

# 2019 Novel Coronavirus and COVID-19 Disease Outbreak

## Description

The World Health Organization (WHO) has declared COVID-19 a pandemic – the first pandemic caused by a coronavirus. The virus that caused the COVID-19 disease has been named SARS-CoV-2. The initial cases of this disease were associated with a specific seafood and animal market in Wuhan City, Hubei Province, China. However, widespread transmission has occurred, and as of when the [WHO declared the outbreak a pandemic on March 11, 2020](#), there were more than 118,000 cases in 114 countries.

## Virus

Illness is being caused by a newly identified coronavirus. The virus itself has been named SARS-CoV-2, and the disease it causes is called COVID-19. Coronaviruses are common and typically cause mild to moderate respiratory and cold type symptoms, though certain strains of coronaviruses have caused more severe illness. This newly identified virus is in the same family as the viruses that cause Severe Acute Respiratory Syndrome (SARS), which was first identified in Asia in 2003, and Middle East Respiratory Syndrome (MERS), which was identified in 2012 with cases still occurring today. A main animal reservoir for the virus that causes SARS is believed to be civet cats, while a main animal reservoir for the virus that causes MERS is believed to be dromedaries (e.g. camels). The reservoir for SARS-CoV-2 is not known at this time.

Early evidence indicates that the transmission rate of COVID-19 is higher than the transmission rates of SARS and MERS. People infected with COVID-19 appear to infect many more people than those infected with SARS or MERS. This could be due to several factors – including a lower mortality rate for COVID-19 than SARS and MERS and perhaps different transmission modes.

## Health Effects

The symptoms of the illness associated with this novel coronavirus are similar to those caused by influenza and other respiratory illnesses and include coughing, shortness of breath, fever, and difficulty breathing. Certain portions of the population are more likely to develop severe cases requiring hospitalization: the elderly and those with underlying conditions of the lungs, heart, or immune system. A portion of people infected with this novel coronavirus have died.

## Transmission

This novel coronavirus was originally transmitted to humans via an animal reservoir (source), believed to be an animal that the initial cases encountered at the seafood and animal market in Wuhan. Human-to-human transmission has also occurred, resulting in over 100,000 cases within months of the disease first being reported. Secondary cases (contracted from humans rather than a reservoir) have included both members of the public and also healthcare workers who have had contact with other infected people. Efforts to contain the disease within a specific region or country have been largely unsuccessful.

## Recommendations

### Members of the Public

WHO recommends that everyone wash their hands regularly, avoid touching their eyes, mouth and nose, cover their nose and mouth with a tissue or their elbow (not their hand) when sneezing and coughing, and avoid close contact with anyone who is coughing or sneezing or showing signs of respiratory illness. At this time WHO has not made any recommendations for personal protective equipment (PPE) use by the general public, including respirators.

[Coronavirus disease \(COVID-19\) advice for the public \(WHO\)](#)

### Healthcare Workers

The WHO has confirmed that aerosol transmission is a possible transmission pathway of SARS-CoV-2. WHO has published guidance intended for healthcare workers (HCWs), healthcare managers, and teams working in infection prevention and control. WHO recommends that eye protection (goggles or a face shield) be used during patient contact along with gloves, a medical mask, and a fluid-resistant gown. Airborne precautions, including an N95, FFP2, or equivalent respirator, should be used during aerosol-generating procedures.

[Infection prevention and control during health care when novel coronavirus \(nCoV\) infection is suspected \(WHO\)](#)

The U.S. Centers for Disease Control and Prevention (CDC) has recommended that healthcare workers entering the hospital or clinic room (in a healthcare facility) of a suspected novel coronavirus case use standard precautions, contact precautions, and airborne precautions. This includes non-sterile gloves, a disposable gown, respiratory protection that is at least as protective as a fit-tested NIOSH-approved disposable N95 filtering facepiece respirator, and eye protection (e.g., goggles, a disposable face shield that covers the front and sides of the face).

[Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 \(COVID-19\) in Healthcare Settings](#)

These organizations have also offered guidance for organizations facing a shortage of respirators during this pandemic:

- [Strategies for Optimizing the Supply of N95 Respirators \(U.S. CDC\)](#)
- [Rational use of personal protective equipment for coronavirus disease 2019 \(COVID-19\)\(WHO\)](#)

Those potentially in contact with suspected or confirmed cases of this novel coronavirus should review all recommendations by the WHO, CDC, and other health authorities.

## Summary

A novel coronavirus has caused a pandemic-scale disease outbreak with confirmed airborne human-to-human transmission. The situation is evolving, and it is recommended that all concerned consult the WHO and U.S. CDC's websites frequently for the most updated information regarding this situation.

## 3M Resources

### Documents

#### General Respiratory Protection Information

- [3M Technical Bulletin - Respiratory Protection for Airborne Exposures to Biohazards](#)
- [3M Technical Bulletin - Comparison of FFP2, KN95, and N95 Filtering Facepiece Respirator Classes](#)
- [3M Frequently Asked Questions - Respiratory Protection: General Public](#)
- [3M Frequently Asked Questions - Respiratory Protection: Workplace](#)
- [3M Frequently Asked Questions - Respiratory Protection: Healthcare](#)
- [3M Technical Bulletin - Using a 3M™ Versaflo™ PAPR Under a Protective Garment](#)

## **Respirator Selection and Use Considerations**

- [3M Technical Bulletin - Respirators and Surgical Masks: A Comparison](#)
- [3M Technical Bulletin - Surgical N95 vs. Standard N95 – Which to Consider?](#)
- [3M Technical Bulletin - Possible Alternatives to Surgical N95 Respirators: Healthcare](#)
- [3M Technical Bulletin - Filtering Facepiece Respirators - Tips for Use](#)

## **Respirator Shelf Life Conditions**

- [3M Technical Bulletin - Respirators Beyond Their Shelf Life - Considerations](#)
- [Frequently Asked Questions: 3M Health Care Particulate Respirator and Surgical Masks Storage Conditions and Shelf Life](#)
- [3M Filtering Facepiece Shelf Life Letter](#)

## **Cleaning and Disinfecting Respirators**

- [3M Technical Bulletin - Cleaning and Disinfecting 3M Reusable Elastomeric Half and Full Facepiece Respirators following Potential Exposure to Coronaviruses](#)
- [3M Technical Bulletin - Cleaning and Disinfecting 3M Powered Air Purifying Respirators following Potential Exposure to Coronaviruses](#)
- [3M Tech Talk- 3M Disinfectants and General Information on Coronavirus](#)
- [3M Technical Bulletin - Disinfection of Filtering Facepiece Respirators](#)

## **Other PPE**

- [3M Technical Bulletin - Eye Protection for Infection Control](#)
- [3M Technical Bulletin - Protective Coveralls for Potential Coronavirus Exposure](#)

## **Spanish Version**

- [3M Technical Bulletin - Novel Coronavirus Outbreak \(Nuevo Brote de Coronavirus\) - Spanish version](#)

## **Respirator Demonstration and Training Videos**

### **Filtering Facepiece Respirators**

- [Tips for using a 3M™ Vertical Flat-Fold Filtering Facepiece Respirator 9010](#)
- [Tips for using a 3M™ Flat-Fold Filtering Facepiece Respirator 9210+](#)
- [Tips for using a 3M™ Flat-Fold Filtering Facepiece Respirator 9105](#)
- [Tips for using a 3M™ Filtering Facepiece Respirator 8511](#)
- [Tips for using a 3M™ Filtering Facepiece Respirator 8210](#)
- [Tips for using a 3M™ Flat-Fold Filtering Facepiece Respirator 1870+](#)

- [Tips for using a 3M™ Filtering Facepiece Respirator 1860](#)

## Powered Air-Purifying Respirators (PAPRs)

- [3M™ Jupiter Powered Air Turbo Unit – Assembly and Operation Video](#)
- [3M™ Versaflo TR-300 Powered Air Turbo Unit – Assembly and Operation](#)
- [3M™ Versaflo™ TR-300+ Powered Air Turbo Unit – Cleaning and Disinfection](#)
- [3M™ Versaflo TR-600 Powered Air Turbo Unit – Assembling, Donning and Doffing](#)
- [3M™ Versaflo™ TR-600 Powered Air Turbo Unit – Cleaning and Disinfection](#)

## Reusable (Elastomeric) Respirators

- [Training Videos - 3M™ Ultimate FX Full Facepiece Reusable Respirator FF-400 Series Video Library](#)

## Fit Testing Resources

- [3M Quick Reference Guide to Qualitative Fit Testing \(OSHA\)](#)
- [3M Quick Reference Guide to Qualitative Fit Testing \(UK\)](#)
- [3M Fit Testing Video](#)
- [3M Fit Testing Video \(Healthcare\)](#)
- [3M Fit Testing FAQs](#)
- [3M Technical Bulletin Quantitative Fit Testing of Respirators](#)
- [3M Technical Bulletin - Fit Test Hygiene During COVID-19 Pandemic](#)

## Additional Resources

- WHO: <https://www.who.int/health-topics/coronavirus>
- CDC: <https://www.cdc.gov/coronavirus/index.html>
- OSHA: [https://www.osha.gov/SLTC/novel\\_coronavirus/](https://www.osha.gov/SLTC/novel_coronavirus/)
- ECDC: <https://www.ecdc.europa.eu/sites/default/files/documents/Risk-assessment-pneumonia-Wuhan-China-22-Jan-2020.pdf>
- Hospital Respiratory Protection Program Toolkit (OSHA, NIOSH, CDC): <https://www.osha.gov/Publications/OSHA3767.pdf>

## References

- CDC 2020: <https://www.cdc.gov/coronavirus/2019-nCoV/summary.html>
- <https://www.who.int/health-topics/coronavirus>
- <https://www.cdc.gov/coronavirus/index.html>