



United Nations World Health Organization Background Guide

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The United Nations World Health Organization (WHO) was created on April 7, 1948. The WHO works with 194 United Nations Member States, across six regions, and together with over 150 offices around the world, to direct and coordinate international health within the United Nations system. The WHO's main areas of work are health systems; health through the life course; non communicable and communicable diseases; preparedness, surveillance, and response; and corporate services¹. The WHO plays an important role in coordinating the efforts of governments with partners including funds and foundations, civil society organizations, and the private sector. The organization also contributes research by collecting data on global health issues and reporting on health statistics in all nations in The World Health Report, WHO's flagship publication.

I. Equitable Distribution of Vaccines

Statement of the Issue:

Vaccines are critical to preventing the spread of and eradicating communicable diseases, and equitable distribution serves to protect the entire international community. The case of polio vaccination efforts demonstrates how effectively widespread vaccination can improve global health. Because of international, collaborative vaccine distribution, polio cases have decreased by 99% from the levels observed prior to the formation of the Global Polio Eradication Initiative. It is now considered to be eradicated in most countries. With that being said, polio transmission rates continue to be a problem in Afghanistan, Nigeria, and Pakistan which can result in cases occurring not only within these countries' borders, but within their neighbors' boundaries as well due to inadequate vaccination rates. Polio is an eradicable vaccine due to the virus's short lifespan outside of the human body; however, it will not be eradicated from the entire world until global vaccine distribution efforts are able to protect the

remaining unvaccinated communities from polio² which demonstrates the importance of completing vaccination efforts.

The recent coronavirus pandemic is once again exposing the challenges of equitable international vaccine distribution. As of February 2021, approximately 75% of vaccinations were administered to people in 10 countries. In the meantime, 130 countries had received no vaccines. While more countries have gained access to vaccines since then, distribution efforts have continued to be extremely inequitable. As of June 2021, North America led global vaccination efforts, having distributed 69 vaccines per 100 people, while Africa has only distributed 3.3 vaccines per 100 people³. The stark discrepancy in the number of vaccines given per capita demonstrates the significance of the inequalities in vaccine distribution.

The vaccine distribution process is part of a complex supply chain with several components that need to be addressed in order to ensure equitable distribution of vaccines. Rastegar et. al identify four steps to the vaccine supply chain. The first two, product and production, are focused on the acquisition of vaccines. Product looks at what type of vaccines should be made while production is focused on the quantity of vaccines needed and when they should be produced⁴. For underdeveloped countries, these first two steps can present a significant challenge for equitable distribution. Countries that lack the infrastructure to produce their own vaccines or the funds to buy an adequate supply for their people cannot start the supply chain without help from third parties such as international organizations or bilateral arrangements. International cooperation can greatly improve equity at this stage of the supply chain. Ensuring that all countries have the means to vaccinate their people or at least their most vulnerable populations greatly improves equitable distribution by ensuring that countries have the materials needed to be successful. This first step can be accomplished many ways, from giving low-income countries vaccines to establishing cooperative supply chains where vaccine parts are made in multiple countries to maximize efficiency and minimize costs⁵.

The latter two components of the supply chain, allocation and distribution, are more focused on the policies and their implementation. Allocation looks at who should receive a vaccine⁶, which is not always a straightforward process. Need-based prioritization can be viewed through multiple frameworks. For example, one could look at need as those who have the most life to protect by being vaccinated, or those who are most at risk if they catch a disease, in which case two very different groups would likely be prioritized to receive a vaccine⁷. Because allocation is focused on which individuals should receive vaccines, ensuring that members of high-risk groups are getting vaccinated needs to be considered at both the national and international level. Furthermore, if an individual is high risk for contracting a disease, it does

not mean that they can be vaccinated easily. Displaced people or those who are living in conflict zones may be at risk for catching certain communicable diseases but be unlikely to receive a vaccine as they may lack a functioning government to help them secure one⁸. Once a prioritization group is established, distribution looks at the logistics of administering vaccines to people⁹. In countries with poor infrastructure, this can present a significant challenge, especially if vaccines have specific transportation requirements, such as needing to be kept at certain temperatures¹⁰. Simply giving vaccines to countries is not an effective solution if the receiving country lacks the means to administer the vaccines to people in need before they expire or otherwise become unusable.

What is perhaps one of the greatest challenges for equitable vaccine distribution is vaccine nationalism. Vaccine nationalism describes the phenomenon where countries do not cooperate on vaccine distribution and instead prioritize acquiring more than their fair share of vaccines, in some cases more vaccines than are necessary to vaccinate their entire population. Vaccine nationalism is caused by a perception of vaccination being a case of zero-sum gain, or a situation where any advantage gained by a country is a disadvantage for other countries. In the context of vaccination, this specifically stems around a belief that a vaccine given to a person in another country is a vaccine that couldn't be used by somebody in a different country which makes vaccine acquisition competitive¹¹. With that being said, cases such as the failure to eradicate polio in three countries occasionally resulting in polio cases in surrounding countries¹² shows that vaccination is not inherently a case of zero sum gain from a public health standpoint. Furthermore, vaccination is an excellent return on investment which provides an economic incentive for developed countries to help developing countries with vaccination efforts. According to a paper released by the IMF in May 2021, it is estimated that a \$50 billion coronavirus mitigation investment, which focuses heavily on vaccination and improving access to vaccines, would result in \$9 trillion in benefits¹³.

History:

Global vaccine distribution efforts are not a new phenomenon. Dating back to European imperial powers intentionally transporting the necessary pathogen for smallpox vaccination to their colonies¹⁴, long distance vaccine transportation is a practice that predates modern vaccine technology. Smallpox vaccine sharing efforts increased during the 20th century, with the World Health Organization leading a campaign to eradicate smallpox. No naturally caused cases of smallpox have been reported for over 40 years and so the disease is considered eradicated¹⁵.

Unfortunately, the failure of countries to cooperate on pandemic mitigation efforts is not new either. During the 2009 H1N1 outbreak (swine flu), high income countries hoarded Tamiflu instead of working to ensure that other nations had an adequate supply¹⁶. While Tamiflu is a medication to help treat flu patients rather than a vaccine, the situation parallels the vaccine nationalism observed during the COVID-19 pandemic because sharing supplies could have provided vital relief to low-income countries.

The international community is aware of the challenges low-income countries face when attempting to vaccinate their people and in 2000 Gavi, the global vaccine alliance, was created to help low-income countries access vaccines¹⁷. In 2018, Gavi supported 73 countries with vaccination efforts. Gavi not only provides low-income countries with vaccines, but also helps countries with the logistics of distribution, such as providing them with equipment to keep vaccines cold¹⁸. Since its founding, Gavi has made it possible for millions of people worldwide to receive vaccines. Through support from Gavi, over 100 million people have been vaccinated against diseases such as polio, meningococcal meningitis A, and pneumococcal diseases¹⁹.

In light of the recent coronavirus pandemic, new challenges have emerged for low- and middle-income countries seeking vaccines. Prior to the approval of any approved COVID-19 vaccines, many high-income countries preordered vaccines²⁰, with the orders placed by the United States, the European Union, the United Kingdom, Australia, Canada, and Japan exceeding their combined populations by 1 billion doses²¹, showing a significant vaccine surplus. In some cases, such as that of New Zealand, additional doses were ordered with a clear plan to give the excess doses to six other Pacific Island nations²²; however, most low-income countries are not receiving this type of support and instead low-income countries generally have limited access to COVID-19 vaccines²³.

To help process equitable vaccine distribution, the World Health Organization, Gavi, and CEPI launched COVAX to provide equitable access to vaccines. COVAX is focused on helping countries vaccinate at least 20% of their populations and ensuring fair vaccine distribution²⁴. Since their initial vaccine purchases, many high-income countries have increased their vaccine support commitments²⁵; however, COVAX's efficacy is hindered by its poor funding²⁶. Furthermore, giving countries vaccines does not resolve the inequalities that created the need for vaccines to be given to low-income countries and so long-term solutions should focus on more than simply giving countries vaccines²⁷.

Vaccine exchanges through bilateral arrangements have led to the emergence of a phenomenon called vaccine diplomacy, or the use of vaccine distribution by governments to accomplish their foreign policy goals²⁸. While vaccine diplomacy can help low- and middle-

income countries access vaccines they might otherwise lack access to, they do present the risk of political factors jeopardizing vaccine distribution. Chinese-Brazilian relations exemplify this well. Comments made by Brazilian President Jair Bolsonaro reportedly led to the delay of China shipping vital coronavirus vaccine ingredients to Brazil²⁹ which shows how easily bilateral distribution can be impacted by politics.

Another challenge that the international community faces for vaccine distribution is discrepancies in countries' vaccine authorization policies. During the coronavirus pandemic, multiple different vaccines were developed at different times. While these vaccines may all be in circulation, this does not mean that all countries have approved their use at a given time³⁰ which means that vaccine distribution should consider which vaccines are appropriate to give to certain countries.

Analysis:

Ensuring equitable vaccine distribution is a complex process that goes beyond giving low- and middle-income countries vaccines. While giving low-income countries vaccines and supporting short term initiatives such as COVAX are not without their merits, holistic solutions to equitable vaccine distribution will need to consider improving the long-term inequalities that cause countries to be unable to produce or buy their own vaccines³¹.

There are a multitude of factors that may prevent a country from distributing and producing vaccines. Lowering intellectual property barriers may help countries with adequate infrastructure to produce vaccines; however, this alone will not help countries that lack the resources to produce vaccines. Countries need equipment to produce vaccines³², but other infrastructure factors need to be considered as well. Regions that are mountainous or rural may be challenging to distribute vaccines to³³. For any country set to receive assistance with vaccine distribution, understanding what infrastructure is best suited for serving as vaccine distribution sites is also critical for effective distribution. Working with non-governmental entities may be essential to the success of vaccination campaigns. Religious communities and NGOs may be the main provider of social services in a given community, in which case they could provide vital services for vaccine distribution³⁴, but evaluating which entities are important partners for vaccine distribution will vary on a case-by-case basis.

Where people are located may also present a challenge for the logistics of vaccine distribution. The location of people greatly impacts their ability to receive vaccines. People living in warzones are difficult to vaccinate because of the challenges of running government services

in areas of conflict³⁵. Areas of prolonged conflict, such as Libya, also tend to have poor infrastructure which presents a challenge for vaccinating people in the region³⁶.

Equity within countries is a critical factor to consider as well. Refugees and displaced people may also face challenges in receiving vaccines. Lebanon provides valuable insight into this challenge. Although Lebanon's COVID-19 vaccine rollout plan is intended to cover all residents of the country regardless of their nationality, most Syrian refugees in Lebanon do not have legal resident status in the country which puts them at risk for arrest or deportation. Because receiving a coronavirus vaccine would require them to register with the Lebanese government, many Syrian refugees in Lebanon are afraid to seek vaccines. Distrust in governments can present a challenge as well. While most Palestinians living in Lebanon have legal residency status, vaccination rates among Palestinians in Lebanon are low compared to the rest of Lebanon's population because the Lebanese government has historically blocked Palestinians from accessing free government services. Consequently, many Palestinian residents of Lebanon are distrustful of the offer of free coronavirus vaccines due to fears that they will be financially exploited³⁷.

Corruption can also present a significant barrier for equitable vaccination. Lebanese politicians were found to have received vaccines before they were eligible. In cases such as the vaccine campaign in Lebanon, which is primarily being funded by the World Bank, fund contributors can create accountability by threatening to withdraw funds for vaccine programs if supplies are not distributed fairly like the World Bank did when Lebanese politicians faced corruption accusation³⁸; however, this does require that fund providers have access to accurate information regarding how vaccines are being distributed to be effective. Groups at risk for contracting COVID-19 such as indigenous communities and incarcerated people may also struggle to access vaccines³⁹. In short, ensuring equitable vaccine distribution requires considering what is happening within countries receiving vaccine support, not just determining which countries should be given vaccines or assistance with distributing them.

Conclusion:

Vaccines are essential to maintaining good global health. Diseases are not confined to political borders and so focusing on global vaccination is good for the wellbeing of the entire international community. Working towards equitable distribution will require a mix of short-term solutions designed to provide countries with immediate access to vaccines as well as long term solutions that address the problems that cause countries to be unable to make or buy their own

vaccines. Ensuring that vulnerable populations are prioritized within countries is important as well.

Questions:

1. What can the World Health Organization do to help vulnerable groups receive priority access to vaccines?
2. How should resources be split between addressing the immediate global health crisis and working towards long term solutions?
3. What can be done to keep politics from interfering with vaccine distribution efforts?

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II. Preventing Future Pandemics

Statement of the Issue:

At the end of 2019, a disease called SARS CoV-2, or COVID-19, emerged. It became a global pandemic that dramatically impacted life for people all across the world¹. While the impact of the coronavirus may be unlike any disease in recent memory, it may not be the last pandemic of its scale to occur. As environmental degradation grows worse, it is possible that pandemics will grow more severe and common².

Even without current environmental projections, it can reasonably be assumed that a new disease will appear soon. While most new diseases do not draw as much attention as COVID-19, new diseases typically appear in the global human population every 4-5 years³. Based on this cycle, it is likely that a new disease will appear in 2023 or 2024. It may not lead to a pandemic; however, taking measures to reduce the spread of a new disease is the best way to reduce the likelihood that a new disease will become a pandemic.

One of the most effective ways to manage the emergence of new diseases is effective and well enforced wildlife trade regulations. Most diseases that can be transmitted to humans originally emerge in animal populations. Given that wildlife and products from wildlife are transported to and from countries across the globe, international wildlife sales management is critical to preserving global health⁴.

Preventing pandemics and the spread of communicable diseases is beneficial to all members of the international community. Pandemics present not only a threat to global health, but also to the international economy. The global economic impact of the COVID-19 pandemic exceeds that seen during the 2008 recession, making it the worst economic downturn since the Great Depression. While the level of impact on different countries has varied greatly, with countries such as China faring far better than regions such as the European Union, virtually all economies were hurt by the pandemic⁵. Developing countries also suffered because many wealthy countries decreased their foreign direct investment (FDI) budgets during 2020, leaving fewer resources for low income countries during a time of great need⁶. COVID-19 also increased levels of poverty across the world. An estimated 75 million people were pushed into poverty in 2020⁷, reversing the previous trend of falling global poverty⁸.

Pandemics also present a threat to global peace and security. Of the nearly 15,000 violent protests that occurred 2020, over 5,000 were related to the pandemic. Many of these protests started over lockdown measures. The impact of the pandemic was not even on all regions, with areas such as the Middle East and North Africa considered to have become more

stable and peaceful during the pandemic, while others such as North America experienced higher levels of instability⁹.

Preventing future pandemics is vital not only to global health, but also for the wellbeing of international security as well as the global economy. Taking measures to mitigate the likelihood of future emerging diseases becoming pandemics is a valuable investment the international community can collaborate on.

History:

Global pandemics date back hundreds of years in history. The Justinianic Plague, a disease that devastated the Byzantine Empire, is believed to have originated in Asia before spreading to Europe, possibly by way of Africa as cases were observed in Egypt before it spread to the Byzantine empire¹⁰, demonstrating that international disease outbreaks are not a new phenomenon. When new groups of people came into contact with each other, diseases were likely to spread. A prominent example of this is the colonization of the Americas. Diseases, notably a smallpox epidemic, played a far greater role in allowing Spain to conquer the Aztec empire than military strategies or technology¹¹.

As the world has grown more globalized and connected, the wildlife trade rather than contact with new groups of people is now the most likely source of future pandemics. In recent years, many diseases that caused pandemics, such as SARS, originated from animals¹². Of all of the diseases that are believed to be capable of spreading to humans, 75% are currently carried by animals¹³. In addition to the sheer quantity of zoonotic diseases that could spread to humans, ensuring that they do not spread to humans is particularly important for these diseases because they are difficult to eradicate. Because humans are not the only vectors for zoonotic diseases, they can survive in animal populations even if efforts are made to vaccinate all humans¹⁴.

Measures to regulate the global wildlife economy are in place, but they are not effective. CITES, the Convention on International Trade of Endangered Species, serves as the primary regulating treaty on wildlife trade that virtually every member of the United Nations is signatory to¹⁵; however, most CITES members are behind on their dues which means that the convention is underfunded and limits its ability to act¹⁶. Furthermore, existing wildlife regulations are also ineffective due to poor implementation of policies at the national level. The United States, despite having extremely rigorous border policies, fails to check most imported wildlife for diseases before it enters the country. Similarly, in China, after pangolin scale sales became illegal due to health concerns, Chinese insurance companies continued to cover them as

medicine¹⁷, showing an inconsistency between national policy goals and the reality of Chinese healthcare.

What is perhaps of greatest concern about the danger posed by the wildlife trade is the recent increase in the number of people working in wildlife trade. Because of the poverty created by the coronavirus pandemic, more people are working in illegal economies, such as poaching¹⁸ which creates greater potential for zoonotic disease transmission.

The wildlife trade is not the only way that the current state of the environment increases the likelihood of another pandemic. Deforestation also presents a major health hazard. Keeping habitats intact helps keep people and animals separated which reduces the likelihood of diseases transferring from animals to humans. Several diseases that caused pandemics, such as HIV, SARS, and Ebola, can be traced back to habitat destruction¹⁹. Melting sea ice is also contributing to the risk of a future pandemic. Arctic ice is known to contain pathogens. If these pathogens were released into the ocean, it is possible that they could infect humans and cause a pandemic²⁰.

In addition to frameworks for diseases transmitted by animals, the international community has developed broader frameworks for pandemic prevention. One of these is vaccine distribution efforts. Ensuring that people cannot contract a disease is one of the most effective ways to ensure that there is not a secondary outbreak of a disease²¹. International vaccine distribution efforts are a long-standing part of the international public health cooperation, such as the World Health Organization's campaign to eradicate polio²².

The World Health Organization also has pandemic prevention frameworks. The frameworks are in place for specific diseases that are known to cause recurring pandemics, notably influenza, cholera, and yellow fever. The frameworks use a multi-disciplinary approach to cover pandemic prevention and response through scientific, social, and technological means²³.

International Health Regulations (IHR) do help provide a framework for pandemic prevention, but historically it has not been well enforced. Introduced in 2005, current IHR procedures focus on ensuring that countries detect, assess, respond, and report health threats²⁴; however, countries have not always reported health threats in a timely manner. For example, Saudi Arabia was criticized for failing to be transparent with the international community during the MERS pandemic²⁵.

Analysis:

The international community has measures in place to help mitigate the risk of future pandemics, but they are not well enforced nor is the global economy operating in a way that is conducive to lowering the long-term risk of future pandemics. Changing the current relationship between humans and nature is vital to reducing the likelihood of future pandemics. Working to minimize global temperature increases and encourage practices that require less land to be cleared could help keep pathogens locked in Arctic ice and prevent the outbreak of deforestation-related diseases such as Ebola²⁶.

The wildlife trade is also a key area to ensuring good global health. While banning the wildlife trade immediately may appear to be a viable solution for preventing future pandemics, the wildlife trade is an important part of many societies and so the negative externalities a ban would cause should be considered. The wildlife trade is currently an important part of many people's livelihoods. In parts of Asia, the percentage of people who rely on wild meat markets to buy their food are as high as 30-40% of the population. Others need income earned by selling products at places such as wild meat markets. This is not to say that all wildlife trade occurs because of need; there are markets for luxury wildlife sales and efforts should be made to encourage consumers with other options to reevaluate their food choices, but it is also a fact that attempting to ban all wildlife trade worldwide could lead to starvation and mass unemployment. Efforts to address the role of the wildlife trade in pandemic prevention need to consider the variety of reasons that people enter the wildlife trade, how bans should be paced if they are used, and how regulation of the trade could be used to make it safer²⁷.

Effective surveillance also provides a valuable tool for pandemic prevention. Most diseases that could infect humans are currently present in wildlife so monitoring wildlife for disease outbreaks could help health experts determine when a disease outbreak is likely to happen among humans. Surveillance efforts are especially needed in high-risk areas such as spaces where wildlife is traded in order to insure effective surveillance²⁸.

Pandemic prevention efforts also need to consider the risk presented by different regions. Countries with weaker healthcare systems are going to be more vulnerable to disease outbreaks than those with good infrastructure²⁹. The means through which a pandemic causing pathogen would be likely to encounter a country's population need to be considered as well. For example, in regions such as Asia and Western and Central Africa, wild meat sales are very common and an open part of life which makes addressing these markets a practical way to reduce the risk of a pandemic starting in these regions. In comparison, the United States is a country where little wild meat is consumed, but some is smuggled into the country³⁰ which

makes a more practical policy solution to focus on combating smuggling rather than trying to regulate domestic markets.

Policies also need to consider the potential for industries with a high risk of causing diseases to be spread from high- and middle-income countries to low-income countries. If there is demand for a wildlife-derived product in a high-income country and it is banned, sellers may instead move their businesses to countries where the product is legal and possibly smuggle it into the country where it is banned if demand is high enough³¹. Therefore, effective solutions for high-risk industries need to be considered at the international level rather than simply considering how they can be implemented within countries.

Conclusion:

Preventing future pandemics will require changing multiple aspects of current economic and political systems. The current relationship between humans and nature will need to become less destructive and focused on sustainability to reduce the likelihood of disease transmission. Existing policy enforcement methods should be examined to determine if they can be improved as policies cannot be effective if they are not properly enforced. Addressing pandemics through a proactive rather than reactive lens could help reduce harm to the international community.

Questions:

1. What is the best approach to managing high risk industries such as the wildlife trade?
2. What role does transparency and communication play in preventing pandemics?
3. How can the World Health Organization address the threat posed by zoonotic disease transmission and environmental degradation without aggravating other problems (i.e. starvation, poverty)?

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