

HOW PREPARED IS THE USA FOR A CORONAVIRUS OUTBREAK?

New York Times Andrew Jacobs and Sheri Fink Feb. 29, 2020

The country is better positioned than most but still could face critical shortages of respirators and masks. Hospitals have triage plans in place. State and local governments have broad powers to quarantine. In 2005, the federal government sought to assess how a respiratory-related pandemic might play out in the United States. Its [report](#) estimated that a severe influenza pandemic would require mechanical ventilators for 740,000 critically ill people.

Today, as the country faces the possibility of a widespread outbreak of a new respiratory infection caused by the coronavirus, there are nowhere near that many ventilators, and most are already in use. Only about 62,000 full-featured ventilators were in hospitals across the country, a [2010 study](#) found. More than 10,000 others are stored in the Strategic National Stockpile, a federal cache of supplies and medicines held in case of emergencies, according to Dr. Thomas R. Frieden, a former director of the Centres for Disease Control and Prevention.

Tens of thousands of other respiratory devices could be repurposed in an emergency, experts say, but the shortfall could be stark, potentially forcing doctors to make excruciating life-or-death decisions about who would get such help should hospitals become flooded with the desperately sick. Much about the coronavirus remains unclear, and it is far from certain that the outbreak will reach severe proportions in the United States or affect many regions at once. With its top-notch scientists, modern hospitals and sprawling public health infrastructure, most experts agree, the United States [is among the countries best prepared](#) to prevent or manage such an epidemic.

But the coronavirus, which appeared in China in December and has stricken more than 86,000 people around the world, killing nearly 3,000, has already exposed significant vulnerabilities in the ability of the United States to respond to serious health emergencies. Across the country, educators, businesses and local officials are beginning to confront the logistics of enduring a possible pandemic: [school closings that could force millions of children to remain at home](#), emergency plans that would require employees to work remotely, communities scrambling to build up supplies. In plausible worst-case-scenarios given the pattern of the outbreak thus far, the country could experience acute shortages not just in ventilators but also health workers to operate them and care for patients; hospital beds; and masks and other protective equipment.

“Even during mild flu pandemics, most of our I.C.U.s are filled to the brim with severely ill patients on mechanical ventilation,” said [Dr. Eric Toner](#), a senior scholar at the Johns Hopkins Centre for Health Security and an expert on health care preparedness. “I hope and pray Covid-19 turns out to be a moderate pandemic, but if not, we’re in serious trouble,” he said, referring to the name given the disease caused by the virus. Resources are concentrated in the most populous and wealthiest cities, leaving rural areas and other neglected communities exposed to greater risk. And public health experts worry that efforts to contain an outbreak could be hamstrung by budget cuts that have weakened state health departments.



An intensive care unit dedicated to treating coronavirus patients in Wuhan, China. Experts say the U.S. would experience significant shortages of medical supplies in plausible worst-case-scenarios. Credit...Feature China/Barcroft Media via Getty Images

Seventy cases have been identified in the United States as of Saturday night, most of them patients infected while abroad. But officials at the C.D.C. [warned on Tuesday that number will almost certainly rise](#) and urged Americans to prepare for significant disruptions to their lives. On Saturday afternoon officials announced the first death, a patient in Washington state.

Health officials are working to confine outbreaks to small geographic clusters, which would limit the impact on the nation’s health care system and buy time for the development of a vaccine, an effort that could take a year or longer. But flawed test kits distributed to states by the C.D.C. and strict criteria initially used for identifying potential [cases may have slowed detection of the virus](#) spreading within communities across the country. On Friday, three new patients — in California, Oregon and Washington State — were detected who had not traveled outside of the United States and had no known contact with infected individuals, suggesting such community transmission has already begun.

Critics say a contradictory message about the threat posed by the virus from [President Trump — who called Democrats' criticism of his handling of the situation a "hoax" at a rally on Friday night](#) — amplified on conservative media, has caused confusion, arguably slowing efforts to prepare. "The Chinese bought us a month of time to prepare ourselves by imposing these astonishing and draconian measures," said J. Stephen Morrison, senior vice president at the Center for Strategic and International Studies, which last year issued [a report](#) that identified flaws in the nation's health security. "Unfortunately, we didn't make good use of that time and now we're heading into a very dangerous situation."

China's decision to quarantine tens of millions of its citizens raises questions about what kind of measures American authorities might adopt. Although public health experts in the United States say walling off entire cities and shutting down transport systems would most likely be counterproductive and do more harm than good, federal and state laws give governments the authority to limit civil liberties to protect the public health. To help avert a severe epidemic, health officials are legally empowered to isolate the infected and those who had contact with them, restrain the sick if they resist treatment and close down whole institutions, from hospitals to churches.



The University of California, Davis Medical Centre, where the first community-spread coronavirus patient was being treated. Credit...Max Whittaker for The New York Times.

These powers come with limits. Officials are supposed to use the least restrictive measures possible to protect public health, and people whose liberties are being infringed have the right to appeal in the courts. Quarantines also require an enormous dedication of personnel to manage, and those workers must also be kept safe. Gregg Gonsalves, an assistant professor at the Yale School of Public Health, said the experience in China suggested that quarantines could create their own set of problems for people who are confined. "You may not have the basic necessities you need, including food, water, and basic sanitation supplies," he said.

Screening at airports and borders. For now, the American authorities are trying to limit the spread of the virus by identifying and monitoring anyone who has come into contact with an infected patient — a methodical process known as contact tracing — and by policing the nation's borders. As of Friday, about 47,000 travellers had been subjected to "enhanced screening" at airports, according to the C.D.C. All passengers arriving from China have their temperatures checked, and those who are feverish or present other symptoms of the coronavirus undergo further evaluation to determine whether they require hospitalization. Aaron Bowker, an officer in the Buffalo field office of U.S. Customs and Border Protection, said employees faced the complex challenge of trying to assess people for signs of illness. "That's probably the hardest part," he said. A cough does not always trigger further scrutiny of someone with no recent travel history to China, and some infected people have no fever or symptoms at all.

There have also been significant gaps in the guidelines that may have allowed more infected people to enter the country. On Saturday, the administration announced new measures intended to plug some of those holes, including pre-boarding screening of people traveling to the U.S. from Italy and South Korea and restrictions on noncitizens who had been in Iran. To date, arriving travellers who have visited mainland China in the prior two weeks are supposed to be stopped and questioned, but those protocols have not been applied to travellers from other countries where the virus has spread significantly. On Friday, health officials in Washington state announced that a woman there who had travelled to South Korea, which has reported more than 3,000 cases, had tested positive for the virus.

Anjali Goel, 18, a New York University student studying in Italy, returned home this past week after the university shut down its campus in Florence. She said she was surprised when a customs officer at Washington Dulles International Airport simply waved her through without asking any questions. "I expected him to ask me something because I was coming from an infected area," she said. For now, Ms. Goel has opted to self-quarantine, just in case. "I'm staying indoors, limiting my interaction with people and checking my temperature," she said, "even if I am feeling perfectly normal."

Rationing care. If the coronavirus does spread in the United States, health care facilities like Danbury Hospital in Connecticut will be on the front lines. This past week, the hospital's critical care doctors gathered to discuss the potential for a surge in patients who might require breathing assistance, a complication that affects the small portion of patients most seriously ill with the coronavirus. "We've assessed how many ventilators we have, what our capacity is, who's going to take what role," said Dr. Paul Nee, an infectious disease specialist and co-chairman of infection control at the hospital, which has about 370 licensed beds.

He said that the hospital had about 50 ventilators, but that some older ventilators that were still functioning could be pulled into service if needed, and that other forms of ventilation that do not require a breathing tube could be used to support patients with pneumonia. In an extreme situation, some hospitals' plans include [provisions for rationing](#), even removing some patients from ventilators without requiring their consent to make way for others presumed to have a better chance of survival.



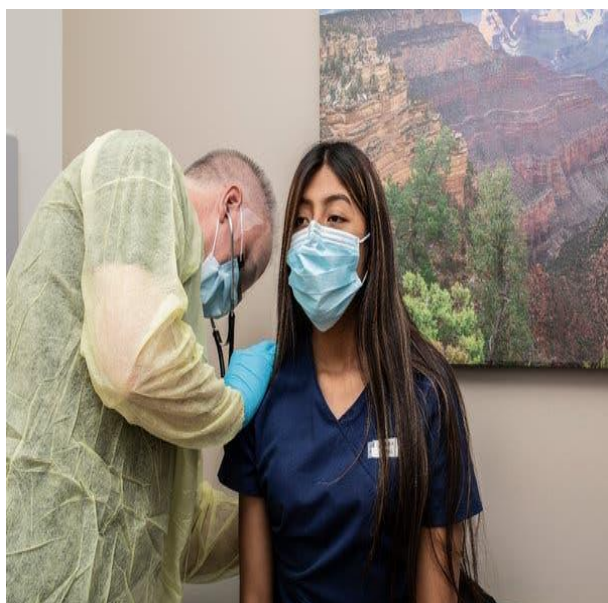
Some plans would also limit the access of certain categories of patients from critical care or even hospitalization during a peak pandemic based on criteria such as their age or an underlying chronic disease.

A screen at the California Department of Public Health Medical Health Coordinating Centre displayed coronavirus infection rates. Credit...Max Whittaker for The New York Times

The concept of imposing such measures makes physicians dedicated to [saving every life uncomfortable](#), and there is evidence that many people who could be removed from life support or [refused care](#) under such protocols would [otherwise survive](#).

Dr. Mark Jarrett, chief quality officer for Northwell Health, which has 23 hospitals, mostly in New York State, said creative thinking and new technologies could ease the need for some drastic measures. For example, he said, officials at Northwell were contemplating the use of telemedicine to augment care in an epidemic. Roughly two-thirds of the system's hospitals, for example, are equipped with electronic intensive care unit systems that allow off-site providers to monitor patients and communicate with them through video screens. Computer algorithms alert nurses when patients' vital signs are worrisome. "We are hoping we never need to do this, but we'd rather have the plans in place," he said.

Gary Cox, the Oklahoma health commissioner, said reopening rural hospitals that had closed in recent years was an option under consideration, and the state was also exploring the idea of using recreational vehicles to house people who have tested positive for the virus but do not need hospital care. China has dealt with the problem by dispatching tens of thousands of health workers from other areas of the country to the hot zone and constructing additional hospitals and isolation centres. The American government, too, has the ability to assign pre-established teams of health workers to augment overwhelmed facilities during crises, and the cadres have already provided health monitoring and basic medical care for evacuees from China and the Diamond Princess Cruise ship. But there is one big limitation: Many members of these teams, part of the National Disaster Medical System, hold regular jobs in the health care sector.

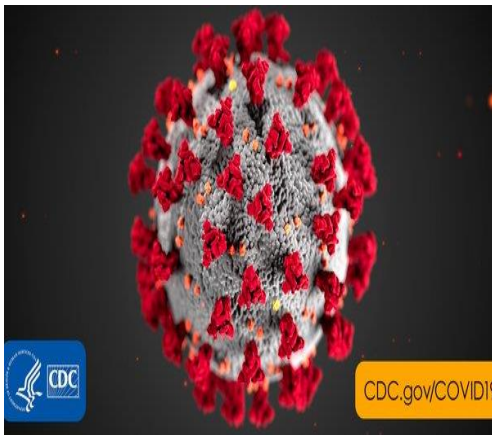


During an epidemic, that system could deploy personnel from less affected areas, but Department of Health and Human Services officials said in a statement, "if all parts of the country were overwhelmed simultaneously, providers who serve as N.D.M.S. personnel would be desperately needed in their own communities and their primary responsibility is at their home facility."

Dr. Douglas Borkowski, left, examined Jessica Perez during a demonstration of coronavirus response at American Family Care, a chain of urgent care facilities, in Hillsdale, N.J. Credit...Bryan Anselm for The New York Times

Another looming concern is protecting health care workers and preventing the spread of outbreaks within hospitals. Keeping health workers safe requires protective equipment, much of it made in China and already in short supply. Panicked buying of masks by regular consumers is exacerbating the problem. On Saturday the U.S. Surgeon General tweeted, "Seriously people — STOP BUYING MASKS!":

U.S. Surgeon General ✓@Surgeon_General Seriously people- STOP BUYING MASKS! They are NOT effective in preventing general public from catching #Coronavirus, but if healthcare providers can't get them to care for sick patients, it puts them and our communities at risk! h



Coronavirus Disease 2019 (COVID-19) [Coronavirus disease 2019 \(COVID-19\) is a virus \(more specifically, a coronavirus\) identified as the cause of an outbreak of respiratory illness first detected in Wuhan, China.](#) [cdc.gov](#)

Scott Sproat, director of emergency preparedness and response at the Oklahoma State Department of Health, said medical facilities in his state were facing delays in receiving respirator masks that have a higher ability to filter viruses than regular surgical masks. The secretary of health and human services, Alex M. Azar III, told reporters on Friday that 300 million of such [masks, known as N95s](#), are needed for the emergency medical stockpile for health care workers and that the government [was considering invoking a Korean War-era law to accelerate production](#) domestically.

Domestic mask manufacturers, which account for a tiny proportion of the U.S. market, have warned for years about potential disruptions in the supply of foreign produced masks during a global infectious outbreak. Some hospital workers have already reported difficulty obtaining masks. A nurse in charge of emergency preparedness in a rural part of Oklahoma, who was not authorized to speak on behalf of her hospital, said she had tried to order N95 masks this past week but none were available.

Other workers reported significant price hikes. And some hospitals in the New York City area have been “drawing down on the state stockpile,” said Jenna Mandel-Ricci, vice president for emergency preparedness for the Greater New York Hospital Association. Many hospitals are trying to conserve supplies. Some have removed the masks from most locations in the hospital and instead are requiring staff members to request them and explain their need. “We do have stockpiles that we’re just beginning to dig into,” said Dr. Paul Holtom, an epidemiologist at Los Angeles County-U.S.C. Medical Centre. “If this goes on for many months, all of us will be more challenged.”



A Costco store in Honolulu, Hawaii, was swarmed after the state’s health department advised residents to stock up on supplies in case of quarantine. Credit...Duane Tanouye, via Reuters

Skilled nursing homes represent one of the greatest vulnerabilities in the health care system. They serve older adults and the infirm — the demographic most at risk from the coronavirus — and such facilities face particular challenges in stopping the spread of infection. Multiple studies have shown that germs spread easily in such places, partly because employees are overworked or poorly trained, and because the patients are so susceptible to infection.

On Saturday, the C.D.C. reported the first cases in the U.S. from a skilled nursing facility: both a patient and a worker at Life Care in Kirkland, Wash. Officials said that other residents and employees had symptoms. “We are very concerned about an outbreak in a setting where there are many older people,” said Dr. Jeffrey Duchin, the health officer for public health in Seattle and King County. Dr. Kevin Kavanagh, who has studied infection control practices in health care settings, said such facilities might eventually have to limit visitors, or even keep residents under quarantine as a preventive measure. “Nursing homes will be extremely vulnerable to this epidemic, and it will be difficult to implement hygiene practices to prevent the spread,” he said.

Schools, businesses and everyday life. On Friday, an employee of an elementary school near Portland, Ore., tested positive for the coronavirus and the school, Forest Hills Elementary School in Lake Oswego, was shut down. In Washington State, where a high school student received a diagnosis of coronavirus the same day, officials suggested that people needed to prepare for the possibility of schools closing and businesses keeping workers home. In Santa Clara County, Calif., where another new case was announced, Dr. Sara Cody, the county health officer, said, “Schools should plan for absenteeism, and explore options for learning at home and enhanced cleaning of surfaces.”

The spread of the coronavirus has rattled companies across Asia and Europe, forcing them to stop production, cut hours and instruct employees to work from home. Dan Levin, who runs a plant outside Chicago that makes furniture and wall panelling, is starting to make similar plans. “There’s no playbook for this,” he said. “I’m kind of navigating this alone.” Mr. Levin employs roughly 100 people at his plant in Rochelle, Ill. About half of them are engineers or estimators, while the rest work on the factory floor. In the event of a coronavirus outbreak, the estimators would be able to do most of their work at home, he said. But engineering tasks are much harder to complete from a kitchen or living room. Mr. Levin said he would need to outsource that work to companies in other parts of the country.



Teebeh M. Tah, a health science instructor at the City of Medicine Academy in Durham, N.C., demonstrated the correct way to put on protective equipment. Credit... Carlos Bernate for The New York Times

Still, he said, no amount of planning would do much to mitigate an outbreak that prevents the majority of his manufacturing staff from coming to work. A group of 15 employees cannot suddenly do the work of 50. Most major companies in the United States have said little about how they would respond to an outbreak, except to note their concern for the health and well-being of employees.

A spokeswoman for Amazon said the company was “watching this situation closely” but declined to comment on specific protocols. Representatives for several major banks, retailers and technology companies said they would look to the C.D.C. for guidance. Other large companies have already put new precautions in place. Facebook is asking employees who host guests at its corporate offices to make sure the visitors have not recently travelled to mainland China. And at an all-hands meeting on Thursday, executives at the commercial real estate firm Square Foot in New York told employees to take their laptops home on Friday in case they have to work remotely this next week.

It's unclear whether workers, especially in retail and manufacturing jobs, would continue to be paid if the coronavirus crisis forced stores and factories to close for an extended period. For some small-business owners, the coronavirus still feels like a distant threat. “We're not trying to overreact,” said Michael Stanek, who runs a company near Cleveland that manufactures toner for printers. “We could probably continue to operate with up to maybe 50 percent of employees sick.” Still, Mr. Stanek said he was considering ramping up production in the coming days so that the company has enough inventory to keep supplying its customers even if its plant shuts down. And when he gave out pay checks on Thursday, he reminded employees to wash their hands.

Reporting was contributed by Miriam Jordan in Los Angeles; Donald G. McNeil Jr. and David Yaffe-Bellany in New York; Mike Baker in Blaine, Wash.; and Matt Richtel in San Francisco. Andrew Jacobs is a reporter with the Health and Science Desk, based in New York. He previously reported from Beijing and Brazil and had stints as a Metro reporter, Styles writer and National correspondent, covering the American South. [@AndrewJacobsNYT](#) Sheri Fink is a correspondent in the investigative unit. She won the 2010 Pulitzer Prize for Investigative Reporting and shared the 2015 Pulitzer Prize for International Reporting. She received her M.D. and Ph.D. from Stanford University.

<https://www.nytimes.com/2020/02/29/health/coronavirus-preparation-united-states.html>