



Coronavirus outbreaks: prevention and management recommendations

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Introduction

In December 2019, Wuhan, Hubei province, China, became the center of an outbreak of pneumonia of unknown cause, which raised intense attention not only within China but also internationally. By the 7th of January 2020, Chinese scientists had isolated a novel coronavirus from infected patients in Wuhan.

This strain of coronavirus became officially known as the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and also referred to as 2019-nCoV. The infection caused by this virus is known as coronavirus disease-2019 (COVID-19) [1]. 2019-nCoV is a beta-coronavirus, as are the viruses that cause severe acute respiratory syndrome (SARS) and Middle East respiratory syndrome (MERS) [1, 2]. These viruses are zoonotic (i.e. transmitted between animals and humans) and have their origins in bats. Most people become infected with these viruses at some point in their lives, and usually the duration of illness is short.

However, a comprehensive clinical picture of COVID-19 is still not entirely clear [2].

Cases of COVID-19 are no longer limited to Wuhan, with the increasing number of cases and widening geographical spread raising grave concerns about the future trajectory of the outbreak. Consequently, the COVID-19 epidemic has led to the implementation of extraordinary public health measures to reduce further spread of the virus within China and elsewhere [3, 4].

Spread of COVID-19

According to the World Health Organization (WHO) situation report of the 13th of February 2020, data on the COVID-19 outbreak are as follows:

- 46,997 cases confirmed globally with 6484 cases classified as ‘severe’.
- Almost all (46,550) of these confirmed cases were in mainland China, with 1368 deaths.
- 4127 patients fully recovered.
- 447 confirmed cases outside China with one death.

By the middle of February 2020, cases of COVID-19 had been reported in the Western Pacific region (Singapore, Japan, Republic of Korea, Malaysia, Viet Nam, Australia, Philippines, Cambodia), South-East Asia (Thailand, India, Nepal, Sri Lanka), North America (the USA and Canada), Europe (Russian Federation, Spain, Belgium, Finland, Sweden, Germany, France, UK and Italy) and the Eastern Mediterranean region (United Arab Emirates) [4].

Due to the increased transmission of 2019-nCoV, the WHO has conducted risk assessments, which have concluded that China is at “very high” risk, while the threat of the virus has been established as a “high” risk at the regional and global level [5, 6].

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Transmission and symptoms

COVID-19 is spread due to close person-to-person contact via coughing or sneezing, similar to the transmission of influenza and other respiratory pathogens [1]. People with cardio-pulmonary complaints, weakened immune systems, infants and older adults are more prone to COVID-19.

Symptoms of COVID-19 include sneezing, cough, sore throat, fever, headache and feeling of being unwell [3, 7], which may appear in a few as 2 days, or as long as 14 days, after exposure to the virus [3, 7]. Lower-respiratory tract ailments, such as pneumonia or bronchitis, may sometimes be caused by human coronaviruses. COVID-19 symptoms are often mild, with $\approx 20\%$ of infections progressing to severe diseases, such as pneumonia, respiratory failure and, in some cases, death [8].

Management of COVID-19

According to the US Centers for Disease Control and Prevention (CDC), there is no specific recommended antiviral therapy for COVID-19. Individuals with COVID-19 require palliative care to help relieve symptoms, and those with severe disease may require care to support vital organ functions [9]. Intravenous drips can be used to maintain blood pressure, fluids given to manage diarrhoea and ibuprofen provided for pain relief in mild cases [10].

Active surveillance for new cases and close monitoring of their contacts are necessary to control the spread of COVID-19. To improve detection efficiency, front-line clinics, apart from local centers for disease control and prevention, should be armed with validated point-of-care diagnostic kits. Education campaigns should be launched to promote precautions for travelers, including frequent hand-washing, cough etiquette, and use of personal protection equipment (e.g. masks) when visiting public places. Also, the general public should be motivated to report fever and other risk factors for viral infection, including travel history to affected area and close contacts with confirmed or suspected cases [11, 12].

CDC and WHO recommendations

COVID-19 is a global public health threat. Understanding the characteristics of the virus, its mode of transmission, the severity of illness and available medical or other measures are crucial for the control of this viral disease. The CDC is closely monitoring this situation and is working

with the WHO and state and local public health partners to respond to this emerging public health risk [12, 13].

The WHO has developed standard recommendations for the reduction of exposure and transmission of a range of infections [14]. These recommendations include: regular cleaning of hands; covering the mouth and nose with tissue while coughing and sneezing, then immediately throwing the tissue away and washing hands; avoiding close contact with infected persons; seeking medical care in case of fever and cough; sharing past travel history with healthcare providers; avoiding direct unprotected contact with live animals and surfaces in areas with current reported cases of novel coronavirus infections; avoiding the consumption of raw or undercooked animal products; and handling raw meat, milk or animal organs with care to prevent cross-contamination [15]. According to currently available information regarding COVID-19, the WHO advises that essential precautions and actions should be implemented to minimize the risk of exportation or importation of the disease [16].

What role can pharmacists play?

The International Pharmaceutical Federation is emphasizing the active role of community and hospital pharmacists can play in preventing the spread of COVID-19 [17]. Pharmacists are often a reliable and first point of contact for individuals having concerns or needing information and advice regarding ailments. Moreover, pharmacists are readily available at community pharmacies and hospital and accessible to the general population.

Essential responsibilities of pharmacists include: having appropriate medicinal products in stock; promoting proper handwashing to prevent disease; controlling in-hospital infection; and providing patient care and support. Pharmacists also play a crucial role in the prevention, early detection of certain types of new cases and referring suspected cases to the relevant healthcare authorities [17].

General recommendations on managing COVID-19 are modified regularly to mirror findings from large clinical trials, cohort studies, and emerging research data. Pharmacists should be familiar with the existing standards of treatment for viral infections, in order to provide individuals diagnosed with COVID-19 will appropriate management and treatment. Pharmacists should also be familiar with prevention and treatment protocols for opportunistic infections that arise in combination with COVID-19.

Take home messages

- Keep up-to-date with information/recommendations from the WHO, CDC and other organizations about COVID-19, a new, rapidly spreading and potentially serious coronavirus infection of global concern.
- Take measures to prevent the transmission, and thereby the spread, of this virus.
- Focus treatment on relieving the symptoms and preventing serious outcomes, as there is no specific antiviral therapy.
- Be aware that pharmacists have a crucial role in proactively providing other healthcare professionals and the public with information and recommendations for preventing, detecting, treating, managing and controlling coronavirus infections.
- Encourage collaboration between healthcare professionals to detect and refer new suspected cases of COVID-19 to the relevant healthcare authorities, as well as to improve patient care and safety.

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Compliance with ethical standards

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