



Coronavirus 2019 and Pandemic Planning

Abstract

This white paper identifies key and emerging areas of risk associated with the potential spread of viruses and infections, including the potential risk of and response to a pandemic, and provides practical strategies for enhancing patient safety and reducing risks.

Submitted by



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Introduction

Much is unknown about Coronavirus 2019 (COVID-19). Current knowledge is based largely on what is known about similar coronaviruses. Coronaviruses are a large family of viruses that are common in humans and in many different species of animals, including camels, cattle, cats, and bats. Rarely, animal coronaviruses can infect people and then spread between people, as in the cases of [SARS-CoV](#), [MERS-CoV](#), and likely now COVID-19.

Early reports suggest that person-to-person spread most likely happens during close exposure to a person infected with COVID-19. Person-to-person spread of COVID-19 may be similar to the spread of other coronaviruses, mainly via respiratory droplets produced when an infected person coughs. These droplets can land in the mouths, noses, or eyes of people who are nearby, or they could possibly be inhaled into the lungs. Currently, the extent to which touching a surface or object contaminated by the virus, and then touching one's own mouth, nose, or possibly eyes, contributes to transmission is unclear.¹

Every facility should have a pandemic plan. It is best practice to prepare for what the CDC is calling a high probability of a COVID-19 outbreak. Train staff to understand isolation risks and to be prepared in the event the facility is designated on quarantine, requiring staff to remain with infected individuals until the danger passes. Quarantine designations generally are issued by the local, state, or federal government. Seldom does a facility self-quarantine, and it is advisable only after thoroughly considering and exploring feasible options.

One of the most effect methods to avoid quarantine of the entire facility is to control the risk of infections. Through use of clinically competent interventions, prevention is possible.

As of February 27, 2020, Italy has announced that all schools will close for one month to reduce the risk of the spread of COVID-19.

Airlines have eliminated or greatly controlled flights into countries identified as COVID-19 "hotspots."

Schools in the United States plan to disinfect their facilities during spring break to reduce the risk of infections following the return of students at the end of the break.

However, the CDC has stated that the risk of touching surfaces as a contamination point for acquiring COVID-19 virus is unclear.

Because COVID-19 is a newly identified virus, there are no vaccines to reduce the risk of contracting the virus. At this point, the only method for reducing the risk of acquiring the illness is avoiding exposure to an infected person.

Some individuals have been identified as asymptomatic COVID-19-infected individuals. In cases where symptoms are absent and the individual has tested positive for the virus, he or she

may be contagious. In cases such as this, individuals who are asymptomatic may be spreading the virus without having been identified as contagious.

Currently, the only method for identifying COVID-19 infection is to conduct tests using throat swabs.

Although COVID-19 is currently in the news, and no vaccine has yet been developed, the flu season has flourished in the United States and across the globe. The CDC estimates that 16,000 people died from influenza in 2019. It is impossible to project how many deaths will be attributed to COVID-19.

Purpose

The purpose of this white paper is to illustrate the findings of the CDC and other public health organizations and professionals regarding the identification and control of the potential pandemic of COVID-19. As with all infections and viruses, stopping the spread requires diligence on the part of every care provider, visitor, staff member, and environmental care team. This white paper focuses on facts and approaches for responding to COVID-19 and other viruses such as the common cold and flu as guided by professionals at the CDC and Chinese Health Ministries.

Death Rates for COVID-19 at 2.3%

COVID-19 was first detected in Wuhan City, Hubei Province, China, and as of the end of February 2020, it has spread to 37 international locations, including the United States.

On January 30, 2020, the International Health Regulations Emergency Committee of the World Health Organization declared the outbreak to be a “public health emergency of international concern.” On January 31, 2020, Health and Human Services Secretary Alex M. Azar II declared a public health emergency for the United States to aid the nation’s health-care community in responding to COVID-19.²

Researchers from the Chinese Center for Disease Control and Prevention describe the clinical findings on more than 72,000 COVID-19 cases reported in mainland China, which suggest a case-fatality rate (CFR) of 2.3% and indicate that most cases are mild but that the disease hits the elderly the hardest. The study, published in *JAMA*, is the largest patient-based study on the novel coronavirus, which was first connected to seafood market in Wuhan, China, in December and has since traversed the globe.

A total of 72,314 COVID-19 cases diagnosed through Feb 11 were used for the study. Of the 72,314 cases, 44,672 were classified as confirmed cases of COVID-19 (62%; diagnosis based on positive throat swab samples), 16,186 as suspected cases (diagnosis based on symptoms and

exposures only), 10,567 as clinically diagnosed cases (from Hubei province only; diagnosis based on symptoms, including lung x-ray), and **889 as asymptomatic cases (diagnosis by positive test result but lacking typical symptoms)**.

Eighty-seven percent of patients were aged 30 to 79 years (38,680 cases). This age group was the most affected by a wide margin, followed by ages 20 to 29 (3,619 cases, or 8%), those 80 and older (1,408 cases, or 3%), and 1% each in ages less than 10 and 10 to 19 years.

Of the confirmed cases, 1,023 patients—all in critical condition—died from the virus, which results in a CFR of 2.3%. The CFR jumped considerably among older patients, to 14.8% in patients 80 and older, and to 8.0% in patients ages 70 to 79. Among the critically ill, the CFR was 49.0%.

A smaller study based on 52 critically ill patients at a Wuhan hospital confirms this finding. Thirty-two of the 52 critically ill patients (61.5%) died, and older age and acute respiratory distress syndrome were correlated with mortality.

The authors of the smaller study also found that 30 (81%) of 37 patients requiring mechanical ventilation had died by the 28th day.³

On February 27, 2020, the first “community spread” outbreak was identified in Northern California. This person identified with the virus has no connection to travel outside the United States and no known contact with individuals who had traveled to countries with COVID-19 outbreaks. This is the first case of COVID-19 reported to have been contracted in the United States, and the patient has been quarantined.

Source and Spread of the Virus

Several viruses have migrated from animals to humans, such as H1N1, which migrated from pigs to humans. SARS is believed to have originated in horseshoe bats.⁴

The COVID-19 outbreak in Wuhan, China, has identifiable links to seafood and a live animal market. The migration of the virus from animal to human has occurred, and now human-to-human transmission indicates that the virus has fully shifted from a virus found only in animals to one that can spread from person to person.

Illness Severity

As with any virus, the severity of the illness varies by age, frailty, and comorbidity. Some individuals with compromised immune systems are responding to this virus as expected with more severe symptoms and even death.

To date, 1,023 deaths related to COVID-19 have been confirmed. By contrast, the case-fatality rate for seasonal flu is 0.1%.

A total of 81% of cases in the *JAMA* study were classified as mild, meaning that they either did not result in pneumonia or resulted in only mild pneumonia. Fourteen percent of cases were severe (marked by difficulty breathing), and 5% were critical (respiratory failure, septic shock, and/or multiple organ dysfunction or failure).

In comparison with the SARS (severe acute respiratory syndrome) and MERS (Middle East respiratory syndrome) coronaviruses, which were both identified in the past 20 years, COVID-19 is likely **more highly transmissible but not as deadly**, the researchers noted. (SARS had a CFR of 9.6%; MERS had a CFR of 34.4%.) And unlike SARS and MERS, hospital-based outbreaks do not seem to be a hallmark of COVID-19 at this time.⁵

COVID-19 Risk Assessment by the CDC

The CDC has established the following exposure risk categories to help guide optimal public health management of people following potential exposure to COVID-19. These risk levels apply to travel-associated and community settings. All exposures apply to the 14 days before assessment, and recommendations apply until 14 days after the exposure event.

HIGH RISK: Living in the same household as, being an intimate partner of, or providing care in a non-health-care setting (such as in a home) for a person with symptomatic laboratory-confirmed COVID-19 infection ***without using recommended precautions*** for home care and home isolation.

The same risk assessment applies for the above-listed exposures to a person diagnosed clinically with COVID-19 infection outside of the United States who did not have laboratory testing.

Travel from Hubei Province, China.

Travel from any country with confirmed COVID-19 outbreaks.

MEDIUM RISK: Close contact with a person with symptomatic laboratory-confirmed COVID-19 infection and not having any exposures that meet a high-risk definition.

The same risk assessment applies for close contact with a person diagnosed clinically with COVID-19 infection outside of the United States who did not have laboratory testing.

On an aircraft, being seated within six feet of a traveler with symptomatic laboratory-confirmed COVID-19 infection (this distance is approximately equivalent to two seats in each direction).

Living in the same household as and as intimate partner of or caring for a person in a non-health-care setting to a person with symptomatic laboratory-confirmed COVID-19 infection ***while consistently using recommended precautions***.

Travel from mainland China outside Hubei Province AND not having any exposures that meet a high-risk definition.

LOW RISK: Being in the same indoor environment (e.g., a classroom, a hospital waiting room) as a person with symptomatic laboratory-confirmed COVID-19 for a prolonged period of time but not meeting the definition of close contact.

On an aircraft, being seated within two rows of a traveler with symptomatic laboratory-confirmed COVID-19 but not within six feet AND not having any exposures that meet medium- or high-risk conditions.

NO IDENTIFIABLE RISK: Interactions with a person with symptomatic laboratory-confirmed COVID-19 infection that do not meet any of the high-, medium- or low-risk conditions above, such as walking by the person or being briefly in the same room.⁶

Recommendations for Exposure Risk Management

State and local authorities have primary jurisdiction for isolation and other public health orders within their respective jurisdictions. Federal public health authority extends primarily to international arrivals at ports of entry and to preventing interstate communicable disease threats. Public health measures may differ by jurisdiction.

People with low-risk exposures are not restricted from public places such as workplaces as long as they show no symptoms. If individuals experience flu-like symptoms, they should contact their health professionals for testing to confirm the presence or absence of COVID-19.

Not all respiratory symptoms are COVID-19. The United States is in the midst of seasonal flu activity, and allergy symptoms may be confused with flu symptoms. Regardless of the exact diagnosis, individuals with flu-like symptoms should consult with their physicians and self-observe until 14 days following their last potential exposure. Individuals with flu-like symptoms should monitor their conditions with daily temperature checks and symptom analysis to confirm risk of exposure to others.

Individuals with medium-risk exposures are recommended to avoid group gatherings, limit public activities, and practice safe social infection control actions.

Risk Management Approaches for Health-Care Providers

While body fluids other than respiratory secretions have not been clearly identified as a risk for transmission of COVID-19, best practice demands avoiding unprotected contact with body fluids, including stool, urine, blood, vomit, and sweat. Use of universal precautions must continue regardless of the diagnosis or condition of the infected person. During the AIDS

outbreak, it was determined that infection control practices, when properly administered, reduce the risk of contagion.

When health-care experts determine risks associated with influenza or COVID-19, several factors are important:

- **Duration of exposure:** Longer exposure times increase the risk of spreading the virus; limiting exposure to brief “as needed only” contact with infected individual reduces the risk of spreading the infection or virus.
- **Clinical symptoms:** If individuals are coughing, determining whether the coughing is a viral, bacterial, or allergic reaction is essential for determining the risk of exposure. Testing the individual for active viral or bacterial infection is the only way to confirm the presence of contagion.
- **Whether the individual with symptoms is wearing a face mask:** Individuals who have flu-like symptoms and wear face masks reduce the risk of the spread of the respiratory condition. Face masks not only protect the caregiver from exposure while providing care, but they also reduce the spread of infection to others when the infected patient wears a face mask.
- **Risks associated with providing care when respiratory secretions are likely.** Caregivers who are in the room during procedures that generate exposure through respiratory secretions are at a higher risk and must take precautions with personal protective equipment (PPE) during all encounters with patients.

CDC Risk Exposure Category Guide and Monitoring Work Restrictions⁷

Epidemiologic Risk Factors	Exposure Category	Recommended Monitoring for COVID-19 until 14 Days after Potential Exposure	Work Restrictions for Asymptomatic Health-Care Personnel
Health-care provider (with unprotected eyes, nose, or mouth) who performed <u>or</u> was present in the room for a procedure likely to generate higher concentrations of respiratory secretions or aerosols (e.g., cardiopulmonary resuscitation, intubation, extubation, bronchoscopy, nebulizer therapy, sputum induction).	High	Active	Exclude from work for 14 days after last exposure
Health-care provider who performed or was present in the room for a procedure likely to generate higher concentrations of respiratory secretions or aerosols (e.g., cardiopulmonary resuscitation, intubation, extubation, bronchoscopy, nebulizer therapy, sputum induction) and was not using a gown and gloves. Note: If the HCP's eyes, nose, <u>or</u> mouth were also unprotected, they would fall into the high-risk category above.	Medium	Active	Exclude from work for 14 days after last exposure
Health-care provider (with unprotected eyes, nose, <u>or</u> mouth) ² who had prolonged close contact with a patient <i>who was not wearing a face mask</i> . Note: A respirator confers a higher level of protection than a face mask. However, they are grouped together in this scenario because (even if a respirator or face mask was worn) the eyes remained uncovered while the provider had prolonged close contact with a patient <i>who was not wearing a face mask</i> .	Medium	Active	Exclude from work for 14 days after last exposure
Health-care provider (with unprotected eyes, nose, and mouth) who had prolonged close contact with a patient <i>who was wearing a face mask</i> .	Medium	Active	Exclude from work for 14 days after last exposure
Health-care provider (not wearing gloves) who had direct contact with the secretions/excretions of a patient and the HCP failed to perform immediate hand hygiene. Note: If the HCP performed hand hygiene immediately after contact, this would be considered low risk.	Medium	Active	Exclude from work for 14 days after last exposure
Health-care provider wearing a face mask or respirator only who had prolonged close contact with a patient <i>who was wearing a face mask</i> .	Low	Self with delegated supervision	None

Epidemiologic Risk Factors	Exposure Category	Recommended Monitoring for COVID-19 until 14 Days after Potential Exposure	Work Restrictions for Asymptomatic Health-Care Personnel
Note: A respirator confers a higher level of protection than a face mask. However, they are grouped together in this scenario and classified as <i>low risk</i> because the patient was wearing a face mask for source control.			
Health-care provider using all recommended PPE (i.e., a respirator, eye protection, gloves, and a gown) while caring for or having contact with the secretions/excretions of a patient.	Low	Self with delegated supervision	None
Health-care provider (not using all recommended PPE) who had brief interactions with a patient regardless of whether patient was wearing a face mask (e.g., brief conversation at a triage desk; briefly entering a patient room but not having direct contact with the patient or their secretions/excretions; entering the patient room immediately after they have been discharged).	Low	Self with delegated supervision	None
Health-care provider who walks by a patient or who has no direct contact with the patient or their secretions/excretions and no entry into the patient room.	No identifiable risk	None	None

Controlling Risk of Exposure by Visitors and Outside Contractors

- Post warning signs that visitors who have flu-like symptoms must avoid entering the facility (e.g., “NOTICE: If you have a fever or flu-like symptoms, do not enter the facility for 14 days after all symptoms have ended”).
- Provide hand sanitizer at the facility entrance with a sign directing visitors to use hand sanitizer before entering the facility.
- Restrict contact with pets and other animals while symptoms are present. Although there have not been reports of pets or other animals becoming sick with COVID-19, it is still recommended that people sick with COVID-19 limit contact with animals until more information is known about the virus.
- Provide precaution instruction handouts at the entrance to the facility (sample provided in the appendix).

Increased Infection Control

Increase infection control surveillance with all care providers, whether caring for an infected patient or reducing the risk of the spread of influenza by increasing infection control focus during every shift:

- Increase handwashing among residents: assist the residents in washing their hands with soap and water following toileting and before meals.
- Provide antibacterial washcloths before each meal.
- Provide hand sanitizer to residents before passing out snacks.
- Encourage residents to refrain from using handrails to navigate hallways when possible.
- Clean handrails constantly. Designate one housekeeper to ensure that handrails are cleaned throughout the day.
- Seat residents as far apart as reasonable.
- Reduce and manage gatherings such as musical entertainers and movies to reduce the risk of spreading infections communally.
- Confine residents to their rooms when respiratory symptoms are present and identified as contagious. While they are isolated, supply walkie-talkies so confined residents may participate in activities such as bingo.
- Request that visitors use the facility's hand sanitizers stationed throughout the facility.
- Request that physicians wash hands between patient visits.
- Refrain from sharing pens, whose surfaces harbor germs and viruses.
- Avoid touching your face, eyes, nose and mouth.
- Provide aprons for staff who serve meals; clothing protection during mealtime may reduce the risk of exposure after staff have assisted residents in bathing and toileting.
- Take temperature of every resident on a daily basis to monitor risk of viruses and infections.
- Wash hands when visible debris is present.
- **Track, trend, and ACT** when respiratory symptoms are present, whether with residents or with staff.
- If staff have traveled to high-risk countries, require self-quarantine for 14 days following their return.
- It is better to send an ailing staff member home than to risk spread of respiratory infections in the facility. "Powering through" an illness may result in the death of an immune-compromised resident.

Conclusion

Whether the infectious disease is COVID-19, seasonal flu, or bacterial infection, the practice of infection control is important. Most caregivers understand the importance of infection control but fall into a false sense of security when caring for familiar patients during a daily routine. It is not possible **to stop all infections**; nevertheless, it is possible to reduce the risk, implement

sound infection control standards, and prove that the facility is capable of and consciously following optimal infection control practices.

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Help Us Help Our Patients by Following These Infection Control Rules:

- If you have a fever, postpone your visit for 14 days from the last day you had a temperature. When in doubt, postpone your visit.
- Use the hand sanitizer at the entrance to the facility; it is provided for visitors' use.
- Using hand sanitizer requires at least one pump and vigorously rubbing hands together until it is fully absorbed.
- Feel free to use hand sanitizers located throughout the facility.
- Wash your hands for 20 seconds, rubbing vigorously, and rinse well under running water.
- After washing your hands, open the restroom door with a paper towel to reduce the risk of reinfecting your hands.
- Refrain from touching items in the care areas; our staff sanitizes surfaces frequently. Our residents use the handrails, usually after cleaning, and viruses can linger on surfaces for many hours and can be transmitted to others who touch surfaces. Despite our constant cleaning methods, this is not an infection-free zone.
- If you cough or sneeze, cover your cough with your hand, a handkerchief, or the crook of your elbow.
- Wash your hands after sneezing, coughing, blowing your nose, or touching your mouth.
- Use the hand sanitizer when you leave the facility to avoid transmitting viruses to yourself or your own family.
- Avoid touching your eyes, mouth, or nose with unwashed hands. **Tip:** Do not lick your finger to turn paper pages, open a plastic bag, or any other function for which doing so is a quick way to handle a sticky task.
- Wash your hands regularly, especially after using the restroom or eating. Continual handwashing is the best defense against contracting illnesses.
- Wash your hands after returning from shopping trips; every surface in stores harbors potential contagions.
- If you exercise at a public gym, shower following the workout; most equipment harbors germs, viruses, and bacteria.
- Wash your hands after handling items that could be contaminated such as trash cans, cleaning cloths, drains, or soil.

Facility-Level Tips for Pandemic Preparation

Most facilities have a pandemic plan sitting on the shelf and, thankfully, gathering dust, given that this is the first pandemic threat in recent history. It is time to update the plan and educate staff members regarding their possible roles in managing the risks associated with unprecedented spread of COVID-19.

Nonpharmaceutical interventions such as increased handwashing, increased hand sanitizer use, and increased environmental services with use of antimicrobial cleaning supplies must be revisited in the plan and updated to address new chemicals designed specifically to address viruses on surfaces.

Update training beyond the annual infection control training. Create oversight approaches with on-the-spot surveillance. Some may think that “Big Brother is watching,” but it is all about saving lives. Updated CDC pandemic materials are available at <https://stacks.cdc.gov/view/cdc/44313>.

Keep informed on a weekly basis by obtaining the Morbidity and Mortality Weekly Report at <https://www.cdc.gov/mmwr/index.html>.

Consider these tips to enhance pandemic planning:

- Make personal protective equipment readily accessible and restock before each shift.
- Train staff on respiratory etiquette (cough into elbows, refrain from handshakes, and wash hands after coughing and blowing your nose).
- Make face masks readily available.
- Train staff on properly donning, removing, and disposing of personal protective equipment.
- Promote social distancing. Refrain from organizing large meetings, use teleconferencing software such as FaceTime for meetings, computerize training, and postpone social celebrations such as awards ceremonies and birthday celebrations.
- Refrain from holding potlucks. Bringing food from homes that may harbor viruses is an added risk that can be avoided while dealing with a threat of a pandemic.
- Supply staff with antibacterial hand lotion. Increased handwashing will cause skin to dry and crack. Providing lotion may reduce the risk of skin injuries among staff and encourage robust handwashing.
- Create and oversee “stay at home when you are sick” campaigns. Require staff to self-isolate for at least 24 hours after the fever has ended.
- Create circumstances in which staff can work from home. Allow staff to log on to electronic health records to access resident information.
- Provide paid time off for staff to care for family members who are sick, and plan for the staff members to track their own temperatures and symptoms.
- Frequently disinfect telephones and shared computer keyboards.

- Cancel nonessential business travel. Placing a moratorium on conferences and meetings may not only save money but also further efforts to manage infection risks.
- Know the city's pandemic plan. Contact the local health department for information and request city-specific plans that can be implemented at the facility level.
- Meet with the local emergency preparedness committee to determine which agencies and businesses can accommodate the facility in the event that the facility must implement quarantine status.
- Use free and readily available literature to keep current information in front of staff at all times. Issue new information on a weekly basis to ensure separation of facts from panic.
- Address misinformation floating around social media and provide fact-based information from a reputable source such as the CDC.
- Plan for staffing for absences. Staff will stay home not only when they are sick but also when family members are ill. All staff are expected to share the workload when staff members are out because of illness. Plan ahead; plan for "out for illness" systems to address staff absences before the absence occurs so all staff members know their roles when someone is absent.
- Be familiar with schools' pandemic plans; some school districts may close, leaving employees without childcare for an extended period.
- If any members of your staff are identified as speaking English as a second language, be prepared to offer information in a language they can understand.
- Partner with sister facilities to create one place in which to care for identified COVID-19 patients and move healthy residents to the sister facility.

¹ "COVID-19 Situation Summary," Centers for Disease Control and Prevention, last updated February 27, 2020, <https://www.cdc.gov/coronavirus/2019-nCoV/summary.html>.

² CDC, "COVID-19 Situation Summary."

³ Stephanie Soucheray, "Study of 72,000 Covid-19 patients finds 2.3% death rate," Center for Infectious Disease Research and Policy (University of Minnesota), February 24, 2020, <http://www.cidrap.umn.edu/news-perspective/2020/02/study-72000-covid-19-patients-finds-23-death-rate>.

⁴ Robert Kessler, "SARS: The First Pandemic of the 21st Century," *EcoHealth Alliance*, March 2018, <https://www.ecohealthalliance.org/2018/03/sars>.

⁵ Soucheray, "Study of 72,000 Covid-19 patients finds 2.3% death rate."

⁶ CDC, "COVID-19 Situation Summary."

⁷ "Healthcare Personnel with Potential Exposure to COVID-19," Centers for Disease Control and Prevention, last reviewed February 25, 2020, <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assessment-hcp.html>.