

## Editorial Note

### Coronaviruses and The Current Pandemic

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Received on: 28-Mar-2019

Accepted for Publication: 31-Mar-2020

Coronaviruses are enveloped non-segmented positive-sense RNA viruses belonging to the family Coronaviridae and the order Nidovirales. They are broadly distributed in humans and other mammals.<sup>1</sup> Although most human coronavirus infections are mild, past epidemics of the two beta coronaviruses, Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome Coronavirus (MERS-CoV), have caused more than 10,000 cumulative cases in the past two decades, with mortality rates of 10% and 37% respectively.<sup>2,3</sup> The propensity of SARS-CoV and MERS-CoV to generate large hospital outbreaks has been well established.<sup>4</sup> The SARS epidemic in 2002-2003 emphasized how appropriate management of symptomatic cases within and outside hospitals was crucial to containing the epidemic. Several imported cases of SARS into Vancouver (British Columbia, Canada) were managed successfully, halting secondary transmissions within the city. In contrast, inadequate application of infection control measures in Toronto (Ontario, Canada) and Taipei (Taiwan) led to significant hospital clusters and further spread. The case of MERS is even more emblematic and enigmatic. MERS has no natural epidemic potential in the community and the transmission rate  $R_0$  in humans remains significantly below 1. Nevertheless, its potential to cause large and fatal hospital outbreaks is well established.<sup>5</sup>

In December 2019, a series of pneumonia cases of unknown cause emerged in Wuhan, Hubei, China, with clinical presentations greatly resembling viral pneumonia. Deep sequencing analysis from lower respiratory tract samples indicated a novel coronavirus, which was named 2019 novel coronavirus (SARS-CoV-2).<sup>6</sup> At the time of writing, a cumulative 809,000 cases have been reported from across 179 countries/regions. Over 172,000 patients have recovered, but there have been close to 40,000 fatalities.<sup>7</sup> The World Health Organization (WHO) on March 11, 2020, has declared the COVID-19 outbreak a global pandemic. Its current recommendations to countries reporting cases (and otherwise) emphasize social distancing to contain spread of the virus. People with mild respiratory symptoms have been strongly encouraged to isolate themselves.<sup>8</sup>

The WHO has defined a suspected case as 1) A patient with acute respiratory tract infection (sudden onset of at least one of the following: cough, fever, shortness of breath) AND with no other etiology that fully explains the clinical presentation AND with a history of travel or residence in a country/area reporting local or community transmission during the 14 days prior to symptom onset; OR 2) A patient with any acute respiratory illness AND having been in close contact with a confirmed or probable COVID-19 case in the last 14 days prior to onset of symptoms; OR 3) A patient with severe acute respiratory infection (fever and at least one sign/symptom of respiratory disease (e.g., cough, fever, shortness breath)) AND requiring hospitalization (SARI) AND with no other etiology that fully explains the clinical presentation. Probable case is a suspected case for whom testing for virus causing COVID-19 is inconclusive (according to laboratory test results) or for whom testing was positive on a pan-coronavirus assay. Confirmed case is a person with laboratory confirmation of virus causing COVID-19 infection, irrespective of clinical signs and symptoms.<sup>6</sup>

Generally, children (especially infants) are at increased risk of suffering from common viral infections such as RSV and Influenza, commonly requiring hospitalization – yet surprisingly, COVID 19 has not affected childhood populations significantly.<sup>10</sup> Amidst the outbreak, Haiyan Qiu has reported children less than 16 years of age represented 5% of all reported cases. Of those affected, one third were asymptomatic, 50% had pneumonia and mortality remained insignificant.<sup>11</sup> Though the incidence of disease has been low in children, they could be an important link in the chain of transmission.

In children, warning signs indicating the severity of disease include inability to breastfeed or drink, diarrhea and/or vomiting, lethargy or unconsciousness, cough, difficulty in breathing, central cyanosis, chest in-drawing, fast breathing, respiratory failure, septic shock or multi-organ dysfunction.<sup>9</sup>

Appropriate infection control measures are important in managing the patient, whether in hospital or in self-isolation. There is no robust evidence of pharmacological therapy. Respiratory support, conservative fluid management, empirical antibiotics for pneumonia, management of sepsis & septic shock is the mainstay of treatment. Among preventive measures, wash your hands often with soap and water for at least 20 seconds especially after you have been in a public place, or after blowing your nose, coughing, or sneezing. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol. Cover all surfaces of your hands and rub them together until they feel dry. Avoid touching your eyes, nose, and mouth with unwashed hands. Cover your mouth and nose with a tissue when you cough or sneeze or use the inside of your elbow. Avoid close contact and put distance between yourself and other people if COVID-19 is spreading in your community. This is especially important for people who are at higher risk of getting very sick.<sup>9</sup>

The current pandemic with this novel virus, similar to other disasters, has provided researchers with an opportunity to look into the various aspects of epidemiology, clinical features, diagnostics and modalities of treatment, generating evidence for the future. The virus stunted spread across countries in the tropical belt, where infections like malaria and dengue were endemic, in contrast to temperate countries where seasonal influenza has always hit hard during winters, could provide some basis for future research. Dissimilarities, or otherwise, in social habits, health service delivery and other factors in the environment remain avenues for research to determine disparity in outcomes.

Various countries and institutions in the region have developed guidelines and pharmacological instructions for the prophylaxis of healthcare workers in contact with COVID 19 patients, and for the management of COVID 19 patients with varying severity of illness, albeit based on anecdotal evidence only. That includes use of combinations of Interferon alpha spray, Lopinavir/Ritonavir, Oseltamivir, Hydroxychloroquine, Chloroquine phosphate and Azithromycin. We expect some level of evidence to surface in time to assess the effectiveness of these interventions. Some work is being done on the use of convalescence serum as passive immunotherapy. While efforts to develop an effective and safe vaccine are reportedly underway, respite in the short-term does not appear around the corner.

The editorial team remains active to review and publish your submissions concerning the spread or treatment of COVID 19 in Pediatric populations. We wish our readership and their loved ones good health in these challenging times.

## REFERENCES

1. Ksiazek TG, Erdman D, Goldsmith CS, Zaki SR, Peret T, Emery S et al. A novel coronavirus associated with severe acute respiratory syndrome. *N Engl J Med* 2003; 348: 1953-66.
2. de Groot RJ, Baker SC, Baric RS, Brown CS, Drosten C, Enjuanes L, et al. Middle East respiratory syndrome coronavirus (MERS-CoV): announcement of the Coronavirus Study Group. *J Virol* 2013; 87: 7790-92.
3. Zaki AM, van Boheemen S, Bestebroer TM, Osterhaus ADME, Fouchier RAM. Isolation of a novel coronavirus from a man with pneumonia in Saudi Arabia. *N Engl J Med* 2012; 367: 1814-20.
4. Hui DS, Azhar EI, Kim YJ, Memish ZA, Oh MD, Zumla A. Middle East respiratory syndrome coronavirus: risk factors and determinants of primary, household, and nosocomial transmission. *Lancet Infect Dis* 2018;18(8): e217-e227.
5. Hui DSC and Zumla A. Severe Acute Respiratory Syndrome: Historical, Epidemiologic, and Clinical Features. *Infect Dis Clin North Am* 2019;33(4): 869-889.
6. World Health Organization. Coronavirus disease (COVID-19) Pandemic [online] 2020[cited 2020 March 15]. Available from: URL: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
7. Johns Hopkins University Coronavirus Resource Centre. Coronavirus COVID-19 Global Cases by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University 2020[cited 2020 March 30]. Available from: URL:<https://coronavirus.jhu.edu/map.html>
8. Cucinotta D, Vanelli M. WHO Declares COVID-19 a Pandemic. *Acta Biomed* 2020;91(1):157-160.
9. Centers for Disease Control and Prevention. Coronavirus (COVID-19) [online] 2020[cited 2020 March 15]. Available from: URL:<https://www.cdc.gov/coronavirus/2019-nCoV/index.html>
10. Kelvin AA, Halperin S. COVID-19 in children: the link in the transmission chain. *Lancet Infect Dis* 2020. [https://doi.org/10.1016/S1473-3099\(20\)30198-5](https://doi.org/10.1016/S1473-3099(20)30198-5)
11. Qiu H, Wu J, Hong L, Luo Y, Song Q, Chen D; Clinical and epidemiological features of 36 children with coronavirus disease 2019 (COVID-19) in Zhejiang, China: an observational cohort study. *Lancet Infect Dis* 2020. [https://doi.org/10.1016/S1473-3099\(20\)30198-5](https://doi.org/10.1016/S1473-3099(20)30198-5)