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ROUNDTABLE DISCUSSION ON COVID-19 VACCINATION: MEASURES OF SUCCESSFUL DEPLOYMENT IN ASEAN

SUMMARY OF PROCEEDINGS

JANUARY 21, 2021

SAW SWEE HOCK SCHOOL OF PUBLIC HEALTH, NATIONAL UNIVERSITY OF
SINGAPORE AND HEALTH INTERVENTION AND TECHNOLOGY ASSESSMENT
PROGRAM (HITAP), MINISTRY OF PUBLIC HEALTH THAILAND

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About this document

This report summarises the discussion during the Roundtable organised by the Saw Swee Hock School of Public Health, National University of Singapore (SSHSPH NUS) and is for internal use of the participants. The report has been prepared by SSHSPH NUS and the Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand. It aims to inform policy on COVID-19 through the use of evidence and knowledge sharing. Partners include the International Decision Support Initiative (iDSI), a global network of priority setting institutions, and the Access and Delivery Partnership (ADP), a programme hosted by the United Nations Development Programme (UNDP) and supported by the Government of Japan. HITAP has also been supported by the Health Systems Research Institute (HSRI) to conduct a study on “Understanding the challenges to develop monitoring and evaluation framework for COVID-19 vaccination policy in Thailand”. We thank all attendees for their active participation and are grateful to Ms. Nicola Jones for her editorial support to this report.

Introduction

The world has been in the grip of the COVID-19 pandemic for over a year, costing many lives and bringing the ways of the world to a grinding halt. Among the strategies to respond to the pandemic, governments and the global community invested in developing vaccines. Those investments began to bear fruit towards the end of 2020, with two vaccines approved for emergency use by the United States Food and Drug Administration (US FDA)¹, showing high levels of effectiveness. Other vaccines such as one developed by AstraZeneca have also shown promising results.

Development of effective vaccines is, however, only the beginning. As countries scramble to procure and deliver vaccines in an effort to protect their people and return their economies to pre-pandemic levels, there are many potential hurdles, from the logistics of vaccine distribution to vaccine hesitancy in the population. The challenges are particularly acute for low-and-middle income countries (LMICs) that need to implement vaccine policies within a short timeframe and with limited resources. It is vital that nations recognise and tackle these hurdles as soon as possible, and start to think, too, about how to measure their levels of success against the virus².

To this end, the Saw Swee Hock School of Public Health (SSHSPH) at the National University of Singapore (NUS), in collaboration with the Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand, organised a Roundtable to discuss strategies and challenges for efficient vaccine delivery in countries in the Association of Southeast Asian Nations (ASEAN) and India, and to consider a common framework around what will constitute successful deployment of the vaccine in this region. This report summarises the key themes from the Roundtable discussion with background documents for the Roundtable included in the Appendices.

¹US Food and Drug Administration COVID-19 vaccines. Link: <https://www.fda.gov/emergency-preparedness-and-response/coronavirus-disease-2019-covid-19/covid-19-vaccines>

²COVID vaccination logistics: five steps to take now. Nature. Nov 2020. Link: <https://www.nature.com/articles/d41586-020-03134-2>

Objectives and participants

The Roundtable discussion was structured into two parts, the first, to discuss the key issues on logistics and the second, to identify measures of success of COVID-19 vaccination programmes (see Appendix 1). In particular, the Roundtable aimed³:

- To discuss countries' plans and concerns in light of the latest developments on their vaccination programmes and strategies;
- To discuss mutual support in the region;
- To establish a framework to measure success of vaccine distribution and coverage, including for LMICs.

With a focus on regional developments and potential for collaboration, experts from countries in the ASEAN region and India who have experience or knowledge on the COVID-19 situation in their own countries were invited to the meeting. The Roundtable was held virtually on 21 January 2021 and moderated by Prof. Teo Yik Ying, Dean of SSHSPH NUS. Representatives from Indonesia, India, Malaysia, Singapore, Thailand and Vietnam joined the discussion along with participants from SSHSPH NUS and HITAP (see Appendix 2). Participants were provided background information on the Roundtable, including a comparative table of vaccination strategies across countries, a short survey to understand the hopes and fears of participants for their country's vaccination programme, and a potential framework before, during and after COVID-19 vaccination.

Logistics of COVID-19 vaccines and challenges encountered

The key issues on the logistics and challenges encountered on COVID-19 vaccination were as follows:

Procurement of vaccines

The countries in the region have started procuring vaccines for their populations, mostly through direct arrangements with manufacturers, with some countries going through the COVAX Facility. **Singapore** was the first amongst those represented at the meeting to procure vaccines: from Pfizer in December 2020. Thailand has secured supplies for 2021 from AstraZeneca and Sinovac. In **India**, the government has secured supplies from the Serum Institute of India, which is manufacturing the AstraZeneca vaccine under the name Covishield, as well as another locally developed vaccine by Bharat Biotech, called Covaxin (this has shown high levels of immunogenicity but efficacy data is not yet available).

Vietnam, at the time of the Roundtable, was yet to secure vaccines and has since obtained vaccines, striking a deal with AstraZeneca and receiving vaccines through the COVAX⁴. It is also developing its own national vaccine and should be able to have laboratory-level production by the end of 2021, although industrial scale production and distribution to the population will likely only be possible a couple of years hence. As Vietnam continues to identify and procure vaccine doses, it will need to negotiate a suitable price.

³Participant Background information. SSHSPH NUS. 2021.

⁴Health ministry approves import of first 200,000 doses of AstraZeneca vaccine on Feb 28. 18 Feb 2021. Link: <https://vietnamnews.vn/society/875278/health-ministry-approves-import-of-first-200000-doses-of-astrazeneca-vaccine-on-feb-28.html>

Indonesia has managed to secure a diverse portfolio of vaccines from various vaccine companies as well as COVAX, through which it is receiving vaccine doses for free; altogether, Indonesia, should be able to cover its entire eligible population. It was noted that it was cheaper and a more time-sensitive option for self-financing countries to buy directly from manufacturers than from COVAX. **Malaysia** too has secured vaccines from a range of suppliers including Pfizer, AstraZeneca, Sinovac and Gamaleya, with which it should be able to inoculate about 80% of its population. Malaysia's procurement process is managed jointly by the Ministry of Science, Technology and Innovation (MOSTI) and the Ministry of Health.

Prioritisation of groups for vaccination

In most countries, front-line healthcare workers are the first to be prioritised. This is being followed in **India, Thailand and Singapore**. However, there is some variation across countries given their particular circumstances. **Indonesia**, which began its vaccination campaign with the President of the country, has prioritised its highest-incidence group (people aged 18-59 years) rather than front-line healthcare workers or groups at greatest risk of severe illness or death (such as the elderly). **Vietnam** aims to prioritise healthcare workers but may also consider their high incidence group. This is because in Vietnam, the elderly typically live with their families rather than in nursing homes; while the elderly are thus less likely to transmit COVID-19 to each other, younger people have higher numbers of outside contacts and are more likely to transmit disease. In addition, **Vietnam** may seek to vaccinate the high-risk areas that border neighboring countries as there is flow of people from other countries. This was a strategy previously applied in the case of polio.

Delivery of vaccination

Each country faces different challenges when it comes to delivering vaccines to their population. For example, **Indonesia** must find a way to deliver vaccines to people living on more than 4000 islands. In **India**, the challenge is that of scale of numbers, as the country has a population of more than a billion people. **Malaysia** must vaccinate some very remote populations.

A key issue is the need for ultra-cold storage of a few of the vaccines. The Pfizer vaccine requires cold-chain equipment of -70 degrees Celsius and many countries do not have the infrastructure to support that across their populations, if at all. **Malaysia** has cold-chain facilities for the Pfizer vaccine only at university facilities, for example, making it feasible to deliver this vaccine only to urban areas. **Indonesia**, which has also ordered the Pfizer and Moderna vaccines, will also find ultra-cold storage challenging. (Recent developments, however, suggest that the Pfizer vaccine may not need ultra-cold storage, as previously thought⁵.)

Another key challenge is that some countries, such as **India**, have never had an adult vaccination programme. Singapore only recently began an adult vaccination programme and is building on that experience for deploying the COVID-19 vaccine.

Attitudes of the public towards vaccines

Vaccine hesitancy is a widespread concern across this region, as across the globe. **Indonesia, Malaysia and Vietnam** having conducted surveys of their populations to assess attitudes towards the vaccine. In **Malaysia**, a survey showed that 16% of the respondents did not want to take the vaccine, with 17% not being sure about it. In Indonesia, a community survey was conducted which showed that close to 8% of

⁵ BioNTech/Pfizer Covid vaccine no longer needs ultra-cold storage. 19 February 2021. Link: <https://www.ft.com/content/919d16c8-0a40-4389-bac9-04a48fdb0a36>

respondents did not want to take the vaccine, with 27% having doubts about it. In **India**, there appears to be general indifference towards the COVID-19 vaccine given the low fatality rate observed in that country; studies have also shown seroprevalence of the disease (and thus possible natural immunity) to be 40-50% in **India**. In **Vietnam**, successful containment of the disease has also meant that people see limited value in vaccination. The news of deaths in Norway possibly linked to the vaccine⁶ has also sowed doubts among some people. These trends in public attitude can pose a challenge to policymakers as they seek to inoculate their populations and achieve herd immunity. An effective communication strategy will be critical in overcoming these barriers.

Vaccine hesitancy can be a serious matter in vaccine uptake and can become worse if not addressed proactively. The **Singapore** government's approach has been to promote taking the vaccine by having prominent personalities taking the shots, along with positive message advertising in influential newspapers.

In **Indonesia**, there are concerns about vaccines being halal. The government sent observers to China to confirm whether the Sinovac vaccine was halal, and they found it to be so. However, the concern remains for other vaccines. The President, who was the first to be vaccinated, invited prominent personalities including community leaders and social media influencers to get vaccinated. However, there was an incident where one of the influencers disregarded social distancing norms after being vaccinated, which caused a stir.

These experiences highlight the importance of effective means of communication. Effective solutions should be shared among countries so that one may learn from the other. Participants in this meeting could serve a network for sharing this information.

Equitable distribution of vaccines within and between nations

A key matter of concern is that of equitable distribution of vaccines. Vaccine hesitancy may be more of an issue in some historically marginalised groups who may be both particularly vulnerable to disease and also particularly distrustful of the medical system. Another aspect of equity is at the regional and global level is equitable distribution of vaccines between countries. Currently, there is a disparity in access to vaccines in high- and low-income countries, which is a challenge at the global level.

One often-forgotten group is that of migrants, both documented and undocumented. Some experts are proposing that migrants be specifically prioritised as a third group for vaccination, after health workers and high-risk groups such as the elderly; some countries, such as Jordan, are vaccinating their refugees now⁷. Many countries in the ASEAN region host migrant workers from neighbouring countries, so this is an issue of concern. In Thailand, for example, a recent outbreak occurred amongst migrant workers living in close quarters⁸.

The national priority systems for vaccination may already cover migrant workers, and international organisations may support countries financially or logistically in these efforts. For example, **Singapore**

⁶ Covid-19: Norway investigates 23 deaths in frail elderly patients after vaccination. BMJ. 15 Jan 2021. doi: <https://doi.org/10.1136/bmj.n149>

⁷ Refugees receive COVID-19 vaccinations in Jordan. 14 January 2021. Link: <https://www.unhcr.org/news/press/2021/1/5ffffe614/refugees-receive-covid-19-vaccinations-jordan.html>

⁸ Covid found in 397 more migrant workers. 22 December 2020. Link: <https://www.bangkokpost.com/thailand/general/2039443/covid-found-in-397-more-migrant-workers>

aims to vaccinate all of their long-term residents and is making vaccines available to migrant workers⁹. The case of undocumented workers is more politically sensitive, and migrants may face the threat of being apprehended in presenting themselves for medical treatment or services. One proposal is that all countries in the region sign an agreement stating that host countries will vaccinate all migrants within their borders.

⁹ COVID-19 Vaccination Brought Forward for all Seniors; Extended to Essential Services Personnel and Higher Risk Groups. 8 March 2021. Link: <https://www.moh.gov.sg/news-highlights/details/covid-19-vaccination-brought-forward-for-all-seniors-extended-to-essential-services-personnel-and-higher-risk-groups>

Measures of success of COVID-19 vaccination

There are many possible goals that countries may pursue when vaccinating their populations against COVID-19. These include minimising severe symptoms and deaths, ensuring ability to deliver care without overwhelming health systems, and resuming usual economic activities. Determining the measures of success, and quantifying that success, are important and non-trivial activities.

Reducing severe health outcomes and protecting the health system

Most countries seem to be focused on reducing severe illness and mortality as the initial objective for their vaccination programmes. For the time being, other measures, such as social distancing and mask wearing are still required to reduce transmission and infections. It was noted during the roundtable meeting that each infection has a large effect in terms of resources, not only for that case, but also for their contacts who need to be quarantined. Individual countries will have to monitor their own death/illness rates and not rely on data from other nations, since there are so many factors involved (from the specific vaccines being used, to the success rate in providing multiple doses, vaccine coverage, and environmental conditions including climate, among others).

Resuming economic activities

Reopening the economy is a matter of priority for most nations. Keeping essential services operational and keeping transport or trading modes open, such as airports and ports, can be an important sign of recovery and indicators of success. Non-pharmaceutical interventions (NPIs) come at a cost, and while many industries have managed to operate in the pandemic environment, there are still many activities that struggle to operate at full service given policies that restrict crowding, for example. It will be important to find a balance between vaccination programmes and NPIs to achieve economic goals.

Ensuring long-term supplies of vaccines

The supply of vaccines is limited in the short run and it will be imperative to efficiently use scarce resources. Countries are facing high prices: value-for-money needs to be considered when looking at the portfolio of vaccines obtained in the long term.

Long term investments in health systems

The pandemic may provide an opportunity to strengthen health systems in the long term, particularly regarding surveillance of the disease and its effect on people. This virus mutates quickly and requires an agile response from health systems. Many countries may choose this moment to invest in their health care systems generally.

Record keeping

It will be important for countries to keep track of their vaccinations and the long-term impacts, and possibly share those results with others. In Singapore, there is a card provided to all those who have received a vaccine dose with details on the brand, dosage and any adverse effects. This information is also uploaded to a national database so that it can be used on an interoperable platform. Linking records may be challenging in countries such as **India**, where COVID-19 vaccination is being coordinated by national authorities only, even though health policy is implemented at the state (sub-national) level. Vaccination programmes are voluntary in all the countries represented in the meeting and this may impact the data available. Countries may need to address concerns of privacy as this personal data is collected and has the potential to be used for different purposes.

Cross-border considerations

Travel between nations is currently very restricted. Travellers currently need to have insurance for about USD 30,000 to visit **Thailand**, for example, to cover any treatment costs related to COVID-19. Easing these restrictions in time will require a lot of data, knowledge, and policy work.

Firstly, countries may require information such as when and which vaccine has been administered to any given traveller. Countries are considering the feasibility of implementing immunity passports¹⁰, however WHO has cautioned against it¹¹. In **Malaysia**, it may be possible to implement vaccine immunity passports by using an existing application for tracking contacts for COVID-19.

In addition to the availability of this data, authorities would also need to agree on common standards of data requirements and that the vaccine used in another country is acceptable by the receiving country. Countries may levy other informational requirements such as the level of antibodies against COVID-19. The idea of immunity passports is still at a nascent stage with ethical concerns about its implementation.

These considerations may not only affect the movement of people but also the transport of resources, such as exports of seafood from **Thailand**, for which too, there are concerns of transmitting the virus.

Remaining questions and studies

There are some questions remaining about the efficacy of the vaccines, such as the persistence of antibody protection to COVID-19 over the long term. Given that the disease is new, it would be useful to track long term outcomes using active surveillance and case-control studies. In **Malaysia**, a multi-disciplinary advisory committee has made several specific proposals for long-term monitoring, including active surveillance by developing a registry of about 50,000 vaccinated people using an existing or new application. The immunologists in the expert committee in Malaysia have also proposed tracking T-cell immunity to observe if there are any changes in the immune system's response to the disease over time, and whether booster doses are required in the future. NUS may reach out to each country to see if it is possible to share serology data including on anti-body response. Modelling will be needed to assess the economic effects of COVID-19. This network might be useful for sharing such data from each country.

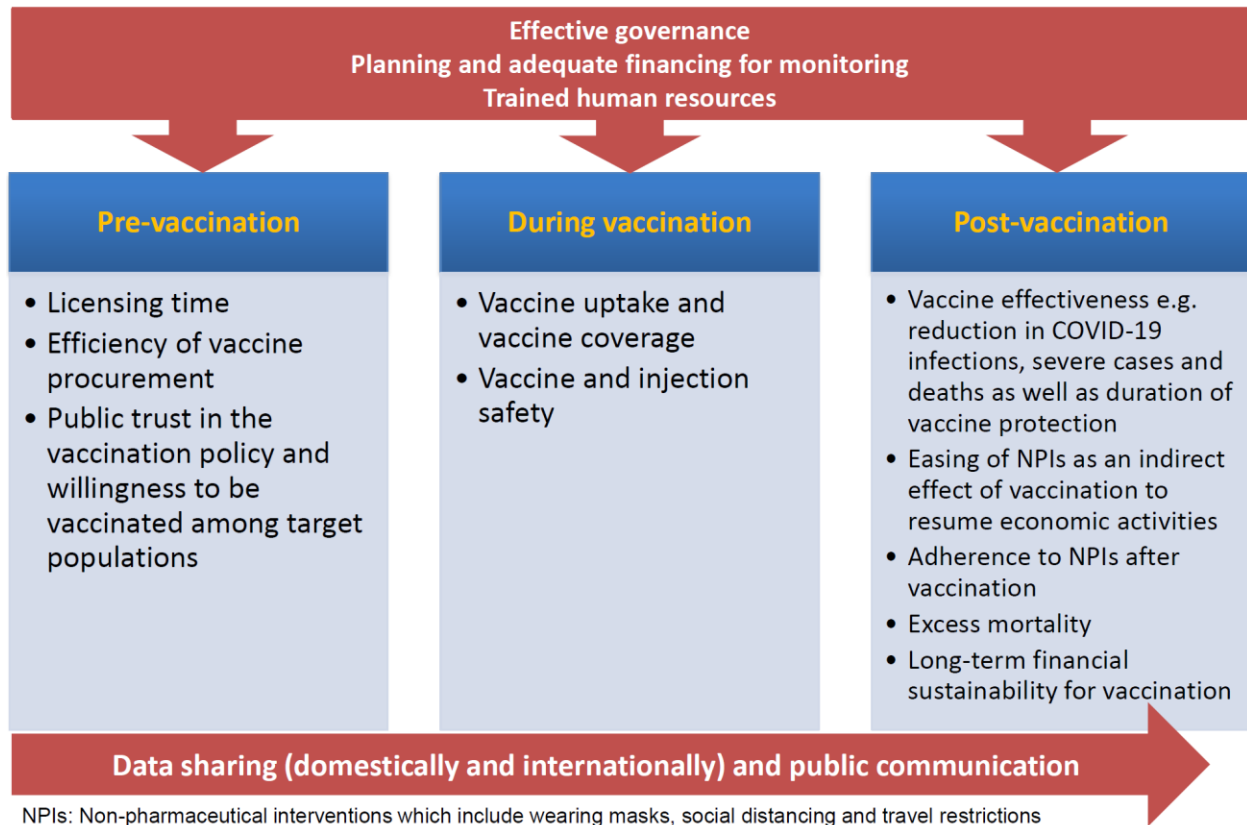
¹⁰Europe Is Considering COVID-19 Vaccine Passports. Should the Rest of the World Catch Up? 4 March 2021. Link: <https://time.com/5944165/vaccine-passports-europe/>

¹¹Interim position paper: considerations regarding proof of COVID-19 vaccination for international travellers. 5 February 2021. Link: <https://www.who.int/news-room/articles-detail/interim-position-paper-considerations-regarding-proof-of-covid-19-vaccination-for-international-travellers>

Potential framework for measuring success of vaccination programme

In the background materials, a potential framework for measuring the success of vaccination programmes was shared. The framework can be divided into pre-vaccination, during vaccination and post-vaccination programme periods, with relevant indicators for each phase. The foundation of this framework is effective governance, planning and financing as well as trained human resources, with each element enabled by data sharing and a strong public communication plan. These elements are shown in the figure below.

Figure 1: Potential framework for measuring the success of COVID-19



Summary

Based on the discussion and a summary by the moderator at the end of the Roundtable, below are the main messages in terms of defining the success of COVID-19 vaccination programmes:

Key messages

- There is a need for prioritisation of vaccines across population groups, while ensuring that the uptake of vaccines is equitable;
- A registry will be critical in tracking those who have been vaccinated, those not vaccinated and those intended to be vaccinated. Databases may also be required for long-term monitoring of health and biological responses to vaccines. This data can be used to determine policy;
- The goal of vaccination programmes is both to protect vulnerable groups and also to resume economic activity;
- Participants from this meeting can serve as a network for knowledge sharing and future collaborations.

Potential areas for regional collaboration

Four areas were identified during the discussion for regional collaboration:

- Sharing communications strategies that have worked to allay public fears;
- Sharing of serology data from each country to measure biological response after vaccination;
- Sharing of information on vaccination to facilitate movement of people; and
- Encouraging agreement among ASEAN nations to vaccinate migrants.

Dissemination of discussion

A report for internal use will be prepared for internal use for participants of the meeting that may be circulated with government counterparts. In addition, countries in the ASEAN region and India represent a microcosm of the world and lessons learned can inform policy for other regions. Further dissemination would therefore benefit the global health community and it was proposed that the outcomes of this discussion on measures of success can be presented in the form of a journal or other format for external use.

Appendices

Participant information

Document with background information, agenda and list of attendees shared prior to the Roundtable.



Saw Swee Hock
School of Public Health

Virtual Roundtable:

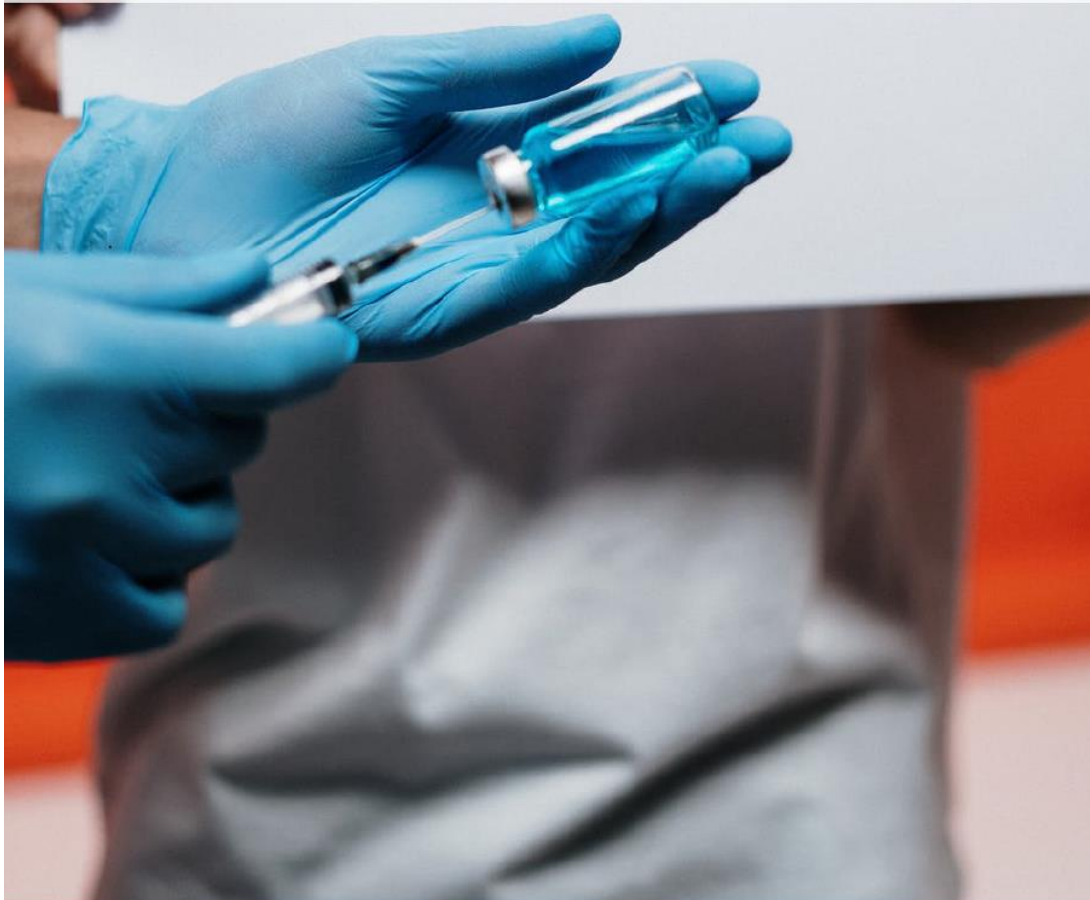
COVID-19 Vaccine: Measures of Successful Deployment in ASEAN

Thursday, 21 January 2021, 3-5pm (SGT)

[Join Zoom Meeting](#)

Meeting ID: 814 5289 6302

Password: 394592



Introduction

Since the emergence of COVID-19, the importance to quickly and safely develop and distribute an effective vaccine has been clear to public health experts and to the world's population alike. Numerous laboratories across the world have been working for months on this significant achievement, and after Pfizer's early announcement on 9 November 2020 that their vaccine was proving roughly 90% effective during phase III clinical trials, there was "cautious optimism" that an effective vaccine could be released soon.¹ As of 10 January 2021, more than 25 million doses of the Covid-19 vaccine were administered in 42 countries according to Bloomberg;² however, delivering billions more remains one of the greatest challenges for the largest-scale vaccination campaign in human history. It is therefore very timely to engage in discussion on the scenarios which will follow the initial phases of deployment of the long-awaited vaccine.

While the pandemic has been ongoing, the world has also been interrogating itself about the many logistical challenges associated with developing a vaccine in a short period of time and distributing it across a large population, taking into account countries' diversities in size, population age, population distribution, resources and local regulations. Countries in Asia and LMICs, among others, have been preparing for the vaccine while managing local outbreaks, and have had to take into account their respective circumstances while planning for vaccine implementation.

The Saw Swee Hock School of Public Health (SSHSPH) at the National University of Singapore is inviting regional stakeholders to join this Roundtable and discuss strategies and challenges for efficient vaccine delivery in ASEAN, China and India, and consider a common framework around what will constitute successful deployment of the vaccine in the region.

SSHSPH is the first and only full-fledged public health tertiary education institution in Singapore. Moving beyond the traditional domains of chronic disease aetiology and risk factors, the SSHSPH emphasises new technologies and methods to measure and monitor exposure and disease, as well as new approaches to analyse public health programmes, health systems and policies. This Roundtable aims to support policy responses on COVID-19 in ASEAN and beyond through partnership, academic excellence and integrity as well as innovation.

Topics for Discussion

The Roundtable discussion will focus on two main topics:

1 – Logistics

Planning for the arrival of the vaccine on the market has represented a crucial phase of response to the Covid-19 pandemic. During planning and deployment, countries have had to take into account a great variety of factors including regulatory aspects such as licensing, but also financial aspects like procurement and funding, as well as purely logistical aspects like delivery and storage of the vaccine itself. Moreover, plans had to be made for people to access the vaccine, including decisions on which parts of the population should be prioritised and in which locations the vaccine would be available.

¹ Ewen Callaway, 'What Pfizer's landmark COVID vaccine results mean for the pandemic', *Nature*, 9 November 2020
<https://www.nature.com/articles/d41586-020-03166-8>

² <https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/>

At the country level, it was suggested that governments could consider creating national task forces involving experts across multiple sectors: not only public health, but also economy and security, commerce and education, to ensure a holistic approach to a matter that goes beyond public health and is affecting all areas of society.³

On a global level, distribution across countries is an important matter of discussion, aiming to ensure equitable access to the vaccine for populations in higher and lower income countries alike. Initiatives include international coordination efforts to support distribution, such as COVAX,⁴ and proposed financing schemes to less affluent countries.⁵

How exactly this challenge is being approached by each country depends on local factors and on the changing nature of the pandemic; at the same time, any response needs to take into consideration the wider regional and global context. It will be important to focus our Roundtable discussion on these considerations.

2 – Measures of Success

Now that vaccine deployment is under way, it is important to establish how countries will define the success of the vaccination programme: for example, which measures can be generalisable and, thus, should be used regionally and globally, and which ones will be country-specific; for common measures, which results should be considered satisfactory in each country or region? Beyond numerical measures, such as reaching a certain percentage of the population, we suggest that this Roundtable should discuss which factors are of highest importance in ASEAN and more widely in Asia, taking into account the vast differences in population size, infrastructure, social habits as well as impact from the past outbreaks before vaccination, and with some specific attention to resources limited settings. A framework to evaluate success in the relevant countries will be presented as a starting point for the discussion, and will represent a tangible outcome of the Roundtable further to comments from all participants.

Aims of the Roundtable

- To discuss countries' plans and concerns in light of the latest developments on their vaccination programmes and strategies;
- To discuss mutual support in the region;
- To establish a framework to measure success of vaccine distribution and coverage, including for LMICs

³ Teerawattananon, Yot and Saudamini Vishwanath Dabak, 'COVID-19 vaccination logistics: 5 steps to take now.' *Nature*, 9 November 2020 <https://www.nature.com/articles/d41586-020-03134-2>

⁴ COVAX: Working for global equitable access to COVID-19 vaccines, WHO, <https://www.who.int/initiatives/act-accelerator/covax>

⁵ Kai Kupferschmidt, 'Despite obstacles, WHO unveils plan to distribute vaccine', *Science*, Vol. 369, Issue 6511, pp. 1553, 25 Sep 2020 <https://science.sciencemag.org/content/369/6511/1553>

Agenda

Time (SGT)	Activity
3pm (5 minutes)	Welcome and Introductions
3:05pm (45 minutes)	Part 1: Understanding the challenges <ul style="list-style-type: none"> • What are the main challenges that your country faces with regards to COVID-19 vaccination? <ul style="list-style-type: none"> ▪ How does your country plan to procure COVID-19 vaccines? ▪ How does your country plan to deliver COVID-19 vaccines? Does it have the necessary infrastructure (logistical, technological, human)? What are the strengths and limitations of this infrastructure? ▪ Do you need to coordinate vaccination at different levels of government or with different stakeholders to ensure? ▪ How does your country plan to prioritise different groups for vaccination? ▪ How do you plan to identify and reach vulnerable groups to vaccinate for COVID-19? ▪ Do you perceive any issues related public trust in COVID-19 vaccines in your country? ▪ What, in your opinion, is the biggest hurdle/challenge in ensuring vaccines reach those who need them?
3:50pm (60 minutes)	Part 2: Measuring success <ul style="list-style-type: none"> • How will you measure the success of the COVID-19 vaccination programme in your country? <ul style="list-style-type: none"> ▪ What are some of the health system measures that you will track? How will you track these (data, systems, technical capacity)? ▪ What are some of the non-health system/economy or country-wide measures that you will track? How? ▪ Who are the key stakeholders that you will need to engage with to ensure success of the vaccination programme? How? • How can regional collaborations support the successful implementation of a COVID-19 vaccination programme in your country?
4:50pm (10 minutes)	Summary and discussion <ul style="list-style-type: none"> • How do we share the information from today's meeting?

List of Participants

Prof Rakesh Aggarwal	Director, Jawaharlal Institute of Post-graduate Medical Education and Research (JIPMER), India
Dr Ronaldo R. Quintana	Infectious Diseases for Elimination Division Disease Prevention and Control Bureau, The Philippines
Datuk Prof Dr Awang Bulgiba Bin Awang	Professor, Department of Social and Preventive Medicine Faculty of Medicine, University of Malaya
Dr Hannah Clapham	Assistant Professor, Saw Swee Hock School of Public Health, National University of Singapore
Associate Prof Alex Cook	Vice Dean (Research), Domain Leader (Biostatistics & Modelling), Saw Swee Hock School of Public Health, National University of Singapore
Associate Prof Hsu Li Yang	Vice-Dean (Global Health), Programme Leader (Infectious Diseases), Saw Swee Hock School of Public Health, National University of Singapore
Dr Raymond Hutubessy	Senior Health Economist, World Health Organization
Dr Soewarta Kosen	Member, Indonesian Technical Advisory Group on Immunisation (ITAGI)
Associate Prof Jeremy Lim	Director, Leadership Institute for Global Health Transformation (LIGHT), Saw Swee Hock School of Public Health, National University of Singapore
Prof Piyamitr Sritara	Dean of the Faculty Medicine Ramathibodi Hospital, Mahidol University, Thailand
Associate Prof Benjamin Ong	Chair, Covid-19 Vaccine Committee (Singapore); Senior Advisor to Director of Medical Services, Ministry of Health, Singapore
Dr Clarence Tam	Assistant Professor, Saw Swee Hock School of Public Health, National University of Singapore
Dr Yot Teerawattananon	Founding Leader, Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Thailand
Prof Teo Yik Ying	Dean, Saw Swee Hock School of Public Health, National University of Singapore
Dr Pham Quang Thai	Vice head, Epidemiology Department, National Institute of Hygiene and Epidemiology, Vietnam

Housekeeping Reminders

To create a conducive Virtual Roundtable environment, we encourage participants to keep to the following best practice:

- Login to Zoom with your name for easy identification while interacting with the moderator and other participants.
- If possible, please login a few minutes before the start of the Roundtable.
- Mute your microphone if you are not speaking.
- Turn on your video while you are speaking.

Please visit the [Zoom Help Center](#) for guides and more information on using Zoom.

Contact Us

Should you have any questions about the Roundtable or encounter technical issue with Zoom, please contact the Roundtable host:

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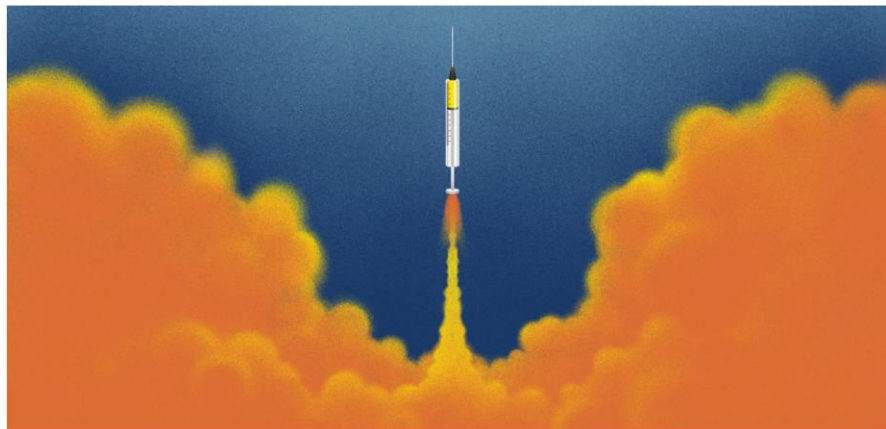


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Background information for roundtable discussion on COVID-19 Vaccine - Measures of Successful Deployment in ASEAN

Presentation proposing a framework to measure the success of COVID-19 vaccination programmes

Background information for a roundtable discussion on COVID-19 Vaccine: Measures of Successful Deployment in ASEAN



The world should have enough COVID-19 vaccines; it is only a matter of management and timing

Table 1. Dashboard of key characteristics for leading vaccine candidates, with traffic-light system to indicate threats to global implementation of each candidate. ^a

Lead developers	Development and production			Affordability	Allocation		Deployment	
	Approved or authorised by stringent regulatory authority or pre-qualified by the WHO ^b	Efficacy (interim ph. 3)	Estimated production capacity (2021)	Lowest price offered (USD/course)	% of doses pre-purchased by HICs based on known deals (2021)	Non-binding supply agreement with COVAX ^c	No. of doses needed	Storage requirement during transport
AnGes / Osaka	-	-	1m	-	-	No	2	-70°C
Anhui Zhifei / CAMS	-	-	300m	-	-	No	2 or 3	2°C to 8°C
Bharat Biotech	No	-	300m	-	-	No	2	2°C to 8°C
Biological E	-	-	-	-	-	No	2	2°C to 8°C
BioNTech / Pfizer	Yes	95%	2bn	\$20	80%	No	2	-70°C
CAMS / IMB	-	-	300m	-	-	No	2	2°C to 8°C
CanSino	-	-	400m	-	0%	No	1	2°C to 8°C
Clover / GSK	-	-	1.2bn	-	-	No	2	2°C to 8°C
CureVac	-	-	300m	\$24	100%	No	2	2°C to 8°C
Gamaleya	No	91% ^d	500m	\$20	0%	No	2	-18°C
Inovio	-	-	100m	-	-	No	2	-20°C
Institut Pasteur / Merck	-	-	-	-	-	No	1*	-15°C to -50°C
Johnson & Johnson	-	-	1.1bn	\$9	50%	Yes	1*	2°C to 8°C
Medicago	-	-	80m	-	100%	No	2	2°C to 8°C
Moderna	Yes	95%	1bn	\$31	100%	No	2	-20°C
Noyavax	-	-	2bn	\$6	23%	Yes	2	2°C to 8°C
Oxford / AstraZeneca	Yes	62% ^f	3bn	\$4	45%	Yes	2	2°C to 8°C
Sanofi / GSK	-	-	1bn	\$19	73%	Yes	2	2°C to 8°C
Sinopharm / Beijing Inst.	No	79% ^d	500m	\$88	0%	No	2	2°C to 8°C
Sinopharm / Wuhan Inst.	-	-	500m	\$88	0%	No	2	2°C to 8°C
Sinovac	No	50% ^{d,g}	1bn	\$21	23%	No	2	Room temp
SK Biosciences	-	-	-	-	-	No	-	2°C to 8°C
University of Hong Kong	-	-	-	-	-	No	-	2°C to 8°C

^aWouters OJ, Shadlen KC, Salcher-Konrad M, Pollard AJ, Larson HJ, Teerawattananon Y, Jit M. Global COVID-19 vaccine challenges: production, affordability, allocation, and deployment 2021 (unpublished).

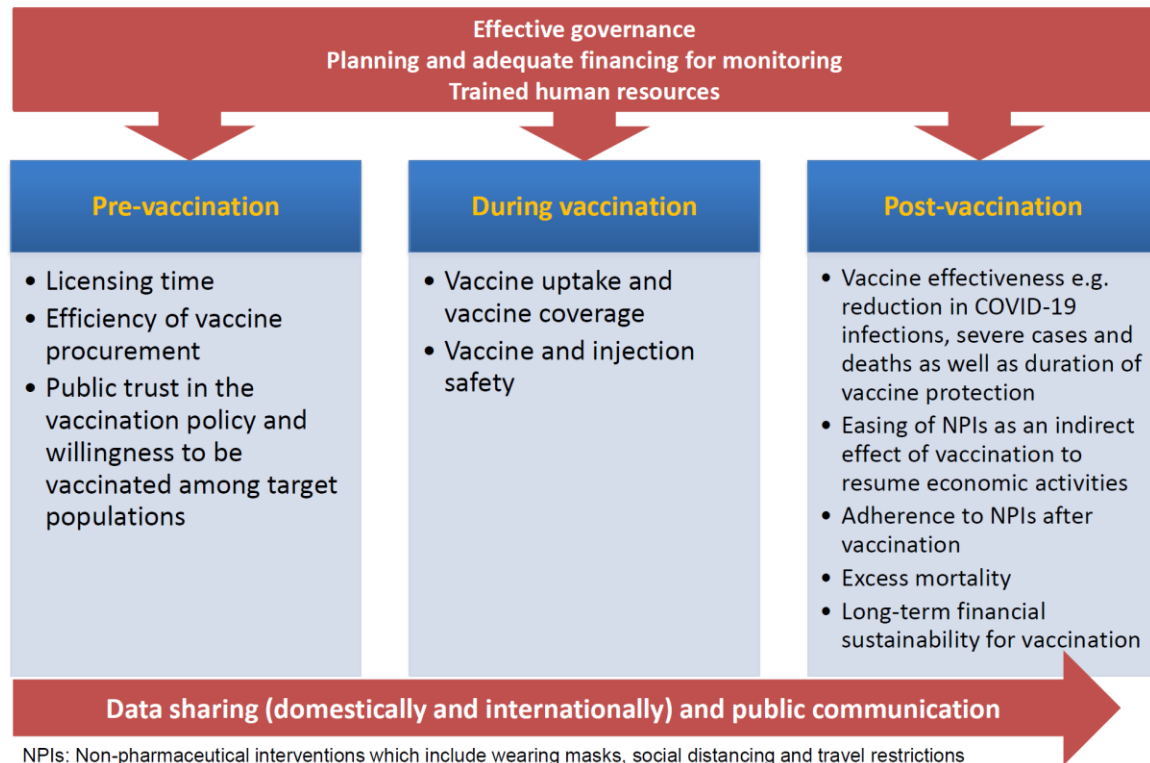
Challenges (1)

- The stakes are high in making COVID-19 vaccination successful
- The deployment of a COVID-19 vaccine in a region and even a single country may involve multiple vaccine products with different efficacy and safety profiles
- The target group for vaccination is very different to what most countries are used to and that has implications for monitoring coverage and other metrics
- There is a need to ensure timely monitoring, data sharing and communication to safeguard the health of target populations and, ultimately, maintain trust in the COVID-19 vaccination and the health systems

Challenges (2)

- It is important to ensure COVID-19 vaccination is being conducted safely in areas of high transmission
- There will be a strong demand for data on vaccination by in-country and international stakeholders so as to maximise the benefit of vaccination such as easing other costly control measures e.g. social distancing and travel restrictions

Potential framework



Opportunities

- COVID-19 vaccine introduction may serve as a catalyst to introduce more efficient digital health information systems including electronic immunization registries
- COVID-19 surveillance is currently on-going in all countries so that it requires only an incremental effort to establish a monitoring system for COVID-19 vaccination

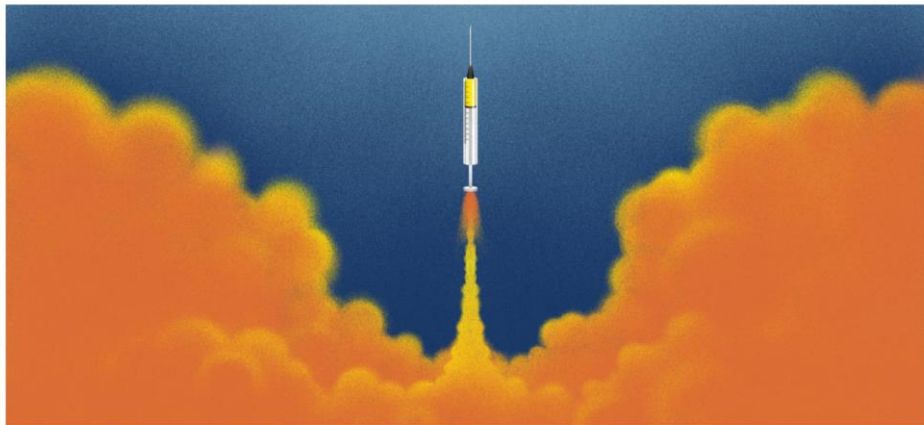
Recommendations

- It is very important to develop a nationally and regionally relevant comprehensive framework for monitoring COVID-19 vaccination
- Current COVID-19 surveillance will need to change after vaccines are introduced to understand the impact of vaccination
- Enough funding needs to be made available for proper monitoring of COVID-19 vaccination
- Countries should anticipate fast, frequent and faultless reporting on COVID-19 vaccination in response to a strong demand for data from multiple stakeholders
- Communications with both health professionals involved in the vaccination and the public including limitations of the vaccine and the systems delivering it will need to be strengthened

Summary of pre-meeting survey

Summary of responses to a pre-meeting survey circulated to participants to learn about their goals and fears for COVID-19 vaccination in their countries.

Roundtable discussion on COVID-19 Vaccine: Measures of Successful Deployment in ASEAN



COVID-19 vaccination: Voices from the pre-meeting survey

Ahead of the Roundtable discussion, a short survey was circulated to participants to learn about their goals and fears for COVID-19 vaccination programmes in their countries.

Link to the survey is available here:

https://forms.office.com/Pages/ResponsePage.aspx?id=Xu-IWwkd06Fvc_rDTR-gk6mwYgxVu1HrQqZZPYit2pUMkNGQINYNzU1WEhUUDVIOVdRUK9TMVJIRy4u

What is a realistic goal for COVID-19 vaccination and immunisation in 2021 for your country?

Impact on COVID-19 profile	Protect the population	Changes to the system
<ul style="list-style-type: none"> ○ To reach the target vaccine coverage ○ To reduce mortality and morbidity due to COVID-19 	<ul style="list-style-type: none"> ○ To protect public health ○ To protect health and essential workers as vulnerable populations from severe effects of the disease 	<ul style="list-style-type: none"> ○ To strengthen the health system ○ Potential availability of the vaccine in the market ○ To boost the economy

No. of respondents = 4

What is your biggest fear for COVID-19 vaccination and immunisation in 2021 for your country?

<p>Not achieving the goals set</p> <ul style="list-style-type: none"> ○ Inadequate vaccine supply ○ Logistical challenges (geographic reach, limited resources and infrastructure, delays in receiving imported vaccines) ○ Vaccine hesitancy
<p>Vaccine is not effective against new strain of the virus</p>

No. of respondents = 4

Background information: Comparison of COVID-19 vaccination strategies of the Association of Southeast Asia Nations (ASEAN) region and India

Draft: For discussion.

Version 20 January 2021

This table has been prepared for the Roundtable Discussion on “COVID-19 Vaccine: Measures of Successful Deployment in ASEAN” organised by the Saw Swee Hock School of Public Health, National University of Singapore (NUS) on 21 January 2021. It compares country plans for deploying COVID-19 vaccines. The purpose of this table is to provide background information to participants at the Roundtable. Participants may add or suggest changes to table during the discussion.

Country	Plans to launch COVID-19 vaccination programme in 2020/2021	Procurement of vaccines (manufacturer) Direct purchase/through COVAX	Target groups identified	Decision-making or technical body for COVID-19 vaccines	Sources
Brunei Darussalam	Q1 2021	Direct purchase from manufacturer (none specified) and through COVAX.	Frontline workers, medical practitioners and high-risk groups (e.g. elderly and those with chronic diseases). Aim to cover 50% of the population.	Technical committee has been established and is responsible for developing and implementing a National vaccination strategy.	http://www.xinhuanet.com/english/2020-12/24/c_139616633.htm http://www.xinhuanet.com/english/2020-11/24/c_139540233.htm https://thescoop.co/2020/11/24/brunei-likely-to-get-covid-vaccine-in-early-2021/ http://www.xinhuanet.com/english/2020-12/24/c_139616633.htm

Country	Plans to launch COVID-19 vaccination programme in 2020/2021	Procurement of vaccines (manufacturer) Direct purchase/through COVAX	Target groups identified	Decision-making or technical body for COVID-19 vaccines	Sources
Cambodia	Not specified; expected in Q1 2021	Sinopharm (1 million doses) Direct purchase from manufacturers	King, the Prime Minister, the Senate and National Assembly Presidents, as well as medical staff, teachers, armed forces, judicial police, sanitation personnel, motorcycle, tricycle taxi and taxi drivers		http://www.asean thai.net/english/ewt_news.php?nid=3771&filename=index
India	Q1 2021 (January)	AstraZeneca (1,000 million doses), Novavax (1,000 million doses), Gamaleya (200 million doses), Covaxin Direct purchase from manufacturers	Frontline workers such as hospital staff, people over 50 and those deemed to be at high risk due to pre-existing medical conditions	National Expert Group on Vaccine Administration (NEGVAC) recommends the prioritization of the population groups	https://www.bloomberg.com/graphics/covid-vaccine-tracker-global-distribution/?fbclid=IwAR02413sxE2P4Mc38W11593BISaoeNDYbD9M3hk2i3b-sDQwuadY0We94nU https://www.bangkokpost.com/world/2052379/india-hails-life-saving-covid-19-vaccine-rollout https://indianexpress.com/article/india/covid-19-

Country	Plans to launch COVID-19 vaccination programme in 2020/2021	Procurement of vaccines (manufacturer) Direct purchase/through COVAX	Target groups identified	Decision-making or technical body for COVID-19 vaccines	Sources
					vaccine-drive-starts-today-narendra-modi-7148161/ https://www.livemint.com/news/india/who-will-be-on-priority-list-for-covid-vaccines-in-india-what-expert-panel-suggests-
Indonesia	Q1 2021 (January)	Sinovac (125.5 million doses), AstraZeneca (Second quarter 2021: 50 million doses), Novavax (50 million doses), Merah Putih (57.6 million doses), COVAX (54 million doses) Direct purchase from manufacturer and through COVAX	Frontline health professionals, essential workers, population aged 18-59 years, and then elderly		https://time.com/5929160/indonesia-vaccine-rollout-jokowi/ Presentation slides by MHESI ¹ and ASEAN https://asia.nikkei.com/Spotlight/Coronavirus/Indonesia-COVID-vaccination-to-start-Wednesday-using-Sinovac-drug https://www.bloomberg.com/news/articles/2020-12-24/southeast-asia-covid-19-vaccine-tracker-who-will-get-what-when

Country	Plans to launch COVID-19 vaccination programme in 2020/2021	Procurement of vaccines (manufacturer) Direct purchase/through COVAX	Target groups identified	Decision-making or technical body for COVID-19 vaccines	Sources
Lao PDR	Q4 2020 (November)	Sinopharm (2,000 doses), Sputnik V (500 doses), COVAX Direct purchase from manufacturer and through COVAX	Medical staff, officials working at land border crossings and airports, and elderly people living in at-risk communities such as border areas where there have been reports of illegal migration	National Taskforce for Covid-19 prevention and Control	http://www.asean thai.net/english/ewt_news.php?nid=3748&filename=index http://www.asean thai.net/english/ewt_news.php?nid=3723&filename=index
Malaysia	Q1 2021	Pfizer (12.8 million doses), AstraZeneca (6.4 million doses), COVAX 20 million doses Direct purchase from manufacturer and through COVAX	No priority groups officially announced	Special Taskforce was to be set up in October 2020 and be responsible for coordinating securing and distributing the COVID-19 vaccine.	Presentation slides by MHESI ¹ and ASEAN https://www.bloomberg.com/news/articles/2020-12-24/southeast-asia-covid-19-vaccine-tracker-who-will-get-what-when https://www.thestar.com.my/news/nation/2020/10/14/special-task-force-set-up-to-ensure-supply-of-covid-19-vaccine-says-khairiy

Country	Plans to launch COVID-19 vaccination programme in 2020/2021	Procurement of vaccines (manufacturer) Direct purchase/through COVAX	Target groups identified	Decision-making or technical body for COVID-19 vaccines	Sources
Myanmar	Q2 2021 (April)	Through COVAX	Health care staff, elderly (over-65) and those with underlying health conditions	-	https://www.irrawaddy.com/specials/myanmar-covid-19/myanmar-covid-19-vaccination-expected-april.html
The Philippines	Q1 2021	Sinovac, Sputnik V., AstraZeneca (May 2021: 3 million doses) Direct purchase	Medical frontline workers and workers in industries deemed critical, including low-income groups and those identified as at risk.	Inter-Agency Task Force for the Management of Emerging Infectious Diseases	Presentation slides by MHESI ¹ and ASEAN https://www.bloomberg.com/news/articles/2020-12-24/southeast-asia-covid-19-vaccine-tracker-who-will-get-what-when
Singapore	Q4 2020 (December)	Pfizer, Arcturus (First quarter 2021), Moderna, Sinovac Direct purchase from manufacturers	Healthcare workers; essential personnel; elderly (70+); workers in jobs at high risk of susceptibility	The Expert Committee on COVID-19 Vaccination as recommendation body	Presentation slides by MHESI ¹ and ASEAN https://www.bloomberg.com/news/articles/2020-12-24/southeast-asia-covid-19-vaccine-tracker-who-will-get-what-when https://www.moh.gov.sg/news-highlights/details/ministerial-statement-by-mr-gan-kim-yong-minister-for-

Country	Plans to launch COVID-19 vaccination programme in 2020/2021	Procurement of vaccines (manufacturer) Direct purchase/through COVAX	Target groups identified	Decision-making or technical body for COVID-19 vaccines	Sources
					health-at-parliament-on-the-third-update-on-whole-of-government-response-to-covid-19
Thailand	Q1 2021 (February)	Sinovac (2 million doses), AstraZeneca (May 2021: 61 million doses), COVAX Direct purchase from manufacturer s and through COVAX	Frontline medical workers, healthcare volunteers, high-risk groups (comorbidity) and elderly (60+)	Sub-committee of the National Communicable Diseases Committee (NCDC) is responsible for roll-out of the vaccine	https://asia.nikkei.com/Spotlight/Coronavirus/Thailand-struggles-to-secure-COVID-vaccines-as-new-cases-rise https://www.bangkokpost.com/thailand/general/2049339/govt-forms-committee-for-vaccine-rollout
Vietnam	-	- In the process of vaccine R&D and negotiation with Pfizer and other companies	Health workers, people with underlying conditions, tour guides	-	Presentation slides by MHESI ¹ and ASEAN https://www.bloomberg.com/news/articles/2020-12-24/southeast-asia-covid-19-vaccine-tracker-who-will-get-what-when https://tuoitrenews.vn/news/society/20201225/covid19-vaccine-may-be-available-for-injection-in-vietnam-in-

Country	Plans to launch COVID-19 vaccination programme in 2020/2021	Procurement of vaccines (manufacturer) Direct purchase/through COVAX	Target groups identified	Decision-making or technical body for COVID-19 vaccines	Sources
					q1-2021-service-provider/58464.html

¹Ministry of Higher Education, Science, Research, and Innovation