the local authorities for trying to warn his

medical school classmates about the virus before officials had acknowledged an outbreak. When Dr. Li died of the virus, he became [a potent symbol](#) of perceived government mismanagement and concealment.

After Dr. Peng's death, some users seemed to nod to Dr. Li as well. "We send away another hero," one person wrote on Weibo, a Chinese Twitter-like platform.

"Exactly how many more medical staff have to die?" another wrote.

Earlier this week, another high-profile doctor, Liu Zhiming, died. Dr. Liu was the director of the Wuchang Hospital in Wuhan.

## **To quell protests, a Ukrainian official said she would join evacuees in quarantine.**



A protest against the arrival of evacuees from Hubei Province in China, the center of the epidemic, in a Ukrainian village on Thursday.Credit...Valentyn Ogirenko/Reuters

Ukraine's minister of health said on Friday that she would join a group of evacuees from China in a quarantined rural hospital, in the hope of calming angry protests from neighbors opposed to living near people who are potentially infected.

[The minister, Zoryana Skaletska, said on Facebook](#) that she would abide by the same rules as the 45 Ukrainians and 27 people of other nationalities who were evacuated from Hubei Province, the center of the coronavirus outbreak in China, to the Poltava region in eastern Ukraine.

Pilots, flight attendants and doctors who carried out the evacuation are also now quarantined at the site. Once Ms. Skaletska enters the hospital, near the village of Novi Sanzhary, she will not be allowed to leave the guarded site until the quarantine is lifted, she said.



"I will spend the next 14 days together with them, on the same premises, and under the same conditions," she said in a [statement](#) on Thursday. "I hope my presence will calm those in Novi Sanzhary and the rest of the country."

Fear of the virus had gripped the village. On Thursday, residents blocked a road with cars and burned tires to prevent buses with evacuees from passing. The Ukrainian National Guard used armored personnel carriers to clear the road. Protesters then hurled stones at the buses, breaking windows. Heightening tensions in Ukraine, the return of the plane carrying evacuees coincided with online rumors that the coronavirus was already spreading in the country. Protests broke out even in towns far from the quarantine site.

Ukraine has reported no cases of coronavirus infection.

## **Canada announces a new case, with possible links to Iran.**



Buying protective masks in Tehran on Thursday. Credit...Atta Kenare/Agence France-Presse — Getty Images

Officials in Canada [announced](#) a new case of the coronavirus on Friday in a patient who had recently returned from Iran, which itself had just confirmed its first few cases of the virus.

Iranian officials on Wednesday announced two coronavirus cases in the country, and then just hours later reported that both patients had died. On Friday, officials there announced two more deaths. Israel also reported its first case, a passenger who had been brought back to the country from the Diamond Princess, the cruise ship docked off Yokohama, Japan, on which hundreds of people have been infected with the virus. The Health Ministry stressed that "this is not an infection that occurred in Israel."

The case of the new Canadian patient, the sixth in the western province of British Columbia, could raise fears of [cluster cases](#) and an expanding global reach of the virus. Health officials are investigating viral clusters in South Korea, Japan, Singapore, Britain and France.



The source of the virus in Iran remains unknown. A senior health official there said that none of the people who have been diagnosed had traveled to China or been in contact with anyone who had traveled there, according to the [state-controlled IRIB news](#) agency.

The authorities in British Columbia said the new patient was a woman in her 30s who was presumed positive based on local testing and was awaiting final confirmation from national officials.

## **iPhone maker said it would be cautious in resuming work in China.**



A Foxconn factory in Guizhou Province, China. The company is the world's largest contract manufacturer of electronics. Credit...Aleksandar Plavevski/EPA, via Shutterstock

With much of China still on lockdown, businesses are struggling to get up and running. Foxconn, the Taiwan company that manufactures Apple's iPhones and other gadgets, indicated just how difficult that will be.

The company said on Thursday that its revenues would take a hit from the spread of the coronavirus and that it would be "cautious" in resuming work at its factories in China. Plants outside the country, in places like Vietnam and Mexico, are at full capacity, the company said.

The warning comes as Chinese leaders try to balance restarting the economy with controlling the spread of the coronavirus. After repeated extensions of the Lunar New Year holiday, many migrant workers remain at home, facing mandatory quarantines and lockdowns. Several businesses and officials have issued [warnings that such policies should be relaxed](#) to avoid a new economic crisis.

Even if factories get all their workers back, other policies are likely to make work difficult. Some local governments require new preventive measures, like requiring workers to wear masks or housing each worker in a single dorm room. In other cases, cities have invoked mandatory two-week quarantines on all returning workers.



Concerns about production at Foxconn, the world's largest contract manufacturer of electronics, underscore the broader impact the epidemic could have on global supply chains. A huge portion of the world's electronics come out of China's factories.

## Beijing steps up war of words over critical coverage.



Nepali students who were repatriated from Wuhan arrived in Kathmandu on Sunday. Credit...Prakash Mathema/Agence France-Presse — Getty Images

The Chinese Embassy in Nepal has attacked a Nepalese newspaper for publishing a column criticizing Beijing's handling of the coronavirus outbreak and an illustration of Mao Zedong wearing a face mask. The embassy said in a statement this week that the Kathmandu Post had "deliberately smeared" the government and people of China and "viciously attacked" the nation's political system.

The statement, which [singled out](#) the paper's top editor, was the latest example of the Chinese government's increasingly muscular brand of diplomacy and its efforts to publicly quash criticism of its policies, even abroad. This week, Beijing [announced](#) that it would expel three Wall Street Journal reporters in retaliation for a headline on an opinion piece.

The column in question in the Kathmandu Post is a syndicated opinion piece under the headline "[China's secrecy has made coronavirus crisis much worse](#)." It was originally published in The Korea Herald and reprinted by the Post on Tuesday. The paper accompanied the column with an illustration of a Chinese bank note digitally altered to depict Mao wearing a surgical face mask.

One of Asia's poorest and least-developed democracies, Nepal has grown closer to China as it seeks to reduce its dependence on India. Chinese investors have pumped [millions of dollars](#) into the country. Reporting and research were contributed by Vivian Wang, Paul Mozur, Donald G. McNeil Jr., Choe Sang-Hun, Roni Caryn Rabin, Carlos Tejada, Elaine Yu, Steven Lee Myers, Tiffany May, Andrew E. Kramer, Marc Santora, Amber Wang, Claire Fu, Yiwei Wang, and Zoe Mou.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Wed, 18 Mar 2020 12:17:05 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: Coronavirus Live Updates: Nations Pledge Trillions to Stave Off Economic Catastrophe

## Coronavirus Live Updates: Nations Pledge Trillions to Stave Off Economic Catastrophe

- The death toll in the U.S. passed 100 as the White House issued stimulus plans that included sending \$1,000 to every American. New York City's mayor says a "shelter in place" order is being considered.
- The "shelter in place" order in Northern California was expanded to include eight million people.

[新冠病毒疫情最新消息](#)

**Here's what you need to know:**

- [World leaders vow vast spending, and New Yorkers face the prospect of "shelter in place."](#)
- [Deaths in U.S. pass 100 as the virus reaches all states.](#)
- [Global markets suffer losses, and Wall Street is poised for a rough opening.](#)
- [White House backs idea of sending cash to Americans as Trump tweets reassurances.](#)
- [Pakistan, its health care system already teetering, braces for coronavirus.](#)
- [Transportation is disrupted across the U.S., including a walkout of bus drivers in Detroit.](#)
- [Europe resurrects borders, and chaos follows.](#)

### World leaders vow vast spending, and New Yorkers face the prospect of "shelter in place."

Nations around the world waged a two-front war on Wednesday: fighting the spread of the virus through ever tightening restrictions on people's movements and stabilizing economies severely damaged by those efforts.

The White House is seeking more than one trillion dollars to blunt the financial fallout from the sudden and drastic changes to daily life caused by the coronavirus.

Germany has promised \$600 billion to help businesses and individuals. British leaders said they would throw more than \$420 billion at the crisis. The European Union promised hundreds of billions to support member states. Leaders in France, Spain, Italy and dozens of other nations have pledged to spend whatever is needed to meet the moment.

To put that in context — and to give a sense of the scale of the current crisis — the United States appropriated about \$200 billion in today's money for the Marshall Plan to help rebuild Europe after World War II.

But even as governments and central banks around the world promised to use all the fiscal and monetary policy instruments in their arsenal to prevent an economic collapse, the ripple effects of closing borders, locking down entire nations and telling people to stay in their homes continued to swell.

Wall Street, rocked by wild swings, was poised to have another rough day. Global markets fell sharply on Wednesday as worries about the world economy persisted.

Around the world, cities expressed growing concern about funding for vital services after revenue disappeared virtually overnight.

The Metropolitan Transportation Authority, which runs New York City's subways and two commuter railroads, said it desperately needed \$4 billion from the federal government.

With new infections continuing to rise in the city, Mayor Bill de Blasio said 8.6 million residents could be told to "shelter in place" within the next 48 hours. However, Gov. Andrew M. Cuomo pushed back against that idea.

The term "shelter in place" has previously been associated with hurricanes and snowstorms — events of limited duration where people could be confident that, after a period of hardship, life would generally get back to normal.

But "social distancing" is the new normal for the foreseeable future, increasingly enforced by law.

It was unclear what a "shelter in place" order would look like in New York.

In the San Francisco Bay Area, where restrictions were expanded late Tuesday to include more than eight million people, downtown streets were deserted, but there were many reports of people still going to parks and socializing.

In Italy, where the death toll climbed to more than 2,500, the lockdown has been much more stringent, with people only venturing out for essential supplies. France and Spain have also tightened restrictions on nationwide lockdowns, adding hefty fines for anybody who violates the rules.

## **Deaths in U.S. pass 100 as the virus reaches all states.**

At least 100 deaths in the United States have now been linked to the coronavirus, according to a [New York Times database](#) that is tracking and mapping every known case in the country as more people are tested. On Tuesday evening, West Virginia became the 50th state to report an infection.

The 101 deaths, all announced in the last three weeks, came as the number of known coronavirus cases in the United States soared past 5,600 on Tuesday. Hundreds more are learning they have the illness each day, including more than 800 diagnoses on both Monday and Tuesday, as the nation's testing capacity has grown significantly and as the virus spreads.

About half the country's reported deaths have been in Washington State, including at least 30 linked to a long-term care facility in the Seattle suburb of Kirkland. Most of those who have died from the virus have been in their 60s or older, and several have been in their 90s. But other patients who died have been younger, including a corrections worker in New York City in his 50s and a man from the Seattle area in his 40s.

## **Global markets suffer losses, and Wall Street is poised for a rough opening.**

Stocks fell sharply on Wednesday after a big Tuesday rally on Wall Street, as persistent worries about the world economy overcame hopes for a major stimulus package from Washington.

Futures markets signaled that Wall Street would open sharply lower on Wednesday, too.

Major European markets were 4 to 5 percent lower, following a late-day slump in Asian shares. Futures for oil declined, with Brent crude priced below \$30 a barrel for the first time since 2016. Gold fell, as did bond prices, signaling that investors were continuing to retreat from a broad array of markets.

The significant drops represented a broad shift in sentiment on Wall Street from just hours earlier, when [the White House called for urgent action](#) to pump \$1 trillion into the economy. The S&P stock index rose 6 percent on Tuesday.



Asian markets rose initially on Wednesday, but investors could not sustain the momentum. Late in the day, the losses accelerated.

As the effects of the coronavirus pandemic hit the job market, the damage is likely to be much deeper and longer lasting than seemed possible even a week ago.

Marriott International, the hotel operator, said Tuesday that it would begin furloughing tens of thousands of employees worldwide. Restaurants, coffee shops, gyms and other small businesses have begun laying off workers outright. On Monday, a flood of inquiries from newly jobless New Yorkers [crashed the website](#) for the state's unemployment insurance system.

"Everyone is afraid to hire," said Angela Gervasi, 24, who is suddenly looking for work after being let go by her employer, a Philadelphia restaurant.

Relatively few companies outside the hospitality industry have announced significant job cuts so far, with many saying they will continue to pay employees even while they are closed. But that cushion seems unsustainable. Most small businesses do not have the financial buffer to pay workers for long if revenue dries up.

President Trump took to Twitter on Wednesday morning to offer reassurance.

"For the people that are now out of work because of the important and necessary containment policies, for instance the shutting down of hotels, bars and restaurants, money will soon be coming to you," he posted.

"I will totally protect your Medicare & Social Security!" Mr. Trump also wrote.

He added that he would be holding a news conference "to discuss very important news from the FDA concerning the Chinese Virus!" Referring to the coronavirus in that way has enraged officials in Beijing.

## **Pakistan, its health care system already teetering, braces for coronavirus.**

Pakistan's health care system is already on the brink of collapse. The virus may push it over the edge. The country is at the center of one of the most densely populated regions in the world, South Asia, which has some 1.8 billion people and porous borders.

Around 246 people have tested positive for the coronavirus in Pakistan, and many public health experts say they are worried that the true numbers are much higher.

As the outbreak hit neighboring Iran, thousands of Pakistanis tried to return home. Some 4,600 were quarantined at Taftan, Pakistan, a town on the border. They spent 14 days in tents, with little running water and barely working toilets.

Many of those who were released from quarantine returned home and tested positive for the virus. In Sindh Province, the number of infected jumped from 35 to 150 on Sunday, after dozens of people who underwent quarantine in Taftan were confirmed as having contracted the illness.

Many in Pakistan say they are having trouble getting tested. So far, around eight people per million have been tested in the country, compared to about 1,000 per million in Italy.

In a televised address on Tuesday night, Prime Minister Imran Khan warned that hospitals were too weak to accept an influx of people seeking testing and asked only the very ill to get screened.

He urged social distancing but said that the nation's economy was too weak to handle a complete shutdown.

"Pakistan's situation is not the same as that of the United States or Europe," Mr. Khan said. "There is poverty in our country, with 25 percent of the people living in extreme poverty."

## **Transportation is disrupted across the U.S., including a walkout of bus drivers in Detroit.**

As the number of coronavirus cases increases, the impact is being felt across every facet of American life, including transportation.

After three technicians who work in an air traffic control tower at Midway International Airport in Chicago tested positive for the virus on Tuesday, the Federal Aviation Administration temporarily shut it down, causing scores of flights to be canceled, delayed or diverted.

Public transit agencies in many cities have struggled amid low ridership and health concerns from their employees and customers. New York City's public transportation system, the largest in North America, is [seeking a \\$4 billion federal bailout](#) after the pandemic set off an extraordinary fall in ridership.

In Detroit, bus service was halted after drivers, fearing for their safety, balked at leaving their garages. The president of the union which represents the drivers said that some had reported to work in the morning and found that buses had not been adequately cleaned.

Uber and Lyft, two of the most popular ride-sharing companies, said on Tuesday that they were suspending pooled trips, in which riders pay a reduced fee by sharing the ride with a passenger headed in the same direction.

## **Europe resurrects borders, and chaos follows.**

Hastily reintroduced border checkpoints have prompted chaos across Europe as nations step up entry restrictions and limit movement.

The [European Union announced a decision](#) on Tuesday to implement a 30-day restriction on nonessential travel to its territory, and at least 12 countries have [re-erected border checkpoints](#), stemming the flow of people and goods.

Romanian and Bulgarian citizens trying to return home from Austria via Hungary were denied entry to Hungary on Tuesday, a day after Prime Minister Viktor Orbán announced that his country would close its borders to non-Hungarians.

Some travelers staged a protest on the highway, causing a traffic jam stretching some 13 miles. The authorities later announced that they would allow a one-time passage of Romanians and Bulgarians through Hungary through a "humanitarian corridor."

Poland, which suspended all international air and rail travel and barred entry on Sunday to everyone except Polish citizens and legal residents, was also scrambling to manage the chaos.

Thousands of travelers on Wednesday were stuck in lines stretching dozens of miles near entry points to Poland, with many forced to wait up to 30 hours without access to food or water. According to officials, the waiting time for thousands of truckers, especially on the Poland-Belarus border, could be even longer, delaying the transport of goods into Poland.

Responding to the crisis, the Polish Ministry of the Interior said on Tuesday night that more checkpoints would be opened and that about 1,000 soldiers would be dispatched to help maintain peace at the borders.

## **Social distancing doesn't have to mean isolation. Let us help.**

The regulations around social distancing have forced many friends and family to change the way they communicate and spend time together. It is important to stay connected during these stressful times. Here are some ideas that may help:

## **Pope encourages those in lockdown to show love.**

Pope Francis encouraged those under the severe restrictions in place across Italy and the broader world to use the "difficult days" to show others that they care, using "small, concrete gestures."

"A caress for our grandparents, a kiss for our children, for the people we love" are "important, decisive gestures," Francis said in an interview with the Rome daily La Repubblica on Wednesday. "If we live these days like this, they won't be wasted."



The coronavirus is ravaging Italy, with 2,503 deaths reported as of Tuesday and more than 31,000 cases across the country. The [health care system as been overwhelmed](#), and daily life has been brought to a halt, with residents confined to their homes except to buy food, medicine or other necessities. The pope has continued to conduct Mass, but in a very different setting. On Sunday, he spoke to Catholics from the library of the Apostolic Palace in the Vatican at midday, a change from his usual place of delivery, the window of the papal apartment overlooking Saint Peter's Square, which is closed. In the newspaper interview, Francis thanked those on the front lines of the epidemic. "They are an example of this concreteness," he said. And he urged people to reach out to those who had lost loved ones.

Gestures of affection are often "lost in the anonymity of everyday life" and in our dependence on virtual communication, he said. But, he added, actions like "a hot meal, a caress, a hug, a phone call" make "life meaningful."

On Sunday, the pope went to two Rome churches to pray. "I asked the Lord to stop the epidemic," he said.

## **Report warns of more than 500,000 deaths in Britain.**

The lead epidemiologist behind a report that prompted the British government to ramp up its coronavirus response has developed a fever and entered into self-quarantine, he wrote on Twitter on Wednesday.

The scientist, Neil Ferguson, and his colleagues at Imperial College London warned that an uncontrolled spread of the illness could cause as many as 510,000 deaths in Britain. Using mathematical modeling, the report also predicted that the virus would overwhelm hospitals and that governments had no choice but to impose lockdown policies.

American officials said the report, which projected up to 2.2 million deaths in the United States from such a spread, had also influenced the White House to strengthen its measures to isolate members of the public.

Dr. Ferguson blamed his own sickness on a density of infections.

"There is a lot of Covid-19 in Westminster," he wrote. According to [Public Health England data](#) on Wednesday, 58 cases have been reported in that area of London.

## **The virus could survive in the air, a new study suggests.**

The coronavirus can live for three days on some surfaces, like plastic and steel — though the amount of viable virus decreases sharply over this time — suggests a new study, [published on Tuesday](#) in the New England Journal of Medicine.

Experts say the [risk of consumers getting infected](#) from touching those materials is still low, though they offered additional warnings about how long the virus could survive in the air, which may have important implications for medical workers.

When the virus becomes suspended in droplets smaller than five micrometers — known as aerosols — it can stay suspended for about 30 minutes, before drifting down and settling on surfaces where it can linger for hours, the researchers said. The finding is inconsistent with the World Health Organization's position that the virus is not transported by air.

The new study also suggests that the virus can survive up to 24 hours on cardboard packages, though it disintegrates over the course of a day — meaning cardboard packages that arrive in the mail would have only low levels of the virus unless the delivery person has coughed or sneezed on it or has handled it with contaminated hands.

Another study, the largest to date of children and the virus, has found that while most develop mild or moderate symptoms, a small percentage — [especially babies and preschoolers](#) — can become seriously

ill. Children account for the [smallest percentage](#) of the tens of thousands of infections identified globally.

And though the health minister of France has urged people ill with the coronavirus to stay away from ibuprofen and aspirin, there was [no research](#) to back up the contention.

## **U.S. plans to swiftly turn back people entering from Mexico illegally.**

The Trump administration plans to immediately turn back all asylum seekers and other foreigners attempting to enter the United States from Mexico illegally, saying the nation cannot risk allowing the coronavirus to spread through detention facilities and border patrol agents, four administration officials said.

The administration officials said the ports of entry would remain open to American citizens, green-card holders and foreigners with proper documentation. But under the new rule, border patrol agents would immediately return anyone to Mexico — without any detainment and without any due process — who attempts to cross the southwestern border. They would not be held for any length of time in an American facility.

Although they advised that details could change before the announcement, administration officials said the measure was needed to avert what they fear could be a systemwide outbreak of the coronavirus inside detention facilities along the border. Such an outbreak could spread quickly through the immigrant population and could infect large numbers of border patrol agents, leaving the southwestern border defenses weakened, the officials argued.

Reporting was contributed by Elisabetta Povoledo, Maria Abi-Habib, Zia ur-Rehman, Marc Santora, Megan Specia, Heather Murphy, Damien Cave, Nicholas Bogel-Burroughs, Ben Casselman, Sapna Maheshwari, David Yaffe-Bellany, Mark Landler, Stephen Castle and Farnaz Fassihi.

# **The Coronavirus Outbreak**

## **• Wondering About Social Distancing?**

Updated March 17, 2020

- **What is social distancing?**

It means [minimizing contact with people](#) and maintaining a distance of at least six feet between you and others. Avoid public transportation, limit nonessential travel, work from home and skip gatherings. This strategy saved thousands of lives both during the Spanish flu pandemic of 1918 and in Mexico City during the 2009 flu pandemic.

- **I'm young. Can I continue to socialize?**

[Please don't.](#) There is no question that older people and those with underlying health conditions are most vulnerable to the virus, but young people are by no means immune. And there is a greater public health imperative. Even people who show only mild symptoms may pass the virus to many, many others — particularly in the early course of the infection, before they even realize they are sick.

- **Can I leave my house?**

It's O.K. to go outdoors. The point is not to remain indoors, but to avoid being in close contact with others. When you do leave your home, wipe down any surfaces you come into contact with, avoid touching your face and frequently wash your hands.

- **Can I go to the supermarket?**

[Yes, buy as much as you can at a time to minimize the number of trips](#), and pick a time



when the store is least likely to be crowded. Be aware that any surface inside the store may be contaminated, especially the handle of the cart.

- **Can I go out to dinner at a restaurant?**

[In general, avoid going out to restaurants.](#) Opt for takeout.

- **Can family come to visit?**

That depends. If everyone in the family is young and healthy, then some careful interaction in small groups is probably OK. Elderly relatives and others at risk should stay away, at least for now.

- **Can I take my kids to the playground?**

Serious illness from this virus in kids is rare. But kids tend to touch their mouths, noses and faces constantly so parents, especially in higher-risk areas, may want to reconsider trips to high-traffic public areas like the playground. [If you do go, playgrounds with few kids are ideal.](#) Take hand sanitizer with you and clean any surfaces with disinfecting wipes before they play.

- **How long will we need to practice social distancing?**

That is a big unknown, experts said. A lot will depend on how well the social distancing measures in place work and how much we can slow the pandemic down. But prepare to hunker down for at least a month, and possibly much longer.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Sat, 28 Mar 2020 23:17:52 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: Coronavirus Live Updates: President Trump Is Weighing Quarantines for Hot Spots as U.S. Cases Cross 119,000

## Coronavirus Live Updates: President Trump Is Weighing Quarantines for Hot Spots as U.S. Cases Cross 119,000

- A hospital ship heads to New York, and more than 17 states now tally over 1,000 cases. Deaths have surged in Italy and Spain, and Russia is closing all its borders, including maritime boundaries.
- Illinois reports the first known U.S. death of an infant with the coronavirus.

[新冠病毒疫情最新消息](#)

**Here's what you need to know:**

- President Trump says he is weighing enforceable quarantines for New York, New Jersey and Connecticut.
- New York State's primary is delayed, and New York City may fine those who break social-distancing rules.
- Illinois reports first known U.S. death of an infant with the coronavirus.
- Federal civil rights office rejects rationing medical care based on disability or age.
- As deaths mount, Spain and Italy look for signs of a turning point.
- Sweden hasn't shut down, and Denmark is covering most workers' salaries.
- Kenya's police are blamed for excessive force in imposing curfew.

**President Trump says he is weighing enforceable quarantines for New York, New Jersey and Connecticut.**



Image



President Trump speaking at the U.S.N.S. Comfort in Norfolk, Va., on Saturday. Credit...Erin Schaff/The New York Times

President Trump said Saturday that he might order a quarantine of New York, New Jersey and parts of Connecticut, a dramatic exercise of federal power that would impose restrictions on travel by millions of Americans in order to prevent them from carrying the coronavirus to other parts of the country.

Mr. Trump offered no details about how his administration would enforce a ban on the movements in or out of three northeastern states, including New York City, the country's most populous city. However, he said the restrictions would not prevent truckers from making deliveries into the area or traveling through, and would not affect trade with the three states "in any way."

Mr. Trump, who has lurched from one public message to another in the weeks since the coronavirus crisis began to consume the United States, said he could announce such a move later Saturday, signaling that he had not reached a final decision about a short-term order.

"There is a possibility that sometime today we'll do a quarantine, short term, two weeks, on New York, probably New Jersey, certain parts of Connecticut," said Mr. Trump, a former New Yorker who now is officially a Florida resident. "They're having problems down in Florida. A lot of New Yorkers going down, we don't want that, heavily infected."

Mr. Trump — who first broached the idea of the quarantines as Gov. Andrew M. Cuomo of New York was giving a news conference — said he had talked with Mr. Cuomo just hours earlier. Asked about Mr. Trump's suggestion, Mr. Cuomo said they had not discussed the possibility of a quarantine.

"I spoke to the president about the ship coming up," Mr. Cuomo said, referencing the U.S.N.S. Comfort, the naval hospital ship now bound for New York. "I didn't speak to him about any quarantine."

"I don't even know what that means," the governor said. "I don't know how that could be legally enforceable. From a medical point of view, I don't know what you would be accomplishing. I don't even like the sound of it."



Gov. Ned Lamont of Connecticut said that he had been in close communication with Mr. Cuomo and Gov. Phil Murphy of New Jersey. He wrote on Twitter that he looked forward to speaking with Mr. Trump “directly about his comments and any further enforcement actions, because confusion leads to panic.”

Mr. Trump’s public airing of his deliberations came one day after [he signed a \\$2 trillion economic stimulus package](#) and as cases in the tristate area continued to climb. New York reported 52,318 confirmed cases, as of Saturday morning, with 728 deaths statewide. In New Jersey, there were 8,825 cases and the death toll had risen to 108. Connecticut had nearly 1,300 cases, with 27 deaths. Cases have also been growing elsewhere across the country, with at least 17 states reporting tallies of at least 1,000 infections and the surgeon general, Jerome Adams, signaling that Chicago, Detroit and New Orleans were emerging as hot spots. The national total stands above 119,000, and Mr. Trump has been under substantial pressure from state officials to do more to quell the crisis.

The specter of a federal quarantine followed a wave of governors who, fearful about the virus spreading further through their states, ordered people who had traveled from New York to isolate themselves for two weeks after their arrivals.

Gov. Gina Raimondo of Rhode Island said Friday that state troopers would begin stopping drivers with New York license plates so that National Guard officials could collect contact information and inform anyone coming from the state that they were subject to a mandatory, 14-day quarantine.

Ms. Raimondo also said the National Guard would begin going door-to-door in coastal communities this weekend to find and tell recent arrivals from New York of the quarantine order.

The National Guard had already been deployed to bus stations, train stations and the airport to enforce Ms. Raimondo’s order, which also applies to anyone who has been to New York in the past 14 days.

“I know it’s unusual,” Ms. Raimondo said at a news conference on Friday. “I know it’s extreme, and I know some people disagree with it.”

“Right now we have a pinpointed risk,” she added. “That risk is called New York City.”

Texas, Florida, Maryland and South Carolina are among the other states that have ordered people arriving from New York to self-quarantine. In Texas, for instance, [the authorities said](#) Friday that Department of Public Safety agents would make surprise visits to see whether travelers were adhering to the state’s mandate, and they warned that violators could be fined \$1,000 and jailed for 180 days.

Mr. Lamont, the Connecticut governor, this week urged all travelers from New York City to self-quarantine for two weeks upon entering the state, but he stopped short of issuing an order requiring it. New York City’s mayor, Bill de Blasio, has questioned the wisdom of such orders.

“I think there’s a little bit of a lack of recognition right now of just how much this disease has already spread around the country,” he said at a news briefing on Wednesday.

## **New York State’s primary is delayed, and New York City may fine those who break social-distancing rules.**

New York will [postpone its April 28 presidential primary until June 23](#), Gov. Andrew M. Cuomo announced on Saturday, buying time for the state to administer an election as it struggles to respond to the growing coronavirus outbreak.

More than a dozen other states have rescheduled their primary elections as the campaign calendar has been upended by the outbreak, citing guidance from health officials who have urged people to avoid gathering spots, including polling places. Some of those states have switched to voting entirely by mail and have extended deadlines for doing so.



And New York City officials are expected to decide this weekend whether to impose \$500 fines on residents flouting social-distancing rules during the coronavirus outbreak by gathering in large groups at parks and ignoring police orders to disperse.

The vast majority of New Yorkers have been respecting the rules, Mayor Bill de Blasio said on Friday, but officials had observed some violations.

Mr. de Blasio also said that a few houses of worship were continuing to hold religious services and that they risked fines or having their buildings permanently closed if the police found congregations in them this weekend.

The mayor also said he was working with state officials to freeze rents this year for 2.3 million tenants in rent-stabilized apartments.

Officials said late Friday that the number of coronavirus cases in New York City had climbed above 26,000. The city's death toll was 450.

At least 500 New York Police Department employees have tested positive, and more than 4,000 officers — about 11 percent of the uniformed work force — were out sick on Friday, officials said.

In a force of 36,000 officers, that translates to an infection rate of about one in every 80 officers, or about 1.2 percent.

Officials also reported the first death of an officer in the department: Detective Cedric Dixon, who worked in the 32nd Precinct, in Harlem, and had worked for the department for 23 years.

In New Rochelle, N.Y., meanwhile, the state's drastic measures to contain a cluster of coronavirus cases may be starting to work, [according to the latest data for Westchester County](#).

## **Illinois reports first known U.S. death of an infant with the coronavirus.**

An infant who tested positive for the coronavirus has died in Chicago, [the authorities said](#) on Saturday. It was the first known death of a child younger than a year old with the virus in the United States, although the authorities in some states do not release details about people who die.

Newborns and [babies have so far seemed to be largely unaffected](#) by the coronavirus, but three new studies suggest that the virus may reach the fetus in utero.

"There has never before been a death associated with Covid-19 in an infant," said Dr. Ngozi Ezike, the director of the Illinois Department of Public Health. "A full investigation is underway to determine the cause of death." Older adults, especially those in their 80s and 90s, have been viewed as the most vulnerable in the outbreak, but younger people have also died.

By Saturday afternoon, deaths in the United States were close to 2,000, 50 of them in Illinois. More than 3,500 known cases of the virus have been identified in Illinois.

## **Federal civil rights office rejects rationing medical care based on disability or age.**

The U.S. Department of Health and Human Services' civil rights office told medical providers on Saturday that they may not deny medical care to people on the basis of their disabilities or age during the coronavirus emergency.

The directive, [released in a bulletin](#), came days after disability rights advocates [filed complaints](#) arguing that protocols to ration lifesaving medical care — adopted by Alabama and Washington State — were discriminatory.

"Our civil rights laws protect the equal dignity of every human life from ruthless utilitarianism," Roger Severino, the office's director, said in a statement. "Persons with disabilities, with limited English skills, and older persons should not be put at the end of the line for health care during emergencies," the statement continued.

[Alabama's plan](#) instructs hospitals not to offer mechanical ventilators to people with certain health conditions. People with "severe or profound mental retardation," "moderate to severe dementia," and "severe traumatic brain injury" should be considered "unlikely candidates for ventilator support" during a period of rationing, the protocol says.

Washington's [guidance recommends](#) that triage teams consider transferring hospital patients with "loss of reserves in energy, physical ability, cognition and general health" to outpatient or palliative care.

## **As deaths mount, Spain and Italy look for signs of a turning point.**

Italy and Spain, which have the world's highest coronavirus death tolls, have reported grim new daily totals: 889 deaths over 24 hours in Italy, and 832 in Spain.

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The swelling figures brought the fatality counts in the two countries to about 15,000 — more than half of the deaths reported worldwide.

"We have to reduce to the maximum this mortality," Fernando Simón, the director of Spain's national health emergency center, said.

But the health system in Spain, where the government on Saturday further tightened restrictions on movement, is under strain. Dr. Simón warned that some intensive care units had reached "the limit," while others were approaching their capacities. In the Madrid region, a hub of Spain's outbreak, about 1,400 patients are now in intensive care units.

The surge in deaths was particularly unsettling in Italy, where it had seemed the fatality rate had begun to slow. More encouragingly to public health experts, Italy and Spain have both reported signs that new infections are becoming fewer, although those rates could wobble as the outbreaks progress.

"We are reaching the peak of this curve that worries us so much," Dr. Simón said. "In some areas of the country we have probably already passed it," he added.

Hopes have been more muted in Italy, where the head of the national health institute, Silvio Brusaferro, suggested the country's outbreak "could peak in the next few days."

Even so, he said, "We can't delude ourselves that a slowing down of the diffusion will allow us to slow down social distancing."

The scale of the outbreak in Italy has unnerved people in France, where President Emmanuel Macron offered a fresh defense of a government response that some have deemed insufficient.

"We have absolutely not ignored these signs," Mr. Macron said in an [interview](#) with three Italian newspapers. "I dealt with this crisis with seriousness from the beginning, when it started in China."

France has reported 37,575 cases and 2,314 deaths, a one-day increase of 319.

"It's an unprecedented health crisis in at least a century," the French prime minister, Edouard Philippe, said on Saturday afternoon. "As I speak, almost half of humanity is under lockdown, it's literally extraordinary."

Here is how some other countries are responding to the virus:

- Russia will close its borders starting on March 30, a government order published on Saturday said. The measure will come into force at all vehicle, rail and pedestrian checkpoints, and apply to Russia's maritime borders, the government said. It will not apply to Russian diplomats and the drivers of freight trucks, among others. The country, which has already grounded all international flights, has reported 1,264 coronavirus cases. It closed its longest border, with China, in January.



- Turkey halted all intercity trains and limited domestic flights and halted international flights on Saturday. Its number of coronavirus cases jumped by a third in a day to 5,698, with 92 dead.
- Brazil's president, Jair Bolsonaro, continues to cast doubt on São Paulo's death toll from the outbreak, accusing the state governor, without evidence, of manipulating the numbers for political ends. "I'm sorry, some people will die, they will die, that's life," Mr. Bolsonaro said in a television interview Friday night. He said that in São Paulo State, Brazil's economic powerhouse — which has the most cases and deaths so far of coronavirus in Brazil, at 1,223 cases and 68 death — the death toll seemed "too large."

## Sweden hasn't shut down, and Denmark is covering most workers' salaries.

The coronavirus prompted Denmark and Norway to close borders, shut down restaurants and ski slopes and keep students at their homes.

But [Sweden has stayed open for business](#). The most populous Scandinavian country shut only its high schools and colleges, kept its preschools, grade schools, pubs, restaurants and borders open — and put no limits on the slopes.

Sweden's approach has raised questions about whether it's gambling with a disease, Covid-19, that has no cure or vaccine, or if its tactic will be seen as a savvy strategy to fight a scourge that has laid waste to millions of jobs and prompted global lockdowns.

By Saturday, Norway, population 5.3 million, had more than 3,770 coronavirus cases and 19 deaths; Denmark, population 5.6 million, reported 2,200 cases and 52 deaths; Sweden, with 10.12 million people, recorded more than 3,060 cases and 105 deaths.

The Swedish government is not denying the perils of the virus — politicians and health officials have stressed hand washing, social distancing and limiting contact with older adults — but is instead relying on the public's self-restraint and sense of responsibility.

"That's the way we work in Sweden," the state epidemiologist, Anders Tegnell, said. "Our whole system for communicable disease control is based on voluntary action. The immunization system is completely voluntary and there is 98 percent coverage."

Just across the Oresund Bridge, another Scandinavian country is pursuing a strategy to limit the economic fallout that stands in contrast with steps taken by some other nations, including the United States, which on Friday approved a \$2.2 trillion stimulus package.

In [Denmark](#), political parties from across the ideological spectrum joined with labor unions and employers associations this month to unite behind a plan that has the government covering 75 to 90 percent of all worker salaries over the next three months, provided that companies refrain from layoffs. The government also agreed to cover costs like rent for companies that suffer a shortfall in revenues. These two elements are collectively estimated to cost 42.6 billion Danish kroner (about \$6.27 billion), after factoring in the savings on the unemployment insurance system.

The Netherlands produced a similar plan, with the government stepping in to cover 90 percent of wages for firms that show losses of at least 20 percent of their revenue. The British government pledged to cover [80 percent of wages](#), and on Thursday extended those protections to the [self-employed](#).

The aim of this approach is to prevent the wrenching experience of mass unemployment, while allowing businesses to retain their people rather than firing and then hiring them again. Once normalcy returned, companies would be in position to quickly resume operations, restoring economic growth.

## Kenya's police are blamed for excessive force in imposing curfew.

Kenya's police tear gassed, beat and detained people ahead of a nationwide dusk-to-dawn curfew that started on Friday night, [drawing criticism](#) from citizens, government officials and human rights organizations.

Hours before the curfew began, the officers fired tear gas at ferry commuters in the coastal city of Mombasa, according to images and videos shared on social media. Chaos [ensued](#), with the police beating commuters, detaining some of them, and pushing them to lie face down on the ground. Passengers coughed, spat and touched their faces to unblock their mouths and noses. The police also [beat a journalist](#) as he covered Kenyans rushing to beat the curfew.

The country's president, Uhuru Kenyatta, this week [ordered](#) the police along with the Coast Guard to manage the crossing of the ferry between Mombasa and Likoni, a district on the mainland, to ensure the orderly passage and social distancing of commuters. Chaos [erupted](#) at the ferry terminal on Thursday evening and tension rose there on Friday as the curfew drew near.

The 7 p.m. to 5 a.m. curfew is among a raft of measures officials introduced to contain the spread of the coronavirus, including canceling all classes at schools and universities, banning religious gatherings and suspending all international flights. The East African nation had 38 confirmed cases of the virus on Saturday evening and, like Egypt and Senegal, [introduced an overnight curfew](#).

A total of 46 African countries have reported cases. The virus has spread fastest in states with more air connections and commerce with Europe and China, and the capacity to do the testing to confirm positive cases. Among those are Egypt, South Africa and Kenya.

Government officials and human rights organizations criticized the incident in Mombasa, with the police spokesman, Charles Owino, calling it "regrettable." On Friday, 20 human rights groups, including Amnesty International, condemned the police conduct as "unnecessary and excessive."

"If the operation was supposed to protect people from spreading the virus, the operation achieved the exact opposite," they [said in a statement](#).

Kenya's health minister, Mutahi Kagwe, also weighed in on the events on Saturday, [urging the police](#) "that people must be treated humanely."

## Don't overlook the good news (yes, there is some).

To stay resilient in frightening times, it's critical to remember that gleams of hope do exist. "Whenever I've asked people what thing they're most proud of in their lives, it's always connected to times of pain or strife or struggle and how they got through it," said Jeremy Ortman, a mental health counselor in New York.

So what bright spots are there to keep in mind during this pandemic?

**Kindness is in the news.** Maybe people are being better to each other, or maybe we're just noticing it more. People [are serenading](#) each other across windowsills. Animal shelters are [reporting upticks in foster applications](#). Volunteers are [buying groceries](#) for their neighbors.

**Research is moving at breakneck speed.** Doctors are scrambling [to improve testing](#) and [find anti-viral treatments](#). The mobilization in the medical field recalls organizing efforts during World War II, said Robert Citino, executive director of the Institute for the Study of War and Democracy at the National World War II Museum in New Orleans.

"I don't think there has ever been more human ingenuity devoted to a single scientific problem than the one we're facing right now," he said.

**We could be learning crucial lessons.** Years from now, if a deadlier virus emerges, we may find that today's innovations and procedures have prepared us for it. "What we're facing is unprecedented, and I



don't want to downplay its seriousness, but it's not the worst-case scenario," said Malia Jones, a researcher who studies infectious diseases at the University of Wisconsin in Madison.

"I hope the takeaway here is that we'll be better prepared to deal with the next pandemic," Dr. Jones said. "This is a good practice run for a novel influenza pandemic. That's the real scary scenario."

## **Experts begin reconsidering advice on masks for Americans, even as shortage continues.**

As the coronavirus pandemic rages on, experts have started to question official guidance about whether ordinary, healthy people should protect themselves with a regular surgical mask, or even a scarf.

The recent surge in infections in the United States means that more Americans are now at risk of getting sick. And healthy individuals, especially those with essential jobs who cannot avoid public transportation or close interaction with others, may need to start wearing masks more regularly, some doctors say. However, with even front-line medical workers complaining of shortages, few people are likely to be able to find them.

The World Health Organization and the Centers for Disease Control and Prevention continue to state that masks don't necessarily protect healthy individuals from getting infected as they go about their daily lives.

The official guidance continues to recommend that masks be reserved for people who are already sick, as well as for the health workers and caregivers who interact with infected individuals on a regular basis. Everyone else, they say, should stick to frequent hand-washing and maintaining a distance of at least six feet from other people to protect themselves.

While wearing a mask may not prevent healthy people from getting sick, and doesn't replace important measures such as hand-washing or social distancing, it may be better than nothing, said Dr. Robert Atmar, an infectious disease specialist at Baylor College of Medicine.

Studies of influenza pandemics have shown that when high-grade N95 masks are not available, surgical masks protect people [a bit more than not wearing masks at all](#).

"If everyone in the community wears a mask, it could decrease transmission," Dr. Neil Fishman, the chief medical officer of the Hospital of the University of Pennsylvania, said. "But unfortunately I think that we don't have enough masks to make that effective policy in the U.S."

## **'This is a white-collar quarantine': Who can and can't stay home.**

In some respects, a pandemic is an [equalizer](#): It can afflict [princes](#) and paupers alike, and no one who hopes to stay healthy is exempt from the strictures of social distancing. But the American response to the virus is laying bare class divides that are often camouflaged — in access to health care, child care, education, living space, even internet bandwidth.

In New York, well-off city dwellers have abandoned cramped apartments for spacious second homes. In Texas, the rich are shelling out hundreds of thousands of dollars to build safe rooms and bunkers.

And across the country, there is a creeping consciousness that despite talk of national unity, not everyone is equal in times of emergency.

"This is a white-collar quarantine," said Howard Barbanel, a Miami-based entrepreneur who owns a wine company. "Average working people are bagging and delivering goods, driving trucks, working for local government."

Some of those catering to the well-off stress that they are trying to be good citizens. Leslie Michelson, executive chairman of Private Health Management, which helps people with serious medical issues navigate the health care system, emphasized that he had obtained coronavirus tests only for patients

who met guidelines issued by the Centers for Disease Control and Prevention, rather than the so-called worried well.

Still, a kind of pandemic caste system is rapidly developing: the rich holed up in vacation properties; the middle class marooned at home with restless children; the working class on the front lines of the economy, stretched to the limit by the demands of work and parenting, if there is even work to be had.

## **‘We have lost it all’: Millions of unemployed Americans are reeling.**

For the millions of Americans who found themselves without a job in recent weeks, the sharp and painful change brought a profound sense of disorientation. They were going about their lives, bartending, cleaning, managing events, waiting tables, loading luggage and teaching yoga. And then suddenly they were in free fall, grabbing at any financial help they could find, which in many states this week remained locked away behind crashing websites and overloaded phone lines.

In 17 interviews with people in eight states, Americans who lost their jobs said they were in shock and struggling to grasp the magnitude of the economy’s shutdown, an attempt to slow the spread of the virus. Unlike the last economic earthquake, the financial crisis of 2008, this time there was no getting back out there to look for work, not when people were being told to stay inside. What is more, the layoffs affected not just them, but their spouses, their parents, their siblings and their roommates — even their bosses.

“I don’t think anyone expected it to be like this,” said Mark Kasanic, 48, a server at a brasserie in Cleveland who was one of roughly 300 workers that a locally owned restaurant company laid off last week. Now he is home schooling his children, ages 5 and 7, one with special needs.

Julian Bruell was one of those who had to deliver the bad news to hourly employees like Mr. Kasanic. Mr. Bruell, 30, who helps run the company with his father, said that only about 30 employees were left running takeout and delivery at two of its five restaurants. He has not been earning a salary, his goal being to keep the business afloat through the crisis.

On Thursday, he was planning to file for unemployment himself.

Reporting was contributed by Alan Blinder, Michael D. Shear, Monica Davey, Annie Karni, Sheri Fink, Peter S. Goodman, Christina Anderson, Henrik Pryser Libell, Motoko Rich, Ben Dooley, Elian Peltier, Abdi Latif Dahir, Elaine Yu, Daniel Victor, Peter Robins, David Moll, Constant Méheut, Elisabetta Povoledo, David E. Sanger, Maggie Haberman, Raphael Minder, Jason Horowitz, Elisabetta Povoledo, Krivul Sheikh, Noam Scheiber, Nelson D. Schwartz, Tiffany Hsu, Sabrina Tavernise, Audra D. S. Burch, Sarah Mervosh, Campbell Robertson, Linda Qiu, Damien Cave and Maria Cramer.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Tue, 25 Feb 2020 12:53:22 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: Coronavirus Live Updates: Spanish Hotel Locked Down Amid Outbreak Fears

## Coronavirus Live Updates: Spanish Hotel Locked Down Amid Outbreak Fears

An Italian doctor staying at a resort in the Canary Islands has tested positive for the virus. New outbreaks in Europe, Asia and the Middle East are renewing fears of a coming global pandemic. Iraqi lawmakers demand the country's border with Iran be sealed after three more coronavirus deaths in Iran.

Read Updates in Chinese: [新冠病毒疫情最新消息汇总](#)

### Here's what you need to know:

- [A large hotel in Tenerife, Spain, is on lockdown after a guest tested positive.](#)
- [Iraqi lawmakers demand border with Iran be sealed.](#)
- [As cases rise in Iran, neighboring nations issue travel restrictions.](#)
- [Stocks stabilize one day after an outbreak-fueled slump.](#)
- [As infections slow in China, they increase elsewhere around the world.](#)



Image

A view of Santa Cruz de Tenerife, in the Canary Islands, during a dust storm on Sunday. Credit...Ramon De La Rocha/EPA, via Shutterstock

## **A large hotel in Tenerife, Spain, is on lockdown after a guest tested positive.**

A hotel on the Spanish resort island of Tenerife was placed under a police cordon on Tuesday after an Italian guest tested positive for the new coronavirus, the authorities said.

According to local news reports, around 1,000 guests are booked at the hotel, the H10 Costa Adeje Palace, at a resort that is popular with British tourists. It was initially unclear the extent to which the hotel had been locked down and whether an official quarantine was in place.

Officials at the Canary Emergency Services Department are working to determine the severity of the outbreak in the building. In recent cases, including the quarantine of the [Diamond Princess cruise ship](#), the authorities demanded quarantine periods of at least 14 days.

Tenerife is the largest of the Canary Islands, a Spanish territory off the coast of West Africa.

The Italian patient is being kept in isolation at a hospital on the island, pending the results of a second test to be conducted in Madrid by Spain's National Center of Microbiology.

The hotel guests have been told to remain in their rooms, according to Antena 3, a Spanish television channel, while health inspectors are checking people inside who could have come into contact with the Italian.

Guests were given a note by the hotel management asking them to stay in their rooms and telling them that for health reasons, the hotel had been temporarily closed.

Police enlarged the security cordon around the hotel to block access to nearby streets and a parking lot on Tuesday morning.

According to the local news media, the man who tested positive is a doctor who was visiting from Lombardy, a region of Italy that has been [hit particularly hard by the virus](#). He reportedly took himself to a hospital with a fever about a week after arriving in Tenerife.

Spain previously confirmed two cases of the virus, both foreigners who were hospitalized on Spanish islands: a German citizen on La Gomera and a Briton on Majorca.

## **Iraqi lawmakers demand border with Iran be sealed.**

Calling the coronavirus "a plague," an Iraqi lawmaker demanded on Tuesday that the government seal its borders with Iran "until the disease is completely controlled," the same day that Iraq's Health Ministry announced four more cases of the virus.

The demand, by Qutayba Al Jubori, chairman of the Iraqi Parliament's Health and Environment Committee, came as governments across the region sought to limit the entry of Iranian travelers following an outbreak in that country that has killed at least 15 people.

The Iraqi government said it would suspend all flights from Iran beginning Monday afternoon, but by Tuesday morning flights were still scheduled to and from Najaf, a central Iraqi city that is home to Shiite shrines popular with Iranian pilgrims.

Iraq reported its first case of the virus on Monday, a 22-year old religion student in Najaf, who has been quarantined at a location outside the city. On Tuesday, the Health Ministry confirmed that a family of four from Kirkuk who just returned from Iran had contracted the coronavirus and were being quarantined.

The government told citizens to avoid crowded places including shrines, universities and schools, shopping malls and stores, sports activities and entertainment parks. They also recommended avoiding kissing or shaking hands with others and urged people to use disposable napkins.



The [firebrand cleric Moktada al-Sadr](#) said he would suspend vast protests against his political opponents.

"I had called for million man protests and sit-ins against sectarian power-sharing and today I forbid you from them for your health and life, for they are more important to me than anything else," he said in a statement.

## **As cases rise in Iran, neighboring nations issue travel restrictions.**

The number of coronavirus cases and deaths continued to rise in Iran on Tuesday, according to health officials, days after the country emerged as [another focal point of the outbreak](#).

Health officials quoted [in Iranian state news media](#) confirmed three more deaths in the country, bringing the total to 15. At least 95 people nationwide have tested positive for the coronavirus, most of them in the northern city of Qom, health officials said.

With an economy choked by economic sanctions, a restive population that distrusts its government and a secretive leadership, Iran is something of a wild card in the region.

While the numbers of the infected do not look too daunting so far, experts fear that the government may be concealing the true scale of the problem, and may not have the capacity to respond if things begin to spiral out of control.

Qom, an important religious center, [draws more than 22 million visitors every year](#), according to tourism figures from the country, most of them religious pilgrims. Of those, around 2.5 million come from abroad.

The updated infection figures came as neighboring nations made further attempts to prevent the spread of the virus over their borders, with some issuing travel restrictions on Tuesday.

The United Arab Emirates, home to Dubai International Airport, one of the world's busiest, has suspended all flights to Iran.

All passenger and cargo flights to and from Iran will be suspended for a week, with the possibility of an extension, as a precautionary measure, [the Emirati state news agency WAM reported](#), citing the General Civil Aviation Authority.

[Bahrain](#), which confirmed two cases in travelers who had flown from Iran via Dubai, said that it had suspended all its flights from Dubai International Airport and from Sharjah International Airport, also in the United Arab Emirates, for two days.

## **Stocks stabilize one day after an outbreak-fueled slump.**

Global stocks stabilized on Tuesday, a day after fears of the spread of the new coronavirus outside China spooked investors into a worldwide sell-off.

Shares fell in most markets in Asia, led by Japan, which had closed for a holiday on Monday and missed that day's drop. The Nikkei 225 index dropped more than 3.3 percent. Most other Asian markets fell at a much slower pace.

But shares in Europe opened higher, suggesting investors' nerves had steadied. Futures trading indicated that American markets would rise when they opened on Tuesday.

The signs of stabilization followed a difficult Monday, when investors began to more fully comprehend the extent of the outbreak. On Wall Street, the S&P 500 index fell 3.4 percent on Monday, its worst single-day performance since February 2018. European markets recorded their worst session since 2016.

In China, the Shanghai stock market fell 0.6 percent, while the market in the city of Shenzhen rose by about half a percent. The Hong Kong market was little changed.

In South Korea, shaken by the world's second-largest outbreak of the virus outside China, share prices rebounded on Tuesday morning after enduring one of the sharpest drops of any large market around the world the day before. They ended up 1.2 percent.

In Europe, London's FTSE 100 was up 0.3 percent early, while German's DAX rose 0.1 percent.

## **As infections slow in China, they increase elsewhere around the world.**

China appears to be getting the new coronavirus under control, but infections are spreading rapidly in South Korea, Iran and Italy. And the world is not prepared for a major outbreak, World Health Organization officials said on Monday.

A W.H.O. mission to China has said that the daily tally of new cases there peaked and then plateaued between Jan. 23 and Feb. 2, and has steadily declined since.

Chinese officials reported 508 new cases and 71 deaths as of Monday, a slower pace than in previous days.

By Tuesday, South Korea had reported a total of 893 cases, the second most in the world. Of the 60 new cases reported by South Korea's Centers for Disease Control and Prevention, 49 came from Daegu, the center of the outbreak in that country.

In Iran, a spike in coronavirus infections has prompted fears of a contagion throughout the Middle East. In Italy, one of Europe's largest economies, officials are struggling to prevent the epidemic from paralyzing the commercial center of Milan. And in New York, London, and Tokyo, financial markets plummeted on fears that the virus will cripple the global economy.

The emergence of Italy, Iran, and South Korea as new hubs of the outbreak underscored the lack of a coordinated global strategy to combat the coronavirus, which has infected nearly 80,000 people in 37 countries, causing at least 2,600 deaths.



### **Coronavirus Map: Tracking the Spread of the Outbreak**

The virus has infected more than 80,000 people in China and 33 other countries.



## **C.D.C. warns Americans against traveling to South Korea.**

American citizens were advised on Monday to avoid nonessential travel to South Korea because of the rapid spread of the coronavirus there. The U.S. Centers for Disease Control and Prevention has raised the travel warning to Level Three, its highest warning.

"There is a widespread, ongoing outbreak of respiratory illness caused by a novel (new) coronavirus that can be spread from person to person," the [C.D.C. said](#) in an advisory. "Older adults and people with chronic medical conditions may be at risk of severe disease."

The C.D.C. also warned that "there is limited access to adequate medical care in affected areas."

The warning came as South Korea reported Tuesday that the number of cases in the country had risen by 60 to 893 overall. The majority of the cases have been centered in the area in and around Daegu, South Korea's fourth-largest city, 180 miles southeast of Seoul. And roughly half the patients in the country are members of the Shincheonji religious group, a church that has a large following in the city. President Moon Jae-in on Sunday put the country on the highest possible alert in its fight against the coronavirus.

## **White House asks Congress for \$2.5 billion to fight the outbreak.**

The Trump administration, after weeks of pleading from lawmakers, asked Congress on Monday to allocate at least \$2.5 billion in emergency funds to bolster its coronavirus response, according to three White House officials and [a request letter obtained by The New York Times](#).

The request from the White House, \$1.25 billion in new funds and \$1.25 billion in money diverted from other federal programs, is a significant escalation in the administration's response to the outbreak of the virus and a sign of how long the fight to stop it may be.

The letter, which was signed by Russell T. Vought, the acting director of the Office of Management and Budget, said the funds would be spent on emergency medical supplies, lab testing, the development of vaccines and other forms of monitoring, among other features.

Representative Nita M. Lowey of New York, the chairwoman of the House Appropriations Committee, called the request "woefully insufficient to protect Americans from the deadly coronavirus outbreak."

"It is profoundly disturbing that their answer now is to raid money Congress has designated for other critical public health priorities," she said in a statement. "Worse still, their overall request still falls short of what is needed for an effective, comprehensive governmentwide response."

## **Deaths at a Wuhan nursing home are going unreported, says Chinese newsmagazine.**

At least one and as many as 19 people have died from causes that could be linked to the coronavirus at a nursing home located steps from the likely source of the outbreak in Wuhan, China, the Chinese news outlet Caixin reported.

The nursing home, known as the Wuhan Social Welfare Institute, is near the seafood market that was identified the center of the outbreak. A spokesman told The New York Times it could not comment without approval from the civil affairs bureau.

In an indication that the authorities have acknowledged the risks posed to nursing homes, the civil affairs bureau has said every facility in the city will now be put under strict management, and that nucleic acid tests would be conducted for employees by Feb. 28.

The aged are particularly vulnerable to the coronavirus, with many of the reported deaths occurring among people over 60 years old who had underlying health conditions. Five people at the nursing home

are said to have died in December and January, and another 14 in February, according to Caixin. Lung infections and heart attacks were listed among the causes of the deaths.

A nurse cited by Caixin said the infirmary attached to the home lacked testing capabilities for the virus. The municipal Civil Affairs Bureau in Wuhan said in a [notice](#) dated Thursday that 11 residents and an employee at the home have been infected and that one had died.

Many more deaths are going unreported, according to Caixin.

## **A judge prevented California from moving some patients.**

In a decision that could complicate California's efforts to deal with the coronavirus crisis, a federal judge on Monday [kept a temporary restraining order in place](#) that would prevent infected patients on a military base from being moved to a state-owned facility in the city of Costa Mesa.

The judge said she would reconsider the issue after state and federal authorities provide more details about how they plan to protect the health of the community, as well as the people with coronavirus.

"The state has shown great empathy for the patients," Judge Josephine L. Staton said in a ruling that drew applause, adding that she wanted to see "the same empathy for the residents of Costa Mesa."

Costa Mesa had asked the judge to prevent California from moving people infected with the new coronavirus into a former residential home for developmentally disabled people, where the patients would remain in isolation while recovering. The area, which is in Orange County, is too heavily populated to host people infected with such a dangerous virus, the local officials argued.

Federal officials had planned to move the patients to a facility in Alabama operated by the Federal Emergency Management Agency, court documents said, but officials in California thought that moving the group out of the state would be detrimental to their health and well-being.

The standoff over where to send the patients underscored the unwieldy, decentralized nature of the U.S. health system, even as federal authorities were warning of serious risks from the coronavirus outbreak.

## **China makes it easier for businesses to reopen, but cracks down on price gouging.**

Beijing officials announced on Tuesday that they had ordered local governments to streamline the many new requirements they have imposed before companies can reopen after weeks of stalled production as a result of the outbreak.

Worried that further infections might be blamed on them, local officials all over China have been demanding that companies pass extensive reviews and even on-site inspections before they can restart production. Rules include making sure that companies provide employees with face masks, keep track of employees' temperatures and set up hand-washing stations.

Manufacturers of medical protection equipment can bypass the new rules almost entirely, so as to produce more face masks and other gear as quickly as possible.

But while Beijing is trying to restart the private sector, it does not want companies to mark up prices steeply for scarce products. Tang Jun, the deputy director of the State Administration of Market Regulation, said at a news briefing on Tuesday morning in Beijing that the Chinese government had investigated 4,500 companies for price gouging and was filing more than 11,000 legal cases.

The cases involved, "medical protective supplies and important commodities related to the people's livelihood," he said. More than 36,000 online vendors have already been identified as trying to overcharge specifically for face masks, he added, and electronic commerce companies have removed their overpriced listings.

Reporting and research was contributed by Raphael Minder, Matt Phillips, Russell Goldman, Megan Specia, Keith Bradsher, Gerry Mullany, Aimee Ortiz, Alissa Rubin, Elaine Yu, Mark Landler, Steven Lee



Myers, Sui-Lee Wee, Farah Stockman, Louis Keene, Noah Weiland, Emily Cochrane and Maggie Haberman.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Wed, 5 Feb 2020 01:57:25 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: Even Without Symptoms, Wuhan Coronavirus May Spread, Experts Fear

## Even Without Symptoms, Wuhan Coronavirus May Spread, Experts Fear

A report purporting to describe asymptomatic transmission in Germany has come under fire. But many experts still believe it's happening.



A doctor examined a lung scan inside a coronavirus quarantine zone in Wuhan, China, on Monday. Credit: Agence France-Presse — Getty Images



By [Roni Caryn Rabin](#)

- Feb. 4, 2020 Updated 8:13 p.m. ET
- • Can individuals infected with the Wuhan coronavirus spread it to others even if they aren't showing symptoms?



It's one of the most important questions confronting scientists. If even asymptomatic people can spread the virus, then it will be much, much harder to slow its spread.

Doctors in China claimed asymptomatic transmission was possible, and [a letter published Jan. 30 in the New England Journal of Medicine](#) appeared to back them up.

In the letter, scientists described a cluster of infections in Germany that had started with a traveler from Shanghai. The traveler had seemed healthy during her four-day visit to Bavaria, the researchers reported, and started feeling ill only after she boarded a return flight to China.

That report heightened anxiety among scientists worldwide, who said the finding suggested that containment of the Wuhan coronavirus would be nearly impossible.

But now health officials in Germany have raised doubts about the accuracy of that report. The visitor to Germany had "mild unspecific symptoms" while she was still in Germany, said Marieke Degen, a spokeswoman with the Robert Koch Institute, Germany's public health institute, headquartered in Berlin.

The woman's symptoms, including back pain, had been vague, and she had taken antipyretic medication, according to Bavarian health authorities and scientists at the institute. Antipyretic drugs are used not only to relieve fever, but also used as painkillers and for their anti-inflammatory properties. Health officials reported their findings last week to the Early Warning and Response System of the European Centre for Disease Prevention and Control, Ms. Degen said; their criticism was first reported by Science magazine.

Whatever the inaccuracies in the journal report, many experts remain concerned about the potential for coronavirus to be spread by asymptomatic individuals, in large part because of anecdotal information received from their colleagues in China.

"This paper may or may not be flawed — It needs further investigation," said Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases. "But I don't think it negates the concept."

"We had been getting reports from highly reliable people in China — scientists, investigators and public health people who we've known over the years — and they've been telling us, 'There's asymptomatic disease, for sure, and we are seeing asymptomatic transmission,'" Dr. Fauci said.

Asymptomatic transmission is unlikely to be driving the epidemic within China, he added, but "it complicates our job."



Image

Even if asymptomatic patients are spreading the coronavirus, the vast majority of infections will occur from patients showing symptoms, said Dr. Maria Van Kerkhove of the World Health Organization. Credit...Denis Balibouse/Reuters

If the early symptoms include such common complaints as back pain, then infected individuals and their doctors are unlikely to consider the possibility that the patient is infected with a coronavirus, said Marc Lipsitch, professor of epidemiology at Harvard T.H. Chan School of Public Health in Boston.

"From a practical perspective, that is almost the same as if she had no symptoms at all," Dr. Lipsitch said. "Headaches are very common, and the coronavirus is not the principal cause thereof, and they're not observable by a third party."

If the first symptom is common and vague, he added, "then the public health challenge of figuring out who's infectious is about as great as if it was truly asymptomatic."

Dr. Maria Van Kerkhove, acting head of emerging diseases at the World Health Organization, said Tuesday that the organization had been aware of reports of individuals who might have transmitted the Wuhan coronavirus before their symptoms appeared or very soon after being infected.

But experience with other diseases indicated that many people who were believed to have been asymptomatic actually did experience symptoms.

"It is possible that there may be individuals who are asymptomatic that shed virus, but we need more detailed studies around this to determine how often that is happening, and if this is leading to secondary transmission," Dr. Van Kerkhove said.

Whatever the answers to those questions, however, most viral respiratory infections are spread through the coughs and sneezes of symptomatic patients, experts say.

The letter at the center of the controversy describes a healthy 33-year-old businessman in Germany who had developed a sore throat, chills and muscle aches on Jan. 24, with a fever spiking to 102.4 degrees Fahrenheit the next day, along with a cough.

Before he became ill, he had met in Munich on Jan. 20 and Jan. 21 with a Chinese business partner. A resident of Shanghai, she had been in Germany from Jan. 19 to Jan. 22. The report said that she was healthy during her stay but got sick during her flight back to China. She tested positive for infection with the Wuhan coronavirus on Jan. 26.

Chinese authorities alerted German health officials, and the businessman was tested and found positive for the infection. On Jan. 28, three additional employees of the German company tested positive for the coronavirus. Two of them had not had any contact with the woman from Shanghai.

All of the infected were admitted to the hospital, where they were isolated and monitored. None developed severe disease.

The authors of the report, researchers in Munich and Berlin, said it was "notable that the infection appears to have been transmitted during the incubation period" of the virus. The woman suffered only a brief, mild illness and recovered.

Dr. Michael Hoelscher, one of the authors, told Science magazine that he and his colleagues had not interviewed the Chinese woman who had been ill, and relied on the accounts given by her German colleagues, who said she did not appear to have had any symptoms. Dr. Hoelscher could not be reached for comment.

Researchers from the Robert Koch Institute and the Health and Food Safety Authority of Bavaria did interview the woman on the phone, Ms. Degen said, which is how they learned that she might have had symptoms.

Julia Morin, a spokeswoman for the New England Journal of Medicine, said, "All we can say right now is that we are looking into the matter."

Reporting was contributed by Knvul Sheikh.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Wed, 29 Jan 2020 03:12:25 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: Should You Be Worried About the Coronavirus?

## Should You Be Worried About the Coronavirus?

Public health experts explain the risks and what we still don't know.



By Spencer Bokats-Lindell

Mr. Bokats-Lindell is a writer in The New York Times Opinion section.

- Jan. 28, 2020

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Credit...Illustration by The New York Times; photographs by Jerome Favre/EPA, via Shutterstock and Chiang Ying-Ying/Associated Press

*This article is part of the Debatable newsletter. You can [sign up here](#) to receive it Tuesdays and Thursdays.*

For the third time this century, a new strain of coronavirus, a family of pathogens that cause respiratory illness in birds and mammals, has jumped species and infected humans. Having broken out in the city of Wuhan, the virus, likely spread through coughing and sneezing, has now sickened more than 4,500 people and killed at least 106 in China.

On Monday, The New York Times reported that five people in the United States had tested positive for the illness. But how worried should you really be? Here's what public health experts and others are saying.

**'A cause for caution — not for alarm'**



The outbreak is believed to have started at a wholesale market in Wuhan, where vendors legally sold live animals, including wildlife, in close quarters, [sparking debate](#) about [China's game trade](#). "This is where you get new and emerging diseases that the human population has never seen before," [said Kevin J. Olival](#), a biologist and vice president of research with EcoHealth Alliance, a nonprofit research organization.

In response to the contagion, China — still carrying the memory of SARS, the century's first coronavirus to make the leap to humans, which killed nearly 800 people — has temporarily banned the sale of wild animals and effectively placed [more than 35 million people](#) on lockdown, blocking expressways and canceling all flights and trains out of the region.

**It's the largest quarantine in history, but it's unlikely to contain the virus,** [writes Howard Markel](#), a professor of the history of medicine at the University of Michigan.

- The quarantine has taxed Wuhan's ability to care for its sick while doing little to prevent the virus's spread, Dr. Markel notes. Amid the Lunar New Year holiday, China's busiest travel season, some five million people had already left the city before it was sealed.
- "The more we learn about it, the greater the possibility is that transmission will not be able to be controlled with public health measures," Dr. Allison McGeer, a Toronto-based infectious disease specialist, [told Helen Branswell](#) at STAT News.

**"I think that our first concern can rightly be the people in China,"** the Columbia University epidemiologist [Simon Anthony told Slate](#).

- The quality of health care in China has not kept pace with the country's economic expansion, [reports The Times's Sui-Lee Wee](#). Strained even during ordinary times, doctors are overwhelmed, and both medical equipment and space are in short supply.
- "It is very scary," one Wuhan resident, whose wife developed a fever but was refused admission to hospitals, told Ms. Wee. "If it's real, we have a child and elderly parents at home. What if we all get sick?"

**But many experts say people in the United States shouldn't panic.** The virus is thought to be less lethal than both SARS and MERS, the last zoonotic coronavirus to infect humans, in 2012. And the vast majority of confirmed cases remain in mainland China, [as Catherine Kim](#) reported at Vox.

- "Make no mistake, this is an emergency in China. But it has not yet become a global health emergency," [said Tedros Adhanom Ghebreyesus](#), the director general of the World Health Organization.
- Although the outbreak is a "very serious public-health threat, the immediate risk to the U.S. public is low at this time," Nancy Messonnier, director of the Centers for Disease Control and Prevention's National Center for Immunization and Respiratory Diseases, [said Friday](#).

**For perspective:** The flu kills roughly 35,000 Americans every year. This season, it has already sickened an estimated 15 million Americans and killed 8,200, [according to C.D.C. estimates](#).

- Influenza kills more Americans every year than any other virus, Dr. Peter Hotez, a professor at Baylor College of Medicine, [told Liz Sabo](#) at Kaiser Health News. But the flu is rarely paid such attention, and [fewer than half of adults](#) get a vaccine.
- "When we think about the relative danger of this new coronavirus and influenza, there's just no comparison," Dr. William Schaffner, a professor at Vanderbilt University Medical Center, told Ms. Sabo. "Coronavirus will be a blip on the horizon in comparison."

"If Americans aren't afraid of the flu, perhaps that's because they are inured to yearly warnings," Ms. Sabo writes. "For them, the flu is old news. Yet viruses named after foreign places — such as Ebola, Zika and Wuhan — inspire terror."

The Beaverton, a satirical publication, summed up matters thusly:

## **'We don't know how bad it will get'**

**There's still a good deal we don't know about the coronavirus.** It's too early to determine exactly how deadly or contagious it is, and as the Times columnist [Nicholas Kristof has pointed out](#), the Chinese government seems to have tried to play down the outbreak, perhaps undercounting the number of infections and deaths. A [vaccine will probably not be viable](#) until this summer at the earliest.

**The United States needs to do more to prepare for an epidemic,** [writes Dr. Saad B. Omer](#), the director of the Yale Institute for Global Health. For one thing, he argues, there's little evidence that President Trump is taking the potential threat from the coronavirus seriously enough. But more broadly, there are clear lessons to heed from the SARS and 2014 Ebola outbreaks:

- The American response should be led by major public health scientists and agencies, such as the C.D.C. and the National Institutes of Health, rather than politicians: "Decisions such as border screenings, travel restrictions and potential quarantine have major public health consequences, and they should be driven by science and emerging biological and epidemiological evidence," Dr. Omer writes.
- Congress also [needs to fund the nationwide network](#) of hospitals and treatment facilities established after the 2014 Ebola epidemic, which enables prompt testing and isolation of patients, write Ronald A. Klain, the former White House Ebola response coordinator from 2014 to 2015, and Nicole Lurie, a former assistant secretary for preparedness and response at the Department of Health and Human Services. That funding is set to expire in four months.

**The coronavirus could also threaten the global supply chain of pharmaceuticals,** [Ed Silverman reports](#).

- Roughly 80 percent of active ingredients used by commercial sources to produce finished medicines come from China, he writes. Most ingredient production occurs several hundred miles east of Wuhan, but it's not hard to imagine the virus and the quarantine spreading in that direction, bringing with them the possibility of shortages.
- "We need a government entity that monitors global supply and demand — and events like this outbreak — to understand our vulnerabilities, predict possibilities and have a plan to prepare, rather than scramble," Rosemary Gibson, a health care and patient safety expert at the Hastings Center, told Mr. Silverman. "We track food supplies around the world. We do this for energy supplies. We need to do the same thing for medicines."

## **'Disease and discrimination are two sides of the same coin'**

**The first victim of an infectious disease outbreak is often rational decision-making,** write Mr. Klain and Ms. Lurie, which tends to open the door to discrimination in forms both malicious and misguided.

- Ann Coulter, a right-wing commentator, [beseeched President Trump](#) on Twitter to ban travel from China.
- In New York City, [one school district canceled](#) a field trip to Chinatown ahead of the Lunar New Year celebrations. One parent, Amy Lee-Ludovicy, a Hong Kong native, told The Times that she worried her two children were facing discrimination in ways they had not before. "They are being taught, 'Let's just stay away from them,'" she said.

**There is a troubled history in predominantly white countries of racializing infectious diseases,** [writes Alan Zheng](#) in The Sydney Morning Herald.



- “The Ebola outbreak perpetuated images of the ‘Dark Continent’ and exacerbated existing patterns of xenophobia toward black communities,” he writes, also noting how Haitians in the United States were [barred from donating blood](#) in the 1980s after being unfairly [labeled a risk group](#) for AIDS.
- “Reporting of the virus latches on to a double anomaly: the fear, speculation and uncertainty inherent in the spread of new diseases, as well as a fascination with the darkened interiors of China — a country which continues to evade mainstream literacy in Australia and whose size and scale conjure fantasy at every turn,” he writes.

*[Related: [The coronavirus panic is turning the United Kingdom into a hostile environment for East Asians.](#)]*

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## MORE INFORMATION ON THE CORONAVIRUS AND WHERE IT CAME FROM

[“A Running List of Disinformation Spreading About The Coronavirus”](#) [BuzzFeed]

[“Wuhan Beyond the Coronavirus: Steel, Cars and Spicy Noodles.”](#) [The New York Times]

[“China’s Battle With a Deadly Coronavirus, in Photos.”](#) [The New York Times]

[“Is China Setting Itself Up for Another Epidemic?”](#) [The New York Times]

[“Wuhan Coronavirus Map: Tracking the Spread of the Outbreak”](#) [The New York Times]

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## WHAT YOU’RE SAYING

*Here’s what readers had to say about the last edition: [Donald Trump’s impeachment defense.](#)*

[Jim from Missouri](#): “The most significant aspect of Trump’s defense is not the 110-page smokescreen invented by his lawyers. The single most important thing is that they are doing everything in their power to prevent evidence and witnesses from being brought into the proceeding.”

[Samuel Moyn, a professor at Yale Law School](#): “One point of superiority to [@nikobowie](#)’s article is that it is historicist in order to be presentist. What matters isn’t what past actors decided to do or thought their text meant, but what the best present reasons are for one or another choice.”

Larence F. Winthrop, a judge on the Arizona Court of Appeals (via email): “I take slight issue with the statement that the concept of ‘executive privilege’ originated in President Eisenhower’s administration. In reality, the issue of executive privilege was first raised in the trial of Marbury v. Madison in the United States Supreme Court in 1803.” (Mark J. Rozell, the author of a book on executive privilege, has written that [George Washington laid the conceptual foundation](#) for the power, though the term was not a part of common language until the Eisenhower administration.)

Spencer Bokatz-Lindell is a writer for the Opinion section. [@bokatzlindell](#)

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Mon, 10 Feb 2020 18:36:44 +0000  
**To:** Undisclosed recipients:  
**Subject:** NYT: The Urgent Questions Scientists Are Asking About Coronavirus

## The Urgent Questions Scientists Are Asking About Coronavirus

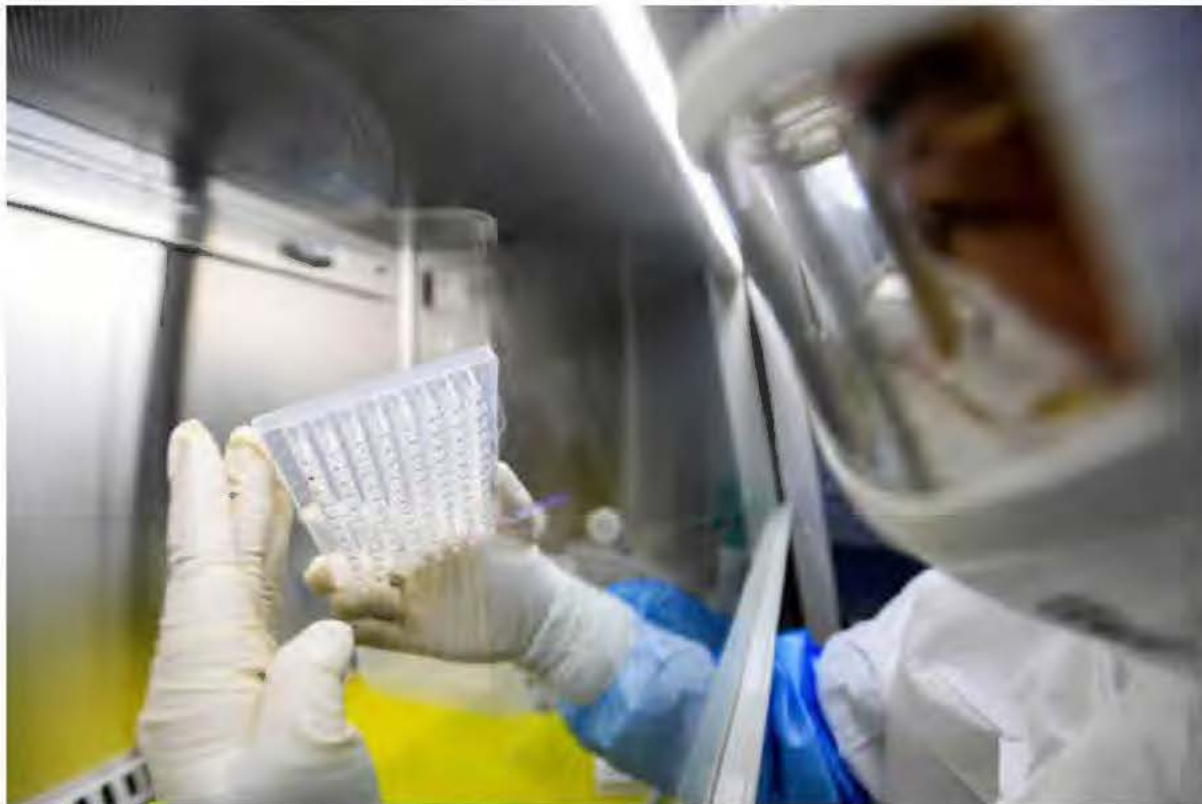
Let's start with what we don't know.

By Gabriel Leung

Dr. Leung is an infectious disease epidemiologist and dean of medicine at the University of Hong Kong.

• Feb. 10, 2020

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A technician doing diagnostic testing for the new coronavirus in Wuhan, China, last week. Credit...CHINATOPIX, via Associated Press

GENEVA — Around the world and around the clock, scientists are trying to figure out what must be done to end the global health emergency unleashed by the new [coronavirus](#). As the outbreak accelerates and spreads, dozens of countries have deployed increasingly stringent measures to try and contain the epidemic. Almost as quickly, in a herculean effort, an international network of researchers at data and



wet laboratories has started gathering and analyzing data to unmask and disarm this perplexing new disease.

In magnitude, scale and velocity, 2019-nCoV is too big a problem for any one team to solve. On Monday, China recorded its largest single-day surge of deaths, at 97, pushing the [total reported dead worldwide](#) to 910, with more than 40,500 people infected on four continents. On Tuesday, I'm joining my fellow scientists at the [World Health Organization headquarters for an urgent meeting](#) to piece together, like a giant jigsaw puzzle, our findings so far. We need to get a clear view of the contagion and plug the holes in our understanding of the disease to inform public health decisions that affect hundreds of millions of lives. Science has a critical role to play in restoring calm.

Let's start with what we know. The new coronavirus is a close cousin of viruses that infect bats. It jumped from an unconfirmed wild source (most likely bats) to an [intermediate host, possibly pangolins](#) or other small mammals, being sold as food at a market in Wuhan, a transport and commercial hub in central China. The infected people unknowingly spread it to others, setting off the outbreak's deadly journey. We now estimate that it takes about five to six days — possibly upward of 14 days — for someone to show symptoms from when they become infected.

What do we most need to know next? For epidemiologists who track infectious diseases, the most pressing concerns are how to estimate the lethality of the disease, and who is susceptible; getting detailed information on how it spreads; and evaluating the success of control measures so far.

No. 1 is the "clinical iceberg" question: How much of it is hidden below the surface? Because the outbreak is evolving in real time, we can't yet see the totality of those infected. Out of view is some proportion of mildly infected people, with minor symptoms or no symptoms, who no one knows are infected.

A fleet of invisible carriers sounds ominous; but in fact, an enormous hidden figure would mean many fewer of the infected are dying. Usually, simple math would determine this "case fatality" ratio: divide the total number of deaths by the total number of people infected. In an emerging epidemic, however, both numbers keep changing, and sometimes at different speeds. This makes simple division impossible; you will invariably get it wrong.

In 2003, during the early days of the SARS outbreak, the medical community got the math wrong. At first, we believed that case fatality hovered between 2 percent and 3 percent. It took two pages of longhand algebra, written in Oxford, England, coded into a computer in London and then applied to data from Hong Kong, to get it right. The actual case fatality for Hong Kong was staggering: 17 percent.

That's not to suggest we're facing as dire a scenario now. Several groups, including mine, are each using our own methods to calculate a preliminary estimate of the new virus's lethality. If there's near agreement among our findings, expected within the week, we'll be more confident in describing the new coronavirus. Does it resemble the seasonal flu, SARS or one of [the largest plagues in human history, the 1918-19 "Spanish flu" pandemic](#)?

Knowing the number of people likely to die, or who get seriously sick or have zero symptoms, will help health authorities determine the strength of response required. They can better estimate how many isolation beds, heart-lung machines and medicines, among other things, are needed.

Last month, to start understanding the severity of this illness, my team assisted Chinese experts in [analyzing the initial 425 confirmed cases](#) of infection. We learned that 65 percent of people had neither visited a market nor been exposed to another person showing pneumonialike symptoms, which implied, among other things, the possibility that some infected people don't suffer from obvious symptoms — meaning the illness isn't always severe.

Along with getting a grasp on the level of severity is figuring out susceptibility, or who is most at risk for infection. The data so far indicates that this would include older adults, the obese and people with underlying medical conditions. There are few reports of children becoming infected. But are they not showing symptoms, or are they immune? And could they infect others as silent carriers? We must study



those under 18 to find out; the answers could help us fine-tune public health measures. For example, should schools in China and Hong Kong remain closed?

Returning to the big picture, we must also refine what we know about how the new coronavirus is passed between people. Even as the outbreak appears to keep escalating, we believe the rapid — sometimes necessarily draconian — response of governments and health authorities has made a dent in transmission. In another recent study, we estimated how many people could get infected if there were no drastic public health interventions. Our goal with [this report was to sound the alarm](#) over what could be, so that it wouldn't be.

Scientists are working toward quantifying effectiveness of the response. We need to find out if the virus's basic reproductive number, the  $R_0$  or  $R$ -naught, has dropped. While our earliest estimates showed that typically every person infected by the new coronavirus passes it to 2 to 2.5 others, it's still too early to know if measures have reduced the number to below the critical threshold of 1.

Simultaneously, we're closely watching the rest of the world for any large, sustained outbreaks that might resemble ground zero in Wuhan. We expect more clarity within days or weeks. As of Monday, the largest concentration of infected patients in a single location outside mainland China, at more than 130 people, is on a cruise ship, the Diamond Princess, quarantined at Japan's Yokohama port.

Finally, scientists need to appraise the control, or social distancing, measures deployed since the outbreak began. The challenge involves trying to quantify how many infections were actually prevented through measures such as wearing masks, closing schools and locking down cities. One possible approach to this assessment in China could involve using location services data from cellphones.

As we determine research priorities at the World Health Organization headquarters in Geneva this week, the hope is that the science being urgently coordinated will also fight the crisis on other fronts. It could help battle the emerging "infodemic," the cacophony of real news, fake news and pseudoscience that feeds uncertainty and breeds panic.

And it could help roll back some measures seemingly fueled by populism and nativism. The travel advisories, outright travel bans, immigration controls and xenophobic treatment of people from different places are doing significant harm.

The goal is to stay at least a couple of steps ahead of the epidemic curve. Scientists must prepare health authorities to catch any subsequent waves of infections and prepare for the possibility that this particular virus could reappear seasonally — and maybe one day it could be only as bad as the common cold.

I've seen record-breaking outbreaks before and witnessed the world rally. If everyone plays their role and remains on guard, then chances are we will defeat the new coronavirus too. This is [the best way to honor Dr. Li Wenliang](#), one of the first doctors in Wuhan to warn the world about the disease — the very one that killed him last week, at age 34.

Gabriel Leung ([@gmleungghku](#)), an epidemiologist who studied SARS and managed the response to the swine flu pandemic in Hong Kong, is founding director of the WHO Collaborating Centre for Infectious Disease Epidemiology and Control and dean of medicine at the University of Hong Kong. He is an advisor to the Hong Kong and China governments on the new coronavirus.

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**Sent:** Fri, 31 Jan 2020 14:48:59 +0000  
**To:** Undisclosed recipients:  
**Subject:** PBS Newshour video: Why 'sustained transmission' of novel coronavirus is what would concern U.S. officials <https://to.pbs.org/2RIS7RK>



## Why 'sustained transmission' of novel coronavirus is what would concern U.S. officials

• Jan 30, 2020

This week has seen the rapid spread of novel coronavirus both within China and internationally to at least 14 other countries. On Thursday, the World Health Organization declared it a global public health emergency. As the U.S. records its first confirmed person-to-person transmission, William Brangham talks to Dr. Anthony Fauci of NIH's National Institute of Allergy and Infectious Diseases.

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**To:** Undisclosed recipients:  
**Subject:** Politico: Trump health chief tries to contain coronavirus — and White House frustration

## Trump health chief tries to contain coronavirus — and White House frustration

Trump and his top aides are privately on edge about the global threat, ramping up their response as fear starts to spread across the U.S.



Health and Human Services Secretary Alex Azar speaks during a press conference on the coordinated public health response to the coronavirus outbreak. | Samuel Corum/Getty Images

By [NANCY COOK](#) and [DAN DIAMOND](#)

01/30/2020 10:14 PM EST

In the span of a day, Secretary of Health and Human Services Alex Azar suddenly became the face of the Trump White House's public response to the Wuhan coronavirus.

He could just as easily become the fall guy if the president grows unhappy with the speed or nature of the virus' transmission, or the increasingly intense media coverage surrounding the administration's actions.

Azar's elevation to chief responder — and leader of President Donald Trump's coronavirus task force — comes after a rocky week for him internally as the virus spread globally and triggered worries across financial markets, corporate executive suites and the White House. The virus is expected to spread further and lead to more U.S. cases. The State Department late Thursday issued its [most severe travel warning](#), telling Americans "do not travel" to China due to the coronavirus.

Inside the White House, pressure has been building up throughout the week in the background of the president's Senate impeachment trial.

On Monday, several senior officials expressed extreme frustration with Azar and the White House's response, feeling that the administration was caught flat-footed. Some specifically criticized Azar for not widely sharing information and being too slow to ramp up the administration's efforts. The health secretary was chided in at least one meeting and told to get the U.S. response in higher gear and work better alongside staffers from the National Security Council, Domestic Policy Council and various agencies, according to three senior administration officials.



By Wednesday, in a late-night announcement, Azar was publicly named as the chair of a task force to shape the administration's response.

Acting White House chief of staff Mick Mulvaney this week urged Azar to begin holding a daily briefing to keep the public informed about the virus, officials said. Azar also appeared on Thursday on Fox News, where he told the anchor that the coronavirus "does not at this time pose a risk to the American public." Later in the day, the Centers for Disease Control and Prevention [confirmed the first instance](#) of person-to-person transmission of the virus in the United States.

Inside the health department, both political and career staff defended the health secretary's response to a mystery outbreak that's sickened more than 8,000 people around the globe, including six confirmed cases in the United States. "I can say without hesitation that Alex Azar is doing a very good job in a very difficult job," said Tony Fauci, a civil servant who's the nation's top infectious disease doctor.



A health worker takes a person's temperature in Beijing. | Betsy Joles/Getty Images

The White House stressed that Azar would not have been elevated to lead the administration's response to the coronavirus if the president and top aides did not trust him.

"The president has complete confidence in Secretary Azar which is exactly why he was chosen to lead the President's Coronavirus Task Force and anyone spreading rumors to the contrary is simply uninformed and misguided," Mulvaney told POLITICO in a statement.

"Secretary Azar is leading the efforts of the United States' response to the novel coronavirus, and is the strongest and most competent health secretary I have ever observed," Robert Redfield, the nation's CDC director, said in a statement.

The health department also dismissed criticism of Azar's efforts to fight the outbreak, with HHS spokesperson Caitlin Oakley calling assertions of a slow response "the exact opposite of the truth."

"Secretary Azar has had daily briefings and interactions with the President on Novel Coronavirus," she said in a statement. "Secretary Azar has directed the Department to transparently communicate updates on the Novel Coronavirus to the American people through every medium available, often many times a day as details develop."

Trump has been largely [restrained in his public comments](#) on the current outbreak — a departure from his repeated, often alarmist tweets during the 2014 Ebola outbreak. Against the advice of public-health leaders, Trump at the time even [urged the United States to close its borders to flights from West Africa](#) — which would have locked out two U.S. health workers who'd become ill in Liberia and had to be airlifted to Atlanta for treatment.

"Stop the EBOLA patients from entering the U.S. Treat them, at the highest level, over there. THE UNITED STATES HAS ENOUGH PROBLEMS!" Trump tweeted in August 2014.

By contrast, Trump this week at times appeared to sound unconcerned in the face of escalating risks. On Thursday at [a speech at Michigan manufacturing plant](#), he downplayed any danger and told attendees that the spread of the coronavirus would have "a very good ending for us." He added the administration

was working “closely” with China to fight the virus and said hopefully “it won’t be as bad as some people think it could be.”

In reality, Trump behind the scenes has repeatedly quizzed aides about the coronavirus and its risks to Americans. Officials say Trump wants to project the image of the White House on the offensive toward the coronavirus, which the World Health Organization on Thursday [declared a global public health emergency](#).

Appearing highly responsive on health care is a major White House priority after the president expressed irritation with his own [administration’s moves on vaping and drug pricing](#), in addition to frustration about Republicans’ inability to repeal Obamacare. Health care has generally been a political loser for this administration. Trump’s own recent, [internal polling shows it as a weak spot](#) for him, and a strength for Democrats, heading into the 2020 campaign. Trump berated Azar for the bad polling in mid-January, breaking away from a political strategy meeting in order to vent to his health secretary by phone.

White House officials are now holding at least one daily meeting on the coronavirus and convening multiple calls. Trump [tweeted photos](#) on Wednesday of one high-powered session in the White House Situation Room, where the president was surrounded by top aides like Mulvaney and Dan Scavino alongside Azar, Redfield and Fauci.

“Just received a briefing on the Coronavirus in China from all of our GREAT agencies, who are also working closely with China. We will continue to monitor the ongoing developments. We have the best experts anywhere in the world, and they are on top of it 24/7!” Trump tweeted on Wednesday night. With the coronavirus, the White House must fend off a high-pressure and surging global health crisis that has administration officials privately on edge. The crisis also will test Azar’s ability to lead the response effort in a White House where he has few allies and many enemies — including supporters of Seema Verma, another top health official who spent much of 2019 [at war with Azar](#) over policy and personnel.





**Donald J. Trump** ✓

@realDonaldTrump



Just received a briefing on the Coronavirus in China from all of our GREAT agencies, who are also working closely with China. We will continue to monitor the ongoing developments. We have the best experts anywhere in the world, and they are on top of it 24/7!



♥ 70.7K 7:06 PM - Jan 29, 2020



💬 26.8K people are talking about this



"Key experts who would help lead a response from the National Security Council are gone or divested and the functions collapsed, and so you're dependent on coordination from a reluctant health secretary," said one former administration official.

Azar's own allies argue that he's adopted a thorough response to the spreading crisis that's grounded in public-health best practices. Inside the health department, senior health officials like Redfield and Fauci have been empowered to move quickly on preparing for U.S. outbreaks and devising potential treatments. Azar also tapped his department's emergency-response team to coordinate efforts, a strategy that helped the Trump administration respond to other crises like earthquakes, hurricanes and the rapid effort to reunify migrant families that the administration separated at the border.

The health secretary's moves have received some bipartisan applause. Ron Klain, who helped lead President Barack Obama's response to the 2014-2015 Ebola outbreak, has repeatedly praised Azar for taking "[wise steps](#)" even as he [bashed the president himself](#) for dismantling public-health functions. In public and in private, Azar has touted his experience fighting an earlier coronavirus outbreak called SARS and other crises as a senior health official during the George W. Bush administration. "He knows the questions to ask," like whether officials have fully gamed out potential scenarios, said a senior health official who's been in strategy meetings with Azar this week.

Two Azar allies also argue the secretary's department has been transparent amid the health crisis, such as providing the White House's Domestic Policy Council — which traditionally hasn't played a role in

health outbreaks — with additional briefings earlier this month upon request. Meanwhile, Azar has been demanding greater transparency from China, as health officials seek more data about the mystery virus and offer to send international aid workers to help fight the outbreak.

“Alex has pushed to see if we can send some of our people there to not only help the Chinese but also get some information that would inform our strategies and response,” said Fauci, the infectious disease doctor.

Meanwhile, Azar opted out of a sought-after trip to Iowa next week where the health secretary was scheduled to join other Cabinet members as one of the president’s surrogates during the Iowa caucuses. “Azar was invited and is no longer going,” said a person familiar with the secretary’s plans. “He’s staying in Washington to lead the charge and response on coronavirus.”

But Azar’s position in the administration remains weakened after his extensive battles with Verma, the nation’s Medicaid and Medicare chief who was previously a consultant for then-Indiana Gov. Mike Pence. Azar and Verma’s battles grew so severe last month that the White House prepared a [shortlist of replacements](#) for both officials. Neither Azar nor Verma’s jobs are currently at risk, officials maintain, noting that Verma on Thursday morning rolled out a plan to overhaul the nation’s Medicaid program, [with White House support](#).

Fauci, who’s worked in the health department since 1968 and led the nation’s infectious-disease response since 1984, argued that Azar is striking the right balance of communicating big decisions while trusting the health department’s army of career scientists. “Good secretaries have transcended administrations,” Fauci said. “Alex is clearly right up there.”

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Tue, 11 Feb 2020 18:10:45 +0000  
**To:** Undisclosed recipients:  
**Subject:** Pompeo and Azar: The Coronavirus Response and American Altruism

# The Coronavirus Response and American Altruism

February 11, 2020

By: Michael R. Pompeo, U.S. Secretary of State and Alex Azar, Secretary of the Department of Health and Human Services

## Summary:

How we mobilize resources around the world to help other nations fight the disease is American altruism at its finest.

This op-ed originally appeared in [USA Today](#) on February 11, 2020.

The first duty of the federal government is to keep our citizens safe. Since the United States first became aware on Dec. 30 of what has become known as the novel coronavirus, America's public health officials have closely monitored the situation, worked to understand the virus and taken steps to limit Americans' exposure to it.

Our task force is ensuring that our whole of government, layered, public health plan has the resources necessary to protect Americans. We've treated the sick, and traced back their travel history and contacts to minimize the spread of the virus. We've worked swiftly to screen and safely receive American travelers returning from China, and bar foreign travelers who have recently visited the epicenter of the outbreak.

Consistent with the World Health Organization International Health Regulations, our travel restrictions were intentionally devised to complement the Chinese government's policy of isolating approximately 50 million of its own citizens in Hubei province. Other nations, such as Italy and South Korea, have taken similar measures.

Thus far, the United States has only had 13 confirmed cases of the virus. We were saddened to hear last week that one American, a 60-year-old woman in Wuhan, China, has died. But we're undeterred in our vigilance to protect our people. And we're mobilizing resources around the world to help other nations fight the disease, too. This is American altruism at its finest.

Let's start with our efforts focused on the country where the virus first appeared — China. In the words of President Donald Trump, "We're offering them tremendous help." During the first week of January, the Centers for Disease Control and Prevention made an offer of assistance in order to understand the disease and help bolster response efforts.

The Department of Health and Human Services subsequently provided to the WHO a list of world-class medical professionals ready to deploy their skills in China and learn from China's efforts to combat this new coronavirus. In the last week of January, Secretary Azar personally extended an offer of help to Health Minister Ma Xiaowei; Secretary Pompeo did the same with Chinese State Councilor Yang Jiechi. We hope the mission will commence immediately, whether bilaterally or under the auspices of the WHO.

We've also facilitated the delivery of vast amounts of medical supplies to the Chinese people. Just last week, the State Department helped transport 17.8 tons of relief supplies to Hubei. And more assistance will continue to be offered — the United States is prepared to spend up to \$100 million in existing State

and U.S. Agency for International Development funds to assist China and other impacted countries to contain and combat the virus.

While State managed the logistics, the donations themselves were provided by Samaritan's Purse, Boeing, Intermountain Healthcare and The Church of Jesus Christ of Latter-day Saints, and coordinated by a nongovernmental organization called Project HOPE. Time and again, when diseases and disasters strike, the American people have stepped up to help citizens of other countries without being asked. Our robust charitable giving and enthusiastic civil society groups are channeling the American people's concern for their fellow man.

Then there are America's actions to help the citizens of other countries, beyond China. CDC staff based in more than 60 countries are working closely with ministries of health and other health partners, often in conjunction with their colleagues at the State Department and other federal agencies.

For instance, the United States has made coronavirus test kits available to 191 qualified laboratories around the world; so far, labs from 36 countries have put in orders. We've deployed staff to train health professionals in 15 hospitals in Vietnam. In Kenya, health experts at the U.S. Embassy in Nairobi, as part of our Infectious Diseases Task Force, engaged the government early on to recommend best practices in airport screening and public health.

Our quick and effective reaction abroad is facilitated by partnerships that America has carefully nurtured over decades — long before the latest outbreak.

We believe our actions will slow the transmission of the virus to and within the United States and other countries, solidify our ties of friendship with our allies and partners, and help save lives by giving us more time to refine preparedness measures and better understand the virus.

We all hope that our concerted efforts will control the virus and cause it to subside. But the world doesn't need to wait for that day to see how America remains a force for good throughout the globe.

Posted In:

Emergency Preparedness and Response

Global Health

Public Health and Safety

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Sat, 22 Feb 2020 16:56:50 +0000  
**To:** Undisclosed recipients:  
**Subject:** PRI audio: Controlling the spread of coronavirus is key to stopping a 'true pandemic,' NIAID head says <http://bit.ly/2T9jmEi>

## Controlling the spread of coronavirus is key to stopping a 'true pandemic,' NIH head says



[Listen](#)

February 21, 2020 · 3:15 PM EST



National Institute of Allergy and Infectious Diseases (NIAID) director Dr. Anthony Fauci speaks about the public health response to the outbreak of the coronavirus during a news conference at the Department of Health and Human Services (HHS) in Washington, DC, on Jan. 28, 2020.

Credit:

Amanda Voisard/Reuters

The epicenter of the coronavirus outbreak is China, but officials in South Korea, Iran and Ukraine are also trying to manage the illness in their countries.

In South Korea, at least 204 cases are documented. Iran has at least 18 cases. There are no cases in Ukraine, but a group of Ukrainians returned from China, and as they were being bused to a quarantine center, their caravan was attacked. The Ukrainian president and health minister are trying to quell the fears of Ukrainians who don't want the virus to spread there.

At the World Health Organization in Geneva, director-general Tedros Adhanom Ghebreyesus said there is still a window of opportunity to contain the virus, but it's rapidly closing.

"This outbreak could go any direction. It could even be messy," Ghebreyesus said Tuesday. "What I'm saying is it's in our hands now."

One of the United States' top scientists is working to stop the coronavirus from becoming a global pandemic. The World spoke to Dr. Anthony Fauci, director of the National Institute of Allergy and

Infectious Diseases and a member of the White House coronavirus task force. He says two questions are important to answer: Are there more cases out there that we don't know about? And can people who have no symptoms transmit the virus? The WHO delegation in China might be able to help answer those questions.

**Related:** [What we know and don't know about COVID-19](#)

"Well, the delegation is there," Fauci told The World's host Marco Werman. "It's a multinational delegation. And hopefully, they will accomplish the goal of both assisting the Chinese in their attempts to contain this, as well as to gain important information that would inform our own policies and our own strategy."

**Marco Werman: So, you had mentioned earlier this month that you were hopeful that the WHO delegation would include US scientists. Is that the case, and why would that be valuable?**

Dr. Anthony Fauci: Obviously, for example, our own CDC, our Centers for Disease Control and Prevention, have some of the best epidemiologists in the world. Here at the NIH, we do the fundamental, basic and clinical research to develop countermeasures in the form of diagnostics, therapeutics and vaccines. And so all of those things together, a combination of understanding the evolution of the outbreak in China, which obviously is the epicenter of what's going on, as well as to understand what the demands and needs are going to be with regard to countermeasures. It's always important, and I think contributory, to have people on the ground there. And that's the reason why we were pleased to see that the WHO delegation will include individuals from all groups.

**You said that they will be there. So, does that mean that the CDC is currently there with the WHO delegation?**

They are. They are there. See the issue — the reason why there's some hesitancy when people ask questions about the details are that — I mean, obviously, the Chinese are very sensitive about information getting out before they give it. So, we know what's going on. We are satisfied that we have the representation there. But the details of it, we would prefer to leave to the Chinese when they are asked, as opposed to our getting ahead of them. And that's the reason why when you ask direct questions about the details of the delegation, there's always some hesitancy because we want to be respectful of the Chinese.

**Related:** [A California family went to China to renew their work visas. When coronavirus hit, they got stuck.](#)

**China has dozens of trials underway to test treatments — more than 80, I gather. What seems most promising, and have you been involved?**

Yes. I mean, obviously, we're in communication with our colleagues in China and we're doing similar things like right here in the United States. For example, there are a number of compounds, usually drugs that have been developed for other virus infections that are being repurposed to determine if they work in the coronavirus infection. One of them is called remdesivir, which has been developed for other viral infections. It showed in the test tube and in an animal model to have some activity against coronaviruses, particularly the SARS virus. So now, the Chinese are doing a randomized controlled trial in China, looking at the effect of remdesivir compared to the standard of care alone without remdesivir. Parallel to this, as you may know, we evacuated several people from the Diamond Princess cruise ship in Yokohama Harbor in Japan. We brought them back to the United States and brought them to one of our containment hospitals in Omaha, Nebraska. They're there now. And we're going to institute this protocol for this drug remdesivir among those individuals. In fact, I think, we believe that we started it just last night. So hopefully, we'll get some good information from that.



**I know you've been closely involved with the treatment development. Are you confident something will materialize?**

Well, you've got to be careful about drugs that are treatment versus vaccine. We'll get an answer with drugs much more quickly than we get an answer with a vaccine. So, the answer to containing this outbreak now over the next several months to a year is not going to be a vaccine. What the answer will be, and hopefully will be successful, is standard, typical public health measures: identification, isolation, contact tracing and quarantine where appropriate.

**So, you still see quarantines and even travel bans as most effective in stopping the spread of coronavirus?**

Well, you know, travel bans as a permanent solution doesn't work. What you can do is that travel bans, when selectively used, can delay the influx of cases into other countries. We have 15 cases in the United States, 13 of which are travel-related and two of which are spouses of people who traveled. I believe, and I think everyone who's looking at the results now believes that if we had not put the travel restriction with China several weeks ago, we would have had many more cases of coronavirus in the United States. Although it's not any permanent solution — because once you have widespread disease throughout the world, travel bans don't work — it can sometimes, and I think this case is one example, be successful on a temporary basis to delay the influx of cases.

*Related: [What's life like for the residents of Wuhan?](#)*

**China remains the epicenter of coronavirus. It looks like the numbers may be stabilizing, but now we're watching as South Korea scrambles to cope with the largest number of reported cases outside of China. How should we be viewing that? And do you think we'll continue to see hot spots emerge around the globe?**

Well, I hope not, because, you know, whether or not we're going to be evolving into a true pandemic is going to be dependent on two things. One, the extent to which China can control the outbreak in their own country and the number of people who travel to other countries. The second important factor is how will other countries that now have travel-related cases, how will they contain the outbreak in their own country?

Because once you get robust, sustained, person-to-person transmission, then the situation could get worse, and we could evolve into a true pandemic.

**As a member of the White House coronavirus task force, are you satisfied with the attention and focus the president is giving to this?**

Oh, absolutely. I mean, the task force, we have a White House meeting every single day, sometimes every day, plus a couple of calls. And on several occasions, we've actually physically gone in and briefed the president himself in the Oval Office. So, the president is clearly very much engaged in this.

*This interview has been lightly edited and condensed for clarity.*

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**From:** Fauci, Anthony (NIH/NIAID) [E]  
**Sent:** Sun, 9 Feb 2020 18:23:24 +0000  
**To:** Folkers, Greg (NIH/NIAID) [E]  
**Subject:** RE: Investigational compound remdesivir, developed by UAB and NIH researchers, being used for treatment of novel coronavirus

WOW! (b) (5) Good talking point for press conferences.

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**From:** Folkers, Greg (NIH/NIAID) [E] (b) (6)  
**Sent:** Sunday, February 9, 2020 1:13 PM  
**Subject:** Investigational compound remdesivir, developed by UAB and NIH researchers, being used for treatment of novel coronavirus

## Investigational compound remdesivir, developed by UAB and NIH researchers, being used for treatment of novel coronavirus

[by Savannah Koplon](#)

- February 07, 2020
- [Print](#)
- [Email](#)



Richard Whitley, M.D., Distinguished Professor at UAB and principal investigator of the U19 grant

The investigational drug remdesivir, developed through research conducted through the [Antiviral Drug Discovery and Development Center](#), or AD3C, and centered at the [University of Alabama at Birmingham](#), is being used to treat select infected patients in the United States and in China who have been affected by the outbreak of novel coronavirus (2019-nCoV).

UAB was awarded a \$37.5 million, [five-year U19 grant](#) from the [National Institute of Allergy and Infectious Diseases Centers of Excellence for Translational Research](#) to study and develop treatment for high-priority emerging infections. Work has been taking place in earnest to develop drugs for emerging influenza, flaviviruses (dengue, West Nile virus and Zika), coronaviruses that cause SARS and MERS, and alphaviruses such as Venezuelan equine encephalitis virus and chikungunya. The grant is a multi-



institutional collaboration to accelerate drug discovery for these emerging infections and is a public-private partnership between academic institutions and Gilead Sciences.

Remdesivir, developed to treat the coronavirus causing MERS, was found to have significant activity against the 2019-nCoV strain when the outbreak began in the Chinese city of Wuhan. Importantly, remdesivir had demonstrated efficacy in treating other medically important coronaviruses MERS and SARS in cell culture and animal models. Based on the compassionate plea requests of treating physicians in the United States, Gilead Sciences released remdesivir for use in a few patients, although the drug has not yet been tested for safety or efficacy in these diseases. "The release of remdesivir for safety and efficacy studies is a major accomplishment for the AD3C – namely the U19 grant – as it shows significant and swift advance of antiviral drugs to help treat and respond to emerging infectious disease outbreaks on an international scale and, importantly, to anticipate the introduction of these infections in the United States," said Richard Whitley, M.D., Distinguished Professor at UAB and principal investigator of the U19 grant.

[WATCH: UAB infectious disease experts provide information on the 2019 novel coronavirus.](#)

Gilead Sciences and supporting researchers and clinicians are working with health authorities from the World Health Organization and in China to establish a placebo-controlled study to determine whether remdesivir is safe and effective in treating 2019-nCoV.

"This is a prime example of how the research we are conducting at UAB plays a critical role in treating patients on a global scale and our contribution of substantial scientific advances."

– Richard Whitley, M.D., UAB Distinguished Professor

"The collaboration between UAB, our colleagues at Southern Research, Vanderbilt University and the University of North Carolina, along with our pharmaceutical partner Gilead Sciences, is indicative of our collaborative approach to respond to outbreaks in real time, and in helping communities worldwide fight 2019-nCoV. This is a prime example of how the research we are conducting at UAB plays a critical role in treating patients on a global scale and our contribution of substantial scientific advances," Whitley continued.

Whitley expressed that the potential for mutation of 2019-nCoV means that UAB's AD3C and partners will need to build backup molecules for potential testing and treatment in the near future.

The World Health Organization has declared the 2019-nCoV outbreak a "public health emergency of international concern."

UAB is the lead institution for AD3C and research conducted; but the team unifies scientists experienced in virology, viral immunology, pathogenesis, medicinal chemistry and translation to human disease from UAB, University of North Carolina, Vanderbilt University, Emory University, Washington University, The University of Texas Medical Branch, Southern Research, the Emory Institute of Drug Discovery, the University of Colorado, Denver, and Oregon Health & Science University.

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**From:** Fauci, Anthony (NIH/NIAID) [E]  
**Sent:** Wed, 26 Feb 2020 00:07:16 +0000  
**To:** McNeil Jr, Donald G  
**Subject:** Re: thought from a kibbitzer...

You make some very good points, Donald.

On Feb 25, 2020, at 4:48 PM, McNeil Jr, Donald G <mcneil@nytimes.com> wrote:

I was just watching the HHS briefing online, and thinking about an article I read this morning, and Bruce Aylward's description of what he saw in China, and a lot of [videos I've watched](#) on the South China Morning Post website (they're doing great coverage.).

In China, we in the media tend to report the horrors and the lockdown and the government's early lies...

But the truth is that a lot of average Chinese behaved incredibly heroically in the face of the virus: 25,000 doctors and nurses went into Wuhan to help, knowing they might die. Average people gave up their stockpiles of masks so they could be shipped to Wuhan. Neighborhood committees brought food to thousands of little old ladies and checked on them every day, even as they asked them to stay behind their doors for fear of infection.

Meanwhile, in America, people tend to act like selfish pigs interested only in saving themselves. How can I hoard a mask? Where's my vaccine? This morning, I read [this appalling article](#) from Alabama. Here you have Americans coming back from a horrifying experience overseas, and the President -- who is popular in Alabama -- asks Alabamans to take some of those fellow Americans in. There is zero risk because they're going to be housed on a naval base.

And yet, the answer is "No! Keep them out!" And their legislators encourage it....

I dunno -- that's the kind of behavior I expect from my fellow New Yorkers, not from Alabama.

If the virus arrives -- and we both know it will -- America is going to have to do better than that. Like the Chinese, Americans are going to have to look out for each other the way we haven't since 9/11. Or maybe since World War II.

But that's not the tone of the HHS briefings. They're an aggressive, defensive, almost smart-alecky "we got this" tone. The only time the tone was right when you were the third to take the mike and explain things to that kid shouting from the back without a mike about "What's the real message? What do we do?"

Maybe there could be some thought given to mentally preparing Americans to work together in the face of the crisis? Quarantines are a very aggressive approach -- but they require a lot of compassion or the people quarantined suffer.



I might get around to writing an article about this, but my editors keep grabbing me for minute by minute stuff and I'm way behind.

Donald

**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Sun, 19 Jan 2020 14:40:54 +0000  
**To:** Undisclosed recipients:  
**Subject:** Reuters: China to step up countermeasures as virus outbreak grows

January 18, 2020 / 9:45 PM / Updated an hour ago

## China to step up countermeasures as virus outbreak grows

[Huizhong Wu, Sophie Yu](#)

BEIJING (Reuters) - China will step up efforts to contain the coronavirus outbreak in Wuhan ahead of the Lunar New Year holidays as a rise in confirmed cases fanned fears the virus could spread to other countries.

Tourist line-up in a health control at the arrival section at Suvarnabhumi international airport in Bangkok, Thailand, January 19, 2020. REUTERS/Jorge Silva

The National Health Commission said on Sunday departments should work together to carry out preventative measures.

"Our commission will step up our guard during the Spring Festival, pay close attention to the development and change of the epidemic, and direct the implementation of prevention and control measures," the commission said, adding that it believes the outbreak can be controlled.

Wuhan's health authority confirmed earlier on Sunday 17 more cases of the virus in the city, bringing the total number of known patients there to 62.

Two people have died from the virus in Wuhan, the largest city in central China with a population of about 11 million people. Three cases have been confirmed abroad - two in Thailand and one in Japan - involving people from Wuhan or who recently visited the city.

China, the World Health Organizations and authorities across the globe are stepping up efforts to contain the virus, which initially emerged in Wuhan in late December as a wave of pneumonia patients. Many of China's 1.4 billion people will travel domestically and abroad during the Lunar New Year break that begins next week, raising concerns about the virus spreading to other countries.

The virus belongs in the same family of coronaviruses as Severe Acute Respiratory Syndrome (SARS), which killed nearly 800 people globally during a 2002/03 outbreak that also started in China.

Though some experts say the new virus may not be as deadly as SARS, there is still little known about it including its origin and how easily it can be transmitted between humans.

The World Health Organization said on Sunday that some of the new cases appear not to be linked to the Huanan seafood market, believed to be the centre of the outbreak. Due to China's efforts to implement broader screening, new cases may be identified in the coming days and weeks, it added.

"The fact that three cases have been exported to Thailand and Japan without connection to the Huanan Seafood Market suggests that the virus has spread beyond the Huanan Seafood Market into the community," said David Hui, a professor of respiratory medicine at the Chinese University of Hong Kong.

Wuhan will strengthen oversight of big events and reduce the number of public gatherings, state media quoted Chen Yanxin, the city's deputy mayor as saying on Sunday.

Wuhan officials said since Jan. 14 they are using infrared thermometers at airports, railway stations and other passenger terminals in the city to strengthen screening.



Airport authorities in the United States as well as most Asian nations are screening passengers from Wuhan.

A report by the London Imperial College's MRC Centre for Global Infectious Disease Analysis said there are likely to be "substantially more cases". It estimated that by Jan. 12 there were 1,723 cases in Wuhan City with onset of related symptoms.

Reporting by Sophie Yu and Huizhong Wu; Additional reporting by Orathai Sriring; writing by Se Young Lee, Editing by Angus MacSwan

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Sat, 8 Feb 2020 19:21:16 +0000  
**To:** Undisclosed recipients:  
**Subject:** Reuters: Head of WHO-led coronavirus probe team leaving for China on Monday or Tuesday

[Top News](#)

February 8, 2020 / 12:16 PM / Updated 2 hours ago

## Head of WHO-led coronavirus probe team leaving for China on Monday or Tuesday

GENEVA (Reuters) - The head of a World Health Organization-led international team investigating the coronavirus outbreak will leave for China on Monday or Tuesday, WHO chief Tedros Adhanom Ghebreyesus said.

Tedros, asked whether the team would include experts from the U.S. Centers for Disease Control (CDC), told a press conference on Saturday: "We hope so."

The death toll in mainland China rose to 723 on Saturday, the WHO said, looking likely to pass the 774 deaths recorded globally during the 2002-2003 outbreak of Severe Acute Respiratory Syndrome (SARS). Across mainland China, the number of cases stood at 34,598, the WHO said.

Dr. Mike Ryan, WHO's top emergency expert, said there had been a stabilisation in the number of new cases reported from Hubei province, the epicentre of the virus, over the past four days.

"That's good news, and may reflect the impact of the control measures put in place. But remember there are also lots of suspected cases still to be tested."

Ryan, speaking later to Reuters, said: "The daily number of new cases has been stable over a four-day period. The same number each day, around."

He added, "It's not a decline. That can just mean four days of relative calm before it accelerates."

Reporting by Stephanie Nebehay; Writing by Nick Macfie; Editing

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Fri, 28 Feb 2020 23:00:17 +0000  
**To:** Undisclosed recipients:  
**Subject:** Reuters: White House urges calm as U.S. lawmakers warned of wider coronavirus outbreak

[World](#)

## White House urges calm as U.S. lawmakers warned of wider coronavirus outbreak

### Trump administration's acting chief of staff plays down the crisis

Thomson Reuters · Posted: Feb 28, 2020 3:17 PM ET | Last Updated: an hour ago



National Institute of Allergy and Infectious Diseases director Anthony Fauci, right, and director of the Centers for Disease Control, Dr. Robert Redfield, ride on an escalator before a briefing for members of Congress on the response to COVID-19 coronavirus, at the U.S. Capitol on Friday. (Mark Wilson/Getty Images)

A top U.S. health official told lawmakers on Friday to expect many more coronavirus cases in the United States, a source said, as the Trump administration faced mounting criticism for its response to the crisis. With additional countries reporting new infections and global stock markets on the precipice of a free fall, U.S. health officials have been scrambling to deal with the prospect of a widening outbreak of the flu-like illness domestically.

The number of confirmed U.S. cases is still relatively small at around 60, most of them repatriated American passengers from the Diamond Princess cruise ship docked in Japan.

But Anthony Fauci, the head of the National Institute of Allergy and Infectious Diseases, said in a closed-door briefing in the U.S. House of Representatives that the sustained spread of the coronavirus in so many countries meant there would be many more infections in the United States, according to the source. Fauci added that it was unlikely the virus would disappear next year and he warned lawmakers the country did not have enough testing resources, the source said on condition of anonymity.

U.S. Representative Donna Shalala, a Democrat and former Health and Human Services secretary, told CNN that officials in the briefing said the Trump administration was moving quickly to mobilize resources and get tests in place.

"It will spread. There's no question about that. And we have the capacity to put people into the hospital, to put them in isolation if necessary. Many people will be isolated in their own homes," Shalala said.

The outbreak started in China late last year and has since spread beyond the borders of the world's second-largest economy. More countries, including Denmark and the Netherlands, reported their first cases on Friday and the World Health Organization said the outbreak could spread worldwide.

A vaccine may take up to 18 months to develop, health officials have said.

U.S. and global stocks plummeted as rattled investors braced for the prospect that a pandemic could further dent an already slowing world economy, increasing the pressure on governments to quickly respond to the crisis.

Both the Dow Jones Industrial average and the broader S&P stock index are in correction, meaning a drop of more than 10 per cent in the last week.

The White House's top economic adviser, Larry Kudlow, told reporters the U.S. economy was "sound" and said the Trump administration was not planning to take any "precipitous" policy actions at this time.

James Bullard, the president of the St. Louis Federal Reserve, told a business group in Arkansas that interest rate cuts were "a possibility" if the outbreak intensified into a global pandemic. The Fed cut rates three times last year.

President Donald Trump this week said the risk of coronavirus to Americans remained "very low," but he has been increasingly alarmed by the reaction of the U.S. stock market, which he considers a barometer of the economy's health and sees as important to his re-election in November.

In tweets overnight, Trump said the coronavirus virus had spread "very slowly" to the United States and he defended his administration's response.

Mick Mulvaney, the White House's acting chief of staff, played down the crisis, telling conservatives at a conference in Washington that wall-to-wall news coverage of the disease is a ploy to hurt Trump.

"The reason you're seeing so much attention to it today is that they think this is going to be what brings down the president. That's what this is all about," Mulvaney told the Conservative Political Action Conference.

Vice-President Mike Pence, who was tapped this week to lead the nation's coronavirus response, was due to meet with Florida's governor to discuss the state's virus-response efforts.





Director of the National Economic Council Larry Kudlow said the U.S. economy is sound. (Alex Wong/Getty Images)

Funding to combat the crisis has become a political issue. The White House is seeking \$2.5 billion US from Congress to boost the government's response. Senate Democratic Leader Chuck Schumer has called for \$8.5 billion.

On Thursday, two U.S. officials told Reuters the Trump administration was considering invoking special powers to rapidly expand domestic production of protective masks and clothing to help combat the virus.

The U.S. Centers for Disease Control and Prevention has revised its criteria for who should be tested for the coronavirus and is shipping more test kits to states.

Quick confirmation of coronavirus cases is crucial to rapid response by local health authorities, and officials have previously reported that some test kits provided by CDC were producing inconclusive results.

"The kits that were sent to us have demonstrated performance issues and cannot be relied upon to provide an accurate result," Avery Cohen, a spokesperson for New York City Mayor Bill de Blasio, wrote in an email.

China, where the coronavirus started, has borne the brunt of the outbreak, recording nearly 80,000 infections and almost 2,800 deaths. Countries other than China now account for about three-quarters of new infections.

U.S. philanthropist Bill Gates said the coronavirus was starting to behave like a "once-in-a-century" pathogen, and he urged wealthy nations to help low and middle-income countries strengthen their health systems in hopes of slowing its spread.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Mon, 27 Jan 2020 16:07:46 +0000  
**To:** Undisclosed recipients:  
**Subject:** S+P Global Market Intelligence: Senators suggest coronavirus travel ban, emergency; GOP briefs timeline denied

- 27 Jan, 2020

## Senators suggest coronavirus travel ban, emergency; GOP briefs timeline denied

- Author Donna Young
- Theme [Healthcare & Pharmaceuticals](#)

Sen. Josh Hawley, R-Mo., asked the Trump administration what it was doing to plan for a potential travel ban to block travelers from China in an effort to stop the spread of the new coronavirus in the U.S.



**Travelers being screened at an airport in China in the midst of the coronavirus outbreak.**

*Source: AP Photo*

As of Jan. 26, at least five people in the U.S. were confirmed with having the 2019 novel coronavirus, or 2019-nCoV. Health officials in Washington state, Chicago and Arizona have all reported one case each, while California has reported two patients infected with the virus.

All five of the patients recently traveled to the U.S. from Wuhan, China, where 2019-nCoV was first identified.

Over 2,800 confirmed cases of 2019-nCoV have been reported worldwide, with most of those patients in China. All 80 of the people who have died were in China, including a doctor who treated patients at a hospital in Wuhan.

"Given the rate at which public health officials are capable of gaining insight into the severity of such an outbreak, can you offer guidance as to when and how the federal government would decide to implement travel restrictions in the event that an outbreak like this one merited them?" Hawley asked



in a Jan. 24 letter to the secretaries of Health and Human Services, Homeland Security, State and Transportation.

Hawley also raised the issue of travel restrictions with top U.S. public health officials during a Jan. 24 briefing for senators on Capitol Hill, Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, confirmed.

Fauci said both he and Robert Redfield, director of the U.S. Centers for Disease Control and Prevention, told the senators that imposing travel restrictions was "not a good idea at this time."



**NIAID Director Anthony Fauci**

*Source: AP Photo*

"That would create a lot of disruption economically and otherwise and it wouldn't necessarily have a positive effect," Fauci told S&P Global Market Intelligence.

The longtime NIAID chief, who is considered the federal government's top infectious disease expert, said the Senate briefing was generally positive.

"Obviously, senators have different opinions about what we should or should not be doing, but in general, I would say there was satisfaction" about the federal government's response to the 2019-nCoV outbreak, Fauci said.

"I can't say that every single one of them was 100% satisfied," he added.

Fauci said he also told the senators about NIAID's partnership with Moderna Inc. to produce a vaccine against 2019-nCoV.

Sen. Rick Scott, R-Fla., said he wants additional screenings of travelers at U.S. airports coming from China and closer scrutiny of products being imported from there.

The Florida Republican also urged the Trump administration to declare a national public health emergency for 2019-nCoV, saying in a Jan. 24 statement that it was time to "get serious about the threat of coronavirus."

Last week, the World Health Organization declined to declare the 2019-nCoV outbreak a public health emergency of international concern, though its director said such a designation could be employed later.

#### **Lapse in opioid emergency?**

Meanwhile, HHS is disputing a report that it let the public health emergency declaration for the opioid crisis lapse.

The declaration, first put in place in October 2017, must be renewed every 90 days by the HHS secretary.

On Jan. 23, Politico reported that two unidentified sources said HHS had mistakenly let the declaration lapse for more than a week, but rectified the matter after it realized the failure.

An HHS spokesperson told S&P Global Market Intelligence on Jan. 24 that the missing declaration was a "clerical error."

Later that day, the agency posted a new public health emergency declaration online, dating it Jan. 24, though it stated the effective date as Jan. 14.

HHS had similarly failed in July 2018 to post the emergency declaration online in a timely manner — a lapse that went on for nearly a month.

After S&P Global Market Intelligence inquired about the missing document on Aug. 15, 2018, the agency later posted the declaration. That document was initially dated July 19, 2018, but was later switched for a document dated July 23, 2018.

It is unclear what effect having the opioids emergency declaration in place has made.



**U.S. Supreme Court**

*Source: AP Photo*

#### **No ACA filing extension for GOP attorneys general**

The U.S. Supreme Court may have opened the door, if only slightly, to the possibility it could still hear Democrats' appeal against a Republican lawsuit that is seeking to invalidate the Affordable Care Act.

On Jan. 24, the justices denied a motion by the Republican state attorneys general that are challenging the constitutionality of the ACA to extend their time for submitting briefs in the case.

The Republican attorneys general, which are up against a Feb. 3 deadline to file their responses, sought a 43-day extension. But the Supreme Court declined to grant it.

That decision followed the court's Jan. 21 ruling denying a request by a coalition of Democratic state attorneys general and Democrats in the U.S. House to fast-track the case — a ruling may leave the decade-old healthcare law in limbo until after the 2020 U.S. elections.

But after the court gets a look at each side's briefs in the case, "it may decide that it is appropriate to grant review and decide the case this term," the Democratic attorneys general told the Supreme Court. Denying the extension request would preserve that option, they said in a Jan. 22 filing with the court.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Mon, 17 Feb 2020 16:05:10 +0000  
**To:** Undisclosed recipients:  
**Subject:** Science: Labs scramble to produce new coronavirus diagnostics

Infectious Diseases

## Labs scramble to produce new coronavirus diagnostics

1. Jon Cohen,
2. Kai Kupferschmidt

See all authors and affiliations

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A staffer at a Wuhan, China, hospital holds up a sample from a suspected COVID-19 patient.

PHOTO: STR/AFP/GETTY IMAGES

The seeming precision of the global tallies of cases and deaths caused by the novel coronavirus now spreading from Wuhan, China, belies an alarming fact. The world is in the dark about the epidemic's real scale and speed, because existing tests have limited powers—and testing is far too spotty. “We are underestimating how common this infection is,” cautions Jeremy Farrar, head of the Wellcome Trust. Within days of Chinese researchers releasing the sequence of the virus on 11 January, scientists developed tests capable of detecting genetic sequences that distinguish the new agent from other coronaviruses circulating in humans. By 28 January, China's National Medical Products Administration had approved diagnostic test kits from five companies. It was an astonishing pace for the response to a pathogen never seen before—and yet it was only a beginning.

Today, there aren't nearly enough test kits available to keep up with the skyrocketing case numbers, and some parts of the world may lack enough trained laboratory staff to apply them. And because the genetic tests look for snippets of viral genetic material in nose and throat swabs or fluid collected from the lung, they only work when somebody has an active infection. Scientists are still scrambling to detect antibodies against the virus in the blood, which could help find people who had an infection and recovered.

Hubei province, which includes Wuhan, accounts for 75% of the more than 43,000 confirmed cases of COVID-19, as the World Health Organization (WHO) named the new disease on 11 February. (A study group of the International Committee on Taxonomy of Viruses christened the novel virus severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2, the same day.)

But many news stories have reported shortages of diagnostics in Hubei. "They're overwhelmed," says epidemiologist Ian Lipkin of Columbia University, who recently returned from China and is in self-imposed quarantine at home. Testing in Hubei has focused on people sick enough to seek medical care, so tens of thousands of milder cases may not have been picked up. Outside Hubei, testing is even patchier. "What's the full picture in the other parts of China?" asks Keiji Fukuda, an epidemiologist at the University of Hong Kong who previously led outbreak responses at WHO.

Similar questions loom elsewhere. No cases have been confirmed in Africa, but there has been little testing. Initially, only two African labs were capable of detecting the virus, says John Nkengasong, who heads the African Centres for Disease Control and Prevention: "If this virus had shown up in Africa in December, or early January, it would have been devastating." The continent is better prepared since a workshop in Dakar, Senegal, last week where lab workers from 15 African countries were taught how to use one of the new viral tests, which are based on the polymerase chain reaction assay, Nkengasong says. (Another workshop will follow next week.) Given that the virus has spread so widely, however, Farrar says he would be "very surprised" if it isn't already in Africa.

Even in the United States, test kits are in short supply. Regulations require that the U.S. Centers for Disease Control and Prevention (CDC) supply all tests, but that agency only began to do so on 5 February and has shipped a mere 200 kits so far, each able to do at most 800 tests. U.S. officials still don't test most people flying in from China but focus on those who have symptoms of the disease. "We're not able to do the surveillance that we would want to do," says Wendi Kuhnert-Tallman, who heads CDC's laboratory task force for the virus.

Many labs, including Lipkin's, are racing to develop antibody tests, which will do little to diagnose acute cases—it can take weeks for that immune response to kick in—but could help clarify mystifying questions about SARS-CoV-2's spread.

Such tests use a surface protein of the virus—or, in Lipkin's case, an array of peptides—to capture antibodies specific to the virus in the blood. But a new test has to be validated using blood from infected people. CDC prefers to wait for 3 weeks after a person becomes ill to let antibody levels build, Kuhnert-Tallman says. So far, "We have one single case in the U.S. that has reached the 21-day mark." A team led by Marion Koopmans of Erasmus Medical Center in Rotterdam, the Netherlands, expects to launch studies of its first version of an antibody test next week. It could be several more weeks before a company develops antibody kits and can churn them out by the thousands.

Antibody tests might help pinpoint where and when this outbreak began, and which animal was the original source of the virus: Researchers could search for evidence of infection in stored samples of human blood or in animals that might be a natural reservoir of the virus. But the "most useful application is to screen different age groups of humans," Koopmans says, to determine how many people become infected with few or no symptoms. If indeed scientists discover many mild cases, the rates of severe disease (estimated at about 20%) and death (2%) among infected people will plummet—which would finally be a bit of good news.

[View Abstract](#)



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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Wed, 12 Feb 2020 02:48:43 +0000  
**To:** Undisclosed recipients:  
**Subject:** Science: Labs scramble to spot hidden coronavirus infections



A staffer at a Wuhan, China, hospital holds up a sample from a suspected COVID-19 patient.  
STR/AFP/Getty Images

## Labs scramble to spot hidden coronavirus infections

By [Jon Cohen](#), [Kai Kupferschmidt](#) Feb. 11, 2020 , 5:15 PM

The seeming precision of the global tallies of cases and deaths caused by the novel coronavirus now spreading from Wuhan, China belies an alarming fact. The world is in the dark about the epidemic's real scale and speed, because existing tests have limited powers—and testing is far too spotty. “We are underestimating how common this infection is,” cautions Jeremy Farrar, head of the Wellcome Trust. Within days of Chinese researchers releasing the sequence of the virus on 11 January, scientists developed tests capable of detecting genetic sequences that distinguish the new agent from other coronaviruses circulating in humans. By 28 January, China's National Medical Products Administration had approved diagnostic test kits from five companies. It was an astonishing pace for the response to a pathogen never seen before—and yet it was only a beginning.

Today, there aren't nearly enough test kits available to keep up with the skyrocketing case numbers, and some parts of the world may lack enough trained laboratory staff to apply them. And because the genetic tests look for snippets of viral genetic material in nose and throat swabs or fluid collected from the lung, they only work when somebody has an active infection. Scientists are still scrambling to detect antibodies against the virus in the blood, which could help find people who had an infection and recovered.

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doi:10.1126/science.abb2651



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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Mon, 3 Feb 2020 23:31:47 +0000  
**To:** Undisclosed recipients:  
**Subject:** Science: Study claiming new coronavirus can be transmitted by people without symptoms was flawed



Germans repatriated from Wuhan, China, arrive at an army barracks on 1 February to be examined for signs of infection with the new coronavirus.

Frank Rumpenhorst/picture-alliance/dpa/AP Images

## Study claiming new coronavirus can be transmitted by people without symptoms was flawed

By [Kai Kupferschmidt](#) Feb. 3, 2020 , 5:30 PM

A [paper published on 30 January](#) in *The New England Journal of Medicine (NEJM)* about the first four people in Germany infected with a novel coronavirus made many headlines because it seemed to confirm what public health experts feared: that someone who has no symptoms from infection with the virus, named 2019-nCoV, can still transmit it to others. That might make controlling the virus much harder.

Chinese researchers had previously suggested asymptomatic people might transmit the virus but had not presented clear-cut evidence. "There's no doubt after reading [the *NEJM*] paper that asymptomatic transmission is occurring," Anthony Fauci, director of the U.S. National Institute of Allergy and Infectious Diseases, told journalists. "This study lays the question to rest."

But now, it turns out that information was wrong. The Robert Koch Institute (RKI), the German government's public health agency, has written a letter to *NEJM* to set the record straight, even though it was not involved in the paper.

The paper described a cluster of infections that began after a businesswoman from Shanghai visited a company near Munich on 20 and 21 January, where she had a meeting with the first of four people who later fell ill. Crucially, she wasn't sick at the time: "During her stay, she had been well with no sign or symptoms of infection but had become ill on her flight back to China," the authors wrote. "The fact that

asymptomatic persons are potential sources of 2019-nCoV infection may warrant a reassessment of transmission dynamics of the current outbreak.”

But the researchers didn’t actually speak to the woman before they published the paper. The last author, Michael Hoelscher of the Ludwig Maximilian University of Munich Medical Center, says the paper relied on information from the four other patients: “They told us that the patient from China did not appear to have any symptoms.” Afterward, however, RKI and the Health and Food Safety Authority of the state of Bavaria did talk to the Shanghai patient on the phone, and it turned out she did have symptoms while in Germany. According to people familiar with the call, she felt tired, suffered from muscle pain, and took paracetamol, a fever-lowering medication. (An RKI spokesperson would only confirm to *Science* that the woman had symptoms.)

Hoelscher was not on the call, he says. “I asked the Bavarian Health and Food Safety Authority whether the information from that phone conversation called for a correction and I was told that is not the case,” he says. (The Bavarian ministry of health, of which the agency is part, has not responded to a request for information from *ScienceInsider*.) But RKI disagreed. The agency’s spokesperson confirms that a letter about the error has been submitted to *NEJM*. RKI also informed the World Health Organization (WHO) and European partner agencies about the new information.

“I feel bad about how this went, but I don’t think anybody is at fault here,” says virologist Christian Drosten of the Charité University Hospital in Berlin, who did the lab work for the study and is one of its authors. “Apparently the woman could not be reached at first and people felt this had to be communicated quickly.”

Marc Lipsitch, an epidemiologist at the Harvard T.H. Chan School of Public Health, says calling a case asymptomatic without talking to the person is problematic. “In retrospect, it sounds like this was a poor choice,” he says. However, “In an emergency setting, it’s often not possible to talk to all the people,” he adds. “I’m assuming that this was an overstretched group trying to get out their best idea of what the truth was quickly rather than somebody trying to be careless.”

The Public Health Agency of Sweden reacted less charitably. “The sources that claimed that the coronavirus would infect during the incubation period lack scientific support for this analysis in their articles,” says a document with frequently asked questions [the agency posted on its website yesterday](#). “This applies, among other things, to an article in [*NEJM*] that has subsequently proven to contain major flaws and errors.” Even if the patient’s symptoms were unspecific, it wasn’t an asymptomatic infection, says Isaac Bogoch, an infectious disease specialist at the University of Toronto. “Asymptomatic means no symptoms, zero. It means you feel fine. We have to be careful with our words.”

Hoelscher agrees that the paper should have been clearer about the origin of the information about the woman’s health. “If I was writing this today, I would phrase that differently,” he says. The need to share information as fast as possible, along with *NEJM*’s push to publish early, created a lot of pressure, he says.

Given how fast data are coming out amid the growing global crisis, it’s good to read even peer-reviewed papers with some extra caution at the moment, Lipsitch says: “I think peer review is lighter in the middle of an epidemic than it is at normal speed, and also the quality of the data going into the papers is necessarily more uncertain.”

The fact that the paper got it wrong doesn’t mean transmission from asymptomatic people doesn’t occur. But even if it does, it likely plays a minor role in the epidemic overall, WHO says. People who cough or sneeze are more likely to spread the virus, the agency wrote in a situation report on Saturday. “More data may come out soon. We will just have to wait,” Lipsitch says.

The German cluster does reveal another interesting aspect about the new virus, Drosten says. So far most attention has gone to patients who get seriously ill, but all four cases in Germany had a very mild infection. That may be true for many more patients, Drosten says, which may help the virus spread.



“There is increasingly the sense that patients may just experience mild cold symptoms, while already shedding the virus,” he says. “Those are not symptoms that lead people to stay at home.”

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#### **[Kai Kupferschmidt](#)**

Kai is a contributing correspondent for *Science* magazine based in Berlin, Germany. He is writing a book about the color blue, to be published this autumn.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Mon, 24 Feb 2020 18:05:50 +0000  
**To:** Undisclosed recipients:  
**Subject:** SCMP: China's Wuhan lockdown helped limit global spread of coronavirus, says World Health Organisation

## China's Wuhan lockdown helped limit global spread of coronavirus, says World Health Organisation

- Bruce Aylward said the number of Covid-19 cases was 'falling and falling because of the actions being taken'
- Senior official who led team that visited city at centre of outbreak praises 'ambitious' response to the crisis, describing it as 'extraordinary'



[Zhuang Pinghui](#) in Beijing

Published: 11:33pm, 24 Feb, 2020

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Bruce Aylward led a WHO team that visited Wuhan over the weekend. Photo: Simon Song

China's decision to put Wuhan into lockdown a month ago helped limit the global spread of Covid-19 outbreak, a senior official from the World Health Organisation said on Monday.

Bruce Aylward, head of a WHO team [that visited the city over the weekend](#), also confirmed that the number of new cases had been falling.

The epidemic, caused by a new strain of coronavirus, has already infected almost 80,000 people and killed more than 2,600.

"I know people look at the numbers and say 'what's really happening?'," Aylward told a joint press briefing with China's National Health Commission in Beijing on Monday night.

"Very rapidly, multiple sources of data pointed to the same thing. This is falling and it's falling because of the actions that are being taken."

He praised China for locking down Wuhan – a city of 11 million people – and said the decision helped avert a crisis.

"The world is in your debt," he said. "The people of that city have gone through an extraordinary period and they're still going through it."

"In the face of a previously unknown disease, China used one of the most ancient strategies for disease control."



He described the “all-government, all-society approach” as “extraordinary” and “probably the most ambitious and agile” in history.

Aylward also said: “The world needs the experience and materials from China to be successful in battling this coronavirus disease. China has the most experience in the world with this disease. It is the only country that has turned around a serious and large-scale outbreak.”

He said that scaling down restrictions on movement and reopening restaurants and shops was a risk “that needs to be managed carefully”.

But he said the risk was dropping “and what China has to add to the global response is rising”.



Liang Wannian, head of the National Health Commission team, said bats were the most likely source of the disease. Photo: Simon Song

While China reported fewer infections over the weekend, the disease has now spread to 29 countries and regions with South Korea, Japan, Italy and Iran all reporting a surge in new cases.

The number of confirmed cases has reached 833 in South Korea, making the country the second most seriously affected after China.

The WHO team visited Beijing, Guangdong and Sichuan provinces last week and spent the weekend in Wuhan, the epicentre of the outbreak.

Liang Wannian, head of the National Health Commission team, said genome sequencing had shown that the virus has not yet mutated.

He said research also suggested bats were the most likely hosts, and it had possibly been passed on to civet cats, which then transmitted it to humans.

Concerns about possible transmission from wild animals to humans prompted the standing committee of the National People’s Congress, China’s top lawmaking body, to pass a resolution on Monday to ban the trade and consumption of wild animals.

“Since the Covid-19 outbreak, the eating of wild animals and the huge hidden threat to public health from the practice have attracted wide attention,” the standing committee said.

According to Yang Heqing, deputy director of the Office for Economic Law – part of the standing committee’s legislative affairs commission – the ban on consumption included legally protected wildlife and farm-bred wild animals.

It also prohibits hunting, trading and transport of certain wild animals.

The standing committee also voted to confirm to postpone the annual NPC conference, the biggest political gathering of the year which was due to be held early next month. It has yet to announce a new date for the meeting.

On Sunday President Xi Jinping addressed officials from around the country in a video conference, in which he was confident China could defeat the disease.

“It is unavoidable that the novel coronavirus epidemic will have a considerable impact on the economy and society,” said Xi in a lengthy address that was watched by as many as 170,000 officials and published by state news agency Xinhua.

However, he also stressed that China's priority was to get its economy up and running again while fighting the epidemic.



[Zhuang Pinghui](#)

Based in Beijing, Zhuang Pinghui joined the Post in 2004 to report on China. She covers a range of issues including policy, healthcare, culture and society.

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Sun, 16 Feb 2020 13:19:55 +0000  
**To:** Undisclosed recipients:  
**Subject:** SCMP: Egypt reports first case of coronavirus in Africa amid fears for poorer nations

[China / Diplomacy](#)

## Egypt reports first case of coronavirus in Africa amid fears for poorer nations

- Authorities say a foreigner tested positive without any symptoms and has been isolated in hospital in stable condition
- WHO is racing to equip laboratories so they can test for the virus and avert an outbreak on the continent, which has close ties with China

[Jevans Nyabiage](#)

Published: 6:00pm, 16 Feb, 2020

Updated: 6:00pm, 16 Feb, 2020



Egyptian quarantine officers prepare to screen travellers arriving at Cairo's airport. The country has reported its first coronavirus case. Photo: AFP

Africa has reported its first case of [the new coronavirus](#) that has so far claimed more than 1,600 lives, with Egypt's health ministry confirming that a foreigner had tested positive there.

Health experts and African leaders have expressed concern that poorer countries may struggle to cope if the virus spread to the continent. Fears for nations with weaker health systems prompted the World Health Organisation to declare the outbreak of the virus – which originated in China – a global public health emergency in January.

Its director general Tedros Adhanom Ghebreyesus last week said the WHO was racing to equip laboratories in vulnerable African countries with the "capacity to rapidly diagnose cases" to avert an outbreak.

The WHO and Egypt's health ministry on Friday confirmed the country's first case was a foreign national who had been isolated in hospital and was in stable condition. Health ministry spokesman Khaled Megahed said the patient had tested positive for the virus without any symptoms, and the WHO had been informed and measures taken to limit its spread.

The WHO said its Egypt office was working closely with health officials in the North African nation, taking "outbreak investigation and response actions".

The country's Eastern Mediterranean neighbour, the United Arab Emirates, had reported eight cases, the WHO said.

The Chinese medical workers on the front line of the coronavirus fight in WuhanThe virus, which causes a disease known as Covid-19, has [infected more than 68,000 people](#) since the outbreak began in the Chinese city of Wuhan in December, and it has spread to more than 20 countries.

The first case in Africa comes as countries on the continent have stepped up screening at border checkpoints to prevent the spread of the pneumonia-like illness. Many countries have imposed restrictions on travel to and from mainland China, while six out of eight African airlines with Chinese routes have halted flights until the virus is contained, including EgyptAir.

Egypt has suspended all flights to and from China until the end of the month and has evacuated more than 300 Egyptians from Wuhan.



Egyptian Health Minister Hala Zayed waits with a medical team at Alexandria's airport to meet passengers evacuated from Wuhan on February 3. Photo: Reuters

John Nkengasong, director of the Africa Centres for Disease Control and Prevention (Africa CDC), said the Addis Ababa-based organisation was "on standby to work closely with the government of Egypt to rapidly contain the spread of the virus".

African nations are also equipping laboratories so that they can test for the virus, with the help of the WHO and others.

Until about two weeks ago, there were only two laboratories in the continent of 54 countries – in Senegal and South Africa – with the reagents needed to test for the coronavirus.

That meant dozens of countries that had quarantined suspected patients were sending samples to South Africa or Senegal to be tested. Since then, four more labs have been equipped – in Ghana, Nigeria, Madagascar and Sierra Leone – to test for the virus, according to the WHO.

The global health body has also sent testing kits to Cameroon, Ivory Coast, the Democratic Republic of Congo, Egypt, Ethiopia, Gabon, Ghana, Kenya, Morocco, Nigeria, Tunisia, Uganda and Zambia.

Tedros on Monday said the WHO's immediate "objective remains containment. We call on all countries to use the window of opportunity we have to prevent a bigger fire".

The Africa CDC has trained health workers from 12 countries in early detection and prevention in Senegal, using testing kits sent by the WHO. Further training would take place in South Africa next week, Tedros said.

"Without vital diagnostic capacity, countries are in the dark as to how far and wide the virus has spread – and who has coronavirus or another disease with similar symptoms," Tedros said.

Many countries in Africa are still reeling from the 2014-16 outbreak of Ebola, which killed 11,325 people and infected 28,600. The deadly virus is yet to be contained, with new cases reported in the Democratic Republic of Congo last week.

China disinfects entire cities to fight coronavirus outbreak, some twice a day

There are concerns that Africa's close links with China put it at high risk for the spread of the new coronavirus. Africa has become home to millions of Chinese since Beijing started looking to the continent for raw materials for its industries and markets for its products, and China has been Africa's largest trading partner since 2009, after it overtook the United States.



China is also a major trading partner of Egypt, with two-way trade standing at US\$13.8 billion in 2018, according to the China Africa Research Initiative at the Johns Hopkins University School of Advanced International Studies. Beijing is pouring billions of dollars into infrastructure projects in the country, including building a business district in its new administrative capital, 50km east of Cairo. Chinese firms are also investing billions of dollars in the Egyptian Suez Canal Economic Zone, a project under Beijing's sprawling trade and infrastructure scheme

[the Belt and Road Initiative](#)

Kenyan journalist Jevans Nyabiage is South China Morning Post's first Africa correspondent. Based in Nairobi, Jevans keeps an eye on China-Africa relations and also Chinese investments, ranging

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**From:** Folkers, Greg (NIH/NIAID) [E]  
**Sent:** Tue, 21 Jan 2020 22:03:52 +0000  
**To:** Undisclosed recipients:  
**Subject:** STAT: CDC details first U.S. case of novel virus spreading in China  
<http://bit.ly/3DGuyfa>

[Health](#)

## CDC details first U.S. case of novel virus spreading in China

By [Helen Branswell](#) @HelenBranswell

January 21, 2020



Medical staff transfer patients to Jin Yintan hospital in

Wuhan, China. *Getty Images*

A man in Washington state has been diagnosed with a novel infection racing through China, the first time someone in the United States has been confirmed to have the virus, the Centers for Disease Control and Prevention said Tuesday.

The man, who in his 30s, had recently traveled to Wuhan, China, which is where the outbreak is believed to have begun, officials said. He is currently listed in good condition.

The U.S. is the fifth country outside of China to report cases of the virus, provisionally known as 2019-nCoV. Thailand, Japan, South Korea, and Taiwan have picked up a handful of cases, all in people who had recently been in Wuhan.

Also on Tuesday, the World Health Organization on Tuesday raised the possibility that the new virus may be [transmitting in an ongoing, sustained manner between people](#) — which, if confirmed, would make it significantly more difficult to stop.

The agency's Western Pacific Regional office, which covers China and neighboring countries, said on Twitter that new information "suggests there may now be sustained human-to-human transmission" — but cautioned that more "information and analysis" are needed before making that conclusion.

A committee of experts will meet Wednesday to advise WHO Director-General Tedros Adhanom Ghebreyesus on whether to declare the outbreak a public health emergency of international concern — a PHEIC in global health parlance.



Chinese authorities, who first alerted the world to the existence of the outbreak on Dec. 31, have diagnosed nearly 300 cases to date. An update from the WHO said that of 278 cases reported as of Jan. 20, 51 were severely ill, 12 were in critical condition and six had died.

The CDC announced last week it would begin to screen passengers returning from Wuhan at three airports: San Francisco, Los Angeles, and John F. Kennedy in New York. On Tuesday, CDC officials said two more airports — Atlanta and Chicago's O'Hare International Airport — would be added to that list. Dr. Martin Cetron, director of the CDC's center of quarantine and global migration, said that as cases in China started to increase rapidly over the weekend, CDC alerted the departments of Homeland Security and Transportation that all flights from Wuhan to the United States should be funneled through the five airports, where arriving passengers will have their temperatures taken for sign of illness.

"This idea of funneling means redirecting, reissuing tickets so all the arriving passengers from Wuhan would come into the airports that we can surge this capacity at," Cetron said, adding other international airports are distributing information for passengers in English and Mandarin.

The Washington state man arrived back in the United States on Jan. 15, two days before the airport screening began. He became ill after his return and contacted his doctor on Jan. 19, informing the physician that he had recently traveled to Wuhan.

A sample from the man was flown to the CDC in Atlanta. The next day — Monday — testing at the agency confirmed that this was the first U.S. case. He is being held in isolation at Providence Regional Medical Center in Everett, Wash., with what was described as a mild case of pneumonia.

Tracing of people who have been in contact with the man began Tuesday, said Dr. John Wiesman, Washington's secretary of health. The CDC has sent a team of experts to Washington to help with the investigation.

In announcing the screening plan last week, Dr. Nancy Messonnier, director of CDC's National Center for Immunization and Respiratory Diseases, said she expected the United States would see cases. She reiterated that caution on Tuesday.

"This is an evolving situation and ... we do expect additional cases in the United States and globally," Messonnier said. "The confirmation that human-to-human spread with this virus is occurring in Asia certainly raises our level of concern. But we continue to believe the risk of this novel coronavirus to the American public at large remains low at this time."

*Andrew Joseph contributed reporting.*

## About the Author



### Helen Branswell

Senior Writer, Infectious Disease

Helen Branswell covers issues broadly related to infectious diseases, including outbreaks, preparedness, research, and vaccine development.

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Medical staff transfer patients to Jin Yintan hospital in

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[Breaking News](#)

## CDC reports second U.S. case of novel virus spreading in China

By [Helen Branswell](#) @HelenBranswell

January 24, 2020



A family wears masks while walking in the street in Wuhan, China. *Getty Images*

A second case of the [new infection emerging from China](#) has been discovered in the United States — a woman who returned to Chicago from Wuhan on Jan. 13, the Centers for Disease Control and Prevention said Friday.

Dr. Nancy Messonnier, director of CDC's National Center for Immunization and Respiratory Diseases, cautioned that the country will likely see more cases and even some domestic spread from imported cases to contacts as this quickly expanding outbreak continues.

"This is a rapidly changing situation, both abroad and domestically," said Messonnier. "We are expecting more cases in the U.S. and we are likely going to see some cases among close contacts of travelers and human-to-human transmission."



She said so far 63 “persons under investigation” in the U.S. — people with recent travel to Wuhan with respiratory illness — are being assessed. To date 11 of them have been ruled out, having tested positive for other respiratory illnesses.

The Chicago woman was not sick when she traveled but began to feel ill a few days after her return. In the time since her return she had contact only with people in her household, health authorities from Illinois said.

The person is in stable condition and doing well, Dr. Allison Arwady, head of the Chicago Department of Public Health, said during a news conference organized by the CDC. The woman, in her 60s, is in hospital — not because she needs to be, but for infection control reasons, Arwady said.

She is the second person to bring the new virus, provisionally called 2019-nCoV, back to the United States. The first case, a man who lives in Washington state, was reported on Tuesday. To date there is no indication anyone who was in contact with the man in Washington has become ill, Messonnier said. The news comes at a time when the number of reported infections in China is climbing rapidly. As of Friday, there were nearly 900 cases, with at least 26 deaths.

Chinese authorities, struggling to control the outbreak at a time when much of the country would normally be traveling to celebrate the Lunar New Year, have put a number of cities near the epicenter of the outbreak on lockdown. Roughly 35 million people live in the quarantined cities, near Wuhan, where the virus is thought to have emerged.

The number of cases that have been exported — and the number of countries outside China that have reported cases — continue to grow as well. At least 10 countries outside China have reported 26 cases. To date the United States is the only country outside of Asia to have detected the virus, which is from the same family as the viruses that cause SARS and MERS.

Despite the unnerving escalation of the outbreak, the World Health Organization declined on Thursday to declare the event a global health emergency.

Tedros Adhanom Ghebreyesus, the WHO director-general, said the outbreak is an emergency in China, but doesn’t yet constitute a global crisis. “It may yet become one,” he acknowledged.

In a bid to limit the risk of importing cases to the U.S., earlier this week the CDC ordered airlines to redirect all flights from Wuhan to five airports where individualized screening of arriving passengers could be conducted. Those airports were San Francisco, Los Angeles, John F. Kennedy in New York, Atlanta, and Chicago O’Hare.

Both the U.S. cases returned to the country before the screening began. And neither would have been caught by the screening; both only began to feel ill after their return.

Dr. Martin Cetron, director for quarantine and migration at the CDC, said the agency is currently reviewing the entry screening program, because China has halted flights out of Wuhan.

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