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Mysterious pneumonia in China

An outbreak of viral pneumonia with unknown cause in Wuhan, China, has sparked a hunt for the causative pathogen. Sanjeet Bagchi reports.

As of Jan 12, 2020, an outbreak of severe respiratory disease of unknown origin has affected 41 individuals and killed one in Wuhan, in central China. The causative agent, isolated by Chinese authorities on Jan 7, 2020, appears to be a new type of coronavirus. According to WHO, the symptom onset for the 41 diagnosed cases—of whom seven are seriously ill and six have been released from the hospital—was observed between Dec 8, 2019, and Jan 2, 2020. The 61-year-old patient who died also had abdominal cancer and chronic liver disease. According to media reports, a Chinese tourist with this new viral infection is currently being treated in Thailand, and a woman, who had travelled to China, is being treated for respiratory illness of unknown cause in South Korea.

On Jan 12, 2020, Chinese health authorities made public the genetic sequence of the new type of coronavirus, says WHO, adding that other respiratory infectious agents, such as severe acute respiratory syndrome coronavirus (SARS-CoV), middle east respiratory syndrome coronavirus (MERS-CoV), influenza and avian influenza virus, and adenovirus were ruled out through laboratory tests, as the cause of this outbreak. When interviewed at the time, Jianguo Xu, director of the State Key Laboratory for Infectious Diseases Prevention and Control, China CDC (Beijing, China) told *The Lancet Infectious Diseases*, “As I understand, some people may fear [that] this is another epidemic caused by SARS-like or MERS-like virus. But, in my opinion, this is not the case. Phylogenetically, the new coronavirus is not closely related with SARS or MERS virus, but closely related with other viruses carried by bats. Epidemiologically,

this is a limited outbreak, with no new patient reported so far from local public health authority. If no new patient appear, the outbreak may be over.”

Cases of pneumonia with unknown cause were first reported to WHO by Chinese authorities from a seafood market in Wuhan—where live animals and meat were also sold—on Dec 31, 2019. The patients, mostly workers, handlers, and frequent visitors of the market, had fever, dyspnoea (in some cases), and features of pneumonia in chest radiographs. The market has been reportedly closed since Jan 1, 2020 for sanitation and

“Chinese health authorities made public the genetic sequence of the new type of coronavirus”

disinfection purposes. According to David Hui, director of the Stanley Ho Center for Emerging Infectious Diseases at the Chinese University of Hong Kong, this recent outbreak poses significant threats to international health and may be related to sale of wild animal as game food in seafood markets. He told *The Lancet Infectious Diseases*, “Transmission of coronavirus from bats to the civet cats and camels has led to human infection in 2002 and 2012 for SARS and MERS, respectively. Although the novel infection appears milder than SARS or MERS and there is currently no evidence of human to human transmission with only one death, 739 close contacts are being quarantined following closure of the seafood market on Jan 1, 2020 and the incubation period is not yet over. Provided that there is no spread of the infection to the community by Jan 20, based on recent information that the last case onset data was [of]

Jan 2, the infection can be regarded as under control”. However, the report in Thailand of the case of pneumonia caused by this new type of coronavirus in a Chinese traveller from Wuhan puts in question Xu and Hui’s assessment that the outbreak might be already under control. WHO recommends that investigations should continue to identify the source of the outbreak and any animal reservoirs or intermediate hosts.

Experts believe China is able to tackle this situation as early as possible with its strong infrastructure and resources. Gauden Galea, WHO representative in China, told *The Lancet Infectious Diseases*, “China has a comprehensive system for monitoring flu, pneumonia, and other illnesses, and detecting unusual patterns amongst patients, as well as strong public health capacities and resources to respond to and manage respiratory disease outbreaks”. Peter Daszak, president of EcoHealth Alliance, said, “The federal CDC and provincial CDCs are far stronger now than they were during the SARS outbreak, better funded, and working more transparently with WHO and international collaborators”. According to Leo Poon, professor at the School of Public Health, at the University of Hong Kong, for immediate actions, China should carry out aggressive contact tracing, identify the virus source in the market, and confirm whether there is any chance of human to human transmission. In long-term, the settings of the market should be reviewed; it also necessary to find if there are ways to help reduce zoonotic transmission’s risk in such settings.

Sanjeet Bagchi



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