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The Unprecedented Omicron Surge in Hong Kong: A More Natural or More Man-Induced Tragedy?

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COVID-19 infection control in Hong Kong was effective through strict anti-pandemic measures in the first four waves beginning in 2020, although it hurt not only physiological and psychological health but also social and economic activities. However, there was an uncontrollable boom in local Omicron cases and deaths from late January 2022, particularly among the senior population. Epidemiologists bemoaned the low vaccination rate among older adults which attributed to the rapid contagion. This analysis looks into a nexus of causes, and discusses the roles of manpower, medical resources, management, healthcare policies, and the balance between anti-pandemic tactics and individual health. Fundamentally, trust in the government is indispensable to success in combating public health disasters. Medical veterans urge a comprehensive inquiry in order to improve the healthcare system and hence cope with future infectious diseases, which authorities should respond to positively and promptly.

Keywords: *epidemiology, infectious disease, novel coronavirus, pandemic, public health, SARS-CoV-2*

Introduction

An infectious disease briskly spread from Wuhan, China to other countries around the world, and has become a pandemic caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) since March 2020. Its on-going outbreak has brought over 754 million cases and 6.8 million deaths globally as of February 2023. This public health crisis has been greatly impacting physical, mental, social and economic dimensions from individual and community perspectives, which pressures governments in the post-pandemic stage to launch comprehensive reviews in order to ameliorate their healthcare systems.

The first confirmed case of novel coronavirus in Hong Kong was detected on January 23, 2020, going on to total 13277 cases by January 1, 2022. However, the number of cases suddenly climbed to 1157415 as of March 31, 2022 (Worldometer 2022). Daily infections were less than 200 cases before February 4, 2022, but then peaked at 76991 cases on March 23, 2022 (56827 and 20164 cases diagnosed by nucleic acid tests and rapid antigen tests respectively) (Du et al. 2022). Worse, a sharp rise in cumulative deaths hit the city, rising from 213 on February 7, 2022 to 9451 on April 29 (Worldometer 2022), because of which Hong Kong gained one of the highest death rates among developed territories, with the majority of deaths occurring among the older population (Walker 2022). Such a disaster was induced by a low vaccination rate (Lew and Wallbank 2022), as many medical professionals

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reiterated (Cheung et al. 2022, Looi 2022) that the elderly remained a higher risk group connected with slow viral decline (Li et al. 2022). Experts explained that a lower vaccination rate among seniors exerted a lower level of protective immunity and therefore a higher case-fatality rate (Chen et al. 2022). Although a report was presented by the Chief Executive (the head of Hong Kong government) to calm fears related to this fatal spread (Lam 2022), it lacked reviews for what caused the tremendous pandemic-related deaths over the seven week period, especially the onslaught against older adults.

Chaotic Wave

Hong Kong underwent four waves of COVID-19 from 2020 to 2021, in which the containment strategy led to comparatively low infection and death rates; however, the containment measures failed in the fifth wave (Strumpf, 2022). Before this wave, there were almost no local cases for six months (K. Yuen et al., 2022). The first local case of the fifth wave was reported on December 31, 2021 (Centre for Health Protection, Department of Health, 2022), associated with two flight attendants who breached anti-coronavirus rules (Tsoi 2022). A series of incidents fuelled an outbreak in early January 2022, such as an Omicron restaurant cluster (Low et al. 2022), a birthday party involving senior officials and lawmakers (Lam 2022), and a batch of pet-store-related Delta variant cases (Mallapaty 2022). A cleaning worker who lived in a public housing estate was infected in a quarantine hotel and transmitted the virus to her family. Very soon, super-spreaders were tested for in that estate, resulting in the first lockdown building (Lee 2022b). This large-scale outburst began in mid-February (Thomas 2022).

Clinical research has shown that the Alpha variant produces more severe cases and deaths (Florensa et al. 2022) and the Delta variant generates higher transmission and mortality, together with increased likelihood of hospitalisation (Yomayusa et al. 2022). Despite its heightened transmission rate, Omicron inclines towards upper respiratory tract symptoms, a lower comorbidity burden and reduced severity (Leiner et al. 2022, Petersen et al. 2022). Asymptomatic or mild patients show symptoms similar to the flu or common cold (Cheung et al. 2022); thus, a massive climb in fatality in this wave, which was dominated by the Omicron variant, is unexpected.

The dynamic zero-COVID policy was implemented in China from August 2021 to curb the highly transmissible Delta variant (Bai et al. 2022) and lessen the negative influences on socio-economic stability (Liu et al. 2022). Hong Kong also enforced it (Burki 2022), even though the Chief Executive was incapable of defining it (Wang and Ramzy 2022). Long-lasting, stringent measures did not only invoke anti-pandemic burnout, but also inevitably isolated Hong Kong from the outside world and created an economic downturn (Stevenson 2022), including extensive contact tracing and screening, social distancing, vaccine pass implementation, masking, working from home, school suspensions, quarantines, travel restrictions and flight bans (Lau et al. 2022). If these draconian means had

been able to relieve this coronavirus tsunami, the Omicron catastrophe could have been prevented.

An Uncontrollable Surge: Avoidable or Unavoidable?

LeaveHomeSafe, a digital tracing application, was launched in November 2020 and was mandatory for entering government offices, which was extended later to include restaurants and many other businesses (Leung 2023a). It was devised to warn those who visited premises with coronavirus cases, but people used it unwillingly because of worries about privacy and security (Chan 2021). Indeed, this tool failed to deal speedily with the ceaseless growth of Omicron, and stopped sending notifications from late February 2022 (Yeo 2022). However, the government insisted in forcing its use until mid-December 2022 (Lee 2022g), though this regulation was often breached even by bureaucrats (Radio Television Hong Kong 2022a).

Medical staff, visitors to hospitals, restaurant employees, care home staff and visitors, school staff and students, inbound travellers, and close contacts of infected persons undertook mandated polymerase chain reaction (PCR) or nucleic acid tests (Pang and Master 2022). In addition, residents who lived in buildings with detected coronavirus in sewage, along with visitors to those locations, were required to fulfil testing orders. During the Omicron outburst, long queues for compulsory testing with elderly individuals and children lining up for hours in tight spaces appeared outside makeshift testing stations in different districts (Ramzy 2022), increasing the risk of transmission chains (Heung and Tsang 2022). Later, rapid antigen tests (RAT) were accepted and kits were distributed for voluntary self-testing (Lau et al. 2022), offering an online registration system for self-reporting (Hong Kong Government 2022b). Mandatory testing challenged laboratory capacities by producing a huge backlog volume, but the requirement persisted even though it was found helpless in combating this wave (The Asean Post 2022).

An explosion in confirmed Omicron cases hampered the overloaded emergency service from properly triaging people who needed medical care, causing hospitals to be jammed up with patients and causing a decline in healthcare service. In fact, most had only moderate symptoms such as headaches and fevers. Medical leaders exhorted mild and asymptomatic cases to stay home, drink more water and take medications such as painkillers or cough syrup (Cheung 2022b, Lee 2022a). Inadequate healthcare arrangements diminished public health service capacities.

Compulsory hospital admissions and isolation for thousands of infected residents and their close contacts, along with certain persons arriving in Hong Kong, quickly filled up hospital beds and isolation centres. Some epidemiologists suggested adjusting discharge criteria and allowing mild and asymptomatic individuals to return home to free up hospital facilities (Frost 2022, Master 2022a). However, these adjustments made discharge arrangements more complicated and therefore reduced outcomes (Canete 2022).

The citywide COVID-19 Vaccination Programme was launched on February 26, 2021 free of charge for those aged 18 and above to safeguard the public health, and then starting on June 14 those aged 12-17 were included. The age inclusion was lowered further to age 11-5 on January 21, 2022, and again on August 4 for infants as young as six months. Regrettably, vaccine resistance and hesitancy remained, particularly among older adults (Lee 2022e). The government made much effort to promote vaccination, but without satisfactory results, including requiring the debated Vaccine Pass in 24 specified premises starting February 24, 2022, and even in public medical centres from June 13, 2022 (Cheng 2022b). Defiance was connected to individual (lack of trust and confidence in the vaccine, perceptions of poor long-term effectiveness, fragile social networks, and peer pressure), micro-social (stigma against "dirty" healthcare workers), intermediate-social (distrust in the government), and macro-social (cultural influences, perceptions of vaccination as viral injection, the role of medical experts, and civic responsibility) factors (Siu et al. 2022), largely related to vaccine safety and side effects (Wang et al. 2021), especially for those with chronic illnesses (Zhang et al. 2022). Instead of solving problems, the government gave baffling reactions. For example, it swiftly stipulated an ordinance in mid-2022 in which unvaccinated workers may be terminated without compensation (Ho 2022b) in order to boost inoculation, implying agreements with social injustice and inequality at the workplace as recognised by the government. Failure of the Programme likely initiated with a misstep in which Sinovac, an inactivated virus-based vaccine, was approved for use before the third phase clinical data had been released (Kwan 2022). The underlying cause is distrust of the government (Cheung et al. 2022).

Low morale among health practitioners (Mahtani and Yu 2022a) further exacerbated this wave. The crushing widespread increase in cases catalysed an unbearable burden on a healthcare system already at the edge of collapse (Hollingsworth et al. 2022) from an immense patient load and COVID-positive healthcare personnel (Sataline 2022) in an underfunded healthcare system (H. Chan and Xinqi 2022). Additionally, under the Emergency Regulations Ordinance, mainland healthcare workers were allowed to work in Hong Kong provisionally in February and March, 2022 (Hong Kong Government 2022a, 2022c), avoiding licensing regulations. Collaboration between local workers and their mainland counterparts did not run well in practice: for example, resource allocation, ward patrol and shift schedules (Ma 2022).

Calamitous Deaths

Under the Prevention and Control of Disease Ordinance, COVID patients were sent to hospitals, and their close contacts to isolation facilities (Tsang et al. 2022), as explicated earlier. Mandatory hospital admission was not a scientific consideration, and instead increased health risks during the Omicron wave (Master 2022b). An influx of positive carriers, regardless of asymptomatic and mild cases, flooded the Accident and Emergency Department of public hospitals just to satisfy the purpose of dynamic zero-infection policy (Cheung 2022a); hence, hospitals were filled to overcapacity, which made things worse, as a 140% occupancy rate

(Ho 2022a) resulted in a low turnover rate of hospital beds (Master and Siu 2022, The Standard 2022). Patients on gurneys or wheelchairs were lined up outside hospitals, and thousands awaited isolation facilities (Cheng 2022, Wai 2022), without sufficient numbers of frontline healthcare workers. Unfortunately, the cold weather worsened this predicament (Sedgman 2022). All these unfavourable factors spiked the mortality rate to the highest death rate in the developed world (Hutton 2022a), and overwhelmed already scarce mortuary and funeral facilities (Mahtani and Yu 2022b).

Case mishandling has been complained of repeatedly throughout the pandemic. The crumbling healthcare system during the Omicron storm increased the number of COVID cases where patients were not served in time or even died before being delivered to hospitals (Lee 2022c), together with confined people dying in quarantine venues (Yiu 2022). Such a tragedy unveils not only misjudgements made in this deteriorating situation and how the problem was underestimated by relevant officials, but also the weaknesses of primary medical care and neighbourhood support (Mingpao 2023).

Reflection and Recommendations

Complicated, harsh, illogical and inconsistent restrictions (Davidson et al. 2022) are ineffective in dealing with this contagion. The accumulative infected cases and deaths reached 2880328 (1219813 PCR confirmed and 1660515 RAT confirmed) and 13409 respectively, as of February 9, 2023 (School of Public Health, LKS Faculty of Medicine 2023). More than 99.9% of infections and fatalities occurred in this Omicron outbreak, after US$76.9 billion (HK$600 billion) had already been spent for three years of pandemic control and relief programmes among 7.4 million people (Ho 2023). Medical specialists have proposed an independent inquiry to look into various aspects of anti-COVID restrictions (Cheng et al. 2023, Radio Television Hong Kong 2023, The Standard 2023), but the Hong Kong government has clearly refused (Leung 2023b).

The Principal Officials Accountability System has been in place since 2002 in order to ensure a clear understanding of officials' respective responsibilities, implement policies effectively, cope with challenges proactively, respond to community needs efficiently, and enhance public services (Hong Kong Government 2002). A SARS Expert Committee investigated the severe acute respiratory syndrome (SARS) outbreak in 2003, which resulted in 1755 cases and 299 deaths (Lee et al. 2006), and issued a report (SARS Expert Committee 2003) to review the causes of that public health disaster and suggest improvements in deploying healthcare resources. This checks and balances mechanism resulted in officials' being personally responsible for the failure of their policies, and therefore gained trust and support from the public. The COVID-19 pandemic has yielded many times more medical expenditures and losses of both life and economy than SARS, nonetheless the government refuses to acquiesce to the Accountability System, by its rejection of in-depth, thorough, open, transparent, reliable, and legally binding examinations of this three-year public health fight.

Prevention and control tactics should be scientific and evidence-based decisions. Notwithstanding, the government is frequently to be blamed for ignoring public health expertise while making overly politics-driven efforts to show fidelity to the mainland authority, whereas opposition voices are silenced (McLaughlin 2022). In early 2022, medical professionals warned that containment measures were impractical for controlling the Omicron spread and that a strategy change was necessary in order to resume normal life (Lung et al. 2022). Social distancing was no longer effective against Omicron (Hung et al. 2022): for instance, restrictions on gathering limits in public and private places. Thereafter, microbiologists realised that the pandemic has become endemic (Radio Television Hong Kong 2022b), and urged preparation for a living with COVID approach (Lee 2022d). The government still integrated closely with the mainland anti-pandemic policy (Hong Kong Government 2022e). Unexpectedly, the zero-COVID strategy began to be lifted in December 2022 after the stance was abandoned by Beijing (Magramo 2022), with full reopening of the Hong Kong-China border on February 6, 2023 (Zhao 2023). Such an abrupt relaxation is paradoxical whilst local cases continued to soar (Zhao and Creery 2022), which was an irrational contradiction of the evidence.

Human resource is a significant asset in healthcare service. Lamentably, healthcare practitioners were disappointed by the authorities which greatly harmed their morale. About 8000 healthcare workers from public hospitals joined a strike in early February 2020, pressuring the government to close the Hong Kong-China border completely to inhibit the spread of COVID-19 in order to sustain the healthcare system and community safety (Cheng 2021b). Their demand was not in error, but they were eventually penalised (Leung 2020). Coupled with political concerns (Cheng 2020, Dimsumdaily Hong Kong 2021), these severely bungled outbreaks accelerated the growing exodus of medical professionals (Kihara 2021, The Standard 2021), and nearly paralysed healthcare services during the Omicron invasion. Supplementary retention plans (Hong Kong Government 2022d), such as retirement extensions, a new rank hierarchy and a low-interest home loan scheme, did not alleviate the turnover effectively.

The highly dense city population encourages the rapid transmission of infectious diseases (Das 2022), and the open-plan layout design of residential care homes congested with numerous single-person beds speeds the spread of infections (Chow 2021). Deaths among those over 65 years old made up 91.67% of the third wave, which involved many elderly care homes in mid 2020 (Cheng 2021c, Pao 2020). Infection rates increased among care workers, reaching 9.5% in the fifth wave (Das 2022). Poor working conditions, long working hours and under-paid salaries make it difficult to recruit trained staff (China Labour Bulletin, 2022). Workforce shortages and crowded work environments erode service quality and the wellness of residents. The government should take more responsibilities for elderly welfare services.

Restrictive controls implemented to curb COVID spread negatively impact not only psychological and emotional health (Cheung et al. 2021), but also family relationships and adaptation to social challenges (Hung et al. 2022), especially for disadvantaged groups (Liao et al. 2021, Zhao et al. 2020), including sexagenarian

individuals and low-income families. This consequence very apparent in the senior population, in which more than one-third exhibit signs of depression and anxiety (Hutton 2022b). Particularly, those in care homes suffer from loneliness (Ho et al. 2022) due to the no visit policy and related forbidding measures. In spite of modern communication technology, online relationships never replace bodily connections and interaction between residents and their family members (Hung 2022). The government ignored the imperative of mental and emotional care, and lost the balance between anti-pandemic methods and quality of life.

Tight restrictions have fiercely battered the economy and ushered in the demise of various segments such as the tourist industry (Tsui et al. 2021) and catering sector (Lee 2022f). Subsequently, deficits fell to US$29.9 billion (HK$233 billion) and US$17.9 billion (HK$140 billion) in the 2020-2021 and 2022-2023 fiscal years correspondingly (Lee 2023, The Treasury Branch, Financial Services and the Treasury Bureau 2023), with a drop of in the gross domestic product of 4.5% to 9% (Grundy 2022, Yuen 2022). Recession was inevitable (Riordan & Chan, 2022). Although the post-pandemic budget proposes a US$97 billion (HK$761 billion) expenditure to boost economic activities, recovery seems uncertain (CNBC 2023).

Incompetent leadership, "failed" (Marques 2020) governance, inflexible tactics, policy loopholes (Cheung 2020) and loose preparation deteriorate the leading role of the government. With lessons learned from SARS 2003, the Hong Kong people are vigilant against infectious diseases, reinforcing community health awareness (Cheng 2021a). They responded to the outbreak proactively through personal protection behaviours, including personal isolation, physical distancing, masking and personal hygiene. For example, the first confirmed COVID case evoked citizen to panic-purchase masks even while the government rejected masking (Chung 2020). Moreover, the slow reaction on the part of authorities was ineffective for different stakeholders; most terribly, for vulnerable groups. Social workers consolidated a variety of limited resources to serve the needy, forming a community development approach (Lau et al. 2021).

Strengthening personal immunity is the basic element to optimising health status, and for which healthy lifestyle interventions (Monye and Adelowo 2020) are introduced. Diet and nutrition are essential, specifically regarding foods rich in protein, vitamins and minerals (Calcuttawala 2022), as well as paying attention to good food hygiene (Coelho-Ravagnani et al. 2021). Physical exercise is helpful in preventing chronic diseases, enhancing mental well-being, and reducing the severity of COVID (Castoldi et al. 2023, Cerasola et al. 2022). Sleep problems were reported during the pandemic (Silva et al. 2020). Breathing and relaxation exercises can improve sleep quality and mental health (Kepenek-Varol et al. 2022) because these techniques tend to favour immune functions (Mohamed and Alawna 2021). Social connection is conducive to physical and psychological health (Holt-Lunstad 2022). Keeping adequate social activities also enhance individual, family and social wellness. In contrast, tobacco and alcohol comprise proinflammatory or immunosuppressive molecular markers (Piaggeschi et al. 2021), and thus disrupt immunity (Calleja-Conde et al. 2021). Minimising the use of such substances is advisable.

Conclusion

Despite evidence of a negative correlation between vaccination rate and mortality rate (Smith et al. 2022), inoculation is not the only, or even a sufficient, intervention (Cheng 2022a); therefore, it is an untenable liability in connection to the high death rate in the fifth wave. Instead, distrust of the government remains the core component (Lau 2021). Although the government claimed that they had well prepared for fighting the Omicron strain (Hong Kong Government 2021), healthcare practitioners have blamed the authorities for under-preparation and feeble plans to defy this unprecedented public health battle. Issues of manpower, medical resources, management, policies and practices, and the balance between anti-pandemic measures, individual health (physical, mental and social) and economic development should be officially and comprehensively investigated in order to cope with similar future healthcare emergencies, while recognising that building mutual trust is a prerequisite condition for substantially addressing infectious diseases with minimal collateral damages.

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