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Asymptomatic coronavirus infection: MERS-CoV and SARS-CoV-2 (COVID-19)

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To the editor,

The occurrence of asymptomatic individuals with coronaviruses or other viruses may pose a significant public health issue. A recent review in this journal showed that an increase in the rate of asymptomatic individuals with the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) increased from 0% to 28.6% [1]. Actually, as the MERS-CoV progressed overtime there was more identification of asymptomatic individuals due to increased surviellance and contacts testing. This increase had proportionally but inversely affected the case fatality rate. It is expected that early on the course of any outbreak that severe cases are recognized first and then less severe (mildly or asymptomatic) cases are detected with increasing frequency. The extent of asymptomatic MERS-CoV cases is about 9.8% from different studies, Table 1 [1].

A study of human rhinovirus showed that asymptomatic infection was four times as common as symptomatic infection [2] and another study showed that the rate of rhinovirus infection among a pair of asymptomatic parents of a rhinovirus symptomatic child was one of 36 (2.8%) with an overall positivity of 23.5% among symptomatic subjects and 3.6% of asymptomatic subjects [3]. Asymptomatic carriage of influenza virus was estimated to be 5.2%–35.5% [4] Based on serology, the positivity rate was 13% in asymptomatic SARS 4% in those with mild symptoms, and 82% in those with severe disease [5].

Since the emergence of SARS-COV-2, (known initially as 2019-nCoV), in Wuhan, China, in December 2019, the number of global cases had increased significantly. The increase in the number of cases is alarming and brought the fear of having viral transmission from asymptomatic individuals. One report indicated that an asymptomatic person was able to transmit the virus to another patient in Germany [6]. In addition, in a family cluster of cases who went to Wuhan from Shenzen, the parents and the grandparents who visited a family member in a hospital had symptoms and they tested positive for SARS-CoV-2 (2019-nCoV). The family insisted in testing a 10-year-old asymptomatic boy and the tests were positive as tested by RT-PCR in nasopharyngeal and throat swab samples and the CT-scan showed mild infiltrate [7].

The contribution of asymptomatic persons with MERS-CoV or SARS-CoV-2 to the transmission is not well characterized. Those asymptomatic cases may play a role in the transmission and thus pose a significant infection control challenge. However, the contribution of asymptomatic cases in the transmission of these viruses is not well known and deserve further studies to examine the extent of occurrence and the role in transmission. These studies should examine the clinical course of those individuals, viral dynamics, viral loads and contribution to the transmission. It is crucial to evaluate the burden of asymptomatic individuals. Such studies will enhance the understanding of the pathogenesis of these emerging viruses and will inform policy makers to make scientifically sound recommendations.

Table 1
Extent of Asymptomatic MERS-CoV among tested individuals based on Reverse Transcriptase PCR, data are from Ref. [1].

Setting	Proportion of asymptomatic cases (%)
laboratory-confirmed and probable MERS-CoV cases from 9 countries	18/144 (12.5%)
HCWs contacts	4/520 (1%)
South Korea contacts	3/186 (1.6%)
Jeddah Outbreak	64/255 (25%)
Pediatric patients	9/11 (82)
Pediatric patients	13/31 (42%)
Hospital admission	3/7 (42.8%)

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Declaration of competing interest

None.

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