

A detailed 3D rendering of coronavirus particles, showing their characteristic spherical shape and numerous spike-like projections. The particles are set against a background of a human arm and hand, with a dense cloud of smaller particles appearing to emanate from the hand, suggesting transmission. The overall color palette is a cool, light blue.

# 2019 NOVEL CORONAVIRUS PANDEMIC

What Healthcare  
Professionals Need to Know

(April 2020)

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## 2019 NOVEL CORONAVIRUS TIMELINE

**DEC 31, 2019**

Pneumonia of unknown etiology emerges in Wuhan City, Hubei Province, China.

**JAN 3, 2020**

Chinese authorities alert WHO that a group of 44 patients are sick with pneumonia.

**JAN 7, 2020**

The Chinese authorities isolate a new coronavirus.

**JAN 20, 2020**

282 cases are confirmed in China.

**JAN 22, 2020**

First confirmed case in the U.S. in a patient who traveled from China.

**APRIL 13, 2020**

U.S. confirmed cases:

**554,849**

U.S. deaths:

**21,942**

GLOBAL:

**1,773,084** cases

**111,652** deaths

*This is an ever-evolving disaster due to new findings and data and availability of resources, so refer to the CDC website for detailed information when you need it.*

## BACKGROUND INFORMATION

From December 31, 2019 through January 3, 2020, a total of 44 case-patients with pneumonia of unknown etiology were reported to the World Health Organization (WHO) by national authorities in China. The Chinese quickly isolated a new coronavirus on January 7, 2020, and by January 20th, there were 282 confirmed infected cases. The new virus named SARS CoV-2, was first detected in Wuhan City, Hubei Province, China, and continues to spread throughout the mainland there. Just a little over a month later, this novel coronavirus, infected over 42,000 people in China, causing 1,017 deaths there, and has spread globally causing a pandemic.

The first U.S. case was reported on January 22 and subsequently confirmed by the Centers for Disease Control and Prevention (CDC). The illness onset was marked as early as January 14th. By February 10, 2020, there were 13 confirmed cases identified in Washington, California, Arizona, Illinois, and Massachusetts. Currently, all states in the U.S., the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands are affected.

The virus itself, called SARS CoV-2 is a new coronavirus in that it has not been previously recognized in humans. Early cases were thought to have crossed over from an animal, such as a camel, cow, cat, or bat, because many of those that were first infected were exposed to a large seafood and live animal market in Wuhan. The animal source has not yet been identified. COVID-19 is a betacoronavirus like Middle East Respiratory Syndrome (MERS-CoV) and Severe Acute Respiratory Syndrome (SARS-CoV), both of which have their origin in bats. We now know that human to human transmission is occurring.

The official name for the disease caused by SARS CoV-2 is COVID-19. 'CO' stands for 'corona', 'VI' for 'virus,' and 'D' for 'disease'. COVID-19 causes respiratory illness with symptoms of fever, cough, and shortness of breath with symptoms ranging from mild, as with the common cold, to deadly. Risk is higher in those individuals over 60 years of age and those with compromised immune systems. The most common laboratory findings among hospitalized patients with pneumonia on admission included leukopenia, leukocytosis, lymphopenia, elevated alanine aminotransferase and aspartate aminotransferase levels. Most patients show bilateral involvement on chest CT. Typically there are multiple areas of consolidation and ground glass opacities.

Currently there is no effective vaccine or antiviral agent for this infection, and treatment is supportive to manage symptoms. *Clinical management guidelines include information in the following links:*

- [Surviving Sepsis guidelines for septic shock](#)
- [WHO interim guidance on clinical management of severe acute respiratory infection when novel coronavirus \(nCoV\) infection is suspected](#)
- [Diagnosis and Treatment of Adults with Community-acquired Pneumonia. An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America](#)

Corticosteroids should be avoided unless there is an indication to manage conditions such as chronic obstructive pulmonary disease or septic shock, because there is potential for prolonging viral replication as has been observed in MERS-CoV patients.

## IDENTIFY, ISOLATE, AND INFORM

There are several situations which increase the **risk of exposure** to COVID-19. You are at an elevated risk if you are:

- A healthcare worker caring for patients with COVID-19
- Living, working or spending time in communities\* which are highly populated and have an intense and ongoing spread of SARS CoV-2 (e.g. New York city, Chicago, New Jersey)
- A close contact of someone who has COVID-19, such as family member
- A traveler who is returning from international location where there is community spread

*\*You can check the case count in your community by going to your state website and clicking on the county list or state county map.*



**At risk individuals** include those who are:

- 65 years of age and older
- Who live in a nursing home or long-term care facility
- Who have an underlying medical condition

**Healthcare providers must obtain a risk history for individuals being evaluated who have fever and acute respiratory illness.**

People with fever **and** symptoms of lower respiratory illness (cough or shortness of breath) should be isolated if, within the past 14 days, they have traveled to a high-risk area **or** have been in close contact with a confirmed infection. Isolation precautions include:

- Placing a facemask on the patient
- Placing them in a private room or separate area
- Wearing appropriate personal protective equipment (PPE)

At risk patients should be immediately reported to both infection control personnel and the local or state health department to determine the need to obtain specimens to collect for COVID-19. Testing is limited and health departments will provide the necessary guidance for healthcare providers. Depending on the severity of the illness, some patients may be advised to stay home and return for re-evaluation (wearing a mask) if symptoms worsen (Centers for Disease Control and Prevention, 2020). Recommendations for reporting, testing and specimen collection can be found on the [Evaluating and Testing Persons for Coronavirus Disease 2019 \(COVID-19\)](#) web page.

## TESTING PRIORITIES

### PRIORITY 1

all hospitalized patients and symptomatic healthcare workers

### PRIORITY 2

symptomatic high-risk individuals (as noted above) and symptomatic first responders

Clinicians are strongly encouraged to test for other causes of respiratory illness.

Additional information is available in CDC's [Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease 2019 \(COVID-19\)](#).

Furthermore, if a person has a fever **OR** signs and symptoms of lower respiratory symptoms **AND** they have had close contact with a laboratory confirmed case of COVID-19 within 14 days of symptom

onset, they are at risk for infection and transmission, and should be evaluated as a person under investigation (PUI). This includes healthcare workers (Centers for Disease Control and Prevention, 2020). Take note that "fever may not be present in some patients, such as those who are very young, elderly, immunosuppressed, or taking certain medications. Clinical judgement should be used to guide testing of patients in such situations" (Centers for Disease Control and Prevention, 2020).

The United States has declared COVID-19 as a public health emergency and has focused on preventing transmission of the virus. Most states have stay-at-home orders to mitigate this risk in communities. Other measures include:

- Foreign nationals who have been in affected countries cannot enter the U.S.
- United States citizens who have traveled to affected countries are subject to health monitoring and possible quarantine.
- Cruise ship travel should be deferred and the CDC has published [Travel Guidance](#) on their website.

## INFECTION CONTROL AND PREVENTION CONSIDERATIONS

Infection control and prevention means using evidenced-based practices to prevent and contain infections. They include administrative policies and procedures, environmental hygiene, work practices, and appropriate use of PPE. All healthcare workers, including those paid and unpaid, who work in a healthcare setting

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and who encounter patients during admission, assessment, care, housekeeping, specimen collection, and triage, for instance, must implement infection control precautions. **Identification and isolation are essential** in preventing unnecessary exposure among patients, healthcare workers, and visitors. Detailed recommendations can be found on the CDC website, [Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 \(COVID-19\) in Healthcare Settings](#).

At this point in time, scientists continue to study disease severity, transmission efficiency, and shedding duration of COVID-19. Considering what we know about SARs, MERs, and other viruses such as influenza, transmission risk is more likely when symptoms are present because shedding is more common during that time with most viruses. What we do know now is that the virus spreads easily from person to person, in fact, more efficiently than influenza but not as efficiently as the measles. **Some people without symptoms may be able to spread the virus.** This is why the CDC has strongly advised social distancing. Most recently, those who go out in public should **wear a cloth mask** to protect others. The incubation period is estimated to be at about 5 days.

It is important to be mindful of the fact that when droplets of various sizes enter the air through coughing or sneezing, they can land in the mouths and noses of people nearby (within 6 feet) and can then be inhaled. They can also land on surfaces and it may be possible that a person can get COVID-19 from touching a contaminated surface, then touch their eyes, nose or mouth. Thus, hand hygiene is extremely important. This is also why recommendations for PPE include the use of N95 respirators, gloves, eye shields and gowns. Follow these important steps throughout the continuum of care for infection control and prevention:

- ✓ Persons who call a healthcare facility with symptoms of respiratory illness should be advised to wear a mask prior to arrival. If emergency medical services are transporting a patient with respiratory illness, they should take appropriate protective precautions and alert the receiving facility prior to arrival so they can prepare.
- ✓ Install barriers to limit contact with patients at triage.
- ✓ Upon arrival at any facility, make sure the patient complies with respiratory hygiene precautions including cough etiquette and hand hygiene.
- ✓ Patients with symptoms of suspected COVID-19 should not wait among other patients in the waiting area and should be placed in a well-ventilated space with the door closed. They should be provided with respiratory hygiene supplies. It is appropriate to ask them to wait in their vehicle during the waiting time if they can be contacted by phone when they are ready to be seen.
- ✓ Rapidly triage patients who are identified as being at risk for COVID-19 (symptoms of lower respiratory illness, traveled from a high risk area, or contact with an infected person).
  - Cover their nose and mouth with a mask if not already done.
  - Place them in an airborne infection isolation room (AIIR) if available. AIIRs should be reserved for patients with COVID-19 undergoing aerosol-generating procedures and for other patients with airborne disease (e.g. tuberculosis, measles, varicella).



- Inform infection control personnel and local and state public health authorities. Have numbers at hand to facilitate prompt communication.
- ✓ **Use Standard Precautions** assuming that every patient is potentially infected or colonized with a potentially transmissible pathogen.
  - Perform hand hygiene with alcohol-based hand scrub before and after all patient contact and before donning and doffing PPE.
  - Use soap and water for a 20-second wash if hands are visibly soiled.
- ✓ **Use Airborne Precautions**
  - Use respiratory protection (i.e., a respirator) that is at least as protective as a fit-tested NIOSH-certified disposable N95 filtering facepiece respirator before performing any aerosol-generating procedures. All healthcare personnel must be fit-tested to ensure a good fit (NIOSH).
- ✓ **Use Contact Precautions**
  - Use gloves and a clean isolation gown before entering the room. Discard disposable gowns and gloves after each use and launder cloth gowns.
  - Protect your eyes from accidental touching or droplets, by wearing a face shield. If goggles are used, they must be cleaned and disinfected after each use according to the manufacturer's instructions.
  - Cohort patients with COVID-19.
  - Limit the numbers of staff providing care to COVID-19 patients.
- ✓ If hospitalization is required, transfer to a facility with an AIIR. AIIRs should be prioritized for patients who require aerosol-generating procedures. Keep doors closed and minimize entry and exit. Personnel should always wear appropriate PPE, ensuring proper donning and taking care during PPE removal to avoid self or surface contamination. Once in the AIIR, the patient's face mask may be removed but they should wear a facemask if transport to another department or hospital is required.
  - Keep a log of all persons entering the AIIR.
  - Limit healthcare personnel to minimize transmission risk.

After a patient is discharged from an AIIR, ensure that any personnel entering the room don appropriate PPE because it is not yet known how long the COVID-19 remains infectious in the air.

- ✓ All visitors should be monitored, managed, restricted, and trained. Because of asymptomatic or pre-symptomatic transmission, source control must be implemented for everyone entering a healthcare facility, regardless of their symptoms. This includes healthcare personnel, patients, and visitors. Source control involves the following:
  - Visitors and patients should wear cloth masks. A facemask may be used if available.
  - Anyone entering the facility should be screened for fever and symptoms.
- ✓ Discontinuation of transmission-based precautions must be determined in collaboration with the local, state, and federal health authorities on a case-by-case basis.
- ✓ If discharged to home because it is both medically and socially appropriate to do so, follow the health department's recommendations for infection control in the home setting.

Patients should be instructed to maintain isolation at home if they still require transmission-based precautions. They can discontinue isolation if:

- It has been at least 3 days since they had a fever (without the use of fever-reducing medications, AND
- They have an improvement in respiratory symptoms, AND
- It has been 7 days since symptoms first appeared OR they have negative test results from at least 2 nasopharyngeal swabs taken at least 24 hours apart.

As with any emerging infection, make sure that you become familiar with the resources available on the CDC website. The CDC updates information there as they learn it so checking in daily and setting up an email notification for updates is strongly recommended. The references below will provide you with detailed information that you need should you suspect COVID-19 or have to manage confirmed cases.

This is an ever-evolving disaster due to new findings and data and availability of resources, so refer to the CDC website for detailed information when you need it.

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