MALAYSIA

Strong Preparedness and Leadership for a successful COVID-19 Response

Emergency preparedness combined with rapid and robust health security measures facilitated a systematic and informed response to COVID-19 in Malaysia.

In Sungai Buloh Infectious Disease Hospital, Selangor, self-designated plastic sheet barriers were installed at patient treatment cubicles in Red Zone Emergency Department creating a makeshift isolated and safe treatment space. The hospital had enrolled the highest number of patients in Malaysia **Photo credit: Abdul Razak Aziz**

Proven preparedness

Malaysia is an upper-middle-income country with strong capacity and self-sufficiency in outbreak preparedness and response, as evidenced by its previous experiences to a range of infectious disease outbreaks. The Country's response to epidemics like the severe acute respiratory syndrome (SARS) 2002-2003 and the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) in the last few years, coupled with the implementation of the Malaysia Strategy for Emerging Diseases and Public Health Emergencies (MySED), has shaped and strengthened the Country's robust structure to prevent, prepare, ensure rapid response to public health emergencies and recover. Malaysia has complied with International Health Regulations (2005) (IHR) core capacity requirements since it entered into force and has established monitoring and surveillance activities for detection of influenza and Emerging Infectious Diseases (EIDs).

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Further to this, Malaysia spent a year preparing for and participated in a Joint External Evaluation (JEE), facilitated by WHO in October 2019. The JEE is a voluntary, collaborative, multisectoral process to assess country capacities to prevent, detect and rapidly respond to public health risks whether occurring naturally or due to deliberate or accidental events. The JEE helps countries identify the most critical gaps within their human and animal health systems in order to prioritize opportunities for enhanced preparedness and response[1]. The findings of the JEE ultimately reinforced the country's strong existing health security system, prepared for multi-sectoral health emergencies with surveillance capacity to detect and respond to emergencies promptly.

Prior to the pandemic, the government and health authorities took great steps to bolster Malaysia's capacity for health emergency and disaster preparedness, all of which played a crucial role in responding to COVID-19. Among these steps was implementation of the MySED II and establishment of the Crisis Preparedness and Response Centre (CPRC). The national CPRC is the Public Health Emergency Operation Centre for the MOH, is located within the Disease Control Centre, and is the lead agency for disasters involving health. The standard operating procedures (SoP) for CPRC guides MOH staff in the management of all potential crises and disasters and is a key part of the overall strategy to prepare for effective management of disasters, outbreaks, crises and emergencies.[2] Its role is as the functional centre that closely monitors reports of emergencies nationwide via a robust early warning system, and subsequently coordinates preparedness planning, resource management and the health sector response. When Malaysia received the information about the transmission of an unknown respiratory infection in December 2019, the Government anticipated the spread of the disease and enhanced its surveillance accordingly. The CPRC coordinated the National Plan for COVID-19, receiving strong support on the implementation of the non-pharmaceutical interventions from the National Security Council (NSC).

Assessing health system capacity

Malaysia's health system has been acknowledged for its strong infrastructure and well-trained workforce providing high-quality care. Publicly funded and run by the government, in conjunction with a strong private-sector, Malaysia is one of the nations that has achieved Universal Health Coverage (UHC) for its population of 32 million. This strong system provided a stable foundation for scale-up when COVID-19 was reported in country. Health capacity was swiftly enhanced to meet both anticipated and emerging demands, as the government operationalised the CPRC at the national and state-levels, mobilized for recruitment and re-distribution of healthcare personnel according to high workload areas and more. The WHO Representative Office for Malaysia, Brunei Darussalam, and Singapore (WHO) provided any requested support to the MoH in its effort to visualise and determine a longer-term goal for the response.

An assessment of the existing health systems capacity was done on the current number of cases and for anticipated peak periods using a model developed for Malaysia by the WHO Regional Office for Western Pacific (WPRO). The findings of the assessment, reinforced by additional data and advanced modelling, served as a basis for the Government's decision on allocation of facilities as treatment, quarantine, and isolation centres as well as evaluating the effects of NPIs to reduce the infection reproduction numbers.

[1] WHO, Joint External Evaluations (https://www.who.int/ihr/procedures/joint-external-evaluations/en/)

[2] Director General of Health Malaysia, "What is CPRC?" (https://kpkesihatan.com/2014/08/04/crisis-preparedness-and-response-centre-cprc/)

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The assessment also allowed Malaysia to estimate needs for additional laboratory supplies and PPE, bolster health system capacities and further prepare for pandemic response.

Initial Response

The COVID-19 outbreak in Malaysia has occurred in two waves. The first wave started with three cases imported from China via Singapore on 24 January 2020, resulting in just 22 cases by mid-February. This was then followed by a second wave, which began on 27 February 2020. This second wave was greatly reinforced by transmission at a religious mass gathering in Sri Petaling, Kuala Lumpur, attended by approximately 14 500 Malaysians and 2000 non-Malaysians. The first death from COVID-19 in Malaysia was reported on 17 March.

In February, Malaysia ramped up its COVID-19 response capacity, including an 86% increase in diagnostics laboratory capacity, 89% increase in critical care bed capacity, and a 49% increase in the number of available ventilators.

At the start of the outbreak, WHO instituted an Incident Management System (IMS) to provide critical support in the areas of partner coordination, information and planning, technical expertise, and operational support and logistics. In collaboration with the MoH, the Organization provided a strategic platform for all COVID-19 response related activities. WHO Country Office has participated in strategic discussions with national and state health authorities, partners and stakeholders, provided evidence-based information and policy advice, and supported other key activities, including non-pharmaceutical interventions (NPIs), emergency communications and community engagement.

Case detection and quarantine

Microbiology Unit in the Pathology Deparment Sungai Buloh works hard to process samples from COVID-19 patients in timely manner. Photo credit: Dr Tuan Suhaila Binti Tuan Soh

In an immediate attempt to curtail transmission, Malaysia closed borders and allowed only Malaysians to enter the country, followed by a mandatory 14-day quarantine. In addition to strong contact tracing activities, a COVID-19 testing strategy was developed to focus on testing the contacts of known clusters of cases, irrespective of whether they show symptoms or are asymptomatic. Malaysia enforced the "Search, Test, Isolate, Treat and Quarantine" (STITQ) strategy to uncover suspected cases of COVID-19 in the community. The Government determined that all individuals who test positive of COVID-19 would be hospitalized for the minimum of 14 days, even those who were asymptomatic. Since the onset of the outbreak, Malaysia has established 140 quarantine centres in different parts of the country, with the National Disaster Management Agency (NADMA) monitoring the facilities.

In addition to the traditional testing of a Person Under Investigation (PUI) and close contacts, Malaysia employs more comprehensive testing strategies with a targeted approach towards high risk groups. WHO supported the initial provision of rt-PCR test kits and testing protocols. Ramping up laboratory capacities is ongoing. During the COVID-19 pandemic, Malaysia has conducted more than half a million tests. The MOH's COVID-19 laboratory network led by Institute of Medical Research (IMR) and the National Public Health Laboratory (NPHL) has expanded testing capacity for COVID-19 to over 50 laboratories in both public and private sectors.

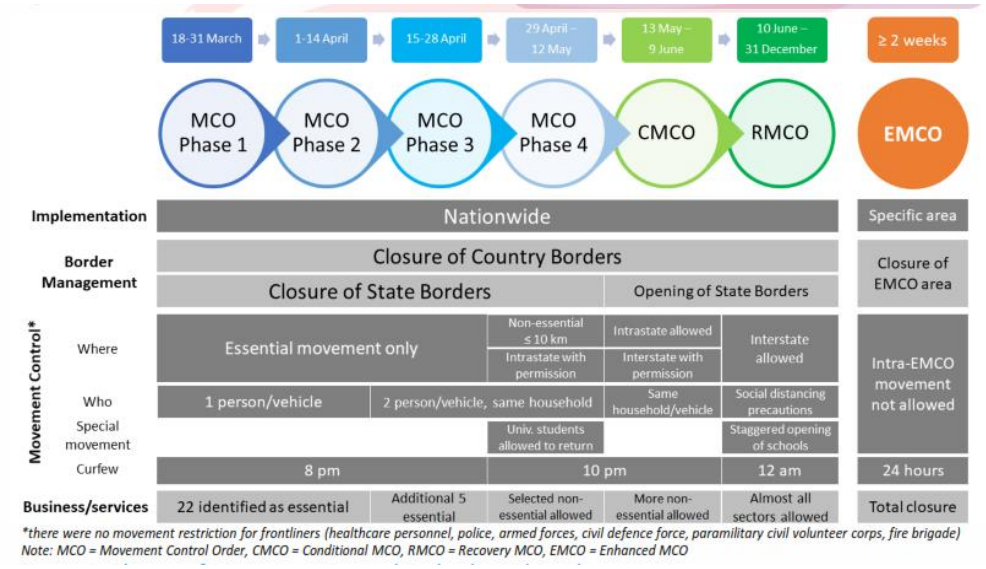
WHO has also supported the monitoring and interpretation of epidemiological information for outbreak trends including analysing COVID-19 trends among influenza-like illness (ILI) and severe acute respiratory infections (SARI) samples as part of multisource surveillance. These data were used as supporting evidence to assess effectiveness of interventions such as the Movement Control Order (MCO).

Movement Control Order (MCO)

Acting against the rapid transmission of COVID-19 virus among participants of February's religious mass gathering in Sri Petaling, the Government of Malaysia issued a Movement Control Order (MCO) on 18 March. The MCO was a multi-phase response which consisted of six distinct phases and six critical measures. There were four individual and gradual transitions of the MCO, a Conditional MCO (CMCO) and the Recovery MCO (RMCO) all of which applied nationwide and considered restrictions to overseas and domestic travel, large gatherings, closures of government and private premises, as well as educational

institutions. An extended movement control order (EMCO) was also developed for application to specific areas experiencing clusters of cases or any significant outbreak.

Table 1. Phases of MCO and corresponding restrictions



*there were no movement restriction for frontliners (healthcare personnel, police, armed forces, civil defence force, paramilitary civil volunteer corps, fire brigade)
Note: MCO = Movement Control Order, CMCO = Conditional MCO, RMCO = Recovery MCO, EMCO = Enhanced MCO

In the initial phase, MCO measures included complete prohibition of people from moving outside their houses or attending mass gatherings and restricted all domestic and international travels. Academic institutions, public and private premises were all closed. During this phase, the Royal Malaysian Police was mobilized to support the enforcement of the restrictions. As the outbreak progressed, the various phases of the MCO allowed for a flexible response to the national situation, adapting restrictions to reflect the current epidemiological situation. The MCO succeeded in helping reduce the number of COVID-19 cases from an average of ***170*** new cases per day in the first week of April to ***74*** in the last week of April.[3] Due to the continuous transmission within specific areas of the country, particularly in high risk parts, enhanced MCO (EMCO) were implemented for more targeted and restricted short-term (14 days) response measures that did not apply nationally. [4]

Complementing the MCO, the MoH received full support from WHO on the implementation of NPIs, through frequent development of informational, educational and communication (IEC) materials, and technical guidance for planning, implementation, and evaluation of activities. WHO also supported surveillance and data collection, processing and analysis. The data, for example, enables WHO to provide evidence-based recommendations regarding the risk of resurgence if the MCO is loosened too soon. In addition to tailored support from the WHO country office, regional and global strategies were shared to

[3] WHO's Technical Cooperation for Covid-19 Preparedness and Response in Malaysia (04), WHO Representative Office for Malaysia, Brunei Darussalam and Singapore. 14 May 2020
[4] UHC and COVID-19 preparedness and response report on Malaysia, 2020

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help the MoH identify and calculate the key variables in making decisions regarding lifting movement restriction.

Risk communication and community engagement at the heart of NPIs

The Malaysian government went to great lengths to ensure a comprehensive approach to risk communications and community engagement (RCCE), working to establish trust with the population and provide transparency regarding the COVID-19 situation, with the full support of WHO for a whole of government and whole of society approach. Malaysian authorities established and promoted trusted sources of information very early in the response to ensure the public had access to timely and accurate information on recent COVID-19 developments and to offset the risk of an infodemic. At the height of the epidemic, two daily media briefings convened by top officials were held to update the public on the COVID-19 situation in country, and this later was condensed into briefings that occurred three times a week.

In addition to providing trusted sources for information, the government focused efforts on developing mass media campaigns, conducted media monitoring and research on public insights and opinion, strengthened coordination with UN agencies and partners, and gave continuous briefings to diplomatic missions. They also developed SOPs for communication and community engagement campaigns and focused on strategic communication planning.

Social media platforms and mobile applications became a powerful channel for RCCE outreach when paired with creative content and strategic messaging to reach the culturally diverse community using as many channels of communication as possible. The NSC sent mass text messages via SMS to all numbers registered in Malaysia daily to provide updates on policies and regulations as well as reminders on current precautions and NPIs and health advice and recommendations. The NSC also developed a social media application, Telegram, to allow for rapid access to breaking news and information on COVID-19 related regulations.

Malaysia is a country rich in culture originating from its four major ethnic groups (the descendants of Malay, South Asian, Arab, and Chinese) and indigenous communities. Islam is the faith largely practiced by the majority (61.3%) of the population, followed by Buddhism (19.8%), Christianity (9.2%) and Hinduism (6.3%).[5] The outbreak coincided with a number of important religious observances across the country, and WHO recognized that religious and spiritual leaders are a key source of support, comfort and advice for the communities they serve, and can play a life-saving role in encouraging healthy practices and offering guidance in a time of uncertainty. Therefore, WHO with its partners developed RCCE strategy aimed to consider and address these cultural and faith-based norms and practices. This further supported the governments' efforts to deploy an inclusive and tailored approach to better protect communities throughout the pandemic.

Additionally, tailored IEC materials and messages were developed to meet the evolution of the outbreak and address emerging priorities. This includes advice and guidance for caregivers and guardians,

[5] Department of Statistics, Malaysia: Population Distribution and Basic Demographic Characteristic Report 2010

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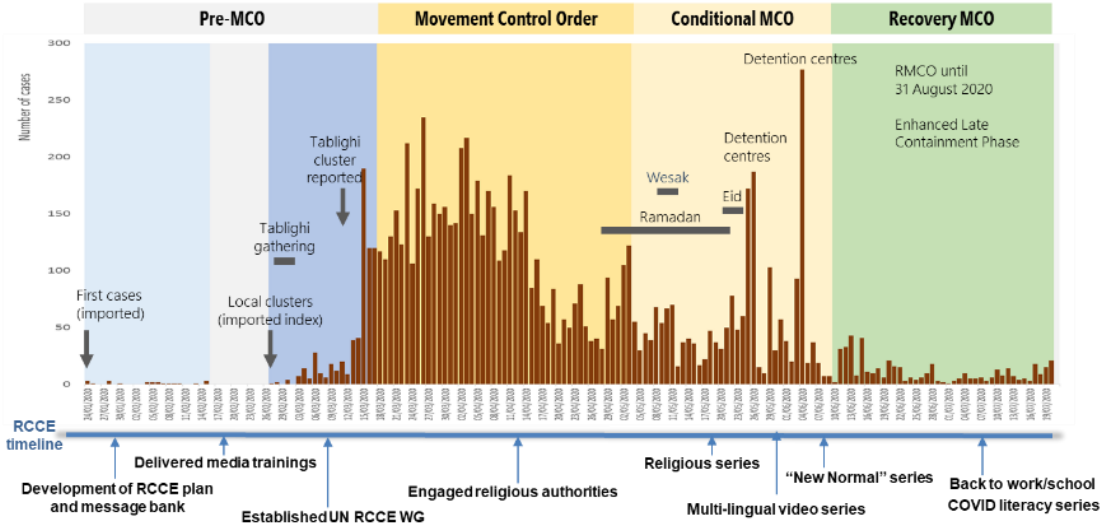
businesses seeking to reopen safely as the MCO transitioned, senior citizens and those groups at highest risk of infection, parents and children preparing for the return to school, and health care workers. These materials were often translated into multiple languages, covering Malay, Burmese, Rohingya, Somali, Tamil, Tedim and Urdu.

Figure 1. Timeline of major WHO and UN Partner RCCE activities during COVID-19



Looking ahead: use of mathematical models in planning for healthcare capacity preparedness

In April 2020, with the support of the Western Pacific Regional Office, the Country Office coordinated a collaboration between the Ministry of Health's Malaysian Health Technologies Assessment Section (MaHTAS) and a consortium of mathematical modellers from Australia's Kirby Institute, University of New South Wales and Monash University. The aim – to apply the use of mathematical models not only to simulate the transmission dynamics of COVID-19 to reflect the situation in Malaysia using data on notified cases and deaths as well as non-pharmaceutical interventions (NPIs); but also, to project future transmission scenarios and trajectories based on expected changes in the implementation of the NPIs.

These projections, in turn, allow the modellers to extend the projections to health systems requirements, such as hospital beds and ICU capacity, under different future scenarios. This includes, most importantly, quantifying the requirements on the healthcare system in the event of a resurgence of infections. The projections are updated on a weekly basis, and the knowledge helps to inform decision makers on the likelihood of a resurgence and the preparedness of the healthcare system to cope, along with factors and information sources that need to be taken into consideration.

Essential health services – managing concurrent outbreaks

In addition to dealing with COVID-19, Malaysia was also responding to a polio outbreak that was declared in December 2019 after the virus was absent in the country since 1992. Immunization campaigns had to

be halted or delayed to handle the burden brought on to the health system by COVID-19. WHO, UNICEF and the other partners are working in collaboration with the MoH to control the outbreak, through enhanced surveillance, case detection, risk communication and the resumption of the immunization response. Due to this joint-effort and Malaysia's adaptable and resilient health system structure, the country is one of the first to resume its immunization campaigns

Malaysia conducted risk assessments based the national dynamics of COVID-19 transmission, the health system capacities, and the public health benefit of proceeding with a polio vaccination campaign, and as of June 2020, polio response activities have resumed in Sabah State and the Federal Territory of Labuan. Currently polio immunization campaigns are underway in every district to reach all children under 13 years of age regardless of their previous immunization status.

Ongoing steps

The overstretched health care system is a challenge that countries face as the COVID-19 pandemic continues. Although Malaysia has an adequate health care workforce with 1 doctor for every 530 people and 1 nurse for every 304 people,[6] the Country will work to develop a contingency plan so that the health systems are in position to cope with case resurgence and long-term effects of the outbreak.

Now that movement restrictions have been eased, health authorities are working to resume essential health services, particularly vaccination. The government and partners seek to ensure all children, including citizens and non-citizens, will have access to multiple doses of polio vaccine. They have also reinforced surveillance systems to detect the presence and circulation of poliovirus in the environment as poliovirus can be spread through the contaminated water or food. Health centres have implemented robust infection, prevention and control measures at health care clinics as well as ensured preventive measures are in place such as physical distancing, use of masks and hand hygiene to encourage parents and caregivers to get routine immunizations for children.

WHO works with UNCT in supporting UN agencies' response to COVID-19 and developing a proposal to the UN headquarters to attain support for the UN Socio-economic COVID-19 Response in Malaysia. WHO also facilitated Malaysia in joining the WHO coordinated Solidarity Trial. Nine sites in eight states have been identified to participate in the Solidarity Trial, involving the testing of remdesivir, a combination of two drugs, lopinavir and ritonavir; the two drugs plus interferon beta; and chloroquine, as a potential treatment for COVID-19. The protocol was approved and regulatory approval for importation of study drugs for nine participating COVID-19 Government hospitals has been obtained. Malaysia was the first country in Asia to start enrolling patients to the Solidarity Trial.

Although the current numbers are low, the risk of COVID-19 spread is still high, yet the lifting of the MCO and the introduction of the "new normal" may result in people being less vigilant about adhering to NPI's. RCCE efforts encourage people to maintain their precautionary practices as recommended and community perceptions surveys are being conducted to evaluate and re-strategize RCCE activities and the country continues to be vigilant in its response, extending the RMCO until 31 December 2020.

[6] Health Facts 2019, the Ministry of Health, Malaysia.

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Additionally, WHO and partners will continue to support the government to adapt and develop messaging to reinforce the adoption of any forthcoming measures, as well as continuing outreach to risk groups and expanding to the general population as the outbreak evolves.

Treatment in negative pressure tent in Sungai Buloh Hospital, a major Infectious Disease Hospital with top Malaysian experts. The hospital is among the enrolling sites of the Solidarity trial. Photo credit: Dr Jasmine Anthonysamy

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