

Forum: General Assembly

Issue: Fostering international cooperation of distribution and implementation of vaccines

Student Officer: Lily Lee

Position: Deputy President of General Assembly

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## Introduction

Infection from 20 deadly diseases can be prevented by vaccines which can ensure people to live longer and healthier. In every year, vaccination has been able to prevent 4-5 million deaths from tetanus, influenza, diphtheria, and measles. Although there were progresses, there are still people that are unable to get vaccinated. For instance, in every year, about 20 million infants are lacking access to vaccines, and further developments needs to be made to provide them equal and sufficient supply of vaccines. To tackle this issue, international cooperation of countries is fundamental to reduce the child mortality rate, prevent infection of diseases, and promote world health. Since high accessibility and increasing affordability of vaccines would help individuals could be achieved through support from governments, organizations, and communities to distribute and practice immunization among countries.

However, due to financial burden, lack of supply, doubt over effectiveness, and political stance, it causes challenges among rural areas as it is hard to distribute and implement vaccines. As low-income countries often do not have enough money to purchase vaccines for their citizens, most of them are unable to even buy them unless organizations reach out for them. For instance, lack of infrastructures makes it harder to deliver and distribute vaccines. Therefore, World Health Organization (WHO), United Nations of International Children's Emergency Fund (UNICEF), and other organizations has been trying to supplying vaccines to them.

For this reason, only the distribution of vaccines was successful for some of the countries but they were not able to convince people to be vaccinated. Cooperation of countries, society and individuals are crucial.

## Definition of Key Terms

## Immunization

Immunization is a process of when an individual is made resistant to an infectious disease. This is often done through using vaccines. Immunization is also known as inoculation.

## Vaccination

Vaccination uses vaccines to make the body's own immune system to make immune against infection. Vaccination is one of the inexpensive methods for preventing infection or diseases. This can significantly reduce child mortality rate and benefit individuals' well-being.

## Child mortality

Child mortality rate is the death among young children that are less than age of five. This also reflects the child health development of a population. The child mortality rate is also known as 'under-five mortality rate', which is expressed as a 'rate per 1000 live births'.

## Low-income

As the World Bank states, low-income economies often have low Gross National Income (GNI) of lower than \$1045. Health problems, economic problems, high infant mortality rates, and low life expectancy often relates back to whether countries are underdeveloped, developing, or developed. Sudan, Niger, Congo, and Madagascar are low-income economies.

## Lower middle-income

According to the World Bank, upper middle-income countries are defined as countries with GNI per capita in between \$ 1,046 and \$4,095. Indonesia, Haiti, Iran, and Samoa are lower-middle-income economies.

## Upper middle-income

According to the World Bank, the upper middle-income countries are defined as economies with GNI \$ 4,096 and \$12,695 per capita. The World Bank claims that China, Turkey, Panama, Malaysia are the upper-middle-income economies.

## High-income

According to the World Bank, the high-income economies are defined as countries with GNI per capita of \$12,696 or higher. High-income economies include United States, United Kingdom, Sweden, France, and Singapore.

## Background Information

Throughout history, over 20 vaccines were made to prevent from infected from diseases such as diphtheria, tetanus, pertussis, and measles. These vaccines were capable of preventing deaths and reducing the child mortality rate. For most of the time, high-income countries have greater accessibility to vaccines as they have appropriate technologies and environment to develop and create vaccines for new diseases. Since only some countries have direct access to produce, distribute, and implement vaccines to their citizens, only certain people in high-income economies will be vaccinated. Inevitably, other countries, low-income and lower middle-income economies, do not have an adequate supply for many reasons. In some cases, countries may have sufficient vaccines, but they are incapable of implementing vaccines because individuals find vaccination as an unnecessary practice. However, vaccination is one of the most effective method for promoting public health and eradicating diseases, it is vital for everyone to be inoculated. Completing vaccine preventable diseases has contributed to eradication of diseases in certain countries. According to WHO, smallpox existed for 3000 years, at the least, but smallpox vaccines had been able to eradicate it by 1980. Nevertheless, there are numerous causes that hinders vaccinations.

### Factors that hinder vaccinations

Various factors influence governments or individuals unable to get a sufficient supply of vaccines. For countries to successfully distribute and implement vaccines, countries need to prioritize solving the problems. Once these factors are solved, numerous governments and organizations will be able to work with cooperation. The main causes that cause the process to get challenging are that some governments may refuse the offer; may not have enough government budget to purchase; individuals may doubt the effectiveness of vaccines; lacking supply.

#### Government's rejection

Vaccines have been able to save millions of lives. It has been able to decrease child mortality rates by vaccination against diphtheria, tetanus, polio, etc. Unfortunately, due to their political stance, some nations rejected to receive vaccines. It is crucial that governments prioritise citizens' safety, rather than their ideals. Throughout history, countries have rejected to be vaccinated because some of them rather relies on 'natural remedies. This was the case for Tanzania and Madagascar. Tanzania Madagascar rejected to implement public measures for vaccination and receive vaccines. One of the reasons is that government clarified that they do not want to follow the procedures or they do not believe in science.

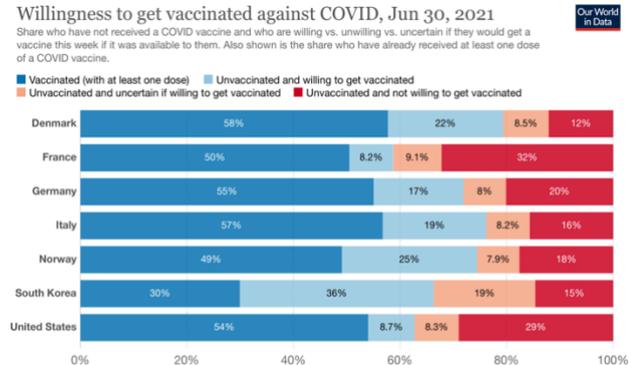
Moreover, recognition 20 countries (Afghanistan, Chad, and India) are accounted for the highest rate of 'zero-dose' children. According to Gavi, approximately 19,700,000 children are under-immunized. In addition, vaccine preventable diseases like, rubella, causes birth defects as a result of mothers' infection to rubella in pregnancy.

### Financial burden

According to Gavi, mainly low-income countries are had been having difficulties in buying or receiving vaccines. As the income inequality gap between high-income, lower-middle income, and low-income countries are relatively high; thus, governments may not be able to afford for vaccines. Annually, low-income economies in sub-Saharan Africa provides less than US\$10 basic health services per-capita. Despite financing for national public health should be one of governments' main concern, the low-income countries primarily rely on international assistance. Although vaccination is one of the inexpensive methods for health intervention, procurement and delivery cost is rising. Due to lack of technology, national health services, and income inequality, makes it challenging for low-income economies to access, unlike high-income economies. For most of the times, if there is enough supply of vaccines, high-income countries are capable of purchasing vaccines from other countries by using government budget.

### Doubt over effectiveness and safety

Many people doubt its effectiveness and function as it they believe it is not safe to get vaccinated. Generally, people living in high-income countries have the lowest trust in vaccines as many think that immunization is dangerous, and benefits are low. However, this may lead to greater negative impacts in terms of their health. Although, globally, only 7% of population 'strongly disagrees' that vaccines are safe; however, the statistics differ from countries. For instance, 33% of respondents in France thinks that vaccines are not safe. In addition, according to a survey conducted in 2018, it shows that only 66% of respondents in Japan thought vaccination was important for children. Less than 1% of their population in Egypt and 2% of population in India and Ethiopia thought vaccines were effective. However, in Liberia 28%, France 18%, and Nigeria 16% showed scepticism of effectiveness. For instance, Japan had been able to get COVID-19 vaccines; however, majority of Japanese refused to get vaccinated. Although vaccines were supplied, but it was not implemented to majority of population.

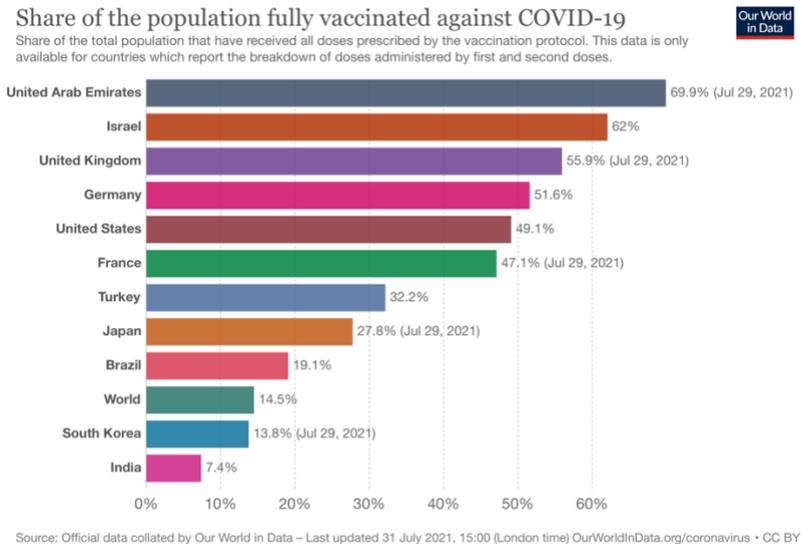


Source: Imperial College London YouGov Covid 19 Behaviour Tracker Data Hub - Last updated 27 July 2021, 10:10 (London time)  
 Note: Months containing fewer than 500 survey respondents are excluded. We infer willingness to get vaccinated among a country's population from survey responses of people aged 18 years and above, which may not be representative of the entire population. Nevertheless, we expect such differences to be small.  
 OurWorldInData.org/coronavirus - CC BY

**Caption #1: Willingness to get vaccinated against COVID-19**

## Lack of supply

While there are people who does not want to get vaccinated, some countries are unable to get vaccinated because there is low supply of vaccines. As numerous countries have pre-ordered vaccines, the waiting line is long and so, many countries are unable to get supply for a sufficient supply of vaccines. From a data from July 30 2021, it shows that even people from high-income countries are struggling to get vaccinated. According to the data, in South Korea (Republic of Korea), only 30% of population are vaccinated, 36% of population unvaccinated but are willing to get vaccinated. In contrast, for those countries that have comparatively abundant supply will have significantly less people less unvaccinated. For instance, the United States of America has 8.7% of people unvaccinated and willing to get vaccinated. This contrast of percentage of population between countries evidently shows lack distribution of vaccine in South Korea, which is the case for other countries as well.



Caption #2: Vaccination against COVID-19 in different countries

## Significance of international cooperation to distribute and implement vaccines

### Positive impact of partnership

The Gavi took part in immunizing more than 125,000,000 children against rotavirus diarrhoea. In addition, through international cooperation between Gavi and 69 countries were capable of strengthening health system. Furthermore, since 2015, vaccination against seven diseases reduced vaccination cost by 22%, from \$20.01 to \$15.57. This had positive impact in distributing vaccines as it facilitated the procedure and practicing the developed health system for people in rural areas.

Through the Pneumococcal Advance Market Commitment (PAMC), Gavi was capable of lowering cost of cost of vaccines for pneumococcal conjugate vaccines lower than United States of America's public price (US\$3.50) by reducing to 'US\$2.00 per dose'. Through this reduction, Gavi

would save \$50,000,000, which could then be made more equitable for prioritized countries. This would allow ease in budget for costs for delivering them to rural regions. Had it not been for multinational cooperation between governments, vaccine suppliers, communities, and organizations, the distribution of vaccines would not have been able to be provided. For those countries unaware of effective procedures to take place, people working for WHO and UNICEF in the profession of the field often come around to help distribute but also implement specific procedures in order to effectively support them get vaccinated. The persistent efforts from various organizations, communities, and governments have made it possible for worldwide countries to be provided with specific guidelines to rely on.

## Major Countries and Organizations Involved

### United States of America

Throughout history, the government of United States of America has been a major contributor to supply of vaccines to worldwide countries. The government has been able to provide vaccines for various diseases at low cost. For instance, during the pandemic, the government purchased mRNA vaccine from Moderna to distribute it to citizens at low cost. President Biden promised supply of vaccines and it would most likely be donated for countries. Approximately 50% of the population have been vaccinated. For most of the times, pharmaceutical firms in United States of America have been capable of inventing and developing vaccines through government subsidies and investments.

### India

India is one of the largest vaccine producers in the world. There are also foreign pharmaceutical firms to produce vaccines, to export and sell vaccines. According to India Brand Equity Foundation, low production cost allows pharmaceutical firms to carry out research and development projects to enhance the efficiency of vaccine production. The market is predicted to grow from US\$42 billion from year 2021 to \$65 billion in year 2024.

### France

France has the highest level of doubt in vaccines. According to a world's biggest survey, 33% of French people do not believe that vaccination is safe. Due to anti-vaccination movement, many people have doubted over its effectiveness of vaccines throughout the years. In 2017, the French government imposed a policy that requires inoculating children against 11 different diseases. Vaccination against

diphtheria, tetanus, and polio was mandatory before the policy, adding eight more vaccines. As a result, approximately 70% of children were vaccinated in 2017, however, some people thought it was unnecessary. For instance, approximately 47% of population were vaccinated against COVID-19.

### World Health Organization (WHO)

The World Health Organization is an agency of United Nations to promote international public health so that everyone would maintain healthy. WHO collaborates with governments, organizations, foundations, health workers, and researchers to effectively improve health of all. To expand universal health coverage, WHO work towards increasing accessibility to medicines, support communities' contribution in 'national health policies. They improve by their actions by monitoring and using data.

### International Vaccine Institute (IVI)

The international Vaccine Institute (IVI) is an independent international organization that aims to develop and create improved vaccines specifically for poorest children in developing countries. The organization is formed under a treaty signed by 35 countries and the World Health Organization. They perform research in over 30 countries (in Asia, Africa, and Latin America) on vaccines to later develop them in headquarters.

### Gavi the Vaccine Alliance

The Gavi was formed in 2000. One of Gavi's goals is to save lives and sustain public health by 'increasing equitable and sustainable use of vaccines. The Gavi cooperates with various partners to efficiently foster and distribute vaccines: donors, nongovernmental organizations, community associations, etc. They are collaborating with WHO, UNICEF, The World Bank, donor country governments, vaccine manufacturers, and more. Through collaboration, they were capable of vaccinating more than 822,000,000 children in lower-income countries, approximately preventing 14,000,000 future deaths from vaccine-preventable diseases. Their partnerships between these organizations is essential to achieve goal three of Sustainable Development Goals: 'Good health and Well-being'.

### United Nations International Children's Emergency Fund (UNICEF)

UNICEF aims to save children's lives and protect their rights, from start to finish. They have promoted children's rights through social policies, innovation, education, and supplies. UNICEF is one of the largest buyers of vaccines to pursue in providing the most helpless children with sustainable access.

UNICEF supplies vaccines worldwide to immunize 45% of children under five. They have been cooperating with governments, non-governmental organizations, other United Nations agencies to advocate communities, to distribute vaccines to implement sufficient access for the most vulnerable communities.

## Timeline of Events

1974	The World Health Organization included new lists of vaccines for Extended Programmes for Immunization. Less 5% of children worldwide was immunized, therefore, this was aimed to vaccinate against polio, tuberculosis, pertussis, measles, etc. This included Bacillus Calmette Guérin (BCG), diphtheria, tetanus, pertussis vaccines (DTP).
1980	According to WHO, smallpox vaccine was effective in reducing and eradicating smallpox.
1988	The World Health Assembly called for Global Polio Eradication Initiative which would last until year 2000.
1998	Polio vaccination in Sudan and by 1998, polio cases decreased by 99%.
2000	Millennium Development Goals. Goal four strives to reduce child mortality by two-thirds by 2015 and goal six states aims to combat diseases like, HIVs and malaria. Goal eight recognizes its need to develop international partnership for development.
2000	Gavi the Alliance for Vaccines is formed to promote vaccination among low-income and low middle-income countries.
2006	Start of Global Immunization Vision and Strategy.
2012	Global Vaccine Action Plan started
2015	Global Vaccine Action Plan is completed
2018	UNICEF immunization roadmap was created. This would start from 2018 to 2030.
July 16 <sup>th</sup> , 2021	Asia-Pacific Economic Cooperation (APEC) held a forum to tackle health issues caused by the COVID-19 pandemic. Throughout the forum, countries have consented to 'redouble efforts' by expanding the supply of vaccines.

## Relevant UN Treaties and Events

- Global vaccine action plan, 26 May 2015 (A68/VR/9)
- Vaccine-preventable diseases and immunization: realizing the full potential of the European Vaccine Action Plan 2015–2020, 6 August 2018 (EUR/RC68/9)

- International cooperation to ensure global access to medicines, vaccines and medical equipment to face COVID-19, 21 April 2020 (A/RES/74/274)
- Strengthening immunization to achieve the goals of the global vaccine action plan, 31 May 2017 (A70/VR/10)

## Previous Attempts to solve the Issue

### Millennium Development Goals (MDGs)

There are eight goals that United Nations Member states that consented to achieve by 2015. In 2001 and 2013, globally, the new human immunodeficiency virus (HIV) has reduced by 39%. Fourth, fifth, sixth, and eighth goal of Millennium Development Goals aims to promote public health and combat diseases through vaccines. Millennium Development Goal four aimed to reduce child mortality by 66%. In between 1990 to 2013, under-5 mortality decreased by 49%. Although there was progress, the world may be unable to achieve its goal. But they were able to decrease vaccine-preventable diseases. For instance, in 2013 global average immunization coverage was in 84% of newborns (12-23 months old). From 2000 to 2013, approximated measles death reduced by 74% (481,000-124,000 deaths). MDG eight targeted to achieve these goals by cooperating with pharmaceutical firms to make essential medicines affordable for developing countries. However, they were not able to achieve some of the goals by the end of 2015.

### Global Immunization Vision Strategy (GIVS)

By the end of the year 2015, the Global Immunization Vision Strategy (GIVS) aims to create a world in which immunization is prioritized, everyone has equitable access to immunization, vaccines are utilized for strengthening global health and security, etc. To achieve them, the goal intends to immunize at least 80% of the population. By 2015, GIVS plans to provide equitable access to vaccines, sustainable resources, funding, and supplies. It also breaks down the strategic area into sections for the procedure of vaccination. For instance, strategic area one targets to 'protect more people in a changing world'; strategic area two aims to introduce 'new vaccines and technologies'; strategic area four aims to immunize 'in the context of global interdependence'.

### Sustainable Development Goals (SDGs)

Sustainable Development Goals (SDGs) are created to maintain a safe, equal, healthy, and better society. This is a goal that every country agreed on. Within these goals, goal 3.2 intends to reduce the global child mortality rate at least to 2.5% so that above 97.5% of children under the age of five would survive. The SDGs are intended to be achieved in 2030; however, at current pace, the world

would be incapable. So far, the global child mortality rate is 3.9% (an average of 15000 children dies every day) is far from the lowest expectation of 2.5% as the child mortality rate.

## Possible Solutions

### Investment

Through investment on pharmaceutical companies for development of vaccines, cost of production of vaccines could reduce. This would allow organizations and government to purchase and sell vaccines at lower cost. Non-governmental organizations or governments could invest or subsidize these industries to foster distribution and implementation of vaccines. Pharmaceutical firms could cooperate with international companies to produce vaccines efficiently to increase production and supply for vaccines. As some pharmaceutical firms may have effective vaccines, yet produced inefficiently. Thus, they can make contracts between companies that has more developed tools required for the process. If there are surpluses, then governments purchase them to either vaccinate citizens for free or donate them to low-income countries.

### Impose policies and use media to vaccinate more people

Governments can impose policies requiring people to get vaccinated for certain diseases. This would include low-income countries and lower-middle income countries as well. Although this may be forceful, it will prevent new-born, children, and adults from being infected by diseases. As compulsory vaccination in several countries has proven to be useful, policies for mandatory vaccination can be implemented. Governments, organizations, and campaigns can improve methods to persuade people.

### Use media to promote Vaccination

Through promoting the significance of vaccines, statistics, research reports, educating the public through media, they can attempt to influence them. This can be attained through education programs. For instance, volunteers or workers of WHO or UNICEF can offer presentations and the importance of vaccines to younger audiences and eliminate misinformation about vaccines. According to nature, due to the anti-vaccination movement, in 2019, misinformation of vaccines for measles was more widespread than pro-vaccination on various platforms like Facebook. As the WHO provides materials (posters) for the public to advocate vaccination, schools and communities can use them to show the credibility of their sources to convince a wider audience to trust safety and effectiveness of vaccines.

### Pharmaceutical firms supply more through collaboration with bigger firms

There have been cases when certain vaccines were lacking supply and were incapable of producing sufficient vaccines. There are cases when vaccines are created in facilities initially for researches rather than business purposes. This has been a cause for the production of vaccines by Moderna, a pharmaceutical and biotechnology firm, for being able to keep with the high demands of their vaccines. For this reason, vaccine companies can cooperate with international companies to produce a large number of vaccines. Especially developing and under-developed countries could get vaccines through international cooperation. Through the aids of WHO, private organizations, researchers, and more workers, vaccines can be supplied to numerous countries. Specifically, once a firm has finished producing the vaccines, then other organizations can take part in developing feasible guidelines for transporting and delivering the vaccines to a region, and health workers from WHO or UNICEF could help vaccinate people. This may allow even low-income countries to be supplied with vaccines if governments, organizations, and communities cooperate to enhance the implementation of vaccines as well.

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## Appendices

### Appendix I:

Global Vaccine Action Plan

<https://www.who.int/teams/immunization-vaccines-and-biologicals/strategies/global-vaccine-action-plan>

### Appendix II:

Immunization Road Map

[https://www.unicef.org/sites/default/files/2019-01/UNICEF\\_Immunization\\_Roadmap\\_2018.pdf](https://www.unicef.org/sites/default/files/2019-01/UNICEF_Immunization_Roadmap_2018.pdf)

### Appendix III:

Moderna binds contract with Samsung Biologics to increase supply of vaccines

[www.businesswire.com/news/home/20210522005008/en/](http://www.businesswire.com/news/home/20210522005008/en/)

### Appendix IV:

Questions and Answers about Vaccines

<https://www.who.int/news-room/q-a-detail/vaccines-and-immunization-vaccine-safety>