

Editorial in Occupational and Public Health

What should happen after the COVID-19 pandemic ends? A global plan is needed to address “endemic” COVID-19 and prevent future pandemics

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About three years ago (on 11 March 2020), the Coronavirus disease 2019 (COVID-19) was classified as a pandemic by the World Health Organization (WHO) [1]. Almost precisely three years later (10 March 2023), John Hopkins University (JHU), which has consistently tracked cases, deaths, and other data underlying the pandemic [2], declared that it had stopped data collection, just as ~6.9 million deaths were recorded worldwide. Despite this move by JHU, WHO continues to track and record COVID-19 data [3]. However, the US, which has recorded the highest cases and deaths globally, plans to end the public health emergency on 11 May 2023, a decision that will impact public health policies, such as vaccines, which will no longer be free to receive [4]. Spain has also decided to downgrade the COVID-19 pandemic to an endemic illness [5]. Citing a decrease in the virus' lethality, South Korea already reported COVID-19 as endemic at the end of 2022 [6]. In Italy, the Law Decree of 24 March 2022 had already established the end of the COVID-19 emergency on March 31, 2022 [7]. WHO has offered a more cautious outlook, noting that it plans to announce the end of the pandemic sometime in 2023, but not committing itself to a set date [8].

However, are these decisions equivalent to an acknowledgment of the end of the pandemic, or is it a declaration that COVID-19 has become a manageable or an endemic disease – despite its continued deadly toll – globally? The end of a pandemic and its transition to endemicity may be defined based on a high proportion of the global population having some immunity from natural infection or vaccination. Still, other factors include a diminished death toll, lowered pressure on health systems, reduced actual and perceived personal risk, removed restrictive measures, and reduced public attention [9].

Even if the WHO or other international health organisations are ready to declare the pandemic as “officially” over, this does not necessarily imply that the threat of infection or death has disappeared. Indeed, the term endemic, which is used for some deadly infectious diseases such as malaria, HIV infection, and tuberculosis in some areas of the world, merely indicates that the overall infection rates have stabilised without any indication of the time required for the disease to become

eradicated or the extent of a population's susceptibility. Therefore, endemic is not equal to harmless [10]. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), which is the virus that causes COVID-19, continues to evolve. Accordingly, waning immunity and the emergence of new variants will shape the long-term burden and dynamics of COVID-19 [11]. Indeed, some scholars stated that the transition from the pandemic to an endemic state has increased more than two-fold after the emergence and spread of Omicron variants [12].

Furthermore, the need for unvaccinated individuals to become vaccinated remains unclear in an endemic context. We are entering an unknown terrain.

On the one hand, the elderly population and people with prior co-morbidities, even if vaccinated, are vulnerable to serious health effects caused by COVID-19, including cytokine upregulation and acute respiratory distress syndrome [13]. On the other hand, additional evidence is required for vaccinating children and young people, who often remain asymptomatic or mildly symptomatic to SARS-CoV-2 [14]. Herd or community immunity, proposed as a strategy to protect the most vulnerable of the populace, is still under investigation, and the effectiveness or resilience of memory cells that may be established through immunity from past infection or vaccination is still being determined [15]. This raises questions about the need for vaccine boosters and requires additional research on COVID-19 vaccines.

At this point, what needs to be clarified is whether unvaccinated individuals who are required to get vaccinated will be entitled to free vaccines. Another issue is how vaccination campaigns will continue in low- and middle-income countries where low vaccine coverage rates are due to the high costs of COVID-19 vaccine production and distribution [16,17].

The end of this pandemic – at least on paper – does not imply that its consequences are necessarily over. It is likely that direct and indirect acute effects on physical and psychological health, which have impacted the most vulnerable categories of workers (i.e., healthcare workers), and strata of the population (the youngest and oldest, people affected by psychological disorders, etc.), as well as their socio-economic consequences, will linger for years to come [18].

Following a large-scale health disaster like this pandemic, non-communicable diseases and their risk factors (e.g., hypertension), which are associated with an increased risk of severe disease and death from COVID-19 [19], are expected to increase in the general population [20]. The COVID-19 pandemic could also have an impact on communicable diseases. In Japan, about 75% of 36 infectious diseases showed a dip in intrapandemic infection as compared to before the pandemic [21], so it will be interesting to note whether the epidemiology of such diseases will revert to pre-pandemic trends as societal habits and health policies change.

The role of politicians is crucial for returning to a pre-pandemic state, both in terms of health and wealth, by tackling the socio-economic crisis and overburdened healthcare systems, as well as healthcare workers struggling with the physical and mental health consequences caused by the pandemic. In addition, policymakers should collect and use evidence-based medicine on the safety and effectiveness of COVID-19 vaccines against new variants to reduce vaccine hesitancy [22] and misinformation [23,24], especially among those who are susceptible and who need to get vaccinated against COVID-19.

We claim that even when the pandemic is declared as being over, all countries should keep their national emergency health plans updated, ready to deal with either a surge in infections or the emergence of other highly virulent SARS-CoV-2 variants. Moreover, in the future, emergency plans based on the activation of mask mandates, booster vaccination campaigns, social distancing, or work-at-home policies could still be valuable strategies for tackling potential new pandemics.

Monitoring the emergence of new SARS-CoV-2 strains can ensure a smooth transition from the COVID-19 pandemic to an endemic state. Even more importantly, preventing the onset of future respiratory virus pandemics and improving the preparedness of healthcare systems worldwide will be decisive in being able to react to future pandemics. It is necessary to assess the impact of climate change, globalization and urbanization on the promotion of zoonotic spillover, allowing a jump of pathogens from a natural animal host to a novel host, including humans [25], and leading to new

viral infectious disease outbreaks with pandemic potential, including possibly COVID-19. Learning the lessons from the COVID-19 pandemic is important to avoid future economic and healthcare collapses globally. To develop a global and coordinated plan for surveillance aimed at monitoring the onset of new viruses and their spread to humans, politicians need to commit to coordinating policymakers and scientists and supporting disadvantaged low-income countries [26].

New public health awareness and clinical expertise could potentially be utilized if the lessons from COVID-19 have been properly assimilated, although future viral pandemics that cause similar widespread destruction to humanity at a global level are not necessarily unavoidable.

Finally, in terms of academic publishing, the number of publications dedicated to COVID-19 and its pandemic appears to be on a downward trend, and even though 338,000 papers have been published [27], who is going to be responsible for ensuring the academic integrity of that literature, and is a thorough post-publication analysis merited? For societies worldwide to be better prepared for future pandemics, there needs to be a thorough critical reassessment of published literature to improve pandemic plans [28,29].

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