

Battling COVID-19 pandemic waves in six South-East Asian countries: A real-time consensus review

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ABSTRACT

Introduction: COVID-19 has caused unprecedented public health concerns, triggering an escalated burden to health systems worldwide. The pandemic has altered people's living norms, yet coherently escalating countries' socio-economic instability. This real-time consensus review aims to describe the epidemiological trends of COVID-19 pandemic across six South-East Asian nations, and country-specific experiences on pandemic preparedness, responses and interventions.

Methods: Consensus-driven approach between authors from the six selected countries was applied. Country specific policy documents, official government media statements, mainstream news portals, global statistics databases and latest published literature available between January-October 2020 were utilised for information retrieval. Situational and epidemiological trend analyses were conducted. Country-specific interventions and challenges were described. Based on evidence appraised, a descriptive framework was considered through a consensus. The authors subsequently outlined the lessons learned, challenges ahead and interventions that needs to be in place to control the pandemic.

Results: The total number of people infected with COVID-19 between 1 January and 16 November 2020 had reached 48,520 in Malaysia, 58,124 in Singapore, 3,875 in Thailand, 470,648 in Indonesia, 409,574 in Philippines and 70,161 in Myanmar. The total number of people infected with COVID-19 in the six countries from January to 31 October 2020 were 936,866 cases and the mortality rate was 2.42%. Indonesia had 410,088 cases with a mortality rate of 3.38%, Philippines had 380,729 cases with a mortality rate of 1.90%, Myanmar had 52,706 cases with a mortality rate of 2.34%, Thailand had 3,780 cases with a mortality rate of 1.56%, Malaysia had 31,548 cases with a mortality rate of 0.79%, and Singapore had 58,015 cases with a mortality rate of 0.05% over the 10-month period. Each country response varied depending on its real-time situations based on the number of active cases and economic situation of the country.

Conclusion: The number of COVID-19 cases in these countries waxed and waned over the 10-month period, the number of cases may be coming down in one country, and vice versa in another. Each country, if acting alone, will not be able to control this pandemic. Sharing of information and resources across nations is the key to successful control of the pandemic. There is a need to reflect on how the pandemic affects individuals, families and the community as a whole. There are many people who cannot afford to be isolated from their families and daily wage workers who cannot afford to miss work. Are we as a medical community, only empathising with our patients or are we doing our utmost to uphold them during this time of crisis? Are there any other avenues which can curb the epidemic while reducing its impact on the health and socio-economic condition of the individual, community and the nation?

INTRODUCTION

The coronavirus disease (COVID-19) pandemic is the fifth global calamity after the 1918 influenza pandemic. It is being regarded as the most potent contagion in modern human history. The spread of this disease is even surpassing the severe acute respiratory syndrome (SARS) in 2003 and the Middle Eastern respiratory syndrome coronavirus (MERS) in 2012. COVID-19 pandemic has caused unprecedented public health concerns, triggering an escalated burden to health systems worldwide. It has altered the daily life, disrupted economic activities of the people, and consequently causing socio-economic instability in many countries. First reported in December 2019, the cumulative COVID-19 incidence count has surged to approximately 45.67 million cases globally, killing around 1.19 million people as of the 31 October 2020 (16:54 GMT).¹

To ensure economic and political survival, many nations were forced to alter their already highly stringent control strategies to a more flexible working norm through the adoption of standard operating procedures (SOPs). Although such relaxed measures were believed to equilibrate national economies, it has led to a spike of new cases and clusters. Control measures have helped to flatten the epidemic curve,

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but the virus still remains in the community. As the world grapples with the ongoing pandemic, it places its hopes of salvation on an effective vaccine, which now appears to be near. It is anticipated that by mid 2021 will there be a safe and effective vaccine in sufficient quantity available for use by the general population. However, there are concerns that this projection may be delayed.

This article is a follow up to the works published by Rampal² and Rampal and Liew³ in *The Medical Journal of Malaysia* earlier this year. The COVID-19 situation in Malaysia till May 2020 was discussed in those articles. The current work aims to extend a descriptive framework on the COVID-19 pandemic situation across some of the Medical Associations of South-East Asia Nations (MASEAN) member countries. This paper highlights the epidemiological trends of COVID-19 pandemic and its country-specific containment measures across MASEAN member countries. It is an effort to unite MASEAN member countries in the quest to accelerate rapid information sharing of scientific evidence and co-operation between countries to battle the COVID-19 pandemic. MASEAN is the association of national medical associations in South-East Asia and it is an accredited civil society organisation under the Association of South-East Asia Nations (ASEAN).

Epidemiological trends of COVID-19 pandemic in MASEAN countries

Epidemiological trends of total COVID-19 infections, mortalities and mortality rates over time (between January 2020 and 31 October 2020) for six selected MASEAN countries (Malaysia, Singapore, Thailand, Philippines, Indonesia and Myanmar) are shown in Table I. The total number of people infected with COVID-19 for the six countries accounted for 936,866 cases, with a mortality rate of 2.42%. Indonesia had 410,088 cases with a mortality rate of 3.38%, Philippines had 380,729 cases with a mortality rate of 1.90%, Myanmar had 52,706 cases with a mortality rate of 2.34%, Thailand had 3,780 cases with a mortality rate of 1.56%, Malaysia had 31,548 cases with a mortality rate of 0.79%, Singapore had 58,015 cases with a mortality rate of 0.05% over the 10-month period (Table I). Although three countries (Malaysia, Thailand, and Singapore) observed a decreasing pattern of COVID-19 infections from May and June 2020 respectively, Indonesia and the Philippines trended otherwise, with an exponentially rising trend of COVID-19 infections over time. However, cases in the Philippines began to decline from September 2020, while Malaysia saw a resurgent spike in the same month. Unlike other ASEAN countries, Myanmar had a consistently low number of cases from March till August 2020, but recorded spikes in the months of September and October 2020.¹

As the pandemic escalated, each country formulated its own preventive strategies, focussing on early detection, isolation and management of cases to control it. The number of positive cases in each country varied according to their respective testing criteria. There is a possibility of selection bias if those with severe disease were preferentially tested, thus missing out those with minor symptoms. Similarly, screening asymptomatic contacts would increase the number of cases detected. Case fatality and infection fatality rates

could also be affected by the testing criteria. Patient demographics, adequacy of healthcare accessibility, coinfection and comorbidities would also affect the statistics. Table II shows the number of tests conducted per million population, and the number of positive cases detected per million population. Singapore followed a policy of active testing to screen asymptomatic contacts and susceptible individuals to facilitate early detection, isolation and management to prevent further spread of COVID-19.

The actual numbers of infection worldwide may never be known as asymptomatic and mildly symptomatic individuals may not have been tested in many countries. The number of tests conducted in the six nations varied. Singapore is a city state with a population of 5.8 million, it conducted 3.88 million COVID-19 tests accounting for 66.3 tests per 100 individuals. Singapore had the highest number of tests per million population. At 54 positive cases per million population, Thailand had the lowest number of cases per million.¹ Comparatively, Malaysia conducted 6.85 tests per 100 individuals and Myanmar conducted 0.58 tests per 100 individuals.

Country-specific situational analysis and containment strategies

Malaysia

In Malaysia, the first case of COVID-19 infection was reported on the 25 January 2020 with the first death reported on the 17 March 2020.³ By the end of October 2020, the number of cases had increased to 31,548 people resulting in 249 deaths. Out of these total cases and deaths, 20,324 (64.4%) cases and 113 (45.4%) deaths were reported in October 2020 alone (Table I).¹ Most cases originated from a total of 237 clusters detected nationwide since the outbreak started in Malaysia. A total of 135 clusters remains active till date, while the remaining have been declared inactive.⁴ The two largest previously active clusters were the Sri Petaling "Tabligh" cluster (3,375 cases) and the Bukit Jalil Immigration Department Depot cluster (653 cases). Whereas the recent active clusters that brought to a commensurate rise of cases were mostly originated from prisons, with the top two being the Tembok and Kepayan prison clusters, accounting for approximately 1,742 and 1,716 cases respectively.⁴

Public health interventions include non-pharmacological and legislative measures. On 18 March 2020, movement restrictions were enforced, namely the movement control order (MCO) (18 March – 3 May 2020, 6+ weeks), conditional MCO (CMCO) (4 May – 9 June 2020, 5+ weeks) and the recovery MCO (RMCO) (10 June – 31 December 2020, 29+ weeks).^{2,3,5} Other terminologies used during both conditional and recovery MCO periods were the enhanced MCO (EMCO) and the targeted enhanced MCO (TEMCO).⁶

The MCO prohibits mass movements and gatherings at all places nationwide including religious services, as well as closure of business premises, food outlets, education institutions, government and private premises. Only essential services (such as health, security, telecommunications, etc) were allowed to continue to operate. There was also a restriction of the movement of individuals during the period. The aim of the MCO was to slow down the transmission

chain in the community to allow Ministry of Health (MOH) Malaysia to trace, isolate and treat the identified positive cases. It also allowed Malaysia to build up its diagnostics and treatment capacity. The MOH Malaysia has started its preparation in December 2019. Up until April 2020, the number of hospitals treating COVID-19 patients has increased from 26 to 40, screening hospitals from 56 to 120 and the number of ventilators from 526 to 1,034 units. The diagnostics capacity was increased from an initial 6 to 61 laboratories.^{7,8}

The distribution of COVID-19 cases at different phases of interventions are shown in Table III. A set of SOPs were crafted based on the guidelines of “3Cs” and “3Ws.” “3Cs” stands for avoidance of crowded places, confined spaces, and close conversation. “3Ws” stands for the practice of regular hand washing with soap and water, wearing of face mask in public places and warning against handshakes or physical contacts during greetings.⁵ Rigorous contact tracing and screening efforts were being made. Regular temperature checks using infrared devices were made compulsory prior to entering any premises with individual’s name, contact number, date, and time of visit to be recorded as a new norm. Mandatory wearing of facemask in public places was enforced from 1 August 2020. The types of face mask to be used has also been outlined by the MOH Malaysia.⁶ Medical grade of 3-ply facemask should be used by vulnerable populations, especially older aged persons (≥ 60 years of age), those with comorbidities such as cardiovascular diseases, diabetes, chronic lung diseases, cancer, cerebrovascular disease, immunosuppressive persons, and those with symptoms suggestive of active COVID-19 infections. The non-medical grade face masks such as 2-ply or cloth type should be used by the general population in public places such as at the workplace, grocery shops, schools, places of worships and during mass gatherings. Those living in confined and crowded spaces such as in refugee camps should also use a face mask. In confined spaces such as in buses, planes, and trains, or in conditions where close contacts may be difficult to avoid such as cashiers or social workers, the use of face mask is mandatory. Only children below two years old, or persons with breathing difficulties, unconscious person, persons who are incapacitated or unable to remove the face covering without assistance are not required to wear a face mask. Face masks should not be shared. All economic activities resumed in the current RMCO period. However, restriction for overseas travel is still enforced in view of high number of cases worldwide.⁶

Malaysia’s efforts to flatten the COVID-19 epidemic curve in the previous two waves were successful with stringent control measures.⁵ A declining number of patients under treatment was observed since 9 April 2020, and until 9 July 2020 there were only 63 active cases who required treatment.⁶

The nation is currently facing a third wave which emerged since 8 September 2020. Recent outbreaks in Kedah, a state located in northern Peninsular Malaysia, have been associated with the “Sivagangga” cluster⁷ and prisoners living in confined spaces.⁶ The Sivagangga cluster spread to the local community was related to the failure of an index case (a permanent resident of Malaysia returning from India) who did not comply to the local quarantine order.⁹ The

outbreak in Sabah, a state in the east of Borneo Island, East Malaysia was associated with immigrants from neighbouring country. The recent state election has resulted in the spread within the state and also to Peninsular Malaysia due to high number of public gatherings and poor compliance to new norms,¹⁰ and the movement of people from Peninsular Malaysia to Sabah during the campaign and election periods.

Malaysia has a robust health system with universal health coverage. The government is doing its best to respond using the whole-of-government and whole-of-society approach.¹¹ The MOH has produced the “Guidelines for COVID-19 Management in Malaysia,” with its 5th edition published on 24 March 2020 and updated on 5 October 2020.¹² A smartphone application was developed by the government of Malaysia, called the “MySejahtera” app to facilitate COVID-19 contact tracing in the country.¹³ The MySejahtera app users can self-declare and record their health status. The same application can be used by their family members. Users can observe real-time status of the surroundings or premises if there were any positive COVID-19 cases reported within a radius of one kilometre. Those at home quarantine are required to use the same application, in addition to the wearing of a wristband.¹⁴ The Malaysian Government has strengthen their risk communication strategies through regular media briefing by the Director General of Health Malaysia on COVID-19 cases in Malaysia and the health system response, and the Senior Minister for Home Affairs on matters related to security in Malaysia. There are also sharing of trusted messaging through websites, social media and short-message-system (SMS).⁵

The Government of Malaysia also allocated RM600 million to the MOH Malaysia for the COVID-19. Out of this, RM500 million will be used to purchase equipment, i.e., ventilators and personal protective equipment (PPE), and the rest to strengthen the healthcare workforce through the appointment of 2,000 contract nurses.¹⁴ To cater for the increase in the cases of hospital admission, the Government of Malaysia has set-up a makeshift hospital at the Malaysia Agro Exposition Park Serdang (MAEPS). The 694 bedded hospital was used for the management of low risk COVID-19 patients with no or mild symptoms.¹⁴ The MOH has recommended that, to lower the COVID-19 incidence, Malaysians have to strictly adhere to the SOPs based on the practice of ‘3Cs’ and the avoidance of ‘3Ws.’ Local and international cooperation are critical. The entire government, politicians, non-governmental organisations (NGOs) and the community at large must join forces to beat the COVID-19 crisis.

Singapore

Singapore was affected in a major way in 2003 by the SARS. This time round, the country was much better prepared to deal with what started as an epidemic, and is now recognised to be a pandemic, COVID-19 (aka novel coronavirus infection, SARS CoV-2). SARS which also began in China, spread through Hong Kong, and reached Singapore by way of human-to-human transmission, air travel, and porous national borders. Overall SARS infected 238 people, and killed 33, including five healthcare professionals, containing its spread was a hard lesson for a country to learn. The

Table I: Number of COVID-19 cases, mortalities, and mortality rates by countries between January and October 2020

Country	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Total
Malaysia											
Cases	8	21	2,737	3,236	1,817	820	337	364	1,884	20,324	31,548
Mortalities	0	0	43	60	12	6	4	2	9	113	249
Mortality rate (%)	0.00	0.00	1.57	1.85	0.66	0.73	1.19	0.55	0.48	0.56	0.79
Singapore											
Cases	16	88	824	15,290	18,715	9,023	8,249	4,607	953	250	58,015
Mortalities	0	0	3	11	9	3	1	0	0	1	28
Mortality rate (%)	0.00	0.00	0.36	0.07	0.05	0.03	0.01	0.00	0.00	0.40	0.05
Thailand											
Cases	14	28	1,609	1,303	127	90	139	102	152	216	3,780
Mortalities	0	0	10	44	3	1	0	0	1	0	59
Mortality rate (%)	0.00	0.00	0.62	3.38	2.36	1.11	0.00	0.00	0.66	0.00	1.56
Philippines											
Cases	1	2	2,081	6,404	9,598	19,428	55,755	127,512	90,883	69,065	380,729
Deaths	0	1	87	480	389	309	756	1,536	1,945	1,718	7,221
Mortality rate (%)	0.00	50.00	4.18	7.50	4.05	1.59	1.36	1.20	2.14	2.49	1.90
Indonesia											
Cases	0	0	1,528	8,590	16,355	29,912	51,991	66,420	112,212	123,080	410,088
Mortalities	0	0	136	656	821	1,263	2,255	2,286	3,323	3,129	13,869
Mortality rate (%)	0.00	0.00	8.90	7.64	5.02	4.22	4.34	3.44	2.96	2.54	3.38
Myanmar											
Cases	0	0	15	135	74	75	54	529	12,491	39,333	52,706
Mortalities	0	0	1	5	0	0	0	0	304	927	1,237
Mortality rate (%)	0.00	0.00	6.67	3.70	0.00	0.00	0.00	0.00	2.43	2.36	2.34

Data available till 31 October 2020.¹

Table II: COVID-19 positive cases and COVID-19 tests per 100 population in six selected South East Asia Countries

	Malaysia	Singapore	Indonesia	Thailand	Philippines	Myanmar
Population	32,365,999	5,850,342	273,523,615	69,799,978	109,581,078	54,409,800
Total tests done	2,220,000	3,880,000	3,030,000	1,090,000	4,650,000	317,765
Tests/100 population	6.85	66.30	1.10	1.56	4.24	0.58
Total Positive cases	31,548	58,015	410,088	3,780	380,729	52,706
Positive cases /million	975	9916	1499	54	3474	969
Positive cases / percentage of population tested	4606	875	372,807	2423	89,795	90,872

Table III: Distribution of COVID-19 cases at different phases and interventions in Malaysia

Phases & Interventions	Cases
1st wave	22
2nd wave before MCO implementation	651
2nd wave during 1st and 2nd phase MCO	4,314
2nd wave during 3rd and 4th phase MCO	1,311
2nd wave during CMCO	2,038
2nd wave during RMCO	1,831
3rd wave during RMCO	21,381

Data available till 31 October 2020.⁶

experience led to an active advance preparedness stance that has helped Singapore through this new threat that has circled the globe right now.^{15,16}

The first case of COVID-19 was detected in Singapore on 23 January 2020, and DORSCON (Disease Outbreak Response System Condition) ORANGE was activated on the 7 February 2020 and is in place till the time of writing this article.¹⁷ One of the most visible, and now obviously the most important, inclusion into our health defence plan was the development of the National Centre of Infectious Diseases (NCID), which,

very fortuitously, was inaugurated in September 2019. It is a 330-bed, purpose-built facility, set up as a national priority for advance infection control preparedness. The key features of this facility included clinical service,¹⁸ public health outreach, and research – the last of which has provided valuable guidance in the management of patients with COVID-19 locally, and also globally.

Experience and buildings aside, perhaps the most important step in our battle against this novel virus was the setup of a multi-ministry task force very early in the outbreak. This

committee garnered the best evidence available on a real-time basis from reputable sources and bodies such as the World Health Organization (WHO) and translated best evidence and best practice into a highly coordinated national response. The public too played their part by following these guidelines diligently, and together, this mitigated the outbreak in the wider community.¹⁹ As an example of the speed of action: China had reported the emerging infection to the WHO on 31 December 2019; by 2 January 2020 physicians had been instructed to screen patients for at-risk travel history, and by 3 January 2020, temperature screening had been initiated at Singaporean airports.²⁰

COVID-19 has challenged the world and Singapore, on many fronts. It has brought out the best in Singapore: lessons learned from a difficult past, steps taken for a preparedness for an uncertain future, and a rapidly responsive leadership built on transparency and education of the public; and the country responded by compliance to sound advice, technology development, and a committed support of everyone's wellbeing. Singaporeans quickly came together as a nation and adapted to the new norms ignoring any, and all inconveniences. The people readily adopted physical distancing, mask use, hand hygiene and location tracking for contact tracing purposes. Instead of "lockdown", Singapore described the pause in 'business-as-usual' as a circuit breaker. Singapore is known for its highly regulated environment, and this had stood the country in good stead during this pandemic. Within this regulatory framework, mask use in the Singapore population has risen from 24% in February 2020, to 90% in September 2020.

Technological advances were made rapidly on several fronts. Apps and devices were developed, such as Safe Entry, Token-Go-Where, Trace-Together that would help with contact tracing. A COVID-19 Symptom Checker App, was jointly developed by the National University Health System (NUHS), National Centre for Infectious Disease (NCID) and the Ministry of Health Office for Healthcare Transformation (MOHT). The Health Sciences Authority recognised the importance and urgency of the situation, and set up a provisional authorisation process for COVID-19 detection tests, expanding the number, and variety, of diagnostic tests available for use. These include the now well recognised reverse transcription polymerase chain reaction (RT-PCR) test, and others such as next generation sequencing, chemiluminescent magnetic microparticle immunoassay (CMIA) for detecting COVID-19 RNA, and antigen, and antibody tests. Different scientific and clinical organisations such as the Agency for Science, Technology and Research (A*STAR), Public and Private Health Institutions and Laboratories, Defence Science Organisation (DSO), and the universities rallied together to develop a slew of tests: the Fortitude test kit – an RT-PCR test for the detection of COVID-19 was ready in February 2020, and since then, RESOLUTE 2 – a direct PCR test for COVID-19, was ready in March 2020.^{21,22} This decreased the time taken for testing to 1 hour compared with 2.5 hours required for a conventional RT-PCR test. The efforts to develop new, and more appropriate tests, suitable for the changing landscape of this pandemic continues here in Singapore.

Drawing lessons from the SARS 2003 pandemic, it was a priority to prevent and monitor for infections among healthcare workers to safeguard occupational and patient safety. Advance preparedness consisted of mask fitting, systematic training of all health care staff on PPE donning and doffing, stockpiling of PPE for appropriate use. Limiting movement of workers between healthcare institutions, mandatory twice daily temperature monitoring and intra department segregation in teams were used to minimise occupational exposure risk and inadvertent nosocomial infection.²³

Pregnant women and their foetuses are a high-risk population during pandemics. The Department of Obstetrics and Gynaecology, National University Hospital, Singapore developed and swiftly implemented a model for workplace segregation. Negative pressure isolation rooms were reserved for use by COVID-19 suspect or confirmed cases. Delivery suite triage guidelines to screen for COVID-19 were strictly enforced to enhance surveillance and safety. Algorithm for care for COVID-19 positive pregnant and parturient patients was formulated to minimise morbidity, prevent vertical transmission of infection, and ensure healthcare worker safety.^{24,25} Similarly, operating theatre protocols were developed. Dedicated negative pressure rooms were earmarked, keeping in mind the airflow in the theatre and the anterooms. Measures like keeping standby equipment in the anteroom, taking into operation theatre (OT) only those which were required for a particular case, plastic covering all equipment in the OT, changing heat and moisture exchange filter and soda lime between every case, having dedicated OT teams were implemented. Clear protocols were designed, disseminated, and followed to minimise risk.²⁶⁻²⁸ In the background, laboratories geared up for the expected influx of tests and ensured that biosafety regulations were adhered to. All suspected and confirmed samples are processed in Class 2 biological safety cabinet and laboratory staff use full PPE. Positive test results are expeditiously communicated to the ordering physician.²⁸

NCID and MOH conducted contemporaneous surveillance, data collection and analysis to determine the dynamics of the pandemic. The presence of pre-symptomatic spread highlighted the necessity of physical distancing.²⁹ Vigilance and continuous monitoring of data emerging from various sources helped us stay abreast of developments and update guidelines to incorporating new knowledge. Despite best efforts, as of 31 October 2020, 58,015 people tested positive for COVID-19 in Singapore. The majority of these cases happened in the dormitories, and these were quickly managed by preventing the spread of the infection beyond the boundaries of the dormitories. To date, there have been 28 deaths; the infection fatality rate (IFR) is 0.05%, the last ICU case being on 12 October 2020, and the last fatality on 12 October 2020. Currently, community spread numbers remain at the low single digits ranging from 0-2 cases detected a day.³⁰

Many countries have had to suffer the financial impact of this pandemic, and Singapore is no exception. A pandemic crisis fund was set up to help Singaporeans through the

challenging times. Jobs and small businesses have been supported in order to protect livelihoods. As everywhere else, the aerospace, aviation, tourism, and meetings and conferences sectors have been most significantly affected, and efforts are being made to develop strategies to re-open them in the near future. A national strategy is also in place to take this opportunity of downtime to upgrade the skills of workers in many sectors in Singapore. This spirit of nationwide camaraderie and interpersonal support has maintained the morale of the society and the country.

The end is not in sight, but the roadmap is clear. A vaccine is needed. It is estimated that over 100 vaccine candidates are currently under evaluation; of these, some 20+ vaccines are in human trials already. On identification of a safe and effective vaccine, COVID-19 Vaccines Global Access (COVAX), led by the WHO, Gavi and the Coalition for Epidemic Preparedness Innovations (CEPI), will facilitate the equitable access and distribution of these vaccines globally. Singapore's Duke-NUS Medical School working with a United States pharmaceutical company Arcturus Therapeutics, have developed a potential vaccine Lunar-Cov19, which has started clinical trials here in Singapore. The results are obviously, eagerly awaited.

This pandemic has had a major impact on human life and has contributed to marked suffering. Economies have been brought to a grinding halt, families have been separated during prolonged periods of illness, and many have died alone. This pandemic has tested the mettle of the world as one community, has led to garnering of strengths, and of forming a cooperative and coordinated international response. This pandemic has torn the world apart, only to see that we, are stronger than the pandemic, and that we will come together as one humanity to heal ourselves, and the world we live in - the only home we have, to make it into an even better place for all our future generations to come. The mantra is true: no one is safe, until everyone is safe.³¹

Thailand

The first COVID-19 case in Thailand was detected on 8 January 2020. The first infected case imported from China was on 13 January 2020. The patient was a Chinese female from a large tourist group who came during the Chinese New Year holiday to Bangkok. After this episode, there were more cases detected in the subsequent weeks within the month of January 2020. The number of cases gradually reached its peak in March 2020, with more than a hundred locally transmitted cases reported daily. The male to female infection rate was 44:56 percent. The average age of infected person was 37 years old and ranged from 1 month to 97 years. The Thai government issued a directive for national lockdown policy. The number of cases from 1 January 2020 to 31 October 2020 totalled 3,780 cases (3,590 recovered cases, 131 hospitalised cases, and 59 cases of fatality). Thailand is currently in the first wave of an outbreak and the number of cases has begun to decline gradually to less than 10 cases a day.³²

The Department of Disease Control of the Ministry of Public Health (MOPH) activated an emergency plan and operation, that included a close monitoring of the situation, and

subsequently developed an incident plan, appointing an incident commander, and prepared the workforce and all health facilities to respond to the potential outbreak of COVID-19 infection. On the 30 January 2020 Thailand reported the first case of local transmission, a taxi driver who developed fever and cough after servicing tourists from China. The Thai government officially decided to add COVID-19 as a dangerous communicable disease according to MOPH's Communicable Disease Act B.E. 2015 a few days before the WHO announced that COVID-19 could be a pandemic threat. The Government of Thailand divided the situation into four stages that consisted of:

Stage 1: Imported case (early January to late January 2020). During this period, most of the infected cases were imported from tourists abroad.

Stage 2: Limited local transmission (late January to late March). This period reported the first local transmission, an infected taxi driver who serviced Chinese tourists. It also included many infected cases, of those who attended boxing matches in stadiums and entertainment venues. Some of the cases were among a cluster of eleven Thai nationals being infected following a night out with visitors from Hong Kong at the Thonglor area, Bangkok.

Stage 3: The situation worsened in early March 2020, causing a nationwide outbreak as a consequence on the influx of undocumented Thai workers returning from the Republic of Korea. The Thai government initiated a plan to prevent stage 3. However, the local COVID-19 transmission in Thailand became widespread. In late-stage 3, there were widespread of clustered cases (late March to April 2020). Thailand entered stage 3 with a rapid widespread of cases at the community level. To control the stage 3 situation, the Prime Minister's Office declared a state of emergency on the 26 March 2020. A curfew between 10 pm to 4 am started in the following week from 3 April 2020. People were restricted from leaving their premises nationwide to contain the spread of COVID-19. Exemptions applied only to medical and backing personnel, and the logistic workers handling consumer products. The government also decided to postpone the traditional Songkran Festival (Thailand's New Year) to prevent overcrowding of people who planned to return home during the long weekends in order to avoid the spread of the COVID-19 outbreak. During this period, the MOPH and the government provided much public information about COVID-19 infection and how to prevent the spread. Active and probable case finding (especially when suspected to be in contact with a case) was conducted, implementation of social distancing policy for all, temporary closure of schools, universities, some offices, entertainment outlets or crowded area, prohibition of seminars, meetings and events, ban of all international passenger flights, mandatory quarantine to travelers who returned from abroad, temporary closure of non-essential business, and refraining from traveling across provinces. The government promoted personal hygiene habits such as wearing disposable masks, consuming clean food and the use of individual spoon for eating, proper washing of hands or use of alcohol gel to cleanse their hands, promote the work from home or work from anywhere policy. Religious activities were still allowed.

Stage 4: Recovery phase (May 2020 and beyond). The MOPH expanded the criteria of COVID-19 test for people who had mild symptoms. In this phase, no new local cases were

detected. Almost all new cases were of undocumented migrants/workers, Thai nationals or their families who returned from overseas or those found infected during the fourteen days of state quarantine period. At the mid of May 2020, the lockdown policy was more relaxed, with the curfew period being adjusted to 11 pm instead of 10 pm to boost the country's economy. Shopping areas, malls and restaurants in the shopping centre, wholesale markets and swimming pools/children play areas were allowed to reopen. Mandatory social distancing was applied during this relaxed phase.

The Thailand healthcare and health security capacities were recognised by the Global Health Security Index 2019 (www.ghsindex.org) in view of its national capacity and preparedness for an outbreak (ranked sixth amongst 195 countries for indicators related to its robust healthcare system - country score 73.5, average score 40.2). The good indexes above 70% were sufficient and robust health system to treat the sick and protect the health workers (2nd rank, score 70.5), prevention of the emergence or release of pathogens (3rd rank, score 75.7), rapid response to and mitigation of spread of an epidemic (5th rank, score 78.6), early detection and reporting for epidemics of international concern (15th rank, score 81.0). Best 100% domains were prevention (biosafety, immunisation), detection and reporting (laboratory systems, data integration between human-animal-environmental health sectors), rapid response (linking public health and security authorities, risk communication), health system (communications with healthcare workers). But some of the systems were also needed to improve (reported scores of <70%), such as the epidemiology workforce (country score 50.0, average score 42.3), medical countermeasures and personnel deployment (country score 33.3, average score 21.2), infection control practices and availability of equipment (country score 50.0, average score 20.8) and risk environment (country score 56.4, average score 55.0) which consists of political and security risks, socio-economic resilience, infrastructure adequacy, and public health vulnerabilities during an emergency, capacity to test and approve new medical countermeasures, and compliance with international norms, (the International Health Regulations (IHR) reporting compliance and disaster risk reduction, cross-border agreements on public and animal health emergency response).^{33,34}

For the demand management strategy, Thailand implemented non-pharmaceutical interventions as the key to manage COVID-19, due to the current lack of specific treatment for the disease. The best method was the combination of containment and mitigation actions that were employed to delay the upwelling of several ill patients who required ventilator and oxygenation support. Measures included contact tracing, self-isolation or quarantine and social distancing. Parallel management was performed based on clinical symptoms and criteria developed by the National Clinical Practices Guideline of MOPH, preparation for a national laboratory system capacity considering access to laboratory services, cost, availability, and quality diagnosis. In general, the laboratory cost is covered by one of the three health insurances system in the country namely, the Civil Servant Medical Benefits Scheme, Social Security Scheme and Universal Coverage Scheme. For outbreak investigations and

response, all laboratory costs are covered by the Department of Disease Control under the Communicable Disease Act B.E. 2015 belonging to the Thai government.

The Thai national strategies responding to COVID-19 was initiated with screening measures at entry points. Thermal scans with new technologies were in place at the international airport and checklists. Subsequent efforts were initiated to improve and support hospitals or healthcare facilities and to conduct active case finding in the community by village health volunteers (VHV).³⁵ The committee created the Emergency Operating Center (EOC) of the Department of Disease Control which can be activated from levels 1 to 4, serving as a coordination wall-room for incident response. It is a multi-sectoral integrated response plan with the cabinet, together with the committee of Public Health Emergency Response Action Plan for COVID-19 and inclusion of roles from relevant agencies. As the situation worsened, the Prime Minister chaired the committee himself, prior to setting up the Prime Minister Operating Center (PMOC) on 27 January 2020, which serves as a united response and utilisation for a whole society approach. Using ICT to trace COVID-19, the DDC care application was developed to monitor and track patients under investigation. "Thai Chana" web application was developed by the Ministry of Digital Economy and Society to record the movement data of the people for the purpose of tracing, and to easily follow up contacts whenever there were confirmed cases. To use this application, clients were requested to register or scan before and after entering a service area.

Regarding the economy in Thailand after the first wave of the COVID-19 pandemic, the country's GDP shrunk by 5% and the exports declined by about 6.3%. The middle-class households, poor socio-economic status, small and middle side of the businesses were mostly affected. There were widespread job losses as companies lacked financial and employment flexibility. Business projects were affected, the aviation industry, and tourism was affected very badly. The strength of the economic recovery in Thailand depends on effective policy response, particularly of the government's support to vulnerable households, businesses, and travel bubble policy that allows foreign tourists to come back to Thailand based on a strict policy of COVID-19 state quarantine.

At post-pandemics, the government sector compensated the unemployed people without income or those with low income with 5000 baht (USD166) a month for three months. Tax payments were deferred for five months. Various medical agencies or organisations provided group life insurance for doctors, nurses and medical personnel who faced patients with suspected COVID-19 infection. For a new norm, this is a new way of life that prioritizes general caution, such as to wear sanitary masks in crowded places or with high-risk contacts or being contaminated from positive cases. Conforming to social distancing, focusing on handwashing, eating clean food, the use of eating/drinking equipment, organising social meetings, events or conferences (choosing a range of options from normal face-to-face small group meetings, online or hybrid as appropriate). Schools were allowed to reopen, but all children should wear a mask

and/or face-shield. At the early stage of school reopening, it was suggested for older children to attend online learning or to alternate with regular learning. Monitoring the COVID-19 news outbreak was crucial, as when new infections occurred, relevant authorities could consider being prepared for possible occurrence of the second wave. Especially in the situation that increased an outbreak of COVID-19 between the Thai-Myanmar border. In addition, the Thai government began opening the country in October 2020. The bubble tourism campaign was initiated to allow foreign tourists to enter Thailand under the state quarantine policy. There was also a new youth meeting incident about the government's abolition and amendment of the constitution. Here, a flash-mob strategy for anti-government protesters was employed, as this increased the likelihood of the second wave of the coronavirus outbreak in Thailand.

As a key to successful control of the COVID-19 outbreak, Thailand used three factors. Firstly, is the strong epidemiological work (proactively searching for infected people, rapid laboratory support system in order to confirm infection and strong quarantine measures); secondly, is the strong public participation (wearing of masks, social distancing, washing of hands); and lastly is the comprehensive health care system that is linked from the community to the hospital, and with the rapid response of disease control unit at every district, more than one million VHV supported the local epidemic control initiatives. The local government organizations announced and prepared for the closure of public areas and setting up of local quarantine area.

Indonesia and the Philippines

Indonesia and the Philippines were the hardest hit nations of the COVID-19 pandemic within the MASEAN circle. The first two cases in Indonesia were reported on 2 March 2020, involving adults aged 31 and 64 years old, while the Philippines Department of Health (DOH) reported the first case on the 30 January 2020 involving a 38-year-old Chinese national. The DOH subsequently reported the first locally transmitted case of COVID-19 in the Philippines on 7 March 2020.³⁶ Cases in Indonesia and the Philippines concurrently trended a steady rise over the months, with both nations accounting for the bulk of the total confirmed cases within the Southeast Asian region (Table I). In September 2020, Indonesia topped the region with the highest number of COVID-19 cases, with mortalities reaching almost double to that of Philippines. Screening measures were ramped up, with almost 80% of new cases from contact tracing were quarantined within 48 hours of detection.³⁷

Although a substantially high number of cases were reported over the weeks, Indonesia never went into a full lockdown, as compared to stringent government policy measures implemented in neighbouring countries. Instead, the Indonesian government's COVID-19 policy implementations adopted a more decentralised and gradual approach, with lockdown decisions being solely left to the provinces and districts.³⁸ Businesses and economic sectors were allowed to open as usual, while working from home was highly encouraged. All schools were closed from the 24 April 2020. There were provinces which enacted "Pembatasan Sosial

Berskala Besar (PSBB)" or large-scale social restrictions at a gradual space. However, the legal basis of implementing the PSBB was established on 31 March 2020, which required applications from regional governments to be approved by the relevant ministries. Long distance train and air travel were halted in April 2020, while the annual tradition of Mudik (travelling of people to home villages after the end of Ramadan) was banned on 23 April 2020.³⁸ In addition to legislative control measures, community protocols were implemented. The "New Habit Adaptation" was conceptualised for the public, highlighting the following safety precautions that needs to be adhered to: (a) proper use of face mask that emphasizes disposable masks (e.g., medical face masks) to be used for only once; (b) cloth masks to be washed before reuse; (c) making sure that face shield is used concurrently with face mask; (d) keeping a distance from anyone outside the house and avoiding crowds; (e) washing hands with soap under running water for at least 20 seconds; and (f) practice of physical distancing. The "Guidelines for the Prevention and Control of COVID-19" was launched in July 2020, with periodic revisions being conducted.

In the Philippines counterpart, the initial policy measure executed by the government was to impose selective quarantine. This measure was implemented on 2 February 2020 for overseas Filipino workers (OFW). International air travel was allowed to continue operations. Upon confirming the first local transmission on 7 March 2020, the DOH raised the nation's COVID-19 alert level to Red (Sub-level 1) as the government anticipated possible rise of cases. As a consequence of this action, on 8 March 2020, a state of national emergency was issued under Proclamation 922. Under this proclamation, law enforcements were amalgamated to ensure the implementation of strict quarantine and control measures throughout the country. The Inter-agency Task Force for Emerging Infectious Diseases (IATF-EID) formed a technical working group (TWG) through Resolution No.16 that comprised of representatives from the government sector and the armed forces to ensure smooth implementations of control measures. A community transmission was reported on 12 March 2020, forcing the task force to declare Alert Code Red (Sub-level 2) that could enforce strict quarantine measures and travel bans at the community, municipal or provincial levels. While a quarantine was implemented on 13 March 2020 within the National Capital Region (NCR), the escalating number of cases to nearby provinces forced authorities to execute an Enhanced Community Quarantine (ECQ) on 17 March 2020. As a consequence of this implementation, all land, sea and air transportation (except essential services) were restricted to operate. Medical, sanitation and emergency services were exempted from regulations of the ECQ. Work from home and online business transactions or communications were highly encouraged. Subsequently, social amelioration initiatives that mandates the WHO's recommendations to be applied in the context of local pandemic control and treatment services, coupled with health workers and low-income groups welfare to be taken care off were made possible through the Republic Act 11469 or the Bayanihan to Heal as One Act (BAHO).³⁹ To ensure data dissemination regarding COVID-19 is simple, easy to understand, transparent and user-friendly, the DOH have enhanced their reporting of public case bulletins to

emphasize simple yet effective data reporting, while facilitating more digested data visualisations.⁴⁰

Myanmar

Myanmar observed the first wave of COVID-19 infections between March and July 2020. Although successful in containing the outbreak during its first wave, the country was hit with an unexpected rise of cases from 16 August 2020 in the state of Rakhine, collectively triggering the second wave of COVID-19. While the first wave was mainly attributed to local transmissions, the second wave anticipated was more likely conceptualised as a “migrant health threat.” Three causative factors were advocated. Firstly, as Rakhine is bordered by Bangladesh, there were high chances of refugees who returned to Myanmar could have been infected with the virus. Secondly, as Rakhine accommodates internally displaced people (IDPs) that fled from ongoing conflicts in crowded camps, physical distancing was impossible to practice, posing greater risk of COVID-19 transmissions. In addition to IDPs, bulk of migrant workers were returning to their hometowns and villages through official and unofficial checkpoints. Coupled with the influx of migrants to the country, many Myanmar citizens across the globe returned back through relief flights, with shortage of quarantine facilities. Containment measures such as prohibiting international flights to operate, ordering school closures and work from home policies were carried out. With a relatively fragile health system and low number of healthcare workforce, the country was challenged with Yangon emerging as an epicentre of COVID-19, with widespread community transmissions. As hospitals were over capacitated with positive cases, health workers from other parts of the country were redeployed to Yangon. Fever clinics and hospitals used faster, less expensive antigen test kits as compared to RT-PCR investigations to test suspected patients to reduce the burden on laboratories, which reached maximum testing capacities. The country has been providing cash and food aid to vulnerable populations during the stay-at-home order. Public health measures such as hand washing, physical distancing and masking were enforced.⁴¹

LESSONS LEARNED AND CHALLENGES AHEAD

What has been done thus far?

As the pandemic evolved the world's academic communities rallied together to gather and freely share COVID-19 related information. Looking at the epidemiological triad of disease (agent, host and environmental factors), we see some consistencies in the factors that may be associated with increased risk of COVID-19 infections. Currently it is known that children, elderly, females, those with other comorbidities, immunosuppression, genetic susceptibility and with A blood group have been found to have higher risk of infection.⁴² When analysing the characteristics of the spread of infection, it has been found that COVID-19 is an airborne infection and those living in close proximity to the index case, with exposure to index case during critically severe symptoms of dizziness, myalgia or chills, people living in close quarters, are at higher risk of infection. Some common environmental factors that are believed to catalyse greater spread infection include crowded spaces, poor living conditions, relative humidity and ambient temperature,⁴³

and population's socio-economic levels. As we observed the epidemiological trends of COVID-19 cases across these ASEAN countries in Table I, we noticed one consistency. Countries with high population density topped COVID-19 infections, as in Indonesia and the Philippines. From the Malaysian perspective, states with high number of positive cases were Selangor (high population density coupled with active industrialised activities and Tabligh cluster), Kuala Lumpur (a metropolitan with high urbanicity index and active population movement), Sabah (a state with low socio-economic level with poor living conditions and porous international borders, which observed high human mobility due to its recent state elections), Kedah (a community outbreak cluster “Sivagangga” and the spike of incidence cases in overcrowded, confined living spaces as in prisons). The principal domain of these spread were environmental factors.

We are dealing with a notorious virus that has invaded and upended daily life and activities. As the outbreak emerged, countries worldwide sought to understand the transmission dynamics to formulate prevention and control strategies.

Currently there remain many questions, the answers to which will gradually emerge as we continue to gather data and information. While some individuals with COVID-19 infect many others in groups or communities, even up to a multi-generation spread, some do not spread the disease at all. It is always useful to learn from the past, in order to understand the present and plan for the future. We certainly observed near similarities of COVID-19 transmission dynamics to SARS and MERS, whereby groups of tightly interconnected people were more likely to be infected while sparing others.⁴⁴ We have seen rapid emerging clusters across the communities, dormitories of migrant workers, prisons, cruise ships, nursing homes or houses of worship. Large scale lockdowns are a blanket approach to stop all non-essential human activity, aiming to decrease transmission of infection.

Many countries were successful in controlling the outbreak with drastic measures, however over time, these measures had to be gradually lifted. The impact of the pandemic along with the measure to control it has led to economic downturn in many countries. With such consequences in mind, we are now dealing with a more serious question, which is a greater risk to mankind – COVID-19 or economic slowdown?

What has and is being done?

Most ASEAN countries are in the category of low- and middle-income category (except Singapore) and are trying to strike a balance between efforts to contain the disease and the economic recovery. Close to one million population in ASEAN has been afflicted with COVID-19. The impact of the pandemic will not only test the level of healthcare and pandemic preparedness in these countries, but also leave an indelible economic impact on the region. The recent World Bank East Asia and Pacific (EAP) economic report stated that nearly five million people in EAP countries would be pushed back into poverty due to this pandemic.⁴⁵ The report estimated that the gross domestic product among ASEAN countries in 2020 will contract between -4.7 to -3.5%. Indonesia took a bold stand not to implement a nationwide

lockdown policy, fearing the collapse of its nation's economy in view of its high population density and socio-economic challenges. However, economic crises did hit hard across South East Asia. Indonesia fell into recession in the third-quarter of their gross domestic product (GDP) for the first time since 1998.⁴⁶ With a rather small population as compared to Indonesia, the Malaysian government's economic stimulus packages to help Malaysians and businesses affected by the COVID-19 pandemic from 26 March till 23 September 2020 was able to sustain the economic sector, although deficits were observed. The related COVID-19 package worth RM250 billion (USD58.28 billion), Prihatin SME (Small and Medium-sized Enterprise) plus stimulus package worth RM10 billion (USD2.42 billion), the National Economic Recovery Plan (Penjana) worth RM35 billion (USD8.48 billion) and the Prihatin Supplementary Initiative Package (Kita Prihatin) worth RM10 billion (USD2.42 billion) had cushioned the economic sectors of the country from falling into recession. In addition, the budget 2021 was anticipated to be biggest budget ever, with friendlier budget to the people that hoped to provide tax waivers and cash handouts, among others, to reduce the socio-economic burden of the people. With these initiatives, Malaysia has the capacity to quickly recover from potential economic deficits caused by the pandemic. In addition, there has been minimal effects on property-buying sentiment, with approximately 41% of banking survey respondents showed unchanged interest in property investment following the COVID-19 outbreak.⁴⁷

The Singapore Government supported the nation during this time of crisis, a S\$4 billion (USD2.97 billion) Stabilisation and Support Package was announced in February 2020. A second stimulus package - the Resilience Budget - of S\$48.4 billion (USD35.88 billion) was announced in March 2020 to support households, workers, and businesses. Following the Circuit Breaker, a third package (Solidarity Budget) worth S\$5.1 billion (USD3.78 billion) was rolled out in April 2020. As the situation evolved, a fourth scheme worth S\$33 billion (USD24.47 billion) (Fortitude Budget) was announced in May 2020, aiming to boost jobs, enterprises and enhancing resilience in the community. Additionally, the Job Support Scheme was extended to provide continued support into 2021.

Malaysia is experiencing a resurgence of cases and the third wave of the pandemic. An immediate economic recovery plan was announced by Malaysia on 5 June 2020, outlining six approaches, called the "6Rs" (Resolve, Resilience, Restart, Recovery, Revitalise, and Reform) with three main core initiatives, that is to empower people, to propel businesses and to stimulate the economy.⁴⁸ But the scenario was not looking good for Malaysia, as cases in the third wave (primarily during the Recovery Movement Control Order) were escalating in a chaotic manner, with some clusters emerged through "superspreading events." Malaysia is still contemplating to understand why is there a persistent high number of cases in Sabah till date, despite plenty of efforts being put in place. Some probable hypothetical questions could be raised here such as non-adherence to SOPs, high mobility during the current state elections, lack of education among the people to understand the virus transmission cycle and preventive measures, or could it be because of lack of

infrastructure, testing capacities and the availability of a "gold standard tests" between states in Malaysia? On the other hand, the efficacy of CMCO has become a topic of debate among Malaysians, due to the fact that with such implementations, the number of active cases still continue to rise. Succinctly, an iceberg phenomenological postulation could be advocated here: could it be because of factors related to infrastructure inequities or barriers of spatial accessibility to healthcare in Sabah that have led to less screening capabilities and missed detection of cases in the previous two waves? If this was true, then Malaysia had only detected cases at the tip of the iceberg in Sabah during the first two waves, but missed detection on the so called "submerged" cases of the iceberg due to factors hypothesized above.

An emergency cabinet meeting was held on Friday, 23 October 2020 in view of the exponential rise of COVID-19 cases in Malaysia. Malaysia imposed targeted partial lockdowns in some states, but remain ineffective, until it was decided that a state of emergency should be imposed. However, there were no royal decree granted, instead an announcement was made to not declare a state of emergency at that moment following meeting among the Malay rulers held on 25 October 2020, fearing the collapse of the nation's social and economic sectors.⁴⁹

What needs to be done?

Currently we have not succeeded in eliminating the COVID-19 virus. The main strategy for preventing virus transmission is by following principals of good hygiene practices, social distancing, airborne precautions, contact tracing, early detection and isolation. The world eagerly awaits the COVID-19 vaccine, expecting it to provide herd immunity and restore normalcy to everyday life. There are more than 100 vaccines in the pipeline, however, the effectiveness of these vaccines remains to be seen. Although interim analysis of an RNA vaccine was claimed to be 90% effective in preventing COVID-19 infections, this premature result was based on two low doses administered seven days apart. A major limitation pointed out in this ongoing trial was that, the vaccine needs to be transported and stored at -80°C, making cold-chain a challenge.⁵⁰ The vaccine may be effective in preventing clinical disease, but it remains to be seen whether it will also decrease transmissibility of the virus.

It has been postulated that the COVID-19 vaccine would need an efficacy of 70% to prevent an epidemic and 80% efficacy to wipe out the epidemic without any other additional measures.⁵¹

With the ultimate hope of being protected from infection, there has been a rigorous push for a COVID-19 vaccine.⁵² More than 150 countries worldwide have engaged in the COVID-19 vaccine global access facility. There are currently over a hundred COVID-19 vaccine candidates under development, with a number of these have entered the human trial phase.⁵³ However, a vaccine which prevents clinical infection may not necessarily prevent transmission of infection.⁵⁴

Once the vaccine is available, there will be challenges to establish the proportion or critical level of a country's

population which needs to be vaccinated to establish herd immunity. The classic herd immunity formula ($1-1/R_0$) which is derived from the susceptible, infection and recovery (SIR) model yields the critical level of the population that needs to be immunised. But the yielded parameter may not be a valid estimator when countries are currently at the intervention stage. The valid estimation for herd immunity threshold should be calculated prior to any interventions being in place. With COVID-19, the R_0 is estimated to be ranging from two to three, with the assumption of absent population immunity, all individuals being equally susceptible and equally infectious. Thus, the expected herd immunity threshold would be between 50% and 67% without any interventions.⁵⁵ With the ASEAN population estimated at 649.1 million in 2018,⁵⁶ 0.135% have been infected, and we have experienced more than 20,000 deaths. We are still far from achieving herd immunity before any form of interventions are available. Therefore, vaccine must be both effective and be broadly adopted to ensure that the vulnerable population is protected.

In the epidemiological trends table (Table I), we observed zero or relatively low to moderate number of cases in certain countries in the first few months of the year (Indonesia, Philippines, Thailand, Malaysia, Myanmar), but saw spikes of cases at certain points of time throughout the year. In contrast, we saw a substantially higher amount of cases earlier in the year for Singapore, but observed a decline of cases at the later part of the year. It is difficult to interpret the reason for such shifts across countries, but possible circumstances could be due to the testing capacities available in those countries (how much of tests being done and when the tests were conducted), or the type of tests being used and the validity of those tests (sensitivity, specificity, false positives, and false negatives). There could also be an element of under-reporting based on criteria for testing. Another probable factor of such trends is transmission dynamics. Asymptomatic cases have the capacity to infect healthy people, unknowingly. In contrast, symptomatic cases will readily spread the virus through droplets via cough or sneezing, with the virus being highly infectious. This could be the case for the sudden spike in Sabah, where asymptomatic individuals who were not tested through massive screening initiatives could have widely spread the virus to others, owing to greater human mobility during the recent state elections. Countries testing capacities and massive screening initiatives would be crucial to prevent such controversies.

With legislative measures being relaxed, community mitigation strategies need to be enhanced. The success of relaxed measures complimented with community's adherence to SOPs are greatly influenced by people's engagement and support. But community engagement is often influenced by people's education level and successful efforts to convey simple and accurate information. The former is true when Malaysia highlighted that the exponential rise of COVID-19 cases in the state of Sabah was partly due to lack of education and understanding of the disease manifestations, the free movement of migrants through the porous international borders, as well as failure of the rural communities to cooperate with health officials.⁵⁷

Efforts to convey information to the people may sometimes be complex and confusing at the receiving end. An overload of information on any topic may give rise to doubts and create confusion. An example is the use of face mask. As we critically appraised different countries guidelines on face mask use, there seemed to be inconsistencies on the information provided to the people. These information range from the type of face mask to be used (either medical graded 3-ply mask, non-medical graded 2-ply mask, cloth mask or face coverings) across different strata of the population (people with comorbidities, older aged people, healthy people or children).

Clear, feasible and practical guidelines should be formulated by the various nations' Health Governing Bodies, and disseminated to the population using widely visible mass media like national newspapers and television. This would provide unambiguous guidelines for the common person to follow. These guidelines should be updated regularly based on emerging knowledge and situational changes. Legislation can be used to curtail false information and misguiding the masses. Singapore's MOH guided public response by adopting a policy of structured clear guidance and transparency. Daily guidelines were featured prominently in the national newspapers and daily updates regarding COVID-19 cases was disseminated. Justifiable relevant details, like whereabouts of positive cases were readily available in the public domain. Legislation was aptly utilised to secure public safety at the time of this national emergency.

In line with the COVID-19 pandemic, the WHO highlighted the emergence of infodemics (epidemics of misinformation and disinformation).⁵⁸ The threats of wrong information may curtail containment efforts, thus verified and clear information regarding COVID-19 needs to be delivered consistently to the public by the responsible agencies to avoid fake news, rumours and panic. Malaysia's efforts to convey information through the mainstream media, coupled with daily interactions between the government and the people to digest latest updates regarding COVID-19 will maintain transparency and adherence to containment measures. On 26 October 2020, the Philippines DOH announced that reporting case bulletins would be simplified with proper data visualisations for the public to apprehend better.⁴⁰ Europe is experiencing a second wave of infection.⁵⁹ Therefore, we should remain vigilant by ensuring timely enforcements in all areas with targeted lockdowns and ensuring public adherence to the SOPs. While prevention of the spread is important, closing a border is not an evidence-based measure according to the WHO.¹¹

The Virtual ASEAN Plus Three (APT) Summit held on 14 November 2020 called upon effective cooperation among members of the APT countries to expand their capacities in coping with COVID-19. The strengthening of commitment and partnership should aim to promote economic recovery and sustainable development by keeping markets open, maintaining normal trade flows, services and investment. Such measures will strengthen regional economic resilience without barriers to trade or disrupted supply chains during the battle of the pandemic.⁶⁰

CONCLUSION

What MASEAN can do?

Information is the key to the success of community mitigation strategies. Standardised health promotion activities through information leaflets, case bulletins or guidelines in line with the WHO recommendations could be crafted through a working group with MASEAN member countries. As MASEAN member countries are diverse across ethnicities, it would be wise to provide standardised information source through different languages. The information provided should be simple, user friendly, and acceptable across different educational and social backgrounds.

Information and scientific evidence sharing, rigorous research in transmission dynamics and possible factors (particularly host and environmental factors) associated with COVID-19 across MASEAN countries should be accelerated. MASEAN member journals should pledge accelerated and robust peer review with waived article publication fees for articles related to COVID-19, in the quest to share latest scientific developments within the scholarly literature from the MASEAN perspective.

Finally, with the current knowledge of the virus and its spread, there is no single strategy in the fight against COVID-19. Within MASEAN countries, we propose that international and cross-border collaborations should be enhanced as we deal with a pathogen that transcends national borders. Within countries, it will be crucial to develop and implement evidence-based action plans. There must be multi-sectoral and multi-pronged capacity building initiatives in the quest to increase public awareness, better pandemic preparedness measures and community case management, effective risk communications to enable timely informed decisions, increase laboratory testing capacities and enhancement of surveillance and outbreak investigations.

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