

# Importance of sustaining non-pharmaceutical interventions for COVID-19 until herd immunity

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Hong Kong Med J 2021;27:95–6

<https://doi.org/10.12809/hkmj215112>

Currently, treatments for coronavirus disease 2019 (COVID-19) are still under development and are largely supportive. Effective supportive therapies include oxygen and ventilation for patients with COVID-19 who are severely or critically ill. Among the available pharmaceutical interventions for patients with COVID-19, dexamethasone has been shown to shorten the period on a ventilator and reduce mortality of patients with severe and critical COVID-19; however, others including hydroxychloroquine, remdesivir, lopinavir/ritonavir, and interferon regimens show very limited benefits.<sup>1</sup> In this theme issue of *Hong Kong Medical Journal*, we focus on the latest research on COVID-19, in particular non-pharmaceutical interventions for COVID-19 such as face mask wearing, community testing, or contact tracking and tracing.

Reports on the use of face masks during the COVID-19 pandemic have found differences among various regions and countries. Discrepancies in face mask wearing between cultures have also caused stigmatisation on some occasions. In general, Asian populations are more accepting of face mask wearing.<sup>2</sup> An example is Hong Kong, where the high rate of face mask wearing is often attributed to the territory's previous experience with severe acute respiratory syndrome in 2003.<sup>3</sup> Despite the dense population and proximity to the epidemic centre, the number of cases has remained modest in Hong Kong. In this issue of *Hong Kong Medical Journal*, Tam et al<sup>4</sup> report the results of an interesting two-part study on the mask wearing behaviour of the Hong Kong population conducted in February 2020. Although the authors found that the mask wearing rate was as high as 94.8%, 13% of pedestrians observed wore their mask incorrectly, with 42.5% of them worn too low, exposing the nostrils or mouth and 35.5% of them worn 'inside-out' or 'upside-down'. The authors also found that among respondents to a survey, 78.9% of them reused face masks, and 65.9% of them tended to obtain relevant information from social media rather than potentially more reliable sources

such as government websites. The authors highlight the need for more intensive health education.

It is also important to provide early COVID-19 testing and regular surveillance, especially for high-risk populations. International guidelines recommend a series of healthcare policy strategies that could prepare a nation for early testing, surveillance, and reporting for infectious pandemics of global concern.<sup>5</sup> In this issue of *Hong Kong Medical Journal*, Leung et al<sup>6</sup> report the characteristics and outcomes of 1258 participants tested between March and April 2020 at a temporary test centre providing early testing for COVID-19 among high-risk residents with mild symptoms. The authors found that 86 individuals tested positive for COVID-19 (test positive rate of 6.8%). Among them, 40 (46.5%) were young individuals aged 15 to 24 years, and 81 (94.2%) had a recent history of overseas travel. The authors concluded that the temporary test centre had been successful in early detection of COVID-19 among high-risk residents. Healthcare providers need to promote early testing among high-risk subjects of COVID-19 to prevent widespread community outbreak. Since that study was conducted, the Hong Kong Government strengthened the local testing capabilities, by establishing community testing centres for providing self-paid testing services to citizens, as well as compulsory testing for certain persons subject to the epidemic development and the need for infection control in Hong Kong.

Tracing the close contacts of COVID-19 confirmed cases is also crucial to control the pandemic. Also in this issue, Mak et al<sup>7</sup> report the formulation of a departmental COVID-19 contingency plan utilising a system for patient tracking and facilities management, which facilitated contact tracing. The doctors and allied health staff, who serve two hospitals, also prepared a split team arrangement whereby the possibility of cross-contamination or exposure was minimised by having staff work at one hospital only. The authors report that the system was successfully implemented twice, and could be quickly

implemented again if the need arises. Recently, the Hong Kong Government developed and prompted the use of a mobile application (LeaveHomeSafe; <https://www.leavehomesafe.gov.hk/en/>) to facilitate contact tracing throughout the territory. Users of the application scan a QR code on entering a venue, and receive a notification if a later confirmed case of COVID-19 was present at the same venue at about the same time.

Non-pharmaceutical interventions for COVID-19 have also been reported elsewhere. For example, a study of 139 countries found that a reduced number of COVID-19 cases was associated with the stringency of different containment interventions, particularly closures of schools, closures of workplaces, and public information campaigns.<sup>8</sup> Another study in Hong Kong found that border restrictions, quarantine and isolation, social distancing, and changes in population behaviour (hygiene and reduction of social contact) were significantly associated with control of COVID-19 pandemic.<sup>9</sup> However, the implementation of non-pharmaceutical interventions for COVID-19 should be tailored according to the characteristics of pandemic and capacity for individual countries. As reported in this issue by Wang et al,<sup>10</sup> the COVID-19 outbreak in Singapore had a dual nature, with infected cases spreading differently in foreign dormitory workers and the community at the same time. Different multipronged approaches were employed to tackle the spread of the virus in the two distinct groups. The vulnerability to COVID-19 and coping capacity are different among countries.<sup>11</sup> Therefore, it is imperative to identify the capability framework that could mitigate the COVID-19 pandemic in the global health community.<sup>12</sup> The World Health Organization has provided guidelines for building a capability framework to control the transmission of COVID-19.<sup>13</sup> The framework consists of several essential domains, including overall coordination, community engagement and risk communication, measurements of public health, health services and case management, prevention and control of pandemic, as well as surveillance mechanism which are important for developing tailored non-pharmaceutical strategies for individual countries.

#### Author contributions

All authors contributed to the editorial, approved the final

version for publication, and take responsibility for its accuracy and integrity.

#### Conflicts of interest

The authors have disclosed no conflicts of interest.

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