

## COVID-19: A Year Long and Beyond?

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In December 2019, a number of patients with pneumonia of unknown etiology (PUE) were reported in Wuhan, Hubei Province (1). The coronavirus disease 2019 (COVID-19), caused by a virus also known as severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2), was identified by China in January 2020. On January 30, 2020, the World Health Organization (WHO) declared coronavirus a public health emergency of international concern (PHEIC), and on March 11, it announced that COVID-19 could develop into a global pandemic (2–3). As of February 8, 2021, there had been 105,805,951 confirmed cases, 2,312,278 confirmed deaths, and 223 countries, areas or territories were effected (4).

Through one year's efforts, different countries around the world achieved varying results in pandemic control. In some countries like China, the pandemic has been well controlled, while in other countries the situation is still grim.

China initiated a national campaign against COVID-19 immediately after identifying this new virus. In around two months, the daily increase in domestic cases fell to single digits; and in approximately three months, a decisive victory was secured in the battle to defend Hubei Province and its capital city of Wuhan (5). The overarching strategy was early containment, and the key was active case identification and management (6). "Four Earlies" (early detection, early reporting, early isolation/quarantine, and early treatment) were the primary requirements for the implementation of all control measures. All communities, organizations and citizens were mobilized to participate in pandemic prevention and control (7–8). Then a suppression strategy was implemented by establishing a strong and flexible response mechanism, implementing, or lifting control measures based on the results of surveillance and risk assessment in different regions. Now we have entered the late stage of suppression.

In the winter and spring season of 2020–2021, large-scale local outbreaks were detected in the rural areas of Hebei, Jilin, and Heilongjiang provinces, and

more than 2,000 cases were reported in total (9–10). After unremitting efforts of containment and suppression, the local outbreaks were successfully controlled.

As of January 2021, more than 230 COVID-19 candidate vaccines had been in clinical or pre-clinical development globally (11), including inactivated or live virus vaccines, virus vectored vaccines, protein subunit vaccines, nucleic acid vaccines (mRNA and DNA), virus-like particles, and nanoparticles, each having discrete advantages and shortcomings. China has chosen 5 platforms to develop COVID-19 vaccines. As of February 3, 2021, 31 million doses of inactivated COVID-19 vaccines had been administered in China, targeting high-risk groups, including healthcare/frontline personnel, essential workers who are critical to maintain the social performance, cold-chain industry employees and people working or studying overseas (12). As vaccination started smoothly and progressed as scheduled, China CDC has been closely monitoring vaccination coverage and adverse events following immunization (AEFI). The data shows that the reported rate of serious adverse events is no higher than that of the influenza vaccine, reflecting the fact that the currently used inactivated COVID-19 vaccines (13) are safe. This is because the Chinese government has always made the safety and efficacy of COVID-19 vaccines a priority and the Chinese vaccine manufacturers are pushing forward vaccine development in strict scientific and regulatory process; 2021 will be a year of vaccination against COVID-19 among broad populations based on the strategy of prioritization. COVID-19 vaccines have raised hope of reducing infected cases and virus transmission and getting life back to normal soon.

Looking into the future, there will still be many uncertainties in 2021. One of them is that the COVID-19 pandemic might become a lasting epidemic or endemic. Furthermore, many new characteristics of COVID-19 have been reported, such as long-term sequelae, reinfection, reoccurrence of viral RNA, and long-time or intermittent latency.

Therefore, although we have developed vaccines, there are still many uncertainties. The emergence of new virus variants of concern (VOC) leading to increased transmissibility and deteriorating epidemiological situations have brought greater challenges, leaving us a lot of work to do. When facing a new virus, mankind still needs to keep doing research and develop a deeper understanding of it.

Our sincere gratitude goes to the 15 internationally renowned health experts who we invited to give their comments on the COVID-19 pandemic from different aspects on *China CDC Weekly*. They shared their insights and experience in the fight against the pandemic from different perspectives as well as the latest scientific thoughts, while advocating more open and inclusive international cooperation and assistance in the prevention of pandemics in the future.

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