

Editorial

Emergence of novel human coronavirus: public health implications in the Eastern Mediterranean Region

Mamunur Malik,¹ Jaouad Mahjour,² Martin Opoka¹ and Ali Reza Mafi¹

Two cases of severe respiratory illness associated with a new human coronavirus have recently raised a global health alert. The first case of infection with the new virus was a Saudi Arabian national who died in June 2012 [1]. The second case was a patient from Qatar, a previously healthy adult, who was transferred to a hospital in the United Kingdom in early September this year [2] and is currently receiving intensive care there.

In light of the severity of illness in these two confirmed cases, the discovery of this new virus triggered unprecedented global attention as it brought back memories of the global pandemic caused by severe acute respiratory syndrome (SARS) which led to 8 422 cases and 916 deaths worldwide in 2003 [3]. SARS was also caused by a new virus (SARS-CoV) which belongs to the same family *Coronaviridae* as that of this recently discovered strain of human coronavirus. Clinical symptoms caused by this new human coronavirus also match the clinical picture of acute primary viral pneumonia that was seen in many patients suffering from SARS. Human coronaviruses (hCoV) were first detected in the late 1960s and four strains are known to be distributed globally and infect humans causing the common cold. Up to a third of mild upper respiratory tract infections in adults are known to be caused by hCoV. In addition, hCoV has been associated

with more severe lower respiratory tract conditions, especially in frail patients [4]. The SARS-CoV was the fifth hCoV that was in circulation for a limited time during 2002 and 2003. The SARS-CoV was zoonotic in origin and its emergence was a stark reminder that any newly emerging zoonotic coronaviruses has the potential to transmit from person to person, especially in healthcare settings, and to cause severe human illnesses.

The genetic sequence data now indicate that this new virus is a beta-coronavirus similar to bat coronaviruses, but not similar to any other coronavirus previously described in humans, including the coronavirus that caused SARS in 2003 [5]. However, concerns remain as zoonotic transmission is highly suspected for this new coronavirus infection as well. As the two confirmed cases with this coronavirus infection occurred about three months apart and as there is currently no evidence of a direct epidemiological link between the two cases, the global health risk associated with this new virus is gradually easing. Available data to date also do not support any human-to-human transmission of this new coronavirus. In the second case of this coronavirus infection, none of the 64 close contacts developed severe disease; 13 (20%) reported mild respiratory symptoms, but the virus was not detected in the 10 who were tested [2].

Both these two cases with novel human coronavirus infection were reported from countries in the Eastern Mediterranean Region of the World Health Organization (WHO). The public health implication of emergence of this new respiratory virus from the Region, suspected to be zoonotic in origin as well, needs to be studied carefully. As only two cases have so far been reported from anywhere in the world, the epidemiological and clinical picture of this infection and understanding of the exposure risks remain fairly limited. The current situation needs to be monitored carefully as the emergence of this new virus comes at a time when around 3 million people around the world are arriving in Saudi Arabia for Hajj, the annual Islamic pilgrimage to Mecca. As the new coronavirus infection originated in Saudi Arabia where all these Muslim pilgrims are assembling, the concern over the possibility of an outbreak during Hajj should not be taken lightly, particularly as nothing is yet known about the severity and transmissibility of this virus in mass gatherings situations. As the infection caused by this virus is likely to spread by aerosol droplets like any other hCoV, the behaviour of the virus in overcrowded and congregated settings cannot be clearly predicted. Appropriate strategies for detection of any suspected case of novel coronavirus infection need to be rapidly added to the public health surveillance

¹Epidemic and Zoonotic Disease Unit; ²Department of Communicable Disease Prevention and Control, World Health Organization Regional Office for Eastern Mediterranean, Cairo, Egypt (Correspondence to: Mamunur Malik: malikm@emro.who.int).

plan for the Hajj pilgrims in Saudi Arabia as well as in all other countries in the Region for the returning pilgrims.

There has been a rapid international response following the news of this new virus. An interim case definition was developed rapidly by WHO [6] to ensure that a systematic approach is followed for appropriate identification and investigation of patients who may be infected with the virus. The countries of the Region need to be vigilant and put in place enhanced surveillance for identifying cases with suspected signs and symptoms of novel human coronavirus infections using WHO's recommended case definition and investigation protocol [6].

The emergence of this new virus has once again brought the importance of surveillance for acute respiratory diseases to the global public health stage almost two years after the end of pandemic influenza. This situation calls for exploring sustainable ways to support

strengthening of both epidemiological and virological surveillance in the Region for severe acute respiratory infections (SARI) that can detect cases of atypical severe pneumonia early. Unfortunately, the surveillance system for SARI is rudimentary in most countries of the Region and not continued round the year. As the seasonality of SARI in the Region is not known, surveillance should be carried out throughout the year. The current opportunities can also be used by the countries of the Region to build, strengthen and sustain diagnostic capacities for detection of all types of circulating respiratory pathogens causing mild to severe respiratory symptoms, including those causing atypical primary viral pneumonia. Constant, open and transparent exchange of information between WHO and Member States on unexpectedly high numbers of admissions to hospital of cases with atypical respiratory symptoms will allow further detection of any suspected case

of this new coronavirus infection. Such collaboration and exchange of information will increase our understanding of a number of "unknowns" that currently limit our knowledge of the natural history of the disease caused by this new virus.

In today's globalized world, diseases can and do cross geopolitical boundaries. This reality can not only have an impact on human health but also on people's welfare by potentially affecting trade, tourism, and other economic sectors that are so important to the growth and stability of countries, including those of the Region. The discovery of this new virus in the Eastern Mediterranean Region once again requires the countries of the Region to demonstrate to rest of the world how vigilant and prepared they are to prevent the international spread of a new infection and protect both global health and the wellbeing of their own peoples.

References

1. ProMED-mail. Novel coronavirus - Saudi Arabia: human isolate. 20 September 2012. Archive Number: 20120920.1302733 (<http://www.promedmail.org/?p=2400:1000>, accessed 25 October 2012).
2. Pebody RG et al. The United Kingdom public health response to an imported laboratory confirmed case of a novel coronavirus in September 2012. *Euro Surveillance*, 2012, 17(40) (<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20292>, accessed 10 October 2012).
3. World Health Organization. Global alert and response (GAR). Summary table of SARS cases by country, 1 November 2002-7 August 2003 (http://www.who.int/csr/sars/country/2003_08_15/en/index.html, accessed 6 October 2012).
4. Pene F et al. Coronavirus 229E-related pneumonia in immunocompromised patients. *Clinical Infectious Diseases*, 2003, 37:929-932.
5. Corman VM et al. Detection of a novel human coronavirus by real-time reverse-transcription polymerase chain reaction. *Euro Surveillance*, 2012, 17(39).
6. World Health Organization. Global alert and response (GAR). Revised interim case definition—novel coronavirus. Interim case definition as of 29 September 2012. (http://www.who.int/csr/disease/coronavirus_infections/case_definition/en/index.html, accessed 8 October 2012).