

# Health Care in COVID-19 Pandemic, Thailand, 2020-2022

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## I. Updated situation of the COVID-19 pandemic in Thailand (as of 31 August 2022)

On 13 January 2020, Thailand was the first country to report a case of SARS-CoV-2 virus infection outside of China. The first wave of the COVID-19 pandemic started in early 2020 when many cases were identified among international travelers and people exposed to nightlife entertainment and a boxing match in Bangkok. The COVID-19 situation was manageable during the first year of the pandemic, however, much larger pandemic waves, resulting from SARS-CoV-2 variant viruses, occurred in 2021 and 2022 (Figure 1).

As of 31 August 2022, the Thailand Ministry of Public Health reported a cumulative total of 4,650,919 COVID-19 cases including 32,303 deaths. In 2020, the daily number of cases peaked at 188 cases/day on 22 March and gradually declined toward the end of May. During the first year of the pandemic, Thailand was relatively successful in containing the pandemic as only 7,163 lab-confirmed cases were reported. But in December 2020, the second pandemic wave began, with a surge of COVID-19 cases, initially concentrated among immigrant workers and surrounding communities at a seafood market in Samut Sakhon Province. After implementing the full-scale control measures, the epidemic was brought under control in March 2021.

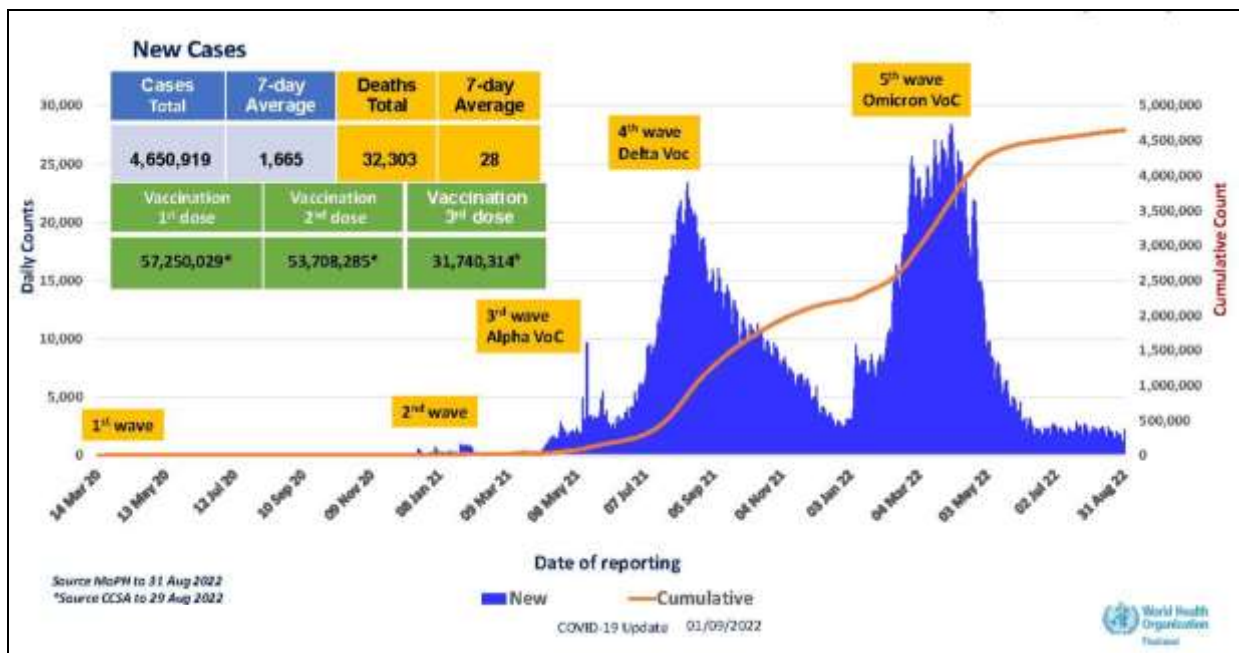


Figure 1. COVID-19 Pandemic Situation in Thailand (Source: Thai MOPH and WHO)

To enhance efficiency of the COVID-19 pandemic management and public communication, Thailand's Prime Minister declared a state of emergency on 26 March 2020. The Center for COVID-19 Situation Administration (CCSA) was established under the Emergency Decree on Public Administration in Emergency Situations B.E. 2548 (2005) in order to coordinate and command all of the government agencies involved in the pandemic response and mitigation.

A night curfew started on 3 April 2020, and all commercial international flights to Thailand were banned starting from 4 April 2020. Travel restrictions and mass gathering prohibitions were adopted nationwide. Restrictions were eased gradually beginning in mid-May and the curfew was lifted in July 2020. However, the state of emergency has remained effective until the end of September 2022. Generally, the public has cooperated relatively well with health advisories, e.g., mask wearing in public, social distancing, etc.

In late April 2021, the 3<sup>rd</sup> wave of the COVID-19 pandemic began in the country. During the Thai New Year festival, increased social activities resulted in a surge of cases, mostly infected by the Alpha variant. The outbreak started in Bangkok and rapidly spread to nearby provinces and soon throughout the country. Thousands of cases per day were detected, creating a high demand for hospital beds among symptomatic patients as well as additional quarantine units for high-risk individuals in the epidemic provinces. The national policy of mandatory hospitalization for all confirmed cases and strict quarantine of high-risk close contacts was immediately reviewed and revised by the advisory group of experts to allow community care and home quarantine as alternatives.

The actual crisis caused by the COVID-19 pandemic was obvious between June and November 2021 when the SARS-CoV-2 Delta variants spread throughout the larger population in Bangkok and to a majority of provinces in Thailand. Over 10,000 new cases were detected daily, overwhelming the healthcare system including its capacity of intensive care units and the increase in patients exhausted the workforce of medical staff. The number of severe cases in hospitals peaked around mid-August 2021 at 5,600 cases while over 80,000 cases were hospitalized (Figure 2). The number of severe cases gradually declined toward the end of December 2021.

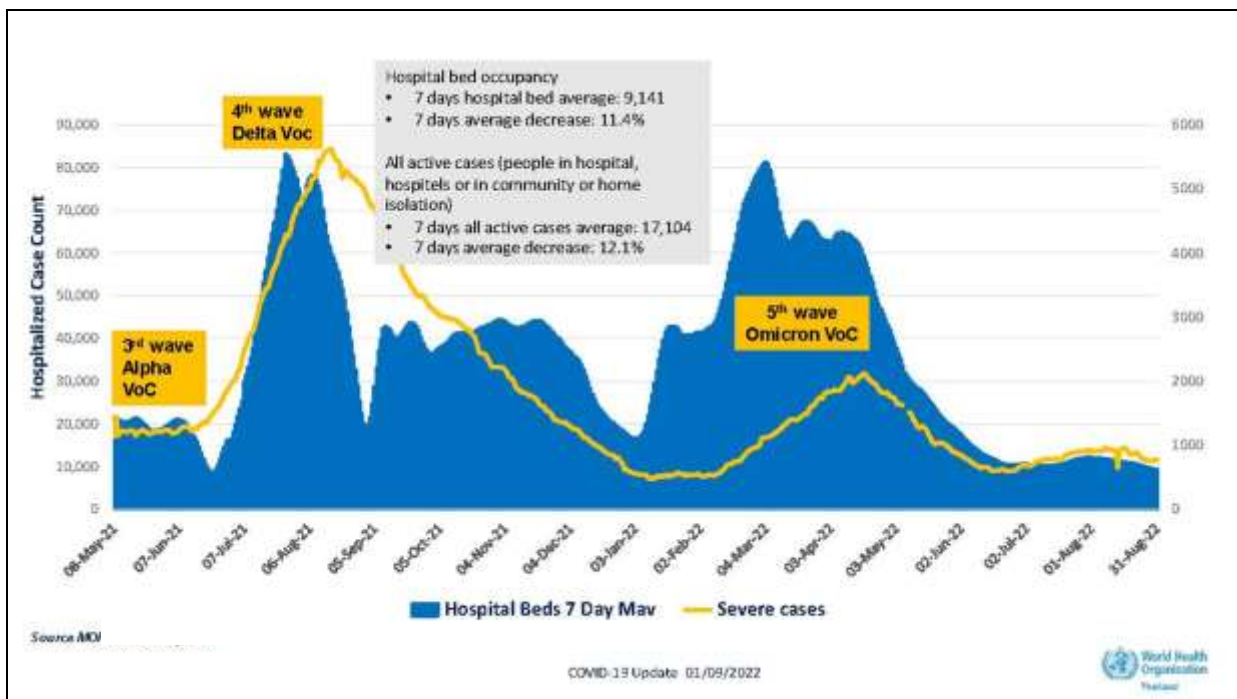
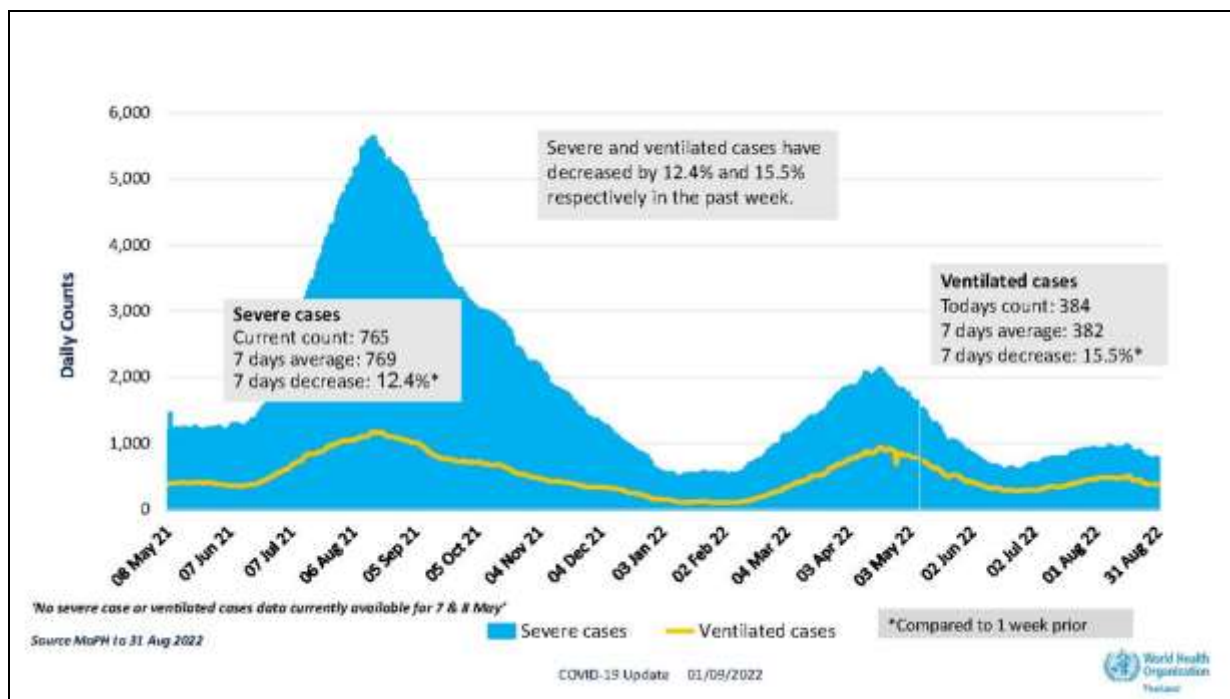


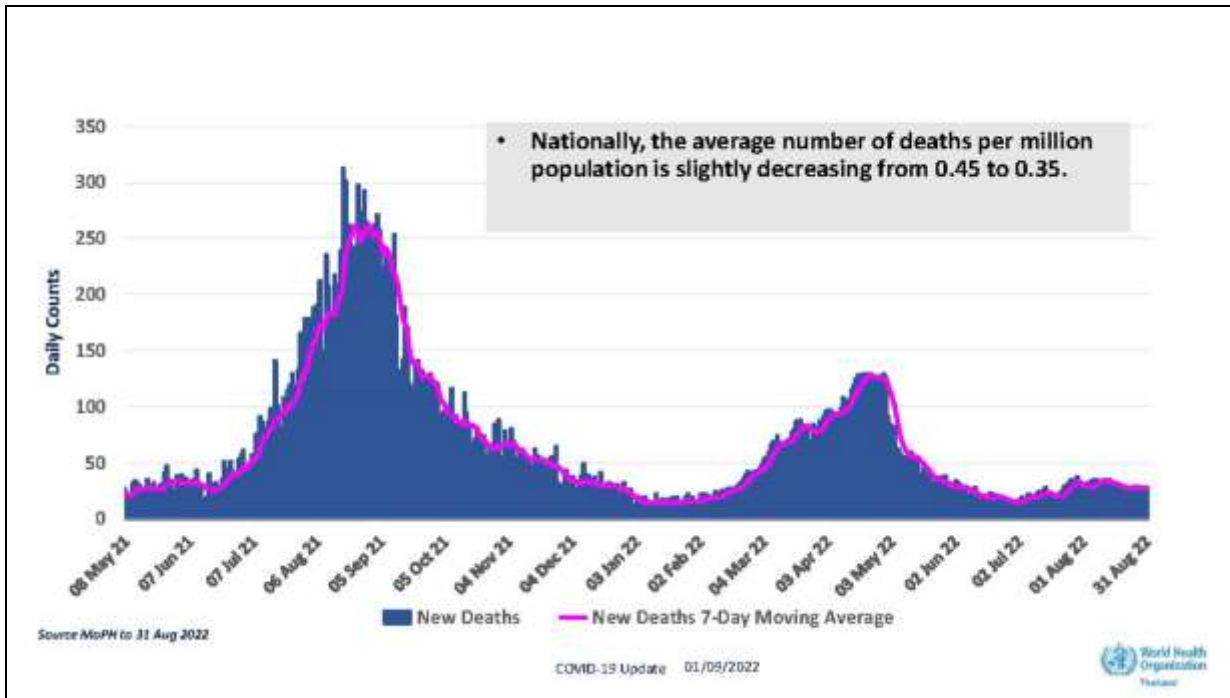
Figure 2. COVID-19 Hospital Bed Occupancy and Severe Cases (Source: Thai MOPH and WHO)

In December 2021, while the Delta variant situation was relatively under control, the Omicron variant, a more transmissible variant, was first introduced to Thailand via travelers from Europe. In 2022, the majority of reported cases were caused by Omicron variants, which are more contagious but less lethal than the Delta variant. As a result, there was a sudden rise of infections in most provinces, however the daily number of severe cases caused by Omicron BA.1/BA.2 were significantly lower than the number of severe cases in 2021. From June – August 2022, the Omicron BA.4/BA.5 variants quickly replaced the previous variants, and the number of severe cases further declined. The nationwide prevalence of ventilated COVID-19 patients also dropped from more than one thousand in August 2021 to below 400 in August 2022 (Figure 3).



**Figure 3. Number of Severe and Ventilated COVID-19 Cases in Thailand (Source: Thai MOPH and WHO)**

The death toll was low in 2020 due to the low number of SARS-CoV-2 infections. Only 63 deaths from COVID-19 had been reported in 12 months. The majority of COVID-19 deaths were reported between June and November 2021 during the Delta variant wave as the healthcare system was overwhelmed. During the peak in mid-August 2021, approximately 300 COVID-19 deaths were reported per day and the death toll gradually declined to below 20 deaths per day by the end of 2021 (Figure 4). In 2021, Thailand reported 21,645 deaths with a mortality rate of 309/1,000,000 population, which was lower than most countries. From January to August 2022, an additional 10,595 deaths were reported. The majority of those were people living with chronic diseases or were unvaccinated elderly people aged 70 years and older.

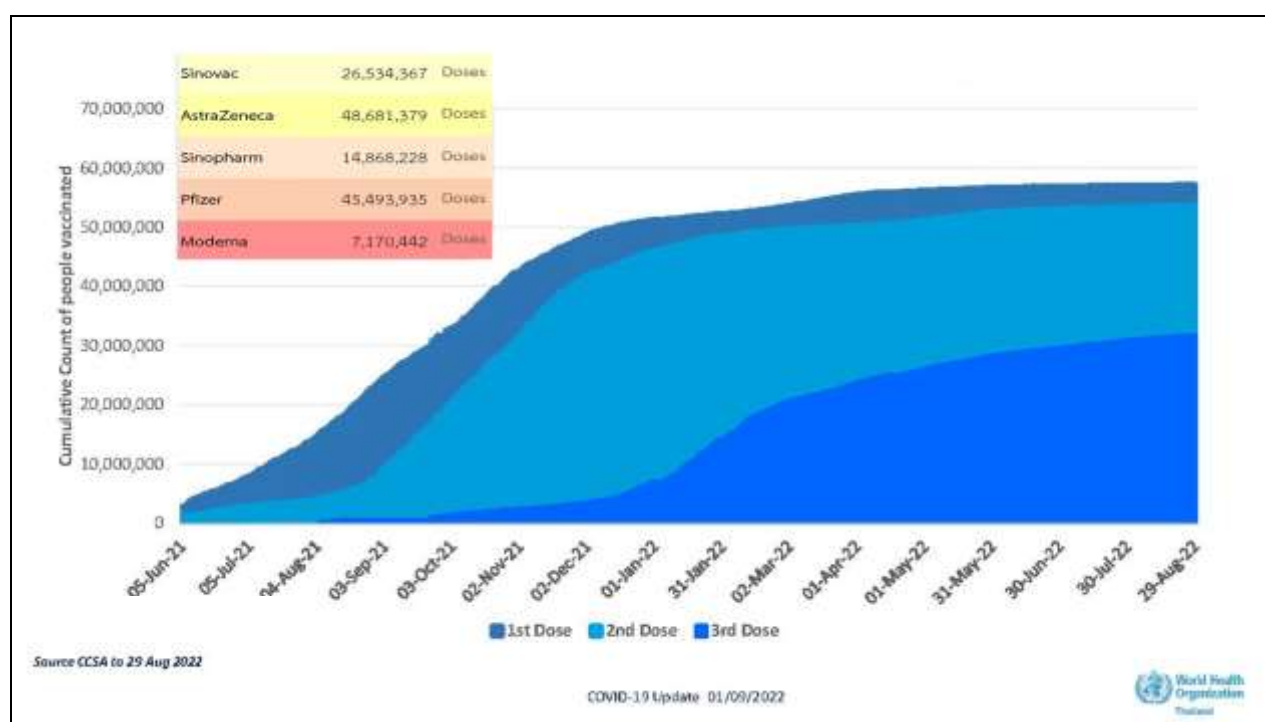


**Figure 4. Daily Number of COVID-19 Deaths in Thailand (Source: Thai MOPH and WHO)**

## **II. Healthcare System and Vaccination Policy during the COVID-19 Crisis**

Thailand was among the first countries to implement "Universal Health Coverage" for its citizens in recent decades. A robust healthcare system, together with the joint efforts from the "whole-of-society" approach provided an effective foundation for the COVID-19 pandemic response and mitigation. The public health infrastructure covers all provinces, districts, and subdistricts. However, Bangkok, the capital city, has a population of more than 6 million people and several million migrants from other provinces and countries. Over 20% of the total COVID-19 cases in the country have been reported in Bangkok and the capital has faced major challenges such as inadequate primary healthcare system capacity and inefficient coordination. The Thai government has sponsored almost all of the COVID-19 related operations and activities, ranging from outbreak investigation, screening, quarantine, testing, treatment, medical care, and vaccinations. Non-pharmaceutical interventions such as mask-wearing in public, hand washing, physical distancing, travel restrictions and working from home were effective when practiced by the majority of the population. It is important to note that the policies have been regularly reviewed and revised according to the dynamic nature of the COVID-19 situation including disease transmission, severity and population immunity. At the peak of the crisis, both public and private hospitals played equally critical roles in providing medical care to COVID-19 patients and supporting case management outside hospital settings, such as community isolation venues, "hospitals" and field hospitals. Medical personnel and hospital support staff worked around the clock to provide appropriate care to COVID-19 patients. In some situations, routine medical services and health activities were postponed or cancelled in order to preserve the health workforce to serve the large number of COVID-19 cases. Extra resources were mobilized from the national level to support the operations in the field and in hospitals. Additionally, over one million village health volunteers played a vital role in spreading health messages, case surveillance, preventive measures and control activities in their communities.

In 2020, the national policy guided the “Zero COVID-19” strategy and emphasized strict prevention and control of COVID-19 transmission in all settings. International travellers and high-risk contacts were screened and tested for SARS-CoV-2 via the RT-PCR method. All infected patients had to be admitted to a hospital or field hospital to ensure they received proper care as well as to prevent the spread of the SARS-COV-2 virus. All COVID-19 patients received medical care as indicated by the national Clinical Practice Guidelines (CPGs), which were developed for all physicians to follow in order to give the appropriate treatment and care to their patients. High-risk contacts of the confirmed cases were strictly quarantined for 14 days to observe their symptoms and released upon testing negative. Thailand’s Public Health Ministry (MOPH) designated COVID-19 as a “Dangerous communicable disease” which took effect on 1 March 2020. The announcement was based on the provisions in Sections 5 and 6 of the Communicable Disease Act and was published in the Royal Gazette on 29 February 2020. As a result, the suspected and confirmed cases of COVID-19 were required to be reported to public health authorities within three hours of detection. Moreover, the MOPH announced COVID-19 as an “emergency disease” on 3 March 2020. Following the announcement, all hospitals (both public and private) were required to treat every COVID-19 patient until recovery and reimburse the medical expenses from the national health budget.



**Figure 5. COVID-19 Vaccination Coverage in Thailand (Source: Thai MOPH and WHO)**

In 2021, the “Living with COVID-19” policy was introduced to balance health and the economy. During the second year of the pandemic in Thailand, COVID-19 vaccines and effective antiviral therapy served as important tools to combat the disease. The first COVID-19 vaccination was administered on 28 February 2021, using an inactivated vaccine made in China. Later, more platforms of COVID-19 vaccines, e.g., viral vector, mRNA became available in the country (Figure 5).

In addition to the regular vaccination units in public and private hospitals, many cities set up vaccination centers in public venues, e.g., shopping malls, stadiums, and train stations for convenient access to vaccines. Persons with disabilities or limited physical movement were reached by mobile vaccination units (Figure 6). By the end of 2021, a total of 104 million doses of vaccine had been administered to Thai and non-Thai people in the country. The COVID-19 vaccination rates for one

dose and two doses were 71% and 64%, respectively. During the Delta variant epidemic wave in mid-July 2021, the heterologous vaccination of an inactivated vaccine made by the Sinovac Company (CoronaVac) and a viral vector-based vaccine locally made by the AstraZeneca Company, with an interval of three weeks was introduced, following the release of scientific evidence from the leading medical school to show satisfactory effectiveness in protection against COVID-19 infection. The “mix and match” vaccination regimen was reviewed and approved by the Thai Advisory Committee on Immunization Practices (ACIP) and subsequently endorsed by the National Communicable Disease Committee. During the second half of 2021, the mRNA vaccines, from both Pfizer and Moderna Companies were imported into the country and they rapidly increased the vaccine coverage in children below 18 years. In the final quarter of 2021, a booster dose was officially recommended by the ACIP with the goal to maintain high immunity in the population.



**Figure 6. Vaccination Center and Community Outreach in Thailand (Source: Thai MOPH)**

To ensure public confidence in vaccine safety and to mitigate adverse effects from COVID-19 vaccines, the Thai government has provided free treatment and compensation for vaccine recipients who developed symptoms following their COVID-19 vaccination. Furthermore, the MOPH-appointed expert group reviews for all fatal and severe cases of adverse events following COVID-19 vaccination on a regular basis and alerted policymakers whenever a significant risk of vaccination was identified.

In early 2022, the Thai government ambitiously prepared to transition away from the COVID-19 pandemic by developing a policy called the "Post-COVID-19 Pandemic Approach". The policy aims to restore normal life for citizens while safeguarding the public from a re-emergence of COVID-19. The initial date for the policy implementation was 1 July 2022, but was subsequently postponed to 1 October 2022. The delay was due to an increasing number of Omicron BA.4/BA.5 infections. During the third year of the pandemic, COVID-19 vaccinations remain the key intervention for managing the pandemic situation in Thailand. Approximately 39 million doses were administered between January and August 2022, out of 142.7 million cumulative doses. As of 31 August 2022, the vaccination rates for one dose, two doses, and a booster dose rose to 82%, 77% and 46%, respectively. It is estimated that nearly half a million lives among the vaccinated people in Thailand have been saved from COVID-19 due to the vaccine.

In 2020, many hospitals built negative pressure rooms and intensive care units to serve more severe cases of COVID-19. The treatment facilities were expanded to accommodate additional beds. Laboratory testing is a key component for COVID-19 diagnosis, so accredited-PCR laboratory facilities and equipment were scaled up nationwide in order to enhance diagnostic capacity. During the first year of the pandemic in Thailand, Favipiravir, Remdesivir and available antivirals for other diseases were prescribed for empirical treatment of COVID-19 patients. At the end of the first quarter of 2021, new antivirals including Molnupiravir and Paxlovid were procured by the Thai government to provide more options for treatment of high-risk COVID-19 patients including the elderly and people living with chronic diseases, e.g., diabetes, chronic kidney disease, heart disease, etc.

Furthermore, Evusheld, a Long-Acting Antibody – LAAB was also secured for immunocompromised individuals, e.g., chronic kidney diseases and persons with organ transplants. Evusheld has been given to the target population for prophylaxis starting in 27 July 2022 and the results are under evaluation.

In 2021, a new policy was adopted to cope with the COVID-19 pandemic crisis. Although the health care facility expansion was immediately implemented, the demand for medical care was still greater than the capacity. A sharp rise in the number of patients overwhelmed hospitals and field hospitals which reached their full capacities, leaving patients waiting for beds and without proper treatment. A number of COVID-19 patients could not access care at hospitals during the peak of the crisis from June to September 2021, but they had the option of receiving COVID-19 treatment via the National Health Security Office’s telemedicine service system and “home isolation” with service delivery of medicine and food. Furthermore, some hotels were converted into designated "hospitals," which were run by the medical teams to provide proper care for COVID-19 patients with mild symptoms or asymptomatic infections. During the Delta variant wave in mid-2021, the standard PCR test was replaced by the antigen test kit (ATK). ATKs are cheap, convenient, user-friendly, and provide timely results for case management although low sensitivity is of concern.



**Figure 7. Budsarakhum Hospital, a Field Hospital in a Convention Center, Thailand, 2021**

Right before the pandemic crisis in Bangkok in mid-May 2021, Budsarakhum Hospital, a 3,700-bed field hospital specialized in providing care for COVID-19 patients with moderate to severe symptoms was established by the Thai MOPH (Figure 7). The hospital was located at the IMPACT Muang Thong Thani convention center in Nonthaburi Province and it admitted COVID-19 patients who live in Bangkok and Nonthaburi. Busarakam Hospital was staffed by a rotating roster of medical personnel from several provincial hospitals. It housed a command center and installed modern medical equipment, including respirators, X-Ray machines, high flow machines and a standardized laboratory. Ventilation, plumbing, waste water and surveillance systems at the field hospital were provided by the MOPH's Department of Medical Service Support to ensure standardization and safety of patients and personnel. Private sector entities contributed utilities, such as internet, transportation and food. From May to September 2022, Budsarakhum Hospital provided medical care and treatment to 20,436 COVID-19 patients. It was closed after the pandemic situation was brought under control.

### III. Summary

The COVID-19 pandemic has posed a major challenge for healthcare systems of countries around the world, including Thailand. Almost all of them were not prepared enough to cope with the scale of the pandemic. Thailand has endured the pandemic crisis with useful lessons learned as follows:

- Building a robust healthcare system is vital for effective response and mitigation of the impact of pandemics.
- Non-hospital care and alternate care sites are preferred for the pandemic situation but require strong community engagement and preparation.
- Moreover, the well-prepared health workforce with surge capacity at all levels will minimize the risk of healthcare collapse.
- A “Whole-of-government” and “whole-of-society” response to the pandemic is an essential foundational component during the fight against COVID-19.
- Encouraging COVID-19 vaccinations in vulnerable population remains a priority but needs to be innovative.
- Enhancing surveillance for early detection and timely reporting of COVID-19 clusters as well as laboratory testing and characterization of novel SARS-COV-2 variants is a priority.
- Domestic supply for medical equipment, laboratory reagents, antivirals and vaccines must be timely available in response to the next pandemic.

Balancing health and the economy is always a big challenge, and most countries have managed the COVID-19 pandemic based upon situational assessments on public health, political, social, and economic aspects. Recently, the Thai government has made a strong decision to downgrade COVID-19 from the designated "Dangerous communicable disease" to be a "Communicable disease under surveillance" starting on 1 October 2022. Most economic and social activities will resume as they were before the pandemic. However, key public health measures will still exist during the period of transition to ensure public safety. Moreover, protecting vulnerable populations remains a critical high priority. Similar to previous pandemic diseases, COVID-19 is likely to stay with us in the long-term. Thus, The Thai MOPH launched a campaign to promote "universal prevention" and "universal vaccinations" in order to raise awareness of individuals and protect the health of the general public. Thailand stands ready to tackle a re-emergence of novel variant of SARS-COV-2 and other emerging pathogens.