

# COVID-19: Utilizing local experience to suggest optimal global strategies to prevent and control the pandemic

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In December 2019, an outbreak of Coronavirus Disease 2019 (COVID-19), an acute respiratory illness caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), was detected in Wuhan, China.<sup>[1,2]</sup> On March 11, 2020, the World Health Organization (WHO) declared COVID-19 a pandemic and advised all countries to take decisive actions to prevent and control the outbreak.<sup>[3]</sup> Thus far, as of April 16, 2020, COVID-19 has spread to 213 countries or territories and resulted in 1,954,724 confirmed cases and 126,140 deaths globally.<sup>[4]</sup> There is no effective vaccine to prevent COVID-19 and treatment options are still experimental.<sup>[1]</sup> Patients are just managed with supportive care and antibiotics against secondary bacterial infections. To fight this pandemic, many countries, including Saudi Arabia, locked their borders, started evacuating their citizens from other countries, and imposed different degrees of blockade locally to promote social distancing and, hence, controlling the spread of the virus, SARS-CoV-2. In this editorial, we will discuss the adequacy of such measures to control COVID-19 epidemic locally and globally.

Our knowledge about SARS-CoV-2, including how does it spread, is evolving which makes it more challenging to deal with this virus. Available evidence suggests that SARS-CoV-2 spread through respiratory droplets of an infected person, which may travel up to six feet from a person who is sneezing or coughing. This mode of transmission requires people to have a close contact with an infectious person or touching a contaminated surface and then touching own face or mouth.<sup>[5]</sup> However, a new study suggests that the virus can travel further distance.<sup>[6]</sup> An incident in Hongkong prompted the scientists to look at the possibility that the SARS-CoV-2 may be spread by fecal contamination, such as through leakage in sewage pipes.<sup>[7]</sup> These discoveries mean that the main preventing measures recommended by the WHO, hand washing and social distancing, might not always prevent infection. There is limited evidence on how long the SARS-CoV-2 can live outside a host. A recent study<sup>[8]</sup> found that SARS-CoV-2 can last for up to 3 h in aerosols,

up to 4 h on copper, up to 24 h on cardboard, and up to 2–3 days on plastic and stainless steel. This suggests the possibility of getting exposed to SARS-CoV-2 through the contaminated air or after touching contaminated surfaces. Although SARS-CoV-1 and SARS-CoV-2 demonstrate similar stability outside host,<sup>[8]</sup> the later caused a much larger outbreak globally. This is still a puzzle to be solved by scientists, but evolving evidence suggests that infected people might have a high viral load in their upper respiratory tracts, and many asymptomatic people might be fueling the outbreak without knowing, or before knowing their infection.<sup>[8-10]</sup> This would certainly make COVID-19 outbreak control measures more challenging than the 2003 SARS outbreak.

In Wuhan, China, COVID-19 outbreak prevention and control endeavor had three stages: The first stage was the natural occurrence and spread of the epidemic; the second stage was the blockade of the city and the advocacy of residents staying at home and maintaining social distancing; and the third stage ensured that all COVID-19 cases were admitted to hospitals and close contacts were under intensive medical observation.<sup>[3]</sup> Although all the prevention and control measures were effective, the epidemic continued to spread until the third stage was introduced. Infections continued to spread among family members before entering stage 3 for not admitting all patients to hospitals and isolating close contacts under medical supervision. However, since admitting all cases to hospitals and bringing all close contacts under intensive medical observation, the incidence of the disease gradually decreased until its disappearance.<sup>[2]</sup>

In Saudi Arabia, the first COVID-19 case was reported on March 2, 2020. As of April 16, 2020, COVID-19 outbreak spreads to 62 cities and infected 6380 people in Saudi Arabia.<sup>[11]</sup> To combat COVID-19 outbreak, Saudi Arabia adopted similar prevention and control strategies like China. It responded to the outbreak with decisive public health

measures and faster than many other high-income countries. COVID-19 prevention and control measures in Saudi Arabia included, but not limited to, temporarily suspending entry of people to the Kingdom to perform Umrah and visiting the two holy mosques in Mecca and Medina and eventually bringing the citizens and residents under the same suspension, closing international borders and air travels, temporarily closing all mosques for people, closing all academic institutions and shifting to online teaching for all level of education, closing all government offices apart from vital service providers, and imposing partial to complete lockdown in cities based on the outbreak situation.<sup>[12-16]</sup> Saudi Arabia has experience of dealing with Middle East respiratory syndrome CoV (MERS-CoV). Based on this experience and WHO guidelines for COVID-19, the Kingdom has developed a country-specific guideline to combat COVID-19 outbreak locally. Its public health measures include taking precautionary measures, including preparedness, contact tracing, quarantining any people entering the country, and all the contacts of any case, widespread and rapid testing of suspected cases and close contacts, detecting and isolating cases. All suspected cases are investigated, and confirmed cases are immediately isolated and treated in hospitals and all identified contacts are quarantined under medical supervision. As of March 25, 2020, Saudi Arabia ministry of health has dedicated 25 hospitals with 80,000 hospital beds and 8000 intensive care unit beds, for the treatment of COVID-19 cases. In addition, it launched a massive public health advocacy campaign of staying home, maintaining social distancing, and personal safety practices through all possible avenues, including the press, television, and social media. The country also focused on engaging the public in COVID-19 prevention and control activities, and to fight rumors and false information about the disease. All guidelines and safety instructions for the citizens and residents are circulated in 12 most commonly spoken languages to reach out all citizens and residents.<sup>[17]</sup> The Kingdom also made COVID-19 testing and treatment available free of costs for illegal migrants without any legal consequences.<sup>[18]</sup>

Due to decisive and proactive public health and medical measures, it is expected that the incidence of the COVID-19 will gradually decrease and eventually disappear from the Kingdom. However, this might not be enough to protect the citizens and residents of Saudi Arabia. All these lockdown and other restriction measures come at the expense of our individual freedom and societal and economic disruptions. In the long run, it will also have a negative effect on the psychosocial well-being of the people. Its economic consequences are in terms of direct expenses in ensuring these enforcements and indirect expenses as economic opportunity loss. Saudi Arabia admitted that they had to sacrifice a lot of economic gains to fight the COVID-19.<sup>[19]</sup> Therefore, ultimately all countries, including Saudi Arabia, will have to relax the lockdown and other social distancing measures which are negatively impacting economy and psychosocial well-being of people. On the other hand, COVID-19 has

already spread to 213 countries or territories, and local epidemics have already been established in many countries.<sup>[4]</sup> Many countries, including both high-income and low-and middle-income countries, are not adequately complying with the WHO's recommendations on containment of COVID-19 epidemic.<sup>[20]</sup> Furthermore, many countries' health systems are very fragile to combat COVID-19 pandemic. To combat a pandemic, such as COVID-19, strong surveillance systems, and laboratory resources are pivotal. In the majority of the low-and middle-income countries, laboratory resources, public health infrastructures, and surveillance mechanisms are inadequate.<sup>[21]</sup> Their weak surveillance systems lack adequate coverage and analytical strength to detect and report infectious disease outbreak at a timely and comprehensive manner.<sup>[22]</sup> Consequently, the risk of COVID-19 is likely to be greatest in these countries. In these circumstances, if high-income countries just better prepare their health systems and public health infrastructure to safeguard their own health security without adequately enabling the low-and middle-income countries, which are struggling to fight COVID-19, COVID-19 might become endemic in these low-and middle-income countries. Consequently, we might experience a second wave of COVID-19 globally, through the importation of cases from overseas or residual infected seeds within the country, following easing out restrictions and resumption of economic activities. Therefore, scientists warn the governments globally against any premature relaxation of strict interventions to contain COVID-19 pandemic. Any such relaxation might lead to a reemergence of COVID-19 outbreak in community.<sup>[23]</sup> We should also keep a close eye on the COVID-19 outbreak situation in China since they are gradually withdrawing the restrictions. Chinese experience in this regard will be vital for other countries to prevent and control the second wave of the outbreak. With unprecedented public health interventions, China appears to win their fight against the virus, but they are not yet safe. Scientists fear, and call for preparation for, a second wave of infection from overseas in China.<sup>[23-25]</sup>

Therefore, for the protection of own citizens and residents and fulfill moral duties to resource-poor countries, all high-income countries must aid low-and middle-income countries to help them strengthen their fight against this pandemic. Different high-income countries, including Saudi Arabia, funding generously to prevent and control the pandemic,<sup>[17]</sup> but more support and coordination is needed.

COVID-19 is a global health emergency. There is no doubt that global health threats such as COVID-19 will require collaborative solutions by the international community. However, the global preparedness for global health emergencies such as COVID-19 is extremely inadequate. No single country can be successful in saving their citizens and residents if they decide to focus only in their country. The WHO director-general rightly said, "*the way forward is solidarity: solidarity at the national level, and solidarity at the*

global level.”<sup>[26]</sup> We must orchestrate a globally coordinated action to control this pandemic. Global leaders should empower the WHO with more authority, responsibilities, accountability and resources to combat COVID-19. Failure will have catastrophic consequences. We must remember that an infectious disease threat anywhere is a threat everywhere in this age of globalization and connectivity.

## References

- Huang C, Wang Y, Li X, Ren L, Zhao J, Hu Y, *et al.* Clinical features of patients infected with 2019 novel coronavirus in Wuhan, China. *Lancet* 2020;395:497-506.
- Wang L, Chen H, Qiu S, Song H. Evaluation of control measures for COVID-19 in Wuhan, China. *J Infect* 2020:S0163-4453. Doi: 10.1016/j.jinf.2020.03.043
- The Lancet Respiratory Medicine. COVID-19: Delay, mitigate, and communicate. *Lancet Respir Med* 2020;8:321.
- World Health Organization. Coronavirus Disease (COVID-19) Pandemic. Geneva: World Health Organization; 2020. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>. [Last accessed on 2020 Apr 16].
- Desai AN, Patel P. Stopping the spread of COVID-19. *JAMA* 2020;323(15):1516.
- Zhen-Dong G, Zhong-Yi W, Shou-Feng Z, Li X, Li L, Li C, *et al.* Aerosol and surface distribution of severe acute respiratory syndrome coronavirus 2 in hospital wards, Wuhan, China, 2020. *Emerg Infect Dis* 2020;26(7). Doi: 10.3201/eid2607.200885.
- Regan H. How Can the Coronavirus Spread Through Bathroom Pipes? Experts are Investigating in Hong Kong. CNN; 2020. Available from: <https://www.edition.cnn.com/2020/02/12/asia/hong-kong-coronavirus-pipes-intl-hnk/index.html>. [Last accessed on 2020 Apr 14].
- van Doremalen N, Bushmaker T, Morris DH, Holbrook MG, Gamble A, Williamson BN, *et al.* Aerosol and surface stability of SARS-CoV-2 as compared with SARS-CoV-1. *N Engl J Med* 2020;382:1564-7.
- Bai Y, Yao L, Wei T, Tian F, Jin D, Chen L, *et al.* Presumed asymptomatic carrier transmission of COVID-19. *JAMA* 2020;323:1406-7.
- Zou L, Ruan F, Huang M, Liang L, Huang H, Hong Z, *et al.* SARS-CoV-2 viral load in upper respiratory specimens of infected patients. *N Engl J Med* 2020;382:1177-9.
- Ministry of Health-Kingdom of Saudi Arabia. COVID 19 Dashboard: Saudi Arabia. Ministry of Health-Kingdom of Saudi Arabia; 2020. Available from: <https://www.covid19.moh.gov.sa>. [Last accessed on 2020 Apr 16].
- Meredith S. Saudi Arabia Temporarily Bars Entry for Pilgrims as Coronavirus Fears Escalate. CNBC; 2020. Available from: <https://www.cnbc.com/2020/02/27/coronavirus-saudi-arabia-bars-entry-for-pilgrims-amid-outbreak-fears.html>. [Last accessed on 2020 Apr 16].
- Saudi Gazette. Saudi Coronavirus Curfew: Ten Questions Answered. Saudi Gazette; 2020. Available from: <http://www.saudigazette.com.sa/article/591627>. [Last accessed on 2020 Apr 16].
- Saudi Gazette. Interior Ministry Updates Movement Permit forms During Curfew. Saudi Gazette; 2020. Available from: <http://www.saudigazette.com.sa/article/591809>. [Last accessed on 2020 Apr 16].
- Saudi Gazette. Saudi Arabia Expands Travel Ban to 39 States Including EU. Saudi Gazette; 2020. Available from: <http://www.saudigazette.com.sa/article/590835/>. [Last accessed on 2020 Apr 16].
- Saudi Gazette. Saudi Arabia Closes All Mosques for Prayers Except the Two Holy Mosques. Saudi Gazette; 2020. Available from: <http://www.saudigazette.com.sa/article/590995>. [Last accessed on 2020 Apr 16].
- WHO. WHO, Saudi Arabia Join Forces to Fight COVID-19 Nationally, Regionally and Globally. WHO; 2020. Available from: <http://www.emro.who.int/media/news/who-saudi-arabia-join-forces-to-fight-covid-19-nationally-regionally-and-globally.html>. [Last accessed on 2020 Apr 16].
- Arab News. King Salman Orders free Coronavirus Treatment in Saudi Arabia, Including Residency Violators. Arab News; 2020. Available from: <https://www.arabnews.com/node/1650026/saudi-arabia>. [Last accessed on 2020 Apr 16].
- Saudi Gazette. ‘Crown Prince Sacrificed Many Economic Gains to Confront Coronavirus’. Saudi Gazette; 2020. Available from: <http://www.saudigazette.com.sa/article/591832>. [Last accessed on 2020 Apr 16].
- The Lancet. COVID-19: Learning from experience. *Lancet* 2020;395:1011.
- May L, Chretien JP, Pavlin JA. Beyond traditional surveillance: Applying syndromic surveillance to developing settings-opportunities and challenges. *BMC Public Health* 2009;9:242.
- Sahal N, Reintjes R, Aro AR. Review article: Communicable diseases surveillance lessons learned from developed and developing countries: Literature review. *Scand J Public Health* 2009;37:187-200.
- Leung K, Wu JT, Liu D, Leung GM. First-wave COVID-19 transmissibility and severity in China outside Hubei after control measures, and second-wave scenario planning: A modelling impact assessment. *Lancet* 2020:S0140-6736. Doi: 10.1016/S0140-6736(20)30746-7
- Xu S, Li Y. Beware of the second wave of COVID-19. *Lancet* 2020:1-2. Doi: 10.1016/S0140-6736(20)30845-X
- Cyranoski D. ‘We need to be alert’: Scientists fear second coronavirus wave as China’s lockdowns ease. *Nature* 2020. Doi: 10.1038/d41586-020-00938-0..
- WHO. WHO Director-General’s Opening Remarks at the Media Briefing on COVID-19. WHO; 2020. Available from: <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19--13-april-2020>. [Last accessed on 2020 Apr 16].