



Committee: Special Conference on Global Health Inequalities

Issue: Promotion of vaccination to interrupt community-wide outbreaks

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INTRODUCTION

Promoting global public health should be a top priority, as it is an indicator of general economic growth, quality of life and development. However, disease outbreaks, threatening millions of lives annually, keeps the achievement of such a goal far from reality. Therefore, it is crucial that governments in collaboration with international organizations, such as the World Health Organization, find ways to prevent them, so as to ensure good health of every citizen, which will in the near future be the basis for combating plenty of socioeconomic issues and ensuring sustainable communities.

Probably the most cost-effective method to prevent such outbreaks and the one which this study guide will focus on is the promotion of vaccination worldwide and especially in the most vulnerable regions, as it has the ability to protect people against diseases and reduce the risk of getting infected, since it is accessible even to the most hard-to-reach populations and does not need any significant lifestyle change.

According to the World Health Organization (WHO) global vaccination coverage has stalled at 86%, with no significant changes during the past year and with plenty of diseases such as cholera, malaria, hepatitis, measles and tetanus ravaging many communities until today. Therefore, it seems that although the current efforts and investments on vaccination of governments, Non-Governmental Organizations (NGO's) and the United Nations have a promising potential, they are not enough to completely solve the issue. The cholera outbreak in the Democratic Republic of Congo and in Yemen and the

outbreaks of malaria in many African countries are some examples which make the topic such an urgent one and should encourage the international community to take immediate action.



Figure 1: Muscles vaccination in Ethiopia

DEFINITION OF KEY TERMS

Vaccine

The term vaccine is defined as a biological preparation that improves immunity to a particular disease. A vaccine typically contains an agent that resembles a disease-causing microorganism, and is often made from weakened or killed forms of the microbe, its toxins or one of its surface proteins. The agent stimulates the body's immune system to recognize the agent as foreign, destroy it, and "remember" it, so that the immune system can more easily recognize and destroy any of these microorganisms that it later encounters.¹

Immunization

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The term immunization is defined as the process whereby a person is made immune or resistant to an infectious disease, typically by the administration of a vaccine.²

Disease

The term disease refers to “a disorder of structure or function in a human, animal, or plant, especially one that produces specific symptoms or that affects a specific location and is not simply a direct result of physical injury”.³

Disease Outbreaks

“The occurrence of cases of disease in excess of what would normally be expected in a defined community, geographical area or season. Outbreaks are maintained by infectious agents that spread directly from person to person, from exposure to an animal reservoir or other environmental source, or via an insect or animal vector”.⁴

Immunization Coverage

Immunization coverage is “the percentage of people who receive one or more vaccines in relation to the overall population”.⁵

BACKGROUND INFORMATION

Vaccines are one of the most important health interventions, as they have the ability to prevent or reduce the prevalence of diseases and to finally achieve the 3rd and the 11th United Nations Sustainable Development Goal, namely the achievement of good health and wellbeing as well as Sustainable cities and communities. Widespread immunization programs in many parts of the world, including the United States and Europe, have virtually wiped out smallpox, polio and other fatal diseases, which in the past have caused plenty of deaths. Moreover, vaccination mass campaigns have managed to control the deadly

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Meningitis A disease in 26 African countries, to reduce global measles deaths from 550.000 in 2000 to 89.780 in 2016 and to mitigate the impact of many other infectious diseases. Therefore, it is clear that promoting vaccination is the most likely way to eradicate such outbreaks, and thus ensure both global public health and socioeconomic stability.



Figure 2: Congolese people queue to receive vaccination against yellow fever in Gombe district, of the Democratic Republic of Congo's capital Kinshasa, in this August 17, 2016 photo.

Vaccine-preventable diseases

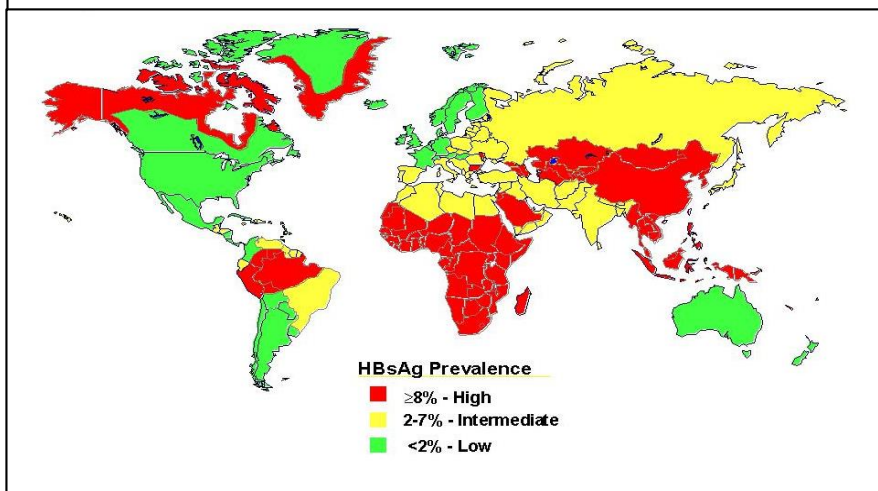
The World Health Organization (WHO) has a list of 26 diseases, which can be prevented by the proper vaccination, as well as a list of diseases, for which a vaccination is currently in the pipeline for development. Most of these diseases have led to millions of deaths in communities, where the immunization program was underdeveloped and continue to have a huge impact on many areas worldwide. Some of these diseases are the following:

- **Hepatitis B: is a highly contagious virus which causes more than 100.000 deaths annually in average by attacking the liver. It is estimated that only**

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in 2015 this virus has caused about 887.000 deaths. Hepatitis B is transmitted through blood contact and puts daily in danger many health workers. The first dose of vaccine is recommended to be received directly when the child is born. The prevalence of the disease is higher mostly in Less Economically Developed Countries' (LEDCs) due to the fact that vaccination programs there are underdeveloped comparing to the ones of More Economically Developed Countries' (MEDCs). Bearing in mind that Hepatitis B is a vaccine-preventable disease, the disparities in vaccination among countries leads to the unequal geographical distribution of the disease.

Figure 3: World map showing the Hepatitis B prevalence



- **Ebola virus disease (EVD):** is an infectious disease which has 25-90% mortality possibility. A world map in figure 4 clearly shows that in 2014 most cases have been reported in African countries, - since 2014 further cases have been reported. Death-causing Ebola outbreaks have occurred in the Democratic Republic of Congo (DRC), Liberia, Sierra Leone, Gabon, Ivory Coast, Uganda, South Sudan and Guinea. In March 2018 the government of DRC declared an outbreak of Ebola hemorrhagic fever in the Bikoro health zone.

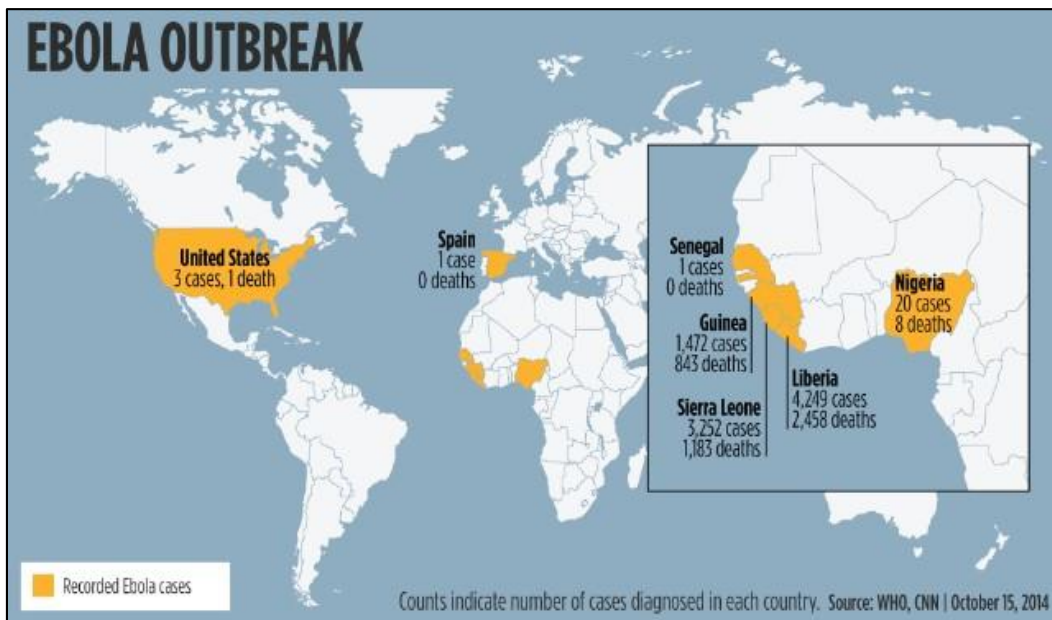


Figure 4: Geographic distribution of recorded ebola cases until 2014

- **Malaria: a fatal disease caused by parasites which are transmitted to humans through mosquitoes' bites. In 2016 the malaria cases increased comparing to 2015 and have caused 445.000 deaths. The African region was home to 90% of malaria cases and 91% of malaria deaths. Pregnant women, individuals with weakened immune systems (such as those living with HIV), children under the age of five, and the elderly are particularly vulnerable to the disease. Recently a malaria outbreak with 336 recorded cases has hit the southern and central area of Botswana.**

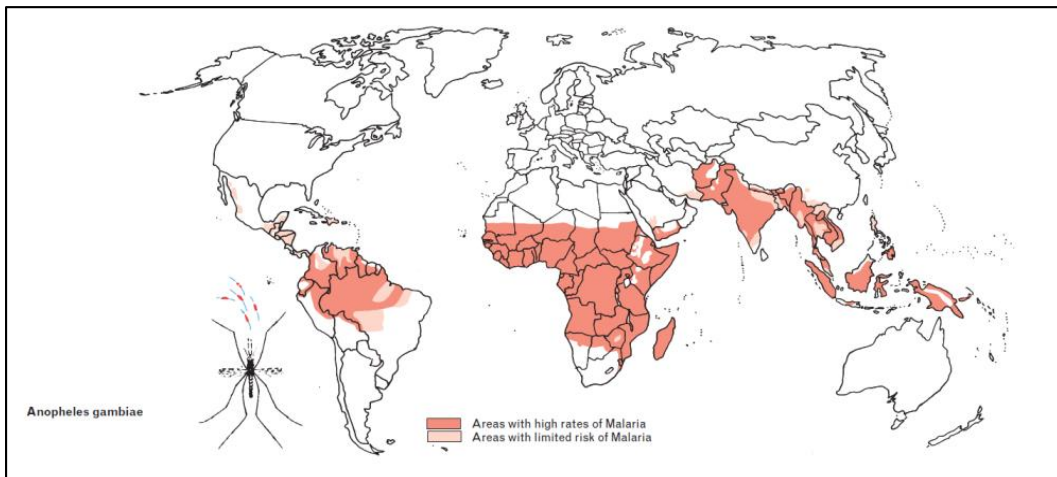


Figure 5: A world map showing the areas with high rates of Malaria as well as areas with limited risk of Malaria

- **Cholera: a transmittable disease that can kill within hours if left untreated. It is estimated that each year 1.3 million to 4 million people get infected and 21.000 to 143.000 of them die. In January 2017 an ongoing outbreak began in Somalia, infecting nearly 50.000 people, while in April 2017 “the worst cholera outbreak in the world” in Yemen has infected 200.000 people, according to the World Health Organization (WHO) and United Nations Children’s Emergency Fund (UNICEF) claims. Safe oral cholera vaccines should be used to control and prevent cholera outbreaks especially in areas known to be vulnerable to this disease.**

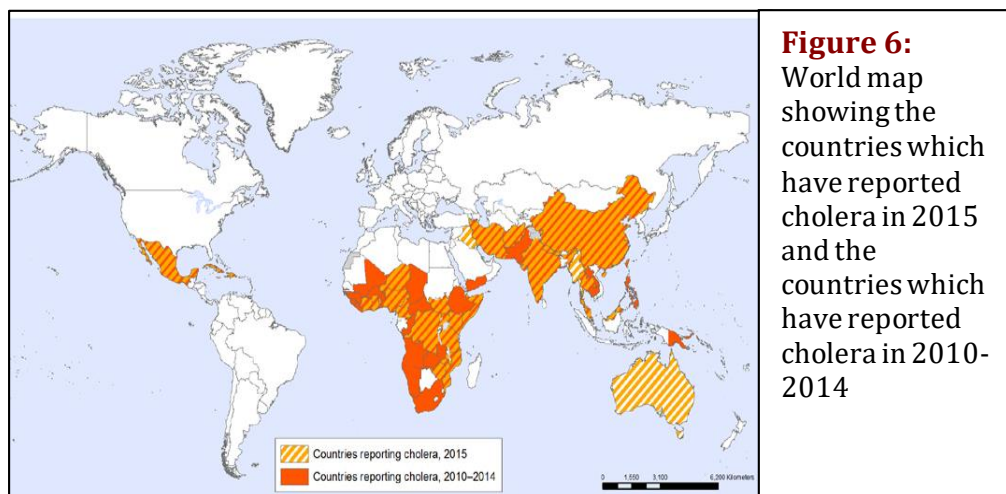


Figure 6: World map showing the countries which have reported cholera in 2015 and the countries which have reported cholera in 2010-2014

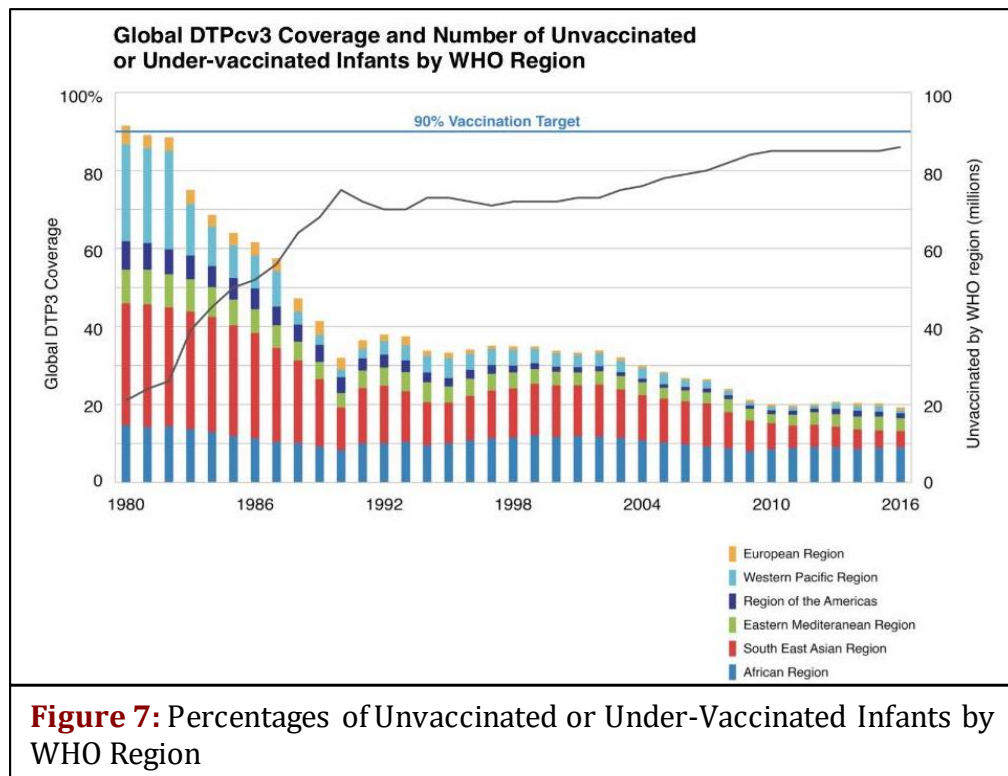


Disparities in global vaccination coverage

1. Inequalities in vaccination between countries:

As you can see in previous figures cases and deaths caused by vaccine-preventable diseases are disproportionately distributed among countries, with the Less Economically Developed Countries (LEDCs) and especially the African Region being plagued by the most of them. The main factor causing these rates is the lack of proper vaccination and the existence of huge vaccination inequalities worldwide. According to the World Health Organization an estimated 21.8 infants, - with 60% of them living in 10 countries: Angola, Brazil, the Democratic Republic of the Congo, Ethiopia, India, Indonesia, Iraq, Nigeria, Pakistan and South Africa, worldwide are still not being reached by routine immunization services. “For instance, 86% of the world’s children received the required 3 doses of the diphtheria-tetanus-pertussis containing vaccines (DTP3) in 2016, while 19.5 million children remained unimmunized. As seen in above figures the majority of them live in the African Region, when in European Region almost every child was vaccinated against these diseases”¹

The above-mentioned inequalities among the World Health Organization regions are caused by several factors. First of all, especially new vaccines, which are invented by pharmaceutical companies based on industrialized countries, are extremely expensive due to the lack of competition in the market, preventing their use in developing countries. Moreover, there is no incentive for such companies to conduct research and invent vaccines for infectious diseases plaguing mostly Less Economically Developed Countries, as they only affect populations with limited purchasing power, and therefore vaccines against fatal diseases, which do not outbreak in More Economically Developed Countries’ (MEDCs), remain underdeveloped. Other factors hindering the adequate vaccination in LEDC’s are the weak health care system, the high rates of people living in poverty and the high rate of uneducated population.



Key facts that indicate the unequal access to vaccination

- In France, a new law requires all new-born children to receive 11 mandatory vaccines for diseases such as diphtheria and tetanus while 8 other vaccines are highly recommended, when in Ethiopia 25% of children aged 12-23 months are not fully immunized.
- In 2016 90% of malaria cases and 91% of malaria deaths have been recorded in the World Health Organization African Region.
- In seven countries 64% of the total tuberculosis, a vaccine-preventable disease, is found with India having the most cases, followed by Indonesia, China, Philippines, Pakistan, Nigeria, and South Africa.
- MEDCs generally have vaccination coverage rates of more than 90%, while countries in which a large share of the population is living in extreme poverty often have lower immunization rates.

2. Inequalities in vaccination within a country

- **Inequality by place of residence:** Studies conducted by the World Health Organization have shown that people living in urban areas are more likely to be fully immunized than those living in rural areas.
- **Inequality by household economic status:** Nowadays there are huge gaps in vaccination coverage between richer and poorer population, with the latter being more susceptible to remain unvaccinated. Populations living in poverty can not afford vaccines, in case they are not provided by the public health care system of their country.
- **Inequality due to mother's education:** Education-related inequality is demonstrated by disaggregated data of immunization coverage across parents' education, according to three subgroups: parents with no education; parents with primary school education; and parents with secondary school or higher education. In general, childhood immunization coverage tends to be highest among children whose parents with the highest levels of education, and lowest among the least educated. Uneducated populations are often not aware of the benefits of vaccination and do not consider it a worth-paying necessity².
- **Inequality by gender:** In many countries like India there are significant gender inequalities, with more boys fully immunized and fewer boys completely not immunized than girls, in both urban and rural areas.

Impact of community-wide disease outbreaks

The damages and the costs implicated by an epidemic disease outbreak have a tremendous impact on the society and the economy of the affected areas. First of all, direct victims of such diseases, most of whom living under the poverty line, have to pay huge amounts of money in order to be treated. Therefore, the majority of them either dies, incapable of affording the treatment's costs or spends their whole income to survive, which means that after their treatment, -if it is successfully completed, they will be unable to deal with the economic burden. Such outbreaks may also have severe repercussions

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on the mental health of victims and generally people living in an area where the risk of getting infected is high. Countries with public health systems, in the aftermath of an outbreak, may face extreme difficulties and be more susceptible to new crises. For example, in November 2014 fewer than half of the health infrastructure in Liberia was available for patients; it is estimated that from May to August 2014 skilled birth attendance was 27% lower comparing to 2013, vaccination against measles was down 50% and health services were working at 40% lower capacity³.

Moreover, aversion behavior by individuals in order to avoid exposure to the illnesses leads to various factors that can negatively influence the economy, including stress to labor, supply scarcity, financial market instability and price increases. All these factors have a greater impact than the direct costs from deaths and sicknesses. We can take as an example the Ebola outbreak in Africa, affecting Guinea, Liberia and Sierra Leone. At the beginning of 2014, economy was expected to develop 5.9% in Liberia, 11.3% in Sierra Leone and 4.5% in Guinea. By the end of the year, after the disease outbreak actual growth was 2.2% in Liberia, 4% in Sierra Leone, while in Guinea economy shrank.⁴

In order to prevent the infection of healthy people, many precautionary measures are often taken, causing further problems. For example, a closure of a school in an area where high percentages of people are infected, keeps many children uneducated, leading to the raise of illiteracy rates. Another sector which is highly influenced by such measures is tourism. The measures implemented by governments including the restriction of movement of people and goods across borders as well as the fact that many airlines choose to discontinue flights to these regions prevent the development of tourism to and from the affected regions, causing a further contraction of the affected country's Gross Domestic Product (GDP).

As you can see disease outbreaks not only affect the infected people but a country as a whole. Taking into account that the most dangerous and the most fatal community-wide diseases usually plague Less Economically Developed



Countries (LEDCs), it seems very hard or even impossible for their economies to be fully recovered after such outbreaks.

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

World Health Organization (WHO)

The World Health Organization (WHO) is a specialized agency of the United Nations aiming at the promotion of world public health. It was established on 7 April 1948 and its headquarters are in Geneva. The Department of Immunization, Vaccines and Biologicals is working with countries and partners to improve global vaccination coverage and has organized several campaigns, such as the World Immunization Week and the Global Vaccine Plan (GVAP).

United Nations Programme on HIV/AIDS (UNAIDS)

The United Nations Programme on HIV/AIDS is an innovative joint venture of the United Nations, which aims through the collaboration of 11 UN organization at combatting HIV/AIDS worldwide. It is headquartered in Geneva and its plan includes HIV prevention, treatment, care and support.

The Global Fund to Fight AIDS, Tuberculosis and Malaria

The Global Fund is a partnership organization between people affected by the diseases, governments and international organizations, whose goal is to interrupt AIDS, Tuberculosis and Malaria outbreaks. Since its creation in 2002, the Global Fund raises and invests nearly US\$4 billion a year in programs and events organized by local organization in areas that are most in need. The contribution of the program to the diseases' combating is considerable, since it has managed to save millions of lives, provide prevention, treatment and care, assisting to revitalize entire communities, support local health systems and improve economies.



United Nations Children's Emergency Fund (UNICEF)

United Nations International Children's Emergency Fund is a program of the United Nation, created on 11 December 1946, which provides long-term humanitarian and development assistance to children and mothers. UNICEF in collaboration with governments, Non- Governmental Organizations (NGO's), and other international organizations promotes children immunization worldwide and tries to provide even the most hard-to-rich and vulnerable children with the required doses of vaccines against fatal diseases. UNICEF has conducted several studies on vaccines and immunization coverage, such as the "State of the world's vaccines and immunization".

Democratic Republic of Congo (DRC)

Democratic Republic of Congo is a vulnerable to disease outbreaks country in Western Africa, having experience nine Ebola virus outbreaks the last three decades. On 8 May 2018, the Ministry of Health declared an outbreak of Ebola virus disease (EVD), with 17 people having died near the town of Bikoro in the Province of Équateur in the north-west of the country.

Yemen

The civil war taking place in Yemen, the economic situation and the poor sanitation have caused a cholera outbreak in April 2017, described as the worst cholera outbreak in the world. Infectious disease outbreaks are one of the most serious health issues plaguing the country, as millions of people have died and many of them are in direct danger of getting infected. On May 2018 the first oral cholera vaccination took place in Yemen aiming to prevent the resurgence of the outbreak.

Mali

Having an armed conflict since 2012, the country is prone to epidemics, droughts and floods, while people have limited access to health care in the whole country, - especially in Kidal where 22 of 32 existing health facilities do not operate. Mali continues to be vulnerable to disease outbreaks: in 2016, 500 cases

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of meningitis were recorded. Between 1 January and 17 February 2017, 55 cases of meningitis, 5500 cases of malaria and 40 cases of measles were recorded. In addition, humanitarian actors report an increase in the frequency of diarrheal disease cases among children related to the consumption of unsafe water, and respiratory infections due to inadequate shelter conditions.⁵

TIMELINE OF EVENTS

Date	Description of Event
1798	Smallpox vaccine was used for the first time
1879	First vaccine for cholera
7 April 1948	The World Health Organization Constitution came into force
1963	First vaccine for measles
1977	Expanded Programme on Immunization (EPI)
1999	WHO created the Global Alliance for Vaccines and Immunization (GAVI Alliance)
2000	The measles Initiative is launched as a partnership among leaders in public health
May 2012	Global Vaccine Plan (GVAP)
2013	The West African Ebola virus epidemic, the most widespread epidemic of Ebola in recorded history, began
2014	Cholera outbreak in South Sudan
2015	First vaccine for Ebola
2015	Establishment of a new Sustainable Development Agenda with 17 Sustainable Development Goals
2017	Neglected Tropical Diseases Summit

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24-30 April 2017	World Immunization Week
2020	End of the Global Vaccine Plan

UN INVOLVEMENT: RELEVANT RESOLUTIONS, TREATIES AND EVENTS

- **Resolution on strengthening immunization to achieve the goals of the Global Action Plan (GVAP)**

The Global Action Plan aims to prevent millions of deaths through the improvement of access to vaccination by 2020. In May 2017, the World Health Assembly, a UN-led organ, passed a new resolution on strengthening immunization to achieve the plan's goals. "The resolution urges countries to strengthen the governance and leadership of national immunization programs, and improve monitoring and surveillance systems to ensure up to date data guides policy to optimize performance and impact".⁶

- **The 65th session of the World Health Assembly**

It was a session in Geneva during 21–26 May 2012, when the Health adopted some resolutions on multiple issues, including universal health coverage, Millennium Development Goals, financing of research and development, International Health Regulations and polio eradication.

- **Agreement on the establishment of the International Vaccine Institute**

This agreement is an initiative of the United Nations Development Programme (UNDP), which established the Vaccine Institute, an international organization aiming to spread and improve the use of vaccines, in order to promote global health. Currently, it consists of 35 countries and the World Health Organization (WHO) as signatories to its Establishment Agreement. The

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main goal of the Institute is the promotion of vaccination in developing countries and it focuses on neglected diseases hitting these regions.

- **General assembly resolution 69/1**

GA Resolution 69/1 was unanimously adopted by the General Assembly on 19 September 2014 and established the United Nations Mission for Ebola Emergency Response (UNMEER), “A United Nations emergency health mission” deployed under the authority of Secretary General. It closed on 31 July 2015, having achieved its core objective of scaling up the response on the ground.

- **International Health Regulations (IHR)**

The International Health Regulations (IHR) are a global legal instrument that is binding on 196 countries, including all Members States of World Health Organization. Their goal is to provide every country with aid, so as to ensure the response to acute public health risks that can cross borders and threaten people worldwide. The IHR, which entered into force on 15 June 2007, encourage countries to report certain disease outbreaks and public health related events to World Health Organization and establish a number of procedures, which WHO must follow in its work to uphold global public health security.⁷

- **United Nations Security Council Resolution 2177 S/RES/2177 (2014)**

On September 12, 2014 the Security Council unanimously adopted resolution 2177, which recognized the “central role” of WHO and urged Member States to implement the temporary recommendations issued by the WHO Director-General. It was the second time UNSC has dealt directly with a public health problem, after HIV/AIDS resolutions in 2000 and 2011.

- **World Immunization Week**

World Immunization Week is an international health campaign to raise public awareness and increase rates of immunization against vaccine preventable diseases. It is one of the eight official campaigns marked by the World Health Organization and takes place each year during the last week of April.⁸



PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

The international community has successfully tried multiple times to promote worldwide vaccination and has managed to prevent millions of deaths. A significant attempt to solve the issue was the eradication of smallpox through an immunization campaign conducted by the World Health Organization from 1967 to 1977, as well as the interruption of poliomyelitis infections through the Global Polio Eradication Initiative in 1988, saving millions of people. Moreover, measles deaths have fallen between 2000 and 2008 by 78%, while maternal and neonatal tetanus has been eliminated in 20 of the 58 high-risk countries. Another important program was the Expanded Programme on Immunization (EPI), which was initiated by the WHO in 1977 and the goal was universal immunization. The program aimed at immunization people against diphtheria, whooping cough, tetanus, measles, polio and tuberculosis.

The Global Alliance for Vaccines and Immunization (GAVI), created in 2000, aims at continuing the work of the Children's Vaccine Initiative by coordinating the efforts of WHO, UNICEF, the World Bank, NGO's and other international partnerships. Considering vaccination the key way to ensure global health, GAVI has tried to improve access to sustainable immunization services, expand the use of the existing vaccines and accelerate the development and introduction of new ones. Another considerable attempt was the Global Vaccine Action Plan, created by the WHO in 2012, which has set a plan, that includes the control of vaccine-preventable diseases, the invention of new vaccines and the conduction of further research in this sector and was set from 2011 until 2020. Finally, governments of different countries have contributed to the problems' solution through means such as enforcing laws, which consider vital vaccines compulsory, organizing vaccination campaigns and financing immunization research and development.

POSSIBLE SOLUTIONS

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There is much that can be done by the international community so as to promote vaccination and eventually combat the issue of disease outbreaks. First of all, it is vital that both MEDCs and LEDCs have an equal vaccination program, which ensures the immunization of every citizen. Therefore, international organizations and funds, such as GAVI should fund vaccination programs in lower-income countries, improve sanitation and invest on an adequate health care system, by providing efficient infrastructure, well-trained workforce and sufficient health products and medicines. Particular attention should be paid on poorer and hard-to-rich populations, in order to combat disparities within a country, by establishing programs and funds that will focus on their immunization. Mapping, geographically and socially the entire population, as well as frequent reports could give local and international organizations the ability to trace vulnerable populations and focus on their vaccination through regular visits and provision of the necessary vaccine doses.

Another aspect of the issue that should be covered is the research and development of new vaccines. Taking into account that many pharmaceutical companies do not consider fatal diseases in many LEDCs a priority, governments, the World Bank and other international organizations should provide them with funds and other privileges, such as tax alleviation and subsidies, so that they have an incentive to work and invest on such diseases. Meanwhile, monitoring and regular reports should be conducted by national and international organizations, in order to prevent corruption and ensure that funds are used for the right purpose.

Finally, raising public awareness on the benefits of vaccination is necessary, as a significant part of the population, especially in countries where rates of inadequate paternal education are high, is not aware of the importance of immunization and does not consider it a priority. The organizations of seminars and other programs in schools is vital, so that students can understand the importance of vaccination.



In order to successfully implement all the above-mentioned measures, all Member States should collaborate with each other, by creating a network under the auspices of the United Nations and the World Health Organization.

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