

SDGHI Perspectives Essay Series - COVID-19 A Year Later

Vaccines in Southeast Asia

Readiness of Thailand National Immunization Program (NIP) for the Rollout of COVID-19 mass vaccination

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Thailand's considerable success in managing infectious diseases are attributable to a comprehensive health care system, adequate financing for the National Immunisation Program (NIP) with Universal Health Coverage, a strong infrastructure and service delivery system and a proven national capacity to detect and respond to infectious diseases outbreaks. Thailand also has a strong National Regulatory Authority and viable national vaccine production capacity, which has enabled successful expansion of life-course immunisation, in particular adult immunisation (Influenza vaccine annual campaign, model development for adult immunisation services and dT mass vaccination campaign) and piloting of new vaccines [1].

These achievements provide a strong foundation for COVID-19 mass vaccinations. However, there are a number of challenges as the COVID-19 mass vaccination is the largest ever immunisation campaign for Thailand. Thailand has recognised these challenges and has launched the preparedness for COVID-19 vaccine access and deployment since February 2020. (key milestones are shown in Figure 1)

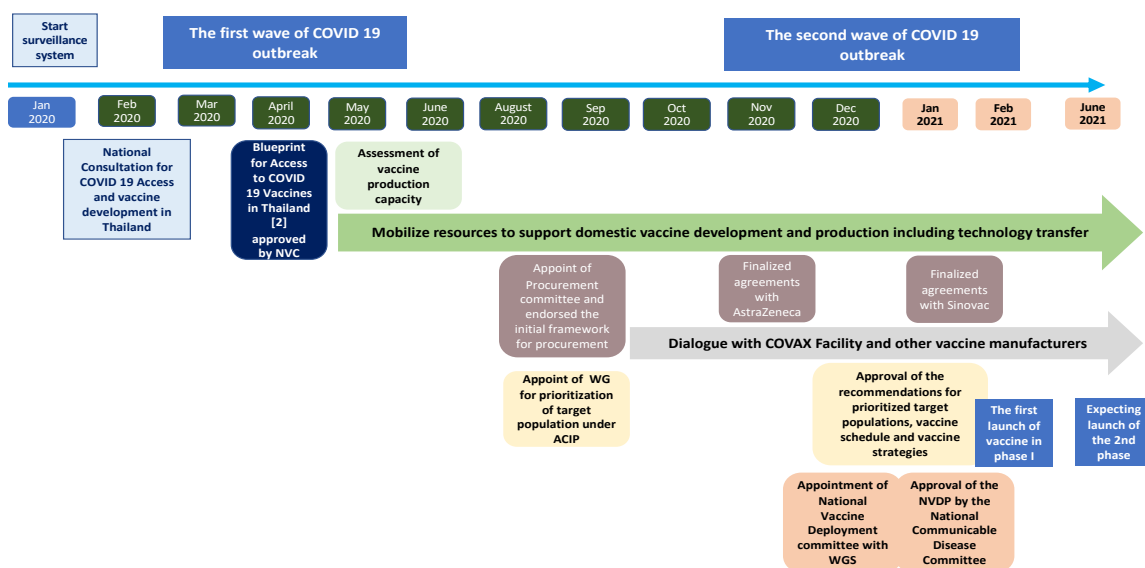


Figure 1: Key milestones of vaccine access and vaccine deployment in Thailand [2]

To achieve the ultimate goal of vaccine access in Thailand, the national vaccine deployment plan has been developed with multisectoral involvement. The progress of vaccine rollout can be attributed to nine key elements as described below:

I. Policy decisions and coordination mechanisms

Introducing and deploying COVID-19 vaccines will require key national decisions to be made. To ensure a robust, accountable and evidence-informed decision-making structure and process, three sets of policy decision mechanisms include:

- Vaccine procurement committee [3] appointed by the Ministry of Public Health (MOPH) chaired by the Permanent Secretary. Its main roles are to develop policy on procurement options and provide recommendations to the MOPH and negotiate purchase with vaccine manufacturers.
- National COVID-19 Vaccine Deployment Sub-committee (NVDC) [4] appointed by the National Communicable Disease Committee chaired by the Assistant to the Minister of Public Health with multisectoral representation. The subcommittee plays key roles in developing the deployment plan with clear functions, responsibilities and deadlines for different stakeholders and oversees the planning, coordination and implementation of vaccination activities to ensure smooth deployment.
- The National Technical Advisory Group (NITAG), under the National Vaccine Committee [5] chaired by Department of Disease Control's Director General. It provides evidence-based recommendations and policy guidance specifically related to COVID-19 vaccines (vaccine schedule, vaccine strategies, priority groups).

II. Prioritisation of target populations

The prioritisation of the target population has been identified by a Working Group (WG) of independent experts under the NITAG using the guiding principles of transparency, human rights and equity. The prioritisation and recommendations are well aligned with the World Health Organization (WHO) Strategic Advisory Group of Experts' (SAGE) values framework [6], the WHO SAGE prioritisation roadmap [7], vaccine supply and availability and national context and epidemiologic setting.

The WG extensively reviewed the global situation and vaccine development and prioritisation frameworks of many countries along with national epidemiological data. Finally, the NITAG has recommended the target populations as shown in Table 1 [8].

III. Vaccine delivery strategy

The COVID-19 vaccination delivery is tailored based on vaccine characteristics, the risk-benefit assessment for different population groups, the epidemiological situation, the amount and pace of vaccine supply and alignment with Thailand's specific health systems and context. Thai experts classified the delivery strategies in two phases in Table 1.

Table 1 Target population prioritisation and vaccine delivery strategies

	The first phase -limited supply of vaccines (Feb-May 2021)	The second phase-more vaccine available and sufficient vaccines (June-Dec 2021)
Vaccines	AstraZeneca, Sinovac Life Science (about 2.1 million doses)	AstraZeneca (61 million doses)
Objectives of vaccine use	<ul style="list-style-type: none"> • Reduce morbidity and mortality • Protect health system 	<ul style="list-style-type: none"> • Maintain economic and social security • Establish herd immunity and support country recovery
Target populations	<ul style="list-style-type: none"> • Frontline health personnel in both government and private sector including migrant health volunteers • Persons with underlying diseases (chronic respiratory diseases, cardiovascular diseases, CRF stage 5 with RRT, cerebrovascular diseases, cancers, DM, obesity (BW > 100 kgs, BMI> 35 kg/sq m) • Persons aged 60 years or over • Officers involved in COVID-19 control activities with close exposure to suspected COVID-19 patients 	<ul style="list-style-type: none"> • The rest of target population from the first phase • Non-frontline health care workers • Persons working in Travel/business sector • International travelers • General population • Diplomats, expatriates • Persons working in industrial sector/other service sectors

Potential vaccination sites	Provincial/district hospitals, government sector	Provincial/district hospitals/health facilities, private hospitals/clinics, long term care facilities, community care centres, other private and public establishments, home visits, marketplaces, workplaces, drive-throughs, pharmacies
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IV. Cold chain and logistics

Prior to vaccine introduction, the NIP conducted assessments [9] of the existing supply chain system to address gaps, such as in storage, distribution, temperature monitoring and tracking, tracing and reporting vaccine stocks. The assessment revealed that there was a need to invest more on cold chain equipment at provincial and district levels. The MOPH has since provided support for refrigerators and essential cold chain equipment. In addition to government support, the Federation of Thai Industries has voluntarily contributed refrigerators to all provinces and mobilised efforts and know-how of refrigerator development from domestic industries to produce refrigerators to support the vaccine rollout.

Vaccines will be distributed by the Government Pharmaceutical Organisation under its vendor managed inventory system which can efficiently support stock management and monitoring of vaccine utilisation and wastage rates. Furthermore, additional measures to avoid risk of diversion and falsification has been designed to ensure the security and safety of the vaccine storage facilities, preserve vaccine safety and integrity during transport and ensure the safety of all staff responsible.

V. Training

Several studies [9, 10, 11] have been conducted to identify training needs, vaccine acceptability and number of immunisation manpower at all levels. A training curriculum has been developed. The main objective of the curriculum is to equip healthcare personnel (managers at all levels, cold chain managers, vaccinators) with the right knowledge, skills and attitude. Training courses were conducted using digital tools and a supervision/consultation system was established that includes supportive supervisory visits during the first two months to support healthcare personnel. Special courses for physicians were introduced in close collaboration with professional societies.

VI. Monitoring and evaluation

The progress of COVID-19 vaccination will be monitored under the established health service management information system, which will be facilitated and enhanced by the application of digital recording by the vaccinating hospitals and web-based reporting dashboards. Guided by this data, the Provincial Communicable Disease Control Committee will oversee and advise on the performance of vaccination campaigns in each province.

Evaluation of the vaccination campaign will be coordinated mainly by the national program, with close collaboration of multi-sector partners at different levels of operation. Areas of evaluation will include vaccination coverage, vaccine safety, immunity status and vaccine acceptance; while the effectiveness of vaccination will be assessed based on multiple indicators and multiple sources of data. Several evaluation activities will be conducted as part of the planned research mentioned in section VII.

VII. Evidence generation and knowledge management to support vaccine deployment

Evidence generation and knowledge management has been guided by the research and development framework to support vaccine deployment [12] in seven areas including policy and systems, vaccine efficacy and immunological studies, vaccine schedule, program management, regulatory preparedness, risk communication and monitoring of Variant of Concerns. Crucial research projects have been identified with responsible institutes and financial support. This reflects the strong collaboration between MOPH, Ministry of Higher Education, Science, Research and Innovation and academia.

Evidence from the various research projects will be used to inform policy decisions and support implementation. For example, one research project on vaccine certification and a vaccine passport system will engage with the Association of South East Asian Nations, WHO, international partners and the business sector. The research will provide essential inputs for designing vaccine certification and passport systems. The studies on vaccine efficacy and immunological studies will help the NITAG adjust vaccine schedules and target populations.

VIII. Adverse Events Following Immunisation (AEFI) and compensation claims

There are three systems to address the uniqueness and complexities presented by COVID-19 with specific attention on vaccine safety monitoring.

- Existing AEFI surveillance (passive routine system)
- Active surveillance system for COVID-19 vaccine using app-based and hospital-based reporting at 30 mins, day 1, day 7 and day 30 of vaccination and
- Adverse Event of Special Interest reporting using sentinel surveillance at general, regional and university hospitals.

The vaccine vigilance plans and COVID-19 vaccine vigilance manual have been developed to monitor the safety and effectiveness of the COVID-19 vaccines in use through the AEFI surveillance cycle. The National Health Security Office, MOPH and key partners have been working together to develop a no-fault compensation plan for claims of serious side effects under National Health Security Act B.E. 2545.

IX. Risk communication

Public communication on COVID-19 vaccines are an integral part of the COVID-19 Response Communication Plan. Risk communication on COVID-19 vaccine has been executed in the context of high public concern and dynamic situation of vaccine development, supply and demand. Responsibilities in relation to vaccine risk communication are distributed across organisations. The COVID-19 Vaccine Communication Taskforce, working under the Vaccine Communication Strategic Framework [13], has become an important and agile coordination platform for relevant public and private agencies beyond the health sector. The Taskforce works under the collective goal to promote evidence-informed decision and vaccine literacy, and has been the mechanism for organisations to agree upon roles and contributions, to share knowledge, information and expertise and to promote synchronisation and collaboration. In addition, partners share emerging situations related to the COVID-19 infodemic and social climate around vaccines, through social listening and public poll mechanisms. The key operational principle of the Taskforce is to 'confirm and supplement' communication content in all mediums.

In conclusion

There is still a long path ahead in the COVID-19 mass vaccination program for Thailand. In terms of preparedness, Thailand is striving to ensure readiness of vaccine deployment for the population. Thailand's COVID-19 rollout owes much to the strong foundations of a relatively strong health system manned with motivated personnel laid by visionary leaders in the past who invested on strengthening health systems including the national immunisation program. COVID-19 is a potential opportunity to advance health security for Thailand and other countries by utilising the immunisation program as a platform. After COVID-19 mass vaccinations, the NIP will advance into its next phase with stronger evidence-informed policy decision-making and moving forward with vaccination through the life course. Furthermore, Thailand will get the opportunity to achieve a well-trained and motivated health workforce, increased immunisation literacy and communication and functional cold chain storage and logistics and vaccine management systems. Monitoring the safety of the newly developed COVID-19 vaccines will enhance safe immunisation practices and monitoring management of adverse events.

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About the author

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