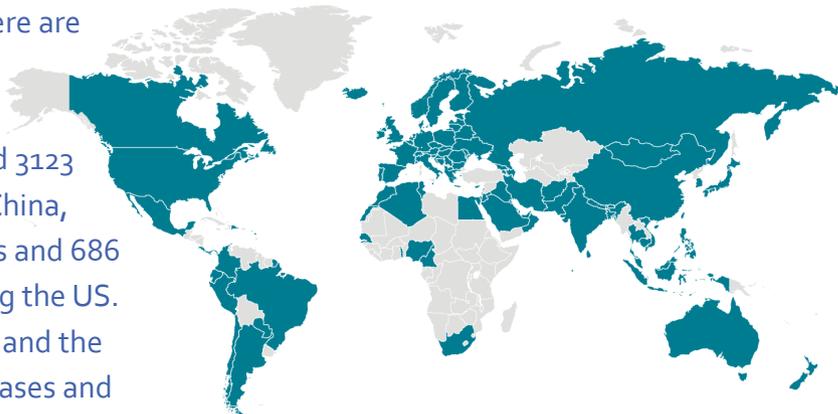


COVID-19 Disease due to SARS-CoV-2 (Novel Coronavirus)

As of March 9, 2020, globally there are 109,577 confirmed cases of COVID-19, and 3809 deaths. Of those cases, 80,904 cases and 3123 deaths are in China. Outside of China, there are 28,673 confirmed cases and 686 deaths in 104 countries, including the US. This situation is rapidly evolving and the reported number of confirmed cases and deaths continues to increase.



https://www.who.int/docs/default-source/coronaviruse/situation-reports/20200309-sitrep-49-covid-19.pdf?sfvrsn=70dabe61_4

COVID-19 is a new form of Coronavirus disease due to the novel virus SARS-CoV2 that causes acute infection with respiratory symptoms. The virus is most commonly spread via respiratory route which requires close person to person contact (within 6 feet). Transmission may also occur if a person touches a surface or object that has the virus on it and then touches their own mouth, nose, or possibly their eyes. On March 9, 2020, Michigan became the latest state to report case(s) of COVID-19. On March 11, the WHO also officially declared COVID-19 a pandemic (sustained and continuous transmission of the disease, simultaneously in more than three different geographical regions). Pandemic does not refer to the lethality of a virus but to its transmissibility and geographical extension.

Although initial screening efforts were limited to persons with symptoms and specific risk factors, including travel to countries such as South Korea, Japan, Italy, Iran and China, the CDC has liberalized testing criteria as testing kits have become more widely available and incidence of community spread increased. Specifically, clinicians should use their judgement to determine if a patient has signs and symptoms compatible with COVID-19 and whether the patient should be tested. Decisions on which patients receive testing should be based on the local epidemiology of COVID-19, as well as the clinical course of illness ([cdc.gov](https://www.cdc.gov)).

Clinical Presentation

Coronaviruses are a large family of zoonotic viruses that can be transmitted to humans via animal intermediaries.

Seven (beta) species, including the new species dubbed COVID-19 (aka SARS-CoV-2) are known to cause human infection. Four of them typically cause mild disease in immunocompetent individuals. The other 3 species can cause more severe disease: SARS-CoV which was implicated in 2002 and 2003 outbreaks in Guangdong, China and MERS-CoV (which emerged in 2012 in the Middle East) and the newest COVID-19 can cause severe illness and fatalities.

While many patients with confirmed COVID-19 infection develop fever and/or signs of respiratory illness such as cough and shortness of breath, most patients are either asymptomatic or only mildly ill. Asymptomatic patients are capable of spreading infection. Incubation period appears to range between two days to up to two weeks following exposure. Morbidity and mortality increase dramatically in patients >60 and/or with pre-existing medical co-morbidities such as heart disease, lung disease and diabetes. As yet, no vaccine or specific drugs exist to prevent or treat infection; however, clinical trials for putative vaccines and anti-viral therapy are underway.

Fast action is key to minimizing coronavirus impact both to slow the spread of the virus and also ensure that healthcare systems aren't overwhelmed. Respiratory health professionals, in particular, will be at the forefront of dealing with the outbreak, helping to contain and mitigate the spread, treating patients and preventing public panic.

Prevention of Infection, Exposure and Spread

- Handwashing with soap and water for at least 20 seconds is the most effective way to minimize exposure. If soap and water are not available, use an alcohol-based (minimum 60%) hand sanitizer.
- Avoid touching eyes, nose, and mouth with unwashed hands.
- Social distancing, avoid crowds and group events, stay 6 feet away from other people.
- Avoid close contact with people who are sick.
- Cover cough or sneeze with a tissue, then discard the tissue in a contained trash.
- Clean and disinfect frequently touched objects and surfaces. The virus can be effectively inactivated from surfaces with a solution of either ethanol (62-71% alcohol), hydrogen peroxide (0.5% hydrogen peroxide) or sodium hypochlorite (0.1% bleach) in just one minute.
- Well people are not advised to wear facemasks at this time.
- Call your physician if you believe you have been exposed and have symptoms. In particular, stay home if you are well or have minimal symptoms.

Reporting, Testing, and Specimen Collection

Submission procedures for specimen testing has been simplified, though there are still places that require prior approvals. Testing is becoming more widely available everyday. Many public health laboratories and some private laboratories, are now testing for SARS-CoV-2. Some hospital labs, especially at major academic medical centers, are also capable of performing in-house testing. For initial diagnostic testing for SARS-CoV-2, CDC recommends collecting and testing upper respiratory tract specimens (nasopharyngeal AND oropharyngeal swabs). While lower respiratory samples (e.g sputum and BAL) can also be submitted, sputum induction is not necessary and should not be done. Bronchoscopy for BAL sample is not encouraged due to concern of aerosolizing the virus.

Respiratory specimen storage and transport instructions are available from CDC at <https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinical-specimens.html>.

Notify infection control personnel at your healthcare facility and your state or local health department if you have a patient who is classified as a PUI for COVID-19

Treatment

No specific antiviral treatment is recommended for the COVID-19 infection, though clinical trials are underway for antiviral therapy. Symptomatic and supportive care are recommended along with respiratory and contact isolation for infected individuals.

Authors: W. Graham Carlos, MD, Charles S. Dela Cruz MD, PhD, Bin Cao, MD, Susan Parnick, MD, Shazia Jamil, MD

Reviewer: Marianna Sockrider MD, DrPH, Jane E. Gross, MD, PhD and Angela Wang, MD

Rx Action Steps

In addition to reporting suspected cases to the CDC, we encourage providers to:

- ✓ Use their judgment to determine if a patient has signs and symptoms compatible with COVID-19 and whether the patient should be tested especially if there has been recent travel from China (except Taiwan and Macau), Japan, South Korea, Japan, Italy, Iran or other areas where community spread is occurring, or exposure to close contact with a laboratory-confirmed COVID-19 patient.
 - Patients should be encouraged to stay home if they have no or minimal symptoms
 - Patients sick enough to warrant in-person evaluation should be directed to a medical facility with Airborne (negative pressure room) and Contact Precaution available (personal protective equipment (e.g., gowns, gloves, NIOSH-certified disposable N95 respirator, eye protection).
- ✓ Inform infection control and local health department of suspected cases.
- ✓ Isolate respiratory specimens (nasopharyngeal and oropharyngeal swabs) and send per protocol for suspected COVID-19 infection to CDC, hospital, public health or private lab that is equipped to conduct this testing.

References

1. **CDC 2019 Novel Coronavirus**
 - <https://www.cdc.gov/coronavirus/2019-ncov/about/index.html>
2. **Red Book Online**
 - https://redbook.solutions.aap.org/selfserve/ssPage.aspx?SelfServeContentId=rbo_outbreaks_page_3

Additional Resources

- Zhu N et al. A Novel Coronavirus from Patients with Pneumonia in China, 2019. *N Engl J Med.* 2020 Jan 24. doi: 10.1056/NEJMoa2001017
- Munster et al. A Novel Coronavirus Emerging in China—Key Questions for Impact Assessment. *N Engl J Med.* 2020 Jan 24. Doi: 10.1056/NEJMp2000929
- Huang et al. Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet.* Published Online January 24, 2020 [https://doi.org/10.1016/S0140-6736\(20\)30183-5](https://doi.org/10.1016/S0140-6736(20)30183-5)
- Oxford University Press free access articles <https://academic.oup.com/journals/pages/coronavirus>
- ECRI: <https://www.ecri.org/coronavirus-covid-19-outbreak-preparedness-center>
- The National Ebola Training and Education Center (NETEC) has a great video on the use of coronavirus PPE including proper donning and doffing. Entire video is 18 minutes long. Section on actual use of PPE starts at around 4 minutes. <https://www.youtube.com/watch?v=bG6zISnenPg>

This information is a public service of the American Thoracic Society. The content is for educational purposes only. It should not be used as a substitute for the medical advice of one's healthcare provider.

