

# COVID-19 pandemic after Omicron

Christopher KC Lai<sup>1</sup>, FHKCPATH, FHKAM (Pathology), Wilson Lam<sup>2</sup>, FRCP, FHKAM (Medicine),  
KY Tsang<sup>3</sup>, FRCP (Edin), FHKAM (Medicine), Frankie WT Cheng<sup>4</sup>, FRCPCH, MD, Martin CS Wong<sup>5,6</sup> \* MD, MPH

<sup>1</sup> Department of Microbiology, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong

<sup>2</sup> Chiron Medical, Hong Kong

<sup>3</sup> Specialist in Infectious Disease, Private Practice, Hong Kong

<sup>4</sup> Department of Paediatrics and Adolescent Medicine, Hong Kong Children's Hospital, Hong Kong

<sup>5</sup> JC School of Public Health and Primary Care, Faculty of Medicine, The Chinese University of Hong Kong, Hong Kong

<sup>6</sup> Editor-in-Chief, Hong Kong Medical Journal

\* Corresponding author: wong\_martin@cuhk.edu.hk

Hong Kong Med J 2022;28:196–8

<https://doi.org/10.12809/hkmj215130>

At the time of writing, the “fifth wave” of coronavirus disease 2019 (COVID-19) in Hong Kong that started to surge since late January 2022 is receding. The fifth wave has been the worst so far, with daily cases exceeding 55 000, and total >9000 deaths.<sup>1</sup> Epidemiological studies predicted that 4.5 to 5 million people in Hong Kong would have contracted COVID-19 by the end of the wave.<sup>2</sup> However, as the pandemic progresses, more people will gain immunity against the virus through vaccination or natural infection, or both (hybrid immunity). Together with a community-wide intersectoral effort to boost vaccination uptake, the COVID-naïve population in Hong Kong will decline rapidly, and so will the transmission efficiency of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). It seems we are set to cruise back to pre-COVID normalcy. Or are we?

Since its emergence in late 2019, SARS-CoV-2 has mutated at an astounding rate. Omicron has evolved to be the most transmissible variant so far, fortunately causing less severe disease than its predecessors.<sup>3</sup> Will Omicron stay as the predominant variant, or will new variants emerge causing fresh waves? Despite the waning of the current Omicron wave, SARS-CoV-2 continues to spread in almost every corner of the world. The huge number of infections has provided near ideal conditions for new variants to emerge, as we have seen in the Delta<sup>4</sup> and Omicron variants.<sup>5</sup> One of the latest recombinants of Omicron BA.1 and BA.2 strain known as XE is even more transmissible than Omicron BA.2.<sup>6</sup> It seems likely that we are set to be challenged by more new variants, albeit with some degree of protection from immunity generated during previous infection or vaccination. Given that the virus is unlikely to disappear completely, COVID-19 will inevitably become an endemic disease. The COVID-19 vaccines are now well known to significantly lower disease severity and mortality, and have saved millions of lives worldwide. Despite the proven efficacy and safety profile, vaccine hesitancy remains a concern.<sup>7</sup> Moreover, it is now increasingly evident that COVID-19

vaccines are not going to halt the pandemic. Infections still occur in fully vaccinated individuals,<sup>8</sup> and antibody level is known to decrease over time.<sup>9</sup>

In the past 2 years, the *Hong Kong Medical Journal* has published >60 COVID-19-related papers. We foresee that the need for COVID-19-related studies will remain. Future research directions will be realigned as the pandemic unfolds, with vaccine-related research in the highest demand. In 2021, the Journal published a serological response to mRNA and inactivated vaccines in healthcare workers in Hong Kong,<sup>10</sup> and reported cases of myocarditis and pericarditis after mRNA vaccines.<sup>11</sup> New vaccines in novel platforms or targeting new COVID-19 variants will continue to be developed, and research directed at monitoring the efficacy and adverse effects of these vaccines will remain important to guide vaccination strategies. Vaccine hesitancy remains a major hurdle in achieving herd immunity,<sup>7,12</sup> and public health intervention studies involving various stakeholders in the community that can promote vaccine uptake will be highly sought.

In the earliest months of pandemic, the Journal published radiological findings of critically ill patients diagnosed with COVID-19,<sup>13</sup> and a case series on contrasting evidence for corticosteroid treatment for COVID-19-induced cytokine storm in children.<sup>14</sup> We anticipate publications on clinical management will remain invaluable to the medical community, perhaps with a shift in focus to greater emphasis on integrative treatment strategies,<sup>15</sup> microbiome-based therapies, and prophylactic antiviral agents and monoclonal antibody therapies targeting vulnerable populations such as the paediatric population<sup>16,17</sup> and immunocompromised hosts.

In 2021, the Journal published an editorial by Tse et al<sup>18</sup> on the impact of COVID-19 on both physical health and mental health. We anticipate the need for further research in the areas of mental health and mental well-being during the COVID-19 pandemic.

Many COVID-19 survivors report persistence of symptoms after recovery. With an estimate of 4

to 5 million of the Hong Kong population infected with COVID-19,<sup>2</sup> it is clear that more resources should be allocated to long COVID-related services and research. Systematic gathering of information on long COVID will allow accurate measurement of the disease burden and will be critical in facilitating future research. Establishment of designated one-stop multidisciplinary medical centres will allow individualised treatment and rehabilitation programmes, optimising the care of long COVID sufferers and providing a positive impact at the societal level. We will witness researchers moving from studying acute COVID infections to studying post-COVID-19 conditions in the near future.

Laboratory diagnostics played a crucial role in COVID-19 case findings, contact tracing, and outbreak investigations. Throughout the course of the COVID-19 pandemic we have witnessed the widespread use of state-of-the-art next-generation sequencing techniques in understanding the phylogeny and evolution of SARS-CoV-2.<sup>19,20</sup> However, novelty does not necessarily require high-tech gadgets; a study by Zee et al<sup>21</sup> illustrated how the use of rapid antigen tests can assist outbreak control in a hospital. With the rapid development of new laboratory techniques and novel ideas, we expect a huge amount of knowledge to be generated in this area.

Epidemiology and public health studies with forecasting ability can guide public policies. The Journal has published research articles on experiences of a temporary testing centre at the AsiaWorld-Expo,<sup>22</sup> department-level contingency plans for contact tracing and facility management,<sup>23</sup> and admission triage for adult intensive care.<sup>24</sup>

The waning fifth COVID wave gives us much-needed breathing space to plan ahead. We have faced challenges in ensuring that the Hong Kong population is protected by vaccination and effective testing and tracing. We have experienced global supply chain disruption in key pandemic products, including vaccines, antivirals, personal protective equipment, and laboratory test kits and reagents. It is time to reflect on what we could have done if we knew COVID was coming, and to make it a reality for future pandemics. Pandemic preparedness requires a holistic approach from multiple disciplines to provide a comprehensive and generalisable preparedness plan.<sup>25</sup> A recent article by Morens et al<sup>26</sup> suggested that “controlling COVID-19 by increasing herd immunity may be an elusive goal”. Research focusing on infectious disease epidemiology, public health policies, laboratory diagnostics, vaccine development, and drug discovery will remain in high demand. Future research will need to be synergistic and able to coalesce into a strong healthcare system, to defend against subsequent COVID waves and future pandemics.

### Author contributions

All authors contributed to the Editorial, approved the final version for publication, and take responsibility for its accuracy and integrity.

### Funding/support

This editorial received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

### Conflicts of interest

The authors have declared no conflict of interest.

### References

1. Centre for Health Protection of the Department of Health; and the Hospital Authority. Statistics on 5th wave of COVID-19. 27 April 2022. Available from: [https://www.covidvaccine.gov.hk/pdf/5th\\_wave\\_statistics.pdf](https://www.covidvaccine.gov.hk/pdf/5th_wave_statistics.pdf). Accessed 28 Apr 2022.
2. The Jockey Club School of Public Health and Primary Care, The Chinese University of Hong Kong. Assessment of Omicron outbreak in Hong Kong. 20 April 2022. Available from: <https://www.sphpc.cuhk.edu.hk/post/study-assessment-of-omicron-outbreak-in-hong-kong>. Accessed 28 Apr 2022.
3. Centers for Disease Control and Prevention. Omicron variant: what you need to know. 29 March 2022. Available from: <https://www.cdc.gov/coronavirus/2019-ncov/variants/omicron-variant.html>. Accessed 28 Apr 2022.
4. Ferreira IA, Kemp SA, Datir R, et al. SARS-CoV-2 B.1.617 mutations L452R and E484Q are not synergistic for antibody evasion. *J Infect Dis* 2021;224:989-94.
5. Callaway E. Heavily mutated Omicron variant puts scientists on alert. *Nature* 2021;600:21.
6. UK Health Security Agency. SARS-CoV-2 variants of concern and variants under investigation in England. 25 March 2022 (updated 8 April 2022). Available from: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/1067672/Technical-Briefing-40-8April2022.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1067672/Technical-Briefing-40-8April2022.pdf). Accessed 28 Apr 2022.
7. Chan PK, Wong MC, Wong EL. Vaccine hesitancy and COVID-19 vaccination in Hong Kong. *Hong Kong Med J* 2021;27:90-1.
8. Bergwerk M, Gonen T, Lustig Y, et al. Covid-19 breakthrough infections in vaccinated health care workers. *N Engl J Med* 2021;385:1474-84.
9. Lin DY, Zeng D, Gu Y, Krause PR, Fleming TR. Reliably assessing duration of protection for COVID-19 vaccines. *J Infect Dis* 2022 Apr 21;jiac139. Epub ahead of print.
10. Zee JS, Lai KT, Ho MK, et al. Serological response to mRNA and inactivated COVID-19 vaccine in healthcare workers in Hong Kong: decline in antibodies 12 weeks after two doses. *Hong Kong Med J* 2021;27:380-3.
11. Kwan MY, Chua GT, Chow CB, et al. mRNA COVID vaccine and myocarditis in adolescents. *Hong Kong Med J* 2021;27:326-7.
12. Chau CY. COVID-19 vaccination hesitancy and challenges to mass vaccination. *Hong Kong Med J* 2021;27:377-9.
13. Woo SC, Yung KS, Wong T, et al. Imaging findings of critically ill patients with COVID-19 pneumonia: a case series. *Hong Kong Med J* 2020;26:236-9.
14. Leung KK, Hon KL, Qian SY, Cheng FW. Contrasting

- evidence for corticosteroid treatment for coronavirus-induced cytokine storm. *Hong Kong Med J* 2020;26:269-71.
15. Lin WL, Hon KL, Leung KK, Lin ZX. Roles and challenges of traditional Chinese medicine in COVID-19 in Hong Kong. *Hong Kong Med J* 2020;26:268-9.
  16. Hon KL, Leung KK. Paediatrics is a big player of COVID-19 in Hong Kong. *Hong Kong Med J* 2020;26:265-6.
  17. Chua GT, Wong JS, Chung J, et al. Paediatric multisystem inflammatory syndrome temporally associated with SARS-CoV-2: a case report. *Hong Kong Med J* 2022;28:76-8.
  18. Tse WW, Kwan MY. Impacts of the COVID-19 pandemic on the physical and mental health of children. *Hong Kong Med J* 2021;27:175-6.
  19. Chen Z, Chong KC, Wong MC, et al. A global analysis of replacement of genetic variants of SARS-CoV-2 in association with containment capacity and changes in disease severity. *Clin Microbiol Infect* 2021;27:750-7.
  20. Siu GK, Lee LK, Leung KS, et al. Will a new clade of SARS-CoV-2 imported into the community spark a fourth wave of the COVID-19 outbreak in Hong Kong? *Emerg Microbes Infect* 2020;9:2497-500.
  21. Zee JS, Chan CT, Leung AC, et al. Rapid antigen test during a COVID-19 outbreak in a private hospital in Hong Kong. *Hong Kong Med J* 2022 Mar 17. Epub ahead of print.
  22. Leung WL, Yu EL, Wong SC, et al. Findings from the first public COVID-19 temporary test centre in Hong Kong. *Hong Kong Med J* 2021;27:99-105.
  23. Mak ST, Fung KS, Li KK. Formulation of a departmental COVID-19 contingency plan for contact tracing and facilities management. *Hong Kong Med J* 2021;27:148-9.
  24. Joynt GM, Leung AK, Ho CM, et al. Admission triage tool for adult intensive care unit admission in Hong Kong during the COVID-19 outbreak. *Hong Kong Med J* 2022;28:64-72.
  25. Wong AT, Chen H, Liu SH, et al. From SARS to avian influenza preparedness in Hong Kong. *Clin Infect Dis* 2017;64(suppl\_2):S98-S104.
  26. Morens DM, Folkers GK, Fauci AS. The concept of classical herd immunity may not apply to COVID-19. *J Infect Dis* 2022 Mar 31;jiac109. Epub ahead of print.