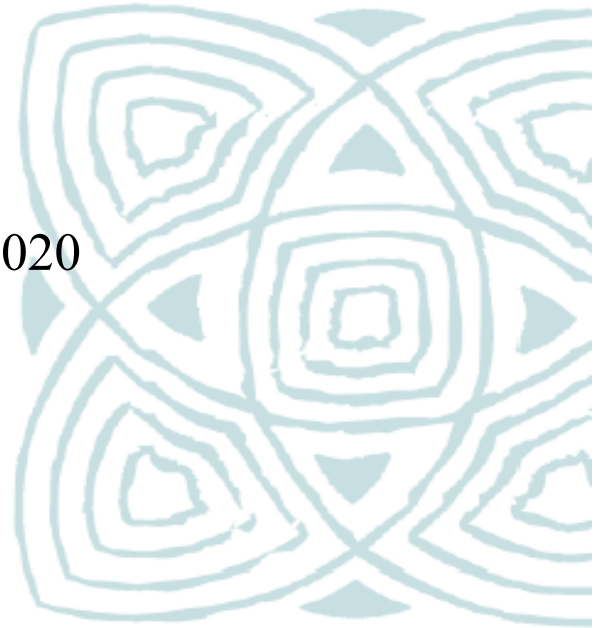
Asia Pacific Observatory
on Health Systems and Policies

COVID-19 Health System Response Monitor

THAILAND



September 2020

Updated in November 2020

World Health Organization, Regional Office for South-East Asia
COVID-19 Health System Response Monitor: Thailand
ISBN: 978-92-9022-801-1

Suggested citation: Patcharanaruamol W, Issac A, Asgari-Jirhandeh N, Tuangratananon T, Rajatanavin N,Tangcharoensathien V, et al. COVID-19 Health System Response Monitor: Thailand. New Delhi: World Health Organization Regional Office for South-East Asia; 2020.
Cataloguing-in-publication (CIP) data. CIP data are available at http://apps.who.int/iris/.

List of authors

International Health Policy Program (IHPP), Ministry of Public Health, Thailand

Walaiporn Patcharanaruamol
Angkana Lekagul
Chutima Akaleephan
Kamolphat Markchang
Mathudara Phaiyarom
Nattadhanai Rajatanavin
Nattanicha Pangkariya
Orana Chandrasiri
Orratai Waleewong
Putthipanya Rueangsom
Ratchaporn Congprasert
Repeepong Suphanchaimat
Sataporn Julchoo
Somtanuek Chotchoungchatchai
Titiporn Tuangrattananon
Thinakorn Noree
Warisa Panichkriangkrai
Watinee Kunpuek
Viroj Tangcharoensathien

Asia Pacific Observatory on Health Systems and Policies

Anns Issac
Nima Asgari-Jirhandeh

Advisor

Supakit Sirilak, Ministry of Public Health, Thailand

Acknowledgements

The authors gratefully acknowledge the support provided by Thailand Science Research and Innovation under the Senior Research Scholar on Health Policy and System Research programme (Contract No. RTA6280007) through the International Health Policy Program (IHPP).

APO would like to thank the European Observatory on Health Systems and Policies (OBS) for their active engagement and collaboration on this project. OBS, along with and for the WHO Regional Office for Europe, developed the initial concept for the country COVID-19 Health System Monitor and used it to capture the situation in most Member States of the European Region. APO, OBS and WHO Regional Office for the Eastern Mediterranean collaborated to update the template/guidance for capturing information suitable for other regions and this was used by the author team to guide the writing process.

Funding for this project was provided by WHO Regional Office for South-East Asia.

Abbreviations

APO	Asia Pacific Observatory on Health Systems and Policies
ASEAN	Association of Southeast Asian Nations
CCSA	Centre for COVID-19 Situation Administration
COVID	coronavirus disease
CSMBS	Civil Servant Medical Benefit Scheme
CSR	corporate social responsibility
DDC	Department of Disease Control
DRG	disease-related group
DTAM	Department of Thai Traditional and Alternative Medicine
EOC	emergency operations centre
FDA	Food and Drug Administration
FETP	Field Epidemiology Training Programme
GPO	Government Pharmaceutical Organization
HSRM	Health System Response Monitor
HWF	health workforce
ICU	intensive care unit
IHPP	International Health Policy Program
IHR	International Health Regulations (2005)
IT	information technology
MoPH	Ministry of Public Health
NHSO	National Health Security Office
NSP-EID	National Strategic Plan for Emerging Infectious Disease
P-CDCC	Provincial Communicable Disease Control Committee
PoE	point of entry
PPE	personal protective equipment
PUI	persons under investigation
RT-PCR	reverse transcriptase polymerase chain reaction
SHI	Social Health Insurance
SRRT	surveillance and rapid response team
SSS	Social Security Scheme
UCS	Universal Coverage Scheme
UHC	universal health coverage
VHV	village health volunteer
WHO	World Health Organization

Contents

Overview

The Health System Response Monitor (HSRM) is designed to collect and organize up-to-date information on how countries are responding to COVID-19 outbreak. This will be updated periodically (as and when there is a change to the COVID-19 related measures) by the respective country-contributors. HSRM focuses primarily on the responses of health systems but also captures wider public health initiatives. HSRM presents information under six heads:

1. **Preventing local transmission**. This section includes information on key public health measures that aim to prevent the further spread of the disease. It details how countries are advising the general public and people who (might) have the disease to prevent further spread, as well as measures in place to test and identify cases, trace contacts, and monitor the scale of the outbreak.
2. **Ensuring sufficient physical infrastructure and workforce capacity**. The section considers the physical infrastructure available in a country and where there are shortages, it describes any measures being implemented or planned to address them. It also considers the health workforce, including what countries are doing to maintain or enhance capacity, the responsibilities and skill-mix of the workforce, and any initiatives to train or otherwise support health workers.
3. **Providing health services effectively**. This section describes approaches for service delivery planning and patient pathways for suspected COVID-19 cases. It also considers efforts by countries to maintain other essential services during periods of excessive demand for health services.
4. **Paying for services**. Health financing describes how much is spent on health and the distribution of health spending across different service areas. The section also describes who is covered for COVID-19 testing and treatment, whether there are any notable gaps (in population coverage and service coverage), and how much people pay (if at all) for those services out-of-pocket.
5. **Governance**. The governance of the health system regarding COVID-19 related pandemic response plans and the steering of the health system to ensure its continued functioning. It includes emergency response mechanisms, as well as how information is being communicated, and the regulation of health service provision to patients affected by the virus.
6. **Measures in other sectors.** This section contains information on measures in non-health sectors (such as border and travel restrictions, economic and fiscal measures) to tackle the pandemic.

1. Preventing local transmission

1.1 Health communication

The first case of coronavirus was detected in Thailand on 13 January 2020. Since 10 January 2020, extensive public communication was delivered daily nationwide through print, broadcast and social media channels.

Many actors are involved in public communications. The national COVID-19 response, including public communication, is managed by the Centre for COVID-19 Situation Administration (CCSA), appointed by the Prime Minister on 12 March 2020 when there were 70 confirmed cases. The Department of Disease Control (DDC), Ministry of Public Health (MoPH), through the function of the Emergency Operations Centre (EOC) led by the permanent secretary of the MoPH, contributes to their technical content. The daily public communication televised nationwide by a standing speaker, Dr Taweesin Wisanuyothin, became a key icon of the public communication responses to COVID-19. Through this daily reporting, the general public has developed confidence and trust in the government's interventions.

The contents of public communication included a daily briefing of the epidemic trend, the number of confirmed cases, deaths and tests, and global trends. This created public awareness of the seriousness of the situation and how Thailand performed in relation to international peers and how citizens should contribute to pandemic containment. The information from the CCSA is also provided on the website https://www.thaigov.go.th/news/contents/details/29299. In addition, multilingual messaging (Thai, Burmese, Laotian, Khmer and Chinese) was launched to increase people's understanding of the coronavirus, its transmission mode, the disease and how citizens can prevent getting infected themselves and stop local transmission. This information is also available to the public through the DDC website at https://ddc.moph.go.th/viralpneumonia/situation.php.

From mid-March 2020, all citizens were asked to wear face masks, keep physical distancing of more than two meters, adhere to strict hand hygiene through handwashing and use of alcohol hand rub, be aware of touching their noses and mouths, and observe food hygiene protocols.

Actions required by the citizens were to "stay at home" during the April 2020 major lockdown period, which coincided with the closure of almost all public venues and restrictions on social gathering. The Thai New Year "Songkran" holiday, between 13 and 15 April, was officially postponed to prevent massive population movement and return of potential carriers to their home towns. Provincial governors were authorized by the Communicable Diseases Act, B.E. 2558 (2015) to develop and enforce these measures in accordance with the local provincial context (https://bit.ly/2WJfkFD).

The establishment of call centres enhanced two-way communication between citizens and health-care providers. These included 1422 hotlines, operated round the clock by the DDC, complemented by the "LINE" messaging app official account "@COVID-19", the government contact centre hotline 1111, and National Institute of Emergency Medicine hotline 1669, to name a few. DDC-Care is a smartphone application for monitoring symptoms of the at-risk group in home quarantine or isolation.

1.2 Physical distancing

On 17 March 2020, the government launched the "stay home, stop the virus, for our nation" campaign, which was well received by the citizens. During April 2020, the MoPH, through the International Health Policy Program (IHPP) and National Statistical Office, jointly conducted an online survey to monitor citizens' adherence to the stay-at-home policy, frequency of leaving home, use of public transport and practice of personal protection measures. The findings were reported to the EOC and CCSA.

On 25 March 2020, Thailand declared a state of emergency and restricted both international mobility (by closing air and land borders) and internal mobility across provinces. Provinces with clusters of infection were identified and lockdown was implemented in the respective districts. This was followed by active screening of the entire population in those districts, testing, treatment and quarantine. These measures proved to be effective as there was no local transmission after a few weeks.

Cinemas, sports stadia, massage parlours and other entertainment facilities were closed on 18 March 2020. Department stores and restaurants were closed from 22 March 2020. Mass gatherings and other public places closed following the state of emergency announced on 25 March 2020. However, public transportation continued to operate with strict hygiene policies such as thermal screening before entry and use of face masks by drivers, passengers and service operators. Except for essential workers, private employees were encouraged to work from home.

All kindergartens, schools and universities closed from 7 April 2020. These institutions reopened on 1 July 2020 with strict measures of physical distancing, less crowded classes, face masks and hand hygiene practices.

Restrictions on domestic travel were eased gradually, starting 1 May 2020, while restaurants opened from 3 May 2020. Events and informal gatherings, including religious services, were allowed from 17 May 2020. In all cases and at all times, people needed to observe physical distancing, use face masks and adhere to hand hygiene protocols.

The government approved five phases of unlocking interventions: first phase on 3 May 2020, second on 17 May 2020, third on 1 June 2020, fourth on 15 June 2020, and fifth on 1 July 2020 (*see* section 6 for more details).

1.3 Isolation and quarantine

Subject to the provisions of the Communicable Diseases Act, B.E. 2558 (2015), Thailand has enforced public health measures to test, trace, isolate, treat and quarantine COVID-19 cases for 14 days (https://bit.ly/3ePIk4N). Three types of quarantine measures are applied, irrespective of nationality:

- home quarantine for low-risk contacts of cases, with daily reporting to health-care workers of their condition for 14 days;
- local quarantine, sponsored and managed by the Ministry of Interior through provincial governors in collaboration with the MoPH, designed for all international travellers arriving through land and sea border crossings, irrespective of clinical symptoms;
- State quarantine, sponsored and managed by the Ministry of Defence, for international flight arrivals, irrespective of clinical symptoms. It should be noted that self-funded "alternative State

quarantine" (with the same standards and protocols) arranged by hotels are also available for travellers.

Both local- and State-level venues provided single-room isolation facilities, either in government dormitories or private hotels. Where single occupation was not feasible, clear physical distancing and other measures were fully implemented.

All confirmed COVID-19 cases with clinical symptoms are obliged to be treated in a hospital; while those who do not develop clinical symptoms are placed in mandatory isolation for 14 days in local or State quarantine venues.

All other persons suspected to be infected (persons under investigation [PUI]) whose initial laboratory test is negative or who have a history of contact with COVID-19-confirmed cases are mandatorily quarantined either at home or at a State venue under close supervision of local providers.

Individuals in quarantine venues are tested twice on the seventh and fourteenth days; if found positive, they are treated according to their clinical profile. Health workers examine them daily, and there are provisions for food and other essential items.

The government funds all reverse transcriptase-polymerase chain reaction (RT-PCR) tests with zero co-payment for both nationals and non-nationals. The government fully subsidizes the cost of quarantine (except home quarantine and those choosing to stay in hotels), including lodging, food and beverage for 14 days, safe transportation from the point of entry (land, sea and air), daily monitoring of temperature and clinical symptoms for individuals under quarantine, and contact tracing. No gender-based violence has been reported from those in quarantine.

During the peak period of COVID-19 in March–April 2020, provincial governors enforced travel restrictions across provinces. The state of emergency declared in March continued through June with a night-time curfew in place from 10 pm to 4 am. In Phuket province, Patong subdistrict of Krathu District was locked down due to clusters of infection in several tourist venues, such as liquor bars and massage parlours (https://bit.ly/2CqfKtq).

Thailand's success in containing the outbreak rests with the extensive use of surveillance and rapid response teams (SRRT). Outside of Bangkok, SRRTs are aligned with subdistricts and communities, while in Bangkok, they are linked to the DDC. At the subdistrict level, village health volunteers (VHVs) and staff from subdistrict health centres support the SRRTs. VHVs helped in assessing villagers' risk of exposure to infection and liaised with the subdistrict health centres. The multisectoral collaboration between health and non-health sectors, led by frontline health workers, nurse practitioners at subdistrict health centres, VHVs, district governor and head of local government, contributed to the success of containment.

1.4 Monitoring and surveillance

The MoPH adapted the WHO definition of COVID-19 cases as "patients with fever, cough, sore throat, dyspnoea, symptoms of pneumonia, and in severe cases develop acute respiratory distress syndrome, which may result in mortality" (https://bit.ly/3ePIk4N). Confirmed COVID-19 cases must have a positive PCR test for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) from nasopharyngeal and/or throat swabs. The DDC's guidelines and definitions are regularly updated and widely circulated to all

health facilities (both public and private) and are accessible via the DDC website (https://ddc.moph.go.th/viralpneumonia/g_srrt.php). The Communicable Diseases Act, B.E. 2558 (2015) obliges facilities to report probable cases or contacts to the DDC within three hours of identification.

As of 30 August 2020, there have been 3441 confirmed cases of COVID-19 in Thailand and 58 deaths, with peak transmission occurring in March–April (Fig. 1). As of 30 August 2020, there was no local transmission since 25 May 2020 due to effective testing, tracing and quarantine of all international travellers.

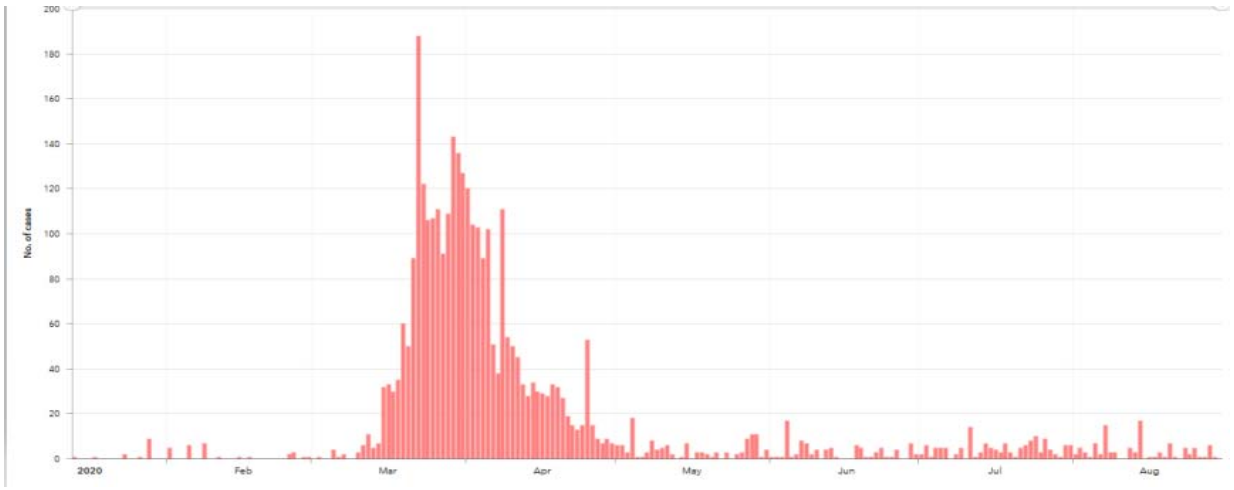


Fig 1: COVID-19 confirmed daily cases in Thailand, as of 30 August 2020
Source: WHO Regional Office COVID dashboard: https://experience.arcgis.com/experience/56d2642cb379485ebf78371e744b8c6a

Monitoring COVID-19 extended to all sites, including long-term care facilities, which are mostly owned by the private sector. There are about 22 000 elderly people living in long-term care facilities, of whom more than 13 000 are bedridden. During the COVID-19 pandemic, these facilities were kept open as it was not possible to relocate the inmates to their homes, communities or hospitals. There are strict measures to prevent infection, including allowing visitors only in exceptional circumstances, thermal screening and mandatory use of face masks. Available evidence to date shows that there have been no COVID-19 infections reported from long-term care facilities (https://bit.ly/3fVkYvX).

In June 2020, after the epidemic curve had flattened, Thailand performed an active laboratory-based sentinel surveillance in all 77 provinces (https://bit.ly/2BbwWCf). Sentinel surveillance covered four main groups: health-care workers, new inmates in prisons, occupational groups that were exposed to a large number of people such as public transport and postal delivery workers, and other similar groups considered by the Provincial Communicable Disease Control Committee (P-CDCC).

1.5 Testing

Thailand has a long-term strategy to boost public health function and has invested in field epidemiologists since 1980. During the epidemic, laboratory capacity for RT-PCR was scaled up and, as of 27 July 2020, 10 282 tests per million population were conducted.

All international travellers are categorized as PUI and, irrespective of nationality, are mandated to have RT-PCR tests on days 7 and 14 (*see* details at https://ddc.moph.go.th/viralpneumonia/g_srrt.php). According to the DDC guidelines, persons who meet the definition of PUI undertake the test without paying any fee while others can request the test but need to pay for it. The SRRT decides the eligibility based on the DDC case definition. Any public or private laboratory certified by the Department of Medical Sciences can provide an RT-PCR test.

Facilities employed different strategies for specimen collection such as drive-through arrangements or through the use of mobile teams in locked-down districts of Phuket province where active contact tracing was in place.

2. Ensuring sufficient physical infrastructure and workforce capacity

2.1 Physical infrastructure and supplies: shortage and coping mechanisms

Thailand has a robust health infrastructure. Although the availability and distribution of hospital beds, intensive care unit (ICU) beds, medical and information technology (IT) equipment, as well as the majority of pharmaceuticals and medical supplies were adequate to cope with the pandemic at its peak in April, challenges remained with laboratory capacity to perform RT-PCR tests in all 77 provinces.

This triggered the MoPH policy of establishing "at least one RT-PCR laboratory in each province", which would require a minimum of 77 laboratories nationally. In April 2020, there were 39 certified RT-PCR laboratories in Bangkok with a capacity of 10 000 tests per day, and 41 laboratories outside Bangkok with a similar capacity of 10 000 daily tests (https://covid-19.kapook.com/view223851.html). Thus, by April 2020, 80 certified laboratories were already available and by June 2020, an additional 30 laboratories came online to ensure testing was available across all provinces. Twelve regional laboratory centres of the MoPH provided back-up testing with a turnaround time of 24 hours for those provinces that did not offer RT-PCR.

Though there is no proven efficacious medicine, the government ensured adequate stock of available medications (such as favipiravir and remdesivir) for cases of COVID-19.

All public and private health facilities were actively mobilized to increase response capacity. Except for an initial shortage of personal protective equipment (PPE) and pharmaceuticals, there was no shortage of essential resources such as ICU beds, ventilators and haemodialysis machines at the beginning of the pandemic. However, by February–March, there were shortages of surgical masks, N95 masks, coverall suits and alcohol disinfectants/hand rubs throughout the country.

To tackle this, on 4 February 2020, the Ministry of Commerce designated surgical masks, polypropylene and alcohol-based hand sanitizers as "controlled items" with legal action against price gouging, illegal stockpiling and exports (https://www.dailynews.co.th/economic/755778). Inadequate supply of face masks during the early days also prompted the government and civic groups to produce fabric-based face masks locally. In addition, medical schools and the MoPH, backed by in-house research that proved the safety of reuse through the application of ultraviolet C (UVC) light, advised health facilities to reuse surgical and N95 masks (https://mgronline.com/qol/detail/9630000043446).

Local production of surgical masks has since been scaled up from 1.5 to 4.5 million pieces per day, thereby ensuring adequate supply. The private sector also played a significant role by increasing production; within a month, a private company set up a factory for face masks and donated the initial stock to public health facilities and people (https://www.posttoday.com/economy/news/622991). Furthermore, an N95 mask factory was constructed and became fully operational in June 2020. The factory donated all N95 masks produced initially to health-care facilities and later to the public as a corporate social responsibility (CSR) activity (https://www.mcot.net/viewtna/5ea2c327e3f8e40af443deef). Domestic pharmaceutical companies have ramped up production of COVID-19 RT-PCR kits with guaranteed delivery of more than 1 million sets per year. Moreover, the general population and other countries in Asia and Europe also donated substantial numbers of PPE, surgical or hygiene masks, and alcohol-based hand rub. These were distributed nationwide to public health-care facilities.

2.2 Workforce: mobilizing surge capacity and ensuring occupational safety

In 2019, Thailand had 8.1 doctors and 29.6 nurses and midwives per 10 000 population; this is equivalent to 37.7 health workers per 10 000 population. Though Thailand has yet to achieve the benchmark of 44.5 doctors, nurses and midwives per 10 000 population by 2030; it has a strong health workforce (HWF) capacity in terms of number, skill-mix and competencies.

All MoPH health professionals are posted in tertiary hospitals at the provincial level, secondary hospitals at district level and health centres at subdistrict level. Moreover, Thailand has more than 1 million VHVs working at community level; each volunteer is responsible for ten households in their neighbourhood. Evidence has shown that there are adequate HWF capacities to respond to the pandemic, as the public health and social measures had significantly contained local transmission, which in turn minimized constraints on the medical services.

Mobilizing surge capacity of specialist HWF, such as ICU nurses and critical care specialists, is difficult in a short time. Tertiary-care hospitals deployed experienced nurses from the wards to support ICUs through on-the-job training on ICU clinical management and infection prevention and control (IPC). Short-course tutorials for nurses were provided on acute respiratory distress syndrome. Doctors, nurses and others were deployed to help with State, local and home quarantine with full support from local government officers.

Since 1980, Thailand has had a two-year postgraduate Field Epidemiology Training Program (FETP) hosted by the DDC, MoPH. Disease surveillance and case investigation are conducted by SRRTs, led by an epidemiologist or, if there are no local epidemiologists, by public health doctors. FETP graduates and trainees significantly contributed to the capacity of SRRTs in responding to COVID-19 as well as performed “cascade training” of other public health officials to carry out field epidemiology tasks across the country.

During the height of the COVID-19 outbreak, the Cabinet approved an additional 40 000 civil servant posts to enhance the number of health professionals in the system. These new posts are provided for nurses, frontline health workers and other professions related to the COVID-19 response. Most of these posts were filled with contractual staff who were already working in the health sector. This was an

incentive for the many contractual staff in the health sector to continue working with COVID-19 patients.

Compensation for HWF who became sick from COVID-19 was provided through a number of different channels. Article 6(4) of the Ministry of Finance 2018 regulation on compensation for adverse events to health-care workers provides four types of financial support with different rates of compensation:

(a) for death or permanent disability: 240 000–400 000 Thai Baht (THB);
(b) for organ loss or disability: THB 100 000–400 000;
(c) for infection or severe injury: THB 100 000; and
(d) for infection or less severe injury requiring less than 20 days treatment: THB 50 000.

On 7 April 2020, the Cabinet doubled the level of compensation for category "d" above to THB 100 000 for health workers with coronavirus infection.

Further, the Cabinet approved compensation for hazardous work to HWF working in hospitals or quarantine facilities at a rate of THB 1500 per shift for doctors and THB 1000 per shift for nurses and others.

COVID-19 insurance for HWF was provided by the private sector as their CSR. Four private enterprises purchased COVID-19 insurance with a total indemnity of THB 26 billion for 50 000 frontline health workers for one year. One bank and one insurance company donated 8000 COVID-19 insurance policies with a total indemnity of THB 1.6 billion to frontline medical professionals in five public hospitals. Finally, several insurance companies donated 220 000 insurance policies to cover health workers for COVID-19 infection and death.

As part of national social recognition of "White Gown Hero/Heroine" for their dedication in responding to COVID-19, a daily 5-minute applause was televised nationwide. Food boxes, and many other commodities were donated by both the public and private sectors to the MoPH and health facilities, especially for health staff at quarantine centres.

The MoPH ensured occupational safety for all the HWF and provided the necessary PPE. Selected hospitals that were dealing with many COVID-19 patients divided their medical teams, including nurses and critical care personnel, into two groups, each working for 14 days, thereby enabling a 14-day quarantine if a team member was infected. In addition, faculties of engineering in various universities developed robots to deliver food and medicines to inpatients, and remote communication and monitoring between the medical team and patients to avoid exposure to infection. Locally built negative pressure isolation chambers for safe collection of nasal swabs and specimens were installed in almost all hospitals where nasal swabs were collected. Finally, the Department of Mental Health, MoPH provided mental health support through a specific hotline for HWF.

3. Providing health services effectively

3.1 Planning services

The MoPH is responsible for mobilizing and maintaining sufficient capacity in responding to cases. By partnering with all non-MoPH public and private hospitals, the MoPH mobilized their surge capacities while an effective referral system was set up between public and private hospitals.

The MoPH recommended that all elective procedures be postponed during the peak of the epidemic in April–May 2020. Outpatient visits for non-urgent and stable chronic cases were reduced and replaced by teleconsultation services, while medication refills were done by non-hospital-based private pharmacies or postal delivery. In some areas, medicines for noncommunicable diseases (NCDs) were directly delivered by VHVs. There is a likely negative impact on access to non-COVID essential health services due to demand-side travel restrictions and supply-side temporary service disruption; the exact extent of this is being assessed currently. *See* Guideline for essential services during COVID-19 (http://covid19.dms.go.th/).

Field hospitals and hospitels (where single rooms of private hotels, public or private dormitories have been modified to accommodate patients with mild COVID-19) have been established in several provinces as decided by the P-CDCC. Guidelines and protocols for field hospitals and hospitels are produced by the DDC and Department of Health Service Support (https://ddc.moph.go.th/viralpneumonia/g_health_care.php, http://www.hsscovid.com/). The field hospitals and hospitels are designed to manage asymptomatic and mild cases and to minimize the workload of "acute care hospitals", which provide services for severe cases, including the use of an ICU and ventilators.

As cases were scattered throughout the country, it was not possible to designate certain hospitals for provision of severe cases. Ten per cent of ICU beds were earmarked for the use of patients with COVID-19 and the remaining ICU beds and ventilators were available to non-COVID patients. Though not all hospitals were equipped with negative pressure rooms to accommodate COVID-19 patients, structural adjustments were immediately initiated in many tertiary-care hospitals to create them, although no single hospital had enough negative pressure rooms to accommodate a large number of cases simultaneously.

In the Bangkok Metropolitan region, Bamradnaradura Infectious Diseases Institute, a national infectious diseases institute with a system that has the highest standard of controlling infectious diseases, admitted most of the cases, but also provided other essential services, such as accident and emergency services, and services for medical, paediatric and obstetric emergences.

Primary care centres, with the support of VHVs, were tasked to perform active surveillance of patients with COVID-19 and support quarantine of lower-risk cases. VHVs conducted door-to-door surveys and suspected cases were transferred to hospital for further investigation in an ambulance.

Teleconsultation was increased substantially during the initial lockdown period between April and June, even though laws and regulations were not yet in place. Local innovations were used to harness the high Internet penetration (56.8% of the population uses the Internet [https://data.worldbank.org/indicator/IT.NET.USER.ZS]) to support teleconsultations, primarily between health centres, district hospitals and the community; or between provincial and district hospitals.

The health system in Thailand is dominated by the public sector, which provides 80–90% of all services, except in the capital city of Bangkok Metropolitan Area, where the private sector has a key role. The Department of Medical Services, MoPH, set up a committee for Bangkok's response to COVID-19,

comprising the MoPH, Bangkok Metropolitan Health Department, non-MoPH public hospitals and the private sector. The committee is responsible for planning service delivery, the referral system and supply distribution within Bangkok, which, with 55% of all of the 3185 nationally confirmed cases until the end of June, was the epicentre of the outbreak.

Apart from financial support, other efforts have been put in place to manage at-risk populations. These include bringing homeless people to shelters, with provision of food through food banks supported by the community, citizens and civil society organizations, training migrant health volunteers, reducing overcrowding in prisons and setting up quarantine zones for new prisoners.

In March 2020, there were 380 000 prisoners in 143 prisons nationwide. In March, there were two confirmed COVID-19 cases who were referred for treatment to provincial hospitals (https://www.bbc.com/thai/thailand-52094371). By April 2020, less than 10 prisoners were affected by COVID-19, all of whom were detected during the 14-day quarantine at the initial reception areas. Strict measures were applied by the Department of Correction through a 14-day quarantine of newly admitted prisoners in the initial reception areas before they were transferred to a definite space. No visitors were allowed. The DDC produced guidelines for the prevention, control and management of COVID-19 (https://ddc.moph.go.th/viralpneumonia/file/introduction/introduction23.pdf).

3.2 Case management

The first point of contact for PUI in Thailand is any public or private health facility, VHVs or public health officers. For non-hospital contact points, the patient is advised to go to a hospital or is picked up by an ambulance, depending on their clinical status. There are two designated call centres that work as helplines for citizens, the DDC call centre with the number 1422 and the Emergency Medical Services number 1669. For international travellers, irrespective of nationality, the first point of contact is the reception at the point of entry for screening and admission to mandatory local (for land/sea arrival) or State quarantine (for arrivals by air) for 14 days.

The national policy on COVID-19 triage was launched and applied throughout the country. All RT-PCR-confirmed COVID-19 cases are transferred by ambulance with strict PPE precautions to hospitals for treatment. Cases are triaged at the hospital, and everyone must be admitted without exception to contain the epidemic and align with the Communicable Diseases Act. PUI are classified by their clinical symptoms and risk of infection. The decision to admit them to hospital, or put them in facility-based quarantine, or discharge them is based on the latest DDC protocol.

The national treatment guideline for COVID-19 was launched by the Department of Medical Services with expert input from universities in January 2020. It is updated as new evidence on the efficacy of medicines and treatment becomes available. The latest version is 1 May. There are four patient categories for case management:

(a) asymptomatic,
(b) mild case without risk factors,
(c) mild case with risk factors,
(d) pneumonia.

The guideline advises that asymptomatic and mild cases without risk factors should be treated in field hospitals or hospitels, freeing up hospital space for treatment of more severe cases. The guideline also takes into account updated scientific evidence, practical constraints at different hospitals and availability of specific medicines in the market through licensing by the Thai Food and Drug Administration (FDA).

Thailand maintains a low level of mortality; as of 30 August 2020, there were only 58 deaths out of a total of 3441 cases. This amounts to a case fatality ratio of 1.69% and a mortality rate of 0.8 per million population (https://www.worldometers.info/coronavirus/?utm_campaign=homeAdvegas1?).

Table 1: Treatment regimens

Category	Recommended treatment
1. Asymptomatic	No antivirals needed
2. Mild case without risk factors	Consider 2-drug combination 1. Chloroquine or hydroxychloroquine 2. Darunavir + ritonavir or lopinavir/ritonavir or azithromycin If there is progression of infiltration on chest X-ray, consider adding favipiravir
3. Mild case with risk factors	Recommended at least a 2-drug combination 1. Chloroquine or hydroxychloroquine 2. Darunavir + ritonavir or lopinavir/ritonavir Consider adding azithromycin If there is progression of infiltration on chest X-ray, consider adding favipiravir
4. Pneumonia	Recommended at least a 3-drug combination 1. Favipiravir 2. Chloroquine or hydroxychloroquine 3. Darunavir + ritonavir or lopinavir/ritonavir Consider adding azithromycin

Source: https://ddc.moph.go.th/viralpneumonia/g_health_care.php

Thailand is conducting research within the WHO-led Solidarity trial, and some universities and public hospitals are also conducting trials on the impact of other treatments such as the use of convalescent plasma and favipiravir.

The Department of Thai Traditional and Alternative Medicine (DTAM), MoPH is recommending the use of *Andrographis paniculata* for the treatment of flu-like symptoms, fever, cough, sore throat, fatigue and muscle pain due to infection by the virus. *Andrographis paniculata* has been available in the market for many years as an herb for primary health care and is included in the national list of essential medicines. During the COVID-19 pandemic, this herbal medicine became popular. In vitro studies conducted by the DTAM, Department of Medical Sciences of the MoPH and Government

Pharmaceutical Organization (GPO) has shown that *Andrographis paniculata* extract can inhibit growth of the coronavirus, although more evidence is needed to support its efficacy in people (https://www.posttoday.com/life/healthy/618540).

The IHPP and Health Intervention and Technology Assessment Program worked together to develop a national guideline for allocation of critical resources for the management of COVID-19 (e.g. ICU beds, ventilators and haemodialysis machines); it has gone through consultations with stakeholders and has been finalized. However, currently, there is no need to implement it as there is no major constraint on critical resources due to the small number of severe cases (http://ihppthaigov.net/DB/publication/attachresearch/439/chapter1.pdf).

3.3 Maintaining essential health services

During the COVID-19 outbreak, each department of the MoPH had developed policies and operational guidelines for health facilities to maintain essential health services and optimize service delivery settings and platforms. Dental and surgical services were provided to emergency cases only, and all elective procedures postponed. The flu vaccination programme was given before it was due and prioritized for health-care professionals and the elderly. The number of outpatient department visits was reduced, and only urgent and emergency cases were attended to.

Policies and guidelines were developed for providing health-care services to patients with NCDs, with the aim of reducing the number of patients and subsequent cross-infections at outpatient departments. Medication for well-controlled patients with NCDs were provided by post, primary care health workers and private pharmacies working outside the hospital setting. The Thai FDA, together with the GPO and local pharmaceutical companies, ensured availability and sufficiency of NCD medicines and supplies through accurate demand forecasting, although there was difficulty in logistics due to export restrictions by some countries and global shortages. Finally, information on self-care for the general population, the elderly and patients with NCDs was been widely disseminated and an online self-care programme for mental health provided by the Department of Mental Health.

4. Paying for services

4.1 Health financing: universal health coverage enables access to services by all

Thailand has had universal health coverage (UHC) since 2002. Every Thai citizen is covered by one of the three public health insurance schemes: Civil Servant Medical Benefit Scheme (CSMBS, for civil servants and their dependents), Social Health Insurance (SHI) under the Social Security Scheme (SSS, for employees in the private sector), and Universal Coverage Scheme (UCS, for those who are not covered by SSS and CSMBS, mostly the informal sector). The cost of COVID-19 treatment is covered by these schemes.

In March 2020, the government approved an additional budget of THB 6302 million (US$ 203.3 million) to respond to the COVID-19 outbreak (https://cabinet.soc.go.th/doc_image/2563/993348354.pdf). Furthermore, the budget for fiscal year 2020 (October 2019–September 2020) for all government ministries was revised, with the unspent budge –, in particular, those earmarked for meetings and other activities – recalled, pooled, reprioritized and reallocated, with priority given to COVID-19-related activities.

The government allocated additional funds of THB 1020 million (US$ 32.9 million) to the National Health Security Office (NHSO) to subsidize COVID-19-related services (http://www.ratchakitcha.soc.go.th/DATA/PDF/2563/E/077/T_0034.PDF. This budget covered PPE for health personnel, testing facilities, laboratory facilities, curative and referral services. There were also in-cash and in-kind PPE donations by the private sector, active citizens and other governments either directly to health-care facilities or through the MoPH. These were additional resources that supported the operation of COVID-19 responses.

It is the MoPH policy that all hospitals, public and private, must do their best to treat patients with COVID-19 (all who live on Thai soil, irrespective of nationality) without delay until they are out of immediate danger or transferred to other hospitals. Hospitals may not charge the patients but will bill the NHSO or DDC for reimbursement. The reimbursement rate was the same for both public and private facilities.

The Comptroller General Department, Ministry of Finance, revised certain financial regulations to facilitate the work of the health sector, such as the process for procurement of medicines and medical supplies for COVID-19, and financial incentives for frontline health personnel (http://finance.moph.go.th/finance/attachfile/202004021023261.pdf). It should be noted that the Ministry of Defence manages State quarantine and the Ministry of Interior manages local quarantine.

4.2 Entitlement and coverage

As mentioned earlier, Thailand has achieved UHC, meaning that more than 99% of the Thai population is already covered by one of the three public health insurance schemes. During the COVID-19 outbreak, the MoPH announced that anyone residing in Thailand could access COVID-19 services free of cost at both public and private facilities. The cost of the laboratory test for everyone and related PPE for specimen collection are reimbursed by the NHSO while admission costs are reimbursed by the respective insurance schemes.

Table 2: Payment for COVID-19 services

Items	Detail
1. Testing in any certified laboratory, either public or private	
• RT-PCR laboratory tests at health facility	Uses a fee schedule (ceiling at THB 2500) + THB 500 B for PPE for health personnel For Thai nationals, the cost is reimbursed by the NHSO. For non-Thais, the MoPH-DDC reimburses the fee.
• Sample collection at home	THB 540 for PPE for health personnel For Thai nationals, the cost is reimbursed by the NHSO. For non-Thais, the MoPH-DDC reimburses the fee.
• Testing in tents or mobile clinics	THB 540 for PPE for health personnel For Thai nationals, the cost is reimbursed by the NHSO. For non-Thais, the MoPH-DDC reimburses the fee.

• Drive-through testing	Uses a fee schedule (ceiling at THB 2500) + THB 500 for PPE for health personnel For Thai nationals, the cost is reimbursed by the NHSO. For non-Thais, the MoPH-DDC reimburses the fee.
2. Outpatient consultation	For Thai nationals, payment as indicated by patient's insurance scheme For non-Thais, the MoPH-DDC reimburses the fee.
3. Hospital emergency care	Fee schedule using the COVID-19 payment list (e.g. room, laboratory, PPE, medicines specific for COVID-19, referral transportation)
4. Hospital ICU care	Fee schedule using the COVID-19 payment list (for the additional cost of RT-PCR testing and all full-body PPE for treatment, as these items were not taken into the diagnosis-related group [DRG] costing systems) in addition to treatment costs under the DRG system
5. Stay in hospital ward (for patients with moderate symptoms)	Fee schedule using COVID-19 payment list (for the additional cost of RT-PCR testing and all full-body PPE for treatment, as these items were not taken into the DRG costing systems) in addition to payment under the DRG system

All COVID-19 services, including diagnostic and intensive care as per the national protocol, were given equally to all regardless of insurance coverage or nationality. Co-payment was not required. The expense of testing and treating foreign patients without private insurance was covered by the government contingency fund. Consequently, many non-Thai patients were treated free of charge by MoPH hospitals.

While public schemes and the COVID-19 budget cover all COVID-19 services, transportation is not included, except when ambulances are used for urgent cases.

5. Governance

Thailand responded to COVID-19 under the National Strategic Plan for Emerging Infectious Disease (2017–2021) (NSP-EID). The NSP-EID was endorsed by the Cabinet on December 2016, and aimed to formulate and develop a suitable national policy and strategy for preparedness, prevention and control of emerging infectious diseases. It serves as the umbrella guidance for tackling emerging infectious diseases, including coronavirus (http://e-lib.ddc.moph.go.th/pdf/material_/370material_.370pdf).

In addition, Article 20 of the Communicable Diseases Act, B.E. 2558 (2015), allows establishment of the multisectoral P-CDCC with the provincial governor as the chair, provincial chief medical officer as the technical secretariat and other members drawn from the provincial public relations office, livestock office, disaster management office, disease control, mayor, head of the *tambon* (subdistrict) administration office, regional or provincial hospital director, two district hospital directors, two district

health officers and directors from three non-MoPH public hospitals (if applicable), all drawn from within the province.

The governors are entrusted with full power to announce and enforce regulations within their provincial jurisdiction. The governors convened daily P-CDCC meetings since the first case was confirmed in Thailand; and were planning a response even if there was no confirmed case in their province. The provincial chief medical officer also convened daily meetings of their own technical team, consisting of the provincial SRRT, IT personnel, laboratory coordinators and coordinators for the district health offices and hospitals. These ensure seamless communication across all partners in the provincial health sector. Further, the provincial chief medical officer links with the MoPH nationally and ensures a two-way conduit with the MoPH. The MoPH EOC reports progress and recommends policies and regulations to the CCSA chaired by the Prime Minister for further action.

As mandated by the National Communicable Disease Committee's surveillance system and operational plan, a public health EOC was activated and the necessary teams and commanders were appointed at the start of the outbreak. The EOC serves as an information clearinghouse and is responsible for dissemination and public communication; supporting policy implementation; promoting and supporting provision of medicines and medical supplies necessary for surveillance, prevention, control and diagnosis; as well as collaborating, monitoring and evaluating the performance of communicable disease control committees at the provincial level and in Bangkok. The Communicable Diseases Act, B.E. 2558 (2015) determines the surveillance system, prevention and control measures, procedures for the control of communicable diseases in the country and at points of entry (PoEs), and provides the relevant authority to disease control staff at all levels. Since private health facilities are represented in the provincial and Bangkok committees, they also follow the surveillance protocols and prevention and control policies under this law.

In March 2012, the CCSA, led by the Prime Minister, took over the national COVID-19 response, including public communication. When the state of emergency was declared on 25 March 2020, the CCSA could put in place interventions that went beyond the legal mandate of the Communicable Diseases Act, B.E.2558 (2015). These interventions and enforcements included the lockdown policy, closure of PoEs, announcement of curfew (10:00 pm to 04:00 am, starting on 3 April and ending on 15 June 2020), State quarantine, prohibition of mass gatherings, prohibition of hoarding essential goods, propagation of fake news or misinformation, and cross-province travel (http://www.mfa.go.th/main/contents/files/news3-20200329-164122-910029.pdf). The state of emergency was initially in place for 3 months but has been extended and is now in force until end-September 2020. It allows specific interventions to be lifted or reinstated as necessary and, as at the end of August, there are no lockdowns or curfews in the country.

The CCSA, led by the Prime Minister and ministerial team, established a number of operational centres to oversee different aspects of the COVID response. The EOC in the MoPH is one such centre while other centres are led by top executive officials of different ministries or government organizations. The centres cover many areas, including mask and medical device support to the public, individual protection and support, control of goods, cross-border measures, telecommunication and social media oversight, transportation and national security (http://www.mfa.go.th/main/contents/files/news3-

20200507-125844-830343.pdf). These centres also address strategies for unlocking and gradual opening of the economy and schools.

To address the increased demand at the peak of COVID-19 cases in April, the MoPH enforced provision of health services by private hospitals for patients with COVID-19, with costs being covered by insurance schemes for Thai citizens while non-Thai patients were also fully covered by the DDC, MoPH, with additional budget earmarked by the government. The MoPH issued criteria and rates for reimbursement by public health-care schemes (UCS, SHI and CSMBS). The NHSO monitors potential abuse by private laboratories for tests done for non-PUI indications (http://www.ratchakitcha.soc.go.th/DATA/PDF/2563/E/107/T_0016.PDF).

The MoPH notification promulgated through the Health Facilities Act, B.E.2541 (1998) and its fourth amendment in B.E.2559 (2016), had approved temporary measures to shorten the process of registration and approval of private hospitals. The registration fee was waived, but post-registration surveillance was strengthened to ensure quality, Guidelines were developed to help state and local quarantine hospitals (http://www.ratchakitcha.soc.go.th/DATA/PDF/2563/E/077/T_0009.PDF and http://www.ratchakitcha.soc.go.th/DATA/PDF/2563/E/077/T_0011.PDF).

The Director of the Epidemiology Division of the DDC, MoPH, is the national International health Regulations (IHR) (2005) focal point and responsible for the coordination of the surveillance system and international reporting to WHO. At the same time, the CCSA is responsible for public communication with daily news and updates, policies and recommendations, especially on personal hygiene and social distancing.

Ministries, including the FDA, temporarily facilitated the fast-track approval of medical devices, diagnostic test kits, medicines, and health products in response to COVID-19. A one-stop service centre specifically dedicated to health products related to COVID-19 was established at the FDA. Imported medical devices, medicines and pharmaceutical products, antiseptics/disinfectants and other hazardous substances were exempted from customs duties to facilitate national response. The Ministry of Finance also temporarily exempted taxes for pure alcohol used for manufacturing alcohol-based hand sanitizer. (https://docs.wto.org/dol2fe/Pages/SS/DirectDoc.aspx?filename=t%3a%2fg%2ftbtn20%2ftha569.docx& , https://docs.wto.org/dol2fe/Pages/SS/DirectDoc.aspx?filename=t%3a%2fg%2ftbtn20%2ftha570.docx&, https://docs.wto.org/dol2fe/Pages/SS/DirectDoc.aspx?filename=t%3a%2fg%2ftbtn20%2ftha571.docx& https://docs.wto.org/dol2fe/Pages/SS/DirectDoc.aspx?filename=t%3a%2fg%2ftbtn20%2ftha574.docx&).

6. Measures in other sectors

6.1 Mobility restrictions

The decision to reopen the country was based on the number of new confirmed COVID-19 cases, risk of transmission, economic situation as analysed by the CCSA meeting in consultation with stakeholders from both the public and private sectors, and medical experts. The government approved five phases of unlocking interventions:

- Phase 1: on 3 May 2020, domestic flights were allowed to operate with limits on seating (https://www.bangkokpost.com/business/1911300/domestic-flights-resume-with-extra-safety-

protocols). Street vendors and hotels could sell food on a take-away basis or on the premises with social distancing measures in place. Markets started to operate with temperature checks and hairdressers could provide basic services with no waiting inside. Golf courses opened and sale of alcohol was permitted in retail stores (https://www.nationthailand.com/news/30387131).

- Phase 2: on 17 May 2020, partial opening was allowed of restaurants, shops in community shopping malls providing services, fitness centres for individual activities, dental clinics, beauty clinics, nail salons, libraries, museums and large retail shops and wholesale markets (https://www.nationthailand.com/news/30387911). Interprovincial bus services resumed operations with some restrictions (https://www.nationthailand.com/news/30387909).
- Phase 3: on 1 June 2020, further relaxation of applicable rules was allowed for restaurants, department stores, community malls, fitness centres, including swimming pools, barbershops and beauty salons. Educational institutions were allowed to open to prepare for classes (but not to teach). There were some restrictions on opening of exhibition spaces, water sports venues and massage parlours; and of smaller cinemas (but not concerts or theatres) (https://www.nationthailand.com/news/30388836).
- Phase 4: on 15 June 2020, partial opening was allowed of international and fee-based schools as well as universities. Sale of alcohol to restaurants and hotels (but not pubs or bars) was allowed and night curfew was lifted. Seating restrictions on domestic flights were relaxed (https://www.nationthailand.com/news/30389519t).
- Phase 5: on 1 July 2020, reopening was allowed of schools and high-risk entertainment venues such as pubs, bars and massage parlours as well as a limited number of foreign visitors on a controlled basis (https://abcnews.go.com/Health/wireStory/asia-today-philippines-extends-lockdown-central-city-71547019).

The plan for lifting lockdown was customized to Thailand's context with measures such as quarantining of international travellers being strictly implemented. Since WHO recommendations came after the plan was developed, they were not considered in the plan.

As of August 2020, the restrictions to international travel, imposed since 4 April 2020, have been slightly eased in view of the exponential growth of infections in various countries in all regions. The daily number of international travellers, both Thai and non-Thai, is controlled by the Ministry of Foreign Affairs in line with the capacity of government-sponsored State quarantine and alternative State quarantine (similar to State quarantine but self-paid). All inbound travellers are quarantined for 14 days with enforcement of laboratory protocols. Epidemiological evidence shows that all new cases of COVID-19 occurred only in those quarantined after entering the country.

Travel restrictions across provinces were relaxed from the middle of May 2020 after no local transmission was reported for six weeks. From 1 July 2020, travel, including domestic air travel across provinces, has returned to normal. There is currently no restriction on transport of imported goods (https://ddc.moph.go.th/viralpneumonia/eng/index.php, http://www.mfa.go.th/main/en/news3/10492/page-2.html).

Official visits by diplomats and others to Thailand for a short duration are permitted upon approval by the respective government entity, with the visitors undergoing State quarantine for 14 days and RT-PCR tests on days 7 and 14. Thai citizen returnees from abroad are also to follow the same quarantine procedures.

Though not yet fully implemented, international travel through a "bubble travel" agreement is under way. The DDC is developing a protocol for management, such as an RT-PCR test pre-departure or on arrival, requiring or not requiring State quarantine, use of a mobile application for reporting and monitoring adherence to travel conditions or not using public transport for 14 days.

Thailand also uses measures such as mobile applications to ensure mandatory daily reporting of international travellers during the first 14 days of arrival as well as legal enforcement for non-compliance. The application also supports monitoring the mobility of persons under quarantine if they move beyond 20 meters outside the designated areas.

6.2 Economy

International travel restrictions to prevent COVID-19 have had an adverse impact on the economy. The most affected is the service sector, specifically tourism. The government introduced a rescue package to mitigate the effects of unemployment and job loss, particularly in small-to-medium-size enterprises. The provisions include THB 5000 for three months for approximately 8 million formal and informal workers. Payment of annual personal and corporate income tax was deferred from March to August 2020. Loans and Super Savings Fund Extra (SSFX) mutual funds were able to deduct personal income tax. Finally, value-added tax was refunded to exporting companies.

6.3 Social and income support

In March 2020, Thailand had around 0.5 million unemployed graduates. The government introduced a stimulation programme worth THB 8.6 billion to hire these graduates to work on community development projects in rural areas for 12 months.

Coverage with the SHI was extended by a six-month grace period for SHI members who were dismissed by employers or voluntarily resigned from a firm, after which they would be covered by the UCS managed by the NHSO.

Despite being a major food-producing country, vulnerable populations faced food shortages due to loss of income. They were supported by voluntary food-sharing schemes (such as Food Banks) managed by individuals, temples and institutions.

Thailand is a party to several international collaborations, both as a donor country as well as a recipient of medical supplies, test kits, surgical masks, and other PPE. The Association of Southeast Asian Nations (ASEAN) Health Ministers' Meeting and ASEAN Special Meeting of Senior Officials for Health Development discussed COVID-19 responses in Member States and committed to mutual support.

7. November 2020 update: Phasing out restrictions – what interventions are in place

7.1 Situation summary

Thailand: COVID-19 Health System Response Monitor produced in September 2020 illustrated the COVID-19 situation and interventions applied in Thailand from the beginning of the outbreak until August 2020. Confirmed cases of COVID-19 in Thailand increased from 3441 cases on 30 August 2020 to 3514 cases on 22 October 2020 with a constant of 59 deaths. There has been no local transmission since 25 May 2020 until 22 October 2020, because of effective testing, tracing and quarantine of all international travellers. However, the Thai economy has been seriously affected. This section updates the interventions that Thailand applied to a well-controlled situation between September and early October 2020, during which Thailand mainly focused on phasing out restrictions in order to boost the economy.

7.2 Balancing peoples' health against opening up to international and domestic travel

COVID-19 seriously impacted the Thai economy. The IMF projected that Thailand's real-term GDP growth rate for 2020 would be –7.7% as compared to 2.4% in 2019 (https://www.imf.org/~/media/Files/Publications/WEO/2020/Update/June/English/data/WEOJun2020update.ashx?la=en). The economy is expected to rebound with a GDP growth rate of +5.0% in 2021. Since July 2020, the government has been seeking to increase economic activity by easing restraints on business activities and stimulating the service sector by gradual phasing out of restrictions on people's movement internally and opening up the country to foreign tourists. However, in light of the ongoing upsurge in COVID-19 infections, especially in Thailand's neighbouring countries and the porous natural land borders, there is concern within the general public on phasing out of restrictions to international travel.

As there has been no local transmission of COVID-19 since 25 May 2020, and all of the new cases were identified during the mandatory state quarantine of travellers, the current policy of 14 days of mandatory quarantine of international travellers, irrespective of nationality, is set to continue. None the less, there is pressure to reduce the number of days. Evidence shown to the national EOC indicates that after day 10, only 0.13% of RT-PCR tests were positive among individuals in state quarantine. Epidemiological modelling shows no statistically significant difference in the identification of cases between 10 and 14 days in state quarantine. Since the total cost of state quarantine (fully financed by the government) is much higher than the cost of frequent RT-PCR for the earliest detection, this evidence may be used to support a reduction in the state quarantine length, in particular, for business travellers and tourists who apply for a special tourist visa (*see* Box 1). This special tourist visa allows an initial 90 days' stay, which can be renewed up to three times (270 days) until 30 September 2021. Bilateral agreements on essential business trips have also managed to protect the health of the people through the mandatory state quarantine regulation.

Thailand is a renowned Asian medical hub for treatment of international patients seeking advanced medical care; opening up and providing enabling mechanisms for international patients seeking care in

Thailand was launched in July 2020. The process included adherence to mandatory protocols such as "Alternative Hospital Quarantine" (fully paid by the patients) and facilitating access to medical services.

Box 1: Special tourist visa scheme (STV scheme)

Effective from 30 September 2020, the STV scheme focuses on long-term non-Thai residents by offering them 90-day visas, renewable thrice until 30 September 2021. Applicants need to undergo 14 days of quarantine at the time of entry, show they have either a long-term rental or hotel stay agreement or own property in Thailand and have private health insurance*

Foreigners are eligible to use the alternative hospital quarantine (AHQ) programme, which allows them to stay in private hospitals, comprising 118 hospitals and 36 clinics** as well as an alternative hotel quarantine hotel programme. Special online shopping promotion and VAT refund are offered to applicants staying in alternative quarantine hotels.

Source:
* Tourism Authority of Thailand. https://www.tatnews.org/2020/10/thailand-officially-launches-special-tourist-visa-for-long-staying-visitors-3/
** Department of Health Service Support, Ministry of Public Health Thailand http://covid-center.hss.moph.go.th/

Apart from international travel, domestic travel has gained significantly in volume after the easing of lockdown measures. The government urges Thai people to travel domestically, both for work and leisure and Personal car travel has bounced back to almost the baseline level at 93%. (*see* Fig. 2). This is important as Thai travellers accounted for 25% of all travellers in Thailand in 2019 (https://www.parliament.go.th/ewtadmin/ewt/elaw_parcy/ewt_dl_link.php?nid=2538). To encourage domestic travel, the government launched the "Rao Tiew Duay Gun" or "trip together" campaign to boost the economy.

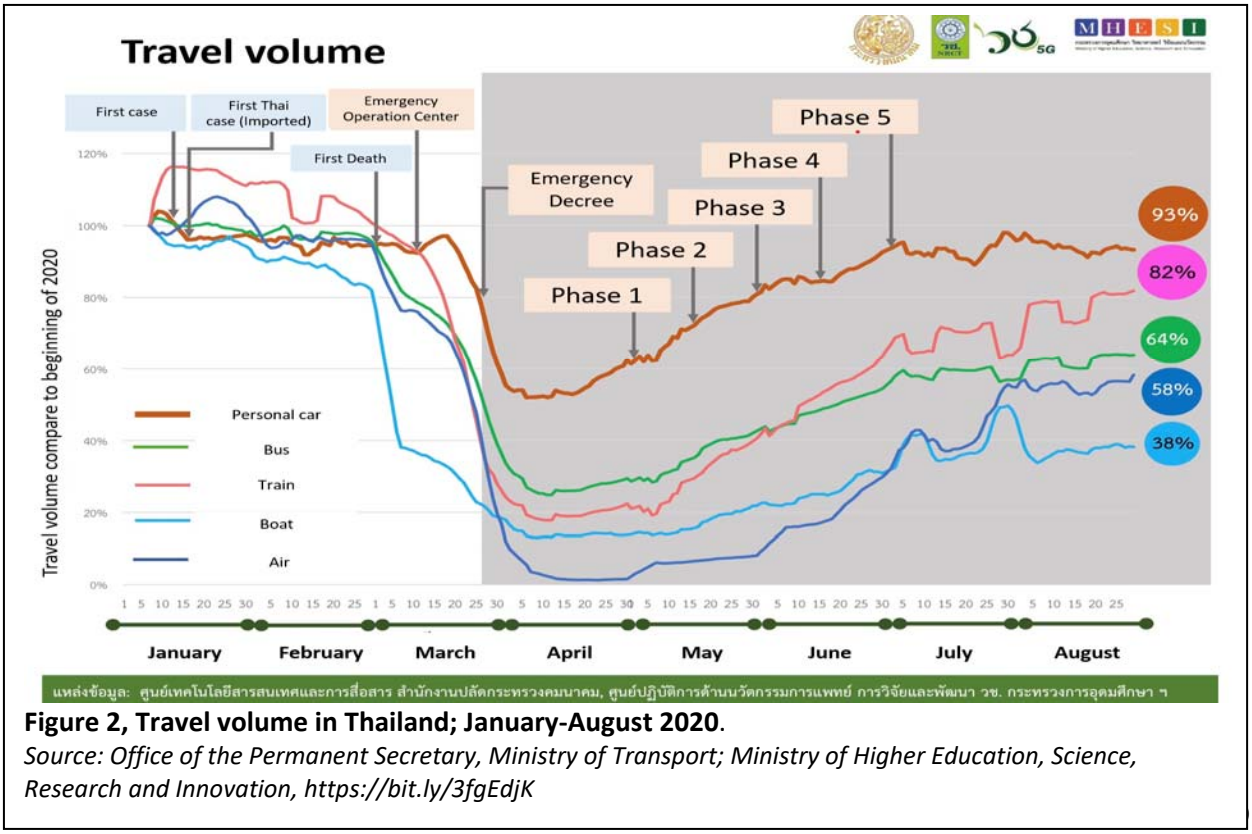


Figure 2, Travel volume in Thailand; January-August 2020.
Source: Office of the Permanent Secretary, Ministry of Transport; Ministry of Higher Education, Science, Research and Innovation, https://bit.ly/3fgEdjK

Thai travellers will get government subsidy on hotel, dining and travel costs as of 31 July 2020. Simultaneously with encouraging travel, personal hygiene measures such as 100% mask wearing during travel, physical distancing and handwashing have been promoted and maintained in society for the prevention of COVID-19.

These efforts reflect a policy demand to strike a balance between health protection of Thai populations and maintaining the economy.

7.3 Preparedness for the potential second wave of COVID-19

In October 2020, there was an upsurge of cases in the Asia Pacific Region, notably Myanmar, Malaysia, Bangladesh, Indonesia, the Philippines and very significantly in India. This alerted the government to prepare for a potential second wave of transmission. Such preparedness includes the following:

1 Surveillance and isolation measures

a) At all international borders, be it air, sea or land, all international travellers are mandated to be quarantined for 14 days at state, local or alternative state quarantine sites. The cost of quarantine in state or local sites is covered by the government while users will pay for their stay at alternative state quarantine sites; mostly organized by hotels and supervised by an affiliated hospital for laboratory testing and referral.

b) There is mandatory reporting of persons under investigation (PUI) by all public and private hospitals according to the case definition updated by the DDC.

c) Surveillance is conducted of two special population groups, namely:

   i. PUI patients or patients diagnosed with pneumonia or those with influenza-like symptoms;

   ii. specific populations such as new prison inmates, international migrants and Thai football league players.

d) At community and tourist attractions and other high-risk venues, there is community-based monitoring such as thermo-scan and enforcement of wearing face masks.

2 Prevention measures include health and non-health measures to prevent transmission of cases and establish a “new-normal” lifestyle. These include encouraging social distancing of 1–2 meters, wearing of masks in public, hand hygiene, food hygiene and refraining from touching the mouth, nose or eyes with the hands. The government advocates citizens to comply with these new-normal practices.

3 Early detection measures include setting up testing capacity and focusing on potential groups that can introduce or sustain transmission in the country. The current 222 certified RT-PCR laboratories located nationwide are able to support large-scale testing (daily 10 000–100 000 tests) of individuals while mandatory 14-day state quarantine for all international travellers and tests among them according to protocol is a standing measure that has been practised since the beginning of the COVID-19 response.

The capacity of all state quarantine and alternative state quarantine (certified hotels affiliated with private hospitals for testing and referrals) centres can accommodate 20 000–40 000 individuals for 14 days.

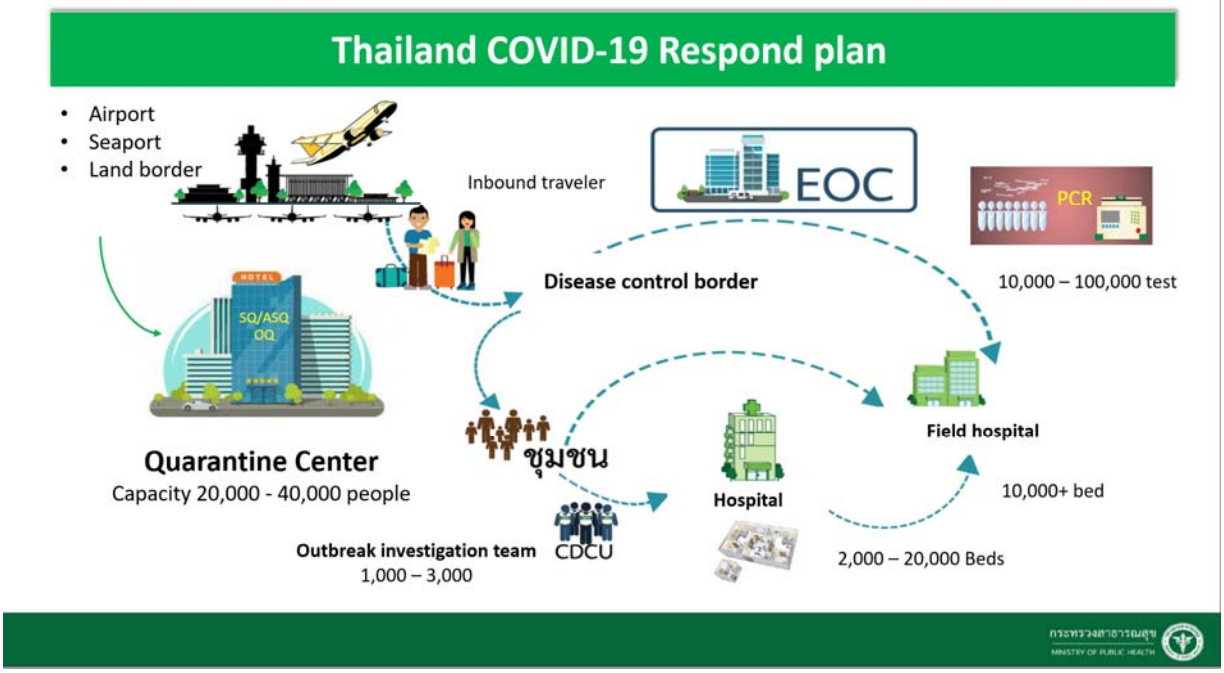


Figure 3: Preparedness plan for potential second wave, October 2020
Source: Ministry of Public Health. Presentation by Disease Control Department on 7 October 2020

4 Early response measures included more than 1000 surveillance and rapid response teams (SRRTs) nationwide. SRRTs are responsible for outbreak investigation, contract tracing and ensuring an immediate response, and for testing, tracing and supporting quarantine. The enabling factors are universal access to these services by all the population, whether Thai or non-Thai citizens. The current hospital bed capacity can accommodate 20 000 patients, while 10 000 beds in field hospitals are in reserve to act as back-up for admission of less severe cases.

It is noted that more than 1 million village health volunteers contributed significantly in supporting surveillance as they know best the geography and local community. They are requested to continue to support surveillance, identify PUI, support contact tracing and local quarantine.

5 Social measures include physical distancing. The Department of Health, MoPH sets location-specific standards for all public venues providing services to citizens (restaurants, supermarkets, department stores, schools, public transport and all other public venues). They have to adhere to the following measures.

- Limit the population density in certain public places.
- 100% use of face masks by customers and service providers.
- Provide alcohol gel for handwashing.
- Ensure frequent cleaning of various surfaces or devices, e.g. table and chair in a restaurant.

- Conduct a thermo-scan, or have a digital temperature check point prior to entry.
- Ensure a well-ventilated space.
- Scan the ThaiChana QR code.

The Department also conducts routine monitoring of all public settings on adherence to these measures. Monitoring in October showed that 80% of venues adhered to these criteria (https://www.อยู่บ้านหยุดเชื้อเพื่อชาติ.com/). Gaps identified have led to strengthening measures in non-adherent public venues.

IHPP and the Department of Health Service Support, with support from the MoPH, Ramathibodi Faculty of Medicine, Siriraj Faculty of Medicine, National Statistical Office, National Health Security Office, WHO South-East Asia Regional Office and WHO Country Office launched a two-week monitoring of citizens' adherence to personal prevention measures, which included (a) use of face masks in the public spaces, (b) hand hygiene, (c) refraining from touching the face, nose and eyes with the hands, (d) food hygiene and (e) physical distancing >2 meters. The results were fed into both the EOC and CCSA.

7.4 Tracking resources and supplies

Through the weekly dashboard, the EOC monitors the availability of PPE and medicines (*see* Box 2).

Box 2. Preparedness for medicines and medical supplies, 7 October 2020

Personal protective equipment

- N95 masks 2 142 010
- Coverall 707 546
- Isolation gown 287 759
- Leg cover 248 000
- Hood cover 185 250
- Shoes cover 14 400
- Face shield 355 184
- Nitrite glove 1 350
- Favipiravir 560 200 (local production is being developed. Plan to register in October 2021)

Hospital beds

- ICU 1 478
- Isolation room 5 434
- Cohort ward 6 152
- Field hospital 10 049

Laboratory

- 222 certified laboratories nationwide, with almost all provinces covered

Thai Traditional Medicine

- Pilot trial of herbal medicine in COVID-19 patients (mild cases)

Source: Thailand Food and Drug Administration

7.5 Subnational protocols: controlling COVID-19 at the provincial level

The provincial governors, as chairs of the Provincial Communicable Diseases Control Committee, are required by CCSA to control the COVID-19 outbreak within 4 weeks and ensure that the case fatality ratio is less than 1.4%.

According to the guidance from MoPH, The Provincial EOC, chaired by the governor, with the Provincial Chief Medical Office as the secretariat, and other teams as necessary are required to rehearse the response plan, and boost the potential of the communicable disease control unit (CDCU) in three areas (MoPH-DDC, personal communication):

a) Standardize local quarantine systems

b) Intensify provincial tracking systems as well as border tracking systems for provinces that have a land border with neighbouring countries. An example was the temporary closure of 127 schools in Rayong province which was directly ordered by the governor following an imported case of an Egyptian military person visiting the province.

c) Ensure that >85% of the population in the province wears a face mask in public and monitor adherence to public health measures at public venues providing services to citizens.

End

This update was written by the following authors from the International Health Policy Program (IHPP), Ministry of Public Health, Thailand:

Titiporn Tuangratananon
Nattadhanai Rajatanavin
Walaiporn Patcharanarumol
Viroj Tangcharoensathien

The Asia Pacific Observatory on Health Systems and Policies is a collaborative partnership which supports and promotes evidence-informed health policy making in the Asia Pacific Region. Based in WHO's Regional Office for South-East Asia, it brings together governments, international agencies, foundations, civil society and the research community with the aim of linking systematic and scientific analysis of health systems in the Asia Pacific Region with the decision-makers who shape policy and practice.

www.healthobservatory.asia

ISBN 978-92-9022-801-1

Australian Aid

ADB

HONG KONG

MINISTRY OF HEALTH
SINGAPORE

THE WORLD BANK
IBRD • IDA

World Health Organization