



Coronavirus in China

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On Dec 31, 2019, China alerted WHO to several cases of pneumonia associated with an unknown virus. The cases were concentrated in Wuhan City, in Hubei Province in central China, home to 11 million people. By Jan 7, 2020, there was confirmation that a new type of coronavirus had emerged. It was temporarily named 2019-nCoV. It is the seventh identified coronavirus that can cause diseases of the respiratory tract in humans. On Jan 9, there was the first reported death from 2019-nCoV—a 61-year-old man who had visited the now-closed Huanan Seafood Wholesale Market, where the virus is thought to have originated.

As of Jan 30, 2020, 7736 confirmed cases of 2019-nCoV had been reported in China, with a further 12 167 suspected cases. There had been 1370 severe cases, and 170 deaths. A few dozen additional cases had been detected in 18 countries around the world, of which only seven cases had no history of travel in China.

Human-to-human transmission of 2019-nCoV has been confirmed, with an R0 of 1.4–2.5. Many more cases are expected. On Jan 30, 2020, WHO declared a public health emergency of international concern. “The main reason for this declaration is not because of what is happening in China, but because of what is happening in other countries”, commented WHO Director-General Tedros Adhanom.

More information on the clinical presentation of infection with 2019-nCoV is emerging. The elderly and those with co-morbidities are at greatest risk of death. “The deaths appear to be related to acute respiratory distress syndrome”, said Jimmy Whitworth (London School of Hygiene and Tropical Medicine, London, UK). “The severity of the disease seems to be linked with a cytokine storm.” The estimate for the incubation period is 2–10 days. Diagnostic tests have been produced, but there is no specific treatment for those who are infected. The Coalition for Epidemic Preparedness Innovations has announced that it will fund three programmes to develop vaccines against the new coronavirus, but this is unlikely to affect the course of the current outbreak.

The natural animal host of 2019-nCoV has yet to be identified; nor do we know whether there was an intermediate host responsible for its transmission to humans. It most closely resembles coronaviruses from Chinese horseshoe bats. The efficacy of screening measures will depend in large part on the unanswered question as to whether individuals are infectious before their symptoms manifest. “We do not understand the disease pyramid properly”, adds Whitworth. “There are people who are asymptomatic, people who are infected with mild disease, people infected with severe disease, and then the people who die. It looks like 15–20% of confirmed cases are severely ill, and something like 3% have died. But we have no idea how this fits in with the total number of cases”. Such a mortality rate would place the novel coronavirus somewhere between seasonal influenza and SARS (severe acute respiratory syndrome). But it remains possible that a full reckoning of the disease burden would cause the mortality rate to fall in line with that of seasonal influenza.

“At the moment it looks like, in China at least, the virus is spreading rapidly and infecting lots of people”,

explains Tom Solomon (University of Liverpool, Liverpool, UK). “The vast majority are asymptomatic. If a large number of people become infected and have very mild, or no, symptoms, then the virus spreads through the population without causing too much harm.” If that proves to be the case, 2019-nCoV would turn out to be a typical coronavirus. “If the proportion with severe and fatal disease is high, then this is when we have a real problem on our hands”, cautions Solomon. “This would mean the novel coronavirus is more like SARS was.”

China has moved quickly to contain the outbreak. Live animal markets throughout the country have been suspended. Wuhan has been put on lock-down. Trains and flights out of the city have been cancelled and most private cars have been banned. Long-distance bus services have been suspended from Wuhan and a handful of other provinces and municipalities, including Beijing, and public gatherings have been restricted. Matters have been complicated by the Chinese New Year, which started on Jan 25. Under normal circumstances, some 3 billion trips would take place within China during the week’s festivities that follow the New Year. According to Wuhan’s mayor, 5 million residents had already left the city by the time the quarantine was announced. The central government has instructed schools and universities not to re-open immediately after the New Year celebrations.

Whitworth welcomed the Chinese response. “The real battleground is in China; we have not seen many cases outside the country”, he said. “It takes draconian public health measures to stop a virus like this from spreading, and China is in a position to take such measures. If they cannot control the virus there, it is going to be very hard to control it if it does start to spread elsewhere.”

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