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COVID-19 VACCINE SRATEGIES AND POLICIES IN UPPER-MIDDLE INCOME AND UPPER INCOME COUNTRIES IN ASEAN

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Abstract

Covid-19 vaccination is one effort to prevent and break the chain of transmission. Until July 2024, Covid-19 positive cases reached 775.686.716 with total 7.054.093 deaths. Every country has its own strategies and policies to reduce the number of transmissions. The purpose of this study is to analysing vaccination strategies and policies in ASEAN country members that categorized in UIC and UMIC group, Brunei Darussalam, Singapore, Malaysia, Indonesia, and Thailand. The method in this study is using literature study and document analysis that related to this topic which can be accessed publicly, such as statistical data and government documents. Based on the results, the five countries have some similarities in vaccination strategies and policies. This happened because of there is a collaborative action plan within ASEAN country members and be adapted by all countries. However, there are still several countries that have not complied vaccination target of WHO, 70%.
Keywords: Covid-19, policies, UIC, UMIC, vaccine

Introduction

The world was shocked by the Covid-19 pandemic or *Coronavirus disease* at the end of 2019. COVID-19 is an infectious disease that caused by Corona virus third generation, namely SARS-CoV-2. This virus can cause respiratory system disorder from mild through severe symptoms and also can cause death (Khan et al., 2020). Transmission of this virus through the droplet that may spread from coughing or sneezing and can be transmitted between humans within a distance less than 1 meter. Another potential transmission is also through the surface in public area that already contaminated with the virus (Ong et al., 2020). The first confirmed case of Covid-19 was found in Wuhan, China. Based on World Health Organization (WHO) report, until July 2024, the total case of confirmed Covid-19 reached 775.686.716 cases. Whereas, the total deaths caused by Covid-19 until July 2024 reached 7.054.093 deaths.

Efforts to overcome this Covid-19 pandemic was conducted to reduce the virus transmission. Quarantine and lockdown enforced in almost all over the world. Besides that, social distancing, public area limitations, use of masks, and hygiene also become other efforts to reduce the (Hussien, 2023). Acceleration of vaccination is also being carried out to prevent and reduce the risk factor if infected happens. Vaccination coverage to reached the herd immunity that WHO recommend was 70% of total population. Study shows that 70% coverage is sufficient to prevent the disease with low until moderate transmission, however, this number is insufficient to prevent transmission of Omicron and Sars-CoV-2 which have a bigger transmission capacity

(Plans-Rubió, 2022).

Every country has their own strategies and policies to reach the herd immunity. As well as ASEAN country members that have different policies. However, strategies and policies that made by ASEAN country members are have similarity. The purpose of this study is to analyse strategies and policies of ASEAN country members who categorized as UIC and UMIC, Brunei Darussalam, Singapore, Malaysia, Indonesia, and Thailand. These five countries have a similarity to reduce the transmission of Covid-19 and reach the herd immunity target. Brunei Darussalam is only the country in ASEAN who has been achieved 100% of vaccination coverage. Singapura, Indonesia, Malaysia, and Thailand also achieved the herd immunity target, but there is still disparity in several regions in their country. A study is needed to evaluate the comprehensive implementation of these strategies and policies.

Methods

Data collection

The data that used in this study were obtained from Our World in Data and Dashboard WHO to collecting data of vaccinated people, total population, GDP per capita, total Covid-19 cases, total Covid-19 deaths, and percentage of population over 65 years old. This is a cumulative data until December 31, 2023 and is a primary vaccination (first and second dose). Journal and research article was chosen for this study is published article that publish in 2020 until 2024. The purpose of this study is to analyse strategies and policies Covid-19 vaccination in five ASEAN country members. This study also offering policies recommendation to reach all population, so there is no disparity in certain regions if the pandemic occurs again.

Policies information

Vaccination policies every country was obtained from WHO, ASEAN, and government websites. Policy aspect of vaccination in this study is vaccine program access in every country to analyse the extent to which policies made and implemented by each country are effective as evidence-based recommendations for further policies.

Search strategy

Search for scientific articles by identifying studies relevant to Covid-19 vaccination coverage, the effectiveness of Covid-19 vaccination policies, and government policies in several countries in the world. The search was conducted through Scopus, PubMed, Google Scholar, and government websites.

Results

To compare these five countries, we need to understanding the circumstances of the country. The vaccination circumstances are available in table 1. Population and surface area of Indonesia are the largest than the other four countries, also Indonesia is an archipelago state that have many islands. The smallest population is Brunei Darussalam, but they have a big surface area. It makes the population density in Brunei Darussalam is low. While Singapore has a high population density, but they are the highest GDP per capita approximately three times than Brunei Darussalam. Indonesia is a country with the lowest GDP per capita

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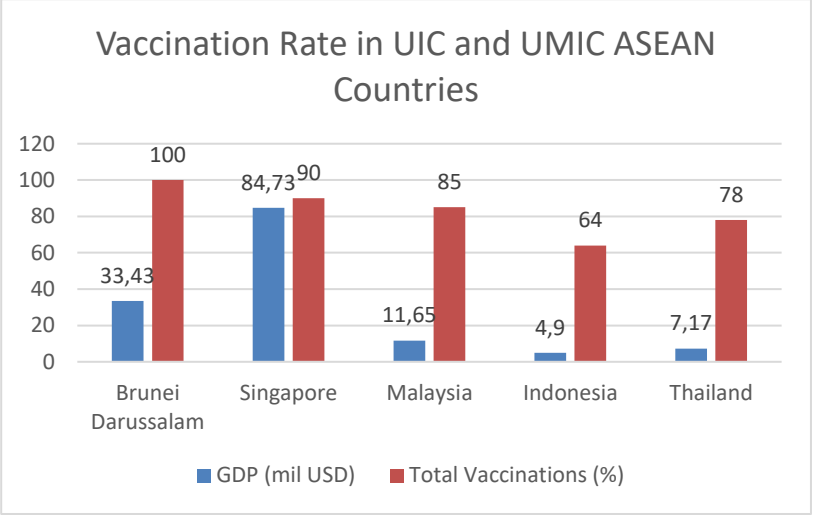
among of these four countries, because of Indonesia is new in UMIC group.

Tabel 1. Information on Covid-19 vaccination circumstances

Object	Brunei Darussalam	Singapore	Malaysia	Indonesia	Thailand
Population	449.002	5.637.022	33.938.216	275.501.344	71.697.024
Density of population (P/km2)	87	8332	103,77	144,79	139,93
Surface area (km2)	5.770	734,3	330.803	1.903.000	513.120
GDP per capita (million USD)	33,43	84,73	11,65	4,9	7,17
Percentage of population over 65 years old (%)	4,59	12,92	62,93	53,19	11,37
Expected life expectancy (years)	75,86	83,62	76,16	71,72	77,15
Total cases	15.447	2.924.515	5.227.322	6.821.770	4.762.375
Total deaths	171	1.954	37.293	161.972	34.517
Total vaccinations	898.401	11.795.254	72.647.030	274.749.184	105.160.269
people fully vaccinated	400.691	5.114.856	27.550.625	113.666.327	46.319.204
Total population vaccinated with primary series (%)	100%	90%	85%	64%	78%
Vaccination starting	Jul 2021	Dec 2020	Feb 2021	Jan 2021	Feb 2021

Sumber: Our World in Data dan WHO

Total cumulative cases until December 31, 2024 shows that Indonesia has the highest cases, followed by Thailand, Malaysia, Singapore, ad Brunei Darussalam. Total deaths in Indonesia also the highest, while Brunei Darussalam is the lowest. Based on vaccination coverage percentage, Brunei Darussalam has been achieved 100%, while Indonesia only 64% (WHO, 2024). It may happen because of the big differentiation of total population between Indonesia and Brunei Darussalam, so these two countries are not apple to apple to be compared.



Graphic 1. Vaccination Rate in UIC and UMIC ASEAN Countries

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As data shown in graphic 1, Brunei Darussalam is an absolute monarchy, where the country holds the power to control the people. While Singapore has a complex population and also many immigrants come to the country. It may affect the distribution of the vaccine towards the non-indigenous people. Although Singapore's GDP is higher than Brunei Darussalam, the two countries have some different social and culture condition.

Covid-19 Vaccination

Brunei Darussalam

The registered vaccines in Brunei Darussalam are Pfizer, Moderna, AstraZeneca, and Sinopharm. Brunei formed a team to examine effectivity and security of vaccine, so the vaccines can distribute safely to the people (Brunei Darussalam Vaccination Strategy V2, 2021). There are three stages of vaccination in Brunei. The first step is for the frontliners who against the pandemic, health workers, elderly >60 years old, and students who wants to go abroad. The second step is for people who work with children and adult with comorbid. The third step is for all people aged over 18 years old that started in July 5, 2021, age group 12-17 years old started in Oct 19, 2021, age group children 5-11 years old started in Apr 3, 2022 (Ang et al., 2023). At the end of 2023, Brunei Darussalam has been achieved 100% coverage of vaccination primary and booster.

Singapore

Covid-19 vaccination in Singapore was managed by National Vaccination Programme and given free for Singapore people, permanent residents, long term pass holders, and certain short term pass holders. Vaccine brand that available under National Vaccination Programme are Pfizer, Moderna, Novavax, and Sinovac (Ministry of Health Singapore, 2024). Vaccination in Singapore is focused to the group at high risk and age group 16 years old, then followed by age group >16 years old and essential workers. Ther first Covid-19 vaccination in Singapore was conducted in Dec 30, 2020 (Ma et al., 2023). Singapore succeed to cover 90% of their people in vaccination.

Malaysia

Malaysia took 66,7 million doses of vaccine from COVAX and bought vaccine from five companies. They prioritized first vaccination for frontliners in health sector that conducted in Februari-April 2021. Then followed by group at high risk to reduce the burden of disease in April-August 2021. The last strategy depends on risk assessment to controlling the disease transmission for adult >18 years old either from Malaysia or not. Until the end of 2023, Malaysia can cover 85% of population in vaccination (Ministry of Health of Malaysia, 2021).

Indonesia

Indonesia allowed seven brands of vaccines from PT Bio Farma, Astrazeneca, Sinovac, Sinopharm, Moderna, Pfizer, dan Novavax. The very first person who got injected the vaccine was President Joko Widodo that conducted in Jan 13, 2021 as an opening of mass vaccination (R. Efa Febryana, 2021). Vaccine

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administration depends on vaccine availability and prioritized for health workers and supporting staff in health service facilities, elderly, vulnerable communities (geospatial, social, and economy), and general public (Republic of Indonesia, 2021). Based on WHO, vaccination in Indonesia cover 67% of population for primary vaccine. This percentage still under 70% WHO target.

Thailand

Vaccination program in Thailand started in Feb 28, 2021. The registered vaccine that managed by Thailand was Pfizer, AstraZeneca, Sinovac, dan Sinopharm. The main priority of this vaccine is health workers, work that involves many people, people with comorbid, elderly >60 years old. Second stage was conducted after all vaccines declared sufficient to all people (Exemplars in Global Health, 2024). Until the end of 2023, Thailand covered 78% of population.

Discussion

Vaccination policies implementation

Vaccination policies in these five countries tend to have some similarities, because there is collaboration within ASEAN country members in arrange action plan to respon Covid-19. Vaccination priority begins with groups at high risk of contracting Covid-19, such as health workers and the elderly. Vaccination for health workers is important to increase the immunity of health workers so that they can help others who are infected. Priority for the elderly is also important because they are easily exposed and have a higher risk of being hospitalized and can even cause death. Vaccination for the general public is also needed to create immunity in an area.

The implementation of the first vaccination also had the same time, namely at the end of 2020 to early 2021, except for Brunei Darussalam which just carried out vaccination in July 2021. Although it was carried out longer than other countries, Brunei Darussalam was able to reach the entire population to get the vaccine. Brunei Darussalam is easier to reach the entire population because it has a much smaller population than the other four countries. The distribution and location of vaccination in Brunei Darussalam are divided into four districts, namely Belait District, Tutong District, Brunei Muara District, and Temburong Area (Brunei Darussalam Vaccination Strategy V2, 2021).

Effectiveness of Covid-19 vaccination policy implementation

The division of regions to carry out vaccinations as carried out by Brunei Darussalam can be said to be effective because it is able to reach the entire community. This is because the concentration of the government or related institutions in distributing vaccines can be narrowed and can be directly supervised by the local government. Covid-19 vaccination with this division of regions is also carried out in Norway and can reach more than 90% of the Norwegian community. Vaccine distribution in Norway is carried out by the central government to be distributed to city governments by taking into account vulnerable groups to get vaccines considering the limited number of vaccines (Skjesol & Tritter, 2022).

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The regional division approach in distributing vaccines can be carried out as a further policy recommendation to be able to focus on equitable distribution of vaccines. The central government provides vaccines to city governments, then the city government is responsible for distributing vaccines to the community, so that only people who have an identity in a city can only get vaccinated in that city. Foreign citizens who live in the city can also easily access vaccines.

Challenges in Covid-19 vaccination

Low vaccination coverage can be caused by public doubts about vaccines. Public doubts are influenced by many factors, such as education, economy, social, and culture, as well as the assumption that vaccines are unsafe. Increasing public awareness of vaccines needs to be increased through promotive efforts by health workers and with a community-based approach. In addition, disparities in vaccines are also a challenge in reaching the community. Evaborhene et al. (2023), said that the disparity occurs due to political, economic, and social issues; limited access to vaccines due to hoarding of vaccines in UIC countries, export restrictions, and intellectual property rights issues; limited vaccine supply; and low-income countries have to queue to buy vaccines from high-income countries. WHO's initiation of the Pandemic Agreement in preparation for the next pandemic response is important to be ratified so that there is no inequality between countries. Developed and developing countries are expected to be able to work together and put aside their national interests to improve the level of health together.

Another challenge is the nature of vaccines that are vulnerable to environmental conditions, making it difficult to distribute vaccines to areas with limited access. In addition, inadequate vaccine storage can also damage vaccines before they are used by the public. Each country must improve its national infrastructure to prevent such incidents from happening again in the future.

Strategy for the future

The WHO through Intergovernmental Negotiating Body (INB) in effort to strengthening pandemic prevention, preparedness, and response arrange some solutions to be agreed upon by member parties. Strengthening pandemic prevention and coordinated with multisectoral surveillance by taking into account national capacities such as prevent and control measure in health care facilities, laboratory biosafety, and human resources. International coordination and collaboration for research related to the pandemic, including vaccine research, especially for developing country (WHO, 2025). Doing a joint venture between developed and developing country may help developing country to be independent in vaccine production.

Conclusion

Overall, the implementation of policies by all ASEAN countries, both UIC and UMIC, has followed the ASEAN action plan. The collaboration in preparing an action plan in response to Covid-19 in ASEAN has been well adapted by the five countries, so that there are many similarities in the national policies of each country. However, there are still countries that have a low percentage of vaccination in reaching the

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community. This can be caused by several factors, such as vaccine doubts, vaccine disparities, and access to vaccines. The recommendation that can be given is to decentralize the distribution of vaccines so that distribution can be focused on a narrower area, so that supervision of the community is easier. The central government distribute the vaccines to the local government, the local government will distribute the vaccines within its area, so the vaccines can reach the people in narrower area. It needs to strength infrastructure capacity, such as storage, transportation, and human resources to keep the vaccine safe.

Acknowledgment

There is no conflict of interest in this study. Disclaimer: there is no intention to compare several vaccine brands.

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